# Operator Control and Monitoring Devices



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# **Operator Control and Monitoring Devices**

#### Introduction

#### Overview

A finely graded range of HMI devices is available for local operator control and monitoring. These include Push Button Panels and Micro Panels up to Mobile Panels, Basic Panels, Panels and Multi Panels. HMI devices with all round IP65/NEMA 4 protection for distributed configurations are available for applications with especially high requirements with regard to ruggedness.

#### **Push Button Panels**

Push Button Panels (PP) are the innovative alternative to conventionally wired operator keypads. Supplied pre-assembled and ready for installation, the bus-compatible operator panels are the key to drastically reducing wiring times when compared with conventional methods.

#### **Micro Panels**

Designed specifically for applications with the SIMATIC S7-200 micro PLC, either with text display (TD) or pixel-graphics display, as operator panels (OP) with membrane keyboard or touch screen (TP).

#### **Mobile Panels**

The portable operator panels facilitate operator control and monitoring at the actual scene of the event with direct access and visual contact to the process. They provide simple and safe reconnection during operation (Mobile Panel 177 and Mobile Panel 277) or wireless freedom (Mobile Panel 277 (F) IWLAN) and can therefore be used flexibly on a machine or system.

#### **Basic Panels**

Basic Panels offer basic HMI functionality for small machines and applications. They are available in four different display sizes from 4" to 15", with touch displays and additional keys, for connecting to PROFINET/Ethernet or PROFIBUS DP/MPI.

#### Panels

#### Graphic Panels of 70/170/270 series

with pixel-graphics display in 4" or 6" for realistic presentation of operating sequences. Either as Touch Panels (TP) with touchsensitive display, Operator Panels (OP) with membrane keyboard, or touch/key combination on the OP 177B 6" or TP 177B 4".

#### Multi Panels

#### 170/270/370 series

Like Panels, they can be used for operator control and monitoring and are available with touchscreens or membrane keyboards. In addition, the Multi Panels (MPs) permit installation of additional applications and thus allow integration of several automation tasks on a single platform with the PLC WinAC MP software, for example. The 370 series also encompasses a device with all-round IP65/NEMA 4 protection and 15" touch display for distributed configurations.

#### WinAC MP

The software PLC can be used in the 170/270 and 370 Multi Panels (exception: MP 370) and is ideal for complex processes in which one device must handle control and visualization tasks.

#### **THIN CLIENT**

SIMATIC THIN CLIENTS are inexpensive, rugged operator stations providing panel functionality directly on-site for systems covering a relatively large area. These are used in Client-Server applications. As well as built-in units, the series also includes a 15" touch display device with all-round IP65/NEMA 4 protection for distributed configurations.

#### Benefits

#### Rugged and compact for use at machine level.

With degree of protection IP65/NEMA 4 on the front side, high EMC and extreme vibration resistance, the SIMATIC Operator Panels are ideally suited for the use at machine level in rough industrial environments. Thanks to their compact design with a shallow mounting depth, the stationary Operator Panels can be fitted anywhere, even where only restricted space is available. For distributed configurations, there are also devices available with all-round degree of protection IP65/NEMA 4.

The extremely rugged and shock-proof housing with degree of protection IP65 makes the Mobile Panels especially suitable for industrial applications. Their low weight and ergonomic design means that they are user-friendly and easy to operate.

#### One configuration software for everything

SIMATIC WinCC flexible is a tool for continued configuration of all SIMATIC Panels as well as PC-based systems with the visualization software WinCC flexible Runtime. Graded variants are available for every task. The software permits simple and efficient configuration. Programming experience is not required.

Completed configurations can be reused within the family.

#### Component of Totally Integrated Automation

Siemens provides the complete modular system of matched components for automation solutions from one source and – with Totally Integrated Automation – one of the most successful automation concepts worldwide. SIMATIC WinCC flexible is an integral component of this world. It offers crucial advantages. Thanks to the uniformity in configuration/programming, data management and communication, the engineering costs of an automation solution are significantly reduced.

#### Open for a wide variety of automation systems

Despite the consistent incorporation into the SIMATIC world, the Panels are nevertheless open for connection to PLCs from many different vendors. The standard delivery includes a comprehensive range of user-friendly drivers.

#### Innovative operator control and monitoring

Based on the Windows CE operating system, 70, 170, 270 and 370 Series Mobile Panels, Panels and Multi Panels permit innovative operator control and monitoring combined with ruggedness, stability and simplicity. Standard hardware and software interfaces provide more flexibility and openness to the office world, for example, the MMC/SD/CF card, USB, Ethernet, PROFIBUS DP, Visual Basic scripts or customer-specific ActiveX controls.

#### Worldwide application

The SIMATIC Panels are ideal for global use by design. Online language selection permits selection of up to five languages during operation simply by pressing a button. The wide variety of languages available also includes, for example, Asian logographic languages (Chinese, Taiwanese, Korean, Japanese) or Russian. The configuration interface of WinCC flexible including the online help and the complete documentation is also multilingual. Up to 32 languages can be used in one project. And all this is complemented by global servicing and support from Siemens.

# **Operator Control and Monitoring Devices**

Introduction

### Configuration overview

	WinCC flexible engineering software				
	Micro	Compact	Standard	Advanced	
Micro Panels					
OP 73micro	•	•	•	•	
TP 177micro	•	•	•	•	
Basic Panels					
KTP400 Basic		• <sup>4)</sup>	•4)	•4)	
KTP600 Basic		• <sup>4)</sup>	•4)	•4)	
KTP1000 Basic		•4)	•4)	•4)	
TP1500 Basic		•4)	•4)	•4)	
Mobile Panels					
Mobile Panel 177		•1)	•1)	•1)	
Mobile Panel 277		• <sup>2)</sup>	• <sup>2)</sup>	•2)	
Mobile Panel 277 (F) IWLAN			•3)	• <sup>3)</sup>	
Panels – 70 series					
OP 73		•	•	•	
OP 77A/B		•	•	•	
Panels – 170 series					
TP 177A		•	•	•	
TP/OP 177B		•1)	•1)	•1)	
Panels – 270 series					
TP 277/OP 277 6"			• <sup>2)</sup>	•2)	
170 series Multi Panels					
MP 177 <sup>5)</sup>			• <sup>4)</sup>	•4)	
Multi Panels – 270 series					
MP 277			•	•	
Multi Panels – 370 series					
MP 377			•3)	● <sup>3)</sup>	

Possible

<sup>1)</sup> WinCC flexible 2005 or higher and TP 177B 4" with WinCC flexible 2008 and higher

<sup>2)</sup> WinCC flexible 2005 SP1 and higher

<sup>3)</sup> WinCC flexible 2007 and higher

4) WinCC flexible 2008 and higher

# **Operator Control and Monitoring Devices**

#### Introduction

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Technology overview
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	Micro Panels	Mobile Panels	Basic Panels	Panels		
				70 series	170 series	270 series
	TD 100C <sup>1)</sup> / TD 200/ TD 200C <sup>1)</sup> TD 400C <sup>1)</sup> OP 73micro TP 177micro	Mobile Panel 177/ Mobile Panel 277/ Mobile Panel 277(F) IWLAN	KTP400 Basic KTP600 Basic KTP1000 Basic TP1500 Basic	ОР 73 ОР 77А/В	TP 177A TP/OP 177B	TP/OP 277
Display	TD 100C TD 200/ TD 200C TD 400C: Text display OP 73micro: 3° LCD TP 177micro: 5.7° STN	Mobile Panel 177: 5.7" STN; Mobile Panel 277 / 277 (F) IWLAN: 7.5" TFT	<i>KTP400 Basic</i> 3.8" STN <i>KTP600 Basic</i> 5.7" STN or 5.7" TFT <i>KTP1000 Basic</i> 10.4" TFT <i>TP1500 Basic</i> 15.1" TFT	<i>OP 73:</i> 3" LCD <i>OP 77A/B:</i> 4.5" LCD	TP 177B 4": 4.3" TFT widescreen otherwise: 5.7" STN	5.7" TFT
Colors	TD 100C TD 200/ TD 200C/ TD 400C/ OP 73micro: Monochrome TP 177micro: 4 shades of blue	Mobile Panel 177: 256 colors; Mobile Panel 277 / 277 (F) IWLAN: 64k colors	KTP400 Basic 4 shades of gray KTP600 Basic 4 shades of gray or 256 colors KTP1000 Basic 256 colors TP1500 Basic 256 colors	Monochrome	<i>TP 177A:</i> 4 shades of blue <i>TP/OP 177B:</i> 4 shades of blue/256 colors	256 colors
Operator controls						
Membrane keyboard	(TD 200/TD 200C/ TD 400C/ OP 73micro)	-	(KTP400/KTP600/ KTP1000)	•	•	•
Touch screen	• (TP 177micro)	-	•	-	•	•
Membrane keyboard and Touch	-	•	• (KTP400/KTP600/ KTP1000)	-	• (only on OP 177B 6" and TP 177B 4")	-
Interfaces/ protocols						
Serial / MPI / PROFIBUS DP	•/•/-	● <sup>9)</sup> / ● <sup>9)</sup> / ● <sup>9)</sup>	● <sup>13)</sup> / ● <sup>13)</sup> / ● <sup>13)</sup>	•/•/•	•/•/•	•/•/•
USB/Ethernet / WLAN	-/-	● <sup>10)</sup> / ● <sup>5)</sup> / ● <sup>11)</sup>	-/• <sup>14)</sup> /-	• <sup>3)</sup> /-	• / •7)	•/•
Multimedia card / CF / PC card slot	-/-/-	•/-/-	- /- /-	• 3) / - / -	• / •4) / -	•/-/-
Memory (available for user data)	TD 100C TD 200/ TD 200C/ TD 400C/ OP 73micro: 128 KByte TP 177micro: 256 KB	Mobile Panel 177: 2048 KB; Mobile Panel 277 / 277(F) IWLAN: 6 MB	KTP400 Basic/ KTP600 Basic: 512 KB KTP1000 Basic/ TP1500 Basic: 1024 KB	<i>ОР 73/ОР 77А:</i> 256 КВ <i>ОР 77В</i> 1024 КВ	TP 177A 512 KB TP/OP 177B: 2 MB	4 MB

# **Operator Control and Monitoring Devices**

Introduction

Technology over	view (continued)					
	Micro Panels	Mobile Panels	Basic Panels	Panels		
				70 series	170 series	270 series
	TD 100C <sup>1)</sup> / TD 200/ TD 200C <sup>1)</sup> TD 400C <sup>1)</sup> OP 73micro TP 177micro	Mobile Panel 177/ Mobile Panel 277/ Mobile Panel 277(F) IWLAN	KTP400 Basic KTP600 Basic KTP1000 Basic TP1500 Basic	ОР 73 ОР 77А/В	TP 177A TP/OP 177B	TP/OP 277
Connection to controller						
SIMATIC S7 / WinAC	S7-200 only	• / •12)	•/•	•/•	•/•	•/•
SIMATIC S5 / 505	-/-	● <sup>12)</sup> / ● <sup>12)</sup>	-/-	● <sup>6)</sup> / ● <sup>6)</sup>	● <sup>4)</sup> / ● <sup>4)</sup>	•/•
SINUMERIK / SIMOTION	-/-	● <sup>12)</sup> / ● <sup>12)</sup>	-/-	-/-	• / •4)	•/•
PLCs from other manufacturers	-	● <sup>12)</sup>	● <sup>13)</sup>	<b>6</b> )	•4)	•
Applications/ Options with WinCC flexible						
ProAgent	-	-	-	-	-	•
Sm@rtService	-	● <sup>5)</sup>	-	-	•7)	•
Sm@rtAccess	-	● <sup>5)</sup>	-	-	•7)	•
OPC server	-	-	-	-	-	-
ThinClient/MP	-	-	-	-	-	-
MS Pocket Internet Explorer	-	● <sup>10)</sup>	-	-	-	-
WinAC MP	-	-	-	-	-	-

- Available
- Not available

^1) The configuration of the TD 100C/TD 200/TD 200C/TD 400C is done with  $\rm Micro/WIN$ 

- 2) Except OP3
- 3) Only with OP 77B
- <sup>4)</sup> Not with TP 177A, TP/OP 177B (S5 only)
- 5) Not with Mobile Panel 177 DP
- <sup>6)</sup> With OP 73 and OP 77A, connection only possible to S7-200/300/400
- 7) Only with TP/OP 177B color
- 8) Only with TP/OP 177B
- 9) Only with Mobile Panel 177 DP/Mobile Panel 277
- 10) Only Mobile Panel 277/277(F) IWLAN
- <sup>11)</sup> Only Mobile Panel 277(F) IWLAN
- <sup>12)</sup> Only with Mobile Panel 277(F) IWLAN
- $^{\rm 13)}$  Only with KTP600 Basic DP and KTP1000 Basic DP
- <sup>14)</sup> Not with KTP600 Basic DP and KTP1000 Basic DP

# **Operator Control and Monitoring Devices**

#### Introduction

	Multi Panels		
	170 series	270 series	370 series
	MP 177	MP 277	MP 377
Display	6" TFT	7.5"/10.4" TFT	12"/15/19" TFT
Colors	65535 colors	65535 colors	65535 colors
Operator controls			
<ul> <li>Membrane keyboard</li> </ul>	_	•	•
Touch screen	•	•	•
<ul> <li>Membrane keyboard and Touch</li> </ul>	-	-	-
Interfaces/protocols			
Serial / MPI / PROFIBUS DP	-/•/•	-/•/•	-/•/•
USB / Ethernet	•/•	•/•	•/•
Multi Media Card or SD Card / CF / PC Card Slot	•/-/-	• / - / -	•/•/-
Memory (available for user data)	2 MB	5 MB	12 MB
Connection to controller			
SIMATIC S7 / WinAC	•/•	•/•	•/•
SIMATIC S5 / 505	•/•	•/•	•/•
SINUMERIK / SIMOTION	•/•	•/•	•/•
PLCs from other manufacturers	•	•	•
Applications/Options with WinCC flexible			
ProAgent	•	•	•
Sm@rtService	•	•	•
Sm@rtAccess	•	•	•
OPC server	-	•	•

Available

- Not available

MS Pocket Internet Explorer

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THIN CLIENT	10" Touch	15" Touch	PRO 15" Touch
Display			
Туре	TFT, 65 536 colors	TFT, 65 536 colors	TFT, 65 536 colors
Size	10.4"	15.1"	15.1"
Resolution	640 x 480	1024 x 768	1024 x 768
MTBF backlighting (at 25 °C)	approx. 50 000 h	approx. 50 000 h	approx. 50 000 h
Operator controls			
Touch screen	•	•	•
Interfaces			
USB / Ethernet	•	•	•
Protocols (terminal connection)			
Sm@rtAccess	•	•	•
RDP	•	•	•
Web characteristics			
LLDP	•	•	•
HTTP	•	•	•
XML	•	•	•
HTML	•	•	•
CSS	•	•	•

# **Operator Control and Monitoring Devices**

Introduction

Functionality (w	Functionality (when configuring with WinCC flexible)								
	Micro Panels	Mobile Panels	Basic Panels	Panels			Multi Panel	s	
				70 series	170 series	270 series	170 series	270 series	370 series
	OP 73micro/ TP 177micro	Mobile Panel 177/Mo bile Panel 277/277 (F) IWLAN	KTP400 Basic KTP600 Basic KTP1000 Basic TP1500 Basic	OP 73/ OP 77A/ OP 77B	TP 177A TP/OP 177B	TP 277/ OP 277	MP 177	MP 277	MP 377
Number of messages	<i>OP 73micro:</i> 250 <i>TP 177micro:</i> 500	Mobile Panel 177: 2000 Mobile Panel 277/277 (F) IWLAN: 4000	200	<i>OP 73:</i> 500 <i>OP 77A/</i> <i>OP 77B:</i> 1000	<i>TP 177A:</i> 1000 <i>TP/OP 177B:</i> 2000	4000	4000	4000	4000
Message buffer (number of entries)	128 <sup>3)</sup> <i>OP 73micro:</i> 100	Mobile Panel 177: 256 Mobile Panel 277/277 (F) IWLAN: 512	256	<i>OP 73:</i> 150 <i>OP 77A/B:</i> 256 <sup>3)</sup>	<i>TP 177A<sup>3)</sup>  TP/OP 177B:</i> 256	512	512	512	1024
Recipes	-	Mobile Panel 177 100 Mobile Panel 277/277 (F) IWLAN: 300	5	<i>OP 77A:</i> 5 <i>OP 77B:</i> 100	TP 177A: 5 <sup>7)</sup> TP/OP 177B: 100	300	300	300	500
Process images	250	500	50	500	<i>TP 177A:</i> 250 <i>TP/OP 177B:</i> 500	500	500	500	500
Bar graphs/ line graphs (pixel graphics)	● / ● <sup>6)</sup>	•/•	•/•	•/-	• / •7)	•/•	•/•	•/•	•/•
Variables	<i>OP 73micro:</i> 500 <i>TP 177micro:</i> 250	Mobile Panel 177: 1024 Mobile Panel 277/277 (F) IWLAN: 2048	KTP400/600 Basic: 128 KTP1000 Basic/TP1500 Basic: 256	1000	<i>TP 177A:</i> 500 <i>TP/OP 177B:</i> 1000	2048	2048	2048	4096 <sup>8)</sup>
Archiving	-	•5)	-	-	-	•	•	•	•
Visual Basic scripts	-	•5)	-	-	-	•	•	•	•
Online languages	5	5	5	5	<i>TP 177A:</i> 5 <i>TP/OP 177B:</i> 16	5	16	16	16
User administra- tion (security)	•	•	•	•	•	•	•	•	•
Print functions	-	•	-	•2)	•1)	•	•	•	•
PG functions (STATUS/ CONTROL) with SIMATIC S5/S7	-	<b>5</b> )	-	-	•4)	•	•	•	•

Available

- Not available

1) Except TP 177A

2) Only with OP 77B

3) Non-retentive

4) Only with TP/OP 177B

5) Only Mobile Panel 277/277(F) IWLAN

6) Only for TP 177micro

<sup>7)</sup> On TP 177A from WinCC flexible 2007

<sup>8)</sup> WinCC flexible 2008 and higher

2

#### SIMATIC PP7

#### Overview



SIMATIC Push Button Panels are the innovative alternative to conventional operator panels for easy and direct control of machines:

- Pre-fabricated and ready for operation; simply connect to the control and all buttons and lamps are ready for immediate use
- Connection to any type of control via a bus cable (PROFIBUS DP as "standard slave" or MPI)
- Fitted with short-stroke keys, additional digital inputs and slots for 22.5 mm standard components

#### Benefits

- Up to 90 % time savings: Pushbuttons, switches and lamps do not have to be fitted and wired individually
- Use of standard cables, for example, makes configuration and startup easier
- No configuration tool required
- Service-friendly thanks to rear display to indicate operating states and messages in plain text, without programming device
- Quick and easy machine operation thanks to multi-colored indicator lights
- User-friendly labeling option for pushbuttons and lamps using slide-in labels
- As the 22.5 mm standard elements can be connected directly on the panel, no additional wiring and I/O modules are required.

#### Application

The rugged PP7 Push Button Panel is designed for simple and straightforward machine operation.

It can be used wherever HMI functions cannot be carried out without keys and lamps, e.g. on control consoles for machines and plants in the food and beverage industry where smooth fronts are necessary to facilitate cleaning. Even in special mechanical equipment manufacture, the push button panels can be used to easily set up standard operator panels that are then amenable to fast, flexible and modular expansion. The key and lamp functions can be changed later at any time without having to modify the wiring.

#### Design

PPs stand out because of their compact construction:

- Preassembled with 8 short-stroke keys that can be labeled individually with slide-in labels
- Smooth, easy to clean front; the front is resistant to various oils, greases and standard detergents
- Long-life, multi-colored surface LEDs in all short-stroke keys
- Additional digital inputs for flexible expansion
- Pre-perforated cut-outs for 22.5 mm standard auxiliary elements (buttons, lamps, Emergency Stop, key switch)
- Rear-side display with miniature keyboard for displaying operating status and changing standard settings in text format
- The PP7 fits seamlessly into the series
- Maintenance-friendly, no battery required
- All parameters are stored on a memory module, which can be easily replaced

#### Function

- LED color modes (e.g., red, green, yellow, red-flashing, green-flashing, yellow-flashing)
- Integrated flashing rate for LED
- Integrated diagnostic functions
- Integrated lamp and key test (also for additional digital inputs)
- Menu-assisted parameterization via rear display with miniature keyboard
- Short-stroke keys and digital inputs are also parameterizable as switches
- Parameterizable pulse stretching for short-stroke keys and digital inputs
- PROFIBUS DP standard slave

# Operator Control and Monitoring Devices Push Button Panels

#### **SIMATIC PP7**

#### Integration

The Push Button Panels can be connected to

- SIMATIC S7-200/-300/-400, WinAC Software and Slot PLC via MPI and PROFIBUS DP
- SIMATIC S5 (AG95/master or IM 308C) only via PROFIBUS DP
- PROFIBUS DP standard master, any vendor (e.g. Allen Bradley, etc.)

#### System interfaces

Controller	SIMATIC PP7 <sup>1)</sup>
Target hardware (PROTOCOL) (connector/physics)	Connection via DP/MPI
SIMATIC S7/SIMATIC WinAC (MPI	as master) <sup>2)</sup>
via MPI interface with <b>S7-200/-300/-400/</b> <b>WinAC Software/Slot PLC</b> (9-pin socket/RS 485), <sup>3)4)</sup>	Bus connector, bus cable and MPI netword (see Catalog ST 70/IK PI)
SIMATIC S5/S7 (PROFIBUS DP as	standard slave)
via PROFIBUS with max. 1 x <b>S7-200</b> (CPU 215-DP) on MPI protocol <b>S7-300/-400</b> with integrated PROFIBUS interface <b>S7-300</b> with CP 342-5 <b>S7-400</b> with CP 443-5	PROFIBUS <sup>5)</sup> (see Catalog ST 70/IK PI)
via PROFIBUS DP with	PROFIBUS <sup>5)</sup>

S5-95U/PROFIBUS DP master (6ES5 095-8ME02) S5-115U/-135U/-155U with IM 308C/IM 308B S5-115U/-135U/-155U with CP 5430/CP 5431

(see Catalog ST 70/IK PI)

#### Non-Siemens controllers (PROFIBUS DP master)

via PROFIBUS DP

PROFIBUS<sup>5)</sup> (see Catalog ST 70/IK PI)

1) PP7 suitable up to 1.5 Mbit/s

- 2) Standard PG/PC MPI cable cannot be used
- <sup>3)</sup> S7-200 only via MPI (CPU 212 not possible)
- 4) S7-200 CPU 215-DP also possible on PROFIBUS DP interface via MPI protocol

<sup>5)</sup> Bus connector: 6GK1 500-0EA02

#### Note:

The standard PG/PC MPI cable (6ES7 901-0BF00-0AA0) cannot be used to connect a PP and a CPU.

Technical specifications					
	SIMATIC PP7				
Supply voltage					
Supply voltage	24 V DC				
Permissible range	+18 V to +30 V DC				
Rated current	0.2 A				
Power	5 W				
Digital inputs					
Voltage (DC)	24 V				
Number of digital inputs	4				
Operating mode					
Operating elements	Membrane keyboard				
Function keys, programmable	8 function keys, 8 with LEDs				
Membrane keyboard	Yes				
Ambient conditions					
Mounting position	Vertical				
Maximum permissible angle of inclinition without external	+/- 35 °				
Max relative humidity (in %)	05%				
	95 /6				
	0 °C to 155 °C				
	$0^{\circ}$ C to $+55^{\circ}$ C				
	$0 \ C \ 10 \ +35 \ C$				
Pagrag of protection	-20 C 10 +70 C				
	IDEE				
Poor	1500				
Certifications & Standards	1720				
Certifications & Standards					
	CE, HVI Class I DIV. 2, UE, CSA				
	Red vellow green				
	ned, yellow, green				
Number of LED	3				
	0				
Short-stroke keys (in switching cycles)	1 500 000				
LEDs (ON period)	100 %				
Functionality					
Short lift keys/additional inputs as pushbuttons or switches	Yes				
Flashing frequency for LEDs	0.5 Hz				
Pushbutton and lamp test	Yes				
Max. pulse extension for short- stroke keys and digital inputs	1 000 ms				
Release input	No				
Dimensions					
Front of enclosure (W x H) in mm	144 x 204				
Mounting cutout/Device depth (W x H/D) in mm	130 x 190 / 53				
Weights					
Weight	0.8 kg				

#### **SIMATIC PP7**

Ordering data	Order No.	Dimensions
SIMATIC PP7	A 6AV3 688-3AA03-0AX0	All specifications in mm. Panel cutout see technical specifications.
Push Button Panel incl. mounting accessories:		
<ul> <li>8 x short-stroke keys</li> </ul>		
<ul> <li>8 x surface lighting diodes</li> </ul>		
<ul> <li>4 x DI terminals (24 V)</li> </ul>		
Max. 5 x 22.5 mm pre-perfor. cutouts for additional components		
Documentation (to be ordered s	eparately)	
Manual for PP7/PP17 <sup>1)</sup>		
• German	6AV3 991-1CA00-0AA0	
• English	6AV3 991-1CA00-0AB0	
• French	6AV3 991-1CA00-0AC0	4
• Italian	6AV3 991-1CA00-0AD0	
• Spanish	6AV3 991-1CA00-0AE0	
Brief startup guide		
for PP7, PP17-I, PP17-II		More information
• German	6AV3 991-1CA00-1BA0	Additional information is available in the Internet under:
• English	6AV3 991-1CA00-1BB0	http://www.siemens.com/panels
Accessories		
Accessories for supplementary ordering	see HMI accessories, from page 2/158	Note:
		Do you need a specific modification or option for the product.

described here? Then look up "Customized products", where you will find information about additional sector-specific products that can be ordered as well as about options for

customer-specific modification and adaptation.

A) Subject to export regulations: AL: N and ECCN: EAR99H

 Incl. 3.5" diskette with GSD files/type files and Word templates for labeling strips

#### Note:

Commercially available printing film (0.13 to 0.16 mm strength) can be used as labeling strips for the keyboard. Word templates are enclosed with the manual on a diskette.

#### SIMATIC PP17

#### Overview



SIMATIC Push Button Panels are the innovative alternative to conventional operator panels for easy and direct control of machines:

- Pre-fabricated and ready for operation; simply connect to the control and all buttons and lamps are ready for immediate use
- Connection to any type of control via a bus cable (PROFIBUS DP as "standard slave" or MPI)
- PP17-I:

Fitted with short-stroke keys, additional digital inputs and outputs and slots for 22.5 mm standard elements PP17-II:

Fitted with short-stroke keys, additional digital inputs and outputs and much more

#### Benefits

- Up to 90 % time savings: Pushbuttons, switches and lamps do not have to be fitted and wired individually
- Use of standard cables, for example, makes configuration and startup easier
- No configuration tool required
- Service-friendly thanks to rear display to indicate operating states and messages in plain text, without programming device
- Quick and easy machine operation thanks to multi-colored indicator lights
- User-friendly labeling option for pushbuttons and lamps using slide-in labels
- As the 22.5 mm standard elements can be connected directly on the panel, no additional wiring and I/O modules are required

#### Application

The rugged PP17 Push Button Panels are designed for easy and straight-forward operation of the machine.

They can be used wherever keys and lamps are essential components in a human-machine interface. In the food processing industry, for example, on machines and systems on which smooth fronts are required for easier cleaning. Even in special mechanical equipment manufacture, the push button panels can be used to easily set up standard operator panels that are then amenable to fast, flexible and modular expansion. The key and lamp functions can be changed later at any time without having to modify the wiring.

#### Design

PPs stand out because of their compact construction:

- Preassembled with short-stroke keys that can be labeled individually also in color with slide-in labels
- Smooth, easy to clean front; the front is resistant to various oils, greases and standard detergents
- Long-life, multi-colored surface LEDs in all short-stroke keys
- Additional digital inputs and outputs for flexible expansion
- Pre-perforated cut-outs for 22.5 mm standard auxiliary elements (buttons, lamps, etc.) for PP17-I
- Rear-side display with miniature keyboard for displaying operating states and changing standard settings in text format
- Central enabling input
- The PP17 can be laterally mounted
- · Maintenance-friendly, no battery required
- All parameters are stored on a memory module, which can be easily replaced

#### Function

- LED color modes (e.g., red, green, yellow, red-flashing, greenflashing, yellow-flashing)
- Integrated flashing frequency for digital outputs and LED
- Integrated diagnostic functions
- Integrated lamp and key test (also for additional digital inputs 24 V inputs and outputs)
- Menu-assisted parameterization via rear display with miniature keyboard
- Short-stroke keys and digital inputs are also parameterizable as switches
- Parameterizable pulse stretching for short-stroke keys and digital inputs (max. 1000 ms)
- PROFIBUS DP standard slave

#### SIMATIC PP17

#### Integration

The Push Button Panels can be connected to:

- SIMATIC S7-200/-300/-400, WinAC Software and Slot PLC via MPI and PROFIBUS DP
- SIMATIC S5 (AG95/master or IM 308C) only via PROFIBUS DP
- PROFIBUS DP standard master, any vendor (e.g., Allen Bradley, etc.)

#### System interfaces

-	
Controller	SIMATIC PP17 <sup>1)</sup>
Target hardware (PROTOCOL) (connector/physics)	Connection via DP/MPI
SIMATIC S7/SIMATIC WinAC (MPI	as master) <sup>2)</sup>
via MPI interface with <b>S7-200/-300/-400/</b> <b>WinAC Software/Slot PLC</b> (9-pin socket/RS 485), <sup>3)4)</sup>	Bus connector, connecting cable and MPI network (see page 2/144)
SIMATIC S5/S7 (PROFIBUS DP as	standard slave)
via PROFIBUS with max. 1 x <b>S7-200</b> (CPU 215-DP) on MPI protocol <b>S7-300/-400</b> with integrated PROFIBUS interface <b>S7-300</b> with CP 342-5 <b>S7-400</b> with CP 443-5	<b>PROFIBUS</b> <sup>5)</sup> (see page 2/144)
via PROFIBUS DP with <b>S5-95U</b> /PROFIBUS DP master (6ES5 095-8ME02) <b>S5-115U/-135U/-155U</b> with IM 308C/IM 308B <b>S5-115U/-135U/-155U</b> with CP 5430/CP 5431	<b>PROFIBUS</b> <sup>5)</sup> (see page 2/144)

#### Non-Siemens controllers (PROFIBUS DP master)

via PROFIBUS DP

**PROFIBUS**<sup>5)</sup>

- 1) PP17 suitable up to 12 Mbit/s
- 2) Standard PG/PC MPI cable cannot be used
- 3) S7-200 only via MPI (CPU 212 not possible)
- <sup>4)</sup> S7-200 CPU 215-DP also possible on PROFIBUS DP interface via MPI protocol
- 5) Bus connector: 6GK1 500-0EA02

#### Note:

The standard PG/PC MPI cable (6ES7 901-0BF00-0AA0) cannot be used to connect a PP and a CPU.

#### Technical specifications

	PP17-I	PP17-II
Supply voltage		
Supply voltage	24 V DC	24 V DC
Permissible range	+18 V to +30 V DC	+18 V to +30 V DC
Rated current	0.4 A	0.4 A
Power	10 W	10 W
Digital inputs		
Voltage (DC)	24 V	24 V
Number of digital inputs	16	16
Digital outputs		
Total power	12 W	12 W
Number of digital outputs	16	16
in groups of	4	4
Aggregate current (per group) max.	500 mA	500 mA
Short-circuit protection	Yes	Yes
Operating mode		
Operating elements	Membrane keyboard	Membrane keyboard
Function keys, programmable	16 function keys, 16 with LEDs	32 function keys, 32 with LEDs
Degree of protection		
Front	IP65	IP65
Rear	IP20	IP20
Certifications & Standards		
Certifications	CE, FM Class I Div. 2, UL, CSA	CE, FM Class I Div. 2, UL, CSA
Ambient conditions		
Mounting position	Vertical	Vertical
Maximum permissible angle of incliniation without external ventilation	+/- 35 °	+/- 35 °
Max. relative humidity (in %)	95%	95%
Temperature		
Operation (vertical installation)	0 °C to +55 °C	0 °C to +55 °C
Operation (max. tilt angle)	0 °C to +55 °C	0 °C to +55 °C
Transport, storage	-20 °C to +70 °C	-20 °C to +70 °C
Type of output		
LED colors	Red, yellow, green	Red, yellow, green
Color modes for LED	3	3
Number of LEDs	16	32
Lifetime, typ.		
Short-stroke keys (in switching cycles)	1 500 000	1 500 000
LEDs (ON period)	100 %	100 %
Functionality		
Short lift keys/additional inputs as pushbuttons or switches	Yes	Yes
Flashing frequency for LEDs	0.5 Hz	0.5 Hz
Flashing frequency for digital outputs	0.5 Hz or 2 Hz	0.5 Hz or 2 Hz
Pushbutton and lamp test	Yes	Yes
max. pulse extension for short- stroke keys and digital inputs	1 000 ms	1 000 ms

# Operator Control and Monitoring Devices Push Button Panels

#### SIMATIC PP17

Technical specifications (continued)				
	Ρ	P17-I	PP17-II	
Dimensions				
Front of enclosure (W x H)	24 20	40 mm x 04 mm	240 mm x 204 mm	
Mounting cutout/Device depth (W x H/D)	22 19 de	26 mm x 90 mm / 53 mm evice depth	226 mm x 190 mm / 53 mm device depth	
Weights				
Weight	1.2 kg		1.5 kg	
Ordering data		Order No.		
PP17-I	А	6AV3 688-3CD	13-0AX0	
<ul> <li>16 x short-stroke keys</li> </ul>				
<ul> <li>16 x surface lighting diodes</li> </ul>				
<ul> <li>16 x DI terminals (24 V)</li> </ul>				
<ul> <li>16 x DO terminals (24 V)</li> </ul>				
<ul> <li>1 x enabling input</li> </ul>				
• Max. 12 x 22.5 mm pre-perfor. cutouts for additional components				
incl. mounting accessories				
PP17-II	А	6AV3 688-3ED	13-0AX0	
<ul> <li>32 x short-stroke keys</li> </ul>				
<ul> <li>32 x surface lighting diodes</li> </ul>				
<ul> <li>16 x DI terminals (24 V)</li> </ul>				
<ul> <li>16 x DO terminals (24 V)</li> </ul>				
<ul> <li>1 x enabling input</li> </ul>				
incl. mounting accessories				
Documentation (to be ordered s	sep	arately)		
Manual for PP7/PP17 <sup>1)</sup>				
• German		6AV3 991-1CA	00-0AA0	
• English		6AV3 991-1CA	00-0AB0	
• French		6AV3 991-1CA	00-0AC0	
• Italian		6AV3 991-1CA	00-0AD0	
• Spanish		6AV3 991-1CA	00-0AE0	
Brief startup guide				
for PP7, PP17-I, PP17-II				
• German		6AV3 991-1CA	00-1BA0	
• English		6AV3 991-1CA	00-1BB0	
Accessories				
Accessories for supplementary ordering		see HMI acces from page 2/15	sories, 8	

A) Subject to export regulations: AL: N and ECCN: EAR99H

 Incl. 3.5" diskette with GSD files/type files and Word templates for labeling strips

#### Note:

Commercially available printing film (0.13 to 0.16 mm strength) can be used as labeling strips for the keyboard. Word templates are enclosed with the manual on a diskette.

#### Dimensions

All specifications in mm. Panel cutout see technical specifications.



PP17-I



PP17-II

#### More information

Additional information is available in the Internet under:

http://www.siemens.com/panels

#### Note:

Do you need a specific modification or option for the products described here? Then look up "Customized products", where you will find information about additional sector-specific products that can be ordered as well as about options for customer-specific modification and adaptation.

#### Text Display TD 100C

#### Overview



- The low-cost text display for the S7-200 with customized display
- For HMI functions: Display of message texts, interventions in the control program, setting of inputs and outputs
- Direct connection to CPU interface
- No separate power supply required
- No separate parameterization software required
- Front design can be selected individually
- Addressing and setting of contrast in supplied menu

#### Application

The TD 100C Text Display is the low-cost solution for the simple HMI tasks of SIMATIC S7-200. The ability to print the surface of the device individually allows it to be optimally adapted to the application environment.

It supports:

- · Display of message texts
- Interventions in the control program, e.g. modification of setpoints
- Setting of inputs and outputs, e.g. for switching a motor on and off

#### Design

The TD 100C is simply connected to the PPI interface of the S7-200 using the connecting cable that is available as an accessory. A separate power supply is not required. It is also possible to connect several TDs to one S7-200.

The TD 100C features:

- Rugged plastics housing with IP65 degree of protection (front):
  - Increased water tightness thanks to absence of slots for labeling strips
- Mounting depth of 36 mm (up to 44 mm with fixing): the TD 100C can be mounted without additional accessories in control cabinets or operator panels, or used as a handheld unit.
- Reflecting 4-line display.
- Integrated interface for connection of cable
- Individually designable user interface: The control elements of the front of the device as well as the design can be configured individually on a printable sheet. The Keypad Designer (a component of STEP 7-Micro/WIN) is used for configuration.

#### Function

The TD 100C permits:

- Display of message texts: Up to 40 message texts (interrupts) with max. 4 variables indicate the current operating states and can optionally be parameterized as requiring mandatory acknowledgment and additionally protected by a password. In addition, as many as 32 static messages, likewise with max. 4 variables, can be configured. System texts are stored in the device in German, English, French, Spanish and Italian. Various different character sets can also be selected; messages can also be stored in the simplified Chinese script.
- Display and modification of process parameters: Process parameters are shown on the display and can be modified by means of the input keys, e.g. for temperature settings or changes of speed.
- Setting of inputs and outputs:
- One memory bit is assigned to each of the programmed function keys. These can then be set during operation, e.g. on startup, test and diagnostics. This enables motors, for example, to be controlled without having to install any additional control elements in the plant.
- Additional functions and features: For example, processing of floating-point numbers, different data blocks for the operation of several TDs on one CPU, password protection for integrated SETUP menu, and changeable variables.
- Activation of the TD 100C editing mode by the PLC: Variables embedded in messages can be directly edited without having to press the enter key or move the cursor over the variable.
- Setting a PLC bit: - Set bit:

On pressing a function key, a bit is set in the PLC. This must be reset again by the user program.

- Momentary:
- On pressing a function key a bit is set, and on releasing the key the bit is deleted again.
- New character set (Greek, Latin2, Turkish) for supporting additional foreign languages

#### Programming

The configuration data of the TD 100C is stored in the CPU of the S7-200. The message texts and configuration parameters are created with the STEP 7-Micro/WIN V4 programming software. Additional parameterizing software is not required. The operator panel front design is configured using the Keypad Designer (component of STEP 7-Micro/WIN V4).

For the exchange of data with the TD 100C, special data areas are reserved in the CPU of the S7-200. Via these data areas, the TD 100C directly accesses the respective required functions of the CPU. The user-friendly parameterization is performed by means of a special TD Wizard in STEP 7-Micro/WIN V4.

# Operator Control and Monitoring Devices Micro Panels

### Text Display TD 100C

Technical specifications		Orde
	Text Display TD 100C	Text
Power supply		With i
Input voltage		contro front
Rated value (DC)	24 V; Supply from S7-200	for co
	communication interface	S7-20 Micro
Input current		plug-i
Rated value at DC 24 V	25 mA	Conn
MPI		For co
Transmission speed (PPI), max.	187.5 kBit/s	- ID 20
1st interface		For p
Physics	RS 485	keybo
Functionality		6 pert
PPI	Yes	4000
PPI		Acce
Number of nodes, max.	126; S7-200, OP, TP, TBP, PG/PC	order
Operator control and monitoring		
Display		A) Su
• Туре	LC display (reflecting)	Dime
Number of lines	4	
Number of characters per line	12; characters/line: 12 or 16 characters/line: Chinese 8	All sp
Font size	3.34 mm	
Environmental requirements		
Operating termperature		
• min.	0°0	
• max.	0° 00	
Storage/transport temperature		
• min.	-20 °C	
• max.	70 °C	
Degree of protection		
IP 65	Yes	
Dimensions		
Cabinet/switchboard strength	1.5 mm; 1.5 to 4 mm	
Dimensions		
Width	90 mm	
Height	76 mm	
Depth	36 mm; max. 44 mm with fittings	
Mounting cutout, width	82 mm	
Mounting cutout, height	69.5 mm	
Weights		
Weight, approx.	120 g	

Ordering data	Order No.
Text Display TD 100C A	6ES7 272-1BA10-0YA1
With individually configurable control elements on the device front; for connecting to SIMATIC S7-200; for use with STEP 7 Micro/WIN V4 and higher, plug-in cable required	
Connecting cables	
For connecting TD 100C or TD 200C to S7-200	6ES7 901-3EB10-0XA0
Blank foils	
For printing customized keyboard layouts; 6 perforated foils per sheet; 10 sheets per packing unit	6ES7 272-1BF00-7AA0
Accessories	
Accessories for supplementary ordering	see HMI accessories, from page 2/158

A) Subject to export regulations: AL: N and ECCN: EAR99H

#### Dimensions

All specifications in mm. Panel cutout see technical specifications.



G\_ST80\_XX\_00319

#### Text Display TD 200

#### Overview



- The user-friendly text display for the S7-200
- For control and monitoring: Message text display, intervention in PLC program, setting of inputs and outputs
- Direct connection to CPU interface using supplied cable or incorporation into network (also via EM 277)
- No separate power supply required
- No separate parameterization software required
- · Addressing and setting of contrast in supplied menu

#### Application

The TD 200 Text Display is the optimum solution for all HMI tasks of SIMATIC S7-200.

It supports:

- Display of message texts
- Interventions in the control program, e.g. modification of setpoints
- Setting of inputs and outputs, e.g. for switching a motor on and off

#### Design

The TD 200 is simply connected to the PPI interface of the S7-200 using the supplied connecting cable. A separate power supply is not required. It is also possible to connect several TD 200 units to one S7-200.

The TD 200 features:

• Rugged plastics housing with degree of protection IP65 (front):

Increased watertightness due to absence of slots for labeling strips

- Mounting depth 27 mm: The TD 200 can be mounted without additional accessories in control cabinets or operator panels, or used as a handheld unit
- Backlit LC display;
  - readable even under unfavorable lighting
- Ergonomically designed input keys, below which are programmable function keys
- Integrated interface for connection of cable
- Connection for optional power supply: A power supply unit is required if the distance between the TD 200 and S7-200 is more than 2.5 m. PROFIBUS cables are then available instead of the connection cable
- Customized labeling strips: The back of the housing has to be removed to mount the labeling strips. This must therefore be performed before the unit is installed

#### Function

The TD 200 permits:

- Display of message texts:
- Up to 80 message texts (alarms) with max. 6 variables display current operating states and can be optionally parameterized to require acknowledgment and can be additionally protected by a password. Also up to 64 static alarms with up to 6 variables can be configured. System texts are stored in English, German, French, Spanish and Italian in the unit. Various character sets can be selected, and messages can be additionally saved in the simplified Chinese character set
- Display and modification of process parameters: Process parameters are output on the display, and can be modified using the input keys, e.g. for temperature settings or modifications to speed
- Setting of inputs and outputs: A memory bit is assigned to each of the 8 programmable function keys. These can then be set during operation, e.g. during commissioning, testing and diagnostics. It is then possible e.g. to control motors without having to install additional control elements in the system
- Additional functions and features:
   E.g. processing of floating-point numbers, symbols for bar graph display, various data blocks for operation of several TD 200 displays on one CPU, password protection for integral SETUP menu and modified variables

#### **Text Display TD 200**

#### **Function** (continued)

- Activation of TD 200 editing mode by PLC: Variables embedded in messages can be edited directly without having to press the Enter key or to place the cursor at the variable
- Setting a PLC bit:
  - Set bit:
  - When a function key is pressed, a bit is set in the PLC. This must be reset by the user program
  - Momentary:
  - A bit is set when pressing a function key, and deleted again when the key is released
- New character set (Greek, Latin2, Turkish) to support further foreign languages

#### Programming

The configuration data of the TD 200 are saved in the CPU of the S7-200. The message text strings and configuration parameters are created with the STEP 7 Micro/WIN configuration software of V4 and higher. Additional parameterization software is not required.

Special data areas are reserved in the CPU of the S7-200 for data exchange with the TD 200. The TD 200 directly accesses the respectively required functions of the CPU via these data areas. A separate TD 200 wizard in STEP 7 Micro/WIN V4 and higher supports user-friendly parameter assignment.

Technical specifications		
	Text Display TD 200	
Power supply		
Input voltage		
• Rated value (DC)	24 V; Power supplied over the S7-200 communications interface or optional external power supply unit; the CPU sensor power suppl (24 V DC) is not subjected to load	
Input current		
<ul> <li>Rated value at DC 24 V</li> </ul>	120 mA	
MPI		
Transmission speed (PPI), max.	187.5 kBit/s	
1st interface		
Physics	RS 485	
Functionality		
• PPI	Yes	
PPI		
Number of nodes, max.	126; S7-200, OP, TP, TBP, PG/PC	
Operator control and monitoring		
Display		
•Туре	LCD backlit	
Operating/fault messages		
Number of lines	2	
Number of characters per line	20 characters/line: ASCII, Cyrilli 10 characters/line: Chinese	
• Font size	5 mm	
Environmental requirements		
Operating termperature		
• min.	0 °C	
• max.	60 °C	
Storage/transport temperature		
• min.	-40 °C	
• max.	70 °C	
Degree of protection		
IP 65	Yes; at front	
Dimensions		
Cabinet/switchboard strength	0.3 mm; 0.3 to 4 mm	
Dimensions		
• Width	148 mm	
• Height	76 mm	
• Depth	27 mm	
Nounting cutout, width	138 mm	
Mounting cutout, height	68 mm	
Weights		
<ul> <li>Weight, approx.</li> </ul>	250 g	

### Text Display TD 200

Ordering data	Order No.
Text Display TD 200 A	6ES7 272-0AA30-0YA1
for connection to SIMATIC S7- 200; can be used with STEP 7- Micro/WIN V3.2 SP4 or higher, incl. connecting cable	
Connecting cables	6ES7 901-3EB10-0XA0
For connecting TD 100C or TD 200C to S7-200	
Accessories	
Accessories for supplementary ordering	see HMI accessories, from page 2/158
A) Subject to export regulations: AL: N	and ECCN: EAR99H

Dimensions

All specifications in mm. Panel cutout see technical specifications.



TD 200

### Operator Control and Monitoring Devices Micro Panels

#### Text Display TD 200C

#### Overview



- The user-friendly text display for the S7-200 with customizable display
- For control and monitoring: Message text display, intervention in PLC program, setting of inputs and outputs
- Direct connection to CPU interface using supplied cable or incorporation into network (also via EM 277)
- No separate power supply required
- No separate parameterization software required
- Frontpanel design can be individually selected
- · Addressing and setting of contrast in supplied menu

#### Application

The TD 200C Text Display is the ideal solution for all HMI tasks of the SIMATIC S7-200. The ability to print the surface of the device individually allows it to be optimally adapted to the application environment.

It supports:

- Display of message texts
- Interventions in the control program, e.g. modification of setpoints
- Setting of inputs and outputs, e.g. for switching a motor on and off

#### Design

The TD 200C is simply connected to the PPI interface of the S7-200 using the supplied connecting cable. A separate power supply is not required. It is also possible to connect several TD 200C to one S7-200.

The TD 200 features:

• Rugged plastics housing with degree of protection IP65 (front):

Increased watertightness due to absence of slots for labeling strips

- Mounting depth 27 mm: The TD 200C can be mounted without additional accessories in control cabinets or operator panels, or used as a handheld unit
- Backlit LC display:

Readable even under unfavorable lighting

- Integrated interface for connection of cable
- Connection for optional power supply: A power supply unit is required if the distance between the TD 200C and S7-200 is more than 2.5 m. PROFIBUS cables are then available instead of the connection cable
- Individually designable user interface: The control elements of the front of the device as well as the design can be configured individually on a printable sheet. The Keypad Designer (a component of STEP 7-Micro/WIN) is used for configuration

#### **Text Display TD 200C**

#### Function

The TD 200C permits:

- Display of message texts:
- Up to 80 message texts (alarms) with max. 6 variables display current operating states and can be optionally parameterized to require acknowledgment and can be additionally protected by a password. Also up to 64 static alarms with up to 6 variables can be configured. System texts are stored in English, German, French, Spanish and Italian in the unit. Various character sets can be selected, and messages can be additionally saved in the simplified Chinese character set.
- Display and modification of process parameters: process parameters are output on the display, and can be modified using the input keys, e.g. for temperature settings or modifications to speed.
- Setting of inputs and outputs: A bit memory is assigned to each of the programmable function keys. These can then be set during operation, e.g. during commissioning, testing and diagnostics. It is then possible e.g. to control motors without having to install additional control elements in the system.
- Additional functions and features:

   e.g. processing of floating-point numbers, symbols for bargraph display, various data blocks for operation of several TDs on one CPU, password protection for integral SETUP menu and modified variables.
- Activation of TD 200 editing mode by PLC: Variables embedded in messages can be edited directly without having to press the Enter key or to place the cursor at the variable.
- Setting a PLC bit:
  - Set bit:

When a function key is pressed, a bit is set in the PLC. This must be reset by the user program. - Momentary:

A bit is set when pressing a function key, and deleted again when the key is released.

- New character set (Greek, Latin2, Turkish) to support further foreign languages
- Programming the S7-200 memory module
- Selection of operating mode of the CPU (RUN/STOP)
- Editing the V memory area

#### Programming

The configuration data of the TD 200C are saved in the CPU of the S7-200. The message text strings and configuration parameters are created with the STEP 7 Micro/WIN V4 programming software. Additional parameterization software is not required. The Keypad Designer (a component of STEP 7-Micro/WIN V4) is used to configure the operating front design.

Special data areas are reserved in the CPU of the S7-200 for data exchange with the TD 200C. The TD 200C directly accesses the respectively required functions of the CPU via these data areas. A separate TD 200 wizard in STEP 7 Micro/WIN V4 supports user-friendly parameter assignment.

#### Technical specifications

	Text Display TD 200C
Power supply	
Input voltage	
Rated value (DC)	24 V; Power supplied over the S7-200 communications interface or optional external power supply unit; the CPU sensor power supply (24 V DC) is not subjected to load
Input current	
Rated value at DC 24 V	120 mA
MPI	
Transmission speed (PPI), max.	187.5 kBit/s
1st interface	
Physics	RS 485
Functionality	
• PPI	Yes
PPI	
<ul> <li>Number of nodes, max.</li> </ul>	126; S7-200, OP, TP, TBP, PG/PC
Operator control and monitoring	
Display	
• Type	LCD backlit
Operating/fault messages	
Number of lines	2
Number of characters per line	20 caracters/line: ASCII, Cyrillic; 10 caracters/line: Chinese
Font size	5 mm
Environmental requirements	
Operating termperature	
• min.	0 °C
• max.	60 °C
Storage/transport temperature	
• min.	-20 °C
• max.	70 °C
Degree of protection	
IP 65	Yes; at front
Dimensions	
Cabinet/switchboard strength	0.3 mm; 0.3 to 4 mm
Dimensions	
Dimensions	
• Width	148 mm
• Height	76 mm
• Depth	28 mm
<ul> <li>Mounting cutout, width</li> </ul>	138 mm
<ul> <li>Mounting cutout, height</li> </ul>	68 mm
Weights	
Weight, approx.	200 g

# Operator Control and Monitoring Devices Micro Panels

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	new	
CAL.		2000

2

Ordering data	Order No.	Dimensions
Text Display TD 200C	A 6ES7 272-1AA10-0YA1	All specifications in mm. Panel cutout see technical specifications.
With individually configurable control elements on the device front; for connecting to SIMATIC S7-200; for use with STEP 7 Micro/WIN V4 and higher, incl. plug-in cable		148     28
Connecting cables	6ES7 901-3EB10-0XA0	
For connecting TD 100C or TD 200C to S7-200		
Blank foils	A 6ES7 272-1AF00-7AA0	
For printing customized keyboard layouts; 3 perforated faceplates per sheet; 10 sheets per packing unit		
Accessories		
Accessories for supplementary ordering	see HMI accessories, from page 2/158	
A) Subject to export regulations: AL	N and ECCN: EAR99H	TD 200C

#### **Text Display TD 400C**

#### Overview



- Multi-screen workstation and extremely good readability thanks to backlit four-line display
- · Customizable operator interface with 15 tactile keys
- Acoustic and visual feedback from key operation
- Optimal support of the S7-200:
- Direct connection to the S7-200 interface via supplied cable
- No separate power supply required
- Parameterization with STEP 7-Micro/WIN V4 SP6

#### Application

The TD 400C Text Display is the optimal solution for all operator control and monitoring tasks of the SIMATIC S7-200. The customizable operator interface enables optimal adaptation of the device to the surroundings in which it is used.

It enables:

- Display of message texts
- Intervention in the control program, e.g. setpoint changes
- Setting of inputs and outputs, e.g. for switching a motor on and off

# Compatibility with the TD 100C, TD 200 and TD 200C Text Displays:

The TD 400C Text Display is not compatible with existing Text Displays (different mounting dimensions, configuration cannot be adopted).

#### Design

The TD 400C is connected to the S7-200 using the supplied connecting cable. A separate power supply is not required. It is also possible to connect several TD 400Cs to one S7-200.

The TD 400C has the following:

- 3.7" STN LCD backlit display: Up to 4 text lines can be configured
- Rugged plastic housing in degree of protection IP65 (on front), IP20 (on rear): Increased waterproofing because there are no slots for
- Iabeling stripsInstallation depth of 31 mm:
- The TD 400C can be installed in control cabinets or used as a handheld device without any other accessories
- Customizable operator interface: The design (colors, pictures, text, etc.) of the operator interface can be individually designed. Configuration is carried out with the Keypad Designer (component part of STEP 7-Micro/WIN)
- Configuration of tactile keys: Up to 15 permanently positioned, tactile keys can be assigned numerous functions (e.g. direction keys, messages, Set PLC bit)
- Connection for optional power supply: A power supply is required at a distance of more than 2.5 m between the TD 400C and S7-200. PROFIBUS bus cables are then available in place of the supplied connecting cable

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# Operator Control and Monitoring Devices Micro Panels

#### Text Display TD 400C

#### Function

- Display of message texts:
- Up to 80 message texts (alarms) with up to 6 variables display current operating states and can be optionally parameterized as requiring acknowledgement and additionally protected by a password. In addition, up to 64 static messages, also with up to 6 variables, can be configured. Message texts can be displayed in two lines or four lines depending on the character size set. Four lines with 12 Chinese characters or 24 ASCII characters per line. Two lines with 8 Chinese characters or 16 ASCII characters per line.
- Display and modification of process parameters: Process parameters are shown on the display and can be modified using the input keys, e.g. for setting temperatures or changing speeds.
- Setting inputs and outputs:
- A memory bit is assigned to each of the programmable function keys. These bits can then be set during operation, e.g. at startup, and during test and diagnostics. In this way, motors can be controlled, for example, without having to install additional operator elements in the system.
- Additional functions and features: For example, processing of floating-point numbers, different data blocks for operating several TDs on one CPU, password protection for integral SETUP menu, and modifiable variables.
- Activation of the TD 400C editing mode by the PLC: Variables embedded in messages can be edited direct without pressing the Enter key and moving the cursor to the variable.
- Setting a PLC bit:
  - Set bit:
  - When a function key is pressed, a bit is set in the PLC. This must be reset again via the user program. - Momentary:
  - When a function key is pressed, a bit is set, and when the key is released, the bit is deleted.
- New character set (Greek, Latin2, Turkish) for supporting further languages
- · Programming of the S7-200 memory submodule
- Selecting the operating mode of the CPU (RUN/STOP)
- · Editing of the V memory area

#### Programming

The configuration data of the TD 400C is stored in the CPU of the S7-200. The message texts and the configuration parameters are created with the STEP 7-Micro/WIN V4 SP6 programming software. Additional parameterization software is not required. The operating front design is configured with the Keypad Designer (component part of STEP 7-Micro/WIN V4 SP6).

Special data areas are reserved in the CPU of the S7-200 for data exchange with the TD 400C. The TD 400C accesses each of the required functions of the CPU direct via these data areas. User-friendly parameterization takes place via a dedicated TD 400 Wizard in STEP 7-Micro/WIN V4 SP6.

#### Technical specifications

	Text Display TD 400C
Supply voltage	
Supply voltage	24 V DC
Permissible range	DC
Configuration	
Configuration tool	MicroWin (to be ordered separately)
Display	
Display type	STN, black/white
Size	3.7"
Resolution (WxH in pixel)	192 x 64
MTBF backlighting (at 25 °C)	about 20,000 hours
Operating mode	
Operating elements	Membrane keyboard
Function keys, programmable	15 function keys
Membrane keyboard	Yes
Ambient conditions	
Temperature	
Operation	0 °C to +50 °C
<ul> <li>Transport, storage</li> </ul>	-20 °C to +60 °C
Degree of protection	
Front	IP65, NEMA 4, NEMA 4x, NEMA 12 (when installed)
Rear	IP20
Certifications & Standards	
Certifications	CE, FM Class I Div. 2, UL, C-TICK, NEMA 4, NEMA 4x, NEMA 12
Interfaces	
Interfaces	1 x RS485 (max. 187.5 Mbit/s)
Weights	
Weight	0.33 kg

### Text Display TD 400C

Ordering data		Order No.	Dime	nsions
TD 400C Text Display	А	6AV6 640-0AA00-0AX1	All sp	ecifications in m
With customizable operator interface on the device front; for connecting to SIMATIC S7-200; can be used from STEP 7-Micro/WIN V4 SP6, incl. connecting cable				_
Connecting cables		6ES7 901-3EB10-0XA0		<b>•</b>
For connecting TD 100C/ TD 200C or TD 400C to S7-200				
Blank foils		6AV6 671-0AP00-0AX0		
For printing customized keyboard layouts; 2 perforated films per sheet; 10 sheets per pack				
Accessories				
Accessories for supplementary ordering		see HMI accessories, from page 2/158		

A) Subject to export regulations: AL: N and ECCN: EAR99H

All specifications in mm. Panel cutout see technical specifications.



TD 400C

# Operator Control and Monitoring Devices Micro Panels

#### SIMATIC OP 73micro

#### Overview



- Operator Panel for controlling and monitoring machines and systems
- · Graphics in a new dimension: small and smart
- Pixel-graphics 3" LCD, monochrome
- 8 system keys, 4 user-configurable function keys
- Specific to the SIMATIC S7-200: Communication with the controller takes place via the integrated interface (point-to-point)
- Connection to the controller via MPI or PROFIBUS DP cable

#### Benefits

- High-contrast display for good readability
- Large keys for high operational safety
- Simple handling and configuring
- Fast configuring and start-up
  - Service-friendly thanks to maintenance-free design (no battery) and long service life of the backlighting
- Graphics library is available complete with ready-to-use display objects
- Can be used worldwide:
- 32 languages can be configured (including Asiatic and Cyrillic character sets)
- Up to 5 languages are selectable online

#### Application

OP 73micro Operator Panels can be used wherever machines and systems are controlled and monitored locally – in production, process and building automation alike. They are used in all types of sectors and applications.

The OP 73micro has been designed specifically for use with the SIMATIC S7-200.

#### Compatibility

Same mounting cutout as for OP3 and TD 200

#### Design

- 3" LCD, 160 x 48 pixels, monochrome
- 8 system keys, 4 freely configurable function keys
- Numeric and alphanumeric input using cursor control keys
- Compact design with small installation depth
- Rugged plastic housing
- The front is resistant to various oils, greases and standard detergents
- Plug-in terminals for connecting a 24 V DC power supply
- RS 485 interface for connecting the MPI connecting cable or the PPI adapter

#### **SIMATIC OP 73micro**

#### Function

- Input/output fields for displaying and
- for displaying and changing process parameters Function keys

for direct triggering of functions and actions. Up to 16 functions can be configured simultaneously on function keys

Graphics

can be used as icons instead of text to "label" function keys or buttons. They can also be used as simple on-screen graphics. In the configuration tool, a library is available containing an extensive range of graphics and a wide variety of objects. All editors with an OLE interface can be used as graphics editors (such as PaintShop, Designer or CorelDraw)

 Predefined for labeling function keys, process images and process values in different font sizes

- Bars
- for the graphical display of dynamic values.
- Language selection during runtime
- 5 online languages, 32 configuration languages incl. Asian and Cyrillic character sets
- User administration (security) according to the requirements of the various sectors
  - Authentication using password
- · Signaling system
  - Discrete alarms
  - Analog messages
- Freely definable message classes (e.g., status/fault messages) for definition of acknowledgment response and display of message events
- Message history
- Help texts
- for process images, messages and variables
- Arithmetic functions
- Limit value monitoring for reliable process control of inputs and outputs
- Indicator light for machine and
- for machine and plant status indicationScheduler for global function execution
- Template concept Creation of picture templates (picture elements configured in the template appear in every image)
- User-friendly maintenance and configuration thanks to:
   Backup and restoration of configuration, operating system and firmware on a PC using ProSave
  - Configuration download serially via RS485
  - Individual contrast settings
  - No batteries are necessary

#### Configuring

SIMATIC WinCC flexible Micro, Compact, Standard or Advanced engineering software Version 2004 SP1 and higher plus HSP is used for configuration.

For more information about engineering software, see HMI software/engineering software SIMATIC WinCC flexible.

A PC/PPI adapter cable is needed to download the configuration.

#### Integration

The OP 73micro can be connected to all SIMATIC S7-200 CPUs using the standard MPI bus cables or PROFIBUS DP cables (integration into networks possible).

