

SIMATIC TP 270/OP 270

The allrounders for human-machine interfacing



Powered by
WinCC flexible

simatic hmi PANELS

SIEMENS

SIMATIC TP 270/OP 270

Innovative human-machine interfacing

The SIMATIC® TP 270 Touch Panels and OP 270 Operator Panels have everything you expect from human machine interface (HMI) devices. And yet these powerful and high-performance panels are available at a favorable price.

Based on the Windows CE operating system, the TP 270/OP 270 offer innovative human machine interfacing combined with the benefits of operator panels: Ruggedness, stability and simplicity. Standard hardware and software interfaces guarantee more flexibility and openness, and access to the office world.

SIMATIC TP 270

The SIMATIC TP 270 Touch Panels are equipped with color STN touch screen (analog/resistive, 256 colors) and are available with 5.7" or 10.4" display.

SIMATIC OP 270

The SIMATIC OP 270 Operator Panels are operated via a membrane keyboard and are available in 5.7" or 10.4" color STN displays with 256 colors.

Standard interfaces for more flexibility

Thanks to the Windows CE operating system, standard hardware and software interfaces are available for the SIMATIC TP 270/OP 270. This opens up access to the office world with new, forward-looking communications facilities. It also means that the systems can be expanded with components from different manufacturers.

- **CF card slot;** for memory expansion for archives and recipes, backup/restore or additional interfaces
- **Ethernet (TCP/IP) optional;** via network card for data exchange with higher-level computers and centralized data/project management; for controller connection to SIMATIC S7/WinAC with WinCC flexible.
- **Integrated USB interface;** for "hot plug and play" of peripheral devices (keyboard, mouse, printers and barcode readers) during operation
- **Standard Windows storage format (CSV)** for archives and recipes for further processing the data with standard tools (Excel, for example)

- **Visual Basic Scripts** or customized **ActiveX Controls** for individual functional expansions/upgrades

Rugged and compact for machine-level use

Windows CE offers the basic requirements for machine-level use in harsh industrial environments. This includes flash drive operation with no cooling fan requirement, real-time capability and fast boot times. TP 270 and OP 270 are extremely robust with IP65, NEMA 4 and NEMA 12 protection on the front side, as well as high EMC compatibility and the ability to withstand external vibration.

Thanks to the compact design with shallow installation depth, TP 270/OP 270 can be used wherever installation space is restricted.

Extensive HMI functionality

With extensive range of available functions, the SIMATIC TP 270/OP 270 enable innovative operation and monitoring for the most demanding HMI applications. They offer 256 color displays, archiving of process values and messages, user-friendly graph displays with scroll and zoom functions, graphics library with standard objects, and much more.



Integral component part of SIMATIC, but nevertheless open

The SIMATIC TP 270/OP 270 also provide the benefits of Totally Integrated Automation® (TIA) for reducing engineering costs. For example, the STEP®7 database is accessed during configuration avoiding multiple data entry.

At the same time, the SIMATIC TP 270/ OP 270 remain open for connection to controllers from the variety of manufacturers. The user-friendly drivers for this are included free of charge.

Reducing servicing and startup costs

The cost for start-ups and servicing can be reduced with the TP 270/OP 270 by:

- Backup and restore of configuration, operating system, data records and firmware via a CF card (compact flash card) or on a PC; optional also over Ethernet
- Configuration download/upload via
 - USB, MPI, PROFIBUS DP, RS 232
 - Optional Ethernet, modem and CF card
- Automatic transfer detection
- Displays with long life bulbs and individual contrast setting
- Panel simulation on the configuring computer



highlights

- Can be used worldwide:
 - 32 languages can be configured (including Asian characters and the Cyrillic alphabet)
 - Users can switch between a total of 5 languages online
- Backup/restore over Ethernet (TCP/IP), CF card, MPI or USB
- Remote download/upload of the configuration and firmware
- Standard hardware and software interfaces for more flexibility
- Rugged and compact
- All interfaces onboard, for example MPI, PROFIBUS-DP, USB; Ethernet optional

