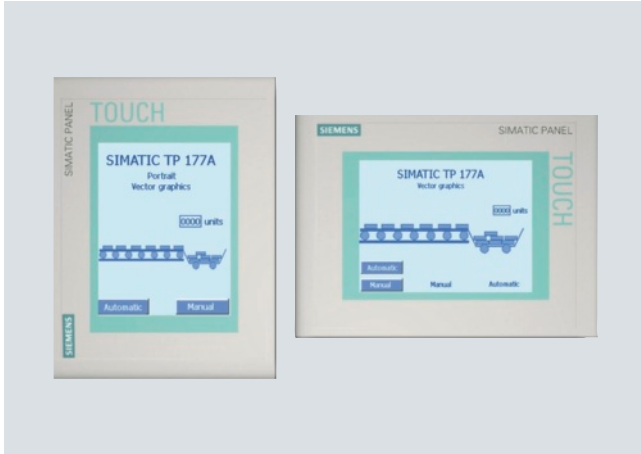


# Operator panels

## Panels –170 series

### 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), Blue mode (4 levels)
- All interfaces (e.g. MPI, PROFIBUS DP) are onboard
- SIMATIC TP 177A is the successor to the TP 170A Touch Panel

#### 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
- Graphic 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 on-site operator control and monitoring of small machines and plants is required – in production automation, process automation and building automation. They may be used in all kinds of industries and applications.

With its fast response times, the TP 177A is also suitable for jog mode.

#### Compatible with TP 170A

- Same installation cutout as TP 170A
- Transfer of the TP 170A configurations from ProTool/Lite, ProTool to WinCC flexible
- Migration manual with descriptions of the essential changes to TP 170A or ProTool

#### Design

- 5.7" STN, CCFL<sup>1)</sup>-backlit display, Blue mode (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 graphic editors (such as PaintShop, Designer or CorelDraw).
- Vector graphics  
Simple geometric basic forms (line, circle and rectangle) can be created directly in the configuring tool
- Fixed texts 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 graphic-based format
- Language selection:
  - 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
  - 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 RS485
  - Automatic transfer identification
  - Individual contrast setting and calibration
  - Clean screen
  - No batteries are necessary

### Configuration

Configuration is performed using the SIMATIC WinCC flexible Compact, Standard or Advanced engineering software, Version 2004 SP1 plus HSP or higher, or with the SIMATIC WinCC Comfort or Professional engineering software, V11 or higher.

For more information about engineering software, see HMI software/engineering software SIMATIC WinCC flexible/WinCC (TIA Portal).

### Integration

The TP 177A can be connected to:

- SIMATIC S7-200/-300/-400
- SIMATIC WinAC Software/Slot PLC
- Non-Siemens controllers:
  - Allen Bradley
  - Mitsubishi
  - Modicon
  - Omron

### Note:

Further information can be found under "System interfaces".

### Technical specifications

Product type designation	6AV6 642-0AA11-0AX1 TP 177A
<b>Display</b>	
Size	5.7"
Display type	STN, 4 shades of blue
Resolution (pixels)	
• Resolution (WxH in pixel)	320 x 240
Backlighting	
• MTBF backlighting (at 25 °C)	about 50,000 hours
<b>Control elements</b>	
Control elements	Touch screen
Connection for mouse/keyboard/barcode reader	- / - / -
Keyboard	
• Numeric/alphabetical input	Yes / Yes
Touch operation	
• Touch screen	analog, resistive
<b>Supply voltage</b>	
Input voltage	
• permissible range	+20.4 V to +28.8 V DC
• Supply voltage	24 V DC
<b>Input current</b>	
Rated current	0.24 A
<b>Processor</b>	
Processor	ARM
<b>Memory</b>	
Type	Flash / RAM
<b>Type of output</b>	
LED colors	None

# Operator panels

## Panels –170 series

### SIMATIC TP 177A

#### Technical specifications (continued)

Product type designation	6AV6 642-0AA11-0AX1 TP 177A
<b>Time of day</b>	
Clock	
• Type	Software clock, no battery backup
<b>Interfaces</b>	
Interfaces	1 x RS422, 1 x RS485 (max. 1.5 Mbit/s)
USB port	No
PC card slot	No
CF card slot	No
Multi Media Card slot	No
Industrial Ethernet	
• Industrial Ethernet interface	No
<b>Ambient conditions</b>	
Operating temperature	
• Operation (vertical installation)	0 °C to +50 °C
• Operation (max. tilt angle)	0 °C to +40 °C
Storage/transport temperature	
• Transport, storage	-20 °C to +60 °C
Relative humidity	
• max. relative humidity	90 %
Mounting position	vertical
maximum permissible angle of inclination without external ventilation	+/- 35 °
<b>Degree and class of protection</b>	
Front	IP65, NEMA 4x, (when installed)
Rear	IP20
<b>Standards, approvals, certificates</b>	
Certifications	CE, GL, ABS, BV, DNV, LRS, FM Class I Div. 2, UL, CSA, cULus, EX-Zone 2 (in Vorbereitung), EX-Zone 22 (in Vorbereitung), C-TICK, NEMA 4x
<b>Operating systems</b>	
Operating system	LINUX
<b>Configuration</b>	
Configuration software	
• Configuration tool	see "Configuration overview" from page 2/3
<b>Functionality under WinCC flexible/WinCC (TIA Portal)</b>	
Number of Visual Basic Scripts	Not possible
Task planner	Yes
Help system	Yes
Status/control	Not possible
With alarm logging system (incl. buffer and acknowledgment)	
• Number of messages	1 000
• Bit messages	Yes
• Analog messages	Yes
• Message buffer	Ring buffer (n x 256 entries), non-retentive

