

### 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
- Graphic library is available completely 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 to WinCC flexible

Migration manual with description of most important differences from OP7 or 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

# Operator panels

## Panels – 70 series

### SIMATIC OP 77A

#### Function

- Permanent window and template concept for creating screen templates
- Input/output fields 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 graphic editors (such as PaintShop, Designer or CorelDraw).
- Fixed 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 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 via MPI/PROFIBUS DP and serially via RS 485
  - Individual contrast settings
  - No batteries are necessary

#### Configuration

Configuration is performed using the SIMATIC WinCC flexible Compact, Standard or Advanced configuration software, Version 2004 SP1 plus HSP or higher, or with the SIMATIC WinCC (TIA Portal) 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 OP 77A can be connected to:

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

#### Note:

For further information, see "System interfaces".

#### Technical specifications

Product type designation	6AV6 641-0BA11-0AX1 OP 77A
<b>Display</b>	
Size	4.5"
Display type	STN, black/white
Resolution (pixels)	
• Resolution (WxH in pixel)	160 x 64
Backlighting	
• MTBF backlighting (at 25 °C)	about 100,000 hours
<b>Control elements</b>	
Control elements	Membrane keyboard
Function keys, programmable	8 function keys, 4 with LEDs
Connection for mouse/keyboard/barcode reader	- / - / -
Keyboard	
• System keys	23
• Numeric/alphabetical input	Yes / Yes
<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	0.2 A
<b>Processor</b>	
Processor	ARM
<b>Memory</b>	
Type	Flash / RAM
Usable memory for user data	256 KB usable memory for user data
<b>Type of output</b>	
LED colors	Green
<b>Time of day</b>	
Clock	
• Type	Software clock, no battery backup
<b>Interfaces</b>	
USB port	No
PC card slot	No
CF card slot	No
Multi Media Card slot	No
Industrial Ethernet	
• Industrial Ethernet interface	No

### Technical specifications (continued)

Product type designation	6AV6 641-0BA11-0AX1 OP 77A
<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	+/- 80 °
<b>Degree and class of protection</b>	
Front	IP65, NEMA 4x, NEMA 12 (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, NEMA 12
<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>	
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
Recipes	
• Recipes	5
• Data records per recipe	20
• Entries per data record	20
• Recipe memory	32 KB integrated Flash

Product type designation	6AV6 641-0BA11-0AX1 OP 77A
Number of process images	
• Process images	500
• Variables	1 000
• Limit values	Yes
• Multiplexing	Yes
Image elements	
• Text objects	1,000 text elements
• Graphic object	Bit maps, icons, icon (full-screen)
• dynamic objects	Bar graphs
Lists	
• Text lists	300
• Graphic list	0
• Libraries	Yes
Security	
• Number of user groups	50
• Passwords exportable	Yes
• Number of user rights	32
Recording	
• Recording/Printing	-
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	WinCC flexible Standard, symbol languages
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)	150 mm x 186 mm
• Mounting cutout/device depth (W x H)	135 mm x 171 mm / 38.5 mm device depth
Weight	
• Weight	0.5 kg

# Operator panels

## Panels – 70 series

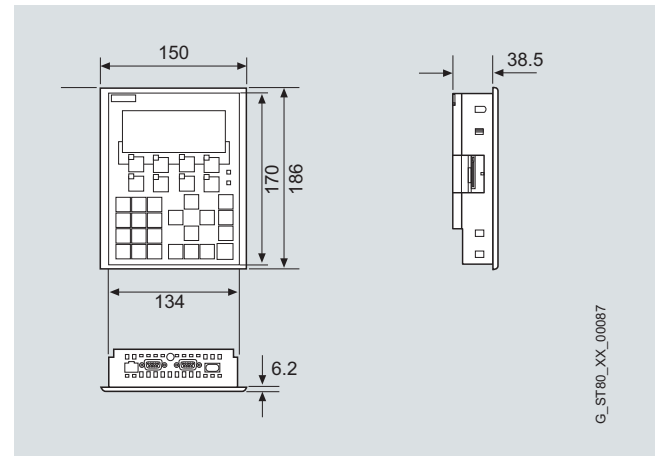
### SIMATIC OP 77A

Ordering data	Order No.
<b>SIMATIC OP 77A</b> Operator Panel with 4.5" display, monochrome, including mounting accessories	<b>6AV6 641-0BA11-0AX1</b>
<b>Configuration</b> with SIMATIC WinCC flexible or with SIMATIC WinCC (TIA Portal)	see HMI Software
<b>Documentation (to be ordered separately)</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

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

### Dimensional drawings

All specifications in mm. Panel cutout see technical specifications.



OP 77A

### 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.