#### Note:

For further information see "System interfaces"

#### Technical specifications

	SIMATIC OP 73micro
Supply voltage	
Supply voltage	24 V DC
Permissible range	+20.4 V to +28.8 V DC
Rated current	0.1 A
Memory	
Type of storage	
• Type	Flash
<ul> <li>Memory usable for project data/Options</li> </ul>	128 KB usable memory for user data
Time	
Clock	
• Type	Software clock, not battery backed
Configuration	
Configuration tool	WinCC flexible Micro Version 2004 SP1, HSP or higher (to be ordered separately)
Display	
Display type	STN, Black/white
Size	3"
Resolution (WxH in pixel)	160 x 48
MTBF backlighting (at 25 °C)	about 100,000 hours
Operating mode	
Operating elements	Membrane keyboard
Function keys, programmable	4 function keys
System keys	8
Touchscreen	No
Numeric/alphabetical input	Yes / Yes
Connection for mouse/key- board/barcode reader	- / - / -
Ambient conditions	
Mounting position	Vertical
maximum permissible angle of incliniation without external ventilation	+/- 80 °
max. relative humidity (in %)	90%
Temperature	
<ul> <li>Operation (vertical installation)</li> </ul>	0 °C to +50 °C
Operation (max. tilt angle)	0 °C to +40 °C
<ul> <li>Transport, storage</li> </ul>	-20 °C to +60 °C
Degree of protection	
Front	IP65, NEMA 4x, (when installed)
Rear	IP20
Certifications & Standards	
Certifications	CE, GL, ABS, BV, DNV, LRS, UL, CSA, cULus, C-TICK, NEMA 4x
interfaces	
Interfaces	1 x RS485 (max. 187.5 Mbit/s)
Operating systems	
Operating system	LINUX
Processor	
Processor	ARM

# Operator Control and Monitoring Devices Micro Panels

### SIMATIC OP 73micro

Technical specifications (cont	inued)	Ordering data	Order No.
	SIMATIC OP 73micro	SIMATIC OP 73micro C	6AV6 640-0BA11-0AX0
Functionality under WinCC flexible		Operator panel for connection to the SIMATIC S7-200, with 2" display, monochromo incl	
Task planner	Yes	mounting accessories	
Help system	Yes	OP 73micro starter package	6AV6 650-0BA01-0AA0
Status/control	Not possible	Consisting of:	
Message system		OP 73micro Operator Panel	
Number of messages	250	SIMATIC WinCC flexible Micro	
Bit messages	Yes	engineering software	
Analog messages	Yes	SIMATIC HMI Manual     Collection 5 languages	
Message butter	Ring buffer (n x 100 entries)	(English, French, German,	
Number of process images	050	Italian, Spanish), comprising: all currently available user	
Process images	250	manuals, manuals and	
	500	SIMATIC HMI	
Limit values	res	• MPI cable (5 m)	
	res	(for test purposes)	
mage elements	1 000 toxt elemente	Configuration	
rext objects     Craphics chiest	Rit mana, jaona, jaon (full corpor)	with SIMATIC WinCC flexible	see HMI Software
dupamia object	Bit maps, icons, icon (iuii-screen)	Documentation (to be ordered sep	arately)
Lists	bai graphs	Operating Instructions OP 73micro/TP 177micro	
• Text lists	150	• German	6AV6 691-1DF01-0AA0
Graphics list	0	• English	6AV6 691-1DF01-0AB0
• Libraries	Yes	French	6AV6 691-1DF01-0AC0
Security		• Italian	6AV6 691-1DF01-0AD0
<ul> <li>Number of user groups</li> </ul>	1	• Spanish	6AV6 691-1DF01-0AE0
<ul> <li>Passwords exportable</li> </ul>	Yes	User Manual	
Number of users	1	WinCC flexible Micro	
Data medium support		• German	6AV6 691-1AA01-3AA0
<ul> <li>Multi Media Card</li> </ul>	No	• English	6AV6 691-1AA01-3AB0
Recording		• French	6AV6 691-1AA01-3AC0
Printer driver	-	• Italian	6AV6 691-1AA01-3AD0
Fonts		Spanish	6AV6 691-1AA01-3AE0
<ul> <li>Keyboard fonts</li> </ul>	US American (English)	SIMATIC HMI Manual Collection B	6AV6 691-1SA01-0AX0
Languages		Electronic documentation,	
<ul> <li>Online languages</li> </ul>	5		
<ul> <li>Configuration languages</li> </ul>	D, GB, F, I, E, CHN "traditional", CHN "simplified", DK, FIN, GR, J, KP / ROK, NL, N, PL, P, RUS, S, CZ / SK, TR, H	contains: all currently available user manuals, manuals and communication manuals for	
• Fonts	WinCC flexible Standard, symbol languages	SIMATIC HMI	
Transfer (Upload/Download)		Accessories	
<ul> <li>Transfer of configuration</li> </ul>	serial	ordering	from page 2/158
Process coupling			
Connection to controller	for S7-200, see section on "System interfaces"		
Expandability/openness			
Open Platform Program	No		
Dimensions			
Front of enclosure (W x H)	154 mm x 84 mm		
Mounting cutout/Device depth (W x H/D) in mm	138 mm x 68 mm / 28.5 mm device depth		
Weights		B) Subject to export regulations: AL: N	and ECCN: EAR99S
• Weight	0.25 kg	F) Subject to export regulations: AL: N	and ECCN: 5D002ENC3

#### **SIMATIC OP 73micro**

#### Dimensions

All specifications in mm. Panel cutout see technical specifications.





G\_ST80\_XX\_00144

#### More information

Additional information is available in the Internet under:

http://www.siemens.com/panels

#### Note

Do you need a specific modification or option for the products described here? Then look up "Customized products", where you will find information about additional sector-specific products that can be ordered as well as about options for customer-specific modification and adaptation.

## Operator Control and Monitoring Devices Micro Panels

#### SIMATIC TP 177micro

#### Overview



- Touch Panel for operator control and monitoring of small machines and plants
- Low-cost entry-level product in the category of touch panels with graphics capability and all the basic functions required for simple tasks
- Pixel graphics 5.7" STN touch screen (analog/resistive), Bluemode (4 levels)
- Specially for SIMATIC S7-200: Communication to the PLC through the integrated interface over a point-to-point link
- Connection to the PLC over MPI or PROFIBUS DP cable
- SIMATIC TP 177micro is the innovative successor to the Touch Panels SIMATIC TP 070/TP 170micro

#### Benefits

- Can even be used where installation space is restricted thanks to vertical installation
- Fast configuring and start-up
- Service-friendly thanks to maintenance-free design and the long service life of the backlighting
- Graphics library is available complete with ready-to-use display objects
- Can be used worldwide:
   32 languages can be configured (including Asiatic and Cyrillic character sets)
  - Up to 5 languages are selectable online

#### Application

TP 177micro Touch Panels can be used wherever small machines and systems are controlled and monitored locally – in production, process and building automation alike. They are used in all types of sectors and applications.

The TP 177micro has been designed specifically for use with the SIMATIC S7-200. With fast response times, it is also ideal for jog mode.

Compatibility with TP 070/TP 170micro

• Same mounting cutout as the TP 070/TP 170micro.

#### Design

- 5.7" STN display, CCFL<sup>1)</sup> backlit, Bluemode (4 levels)
- Resistive analog Touch
- Compact design with small installation depth
- Rugged plastic housing
- The front is resistant to various oils, greases and standard detergents
- Numeric system keyboard for decimal, binary and hexadecimal number formats
- On-screen alphanumeric keyboard
- Plug-in terminals for connecting a 24 V DC power supply
- RS 485 interface for connection of the MPI cable or the PPI adaptor
- <sup>1)</sup> Cold Cathode Fluorescence Lamps

#### **SIMATIC TP 177micro**

#### Function

- Input/output fields
  - for displaying and changing process parameters **Buttons**

for direct triggering of functions and actions. Up to 16 functions can be configured simultaneously on buttons

Graphics

can be used as icons instead of text to "label" function keys or buttons. They can also be used as background displays (wallpaper).

In the configuration tool, a library is available containing extensive graphics and a wide variety of objects. All editors with an OLE interface can be used as graphics editors (such as PaintShop, Designer or CorelDraw).

- Vector graphics Simple geometric basic forms (line, circle and rectangle) can be created direct in the configuring tool
- Predefined texts for labeling function keys, process images and process values in any character size
- Bars •

for the graphical display of dynamic values

- · Changing languages
- 5 online languages, 32 configuration languages incl. Asian and Cyrillic character sets
- User administration (security)
- Authentication using password
- · Signaling system
  - Discrete alarms
  - Analog messages
  - Freely definable message classes (e.g., status/fault messages) for definition of acknowledgment response and display of message events - Message history
- Help texts
- for process images, messages and variables
- Arithmetic functions
- Limit value monitoring
- for reliable process control of inputs and outputs
- Indicator light for machine and plant status indication
- Template concept Creation of picture templates (picture elements configured in the template appear in every image)
- User-friendly maintenance and configuration thanks to: - Backup and restoration of configuration, operating system and firmware on a PC using ProSave
  - Configuration download serially via RS485
  - Individual contrast setting and calibration
  - Clean screen
- No batteries are necessary

#### Configuring

SIMATIC WinCC flexible Micro, Compact, Standard or Advanced engineering software Version 2004 SP1 and higher plus HSP is used for configuration. For more information about engineering software, see HMI software/engineering software SIMATIC WinCC flexible. A PC/PPI adapter cable is needed to download the configuration.

#### Integration

The TP 177micro can be connected to all SIMATIC S7-200-CPUs using the standard MPI bus cables or PROFIBUS DP cables (integration into networks possible).

Note:

For further information see "System interfaces".

#### SIMATIC TP 177micro

### Technical specifications

	SIMATIC TP 177micro
Supply voltage	
Supply voltage	24 V DC
Permissible range	+20.4 V to +28.8 V DC
Rated current	0.24 A
Memory	
Type of storage	
• Type	Flash
Memory usable for project data/Options	256 KB
Time	
Clock	
• Туре	Software clock, not battery backed
Configuration	
Configuration tool	WinCC flexible Micro Version 2004 SP1, HSP or higher (to be ordered separately)
Display	
Display type	STN, 4 shades of blue
Size	5.7"
Resolution (WxH in pixel)	320 x 240
MTBF backlighting (at 25 °C)	about 50,000 hours
Operating mode	
Operating elements	Touch screen
Function keys, programmable	None
System keys	None
Touchscreen	analog, resistive
Numeric/alphabetical input	Yes / Yes
Ambient conditions	
Mounting position	Vertical
Maximum permissible angle of incliniation without external ventila-	+/- 35 °
Max. relative humidity (in %)	90%
Temperature	
Operation (vertical installation)	0 °C to +50 °C
Operation (max. tilt angle)	0 °C to +40 °C
• Transport, storage	-20 °C to +60 °C
Degree of protection	
Front	IP65, NEMA 4x, (when installed)
Rear	IP20
Certifications & Standards	
Certifications	CE, GL, ABS, BV, DNV, LRS, FM Class I Div. 2, UL, CSA, cULus, EX-Zone 2 (available soon), EX-Zone 22 (available soon), C-TICK, NEMA 4x
interfaces	
Interfaces	1 x RS485 (max. 187.5 Mbit/s)
Operating systems	
Operating system	LINUX
Processor	
Processor	ARM

	SIMATIC TP 177micro
Functionality under WinCC flexible	
Task planner	Yes
Help system	Yes
Status/control	Not possible
Message system	
<ul> <li>Number of messages</li> </ul>	500
• Bit messages	Yes
<ul> <li>Analog messages</li> </ul>	Yes
Message buffer	Ring buffer (n x 128 entries)
Number of process images	
<ul> <li>Process images</li> </ul>	250
Variables	250
Limit values	Yes
Multiplexing	Yes
Image elements	
Text objects	500 text elements
Graphics object	Bit maps, icons, icon (full-screen), vector graphics
<ul> <li>dynamic objects</li> </ul>	Diagrams, bar graphs
Lists	
Text lists	150
<ul> <li>Graphics list</li> </ul>	100
Libraries	Yes
Security	
Number of user groups	1
Passwords exportable	Yes
Number of users	1
Data medium support	
Multi Media Card	No
Becording	
Printer driver	_
Fonts	
Keyboard fonts	LIS American (English)
Onling languages	5
Configuration longuages	
Configuration languages	CHN "simplified", DK, FIN, GR, J, KP / ROK, NL, N, PL, P, RUS, S, CZ / SK, TR, H
• Fonts	WinCC flexible Standard, symbol languages
Transfer (Upload/Download)	
<ul> <li>Transfer of configuration</li> </ul>	serial
Process coupling	
Connection to controller	for S7-200, see section on "System interfaces"
Expandability/openness	
Open Platform Program	No
Dimensions	
Front of enclosure (W x H) in mm	212 x 156
Mounting cutout/Device depth (W x H/D) in mm	198 x 142 / 45
Weight	0.75 kg

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#### SIMATIC TP 177micro

adda adda	Order No.	Dimensions		
SIMATIC TP 177micro C	6AV6 640-0CA11-0AX1	All specifications in mm. Panel cutout see technical specifi		
Touch Panel for connection to the SIMATIC S7-200, 5.7" STN display				
TP 177micro starter package F	6AV6 650-0DA01-0AA0	-		
Consisting of:		242		
TP 177micro Touch Panel				
SIMATIC WinCC flexible Micro     engineering software				
<ul> <li>SIMATIC HMI Manual Collection (DVD),</li> <li>5 languages (English, French, German, Italian, Spanish),</li> <li>comprising: all currently avail- able user manuals, manuals and communication manuals for SIMATIC HMI</li> </ul>				
<ul> <li>MPI cable (5m) (for test purposes)</li> </ul>				
Configuration		_		
with SIMATIC WinCC flexible	see HMI Software			
Documentation (to be ordered sepa	rately)	-		
Operating Instructions OP 73micro, TP 177micro		Additional information is available in the Internet up		
• German	6AV6 691-1DF01-0AA0	<u>http://www.siemens.com/panels</u> <u>Note:</u> Do you need a specific modification or option for the pr		
• English	6AV6 691-1DF01-0AB0			
• French	6AV6 691-1DF01-0AC0			
• Italian	6AV6 691-1DF01-0AD0			
• Spanish	6AV6 691-1DF01-0AE0			
WinCC flexible Micro User Manual		you will find information about additional sector-specifi products that can be ordered as well as about options		
• German	6AV6 691-1AA01-3AA0	customer-specific modification and adaptation.		
• English	6AV6 691-1AA01-3AB0			
French	6AV6 691-1AA01-3AC0			
• Italian	6AV6 691-1AA01-3AD0			
• Spanish	6AV6 691-1AA01-3AE0			
SIMATIC HMI Manual Collection B	6AV6 691-1SA01-0AX0			
Electronic documentation, on DVD				
5 languages (English, French, German, Italian, Spanish); contains: all currently available user manuals, manuals and communication manuals for SIMATIC HMI				
Accessories		_		

F) Subject to export regulations: AL: N and ECCN: 5D002ENC3

# **Operator Control and Monitoring Devices Mobile Panels**

#### Overview

#### SIMATIC Mobile Panel

- Mobile operator panel for direct operator control of the plant and machine from any point
- Supports optimized monitoring of the workpiece or process providing at the same time direct access and direct line of sight to the operator panel
- Flexible application with simple reconnection during operation (Mobile Panel 177 and Mobile Panel 277) or
- Wireless freedom (Mobile Panel 277(F) IWLAN)
- Pixel-graphics, brilliant color display with touch screen (analog/resistive)
- PROFIBUS or PROFINET communication, PROFINET through WLAN with Mobile Panel 277(F) IWLAN
- Freely configurable and inscribable function keys (with LED) (not on Mobile Panel 277 10")

#### SIMATIC Mobile Panel 177 and SIMATIC Mobile Panel 277

- Two three-stage enabling buttons;
- Optional versions include:
- STOP pushbutton STOP button, handwheel, key-operated switch and two illuminated pushbuttons (not for Mobile Panel 277 10")
- Communication is supported via a serial link, MPI/PROFIBUS
   Benefits or **PROFINET**
- Connection point recognition for local identification of the device based on the connection point ID
- Fast system availability after plugging into the connectivity boxes
- Connected to the PLC and power supply via the junction box and the connecting cable

#### SIMATIC Mobile Panel 277 (F) IWLAN

- · Wireless, mobile operator panel for flexible and locationindependent system and machine operation
- WLAN communication in accordance with IEEE 802.11 a (b/g) and support of PROFINET
- Powerful batteries and flexible concept for changing permit battery replacement "on the fly" without interrupting operation
- · Effective range limitation and the local identification of the device by using transponder technology
- Optional variants with: Handwheel, key switch and illuminated pushbutton
- Fail-safe operator controls of the SIMATIC Mobile Panel 277F IWLAN using PROFIsafe:
  - Two three-stage enabling buttons
  - Emergency stop button

#### **IWLAN Access Points SCALANCE W for SIMATIC Mobile** Panel 277(F) IWLAN

The Access Points of the product line SCALANCE W-780 are ideally suited for setting up Industrial Wireless LAN (IWLAN) radio networks for 2.4 GHz and 5 GHz with data rates of up to 54 Mbit/s; they can be used for all applications that require a high degree of operational reliability, even under extremely harsh ambient conditions

- Suitable for any application:
- SCALANCE W-788 for cabinet-free installation SCALANCE W-786 for cabinet-free installation, also with
- integral antennas SCALANCE W-784 for installation in control cabinets or
- integration into devices
- · Wireless communication suitable for use in applications with high real-time and reliability requirements, such as PROFINET, PROFIsafe or video
- Standard-compliant thanks to IEEE 802.11 support, additional functional expansions especially for use with increased reliability
- · Effective encryption mechanisms protect against unauthorized access, spying, tapping, and corruption
- The SINEMA E engineering tool, wizards and online help support planning, simulation, configuration and documentation; easy management with the web server and SNMP
- Fast commissioning of the Access Points thanks to the optional swap medium PRESET-PLUG and fast device replacement in the event of a fault thanks to the optional swap medium C-PLUG (Configuration Plug)
- Accessories such as antennas, connectors, cables incl. RCoax cables (radiating cables) that are tuned to one another for a reliable radio link.

- · Flexible connection to the process, cabled or wireless
- Increases productivity, minimizes the engineering outlay, reduces the lifecycle costs
- Fast and accurate setup as well as positioning
- Reliable operation with perfected safety concept
- · Ergonomic, compact and light-weight
- · Rugged for industrial use
- Integral component of Totally Integrated Automation (TIA):
- Graphics library available with off-the-shelf picture objects
- The data in the message buffer is in retentive memory
- · Can be used worldwide:
  - 32 languages can be configured (incl. Asian and Cyrillic character sets)
  - Up to 16 online languages can be directly switched over on the Mobile Panel
- · Reduction of service and commissioning costs through: - Backup/restoration via a process interface or optionally via a standard multi-media card
  - Transfer of the configuration with automatic transfer recognition via all device interfaces
  - Long service life of the backlighting
- Simple engineering supported by comprehensive documentation on the SIMATIC HMI Manual Collection DVD

Introduction

#### Introduction

#### Application

Regardless of the industry or application, if mobility is required for the on-site control and monitoring of machines and plants, SIMATIC mobile panels offer some crucial advantages: The machine operators or commissioning engineers are able to work exactly where they have the best view of the workpiece or process.

Even for larger production facilities, complex or enclosed machines, long materials handling or production lines and conveyor systems, mobile operator panels allow fast and precise setting up and positioning during commissioning. They also ensure shorter downtimes during retooling, maintenance or repairs.

#### Design

- Ergonomic and compact with different holding and gripping points (suitable for right-handed and left-handed personnel)
- Pixel-graphics, brilliant color display with touch screen (analog/resistive)
- Freely configurable and inscribable function keys (with LED) (not on Mobile Panel 277 10")
- The front is resistant to various oils, greases and standard detergents
- Extremely imnpact-resistant due to twin-wall construction and rounded encosure
- Dust-proof and jet-proof casing with degree of protection IP65 on all sides
- Slot for a standard MultiMediaCard for configuration backup and restoring or for storing recipes
- Two three-stage enabling buttons
- Optional variants with
- STOP pushbutton or
- STOP button, handwheel, key-operated switch and
- illuminated pushbutton (not on Mobile Panel 277 10") - The STOP pushbutton is secured specifically with a
- "protective collar". If the STOP pushbutton is looped into the emergency-stop circuit, its function is equivalent to an emergency stop.
- Integrated serial, MPI and PROFIBUS interface (up to 12 Mbit/s)

#### or

- Integral Ethernet (PROFINET) interface (up to 100 Mbit/s)
- Connection to the PLC via the rugged and reliable junction boxes with degree of protection IP65:
  - "Basic" junction box: Enables the STOP pushbutton to be integrated into the safety circuit
- "Plus" junction box: Enables the STOP pushbutton to be integrated into the safety circuit without interruption when disconnecting the device. The emergency stop circuit remains closed regardless of whether a Mobile Panel is plugged in or not. If the Mobile Panel is disconnected during operation, the emergency stop circuit in the junction box Plus is automatically closed which prevents triggering of the emergency stop circuit.
- Fast system availability after plugging into the junction boxes
   An optional rechargeable battery pack can be used to avoid restarting of the Mobile Panel (following brief disconnection from the junction box).
- Detection of the connection point can be used to perform machine-specific HMI authorizations or actions depending on the selected connection point

#### Sophisticated safety concept

The two enabling buttons (acc. to EN 60204-1) with three switching steps each ensure the protection of personnel and machines in critical situations. They are built into into the rear handle.

The STOP pushbutton (acc. to EN 60204-1) is hard-wired and positively latches when pressed. It can be looped into the emergency-stop circuit of a plant in which case it takes on the functionality of an emergency stop pushbutton, but is distinct with its gray color. This ensures that it cannot be mistaken for the emergency stop equipment. This is especially important when the Mobile Panel is not connected to the machine. SIMATIC Mobile Panels offer the option of making safety functions available on a mobile basis at any point of a machine or plant.

STOP pushbuttons and enabling buttons are implemented according to safety regulations with two circuits and comply with the requirements of Safety Category 3 according to EN 954-1.

#### Innovative connection concept

The Mobile Panel is simply plugged into the junction box wherever it is needed in the plant and is immediately ready for use. The junction box can be installed anywhere, even outside the control cabinet. It ensures fault-free plugging and unplugging during normal operation and, therefore, allows the operatorcontrol location to be easily and safely changed when several connection points are available in a plant or machine.

The location of a Mobile Panel can be clearly identified by setting an ID number on the junction box. This identifier permits the user to configure Mobile Panels in such a way that, for example, the user interface changes according to the connection point. The Mobile Panel establishes the connection to the controllers after being plugged into the junction boxes and following a short start-up period. An optional rechargeable battery pack can be used to avoid restarting of the Mobile Panel (following brief disconnection from the junction box).

#### Configuration options with emergency stop wiring

Panels with a STOP pushbutton can be integrated into the emergency stop circuit of a machine or plant via the junction box. When the STOP pushbutton on the Mobile Panel is pressed, the emergency stop function is activated. The STOP pushbutton on the Mobile Panel supplements but does not replace the emergency stop equipment installed on the machine according to EN 418. When the Mobile Panel is unplugged, "Plus" versions of the junction box automatically close the emergency stop circuit, thereby ensuring safe and fault-free changeover (swapping).

Introduction

#### Design (continued)

Connection at one point of the machine

When the "Basic" junction box variant is used, unplugging the Mobile Panel interrupts the emergency stop circuit and, therefore, triggers the emergency stop function. This configuration is, therefore, best suited for applications in which the Mobile Panel is connected to a fixed point on the machine (example configuration: Mobile Panel 177).

#### Wiring into the Emergency Stop circuit with connection box Basic DP or PN



#### Flexible connection at various points on a machine or in a plant

If a Mobile Panel with a STOP pushbutton is used in combination with a "Plus" junction box, a configuration is possible in which the Mobile Panel can be used flexibly and is also looped into the emergency stop circuit. The emergency stop circuit remains closed regardless of whether a Mobile Panel is plugged into a junction box or not. When the Mobile Panel is plugged in, the equipment is looped into the emergency stop circuit and when the STOP pushbutton is pressed, the circuit will be interrupted and the emergency stop function triggered. If the Mobile Panel is unplugged during operation, the emergency stop circuit is automatically closed in the "Plus" junction box variant (example configuration: Mobile Panel 177).



#### Introduction

#### Design (continued)

#### SIMATIC Mobile Panel 277 (F) IWLAN

- WLAN communication in accordance with IEEE 802.11 a (b/g) and support of PROFINET
- Two versions as pure W-LAN HMI device without backup function (Mobile Panel 277 IWLAN) and two versions and fail-safe PROFIsafe device with emergency stop button and acknowledgement button (Mobile Panel 277F IWLAN)
- Powerful batteries and flexible concept for changing permit battery replacement "on the fly" without interrupting operation due to integrated backup battery
- Limited effective range (Mobile Panel 277F IWLAN) and local identification of the device (Mobile Panel 277F IWLAN) by using transponder technology, comparable with connection point recognition with cabled Mobile Panels
- Optional variants with: Handwheel, key switch and illuminated pushbutton
- Fail-safe control elements of the SIMATIC Mobile Panel 277F IWLAN using PROFIsafe:
  - Two three-stage acknowledgement buttons
  - Emergency stop button

#### Mobile operation and monitoring in industrial wireless LAN

The SIMATIC Mobile Panel 277(F) IWLAN enables integration as a WLAN client in wireless LAN networks. This makes it possible to implement a full-fledged mobile HMI device, which can also perform tasks that are not possible with stationary or cabled devices.

Reliable and rugged WLAN networks can be created using SCALANCE W IWLAN access points. The configuration and simulation software SINEMA E permits reliable WLAN planning ahead of time.

The device is configured – just like the cabled Mobile Panels – with WinCC flexible. The compatibility and continuity permit easy and problem-free migration of existing projects to the wireless device.

Transponders have been developed especially for the Mobile Panel 277(F) IWLAN and can be used for the local identification of the Mobile Panel in the plant. Comparable with the connection point recognition (Box-ID) for cabled Mobile Panels, these transponders can be used to configure location-dependent functions, e.g. the automatic switchover to a different display when a certain zone is accessed, or releasing/blocking of functions from the control zone. On the fail-safe Mobile Panel with enable button and emergency stop button (Mobile Panel 277F IWLAN), the transponders perform another task: The safetyrelated release of the enable button for hazardous operations.

#### Full safety function - even wireless!

The SIMATIC Mobile Panel 277F IWLAN is integrated via PROFINET and PROFIsafe into the safety-oriented program (Distributed Safety) of a SIMATIC F-CPU. Incorporating and removing Mobile Panels is possible during runtime. Both of the safety-related functions "enable button" and "emergency stop button" comply with SIL 3 in accordance with IEC 61508 or Category 4 in accordance with EN 954-1 and PLe/Cat. 4 in accordance with EN ISO 13849-1 and are certified by BGIA and TÜV. A detailed safety manual is delivered with the Mobile Panel 277F IWLAN, along with a CD containing the required F function blocks for integration in the F-program. The F-FBs are tested and certified - this enables a problem-free and simple integration of the Mobile Panel. The emergency stop button is immediately available WLANwide as soon as the Mobile Panel 277F IWLAN is booted up and the PROFISAFE connection is established with the F-CPU via IWLAN. To use the enable button locally, transponders must be installed in the intended control stations. This allows the Mobile Panel to register for safety-related operation.

Configuration of the transponder and the effective range is also handled comfortably with WinCC flexible. After configuration and commissioning, the effective range in the system is approved to ensure the consistency of the planning and configuration. The effect that the emergency stop button and the enable button should have and which response to certain events (e.g. leaving the WLAN range) they should have is defined by configuration the F-FBs in the F-CPU – taking account of the safety-relevant properties of the machine. If the Mobile Panel is not used any longer or if the device should be removed, it is to be moved to a specified location.

The Mobile Panel 277F IWLAN offers extensive diagnostic and status information (e.g. concerning the battery charge status, WLAN functionality, and quality of the effective range) and thus provides the user – if necessary, supported by the integrated vibration alarm – with full control of the device and system operation at all times.

#### System components for wireless Mobile Panels

Besides the four device versions, the following system components are offered (to be ordered individually):

For charging the battery in the Mobile Panel (which can be replaced without tools), either

- the table-top power supply 6AV6 671-5CN00-0AX1 (incl. power cable for EU, US, UK, JP) is required (only suitable for operation under laboratory/office conditions) or
- the charger 6AV6 671-5CE00-0AX0, which enables safe charging of the device (incl. lock for securing the device in the charger) and can load up to two additional batteries in parallel (IP65)

For quick and interruption-free battery replacement during operation

 Additional battery 6AV6 671-5CL00-0AX0 with LED indicator for charge status indication

To create zones (optional for all versions) and mandatory for using the enable button in the effective ranges with Mobile Panel 277F IWLAN:

 Transponder 6AV6 671-5CM00-0AX0 (incl. batteries for selfsufficient operation over several years, no cabling is required on the transponder).
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# Operator Control and Monitoring Devices Mobile Panels – 170 series

## **SIMATIC Mobile Panel 177**

#### Overview



#### Function

- Input/output fields for displaying and changing process values
- Function keys

for direct triggering of functions and actions. Up to 16 functions can be configured simultaneously on function keys. The function keys can also be used as PROFIBUS DP input peripherals or directly as PROFINET IO. The function keys can also be reconfigured as system keys. A frequently used function such as "Acknowledge alarm" can thus be applied to a function key.

- Additional command components such as handwheel, keyswitch and illuminated pushbutton can be connected to a variable or as a direct control over PROFIBUS DP input peripherals (DP direct keys) or PROFINET IO (direct keys).
- Buttons for direct triggering of functions and actions. Up to 16 functions can be configured simultaneously on buttons.
- Graphics

can be used as symbols instead of text to "label" function keys or buttons. They can also be used as background displays (wallpaper).

In the configuration software, a comprehensive library is available containing graphics and a wide variety of objects. All editors with an OLE interface can be used as graphics editors (such as PaintShop, Designer or CorelDraw).

- Vector graphics; simple geometric basic forms (e.g. lines, circles and rectangles) can be created direct in the configuring software
- Text fields for labeling function keys, process images and process values in any character size
- Curve displays and bars are used for the display of dynamic values in graphics-based format
- Display selection from the controller permits operator prompting from the controller
- Language selection;
   5 online languages, 32 configuration languages incl. Asian and Cyrillic character sets
- Language-dependent texts and graphics
- User administration (security)
  - User-oriented access protection according to requirements of specific sectors
  - Authentication with user ID and password
  - User-group-specific rights
- Signaling system
  - Discrete alarms and analog alarms (limit value messages) as well as the ALARM\_S message frame procedure for SIMATIC S7 and SIMOTION
  - Freely definable message classes (e.g., status/fault messages) for definition of acknowledgment response and display of message events
- Message buffer
- Non-volatile, maintenance-free and battery-free message buffer. The messages are retained even when the Mobile Panel is disconnected

## **SIMATIC Mobile Panel 177**

## Function (continued)

- Recipe management
  - With additional data storage (on optional multi-media card) Online/offline processing on the panel

  - Storage of recipe data in standard Windows format (CSV) - External processing using standard tools such as Excel and
  - Access is possible
- Help texts for process images, messages and variables
- Arithmetic functions
- Limit value monitoring
- for reliable process control of inputs and outputs
- Indicator light for machine and plant status indication
- Scheduler for cyclic function execution
- · Dynamic positioning of objects and dynamic showing/hiding of objects
- Permanent window and template concept - Creation of screen templates:
- Simple maintenance and configuration thanks to:
- Backup and restoration of the project, operating system, recipe data records and firmware on the optional standard multi-media card
- Backup and restoration of configuration, operating system, recipe data sets and firmware on a PC using ProSave
- Project transfer/return over MPI/PROFIBUS DP/serial or PRÓFINET
- Automatic transfer identification
- Individual contrast settings
- Project simulation directly on the configuration computer
- WinCC flexible options
  - Sm@rtService for remote operator control and monitoring of SIMATIC HMI systems based on TCP/IP networks
  - Sm@rtAccess for communication between HMI systems based on TCP/IP networks. Remote access to recipe data sets, passwords and information specific to the HMI system, and much more.
- Migration

- Any existing Mobile Panel 170 junction boxes can be used in conjunction with the Mobile Panel 177 because they are fully compatible. The new function of connection-point detection can only be used in conjunction with a Mobile Panel 177 with a DP or PN junction box.

- Projects created for the Mobile Panel 170 using ProTool can be used again easily in WinCC flexible.

#### Configuring

Configuration is carried out with the SIMATIC WinCC flexible Compact, Standard or Advanced engineering software (see SIMATIC WinCC flexible HMI software/engineering software). SIMATIC WinCC flexible is the logical further development of the field-proven ProTool family. Projects generated using ProTool can be easily migrated to WinCC. If WinCC flexible is started directly from SIMATIC Manager, data in STEP 7 can be accessed directly when the panel is configured. Duplicated data input and data management is, therefore, avoided.

## Integration

In the case of the Mobile Panel 177 DP, communication with the PLC can be implemented via PROFIBUS DP at up to 12 Mbit/s, via MPI or via the serial interface. The necessary interfaces are already onboard. A variety of drivers - even for PLCs from other suppliers - are supplied as standard.

In the case of the Mobile Panel 177 PN, communication with the PLC can be implemented via PROFINET at up to 100 Mbit/s. The necessary interfaces are already onboard. These are supplied with the device.

Using the DP interface boxes the Mobile Panel 177 DP can be connected to:

- SIMATIC S7-200/-300/-400
- SIMATIC WinAC Software/Slot PLC
- SIMOTION
- SIMATIC S5
- SIMATIC 505
- PLCs from other manufacturers
  - Allen Bradley
  - Mitsubishi
  - Modicon Modbus
  - GE-Fanuc
  - LG GLOFA GM
  - OMRON
  - Telemechanique Uni-Telway
- SINUMERIK

(optionally with "SINUMERIK HMI copy licence WinCC flexible ČĖ"; "SINUMERIK HMI engineering package WinCC flexible" is additionally required for configuring; For further details, see Catalog NC 60)

Using the DP junctions boxes the Mobile Panel 177 PN can be connected to:

- SIMATIC S7-200/-300/-400
- WinAC Software
- SIMOTION

#### Note:

The unwanted operation of a Mobile Panel 177 DP (PROFIBUS) on a PN (PROFINET) junction box and vice versa is not possible and is mechanically blocked. Further information can be found under "System interfaces".

Technical specifications			
SIMATIC Mobile Panel 177 DP (MPI/RPOFIBUS)	with integrated enabling button	with integrated enabling button and STOP pushbutton	with integrated enabling button, STOP pushbutton, handwheel, key-operated switch and illuminated pushbutton
Supply voltage			
Supply voltage	via connection box	via connection box	via connection box
Backup battery			
Battery operation	maximum buffer time 10 min	maximum buffer time 10 min	maximum buffer time 10 min
Memory			
Type of storage			
• Type	Flash / RAM	Flash / RAM	Flash / RAM
<ul> <li>Memory usable for project data/Options</li> </ul>	2048 KB of usable memory for user data / no user memory for options	2048 KB of usable memory for user data / no user memory for options	2048 KB of usable memory for user data / no user memory for options
Configuration			
Configuration tool	WinCC flexible Compact Version 2005 or higher (to be ordered separately)	WinCC flexible Compact Version 2005 or higher (to be ordered separately)	WinCC flexible Compact Version 2005 or higher (to be ordered separately)
Display			
Display type	STN, 256 colors	STN, 256 colors	STN, 256 colors
Size	5.7" (121 mm x 92 mm)	5.7" (121 mm x 92 mm)	5.7" (121 mm x 92 mm)
Resolution (WxH in pixel)	320 × 240	320 x 240	320 x 240
MTBF backlighting (at 25 °C)	about 50,000 hours	about 50,000 hours	about 50,000 hours
Expansions to operator			
DP direct LEDs (LEDs as S7 output I/O)	F1F8	F1F8	F1F8
DP direct keys (screen buttons and keys as S7 input I/O )	F1F14	F1F14	F1F14
Operating mode			
Operating options	Keys and Touch	Keys and Touch	Keys and Touch
Function keys, programmable	14 function keys, 8 with LEDs	14 function keys, 8 with LEDs	14 function keys, 8 with LEDs
System keys	none	none	none
Touchscreen	analog, resistive	analog, resistive	analog, resistive
Numeric/alphabetical input	Yes / Yes	Yes / Yes	Yes / Yes
STOP pushbutton	No	2-channel, enforced latching (can be looped into the emergency stop circuit)	2-channel, enforced latching (can be looped into the emergency stop circuit)
Acknowledgement button	2-channel, number of positions: 3	2-channel, number of positions: 3	2-channel, number of positions: 3
Key-opeated switch	No	No	Yes, 3 switch settings
illuminated pushbutton	No	No	Yes
Handwheel	No	No	Yes
Degree of protection			
IP65 housing	Yes	Yes	Yes
Certifications & Standards			
Certifications	CE, cULus, C-TICK, SIBE	CE, cULus, C-TICK, SIBE	CE, cULus, C-TICK, SIBE
<ul> <li>Safety category according to EN954-1</li> </ul>	Safety category according to EN954-1 (enabling button, STOP button if present) 3	Safety category according to EN954-1 (enabling button, STOP button if present) 3	Safety category according to EN954-1 (enabling button, STOP button if present) 3
Ambient conditions	1	1	
max. relative humidity (in %)	80%	80%	80%
Drop height	1.5 m	1.5 m	1.5 m
Temperature			
Operation	0 °C to +40 °C	0 °C to +40 °C	0 °C to +40 °C
Transport, storage	-20 °C to +60 °C	-20 °C to +60 °C	-20 °C to +60 °C
LED colors	Green	Green	Green
Acoustics	No	No	No

## SIMATIC Mobile Panel 177

## Technical specifications (continued)

SIMATIC Mobile Panel 177 DP (MPI/RPOFIBUS)	with integrated enabling button	with integrated enabling button and STOP pushbutton	with integrated enabling button, STOP pushbutton, handwheel, key-operated switch and illuminated pushbutton
Interfaces			
Interfaces	1 x RS422, 1 x RS485 (max. 12 Mbit/s)	1 x RS422, 1 x RS485 (max. 12 Mbit/s)	1 x RS422, 1 x RS485 (max. 12 Mbit/s)
PC card slot	No	No	No
CF card slot	No	No	No
Multi Media Card slot	1 x Multi Media Card slot	1 x Multi Media Card slot	1 x Multi Media Card slot
USB	No	No	No
Ethernet	No	No	No
Operating systems			
Operating system	Windows CE	Windows CE	Windows CE
Processor			
Processor	RISC 32-bit, 200 MHz	RISC 32-bit, 200 MHz	RISC 32-bit, 200 MHz
Functionality under WinCC flexible			
Applications/options	None	None	None
Number of Visual Basic scripts	Not possible	Not possible	Not possible
Task planner	Yes	Yes	Yes
Help system	Yes	Yes	Yes
Status/control	with SIMATIC S7	with SIMATIC S7	with SIMATIC S7
Message system			
<ul> <li>Number of messages</li> </ul>	2 000	2 000	2 000
<ul> <li>Bit messages</li> </ul>	Yes	Yes	Yes
<ul> <li>Analog messages</li> </ul>	Yes	Yes	Yes
Message buffer	Ring buffer (n x 256 entries), retentive, maintenance-free	Ring buffer (n x 256 entries), retentive, maintenance-free	Ring buffer (n x 256 entries), retentive, maintenance-free
Recipes			
• Recipes	100	100	100
<ul> <li>Data records per recipe</li> </ul>	200	200	200
<ul> <li>Entries per data record</li> </ul>	200	200	200
Recipe memory	32 KB integrated Flash, expandable	32 KB integrated Flash, expandable	32 KB integrated Flash, expandable
Number of process images			
<ul> <li>Process images</li> </ul>	500	500	500
Variables	1 024	1 024	1 024
Limit values	Yes	Yes	Yes
Multiplexing	Yes	Yes	Yes
Image elements			
<ul> <li>Text objects</li> </ul>	2,500 text elements	2,500 text elements	2,500 text elements
<ul> <li>Graphics object</li> </ul>	Bit maps, vector graphics	Bit maps, vector graphics	Bit maps, vector graphics
<ul> <li>dynamic objects</li> </ul>	Diagrams, bar graphs, sliders, invisible buttons	Diagrams, bar graphs, sliders, invisible buttons	Diagrams, bar graphs, sliders, invisible buttons
Lists			
Text lists	300	300	300
<ul> <li>Graphics list</li> </ul>	100	100	100
Libraries	Yes	Yes	Yes
Security			
<ul> <li>Number of user groups</li> </ul>	50	50	50
<ul> <li>Passwords exportable</li> </ul>	Yes	Yes	Yes
<ul> <li>Number of user rights</li> </ul>	32	32	32

Fechnical specifications (continued)				
SIMATIC Mobile Panel 177 DP (MPI/RPOFIBUS)	with integrated enabling button	with integrated enabling button and STOP pushbutton	with integrated enabling button, STOP pushbutton, handwheel, key-operated switch and illuminated pushbutton	
Functionality under WinCC flexible (continued)				
Data medium support				
• PC card	No	No	No	
• CF card	No	No	No	
Multi Media Card	Yes	Yes	Yes	
Recording				
<ul> <li>Recording/Printing</li> </ul>	-	-	-	
Printer driver	-	-	-	
Fonts				
<ul> <li>Keyboard fonts</li> </ul>	US American (English)	US American (English)	US American (English)	
Languages				
Online languages	5	5	5	
Configuration languages	D, GB, F, I, E, CHN "traditional", CHN "simplified", DK, FIN, GR, J, KP / ROK, NL, N, PL, P, RUS, S, CZ / SK, TR, H	D, GB, F, I, E, CHN "traditional", CHN "simplified", DK, FIN, GR, J, KP / ROK, NL, N, PL, P, RUS, S, CZ / SK, TR, H	D, GB, F, I, E, CHN "traditional", CHN "simplified", DK, FIN, GR, J, KP / ROK, NL, N, PL, P, RUS, S, CZ / SK, TR, H	
• Fonts	Tahoma, WinCC flexible Standard, symbol languages, all freely scal- able	Tahoma, WinCC flexible Standard, symbol languages, all freely scal- able	Tahoma, WinCC flexible Standard, symbol languages, all freely scal- able	
Transfer (Upload/Download)				
Transfer of configuration	MPI/PROFIBUS DP, serial, auto- matic transfer recognition	MPI/PROFIBUS DP, serial, auto- matic transfer recognition	MPI/PROFIBUS DP, serial, auto- matic transfer recognition	
Process coupling				
Connection to controller	S5, S7-200, S7- 300/400, TI 505, Win AC, SINUMERIK, SIMOTION, Allen Bradley (DF1), Allen Bradley (DF485), Mitsubishi (FX), OMRON (LINK/Multilink), Modicon (Mod- bus), other non-Siemens drivers, See section "System Links"	S5, S7-200, S7- 300/400, TI 505, Win AC, SINUMERIK, SIMOTION, Allen Bradley (DF1), Allen Bradley (DF485), Mitsubishi (FX), OMRON (LINK/Multilink), Modicon (Mod- bus), other non-Siemens drivers, See section "System Links"	S5, S7-200, S7- 300/400, TI 505, Win AC, SINUMERIK, SIMOTION, Allen Bradley (DF1), Allen Bradley (DF485), Mitsubishi (FX), OMRON (LINK/Multilink), Modicon (Mod- bus), other non-Siemens drivers, See section "System Links"	
Expandability/openness				
Open Platform Program	Yes	Yes	Yes	
Mechanics				
Type of housing (front)	Plastic	Plastic	Plastic	
Dimensions				
Housing diameter/depth (mm)	245 mm / 58 mm	245 mm / 58 mm	245 mm / 58 mm	
Weights				
Weight	1.3 kg	1.3 kg	1.3 kg	

## SIMATIC Mobile Panel 177

## Technical specifications

SIMATIC Mobile Panel 177 PN (PROFINET)	with integrated enabling button	with integrated enabling button and STOP pushbutton	with integrated enabling button, STOP pushbutton, handwheel, key-operated switch and illuminated pushbutton
Supply voltage			
Supply voltage	via connection box	via connection box	via connection box
Backup battery			
Battery op.	maximum buffer time 10 min	maximum buffer time 10 min	maximum buffer time 10 min
Memory			
Type of storage			
• Туре	Flash / RAM	Flash / RAM	Flash / RAM
<ul> <li>Memory usable for project da- ta/Options</li> </ul>	2048 KB of usable memory for user data / no user memory for options	2048 KB of usable memory for user data / no user memory for options	2048 KB of usable memory for user data / no user memory for options
Configuration			
Configuration tool	WinCC flexible Compact Version 2005 or higher (to be ordered separately)	WinCC flexible Compact Version 2005 or higher (to be ordered separately)	WinCC flexible Compact Version 2005 or higher (to be ordered separately)
Display			
Display type	STN, 256 colors	STN, 256 colors	STN, 256 colors
Size	5.7" (121 mm x 92 mm)	5.7" (121 mm x 92 mm)	5.7" (121 mm x 92 mm)
Resolution (WxH in pixel)	320 × 240	320 × 240	320 × 240
MTBF backlighting (at 25 °C)	about 50,000 hours	about 50,000 hours	about 50,000 hours
Expansions to operator process- communication			
DP direct LEDs (LEDs as S7 output I/O)	F1F8	F1F8	F1F8
DP direct keys (screen buttons and keys as S7 input I/O )	F1F14	F1F14	F1F14
Operating mode			
Operating options	Keys and Touch	Keys and Touch	Keys and Touch
Function keys, programmable	14 function keys, 8 with LEDs	14 function keys, 8 with LEDs	14 function keys, 8 with LEDs
System keys	0	0	0
Touchscreen	analog, resistive	analog, resistive	analog, resistive
Numeric/alphabetical input	Yes / Yes	Yes / Yes	Yes / Yes
STOP pushbutton	No	2-channel, enforced latching (can be looped into the emergency stop circuit)	2-channel, enforced latching (can be looped into the emergency stop circuit)
Acknowledgement button	2-channel, number of positions: 3	2-channel, number of positions: 3	2-channel, number of positions: 3
Key-opeated switch	No	No	Yes, 3 switch settings
illuminated pushbutton	No	No	Yes
Handwheel	No	No	Yes
Degree of protection			
IP65 housing	Yes	Yes	Yes
Certifications & Standards			
Certifications	CE, cULus, C-TICK, SIBE	CE, cULus, C-TICK, SIBE	CE, cULus, C-TICK, SIBE
<ul> <li>Safety category according to EN954-1</li> </ul>	Safety category according to EN954-1 (enabling button, STOP button if present) 3	Safety category according to EN954-1 (enabling button, STOP button if present) 3	Safety category according to EN954-1 (enabling button, STOP button if present) 3
Ambient conditions			
max. relative humidity (in %)	80%	80%	80%
Drop height	1.5 m	1.5 m	1.5 m
Temperature			
Operation	0 °C to +40 °C	0 °C to +40 °C	0 °C to +40 °C
• Transport, storage	-20 °C to +60 °C	-20 °C to +60 °C	-20 °C to +60 °C

Technical specifications (con	itinued)			
SIMATIC Mobile Panel 177 PN (PROFINET)	with integrated enabling button	with integrated enabling button and STOP pushbutton	with integrated enabling button, STOP pushbutton, handwheel, key-operated switch and illuminated pushbutton	
I/O Options				
I/O devices	Printer	Printer	Printer	
LED colors	Green	Green	Green	
Acoustics	No	No	No	
Interfaces				
Interfaces	1 x RS485, 1 x Ethernet (RJ45)	1 x RS485, 1 x Ethernet (RJ45)	1 x RS485, 1 x Ethernet (RJ45)	
PC card slot	No	No	No	
CF card slot	No	No	No	
Multi Media Card slot	1 x Multi Media Card slot	1 x Multi Media Card slot	1 x Multi Media Card slot	
USB	No	No	No	
Operating systems				
Operating system	Windows CE	Windows CE	Windows CE	
Processor				
Processor	RISC 32-bit, 200 MHz	RISC 32-bit, 200 MHz	RISC 32-bit, 200 MHz	
Functionality under WinCC flexible				
Applications/options	Sm@rtService, Sm@rtAccess	Sm@rtService, Sm@rtAccess	Sm@rtService, Sm@rtAccess	
Number of Visual Basic scripts	Not possible	Not possible	Not possible	
Task planner	Yes	Yes	Yes	
Help system	Yes	Yes	Yes	
Status/control	with SIMATIC S7	with SIMATIC S7	with SIMATIC S7	
Message system				
<ul> <li>Number of messages</li> </ul>	2 000	2 000	2 000	
• Bit messages	Yes	Yes	Yes	
<ul> <li>Analog messages</li> </ul>	Yes	Yes	Yes	
Message buffer	Ring buffer (n x 256 entries), retentive, maintenance-free	Ring buffer (n x 256 entries), retentive, maintenance-free	Ring buffer (n x 256 entries), retentive, maintenance-free	
Recipes				
Recipes	100	100	100	
<ul> <li>Data records per recipe</li> </ul>	200	200	200	
<ul> <li>Entries per data record</li> </ul>	200	200	200	
Recipe memory	32 KB integrated Flash, expandable	32 KB integrated Flash, expandable	32 KB integrated Flash, expandable	
Number of process images				
<ul> <li>Process images</li> </ul>	500	500	500	
Variables	1 024	1 024	1 024	
Limit values	Yes	Yes	Yes	
Multiplexing	Yes	Yes	Yes	
Image elements				
<ul> <li>Text objects</li> </ul>	2,500 text elements	2,500 text elements	2,500 text elements	
<ul> <li>Graphics object</li> </ul>	Bit maps, vector graphics	Bit maps, vector graphics	Bit maps, vector graphics	
<ul> <li>dynamic objects</li> </ul>	Diagrams, bar graphs, sliders, invisible buttons	Diagrams, bar graphs, sliders, invisible buttons	Diagrams, bar graphs, sliders, invisible buttons	
Lists				
• Text lists	300	300	300	
Graphics list	100	100	100	
Libraries	Yes	Yes	Yes	

## SIMATIC Mobile Panel 177

## Technical specifications (continued)

SIMATIC Mobile Panel 177 PN (PROFINET)	with integrated enabling button	with integrated enabling button and STOP pushbutton	with integrated enabling button, STOP pushbutton, handwheel, key-operated switch and illuminated pushbutton
Functionality under WinCC flexible (continued)			
Security			
<ul> <li>Number of user groups</li> </ul>	50	50	50
Passwords exportable	Yes	Yes	Yes
Number of user rights	32	32	32
Data medium support			
PC card	No	No	No
• CF card	No	No	No
Multi Media Card	Yes	Yes	Yes
Recording			
Recording/Printing	-	-	-
Printer driver	-	-	-
Fonts			
<ul> <li>Keyboard fonts</li> </ul>	US American (English)	US American (English)	US American (English)
Languages			
Online languages	5	5	5
Configuration languages	D, GB, F, I, E, CHN "traditional", CHN "simplified", DK, FIN, GR, J, KP / ROK, NL, N, PL, P, RUS, S, CZ / SK, TR, H	D, GB, F, I, E, CHN "traditional", CHN "simplified", DK, FIN, GR, J, KP / ROK, NL, N, PL, P, RUS, S, CZ / SK, TR, H	D, GB, F, I, E, CHN "traditional", CHN "simplified", DK, FIN, GR, J, KP / ROK, NL, N, PL, P, RUS, S, CZ / SK, TR, H
• Fonts	Tahoma, WinCC flexible Standard, symbol languages, all freely scalable	Tahoma, WinCC flexible Standard, symbol languages, all freely scalable	Tahoma, WinCC flexible Standard, symbol languages, all freely scalable
Transfer (Upload/Download)			
• Transfer of configuration	serial, Ethernet, automatic transfer recognition	serial, Ethernet, automatic transfer recognition	serial, Ethernet, automatic transfer recognition
Process coupling			
Connection to controller	S7-200, S7- 300/400, Win AC, PC (TCP/IP), SIMOTION See section "System Links"	S7-200, S7- 300/400, Win AC, PC (TCP/IP), SIMOTION See section "System Links"	S7-200, S7- 300/400, Win AC, PC (TCP/IP), SIMOTION See section "System Links"
Expandability/openness			
Open Platform Program	Yes	Yes	Yes
Mechanics			
Type of housing (front)	Plastic	Plastic	Plastic
Dimensions			
Housing diameter/depth (mm)	245 mm / 58 mm	245 mm / 58 mm	245 mm / 58 mm
Weights			
Weight	1.3 kg	1.3 kg	1.3 kg

## **SIMATIC Mobile Panel 177**

Ordering data	Order No.		Order No.
SIMATIC Mobile Panel 177 DP		Configuration	
(MPI/PROFIBUS) <sup>17</sup>		with SIMATIC WinCC flexible	see HMI Software
• With integr. enabling button F	6AV6 645-0AA01-0AX0	Documentation (to be ordered sep	arately)
With integr. enabling button F and STOP pushbutton	6AV6 645-0AB01-0AX0	User Manual WinCC flexible Compact/Standard/Advanced	
<ul> <li>With integr. acknowledgement F button STOP button hand-</li> </ul>	6AV6 645-0AC01-0AX0	• German	6AV6 691-1AB01-3AA0
wheel, key-operated switch		• English	6AV6 691-1AB01-3AB0
		French	6AV6 691-1AB01-3AC0
(PROFINET) <sup>1)</sup>		• Italian	6AV6 691-1AB01-3AD0
With integr. enabling button	6AV6 645-0BA01-0AX0	• Spanish	6AV6 691-1AB01-3AE0
• With integr. enabling button F and STOP pushbutton	6AV6 645-0BB01-0AX0	WinCC flexible Communication User Manual	
• With integr. acknowledgement F	6AV6 645-0BC01-0AX0	• German	6AV6 691-1CA01-3AA0
button, STOP button, hand- wheel key-operated switch		• English	6AV6 691-1CA01-3AB0
and illuminated pushbutton		• French	6AV6 691-1CA01-3AC0
Mobile Panel 177 PN	6AV6 651-5DA01-0AA0	• Italian	6AV6 691-1CA01-3AD0
Plus starter kit		Spanish	6AV6 691-1CA01-3AE0
<ul> <li>Mobile Panel 177 PN with inte- grated enabling button, STOP</li> </ul>		SIMATIC HMI Manual Collection B	6AV6 691-1SA01-0AX0
pushbutton, handwheel, key-op- erated switch and illuminated		Electronic documentation, on DVD	
PN Plus connection box		5 languages (English, French, German, Italian and Spanish):	
PN connecting cable 10 m		contains: all currently available	
• Wall holder		user manuals, manuals and communication manuals for	
SIMATIC WinCC flexible		SIMATIC HMI	
Compact		System components for Mobile Pa	nels
• SIMATIC HMI Manual Collection (DVD), 5 languages (English, Erench, German, Italian		DP junction box for Mobile Panels (MPI/PROFIBUS)	
Spanish)		• Basic	6AV6 671-5AE00-0AX0
<ul> <li>Software Update Service for 1 year</li> </ul>		Plus A     PN junction box for Mobile	6AV6 671-5AE10-0AX0
Mobile Panel 177 DP F	6AV6 651-5BA01-0AA0	Panel (PROFINET)	· · · · · · · · · · · · · · · · · · ·
		• Basic A	6AV6 671-5AE01-0AX0
<ul> <li>Mobile Panel 177 DP with inte- grated enabling button, STOP pushbutton, handwheel, key- operated switch and illuminated</li> </ul>		Plus     A     DP connecting cable     (MPI/PROFIBUS)	6AV6 671-5AE11-0AX0
pushbutton		Standard cables	
<ul> <li>DP Plus junction box</li> </ul>		• 2 m	6XV1 440-4AH20
• DP connecting cable, 10 m		• 5 m	6XV1 440-4AH50
• Wall holder		• 10 m	6XV1 440-4AN10
SIMATIC WinCC flexible		• 15 m	6XV1 440-4AN15
		• 25 m	6XV1 440-4AN25
(CD), 5 languages (English, French, German, Italian, Spanich)		Intermediate lengths <sup>2)</sup> • 8 m	6XV1 440-4AH80
Software Update Service for 1 year		• 20 m	6XV1 440-4AN20
A) Subject to export regulations: AL: I	N and ECCN: EAR99H		

B) Subject to export regulations: AL: N and ECCN: EAR99S

F) Subject to export regulations: AL: N and ECCN: 5D002ENC3

 The system components (connecting cables and connection boxes) must be ordered separately.

<sup>2)</sup> Delivery time approximately 6 weeks

## **SIMATIC Mobile Panel 177**

Ordering data	Order No.		
System components for Mobile Panels			
PN connecting cable (PROFINET)			
Standard cables			
• 2 m	6XV1 440-4BH20		
• 5 m	6XV1 440-4BH50		
• 8 m	6XV1 440-4BH80		
• 10 m	6XV1 440-4BN10		
• 15 m	6XV1 440-4BN15		
• 20 m	6XV1 440-4BN20		
• 25 m	6XV1 440-4BN25		
Accessories			
Accessories for Mobile Panels	see HMI accessories, from page 2/158		

### Dimensions

All specifications in mm.



Mobile Panel 177 - front and side view

## More information

Additional information is available in the Internet under:

http://www.siemens.com/mobile-panels

## Note

Do you need a specific modification or option for the products described here? Then look up "Customized products", where you will find information about additional sector-specific products that can be ordered as well as about options for customer-specific modification and adaptation.

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# Operator Control and Monitoring Devices Mobile Panels – 270 series

## **SIMATIC Mobile Panel 277**

### Overview



#### Function

- Input/output fields for displaying and changing process values
- Function keys

for direct triggering of functions and actions. Up to 16 functions can be configured simultaneously on function keys. The function keys can also be used as PROFIBUS DP input peripherals or directly as PROFINET IO. The function keys can also be reconfigured as system keys. A frequently used function such as "Acknowledge alarm" can thus be applied to a function key. No function keys are available on the Mobile Panel 277 10".

Additional command components

such as handwheel, keyswitch and illuminated pushbutton can be connected to a variable or as a direct control over PROFIBUS DP input peripherals (DP direct keys) or PROFINET IO (direct keys). No additional operator controls are available on the Mobile

Panel 277 10".

Buttons

are used for direct triggering of functions and actions. Up to 16 functions can be configured simultaneously on buttons.

• Graphics

can be used as symbols instead of text to "label" function keys or buttons. They can also be used as full-screen background images.

In the configuration software, a comprehensive library is available containing graphics and a wide variety of objects. All editors with an OLE interface can be used as graphics editors (such as PaintShop, Designer or CorelDraw).

- Vector graphics; simple geometric basic forms (e.g. lines, circles and rectangles) can be created direct in the configuration software
- Text fields for labeling function keys, process images and process values in any character size
- Curve displays and bars are used for the display of dynamic values in graphics-based format
- Display selection from the controller permits operator prompting from the controller
- Presentation of HTML documents with MS Pocket Internet Explorer
- Visual Basic Script, flexibility thanks to the implementation of new functions including linking to variables (comparison operations, loops, etc.)
- Language switching 16 online languages, 32 configuration languages incl. Asiatic and Cyrillic character sets
  - Language-dependent texts and graphics
- User administration (security)
  - User-oriented access protection according to requirements of specific sectors
  - Authentication with user ID and password
  - User-group-specific rights
- Signaling system
  - Discrete alarms and analog alarms (limit value messages) as well as the ALARM\_S message frame procedure for SIMATIC S7 and SIMOTION
  - Freely definable message classes (e.g., status/fault messages) for definition of acknowledgment response and display of message events
- Message buffer
  - Non-volatile, maintenance-free and battery-free message buffer. The messages are retained even when the Mobile Panel is disconnected

## **SIMATIC Mobile Panel 277**

## **Function** (continued)

- Recipe management
  - With additional data storage (on optional multi-media card)
     Online/offline processing on the panel
  - Storage of recipe data in standard Windows format (CSV)
  - External processing using standard tools such as Excel and
- Access is possible
  Help texts
  - for process images, messages and variables
- Arithmetic functions
- Limit value monitoring for reliable process control of inputs and outputs
- Indicator light for machine and plant status indication
- Scheduler for cyclic function execution
- Dynamic positioning of objects and dynamic showing/hiding of objects
- Permanent window and template concept
   Creation of screen templates:
- Simple maintenance and configuration thanks to:
- Backup and restoration of the project, operating system, recipe data records and firmware on the optional standard multi-media card
- Backup and restoration of configuration, operating system, recipe data sets and firmware on a PC using ProSave
- Project transfer/return over MPI/PROFIBUS DP/serial or PROFINET
- Automatic transfer identification
- Individual contrast settings
- Project simulation directly on the configuration computer
- WinCC flexible options
  - Sm@rtService for remote operator control and monitoring of SIMATIC HMI systems based on TCP/IP networks
  - Sm@rtAccess for communication between HMI systems based on TCP/IP networks. Remote access to recipe data sets, passwords and information specific to the HMI system, and much more.
  - OPC server Communication with applications (e.g. MES, ERP, or applications in the office sector) from various manufacturers (see HMI Software/runtime software SIMATIC WinCC flexible /WinCC flexible RT options)
  - Audit

#### Configuration

Configuration is carried out with the SIMATIC WinCC flexible Compact, Standard or Advanced engineering software (see SIMATIC WinCC flexible HMI Software/engineering software). SIMATIC WinCC flexible is the logical further development of the field-proven ProTool family. Projects generated using ProTool can be easily migrated to WinCC. If WinCC flexible is started directly from SIMATIC Manager, data in STEP 7 can be accessed directly when the panel is configured. Double data entry and data storage are prevented this way.

## Integration

The SIMATIC Mobile Panel 277 is generally provided for optional PROFIBUS or PROFINET communication. No distinction is made at device level.

This means the device can either be operated

- for the communication via MPI/PROFIBUS with the DP cables and connection to the DP "Basic" or "Plus" connection boxes or
- for the communication via PROFINET with the PN cables and connection to the PN "Basic" or "Plus" connection boxes

.A variety of drivers – even for PLCs from other suppliers – are supplied as standard.

Using the DP connection boxes, the Mobile Panel 277 DP can be connected to:

- SIMATIC S7-200/-300/-400
- SIMATIC WinAC Software/Slot PLC
- SIMOTION
- SIMATIC S5
- SIMATIC 505
- PLCs from other manufacturers
- Allen Bradley
- Mitsubishi
- Modicon Modbus
- GE-Fanuc
- LG GLOFA GM
- OMRON
- SINUMERIK

(optionally with "SINUMERIK HMI copy licence WinCC flexible CE"; "SINUMERIK HMI engineering package WinCC flexible" is additionally required for configuring; For further details, see Catalog NC 60)

Using the PN connection boxes, the Mobile Panel 277 can be connected to:

- SIMATIC S7-200/-300/-400
- WinAC Software
- SIMOTION
- Over Ethernet (TCP/IP) to a higher-level PC, network printer

#### Note:

Further information can be found under "System interfaces".