Product type designation	6AV6 642-0AA11-0AX1 TP 177A
Recipes	
• Recipes	5
• Data records per recipe	20
• Entries per data record	20
• Recipe memory	32 KB integrated Flash
Number of process images	
• Process images	250
• Variables	500
• Limit values	Yes
• Multiplexing	Yes
Image elements	
• Text objects	1,000 text elements
• Graphic object	Bit maps, icons, icon (full-screen), vector graphics
• dynamic objects	Diagrams, bar graphs
Lists	
• Text lists	300
• Graphic list	100
• Libraries	Yes
Security	
• Number of user groups	50
• Passwords exportable	Yes
• Number of user rights	32
Data carrier support	
• PC card	No
• CF card	No
• Multimedia Card	No
Fonts	
• Keyboard fonts	US American (English)
Languages	
• 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
• Character sets	Tahoma, WinCC flexible Standard, symbol languages, 1 additional character set can be loaded
Transfer (upload/download)	
• Transfer of configuration	MPI/PROFIBUS DP, serial, automatic transfer recognition
Process coupling	
• Connection to controller	see "System interfaces" from page 2/178
Expandability/openness	
• Open Platform Program	No
<b>Dimensions and weight</b>	
Dimensions	
• Front of enclosure (W x H)	212 mm x 156 mm
• Mounting cutout/device depth (W x H)	198 mm x 142 mm / 44 mm device depth
Weight	
• Weight	0.75 kg

Ordering data	Order No.	Order No.
<b>SIMATIC TP 177A</b> Touch Panel with 5.7" STN display, blue mode (4 levels), incl. mounting accessories	A <b>6AV6 642-0AA11-0AX1</b>	
<b>Configuration</b> <ul style="list-style-type: none"> <li>with SIMATIC WinCC flexible or with SIMATIC WinCC (TIA Portal)</li> </ul>	see HMI Software	
<b>Documentation (to be ordered separately)</b> <b>Operating Instructions TP 177A, TP 177B, OP 177B</b> <ul style="list-style-type: none"> <li>German</li> <li>English</li> <li>French</li> <li>Italian</li> <li>Spanish</li> </ul>	<b>6AV6 691-1DG01-0AA1</b> <b>6AV6 691-1DG01-0AB1</b> <b>6AV6 691-1DG01-0AC1</b> <b>6AV6 691-1DG01-0AD1</b> <b>6AV6 691-1DG01-0AE1</b>	
<b>User Manual WinCC flexible Compact/Standard/Advanced</b> <ul style="list-style-type: none"> <li>German</li> <li>English</li> <li>French</li> <li>Italian</li> <li>Spanish</li> </ul>	<b>6AV6 691-1AB01-3AA0</b> <b>6AV6 691-1AB01-3AB0</b> <b>6AV6 691-1AB01-3AC0</b> <b>6AV6 691-1AB01-3AD0</b> <b>6AV6 691-1AB01-3AE0</b>	
		<b>User Manual WinCC flexible Communication</b> <ul style="list-style-type: none"> <li>German</li> <li>English</li> <li>French</li> <li>Italian</li> <li>Spanish</li> </ul>
		<b>6AV6 691-1CA01-3AA0</b> <b>6AV6 691-1CA01-3AB0</b> <b>6AV6 691-1CA01-3AC0</b> <b>6AV6 691-1CA01-3AD0</b> <b>6AV6 691-1CA01-3AE0</b>
		<b>SIMATIC HMI Manual Collection B</b> 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
		<b>6AV6 691-1SA01-0AX0</b>
		<b>Accessories</b> see HMI accessories

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

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

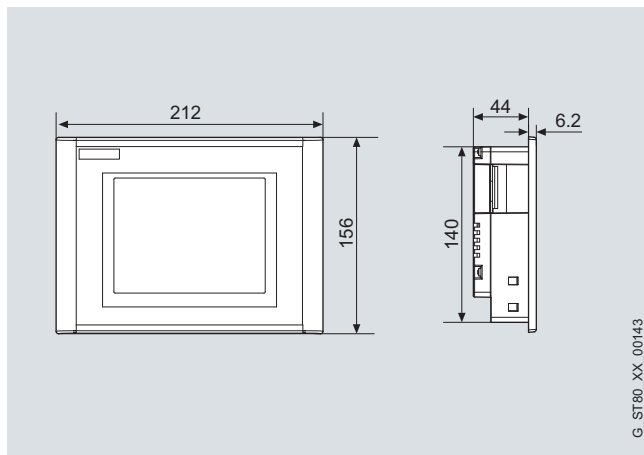
# Operator panels

## Panels –170 series

### SIMATIC TP 177A

#### Dimensional drawings

All specifications in mm. Panel cutout see technical specifications.