With WinCC flexible

- WinCC flexible /Sm@rtService option for service & diagnostics over the Web
 - Remote operation via Internet Explorer
 - Access to diagnostics information of the operator panels via HTML pages
 - Remote diagnostics and downloading
 - Automatic sending of e-mails
- WinCC flexible /Sm@rtAccess option for innovative HMI concepts
 - Distributed operating stations
 - Central access to local stations, small control room solutions
 - Plant-wide flow of information thanks to communication between HMI systems (exchange of variables) or with office applications

SIMATIC TP 270/OP 270

New with SIMATIC WinCC flexible

Efficient configuring

The SIMATIC Panels of the 270 series are part of an integrated SIMATIC HMI® panel family.

Configuring is carried out using either SIMATIC ProTool configuring software or the new SIMATIC WinCC flexible engineering tool.

SIMATIC WinCC flexible is the next generation of the field-proven ProTool family.

Within the product range of SIMATIC HMI, it allows integrated configuring of all Windows CE-based operator panels, from the smallest micro panel right up to the PC.

Converting from the ProTool family to WinCC flexible is simple thanks to the conversion of the entire ProTool configuration.

Depending on the task, WinCC flexible is available in versions that are scaled according to price and performance. These versions build on each other and they are tailored to the individual classes of operator panels. The TP 270/OP 270 are configured with WinCC flexible Standard or Advanced.

The new WinCC flexible family provides an increase in configuring efficiency and offers new, innovative automation concepts for the machine-level area.

Remote maintenance simplifies service and support

The **WinCC flexible/Sm@rtService** option allows access from a PC via Internet Explorer to the panels and multi panels of the 270/370 series, using industrial Ethernet or intranet/Internet.

The latest configuration data, recipe data records, or passwords can thus be transferred to the operator panel without the need for anyone to be on-site. HTML pages are integrated which can be supplemented at any time with user-specific pages.

Machines and systems all around the world can be monitored, diagnosed by means of integral diagnostic functions and, if necessary, operated, from one location over the intranet/Internet.

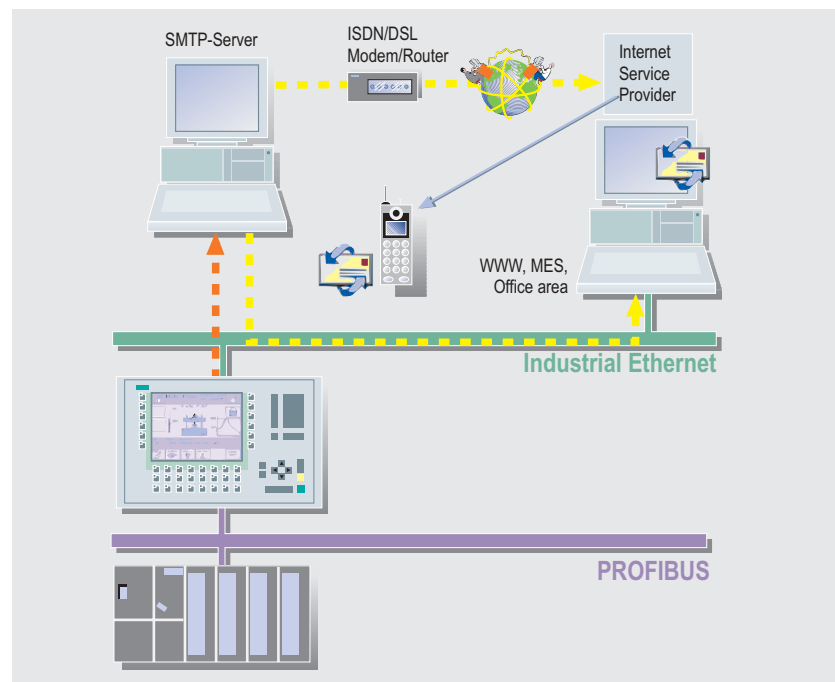
The operator panel can automatically send an e-mail to maintenance personnel via an SMTP (simple mail transfer protocol) server. When using an e-mail/text message gateway, access is gained to standard networks (external service provider required), and in critical situations a text message can even be sent to a mobile phone.