Technical specifications				
SIMATIC Mobile Panel 277	8" with integrated enabling button	8" with integrated enabling button and STOP push- button	8" with integrated enabling button, STOP push- button, handwheel, key-operated switch and illuminated pushbutton	10" with integrated enabling button and STOP push- button
Supply voltage				
Supply voltage	via connection box	via connection box	via connection box	via connection box
Backup battery				
Battery operation	maximum buffer time 10 m	in		
Memory				
Туре	Flash / RAM	Flash / RAM	Flash / RAM	Flash / RAM
Memory usable for project data	6 MB	6 MB	6 MB	6 MB
Time				
Clock				
• Туре	Hardware clock, battery ba	ackup, synchronizable		
Protocols				
PROFINET	Yes	Yes	Yes	Yes
PROFINET IO	Yes	Yes	Yes	Yes
Configuration				
Configuration tool	WinCC flexible Standard Version 2005 SP1 or higher (to be ordered separately)	WinCC flexible Standard Version 2005 SP1 or higher (to be ordered separately)	WinCC flexible Standard Version 2005 SP1 or higher (to be ordered separately)	WinCC flexible Standard Version 2008 or higher (to be ordered separately)
Display				
Display type	TFT, 65536 colors	TFT, 65536 colors	TFT, 65536 colors	TFT, 65536 colors
Size	7.5"	7.5"	7.5"	10.4"
Resolution (WxH in pixel)	640 × 480	640 x 480	640 × 480	800 × 600
MTBF backlighting (at 25 °C)	about 50 000 h	about 50 000 h	about 50 000 h	about 50 000 h
Expansions to operator process communication				
DP direct LEDs (LEDs as S7 output I/O)	F1F18	F1F18	F1F18	-
DP direct keys (screen buttons and keys as S7 input I/O )	F1F18, Number of bytes for configurable buttons: 10	F1F18, Number of bytes for configurable buttons: 10	F1F18, Number of bytes for configurable buttons: 10	-
Operating mode				
Operating options	Keys and Touch	Keys and Touch	Keys and Touch	Touch
Function keys, programmable	18 function keys, 18 with LEDs	18 function keys, 18 with LEDs	18 function keys, 18 with LEDs	None
Touchscreen	analog, resistive	analog, resistive	analog, resistive	analog, resistive
Numeric/alphabetical input	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes
Connection for mouse/key- board/barcode reader	USB / USB / USB	USB / USB / USB	USB / USB / USB	USB / USB / USB
STOP pushbutton	No	2-channel, enforced latching	ng (can be looped into the e	mergency stop circuit)
Acknowledgement button	2-channel, number of posi	tions: 3		
Key-opeated switch	No	No	Yes, 3 switch settings	No
illuminated pushbutton	No	No	Yes; Two illuminated pushbuttons	No
Handwheel	No	No	Yes	No
Ambient conditions				
max. relative humidity (in %)	80%	80%	80%	90%
Drop height	1.2 m	1.2 m	1.2 m	1 m
Temperature				
Operation	0 °C to +40 °C	0 °C to +40 °C	0 °C to +40 °C	0 °C to +40 °C
<ul> <li>Transport, storage</li> </ul>	-20 °C to +60 °C	-20 °C to +60 °C	-20 °C to +60 °C	-20 °C to +60 °C

Technical specifications (cor	ntinued)			
SIMATIC Mobile Panel 277	8" with integrated enabling button	8" with integrated enabling button and STOP push- button	8" with integrated enabling button, STOP push- button, handwheel, key-operated switch and illuminated pushbutton	10" with integrated enabling button and STOP push- button
Degree of protection			indiminated pushbutton	
IP65 housing	Voc	Voc	Voc	Voc
Certifications & Standards	165	165	165	
Certifications	CE CHILLIS CLTICK SIBE	CE duiture Catick SIBE	CE CHILLIS CLTICK SIBE	CE duiture Catick Sibe
Safety category according to EN954-1	Safety category according to EN954-1 (enabling button, STOP button if present) 3	Safety category according to EN954-1 (enabling button, STOP button if present) 3	Safety category according to EN954-1 (enabling button, STOP button if present) 3	Safety category according to EN954-1 (enabling button, STOP button if present) 3
I/O devices				
I/O devices	Printer, barcode reader	Printer, barcode reader	Printer, barcode reader	Printer, barcode reader
LED colors	Green	Green	Green	-
Interfaces				
Interfaces	1 x RS422, 1 x RS485 (max. 12 Mbit/s), 1 x Ethernet (RJ45)	1 x RS422, 1 x RS485, (max. 12 Mbit/s), 1 x Ethernet (RJ45)	1 x RS422, 1 x RS485, (max. 12 Mbit/s), 1 x Ethernet (RJ45)	1 x RS422, 1 x RS485 (max. 12 Mbit/s), 1 x Ethernet (RJ45)
Multi Media Card slot	1 x Multi Media Card slot	1 x Multi Media Card slot	1 x Multi Media Card slot	1 x Multi Media Card slot
USB	1 x USB	1 x USB	1 x USB	1 x USB
Operating systems				
Operating system	Windows CE	Windows CE	Windows CE	Windows CE
Processor				
Processor	ARM, 520 MHz	ARM, 520 MHz	ARM, 520 MHz	ARM
Functionality under WinCC flexible				
Applications/options	Internet Explorer, Sm@rtSe	ervice, Sm@rtAccess		
Number of Visual Basic scripts	50	50	50	50
Task planner	Yes	Yes	Yes	Yes
Help system	Yes	Yes	Yes	Yes
Status/control	with SIMATIC S7	with SIMATIC S7	with SIMATIC S7	with SIMATIC S7
Message system				
<ul> <li>Number of messages</li> </ul>	4 000	4 000	4 000	4 000
<ul> <li>Bit messages</li> </ul>	Yes	Yes	Yes	Yes
<ul> <li>Analog messages</li> </ul>	Yes	Yes	Yes	Yes
Message buffer	Ring buffer (n x 512 entries), retentive, maintenance-free	Ring buffer (n x 512 entries), retentive, maintenance-free	Ring buffer (n x 512 entries), retentive, maintenance-free	Ring buffer (n x 512 entries), retentive, maintenance-free
Recipes				
Recipes	300	300	300	300
<ul> <li>Data records per recipe</li> </ul>	500	500	500	200
<ul> <li>Entries per data record</li> </ul>	1000	1000	1000	1000
Recipe memory	64 KB integrated Flash, expandable	64 KB integrated Flash, expandable	64 KB integrated Flash, expandable	64 KB integrated Flash, expandable
Number of process images				
<ul> <li>Process images</li> </ul>	500	500	500	500
• Variables	2 048	2 048	2 048	2 048
Limit values	Yes	Yes	Yes	Yes
Multiplexing	Yes	Yes	Yes	Yes
Image elements				
<ul> <li>Text objects</li> </ul>	10 000 text elements	10 000 text elements	10 000 text elements	10 000 text elements
<ul> <li>Graphics object</li> </ul>	Bit maps, icons, vector gra	aphics		
<ul> <li>Dynamic objects</li> </ul>	Diagrams, bar graphs, sliders, analog display, invisible buttons			

iechnical specifications (cont	inued)			
SIMATIC Mobile Panel 277	8" with integrated enabling button	8" with integrated enabling button and STOP push- button	8" with integrated enabling button, STOP push- button, handwheel, key-operated switch and illuminated pushbutton	10" with integrated enabling button and STOP push- button
Functionality under WinCC flexible (continued)				
Lists				
Text lists	500	500	500	500
<ul> <li>Graphics list</li> </ul>	400	400	400	400
Libraries	Yes	Yes	Yes	Yes
Archiving				
Number of archives per project	20	20	20	20
Number of measuring points per project	20	20	20	20
<ul> <li>Number of entries per archive</li> </ul>	10 000	10 000	10 000	10 000
Memory location	Multi Media Card	Multi Media Card	Multi Media Card	Multi Media Card
Security				
<ul> <li>Number of user groups</li> </ul>	50	50	50	50
<ul> <li>Passwords exportable</li> </ul>	Yes	Yes	Yes	Yes
<ul> <li>Number of user rights</li> </ul>	32	32	32	32
Data medium support				
Multi Media Card	Yes	Yes	Yes	Yes
Recording				
Recording/Printing	Alarms, report (shift report), color print, hardcopy	Alarms, report (shift report), color print, hardcopy	Alarms, report (shift report), color print, hardcopy	
Fonts				
<ul> <li>Keyboard fonts</li> </ul>	US American (English)			
Languages				
<ul> <li>Online languages</li> </ul>	16	16	16	16
<ul> <li>Configuration languages</li> </ul>	D, GB, F, I, E, CHN "traditic CZ / SK, TR, H	onal", CHN "simplified", DK, F	FIN, GR, J, KP / ROK, NL, N,	PL, P, RUS, S,
• Fonts	Tahoma, Arial, Courier New, WinCC flexible Stan- dard, symbol languages, all freely scalable	Tahoma, Arial, Courier New, WinCC flexible Stan- dard, symbol languages, all freely scalable	Tahoma, Arial, Courier New, WinCC flexible Stan- dard, symbol languages, all freely scalable	Tahoma, Arial, Courier New, WinCC flexible Stan- dard, symbol languages, all freely scalable
Transfer (Upload/Download)				
<ul> <li>Transfer of configuration</li> </ul>	MPI/PROFIBUS DP, USB, E	Ethernet, automatic transfer i	recognition	
Process coupling				
Connection to controller	S5, S7-200, S7- 300/400, TI 505, Win AC, PC (TCP/IP), SINUMERIK, SIMOTION, Allen Bradley (DF1), Allen Bradley (DF485), Mitsubishi (FX), OMRON (LINK/Multilink), Modicon (Modbus), other non-Siemens drivers, See "System Links"	S5, S7-200, S7- 300/400, TI 505, SINUMERIK, SIMOTION, Allen Bradley (DF1), Allen Bradley (DF485), Mitsubishi (FX), OMRON (LINK/Multilink), Modicon (Modbus), other non-Siemens drivers, See "System Links"	S5, S7-200, S7- 300/400, TI 505, SINUMERIK, SIMOTION, Allen Bradley (DF1), Allen Bradley (DF485), Mitsubishi (FX), OMRON (LINK/Multilink), Modicon (Modbus), other non-Siemens drivers, See "System Links"	S5, S7-200, S7- 300/400, TI 505, Win AC, SINUMERIK, SIMOTION, Allen Bradley (DF1), Allen Bradley (DF485), Mitsub- ishi (FX), OMRON (LINK/Multilink), Modicon (Modbus), other non-Siemens drivers, See "System Links"
Mechanics				
Type of housing (front)	Plastic	Plastic	Plastic	Plastic
Dimensions Housing diameter/depth (mm)	290 / 103	290/103	290 / 103	350 x 320 / 103
Weights Weight	17ka	17 kg	1.7 kg	23 kg
WOIGHT	L. I. NU			L.U NU

## SIMATIC Mobile Panel 277

Ordering data	Order No.
SIMATIC Mobile Panel 277 8"1)	
With integr. enabling button     F	6AV6 645-0CA01-0AX0
• With integr. enabling button F and STOP pushbutton	6AV6 645-0CB01-0AX0
• With integr. enabling button, F STOP pushbutton, handwheel, key-operated switch and illuminated pushbutton	6AV6 645-0CC01-0AX0
SIMATIC Mobile Panel 277 10"	
• With integr. enabling button and F STOP pushbutton	6AV6 645-0BE02-0AX0
SIMATIC Mobile Panel 277 8" starter package	
for:	
• DP communication F	6AV6 651-5EB01-0AA0
PN communication     F	6AV6 651-5FB01-0AA0
Configuration	
with SIMATIC WinCC flexible	see HMI software
Documentation (to be ordered sep	parately)
Operating Instructions for Mobile Panel 277	
• German	6AV6 691-1DL01-0AA0
• English	6AV6 691-1DL01-0AB0
• French	6AV6 691-1DL01-0AC0
Italian	6AV6 691-1DL01-0AD0
• Spanish	6AV6 691-1DL01-0AE0
User Manual WinCC flexible Compact/Standard/Advanced	
• German	6AV6 691-1AB01-3AA0
• English	6AV6 691-1AB01-3AB0
• French	6AV6 691-1AB01-3AC0
Italian	6AV6 691-1AB01-3AD0
• Spanish	6AV6 691-1AB01-3AE0
WinCC flexible Communication User Manual	
• German	6AV6 691-1CA01-3AA0
• English	6AV6 691-1CA01-3AB0
• French	6AV6 691-1CA01-3AC0
• Italian	6AV6 691-1CA01-3AD0
<ul> <li>Spanish</li> </ul>	6AV6 691-1CA01-3AE0

A) Subject to export regulations: AL: N and ECCN: EAR99H

B) Subject to export regulations: AL: N and ECCN: EAR99S

F) Subject to export regulations: AL: N and ECCN: 5D002ENC3

 The system components (connecting cables and connection boxes) must be ordered separately.

<sup>2)</sup> Delivery time approximately 6 weeks

	Order No.
SIMATIC HMI Manual Collection B	6AV6 691-1SA01-0AX0
Electronic documentation, on DVD	
5 languages (English, French, German, Italian and Spanish); contains: all currently available user manuals, manuals and com- munication manuals for SIMATIC HMI	
System components for Mobile Pa	nnels
DP connection box for Mobile Panels (MPI/PROFIBUS)	
• Basic	6AV6 671-5AE00-0AX0
• Plus A	6AV6 671-5AE10-0AX0
PN connection box for Mobile Panel (PROFINET)	
• Basic A	6AV6 671-5AE01-0AX0
• Plus A	6AV6 671-5AE11-0AX0
DP connecting cable (MPI/PROFIE	SUS)
Standard cables	
2 m	6XV1 440-4AH20
5 m	6XV1 440-4AH50
10 m	6XV1 440-4AN10
15 m	6XV1 440-4AN15
25 m	6XV1 440-4AN25
Intermediate lengths <sup>2)</sup>	
8 m	6XV1 440-4AH80
20 m	6XV1 440-4AN20
PN connecting cable (PROFINET)	
Standard cables	
2 m	6XV1 440-4BH20
5 m	6XV1 440-4BH50
8 m	6XV1 440-4BH80
10 m	6XV1 440-4BN10
15 m	6XV1 440-4BN15
20 m	6XV1 440-4BN20
25 m	6XV1 440-4BN25
Accessories	
Accessories for Mobile Panels	see HMI accessories, from page 2/158

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# Operator Control and Monitoring Devices Mobile Panels – 270 series

## **SIMATIC Mobile Panel 277**

## Dimensions

All specifications in mm.



More information

Additional information is available in the Internet under:

http://www.siemens.com/mobile-panels

## Note

Do you need a specific modification or option for the products described here? Then look up "Customized products", where you will find information about additional sector-specific products that can be ordered as well as about options for customer-specific modification and adaptation.

Mobile Panel 277 8" - front and side view



Mobile Panel 277 10" - front and side view

## SIMATIC Mobile Panel 277 (F) IWLAN

## Overview



#### Function

- Input/output fields
  - for displaying and changing of process values
- Function keys

are used for directly actuating functions and actions. Up to 16 functions can be configured simultaneously on function keys. The function keys can also be used directly as PROFINET IO. The function keys can also be reconfigured as system keys. A function that is used frequently such as "Acknowledge message" can be allocated to a function key this way.

- Auxiliary control elements such as handwheels, key switches and illuminated pushbuttons can be assigned with a variable or as a direct actuation via PROFINET IO (direct keys)
- Buttons

are used for directly actuating functions and actions. Up to 16 functions can be configured simultaneously on buttons

• Graphics

can be used as symbols instead of text for "labeling" function keys or buttons. They can also be used as background displays (wallpaper).

In the configuration software, a comprehensive library is available containing graphics and a wide variety of objects. All editors with an "OLE" interface can be used as graphic editors, e.g. Paint-Shop, Designer, CorelDraw, etc.

- Vector graphics Simple geometric basic forms (e.g. lines, circles and rectangles) can be created directly in the configuration software
- Text fields for labeling function keys, process screens and process values in any font size
- Trend views and bars are used for the graphic display of dynamic values
- Display selection from the controller supports operator prompting from the controller
- Presentation of HTML documents with MS Pocket Internet Explorer
- Visual Basic Script, flexibility thanks to the implementation of new functions including linking to variables (comparison operations, loops, etc.)

Language switching 16 online languages, 32 configuration languages incl. Asiatic and Cyrillic character sets

- Language-dependent texts and graphics

- User administration (security)
  - User-oriented access protection according to requirements of specific sectors
  - Authentication with user name and password
  - User-group-specific rights
- Signaling system
  - Discrete and analog alarms (edge alarms) as well as the ALARM\_S message frame procedure for SIMATIC S7
  - Freely definable message classes (e.g. status/fault messages) for definition of acknowledgment response and display of alarm events
- Message buffer
- Non-volatile, maintenance-free and message buffer without battery. The messages remain stored when the mobile panel has the battery removed as well
- Recipe management
  - With additional data storage (on optional Multi Media Card)
     Online/offline processing on the panel
  - Storage of recipe data in standard Windows format (CSV)
  - External processing using standard tools Excel and Access is possible
- Help texts
- for process images, messages and variables
- Arithmetic functions
- Limit value monitoring
  - for reliable process control of inputs and outputs
- Message lamps for displaying machine and system status
- Task planner for cyclic function processing
- Dynamic positioning of objects and dynamic showing/hiding of objects
- Permanent window and template concept - Creation of screen templates
- Simple maintenance and configuration thanks to:
  - Save and restore (Backup/Restore) projects, operating system, recipe data records and firmware to the optional standard Multi Media Card
  - Backup and restoration (Backup/Restore) of the configuration, operating system, recipe data records and firmware on a PC with ProSave
  - Project transfer/return transfer via PROFINET/WLAN
  - Automatic transfer identification
  - Individual brightness setting
  - Project simulation directly on the configuration computer
- WinCC flexible options
  - Sm@rtService for remote operation and monitoring of SIMATIC HMI systems based on TCP/IP networks
  - Sm@rtAccess for communication between HMI systems based on TCP/IP networks. Remote access to recipe data records, passwords and HMI system-specific information and much more. (Mobile Panel 277F IWLAN as server: View only)
  - OPC server: Communication with applications (e.g. MES, ERP, or applications in the office sector) from various manufacturers (see HMI software/runtime software SIMATIC WinCC flexible/WinCC flexible RT options)
  - Audit

#### Function (continued)

#### Configuration

Configuration is carried out with the SIMATIC WinCC flexible Standard or Advanced configuration software (see SIMATIC WinCC flexible HMI software/engineering software). SIMATIC WinCC flexible is a consistent further development of the proven ProTool family. Projects created with ProTool can be comfortably transferred to WinCC. If WinCC flexible is started directly from the SIMATIC Manager, the data in STEP 7 can be accessed directly while configuring the panel. Double data entry and data storage is prevented this way.



#### **IWLAN** infrastructure

The required IWLAN infrastructure is set up with the IWLAN Access Points SCALANCE W-780, preferably with the version SCALANCE W786-2RR, which fully supports all possible applications of the Mobile Panel 277(F) IWLAN.

For operating a plant without fail-safe communication, the version SCALANCE W786-1PRO can also be used.

If the radio link of a single Access Point (radio cell) is insufficient, it can be expanded by further Access Points. The individual radio links must not overlap to permit that moving stations such as the Mobile Panel 277(F) IWLAN can be transferred from one Access Point to the next without interruptions (roaming). This is performed transparently for the application.

The Access Point provides an Industrial Ethernet interface for connection to the wired network

In addition to a reliable radio link, the SCALANCE W-780 Access Points stand out due to their optimum support of standardized IT mechanisms

- IEEE 802.11b/ g/ a/ h for different frequency ranges
- IEEE 802.11e for multimedia, wireless multimedia (WMM)
- IEEE 802.11i for security
- Construction of redundant networks with the Rapid Spanning Tree Protocol (RSTP)
- Virtual networks (VLAN) to logically separate, for example, different user groups
- Sending the log entries of the SCALANCE W devices to a Syslog server

## SIMATIC Mobile Panel 277 (F) IWLAN

#### System requirements

SIMATIC Mobile Panel		5 GHz fre- quency band (IEEE 802.11a)	SIMATIC F-CPU (Distributed Safety)	
277 IWLAN	Only WLAN utilization (HMI)	•	-	
	When using transponders	!	-	
	When using Profinet IO	•	-	
<b>277F IWLAN</b> (Failsafe)		!	!	

= Recommended

! = Requirement - = Not required

The Mobile Panel 277(F) IWLAN can be connected to:

• SIMATIC S7-200/-300/-400 (one F-CPU required for integrating the Mobile Panel 277F IWLAN)

#### Note:

Further information can be found under "System interfaces".

#### Integration

The SIMATIC Mobile Panel 277(F) IWLAN communicates via the WLAN Standard IEEE 802.11 a(b/g) via PROFINET. The Mobile Panel 277F IWLAN devices also support PROFIsafe communication

There are four device versions:

For mobile operation and monitoring via WLAN:

- Mobile Panel 277 IWLAN
- Mobile Panel 277 IWLAN with handwheel, key switch and illuminated pushbuttons

As fail-safe device for safety-oriented operation as well:

- Mobile Panel 277F IWLAN with enable button and emergency stop button
- Mobile Panel 277F IWLAN with enable button, emergency stop button, handwheel, key switch and illuminated pushbuttons

For the versions Mobile Panel 277F IWLAN (PROFIsafe), the following system prerequisites apply:

- The Mobile Panel must be connected as a safe device (PROFIsafe, Distributed Safety)
- Use of a SIMATIC F-CPU

## SIMATIC Mobile Panel 277 (F) IWLAN

## Technical specifications

SIMATIC Mobile Panel	277 IWLAN		277(F) IWLAN		
	Communication via WLAN (PROFINET)	Communication via WLAN (PROFINET) with integrated hand- wheel, key-operated switch and two illuminated pushbuttons	Communication via WLAN (PROFINET) with enabling button and emergency STOP button	Communication via WLAN (PROFINET) with enabling button and emergency STOP button, handwheel, key- operated switch and two illuminated pushbuttons	
Supply voltage					
Via charging station	Yes	Yes	Yes	Yes	
Via table power supply	Yes	Yes	Yes	Yes	
Rated voltage	7.2 V	7.2 V	7.2 V	7.2 V	
Capacity	5.100 mAh	5.100 mAh	5.100 mAh	5.100 mAh	
Number of loading cycles, min	500	500	500	500	
Charging time, typ.	4 h	4 h	4 h	4 h	
Operating time, typ.	4 h	4 h	4 h	4 h	
Display for battery capacity	Yes	Yes	Yes	Yes	
Energy-saving mode	Yes	Yes	Yes	Yes	
Battery exchange in opera- tion	Yes	Yes	Yes	Yes	
Backup battery					
Battery operation	maximum buffer time 5 min	maximum buffer time 5 min	maximum buffer time 5 min	maximum buffer time 5 min	
Memory					
Type of storage					
• Туре	Flash / RAM	Flash / RAM	Flash / RAM	Flash / RAM	
Memory usable for project data/Options	6 MByte Usable memory for user data	6 MByte Usable memory for user data	6 MByte Usable memory for user data	6 MByte Usable memory for user data	
Time					
Clock					
• Туре	Hardware clock, battery backed, Synchronizable	Hardware clock, battery backed, Synchronizable	Hardware clock, battery backed, Synchronizable	Hardware clock, battery backed, Synchronizable	
Protocols					
PROFINET	Yes	Yes	Yes	Yes	
PROFINET IO	Yes	Yes	Yes	Yes	
PROFIsafe	-	-	Yes	Yes	
Configuration					
Configuration tool	WinCC flexible Standard version 2007 (must be ordered separately)	WinCC flexible Standard version 2007 (must be ordered separately)	WinCC flexible Standard version 2007 (must be ordered separately)	WinCC flexible Standard version 2007 (must be ordered separately)	
Display					
Display type	TFT, 65536 Colors	TFT, 65536 Colors	TFT, 65536 Colors	TFT, 65536 Colors	
Size	7.5"	7.5"	7.5"	7.5"	
Resolution (WxH in pixel)	640 × 480	640 x 480	640 x 480	640 x 480	
MTBF backlighting (at 25 °C)	Approx. 50000 h	Approx. 50000 h	Approx. 50000 h	Approx. 50000 h	
Operating mode					
Operating options	Key and Touch	Key and Touch	Key and Touch	Key and Touch	
Function keys, programmable	18 Function keys, 18 With LEDs	18 Function keys, 18 With LEDs	18 Function keys, 18 With LEDs	18 Function keys, 18 With LEDs	
Touchscreen	analog, resistive	analog, resistive	analog, resistive	analog, resistive	
Numeric/alphabetical input	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	
Connection for mouse/ keyboard/barcode reader	USB / USB / USB	USB / USB / USB	USB / USB / USB	USB / USB / USB	
Emergency STOP button					
<ul> <li>2-channel, positively latched</li> </ul>	-	-	Yes	Yes	

## SIMATIC Mobile Panel 277 (F) IWLAN

Technical specifications	(continued)			
SIMATIC Mobile Panel	277 IWLAN		277(F) IWLAN	
	Communication via WLAN (PROFINET)	Communication via WLAN (PROFINET) with integrated hand- wheel, key-operated switch and two illuminated pushbuttons	Communication via WLAN (PROFINET) with enabling button and emergency STOP button	Communication via WLAN (PROFINET) with enabling button and emergency STOP button, handwheel, key- operated switch and two illuminated pushbuttons
Operating mode (continued)				
Acknowledgement button	-	-	2-channel, Number of settings: 3	2-channel, Number of settings: 3
Illuminated pushbutton	No	Yes	No	Yes
Handwheel	No	Yes	No	Yes
Degree of protection				
IP65 housing	Yes	Yes	Yes	Yes
<b>Certifications &amp; Standards</b>				
Certifications	CE, cULus, C-TICK	CE, cULus, C-TICK	CE, cULus, C-TICK	CE, cULus, C-TICK
<ul> <li>TÜV safety certification</li> </ul>	-	-	Yes	Yes
<ul> <li>BGIA safety certification</li> </ul>	-	-	Yes	Yes
Safety Integrity Level to IEC 61508	-	-	3	3
Performance Level to EN ISO 13849-1	-	-	е	е
Safety category according to EN954-1	-	-	Safety category according to EN954-1 (enabling button, STOP button if present) 4	Safety category according to EN954-1 (enabling button, STOP button if present) 4
Ambient conditions				
max. relative humidity (in %)	80 %	80 %	80 %	80 %
Drop height	1.2 m	1.2 m	1.2 m	1.2 m
Temperature				
<ul> <li>Operation</li> </ul>	0 to +40°C	0 to +40°C	0 to +40°C	0 to +40°C
<ul> <li>Transport, storage</li> </ul>	-20 to +60°C	-20 to +60°C	-20 to +60°C	-20 to +60°C
Type of output				
Status LEDs	Yes	Yes	Yes	Yes
LED for safe	Yes	Yes	Yes	Yes
<ul> <li>LED for communication</li> </ul>	Yes	Yes	Yes	Yes
<ul> <li>LED for battery</li> </ul>	Yes	Yes	Yes	Yes
Vibrations	Yes	Yes	Yes	Yes
Interfaces				
Multi Media Card slot	1 x Multi Media Card slot	1 x Multi Media Card slot	1 x Multi Media Card slot	1 x Multi Media Card slot
USB	1 x USB	1 x USB	1 x USB	1 x USB
Ethernet	1 x Ethernet (RJ45)			
WLAN	Yes	Yes	Yes	Yes
Supports standards	According to IEEE 802.11a			
Supports channels (acc. to IEEE 802.11a)	Channel 34, Channel 36, Channel 38, Channel 40, Channel 42, Channel 44, Channel 46, Channel 48, Channel 52, Channel 56, Channel 60, Channel 64, Channel 149, Channel 153, Channel 157, Channel 161	Channel 34, Channel 36, Channel 38, Channel 40, Channel 42, Channel 44, Channel 46, Channel 48, Channel 52, Channel 56, Channel 60, Channel 64, Channel 149, Channel 153, Channel 157, Channel 161	Channel 34, Channel 36, Channel 38, Channel 40, Channel 42, Channel 44, Channel 46, Channel 48, Channel 52, Channel 56, Channel 60, Channel 64, Channel 149, Channel 153, Channel 157, Channel 161	Channel 34, Channel 36, Channel 38, Channel 40, Channel 42, Channel 44, Channel 46, Channel 48, Channel 52, Channel 56, Channel 60, Channel 64, Channel 149, Channel 153, Channel 157, Channel 161
Supports channels (acc. to IEEE 802.11b and IEEE 802.1g)	Channels 1 to 11, Channel 12, Channel 13, Channel 14	Channels 1 to 11, Channel 12, Channel 13, Channel 14	Channels 1 to 11, Channel 12, Channel 13, Channel 14	Channels 1 to 11, Channel 12, Channel 13, Channel 14

## SIMATIC Mobile Panel 277 (F) IWLAN

Technical specifications	s (continued)				
SIMATIC Mobile Panel	277 IWLAN		277(F) IWLAN		
	Communication via WLAN (PROFINET)	Communication via WLAN (PROFINET) with integrated hand- wheel, key-operated switch and two illuminated pushbuttons	Communication via WLAN (PROFINET) with enabling button and emergency STOP button	Communication via WLAN (PROFINET) with enabling button and emergency STOP button, handwheel, key- operated switch and two illuminated pushbuttons	
WLAN (continued)					
Country approval (radio)	Australia, Belgium, Denmark, Germany, Finland, France, Greece, Great Britain, Ireland, Iceland, Italy, Japan, Liechtenstein, Luxemburg, Netherlands, Norway, Austria, Poland, Portugal, Sweden, Switzerland, Spain, South Africa, Czech Republic, Turkey, Hungary, USA	Australia, Belgium, Denmark, Germany,Finland, France, Greece, Great Britain, Ireland, Iceland, Italy, Japan, Liechtenstein, Luxemburg, Netherlands, Norway, Austria, Poland, Portugal, Sweden, Switzerland, Spain, South Africa, Czech Republic, Turkey, Hungary, USA	Australia, Belgium, Denmark, Germany,Finland, France, Greece, Great Britain, Ireland, Iceland, Italy, Japan, Liechtenstein, Luxemburg, Netherlands, Norway, Austria, Poland, Portugal, Sweden, Switzerland, Spain, South Africa, Czech Republic, Turkey, Hungary, USA	Australia, Belgium, Denmark, Germany,Finland, France, Greece, Great Britain, Ireland, Iceland, Italy, Japan, Liechtenstein, Luxemburg, Netherlands, Norway, Austria, Poland, Portugal, Sweden, Switzerland, Spain, South Africa, Czech Republic, Turkey, Hungary, USA	
	WEP, WPA	WEP, WPA	VVEP, VVPA	VVEP, VVPA	
	Windows CE	Windows CE	Windows CE	Windows CE	
		WINDOWS CE	WINDOWS CE	WINDOWS CE	
Processor	ARM. 520 MHz	ARM, 520 MHz	ARM, 520 MHz	ARM. 520 MHz	
Functionality under	· · · · · · , • <u> • · · · · -</u>	,	,		
WINCC flexible Applications/options	Internet Explorer, Sm@rt	Internet Explorer, Sm@rt	Internet Explorer, Sm@rt	Internet Explorer, Sm@rt	
Number of Visual Basic scripts	50	50	50	50	
Task planner	Yes	Yes	Yes	Yes	
Help system	Yes	Yes	Yes	Yes	
Status/control	With SIMATIC S7	With SIMATIC S7	With SIMATIC S7	With SIMATIC S7	
Message system					
<ul> <li>Number of messages</li> </ul>	4,000	4,000	4,000	4,000	
<ul> <li>Bit messages</li> </ul>	Yes	Yes	Yes	Yes	
<ul> <li>Analog messages</li> </ul>	Yes	Yes	Yes	Yes	
Message buffer	Circulating buffer (n x 512 Entries), Retentive, maintenance-free	Circulating buffer (n x 512 Entries), Retentive, maintenance-free	Circulating buffer (n x 512 Entries), Retentive, maintenance-free	Circulating buffer (n x 512 Entries), Retentive, maintenance-free	
Recipes					
Recipes	300	300	300	300	
<ul> <li>Data records per recipe</li> </ul>	500	500	500	500	
<ul> <li>Entries per data record</li> </ul>	1000	1000	1000	1000	
Recipe memory	64 kByte integrated Flash, expandable	64 kByte integrated Flash, expandable	64 kByte integrated Flash, expandable	64 kByte integrated Flash, expandable	
Number of process images					
<ul> <li>Process images</li> </ul>	500	500	500	500	
<ul> <li>Variables</li> </ul>	2,048	2,048	2,048	2,048	
<ul> <li>Limit values</li> </ul>	Yes	Yes	Yes	Yes	
<ul> <li>Multiplexing</li> </ul>	Yes	Yes	Yes	Yes	
Image elements					
<ul> <li>Text objects</li> </ul>	10000 Text elements	10000 Text elements	10000 Text elements	10000 Text elements	
Graphics object	Bitmaps, Icons, Vector graphics	Bitmaps, Icons, Vector graphics	Bitmaps, Icons, Vector graphics	Bitmaps, Icons, Vector graphics	
<ul> <li>Dynamic objects</li> </ul>	Diagrams / curves, Bar graphs, Sliders, Analog display, Hidden buttons	Diagrams / curves, Bar graphs, Sliders, Analog display, Hidden buttons	Diagrams / curves, Bar graphs, Sliders, Analog display, Hidden buttons	Diagrams / curves, Bar graphs, Sliders, Analog display, Hidden buttons	

## SIMATIC Mobile Panel 277 (F) IWLAN

Technical specifications	(continued)				
SIMATIC Mobile Panel	277 IWLAN		277(F) IWLAN		
	Communication via WLAN (PROFINET)	Communication via WLAN (PROFINET) with integrated hand- wheel, key-operated switch and two illuminated pushbuttons	Communication via WLAN (PROFINET) with enabling button and emergency STOP button	Communication via WLAN (PROFINET) with enabling button and emergency STOP button, handwheel, key- operated switch and two illuminated pushbuttons	
Functionality under WinCC flexible (Fortsetzung)					
Lists					
Text lists	500	500	500	500	
<ul> <li>Graphics list</li> </ul>	400	400	400	400	
Libraries	Yes	Yes	Yes	Yes	
Archiving					
<ul> <li>Number of archives per project</li> </ul>	20	20	20	20	
<ul> <li>Number of measuring points per project</li> </ul>	20	20	20	20	
Number of entries per ar- chive	10,000	10,000	10,000	10,000	
Memory location Security	Multi Media Card	Multi Media Card	Multi Media Card	Multi Media Card	
<ul> <li>Number of user groups</li> </ul>	50	50	50	50	
<ul> <li>Passwords exportable</li> </ul>	Yes	Yes	Yes	Yes	
<ul> <li>Number of user rights</li> </ul>	32	32	32	32	
Data medium support					
<ul> <li>Multi Media Card</li> </ul>	Yes	Yes	Yes	Yes	
Recording					
Recording/Printing	Messages, Report (shift log), PROFINET	Messages, Report (shift log), PROFINET	Messages, Report (shift log), PROFINET	Messages, Report (shift log), PROFINET	
Languages					
<ul> <li>Online languages</li> </ul>	16	16	16	16	
<ul> <li>Configuration languages</li> </ul>	D, GB, F, I, E, CHN "tradi- tional", CHN "simplified", DK, FIN, GR, J, KP/ROK, NL, N, PL, P, RUS, S, CZ/SK, TR, H	D, GB, F, I, E, CHN "tradi- tional", CHN "simplified", DK, FIN, GR, J, KP/ROK, NL, N, PL, P, RUS, S, CZ/SK, TR, H	D, GB, F, I, E, CHN "tradi- tional", CHN "simplified", DK, FIN, GR, J, KP/ROK, NL, N, PL, P, RUS, S, CZ/SK, TR, H	D, GB, F, I, E, CHN "tradi- tional", CHN "simplified", DK, FIN, GR, J, KP/ROK, NL, N, PL, P, RUS, S, CZ/SK, TR, H	
• Fonts	Tahoma, Arial, Courier New, WinCC flexible-Standard, Ideographic languages, all freely scalable	Tahoma, Arial, Courier New, WinCC flexible-Standard, Ideographic languages, all freely scalable	Tahoma, Arial, Courier New, WinCC flexible-Standard, Ideographic languages, all freely scalable	Tahoma, Arial, Courier New, WinCC flexible-Standard, Ideographic languages, all freely scalable	
Transfer (Upload/Download)					
<ul> <li>Transfer of configuration</li> </ul>	USB, Ethernet, Automatic transfer recognition	USB, Ethernet, Automatic transfer recognition	USB, Ethernet, Automatic transfer recognition	USB, Ethernet, Automatic transfer recognition	
Wireless LAN	Yes	Yes	Yes	Yes	
Process coupling					
Connection to controller	S7-200, S7- 300/400, See section "System Links"	S7-200, S7- 300/400, See section "System Links"	S7-200, S7- 300/400, See section "System Links"	S7-200, S7- 300/400, See section "System Links"	
• Zones	Yes	Yes	Yes	Yes	
<ul> <li>number of zones per project, max.</li> </ul>	254	254	254	254	
<ul> <li>Number of transponders for zones per project, max.</li> </ul>	255	255	255	255	
Effective range			Yes	Yes	
- Number of effective	-	-	127	127	
<ul> <li>Number of transponders for effective ranges per project may</li> </ul>	-	-	127	127	

## SIMATIC Mobile Panel 277 (F) IWLAN

Technical specifications (continued)					
SIMATIC Mobile Panel	277 IWLAN		277(F) IWLAN		
	Communication via WLAN (PROFINET)	Communication via WLAN (PROFINET) with integrated hand- wheel, key-operated switch and two illuminated pushbuttons	Communication via WLAN (PROFINET) with enabling button and emergency STOP button	Communication via WLAN (PROFINET) with enabling button and emergency STOP button, handwheel, key- operated switch and two illuminated pushbuttons	
Functionality under WinCC flexible (Fortsetzung)					
Transponder	Yes	Yes	Yes	Yes	
<ul> <li>Number of transponders per project, max.</li> </ul>	256	256	256	256	
<ul> <li>Adjustable distance range</li> </ul>	Yes	Yes	Yes	Yes	
<ul> <li>Adjustable distance, Min.</li> </ul>	2 m	2 m	2 m	2 m	
<ul> <li>Adjustable distance, Max.</li> </ul>	8 m	8 m	8 m	8 m	
Mechanics					
Type of housing (front)	Plastic	Plastic	Plastic	Plastic	
Dimensions					
Housing diameter/ depth (mm)	290 mm / 103 mm	290 mm / 103 mm	290 mm / 103 mm	290 mm / 103 mm	
Weights					
Weight	2.2 kg	2.2 kg	2.2 kg	2.2 kg	

Ordering data	Order No.	Order No.		
SIMATIC Mobile Panel 277 IWLAN		SIMATIC Mobile Panel 277F IWLAN		
<ul> <li>Communication via WLAN (PROFINET)</li> </ul>	F 6AV6 645-0DD01-0AX0	Communication via WLAN F     (PROFINET)	6AV6 645-0DB01-0AX0	
Communication via WLAN     (PROFINET)	F 6AV6 645-0DE01-0AX0	with enable button and emergency stop button		
with integrated handwheel, key switch and two illuminated pushbuttons		Communication via WLAN F     (PROFINET)     with enable button and     emergency stop button     with integrated handwheel,     key switch, and two illuminated     pushbuttons	E 6AV6 645-0DC01-0AX0	

F) Subject to export regulations: AL: N and ECCN: 5D002ENC3

## SIMATIC Mobile Panel 277 (F) IWLAN

Ordering data	Order No.		Order No.
Accessories		Further IWLAN Access Point vers	ions:
Note: Please order the table-top power supply or charging station		SCALANCE W-784 Access Points	6GK5 784-1AA30
<ul> <li>Table-top power supply incl. power cable for EU, US, UK, JP (only suitable for operation under laboratory/office conditions)</li> </ul>	6AV6 671-5CN00-0AX1	IWLAN Access Points with integrated radio interfaces (see Catalog IK PI), radio networks IEEE 802.11b/g/a/h at 2.4/5 GHz up to 54 Mbit/s. National approvals; WPA2/AES; Power over Ethernet (PoE), degree of protocing IP20 (2019 to 160 %C)	(see Catalog IK PI)
<ul> <li>Charger for safe storage and charging the device incl. lock for securing the device in the charger. Charging capabilities for up to two additional batteries</li> </ul>	6AV6 671-5CE00-0AX0	block; manual on CD-ROM; German/English;	
<ul> <li>Additional battery with LED indicator for indicating the observe status</li> </ul>	6AV6 671-5CL00-0AX0	SCALANCE W-786 Access Points	6GK5 786
Transponder incl. batteries (3x AA)	6AV6 671-5CM00-0AX0	integrated radio interfaces (see Catalog IK PI); radio networks IEEE 802 11b/g/a/b at 2.4/5 GHz	(See Calalog IN FI)
<ul> <li>Service pack for Mobile Panel 277(F) IWLAN contains accessories pack for Mobile Panel 277 (labeling strip cover), battery compartment cover (device), backup battery, cover left/right (charger), power supply connector counterpart</li> </ul>	6AV6 671-5CA00-0AX1	up to 54 Mbit/s. National approvals; WPA2/AES; Power over Ethernet (PoE), degree of protection IP65 (-40°C to +70°C); scope of delivery: Mounting hardware, 48 V DC terminal block; manual on CD-ROM; German/English;	
(charger), replacement key (charger)		SCALANCE W-788 Access Points	6GK5 788
SCALANCE W-786 Access Points for SIMATIC Mobile Panel 277(F) IWLAN		IWLAN Access Points with integrated radio interfaces (see Catalog IK PI); radio networks	(see Catalog IK PI)
<ul> <li>IWLAN Access Points with integrated radio interfaces; radio networks; IEEE 802.11b/g/a/h at 2.4/5 GHz up to 54 Mbit/s. National approvals; WPA2/AES; Power over Ethernet (PoE), degree of protection IP65 (-40 °C to +70 °C); scope of delivery: Mounting hardware,</li> </ul>		IEEE 802.11b/g/a/h at 2.4/5 GHz up to 54 Mbit/s. National approvals; WPA2/AES; Power over Ethernet (PoE), degree of protection IP65 (-20°C to +60°C); scope of delivery: 2 ANT795-4MR antennas, IP67 hybrid plug-in connector, mounting hardware, manual on CD-ROM, German/English	
48 V DC terminal block; manual on CD-ROM; German/English;		PS791-2DC power supply S	6GK5 791-2DC00-0AA0
SCALANCE W786-2RR IWLAN Dual Access Point with		<ul> <li>24 V DC power supply for installation in SCALANCE W-786 products; operating instructions in German/English</li> </ul>	
setting up radio links with iPCF;		PS791-2AC power supply S	6GK5 791-2AC00-0AA0
KJ45 CONNECTION		• 110 V AC to 230 V AC power	
National approvals for R     operation outside the U.S.	6GK5 786-2BA60-6AA0	supply for installation in SCALANCE W-786 products; operating instructions in	
National approvals for R     operation within the U.S.	6GK5 786-2BA60-6AB0	German/English Other compatible accessories:	see HMI accessories,
SCALANCE W786-1PRO			from page 2/158
IWLAN Access Points with built-in wireless interface RJ45 connec-		Wall mounting bracket for Mobile Panels     MultiMadia memory cord	
tion		Mobile Papel 277 cover feil	
National approvals for	6GK5 786-1BA60-24 40	Key labeling strips for Mobile	
operation outside the U.S.	UGRJ /00-IDA0U-ZAAU	Panel 277	
National approvals for R operation within the U.S.	6GK5 786-1BA60-2AB0	<ul> <li>Spare key for Mobile Panels</li> </ul>	

R) Subject to export regulations: AL: 5A002A1A2 and ECCN: 5A002ENC3

S) Subject to export regulations: AL: N and ECCN: 5A002ENC3

## SIMATIC Mobile Panel 277 (F) IWLAN

# Ordering data Order No.

Further IWLAN Access Point versions:					
SIMATIC Mobile Panel 277 (F) IWLAN starter kit					
for					
Mobile Panel 277 IWLAN     F	6AV6 651-5GA01-0AA0				
Mobile Panel 277F IWLAN     F	6AV6 651-5HA01-0AA0				
Configuration					
with SIMATIC WinCC flexible	see HMI Software				
Documentation (to be ordered se	parately)				
Function Manual "Fail-Safe Operation of the Mobile Panel 277F IWLAN" <sup>1)</sup>					
• German	6AV6 691-1AB01-2AA0				
• English	6AV6 691-1AB01-2AB0				
• Japanese	6AV6 691-1AB01-2AJ0				
Mobile Panel 277F IWLAN Operating Instructions					
• German	6AV6 691-1DQ01-2AA0				
• English	6AV6 691-1DQ01-2AB0				
• French	6AV6 691-1DQ01-2AC0				
• Italian	6AV6 691-1DQ01-2AD0				
• Spanish	6AV6 691-1DQ01-2AE0				

	Order No.
Documentation (to be ordered sep	parately)
Getting Started Mobile Panel 277(F) IWLAN	
• German	available as PDF
• English	available as PDF
User Manual WinCC flexible Compact/Standard/Advanced	
• German	6AV6 691-1AB01-3AA0
• English	6AV6 691-1AB01-3AB0
• French	6AV6 691-1AB01-3AC0
Italian	6AV6 691-1AB01-3AD0
• Spanish	6AV6 691-1AB01-3AE0
WinCC flexible Communication User Manual	
• German	6AV6 691-1CA01-3AA0
• English	6AV6 691-1CA01-3AB0
• French	6AV6 691-1CA01-3AC0
Italian	6AV6 691-1CA01-3AD0
• Spanish	6AV6 691-1CA01-3AE0
Accessories	
Accessories for Mobile Panels	see HMI accessories from page 2/158

F) Subject to export regulations: AL: N and ECCN: 5D002ENC3

Mobile Panel 277 IWLAN Operating Instructions

• German

EnglishFrench

Italian

Spanish

<sup>1)</sup> Function manual enclosed with the Mobile Panel 277(F) IWLAN units is printed in German. Please order other languages separately.

6AV6 691-1DM01-2AA0 6AV6 691-1DM01-2AB0

6AV6 691-1DM01-2AC0

6AV6 691-1DM01-2AD0 6AV6 691-1DM01-2AE0

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# Operator Control and Monitoring Devices Mobile Panels – 270 series

## SIMATIC Mobile Panel 277 (F) IWLAN

## Dimensions

All specifications in mm. Panel cutout see technical specifications.



Mobile Panel 277(F) IWLAN - Front and side view



Charger



#### Transponder

## More information

Additional information is available in the Internet under:

http://www.siemens.com/mobile-panels

#### Note:

Do you need a specific modification or addition to the products described here? Then take a look under "Customer-specific products". There, you will find information on ordering additional and standard industry products as well as possibilities for customer-specific modifications and adjustments.

## **Basic Panels**

## Overview



- The ideal entry level series of 3.8" to 15" for operating and monitoring simple machines and plants
- Clear process representation thanks to use of pixel-graphics displays
- Intuitive operation using Touch and tactile function keys
- Equipped with all the necessary basic functions such as alarm logging, recipe management, plots, vector graphics, and language switching
- Simple connection to the controller via integral Ethernet interface or separate version with RS485/422
- Flexible scalability within the HMI family thanks to configuring with WinCC flexible

## Benefits

- Integral component of Totally Integrated Automation (TIA): Increased productivity, minimum engineering overhead, reduction in life-cycle costs
  - Can be used even where installation space is restricted thanks to vertical configuring (4" and 6" devices)
    Short configuring and commissioning times
  - Service-friendly thanks to maintenance-free design and long service life of the backlighting display
- Simple and user-friendly representation of process values thanks to, for example, input/output fields, vector graphics, trend curves, bar charts, text and bitmaps
- Graphics library available with off-the-shelf picture objects
- Can be used worldwide:
  - 32 languages can be configured (incl. Asian and Cyrillic character sets)
  - You can switch between up to 5 languages online
  - Language-dependent texts and graphics

## Application

The SIMATIC HMI Basic Panels can be used wherever simple machines and plants are controlled and monitored locally – in production, process and building automation alike. They are used in the most diverse sectors and applications.

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# **Operator Control and Monitoring Devices Basic Panels**

## **Basic Panels**

#### Desian

The SIMATIC HMI Basic Panels are installation-compatible with the existing touch devices of the product family of Panels and Multi Panels

- KTP400 Basic mono 3.8" STN mono 1 Ethernet interface (TCP/IP) Touch screen and 4 tactile function keys
- KTP600 Basic mono 5.7" STN mono 1 Ethernet interface (TCP/IP) Touch screen and 6 tactile function keys
- KTP600 Basic color 5.7" TFT with 256 colors 1 Ethernet interface (TCP/IP) or 1 RS 485/422 interface (separate version) Touch screen and 6 tactile function keys
- KTP1000 Basic color 10.4" TFT with 256 colors 1 Ethernet interface (TCP/IP) or 1 RS 485/422 interface (separate version) Touch screen and 8 tactile function keys
- TP1500 Basic color 15.1" TFT with 256 colors 1 Ethernet interface (TCP/IP) Touch screen
- No slot for SD/CF/MultiMedia Card, no USB interface

#### Function

- Permanent window and template concept for creating screen templates
- Input/output fields
- for displaying and modifying process parameters Buttons

are used for direct triggering of functions and actions. Up to 16 functions can be configured simultaneously on buttons.

Graphics

can be used as icons instead of text to "label" function keys or buttons. They can also be used as full-screen background images

The configuration tool contains a library with extensive graphics and diverse objects. All editors with an OLE interface can be used as graphics editors, e.g. PaintShop, Designer or CorelDraw, etc.

Vector graphics

Simple geometric basic forms (line, circle and rectangle) can be created direct in the configuring tool

- · Fixed texts for labeling function keys, process images and process values in different font sizes
- Curve functions and bars ٠ are used for graphical display of dynamic values
- Language switching: - 5 online languages, 32 configuration languages including Asian and Cyrillic character sets - Language-dependent texts and graphics
- · User administration (security) in accordance with the requirements of the different sectors
  - Authentication with user ID and password
  - User-group-specific rights

- Signaling system
  - Discrete alarms
  - Analog messages
  - Freely definable message classes (e.g. status/fault messages) for defining acknowledgment response and displaying message events
- Message history
- Recipe management
- Help texts
  - for process screens, messages and variables
  - Arithmetic functions
  - Limit value monitoring for reliable process control of inputs and outputs
  - Indicator light
  - for indicating machine and plant statuses
  - Task planner for cyclic execution of functions
- Template concept
- Creation of picture templates (picture elements configured in the template appear in every image)
- Simple maintenance and configuration thanks to: - Backup/restore of configuration, operating system and firm
  - ware on a PC using ProSave - Configuration download via MPI/PROFIBUS DP or Ethernet
- Automatic transfer identification - Individual contrast setting and calibration
- Clean screen
- No battery required

#### Configuration

The configuration is implemented using the engineering software SIMATIC WinCC flexible 2008 Compact.

## Integration

The Basic Panels can be connected to:

- SIMATIC S7 controllers
- Non-Siemens controllers (applies for DP devices) - Allen Bradley DF1
- Modicon Modbus

## Note:

Further information can be found under "System interfaces".

## **Basic Panels**

Technical specifications							
SIMATIC Basic Panel	KTP400 Basic mono PN	KTP600 Basic mono PN	KTP600 Basic color PN	KTP600 Basic color DP	KTP1000 Basic color PN	KTP1000 Basic color DP	TP1500 Basic color PN
Supply voltage							
Supply voltage	24 V DC	24 V DC	24 V DC	24 V DC	24 V DC	24 V DC	24 V DC
Permissible range	+19,2 V DC +28,8 V DC	+20,4 V DC +28,8 V DC	+20,4 V DC +28,8 V DC	+20,4 V DC +28,8 V DC			
Memory							
<ul> <li>Type of storage</li> </ul>	Flash / RAM	Flash / RAM	Flash / RAM	Flash / RAM	Flash / RAM	Flash / RAM	Flash / RAM
<ul> <li>Memory usable for project data</li> </ul>	512 kB	512 kB	512 kB	512 kB	1024 kB	1024 kB	1024 kB
Time							
Clock	Software clock, not battery backed	Software clock, not battery backed	Software clock, not battery backed	Software clock, not battery backed	Software clock, not battery backed	Software clock, not battery backed	Software clock, not battery backed
Configuration							
Configuration tool	WinCC flexible Compact Ver- sion 2008 SP1 <sup>1)</sup> or higher (to be ordered sepa- rately)	WinCC flexible Compact Ver- sion 2008 SP1 <sup>1)</sup> or higher (to be ordered sepa- rately)	WinCC flexible Compact Ver- sion 2008 SP1 <sup>1)</sup> or higher (to be ordered sepa- rately)	WinCC flexible Compact Ver- sion 2008 SP1 <sup>1)</sup> or higher (to be ordered sepa- rately)	WinCC flexible Compact Ver- sion 2008 or higher (to be ordered sepa- rately)	WinCC flexible Compact Ver- sion 2008 or higher (to be ordered sepa- rately)	WinCC flexible Compact Ver- sion 2008 or higher (to be ordered sepa- rately)
Display							
Display type	STN, 4 shades of gray	STN, 4 shades of gray	TFT, 256 colors	TFT, 256 colors	TFT, 256 colors	TFT, 256 colors	TFT, 256 colors
Size	3,8"	5,7"	5,7"	5,7"	10,4"	10,4"	15"
Resolution (WxH in pixel)	320 x 240	320 × 240	320 × 240	320 × 240	640 x 480	640 x 480	1024 x 768
MTBF backlighting (at 25 °C)	app. 30 000 h	app. 50 000 h	app. 50 000 h	app. 50 000 h			
Operating mode							
Operating elements	Membrane keyboard	Membrane keyboard	Membrane keyboard	Membrane keyboard	Membrane keyboard	Membrane keyboard	Touch screen
	Key and Touch	Key and Touch	Key and Touch	Key and Touch	Key and Touch	Key and Touch	Touch
Function keys, programmable	4	6	6	6	8	8	None
Touch screen	analog, resistive	analog, resistive	analog, resistive	analog, resistive	analog, resistive	analog, resistive	analog, resistive
Numeric/alpha- betical input	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes
Connection for mouse/key- board/ barcode reader	-/-/-	-/-/-	-/-/-	-/-/-	-/-/-	-/-/-	-/-/-
Degree of protect	ction						
Front	IP65, enclosure type 4X/type 12 (indoor use only)	IP65, enclosure type 4X/type 12 (indoor use only)	IP65, enclosure type 4X/type 12 (indoor use only)	IP65, enclosure type 4X/type 12 (indoor use only)			
Rear	IP20	IP20	IP20	IP20	IP20	IP20	IP20
Certifications &	Standards						
Certifications	CE, UL, cULus, enclosure type 4X/type 12	CE, UL, cULus, enclosure type 4X/type 12	CE, UL, cULus, enclosure type 4X/type 12	CE, UL, cULus, enclosure type 4X/type 12			
Ambient condition	ons						
Mounting position	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical
Max. permissi- ble angle of incliniation without external ventilation	+/ - 35 °	+/ - 35 °	+/ - 35 °	+/ - 35 °	+/ - 35 °	+/ - 35 °	+/ - 35 °

1) Delivery expected: 1st quarter 2009.

90 %

90 %

90 %

90 %

90 %

90 %

90 %

66 Siemens ST 80 · 2009

Max. relative

humidity (in %)

Basic Panels

Technical spec	ifications (conti	nued)					
SIMATIC Basic Panel	KTP400 Basic mono PN	KTP600 Basic mono PN	KTP600 Basic color PN	KTP600 Basic color DP	KTP1000 Basic color PN	KTP1000 Basic color DP	TP1500 Basic color PN
Ambient condition	ons (continued)						
Temperature							
• Operation (ver- tical installat.)	0 °C +50 °C						
Operation     (max. tilt angle)	0 °C +40 °C						
<ul> <li>Transportation, storage</li> </ul>	-20 °C +60 °C						
I/O/Options							
I/O	none						
Interfaces							
Interfaces	1 x Ethernet (RJ45)	1 x Ethernet (RJ45)	1 x Ethernet (RJ45)	1 x RS422, 1 x RS485 (max. 1.5 MBit/s)	1 x Ethernet (RJ45)	1 x RS422, 1 x RS485 (max. 1.5 MBit/s)	1 x Ethernet (RJ45)
USB	No						
Slots							
PC card slot	No						
CF card slot	No						
Multi Media/ Card-Slot	No						
Processor							
Processor	ARM						
Functionality un	der WinCC flexibl	e					
Number of Visual Basic scripts	not possible						
Task planner	Yes						
Help system	Yes						
Status/control	not possible						
Message system							
<ul> <li>Number of messages</li> </ul>	200	200	200	200	200	200	200
<ul> <li>Bit messages</li> </ul>	Yes						
<ul> <li>Analog messages</li> </ul>	Yes						
Message buffer	Ring buffer (n x 256 entries), non-retentive						
Recipes							
<ul> <li>Recipes</li> </ul>	5	5	5	5	5	5	5
<ul> <li>Data records per recipe</li> </ul>	20	20	20	20	20	20	20
• Entries per data record	20	20	20	20	20	20	20
Recipe memory	32 kB integr. Flash						
Number of process images							
<ul> <li>Process images</li> </ul>	50	50	50	50	50	50	50
<ul> <li>Variables</li> </ul>	128	128	128	128	256	256	256
<ul> <li>Limit values</li> </ul>	Yes						
<ul> <li>Multiplexing</li> </ul>	Yes						

## **Basic Panels**

## Technical specifications (continued)

SIMATIC Basic Panel	KTP400 Basic mono PN	KTP600 Basic mono PN	KTP600 Basic color PN	KTP600 Basic color DP	KTP1000 Basic color PN	KTP1000 Basic color DP	TP1500 Basic color PN
Functionality un	der WinCC flexible	e (continued)					
Image elements							
<ul> <li>Text objects</li> </ul>	500	500	500	500	500	500	500
<ul> <li>Graphics object</li> </ul>	Bit maps, icons, icon (full-screen) vector graphics						
<ul> <li>Dynamic objects</li> </ul>	Diagrams, bar graphs, curve functions						
Lists							
<ul> <li>Text lists</li> </ul>	150	150	150	150	150	150	150
<ul> <li>Graphics list</li> </ul>	100	100	100	100	100	100	100
<ul> <li>Libraries</li> </ul>	Yes						
Security							
Number of user groups	50	50	50	50	50	50	50
<ul> <li>Passwords exportable</li> </ul>	32	32	32	32	32	32	32
<ul> <li>Number of users</li> </ul>	Yes						
Data medium support							
<ul> <li>PC card</li> </ul>	No						
<ul> <li>CF card</li> </ul>	No						
<ul> <li>Multi Media card</li> </ul>	No						
Recording							
<ul> <li>Recording/ printing</li> </ul>	No						
<ul> <li>Printer driver</li> </ul>	No						
Fonts							
<ul> <li>Keyboard fonts</li> </ul>	US American (English)						
Languages							
<ul> <li>Online languages</li> </ul>	5	5	5	5	5	5	5
Configuration languages	D, GB, F, I, E, CHN "tradi- tional", CHN "simplified", DK, FIN, GR, J, KP / ROK, NL, N, PL, P, RUS, S, CZ / SK, TR, H	D, GB, F, I, E, CHN "tradi- tional", CHN "simplified", DK, FIN, GR, J, KP / ROK, NL, N, PL, P, RUS, S, CZ / SK, TR, H	D, GB, F, I, E, CHN "tradi- tional", CHN "simplified", DK, FIN, GR, J, KP / ROK, NL, N, PL, P, RUS, S, CZ / SK, TR, H	D, GB, F, I, E, CHN "tradi- tional", CHN "simplified", DK, FIN, GR, J, KP / ROK, NL, N, PL, P, RUS, S, CZ / SK, TR, H	D, GB, F, I, E, CHN "tradi- tional", CHN "simplified", DK, FIN, GR, J, KP / ROK, NL, N, PL, P, RUS, S, CZ / SK, TR, H	D, GB, F, I, E, CHN "tradi- tional", CHN "simplified", DK, FIN, GR, J, KP / ROK, NL, N, PL, P, RUS, S, CZ / SK, TR, H	D, GB, F, I, E, CHN "tradi- tional", CHN "simplified", DK, FIN, GR, J, KP / ROK, NL, N, PL, P, RUS, S, CZ / SK, TR, H
• Fonts	WinCC flexible Standard, sym- bol languages						
Transfer (Upload/Down- load) Braccos	Ethernet, auto- matic transfer recognition	Ethernet, auto- matic transfer recognition	Ethernet, auto- matic transfer recognition	MPI/PROFIBUS DP, automatic transfer recogni- tion	Ethernet, auto- matic transfer recognition	MPI/PROFIBUS DP, automatic transfer recogni- tion	Ethernet, auto- matic transfer recognition
coupling							
Connection to controller	S7-200, S7- 300/ 400, WinAC see "System inter- faces"	S7-200, S7- 300/ 400, WinAC see "System inter- faces"	S7-200, S7- 300/ 400, WinAC see "System inter- faces"	S7-200, S7- 300/ 400, WinAC, Allen Bradley (DF1), Modicon (Modbus), see "System inter- faces"	S7-200, S7- 300/ 400, WinAC see "System inter- faces"	S7-200, S7- 300/ 400, WinAC, Allen Bradley (DF1), Modicon (Modbus), see "System inter- faces"	S7-200, S7- 300/ 400, WinAC see "System inter- faces"

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# Operator Control and Monitoring Devices Basic Panels

Basic Panels

Technical spec	ifications (conti	nued)					
SIMATIC Basic Panel	KTP400 Basic mono PN	KTP600 Basic mono PN	KTP600 Basic color PN	KTP600 Basic color DP	KTP1000 Basic color PN	KTP1000 Basic color DP	TP1500 Basic color PN
Functionality un	der WinCC flexibl	e (continued)					
Expandability/ openness							
Open Platform     Program	No	No	No	No	No	No	No
Dimensions							
Front of enclo- sure (W x H) in mm	140 x 116	214 x 158	214 x 158	214 x 158	335 x 275	335 x 275	400 x 310
Mounting cutout/ Device depth (W x H/D) in mm	123 x 99 / 40	197 x 141 / 44	197 x 141 / 44	197 x 141 / 44	310 x 248 / 60	310 x 248 / 60	367 x 289 / 59.9
Weights							
Weight (kg)	0.32	1.07	1.07	1.07	2.65	2.65	4.2

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# Operator Control and Monitoring Devices Basic Panels

## **Basic Panels**

Ordering data	Order No.
SIMATIC KTP400 Basic mono PN <sup>1)</sup>	6AV6 647-0AA11-3AX0
Starter kit for SIMATIC KTP 400 Basic mono <sup>1)</sup>	6AV6 652-7AA01-3AA0
SIMATIC KTP600 Basic mono PN <sup>1)</sup>	6AV6 647-0AB11-3AX0
Starter kit for SIMATIC KTP600 Basic mono PN <sup>1)</sup>	6AV6 652-7BA01-3AA0
SIMATIC KTP600 Basic color DP <sup>1)</sup>	6AV6 647-0AC11-3AX0
Starter kit for SIMATIC KTP600 Basic color DP <sup>1)</sup>	6AV6 652-7CA01-3AA0
SIMATIC KTP600 Basic color PN <sup>1)</sup>	6AV6 647-0AD11-3AX0
Starter kit for SIMATIC KTP600 Basic color PN <sup>1)</sup>	6AV6 652-7DA01-3AA0
SIMATIC KTP1000 Basic color DP	6AV6 647-0AE11-3AX0
Starter kit for SIMATIC KTP1000 Basic color DP	6AV6 652-7EA01-3AA0
SIMATIC KTP1000 Basic color PN	6AV6 647-0AF11-3AX0
Starter kit for SIMATIC KTP1000 Basic color PN	6AV6 652-7FA01-3AA0
SIMATIC TP1500 Basic color PN	6AV6 647-0AG11-3AX0
Starter kits consist of:	
the relevant SIMATIC KTP Basic     Panel	
SIMATIC WinCC flexible Com- pact engineering software	
SIMATIC HMI Manual Collection	
(DVD), 5 languages (English, French, German, Italian, Spanish), com- prising: all currently available user manuals, manuals and communication manuals for SIMATIC HMI	
Ethernet cable on PN devices	
MPI cable on DP devices (for download and test purposes only)	

	Order No.
Configuration	
with SIMATIC WinCC flexible Compact	See Section 4
Documentation (to be ordered se	parately)
You can find the manual for the Basic Panels on the Internet at http://support.automation. siemens.com	
Jser Manual WinCC flexible Compact/ Standard/Advanced	
German	6AV6 691-1AB01-3AA0
• English	6AV6 691-1AB01-3AB0
• French	6AV6 691-1AB01-3AC0
Italian	6AV6 691-1AB01-3AD0
Spanish	6AV6 691-1AB01-3AE0
Jser Manual WinCC flexible Communication	
German	6AV6 691-1CA01-3AA0
• English	6AV6 691-1CA01-3AB0
French	6AV6 691-1CA01-3AC0
Italian	6AV6 691-1CA01-3AD0
Spanish	6AV6 691-1CA01-3AE0
SIMATIC HMI Manual Collection	6AV6 691-1SA01-0AX0
Electronic documentation, on DVD	
5 languages (English, French, German, Italian and Spanish); contains: all currently available user manuals, manuals and communication manuals for SIMATIC HMI	
Accessories	
Accessories for supplementary ordering	See HMI Accessories, from page 2/148

 Voucher for Software Update Service for 1 year

B) Subject to export regulations: AL: N and ECCN: EAR99S

1) Delivery expected: 1st quarter 2009.