SIMATIC TP177A

#### More information

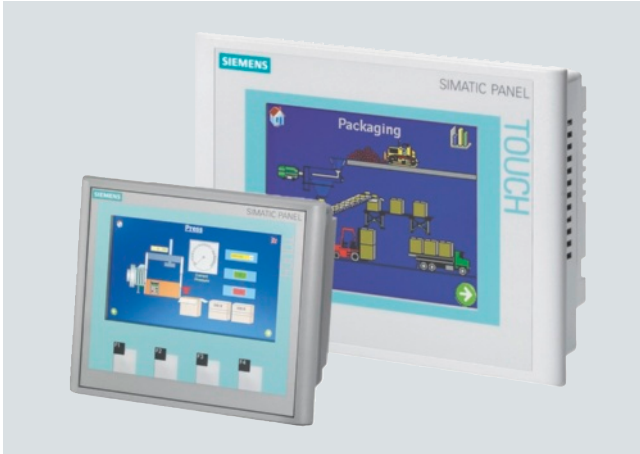
Additional information is available on the Internet at:

[www.siemens.com/simatic-panels](http://www.siemens.com/simatic-panels)

#### Note:

Do you require a specific modification or extension to the products described here? Under "Customized products", you can find information about additional and generally available products for the sector, and about the possibilities for customized modification and adaptation.

### Overview



- Touch Panel with extensive 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 onboard
- The PROFINET interface is onboard in the color version
- Drivers are also available for non-Siemens PLCs
- 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 (EN 1672-2). The stainless steel front is also appropriate, for example, 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 Multimedia Card/SD Card (also possible using a USB flash drive on the 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
- Graphic library available with off-the-shelf picture objects
- Standard interfaces for increasing flexibility:
  - External Multimedia Card/SD Card, can be used for recipe data records and for backup of configuration/system data; on the 4" panel, this is also possible using a USB flash drive
- 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-services 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 blue levels. 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.

# Operator panels

## Panels – 170 series

### SIMATIC TP 177B

#### Design

- Display versions
  - 4.3" TFT widescreen display with 256 colors or
  - 5.7" STN display with 256 colors or 4 blue levels
- 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) onboard
- PROFINET interface is already onboard 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 graphic library
- Multimedia Card/SD card can be used for standard Multimedia Cards or standard SD Cards (for backup/restoration or for backing up recipe data sets, the configuration, and system data); the 4" version also supports USB flash drives
- 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

<sup>1)</sup> 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
- Fixed 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 graphic editors.

- Curve functions and bars are used for the display of dynamic values in graphic-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 with 5 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
- Multimedia Card/SD card compatibility for external standard data carriers, can be used for backup/restoration or for transporting recipe data records; the 4" version also supports USB flash drives
- 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

The configuration is implemented using the innovative SIMATIC WinCC Comfort engineering tool. Projects generated using WinCC flexible can be easily migrated to WinCC.

#### Additional options

- Sm@rtServer Remote control and monitoring of SIMATIC HMI systems based on TCP/IP networks

