

### Overview

The SIMATIC Basic Panel, Comfort Panel and Mobile Panel offer HMI functionality for the control systems:

- SIMATIC S7
- Non-Siemens controllers:
  - Allen Bradley
  - Mitsubishi
  - Modicon
  - Omron

For more detailed information, refer to the WinCC (TIA Portal) user manual, the "Windows-based systems communication" manual, or the WinCC (TIA Portal) online help.

OPC communication and HTTP communication are offered for Comfort Panels and Mobile Panels with an integrated Ethernet interface. Both OPC and HTTP communication can be used in parallel with the process links to SIMATIC S7 or non-Siemens PLCs.

#### Note:

Interface options for HMI devices: See the individual device descriptions.

### OPC communication

OPC Data Access is an open standard for exchanging both local and remote variables between various applications via Industrial Ethernet.

### HTTP communication for variable exchange between SIMATIC HMI systems

Communication based on HTTP message frames enables variables to be exchanged between SIMATIC HMI systems.

Communication standard	SIMATIC HMI		
Version	Comfort Panel	Mobile Panel KTPx00	WinCC Runtime Advanced
<b>OPC Data Access V2.05a + OPC UA Data Access V1.01 + OPC Data Access XML V1.00</b>			
OPC DA client (COM/DCOM)	–	–	•
OPC DA server (COM/DCOM)	–	–	•
OPC UA DA client	•	•	•
OPC UA DA server	•	•	•
<b>HTTP communication for variable exchange between SIMATIC HMI systems</b>			
HTTP client	•	•	•
HTTP server	•	•	•

- System interface possible
- System interface not possible

## Operator panels

### System interfaces with WinCC (TIA Portal)

#### SIMATIC S7

#### Overview

The following types of interface are differentiated in respect of the link between the SIMATIC Panels and SIMATIC S7 controllers:

- PROFINET interface:  
Coupling of SIMATIC Panel to SIMATIC S7 controllers via Industrial Ethernet TCP/IP using the integrated PROFINET interface of the CPU or, alternatively, a PROFINET interface module.
- MPI/PROFIBUS interface:  
Coupling of SIMATIC Panel to SIMATIC S7 controllers via MPI/PROFIBUS using the integrated MPI/PROFIBUS interface of the CPU or the integrated PPI interface of the CPU in the case of S7-200 or, alternatively, a PROFIBUS interface module in the case of S7-1200, S7-1500, S7-300 and S7-400.
- PPI interface:  
Coupling of SIMATIC Panel to SIMATIC S7-200 via PPI network using the integrated PPI interface of the CPU.

The maximum possible number of S7 connections of one CPU is determined by its performance capacity (see Catalog ST 70); from the point of view of the SIMATIC Panel, the following restrictions apply:

- Basic Panel, Comfort Panel 4<sup>th</sup>,  
Mobile Panel 177: max. 4 connections
- Comfort Panels from 7<sup>th</sup> to 22<sup>nd</sup> (incl. Outdoor),  
Mobile Panel 2<sup>nd</sup> Generation: max. 8 connections
- Mobile Panel 277: max. 6 connections
- PC with WinCC Runtime Advanced: max. 8 connections

#### PPI interface

The PPI interface is a point-to-point connection between a SIMATIC Panel (PPI master) or alternatively a PG (PPI master) and an S7-200 (PPI slave).

#### MPI/PROFIBUS interface or PROFINET interface

The corresponding multipoint-enabled SIMATIC Panel and SIMATIC S7 communication interfaces are used. The following are possible:

- Interface between one or more SIMATIC Panels (MPI master) and one or more S7-1200/S7-1500/S7-300/S7-400s or WinAC (MPI master) (possible network topology: MPI/PROFIBUS or Industrial Ethernet TCP/IP)
- Interface between one or more SIMATIC Panels (MPI master) and one or more S7-200s (MPI slave)<sup>1)</sup> (possible network topology: PPI, MPI/PROFIBUS)

Unlike PPI connections, MPI connections are static connections that are set up during booting and then monitored.