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# Operator Control and Monitoring Devices

**Basic Panels** 

**Basic Panels** 

## Dimensions

All specifications in mm.





KTP400 Basic



KTP1000 Basic

## More information

Additional information is available in the Internet under:

http://www.siemens.com/panels

KTP600 Basic



TP1500 Basic

## Note:

Do you require a specific modification to or supplement for the products described here? Look under "Customized products". We provide information there about additional and generally available sector products, and about the customer-specific modification and adaptation options.

# Operator Control and Monitoring Devices

Panels – 70 series

## SIMATIC OP 73

## Overview



- Operator Panel for HMI functions of machines and plants
- · Graphics in a new dimension: Small and smart
- Full graphics 3" LCD, monochrome
- 8 system keys, 4 freely programmable function keys
- All interfaces are on-board (e.g. MPI, PROFIBUS DP)
- SIMATIC OP 73 is the successor to the OP3 operator panel

#### Benefits

- · High-contrast display for good readability
- Large keys for high operational safety
- Simple handling and configuring
- Integral component of Totally Integrated Automation (TIA): Increases productivity, minimizes the engineering outlay, reduces the lifecycle costs
- Service-friendly through maintenance-free design (no battery) and high service life of the backlighting
- Graphics library is available complete with ready-to-use display objects
- · Can be used worldwide:
- 32 languages can be configured (including Asiatic and Cyrillic character sets)
- Up to 5 languages are selectable online
- Language-dependent texts and graphics

#### Application

The OP 73 Operator Panels can be used wherever direct operator control and monitoring of machines and installations is required locally – whether in production automation, process automation or building automation. They are in use in an extensive range of sectors and applications.

#### Compatible with OP3

- Same installation cutout as OP3
- The OP3 configurations can be loaded from ProTool/Lite, ProTool and ProTool/Pro

Migration manual with description of the important differences over OP3 or ProTool

## Design

- 3" 147; LCD, 160 x 48 pixels, monochrome
- 8 system keys, 4 user-configurable function keys
- Numerical and alphanumeric input option via cursor keys
- Compact design with low mounting depth
- Rugged plastic housing
- The front is resistant to various oils, greases and standard detergents
- Plug-type terminals for a 24 V DC power supply
- RS 485 interface for process connections (MPI, PROFIBUS DP up to 1.5 Mbit/s) and for configuration download

#### Function

- Input/output fields; for displaying and changing process parameters
- Function keys;
- for direct triggering of functions and actions. Up to 16 functions can be configured simultaneously on function keys.
- Graphics;

can be used as icons instead of text to "label" function keys or buttons. They can also be used as simple on-screen graphics. In the configuration tool, a library is available containing an extensive range of graphics and a wide variety of objects. All editors with an OLE interface can be used as graphics editors (such as PaintShop, Designer or CorelDraw).

- Predefined; for labeling function keys, process images and process values in different font sizes
- Bars are used for the graphical display of dynamic values
- Language selection during runtime:
- 5 online languages, 32 configuration languages incl. Asian and Cyrillic character sets
- Language-dependent texts and graphics
- User administration (security):
   Authentication with user ID and password
  - User-group-specific rights
- Message system:
  - Discrete alarms
  - Analog messages
  - Freely definable message classes (e.g., status/fault messages) for definition of acknowledgment response and display of message events
- Message history
- Help texts; for process images, messages and variables
- Arithmetic functions
- Limit value monitoring; for reliable process control of inputs and outputs
- Indicator light; for machine and plant status indication
- Scheduler for global function execution
- Template concept; creation of screen templates (picture elements configured in the template appear in every screen)
# Operator Control and Monitoring Devices Panels – 70 series

## Function (continued)

- Simple maintenance and configuration thanks to:
  - Backup and restoration of configuration, operating system and firmware on a PC using ProSave
     Configuration download using MPI/PROFIBUS DP or serially
  - by using RS485
  - Individual contrast settings
  - No batteries are necessary

## Configuring

SIMATIC WinCC flexible Compact, Standard or Advanced engineering software Version 2004 SP1 and higher plus HSP is used for configuration.

For more information about engineering software, see HMI software/engineering software SIMATIC WinCC flexible.

## Technical specifications

	OP 73
Supply voltage	
Supply voltage	24 V DC
permissible range	+20.4 V to +28.8 V DC
Rated current	0.1 A
Memory	
Type of storage	
• Туре	Flash
<ul> <li>Memory usable for project data/Options</li> </ul>	256 KB usable memory for user data
Time	
Clock	
• Туре	Software clock, not battery backed
Configuration	
Configuration tool	WinCC flexible Compact Version 2004 SP 1 or higher; HSP OP 73 (to be ordered separately)
Display	
Display type	STN, Black/white
Size	3"
Resolution (WxH in pixel)	160 x 48
MTBF backlighting (at 25 °C)	about 100,000 hours
Operating mode	
Operating elements	Membrane keyboard
Function keys, programmable	4 function keys
System keys	8
Numeric/alphabetical input	Yes / Yes
Connection for mouse/key- board/barcode reader	- / - / -
Ambient conditions	
Mounting position	Vertical
maximum permissible angle of incliniation without external ventila-	+/- 80°
max. relative humidity (in %)	90%
Temperature	
Operation (vertical installation)	0 °C to +50 °C
Operation (max. tilt angle)	0 °C to +40 °C
<ul> <li>Transport, storage</li> </ul>	-20 °C to +60 °C

## Integration

The OP 73 can be connected to the following:

- SIMATIC S7-200/-300-400
- SIMATIC WinAC Software/Slot PLC

## Note:

For further information see "System interfaces"

	OP 73
Degree of protection	
Front	IP65, NEMA 4x, (when installed)
Rear	IP20
Certifications & Standards	
Certifications	CE, GL, ABS, BV, DNV, LRS, UL, CSA, cULus, C-TICK, NEMA 4x
Interfaces	
Interfaces	1 x RS485 (max. 1.5 Mbit/s)
Operating systems	
Operating system	LINUX
Processor	
Processor	ARM
Functionality under WinCC flexible	
Task planner	Yes
Help system	Yes
Status/control	Not possible
Message system	
<ul> <li>Number of messages</li> </ul>	500
Bit messages	Yes
<ul> <li>Analog messages</li> </ul>	Yes
Message buffer	Ring buffer (n x 256 entries), non-retentive
Number of process images	
<ul> <li>Process images</li> </ul>	500
Variables	1 000
Limit values	Yes
Multiplexing	Yes
Image elements	
<ul> <li>Text objects</li> </ul>	1,000 text elements
<ul> <li>Graphics object</li> </ul>	Bit maps, icons, icon (full-screen)
<ul> <li>dynamic objects</li> </ul>	Bar graphs

**SIMATIC OP 73** 

# Operator Control and Monitoring Devices Panels – 70 series

## **SIMATIC OP 73**

Technical specifications		Ordering data	Order No.
	OP 73	SIMATIC OP 73 C	6AV6 641-0AA11-0AX0
Functionality under WinCC flexible (continued)		Operator Panel with 3" display, monochrome, including mount- ing accessories	
_ists		OP 73 starter package D	6AV6 651-1AA01-0AA0
Iext lists	150	Consisting of:	
Graphics list	0	OP 73 Operator Panel	
Libraries	Yes	SIMATIC WinCC flexible	
Security		Compact engineering software	
Number of user groups	50	SIMATIC HMI Manual Collection     (SD) E language (English)	
Passwords exportable	Yes	(CD), 5 languages (English, French, German, Italian,	
Number of user rights	32	Spanish), comprising all current-	
Recording		manuals and communication	
Recording/Printing	-	manuals for SIMATIC HMI	
onts		MPI cable (5 m)     (for download and test purposes	
Keyboard fonts	US American (English)	only)	
anguages		• RS 232/PPI multi-master cable	
Online languages	5	(for download image update and image booting)	
Configuration languages	D, GB, F, I, E, CHN "traditional", CHN "simplified", DK, FIN, GR, J, KP / ROK, NL, N, PL, P, RUS, S,	Voucher for Software Update Service for 1 year	
	CZ / SK, TR, H	Configuration	
Fonts	WinCC flexible Standard, symbol	with SIMATIC WinCC flexible	see Chapter 4
Transfer (Lipload/Download)	languages	Documentation (to be ordered se	parately)
Transfer of configuration	MPI/PROFIBUS DP, serial, auto- matic transfer recognition	User Manual WinCC flexible Compact/ Standard/Advanced	
Process coupling		• German	6AV6 691-1AB01-3AA0
<ul> <li>Connection to controller</li> </ul>	S7-200, S7-300/400, Win AC	• English	6AV6 691-1AB01-3AB0
	see System Interfaces	• French	6AV6 691-1AB01-3AC0
xpandability/openness		Italian	6AV6 691-1AB01-3AD0
Open Platform Program	No	• Spanish	6AV6 691-1AB01-3AE0
		User Manual	
TOTIL OT ENCLOSURE (W X H)	128 mm x 68 mm ( 00 5 mm day	WinCC flexible Communication	
W x H/D) in mm	depth	• German	6AV6 691-1CA01-3AA0
Veights		• English	6AV6 691-1CA01-3AB0
Veight	0.25 kg	• French	6AV6 691-1CA01-3AC0
-		• Italian	6AV6 691-1CA01-3AD0
		Spanish	6AV6 691-1CA01-3AE0
		SIMATIC HMI Manual Collection B	6AV6 691-1SA01-0AX0
		Electronic documentation, on DVD	
		5 languages (English, French, German, Italian and Spanish); contains: all currently available user manuals, manuals and communication manuals for SIMATIC HMI	
		Accessories	
		Accessories for supplementary ordering	see HMI accessories, from page 2/158

B) Subject to export regulations: AL: N and ECCN: EAR99S

C) Subject to export regulations: AL: N and ECCN: EAR99T

D) Subject to export regulations: AL: N and ECCN: 5D992B1

# Operator Control and Monitoring Devices Panels – 70 series

## SIMATIC OP 73

## Dimensions

All specifications in mm.





G\_ST80\_XX\_00144

More information

Additional information is available in the Internet under:

http://www.siemens.com/panels

## Note:

Do you need a specific modification or option for the products described here? Then look up "Customized products", where you will find information about additional sector-specific products that can be ordered as well as about options for customer-specific modification and adaptation.

## **SIMATIC OP 77A**

## Overview



- Compact Operator Panel for operator control and monitoring of machines and plants
- · Graphics in a new dimension small and smart
- Pixel-graphics 4.5" LC display, monochrome
- 23 system keys, 8 freely-configurable and freely-inscribable function keys (4 with LEDs)
- All interfaces (e.g. MPI, PROFIBUS DP) are onboard interfaces.
- Together with OP 77B, successor of the successful OP7

#### Benefits

- High-contrast display for good readability
- Large keys for high operational safety
- Simple handling and configuring
- Integral component of Totally Integrated Automation (TIA): Increases productivity, minimizes the engineering outlay, reduces the lifecycle costs
- Reduction in service and startup costs thanks to maintenance-free design (no battery) and long service life of the backlighting
- Can be used worldwide:
  - 32 languages can be configured (including Asiatic and Cyrillic character sets)
  - Up to 5 languages are selectable online
  - Language-dependent texts and graphics
- Graphics library is available complete with ready-to-use display objects

## Application

OP 77A Operator Panels can be used wherever machines and systems are controlled and monitored locally – in production, process and building automation alike. They are used in all types of sectors and applications.

Compatibility with OP7

- Same panel cutout as OP7
- Importing of OP7 configurations from ProTool/Lite, ProTool and ProTool/Pro

Migration manual with description of most important changes to OP7 and ProTool:

### Design

- 4.5" LCD, 160 x 64 pixels, monochrome
- 23 system keys, 8 freely-configurable and freely-inscribable function keys (4 with LEDs)
- Numeric and alphanumeric input facilities
- · Compact design with shallow installation depth
- Rugged plastic housing
- The front is resistant to various oils, greases and standard detergents
- Plug-type terminals for connection of a 24 V DC power supply
- RS 485 interface for process links (MPI, PROFIBUS DP up to 1.5 Mbit/s) and for downloading the configuration

#### Function

- Permanent window and template concept for creating screen templates
- Input/output fields for displaying and changing p
- for displaying and changing process parameters • Function keys
- are used for directly actuating functions and actions. Up to 16 functions can be configured simultaneously on function keys
- Graphics

can be used as icons instead of text to "label" function keys or buttons. They can also be used as simple on-screen graphics. In the configuration tool, a library is available containing an extensive range of graphics and a wide variety of objects. All editors with an OLE interface can be used as graphics editors (such as PaintShop, Designer or CorelDraw).

- Predefined texts for labeling function keys, process images and process values in any character size
- Bars are used for the graphical display of dynamic values

# Operator Control and Monitoring Devices Panels – 70 series

## SIMATIC OP 77A

### Function (continued)

- Display selection from the PLC supports operator prompting from the PLC
- Language selection during runtime
   Source and a selection during runtime
  - 5 online languages, 32 configuration languages incl. Asian and Cyrillic character sets
  - Language-dependent texts and graphics
- User administration (security) according to the requirements of the various sectors
  - Authentication with user ID and password
  - User-group-specific rights
- Signaling system
  - Freely definable message classes (e.g., status/fault messages) for definition of acknowledgment response and display of message events
     Message history
- Recipe management
- Help texts
- for process images, messages and variables
- Arithmetic functions
- Limit value monitoring for reliable process control of inputs and outputs
- Indicator light for machine and plant status indication
- Scheduler for cyclic function execution
- Template concept; picture elements configured in the template appear in every picture
- Simple maintenance and configuration thanks to:
   Backup and restoration of the configuration, operating system, data records and firmware on a PC using ProSave
  - Configuration download/upload using MPI/PROFIBUS DP and serially by using RS 485
  - Individual contrast settings
  - No batteries are necessary

#### Configuration

SIMATIC WinCC flexible Compact, Standard or Advanced configuration software Version 2004 SP1 and higher plus HSP is used for configuration.

For more information about engineering software, see HMI software/engineering software SIMATIC WinCC flexible.

## Integration

The OP 77A can be connected to the following:

- SIMATIC S7-200/-300-400
- SIMATIC WinAC Software/Slot PLC

### Note:

For further information see "System interfaces"

Technical specifications	
	OP 77A
Supply voltage	
Supply voltage	24 V DC
permissible range	+20.4 V to +28.8 V DC
Rated current	0.2 A
Memory	
Type of storage	
Туре	Flash / RAM
Memory usable for project data/Options	256 KB usable memory for user data
Time	
Clock	
• Type	Software clock, not battery backe
Configuration	
Configuration tool	WinCC flexible Compact Version 2004 SP 1 or higher; HSP OP 77 (to be ordered separately)
Display	
Display type	STN, Black/white
Size	4.5"
Resolution (W x H in pixel)	160 x 64
MTBF backlighting (at 25 °C)	about 100,000 hours
Operating mode	
Operating elements	Membrane keyboard
Function keys, programmable	8 function keys, 4 with LEDs
System keys	23
Numeric/alphabetical input	Yes / Yes
Connection for mouse/key- board/barcode reader	- / - / -
Ambient conditions	
Mounting position	Vertical
maximum permissible angle of incliniation without external ventila- tion	+/- 80°
max. relative humidity (in %)	90%
Temperature	
Operation (vertical installation)	0 °C to +50 °C
Operation (max. tilt angle)	0 °C to +40 °C
Transport, storage	-20 °C to +60 °C
Degree of protection	
Front	IP65, NEMA 4x, NEMA 12 (when installed)
Rear	IP20
Certifications & Standards	
Certifications	CE, GL, ABS, BV, DNV, LRS, FM Class I Div. 2, UL, CSA, cULus, EX-Zone 2 (available soon), EX- Zone 22 (available soon, C-TICK, NEMA 4x, NEMA 12
Type of output	
LED colors	Green

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## SIMATIC OP 77A

## Technical specifications (continued)

	0P //A		OP //A
interfaces		Functionality under	
Interfaces	1 x RS422, 1 x RS485 (max_1.5 Mbit/s)		
Slots	(114. 1.5 (1151/3)	• Text lists	300
PC card slot	No	Graphics list	0
CE card slot	No	Libraries	Yes
Multi Media Card slot	No	Security	
USB	No	Number of user groups	50
Ethernet	No	Passwords exportable	Yes
Operating systems		Number of user rights	32
Operating system	LINUX	Recording	
Processor		Recording/Printing	-
Processor	ARM	Fonts	
Functionality under		<ul> <li>Keyboard fonts</li> </ul>	US American (English)
WinCC flexible		Languages	
Task planner	Yes	Online languages	5
Help system	Yes	Configuration languages	D, GB, F, I, E, CHN "traditional",
Status/control	Not possible		CHN "simplified", DK, FIN, GR, J,
Message system			CZ / SK, TR, H
<ul> <li>Number of messages</li> </ul>	1 000	• Fonts	WinCC flexible Standard, symbol
<ul> <li>Bit messages</li> </ul>	Yes		languages
<ul> <li>Analog messages</li> </ul>	Yes	Transfer (Upload/Download)	
Message buffer	Ring buffer (n x 256 entries), non-retentive	<ul> <li>Transfer of configuration</li> </ul>	MPI/PROFIBUS DP, serial, auto- matic transfer recognition
Recipes		Process coupling	
Recipes	5	<ul> <li>Connection to controller</li> </ul>	S7-200, S7-300/400, Win AC
<ul> <li>Data records per recipe</li> </ul>	20	Expandability/opopposs	See Oystern Interfaces
<ul> <li>Entries per data record</li> </ul>	20	Open Platform Program	No
<ul> <li>Recipe memory</li> </ul>	32 kByte integrated Flash	Dimensions	
Number of process images		Eront of enclosure $(W \times H)$	150 mm v 186 mm
<ul> <li>Process images</li> </ul>	500		135 mm x 171 mm / 38 5 mm
<ul> <li>Variables</li> </ul>	1 000	$(W \times H/D)$ in mm	device depth
Limit values	Yes	Weight	
<ul> <li>Multiplexing</li> </ul>	Yes	Weight	0.5 kg
Image elements			
<ul> <li>Text objects</li> </ul>	1,000 text elements		
Graphics object	Bit maps, icons, icon (full-screen)		
<ul> <li>dynamic objects</li> </ul>	Bar graphs		

# Operator Control and Monitoring Devices Panels – 70 series

## SIMATIC OP 77A

Drdering data	Order No.	Dimensions
SIMATIC OP 77A C	6AV6 641-0BA11-0AX1	All specifications in mm. Panel cutout see technical specification
Operator Panel with 4.5" display, monochrome, incl. mounting accessories		
OP 77A starter package	6AV6 651-1BA01-0AA0	
Consisting of:		
Operator Panel OP 77A		
SIMATIC WinCC flexible     Compact engineering software		
<ul> <li>SIMATIC HMI Manual Collection (CD), 5 languages (English, French, German, Italian, Spanish), comprising all currently available user manu- als, manuals and communica- tion manuals for SIMATIC HMI</li> </ul>		
<ul> <li>MPI cable (5 m) (for download and test purposes only)</li> </ul>		
<ul> <li>RS232/PPI multi-master cable (for download and image booting)</li> </ul>		More information
<ul> <li>Voucher for Software Update Service for 1 year</li> </ul>		Additional information is available in the Internet under:
Configuration		
with SIMATIC WinCC flexible	see Chapter 4	
Documentation (to be ordered sep	parately)	<u>Note:</u>
User Manual WinCC flexible Compact/ Standard/Advanced		Do you need a specific modification or option for the proc described here? Then look up "Customized products", wh you will find information about additional sector-specific products that can be ordered as well as about aptions for
• German	6AV6 691-1AB01-3AA0	customer-specific modification and adaptation.
• English	6AV6 691-1AB01-3AB0	
• French	6AV6 691-1AB01-3AC0	
• Italian	6AV6 691-1AB01-3AD0	
• Spanish	6AV6 691-1AB01-3AE0	
User Manual WinCC flexible Communication		
• German	6AV6 691-1CA01-3AA0	
• English	6AV6 691-1CA01-3AB0	
• French	6AV6 691-1CA01-3AC0	
• Italian	6AV6 691-1CA01-3AD0	
• Spanish	6AV6 691-1CA01-3AE0	
SIMATIC HMI Manual Collection B	6AV6 691-1SA01-0AX0	
Electronic documentation, on DVD		
5 languages (English, French, German, Italian and Spanish); contains: all currently available user manuals, manuals and communication manuals for SIMATIC HMI		
Accessories		-
Accessories for supplementary ordering	see HMI accessories, from page 2/158	

- B) Subject to export regulations: AL: N and ECCN: EAR99S
- C) Subject to export regulations: AL: N and ECCN: EAR99T
- D) Subject to export regulations: AL: N and ECCN: 5D992B1

## **SIMATIC OP 77B**

## Overview



- Compact Operator Panel for operator control and monitoring of machines and plants
- · Graphics in a new dimension small and smart
- Pixel-graphics 4,5" LCD, monochrome
- 23 system keys, 8 freely-configurable and freely-inscribable function keys (4 with LEDs)
- All interfaces (e.g. MPI, PROFIBUS DP) are onboard interfaces.
- Non-Siemens PLCs can be connected using easy-to-use drivers
- Combined with OP 77A successor of the successful OP 7

## Benefits

- High-contrast display for good legibility
- Large keys for improved operational reliability
- Easy to handle and configure
- Integral component of Totally Integrated Automation (TIA): increases productivity, minimizes the engineering outlay, reduces the lifecycle costs
- Reduction of service and commissioning costs through:
   Remote downloading of the configuration with automatic transfer recognition even via WAN (Wide Area Network)
   Maintenance-free design (no battery) and long service life of the backlighting
- Can be used all over the world:
  - 32 languages can be configured (incl. Asian and Cyrillic character sets)
  - Up to 5 languages can be switched online
  - Language-dependent texts and graphics
- Graphics library available with off-the-shelf picture objects
- Standard hardware and software interfaces for increasing flexibility:
- Optional Multi Media Card, can be used for recipe data sets and for backup of configuration/system data
- Integrated printer port (USB)

## Application

The OP 77B Operator Panels can be used wherever direct operator control and monitoring of machines and installations is required locally – whether in production automation, process automation or building automation. They are in use in an extensive range of sectors and applications.

#### Compatibility with OP7

- Same installation cutout as OP7
- The OP7 configurations can be loaded from ProTool/Lite, ProTool and ProTool/Pro

Migration manual with description of the important differences over OP7 or ProTool

#### Design

- 4.5" LC display, 160 x 64 pixels, monochromatic
- 23 system keys, 8 freely-configurable and freely-inscribable function keys (4 with LEDs)
- Numeric and alphanumeric input options
- Compact design with low mounting depth
- Rugged plastic enclosure
- The front is resistant to various oils, greases and standard detergents
- Plug-in terminals for 24 V DC power supply
- Interfaces:
- RS 485/422 interface for process connections (MPI, PROFIBUS DP up to 12 Mbit/s)
- RS 232 interface for process connections
- USB printer interface
- Slot for Multi Media Card

# **Operator Control and Monitoring Devices** Panels – 70 series

## SIMATIC OP 77B

#### Function

- Permanent window and template concept for creating screen templates
- Input/output fields
  - for displaying and changing process parameters
- Function keys for directly actuating functions and actions. Up to 16 functions can be configured simultaneously on function keys. They can be used directly as PROFIBUS DP input peripherals.
- Graphics

can be used as icons instead of text to "label" function keys or buttons. They can also be used as simple on-screen graphics. In the configuration tool, a library is available containing an extensive range of graphics and a wide variety of objects. All editors with an OLE interface can be used as graphics editors (such as PaintShop, Designer or CorelDraw).

- Predefined texts for labeling function keys, process images and process values in any character size
- Bars are used for the graphical display of dynamic values
- Display selection from the PLC supports operator prompting from the PLC
- Language selection during runtime
   5 online languages, 32 configuration languages incl. Asian and Cyrillic character sets
  - Language-dependent texts and graphics
- User administration (security) according to the requirements of the various sectors
  - Authentication with user ID and password
- User-group-specific rights
- Signalling system
  - Analog alarms
  - Bit messages as well as the Alarm S message frame procedure for SIMATIC S7
  - Freely definable message classes (e.g. status/fault messages) for definition of acknowledgment response and display of message events
  - Message history
- Recipe management
  - With additional data storage (on optional multi-media card)
  - Storage of recipe data in standard Windows format (CSV)
     External processing using standard tools such as Excel and
  - Access is possible
- Help texts
- for process images, messages and variables
- Arithmetic functions

- Limit value monitoring for reliable process control of inputs and outputs
- Indicator light for machine and plant status indication
  Scheduler (timer) for cyclic function execution
- Print
- hard copy, messages and user-configurable reports • Template concept
- Picture elements configured in the template appear in every picture
- User-friendly maintenance and configuration thanks to:
   Backup and restoring of the configuration, operating system, data reported and figuration and the antipad Multi Madia Card
  - data records and firmware on the optional Multi Media Card - Backup and restoration of the configuration, operating
  - system, data records and firmware on a PC using ProSave Configuration download/upload via MPI/PROFIBUS DP/ RS 232/USB
  - Automatic transfer identification
- Individual contrast settings
- Configuration simulation directly on the configuration computer
- No batteries are necessary

#### Configuration

SIMATIC WinCC flexible Compact, Standard or Advanced configuration software Version 2004 and higher is used for configuration.

For more information about engineering software, see HMI software/engineering software SIMATIC WinCC flexible.

## Integration

- The OP 77B can be connected to:
- SIMATIC S7-200/-300/-400
- SIMATIC WinAC Software/Slot PLC
- SIMATIC S5
- SIMATIC 505
- Non-Siemens PLCs:
- Allen Bradley
- Mitsubishi
- LG GLOFA GM
- Modicon
- GE Fanuc

- Omron

Note:

Further information can be found under "System interfaces".

## SIMATIC OP 77B

## Technical specifications

	OP //B	
Supply voltage		
Supply voltage	24 V DC	
permissible range	+20.4 V to +28.8 V DC	
Rated current	0.2 A	
Memory		
Type of storage		
Туре	Flash / RAM	
Memory usable for project data/Options	1000 KB usable memory for user data	
Time		
Clock		
• Туре	Software clock, not battery backed	
Configuration		
Configuration tool	WinCC flexible Compact Version 2004 or higher (to be ordered separately)	
Display		
Display type	STN, Black/white	
Size	4.5"	
Resolution (W x H in pixel)	160 x 64	
MTBF backlighting (at 25 °C)	about 100,000 hours	
Operating mode		
Operating elements	Membrane keyboard	
Function keys, programmable	8 function keys, 4 with LEDs	
System keys	23	
Numeric/alphabetical input	Yes / Yes	
Connection for mouse/key- board/barcode reader	-/-/-	
Ambient conditions		
Mounting position	Vertical	
maximum permissible angle of incliniation without external ventila- tion	+/- 80°	
max. relative humidity (in %)	90%	
Temperature		
Operation (vertical installation)	0 °C to +50 °C	
Operation (max. tilt angle)	0 °C to +40 °C	
<ul> <li>Transport, storage</li> </ul>	-20 °C to +60 °C	
Degree of protection		
Front	IP65, NEMA 4x, NEMA 12 (when installed)	
Rear	IP20	
Certifications & Standards		
Certifications	CE, GL, ABS, BV, DNV, LRS, FM Class I Div. 2, UL, CSA, cULus, EX-Zone 2 (available soon), EX-Zone 22 (available soon), C-TICK, NEMA 4x, NEMA 12	
I/O Options		
I/O devices	Printer	

	OR 77R
Turne of output	OF ITB
	Crean
	Gleen
Interfaces	
Interlaces	(max. 12 Mbit/s)
Multi Media Card slot	1 x Multi Media Card slot
USB	1 x USB
Ethernet	No
Operating systems	
Operating system	Windows CE
Processor	
Processor	ARM
Functionality under WinCC flexible	
Task planner	Yes
Help system	Yes
Message system	
<ul> <li>Number of messages</li> </ul>	1 000
Bit messages	Yes
<ul> <li>Analog messages</li> </ul>	Yes
Message buffer	Ring buffer (n x 256 entries), non-retentive
Recipes	
• Recipes	100
Data records per recipe	200
<ul> <li>Entries per data record</li> </ul>	200
Recipe memory	32 kByte integrated Flash, expandable
Number of process images	
Process images	500
Variables	1 000
Limit values	Yes
Multiplexing	Yes
Image elements	
Text objects	2,500 text elements
Graphics object	Bit maps, icons, icon (full-screen)
<ul> <li>dynamic objects</li> </ul>	Bar graphs
Lists	
• Text lists	300
<ul> <li>Graphics list</li> </ul>	0
Libraries	Yes
Security	
<ul> <li>Number of user groups</li> </ul>	50
<ul> <li>Passwords exportable</li> </ul>	Yes
<ul> <li>Number of user rights</li> </ul>	32

## SIMATIC OP 77B

Technical specifications (co	ontinued)	Ordering data	Order No.
	OP 77B	SIMATIC OP 77B	6AV6 641-0CA01-0AX01
Functionality under WinCC flexible (continued)		Operator Panel with 4.5" display, monochrome, incl. mounting	
Data medium support		OP 77P starter package	6AV6 651 10A01 0AA0
<ul> <li>Multi Media Card</li> </ul>	Yes	Consisting of	6AV6 031-1CAU1-0AA0
Recording			
Recording/Printing	Alarms, report (shift report), hardcopy	Operator Panel OP 778     SIMATIC WinCC flexible	
<ul> <li>Printer driver</li> </ul>	ESC/P2, PCL3/PCL6		
Fonts		(DVD), 5 languages (English,	
<ul> <li>Keyboard fonts</li> </ul>	US American (English)	French, German, Italian,	
Languages		Spanisn)	
<ul> <li>Online languages</li> </ul>	5	• RS 232 Cable (5 m)	
<ul> <li>Configuration languages</li> </ul>	D, GB, F, I, E, CHN "traditional",	• MPI cable (5 m)	
	CHN "simplified", DK, FIN, GR, J, KP / ROK, NL, N, PL, P, RUS, S, CZ / SK_TB_H	Voucher for Software Update Service for 1 year	
• Fonts	Tahoma WinCC flexible Standard	Configuration	
- T ONIO	symbol languages, all freely scal-	with SIMATIC WinCC flexible	see Chapter 4
	able	<b>Configuration set</b>	6AV6 621-0AA01-0AA0
Transfer (Upload/Download)		Consisting of: Engineering software SIMATIC	
<ul> <li>Transfer of configuration</li> </ul>	MPI/PROFIBUS DP, serial, USB, by means of external storage medium, automatic transfer recognition	WinCC flexible Compact, SIMATIC HMI Manual Collection (DVD), 5 languages (English, French, German, Italian and	
Process coupling		Spanish), LISB/PPL cable Multimaster	
Connection to controller	S5, S7-200, S7-300/400, TI 505, Win AC, Allen Bradley (DF1), Allen Bradley (DE485) Mitsubichi (EX)	PC/PPI cable Multimaster, MPI cable (5 m)	
	OMRON (LINK/Multilink), Modicon	Documentation (to be ordered sep	parately)
	(Modbus), for further non-Siemens drivers, see section on "System interfaces"	User Manual WinCC flexible Compact/ Standard/Advanced	
Expandability/openness		• German	6AV6 691-1AB01-3AA0
<ul> <li>Open Platform Program</li> </ul>	No	• English	6AV6 691-1AB01-3AB0
Dimensions		French	6AV6 691-1AB01-3AC0
Front of enclosure (W x H)	150 mm x 186 mm	• Italian	6AV6 691-1AB01-3AD0
Mounting cutout/Device depth	135 mm x 171 mm / 38.5 mm	Spanish	6AV6 691-1AB01-3AE0
Weight	device deptn	User Manual WinCC flexible Communication	
Weight	0.5 kg	• German	6AV6 691-1CA01-3AA0
		• English	6AV6 691-1CA01-3AB0
		• French	6AV6 691-1CA01-3AC0
		• Italian	6AV6 691-1CA01-3AD0
		• Spanish	6AV6 691-1CA01-3AF0
		SIMATIC HMI Manual Collection B	6AV6 691-1SA01-0AX0
		Electronic documentation, on DVD	
		5 languages (English, French, German, Italian and Spanish); contains: all currently available user manuals, manuals and communication manuals for SIMATIC HMI	
		Accessories	
		Accessories for supplementary ordering	See HMI Accessories

- B) Subject to export regulations: AL: N and ECCN: EAR99S
- D) Subject to export regulations: AL: N and ECCN: 5D992B1
- F) Subject to export regulations: AL: N and ECCN: 5D002ENC3

## SIMATIC OP 77B

## Dimensions

All specifications in mm. Tolerance  $\pm$  1 mm.



## More information

Additional information is available in the Internet under:

http://www.siemens.com/panels

## Note:

Do you need a specific modification or option for the products described here? Then look up "customer-specific products", where you will find information about additional sector-specific products that can be ordered as well as about options for customer-specific modification and adaptation.

## SIMATIC TP 177A

## Overview



- Touch Panel for operator control and monitoring of small machines and plants
- Low-cost entry-level product in the category of touch panels with graphics capability and all the basic functions required for simple tasks
- Pixel graphics 5.7" STN touch screen (analog/resistive), Bluemode (4 levels)
- All interfaces (e.g. MPI, PROFIBUS DP) are on board
- SIMATIC TP 177A is the innovative successor of Touch Panel TP 170A

#### Benefits

- Can also be used in a vertical position where installation space is restricted
- Integral component of Totally Integrated Automation (TIA): Increased productivity, minimum engineering overhead, reduction in life-cycle costs
- Reduction of service and commissioning costs through:
   Maintenance-free design (no battery) and long service life of the backlit display
- Graphics library available with off-the-shelf picture objects
- Can be used worldwide:
  - 32 languages can be configured (incl. Asian and Cyrillic character sets)
  - You can switch between up to 5 languages online
  - Language-dependent texts and graphics

## Application

The TP 177A Touch Panels can be used wherever direct operator control and monitoring of small machines and installations is required locally – whether in production automation, process automation or building automation. They are in use in an extensive range of sectors and applications.

With its quick response times, the TP 177A is also ideally suited to jog mode.

Compatible to TP 170A

- Installation cutout identical to TP 170A
- The TP 170A configurations can be loaded from ProTool/Lite, ProTool and ProTool/Pro
- Migration manual with descriptions of the main differences over TP 170A or ProTool

## Design

- 5.7" STN, CCFL<sup>1)</sup>-backlit display, Bluemode (4 shades of blue)
- Analog resistive Touch
- Numerical system keyboard for decimal, binary and hexadecimal number formats
- OnScreen alphabetic keyboard
- Compact design with low mounting depth
- Robust plastic housing
- The front is resistant to various oils, greases and standard detergents
- Plug-in terminals for 24 V DC power supply
- RS 485 interface for process connections (MPI, PROFIBUS DP up to 1.5 Mbit/s) and for the configuration download
- <sup>1)</sup> Cold Cathode Fluorescence Lamps

## Function

- Templates concept for the creation of screen templates
- Input/output fields for displaying and changing process parameters
- Buttons

are used for directly actuating functions and actions. Up to 16 functions can be configured simultaneously on buttons.

Graphics

can be used as icons instead of text to "label" function keys or buttons. They can also be used as background displays (wallpaper).

In the configuration tool, a library is available containing extensive graphics and a wide variety of objects. All editors with an OLE interface can be used as graphics editors, e.g. PaintShop, Designer or CorelDraw, etc.

- Vector graphics Simple geometric basic forms (line, circle and rectangle) can be created direct in the configuring tool
- Predefined

for labeling function keys, process screens and process values in different font sizes

- Curve functions and bars are used for the display of dynamic values in graphics-based format
- Language selection:
  - 5 online languages, 32 configuration languages incl. Asian and Cyrillic character sets
  - Language-dependent texts and graphics

## **SIMATIC TP 177A**

#### **Function** (continued)

- User administration (security) according to the requirements of the various sectors
  - Authentication with user ID and password
  - User-group-specific rights
- Signaling system
  - Discrete alarms
  - Analog alarms
  - Freely-definable message classes (e.g. status/fault messages) for definition of acknowledgment response and display of alarm events Message history
- Recipe management
- Help texts
- for process images, messages and variables
- Arithmetic functions
- Limit value monitoring
- for reliable process control of inputs and outputs
- Indicator light for machine and plant status indication
- Scheduler for cyclic function execution
- Template concept Creation of picture templates (display elements configured in the template appear in every image)
- Simple maintenance and configuration thanks to:
- Backup and restoration of configuration, operating system and firmware on a PC using ProSave
- Configuration download via MPI/PROFIBUS DP and serially via RŠ485
- Automatic transfer identification
- Individual contrast setting and calibration
- Clean screen
- No batteries are necessary

#### Configuration

SIMATIC WinCC flexible Compact, Standard or Advanced engineering software Version 2004 SP1 and higher plus HSP is used for configuration.

Projects created with ProTool can be transferred to WinCC flexible.

For more information about engineering software, see HMI software/engineering software SIMATIC WinCC flexible.

#### Integration

The TP 177A can be connected to:

- SIMATIC S7-200/-300-400
- SIMATIC WinAC Software/Slot PLC

#### Note:

For further information see "System interfaces"

Technical specifications	
	TP 177A
Supply voltage	
Supply voltage	24 V DC
permissible range	+20.4 V to +28.8 V DC
Rated current	0.24 A
Memory	
Type of storage	
Туре	Flash / RAM
Memory usable for project data/Options	512 KB usable memory for user data
Time	
Clock	
• Туре	Software clock, not battery backed
Configuration	
Configuration tool	WinCC flexible Compact Version 2004 SP1 or higher (to be ordered separately)
Display	
Display type	STN, 4 shades of blue
Size	5.7"
Resolution (WxH in pixel)	320 x 240
MTBF backlighting (at 25 °C)	about 50,000 hours
Operating mode	
Operating elements	Touch screen
Touchscreen	analog, resistive
Numeric/alphabetical input	Yes / Yes
Connection for mouse/key- board/barcode reader	- / - / -
Ambient conditions	
Mounting position	Vertical
Maximum permissible angle of incliniation without external ventila- tion	+/- 35°
Max. relative humidity (in %)	90%
Temperature	
Operation (vertical installation)	0 °C to +50 °C
Operation (max. tilt angle)	0 °C to +40 °C
Transport, storage	-20 °C to +60 °C
Degree of protection	
Front	IP65, NEMA 4x, (when installed)
Rear	IP20
Certifications & Standards	
Certifications	CE, GL, ABS, BV, DNV, LRS, FM Class I Div. 2, UL, CSA, cULus, EX-Zone 2 (available soon), EX- Zone 22 (available soon), C-TICK, NEMA 4x

## SIMATIC TP 177A

## Technical specifications (continued)

	TP 177A
Type of output	
LED colors	None
Interfaces	
Interfaces	1 x RS422, 1 x RS485 (max. 1.5 Mbit/s)
Slots	
PC card slot	No
CF card slot	No
Multi Media Card slot	No
USB	No
Ethernet	No
Operating systems	
Operating system	LINUX
Processor	
Processor	ARM
Functionality under WinCC flexible	
Number of Visual Basic scripts	Not possible
Task planner	Yes
Help system	Yes
Status/control	Not possible
Message system	
<ul> <li>Number of messages</li> </ul>	1 000
Bit messages	Yes
<ul> <li>Analog messages</li> </ul>	Yes
Message buffer	Ring buffer (n x 256 entries), non- retentive
Recipes	
• Recipes	5
<ul> <li>Data records per recipe</li> </ul>	20
Entries per data record	20
Recipe memory	32 kByte integrated Flash
Number of process images	
<ul> <li>Process images</li> </ul>	250
Variables	500
Limit values	Yes
Multiplexing	Yes
Image elements	
Text objects	1,000 text elements
Graphics object	Bit maps, icons, icon (full-screen), vector graphics
Dynamic objects	Diagrams, bar graphs

TP 177A
300
100
Yes
50
Yes
32
No
No
No
US American (English)
5
D, GB, F, I, E, CHN "traditional", CHN "simplified", DK, FIN, GR, J, KP / ROK, NL, N, PL, P, RUS, S, CZ / SK, TR, H
Tahoma, WinCC flexible Standard, symbol languages, 1 additional character set can be loaded
MPI/PROFIBUS DP, serial, automatic transfer recognition
S7-200, S7-300/400, Win AC see section on "System interfaces"
No
212 mm x 156 mm
198 mm x 142 mm / 44 mm device depth
0.75 kg

## SIMATIC TP 177A

SIMATIC TP 177A ouch Panel with 5.7" STN display, blue mode (4 levels), ncl. mounting accessories TP 177A starter kit Consisting of:	C 6AV6 642-0AA11-0AX1	All specifications in mm. Panel cutout see technical specifications.
Fouch Panel with 5.7" STN         display, blue mode (4 levels),         ncl. mounting accessories         IP 177A starter kit         Consisting of:         Touch Depart TR 177A	<b>6AV6 651-2AA01-0AA0</b>	
TP 177A starter kit Consisting of:	O 6AV6 651-2AA01-0AA0	
Consisting of:		
Touch Donal TD 1774		
SIMATIC WinCC flexible     Compact engineering software		
<ul> <li>SIMATIC HMI Manual Collection (DVD),</li> <li>5 languages (English, French, German, Italian, Spanish),</li> <li>comprising: all currently available user manuals,</li> <li>manuals and communication manuals for SIMATIC HMI</li> </ul>		
MPI cable (5 m) (for download and test purposes only)		
• RS 232/PPI multi-master cable (for download and image		More information
Softwara Lindata Samilar		Additional information is available in the Internet under:
for 1 year		http://www.siemens.companels
Configuration		
<ul> <li>with SIMATIC WinCC flexible</li> </ul>	see Chapter 4	Noto
Documentation (to be ordered se	eparately)	
Operating Instructions TP 177A, TP 177B, OP 177B		described here? Then look up "Customized products", wher
• German	6AV6 691-1DG01-0AA1	products that can be ordered as well as about options for
• English	6AV6 691-1DG01-0AB1	customer-specific modification and adaptation.
• French	6AV6 691-1DG01-0AC1	
• Italian	6AV6 691-1DG01-0AD1	
• Spanish	6AV6 691-1DG01-0AE1	
User Manual WinCC flexible Compact/ Standard/Advanced		
• German	6AV6 691-1AB01-3AA0	
• English	6AV6 691-1AB01-3AB0	
• French	6AV6 691-1AB01-3AC0	
• Italian	6AV6 691-1AB01-3AD0	
• Spanish	6AV6 691-1AB01-3AE0	
User Manual WinCC flexible Communication		
• German	6AV6 691-1CA01-3AA0	
• English	6AV6 691-1CA01-3AB0	
• French	6AV6 691-1CA01-3AC0	
• Italian	6AV6 691-1CA01-3AD0	
• Spanish	6AV6 691-1CA01-3AE0	
SIMATIC HMI Manual Collection	6AV6 691-1SA01-0AX0	
Electronic documentation, on DVD 5 languages (English, French, Ger- man, Italian and Spanish); contains all currently available user manuals, manuals and communication manuals for SIMATIC HMI		
Accessories		
Accessories for supplementary ordering	See HMI Accessories	
<ul> <li>B) Subject to export regulations: AL:</li> <li>C) Subject to support as the support of the sup</li></ul>	N and ECCN: EAR99S	
<ul> <li>Subject to export regulations: AL:</li> <li>Subject to export regulations: AL:</li> </ul>	N and ECCN: 5D002R1	

2

## SIMATIC TP 177B (incl. INOX)

## Overview



- Touch Panel with comprehensive functions for operator control and monitoring of machines and plants
- Pixel-graphics display with analog touch screen - 4.3" TFT widescreen color display or
- 5.7" STN blue mode/color display
- All interfaces for communication with Siemens SIMATIC S7 (e.g. MPI, PROFIBUS DP) are on-board
- The PROFINET interface is on-board in the color version.
- Drivers are also available for non-Siemens PLCs ٠
- Content of message buffer is retained even when panel is disconnected without batteries
- The 4" version features 4 additional function keys for optimized operator control efficiency
- The SIMATIC TP 177B 6" is the innovative successor to the TP 170B Touch Panel
- The TP 177B PN/DP is also available with a stainless steel front (DIN EN 1672-2). The stainless steel front is appropriate e.g. for the increased demands of the food and beverages industry

## Benefits

- Reduction of service and commissioning costs through: - Backup/restore via a process interface or optionally via a Multi Media Card (also possible using a USB stick on 4" panel)
  - Image and configuration download via all device interfaces - Maintenance-free structure and long service life of the
  - backlighting The data in the message buffer are retained even when the panel is disconnected from the supply, without battery backup.
- Can be used worldwide:
  - 32 languages can be configured (incl. Asian and Cyrillic character sets)
  - Online language can be selected directly on the device
- Graphics library available with off-the-shelf picture objects
- Standard interfaces for increasing the flexibility: •
- external Multi Media Card, used for recipe data sets and for backup of configuration/system data (on the 4" panel, this is also possible using a USB stick)
- Integrated USB interface for connecting, for example, standard printers
- Simple engineering supported by comprehensive documentation on the SIMATIC HMI Manual Collection DVD
- Integral component of Totally Integrated Automation (TIA): Increases productivity, minimizes engineering outlay, reduces lifecycle costs
- The panel versions with stainless steel front can be optimally used in the food and beverages and pharmaceutical industries. The front panels are designed for easy cleaning and disinfecting. Liquids flow off automatically from the front panels. In addition, the stainless steel front (including gasket) provides protection against contamination by foods.

## Application

Thanks to their practical functions and large user memory, TP 177B Touch Panels can be used wherever operator control and monitoring of machines and plants is necessary on site whether in production automation, process automation or building-service's automation. The TP 177B is available in two display sizes:

*4.3" TFT widescreen display* with 256 colors or *5.7" STN display* with 256 colors or 4 shades of blue. The 4" version features four additional function keys for optimized operator control efficiency. The color versions with integrated PROFINET I/O interface can be implemented with even greater flexibility. A USB interface is standard on all model types. A further highlight is the non-volatile message buffer included as standard that stores messages permanently without battery backup.

The TP 177B PN/DP with stainless steel front has been designed for all industries requiring such. The front can be disinfected, and does not affect the quality e.g. of foods (assuming regular cleaning). Cleaning can be carried out using pressurized water with a jet of 100 l/min at 1 bar from a distance of 2.5 to 3 m. Liquids flow off automatically from the front panels.

## SIMATIC TP 177B (incl. INOX)

## Design

- · Display versions
  - 4.3" TFT widescreen display with 256 colors or
  - 5.7" STN display with 256 colors or 4 shades of blue
- LED or CCFL<sup>1)</sup> Backlighting with long service life
- Analog resistive touch screen
- Numeric and alphanumeric on-screen keyboard
- High performance thanks to RISC processor and 2 MB user memory, plus additional integrated recipe memory
- Data in the message buffer are retained even when panel is disconnected from the power supply, without batteries
- MPI, PROFIBUS DP interfaces (up to 12 MBaud) as well as USB 1.1 (max. 100 mA) on-board
- PROFINET interface is already on-board in the color versions
- Configuration of the 6" version with SIMATIC WinCC flexible 2005 Compact or higher, the 4" version as of WinCC flexible 2008 Compact
- Complete functionality for demanding tasks
- Comprehensive Reichert graphics library
- Multi Media Card slot, can be used for standard MMCs (for backing up/restoring recipe data sets, the configuration and system data)
- The 4" version also supports SD cards and USB sticks in addition to Multi Media Cards
- Options for SINUMERIK, Sm@rtAccess and Sm@rtService can be used
- Service-friendly thanks to maintenance-free design and long service life of the backlighting display
- 1) Cold Cathode Fluorescence Lamps

## Function

- Permanent window and template concept for creating screen templates
- Input/output fields for visualizing and editing process parameters
- Configurable buttons with up to 16 functions are also used to directly trigger functions and actions
- Indicator light for machine and plant status indication
- Predefined texts for labeling function keys, process images and process values in any character size
- Help texts
- for process images, messages and variables
- Vector graphics, graphics can be used as icons instead of text for "labeling" buttons.

They can also be used as full-screen background pictures. In the configuration tool, a library is available containing extensive graphics and a wide variety of objects. All editors with an OLE interface (e.g., PaintShop, Designer or CorelDraw) can be used as graphics editors.

- Curve functions and bars are used for the display of dynamic values in graphics-based format
- Dynamic positioning of objects and dynamic showing/hiding of objects
- Arithmetic functions, limit value monitoring for reliable process control with inputs and outputs

- Online language selection (16 selectable languages), incl. Asian and Cyrillic languages, this also applies to language-specific graphics
- Scheduler
- for cyclic function execution
- Password protection (security) User management – Authentication by means of user ID and password, plus privileges specific to user groups, which is an integral part of SIMATIC
- Signaling system

Freely definable message classes (acknowledgement behavior and display can be configured) Administration of status, fault and system messages. The alarm history is retained even if the device is switched off. Analog alarms (limit value messages) in addition to discrete alarms.

- Recipe management:
  - With additional data storage (on ext. storage medium)
  - Online/offline processing on the panel
- Storage of recipe data in standard Windows format (CSV)
- External processing using standard tools such as Excel and Access is possible
- Multi Media Card slot for external standard data carriers, can be used for backup/restoration or for transporting recipe data records;
- the 4" version also supports SD cards and USB sticks
- User-friendly maintenance and configuration thanks to:
   Backup and restoration of the configuration, operating system, data records and firmware on a PC using ProSave
  - Option to download/upload the configuration via all device interfaces (with automatic transfer detection)
- Individual contrast and brightness setting and calibration - Configuration simulation directly on the configuration
  - computer

## Configuration

Configuration is implemented using the innovative engineering tool SIMATIC WinCC flexible 2005 for the 6" versions or WinCC flexible 2008 for the 4" version, in each case the Compact Edition or higher. SIMATIC WinCC flexible is the logical further development of the field-proven ProTool family. Projects generated using ProTool can be easily migrated to WinCC. When OP17 projects are implemented, the project engineer must make certain changes following conversion as a result of the innovated display technology. Support is however provided by WinCC flexible. If WinCC flexible is started directly from SIMATIC Manager, data in STEP 7 can be accessed directly when the panel is configured. Duplicated data input and data management is, therefore, avoided.

## Additional options

SINUMERIK

Optionally with "SINUMERIK HMI copy license WinCC flexible CE". The SINUMERIK HMI engineering WinCC flexible package is also required for configuration. For further information see Catalog NC 60.

Sm@rt Service

Remote operator control and monitoring of SIMATIC HMI systems based on TCP/IP networks

• Sm@rt Access

Communication between HMI systems based on TCP/IP networks. Remote access to recipe data sets, passwords and information specific to the HMI system, and much more.

## SIMATIC TP 177B (incl. INOX)

## Technical specifications

	SIMATIC TP 177B widescreen	SIMATIC TP 177B bluemode	SIMATIC TP 177B color	SIMATIC TP 177B color INOX
Supply voltage				
Supply voltage	24 V DC	24 V DC	24 V DC	24 V DC
permissible range	+20.4 V to +28.8 V DC	+20.4 V to +28.8 V DC	+20.4 V to +28.8 V DC	+18 V to +30 V DC
Rated current	0.2 A	0.24 A	0.24 A	0.24 A
Memory				
Type of storage				
Туре	Flash / RAM	Flash / RAM	Flash / RAM	Flash / RAM
Memory usable for project data/Options	2048 KB usable memory for user data	2048 KB usable memory for user data	2048 KB usable memory for user data	2048 KB usable memory for user data
Time				
Clock				
• Туре	Hardware clock, Synchroni- zable, not battery backed			
Protocols				
Protocols (terminal link)				
Sm@rtAccess	Yes			
Configuration				
Configuration tool	WinCC flexible Compact Version 2008 or higher (to be ordered separately)	WinCC flexible Compact Version 2005 or higher (to be ordered separately)	WinCC flexible Compact Version 2005 or higher (to be ordered separately)	WinCC flexible Compact Version 2005 or higher (to be ordered separately)
Display				
Display type	TFT, 256 Colors	STN, 4 shades of blue	STN, 256 Colors	STN, 256 Colors
Size	4.3" (95 mm x 53 mm)	5.7" (120 mm x 90 mm)	5.7" (120 mm x 90 mm)	5.7" (120 mm x 90 mm)
Resolution (W x H in pixel)	480 x 272	320 x 240	320 x 240	320 × 240
MTBF backlighting (at 25 °C)	about 30,000	about 50,000 hours	about 50,000 hours	about 50,000 hours
Operating mode				
Operating elements	Membrane keyboard	Touch screen	Touch screen	Touch screen
Touchscreen	analog, resistive	analog, resistive	analog, resistive	analog, resistive
Numeric/alphabetical input	Yes (on-screen keyboard) / Yes (on-screen keyboard)	Yes / Yes	Yes / Yes	Yes / Yes
Connection for mouse/ keyboard/barcode reader	USB / USB / -			
Ambient conditions				
Mounting position	Vertical	Vertical	Vertical	Vertical
maximum permissible angle of incliniation without external ventilation	+/- 35°	+/- 35°	+/- 35°	+/- 35°
max. relative humidity (in %)	90%	90%	90%	90%
Temperature				
<ul> <li>Operation (vertical installation)</li> </ul>	0 °C to +50 °C			
• Operation (max. tilt angle)	0 °C to +40 °C			
<ul> <li>Transport, storage</li> </ul>	-20 °C to +60 °C			
Degree of protection				
Front	IP65, NEMA 4, NEMA 4x, NEMA 12 (when installed)	IP65, NEMA 4x, NEMA 12 (when installed)	IP65, NEMA 4x, NEMA 12 (when installed)	IP66K, NEMA 4, NEMA 4x, NEMA 12 (when installed)
Rear	IP20	IP20	IP20	IP20

## SIMATIC TP 177B (incl. INOX)

#### Technical specifications (continued) SIMATIC TP 177B SIMATIC TP 177B SIMATIC TP 177B SIMATIC TP 177B widescreen bluemode color color INOX **Certifications & Standards** CE, GL, ABS, BV, DNV, LRS, CE, GL, ABS, BV, DNV, LRS, FM Class I Div. 2, UL, CSA, cULus, EX-Zone 2 (available CE, cULus, C-TICK, CE, GL, ABS, BV, DNV, LRS, Certifications NEMA4, NEMA 4x, FM Class I Div. 2, UL, CSA, cULus, EX-Zone 2 (available PRS, FM Class I Div. 2, UL, CSA, cULus, EX-Zone 2/22, Gost-R, C-TICK, NEMA 4, NEMA 12 available soon: GL, ABS, BV, DNV, LRS, FM soon), EX-Zone 22 soon), EX-Zone 22 (available soon), C-TICK, (available soon), C-TICK. NEMA 4x, NEMA 12 Class I Div. 2, UL, CSA NEMA 4x, NEMA 12 NEMA 4x, NEMA 12 I/O Options I/O devices Printer Printer Printer Printer Interfaces Interfaces RS232 optional, 1 x RS422, 1 x RS485 (max. 12 Mbit/s) USB 1 x USB 1 x USB 1 x USB 1 x USB Ethernet 1 x Ethernet (RJ45) No 1 x Ethernet (RJ45) 1 x Ethernet (RJ45) Slots PC card slot No No No No CF card slot No No No No Multi Media Card slot 1 x Multi Media Card slot **Operating systems** Operating system Windows CE (Version 5) Windows CE Windows CE Windows CE Processor Processor RISC 32-bit, 266 MHz ARM, 200 MHz ARM, 200 MHz ARM, 200 MHz Functionality under WinCC flexible Applications/options Sm@rtService, Sm@rtService, Sm@rtService, Sm@rtService, Sm@rtAccess Sm@rtAccess Sm@rtAccess Sm@rtAccess Number of Visual Basic Not possible scripts Task planner Yes Yes Yes Yes Help system Yes Yes Yes Yes Status/control with SIMATIC S7 with SIMATIC S7 with SIMATIC S7 with SIMATIC S7 Message system Number of messages 2 0 0 0 2 000 2 0 0 0 2 000 · Bit messages Yes Yes Yes Yes Analog messages Yes Yes Yes Yes Ring buffer (n x 256 entries), Message buffer retentive, maintenance-free retentive, maintenance-free retentive, maintenance-free retentive, maintenance-free Recipes Recipes 100 100 100 100 200 200 Data records per recipe 200 200 · Entries per data record 200 200 200 200 Recipe memory 32 kByte integrated Flash, 32 kByte integrated Flash, 32 kByte integrated Flash, 32 kByte integrated Flash, expandable expandable expandable expandable Number of process images · Process images 500 500 500 500 1 000 1 000 1 000 1 000 Variables • Limit values Yes Yes Yes Yes Multiplexing Yes Yes Yes Yes

## SIMATIC TP 177B (incl. INOX)

## Technical specifications (continued)

	SIMATIC TP 177B widescreen	SIMATIC TP 177B bluemode	SIMATIC TP 177B color	SIMATIC TP 177B color INOX
Functionality under WinCC flexible (continued)				
Image elements				
<ul> <li>Text objects</li> </ul>	2,500 text elements	2,500 text elements	2,500 text elements	2,500 text elements
<ul> <li>Graphics object</li> </ul>	Bit maps, icons, icon (full- screen), vector graphics	Bit maps, icons, icon (full- screen), vector graphics	Bit maps, icons, icon (full- screen), vector graphics	Bit maps, icons, icon (full- screen), vector graphics
dynamic objects	Diagrams, bar graphs, sliders, analog display, invisible buttons	Diagrams, bar graphs, sliders, analog display, invisible buttons	Diagrams, bar graphs, sliders, analog display, invisible buttons	Diagrams, bar graphs, sliders, analog display, invisible buttons
Lists				
Text lists	300	300	300	300
<ul> <li>Graphics list</li> </ul>	100	100	100	100
Libraries	Yes	Yes	Yes	Yes
Security				
<ul> <li>Number of user groups</li> </ul>	50	50	50	50
<ul> <li>Passwords exportable</li> </ul>	Yes	Yes	Yes	Yes
<ul> <li>Number of user rights</li> </ul>	32	32	32	32
Data medium support				
PC card	No	No	No	No
• CF card	No	No	No	No
Multi Media Card	Yes	Yes	Yes	Yes
Recording				
<ul> <li>Recording/Printing</li> </ul>	Alarms, report (shift report), color print, hardcopy	Alarms, report (shift report), hardcopy	Alarms, report (shift report), color print, hardcopy	Alarms, report (shift report), color print, hardcopy
Printer driver Fonts	ESC/P2, PCL3/PCL6	ESC/P2, PCL3/PCL6	ESC/P2, PCL3/PCL6	ESC/P2, PCL3/PCL6
<ul> <li>Keyboard fonts</li> </ul>	US American (English)	US American (English)	US American (English)	US American (English)
Languages				
<ul> <li>Online languages</li> </ul>	16	16	16	16
Configuration languages	D, GB, F, I, E, CHN "tradi- tional", CHN "simplified", DK, FIN, GR, J, KP / ROK, NL, N, PL, P, RUS, S, CZ / SK, TR, H	D, GB, F, I, E, CHN "tradi- tional", CHN "simplified", DK, FIN, GR, J, KP / ROK, NL, N, PL, P, RUS, S, CZ / SK, TR, H	D, GB, F, I, E, CHN "tradi- tional", CHN "simplified", DK, FIN, GR, J, KP / ROK, NL, N, PL, P, RUS, S, CZ / SK, TR, H	D, GB, F, I, E, CHN "tradi- tional", CHN "simplified", DK, FIN, GR, J, KP / ROK, NL, N, PL, P, RUS, S, CZ / SK, TR, H
• Fonts	Tahoma, Courier New, WinCC flexible Standard, symbol languages, 1 addi- tional character sets can be loaded, all freely scalable	Tahoma, Courier New, WinCC flexible Standard, symbol languages, 2 addi- tional character sets can be loaded, all freely scalable	Tahoma, Courier New, WinCC flexible Standard, symbol languages, 2 addi- tional character sets can be loaded, all freely scalable	Tahoma, Courier New, WinCC flexible Standard, symbol languages, 2 addi- tional character sets can be loaded, all freely scalable
Transfer (Upload/Download)				
Transfer of configuration	MPI/PROFIBUS DP, USB, Ethernet, by means of external storage medium, automatic transfer recogni- tion	MPI/PROFIBUS DP, serial, USB, by means of external storage medium, automatic transfer recognition	MPI/PROFIBUS DP, serial, USB, Ethernet, by means of external storage medium, automatic transfer recogni- tion	MPI/PROFIBUS DP, serial, USB, Ethernet, by means of external storage medium, automatic transfer recogni- tion
Process coupling				
Connection to controller	S5, S7-200, S7-300/400, WinAC, SINUMERIK, SIMOTION, Allen Bradley (DF1), Mitsubishi (FX), Telemecanique (ADJUST), Modicon (Modbus), for further non-Siemens drivers, see "System interfaces"	S5, S7-200, S7-300/400, Win AC, SINUMERIK, SIMOTION, Allen Bradley (DF1), Mitsubishi (FX), Telemecanique (ADJUST), Modicon (Modbus), for further non-Siemens drivers, see "System interfaces"	S5, S7-200, S7-300/400, Win AC, PC (TCP/IP), SINUMERIK, SIMOTION, Allen Bradley (DF1), Mitsubishi (FX), Telemecanique (ADJUST), Modicon (Modbus), for further non-Siemens drivers, see "System interfaces"	S5, S7-200, S7-300/400, Win AC, PC (TCP/IP), SINUMERIK, SIMOTION, Allen Bradley (DF1), Mitsubishi (FX), Tele- mecanique (ADJUST), Modicon (Modbus), for further non-Siemens drivers, see "System interfaces"
Expandability/openness				
Open Platform Program	No	Yes	Yes	Yes
Dimensions				
Front of enclosure (W x H)	140 mm x 116 mm	212 mm x 156 mm	212 mm x 156 mm	212 mm x 156 mm
Mounting cutout/Device depth (W x H/D)	123 mm x 99 mm/48 mm	198 mm x 142 mm / 44 mm device depth	198 mm x 142 mm / 44 mm device depth	198 mm x 142 mm / 46 mm device depth
Weights Weight	0.5 kg	0.8 kg	0.8 kg	0.9 kg

2

Configuration software

## **Operator Control and Monitoring Devices** Panels – 170 series

Order No.