### Technical specifications

Product type designation	6AV6 642-0BD01-3AX0 TP 177B Widescreen	6AV6 642-0BC01-1AX1 TP 177 Blue mode	6AV6 642-0BA01-1AX1 TP 177B color
<b>Display</b>			
Size	4.3" (95 mm x 53 mm)	5.7" (120 mm x 90 mm)	5.7" (120 mm x 90 mm)
Display type	TFT, 256 colors	STN, 4 shades of blue	STN, 256 colors
Resolution (pixels)			
• Resolution (WxH in pixel)	480 x 272	320 x 240	320 x 240
Backlighting			
• MTBF backlighting (at 25 °C)	Approx. 30000 hours	about 50,000 hours	about 50,000 hours
<b>Control elements</b>			
Control elements	Membrane keyboard	Touch screen	Touch screen
Function keys, programmable	4 function keys		
Connection for mouse/keyboard/barcode reader	USB / USB / USB	USB / USB / USB	USB / USB / USB
Keyboard			
• Numeric/alphabetical input	Yes (on-screen keyboard) / Yes (on-screen keyboard)	Yes / Yes	Yes / Yes
Touch operation			
• Touch screen	analog, resistive	analog, resistive	analog, resistive
<b>Supply voltage</b>			
Input voltage			
• permissible range	+19.2 V to +28.8 V DC	+20.4 V to +28.8 V DC	+20.4 V to +28.8 V DC
• Supply voltage	24 V DC	24 V DC	24 V DC
<b>Input current</b>			
Rated current	0.2 A	0.24 A	0.24 A
<b>Processor</b>			
Processor	RISC 32-bit, 266 MHz	ARM, 200 MHz	ARM, 200 MHz
<b>Memory</b>			
Type	Flash / RAM	Flash / RAM	Flash / RAM
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
<b>Time of day</b>			
Clock			
• Type	Hardware clock, synchronizable, no battery backup	Hardware clock, synchronizable, no battery backup	Hardware clock, synchronizable, no battery backup
<b>Interfaces</b>			
USB port	1 x USB	1 x USB	1 x USB
PC card slot	No	No	No
CF card slot	No	No	No
Multimedia card	combined	combined	combined
Industrial Ethernet			
• Industrial Ethernet interface	1 x Ethernet (RJ45)	No	1 x Ethernet (RJ45)
<b>Protocols</b>			
Protocols (terminal link)			
• Sm@rtAccess	Yes	Yes	Yes
<b>Ambient conditions</b>			
Operating temperature			
• Operation (vertical installation)	0 °C to +50 °C	0 °C to +50 °C	0 °C to +50 °C
• Operation (max. tilt angle)	0 °C to +40 °C	0 °C to +40 °C	0 °C to +40 °C
Storage/transport temperature			
• Transport, storage	-20 °C to +60 °C	-20 °C to +60 °C	-20 °C to +60 °C
Relative humidity			
• max. relative humidity	90 %	90 %	90 %
Mounting position	vertical	vertical	vertical
maximum permissible angle of inclination without external ventilation	+/- 35 °	+/- 35 °	+/- 35 °



# Operator panels

## Panels – 170 series

### SIMATIC TP 177B

#### Technical specifications (continued)

Product type designation	6AV6 642-0BD01-3AX0 TP 177B Widescreen	6AV6 642-0BC01-1AX1 TP 177 Blue mode	6AV6 642-0BA01-1AX1 TP 177B color
<b>Degree and class of protection</b>			
Front	IP65, NEMA 4, NEMA 4x, NEMA 12 (when installed)	IP65, NEMA 4x, NEMA 12 (when installed)	IP65, NEMA 4x, NEMA 12 (when installed)
Rear	IP20	IP20	IP20
<b>Standards, approvals, certificates</b>			
Certifications	CE, GL, FM Class I Div. 2, cULus, C-TICK, NEMA 4, NEMA 4x, NEMA 12	CE, GL, ABS, BV, DNV, LRS, FM Class I Div. 2, UL, CSA, cULus, EX Zone 2, EX Zone 22, C-TICK, NEMA 4x, NEMA 12	CE, GL, ABS, BV, DNV, LRS, FM Class I Div. 2, UL, CSA, cULus, EX Zone 2, EX Zone 22, C-TICK, NEMA 4x, NEMA 12
<b>Operating systems</b>			
Operating system	Windows CE (Version 5)	Windows CE	Windows CE
<b>Configuration</b>			
Configuration software	see "Configuration overview" from page 2/3		
• Configuration tool	see "Configuration overview" from page 2/3		
<b>Functionality under WinCC flexible/WinCC (TIA Portal)</b>			
Applications/options	See chapter 4: HMI software/SIMATIC WinCC flexible options and SIMATIC WinCC (TIA portal) options		
Task planner	Yes	Yes	Yes
Help system	Yes	Yes	Yes
Status/control	with SIMATIC S7	with SIMATIC S7	with SIMATIC S7
With alarm logging system (incl. buffer and acknowledgment)			
• Number of messages	2 000	2 000	2 000
• Bit messages	Yes	Yes	Yes
• Analog messages	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
• Data records per recipe	200	200	200
• Entries per data record	200	200	200
• Recipe memory	32 KB integrated Flash, expandable	32 KB integrated Flash, expandable	32 KB integrated Flash, expandable
Number of process images			
• Process images	500	500	500
• Variables	1 000	1 000	1 000
• Limit values	Yes	Yes	Yes
• Multiplexing	Yes	Yes	Yes
Image elements			
• Text objects	2,500 text elements	2,500 text elements	2,500 text elements
• Graphic object	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
Lists			
• Text lists	300	300	300
• Graphic list	100	100	100
• Libraries	Yes	Yes	Yes
Security			
• Number of user groups	50	50	50
• Passwords exportable	Yes	Yes	Yes
• Number of user rights	32	32	32
Data carrier support			
• PC card	No	No	No
• CF card	No	No	No
• Multimedia Card	Yes	Yes	Yes