In this way, Sm@rtService reduces downtimes for machines and plants and saves costly deployment of personnel when service is required.

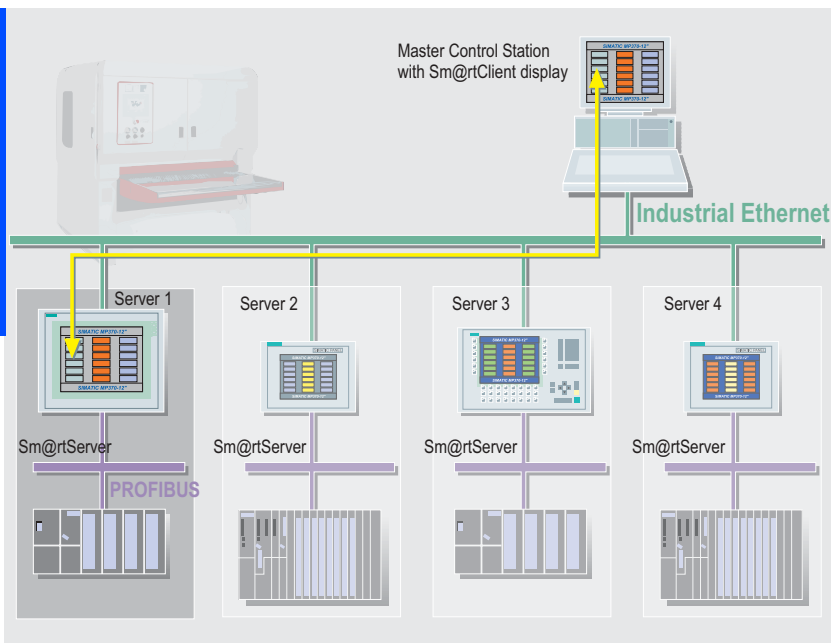
Password protection can be activated to rule out the possibility of unauthorized access.

Integrated Internet browser

With WinCC flexible, an HTML browser control can be integrated direct into the HMI application for accessing HTML documents on the intranet/Internet from the TP 270/OP 270. The operator interface of this embedded browser is freely configurable. It is possible to define the Internet/intranet pages that can be called up on the panel, during configuration.



Automatic sending of e-mails to the maintenance personnel with WinCCflexible /Sm@rtService



Control center solution: Operator control and process monitoring of HMI systems at the machine level from a central location using WinCC flexible /Sm@rtAccess

Client/server functionality and plant-wide data exchange

With the [WinCC flexible /Sm@rt Access option](#), panels and multi panels of the 270/370 series and PCs with WinCC flexible Runtime communicate with each other over Industrial Ethernet or the intranet/Internet.

Data exchange:

With Sm@rtAccess, SIMATIC HMI systems have access to one another in order to read/write variables. This enables the operator panels used at machine level to make data (variables) available to other SIMATIC HMI systems and to be used as data servers for higher-level systems. The data sharing also exists with Office applications via a corresponding script (e.g. Excel via SOAP). Communication is based on the HTTP or HTTPS protocol. Distributed information is available centrally. Plant-wide retrieval of information or archiving of process data are therefore possible without any great configuring overhead. It is not necessary to intervene in the control

program or to additionally load the process communication system.

In addition, WinCC flexible/Sm@rtAccess allows client/server configurations for distributed operator stations or for solutions with central control room.

Distributed operator terminals:

For machines/plants spread across wide areas requiring several operator panels, Sm@rtClients can be activated as distributed operator stations if required. These then obtain unrestricted access to the process via the master terminal which has the HMI application and the PLC connection. Rugged and low-cost SIMATIC Panels can be used as Sm@rtClients.