6A)

6A)

6A)

F 6A

F 6A

F 6A

## SIMATIC TP 177B (incl. INOX)

# Ordering data

(4 levels)

(256 colors) • 5.7" STN color display

steel front

Consisting of:TP 177B with 4.3" TFT widescreen color display

(256 colors)

Spanish)

1 year

Consisting of:

Spanish)

cable

1 year

• 4.3" TFT widescreen color

display (256 colors)5.7" STN blue mode display

• 5.7" STN color display

incl. mounting accessories
TP 177B 4" starter kit

 SIMATIC WinCC flexible Compact configuration software
 SIMATIC HMI Manual Collection (DVD), 5 languages (English, French, German, Italian,

MPI cable (5 m) (for download and test purposes only)
Software Update Service for

TP 177B 6" starter kit

 TP 177B with 5.7" STN color display (256 colors)

Configuration software SIMATIC WinCC flexible Compact
SIMATIC HMI Manual Collection (DVD), 5 languages (English, French, German, Italian,

 MPI cable (5 m) (for download and test purposes only), PC/PPI

· Software Update Service for

(256 colors) INOX with stainless

	e en ingulation continuio	
	with SIMATIC WinCC flexible	See Chapter 4
/6 642-0BD01-3AX0	Configuration set	
/6 642-0BC01-1AX1 /6 642-0BA01-1AX1 /6 642-8BA10-0AA1	Consisting of: SIMATIC WinCC flexible Compact engineering software, SIMATIC HMI Manual Collection (DVD), 5 languages (English, French, German, Italian and Spanish), PC/PPI cable Multimas- ter, MPI cable (5 m) (for download and test purposes only)	
	with SIMATIC WinCC flexible D Compact engineering software	6AV6 621-0AA01-0AA0
/6 652-2KA00-0AA0	Documentation (to be ordered sep	arately)
	Operating Instructions TP 177micro/TP 177A/TP 177B/ OP 177B (WinCC flexible)	**
	• German	6AV6 691-1DG01-0AA1
	• English	6AV6 691-1DG01-0AB1
	• French	6AV6 691-1DG01-0AC1
	• Italian	6AV6 691-1DG01-0AD1
	• Spanish	6AV6 691-1DG01-0AE1
	User Manual WinCC flexible Compact/Standard/Advanced	
	• German	6AV6 691-1AB01-3AA0
/6 551-2EA01-1AA0	• English	6AV6 691-1AB01-3AB0
	• French	6AV6 691-1AB01-3AC0
	• Italian	6AV6 691-1AB01-3AD0
	• Spanish	6AV6 691-1AB01-3AE0
	User Manual WinCC flexible Communication	
	• German	6AV6 691-1CA01-3AA0
	• English	6AV6 691-1CA01-3AB0
	• French	6AV6 691-1CA01-3AC0
	• Italian	6AV6 691-1CA01-3AD0
	• Spanish	6AV6 691-1CA01-3AE0
	SIMATIC HMI Manual Collection B	6AV6 691-1SA01-0AX0
	Electronic documentation, on DVD	
	5 languages (English, French, German, Italian and Spanish); contains: all currently available user manuals, manuals and com- munication manuals for SIMATIC HMI	

#### Accessories

Accessories for supplementary ordering See HMI Accessories

Order No.

2

B) Subject to export regulations: AL: N and ECCN: EAR99S
D) Subject to export regulations: AL: N and ECCN: 5D992B1
F) Subject to export regulations: AL: N and ECCN: 5D002ENC3

# Operator Control and Monitoring Devices Panels – 170 series

## SIMATIC TP 177B (incl. INOX)

## Dimensions

All specifications in mm. Panel cutout see technical specifications.







SIMATIC TP 177B PN/DP and DP, 6" versions



SIMATIC TP 177B PN/DP INOX

## More information

Additional information is available in the Internet under: <a href="http://www.siemens.com/panels">http://www.siemens.com/panels</a>

## Note:

Do you need a specific modification or option for the products described here? Then look up "Customized products", where you will find information about additional sector-specific products that can be ordered as well as about options for customer-specific modification and adaptation.

## SIMATIC OP 177B

## Overview



- Touch/Key Panel with comprehensive functions for operator control and monitoring of machines and plants
- Content of message buffer is retained even when panel is disconnected, without batteries
- Pixel-graphics STN blue-mode/color display with analog touch screen and additional 32 function keys
- Interfaces for communication with Siemens SIMATIC S7 (e.g. MPI, PROFIBUS DP) are on-board
- · Ethernet is on-board in the color version
- Drivers are also available for non-Siemens PLCs
- Installation compatible with OP17

## Benefits

- Reduction of service and commissioning costs through:
   Backup/restoration via a process interface or optionally via a
  - Multi Media Card - Remote downloading of the configuration with automatic transfer recognition via all device interfaces
  - Maintenance-free design (no battery) and long service life of the backlighting
- System keys that can be assigned to any function keys and used as an alternative to or in parallel with the on-screen keyboard
- Maintenance-free message buffer
- Can be used worldwide:
- 32 languages can be configured (incl. Asian and Cyrillic character sets)
- Online language can be selected directly on the device
- Language-dependent texts and graphics
- Graphics library available with off-the-shelf picture objects
- Standard interfaces for increasing the flexibility:
- External MMC, used for recipe data records and for backup of configuration/system data
- Integrated USB interface for connecting, for example, standard printers
- Simple engineering supported by comprehensive documentation on the SIMATIC HMI Manual Collection DVD
- Integral component of Totally Integrated Automation (TIA): Increases productivity, minimizes engineering outlay, reduces lifecycle costs

### Application

Thanks to their practical functions and large user memory, OP 177B Operator Panels can be used wherever operator control and monitoring of machines and plants is necessary on site – whether in production automation, process automation or building-services automation. The OP 177B panels are now available with a 4-color blue-mode display or a 256-color STN display. The color variant complete with an integral PROFINET I/O interface can be implemented with even greater flexibility. A USB port is standard on both model types. A further highlight is the non-volatile message buffer included as standard that stores messages permanently without battery backup.

## SIMATIC OP 177B

## Design

- 256 colors with color display or 4 blue-mode monochrome STN display
- CCFL<sup>1)</sup> Backlighting with long service life
- Analog resistive touch screen and membrane keyboard with 32 function keys
- Numeric and alphanumeric on-screen keyboard
- High performance thanks to RISC processor and 2 MB user memory, plus additional integrated recipe memory
- The data in the message buffer are retained even when panel is disconnected from the power supply, without batteries
- MPI, PROFIBUS DP interfaces (up to 12 Mbaud) as well as USB 1.1 (max. 100 mA) on-board
- Ethernet (PROFINET I/O-capable) with the color variant
- Integrated USB interface
- Can be configured using SIMATIC WinCC flexible 2005 Compact and higher
- Complete functionality for demanding tasks
- Comprehensive Reichert graphics library
- Multi Media Card slot, can be used for standard MMCs (for backing up recipe data sets, the configuration and system data)
- Remote downloading of the configuration via all interfaces with automatic transfer recognition
- The SINUMERIK, Sm@rtAccess and Sm@rtService options can be used
- Service-friendly thanks to maintenance-free design and long service life of the backlighting display
- 1) Cold Cathode Fluorescence Lamps

## Function

- Permanent window and template concept for creating screen templates
- Input/output fields for visualizing and editing process parameters
- Configurable buttons
   with up to 16 functions are also used to directly trigger
- functions and actions

  Indicator light
- for indicating machine and plant statuses
- Predefined texts for labeling function keys, process images and process values in any character size
- Help texts for process screens, messages and variables
- Vector graphics, graphics can be used as icons instead of text for "labeling" buttons. They can also be used as full-screen background images. The configuration tool contains a library with extensive graphics and diverse objects. All editors with an OLE interface can be used as graphics editors, e.g. PaintShop, Designer or CorelDraw, etc.
- Curve functions and bars are used for graphical display of dynamic values
- Dynamic positioning of objects and dynamic showing/hiding of objects
- Arithmetic functions, limit value monitoring for reliable process control with inputs and outputs
- Online language selection (16 selectable languages), incl. Asian and Cyrillic languages this also applies to language-specific graphics
- Scheduler for cyclic function execution

- Password protection (security) User management – Authentication by means of user ID and password, plus privileges specific to user groups, which is an integral part of SIMATIC
- Signaling system;

Freely definable message classes (acknowledgement behavior and display can be configured), administration of status, fault and system alarms. The message history is retained even if the device is switched off. Analog alarms (limit value messages) in addition to bit messages

- Recipe management
  - With additional data storage (on ext. storage medium)
  - Online/offline processing on the panel
  - Storage of recipe data in standard Windows format (CSV) - External processing using standard tools such as Excel and
- External processing using standard tools such as excer and Access is possible
- Multi Media Card (MMC) slot for external standard data carrier, can be used for backup/ restoration or for transporting recipe data records
- User-friendly maintenance and configuration thanks to:
   backup and restoration of the configuration, operating system, data records and firmware on a PC using ProSave
  - Option to download/upload the configuration via all device interfaces (with automatic transfer detection)
  - Individual contrast setting and calibration
  - Configuration simulation directly on the configuration computer

### Configuration

The equipment is configured using the innovative engineering tool SIMATIC WinCC flexible 2005 (Compact and above). SIMATIC WinCC flexible is the logical further development of the field-proven ProTool family. Projects generated using ProTool can be easily migrated to WinCC. When OP17 projects are implemented, the project engineer must make certain changes following conversion as a result of the innovated display technology. Support is however provided by WinCC flexible. OP 170B projects can be loaded problem-free because all operator control actions can be performed using the on-screen keyboard. If WinCC flexible is started directly from SIMATIC Manager, data in STEP 7 can be accessed directly at the click of a mouse button when the panel is configured. Duplicated data input and data management is, therefore, avoided.

#### Additional options

• SINUMERIK

Optionally with "SINUMERIK HMI copy license WinCC flexible CE". For configuration, a "SINUMERIK HMI engineering package WinCC flexible" is also necessary. For further information, see the NC 60 Catalog.

- Sm@rt Service Remote operator control and monitoring of SIMATIC HMI systems based on TCP/IP networks
- Sm@rt Access

Communication between HMI systems based on TCP/IP networks. Remote access to recipe data sets, passwords and information specific to the HMI system, and much more.

## SIMATIC OP 177B

## Technical specifications

	OP 177B bluemode	OP 177B color
Supply voltage		
Supply voltage	24 V DC	24 V DC
permissible range	+20.4 V to +28.8 V DC	+20.4 V to +28.8 V DC
Rated current	0.24 A	0.24 A
Memory		
Type of storage		
Туре	Flash / RAM	Flash / RAM
Memory usable for project data/Options	2048 KB usable memory for user data	2048 KB usable memory for user data
Time		
Clock		
• Туре	Hardware clock, Synchronizable, not battery backed	Hardware clock, Synchronizable, not battery backed
Configuration		
Configuration tool	WinCC flexible Compact Version 2005 or higher (to be ordered separately)	WinCC flexible Compact Version 2005 or higher (to be ordered separately)
Display		
Display type	STN, 4 shades of blue	STN, 256 Colors
Size	5.7" (120 mm x 90 mm)	5.7" (120 mm x 90 mm)
Resolution (W x H in pixel)	320 x 240	320 x 240
MTBF backlighting (at 25 °C)	about 50,000 hours	about 50,000 hours
Operating mode		
Operating elements	Membrane key- board	Membrane key- board
Function keys, programmable	32 function keys, 26 with LEDs	32 function keys, 26 with LEDs
Touchscreen	analog, resistive	analog, resistive
Numeric/alphabetical input	Yes / Yes	Yes / Yes
Connection for mouse/keyboard/ barcode reader	USB / USB / -	USB / USB / -
Ambient conditions		
Mounting position	Vertical	Vertical
maximum permissible angle of incliniation without external ventilation	+/- 35°	+/- 35°
max. relative humidity (in %)	90%	90%
Temperature		
Operation (vertical installation)	0 °C to +50 °C	0 °C to +50 °C
Operation (max. tilt angle)	0 °C to +40 °C	0 °C to +40 °C
• Transport, storage	-20 °C to +60 °C	-20 °C to +60 °C
Degree of protection		
Front	IP65, NEMA 4x, NEMA 12 (when installed) IP20	IP65, NEMA 4x, NEMA 12 (when installed) IP20

	004770	00 (770
	bluemode	color
Certifications & Standards		
Certifications	CE, GL, ABS, BV, DNV, LRS, FM Class I Div. 2, UL, CSA, cULus, EX-Zone 2 (available soon), EX-Zone 22 (available soon), C-TICK, NEMA 4x, NEMA 12	CE, GL, ABS, BV, DNV, LRS, FM Class I Div. 2, UL, CSA, cULus, EX-Zone 2 (available soon), EX-Zone 22 (available soon), C-TICK, NEMA 4x, NEMA 12
I/O/Options		
I/O devices	Printer	Printer
Type of output		
LED colors	Green	Green
Interfaces		
Interfaces	RS232 optional, 1 x RS422, 1 x RS485 (max. 12 Mbit/s) 1 x USB	RS232 optional, 1 x RS422, 1 x RS485 (max. 12 Mbit/s) 1 x USB
Ethernet	No	1 x Ethernet
		(RJ45)
Slots		
PC card slot	No	No
CF card slot	No	No
Multi Media Card slot	1 x Multi Media Card slot	1 x Multi Media Card slot
Operating systems		
Operating system	Windows CE	Windows CE
Processor		
Processor	ARM, 200 MHz	ARM, 200 MHz
Functionality under WinCC flexible		
Applications/options		Sm@rtService, Sm@rtAccess
Task planner	Yes	Yes
Help system	Yes	Yes
Status/control	with SIMATIC S7	with SIMATIC S7
Message system		
<ul> <li>Number of messages</li> </ul>	2 000	2 000
Bit messages	Yes	Yes
<ul> <li>Analog messages</li> </ul>	Yes	Yes
Message buffer	Ring buffer (n x 256 entries), retentive, mainte- nance-free	Ring buffer (n x 256 entries), retentive, mainte- nance-free
Recipes		
Recipes	100	100
<ul> <li>Data records per recipe</li> </ul>	200	200
<ul> <li>Entries per data record</li> </ul>	200	200
Recipe memory	32 kByte inte- grated Flash, expandable	32 kByte inte- grated Flash, expandable

# Operator Control and Monitoring Devices Panels – 170 series

## **SIMATIC OP 177B**

	OP 177B bluemode	OP 177B color		OP 177B bluemode	OP 177B color
Functionality under WinCC flexible (continued)			Functionality under WinCC flexible (continued)		
Number of process images					
Process images	500	500	Online languages	16	16
• Variables	1 000	1 000	Configuration languages	D, GB, F, I, E,	D, GB, F, I, E,
<ul> <li>Limit values</li> </ul>	Yes	Yes		CHN "traditional",	CHN "tradition
Multiplexing	Yes	Yes		DK, FIN, GR, J,	DK, FIN, GR,
mage elements				KP / ROK, NL, N, PL, P, RUS, S,	KP / ROK, NL, PL, P, RUS, S,
• Text objects	2,500 text elements	2,500 text elements	• Fonts	CZ / SK, TR, H Tahoma, Courier	CZ / SK, TR, H Tahoma, Cour
<ul> <li>Graphics object</li> </ul>	Bit maps, icons, icon (full-screen), vector graphics	Bit maps, icons, icon (full-screen), vector graphics		New, WinCC flexible Stan- dard, symbol lan-	New, WinCC flexible Stan- dard, symbol
<ul> <li>dynamic objects</li> </ul>	Diagrams, bar graphs, sliders, analog display, invisible buttons	Diagrams, bar graphs, sliders, analog display, invisible buttons		additional char- acter sets can be loaded, all freely scalable	additional cha acter sets can loaded, all free scalable
_ists			Transfer (Upload/Download)		
• Text lists	300	300	<ul> <li>Transfer of configuration</li> </ul>	MPI/PROFIBUS	MPI/PROFIBL
Graphics list	100	100		DP, serial, USB, by means of	DP, serial, US Ethernet by
Libraries	Yes	Yes		external storage	means of exte
Security				medium, auto- matic transfer	automatic trar
<ul> <li>Number of user groups</li> </ul>	50	50		recognition	fer recognition
<ul> <li>Passwords exportable</li> </ul>	Yes	Yes	Process coupling		
<ul> <li>Number of user rights</li> </ul>	32	32	Connection to controller	S5, S7-200, S7-	S5, S7-200, S
Data medium support				SINUMERIK,	PC (TCP/IP),
PC card	No	No		SIMOTION, Allen Bradlev (DF1).	SINUMERIK, SIMOTION, A
• CF card	No	No		Mitsubishi (FX),	Bradley (DF1)
<ul> <li>Multi Media Card</li> </ul>	Yes	Yes		(ADJUST), Modi-	Telemecaniqu
Recording				con (Modbus), for further non-	(ADJUST), Mo
<ul> <li>Recording/Printing</li> </ul>	Alarms, report (shift report), hardcopy	Alarms, report (shift report), color print, hardcopy		Siemens drivers, see section on "System inter- faces"	for further nor Siemens drive see section or "System inter-
Printer driver	ESC/P2, PCL3/PCL6	ESC/P2, PCL3/PCL6	Expandability/openness		faces"
Fonts			Open Platform Program	Yes	Yes
<ul> <li>Keyboard fonts</li> </ul>	US American	US American	Dimensions		
	(English)	(∟ngiisn)	Front of enclosure (W x H)	243 mm x 212 mm	243 mm x 212 mm
			Mounting cutout/Device depth (W x H/D) in mm	229 mm x 196 mm / 45 mm device depth	229 mm x 196 mm / 45 mm device depth
			Weights		
			• Weight	1 kg	1 kg

2

## SIMATIC OP 177B

Ordering data	Order No.	Dimension
SIMATIC OP 177B		All specifications i
Operator panel with 5.7" STN		
<ul> <li>Blue mode (4 lovels)</li> </ul>	6AV6 642-0DC01-1AX1	
Color (256 colors)     F	6AV6 642-0D401-1AX1	
incl. mounting accessories		
OP 177B starter kit	6AV6 551-2HA01-1AA0	
Consisting of:		4
• OP 177B with STN display, color		
Configuration software SIMATIC     WinCC flexible Compact		
<ul> <li>SIMATIC HMI Manual Collection (DVD), 5 languages (English, French, German, Italian, Spanish)</li> </ul>		
• MPI cable (5 m) (for download and test purposes only), PC/PPI cable		<u>← 243</u>
Software Update Service for 1 year		
Configuring software		
• with SIMATIC WinCC flexible	See HMI software	
Compact		More information
Configuration set D	6AV6 621-0AA01-0AA0	Additional information is a
Consisting of: SIMATIC WinCC flexible Compact engineering software, SIMATIC HMI Manual Collection (DVD),		http://www.siemens.com/pa
5 languages (En, Fr, Ger, It and Sp), PC/PPI cable Multimaster, MPI cable (5 m) (for download and test purposes only)		<u>Note:</u> Do you need a specific mo
Documentation (must be ordered	separately)	vou will find information ab
Operating Instructions TP 177micro/TP 177A/TP 177B/ OP 177B (WinCC flexible)		products that can be order customer-specific modifica
• German	6AV6 691-1DG01-0AA1	
• English	6AV6 691-1DG01-0AB1	
• French	6AV6 691-1DG01-0AC1	
• Italian	6AV6 691-1DG01-0AD1	
• Spanish	6AV6 691-1DG01-0AE1	
User Manual WinCC flexible Compact/Standard/Advanced		
• German	6AV6 691-1AB01-3AA0	
• English	6AV6 691-1AB01-3AB0	
• French	6AV6 691-1AB01-3AC0	
• Italian	6AV6 691-1AB01-3AD0	
• Spanish	6AV6 691-1AB01-3AE0	
User Manual WinCC flexible Communication		
• German	6AV6 691-1CA01-3AA0	
• English	6AV6 691-1CA01-3AB0	
• French	6AV6 691-1CA01-3AC0	
• Italian	6AV6 691-1CA01-3AD0	
• Spanish	6AV6 691-1CA01-3AE0	
SIMATIC HMI Manual Collection B	6AV6 691-1SA01-0AX0	
Electronic documentation, on DVD		
5 languages (En, Fr, Ger, It and Sp); contains: all currently available user manuals, manuals and communi- cation manuals for SIMATIC HMI		
Accessories		
Accessories for supplementary	see HMI accessories,	
ordening	noni page 2/150	

G\_ST80\_XX\_00270

B) Subject to export regulations: AL: N and ECCN: EAR99S

D) Subject to export regulations: AL: N and ECCN: 5D992B1

F) Subject to export regulations: AL: N and ECCN: 5D002ENC3

## SIMATIC TP 277 6"

## Overview



- Touch Panel with comprehensive functions for operator control and monitoring of machines and plants
- Content of message buffer is retained even when panel is disconnected, without batteries
- Pixel graphics TFT display with 256 colors and touchscreen
- Interfaces for communication with Siemens SIMATIC S7 (e.g. MPI, PROFIBUS DP) are on-board
- · Ethernet on-board
- · Use of scripts and archives
- Drivers are also available for non-Siemens PLCs
- Installation-compatible with TP 270 6" and MP 270B 6"

## Benefits

- Reduction of service and commissioning costs through:
   Backup/restoration via a process interface or optionally via
- a Multi Media Card - Remote downloading of the configuration with automatic
- transfer recognition via all device interfaces
- Maintenance-free design (no battery) and long service life of the backlighting
- Maintenance-free message buffer
- Use of scripts and archives
- Can be used all over the world:
- 32 offline languages can be configured (incl. Asian and Cyrillic character sets)
- 16 online languages can be selected directly on the device
- · Graphics library available with off-the-shelf picture objects
- Standard interfaces for increasing the flexibility:
- External multimedia card, used for recipe data sets, archive and for backup of configuration/system data
- Integrated USB interface for connecting, for example, standard printers
- Simple engineering supported by comprehensive documentation on the SIMATIC HMI Manual Collection DVD
- Integral component of Totally Integrated Automation (TIA): Increases productivity, minimizes engineering outlay, reduces lifecycle costs

## Application

Thanks to their practical functions and large user memory, the TP 277 6" Touch Panels can be used wherever operator control and monitoring of machines and plants is necessary on site – whether in production automation, process automation or building-services automation. The TP 277 6" offers a 256-color TFT display. The unit has an integral PROFINET I/O interface for even greater flexibility. A further highlight is the non-volatile message buffer included as standard that stores messages permanently without battery backup.

## Design

- 256-color TFT display
- CCFL<sup>1)</sup> Long-life backlighting
- Analog resistive touch screen
- Numeric and alphanumeric on-screen keyboard
- Scripts and archives
- High performance thanks to RISC processor and 4 MB user memory, plus additional integrated recipe memory
- The data in the message buffer is retained even when the panel is disconnected from the supply, without battery backup
- MPI, PROFIBUS DP interfaces (up to 12 Mbaud) as well as USB 1.1 (max. 100 mA) on-board
- Ethernet (PROFINET I/O capable)
- Integral USB interface
- Can be configured using SIMATIC WinCC flexible 2005 Standard SP1
- · Complete functionality for demanding tasks
- Comprehensive Reichert graphics library
- 32 languages (e.g., Cyrillic, traditional Chinese, simplified Chinese) and online switching between up to 16 languages
- Multi Media Card slot, can be used for standard Multi Media Cards (for backing up archives and recipe data sets, the configuration and system data)
- Remote downloading of the configuration via all interfaces with automatic transfer recognition
- Options for SINUMERIK, Sm@rtAccess and Sm@rtService can be used
- Service-friendly thanks to maintenance-free design and long service life of the backlighting display
- <sup>1)</sup> Cold Cathode Fluorescence Lamps

## SIMATIC TP 277 6"

## Function

- Permanent window and template concept for creating screen templates
- Input/output fields
- for visualizing and editing process parameters
- Configurable buttons with up to 16 functions are also used to directly trigger functions and actions
- Indicator light for machine and plant status indication
- Predefined texts for labeling function keys, process images and process values in any character size
- Help texts
   for process images, messages and variables
- Vector graphics, graphics

   can be used as icons instead of text for "labeling" buttons.
   They can also be used as background displays (wallpaper).
   In the configuration tool, a library is available containing extensive graphics and a wide variety of objects. All editors with an OLE interface can be used as graphics editors (such as Paint-Shop, Designer or CorelDraw).
- Curve functions and bars are used for the display of dynamic values in graphics-based format
- Dynamic positioning of objects and dynamic showing/hiding of objects
- Arithmetic functions, limit value monitoring for reliable process control with inputs and outputs
- Online language selection (16 selectable languages), incl. Asian and Cyrillic languages This also applies to language-specific graphics
- Timer
- for cyclic function processing
- Password protection (security) User management – Authentication by means of user ID and password plus privileges specific to user groups, which is an integral part of SIMATIC
- Signaling system; Freely definable message classes (acknowledgement behavior and display can be configured), administration of status, fault and system alarms. The message history is retained even if the device is switched off. Analog alarms (limit value messages) in addition to bit messages
- Visual Basic Script, flexibility thanks to the implementation of new functions including linking to variables (comparison operations, loops, etc.)
- Archiving of messages and process values (on MultiMedia card or network drives over Ethernet)
  - Various archive types: Short-term and sequence archives
  - Storage of archive data in standard Windows format (CSV)
  - Online evaluation of process value archives through trend curves
  - External processing using standard tools (MS Excel and MS Access) is possible

- Recipe management
  - With additional data storage (on ext. storage medium)
  - Online/offline processing on the panel
  - Storage of recipe data in standard Windows format (CSV)
  - External processing using standard tools such as Excel and
- Access is possible
- Multi Media Card slot for external standard data carrier, can be used for backup/ restoration or for transporting recipe data records
- User-friendly maintenance and configuration thanks to:
   Backup and restoration of the configuration, operating system, data records and firmware on a PC using ProSave
  - Option to download/upload the configuration via all device interfaces (with automatic transfer detection)
  - Individual contrast setting and calibration
  - Configuration simulation directly on the configuration computer

#### Configuring

The equipment is configured using the innovative engineering tool SIMATIC WinCC flexible 2005 SP1 (Standard version or higher). SIMATIC WinCC flexible is the logical further development of the field-proven ProTool family. Projects generated using ProTool can be easily migrated to WinCC. TP 270 6" projects can be transferred. If WinCC flexible is started directly from SIMATIC Manager, data in STEP 7 can be accessed directly at the click of a mouse button when the panel is configured. Duplicated data input and data management is, therefore, avoided.

### Additional options

SINUMERIK

Optionally with "SINUMERIK HMI copy license WinCC flexible CE". For configuring, a "SINUMERIK HMI engineering package WinCC flexible" is also necessary. For further information, see Catalog NC 60.

Sm@rt Service

Remote operator control and monitoring of SIMATIC HMI systems based on TCP/IP networks

• Sm@rt Access

Communication between HMI systems based on TCP/IP networks. Remote access to recipe data sets, passwords and information specific to the HMI system, and much more.

## SIMATIC TP 277 6"

## Technical specifications

	TP 277 6"
Supply voltage	
Supply voltage	24 V DC
permissible range	+20.4 V to +28.8 V DC
Memory	
Type of storage	
Туре	Flash / RAM
Memory usable for project data/Options	4 MB usable memory for user data
Time	
Clock	
• Туре	Software clock, Synchronizable, not battery backed
Configuration	
Configuration tool	WinCC flexible Standard Version 2005 SP1 or higher (to be ordered separately)
Display	
Display type	TFT, 256 Colors
Size	5.7"
Resolution (WxH in pixel)	320 x 240
MTBF backlighting (at 25 °C)	about 50,000 hours
Operating mode	
Operating elements	Touch screen
Touchscreen	analog, resistive
Numeric/alphabetical input	Yes / Yes
Connection for mouse/key- board/barcode reader	USB / USB / USB
Ambient conditions	
Mounting position	Vertical
max. relative humidity (in %)	80%
Temperature	
Operation	0 °C to +50 °C
<ul> <li>Transport, storage</li> </ul>	-20 °C to +60 °C
Degree of protection	
Front	IP65, NEMA 4x, (when installed)
Rear	IP20
Certifications & Standards	
Certifications	CE, UL, NEMA 4x
I/O Options	
I/O devices	Printer, barcode reader
Interfaces	
Interfaces	1 x RS422, 1 x RS485 (max. 12 MBit/s), 1 x Ethernet (RJ45)
Multi Media Card slot	1 x Multi Media Card slot
USB	1 x USB

	TP 277 6"
Operating systems	
Operating system	Windows CE
Processor	
Processor	RISC 32-bit
Functionality under WinCC flexible	
Applications/options	ProAgent, Sm@rtService, Sm@rtAccess
Number of Visual Basic scripts	50
Task planner	Yes
Help system	Yes
Status/control	with SIMATIC S7
Message system	
<ul> <li>Number of messages</li> </ul>	4 000
• Bit messages	Yes
<ul> <li>Analog messages</li> </ul>	Yes
Message buffer	Ring buffer (n x 512 entries), retentive, maintenance-free
Recipes	
• Recipes	300
<ul> <li>Data records per recipe</li> </ul>	500
<ul> <li>Entries per data record</li> </ul>	1000
Recipe memory	64 kByte integrated Flash, expandable (by means of optional memory card)
Number of process images	
<ul> <li>Process images</li> </ul>	500
Variables	2 048
Limit values	Yes
Multiplexing	Yes
Image elements	
Text objects	10,000 text elements
<ul> <li>Graphics object</li> </ul>	Bit maps, icons, vector graphics
dynamic objects	Diagrams, bar graphs, sliders, analog display, invisible buttons
Lists	
• Text lists	500
<ul> <li>Graphics list</li> </ul>	400
• Libraries	Yes
Archiving	
<ul> <li>Number of archives per project</li> </ul>	20
Number of measuring points per project	20
Number of entries per archive	10 000
Memory location	Multi Media Card

## SIMATIC TP 277 6"

Technical specifications (co	ontinued)	Ordering data	Order No.
	TP 277 6"	SIMATIC TP 277 6"	6AV6 643-0AA01-1AX0
Functionality under WinCC flexible (continued)		Touch Panel with 5.7" TFT display, color (256 colors), incl. mounting accessories	
	50	Configuration	
Number of user groups	SU	with SIMATIC WinCC flexible	See Chapter 4
Passwords exportable	Yes	Configuration set D	6AV6 622-0BA01-0AA0
Number of user rights	32	Consisting of:	
Data medium support • Multi Media Card	Yes	<ul> <li>WinCC flexible Standard engineering software</li> </ul>	
	Alarma rapart (abift rapart), color	<ul> <li>Documentation DVD,</li> <li>5 languages (En, Fr, Ger, It, Sp)</li> </ul>	
<ul> <li>Recording/Printing</li> </ul>	print, hardcopy	• RS 232 cable (5 m)	
Fonts		<ul> <li>MPI cable, 5 m (for download and test purposes only)</li> </ul>	
<ul> <li>Keyboard fonts</li> </ul>	US American (English)	Applications/Options	
Languages		When configuration with WinCC	
<ul> <li>Online languages</li> </ul>	16	flexible	
<ul> <li>Configuration languages</li> </ul>	D, GB, F, I, E, CHN "traditional",	<ul> <li>WinCC flexible/Sm@rtAccess</li> </ul>	See Chapter 4
	KP / ROK, NL, N, PL, P, RUS, S,	WinCC flexible/Sm@rtService	See Chapter 4
	CZ / SK, TR, H	<ul> <li>WinCC flexible/ProAgent</li> </ul>	See Chapter 4
<ul> <li>Fonts</li> </ul>	Tahoma, Arial, Courier New,	Documentation (to be ordered sep	parately)
	languages, all freely scalable	TP 277 / OP 277 Operating Instructions	
Iranster (Upload/Download)		• German	6AV6 691-1DH01-0AA0
<ul> <li>Iranster of configuration</li> </ul>	MPI/PROFIBUS DP, USB, Ethernet, automatic transfer recognition	• English	6AV6 691-1DH01-0AB0
Process coupling		• French	6AV6 691-1DH01-0AC0
Connection to controller	S5, S7-200, S7-300/400, TI 505, SINUMERIK, SIMOTION, Allen Bradley (DF1), Allen Bradley (DF485), Mitsubishi (FX), Teleme- canique (ADJUST), OMRON (LINK/Multilink), Modicon (Mod-	• Italian	6AV6 691-1DH01-0AD0
		• Spanish	6AV6 691-1DH01-0AE0
		WinCC flexible Compact/ Standard/Advanced User Manual	
	bus), see section on "System	• German	6AV6 691-1AB01-3AA0
Expandability/apappaga	Interfaces	• English	6AV6 691-1AB01-3AB0
	Vee	• French	6AV6 691-1AB01-3AC0
• Open Plationn Program	res	• Italian	6AV6 691-1AB01-3AD0
	010 150	• Spanish	6AV6 691-1AB01-3AE0
Mounting cutout/Device depth	197 mm x 141 mm / 45 mm device	WinCC flexible Communication User Manual	
(W x H/D) in mm	depth	• German	6AV6 691-1CA01-3AA0
Weights		• English	6AV6 691-1CA01-3AB0
• Weight	0.78 kg	• French	6AV6 691-1CA01-3AC0
		• Italian	6AV6 691-1CA01-3AD0
		• Spanish	6AV6 691-1CA01-3AE0
		SIMATIC HMI Manual Collection B	6AV6 691-1SA01-0AX0
		Electronic documentation, on DVD	
		5 languages (En, Fr, Ger, It and Sp); contains: all currently available user manu- als, manuals and communication manuals for SIMATIC HMI	
		Accessories	
		Accessories for supplementary ordering	see HMI accessories, from page 2/158

F) Subject to export regulations: AL: N and ECCN: 5D002ENC3

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# Operator Control and Monitoring Devices Panels – 270 series

SIMATIC TP 277 6"

#### Dimensions

All specifications in mm. Panel cutout see technical specifications. Tolerance  $\pm 1$  mm.



#### More information

Additional information is available in the Internet under: <a href="http://www.siemens.com/panels">http://www.siemens.com/panels</a>

## Note:

Do you need a specific modification or option for the products described here? Then look up "Customized products", where you will find information about additional sector-specific products that can be ordered as well as about options for customer-specific modification and adaptation.

SIMATIC OP 277 6"

## Overview



- Operator Panel with comprehensive functions for operator control and monitoring of machines and plants
- Content of message buffer is retained even when panel is disconnected, without batteries
- Pixel graphics TFT display with 256 colors
- 36 system keys, 24 freely-configurable and freely-inscribable function keys (18 with LEDs)
- Interfaces for communication with Siemens SIMATIC S7 (e.g. MPI, PROFIBUS DP) are on-board
- · Ethernet on-board
- · Use of scripts and archives
- Drivers are also available for non-Siemens PLCs
- Installation-compatible with OP 270 6"

#### Benefits

- Reduction of service and commissioning costs through:
   Backup/restoration via a process interface or optionally via a Multi Media Card
  - Remote downloading of the configuration with automatic transfer recognition via all device interfaces
  - Maintenance-free design (no battery) and long service life of the backlighting
- Maintenance-free message buffer
- Use of scripts and archives
- Can be used all over the world:
- 32 offline languages can be configured (incl. Asian and Cyrillic character sets)
- 16 online languages can be selected directly on the device
- Graphics library available with off-the-shelf picture objects
- Standard interfaces for increasing the flexibility:
   External multimedia card, used for recipe data sets, archive and for backup of configuration/system data
- Integrated USB interface for connecting, for example, standard printers
- Installation-compatible with OP 270 6"
- Simple engineering supported by comprehensive documentation on the SIMATIC HMI Manual Collection DVD
- Integral component of Totally Integrated Automation (TIA): Increases productivity, minimizes engineering outlay, reduces lifecycle costs

## Application

Thanks to their practical functions and large user memory, the OP 277 6" Operator Panels can be used wherever operator control and monitoring of machines and plants is necessary on site – whether in production automation, process automation or building-services automation.

The OP 277 6" offers a 256-color TFT display. The unit has an integral PROFINET I/O interface for even greater flexibility. A further highlight is the non-volatile message buffer included as standard that stores messages permanently without battery backup.

## Design

- 256-color TFT display
- CCFL<sup>1)</sup> Long-life backlighting
- Membrane keyboard with 36 system keys, 24 freely-configurable function keys (18 with LEDs)
- Rugged plastic housing with degree of protection IP65 (front)/ IP20 (rear):
- High performance thanks to RISC processor and 4 MB user memory, plus additional integrated recipe memory
- The data in the message buffer is retained even when the panel is disconnected from the supply, without battery backup
- MPI, PROFIBUS DP interfaces (up to 12 Mbaud) as well as USB 1.1 (max. 100 mA) on-board
- Ethernet (PROFINET I/O capable)
- Integral USB interface
- Can be configured using SIMATIC WinCC flexible 2005 Standard SP1
- · Complete functionality for demanding tasks
- Comprehensive Reichert graphics library
- 32 languages (e.g., Cyrillic, traditional Chinese, simplified Chinese) and online switching between up to 16 languages
- Multi Media Card slot, can be used for standard Multi Media Cards (for backing up archives and recipe data sets, the configuration and system data)
- Remote downloading of the configuration via all interfaces with automatic transfer recognition
- Options for SINUMERIK, Sm@rtAccess and Sm@rtService can be used
- Service-friendly thanks to maintenance-free design and long service life of the backlighting display
- 1) Cold Cathode Fluorescence Lamps

## SIMATIC OP 277 6"

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#### Function

- Permanent window and template concept for creating screen templates
- Input/output fields
- for visualizing and editing process parameters
- Function keys for directly actuating functions and actions. Up to 16 functions can be configured simultaneously on function keys. The function keys can be used directly as PROFIBUS DP input peripherals.
- Indicator light for machine and plant status indication
- Predefined texts for labeling function keys, process images and process values in any character size
- Help texts
   for process images, messages and variables
- Vector graphics, graphics
- can be used as icons instead of text for "labeling" buttons. They can also be used as background displays (wallpaper). In the configuration tool, a library is available containing extensive graphics and a wide variety of objects. All editors with an OLE interface can be used as graphics editors (such as Paint-Shop, Designer or CorelDraw).
- Curve functions and bars are used for the display of dynamic values in graphics-based format
- Dynamic positioning of objects and dynamic showing/hiding of objects
- Arithmetic functions, limit value monitoring for reliable process control with inputs and outputs
- Online language selection (16 selectable languages), incl. Asian and Cyrillic languages This also applies to language-specific graphics
- Timer
- for cyclic function processing
- Password protection (security)
   User management Authentication by means of user ID and password plus privileges specific to user groups, which is an
- integral part of SIMATIC
  Signaling system; Freely definable message classes (acknowledgement behavior and display can be configured), administration of status, fault and system alarms. The message history is retained even if the device is switched off. Analog alarms (limit value messages) in addition to bit mes-
- Analog alarms (limit value messages) in addition to bit messages
- Visual Basic Script, flexibility thanks to the implementation of new functions including linking to variables (comparison operations, loops, etc.)
- Archiving of messages and process values (on MultiMedia card or network drives over Ethernet)
- Various archive types: Short-term and sequence archives
- Storage of archive data in standard Windows format (CSV)
   Online evaluation of process value archives through trend curves
- External processing using standard tools (MS Excel and MS Access) is possible

- Recipe management
  - With additional data storage (on ext. storage medium)
  - Online/offline processing on the panel
  - Storage of recipe data in standard Windows format (CSV)
  - External processing using standard tools such as Excel and Access is possible
- Multi Media Card (MMC) slot for external standard data carrier, can be used for backup/restoration or for transporting recipe data records
- User-friendly maintenance and configuration thanks to:
   Backup and restoration of the configuration, operating system, data records and firmware on a PC using ProSave
  - Option to download/upload the configuration via all device interfaces (with automatic transfer detection)
  - Individual contrast setting and calibration
- Configuration simulation directly on the configuration computer

#### Configuring

The equipment is configured using the innovative engineering tool SIMATIC WinCC flexible 2005 SP1 (Standard version or higher). SIMATIC WinCC flexible is the logical further development of the field-proven ProTool family. Projects generated using ProTool can be easily migrated to WinCC. OP 270 6" projects can be transferred. If WinCC flexible is started directly from SIMATIC Manager, data in STEP 7 can be accessed directly at the click of a mouse button when the panel is configured. Duplicated data input and data management is, therefore, avoided.

#### Additional options

SINUMERIK

Optionally with "SINUMERIK HMI copy license WinCC flexible CE". For configuring, a "SINUMERIK HMI engineering package WinCC flexible" is also necessary. For further information, see Catalog NC 60.

- Sm@rt Service
- Remote operator control and monitoring of SIMATIC HMI systems based on TCP/IP networks
- Sm@rt Access

Communication between HMI systems based on TCP/IP networks. Remote access to recipe data sets, passwords and information specific to the HMI system, and much more.

## SIMATIC OP 277 6"

## Technical specifications

	OP 277 6"
Supply voltage	
Supply voltage	24 V DC
permissible range	+20,4 V to +28,8 V DC
Memory	
Type of storage	
Туре	Flash / RAM
Memory usable for project data/Options	4 MB usable memory for user data
Time	
Clock	
•Туре	Software clock, Synchronizable, not battery backed
Configuration	
Configuration tool	WinCC flexible Standard Version 2005 SP1 or higher (to be ordered separately)
Display	
Display type	TFT, 256 Colors
Size	5.7"
Resolution (W x H in pixel)	320 x 240
MTBF backlighting (at 25 °C)	about 50,000 hours
Operating mode	
Operating elements	Membrane keyboard
Function keys, programmable	24 function keys, 18 with LEDs
System keys	36
Numeric/alphabetical input	Yes / Yes (only English font can be displayed, only on screen)
Connection for mouse/ keyboard/barcode reader	USB / USB / USB
Ambient conditions	
Mounting position	Vertical
max. relative humidity (in %)	80 %
Temperature	
Operation	0 °C to +50 °C
<ul> <li>Transport, storage</li> </ul>	-20 °C to +60 °C
Degree of protection	
Front	IP65
Rear	IP20
Certifications & Standards	
Certifications	CE, UL
I/O/Options	
I/O devices	Printer, barcode reader
Type of output	
LED colors	Green
Interfaces	
Interfaces	1 x RS422, 1 x RS485 (max. 12 MBit/s), 1 x Ethernet (RJ45)
Multi Media Card slot	1 x Multi Media Card slot
USB	1 x USB

	OP 277 6"
Operating systems	
Operating system	Windows CE
Processor	
Processor	RISC 32-bit
Functionality under WinCC flexible	
Applications/options	ProAgent, Sm@rtService, Sm@rtAccess
Number of Visual Basic scripts	50
Task planner	Yes
Help system	Yes
Status/control	with SIMATIC S7
Message system	
Number of messages	2 000
Bit messages	Yes
Analog messages	Yes
Message buffer	Ring buffer (n x 512 entries), retentive, maintenance-free
Recipes	
Recipes	300
Data records per recipe	500
Entries per data record	1000
Recipe memory	64 kByte integrated Flash, expandable
Number of process images	
<ul> <li>Process images</li> </ul>	500
Variables	2 048
Limit values	Yes
Multiplexing	Yes
Image elements	
<ul> <li>Text objects</li> </ul>	10,000 text elements
<ul> <li>Graphics object</li> </ul>	Bit maps, icons, vector graphics
dynamic objects	Diagrams, bar graphs, sliders, analog display, invisible buttons
Lists	
Text lists	500
Graphics list	400
Libraries	Yes
Archiving	
Number of archives per project	20
Number of measuring points per project	20
Number of entries per archive	10 000
<ul> <li>Memory location</li> </ul>	Multi Media Card
Security	
<ul> <li>Number of user groups</li> </ul>	50
<ul> <li>Passwords exportable</li> </ul>	Yes
<ul> <li>Number of user rights</li> </ul>	32
Data medium support	
Multi Media Card	Yes
#### Тес

### SIMATIC OP 277 6"

Technical specifications		Ordering data Order No.		
	OP 277 6"	SIMATIC OP 277 6"	6AV6 643-0BA01-1AX0	
Functionality under WinCC flexible (continued)		Operator Panel with 5.7" TFT display, color (265 colors), incl.		
Recording				
Recording/Printing	Alarms, report (shift report), color print, hardcopy	with SIMATIC WinCC flexible	See Chapter 4	
Fonts		Configuration set D	6AV6 622-0BA01-0AA0	
<ul> <li>Keyboard fonts</li> </ul>	US American (English)	Consisting of:		
Languages		<ul> <li>WinCC flexible Standard engineering software</li> </ul>		
<ul> <li>Online languages</li> </ul>	16	Documentation DVD,		
<ul> <li>Configuration languages</li> </ul>	D, GB, F, I, E, CHN "traditional", CHN "simplified", DK, FIN, GR, J, KP/BOK NL N PL P BUS S	5 languages (English, French, German, Italian, Spanish)		
	CZ / SK, TR, H	• RS 232 cable (5 m)		
• Fonts	<ul> <li>Tahoma, Arial, Courier New,</li> <li>WinCC flexible Standard, symbol languages, all freely scalable</li> <li>MPI cable, 5 m (for download and test purposes only)</li> <li>Applications/Options</li> </ul>			
	languages, all freely scalable	Applications/Options		
Iranster (Upload/Download)		When configuration with WinCC flexible		
<ul> <li>Iransfer of configuration</li> </ul>	automatic transfer recognition	WinCC flexible/Sm@rtAccess	See Chapter 4	
Process coupling		WinCC flexible/Sm@rtService	See Chapter 4	
Connection to controller	S5, S7-200, S7-300/400, TI 505,	<ul> <li>WinCC flexible/ProAgent</li> </ul>	See Chapter 4	
	SINUMERIK, SIMOTION, Allen	Documentation (to be ordered set	parately)	
	(DF485), Mitsubishi (FX), OMRON (LINK/Multilink), Modicon	TP 277 / OP 277 Operating Instructions		
	(Modbus) see section on "System	• German	6AV6 691-1DH01-0AA0	
Expandability/openness		• English	6AV6 691-1DH01-0AB0	
Open Platform Program	Yes	• French	6AV6 691-1DH01-0AC0	
Dimensions		• Italian	6AV6 691-1DH01-0AD0	
Front of enclosure (W x H)	308 mm x 204 mm	• Spanish	6AV6 691-1DH01-0AE0	
Mounting cutout/Device depth (W x H/D) in mm	281 mm x 177 mm / 59 mm device depth	WinCC flexible Compact/ Standard/Advanced User Manual		
Weights		• German	6AV6 691-1AB01-3AA0	
Weight	1.19 kg	• English	6AV6 691-1AB01-3AB0	
		• French	6AV6 691-1AB01-3AC0	
		• Italian	6AV6 691-1AB01-3AD0	
		• Spanish	6AV6 691-1AB01-3AE0	
		WinCC flexible Communication User Manual		
		• German	6AV6 691-1CA01-3AA0	
		• English	6AV6 691-1CA01-3AB0	
		• French	6AV6 691-1CA01-3AC0	
		• Italian	6AV6 691-1CA01-3AD0	
		• Spanish	6AV6 691-1CA01-3AE0	
		SIMATIC HMI Manual Collection B	6AV6 691-1SA01-0AX0	
		Electronic documentation, on DVD		
		<ul> <li>5 languages (En, Fr, Ger, It and Sp); contains: all currently available user man- uals, manuals and communica- tion manuals for SIMATIC HMI</li> </ul>		
		Accessories		
		Accessories for supplementary ordering	see HMI accessories, from page 2/158	
		B) Subject to export regulations: AL: N	and ECCN: EAR99S	

F) Subject to export regulations: AL: N and ECCN: 5D002ENC3

### Operator Control and Monitoring Devices Panels – 270 series

#### **SIMATIC OP 277 6"**

#### Dimensions

All specifications in mm. Panel cutout see technical specifications. Tolerance  $\pm 1$  mm.





#### More information

Additional information is available in the Internet under: http://www.siemens.com/panels

#### Note:

Do you need a specific modification or option for the products described here? Then look up "Customized products", where you will find information about additional sector-specific products that can be ordered as well as about options for customer-specific modification and adaptation.

#### SIMATIC MP 177

#### Overview



- Like operator panels, Multi Panels (MP) are used for local machine operation and monitoring
- Message buffer contents and residual WinAC MP data are retained even when panel is disconnected, without batteries
- PLC functionality can be integrated directly into the MP 177 platform as an option
- The multi panel can be expanded with the options Sm@rtService and Sm@rtAccess
- Pixel-graphics 5.7" TFT display, color (64k colors)
- All interfaces, e.g. MPI, PROFIBUS DP, USB, PROFINET (Ethernet TCP/IP), are on-board

The MP 177 6" Touch can also be delivered as a package, complete with a WinAC MP 177. WinCC flexible 2008 Compact or higher is required for configuring the MP 177.

#### Benefits

- Integral component of Totally Integrated Automation (TIA): Increased productivity, minimum engineering overhead, reduction in life-cycle costs
- Modular expansion with options such as:
  - WinAC MP 177/Software PLC (PLC programs compatible to the greatest possible extent)
  - WinČC flexible/Sm@rtAccess for communication between different SIMATIC HMI systems
  - WinCC flexible/Sm@rtService for remote maintenance and servicing of machines/plants via the intranet/Internet
  - WinCC flexible/ProAgent for selective and fast process fault diagnostics in systems and machines
- Reduction of service and commissioning costs through:
   Backup/Restore via Ethernet (TCP/IP), MPI, PROFIBUS DP or optionally via standard MMC/SD card or USB stick
  - HMI, PLC, system data including licenses for a standard storage medium, simplest manageability
  - Remote download/upload of the configuration and firmware (Remote = automatic transfer recognition)
  - Specific drivers for non-Siemens PLCs can be reloaded
  - Long service life of the backlighting
- Can be used worldwide:
- 32 languages can be configured (incl. Asian and Cyrillic character sets)
- Standard hardware and software interfaces for increasing flexibility:
  - SD/MultiMediaCard slot for memory expansions, backup/ restore or additional interfaces
  - Ethernet (TCP/IP) for central data and project management Ethernet; control link possible to SIMATIC S7
  - A cross cable or normal LAN cable can be used for the point-to-point connection
  - Standard Windows storage formats (CSV) for recipes permit further processing with standard tools (e.g. Microsoft Excel)

#### Application

Multi panels are used in the most diverse industries and applications. Their usage can be expanded by means of options, e.g. integration of the PLC functionality by means of WinAC MP 177. The software PLC is customized for small and mid-sized applications.

The diskless and fanless design enables implementation in areas where high vibration or dust load limits the operation of a PC. Maintenance-free data management ensures backup of all important data even when disconnected.

#### SIMATIC MP 177

#### Design

- Compact design with low mounting depth
   Display resolution (320 x 240 pixels) with 64k colors, dimmable
- The front is resistant to various oils, greases and standard detergents
- Degree of protection IP65/NEMA 4x/NEMA 12 (front) or IP20 (rear)
- All connections are pluggable
- Interfaces:
  - RS 485/RS 422 interface for process connections (PPI, MPI, PROFIBUS DP up to 12 Mbit/s)
- USB interface for memory, mouse, keyboard, printer, and downloading/uploading of the configuration
- Ethernet (TCP/IP) for data exchange with a higher-level PC
- Slot for SD Card/Multi Media Card

#### Function

- Display and modification of process parameters
- Process display:
  - Vector graphics (various line and surface objects)
  - Dynamic positioning and dynamic showing/hiding of objects
  - Pixel-graphic displays and bar displays
  - Curve graphics with paging and zoom functions for access to the history and for flexible selection of the presentation time; reading ruler for determining the current values and displaying them in a table
  - Extensive symbol libraries (SIMATIC HMI Symbol Library)
     Screen objects: Slider, analog instrument, date and time display
  - Timer for cyclical function processing
- Multiplex function for variables
- Signaling system
  - Bit messages and analog messages (limit value messages)
  - Message history for status and fault messages
  - Message buffer stores even when panel is disconnected,
  - without batteries
  - Message window and message line
- · Message log and shift log
- Print functions (see "Recommended printers")
- Fully developed language switching for texts and graphics including Asian and Cyrillic character sets
- Recipe management
- Internal and/or external data storage
- Export of recipe data in standard Windows format (CSV)
- TIA Runtime Functionalities
  - A collective data management for PLC and HMI of data, bit memories, inputs/outputs, etc.
  - Collective usage of symbolic object names
  - Report system errors with Alarm S to SIMATIC S7 and SIMOTION with a mouse click
  - STATUS/FORCE-VAR in conjunction with SIMATIC S7
- · Password system
- Authentication and assignment of user rights with user ID and password

#### Function

#### Configuration

The configuration is implemented using the engineering software SIMATIC WinCC flexible 2008 Standard or Advanced.

#### Applications/Options

- WinAC MP software PLC for Multi Panels
- WinAC MP 177 option for MP 177 (software PLC similar to the performance class of CPU 314)
- The I/O devices can be connected via PROFIBUS DP
- Note: Utilization of the software PLC requires WinCC flexible 2008 and an MP177 6" Touch
- Service functions with option "Sm@rtService" can be used
   E-mail generation and web server can be used
  - Remote control of the SIMATIC HMI panel using a standard Internet Explorer
- Client/server functions with the option "Sm@rtAccess" can be used
  - Remote operation and monitoring from one SIMATIC HMI system to another SIMATIC HMI system
  - Plant-wide polling of information
  - Central archiving of process data

#### Integration

The MP 177 6" Touch is multi-protocol-capable and can be connected to some extent simultaneously to:

- SIMATIC S7-200/-300/-400
- SIMATIC WinAC RTX/Slot PLC
- SIMATIC WinAC MP
- SIMOTION
- SINUMERIK

(optionally with "SINUMERIK HMI copy license WinCC flexible CE"; the "SINUMERIK HMI engineering package WinCC flexible" is additionally required for configuration; for further information see Catalog NC 60)

- PLCs from other manufacturers
  - Allen Bradley
- Mitsubishi
- LG GLOFA GM
- Modicon
- GE-Fanuc - Omron
- Telemecanique Uni-Telway
- Over Ethernet (TCP/IP) to a higher-level PC, with enabled network printer

#### Note:

Further information can be found under "System interfaces".

# Operator Control and Monitoring Devices Multi Panels – 170 series

### SIMATIC MP 177

### Technical specifications

MP 177	6" Touch
Supply voltage	
Supply voltage	24 V DC
permissible range	+19.2 V to 28.8 V DC
Memory	
Type of storage	
Туре	Flash / RAM
Memory usable for project data/Options	2 MB usable memory for user data
Time	
Clock	
• Туре	Hardware clock, battery backed, Synchronizable
Configuration	
Configuration tool	WinCC flexible Standard Version 2008 or higher (to be ordered separately)
Display	
Display type	TFT, 65 536 Colors
Size	5.7"
Resolution (W x H in pixel)	320 x 240
MTBF backlighting (at 25 °C)	about 50,000 hours
Operating mode	
Operating elements	Touch screen
Touchscreen	analog, resistive
Numeric/alphabetical input	Yes (on-screen keyboard) / Yes (on-screen keyboard)
Connection for mouse/key- board/barcode reader	USB / USB / USB
EMC	
• Emission of radio interferences to EN 55 011 (limit class A)	Yes; EN 61000-6-4, interference emission: Intended for use in industrial areas.
Ambient conditions	
Mounting position	Vertical
Max. relative humidity (in %)	90 %
Temperature	
Operation	0 °C to +50 °C
<ul> <li>Transport, storage</li> </ul>	-20 °C to +70 °C
Degree of protection	
Front	IP65, NEMA 4, NEMA 4x, NEMA 12 (when installed)
Hear	IP20
Certifications & Standards	
Certifications	CE, FM Class I Div. 2, cULus, C-TICK, NEMA 4, NEMA 4x, NEMA 12
I/O Options	
I/O devices	Printer, barcode reader

MP 177	6" Touch
Interfaces	
Interfaces	1 x RS422, 1 x RS485 (max. 12 Mbit/s), 1 x Ethernet (RJ45)
Multi Media Card slot	1 x Multi Media Card slot
USB	1 x USB
Operating systems	
Operating system	Windows CE (Version 5)
Processor	
Processor	RISC 32 Bit, 520 MHz
Functionality under WinCC flexible	
Applications/options	Soft PLC, Sm@rtService, Sm@rtAccess
Task planner	Yes
Help system	Yes
Status/control	with SIMATIC S7
Message system	
<ul> <li>Number of messages</li> </ul>	2 000
Bit messages	Yes
<ul> <li>Analog messages</li> </ul>	Yes
Message buffer	Ring buffer (n x 256 entries), retentive, maintenance-free
Recipes	
• Recipes	100
<ul> <li>Data records per recipe</li> </ul>	200
<ul> <li>Entries per data record</li> </ul>	200
Recipe memory	32 kByte integrated Flash, expandable
Number of process images	
<ul> <li>Process images</li> </ul>	500
Variables	1 000
Limit values	Yes
Multiplexing	Yes
Image elements	
Text objects	2.500 text elements
<ul> <li>Graphics object</li> </ul>	Bit maps, icons, vector graphics
Dynamic objects	Diagrams, bar graphs, sliders, analog display, invisible buttons
Lists	
Text lists	300
<ul> <li>Graphics list</li> </ul>	100
Libraries	Yes

#### SIMATIC MP 177

Technical specifications (co	ontinued)	Ordering data	Order No.	
MP 177	6" Touch	SIMATIC MP 177 6" Touch	6AV6 642-0EA01-3AX0	
Functionality under		min. WinCC flexible 2008 necessary		
WinCC flexible (continued)		SIMATIC MP 177 6" Touch	on request	
Security	50	package		
Number of user groups	50	Consisting of:		
Passwords exportable	Yes	SIMATIC MP 177 6" Touch		
Number of user rights	32	SIMATIC WinAC MP		
Data medium support		Single License for WinAC		
Multi Media Card	Yes	MP 177 ON USB slick '		
Recording		<ul> <li>Electronic documentation for WinAC MP</li> </ul>		
Recording/Printing	Alarms, report (shift report), color print, hardcopy	<ul> <li>Standard SD card 256 MB (empty)</li> </ul>		
Printer driver	ESC/P2, PCL3/PCL6	Configuration		
Fonts		with SIMATIC WinCC flexible	See HMI Software	
<ul> <li>Keyboard fonts</li> </ul>	US American (English)	WinCC flexible/Sm@rtAccess	See HMI Software	
		WinCC flexible/Sm@rtService	See HMI Software	
Languages		WinAC MP/software PLC	See HMI Software	
<ul> <li>Online languages</li> </ul>	16	Documentation (to be ordered se	parately)	
<ul> <li>Configuration languages</li> </ul>	D, GB, F, I, E, CHN "traditional",	User manual MP 177.6" Touch	paratery)	
	KP / ROK, NL, N, PL, P, RUS, S,		6AV6 691-1DP02-04 40	
	CZ / SK, TR, H	• English	6AV6 601-1DP02-0AR0	
• Fonts	Tahoma, Courier New, WinCC	• English	6AV6 601 1DP02 0AC0	
	languages, all freely scalable		6AV6 601 1DP02 0AD0	
Transfer (Upload/Download)			6AV6 691-1DP02-0AD0	
<ul> <li>Transfer of configuration</li> </ul>	MPI/PROFIBUS DP, serial, USB,		6AV6 691-10P02-0AE0	
, i i i i i i i i i i i i i i i i i i i	Ethernet, automatic transfer recognition	Compact/Standard/Advanced		
Process coupling		• German	6AV6 691-1AB01-3AA0	
<ul> <li>Connection to controller</li> </ul>	S7-200, S7-300/400, TI 505, Win	• English	6AV6 691-1AB01-3AB0	
	Bradley (DF1), Allen Bradley	• French	6AV6 691-1AB01-3AC0	
	(DF485), Mitsubishi (FX), OMRON	Italian	6AV6 691-1AB01-3AD0	
	(Modbus), see "System interfaces"	• Spanish	6AV6 691-1AB01-3AE0	
Dimensions		User Manual		
Front of enclosure (W x H)	212 mm x 156 mm	WinCC flexible Communication		
Mounting cutout/Device depth	198 mm x 142 mm /	• German	6AV6 691-1CA01-3AA0	
(W x H/D) in mm	45 mm device depth	• English	6AV6 691-1CA01-3AB0	
Weights		• French	6AV6 691-1CA01-3AC0	
Weight	0.85 kg	• Italian	6AV6 691-1CA01-3AD0	
		• Spanish	6AV6 691-1CA01-3AE0	
		SIMATIC HMI Manual Collection	6AV6 691-1SA01-0AX0	
		Electronic documentation, on DVD		
		5 languages (English, French, German, Italian and Spanish); contains: all currently available user manuals, manuals and communication manuals for SIMATIC HMI		
		Accessories		
		Accessories for supplementary ordering	See HMI Accessories	
		B) Subject to export regulations: AL:	N and ECCN: EAR99S	

1) Can only be used for license handling

### Operator Control and Monitoring Devices Multi Panels – 170 series

#### SIMATIC MP 177

#### Dimensions

All specifications in mm. Tolerance  $\pm 1$  mm.



#### More information

Additional information is available in the Internet under:

http://www.siemens.com/mp

#### Notice:

Do you a require specific modification or extension to the products described here? Then have a look under "Customerspecific Products." There you will find information about additional and general industry products available for order as well as options for customized modifications and adaptations.

MP 177 6" Touch

#### SIMATIC MP 277 (incl. INOX)

#### Overview



- Like operator panels, Multi Panels (MP) are used for local machine operation and monitoring
- · Content of message buffer is retained even when panel is disconnected, without batteries
- PLC functionality can be integrated directly into the MP277 platform with Option
- Their functionality can be expanded by the installation of additional Windows CE applications (Multi Panel and Panel options)
- SIMATIC MP 277 devices on the basis of Windows CE combine the rugged construction of Operator Panels with the flexibility of PCs
- Pixel-graphics 7.5" or 10.4" TFT display, color (64k colors)
- MP 277 8" and MP 277 10" Touch:
- Touch screen (analog/resistive) MP 277 8" Kev:

38 system keys, 26 user-configurable and freely inscribable function keys (18 with LEDs) MP 277 10" Key:

38 system keys, 36 user-configurable and freely inscribable function keys (28 with LEDs)

- The MP 277 is also available with a stainless steel front panel, and therefore meets the high requirements of, e.g., the food and beverage industry.
- All interfaces, e.g. MPI, PROFIBUS DP, USB, PROFINET (Ethernet TCP/IP), are onboard

#### Benefits

- Integral component of Totally Integrated Automation (TIA): Increases productivity, minimizes the engineering outlay, reduces the lifecycle costs
- Modular expansion with options such as:
- WinAC MP 277/Software PLC - WinCC flexible/Sm@rtAccess for communication between
- different SIMATIC HMI systems - WinCC flexible/Sm@rtService for remote maintenance and
- servicing of machines/plants via the Intranet/Internet - WinCC flexible/OPC-Server for communication with
- applications from various manufacturers - Microsoft Pocket Internet Explorer (already included in the scope of delivery)
- IE6 for Win CE is included with WinCC flexible 2007.
- WinCC flexible/ProAgent for selective and fast process fault diagnostics in systems and machines
- WinCC flexible/Audit for user management (tracing and user operations)
- Reduction of service and commissioning costs through: Backup/Restore via Ethernet (TCP/IP), USB, MPI,
  - PROFIBUS DP or optionally via SD/Multi Media Card - Remote download/upload of the configuration and firmware
  - (Remote = automatic transfer recognition)
  - Specific drivers can be reloaded
- Long service life of the backlighting
- Graphics library available with off-the-shelf picture objects
- Can be used worldwide:
- 32 languages can be configured (incl. Asian and Cyrillic character sets)
- Up to 16 languages can be switched online
- Standard hardware and software interfaces for increasing flexibility:
  - SD/MultiMediaCard slot for memory expansions, backup/ restore or additional interfaces
  - Ethernet (TCP/IP) for central data and project management Ethernet: control link possible to SIMATIC S7
  - Standard Windows storage formats (CSV) for archives and recipes permit further processing with standard tools (e.g. Microsoft Excel)

#### Application

They are used in a wide range of industries and applications which can be extended by means of the Multi Panel options, e.g. presentation of HTML documents via Microsoft Pocket Internet Explorer.

