

# Operator Control and Monitoring Devices

## Panels – 70 series

### 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 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

2

### Function (continued)

- 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
- 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	
<b>Supply voltage</b>	
Supply voltage	24 V DC
permissible range	+20.4 V to +28.8 V DC
Rated current	0.2 A
<b>Memory</b>	
Type of storage	
Type	Flash / RAM
Memory usable for project data/Options	256 KB usable memory for user data
<b>Time</b>	
Clock	
• Type	Software clock, not battery backed
<b>Configuration</b>	
Configuration tool	WinCC flexible Compact Version 2004 SP 1 or higher; HSP OP 77 (to be ordered separately)
<b>Display</b>	
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
<b>Operating mode</b>	
Operating elements	Membrane keyboard
Function keys, programmable	8 function keys, 4 with LEDs
System keys	23
Numeric/alphabetical input	Yes / Yes
Connection for mouse/keyboard/barcode reader	- / - / -
<b>Ambient conditions</b>	
Mounting position	Vertical
maximum permissible angle of inclination without external ventilation	+/- 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
<b>Degree of protection</b>	
Front	IP65, NEMA 4x, NEMA 12 (when installed)
Rear	IP20
<b>Certifications &amp; Standards</b>	
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
<b>Type of output</b>	
LED colors	Green

# Operator Control and Monitoring Devices

## Panels – 70 series

### SIMATIC OP 77A

#### Technical specifications (continued)

OP 77A	
<b>interfaces</b>	
Interfaces	1 x RS422, 1 x RS485 (max. 1.5 Mbit/s)
<b>Slots</b>	
PC card slot	No
CF card slot	No
Multi Media Card slot	No
USB	No
Ethernet	No
<b>Operating systems</b>	
Operating system	LINUX
<b>Processor</b>	
Processor	ARM
<b>Functionality under WinCC flexible</b>	
Task planner	Yes
Help system	Yes
Status/control	Not possible
Message system	
• 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 kByte integrated Flash
Number of process images	
• Process images	500
• Variables	1 000
• Limit values	Yes
• Multiplexing	Yes
Image elements	
• Text objects	1,000 text elements
• Graphics object	Bit maps, icons, icon (full-screen)
• dynamic objects	Bar graphs

OP 77A	
<b>Functionality under WinCC flexible (continued)</b>	
Lists	
• Text lists	300
• Graphics 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	
• Online languages	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
• Fonts	WinCC flexible Standard, symbol languages
Transfer (Upload/Download)	
• Transfer of configuration	MPI/PROFIBUS DP, serial, auto- matic transfer recognition
Process coupling	
• Connection to controller	S7-200, S7-300/400, Win AC see "System interfaces"
Expandability/openness	
• Open Platform Program	No
<b>Dimensions</b>	
Front of enclosure (W x H)	150 mm x 186 mm
Mounting cutout/Device depth (W x H/D) in mm	135 mm x 171 mm / 38.5 mm device depth
<b>Weight</b>	
Weight	0.5 kg

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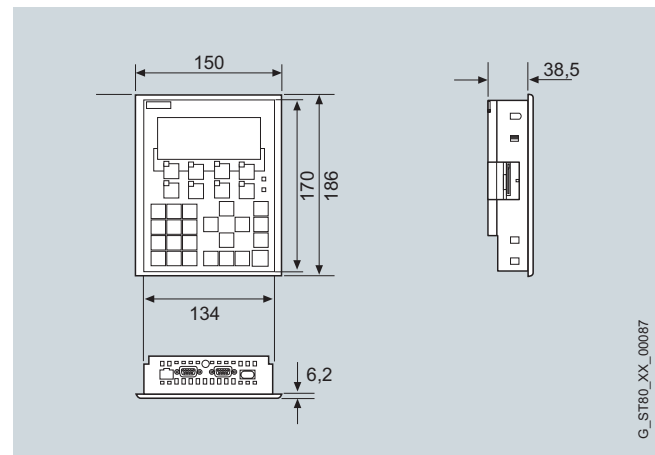
SIMATIC OP 77A

Ordering data	Order No.
<b>SIMATIC OP 77A</b> C Operator Panel with 4.5" display, monochrome, incl. mounting accessories	<b>6AV6 641-0BA11-0AX1</b>
<b>OP 77A starter package</b> D Consisting of: <ul style="list-style-type: none"> <li>• Operator Panel OP 77A</li> <li>• SIMATIC WinCC flexible Compact engineering software</li> <li>• SIMATIC HMI Manual Collection (CD), 5 languages (English, French, German, Italian, Spanish), comprising all currently available user manuals, manuals and communication manuals for SIMATIC HMI</li> <li>• MPI cable (5 m) (for download and test purposes only)</li> <li>• RS232/PPI multi-master cable (for download and image booting)</li> <li>• Voucher for Software Update Service for 1 year</li> </ul>	<b>6AV6 651-1BA01-0AA0</b>
<b>Configuration</b> with SIMATIC WinCC flexible see Chapter 4	
<b>Documentation (to be ordered separately)</b>	
<b>User Manual WinCC flexible Compact/Standard/Advanced</b> <ul style="list-style-type: none"> <li>• German <b>6AV6 691-1AB01-3AA0</b></li> <li>• English <b>6AV6 691-1AB01-3AB0</b></li> <li>• French <b>6AV6 691-1AB01-3AC0</b></li> <li>• Italian <b>6AV6 691-1AB01-3AD0</b></li> <li>• Spanish <b>6AV6 691-1AB01-3AE0</b></li> </ul>	
<b>User Manual WinCC flexible Communication</b> <ul style="list-style-type: none"> <li>• German <b>6AV6 691-1CA01-3AA0</b></li> <li>• English <b>6AV6 691-1CA01-3AB0</b></li> <li>• French <b>6AV6 691-1CA01-3AC0</b></li> <li>• Italian <b>6AV6 691-1CA01-3AD0</b></li> <li>• Spanish <b>6AV6 691-1CA01-3AE0</b></li> </ul>	
<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> <b>Accessories for supplementary ordering</b> 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

### Dimensions

All specifications in mm. Panel cutout see technical specifications.



### 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.