**Technical specifications** (continued)

Product type designation	6AV6 642-0BD01-3AX0 TP 177B Widescreen	6AV6 642-0BC01-1AX1 TP 177 Blue mode	6AV6 642-0BA01-1AX1 TP 177B color
Recording			
• Recording/Printing	Alarms, report (shift report), color print, hardcopy	Alarms, report (shift report), hardcopy	Alarms, report (shift report), color print, hardcopy
• Printer driver	ESC/P2, PCL3/PCL6	ESC/P2, PCL3/PCL6	ESC/P2, PCL3/PCL6
Fonts			
• Keyboard fonts	US American (English)	US American (English)	US American (English)
Languages			
• 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
• Character sets	Tahoma, WinCC flexible Standard, symbol languages, 1 additional character sets can be loaded, all freely scalable	Tahoma, Courier New, WinCC flexible Standard, symbol languages, 2 additional character sets can be loaded, all freely scalable	Tahoma, Courier New, WinCC flexible Standard, symbol languages, 2 additional character sets can be loaded, all freely scalable
Transfer (upload/download)			
• Transfer of configuration	MPI/PROFIBUS DP, serial, USB, Ethernet, by means of external storage medium, automatic transfer recognition	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 recognition
Process coupling			
• Connection to controller	see "System interfaces" from page 178		
Expandability/openness			
• Open Platform Program	Yes	Yes	Yes
I/O			
I/O devices	Printer	Printer	Printer
<b>Dimensions and weight</b>			
Dimensions			
• Front of enclosure (W x H)	140 mm x 116 mm	212 mm x 156 mm	212 mm x 156 mm
• Mounting cutout/device depth (W x H)	123 mm x 99 mm/48 mm device depth	198 mm x 142 mm / 44 mm device depth	198 mm x 142 mm / 44 mm device depth
Weight			
• Weight	0.5 kg; Max.	0.8 kg	0.8 kg

# Operator panels

## Panels – 170 series

### SIMATIC TP 177B

#### Ordering data

##### SIMATIC TP 177B

Touch Panel with

- 4.3" TFT widescreen color display (256 colors)
- 5.7" STN blue mode display (4 levels)
- 5.7" STN color display (256 colors)

incl. mounting accessories

##### TP 177B 4" starter kit

Consisting of:

- TP 177B with 4.3" TFT widescreen color display (256 colors)
- SIMATIC WinCC flexible Compact configuration software
- SIMATIC HMI Manual Collection (DVD), 5 languages (English, French, German, Italian, Spanish)
- MPI cable (5 m) (for download and test purposes only)

##### TP 177B 6" starter kit

Consisting of:

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

##### Configuration software

- With SIMATIC WinCC flexible or SIMATIC WinCC

##### Configuration set

- Consisting of:
- SIMATIC WinCC flexible Compact engineering software, SIMATIC HMI Manual Collection (DVD), 5 languages (English, French, German, Italian and Spanish), PC/PPI cable Multi-master, MPI cable (5 m) (for download and test purposes only)
  - with SIMATIC WinCC flexible Compact engineering software

#### Order No.

E **6AV6 642-0BD01-3AX0**

E **6AV6 642-0BC01-1AX1**

E **6AV6 642-0BA01-1AX1**

E **6AV6 652-2KA00-0AA0**

E **6AV6 551-2EA01-1AA0**

see HMI software

D **6AV6 621-0AA01-0AA0**

#### Order No.

##### Documentation (to be ordered separately)

##### Operating Instructions TP 177micro/TP 177A/TP 177B/ OP 177B (WinCC flexible)

- German
- English
- French
- Italian
- Spanish

**6AV6 691-1DG01-0AA1**  
**6AV6 691-1DG01-0AB1**  
**6AV6 691-1DG01-0AC1**  
**6AV6 691-1DG01-0AD1**  
**6AV6 691-1DG01-0AE1**

##### User Manual WinCC flexible Compact/Standard/Advanced

- German
- English
- French
- Italian
- Spanish

**6AV6 691-1AB01-3AA0**  
**6AV6 691-1AB01-3AB0**  
**6AV6 691-1AB01-3AC0**  
**6AV6 691-1AB01-3AD0**  
**6AV6 691-1AB01-3AE0**

##### User Manual WinCC flexible Communication

- German
- English
- French
- Italian
- Spanish

**6AV6 691-1CA01-3AA0**  
**6AV6 691-1CA01-3AB0**  
**6AV6 691-1CA01-3AC0**  
**6AV6 691-1CA01-3AD0**  
**6AV6 691-1CA01-3AE0**

##### SIMATIC HMI Manual Collection B

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

**6AV6 691-1SA01-0AX0**

##### Accessories

see HMI accessories

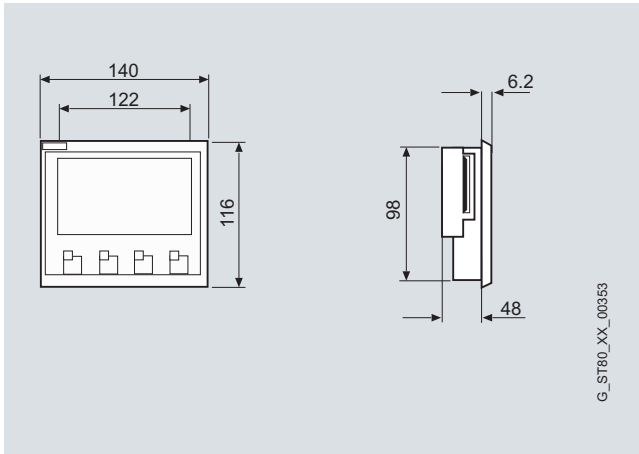
B: Subject to export regulations: AL: N and ECCN: EAR99S