In principle this type of information exchange between SIMATIC Panels and SIMATIC S7 is independent of the network used, PPI, MPI/PROFIBUS or Industrial Ethernet: SIMATIC Panels are S7 clients and SIMATIC S7 CPUs are S7 servers.

Controller	SIMATIC HMI					
Target hardware (PROTOCOL) (physics)	Basic Panel	Comfort Panel	Mobile Panel 177 DP / PN <sup>1)</sup>	Mobile Panel 277 <sup>1)</sup>	KTPx00(F) Mobile <sup>1)</sup>	WinCC Runtime Advanced
<b>SIMATIC S7-1200<sup>2)</sup></b>						
over Ethernet (TCP/IP)	• <sup>3)</sup>	•	• <sup>3)</sup>	•	•	•
over MPI or PROFIBUS network	• <sup>4)</sup>	•	• <sup>3)</sup>	•	–	• <sup>5)</sup>
<b>SIMATIC S7-1500<sup>2)</sup></b>						
over Ethernet (TCP/IP)	• <sup>3)</sup>	•	• <sup>3)</sup>	•	•	•
over PROFIBUS network	• <sup>3)</sup>	•	• <sup>3)</sup>	•	–	• <sup>5)</sup>
<b>SIMATIC S7-300, -400, Win AC<sup>2)</sup></b>						
over Ethernet (TCP/IP)	• <sup>3)</sup>	•	• <sup>3)</sup>	•	•	•
over MPI or PROFIBUS network	–	•	• <sup>4)</sup>	•	–	• <sup>5)</sup>
<b>SIMATIC S7-200<sup>2)</sup></b>						
over Ethernet (TCP/IP) (MPI protocol)	• <sup>3)</sup>	•	• <sup>3)</sup>	•	•	•
over MPI or PROFIBUS network	• <sup>4)</sup>	• <sup>6)</sup>	• <sup>4) 6)</sup>	• <sup>6)</sup>	–	• <sup>5) 6)</sup>
over PPI network (MPI protocol)	• <sup>4)</sup>	–	•	–	–	–
over PPI network (PPI protocol)	–	• <sup>7)</sup>	• <sup>7)</sup>	• <sup>7)</sup>	–	• <sup>5) 7)</sup>

- System interface possible

– System interface not possible

<sup>1)</sup> Mobile Panel connection via special connecting cable and connection box (see Mobile Panels), see Manual for cable assignment

<sup>2)</sup> Controllers can be combined as desired

<sup>3)</sup> Basic Panel PN only

<sup>4)</sup> Basic Panel DP only

<sup>5)</sup> Connection via integrated MPI/PROFIBUS interface; in the case of a standard PC, a communications processor (CP) is to be used (e.g. CP 5612/5622)

<sup>6)</sup> Only on passive S7-200

<sup>7)</sup> Can be interfaced via PPI to max. 1 x S7-200 (PPI); network operation (parallel PG, etc.) is possible

#### Note:

For detailed information on cable assignment, refer to WinCC Online Help.

#### Overview

The SIMATIC Basic Panels, Comfort Panels and Mobile Panels, as well as the SIMATIC HMI software package for PC WinCC Runtime Advanced support the following protocols for linking the control systems of other manufacturers:

- Allen Bradley
  - Ethernet IP protocol
  - DF1 protocol
- Mitsubishi
  - MC TCP/IP protocol
  - FX protocol
- Modicon
  - Modbus TCP/IP protocol
  - Modbus RTU protocol
- Omron
  - Link/Multi-Link protocol

The following table contains more detailed information.