The diskless and fanless design permits their use even where dust or vibration limits the use of a PC. Short power-up times mean the Multi Panels are soon ready to use.

#### SIMATIC MP 277 (incl. INOX)

- Recipe management:
  - With additional data storage (on SD/MultiMedia card) Online/offline processing on the panel

  - Storage of recipe data in standard Windows format (CSV) - External evaluation using standard tools (Microsoft Excel
- and Access) is possible
- TIA Runtime Functionalities: - Direct keys (fast keys; with Key as keyboard image, with Touch freely customizable) used directly as PROFIBUS DP
  - or PROFINET IO input peripherals - With Key variants, LED's additional as output peripherals
  - In addition, message process Alarm S with SIMATIC S7 and SIMOTION
  - Programming device functionality STATUS/FORCE-VAR in conjunction with SIMATIC S7
  - SIMATIC barcode scanner
- Direct activation and evaluation of a SITOP UPS via USB
- Display selection from the PLC supports operator prompting from the PLC
- Presentation of HTML documents with MS Pocket Internet Explorer / WinCC flexible 2007 or higher: Internet Explorer 6 for Win CE
- Visual Basic Script, flexibility thanks to the implementation of new functions including linking to variables (comparison operations, loops, etc.)
- Help texts:
- For process images, messages and variables
- Arithmetic functions
- Limit value monitoring: ٠
- For reliable process control of inputs and outputs
- Permanent window: Fixed top area of screen for outputting non-screen-specific information (e.g., important process values, date and time)
- Simple maintenance and configuration thanks to: Save and load (Backup/Restore -> Image) complete (incl. License Keys as of WinCC flexible 2007) panels on an SD/MultiMedia Card (optional), also possible with remote
- access (Sm@rtService) Save and load (Backup/Restore -> Image) complete
- (besides License Key) panels on a PC Configuration download using Ethernet/USB/MPI/ PROFIBUS DP/Modem/http
- Configuration upload using Ethernet/USB/MPI/ PROFIBUS DP/modem/http, the project is compressed during the download and transferred to the SD/MultiMedia Card or USB stick (optional)
- Automatic Transfer Recognition (Remote Transfer)
- Configuration simulation directly on the configuration computer
- Import/export of all texts incl. messages in CSV format for translation using standard text processing programs
- Centrally modifiable project-specific faceplates
- Template:
  - Creation of screen templates
- Position-independent configuration of background objects · Password system:
  - User-oriented access protection according to requirements of specific sectors
  - Authentication with user ID and password
  - User-group-specific rights

#### Desian

- · Compact design with low mounting depth
- The front is resistant to various oils, greases and standard detergents
- Degree of protection IP65/NEMA 4x/NEMA 12 (front) or IP20 (rear)
- Plug-in terminals for 24 V DC power supply
- Interfaces
  - RS 485/ RS 422 interface for process connections (PPI, MPI, PROFIBUS DP up to 12 Mbit/s)
- USB for memory stick, mouse, keyboard, printer, barcode reader, UPS and downloading/uploading the configuration
- Ethernet (TCP/IP) for exchanging data with a higher-level PC, connection of a network printer and downloading/ uploading the configuration; a control link to SIMATIC S7 is possible
- Slot for SD/MultiMedia card

#### Function

- Display and modification of process parameters
- Function keys (for MP 277 8" Key and MP 277 10 "Key only): For direct triggering of functions and actions. Up to 16 functions can be configured simultaneously on function keys.
- Process display:
  - VGA resolution (640 x 480 pixels) each with 64k colors for pixels
  - Vector graphics (various line and surface objects)
  - Dynamic positioning and dynamic showing/hiding of objects
  - Pixel-graphic displays, curves and bar displays
  - Presentation of up to 8 curves in a curve field; curve graphics with paging and zoom functions for access to the history and for flexible selection of the presentation time:

reading ruler for determining the current values and displaying them in a table

- Extensive symbol libraries (SIMATIC HMI symbol library)
- Screen objects: Slider, gauge, clock
- Cyclic function processing using timers
- Multiplex function for variables
- · Signaling system:
  - Bit messages and analog messages (limit value messages)
  - Freely-definable message classes (e.g. status/fault messages) for definition of acknowledgment response and display of message events
  - Status and fault messages with message history
  - Non-volatile, maintenance-free message buffer
- Message window and message line
- Archiving of messages and process values (on CF/SD/
- MultiMedia card/USB, etc., or network drives over Ethernet): - Various archive types: Circular and sequential archives
- Storage of archive data in standard Windows format (CSV) - Online evaluation of process value archives through trend
- curves - External evaluation using standard tools
- (MS Excel and MS Access) is possible
- Message log and shift log
- Print functions (see "Recommended printers")
- Language selection:

16 online languages, 32 configuration languages incl. Asian and Cyrillic character sets; language-dependent texts and graphics

#### SIMATIC MP 277 (incl. INOX)

#### Function (continued)

- Service functions (optionally with "WinCC flexible / Sm@rtService"):
- Email generation
- Remote control of the SIMATIC HMI system based on Internet Explorer
- Web server with status HTML pages and control functions
- Client/server functions (optionally with "WinCC flexible /Sm@rtAccess"):
  - Remote operation and monitoring from other SIMATIC HMI systems
  - Plant-wide requests for information and archiving of process data

#### Configuration

Configuration is carried out with the SIMATIC WinCC flexible SP1 Standard or Advanced engineering software (see SIMATIC WinCC flexible HMI software/engineering software).

Projects (of earlier panels) created with ProTool can be transferred to WinCC flexible.

#### Applications/options

- WinAC MP2007 Software PLC for multipanels WinAC MP277 option for MP277 (software PLC similar to the performance class CPU 315) The I/O devices can be connected via PROFIBUS DP Note: Utilization of the Software PLC requires WinCC flexible 2007 and MP277 hardware with integrated retentive memory
- WinCC flexible /Sm@rtAccess; Remote operation and monitoring as well as communication between different SIMATIC HMI systems (see HMI software/ runtime software SIMATIC WinCC flexible /WinCC flexible RT options)
- WinCC flexible /Sm@rtService; Remote maintenance and servicing of machines/plants via the Intranet/Internet (see HMI software/runtime software SIMATIC WinCC flexible /WinCC flexible RT options)
- WinCC flexible /OPC server Communication with applications (e.g. MES, ERP, or applications in the office sector) from various manufacturers (see HMI software/runtime software SIMATIC WinCC flexible /WinCC flexible RT options)
- WinCC flexible/Audit
- WinCC flexible/ProAgent
- SINUMERIK

#### Integration

The MP 277 can in certain cases be connected simultaneously (multiprotocol-capable) to:

- SIMATIC S7-200/-300/-400
- SIMATIC WinAC Software/Slot PLC
- SIMATIC WinAC MP 2007
- SIMATIC S5
- SIMATIC 505
- http communication to other SIMATIC HMI systems (optionally with "WinCC flexible /Sm@rtAccess" option)
- SIMOTION
- SINUMERIK
- (optionally with "SINUMERIK HMI copy licence WinCC flexible CE"; "SINUMERIK HMI engineering package WinCC flexible" is additionally required for configuring; For further details, see Catalog NC 60)
- OPC XML Server (optionally with "WinCC flexible/ OPC-Server")
- PLCs from other manufacturers
  - Allen Bradley
  - Mitsubishi
  - LG GLOFA GM
  - Modicon - GE-Fanuc
  - GE-Fanuc - Omron
  - Telemecanique Uni-Telway
- Via Ethernet (TCP/IP) to a higher-level PC, with enabled network printer

#### Note:

Further information can be found under "System interfaces".

#### SIMATIC MP 277 (incl. INOX)

SIMATIC MP 277	8" Color TFT display, Touch	10" Color TFT display, Touch	8" Color TFT display, keyboard	10" Color TFT display, keyboard	10" Color TFT display, Touch, INOX
Supply voltage					
Supply voltage	24 V DC				
Permissible range	+20.4 V to +28.8 V DC	+20.4 V to +28.8 V D			
Memory					
Type of storage					
Туре	Flash / RAM				
Memory usable for project data/Options	6 MB usable memory for user data				
Time					
Clock					
• Туре	Hardware clock, battery backed, Synchronizable				
Configuration		•			-
Configuration tool	WinCC flexible Stan- dard Version 2005 SP1 or higher (to be ordered separately)	WinCC flexible Stan- dard Version 2005 SP1 or higher (to be ordered separately)	WinCC flexible Stan- dard Version 2005 SP1 or higher (to be ordered separately)	WinCC flexible Stan- dard Version 2005 SP1 or higher (to be ordered separately)	WinCC flexible Stan- dard Version 2005 SP1 or higher (to be ordered separately)
Display					
Display type	TFT, 65536 Colors				
Size	7.5"	10.4"	7.5"	10.4"	10.4"
Resolution (W x H in pixel)	640 × 480	640 x 480	640 x 480	640 x 480	640 x 480
MTBF backlighting (at 25 °C)	about 50,000 hours				
Operating mode					
Operating elements	Touch screen	Touch screen	Membrane keyboard	Membrane keyboard	Touch screen
Function keys, programmable			26 function keys, 18 with LEDs	36 function keys, 26 with LEDs	
System keys			36	36	
Touchscreen	analog, resistive	analog, resistive			analog, resistive
Numeric/alphabetical input	Yes / Yes				
Connection for mouse/key- board/barcode reader	USB / USB / USB				
Ambient conditions					
Mounting position	Vertical	Vertical	Vertical	Vertical	Vertical
maximum permissible angle of incliniation without external ventilation	+/- 35°	+/- 35°	+/- 35°	+/- 35°	+/- 35°
max. relative humidity (in %)	90%	90%	90%	90%	90%
Temperature					
Operation	0 °C to +50 °C				
<ul> <li>Transport, storage</li> </ul>	-20 °C to +60 °C				
Degree of protection					
Front	IP65, NEMA 4x, (when installed)	IP66K, NEMA 4x, (when installed)			
Rear	IP20	IP20	IP20	IP20	IP20

#### SIMATIC MP 277 (incl. INOX)

#### Technical specifications (continued) **SIMATIC MP 277** 8" Color TFT 10" Color TFT 8" Color TFT 10" Color TFT 10" Color TFT display, Touch display, Touch display, keyboard display, keyboard display, Touch, июх Certifications & Standards Certifications CE, FM Class I Div. 2, CE, FM Class I Div. 2, CE, FM Class I Div. 2, CE. FM Class I Div. 2. CE, UL, cULus, UL, CSA, cULus, EX-Zone 2, EX-Zone 22, NEMA 4x (Enclosure UL, cULus, EX-Zone UL, cULus, EX-Zone UL, cULus, EX-Zone NEMA 4x (Enclosure 22, NEMA 4x Type 4X, Type 12) 22, NEMA 4x 22, NEMA 4x (Enclosure Type 4X, (Enclosure Type 4X, (Enclosure Type 4X, Type 12) Type 4X, Type 12) Type 12) Type 12) I/O/Options I/O devices Printer, barcode Printer, barcode Printer, barcode Printer, barcode Printer, barcode reader reader reader reader reader Type of output LED colors Green Green Interfaces Interfaces 1 x RS422, 1 x RS485, 1 x Ethernet (RJ45) (RJ45) (RJ45) (RJ45) (RJ45) Multi Media Card slot 1 x Multi Media Card slot slot slot slot slot USB 2 x USB **Operating systems** Operating system Windows CF Windows CF Windows CF Windows CF Windows CF Processor ARM ARM ARM ARM ARM Processor Functionality under WinCC flexible ProAgent, Internet Explorer, Soft-PLC, Applications/options ProAgent, Internet ProAgent, Internet ProAgent, Internet ProAgent, Internet Explorer, Soft-PLC, Explorer, Soft-PLC, Explorer, Soft-PLC, Explorer, Soft-PLC, Sm@rtService. Sm@rtService. Sm@rtService. Sm@rtService. Sm@rtService, Sm@rtAccess Sm@rtAccess Sm@rtAccess Sm@rtAccess Sm@rtAccess 50 Number of Visual Basic scripts 50 50 50 50 Yes Yes Yes Yes Yes Task planner Help system Yes Yes Yes Yes Yes Status/control with SIMATIC S7 Message system 4 000 4 000 4 000 4 000 4 000 Number of messages Yes Yes Yes Yes Yes Bit messages Analog messages Yes Yes Yes Yes Yes Message buffer Ring buffer (n x 512 entries), retentive, entries), retentive, entries), retentive, entries), retentive, entries), retentive, maintenance-free maintenance-free maintenance-free maintenance-free maintenance-free Recipes 300 300 300 300 Recipes 300 500 • Data records per recipe 500 500 500 500 • Entries per data record 1000 1000 1000 1000 1000 64 kByte integrated Recipe memory 64 kByte integrated 64 kByte integrated 64 kByte integrated 64 kByte integrated Flash, expandable Flash, expandabler Flash, expandable Flash, expandable Flash, expandable

#### SIMATIC MP 277 (incl. INOX)

#### Technical specifications (continued) SIMATIC MP 277 8" Color TFT 10" Color TFT 8" Color TFT 10" Color TFT 10" Color TFT display, Touch display, Touch display, keyboard display, keyboard display, Touch, июх Functionality under WinCC flexible (continued) Number of process images Process images 500 500 500 500 500 Variables 2 0 4 8 2 0 4 8 2 0 4 8 2 0 4 8 2 0 4 8 Limit values Yes Yes Yes Yes Yes Multiplexing Yes Yes Yes Yes Yes Image elements Text objects 10.000 text elements · Graphics object Bit maps, icons, vector graphics vector graphics vector graphics vector graphics vector graphics dynamic objects Diagrams, bar Diagrams, bar Diagrams, bar Diagrams, bar Diagrams, bar graphs, sliders, graphs, sliders, graphs, sliders, graphs, sliders, graphs, sliders, analog display, analog display, analog display, analog display, analog display, invisible buttons invisible buttons invisible buttons invisible buttons invisible buttons Lists 500 500 500 500 500 Text lists Graphics list 400 400 400 400 400 Libraries Yes Yes Yes Yes Yes Archiving 20 20 20 20 Number of archives per project 20 20 20 20 20 Number of measuring points 20 per project • Number of entries per archive 10 000 10,000 10,000 10,000 10 000 Memory location SD and Multi Media Card Card Card Card Card Security 50 50 50 50 50 Number of user groups Yes Yes Yes · Passwords exportable Yes Yes • Number of user rights 32 32 32 32 32 Data medium support Multi Media Card Yes Yes Yes Yes Yes Recording Recording/Printing Alarms, report Alarms, report Alarms, report Alarms, report Alarms, report (shift report), (shift report), (shift report), (shift report), (shift report), color print. color print. color print. color print. color print, hardcopy hardcopy hardcopy hardcopy hardcopy Fonts · Keyboard fonts **US** American **US** American US American US American US American (English) (English) (English) (English) (English) Languages Online languages 16 16 16 16 16 Configuration languages D, GB, F, I, E, CHN "traditional", CHN "simplified", DK, FIN, GR, J, KP / ROK, NL, N, PL, P, RUS, S, CZ / SK, TR, H GR, J, KP / ROK, NL, N, PL, P, RUS, S, GR, J, KP / ROK, NL, N, PL, P, RUS, S, CZ / SK, TR, H GR, J, KP / ROK, NL, N, PL, P, RUS, S, CZ / SK, TR, H GR, J, KP / ROK, NL, N, PL, P, RUS, S, CZ / SK, TR, H CZ / SK. TR. H Fonts Tahoma, Arial, Tahoma, Arial, Tahoma, Arial, Tahoma, Arial, Tahoma, Arial, Courier New, WinCC flexible Standard, flexible Standard, flexible Standard, flexible Standard, flexible Standard, symbol languages, symbol languages, symbol languages, symbol languages, symbol languages, all freely scalable all freely scalable all freely scalable all freely scalable all freely scalable

### SIMATIC MP 277 (incl. INOX)

### Technical specifications (continued)

SIMATIC MP 277	8" Color TFT display, Touch	10" Color TFT display, Touch	8" Color TFT display, keyboard	10" Color TFT display, keyboard	10" Color TFT display, Touch, INOX
Functionality under WinCC flexible (continued)					
Transfer (Upload/Download)					
Transfer of configuration	MPI/PROFIBUS DP, USB, Ethernet, automatic transfer recognition				
Process coupling					
Connection to controller	S5, S7-200, S7- 300/400, TI 505, SINUMERIK, SIMOTION, Allen Bradley (DF1), Allen Bradley (DF485), Mitsubishi (FX), OMRON (LINK/ Multilink), Modicon (Modbus) see section on "System interfaces"	S5, S7-200, S7- 300/400, TI 505, SINUMERIK, SIMOTION, Allen Bradley (DF1), Allen Bradley (DF485), Mitsubishi (FX), OMRON (LINK/ Multilink), Modicon (Modbus) see section on "System interfaces"	S5, S7-200, S7- 300/400, TI 505, SINUMERIK, SIMOTION, Allen Bradley (DF1), Allen Bradley (DF485), Mitsubishi (FX), OMRON (LINK/ Multilink), Modicon (Modbus) see section on "System interfaces"	S5, S7-200, S7- 300/400, TI 505, SINUMERIK, SIMOTION, Allen Bradley (DF1), Allen Bradley (DF485), Mitsubishi (FX), OMRON (LINK/ Multilink), Modicon (Modbus) see section on "System interfaces"	S5, S7-200, S7- 300/400, TI 505, SINUMERIK, SIMOTION, Allen Bradley (DF1), Allen Bradley (DF485), _Mitsubishi (FX), OMRON (LINK/ Multilink), Modicon (Modbus) see section on "System interfaces"
Expandability/openness					
Open Platform Program	Yes	Yes	Yes	Yes	Yes
Dimensions					
Front of enclosure (W x H)	240 mm x 180 mm	325 mm x 263 mm	352 mm x 221 mm	483 mm x 310 mm	325 mm x 263 mm
Mounting cutout/Device depth (W x H/D) in mm	226 mm x 166 mm / 60 mm device depth	310 mm x 248 mm / 61 mm device depth	338 mm x 206 mm / 61 mm device depth	434 mm x 291 mm / 60 mm device depth	310 mm x 248 mm / 61 mm device depth
Weights					
• Weight	1.61 kg	2.65 kg	2.25 kg	4.95 kg	4.2 kg

### SIMATIC MP 277 (incl. INOX)

SIMATIC MP 277         Multi Panel (including installation accessories) with       6AV6 643-0CB01-1AX1         • 8° color TFT display, Touch       F         6AV6 643-0CD01-1AX1       6AV6 643-0CD01-1AX1         • 8° color TFT display, Touch       F         6AV6 643-0DD01-1AX1       6AV6 643-0DD01-1AX1         6AV6 643-0DD01-1AX1       6AV6 643-0DD01-1AX1         6AV6 643-0DD01-1AX1       6AV6 643-0DD01-1AX1         10° color TFT display, Touch, INOX (with stainless steel front panel)       6AV6 643-0DD01-2AX0         SIMATIC MP 277 8" Touch       F         6AV6 652-3MB01-0AA0       • BS 232 cable (5 m)         • MPI cable, 5 m       Applications/Options         • SIMATIC MP 277 78" Touch       F         • SIMATIC MP 277 8" Touch       F         • SIMATIC MP 277 78" Touch       F         • SIMATIC MP 277 8" Touch       F         • SIMATIC MP 277 10" Touch       F         • MP	AATIC MP 277         Iti Panel (including installation cessories) with         ' color TFT display, Touch         '' color TFT display, Touch         '' color TFT display, Touch         '' color TFT display, keyboard         '' color TFT display, Touch, INOX         vith stainless steel front panel)         IATIC MP 277 8" Touch         IMATIC MP 277 8" Touch         IMATIC WinCC flexible 2007         IMATIC HMI Manual Collection         pucher for Software Update         ervice for 1 year         IPI cable, 5 m (for download	7 uding installation h splay, Touch F <b>6AV6 643-0CB01-1AX1</b>	Configuration       with SIMATIC WinCC flexible       Configuration set     D       Consisting of:	See HMI Software 6AV6 622-0BA01-0AA0
Multi Panel (including installation accessories) with       with SIMATIC WinCC flexible       See HMI Software         8° color TFT display, Touch       F       6AV6 643-0CB01-1AX1       Configuration set       D       6AV6 622-0BA01-0AA0         10° color TFT display, Keyboard       F       6AV6 643-0CB01-1AX1       WinCC flexible Standard engineering software       D       6AV6 622-0BA01-0AA0         10° color TFT display, keyboard       F       6AV6 643-0DB01-1AX1       Ocnsisting of:       WinCC flexible Standard engineering software       D       6AV6 622-0BA01-0AA0         10° color TFT display, Keyboard       F       6AV6 643-0DB01-1AX1       Ocnsisting of:       WinCC flexible Standard engineering software       D       6AV6 643-0ED01-2AX0         SIMATIC MP 277 8" Touch       F       6AV6 652-3MB01-0AA0       F       6AV6 652-3MB01-0AA0       PI cable, 5 m         Xim Tic WinCC flexible 2007       SIMATIC MI Manual Collection       F       6AV6 652-3MB01-0AA0       WinCC flexible/Sm@rtAccess       See Chapter 4         WinCC flexible/Sm@rtAccess only       See Chapter 4       WinCC flexible/OPC Server       See Chapter 4         WinCC flexible/ProAgent       See Chapter 4       WinCC flexible/Audit       See Chapter 4         WinCC flexible/Audit       See Chapter 4       WinCC flexible/Audit       See chapter 4         SIMATIC MP 277 10	Iti Panel (including installation cessories) with Color TFT display, Touch Color TFT display, Touch Color TFT display, Keyboard Color TFT display, keyboard Color TFT display, keyboard Color TFT display, Keyboard Color TFT display, Touch, INOX with stainless steel front panel) <b>IATIC MP 277 8" Touch</b> IMATIC MP 277 8" Touch IMATIC WinCC flexible 2007 IMATIC HMI Manual Collection Ducher for Software Update ervice for 1 year IPI cable, 5 m (for download	uding installation h splay. Touch F <b>6AV6 643-0CB01-1AX1</b>	with SIMATIC WinCC flexible Configuration set D Consisting of:	See HMI Software 6AV6 622-0BA01-0AA0
accessories) with       8" color TFT display, Touch       F       6AV6 643-0CB01-1AX1         10" color TFT display, Touch       F       6AV6 643-0CB01-1AX1       Consisting of:         10" color TFT display, keyboard       F       6AV6 643-0DB01-1AX1       Consisting of:         10" color TFT display, keyboard       F       6AV6 643-0DB01-1AX1       Ocumentation DVD,         10" color TFT display, Touch, INOX (with stainless steel front panel)       6AV6 652-3MB01-0AA0       Pocumentation DVD,         SIMATIC MP 277 8" Touch       F       6AV6 652-3MB01-0AA0         Voucher for Software Update Service for 1 year       WinCC flexible/Sm@rtAccess       See Chapter 4         WinCC flexible/OPC Server       See Chapter 4       WinCC flexible/ProAgent       See Chapter 4         WinCC flexible/ProAgent       See Chapter 4       WinCC flexible/Audit       See Chapter 4         WinCC flexible/ProAgent       See Chapter 4       WinCC flexible/Audit       See Chapter 4         WinCC flexible/ProAgent       See Chapter 4       WinCC flexible/Audit	cessories) with         color TFT display, Touch       F         0" color TFT display, Touch       F         0" color TFT display, keyboard       F         0" color TFT display, keyboard       F         0" color TFT display, keyboard       F         0" color TFT display, Touch, INOX       Vith stainless steel front panel)         IATIC MP 277 8" Touch       F         Inter Package       F         INATIC MP 277 8" Touch       F         IMATIC WinCC flexible 2007       IMATIC WinCC flexible 2007         IMATIC HMI Manual Collection       Ducher for Software Update         ervice for 1 year       IPI cable, 5 m (for download	h splay, Touch F <b>6AV6 643-0CB01-1AX1</b>	Configuration set D	6AV6 622-0BA01-0AA0
<ul> <li>8" color IFI display, louch F</li> <li>6AV6 643-0CB01-1AX1</li> <li>10" color TFT display, Touch F</li> <li>6AV6 643-0DD01-1AX1</li> <li>6AV6 652-3MB01-0AA0</li> <li>SIMATIC MP 277 8" Touch F</li> <li>SIMATIC MP 277 8" Touch</li> <li>SIMATIC MP 277 10" Touch</li> <li>F</li> <li>6AV6 652-3PB01-0AA0</li> <li>Consisting of:</li> <li>WinCC flexible/Sm@rtAccess</li> <li>See Chapter 4</li> <li>WinCC flexible/ProAgent</li> <li>See Chapter 4</li> <li>WinC flexible/ProAgent</li> <li>See Chapter 4</li> <li>WinC flexible/Audit</li> <li>See Chapter 4</li> <li>WinAC MP 2007/Software PLC</li> <li>See page 2/135</li> <li>Documentation (to be ordered separately)</li> </ul>	<ul> <li>color IFI display, louch F</li> <li>color TFT display, Touch F</li> <li>color TFT display, Keyboard F</li> <li>color TFT display, Keyboard F</li> <li>color TFT display, Touch, INOX vith stainless steel front panel)</li> <li>TATIC MP 277 8" Touch F</li> <li>IMATIC MP 277 8" Touch IMATIC WinCC flexible 2007</li> <li>IMATIC HMI Manual Collection pucher for Software Update ervice for 1 year</li> <li>IPI cable, 5 m (for download</li> </ul>	splay, louch F 6AV6 643-0CB01-1AX1	Consisting of	
<ul> <li>10° color IFI display, louch F</li> <li>6AV6 643-0CD01-1AX1</li> <li>8" color TFT display, keyboard F</li> <li>6AV6 643-0DD01-1AX1</li> <li>6AV6 643-0DD01-1AX1</li> <li>6AV6 643-0DD01-1AX1</li> <li>6AV6 643-0DD01-1AX1</li> <li>6AV6 643-0DD01-1AX1</li> <li>6AV6 643-0ED01-2AX0</li> <li>6AV6 643-0ED01-2AX0</li> <li>6AV6 643-0ED01-2AX0</li> <li>6AV6 652-3MB01-0AA0</li> <li>SIMATIC MP 277 8" Touch F</li> <li>SIMATIC MP 277 8" Touch</li> <li>SIMATIC MP 277 10" Touch</li> <li>Applications/Options</li> <li>WinCC flexible/Sm@rtAccess</li> <li>See Chapter 4</li> <li>WinCC flexible/OPC Server</li> <li>See Chapter 4</li> <li>WinCC flexible/ProAgent</li> <li>See Chapter 4</li> <li>WinCC flexible/ProAgent</li> <li>See Chapter 4</li> <li>WinCC flexible/Audit</li> <li>See Chapter 4</li> <li>WinAC MP 2007/Software PLC</li> <li>See page 2/135</li> <li>Documentation (to be ordered separately)</li> </ul>	0" color TFT display, louch F " color TFT display, keyboard F 0" color TFT display, keyboard F 0" color TFT display, Touch, INOX vith stainless steel front panel) <b>IATIC MP 277 8" Touch</b> <b>IMATIC MP 277 8" Touch</b> IMATIC WinCC flexible 2007 IMATIC HMI Manual Collection pucher for Software Update ervice for 1 year IPI cable, 5 m (for download		Consisting of.	
<ul> <li>B" color TFT display, keyboard F</li> <li>6AV6 643-0DB01-1AX1</li> <li>6AV6 643-0DD01-1AX1</li> <li>6AV6 643-0ED01-2AX0</li> <li>6AV6 643-0ED01-2AX0</li> <li>6AV6 643-0ED01-2AX0</li> <li>6AV6 643-0ED01-2AX0</li> <li>6AV6 652-3MB01-0AA0</li> <li>F</li> <li>6AV6 652-3MB01-0AA0</li> <li>F</li> <li>6AV6 652-3MB01-0AA0</li> <li>F</li> <li>6AV6 652-3PB01-0AA0</li> </ul>	<ul> <li>color IFI display, keyboard F</li> <li>color TFT display, keyboard F</li> <li>color TFT display, Touch, INOX vith stainless steel front panel)</li> <li>IATIC MP 277 8" Touch retre Package</li> <li>nisting of:</li> <li>IMATIC MP 277 8" Touch</li> <li>IMATIC WinCC flexible 2007</li> <li>IMATIC HMI Manual Collection oucher for Software Update ervice for 1 year</li> <li>IPI cable, 5 m (for download</li> </ul>	display, louch F 6AV6 643-0CD01-1AX1	WinCC flexible Standard	
<ul> <li>10° color TFT display, Keyboard F</li> <li>6AV6 643-0DD01-1AX1</li> <li>6AV6 643-0ED01-2AX0</li> <li>6AV6 643-0ED01-2AX0</li> <li>6AV6 643-0ED01-2AX0</li> <li>6AV6 643-0ED01-2AX0</li> <li>6AV6 652-3MB01-0AA0</li> <li>SIMATIC MP 277 8" Touch F</li> <li>6AV6 652-3MB01-0AA0</li> <li>SIMATIC MP 277 8" Touch</li> <li>SIMATIC MP 277 8" Touch</li> <li>SIMATIC WinCC flexible 2007</li> <li>SIMATIC HMI Manual Collection</li> <li>Voucher for Software Update Service for 1 year</li> <li>MPI cable, 5 m (for download and test purposes only)</li> <li>PC/PPI cable (RS 232)</li> <li>SIMATIC MP 277 10" Touch F</li> <li>6AV6 652-3PB01-0AA0</li> </ul>	Of color TFT display, Keyboard F         O" color TFT display, Touch, INOX vith stainless steel front panel)         IATIC MP 277 8" Touch F         Inter Package         nsisting of:         IMATIC MP 277 8" Touch         IMATIC WinCC flexible 2007         IMATIC HMI Manual Collection         Ducher for Software Update         ervice for 1 year         IPI cable, 5 m (for download	splay, keyboard F 6AV6 643-0DB01-1AX1	engineering software	
SIMATIC MP 277 8" Touch Starter Package       F       6AV6 652-3MB01-0AA0         Consisting of:       • RS 232 cable (5 m)         • SIMATIC MP 277 8" Touch       • MPI cable, 5 m         • SIMATIC WinCC flexible 2007       • When configuration with WinCC flexible         • SIMATIC HMI Manual Collection       • WinCC flexible/Sm@rtAccess       See Chapter 4         • WinCC flexible/Sm@rtService       See Chapter 4         • WinCC flexible/OPC Server       See Chapter 4         • WinCC flexible/ProAgent       See Chapter 4         • WinCC flexible/ProAgent       See Chapter 4         • WinCC flexible/Audit       See Chapter 4         • WinCC flexible/Audit       See Chapter 4         • WinCC flexible/ProAgent       See Chapter 4         • WinCC flexible/Audit       See Chapter 4         • WinAC MP 2007/Software PLC       see page 2/135         • Documentation (to be ordered separately)       •	IATIC MP 277 8" Touch inter Package       F         Insisting of:       IMATIC MP 277 8" Touch         IMATIC WinCC flexible 2007       IMATIC WinCC flexible 2007         IMATIC HMI Manual Collection       Ducher for Software Update         ervice for 1 year       IPI cable, 5 m (for download	isplay, Keyboard F 6AV6 643-0DD01-1AX1 isplay, Touch, INOX 6AV6 643-0ED01-2AX0 steel front panel)	<ul> <li>Documentation DVD,</li> <li>5 languages (English, French,</li> <li>German, Italian, Spanish)</li> </ul>	
Starter Package       • MPI cable, 5 m         Consisting of:       • MPI cable, 5 m         • SIMATIC MP 277 8" Touch       • MPI cable, 5 m         • SIMATIC WinCC flexible 2007       • When configuration with WinCC flexible 2007         • SIMATIC HMI Manual Collection       • WinCC flexible/Sm@rtAccess       See Chapter 4         • Voucher for Software Update Service for 1 year       • WinCC flexible/Sm@rtService       See Chapter 4         • MPI cable, 5 m (for download and test purposes only)       • WinCC flexible/ProAgent       See Chapter 4         • WinCC flexible/Audit       See Chapter 4         • WinAC MP 2007/Software PLC       see page 2/135         • Documentation (to be ordered separately)       Documentation (to be ordered separately)	Inter Package Insisting of: IMATIC MP 277 8" Touch IMATIC WinCC flexible 2007 IMATIC HMI Manual Collection Ducher for Software Update ervice for 1 year IPI cable, 5 m (for download	7 8" Touch F 6AV6 652-3MB01-0AA0	• RS 232 cable (5 m)	
Consisting of:       Applications/Options         • SIMATIC MP 277 8" Touch       When configuration with WinCC         • SIMATIC WinCC flexible 2007       When configuration with WinCC         • SIMATIC HMI Manual Collection       • WinCC flexible/Sm@rtAccess       See Chapter 4         • Voucher for Software Update Service for 1 year       See Chapter 4       • WinCC flexible/OPC Server       See Chapter 4         • MPI cable, 5 m (for download and test purposes only)       • WinCC flexible/ProAgent       See Chapter 4         • WinCC flexible/Audit       See Chapter 4         • WinCC flexible/Audit       See Chapter 4         • WinCC flexible/ProAgent       See Chapter 4         • WinCC flexible/Audit       See Chapter 4         • WinAC MP 2007/Software PLC       see page 2/135         SIMATIC MP 277 10" Touch F       6AV6 652-3PB01-0AA0       Documentation (to be ordered separately)	nsisting of: IMATIC MP 277 8" Touch IMATIC WinCC flexible 2007 IMATIC HMI Manual Collection Ducher for Software Update ervice for 1 year IPI cable, 5 m (for download	e	• MPI cable, 5 m	
<ul> <li>SIMATIC MP 277 8" Touch</li> <li>SIMATIC WinCC flexible 2007</li> <li>SIMATIC HMI Manual Collection</li> <li>Voucher for Software Update Service for 1 year</li> <li>MPI cable, 5 m (for download and test purposes only)</li> <li>PC/PPI cable (RS 232)</li> <li>SIMATIC MP 277 10" Touch F 6AV6 652-3PB01-0AA0</li> <li>When configuration with WinCC flexible</li> <li>WinCC flexible/Sm@rtAccess</li> <li>Wenc C flexible/Sm@rtAccess</li> <li>WinCC flexible/Sm@rtService</li> <li>See Chapter 4</li> <li>WinCC flexible/ProAgent</li> <li>See Chapter 4</li> <li>WinCC flexible/Audit</li> <li>See Chapter 4</li> <li>WinCC flexible/Audit</li> <li>See Chapter 4</li> <li>WinAC MP 2007/Software PLC</li> <li>See page 2/135</li> <li>Documentation (to be ordered separately)</li> </ul>	IMATIC MP 277 8" Touch IMATIC WinCC flexible 2007 IMATIC HMI Manual Collection oucher for Software Update ervice for 1 year IPI cable, 5 m (for download		Applications/Options	
<ul> <li>SIMATIC WinCC flexible 2007</li> <li>SIMATIC HMI Manual Collection</li> <li>Voucher for Software Update Service for 1 year</li> <li>MPI cable, 5 m (for download and test purposes only)</li> <li>PC/PPI cable (RS 232)</li> <li>SIMATIC MP 277 10" Touch F 6AV6 652-3PB01-0AA0</li> <li>WinCC flexible/Sm@rtAccess See Chapter 4</li> <li>WinCC flexible/ProAgent See Chapter 4</li> <li>WinCC flexible/ProAgent See Chapter 4</li> <li>WinCC flexible/Audit See Chapter 4</li> </ul>	IMATIC WinCC flexible 2007 IMATIC HMI Manual Collection oucher for Software Update ervice for 1 year IPI cable, 5 m (for download	77 8" Touch	When configuration with WinCC flexible	
<ul> <li>SIMATIC HMI Manual Collection</li> <li>Voucher for Software Update Service for 1 year</li> <li>MPI cable, 5 m (for download and test purposes only)</li> <li>PC/PPI cable (RS 232)</li> <li>SIMATIC MP 277 10" Touch F 6AV6 652-3PB01-0AA0</li> <li>WinCC flexible/Sm@rtService See Chapter 4</li> <li>WinCC flexible/ProAgent See Chapter 4</li> <li>WinCC flexible/Audit See page 2/135</li> </ul>	IMATIC HMI Manual Collection oucher for Software Update ervice for 1 year IPI cable, 5 m (for download	C flexible 2007	WinCC flexible/Sm@rtAccess	See Chapter 4
<ul> <li>Voucher for Software Update Service for 1 year</li> <li>MPI cable, 5 m (for download and test purposes only)</li> <li>PC/PPI cable (RS 232)</li> <li>SIMATIC MP 277 10" Touch</li> <li>F 6AV6 652-3PB01-0AA0</li> <li>MinC flexible/ProAgent</li> <li>Very See Chapter 4</li> <li>WinCC flexible/Audit</li> <li>See Chapter 4</li> <li>WinAC MP 2007/Software PLC</li> <li>see page 2/135</li> <li>Documentation (to be ordered separately)</li> </ul>	oucher for Software Update ervice for 1 year IPI cable, 5 m (for download	Vanual Collection	WinCC flexible/Sm@rtService	See Chapter 4
MinCc flexible/ProAgent See Chapter 4     WinCC flexible/Audit See Chapter 4     WinAC MP 2007/Software PLC see page 2/135     Documentation (to be ordered separately)	IPI cable, 5 m (for download	oftware Update	WinCC flexible/OPC Server	See Chapter 4
And test purposes only)     PC/PPI cable (RS 232)     SIMATIC MP 277 10" Touch F 6AV6 652-3PB01-0AA0     F 6AV6 652-3PB01-0AA0     F 6AV6 652-3PB01-0AA0     F 6AV6 652-3PB01-0AA0		(for download	WinCC flexible/ProAgent	See Chapter 4
• PC/PPI cable (RS 232)     • WinAC MP 2007/Software PLC see page 2/135     Documentation (to be ordered separately)	nd test purposes only)	uses only)	WinCC flexible/Audit	See Chapter 4
SIMATIC MP 277 10" Touch F 6AV6 652-3PB01-0AA0 Documentation (to be ordered separately)	C/PPI cable (RS 232)	RS 232)	WinAC MP 2007/Software PLC	see page 2/135
	MATIC MP 277 10" Touch F	7 10" Touch F 6AV6 652-3PB01-0AA0	Documentation (to be ordered sep	parately)
Starter Package MP 277 Operating Instructions	rter Package	8	MP 277 Operating Instructions	
Consisting of: • German • GAV6 691-1DJ01-0AA0	nsisting of:		• German	6AV6 691-1DJ01-0AA0
• SIMATIC MP 277 10" Touch • English • English • 6AV6 691-1DJ01-0AB0	IMATIC MP 277 10" louch	77 10" louch	• English	6AV6 691-1DJ01-0AB0
SIMATIC WINCC flexible 2007     French     GAV6 691-1DJ01-0AC0	IMATIC WINCC flexible 2007	C flexible 2007	• French	6AV6 691-1DJ01-0AC0
SIMATIC HMI Manual Collection     Italian     GAV6 691-1DJ01-0AD0	IMATIC HMI Manual Collection		• Italian	6AV6 691-1DJ01-0AD0
Voucher for Software Update     Service for 1 year     Spanish     GAV6 691-1DJ01-0AE0	ervice for 1 year	ear	• Spanish	6AV6 691-1DJ01-0AE0
MPI cable, 5 m (for download and test purposes only)     WinCC flexible Compact/ Standard/Advanced User Manual	IPI cable, 5 m (for download nd test purposes only)	n (for download ises only)	WinCC flexible Compact/ Standard/Advanced	
PC/PPI cable (RS 232)     German     GAV6 691-14B01-3440	C/PPI cable (RS 232)	RS 232)	• German	6AV6 691-1AB01-3AA0
Complete pre-assembled packages SIMATIC MP 277 with WinAC • English	mplete pre-assembled packages	ssembled packages SIMATIC MP 277 with WinAC	• English	6AV6 691-1AB01-3AB0
Peakage MP 277 8" Touch E GAVE 652 2MC01 1AA0 • French 6AV6 691-1AB01-3AC0			• French	6AV6 691-1AB01-3AC0
MR 277 8" Touch     MR 277 8" Touch     MR 277 9" Touch		7 6 TOUCH F 6AV6 652-5MC01-TAAU	• Italian	6AV6 691-1AB01-3AD0
Electronic documentation     Spanish     6AV6 691-1AB01-3AE0	lectronic documentation		• Spanish	6AV6 691-1AB01-3AE0
Single license for MP 277 on USB stick <sup>1)</sup>	ingle license for MP 277 on SB stick <sup>1)</sup>	for MP 277 on	User Manual WinCC flexible Communication	
Standard SD Card (empty)     German     GAV6 691-1CA01-3AA0	tandard SD Card (empty)	Card (empty)	• German	6AV6 691-1CA01-3AA0
Package MP 277 8" Key         F         6AV6 652-3LC01-1AA0         • English         6AV6 691-1CA01-3AB0	ckage MP 277 8" Key F	7 8" Key F 6AV6 652-3LC01-1AA0	• English	6AV6 691-1CA01-3AB0
• MP 277 8" Key • French • French • 6AV6 691-1CA01-3AC0	IP 277 8" Key	,	• French	6AV6 691-1CA01-3AC0
Electronic documentation     Italian     AV6 691-1CA01-3AD0	lectronic documentation	umentation	• Italian	6AV6 691-1CA01-3AD0
Single license for MP 277 on     Spanish     GAV6 691-1CA01-3AE0	ingle license for MP 277 on	for MP 277 on	• Spanish	6AV6 691-1CA01-3AE0
Standard SD Card (empty)     Standard SD Card (empty)     GAV6 691-1SA01-0AX0	tandard SD Card (empty)	Card (empty)	SIMATIC HMI Manual Collection B	6AV6 691-1SA01-0AX0
Package MP 277 10" Touch     F     6AV6 652-3PC01-1AA0     Electronic documentation, on DVD	ckage MP 277 10" Touch F	7 10" Touch F 6AV6 652-3PC01-1AA0	Electronic documentation, on DVD	
MP 277 10" Touch 5 languages (English, French,	IP 277 10" Touch	uch	5 languages (English, French,	
Electronic documentation     German, Italian and Spanish);     contains: all currently available	lectronic documentation ingle license for MP 277 on	umentation for MP 277 on	German, Italian and Spanish); contains: all currently available	
USB stick <sup>1)</sup> USE manuals, manuals and • Standard SD Card (empty) USE manuals for SIMATIC HMI	SB stick <sup>1)</sup> tandard SD Card (empty)	Card (empty)	user manuals, manuals and communication manuals for SIMATIC HMI	
Package MP 277 10" Key F 6AV6 652-3NC01-1AA0	ckage MP 277 10" Kev F	7 10" Key F 6AV6 652-3NC01-1AA0	Accessories	
MP 277 10" Key     Accessories for supplementary     See HM Accessories	IP 277 10" Key	- -	Accessories for supplementary	See HM Accessories
• Electronic documentation ordering	lectronic documentation	umentation	ordering	
Single license for MP 277 on USB stick <sup>1)</sup>	ingle license for MP 277 on SB stick <sup>1)</sup>	for MP 277 on		
Standard SD Card (empty)	tandard SD Card (amoty)	Card (empty)		

<sup>1)</sup> Can only be used for license handling

B) Subject to export regulations: AL: N and ECCN: EAR99SD) Subject to export regulations: AL: N and ECCN: 5D992B1

F) Subject to export regulations: AL: N and ECCN: 5D002ENC3

### Operator Control and Monitoring Devices Multi Panels – 270 series

#### SIMATIC MP 277 (incl. INOX)

#### Dimensions

All specifications in mm. Tolerance  $\pm$  1 mm.





MP 277 8" Touch



MP 277 10" Touch

MP 277 8" Key



MP 277 10" Key

### Operator Control and Monitoring Devices Multi Panels – 270 series

#### SIMATIC MP 277 (incl. INOX)

#### Dimensions

All specifications in mm. Tolerance  $\pm 1$  mm.



MP 277 10" Touch with stainless-steel front

#### More information

Additional information is available in the Internet under:

http://www.siemens.com/mp

#### Note:

Do you need a specific modification or option for the products described here? Then look up "Customized products", where you will find information about additional sector-specific products that can be ordered as well as about options for customer-specific modification and adaptation.

#### **SIMATIC MP 377**

#### Overview



- Like operator panels, Multi Panels (MP) are used for local machine operation and monitoring
- Their functionality can be expanded by the installation of additional Windows CE applications (Multi Panel and Panel options)
- SIMATIC MP 377 devices on the basis of Windows CE combine the rugged construction of Operator Panels with the flexibility of PCs
- PLC functionality can be integrated directly into the MP 377 platform with Option
- Pixel-graphics 12", 15" or 19" TFT display, color (64k colors)
- MP 377 12" Touch, MP 377 15" Touch and MP 377 19" Touch: Touch screen (analog/resistive) MP 377 12" Key: 38 system keys, 36 user-configurable and freely inscribable function keys (36 with LEDs)
- SIMATIC MP 377 PRO 15" Touch: with a rugged and extremely compact aluminum housing, full IP65 protection and thus suitable for harsh environmental conditions.
- All interfaces, e.g. MPI, PROFIBUS DP, USB, PROFINET (Ethernet TCP/IP), are on-board

#### Benefits

- Integral component of Totally Integrated Automation (TIA): increases productivity, minimizes the engineering outlay, reduces the lifecycle costs
- Modular expansion possible with options such as
   Software PLC SIMATIC WinAC MP 2007
  - WinCC flexible/Sm@rtAccess for communication between different SIMATIC HMI systems
  - WinCC flexible/Sm@rtService for remote maintenance and servicing of machines/plants via the intranet/Internet
  - WinCC flexible/OPC-Server for communication with applications from various manufacturers
  - MS Pocket Internet Explorer 6.0 (already included in the scope of delivery)
     MS Multi Media Player (already included in the scope of
  - MS Multi Media Player (already included in the scope of delivery)
  - MS Viewer for Word, Excel and PDF files (already included in scope of delivery)
- Reduction of service and commissioning costs through:
   Backup/restore via Ethernet (TCP/IP), USB, MPI, PROFIBUS DP or optionally via CF/SD/Multi Media Card
  - Remote download/upload for configuration and firmware
  - Specific drivers can be reloaded
  - Long service life of the backlighting
- Graphics library with off-the-shelf picture objects
- Can be used worldwide:
- 32 languages can be configured (incl. Asian and Cyrillic character sets)
- Up to 16 languages can be switched online
- Standard hardware and software interfaces for increasing flexibility:
  - CF Card Slot and SD/Multi Media Card Slot for memory expansions, Backup/Restore
  - Ethernet (TCP/IP) for central data and project management and control link possible to SIMATIC S7
  - Standard Windows storage formats (CSV) for archives and recipes permit further processing with standard tools (e.g. Microsoft Excel)

#### Application

The Multi Panels SIMATIC MP 377 can be used wherever machines and systems are operated and monitored directly on-site – whether in production, process or building automation. These are used in the most popular branches and applications and can be expanded in their applications with the Multi Panel options, e.g. by displaying HTML documents via the Microsoft Pocket Internet Explorer.

Windows CE meets the basic prerequisites for application in rough industrial environments. The diskless and fanless design enables implementation in areas where high vibration or dust load limits the operation of a PC. Short boot-up times make the Multi Panels ready for operation sooner as well.

#### **SIMATIC MP 377**

#### Design

- · Compact design with low mounting depth
- The front is resistant to various oils, greases and standard detergents
- Degree of protection IP65/NEMA 4x/NEMA 12 (front) or IP20 (rear)
- Plug-in terminals for 24 V DC power supply
- Interfaces:
  - RS 485/RS 422 interface for process connections (MPI, PROFIBUS DP up to 12 Mbit/s)
  - USB for mouse, keyboard, printer, barcode reader, and downloading/uploading the configuration
- Ethernet (TCP/IP) for exchanging data with a higher-level PC, connection of a network printer and downloading/ uploading the configuration; a control link to SIMATIC S7 is possible
- Slot for Compact Flash Card (CF Card)
- Slot for SD/Multi Media Card
- Retentive memory for WinAC MP 377 data (data, timers, counters and bit memories)

#### SIMATIC MP 377 PRO 15" Touch

The MP 377 is also available in a support arm version

- All-round IP65 protection
- NEMA 4 certification
- · For mounting on support arm/pedestal
- 15" touch display
- Rugged die-cast aluminum housing
- Adaptation of the device optionally from above or below
- Direct connection to support arm systems of well-known manufacturers (e.g. Rittal, Bernstein, Rose, Rolec)
- Supports the globally established VESA 75/VESA 100 standard

#### Function

- · Display and modification of process parameters
- Function keys (for MP 377 12" Keys) for direct triggering of functions and actions. Up to 16 functions can be configured simultaneously on function keys. The function keys can be used directly as PROFIBUS DP input peripherals.
- · Process display:
  - Vector graphics (various line and surface objects)
  - Dynamic positioning and dynamic showing/hiding of objects
  - Pixel-graphic displays, curves and bar displays
  - Presentation of up to 8 curves in a curve field;
  - curve graphics with paging and zoom functions for access to the history and for flexible selection of the presentation time;

reading ruler for determining the current values and displaying them in a table

- Extensive symbol libraries (SIMATIC HMI symbol library)
- Screen objects: Slider, gauge, clock
  Cyclic function processing using timers
- Multiplex function for variables
  - for variables

- Signaling system
   Bit messages and analog messages (limit value messages) as well as the ALARM\_S message frame procedure for SIMATIC S7 and SIMOTION
  - Freely-definable message classes (e.g. status/fault messages) for definition of acknowledgment response and display of message events
  - Status and fault messages with message history - Pre-configured message image, message window and
- message line
- Archiving of messages and process values (on CF/SD/ MultiMedia card/USB, etc., or network drives over Ethernet)
   Various archive types: Circular and sequential archives
  - Storage of archive data in standard Windows format (CSV)
  - Online evaluation of process value archives through trend curves
  - External processing using standard tools (MS Excel and MS Access) is possible
- Message log and shift log
- Print functions (see "Recommended printers")
- Language switching 16 online languages, 32 configuration languages incl. Asiatic and Cyrillic character sets
- Recipe management
- With additional data storage (on CF/SD/multimedia card/USB, etc.)
- Online/offline processing on the panel
- Storage of recipe data in standard Windows format (CSV)
   External processing using standard tools (Microsoft Excel and Access) is possible
- Programming device functionality STATUS/ FORCE-VAR in conjunction with SIMATIC S5 and SIMATIC S7
- Display selection from the PLC supports operator prompting from the PLC
- Presentation of HTML documents with MS Pocket Internet Explorer
- Visual Basic Script, flexibility thanks to the implementation of new functions including linking to variables (comparison operations, loops, etc.)
- Help texts
- for process screens, messages and variables
- Arithmetic functions
- Limit value monitoring
   for reliable process control of it
- for reliable process control of inputs and outputs
- Permanent window;
   Fixed area of screen for outputting non-screen-specific
  - information (e.g. important process values, date and time) - Permanent window expanded by template concept for
  - creating screen templates
- Simple maintenance and configuration thanks to:
   Saving and loading (Backup/Restore) configurations, operating system, data records and firmware on an optional memory card (CF/SD/Multi Media Card) or via Ethernet
  - memory card (CF/SD/Multi Media Card) or via Ethernet - Backup and restoration of the configuration, operating system, data records and firmware on a PC
  - Configuration download/upload via Ethernet/USB/MPI/ PROFIBUS DP/modem and CF or SD/Multi Media Card
     Automatic transfer identification
- Configuration simulation directly on the configuration computer

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#### **SIMATIC MP 377**

#### Function (continued)

- Import/export of all texts incl. messages in CSV format for translation using standard text processing programs
- Centrally modifiable project-specific faceplates
- User administration (security)
  - User-oriented access protection according to requirements of specific sectors
  - Authentication with user ID and password
  - User-group-specific rights
- Visual Basic Runtime object model
- Service functions (opt. with "WinCC flexible /Sm@rtService") - Email generation
- Remote control of the SIMATIC HMI system based on Internet Explorer
- Web server with status HTML pages and control functions
- Client/server functions (optionally with "WinCC flexible /Sm@rtAccess")
  - Remote operation and monitoring from other SIMATIC HMI systems
  - Plant-wide requests for information and archiving of process data

#### Integration

- The MP 377 can be connected to:
- SIMATIC S7-200/-300/-400
- SIMATIC WinAC Software/Slot PLC
- Ethernet communication with SIMATIC S7
- SIMATIC S5
- SIMATIC 505
- SINUMERIK
- SIMOTION
- Non-Siemens PLCs:
  - Allen Bradley
  - Mitsubishi
  - Telemecanique
  - LG GLOFA ĠM - Modicon
  - GE-Fanuc
  - Omron
- Over Ethernet (TCP/IP) to a higher-level PC, network printer
- Multi-protocol capability
- OPC XML server (optional with "WinCC flexible /OPC server")
- http communication with other SIMATIC HMI systems (optional with "WinCC flexible/Sm@rtAccess")
- SINUMERIK

(optionally with "SINUMERIK HMI copy license WinCC flexible CE"; "SINUMERIK HMI engineering package WinCC flexible" is additionally required for configuration)

#### Note:

For further information, see "System interfaces"

#### Configuration

The configuration is done with the SIMATIC WinCC flexible Standard or Advanced engineering software (see HMI Software/SIMATIC WinCC flexible engineering software).

Projects created with ProTool can be transferred to WinCC flexible.