Control center solutions:

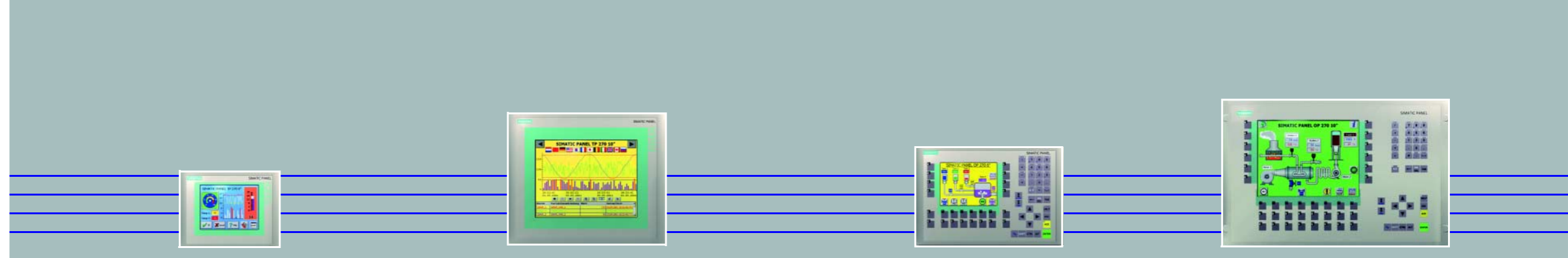
In the case of control room solutions, it is possible to use Sm@rt Access to access the machine from a central location, and view information remotely. As a Sm@rtClient, the master station (PC with WinCC flexible Runtime, for example) has access at any time to the operator

interface of the lower-level unit (machine or plant section with TP 270/OP 270 and PLC, for example) and can operate and monitor this unit from a remote location. In client/server configurations, access procedures ensure coordinated operation so that only one station at a time can control the process.

Other innovations with WinCC flexible

- Function block libraries: Variable blocks are freely definable and reusable, and they can be modified globally
- Message system with bit messages and analog messages (limit value messages)
- Freely definable message classes (acknowledgement behavior and representation can be configured)
- Language of the graphics and texts can be switched
- Template concept: creation of screen templates for the basic structure of the project
- Expanded password system
 - Authentication with user ID and password
 - User-group-specific rights (up to 32 rights)
- Objects can be dynamic by using Visual Basic scripts to access the attributes of picture objects such as text, graphics, or bar charts
- Connection to SIMATIC S7 and WinAC via Ethernet (network card required)