D: Subject to export regulations: AL: N and ECCN: 5D992

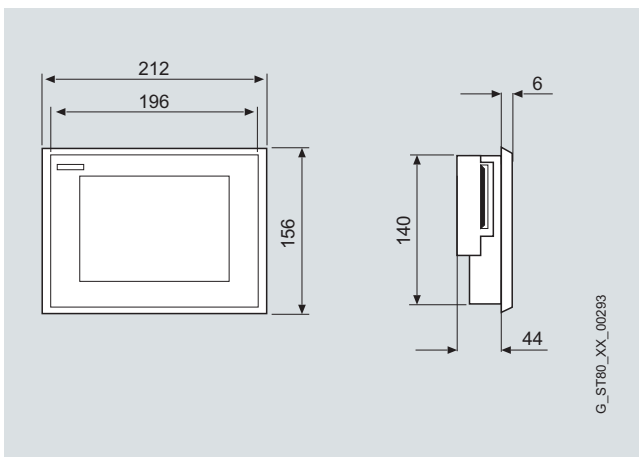
E: Subject to export regulations: AL: 91999 and ECCN: 5D002ENCU

### Dimensional drawings

All specifications in mm. Panel cutout see technical specifications.



SIMATIC TP 177B, 4" version



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

### More information

Additional information is available on the Internet at:

[www.siemens.com/simatic-panels](http://www.siemens.com/simatic-panels)

#### Note:

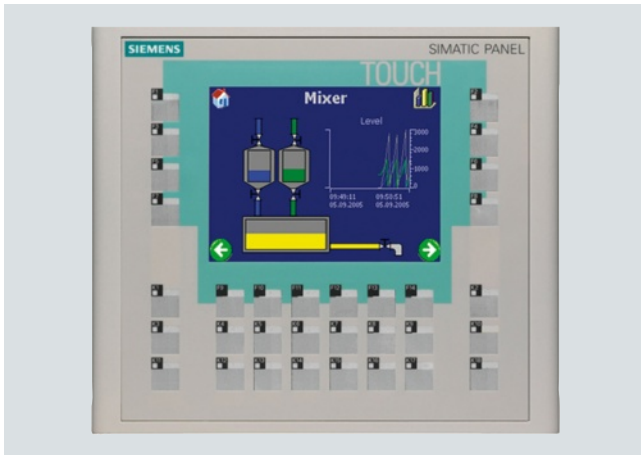
Do you require a specific modification or extension to the products described here? Under "Customized products", you can find information about additional and generally available products for the sector, and about the possibilities for customized modification and adaptation.

# Operator panels

## Panels – 170 series

### SIMATIC OP 177B

#### Overview



- Touch/Key Panel with extensive 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 onboard
- Ethernet is onboard 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 Multimedia Card/SD 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
- Graphic library available with off-the-shelf picture objects
- Standard interfaces for increasing the flexibility:
  - External Multimedia Card/SD Card, used for recipe data sets and for backup of the 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 is available with a 4-color blue mode display or a 256-color STN display. The color version complete with an integrated 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.

### 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) onboard
- Ethernet (PROFINET I/O-capable) with the color version
- Integrated USB interface
- Can be configured using SIMATIC WinCC flexible 2005 Compact and higher
- Complete functionality for demanding tasks
- Comprehensive Reichert graphic library
- Multimedia Card/SD Card slot  
Multimedia Cards or Standard SD Cards, can be used for standard Multimedia Cards (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 machine and plant status indication
- Fixed texts  
for labeling function keys, process images and process values in any character size
- Help texts  
for process displays, 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 graphic editors (such as PaintShop, Designer or CorelDraw).

- Curve functions and bars  
are used for the display of dynamic values in graphic-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 with 5 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 Access is possible
- Multimedia Card/SD Card compatibility  
for external standard data carriers, 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 configuration is implemented using the innovative SIMATIC WinCC Comfort engineering tool. Projects generated using WinCC flexible can be easily migrated to WinCC.