#### Applications/Options

- WinCC flexible /ProAgent Targeted and fast process error diagnostics in systems and machines for SIMATIC S7 and SIMATIC HMI (see HMI Software/process diagnostics software SIMATIC ProAgent)
- WinAC MP 2007 Software PLC for Multi Panels. The I/O can be connected using PROFIBUS DP.
- WinCC flexible /Sm@rtAccess; Remote operation and monitoring as well as communication between different SIMATIC HMI systems (see HMI Software/runtime software SIMATIC WinCC flexible/WinCC flexible RT options)
- WinCC flexible/Sm@rtService; Remote maintenance and servicing of machines/plants via the intranet/Internet (see HMI Software/runtime software SIMATIC WinCC flexible/WinCC flexible RT options)
- WinCC flexible/OPC server Communication with applications (e.g. MES, ERP, or applications in the Office sector) from various manufacturers (see HMI Software/runtime software SIMATIC WinCC flexible/WinCC flexible RT options)

### SIMATIC MP 377

Technical specifications					
SIMATIC MP 377	12" Touch	12" Key	15" Touch	19" Touch	PRO 15" Touch
Supply voltage					
Supply voltage	24 V DC				
permissible range	+19.2 V to +28.8 V DC				
Memory					
Type of storage					
Туре	Flash / RAM				
Memory usable for project data/Options	12288 KB / 12288 KB				
Time					
Clock					
• Туре	Hardware clock, battery backed, synchronizable				
Protocols					
Protocols (terminal link)					
Sm@rtAccess	Yes	Yes	Yes	Yes	Yes
Configuration					
Configuration tool	WinCC flexible Standard Version 2007 or higher (to be ordered separ.)	WinCC flexible Standard Version 2007 or higher (to be ordered separ.)	WinCC flexible Standard Version 2007 or higher (to be ordered separ.)	WinCC flexible Standard Version 2007 or higher (to be ordered separ.)	WinCC flexible Standard Version 2007 or higher (to be ordered separ.)
Display					
Display type	TFT, 65 536 Colors				
Size	12.1" (246 mm x 184.5 mm)	12.1" (246 mm x 184.5 mm)	15" (304.1 mm x 228.1 mm)	19" (376.3 mm x 301.1 mm)	15" (304.1 mm x 228.1 mm)
Resolution (W x H in pixel)	800 x 600	800 x 600	1024 x 768	1280 x 1024	1024 x 768
MTBF backlighting (at 25 °C)	about 50,000 hours				
Operating mode					
Operating elements	Touch screen	Membrane keyboard	Touch screen	Touch screen	Touch screen
Function keys, programmable		36 function keys, 36 with LEDs			
System keys		38			
Touchscreen	analog, resistive		analog, resistive	analog, resistive	analog, resistive
Numeric/alphabetical input	Yes / Yes				
Connection for mouse/keyboard/barcode reader	USB / USB / USB				
Ambient conditions					
Max. permissible tilt angle without external ventilation	+/- 35°	+/- 35°	+/- 35°	+/- 35°	+/- 35°
Max. relative humidity (in %)	90%	90%	90%	90%	90%
Temperature					
Operation (vertical install.)	0 °C to +50 °C				
Transport, storage	-20 °C to +60 °C				

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#### SIMATIC MP 377

Technical specifications (co	ontinued)				
SIMATIC MP 377	12" Touch	12" Key	15" Touch	19" Touch	PRO 15" Touch
Degree of protection					
Front	IP65, NEMA 4, NEMA 12 (when installed)	IP65			
Rear	IP20	IP20	IP20	IP20	IP65
Certifications & Standards					
Certifications	CE, FM Class I Div. 2, cULus, EX-Zone 22, C-TICK, NEMA 4, NEMA 12	CE, cULus, C-TICK, NEMA 4, NEMA 12	CE, FM Class I Div. 2, cULus, EX-Zone 22, C-TICK, NEMA 4, NEMA 12	FM Class I Div. 2, cULus, EX-Zone 22, C-TICK, NEMA 4, NEMA 12	CE, cULus
I/O Options					
I/O devices	Printer, card reader, barcode reader				
Type of output					
LED colors		Red, green			
Acoustics	WAV sound signal				
Interfaces					
Interfaces	1 x RS422, 1 x RS485				
CF card slot	1 x CF card slot	1 x CF card slot	1 x CF card slot	1 x CF card slot	1 x CF card slot
Multi Media Card slot	1 x Multi Media Card slot	1 x Multi Media Card slot	1 x Multi Media Card slot	1 x Multi Media Card slot	1 x Multi Media Card slot
USB	2 x USB	2 x USB	2 x USB	2 x USB	2 x USB
Ethernet	2 x Ethernet (RJ45)				
Operating systems					
Operating system	Windows CE				
Functionality under WinCC flexible					
Applications/options	ProAgent, Internet Explorer, Soft-PLC, Word Viewer, Excel Viewer, PDF Viewer, Sm@rtService, Sm@rtAccess				
Number of Visual Basic scripts	100	100	100	100	100
Task planner	Yes	Yes	Yes	Yes	Yes
Help system	Yes	Yes	Yes	Yes	Yes
Status/control	with SIMATIC S7				
Message system					
<ul> <li>Number of messages</li> </ul>	4 000	4 000	4 000	4 000	4 000
<ul> <li>Bit messages</li> </ul>	Yes	Yes	Yes	Yes	Yes
<ul> <li>Analog messages</li> </ul>	Yes	Yes	Yes	Yes	Yes
Message buffer	Ring buffer (n x 1024 entries), retentive, maintenance-free				
Recipes					
Recipes	500	500	500	500	500
<ul> <li>Data records per recipe</li> </ul>	1 000	1 000	1 000	1 000	1 000
<ul> <li>Entries per data record</li> </ul>	1000	1000	1000	1000	1000
Recipe memory	128 kByte integrated Flash, expandable	128 kByte integrated Flash, expandabler	128 kByte integrated Flash, expandable	128 kByte integrated Flash, expandable	128 kByte integrated Flash, expandable

### SIMATIC MP 377

Technical specifications (continued)					
SIMATIC MP 377	12" Touch	12" Key	15" Touch	19" Touch	PRO 15" Touch
Functionality under WinCC					
Number of process images					
Process images	500	500	500	500	500
	4 096 <sup>1</sup> )	4.096 1)	4.096 1)	4.006 1)	4.096 1)
	4 096	4 096	4 096 7	4 096	4 090 7
Limit values	Yes	Yes	Yes	Yes	Yes
	res	res	res	res	res
Image elements	20,000 tout along ante	20.000 tout along onto	20.000 tout along onto	20,000 tout along ante	20.000 tout alamanta
	30,000 text elements				
Graphics object	Bit maps, icons, vector graphics	Bit maps, icons, vector graphics	Vector graphics	Bit maps, icons, vector graphics	Bit maps, icons, vector graphics
<ul> <li>dynamic objects</li> </ul>	Diagrams, bar graphs, sliders, analog display, invisible buttons				
Lists					
Text lists	500	500	500	500	500
<ul> <li>Graphics list</li> </ul>	500	500	500	500	500
Libraries	Yes	Yes	Yes	Yes	Yes
Archiving					
• Number of archives per project	50	50	50	50	50
<ul> <li>Number of measuring points per project</li> </ul>	50	50	50	50	50
Number of entries per archive	50 000	50 000	50 000	50 000	50 000
Archiving types	Sequence archive, short-term archive, alarm log, process value archive				
Memory location	CF card, SD/MMC card, Ethernet, USB memory stick				
Data storage format	CSV file, readable, e.g. with MS Excel, MS Access				
<ul> <li>external evaluation</li> </ul>	Readable, e.g. with MS Excel, MS Access, etc.				
• Size of archive	depending on free memory on ext. card/stick or on free hard disk space via network drive	depending on free memory on ext. card/stick or on free hard disk space via network drive	depending on free memory on ext. card/stick or on free hard disk space via network drive	depending on free memory on ext. card/stick or on free hard disk space via network drive	depending on free memory on ext. card/stick or on free hard disk space via network drive
<ul> <li>Online evaluation</li> </ul>	Using trends				
Security					
<ul> <li>Number of user groups</li> </ul>	50	50	50	50	50
<ul> <li>Passwords exportable</li> </ul>	Yes	Yes	Yes	Yes	Yes
<ul> <li>Number of user rights</li> </ul>	32	32	32	32	32
Data medium support					
• CF card	Yes	Yes	Yes	Yes	Yes
<ul> <li>Multi Media Card</li> </ul>	Yes	Yes	Yes	Yes	Yes
Recording					
Recording/Printing	Alarms, report (shift report), color print, hardcopy				
Printer driver	ESC/P2, PCL3/PCL6				
Fonts					
<ul> <li>Keyboard fonts</li> </ul>	US American (English)				

<sup>1)</sup> WinCC flexible 2008 or higher

#### **SIMATIC MP 377**

### Technical specifications (continued)

SIMATIC MP 377	12" Touch	12" Key	15" Touch	19" Touch	PRO 15" Touch
Functionality under WinCC flexible (continued)					
Languages					
<ul> <li>Online languages</li> </ul>	16	16	16	16	16
Configuration languages	D, GB, F, I, E, CHN "traditional", CHN "simplified", DK, FIN, GR, J, KP / ROK, NL, N, PL, P, RUS, S, CZ / SK, TR, H	D, GB, F, I, E, CHN "traditional", CHN "simplified", DK, FIN, GR, J, KP / ROK, NL, N, PL, P, RUS, S, CZ / SK, TR, H	D, GB, F, I, E, CHN "traditional", CHN "simplified", DK, FIN, GR, J, KP / ROK, NL, N, PL, P, RUS, S, CZ / SK, TR, H	D, GB, F, I, E, CHN "traditional", CHN "simplified", DK, FIN, GR, J, KP / ROK, NL, N, PL, P, RUS, S, CZ / SK, TR, H	D, GB, F, I, E, CHN "traditional", CHN "simplified", DK, FIN, GR, J, KP / ROK, NL, N, PL, P, RUS, S, CZ / SK, TR, H
• Fonts	Tahoma, Arial, Courier New, symbol languages, 4 addi- tional character sets can be loaded, all freely scalable	Tahoma, Arial, Courier New, symbol languages, 4 addi- tional character sets can be loaded, all freely scalable	Tahoma, Arial, Courier New, symbol languages, 4 addi- tional character sets can be loaded, all freely scalable	Tahoma, Arial, Courier New, symbol languages, 4 addi- tional character sets can be loaded, all freely scalable	Tahoma, Arial, Courier New, symbol languages, 4 addi- tional character sets can be loaded, all freely scalable
Transfer (Upload/Download)					
<ul> <li>Transfer of configuration</li> </ul>	MPI/PROFIBUS DP, serial, USB, Ether- net, by means of external storage medium, automatic transfer recognition	MPI/PROFIBUS DP, serial, USB, Ether- net, by means of external storage medium, automatic transfer recognition	MPI/PROFIBUS DP, serial, USB, Ether- net, by means of external storage medium, automatic transfer recognition	MPI/PROFIBUS DP, serial, USB, Ether- net, by means of external storage medium, automatic transfer recognition	MPI/PROFIBUS DP, serial, USB, Ether- net, by means of external storage medium, automatic transfer recognition
Process coupling					
Connection to controller	S5, S7-200, S7-300/ 400, TI 505, Win AC, PC (TCP/IP), SINUMERIK, SIMOTION, Allen Bradley (DF1), Allen Bradley (DF485), Mitsubishi (FX), OMRON (LINK/Multilink), Modicon (Modbus), see "System interfaces"	S5, S7-200, S7-300/ 400, TI 505, Win AC, PC (TCP/IP), SINUMERIK, SIMOTION, Allen Bradley (DF1), Allen Bradley (DF485), Mitsubishi (FX), OMRON (LINK/Multilink), Modicon (Modbus), see "System interfaces"	S5, S7-200, S7-300/ 400, TI 505, Win AC, PC (TCP/IP), SINUMERIK, SIMOTION, Allen Bradley (DF1), Allen Bradley (DF485), Mitsubishi (FX), OMRON (LINK/Multilink), Modicon (Modbus), see "System interfaces"	S5, S7-200, S7-300/ 400, TI 505, Win AC, PC (TCP/IP), SINUMERIK, SIMOTION, Allen Bradley (DF1), Allen Bradley (DF485), Mitsubishi (FX), OMRON (LINK/Multilink), Modicon (Modbus), see "System interfaces"	S5, S7-200, S7-300/ 400, TI 505, Win AC, PC (TCP/IP), SINUMERIK, SIMOTION, Allen Bradley (DF1), Allen Bradley (DF485), Mitsubishi (FX), OMRON (LINK/Multilink), Modicon (Modbus), see "System interfaces"
Expandability/openness					
Open Platform Program	Yes	Yes	Yes	Yes	Yes
Dimensions					
Front of enclosure (W x H) in mm	335 x 275	483 x 310	400 x 310	483 x 400	400 x 310
Mounting cutout/Device depth (W x H/D) in mm	310 x 248 / 72	450 x 290 / 59	367 x 289 / 72	449 x 379 / 75	367 x 289 / 72
Weights					
Weight	3.8 kg	5.5 kg	4.7 kg	7.7 kg	4.7 kg

### SIMATIC MP 377

Ordering data	Order No.		Order No.
SIMATIC MP 377		Complete pre-assembled package	s SIMATIC MP 377 with WinAC
Multi Panel (including installation		MP 2007 (continued)	CANC CEO 40001 0440
• 10" color TET display Touch	GANG GAA OA AO1 DAYO	MD 277 15" Touch	6AV6 652-4GC01-2AA0
• 12 color TFT display, Touch F	6AV6 644-0AA01-2AA0	Single license for MP 377 on	
• 12 color TFT display, Reyboard F	6AV6 6/4-06A01-2AX1	USB stick <sup>2)</sup>	
• 19" color TET display, Touch E	6AV6 644-0AC01-2AX0	<ul> <li>Standard Multimedia Card</li> </ul>	
PBO 15" color TET display	6AV6 644-2AB01-2AX0	(empty)	
Touch <sup>1)</sup>		Package MP 377 19" Touch" F	6AV6 652-4HC01-2AA0
Configuring		MP 377 19" Touch	
with SIMATIC WinCC flexible		<ul> <li>Single license for MP 377 on USB stick<sup>2)</sup></li> </ul>	
Configuration set MP 377 D	6AV6 622-0BA01-0AA0	Standard Multimedia Card	
Consisting of:		(empty)	
WinCC flexible Standard     engineering software		Applications/Options When configuration with	see HMI Software
Documentation DVD, 5 lang.		WinCC flexible	
(English, French, German,		<ul> <li>WinCC flexible/ProAgent</li> </ul>	
• BS 232 cable (5 m)		<ul> <li>WinCC flexible/Sm@rtAccess</li> </ul>	
• MPL cable 5 m (for download		WinCC flexible/Sm@rtService	
and test purposes only)		WinCC flexible/OPC Server	
Starter packages		WinCC flexible/Audit	
SIMATIC MP 377 12" Touch F	6AV6 652-4FA01-0AA0	WinAC MP 2007/Software PLC	
Starter Package		Documentation (to be ordered sep	parately)
COMPRISING:		MP 377 Operating Instructions	
SIMATIC MP 377 12" Touch		• German	6AV6 691-1DR01-0AA0
SIMATIC WINCC flexible     STANDARD 2008		• English	6AV6 691-1DR01-0AB0
SIMATIC HMI Manual Collection		• French	6AV6 691-1DR01-0AC0
Voucher for Software Update		• Italian	6AV6 691-1DR01-0AD0
Service for 1 year		• Spanish	6AV6 691-1DR01-0AE0
MPI cable, 5 m (for download and test purposes only)		WinCC flexible Compact/ Standard/Advanced	
SIMATIC MP 377 15" Touch F	6AV6 652-4GA01-0AA0	• Cormon	6AV6 601 1AP01 2AA0
			6AV6 601 1AB01 2AB0
COMPRISING:		• English	6AV6 601-1AB01-3AC0
SIMATIC WP 377 15 TOUCH			6AV6 691-1AB01-3AD0
STANDARD 2008		Spanish	6AV6 691-1AB01-3AE0
SIMATIC HMI Manual Collection			
Voucher for Software Update		WinCC flexible Communication	
Service for 1 year		• German	6AV6 691-1CA01-3AA0
<ul> <li>IVIPI cable, 5 m (for download and test purposes only)</li> </ul>		• English	6AV6 691-1CA01-3AB0
Complete pre-assembled packages	SIMATIC MP 377 with	• French	6AV6 691-1CA01-3AC0
WinAC MP 2007		• Italian	6AV6 691-1CA01-3AD0
Package MP 377 12" Touch F	6AV6 652-4FC01-2AA0	• Spanish	6AV6 691-1CA01-3AE0
• MP 377 12" Touch		SIMATIC HMI Manual Collection B	6AV6 691-1SA01-0AX0
<ul> <li>Single license for MP 377 on USB stick<sup>2)</sup></li> </ul>		Electronic documentation, on DVD	
Standard Multimedia Card     (empty)		5 languages (English, French, German, Italian and Spanish);	
Package MP 377 12" Key F	6AV6 652-4EC01-2AA0	contains: all currently available	
• MP 377 12" Key		communication manuals for	
<ul> <li>Single license for MP 377 on USP stick<sup>2</sup></li> </ul>		SIMATIC HMI	
Standard Multimodia Card		Accessories	
(empty)		Accessories for supplementary ordering	See HM Accessories

- An adapter set is required for mounting. See Chapter 8 "Fully enclosed HMI units".
- <sup>2)</sup> For license handling only

- B) Subject to export regulations: AL: N and ECCN: EAR99SD) Subject to export regulations: AL: N and ECCN: 5D992B1
- F) Subject to export regulations: AL: N and ECCN: 5D002ENC3

### **Operator Control and Monitoring Devices** Multi Panels – 370 series

#### **SIMATIC MP 377**

#### Dimensions







MP 377 12" Touch



MP 377 19" Touch



MP 377 15" Touch



MP 377 PRO 15"

#### SIMATIC WinAC MP

#### Overview



- WinAC MP, the software PLC based on Windows CE
- An optimized version is available for all current MP platforms
- The economical solution for all applications in combination with a rugged hardware platform
- Ideal for tasks on the machine level, saves space and costs
- Best service concept, backup/restore of all data on a standard SD card, standard Multi Media Card or standard USB stick

#### Application

The WinAC MP is a new, rugged software PLC for all SIMATIC HMI Multi Panel platforms. It has been developed for smaller and medium-sized applications that do not depend on the last millisecond and costs are in the forefront. The WinAC uses proven tools such as STEP 7 (V5.4/SP1 or higher) and WinCC flexible (Standard or higher as of version 2007). This makes it possible to upgrade or switch without any extra training for new tools. The operator interface of the WinAC MP is included. Users can thus copy the required operator controls into their project. Of course, all operator functions of the WinAC MP are available in the function list after installing the option on the configuration computer in WinCC flexible (as of version 2007)! The peripherals are connected via PROFIBUS DP. Here, ET I/O modules up to technology modules are available.

#### Processing WinCC flexible projects

WinCC flexible projects are processed with WinCC flexible 2007 (as of the Standard version) and STEP 7 V5.4 from SP 1.

If WinCC flexible is integrated and operated in STEP 7, a common database offers the highest degree of programming comfort, which ensures an optimal continuity when creating your applications. Program faults are therefore avoided from the outset.

#### Service concept

All data, operating systems, HMI data, PLC data, archives, recipes, licenses, etc., can be stored on a standard memory medium<sup>1</sup>) with the press of a button. The only exception is the content of the M-RAM memory (current status of bit memories, timers, counters and data blocks). This is not necessary for the restore procedure, however. The function Backup/Restore therefore offers an extensive and perfect service concept.

1) Memory media released by Siemens are preferred

#### Design

The WinAC MP is functionally very closely based on a hardware CPU and is a real alternative for price-sensitive applications that require the stability and ruggedness of a hardware solution.

The functions of the WinAC MP are integrated directly in WinCC flexible and STEP 7 during the installation on the configuration computer. This ensures that every user can freely configure and if necessary block access to, for example, the start/stop button or the LEDs in the SIMATIC HMI project. Of course a prefabricated user interface will be delivered as an example.

Retentivity of the timers, counters, flags and data blocks is ensured by the Multi Panel hardware as with a hardware CPU. A UPS is not required.

The time distribution on the Multi Panel between WinAC MP and HMI Runtime is predefined and can be adapted to the relevant application.

For time-critical applications, an OB35 time block (min. clockpulse rate 1 ms) is available for processing the time-critical signals. Direct responses can be integrated into the process with OB40 (I/O alarms) as well. For service and optimization purposes, there are diverse functions available such as a histogram for cycle times that can be embedded in the user's SIMATIC HMI project.

#### Versions

Different WinAC MP versions are available. The versions define new CPU performance classes.

- The versions are optimized for the Multi Panel platforms. These versions, namely WinAC MP 177, 277 to 377 are based roughly on the hardware CPUs 314, 315 and 317. They have similar quantity frameworks but are not a 1:1 copies.
- All limit values, e.g. number of bit memories, DBs, FCs, I/Os, etc., are preset as with a hardware CPU and cannot be changed by the user. Detailed technical data is provided in chapter "Technical Data".

#### SIMATIC WinAC MP

#### Function

The principle of operation and the instruction set of the WinAC MP is basically identical to a hardware CPU. The settings for the WinAC MP-specific parameters are implemented by means of the Hardware Config. Since WinAC MP and HMI application share a processor, however, there is a special response regarding the timing of the WinAC MP. All PLC commands are more quickly processed multiple times faster than on a hardware CPU, but this is required to created time reserves for the HMI application. The potential for time optimization improves with larger PLC programs. As of WinAC MP 2008, a fixed enabling time must be set for the HMI. The default for this time is 50 ms. Users can change this time to achieve optimal performance of the application.

In practice, this means an OB1 executes faster on a soft CPU and the time gained can be used for HMI Runtime. Another advantage of the WinAC MP is that the HMI application can always be interrupted by WinAC MP time and process alarms.

Fast key response times can also be used with the implemented function "DP direct keys" with the WinAC MP. This provides another performance advantage of the WinAC MP.

#### Integration

#### Installation/licensing

The installation conceivably easy. With ProSave (integrated in WinCC flexible), the WinAC MP option is simply loaded onto the panel. The WinAC MP then reacts similarly to an integrated hardware CPU.

A license key is required for the WinAC MP. The license key is always provided together with the WinAC MP. The license key is located on a standard USB stick and must be loaded separately on the Multi Panel after installation of the WinAC MP option.

#### Software bus

In addition to WinAC MP, a software bus is installed at the same time on a SIMATIC HMI Multi Panel. This is required to coordinate communication between the SIMATIC HMI application and WinAC MP. The software bus also includes an entire range of advantages for the user. For example, diverse upload and download routing mechanisms are supported. This enables, among other things, updating of SIMATIC products that are connected with the PROFIBUS DP side of the Multi Panel, even if the programming device is connected on the PROFINET side (Ethernet/LAN). Similar connections are naturally also possible for STEP7.

#### <u>I/Os</u>

The I/O can be connected via PROFIBUS DP. Standard components such as ET200 and the modules that can be used within are utilized. Diverse technological components can also be used with the ET200M in this constellation. In addition to normal standard ET I/Os, the following FM modules are released on the PROFIBUS:

- FM 350-1 counter module
- FM 350-2 counter module (8-channel)
- FM 351 positioning module
- FM 352 cam controller
- FM 353 positioning module for stepper motors
- FM 354 positioning module for servo motors
- FM 355 closed-loop control module
- FM 355-2 temperature control module
- FM 352-5 high-speed Boolean processor

#### Programming

Programming in accordance with IEC 6 1131-3 and configuration of WinAC MP are done with STEP 7 V5.4/SP1 (or higher) and the SIMATIC engineering tools for production technology. Thus all SIMATIC programming languages for WinAC MP are available as well.

The SIMATIC programming languages comply with the standard DIN EN 6.1131-3. This reduces the familiarization and training overhead. CFC, SCL and S7-Graf are also supported.

In addition, program modules that have been programmed for SIMATIC S7 hardware CPUs can be reused in WinAC MP without modifications as long as they were not designed for special features of a SIMATIC S7 CPU.

### SIMATIC WinAC MP

### Technical specifications

	WinAC MP 277	WinAC MP 377
Memory		
Type of storage		
• RAM		
- integrated	256 Kibyte	512 Kibyte
- expandable	No	No
Load memory		
- integrated RAM, max.	1.2 MByte	1.2 MByte
CPU/blocks		
DB		
• Number, max.	1 024; FBs+FCs+DBs= 1024	2 048; FBs+FCs+DBs= 2048
• Size, max.	64 Kibyte	64 Kibyte
FB		
• Number, max.	1 024; FBs+FCs+DBs= 1024	2 048; FBs+FCs+DBs= 2048
• Size, max.	64 Kibyte	64 Kibyte
FC		
• Number, max.	1 024; FBs+FCs+DBs= 1024	2 048; * max. 2048 total
• Size, max.	64 Kibyte	64 Kibyte
OB		
• Number, max.	18	18
• Size, max.	64 Kibyte	64 Kibyte
Nesting depth		
<ul> <li>per priority class</li> </ul>	8	16
<ul> <li>additional within an error OB</li> </ul>	2	2
Times/counters and their remanence		
S7 counter		
Number	256	512
<ul> <li>of which remanent without battery</li> <li>adjustable</li> </ul>		
- lower limit	Yes	Yes
- upper limit	0	0
	256	512
Remanence     adjustable	Yes	Yes
- preset	8	8
Counting range     lower limit	0	0
- upper limit	999	999
IEC counter		
• present	Yes; SFB0, SFB1, SFB2	Yes; SFB0, SFB1 SFB2

	WinAC MP 277	WinAC MP 377	
Times/counters and their			
remanence (continued)			
S7 times	050	5.4.0	
Number	256	512	
of which remanent without battery			
	Yes	Yes	
- lower limit	0	0	
- upper limit	256	512	
Remanence     adjustable	Yes	Yes	
- preset	0	0	
Time range			
- IOWER IIMIT	10 ms	10 ms	
- upper limit	9 990 s	9 990 s	
IEC timer			
• present	Yes; SFB3, SFB4, SFB5	Yes; SFB3, SFB4, SFB5	
Data areas and their remanence			
Retentive data area in total (incl. times, counters, flags), max.	128 Kibyte	256 Kibyte	
Flag			
• Number, max.	2 Kibyte	4 Kibyte	
<ul> <li>Remanence available</li> </ul>	Yes	Yes	
Data blocks			
• Number, max.	1 024	2 048	
• Size, max.	64 Kibyte	64 Kibyte	
Local data			
• per priority class, max.	16 384 byte; Max. for all priority classes	16 384 byte; Max. for all priority classes	
Address area			
I/O address area			
Inputs	4 Kibyte	8 Kibyte	
Outputs	4 Kibyte	8 Kibyte	
Process image			
Inputs	2 Kibyte	2 Kibyte	
Outputs	2 Kibyte	2 Kibyte	
<ul> <li>Inputs, adjustable</li> </ul>	2 Kibyte	2 Kibyte	
<ul> <li>Outputs, adjustable</li> </ul>	2 Kibyte	2 Kibyte	
<ul> <li>Inputs, preset</li> </ul>	512 byte	512 byte	
Outputs, preset	512 byte	512 byte	
<ul> <li>consistent data, max.</li> </ul>	32 byte	32 byte	
Hardware config.			
Number of DP masters			
<ul> <li>integrated</li> </ul>	1	1	
Time			
Operating hours counter			
• Number	8	8	
<ul> <li>Number/Number range</li> </ul>	0 to 7	0 to 7	

### SIMATIC WinAC MP

### Technical specifications (continued)

	WinAC MP 277	WinAC MP 377
S7 message functions		
Process diagnostic messages	Yes	Yes
Test commissioning functions		
Status/control		
Status/control variable	Yes; Status blocks, single step, breakpoint	Yes; Status blocks, single step, breakpoint
Forcing		
• Forcing	No	No
Diagnostic buffer		
• present	Yes	Yes
<ul> <li>Number of entries, max.</li> </ul>	1 000; preset 120	1 000; preset 120
<ul> <li>adjustable</li> </ul>	Yes	Yes
Communication functions		
Number of logical connections (also in network), max.	16	32
PG/OP communication	Yes	Yes
Routing	Yes	Yes
Global data communication		
<ul> <li>supported</li> </ul>	No	No
S7 basic communication		
<ul> <li>supported</li> </ul>	No	No
S7 communication		
supported	Yes; PUT/GET, without BSEND/BRCV	Yes
• as server	Yes	Yes
• as client	Yes	Yes
<ul> <li>Useful data per job, max.</li> </ul>	0.48 Kibyte	0.48 Kibyte
Number of connections		
• overall	16; (DP max. 8, rest PN)	32; (DP max. 8, rest PN)
- of which static	14; DP max. 6, rest PN	30; DP max. 6, rest PN
<ul> <li>reserved for PG communication</li> </ul>	1	1
<ul> <li>reserved for OP communication</li> </ul>	1	1
<ul> <li>usable for routing</li> </ul>	6	16

	WinAC MP 277	WinAC MP 377
1st interface		
DP master		
• Number of connections, max.	8	8
Services		
- PG/OP communication	Yes	Yes
- Routing	Yes	Yes
- Global data communication	No	No
- S7 basic communication	No	No
- S7 communication	Yes	Yes
- equidistance support	No	No
- SYNC/FREEZE	Yes	Yes
<ul> <li>Activation/deactivation of DP slaves</li> </ul>	Yes	Yes
- DPV1	Yes	Yes
• Transmission speeds, max.	12 000 kBit/s	12 000 kBit/s
• Number of DP slaves, max.	32	32
<ul> <li>Address area</li> </ul>		
- Inputs, max.	2.048 Kibyte	8.192 Kibyte
- Outputs, max.	2.048 Kibyte	8.192 Kibyte
CPU/programming		
Configuration software		
• STEP 7	Yes	Yes
<ul> <li>WinCC flexible Compact</li> </ul>	No	No
WinCC flexible Standard	Yes	Yes
WinCC flexible Advanced	Yes	Yes
Programming language		
• LAD	Yes	Yes
• FUP	Yes	Yes
• AWL	Yes	Yes
Cycle time monitoring		
<ul> <li>adjustable</li> </ul>	Yes	Yes
• preset	6 000 ms	6 000 ms
Operating systems		
Operating system		
• Windows CE	Yes	Yes
Online languages		
Number	1; English	1; English

## Operator Control and Monitoring Devices Multi Panel options

### SIMATIC WinAC MP

Ordering data		Order No.			Order No.
WinAC MP, version	В	6ES7 671-5EF00-0YA0	Package MP 377 12" Touch	F	6AV6 652-4FC01-2AA0
			• MP 377 12" Touch		
ncl. a single license for MP 277			WinAC MP Version 377		
documentation			<ul> <li>Electronic documentation</li> </ul>		
WinAC MP, version WinAC MP 377 <sup>2)</sup>	В	6ES7 671-7EG00-0YA0	<ul> <li>Single license for MP 377 on USB stick<sup>1)</sup></li> </ul>		
incl. a single license for MP 377 on USB stick <sup>1)</sup> and electronic			<ul> <li>Standard SD card 256 MB (empty)</li> </ul>		
documentation			Package MP 377 12" Key	F	6AV6 652-4EC01-2AA0
Complete pre-assembled pack	age	s	• MP 377 12" Key		
Package MP 277 8" Touch	F	6AV6 652-3MC01-1AA0	WinAC MP Version 377		
• MP 277 8" Touch			<ul> <li>Electronic documentation</li> </ul>		
WinAC MP Version 277			• Single license for MP 377 on		
<ul> <li>Electronic documentation</li> </ul>			USB STICK ''		
<ul> <li>Single license for MP 277 on USB stick<sup>1)</sup></li> </ul>			• Standard SD card 256 MB (empty)		
<ul> <li>Standard SD card 256 MB</li> </ul>			Package MP 377 15" Touch	F	6AV6 652-4GC01-2AA0
(empty)			• MP 377 15" Touch		
Package MP 277 8" Key	F	6AV6 652-3LC01-1AA0	WinAC MP Version 377		
• MP 277 8" Kev			<ul> <li>Electronic documentation</li> </ul>		
WinAC MP Version 277			<ul> <li>Single license for MP 377 on USB stick<sup>1)</sup></li> </ul>		
Electronic documentation			Standard SD card 256 MB		
<ul> <li>Single license for MP 277 on USB stick<sup>1</sup>)</li> </ul>			(empty)		
Standard SD card 256 MB     (empty)			Package MP 377 19" Touch	F	6AV6 652-4HC01-2AA0
Package MP 277 10" Touch	F	6AV6 652-3PC01-1AA0	WinAC MP Version 377		
MD 077 10" Touch		0110 002-01 001-1AAU	Electronic documentation		
• $Wir 277 TO TOUCH$			<ul> <li>Single license for MP 377 on</li> </ul>		
Flectronic documentation			USĒ stick <sup>1)</sup>		
Single license for MP 277 op			Standard SD card 256 MB		
USB stick <sup>1)</sup>			(empty)		
<ul> <li>Standard SD card 256 MB (empty)</li> </ul>					
Package MP 277 10" Key	F	6AV6 652-3NC01-1AA0			
• MP 277 10" Key					
WinAC MP Version 277					
<ul> <li>Electronic documentation</li> </ul>					
<ul> <li>Single license for MP 277 on USB stick<sup>1)</sup></li> </ul>					
Standard SD card 256 MB (empty)					
<ol> <li>Subject to export regulations: Al</li> <li>Subject to export regulations: Al</li> </ol>	L: N .: N	and ECCN: EAR99S and ECCN: 5D002ENC3			

1) Can only be used for license handling

2) UCL version on request

### Operator Control and Monitoring Devices SIMATIC THIN CLIENT

#### SIMATIC THIN CLIENT

#### Overview



SIMATIC THIN CLIENT is another member of the SIMATIC Panel family. Its extremely rugged hardware makes it ideal for industrial use.

The following versions are available:

- The rack-mounting versions SIMATIC THIN CLIENT 10" Touch and SIMATIC THIN CLIENT 15" Touch.
- The support arm version SIMATIC THIN CLIENT PRO 15" Touch

with a rugged and very compact aluminum enclosure which is completely IP65 protected and therefore suitable for harsh ambient conditions.

#### Benefits

The SIMATIC THIN CLIENT is a *very economical* way of running a user station on-site on the machine. Typical application instances are a *second station* (WinCC flexible with Sm@rtAccess) in connection with another SIMATIC Panel or Panel PC.

Overcoming greater distances as *remote operation terminal* is enabled by using the existing Ethernet network.

The possibility of using *SCADA* and *Office functionality* (e.g. WinCC, SAP, MS-Excel) directly on the machine on-site supports the vertical integration of the data flow from host systems down to the machine level (e.g. warehouse utilization).

The SIMATIC THIN CLIENT communicates via SmartAccess or the Standard RDP (Remote Desktop Protocol) by Microsoft with a host (SIMATIC Panel, Panel PC or Server) and *does not itself require any installations, licenses or additional software on the THIN CLIENT.* 

#### Design

SIMATIC THIN CLIENT is installation-compatible with the Multi Panels MP 277 (10") and MP 377 (12" and 15").

The device has degree of protection IP54 (splash-proof), enclosure type 12 (indoor use only) and can be expanded with an options package to degree of protection IP65 (protected against water jets), enclosure type 4x/type 12 (indoor use only).

In addition, the SIMATIC THIN CLIENT has the following features:

- Ethernet interface for operating on PROFINET and Ethernet networks (with Auto-Cross-Over function for one-to-one connections between server and client via Ethernet cable)
- TFT screen with 64K colors
- Resolution:
  - 640 x 480 pixels (10")
  - 1024 x 768 pixels (15")
- SIMATIC THIN CLIENT can operate as
- Terminal Client (Sm@rtAccess and RDP) and as - WEB-Client (HTML)
- A mouse and a keyboard can be operated on the USB interface as external input media. The USB interface supports the industrial USB Hub 4.
- Printer and storage media are controlled via the host device

The new THIN CLIENT devices support automatic parameter definition with DHCP. As an alternative, you can also assign IP addresses manually. The PROFINET basic services (Lifelist, Topology view) are supported.

The SIMATIC THIN CLIENT has been available since Q3/2007 as an especially cost-effective solution.

#### THIN CLIENT PRO 15" Touch

The THIN CLIENT is also available in a support arm version:

- All-round IP65 protection
- Enclosure type 4x/type 12 (indoor use only)
- For mounting on support arm/pedestal
- 15" touch display
- Rugged die-cast aluminum housing
- Adaptation of the device optionally from above or below
- Direct connection to support arm systems of well-known manufacturers (e.g. Rittal, Bernstein, Rose, Rolec)
- Supports the globally established VESA 75/VESA 100 standard

### Operator Control and Monitoring Devices SIMATIC THIN CLIENT

#### SIMATIC THIN CLIENT

#### Mode of operation

Operation is possible via Touch or with a keyboard or mouse connected to a USB port. SIMATIC THIN CLIENT uses a 64K color display, a USB and an Ethernet interface. Both devices are compatible with the Multi Panels of corresponding size with regard to mounting cut-out and design.

The device is ideal as a second work station for larger systems because of the low price. Sm@rtAccess enables the connection with a WinCC flexible station. As a remote work station, the device can be run on machines with extremely high demands on mechanical robustness (e.g. vibration resistance).

#### Function

Commissioning is very simple. SIMATIC THIN CLIENT only needs an IP address and a host device that it can communicate with. It does not require any local software installations or configuration. There is thus no need to backup/restore or update the projects and total costs of ownership are significantly reduced.

#### Technical specifications

Integration

The RDP connection can be used for operating SCADA systems such as WinCC as well as office applications such as MS Excel or SAP direct on the THIN CLIENT at the machine on-site. Unlike Office viewers under Windows CE, data writing processes are also possible. RDP is a Microsoft standard protocol that is supported by all Windows operating systems. This makes it possible to visualize systems from other manufacturers on the SIMATIC THIN CLIENT and to link them into the system in this way.

SIMATIC THIN CLIENT can be operated in all systems in a PROFINET network or in Ethernet networks. As an alternative, a one-to-one connection with the host is also possible with an Ethernet cable. In this way, distances of 100 meters (with a switch even greater distances are possible) can be bridged, which means a clear cost reduction compared with the standard remote operator fronts via USB/DVI cable.

recipical specifications				
SIMATIC THIN CLIENT	10" Touch	15" Touch	PRO 15" Touch	
Supply voltage				
Supply voltage	24 V DC	24 V DC	24 V DC	
permissible range	+19.2 V to +28.8 V DC	+19.2 V to +28.8 V DC	+19.2 V to +28.8 V DC	
Memory				
Type of storage				
Туре	Flash / RAM	Flash / RAM	Flash / RAM	
Protocols				
Protocols (terminal link)				
Sm@rtAccess	Yes	Yes	Yes	
• RDP	Yes	Yes	Yes	
WEB characteristics				
LLDP	Yes	Yes	Yes	
HTTP	Yes	Yes	Yes	
XML	Yes	Yes	Yes	
HTML	Yes	Yes	Yes	
CSS	Yes	Yes	Yes	
Display				
Display type	TFT, 65536 Farben	TFT, 65536 Farben	TFT, 65536 Farben	
Size	10.4"	15.1"	15.1"	
Resolution (W x H in pixel)	640 x 480	1024 x 768	1024 x 768	
MTBF backlighting (at 25 °C)	about 50,000 hours	about 50,000 hours	about 50,000 hours	
Operating mode				
Operating elements	Touch screen	Touch screen	Touch screen	
Touchscreen	analog, resistive	analog, resistive	analog, resistive	
Connection for mouse/ keyboard/barcode reader	USB / USB	USB / USB	USB / USB	
EMC				
Emission of radio interferences to EN 55 011 (limit class A)	Yes; EN 61000-6-4, interference emission: Intended for use in industrial areas.	Yes; EN 61000-6-4, interference emission: Intended for use in industrial areas.	Yes; EN 61000-6-4, interference emission: Intended for use in industrial areas.	

### Operator Control and Monitoring Devices SIMATIC THIN CLIENT

#### SIMATIC THIN CLIENT

Technical specifications

SIMATIC THIN CLIENT	10" Touch	15" Touch	PRO 15" Touch	
Degree of protection				
Front	IP54 when installed, Enclosure type 12 (indoor use only); optionally IP65, Enclosure type 4X/Enclosure type 12 (indoor use only) (6AV6671-6AP00-0AX0)	IP54 when installed, Enclosure type 12 (indoor use only); optionally IP65, Enclosure type 4X/Enclosure type 12 (indoor use only) (6AV6671-6AP00-0AX0)	Complete unit IP65, Enclosure type 4X/type12 (indoor use only)	
Rear	IP20	IP20	Complete unit IP65, Enclosure type 4X/type12 (indoor use only)	
Certifications & Standards				
Certifications	CE, cULus, C-Tick	CE, cULus, C-Tick	CE, cULus, C-Tick	
Ambient conditions				
Max. permissible tilt angle without external ventilation	+/- 35°	+/- 35°	+/- 45°	
Max. relative humidity (in %)	85%; (Storage)	85%; (Storage)	85%; (Storage)	
Temperature				
Operation (vertical installation)	0 °C to +50 °C	0 °C to +50 °C	0 °C to +45 °C	
<ul> <li>Transport, storage</li> </ul>	-20 °C to +60 °C	-20 °C to +60 °C	-20 °C to +60 °C	
Interfaces				
Interfaces	1 x Ethernet (RJ45)	1 x Ethernet (RJ45)	1 x Ethernet (RJ45)	
USB	1 x USB	1 x USB	1 x USB	
Processor				
Processor	ARM, 266 MHz	ARM, 266 MHz	ARM, 266 MHz	
Dimensions				
Front of enclosure (W x H)	325 mm x 263 mm	400 mm x 310 mm	400 mm x 310 mm	
Mounting cutout/Device depth (W x H/D) in mm	310 mm x 248 mm / 65 mm device depth	368 mm x 290 mm / 65 mm device depth		
Weights				
Weight	2.2 kg	3.6 kg	6.5 kg	

Ordering data		Order No.
SIMATIC THIN CLIENT		
10" touch device	D	6AV6 646-0AA21-2AX0
15" touch device	D	6AV6 646-0AB21-2AX0
PRO 15" Touch device <sup>1)</sup>	D	6AV6 646-2AB21-2AX0
Starter packages:		
SIMATIC THIN CLIENT with Sm@rtAccess		
(License to operate SmartAccess on the server)		
Touch device 10" with Sm@rtAccess license (panels)	D	6AV6 653-6AA01-2AA0
Touch device 15" with Sm@rtAccess license (panels)	D	6AV6 653-6BA01-2AA0

	Order No.
Option packages:	
IP65 set (upgrade from IP54 to IP65)	6AV6 671-6AP00-0AX0
Cover foil 10"	6AV6 671-3DC00-0AX0
Cover foil 15"	6AV6 574-1AD00-4EX0
Protective cover 10"	6AV6 671-3CK00-0AX0
Accessories	see HMI accessories, from page 2/158

D) Subject to export regulations: AL: N und ECCN: 5D992B1

 An adapter set is required for mounting. See Chapter 8 "Fully enclosed HMI units".

### Operator Control and Monitoring Devices SIMATIC THIN CLIENT

SIMATIC THIN CLIENT

#### Dimensions

All specifications in mm. Tolerance ± 1 mm.





SIMATIC THIN CLIENT 10" Touch



SIMATIC THIN CLIENT PRO 15" Touch

SIMATIC THIN CLIENT 15" Touch

#### More information

#### Support Request:

Additional information is available in the Internet under: http://www.siemens.com/automation/support-request

#### Internet:

Additional information is available in the Internet under: http://www.siemens.com/automation/service&support

### Operator Control and Monitoring Devices System interfaces: Panels and runtime software

#### Introduction

#### Overview

SIMATIC Touch Panels (TP), Operator Panels (OP), Mobile Panels, Multifunctional Platforms (MP)<sup>1)</sup> and the SIMATIC HMI software package for PC WinCC flexible Runtime support HMI functionality in conjunction with:

- SIMATIC S7
- SIMATIC S5
- SIMATIC 505
- SIMOTION
- SINUMERIK<sup>2)</sup>
- Non-Siemens PLCs:
  - Allen Bradley PLC5/-11, 20, 30, 40, 60, 80 (DF1 protocol)
     or via KF2 module/DH+ network with PLC5 and SLC500/03, 04, 05
  - Allen Bradley SLC500/03, 04, 05 (DF1 protocol) or via KF-3 module/DH485 network with SLC500 and Micro Logix
  - Allen Bradley SLC500/00, 01, 02, 03, 04 and MicroLogix (DH485 protocol)
  - Allen Bradley ControlLogix and CompactLogix (Protocol Ethernet IP)
  - GE Fanuc 90-Micro, 90-30, 90-70 (SNP/SNPX protocol)
  - LG GLOFA GM with Cnet module (dedicated protocol)
  - Mitsubishi FX (FX protocol)
  - Mitsubishi FX, Series A, Series Q (MP 4 protocol)
  - Modicon 984-120, 130, 131, 141, 145, 380, 381, 385, 480, 485, 680, 685, 780, 785 (MODBUS protocol)
  - Modicon TSX Quantum CPU 113, 213, 424, 434, 534 and TSX Compact (MODBUS protocol)
  - Modicon Momentum, TSX Micro (TSX 37), TSX Premium (TSX 57), TSX Unity Premium, TSX Quantum or TSX Unity Quantum (Protocol MODBUS TCP/IP)
  - Omron SYSMAC C, SYSMAC  $\alpha$ , SYSMAC CV (Link/MultiLink protocol)
  - Telemecanique TSX 17, TSX 47/67/87/107 (UNI-TELWAY protocol)
  - Telemecanique TSX 37, TSX 57 (UNI-TELWAY protocol)

For more detailed information, refer to the ProTool or WinCC flexible User Manuals, the Communication Manual for Windows-based systems and the ProTool or WinCC flexible online help.

- <sup>1)</sup> For the sake of simplicity, SIMATIC TP/OP/MP is always used in the text below. This is not restrictive, as the information is valid for all systems referred to above. If there are constraints, direct reference is made to them in the text.
- <sup>2)</sup> Required under WinCC flexible: "SINUMERIK HMI copy license WinCC flexible CE" and "SINUMERIK HMI copy license OA". For configuring, a "SINUMERIK HMI engineering package WinCC flexible" is also necessary.

#### Note:

Interface options for HMI devices: See the individual device descriptions.

#### Extended functionality with WinCC flexible

WinCC flexible supports OPC communication for Multi Panel and WinCC flexible Runtime and HTTP communication for all panels with integrated Ethernet interface. Both OPC and HTTP communication can be used in parallel with the process links to SIMATIC S7/S5/505 or non-Siemens PLCs.

### OPC Data Access (MP 277, MP 377 WinCC flexible Runtime only)

OPC Data Access is an open standard for exchanging both local and remote variables between various applications via Industrial Ethernet. The original version of OPC is based on Microsoft COM/DCOM and, therefore, requires a Microsoft Windowsbased PC operating system (not Windows CE) on both clients and servers. As OPC XML, communication is based on the Internet standard SOAP/XML and is, therefore, suitable for embedded systems with Windows CE.

Options that are required: WinCC flexible/OPC Server.

### HTTP communication for the variable exchange between SIMATIC HMI systems

(only TP 177B DP/PN, OP 177B DP/PN, Mobile Panel 177 PN, TP 277, OP 277, Mobile Panel 277, Mobile Panel 277 IWLAN, MP 277, MP 377, WinCC flexible Runtime)

Communication based on HTTP message frames enables variables to be exchanged between SIMATIC HMI systems. Options that are required: WinCC flexible/Sm@rt Access.
Introduction

Overview (continued)								
Communication standard	SIMATIC HMI							
Version	TP 177B DP/PN OP 177B DP/PN	TP 277 OP 277	MP277 MP 377	WinCC flexible Runtime	Connection via			
	Mobile Panel 177 PN	Mobile Panel 277						
		Mobile Panel 277 IWLAN						
OPC Data Access V2.0 + V1.1	I (COM)/V1.0 (XML)							
OPC client (COM/DCOM)	-	-	-	•	Industrial Ethernet (see Catalog IK PI)			
OPC server (COM/DCOM)	-	-	-	•1)	Industrial Ethernet (see Catalog IK PI)			
OPC XML client (SOAP/XML)	-	-	-	•2)	Industrial Ethernet (see Catalog IK PI)			
OPC XML server (SOAP/XML)	-	-	•3)	-	Industrial Ethernet (see Catalog IK PI)			
HTTP communication for var	iable exchange between S	SIMATIC HMI systems	5					
HTTP client	•4)	•4)	•4)	•5)	Industrial Ethernet (see Catalog IK PI)			
HTTP server	•4)	•4)	•4)	• <sup>5)</sup>	Industrial Ethernet			

• System interface possible

- System interface not possible

1) Option WinCC flexible/OPC Server for WinCC flexible Runtime required

- Only with DCOM/XML gateway included in the scope of delivery of WinCC flexible for access to MP277, MP377 and MP 370 OPC XML servers
- <sup>3)</sup> Option WinCC flexible/OPC Server for SIMATIC Multi Panel required
- Option WinCC flexible/Sm@rtAccess for SIMATIC Panel required
- 5) Option WinCC flexible/Sm@rtAccess for WinCC flexible Runtime required

### SIMATIC S7

### Overview

The following types of interface are supported in respect of the link between SIMATIC TP/OP/MP and SIMATIC S7.

- PPI interface:
  - Link between SIMATIC TP/OP/MP and SIMATIC S7-200 via PPI. Communication runs on the PPI protocol, a standard FB as with SIMATIC S5 is not required.
- MPI interface:

Link from SIMATIC TP/OP/MP to SIMATIC S7 via the integrated PPI interface with S7-200 or MPI interface with S7-300/-400 or alternatively via the MPI interface of a separate interface module and the bus backplane to the SIMATIC S7-CPU. Communication runs on the MPI protocol (PG/OP communication), a standard FB as with SIMATIC S5 is not required.

• PROFIBUS interface:

Link from SIMATIC TP/OP/MP to SIMATIC S7 via the integrated PROFIBUS interface on the CPU or alternatively via the PROFIBUS interface on a separate interface module and the bus backplane to the SIMATIC S7-CPU. Communication runs on the MPI protocol (PG/OP communication), a standard FB as with SIMATIC S5 is not required.

• PROFINET interface:

Link from SIMATIC TP/OP/MP to SIMATIC S7 via the integrated PROFINET interface on the CPU or alternatively via the Industrial Ethernet interface on a separate interface module and the bus backplane to the SIMATIC S7-CPU. Communication runs on the MPI protocol (PG/OP communication), a standard FB as with SIMATIC S5 is not required.

The maximum possible number of S7 connections of one CPU is determined by its power (see Catalog ST 70); from the point of view of SIMATIC TP/OP/MPs the following restrictions apply:

- OP 73micro, TP 177micro: 1 connection
- OP 73: max. 2 connections
- OP 77A, TP 177A, OP 77B, TP177B, OP 177B, Mobile Panel 177: max. 4 connections
- TP 277, OP 277; Mobile Panel 277, MP 277, MP 377: max. 6 connections
- PC with WinCC flexible Runtime: max. 8 connections

#### PPI interface (not for OP73micro, TP 177micro, OP 73, OP 77A, TP 177A, OP 77B, Mobile Panel 177 PN, Mobile Panel 277 IWLAN)

From the point of view of the concept, the PPI interface is a pointto-point connection between <u>a SIMATIC TP/OP/MP</u> (PPI master) or alternatively a PG (PPI master) and an S7-200 (PPI slave).

However, a link between <u>a SIMATIC TP/OP/MP</u> and/or a PG and <u>an S7-200</u> (sequential logic point-to-point link, i.e. from the point of view of the S7-200 only one connection is ever active at any one time) is also possible (network topology: *PPI* only).

# MPI interface/PROFIBUS interface/Industrial Ethernet interface

The multipoint-capable communication interfaces of SIMATIC TP/OP/MP and SIMATIC S7 are used. Options are:

Interface between <u>one or a number of TP/OP/MPs (MPI</u> master) and <u>one or a number of S7-300/400s</u> or WinAC (MPI master).
 (possible network topology: *MPI/PROFIBUS/Industrial*

Ethernet)

Interface between <u>one or a number of TP/OP/MPs</u> (MPI master) and <u>one or a number of S7-200s</u> (MPI slave)<sup>1)</sup> (possible network topology: <u>PPI/MPI/PROFIBUS</u>)

Unlike PPI connections, MPI connections are static connections that are set up during booting and then monitored.

The original format of a master/master link has in the meantime been joined by a master/slave link, which has enabled integration of the S7-200 (except CPU 212).  $^{1)}$ 

In principle this type of information exchange between SIMATIC TP/OP/MP and SIMATIC S7 is independent of the network used, PPI, MPI, PROFIBUS or Industrial Ethernet: SIMATIC TP/OP/MPs are S7 clients and SIMATIC S7-CPUs are S7 servers.

<sup>1)</sup> Constraints with regard to baud rate for S7-200; see Catalog ST 70.

2

SIMATIC S7

### **Overview** (continued)

Controller	SIMATIC HMI			
Target hardware (PROTOCOL) (physics)	TD 100C TD 200 TD 200C TD 400C	OP 73 micro TP 177micro	OP 73	Connection via
SIMATIC S7 (PPI/MPI)				
via <i>PPI</i> on <b>S7-200 (PPI)</b>	● <sup>1)</sup>	-	-	MPI cable <sup>4)</sup>
via <i>MPI</i> or <i>PROFIBUS</i> ( <b>PG/OP communication</b> ) with <b>S7-200</b>	-	•2)	•3)	MPI cable <sup>4)</sup>
via <i>MPI</i> or <i>PROFIBUS</i> ( <b>PG/OP communication</b> ) with <b>S7-300, -400</b>	-	-	•3)	MPI cable <sup>4)</sup>
via <i>PPI</i> network <b>(PPI)</b> with max. 1 x <b>S7-200</b>	•1)	-	-	PPI network <sup>5)</sup>
via <i>PPI</i> network (PG/OP communication) with max. 4 x S7-200	•1)	•2)	•3)	PPI network <sup>5)</sup>
via <i>MPI</i> or <i>PROFIBUS</i> network ( <b>PG/OP communication</b> ) with max. 4 x <b>S7-200</b>	-	•2)	•3)	MPI or PROFIBUS network <sup>5)</sup>
via <i>MPI</i> or <i>PROFIBUS</i> network ( <b>PG/OP communication</b> ) with max. 4 x <b>S7-300, -400, WinAC</b>	-	-	•3)	MPI or PROFIBUS network <sup>5)</sup>
via Industrial Ethernet (TCP/IP) ( <b>PG/OP communication</b> ) with max. 4 x <b>S7-200, -300, -400,</b> <b>WinAC</b>	-	-	-	Industrial Ethernet

System coupling is possible

- System interface not possible

- <sup>1)</sup> TD series can only be interfaced with max. 1 x S7-200 via PPI (PPI/MPI); network operation (parallel PG, etc.) possible; Transfer rate max. 187.5 Kbit/s; cable included in scope of supply
- <sup>2)</sup> OP 73micro, TP 177 micro can only be interfaced with max. 1 x S7-200 (MPI); network operation (parallel PG, etc.) possible; Max. transmission rate 187.5 Kbit/s
- <sup>3)</sup> OP 73 can only be interfaced with max. 2 x SIMATIC S7 (MPI); network operation (parallel PG, etc.) possible; Max. transmission rate 1.5 Mbit/s
- <sup>4)</sup> MPI cable 6ES7 901-0BF00-0AA0 (max. 187.5 Kbit/s) included in PG scope of delivery
- 5) Bus connector 6GK1 500-0EA02

### **SIMATIC S7**

Controller	SIMATIC HMI				
Target hardware (PROTOCOL) (physics)	OP 77A TP 177A	OP 77B TP 177B DP OP 177B DP TP 177B DP/PN OP 177B DP/PN Mobile Panel 177 DP Mobile Panel 177 PN	TP 277 OP 277 Mobile Panel 277 Mobile Panel 277 IWLAN MP 177 MP 277 MP 377	WinCC flexible Runtime	Connection via
SIMATIC S7 (PPI/MPI)					
via <i>PPI</i> on <b>S7-200 (PPI)</b>	-	● <sup>1)2)</sup>	● <sup>1)2)</sup>	1)3)	MPI cable <sup>11)</sup>
via <i>MPI</i> or <i>PROFIBUS</i> ( <b>PG/OP communication</b> ) on <b>S7-200</b>	•4)	<b>2</b> (2)5)	<b>2</b> )5)	•3)5)	MPI cable <sup>11)</sup>
via <i>MPI</i> or <i>PROFIBUS</i> ( <b>PG/OP communication</b> ) with <b>S7-300, -400</b>	•4)	• <sup>2)</sup>	•2)	•3)	MPI cable <sup>11)</sup>
via <i>PPI</i> network <b>(PPI)</b> with max. 1 x <b>S7-200</b>	-	● <sup>1)2)</sup>	•1)2)	•1)3)	<b>PPI network</b> <sup>12)</sup> (see Catalog ST 70 and IK PI)
via <i>PPI</i> network ( <b>PG/OP communication)</b> with max. 4 x <b>S7-200</b>	•4)	<b>6</b> )	-	-	<b>PPI network</b> <sup>12)</sup> (see Catalog ST 70 and IK PI)
via <i>MPI</i> or <i>PROFIBUS</i> network ( <b>PG/OP communication</b> ) with max. 4 x <b>S7-200</b>	•4)	● <sup>2)5)</sup>	● <sup>2)5)</sup>	● <sup>3)5)</sup>	MPI or PROFIBUS network <sup>12)</sup> (see Catalogs ST 70 and IK PI)
via <i>MPI</i> or <i>PROFIBUS</i> network ( <b>PG/OP communication</b> ) with max. 4 x <b>S7-300, -400, WinAC</b>	•4)	•2)	•2)	•3)	MPI or PROFIBUS network <sup>12)</sup> (see Catalogs ST 70 and IK PI)
via Industrial Ethernet (TCP/IP) ( <b>PG/OP communication</b> ) with max. 4 x <b>S7-200, -300, -400,</b> <b>WinAC</b>	-	<b>●</b> 7)8)	● <sup>8)9)</sup>	● <sup>10)</sup>	Industrial Ethernet (see Catalog IK PI)

• System coupling is possible

- System interface not possible

 Can only be interfaced with max. 1 x S7-200 via PPI (PPI); network operation (parallel PG, etc.) possible

- <sup>2)</sup> Not Mobile Panel 177 PN, Mobile Panel 277 IWLAN; Mobile Panel 177 DP, Mobile Panel 277 connection via special connecting cable and junction box (see Mobile Panel); Please refer to the manual for cable assignment
- Connection via integrated MPI/PROFIBUS interface; use the CP 5611 A2 with a standard PC.
- 4) Max. transmission rate 1.5 Mbit/s
- <sup>5)</sup> Only on passive S7-200; OP 77B (MPI) also on active S7-200
- 6) Only OP 77B (MPI)
- 7) Only TP 177B DP/PN, OP 177B DP/PN, Mobile Panel 177 PN
- <sup>8)</sup> Mobile Panel 177 PN, Mobile Panel 277 connection via special connecting cable and junction box (see Mobile Panel); Please refer to the manual for cable assignment
- 9) Mobile Panel 277 IWLAN (wireless interface, see Mobile Panel)
- <sup>10)</sup> Connection via integrated Industrial Ethernet interface; use the CP 1612 with a standard PC
- <sup>11)</sup> MPI cable 6ES7 901-0BF00-0AA0 (max. 187.5 Kbit/s) included in PG scope of delivery (for download and test purposes only)
- 12) Bus connector 6GK1 500-0EA02

SIMATIC S5

### Overview

A variety of interfaces differing in respect of type and performance are available for linking SIMATIC TP/OP/MP to SIMATIC S5 (not S5-150U). However, a feature common to all is that from the point of view of the connected SIMATIC TP/OP/MP, the connection is always a logical point-to-point one, i.e. there is always a fixed assignment between a SIMATIC TP/OP/MP and a PLC.

### AS511 interface (only WinCC flexible Runtime)

S5-90U to -135U, -155U (except CPU 922 < Version 9, except CPU 928 [6ES5 928-3UA11], except CPU 946/947 [6ES5 94•-3UA11], except CPU 946/947 [6ES5 94•-3UA21], except CPU 946/947 [6ES5 94•-3UA22] < Version 5)

The AS511 interface runs via the PG interface of SIMATIC S5 and uses the associated CPU resources, i.e., the performance capability of the SIMATIC TP/OP/MP is determined by the performance capability of the SIMATIC CPU used.

### PROFIBUS DP interface (not for OP 77A, TP 177A, Mobile Panel 177 PN, Mobile Panel 277 IWLAN)

S5-115U, -135U, -155U via IM 308C or CP 5431 FMS/ DP (except CPU 922 < Version 9, except CPU 928 [6ES5 928-3UA11], except CPU 946/947 [6ES5 94•-3UA11], except CPU 946/947 [6ES5 94•-3UA21], except CPU 946/947 [6ES5 94•-3UA22] < Version 5)

The PROFIBUS DP interface supports the connection of:

- One or two SIMATIC TP/OP/MPs as SLAVES via a PROFIBUS network to a SIMATIC S5-95U with integrated PROFIBUS DP/master interface [6ES5 095-8ME01]
- Up to 30 SIMATIC TP/OP/MPs as SLAVES via a PROFIBUS network to a SIMATIC S5 with separate PROFIBUS DP/master interface IM 308C, or CP 5431 FMS/DP

Communication between SIMATIC TP/OP/MP (DP slave) and SIMATIC S5 (DP master) runs via PROFIBUS DP message frames in accordance with EN 50170 with higher-level "HMI profile". A function block which must be called for each connected SIMATIC TP/OP/MP is required in the PLC (FB is included in scope of delivery).

### **SIMATIC S5**

**Overview** (continued)

Controller	SIMATIC HMI				
Target hardware (PROTOCOL) (physics)	OP 77A TP 177A	OP 77B TP 177B DP OP 177B DP TP 177B DP/PN OP 177B DP/PN Mobile Panel 177 DP Mobile Panel 177 PN	TP 277 OP 277 Mobile Panel 277 Mobile Panel 277 IWLAN MP 177 MP 277 MP 377	WinCC flexible Runtime	Connection via
SIMATIC S5 (AS511)					
<b>S5-90U to 155U</b> except CPU 922 < version 9,	-	-	-	•	6ES5 734-1BD20 <sup>1)</sup> (3.2 m) 6XV1 440-2A
except CPU 928 (6ES5 928-3UA11) except CPU 946/947 (6ES5 943UA11, 6ES5 943UA21, 6ES5 943UA22 < version 5) (TTY)					(see HMI accesso- ries/connecting cables)
SIMATIC S5 (PROFIBUS DI	P + HMI)				
via <i>PROFIBUS DP</i> with 1 x <b>S5-95U/L2-DP/master</b> [6ES5 095-8ME02]	-	•2)	•2)	•3)	PROFIBUS <sup>4)</sup> (see Catalog ST 50/IK PI)
via PROFIBUS DP with IM 308C on S5-115U, -135U, -155U except CPU 922 < version 9, except CPU 928 (6ES5 928-3UA11), except CPU 946/947 (6ES5 943UA11, 6ES5 943UA21, 6ES5 943UA22 < version 5)	-	2)	2)		PROFIBUS <sup>4)</sup> (see Catalog ST 50/IK PI)
via <i>PROFIBUS DP</i> with <i>CP 5431 FMS/DP</i> on	-	• <sup>2)</sup>	•2)	•3)	PROFIBUS <sup>4)</sup>
S5-115U, -135U, -155U					ST 50/IK PI)
except CPU 922 < version 9, except CPU 928 (6ES5 928-3UA11), except CPU 946/947 (6ES5 943UA11, 6ES5 943UA21, 6ES5 943UA22, < version 5)					
<ul> <li>System interface possible</li> </ul>					

- System interface not possible

<sup>1)</sup> PC cable with integrated level converter RS 232/TTY

- Not Mobile Panel 177 PN, Mobile Panel 277 IWLAN; Mobile Panel 177 DP, Mobile Panel 277 connection via special connecting cable and junction box (see Mobile Panel); see manual for cable assignment.
- <sup>3)</sup> Connection via integrated MPI/PROFIBUS interface, use the CP 5611 A2 with a standard PC
- 4) Bus connector 6GK1 500-0EA02

### SIMATIC 505

### Overview

A variety of interfaces differing in respect of type and performance are available for linking SIMATIC TP/OP/MP to SIMATIC 505. However, a feature common to all is that from the point of view of the connected SIMATIC TP/OP/MP, the connection is always a logical point-to-point one, i.e., there is always a fixed assignment between a TP/OP/MP and a PLC

### NITP interface (not for OP 77A, TP 177A, Mobile Panel 177 PN. Mobile Panel 277 IWLAN)

The NITP connection runs via the PG interface of SIMATIC 505 and uses the associated CPU resources, i.e. the performance capability of the SIMATIC TP/OP/MP is determined by the performance capability of the SIMATIC CPU used.

### PROFIBUS DP interface (not for OP 77A, TP 177A, Mobile Panel 177 PN, Mobile Panel 277 IWLAN)

### SIMATIC 505 PLC or SIMATIC 545, SIMATIC 555 with CP 5434

With the PROFIBUS DP interface, up to 30 SIMATIC TP/OP/MPs can be connected as SLAVES to one SIMATIC 545, 555 via a PROFIBUS network, with plug-in PROFIBUS DP/master interface type CP 5434.

Communication between SIMATIC TP/OP/MP (DP/slave) and SI-MATIC 505 (DP/master) is implemented by means of PROFIBUS DP message frames in accordance with EN 50170 with higher-level "HMI profile". An application ladder which must be called for each connected SIMATIC TP/OP/MP is required in the PLC (example of application ladder included in ProTool scope of delivery).

Controller	SIMATIC HMI				
Target hardware (PROTOCOL) (physics)	OP 77A TP 177A	OP 77B TP 177B DP OP 177B DP TP 177B DP/PN OP 177B DP/PN Mobile Panel 177 DP Mobile Panel 177 PN	TP 277 OP 277 Mobile Panel 277 Mobile Panel 277 IWLAN MP 277 MP 377	WinCC flexible Runtime	Connection via
SIMATIC 505 (NITP)					
PLC 525, 535, 565T (RS 232)	-	•1)2)	● <sup>1)2)</sup>	•	<b>PPX: 2601 094-8001</b> <sup>3)</sup>
					See online help <sup>6)</sup>
<b>PLC 545, 555</b> (RS 232)	-	● <sup>1)2)</sup>	●1)2)	•	<b>PPX: 2601 094-8001</b> <sup>3)</sup>
					6xv1 440-2K (see HMI accessories/ connecting cables)
PLC 535, 545/CPU 1101, 565T (RS 422)	-	•1)	•1)	•4)	See online help <sup>6)</sup>
PLC 545/CPU 1102, 555 (RS 422)	-	•1)	•1)	•4)	See online help <sup>6)</sup>
SIMATIC 505 (PROFIBUS D	P + HMI)				
via <i>PROFIBUS DP</i> to 1 × <b>PLC 545, 555</b> with <b>CP 5434</b>	-	•1)	•1)	● <sup>5)</sup>	PROFIBUS <sup>7)</sup> (see Catalog ST 50/IK PI)

System interface possible

- System interface not possible

1)

Not Mobile Panel 177 PN, Mobile Panel 277 IWLAN; Mobile Panel 177 DP, Mobile Panel 277 connection via special connecting cable and junction box (see Mobile Panel); see manual for cable assignment.

- 2) For Touch Panel, Operator Panel, Multi Panel, the RS 422/RS 232 adapter 6AV6 671-8XJ00-0AX0 is required
- 3) A standard adapter (9-/25-pin male) is required on the PLC
- 4) A commercially available level converter (RS 232/RS 422) is required on the PC
- 5) Connection via integrated MPI/PROFIBUS interface, use the CP 5611 A2 with a standard PC
- 6) Detailed information (cable assignment) can be found in the online help for WinCC flexible and in the Communication User Manual for Windowsbased systems
- 7) Bus connector 6GK1 500-0EA02

### PLCs from other manufacturers

### Overview

### Allen Bradley

Two communication protocols are available for the interface between SIMATIC TP/OP/MP and Allen Bradley:

### DF1 interface (not for OP 77A, TP 177A, Mobile Panel 177 PN, Mobile Panel 277 IWLAN)

This communication between SIMATIC TP/OP/MP and Allen Bradley runs on the basis of the DF1 protocol; the following have been tested and released:

- Direct connection between a SIMATIC TP/OP/MP and the PG interface on an Allen Bradley PLC5 or the DF1 interface on an Allen Bradley SLC500 (point-to-point link)
- The integration of SIMATIC TP/OP/MP via Allen Bradley KF2 gateway in an Allen Bradley DH+ network. Communication is possible between SIMATIC TP/OP/MP and up to 4 SLC 500 PLCs or PLC5s (multipoint link from the point of view of the SIMATIC TP/OP/MP; only one connection possible with TP 170A)
- The integration of SIMATIC TP/OP/MP via Allen Bradley KF3 gateway in an Allen Bradley DH485 network. Communication is possible between SIMATIC TP/OP/MP and up to 4 PLCs type SLC 500 or MicroLogix (multipoint link from the point of view of the SIMATIC TP/OP/MP; only one connection possible with TP 170A)

### DH485 interface (not for OP 77A, TP 177A, Mobile Panel 177 PN, Mobile Panel 277 IWLAN)

This communication between SIMATIC TP/OP/MP and Allen Bradley runs on the basis of the DH485 protocol; the following have been tested and released:

- Direct connection between a SIMATIC TP/OP/MP and an Allen Bradley SLC500 or MicroLogix (point-to-point link)
- The integration of SIMATIC TP/OP/MP via Allen Bradley AIC adapter in an Allen Bradley DH485 network. Communication is possible between SIMATIC TP/OP/MP and up to 4 PLCs type SLC 500 or MicroLogix (multipoint link from the point of view of the SIMATIC TP/OP/MP; only one connection possible with TP 170A)
- The integration of SIMATIC TP/OP/MP (not PC with WinCC flexible Runtime) in an Allen Bradley DH485 network. Communication is possible between SIMATIC TP/OP/MP and up to 4 PLCs type SLC 500 or MicroLogix (multipoint link from the point of view of the SIMATIC TP/OP/MP; only one connection possible with TP 170A)

### Ethernet IP protocol (not for OP 77A, TP 177A, OP 77B, TP 177B DP, OP 177B DP, Mobile Panel 177 DP, Mobile Panel 277 IWLAN)

This communication between SIMATIC TP/OP/MP and Allen Bradley runs based on the Ethernet IP protocol; SIMATIC TP/OP/MP integration is tested and released in an Ethernet IP network. Communication is possible between SIMATIC TP/OP/MP and up to 4 ControlLogix or CompactLogix PLCs (multipoint link from the point of view of the SIMATIC TP/OP/MP)

### GE-Fanuc (not for OP 77A, TP 177A, Mobile Panel 177 PN, Mobile Panel 277 IWLAN)

Communication between SIMATIC TP/OP/MP and GE-Fanuc runs on the basis of the SNP protocol; the following have been tested and released:

- Direct connection between a SIMATIC TP/OP/MP and a GEF 90-Micro, 90-30 or 90-70 (point-to-point link)
- Integration of SIMATIC TP/OP/MP in an RS 422 network via adapter. Communication is possible between SIMATIC TP/OP/MP and up to 4 GEF 90-Micro, 90-30 or 90-70 PLCs (multipoint link from the point of view of the SIMATIC TP/OP/MP; only one connection possible with TP 170A)
- The integration of SIMATIC TP/OP/MP (not PC with ProTool/Pro Runtime or WinCC flexible Runtime) in an RS 422 network. Communication is possible between SIMATIC TP/OP/MP and up to 4 GEF 90-Micro, 90-30 or 90-70 PLCs (multipoint link from the point of view of the SIMATIC TP/OP/MP; only one connection possible with TP 170A)

### LG GLOFA GM (not with OP 77A, TP 177A, Mobile Panel 177 PN, Mobile Panel 277 IWLAN)

Communication between SIMATIC TP/OP/MP and LG GLOFA GM runs on the basis of the dedicated protocol; the following have been tested and released:

- Connection between a SIMATIC TP/OP/MP and an LG GLOFA GM with Cnet module (point-to-point link)
- Integration of SIMATIC TP/OP/MP in an RS 422 network via LG Cnet module. Communication is possible between SIMATIC TP/OP/MP (not PC with ProTool/Pro Runtime) and up to 4 LG GLOFA GM PLCs on the network (multipoint link from the point of view of the SIMATIC TP/OP/MP; only one connection possible with TP 170A)

### Mitsubishi (not for OP 77A, TP 177A, Mobile Panel 177 PN, Mobile Panel 277 IWLAN)

Two communication protocols are available for the interface between SIMATIC TP/OP/MP and Mitsubishi:

### FX protocol

This communication between SIMATIC TP/OP/MP and Mitsubishi runs on the basis of the FX protocol; the direct connection between a SIMATIC TP/OP/MP and the PG interface of a Mitsubishi FX/FX0 (logical point-to-point link) has been tested and released.