Technology overview



	TP 270 6"	TP 270 10"	OP 270 6"	OP 270 10"
Display	STN liquid crystal display (LCD)		STN liquid crystal display (LCD)	
• Size	5.7"	10.4"	5.7"	10.4"
• Resolution (W x H in pixels) / colors	320 x 240 / 256 colors	640 x 480 / 256 colors	320 x 240 / 256 colors	640 x 480 / 256 colors
• MTBF backlighting (at 25°C)	Approx. 40,000 hours	Approx. 60,000 hours	Approx. 40,000 hours	Approx. 60,000 hours
Operator controls	Touch screen		Membrane keyboard	
• Function keys, programmable	–		24 function keys, 18 with LEDs	36 function keys, 28 with LEDs
• System keys	–		36	38
• External mouse, keyboard, barcode reader	via USB		via USB	via USB
Processor	RISC CPU		RISC CPU	
Operating system	Windows CE		Windows CE	
Memory	Flash / RAM		Flash / RAM	
• Available memory for user data	2048KB configuration memory (without additional memory for options)		2048KB configuration memory (without additional memory for options)	
Interfaces	2 x RS 232, 1 x RS 422 / RS 485		2 x RS 232, 1 x RS 422 / RS 485	
• CF card slot	1 x CF card slot		1 x CF card slot	
• USB (universal serial bus)	1 x USB		1 x USB	
Connection to controller	S5, S7-200, S7-300/400, 505, WinAC, SINUMERIK, SIMOTION, Allen Bradley (DF1), Mitsubishi (FX), Telemecanique (ADJUST), Modicon (Modbus), LG GLOFA GM, and other non-Siemens controllers		S5, S7-200, S7-300/400, 505, WinAC, SINUMERIK, SIMOTION, Allen Bradley (DF1), Mitsubishi (FX), Telemecanique (ADJUST), Modicon (Modbus), LG GLOFA GM, and other non-Siemens controllers	
Additional communications channels	SIMATIC HMI HTTP Protocol (Sm@rtAccess option)		SIMATIC HMI HTTP Protocol (Sm@rtAccess option)	
Power supply	24 V DC (+18 to +30 V DC)		24 V DC (+18 to +30 V DC)	
• Rated current	0.6 A		0.6 A	
Clock	Hardware clock, battery-backed, synchronized		Hardware clock, battery-backed, synchronized	
Degree of protection	Front side: IP65 (installed), NEMA 12, NEMA 4x, NEMA 4; rear: IP20		Front side: IP65 (installed), NEMA 12, NEMA 4x, NEMA 4; rear: IP20	
Certificates	FM, UL, cULus, EX Zone 2, EX Zone 22, CE, C-TICK, shipbuilding approval (GL, ABS)		FM, UL, cULus, EX Zone 2, EX Zone 22, CE, C-TICK, shipbuilding approval (GL, ABS)	
Dimensions				
• Front panel W x H (mm)	212 x 156	335 x 275	308 x 204	483 x 310
• Installation cutout W x H (mm)	198 x 142	310 x 248	282 x 178	436 x 295
Weight	1 kg	4.5 kg	1 kg	6 kg
Temperature				
• Operation (horizontal installation)	0 °C to +50 °C	0°C to +50°C	0°C to +50°C	0°C to +50°C
• Operation (max. angle of inclination +/-35°)	0 °C to +35°C	0°C to +40°C	0°C to +35°C	0°C to +40°C
• Transportation/storage	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C
Max. relative atmospheric humidity	85 %	85 %	90 %	90 %
Applications/options				
• Under ProTool	ProAgent		ProAgent	
• Under WinCC flexible	ProAgent, Sm@rtAccess, Sm@rtService		ProAgent, Sm@rtAccess, Sm@rtService	
Configuring tool (to be ordered separately)	from ProTool Version 6 or from WinCC flexible 2004 ¹⁾ Standard		from ProTool Version 6 or from WinCC flexible 2004 ¹⁾ Standard	
• Transfer of the configuration	Serial / MPI / PROFIBUS DP / USB / Ethernet		Serial / MPI / PROFIBUS DP / USB / Ethernet	

1) Languages supported by WinCC flexible ES: German/English/French/Italian/Spanish

Functionality overview

TP 270, OP 270		
Configuring with	WinCC flexible	ProTool
	The total of all configured elements is limited by the memory size.	
Message system		
• Number of messages	4,000	2,000 event messages 2,000 alarm messages
• Bit/analog messages	Yes/Yes	Yes / No
• Message buffers	Circulating buffer, 512 entries each	
Recipes	300	
• Data records per recipe	500	
• Entries per data record	1,000	
• Recipe memory	64KB integral flash, expandable	
Process images	500	300
• Graphics objects	Bitmaps, icons, background pictures, vector graphics	
• Dynamic objects	Diagrams, bar charts, slides, hidden buttons	
Variables	2,048	
Archiving	20 archives/20 measuring points per project	
• Archive types	Circulating archives, sequence archives for messages and process values	
• Number of sequence archives	400	40
• Entries per archive	500,000	10.000
User administration (security)	User-group-specific rights (32 users, 10 user groups)	10 password levels
Visual Basic scripts	Number = 50, number of lines per script = 20	
Print functions	Color print, hardcopy, messages, shift log	
Online languages	5	
Character set	Tahoma, Courier New, 2 other character sets can be loaded, logographic languages; freely scalable	Tahoma, logographic languages; freely scalable
Help system	Yes	
PG functions (STATUS/CONTROL)	with SIMATIC S5/S7	
Task planner (scheduler)	Yes	

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