### Additional options

- Sm@rtServer  
Remote control and monitoring of SIMATIC HMI systems based on TCP/IP networks

# Operator panels

## Panels – 170 series

### SIMATIC OP 177B

#### Technical specifications

Product type designation	6AV6 642-0DC01-1AX1 OP 177B blue mode	6AV6 642-0DA01-1AX1 OP 177B color
<b>Display</b>		
Size	5.7" (120 mm x 90 mm)	5.7" (120 mm x 90 mm)
Display type	STN, 4 shades of blue	STN, 256 colors
Resolution (pixels)		
• Resolution (WxH in pixel)	320 x 240	320 x 240
Backlighting		
• MTBF backlighting (at 25 °C)	about 50,000 hours	about 50,000 hours
<b>Control elements</b>		
Control elements	Membrane keyboard	Membrane keyboard
Function keys, programmable	32 function keys, 26 with LEDs	32 function keys, 26 with LEDs
Connection for mouse/keyboard/barcode reader	USB / USB / USB	USB / USB / USB
Keyboard		
• Numeric/alphabetical input	Yes / Yes	Yes / Yes
Touch operation		
• Touch screen	analog, resistive	analog, resistive
<b>Supply voltage</b>		
Input voltage		
• permissible range	+20.4 V to +28.8 V DC	+20.4 V to +28.8 V DC
• Supply voltage	24 V DC	24 V DC
<b>Input current</b>		
Rated current	0.24 A	0.24 A
<b>Processor</b>		
Processor	ARM, 200 MHz	ARM, 200 MHz
<b>Memory</b>		
Type	Flash / RAM	Flash / RAM
Usable memory for user data	2048 KB usable memory for user data	2048 KB usable memory for user data
<b>Type of output</b>		
LED colors	Green	Green
<b>Time of day</b>		
Clock		
• Type	Hardware clock, synchronizable, no battery backup	Hardware clock, synchronizable, no battery backup
<b>Interfaces</b>		
USB port	1 x USB	1 x USB
PC card slot	No	No
CF card slot	No	No
Multimedia card	combined	combined
Industrial Ethernet		
• Industrial Ethernet interface	No	1 x Ethernet (RJ45)
<b>Protocols</b>		
Protocols (terminal link)		
• Sm@rtAccess	Yes	Yes

Product type designation	6AV6 642-0DC01-1AX1 OP 177B blue mode	6AV6 642-0DA01-1AX1 OP 177B color
<b>Ambient conditions</b>		
Operating 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
Storage/transport temperature		
• Transport, storage	-20 °C to +60 °C	-20 °C to +60 °C
Relative humidity		
• max. relative humidity	90 %	90 %
Mounting position	vertical	vertical
maximum permissible angle of inclination without external ventilation	+/- 35 °	+/- 35 °
<b>Degree and class of protection</b>		
Front	IP65, NEMA 4x, NEMA 12 (when installed)	IP65, NEMA 4x, NEMA 12 (when installed)
Rear	IP20	IP20
<b>Standards, approvals, certificates</b>		
Certifications	CE, GL, ABS, BV, DNV, LRS, FM Class I Div. 2, UL, CSA, cULus, EX Zone 2, EX Zone 22, C-TICK, NEMA 4x, NEMA 12	CE, GL, ABS, BV, DNV, LRS, FM Class I Div. 2, UL, CSA, cULus, EX Zone 2, EX Zone 22, C-TICK, NEMA 4x, NEMA 12
<b>Operating systems</b>		
Operating system	Windows CE	Windows CE
<b>Configuration</b>		
Configuration software		
• Configuration tool	see "Configuration overview" from page 2/3	
<b>Functionality under WinCC flexible/WinCC (TIA portal)</b>		
Applications/options	See chapter 4: HMI software/SIMATIC WinCC flexible options and SIMATIC WinCC (TIA portal) options	
Task planner	Yes	Yes
Help system	Yes	Yes
Status/control	with SIMATIC S7	with SIMATIC S7
With alarm logging system (incl. buffer and acknowledgment)		
• Number of messages	2 000	2 000
• Bit messages	Yes	Yes
• Analog messages	Yes	Yes
• Message buffer	Ring buffer (n x 256 entries), retentive, maintenance-free	Ring buffer (n x 256 entries), retentive, maintenance-free

### Technical specifications (continued)

Product type designation	6AV6 642-0DC01-1AX1 OP 177B blue mode	6AV6 642-0DA01-1AX1 OP 177B color
Recipes		
• Recipes	100	100
• Data records per recipe	200	200
• Entries per data record	200	200
• Recipe memory	32 KB integrated Flash, expandable	32 KB integrated Flash, expandable
Number of process images		
• Process images	500	500
• Variables	1 000	1 000
• Limit values	Yes	Yes
• Multiplexing	Yes	Yes
Image elements		
• Text objects	2,500 text elements	2,500 text elements
• Graphic object	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
Lists		
• Text lists	300	300
• Graphic list	100	100
• Libraries	Yes	Yes
Security		
• Number of user groups	50	50
• Passwords exportable	Yes	Yes
• Number of user rights	32	32
Data carrier support		
• PC card	No	No
• CF card	No	No
• Multimedia Card	Yes	Yes
Recording		
• Recording/Printing	Alarms, report (shift report), hardcopy	Alarms, report (shift report), color print, hardcopy
• Printer driver	ESC/P2, PCL3/PCL6	ESC/P2, PCL3/PCL6
Fonts		
• Keyboard fonts	US American (English)	US American (English)