### MP4 protocol

This communication between SIMATIC TP/OP/MP and Mitsubishi runs on the basis of the MP4 protocol; the following have been tested and released:

- Direct connection between a SIMATIC TP/OP/MP and a Mitsubishi Series FX, Series A or Series Q (point-to-point link)
- Integration of SIMATIC TP/OP/MP in an RS 422 network via Mitsubishi converter FX-48SC-IF. Communication is possible between SIMATIC TP/OP/MP and up to 4 Series FX, Series A or Series Q PLCs (multipoint link from the point of view of the SIMATIC TP/OP/MP; only one connection possible with TP 170A)
- The integration of SIMATIC TP/OP/MP (not PC with ProTool/Pro Runtime or WinCC flexible Runtime) in an RS 422 network. Communication is possible between SIMATIC TP/OP/MP and up to 4 Series FX, Series A or Series Q PLCs (multipoint link from the point of view of the SIMATIC TP/OP/MP; only one connection possible with TP 170A)

### PLCs from other manufacturers

### **Overview** (continued)

### Modicon

Two communication protocols are available for the interface between SIMATIC TP/OP/MP and Modicon:

### MODBUS protocol (not with OP 77A, TP 177A, Mobile Panel 177 PN, Mobile Panel 277 IWLAN)

Communication between SIMATIC TP/OP/MP and Modicon runs on the basis of the MODBUS protocol; the following have been tested and released:

- Direct connection between a SIMATIC TP/OP/MP and the MODBUS interface on a Modicon 984, TSX Quantum or TSX Compact (point-to-point link)
- The integration of a SIMATIC TP/OP/MP via Modicon MODBUS PLUS bridge BM85-000/the bridge function on a MODICON 984-145/TSX Quantum in a MODBUS PLUS network and communication between SIMATIC TP/OP/MP (MODBUS/master) and up to 4 Modicon 984 or TSX Quantum PLCs (MODBUS/slave) on the network (multipoint link from the point of view of the SIMATIC TP/OP/MP; only one connection possible with TP 170A).

### MODBUS TCP/IP protocol (not for OP 77A, TP 177A, OP77B, TP 177B DP, OP 177B DP, Mobile Panel 177 DP, Mobile Panel 277 IWLAN)

Communication between SIMATIC TP/OP/MP and Modicon runs on the basis of the MODBUS TCP/IP protocol; the following have been tested and released:

- Integration of SIMATIC TP/OP/MP in a MODBUS TCP/IP network. Communication is possible between SIMATIC TP/OP/MP and up to 4 Momentum, TSX Micro (TSX 37), TSX Premium (TSX 57), TSX Unity Premium, TSX Quantum or TSX Unity Quantum PLCs (multipoint link from the point of view of the SIMATIC TP/OP/MP)
- The communication between SIMATIC TP/OP/MP via TCP/IP Modbus Plus Bridge 174 CEV 200 40 / MODBUS PLUS network and Modicon 984 (except 984A, 984B, 984X), TSX Compact, TSX Quantum or TSX Unity Quantum (multipoint link from the point of view of the SIMATIC TP/OP/MP)

### Omron (not for OP 77A, TP 177A, Mobile Panel 177 PN, Mobile Panel 277 IWLAN)

Communication between SIMATIC TP/OP/MP and Omron runs on the basis of the Link/MultiLink protocol; the following have been tested and released:

- Direct connection between a SIMATIC TP/OP/MP and an Omron Sysmac C, Sysmac  $\alpha$  or Sysmac CV (point-to-point link)
- Integration of SIMATIC TP/OP/MP in an RS 422 network via Omron converter NT-AL001. Communication is possible between SIMATIC TP/OP/MP and up to 4 Sysmac C, Sysmac  $\alpha$  or Sysmac CV PLCs (multipoint link from the point of view of the SIMATIC TP/OP/MP; only one connection possible with TP 170A)
- The integration of SIMATIC TP/OP/MP (not PC with ProTool/Pro Runtime or WinCC flexible Runtime) in an RS 422 network. Communication is possible between SIMATIC TP/OP/MP and up to 4 Sysmac C, Sysmac  $\alpha$  or Sysmac CV PLCs (multipoint link from the point of view of the SIMATIC TP/OP/MP; only one connection possible with TP 170A)

### Telemecanique<sup>1)</sup> (not for OP 77A, TP 177A, Mobile Panel 177 PN, Mobile Panel 277 IWLAN)

Data exchange between SIMATIC TP/OP/MP and Telemecanique runs on the basis of the UNI-TELWAY protocol; the following have been tested and released:

- Connection between a SIMATIC TP/OP/MP (UNI-T/slave) via Telemecanique outlet TSX SCA62 and a Telemecanique TSX 17 or TSX 47/67/87/107 (UNI-T/master) (logical point-topoint link)
- Connection between a SIMATIC TP/OP/MP (UNI-T/slave) via Telemecanique outlets TSX SCA62 + ACC01 and a Telemecanique TSX 37 or TSX 57 (UNI-T/master) (logical point-to-point link)
- The integration of a SIMATIC TP/OP/MP via Telemecanique outlet TSX SCA62 in a UNI-TELWAY network and communication between SIMATIC TP/OP/MP (UNI-T/slave) and up to 4 TSX 17, TSX 37, TSX 57 or TSX 47/67/87/107 PLCs (UNI-T/ master or slave) on the network (multipoint link from the point of view of the SIMATIC TP/OP/MP; only one connection possible with TP 170A).

1) Not for WinCC flexible Runtime

### PLCs from other manufacturers

**Overview** (continued)

Controller	SIMATIC HMI								
Target hardware (PROTOCOL) (physics)	OP 77A TP 177A	OP 77B TP 177B DP OP 177B DP TP 177B DP/PN OP 177B DP/PN Mobile Panel 177 DP Mobile Panel 177 PN	TP 277 OP 277 Mobile Panel 277 Mobile Panel 277 IWLAN MP 277 MP 377	WinCC flexible Runtime	Connection via				
Allen Bradley (DF1)									
SLC 500/03, 04, 05 or MicroLogix (RS 232)	-	●1)2)	● <sup>1)2)</sup>	•	<b>1747 CP3</b> <sup>7)</sup> See online help <sup>9)</sup>				
<b>PLC 5/11, 20, 30, 40, 60, 80</b> (RS 232)	-	● <sup>1)2)</sup>	1)2)	•	<b>1784 CP10</b> <sup>7)</sup> See online help <sup>9)</sup>				
PLC 5/11, 20, 30, 40, 60, 80 (RS 422)	-	● <sup>1)</sup>	•1)	-	See online help <sup>9)</sup>				
via <b>KF2 gateway</b> and <i>DH+ network</i> with up to 4 x <b>SLC 500/00, 01, 02, 03, 04</b> or <b>PLC 5/11, 20, 30, 40, 60, 80</b> (RS 232)	-	1)2)	1)2)	•	<b>1784 CP10</b> <sup>7)8)</sup> See online help <sup>9)</sup>				
via <b>KF3 gateway</b> and DH485 network with up to 4 x <b>SLC 500</b> or <b>MicroLogix</b> (RS 232)	-	1)2)	<b>●</b> 1)2)	•	<b>1784 CP10</b> <sup>7)8)</sup> See online help <sup>9)</sup>				
Allen Bradley (DH485)									
SLC 500/03, 04, 05 or MicroLogix (RS 232)	-	•1)2)	•1)2)	•	See online help <sup>9)</sup>				
via <b>AIC adapter</b> and <i>DH485 network</i> with up to 4 x <b>SLC 500</b> or <b>MicroLogix</b> (RS 232)	-	● <sup>1)2)</sup>	1)2)	•	See online help <sup>9)</sup>				
via <i>DH485 network</i> with up to 4 x <b>SLC 500</b> or <b>MicroLogix</b> (RS 485)	-	•1)	•1)	-	See online help <sup>9)</sup>				
Allen Bradley (Ethernet IP)									
via Ethernet IP network with up to 4 x ControlLogix or CompactLogix	-	•3)4)	<b>4</b> )5)	•6)	See online help <sup>9)</sup>				

• System interface possible

- System interface not possible

- Not Mobile Panel 177 PN, Mobile Panel 277 IWLAN; Mobile Panel 177 DP, Mobile Panel 277 connection via special connecting cable and junction box (see Mobile Panel); see manual for cable assignment.
- <sup>2)</sup> For Touch Panel, Operator Panel, Multi Panel, the RS 422/RS 232 adapter 6GK1 901-1BB10-2AA0 is required
- <sup>3)</sup> Only TP 177B DP/PN, OP 177B DP/PN, Mobile Panel 177 PN
- <sup>4)</sup> Mobile Panel 177 PN, Mobile Panel 277 connection via special connecting cable and junction box (see Mobile Panel); see manual for cable assignment.
- <sup>5)</sup> Not Mobile Panel 277 IWLAN (wireless interface, see Mobile Panel)
- $^{6)}$  Connection via integrated Industrial Ethernet interface; use the CP 1612 with a standard PC
- 7) Allen Bradley PC cable
- <sup>8)</sup> Cable for connection to KF2/KF3 gateway; a gander changer (25-pin socket/25-pin socket) is required on the gateway side
- <sup>9)</sup> Detailed information (cables used) can be found in the online help for WinCC flexible and in the Communication User Manual for Windowsbased systems

### PLCs from other manufacturers

Overview (continued)					
Controller	SIMATIC HMI				
Target hardware (PROTOCOL) (physics)	OP 77A TP 177A	OP 77B TP 177B DP OP 177B DP TP 177B DP/PN OP 177B DP/PN Mobile Panel 177 DP Mobile Panel 177 PN	TP 277 OP 277 Mobile Panel 277 Mobile Panel 277 IWLAN MP 277 MP 377	WinCC flexible Runtime	Connection via
GE-Fanuc (SNP)					
<b>GEF 90-Micro, 90-30, 90-70</b> (RS 232)	-	<b>1</b> )2)	<b>1</b> )2)	•	See online help <sup>4)</sup>
via <b>adapter</b> with up to 4 x <b>GEF 90-Micro, 90-30,</b> <b>90-70</b> (RS 232)	-	<b>1</b> )2)	1)2)	•	See online help <sup>4)</sup>
via <b>adapter</b> with up to 4 x <b>GEF 90-Micro, 90-30,</b> <b>90-70</b> (RS 422)	-	•1)	•1)	-	See online help <sup>4)</sup>
LG GLOFA (Dedicated)					
GLOFA-GM with Cnet module (RS 232)	-	<b>1</b> )2)	<b>1</b> )2)	•	See online help <sup>4)</sup>
With up to 4 x GLOFA-GM with Cnet module (RS 422)	-	•1)	•1)	-	See online help <sup>4)</sup>
Mitsubishi FX (Ethernet IP)					
<b>FX0</b> (RS 422)	-	-	-	•	SC-071 <sup>5)</sup>
		•1)	•1)	-	<b>6XV1 440-2P</b> (max. 20 m)
FX (RS 422)	-	-	-	•	SC-081 <sup>5)</sup>
		•1)	•1)	•	<b>6XV1 440-2P</b> (max. 20 m)
Mitsubishi (MP4)					
<ul> <li>Series FX with communications module</li> </ul>	-	<b>1</b> )2)	1)2) )	•	See online help <sup>4)</sup>
• Series A (AnN, AnA, AnU, AnS) with interface module					
• Series Q (QnA, QnAS) with interface module (RS 232)					
via <b>FX-48SC-IF converter</b> with up to 4 PLCs	-	<b>1</b> )2)	1)2)	•	See online help <sup>4)</sup>
Series FX with communications module					
• Series A (AnN, AnA, AnU, AnS) with interface module					
• Series Q (QnA, QnAS) with interface module (RS 232)					
with up to 4 PLCs	-	•1)	•1)	-	See online help <sup>4)</sup>
• Series FX with communica- tions module					
• Series A (AnN, AnA, AnU, AnS) with interface module					
• Series Q (QnA, QnAS) with interface module (RS 422)					

• System interface possible

- System interface not possible

- Not Mobile Panel 177 PN, Mobile Panel 277 IWLAN; Mobile Panel 177 DP, Mobile Panel 277 connection via special connecting cable and junction box (see Mobile Panel); see manual for cable assignment.
- <sup>2)</sup> For Touch Panel, Operator Panel, Multi Panel, the RS 422/RS 232 adapter 6GK1 901-1BB10-2AA0 is required
- <sup>3)</sup> With connection using a Mitsubishi PC cable, an 15-pin/9-pin adapter 6XV1 440-2UE32 is required
- <sup>4)</sup> Detailed information (cables used) can be found in the online help for WinCC flexible and in the Communication User Manual for Windowsbased systems

 $^{\rm 5)}~$  Mitsubishi PC cable with integrated level converter RS 232/RS422  $\,$ 

### PLCs from other manufacturers

Overview (continued)

Controller	SIMATIC HMI				
Target hardware (PROTOCOL) (physics)	OP 77A TP 177A	OP 77B TP 177B DP OP 177B DP TP 177B DP/PN OP 177B DP/PN Mobile Panel 177 DP Mobile Panel 177 PN	TP 277 OP 277 Mobile Panel 277 Mobile Panel 277 IWLAN MP 277 MP 377	WinCC flexible Runtime	Connection via
Modicon (MODBUS)					
984-120, 130, 131, 141, 145, 380, 381, 185, 480, 485, 680, 685, 780, 785, or TSX-Quan- tum-CPU 113, 213, 424, 434, 534 (RS 232)	-	1)2)	1)2)	•	See online help <sup>7)</sup>
via bridge BM85-000 or PLC with bridge functionality/ MODBUS PLUS – Network up to 4 x 984-120, or TSX Quantum – CPU 113, (RS 232)	-	● 1)2)	1)2)	•	See online help <sup>7)</sup>
TSX Compact (RS 232)	-	<ul><li>1)2)</li></ul>	● <sup>1)2)</sup>	•	See online help <sup>7)</sup>
Modicon (MODBUS TCP/IP)					
Via MODBUS TCP/IP – network to max. 4 x TSX Unity Quantum or TSX Unity Premium or TSX Quantum or TSX Quantum with TCP/IP module 140 NOE 771 01 or TSX Unity Premium or TSX Premium with TCP/IP module TSX ETY 110 or TSX Micro with TCP/IP module TSX ETY 110 or Momentum with CPU adapter 171 CCC 980 30	-	3)4)	4) 5)	6)	See online help <sup>7)</sup>
via TCP/IP-Modbus Plus Bridge174 CEV 200 40 / MODBUS PLUS – network to max. 4 x TSX Unity Quantum or TSX Quantum or TSX Compact or 984-120, (except 984A, 984B, 984X)	-	3)4)	4)5)	6)	See online help <sup>7)</sup>

• System interface possible

- System interface not possible

- Not Mobile Panel 177 PN, Mobile Panel 277 IWLAN; Mobile Panel 177 DP, Mobile Panel 277 connection via special connecting cable and junction box (see Mobile Panel); see manual for cable assignment.
- <sup>2)</sup> For Touch Panel, Operator Panel, Multi Panel, the RS 422/RS 232 adapter 6GK1 901-1BB10-2AA0 is required
- <sup>3)</sup> Only TP 177B DP/PN, OP 177B DP/PN, Mobile Panel 177 PN
- <sup>4)</sup> Mobile Panel 177 PN, Mobile Panel 277 connection via special connecting cable and junction box (see Mobile Panel); see manual for cable assignment.
- <sup>5)</sup> Not Mobile Panel 277 IWLAN (wireless interface, see Mobile Panel)
- <sup>6)</sup> Connection via integrated Industrial Ethernet interface; use the CP 1612 with a standard PC
- <sup>7)</sup> Detailed information (cables used) can be found in the online help for WinCC flexible and in the Communication User Manual for Windowsbased systems

### PLCs from other manufacturers

Overview (continued)					
Controller	SIMATIC HMI				
Target hardware (PROTOCOL) (physics)	OP 77A TP 177A	OP 77B TP 177B DP OP 177B DP TP 177B DP/PN OP 177B DP/PN Mobile Panel 177 DP Mobile Panel 177 PN	TP 277 OP 277 Mobile Panel 277 Mobile Panel 277 IWLAN MP 277 MP 377	WinCC flexible Runtime	Connection via
Omron (Link/MultiLink)					
<ul> <li>SYSMAC C (except CPU CQM1 – CPU 11/21)</li> <li>SYSMAC a</li> <li>SYSMAC CV (RS 232)</li> </ul>	-	1)2)	•1)2)	•	See online help <sup>3)</sup>
via <b>NT-AL001 converter</b> with up to 4 PLCs	-	● <sup>1)2)</sup>	● <sup>1)2)</sup>	•	See online help <sup>3)</sup>
• SYSMAC C (except CPU CQM1 – CPU 11/21)					
• SYSMAC a					
• SYSMAC CV (RS 232)					
with up to 4 PLCs	-	•1)	•1)	-	See online help <sup>3)</sup>
• SYSMAC C (except CPU CQM1 – CPU 11/21)					
SYSMAC a					
• SYSMAC CV (RS 422)					
Telemecanique (UNI-TELWAY)					
via <b>TSX SCA62 outlet</b> with <b>TSX 17</b> or <b>TSX 47/67/87/107</b> (RS 485)	-	● <sup>1)</sup>	•1)	-	See online help <sup>3)</sup>
via TSX SCA62 + ACC01 outlets with TSX 37/57 (RS 485)	-	•1)	•1)	-	See online help <sup>3)</sup>
via TSX SCA62 outlet and UNI-TELWAY networkwith 4 x TSX 17 or TSX 37/57 or TSX 47/67/87/107 (RS 485)	-	•1)	•1)	-	See online help <sup>3)</sup>

• System interface possible

- System interface not possible

1) Not Mobile Panel 177 PN, Mobile Panel 277 IWLAN;

<sup>2)</sup> Mobile Panel 177 DP, Mobile Panel 277 connection via special connecting cable and junction box (see Mobile Panel); see manual for cable assignment.

- $^{\rm 3)}~$  For Touch Panel, Operator Panel, Multi Panel, the RS 422/RS 232 adapter 6GK1 901-1BB10-2AA0 is required
- <sup>4)</sup> Detailed information (cables used) can be found in the online help for WinCC flexible and in the Communication User Manual for Windowsbased systems

### **Industrial USB Hub 4**

### Overview

HMI accessories include:

- Industrial USB Hub 4
- Connecting cables
- Connectors
- Accessories for SIMATIC Mobile Panels
- · Memory cards
- Converters/adapters
- Service packs
- Protective covers
- Cover foils
- · Mounting frames
- · Back-up battery and accumulator



### Industrial USB Hub 4

- The Industrial USB Hub 4 is used as a USB hub for the connection of peripheral devices to Multi Panels, Panel PCs and standard PCs.
- The industrial USB Hub 4 with IP65 degree of protection on the front (Service Kit required) can be mounted in a control cabinet. This simplifies the use of USB peripherals in harsh industrial environments.
- USB peripherals can be connected to the panel and operated via the Industrial USB Hub 4 without opening the cabinet door. The ports are also accessible from the rear even in the control cabinet.

#### Attention:

For detailed information please refer to Chapter 3, "Extension components".

2

# Operator Control and Monitoring Devices HMI Accessories

**Connecting cables** 

### Overview



### Key

P = PROCESS COUPLING

p = optional process coupling

D = DOWNLOAD (update operating system, project, ...)

U = Booting (in the case of a missing or damaged operating system)

MBP = Mobile Panel

Example - connecting cables

	S5-TTY (PG-S5)	S5-TTY (TD/OP- S5)	S7 PG702	RS232 external	TD-PPI (incl. voltage)	RS232 zero modem	RS232/PPI multi-master cable	USB/PPI multi- master cable	MPI (PG-S7) to 187.5 kbaud
	6ES5 734- 2xxxx	6XV1 440- 2Axxx	6ES7 705- 0AA00-7BA0	6XV1 440- 2Kxxx	6ES7 901- 3EB10-0XA0	6ES7 901- 1BF00- 0XA0	6ES7 901- 3CB30-0XA0	6ES7 901- 3DB30-0XA0	6ES7 901- 0BF00-0AA0
PP7	-	-	-	-	-	-	-	-	-
PP17 I	-	-	-	-	-	-	-	-	-
PP17-II	-	-	-	-	-	-	-	-	-
TD100C	-	-	-	-	Р	-	D/U	-	-
TD200	-	-	-	-	Ρ	-	D/U	-	Ρ
TD200C	-	-	-	-	Ρ	-	D/U	-	Ρ
TD17	D	Ρ	-	Р	-	D/U	-	-	Р
TP070	-	-	-	-	-	-	D/U	-	-
TP170micro	-	-	-	-	-	-	D/U	-	-
TP170A	-	Ρ	-	-	-	D/U	-	-	Р
TP177micro	-	-	-	-	-	-	D/U	D/U	-
TP177A	-	Ρ	-	Р	-	-	D/U	D/U	Р
TP170B mono	-	Ρ	-	Р	-	D/U	-	-	P/D
TP170B color	-	Ρ	-	Р	-	D/U	-	-	P/D
TP177B DP	-	-	-	P <sup>3)</sup>	-	-	D/U	-	P/D
TP177B PN/DP	-	-	-	P <sup>3)</sup>	-	-	D/U	-	P/D
TP270-6	-	Ρ	-	Р	-	D/U	-	-	P/D
TP277-6	-	-	-	P <sup>3)</sup>	-	-	D/U	-	P/D
MP177-6 T	-	-	-	P <sup>3)</sup>	-	-	D/U	-	P/D
MP270-6 T	-	Ρ	-	Р	-	D/U	-	-	P/D
MP277-8 T	-	-	-	P <sup>3)</sup>	-	-	D/U	-	P/D
TP270-10	-	Ρ	-	Р	-	D/U	-	-	P/D
MP277-10 T	-	-	-	P <sup>3)</sup>	-	-	D/U	-	P/D
MP370-12 T	-	Ρ	-	P <sup>3)</sup>	-	D/U	-	-	P/D
MP370-15 T	-	Ρ	-	P <sup>3)</sup>	-	D/U	-	-	P/D
MP377-12 T	-	-	-	P <sup>3)</sup>	-	-	D/U	-	P/D
MP377-15 T	-	-	-	P <sup>3)</sup>	-	-	D/U	-	P/D
MP377-19 T	-	-	-	P <sup>3)</sup>	-	-	D/U	-	P/D

### Connecting cables

### Overview (continued)

	S5-TTY (PG-S5)	S5-TTY (TD/OP- S5)	S7 PG702	RS232 external	TD-PPI (incl. voltage)	RS232 zero modem	RS232/PPI multi-master cable	USB/PPI multi- master cable	MPI (PG-S7) to 187.5 kbaud
OP3	-	-	Р	-	P <sup>1)</sup>	-	-	-	-
OP73micro	-	-	-	-	Р	-	D/U	D/U	Р
OP73	-	-	-	-	Р	-	D/U	D/U	P/D
OP7 PP	D	Р	-	Р	-	-	-	-	-
OP7 DP	-	-	-	-	-	-	-	-	Р
OP7 DP12	D	Ρ	-	Ρ	-	-	-	-	Ρ
OP77A	-	-	-	-	-	-	D/U	D/U	P/D
OP77B		-	-	Р	-	D/U	-	-	P/D
OP17 PP	D	Р	-	Р	-	-	-	-	-
OP17 DP	-	-	-	-	-	-	-	-	Ρ
OP17 DP12	D	Р	-	Р	-	-	-	-	Ρ
OP170B	-	-	-	-	-	D/U	-	-	P/D
OP177B DP	-	-	-	P <sup>3)</sup>	-	-	D/U	-	P/D
OP177B PN/DP	-	-	-	P <sup>3)</sup>	-	-	D/U	-	P/D
OP270-6	Р	-	-	Р	-	D/U	-	-	P/D
OP277-6	-	-	-	P <sup>3)</sup>	-	-	D/U	-	P/D
MP277-8 K	-	-	-	P <sup>3)</sup>	-	-	D/U	-	P/D
OP270-10	Р	-	-	Р	-	D/U	-	-	P/D
MP270-10 K	Р	-	-	Р	-	D/U	-	-	P/D
MP277-10 K	-	-	-	P <sup>3)</sup>	-	-	D/U	-	P/D
MP370-12 K	Р	-	-	P <sup>3)</sup>	-	D/U	-	-	P/D
MP377-12 K	-	-	-	P <sup>3)</sup>	-	-	D/U	-	P/D
MBP 170	-	-	-	-	-	-	-	-	-
MBP 177 DP	-	-	-	-	-	-	D/U	-	-
MBP 177 PN	-	-	-	-	-	-	D/U	-	-
MBP 277	-	-	-	-	-	-	D/U	-	-

	DP PtP	DP Stan- dard	DP (Mobile Panel)	PN PtP Cross	PN Ethernet	PN (Mobile Panel)	Conv. 422-232	Conv. 232-TTY	90° angular (15-contact 1:1)
	6XV1 830- 0Axxx	Standard PROFIBUS (2-contact)	6XV1 440- 4Axxx	6XV1 870- 3RH20 <sup>2)</sup>	Standard Ethernet CAT5	6XV1 440- 4Bxxx	6AV6 671- 8XE00-0AX0	6ES5 734- 1BD20	6AV6 671- 8XD00-0AX0
PP7	Ρ	Р	-	-	-	-	-	-	-
PP17 I	Р	Р	-	-	-	-	-	-	-
PP17-II	Р	Р	-	-	-	-	-	-	-
TD100C	-	-	-	-	-	-	-	-	-
TD200	-	-	-	-	-	-	-	-	-
TD200C	-	-	-	-	-	-	-	-	-
TD17	Ρ	Р	-	-	-	-	-	-	p/D/U
TP070	Р	Р	-	-	-	-	-	-	p/D/U
TP170micro	Р	-	-	-	-	-	-	-	p/D/U
TP170A	Р	Ρ	-	-	-	-	-	Ρ	p/D/U
TP177micro	Р	-	-	-	-	-	-	-	p/D/U
TP177A	Ρ	Р	-	-	-	-	-	-	p/D/U
TP170B mono	P/D	P/D	-	-	-	-	-	Ρ	p/D/U
TP170B color	P/D	P/D	-	-	-	-	-	Ρ	p/D/U
TP177B DP	P/D	P/D	-	-	-	-	Р	-	p/D/U
TP177B PN/DP	P/D	P/D	-	P/D	P/D	-	Р	-	p/D/U

Connecting cables

	(continued)								
	DP PtP	DP Stan- dard	DP (Mobile Panel)	PN PtP Cross	PN Ethernet	PN (Mobile Panel)	Conv. 422-232	Conv. 232-TTY	90° angular (15-contact 1:1)
	6XV1 830- 0Axxx	Standard PROFIBUS (2-contact)	6XV1 440- 4Axxx	6XV1 870- 3RH20 <sup>2)</sup>	Standard Ethernet CAT5	6XV1 440- 4Bxxx	6AV6 671- 8XE00-0AX0	6ES5 734- 1BD20	6AV6 671- 8XD00-0AX0
TP270-6	P/D	P/D	-	p/D	P/D	-	-	Ρ	p/D/U
TP277-6	P/D	P/D	-	P/D	P/D	-	Р	-	p/D/U
MP177-6 T	P/D	P/D	-	P/D	P/D	-	Р	-	p/D/U
MP270-6 T	P/D	P/D	-	P/D	P/D	-	-	Ρ	p/D/U
MP277-8 T	P/D	P/D	-	P/D	P/D	-	Р	-	p/D/U
TP270-10	P/D	P/D	-	p/D	P/D	-	-	Р	p/D/U
MP277-10 T	P/D	P/D	-	P/D	P/D	-	Р	-	p/D/U
MP370-12 T	P/D	P/D	-	P/D	P/D	-	-	Р	p/D/U
MP370-15 T	P/D	P/D	-	P/D	P/D	-	-	Ρ	p/D/U
MP377-12 T	P/D	P/D	-	P/D	P/D	-	Р	-	P/ D/U
MP377-15 T	P/D	P/D	-	P/D	P/D	-	Р	-	P/ D/U
MP377-19 T	P/D	P/D	-	P/D	P/D	-	Р	-	P/ D/U
OP3	Р	-	-	-	-	-	-	-	-
OP73micro	Р	-	-	-	-	-	-	-	-
OP73	Р	Р	-	-	-	-	-	-	-
OP7 PP	-	-	-	-	-	-	-	-	p/D/U
OP7 DP	Р	Р	-	-	-	-	-	-	p/D/U
OP7 DP12	Р	Р	-	-	-	-	-	-	p/D/U
OP77A	Р	Р	-	-	-	-	-	-	p/D/U
OP77B	Р	Р	-	-	-	-	-	Ρ	p/D/U
OP17 PP	-	-	-	-	-	-	-	-	p/D/U
OP17 DP	Р	Р	-	-	-	-	-	-	p/D/U
OP17 DP12	Р	Р	-	-	-	-	-	-	p/D/U
OP170B	Р	Р	-	-	-	-	-	р	p/D/U
OP177B DP	Р	Р	-	-	-	-	Р	-	p/D/U
OP177B PN/DP	Р	Р	-	P/D	P/D	-	Р	-	p/D/U
OP270-6	Р	р	-	p/D	P/D	-	-	Р	p/D/U
OP277-6	Р	Р	-	P/D	P/D	-	Р	-	p/D/U
MP277-8 K	Р	Р	-	P/D	P/D	-	Р	-	p/D/U
OP270-10	Р	р	-	p/D	P/D	-	-	Р	p/D/U
MP270-10 K	Р	P	-	P/D	P/D	-	-	Р	p/D/U
MP277-10 K	Р	Р	-	P/D	P/D	-	Р	-	p/D/U
MP370-12 K	Р	Р	-	P/D	P/D	-	-	Р	p/D/U
MP377-12 K	P/D	P/D	-	P/D	P/D	-	Р	-	P/ D/U
MBP 170	-	-	P/D	-	-	-	-	Р	-
MBP 177 DP	P/D	-	P/D	-	-	-	-	-	-
MBP 177 PN	-	-	-	-	-	P/D	-	-	-
MBP 277	-	-	P/D	-	-	P/D	-	-	-

<sup>1)</sup> With gender changer

<sup>2)</sup> Not possible with PN/IO, only with HUB/Switch

<sup>3)</sup> Only in conjunction with the RS422/232 converter

### **Connecting cables**

Ordering data	Order No.		Order No.
Connecting cables 6ES5 731-1		Connecting cables 6ES7 901-1	
for SIMATIC S5		RS 232 cable	
(S5-90U to S5-155U), PG6xx (TTY, 20 mA)		• 5.0 m	6ES7 901-1BF00-0XA0
Standard lengths		Connecting cables 6ES7 901-3	
• 5.0 m	6ES5 731-1BF00	Process connecting cable	6ES7 901-3EB10-0XA0
• 10.0 m	6ES5 731-1CB00	For connecting TD 100C	
Custom lengths		or TD 200C to S7-200	
• Max. 200.0 m	6ES5 731-10	Connecting cables 6XV1 440-2A	
Connecting cables 6ES5 731-6		Connecting cable between	
for SIMATIC S5,	6ES5 731-6AG00	155U	
interface adapter for PC 16-20b		Standard lengths	
between programming device		• 3.2 m	6XV1 440-2AH32
and connecting cable		• 5.0 m	6XV1 440-2AH50
Connecting cables 6ES5 734-1		• 10.0 m	6XV1 440-2AN10
for SIMATIC S5, connecting cable between PLC		• 20.0 m	6XV1 440-2AN20
15-pin and PC 25-pin		• 32.0 m	6XV1 440-2AN32
Standard lengths		• 50.0 m	6XV1 440-2AN50
• 3.2 m	6ES5 734-1BD20	Custom lengths	
Connecting cables 6ES5 734-2		Max. 1000.0 m	6XV1 440-2A
for SIMATIC S5,		Connecting cables 6XV1 440-2K	
and S5-90U to S5-155U		Connecting cable between	
Standard lengths		SIMATIC 505 PLC 545, 555;	
• 10.0 m	6ES5 734-2CB00	ALLEN BRADLEY SLC500 03,04	
Custom lengths		via RS232/9-pin male	
• max. 1000.0 m	6ES5 734-20	Standard lengths	
Connecting cables 6ES7 705		• 3.2 m	6XV1 440-2KH32
for SIMATIC S7		• 5.0 m	6XV1 440-2KH50
Connecting cable between		• 10.0 m	6XV1 440-2KN10
PPI/MPI		Adapter cable 6XV1 440-2U	
Standard length		between TD/OP (RS 232/15-pin	
• 2.5 m <sup>1)</sup>	6ES7 705-0AA00-7BA0	cable (RS 232/9-pin socket)	
Non-heating apparatus cables 6ES	<b>37 900-1</b>	• 0.3 m	6XV1 440-2UE32
for SIMATIC Box PC and Panel PC		PROFIBUS connecting cable 830-1C	
SIMATIC PC power cable, 230 V AC, angled, 3 m, for:		For connection of data terminal, precut/preassembled with two	
• Germany	6ES7 900-1AA00-0XA0	Sub-D connectors, 9-pin, termi-	
<ul> <li>United Kingdom</li> </ul>	6ES7 900-1BA00-0XA0	for PP OP 73micro TP 070	
<ul> <li>Switzerland</li> </ul>	6ES7 900-1CA00-0XA0	OP73, TP 170micro, TP 177micro,	
• USA	6ES7 900-1DA00-0XA0	OP 77A/B, TP 170A, TP 177A, TP/OP 170B, TP/OP 177B,	
• Italy	6ES7 900-1EA00-0XA0	MP 270B	
Connecting cables 6ES7 901-0		• 1.5 m	6XV1 830-1CH15
for SIMATIC S7 MPI cable between SIMATIC S7 and programming device via MPI max. 187.5 kbaud		• 3.0 m	6XV1 830-1CH30
Standard length			
• 5.0 m <sup>2)</sup>	6ES7 901-0BF00-0AA0		
<sup>1)</sup> Included in OP3 scope of delivery		Note:	

2) Included in PG scope of delivery

See appendix for connecting cable length codes.

### **Connecting cables**

Ordering data	Order No.		Order No.	
Configuration cable 6ES5 734		RS 232/PPI multi-master cable	6ES7 901-3CB30-0XA0	
for connecting PG 7xx to SIMATIC S5-90U to S5-155U via 25-pin socket/TTY (serial) <sup>3)</sup>		USB/PPI multi-master cable	6ES7 901-3DB30-0XA0	
Standard lengths		For connecting the S7-200 to the serial $PC/OP$ interface		
• 5.0 m	6ES5 734-2BF00	PROFIBUS FC Standard Cable	6XV1 830-0EH10	
• 10.0 m	6ES5 734-2CB00	For connection to PPI:		
Custom lengths		standard type with special design		
• max. 1000.0 m	6ES5 734-20	shielded, sold by the meter, max.		
Configuration cable 6ES7		delivery unit 1000 m, minimum		
for connecting PC/PG/OP/TD to SIMATIC S7-200/300/400 via 9-pin male/RS232 (serial)		Industrial Ethernet TX XP Cord RJ45/RJ45		
• between PG 702/OP3 <sup>1)</sup> and S7-200/300/400 via PPI/MPI	6ES7 705-0AA00-7BA0	Crossed TP cable 4 x 2, preassembled with 2 x RJ45 connectors		
• between	6ES7 901-0BF00-0AA0	• 1 0 m	6XV1 870-3RH10	
S7-200/300/400 via MPI		• 6.0 m	6XV1 870-3RH60	
Connecting cable 6ES7 901		• 10.0 m	6XV1 870-3RN10	
between HMI adapter and PC/TS adapter (RS232/null MODEM cable)				
for OP77B, TP 177A, TP 170B, OP 170B, TP/OP 270, MP 270, MP 370				
• 5.0 m	6ES7 901-1BF00-0XA0			
<sup>1)</sup> Included in OP3 scope of delivery		Note:		

- <sup>2)</sup> Included in PG scope of delivery
- 3) Except OP3 and OP7/DP

See appendix for connecting cable length codes.

Cable assignments can be found on the Internet in the online help of ProTool and WinCC flexible and under FAQs

### **Bus connector RS485**

### Overview



- Used for connecting PROFIBUS nodes to the PROFIBUS bus cable
- Easy installation
- FastConnect plugs ensure extremely short assembly times due to their insulation-displacement technology
- Integrated terminating resistors (not in the case of 6ES7 972-0BA30-0XA0)
- PG connection with special bus connector possible without additional installation of network nodes.

Ordering data	Order No.
RS485 bus connector with axial cable outlet (180°)	6GK1 500-0EA02
For industrial PC, SIMATIC HMI OP, OLM; max. transmission rate 12 Mbit/s	
RS485 bus connector with cable outlet (90°)	
With screw-terminals, max. transmission rate 12 Mbit/s	
<ul> <li>Without programmer port</li> </ul>	6ES7 972-0BA12-0XA0
<ul> <li>With programmer port</li> </ul>	6ES7 972-0BB12-0XA0
RS485 bus connector with angled cable outlet (35°)	
With screw-terminals, max. transmission rate 12 Mbit/s	
<ul> <li>Without PG interface</li> </ul>	6ES7 972-0BA41-0XA0
<ul> <li>With PG interface</li> </ul>	6ES7 972-0BB41-0XA0
RS485 bus connector with cable outlet (30°)	6ES7 972-0BA30-0XA0
With screw-terminals, low-cost variant, max. transmission rate 1.5 Mbit/s	
<b>PROFIBUS</b> bus connector RS485	with FastConnect technology
PROFIBUS FastConnect bus connector RS485 with 90° cable outlet	
With insulation displacement terminals, max. transmission rate 12 Mbit/s	
<ul> <li>Without PG interface</li> </ul>	6ES7 972-0BA51-0XA0
With PG interface	6ES7 972-0BB51-0XA0
PROFIBUS FastConnect RS485 bus connector with angled cable outlet (35°)	
With insulation displacement terminals, max. transmission rate 12 Mbit/s	
Without PG interface	6ES7 972-0BA60-0XA0
With PG interface	6ES7 972-0BB60-0XA0
PROFIBUS FastConnect bus connector RS485 Plug 180	6GK1 500-0FC10
With insulation displacement terminals with 180° cable outlet	

With insulation displacement terminals, with 180° cable outlet, for industrial PC, SIMATIC HMI OP, OLM; max. transmission rate 12 Mbit/s

Electronic manuals for communication systems, communication protocols, and communication products; on DVD; German/English

# Operator Control and Monitoring Devices HMI Accessories

### Overview



- Implementation of direct device connections over distances of up to 100 m with Industrial Ethernet FC installation cable 2 x 2 without patching
- Easy connection (insulation displacement contacts) for 4-core Twisted Pair installation cables (100 Mbit/s) without the need for special tools
- Error-preventing connection technique thanks to visible connection area as well as colored blade terminals
- Industry-compatible design (rugged metal housing, no easily lost small parts)
- Excellent EMC shielding and deflection (metal housing)
- · Integrated strain-relief for installation cables
- Compatible to the EN 50173 (RJ45) / ISO IEC 11801 standard
- Additional strain and bending relief of plug connector possible through latching of plug on device housing, e.g. with SCALANCE X, SCALANCE S, ET 200S.

Ordering data	Order No.
IE FC RJ45 plugs	
RJ45 plug connector for Industrial Ethernet with a rugged metal housing and integrated insulation displacement contacts for con- necting Industrial Ethernet FC installation cables	
IE FC RJ45 Plug 180	
<ul> <li>180° cable outlet; for network components and CPs/CPUs with Industrial Ethernet interface</li> <li>1 pack = 1 item</li> <li>1 pack = 10 items</li> </ul>	6GK1 901-1BB10-2AA0 6GK1 901-1BB10-2AB0
• 1 pack = 50 items	6GK1 901-1BB10-2AE0
<b>IE FC RJ45 Plug 90</b> 90° cable outlet; e.g. for ET 200S	
<ul> <li>1 pack = 1 item</li> <li>1 pack = 10 units</li> <li>1 pack = 50 units</li> </ul>	6GK1 901-1BB20-2AA0 6GK1 901-1BB20-2AB0 6GK1 901-1BB20-2AE0
IE FC RJ45 Plug 145	
145° cable outlet; e.g. for SIMOTION and SINAMICS	
<ul> <li>1 pack = 1 item</li> <li>1 pack = 10 units</li> <li>1 pack = 50 units</li> </ul>	6GK1 901-1BB30-0AA0 6GK1 901-1BB30-0AB0 6GK1 901-1BB30-0AE0
IE FC TP Standard Cable GP 2 x 2 (Type A)	
4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug; PROFINET-compatible; with UL approval;	
Sold by the meter	
max. quantity 1,000 m; minimum order 20 m	6XV1 840-2AH10
Preferred length	
• 1000 m	6XV1 840-2AU10
IE FC TP Flexible Cable GP	6XV1 870-2B
4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug for occasional movement; PROFINET-compatible; with UL approval; sold by the meter; max. quantity 1000 m, minimum order 20 m	
4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug 180/90 for use in trailing cables; PROFINET-compatible; without UL approval; celd by the meter, may guestify	

sold by the meter; max. quantity 1000 m, minimum order 20 m 2

IE FC RJ45 Plug 2 x 2

**Accessories for SIMATIC Mobile Panels** 

### Overview



Connecting cable PB (PROFIBUS) for Mobile Panels



Connecting cable PN (PROFINET) for Mobile Panels



Wall-mounting bracket for Mobile Panel, front view/side view

Ordering data	Order No.
Connecting cable DP (MPI/ PROFIBUS) for Mobile Panels	
Standard lengths	
• 2 m	6XV1 440-4AH20
• 5 m	6XV1 440-4AH50
• 10 m	6XV1 440-4AN10
• 15 m	6XV1 440-4AN15
• 25 m	6XV1 440-4AN25
Custom lengths 1)	
• 8 m	6XV1 440-4AH80
• 20 m	6XV1 440-4AN20
Connecting cable PN (PROFINET) for Mobile Panels	
Standard lengths	
• 2 m	6XV1 440-4BH20
• 5 m	6XV1 440-4BH50
• 8 m	6XV1 440-4BH80
• 10 m	6XV1 440-4BN10
• 15 m	6XV1 440-4BN15
• 20 m	6XV1 440-4BN20
• 25 m	6XV1 440-4BN125
Wall-mounting bracket for Mobile Panels	6AV6 574-1AF04-4AA0

1) Extended delivery time

### Dimensions



Wall-mounting bracket for SIMATIC Mobile Panel

Ordering data

### **Accessories for SIMATIC Mobile Panels**

Order No.



Service pack for Mobile Panels



Service pack for Mobile Panels 177/277	6AV6 574-1AA04-4AA0
Consisting of:	
<ul> <li>Blanking plugs for cable duct</li> </ul>	
• 2 x cable glands for connectivity box	
1 set of screws for connectivity box cover	
• 2 x terminal box (12-pin)	
• 1 x terminal box (3-pin)	
<ul> <li>1 x blanking cap for connectivity box</li> </ul>	
Service pack for Mobile Panels 277(F) IWLAN	6AV6 671-5CA00-0AX1
Consisting of:	
• 1 x Mobile Panel 277 accessories pack (labeling strip cover)	
• 1 x battery slot cover (device)	
<ul> <li>1 x backup battery</li> </ul>	
<ul> <li>1 x left/right cover (charging station)</li> </ul>	
<ul> <li>1 x power supply mating connector (charging station)</li> </ul>	
• 1 x spare key (charging station)	
Spare keys for Mobile Panels	6AV6 574-1AG04-4AA0
(pack of 10 keys)	
Accumulator option pack for Mobile Panels (DP and PN)	6AV6 671-5AD00-0AX0
Touch pen	6AV6 645-7AB14-0AS0
including nylon line for securing it to the Mobile Panel 277 10" (set of 5, packed ready for shipping)	
Battery for Mobile Panel 277(F) IWLAN	6AV6 671-5CL00-0AX0

Spare keys for Mobile Panels



Option pack: accumulator for Mobile Panels

# Operator Control and Monitoring Devices HMI Accessories

Accessories for SIMATIC Mobile Panels – connection boxes

### Overview



Connection boxes DP and PN

### Technical specifications

Connection box DP for Mobi (MPI/PROFIBUS)		bile Panels 177/277	Connection box DP for Mobile Panels 177/277 (PROFINET)	
	Basic	Plus	Basic	Plus
Supply voltage	24 V DC	24 V DC	24 V DC	24 V DC
permissible range	+20.4 V to +28.8 V DC	+20.4 V to +28.8 V DC	+20.4 V to +28.8 V DC	+20.4 V to +28.8 V DC
Rated current	0.4 A	0.5 A	0.4 A	0.5 A
Power	10 W	12 W		
Expansions to operator processcommunication				
Hot swapping	with emergency stop circuit interruption	without emergency stop circuit interruption	with emergency stop circuit interruption	without emergency stop circuit interruption
<ul> <li>Monitoring the STOP button</li> </ul>	No	Yes	No	Yes
<ul> <li>Location identifier</li> </ul>	Yes	Yes	Yes	Yes
Ambient conditions				
max. relative humidity (in %)	85%	85%	85%	85%
Temperature				
<ul> <li>Operation (vertical installation)</li> </ul>	0 °C to +50 °C	0 °C to +50 °C	0 °C to +50 °C	0 °C to +50 °C
<ul> <li>Transport, storage</li> </ul>	-20 °C to +70 °C	-20 °C to +70 °C	-20 °C to +70 °C	-20 °C to +70 °C
Degree of protection				
Enclosure according to EN 60529	IP65	IP65	IP65	IP65
Certifications & Standards				
Certifications	CE, cULus, C-TICK	CE, cULus, C-TICK	CE, cULus, C-TICK	CE, cULus, C-TICK
interfaces				
Interfaces	1 x RS232, 1 x RS422, 1 x RS485 (max. 12 Mbit/s)	1 x RS232, 1 x RS422, 1 x RS485 (max. 12 Mbit/s)	2 x Ethernet (RJ45)	2 x Ethernet (RJ45)
Functionality under WinCC flexible				
<ul> <li>Connection point identification</li> </ul>	Yes	Yes	Yes	Yes
Dimensions				
External dimensions (W x H x D) in mm	160 x 120 x 70	160 x 120 x 70	230 x 120 x 80	230 x 120 x 80
Weights				
Weight	0.35 kg	0.4 kg	0.45 kg	0.5 kg

Accessories for SIMATIC Mobile Panels -

### Dimensions



DP connection box for SIMATIC Mobile Panel



PN connection box for SIMATIC Mobile Panel

connection boxes

Ordering data		Order No.
DP junction box for Mobile Panels 177/277 (MPI/PROFIBUS)		
• Basic		6AV6 671-5AE00-0AX0
• Plus	А	6AV6 671-5AE10-0AX0
PN junction box for Mobile Panels 177/277 (PROFINET)		
• Basic	А	6AV6 671-5AE01-0AX0
• Plus	А	6AV6 671-5AE11-0AX0

A) Subject to export regulations: AL: N and ECCN: EAR99H

# Operator Control and Monitoring Devices HMI Accessories

Accessories for SIMATIC Mobile Panels – charging station

### Overview



### Technical specifications

	6AV6 671-5CE00-0AX0
Supply voltage	24 V DC
Permissible range	+19.2 V to +28.8 V DC
Rated current	3.2 A
Power	77 W
Ambient conditions	
Max. relative humidity (in %)	85%
Temperature	
<ul> <li>Operation (vertical installation)</li> </ul>	0 °C to +40 °C
<ul> <li>Transport, storage</li> </ul>	-20 °C to +60 °C
Degree of protection	
IP65 at front	Yes
IP65 rear	Yes
Enclosure according to EN 60529	IP65
Certifications & Standards	
Certifications	CE, cULus, C-TICK
Dimensions	
External dimensions (W x H x D) in mm	208 x 333 x 75
Weights	
Weight	1.1 kg

### Dimensions



Ordering data Charging station for Mobile Panels Order No.

6AV6 671-5CE00-0AX0

Accesories for SIMATIC Mobile Panels – Transponder

# Overview

# Dimensions



### Technical specifications

	6AV6 671-5CM00-0AX0
Supply voltage	
Via battery	Yes
<ul> <li>Number of batteries</li> </ul>	3
Battery type	Туре АА
- Type AA	Yes
<ul> <li>Lifetime of battery, typ.</li> </ul>	5 at
Ambient conditions	
Max. relative humidity (in %)	85%
Temperature	
<ul> <li>Operation (vertical installation)</li> </ul>	0 °C to +50 °C
<ul> <li>Transport, storage</li> </ul>	-20 °C to +60 °C
Degree of protection	
IP65 at front	Yes
NEMA	4x / 12
IP65 rear	Yes
Enclosure according to EN 60529	IP65
Enclosure according to NEMA	NEMA 4x, NEMA 12
Certifications & Standards	
Certifications	CE, cULus, C-TICK, NEMA 4x, NEMA 12
Transponder	
Transmit frequency	2.4 gHz; Passive, frequency range: 2400 to 2483.5 MHz
Range of transmitter	8 m
Transmission angle	93°
Number of adjustable identifiers, max.	65 534
Functionality under WinCC flexible	
Zones	Yes
Effective range	Yes
Dimensions	
External dimensions $(W \times H \times D)$ in mm	172 x 90 x 38.5
Weights	
Weight	0.3 kg

### Ordering data Transponder for Mobile Panels 277

Order No.

6AV6 671-5CM00-0AX0

# Operator Control and Monitoring Devices HMI Accessories

# **Memory cards**

### Overview



Ordering data		Order No.
Memory cards		
PC Card, 512 MB, comprising: PC card adapter with Compact Flash Card 512 MB for MP 370	A	6AV6 574-2AC00-2AF1
Multi Media Card, 128 MB for Mobile Panel 177, OP 77B, TP/OP 177B, TP/OP 277	A	6AV6 671-1CB00-0AX2
SD card, 256 MB for Mobile Panel 277, MP 177, MP 277, MP 377	A	6AV6 671-8XB10-0AX0
Compact Flash Card, 512 MB for Mobile Panel 170, TP/OP 170B, TP/OP/MP 270, MP 370, MP 377 and C7-635, C7-636		6AV6 574-2AC00-2AA1
USB 2.0 memory stick (USB Flash Drive) with 2 GB memory for Mobile Panel 277, OP 77B, TP/OP 177B, TP/OP 277, MP 177, MP277 and MP 377	A	6ES7 648-0DC40-0AA0

A) Subject to export regulations: AL: N and ECCN: EAR99H



PC card adapter with Compact Flash Card

Multi Media Card / SD Card



CompactFlash Card



USB 2.0 memory stick (USB Flash Drive)

### Converters/adapters





Ordering data	Order No.
Converter	
RS232 to TTY converter, 20 mA	
between TD/OP/TP and S5-90U to S5-155U, for TP/OP 170B, TP/OP 270, MP 270B	6ES5 734-1BD20
RS422 to RS232 converter, V.24	
between TD/TP/OP and non-A Siemens PLC with RS232 interface, for TP 177B, OP 177B, TP/OP 277-6, MP 277-8T/K, MP 277-10T/K	6AV6 671-8XJ00-0AX0
90° angle adapter, 1:1	6XV1 440-2DE32
between TD/OP and connecting cable	
Converter RS422/485	6AV6 671-8XD00-0AX0

A) Subject to export regulations: AL: N and ECCN: EAR99H

PC converter, RS232 to TTY



90° angle adapter, 1:1



RS422/485 converter

### Service packs

### Overview

2



The service packs listed below are available:

- PP7/17
- TD 17, OP 7, OP 17
- OP 73micro, OP 73, OP 77A/B
- TP 170micro, TP 070, TP 170A/B, OP 170B, TP 270 6", OP 270 6", MP 177 6" Touch, MP 277 8" Touch
- MP 370 Touch, TP 270 10", C7 636 Touch
- TP 177micro, TP 177A, TP/OP 177B
- Mobile Panels 177/277
- Mobile Panels 277(F) IWLAN
- OP 270 10"
- MP 277 series
- MP 277 10" Touch INOX
- MP 370 Key, MP 377 Key
- MP 377 Touch
- Industrial USB Hub 4
- Power supply connector set

Ordering data	Order No.
Service pack for PP7/17	6AV3 678-3XC30
Consisting of:	
<ul> <li>1 x PP7 gasket</li> </ul>	
<ul> <li>1 x PP17-I/PP17-II gasket</li> </ul>	
<ul> <li>5 x tensioning clamps</li> </ul>	
<ul> <li>1 x PP7 plug-in terminal strip (2-pin)</li> </ul>	
<ul> <li>1 x 24 V PP17-I/PP17-II plug-in terminal strip (3-pin)</li> </ul>	
Service pack for OP 73micro, OP 73, OP 77A/B,	6AV6 671-1XA00-0AX0
Consisting of:	
<ul> <li>2 x mounting seals</li> </ul>	
<ul> <li>4 x tensioning clamps</li> </ul>	
<ul> <li>1 x 24 V plug-in terminal strip (twin block)</li> </ul>	
Service pack for TP 170micro, TP070, TP 170A/B, OP 170B, TP 270 6", OP 270 6", MP 177 6" Touch, MP 277 8" Touch	6AV6 574-1AA00-4AX0
Consisting of:	
<ul> <li>Mounting seals</li> </ul>	
• 2 x sets of labeling strips for OPs	
<ul> <li>7 x tensioning clamps</li> </ul>	
<ul> <li>1 x 24 V plug-in terminal strip (twin block)</li> </ul>	
Service pack for TP 177micro, TP 177A, TP/OP 177B	6AV6 671-2XA00-0AX0
Consisting of:	
<ul> <li>2 x mounting seals</li> </ul>	
<ul> <li>7 x tensioning clamps</li> </ul>	
<ul> <li>1 x 24 V plug-in terminal strip (twin block)</li> </ul>	

### Service packs

Ordering data (continued)	Order No.		Order No.
Service pack for Mobile Panels 177/277	6AV6 574-1AA04-4AA0	Service pack for MP 277 10" Touch INOX	6AV6 675-3AA00-0AX0
Consisting of:		Service pack for MP 370 Keys/	6AV6 574-1AA00-2BX0
<ul> <li>Blanking plugs for cable duct</li> </ul>		MP 377 Keys	
• 2 x cable glands for connectivity		Consisting of:	
DUX		I x mounting seal	
<ul> <li>I set of screws for connectivity box cover</li> </ul>		<ul> <li>∠ x sets of labeling strips for OPs</li> <li>Z v tensioning elements</li> </ul>	
<ul> <li>2 x terminal box (12-pin)</li> </ul>		<ul> <li>7 x tensioning clamps</li> <li>1 x 24 V plug in terminal strip</li> </ul>	
<ul> <li>1 x terminal box (3-pin)</li> </ul>		(twin block)	
• 1 x blanking cap for connectivity		• 1 x socket wrench	
box		Service pack for MP 377 Touch A	6AV6 671-4XA00-0AX0
Service pack for Mobile Panels 277(F) IWLAN	6AV6 671-5CA00-0AX1	Service pack for Industrial USB Hub 4	6AV6 671-3EA01-0AX0
Consisting of:		Consisting of:	
• 1 x Mobile Panel 277		• 1 x mounting seal	
strip cover)		• 1 x rear metal frame (for achiev-	
<ul> <li>1 x battery slot cover (device)</li> </ul>		ing IP65 with mounting plates that are less than 3 mm thick)	
<ul> <li>1 x backup battery</li> </ul>		• 5 x tensioning clamps	
<ul> <li>1 x left/right cover (charging station)</li> </ul>		<ul> <li>1 x 24 V plug-in terminal strip (twin block)</li> </ul>	
<ul> <li>1 x 24 V power supply mating connector (charging station)</li> </ul>		Key labeling strips MP 370 Keys/ MP 377 Keys	6AV6 574-1AB00-2BA0
<ul> <li>1 x spare key (charging station)</li> </ul>		for function keys, without labeling,	
Service pack for MP 277 series	6AV6 671-3XA01-0AX0	2 sets each (plastic)	
Consisting of:		Key labeling strips for Mobile Panel 277	6AV6 671-5BF00-0AX0
<ul> <li>1 x mounting seal</li> </ul>		Packet for labelling 6 devices	
<ul> <li>10 x tensioning clamps</li> <li>1 x 24 V plug-in terminal strip</li> </ul>		(2 sheets per set) incl. spare stickers for cover caps	
(twin block)		Power supply connector set	6AV6 671-8XA00-0AX0
<ul> <li>1 x socket wrench</li> </ul>		Consisting of:	
		<ul> <li>10 x 2-pole 24 V DC power supply connectors</li> </ul>	

A) Subject to export regulations: AL: N and ECCN: EAR99H

# Operator Control and Monitoring Devices HMI Accessories

### **Protective covers**

### Overview

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Protective covers for:

- TP 070, TP 170micro, TP 177micro, TP 170A/B, TP 177A/B, TP 270 6", TP 277 6", MP 177 6" Touch, MP 270B 6" Touch
- OP 77 A/B
- OP 177B
- MP 277 8" Touch
- MP 277 10" Touch, THIN CLIENT 10"

### Ordering data Order No. Protective covers for 6AV6 574-1AE00-4AX0 TP 070, TP 170micro, TP 177micro, TP 170A/B, TP 177A/B, TP 270 6", TP 277 6" MP 177 6" Touch, MP 270 6"Touch (2 sets) Consisting of: • 2 cover frames • 2 base frames 2 protective covers, molded (for TP 070, TP 170micro, TP 170A/B) • 2 protective covers smooth (for TP 177micro, TP 177A/B, TP 270 6", MP 177 6" Touch, MP 270 6" Touch) Protective covers for OP 77A/B 6AV6 671-1AJ00-0AX0 (2 sets) Consisting of: • 2 cover frames 2 base frames • 2 protective covers Protective covers for OP 177B 6AV6 671-2DJ00-0AX0 (2 sets) Consisting of: • 2 cover frames • 2 base frames • 2 protective covers Protective covers for MP 277 8" 6AV6 671-3CK01-0AX0 Touch (2 sets) Consisting of: • 2 cover frames • 2 base frames • 2 protective covers Protective covers for MP 277 10" Touch, THIN CLIENT 10" 6AV6 671-3CK00-0AX0 (2 sets) Consisting of: • 2 cover frames • 2 base frames · 2 protective covers

### **Cover foils**

### Overview



### Cover foils for:

- TD 100C
- TD 200C
- TP 070, TP 170micro, TP 170A/B
- TP 177micro, TP 177A/B, OP 177B
- Mobile Panel 177
- Mobile Panel 277 8", Mobile Panel 277 10"
- TP 270 6", TP 277 6", MP 177 6" Touch, MP 270B 6" Touch
- TP 270 10", MP 270B 10", MP 370 12" Touch, MP 377 12" Touch
- MP 277 8" and 10", THIN CLIENT 10"
- MP 370 15" Touch, MP 377 15" Touch, THIN CLIENT 15"
- MP 377 19" Touch

Ordering dete	Order Ne
Blank faceplates for TD 100C	6ES7 272-1BF00-7AA0
board layouts; 6 perforated foils	
per sheet; 10 sheets per packing unit	
Blank faceplates for TD 200C A	6ES7 272-1AF00-7AA0
For printing customized key-	
board layouts; 3 perforated foils per sheet; 10 sheets per packing unit	
Cover foil for TP 070, TP 170micro, TP 170A/B	6AV6 574-1AD00-4AX0
(pack of 10 each)	
Cover foil for TP 177micro, TP 177A/B, OP 177B	6AV6 671-2XC00-0AX0
(pack of 10 each)	
Cover foil for Mobile Panel 177	6AV6 574-1AD04-4AA0
(pack of 10 each)	
Cover foil for Mobile Panel 277 8"	6AV6 671-5BC00-0AX0
Tough film to protect the touch display from dirt and scratches (set of 2)	
Cover foil for Mobile Panel 277 10"	6AV6 645-7AB15-0AS0
Tough film for protection against dirt and scratches (set of 10, packed ready for shipment)	
Cover foil for TP 270 6", TP 277 6", MP 177 6" Touch, MP 270B 6" Touch	6AV6 574-1AD00-4DX0
(pack of 10 each)	
Cover foil for TP 270 10", MP 270B 10", MP 370 12" Touch, MP 377 12" Touch	6AV6 574-1AD00-4CX0
(pack of 10 each)	
Cover foil for MP 277 8" Cover foil for MP 277 10" Touch, THIN CLIENT 10"	
For protection of the touch front against fouling/scratching (set of 10 each)	
• for MP 277 8" Touch	6AV6 671-3CC00-0AX0
<ul> <li>for MP 277 10" Touch, THIN CLIENT 10"</li> </ul>	6AV6 671-3DC00-0AX0
Cover foil for MP 370 15" Touch, MP 377 15" Touch, THIN CLIENT 15"	6AV6 574-1AD00-4EX0
(pack of 10 each)	
Cover foil for MP 377, 19" Touch	6AV7 672-1CE00-0AA0
Protective pocket for labeling strips for Mobile Panel 170 and 177	6AV6 574-1AB04-4AA0
(5 items) for labelling strips for	

(5 items) for labelling strips for Mobile Panel 177 and 277

A) Subject to export regulations: AL: N and ECCN: EAR99H

# Operator Control and Monitoring Devices HMI Accessories

### **Clamping frame**

### Overview



The clamping frames enable compliance with degrees of pro-tection IP65, NEMA4X and NEMA12 (indoor only) if the thickness of the mounting plate is less than the minimum plate thickness specified in the manual. The clamping frame has been specially developed for plate thicknesses of less than 2 mm.

For the THIN CLIENT 10" Touch, the clamping frame is needed for plate thicknesses of less than 2 mm, for both IP54 and for IP65.

The clamping frames are available for the following products:

- KTP1000 Basic color
- SIMATIC MP 277 8" Touch
- SIMATIC MP 277 8" Key
- SIMATIC MP 277 10" Touch
- SIMATIC MP 377 12" Touch
- SIMATIC THIN CLIENT 10" Touch

Ordering data	Order No.
Clamping frame for	
• MP 277 8" Touch	6AV6 671-3CS00-0AX0
• MP 277 8" Key	6AV6 671-3CS01-0AX0
• 10"/12" Touch	6AV6 671-8XS00-0AX0
Can be used for: KTP1000, MP 277 10" Touch, MP 377 12" Touch, THIN CLIENT 10"	