

Overview



- Touch 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 TFT display with 256 colors and touchscreen
- Interfaces for communication with Siemens SIMATIC S7 (e.g. MPI, PROFIBUS DP) are onboard
- Ethernet onboard
- 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 world-wide:
 - 32 offline languages can be configured (incl. Asian and Cyrillic character sets)
 - 16 online languages can be selected directly on the device
- Graphic 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 integrated 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.

Operator panels

Panels – 270 series

SIMATIC TP 277 6"

Design

- 256-color TFT display
- CCFL¹⁾ 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) onboard
- Ethernet (PROFINET I/O capable)
- Integrated USB interface
- Can be configured using SIMATIC WinCC flexible 2005 Standard SP1
- Complete functionality for demanding tasks
- Comprehensive Reichert graphic 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

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 (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: Circulating and sequence archive
 - 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

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 643-0AA01-1AX0 TP 277 6"
Display	
Size	5.7"
Display type	TFT, 256 colors
Resolution (pixels)	
• Resolution (WxH in pixel)	320 x 240
Backlighting	
• MTBF backlighting (at 25 °C)	about 60,000 hours
Control elements	
Control elements	Touch screen
Connection for mouse/keyboard/barcode reader	USB / USB / USB
Keyboard	
• Numeric/alphabetical input	Yes / Yes
Touch operation	
• Touch screen	analog, resistive
Supply voltage	
Input voltage	
• permissible range	+20.4 V to +28.8 V DC
• Supply voltage	24 V DC
Processor	
Processor	RISC 32-bit
Memory	
Type	Flash / RAM
Usable memory for user data	4 MB usable memory for user data
Time of day	
Clock	
• Type	Software clock, synchronizable, no battery backup
Interfaces	
Interfaces	1 x RS422, 1 x RS485, 1 x Ethernet (RJ45)
USB port	1 x USB
Multi Media Card slot	1 x Multi Media Card slot
Industrial Ethernet	
• Industrial Ethernet interface	1 x Ethernet (RJ45)
Ambient conditions	
Operating temperature	
• Operation	0 °C to +50 °C
Storage/transport temperature	
• Transport, storage	-20 °C to +60 °C
Relative humidity	
• max. relative humidity	80 %
Mounting position	vertical
Degree and class of protection	
Front	IP65, NEMA 4x, (when installed)
Rear	IP20

Product type designation	6AV6 643-0AA01-1AX0 TP 277 6"
Standards, approvals, certificates	
Certifications	CE, UL, NEMA 4x
Operating systems	
Operating system	Windows CE
Configuration	
Configuration software	
• Configuration tool	see "Configuration overview" from page 2/3
Functionality under WinCC flexible/WinCC (TIA portal)	
Applications/options	See chapter 4: HMI software/SIMATIC WinCC flexible options and SIMATIC WinCC (TIA portal) options
Number of Visual Basic Scripts	50
Task planner	Yes
Help system	Yes
Status/control	with SIMATIC S7
With alarm logging system (incl. buffer and acknowledgment)	
• Number of messages	4 000
• 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 KB integrated Flash, expandable (using optional memory card)
Number of process images	
• Process images	500
• Variables	2 048
• Limit values	Yes
• Multiplexing	Yes
Image elements	
• Text objects	10,000 text elements
• Graphic object	Bit maps, icons, vector graphics
• dynamic objects	Diagrams, bar graphs, sliders, analog display, invisible buttons
Lists	
• Text lists	500
• Graphic 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
• Memory location	Multi Media Card

Operator panels

Panels – 270 series

SIMATIC TP 277 6"

Technical specifications (continued)

Product type designation	6AV6 643-0AA01-1AX0 TP 277 6"
Security	
• Number of user groups	50
• Passwords exportable	Yes
• Number of user rights	32
Data carrier support	
• Multimedia Card	Yes
Recording	
• Recording/Printing	Alarms, report (shift report), color print, hardcopy
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, Arial, Courier New, WinCC flexible Standard, symbol languages, all freely scalable
Transfer (upload/download)	
• Transfer of configuration	MPI/PROFIBUS DP, USB, Ethernet, automatic transfer recognition
Process coupling	
• Connection to controller	see "System interfaces" from page 2/178
Expandability/openness	
• Open Platform Program	Yes
I/O	
I/O devices	Printer, barcode reader
Dimensions and weight	
Dimensions	
• Front of enclosure (W x H)	212 mm x 156 mm
• Mounting cutout/device depth (W x H)	197 mm x 141 mm / 45 mm device depth
Weight	
• Weight	0.78 kg

Ordering data

Order No.

SIMATIC TP 277 6"	E	6AV6 643-0AA01-1AX0
Touch Panel with 5.7" TFT display, color (256 colors), incl. mounting accessories		
Configuration		
With SIMATIC WinCC flexible or SIMATIC WinCC		see HMI Software
Configuration set	D	6AV6 622-0BA01-0AA0
Consisting of:		
• WinCC flexible Standard engineering software		
• Documentation DVD, 5 languages (English, French, German, Italian, Spanish)		
• RS 232 cable (5 m)		
• MPI cable, 5 m (for download and test purposes only)		
Applications/Options		
For configuration with WinCC flexible		see HMI Software
• WinCC flexible /Sm@rtAccess		see HMI Software
• WinCC flexible /Sm@rtService		see HMI Software
• WinCC flexible /ProAgent		see HMI Software
Documentation (to be ordered separately)		
TP 277 / OP 277 Operating Instructions		
• German		6AV6 691-1DH01-0AA0
• English		6AV6 691-1DH01-0AB0
• French		6AV6 691-1DH01-0AC0
• Italian		6AV6 691-1DH01-0AD0
• Spanish		6AV6 691-1DH01-0AE0
WinCC flexible Compact/Standard/Advanced User Manual		
• 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
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		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: 9I999 and ECCN: 5D002ENCU