Product type designation	6AV6 642-0DC01-1AX1 OP 177B blue mode	6AV6 642-0DA01-1AX1 OP 177B color
Languages		
• 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
• Character sets	Tahoma, Courier New, WinCC flexible Standard, symbol languages, 2 additional character sets can be loaded, all freely scalable	Tahoma, Courier New, WinCC flexible Standard, symbol languages, 2 additional character sets can be loaded, all freely scalable
Transfer (upload/download)		
• Transfer of configuration	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 recognition
Process coupling		
• Connection to controller	see "System interfaces" from page 2/178	
Expandability/openness		
• Open Platform Program	Yes	Yes
I/O		
I/O devices	Printer	Printer
Dimensions and weight		
Dimensions		
• Front of enclosure (W x H)	243 mm x 212 mm	243 mm x 212 mm
• Mounting cutout/device depth (W x H)	229 mm x 196 mm / 45 mm device depth	229 mm x 196 mm / 45 mm device depth
Weight		
• Weight	1 kg	1 kg



# Operator panels

## Panels – 170 series

### SIMATIC OP 177B

#### Ordering data

##### SIMATIC OP 177B

Operator panel with 5.7" STN display,

- Blue mode (4 levels) E
- Color (256 colors) E

incl. mounting accessories

##### OP 177B starter kit

Consisting of:

- OP 177B with STN display, color

- Configuration software SIMATIC WinCC flexible Compact
- SIMATIC HMI Manual Collection (DVD), 5 languages (English, French, German, Italian, Spanish)
- MPI cable (5 m) (for download and test purposes only), PC/PPI cable

##### Configuration software

- With SIMATIC WinCC flexible Compact or SIMATIC WinCC

##### Configuration set

Consisting of: SIMATIC WinCC flexible Compact engineering software, SIMATIC HMI Manual Collection (DVD), 5 languages (English, French, German, Italian and Spanish), PC/PPI cable Multimaster, MPI cable (5 m) (for download and test purposes only)

#### Order No.

6AV6 642-0DC01-1AX1

6AV6 642-0DA01-1AX1

6AV6 551-2HA01-1AA0

6AV6 621-0AA01-0AA0

#### Order No.

##### Documentation (to be ordered separately)

##### Operating Instructions TP 177micro/TP 177A/TP 177B/ OP 177B (WinCC flexible)

- German
- English
- French
- Italian
- Spanish

6AV6 691-1DG01-0AA1  
6AV6 691-1DG01-0AB1  
6AV6 691-1DG01-0AC1  
6AV6 691-1DG01-0AD1  
6AV6 691-1DG01-0AE1

##### User Manual WinCC flexible Compact/Standard/Advanced

- German
- English
- French
- Italian
- Spanish

6AV6 691-1AB01-3AA0  
6AV6 691-1AB01-3AB0  
6AV6 691-1AB01-3AC0  
6AV6 691-1AB01-3AD0  
6AV6 691-1AB01-3AE0

##### User Manual WinCC flexible Communication

- German
- English
- French
- Italian
- Spanish

6AV6 691-1CA01-3AA0  
6AV6 691-1CA01-3AB0  
6AV6 691-1CA01-3AC0  
6AV6 691-1CA01-3AD0  
6AV6 691-1CA01-3AE0

##### SIMATIC HMI Manual Collection B

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

6AV6 691-1SA01-0AX0

##### Accessories

see HMI accessories

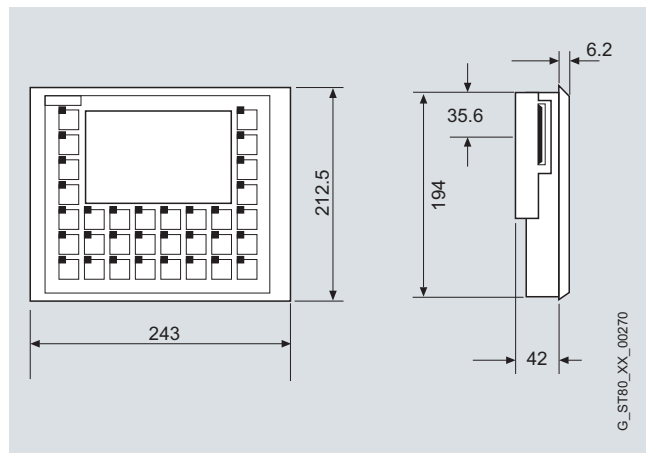
B: Subject to export regulations: AL: N and ECCN: EAR99S

D: Subject to export regulations: AL: N and ECCN: 5D992

E: Subject to export regulations: AL: 91999 and ECCN: 5D002ENCU

#### Dimensional drawings

All specifications in mm. Panel cutout see technical specifications.



OP 177B

#### More information

Additional information is available on the Internet at:

[www.siemens.com/simatic-panels](http://www.siemens.com/simatic-panels)

##### Note:

Do you require a specific modification or extension to the products described here? Under "Customized products", you can find information about additional and generally available products for the sector, and about the possibilities for customized modification and adaptation.