#### Connection overview

Controller	SIMATIC HMI			
Target hardware (PROTOCOL) (physics)	Basic Panel	Comfort Panel Outdoor	KTPx00(F) Mobile	WinCC Runtime Advanced
<b>Allen Bradley (Ethernet IP)</b> via Ethernet TCP/IP network to max. 4 x controllers <sup>2)</sup> • ControllLogix 1756-L6x, -L6xS with Ethernet module 1756-ENBT • GuardLogix System • CompactLogix 1769-L2xE, -L3xE • CompactLogix 1769-L4x with Ethernet module 1768-ENBT • SLC 5/05 • MicroLogix 1100, 1400	• <sup>3)</sup>	•	•	•
<b>Allen Bradley (DF1)</b> to max. 1 x controller • SLC 5/03, /04, /05 • MicroLogix (RS 232)	• <sup>4) 5)</sup>	• <sup>4)</sup>	–	• <sup>6)</sup>
to max. 1 x controller • PLC5/11, /20, /30, /40, /60, /80 (RS 232)	• <sup>4) 5)</sup>	• <sup>4)</sup>	–	• <sup>7)</sup>
via KF2 gateway and DH+ network to max. 4 x controllers <sup>2)</sup> • SLC 5/04 • PLC5/11, /20, /30, /40, /60, /80 (RS 232)	• <sup>4) 5)</sup>	• <sup>4)</sup>	–	• <sup>7) 8)</sup>
via KF2 gateway and DH+ network to max. 4 x controllers <sup>2)</sup> • SLC 5/04 • PLC5/11, /20, /30, /40, /60, /80 (RS 422)	• <sup>5)</sup>	•	–	–
via KF3 gateway and DH485 network to max. 4 x controllers <sup>2)</sup> • SLC 500 • MicroLogix (RS 232)	• <sup>4) 5)</sup>	• <sup>4)</sup>	–	• <sup>7) 8)</sup>

- System interface possible
- System interface not possible

<sup>1)</sup> Mobile Panel connection via special connecting cable and connection box (see Mobile Panels), see Manual for cable assignment

<sup>2)</sup> The following listed controllers can be combined as required

<sup>3)</sup> Basic Panel PN only

<sup>4)</sup> The RS 422/RS 232 adapter 6AV6671-8XE00-0AX0 is required for Basic Panels and Comfort Panels

<sup>5)</sup> Basic Panel DP only

<sup>6)</sup> Connection via Allen Bradley PC cable 1747 CP3

<sup>7)</sup> Connection via Allen Bradley PC cable 1784 CP10

<sup>8)</sup> For connection to KF2/KF3 gateway, a gender-changer (25-pin socket/ 25-pin socket) is required on the gateway side

#### Note:

For detailed information on cable assignment, refer to WinCC Online Help; see also FAQs:

<http://support.automation.siemens.com/WW/view/en/29034071>

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### System interfaces with WinCC (TIA Portal)

#### Controllers from other manufacturers

##### Overview (continued)

Controller Target hardware (PROTOCOL) (physics)	SIMATIC HMI			
	Basic Panel	Comfort Panel Outdoor	KTPx00(F) Mobile	WinCC Runtime Advanced
<b>Mitsubishi (MC TCP/IP)</b> via Ethernet IP network to max. 4 x controllers <sup>2)</sup> <ul style="list-style-type: none"> <li>FX series FX3G, FX3U, FX3UC with Ethernet module FX3U ENET,</li> <li>Series Q with Ethernet module QJ71E71-100</li> <li>iQ series/QnUD QnUDEH</li> </ul>	• <sup>3)</sup>	•	•	•
<b>Mitsubishi FX (serial)</b> to max. 1 x controller FX series FX1N, FX2N (RS 232)	• <sup>4)</sup>	•	–	• <sup>5)</sup>

- System interface possible
- System interface not possible

- 1) Mobile Panel connection via special connecting cable and connection box (see Mobile Panels), see Manual for cable assignment
- 2) The following listed controllers can be combined as required
- 3) Basic Panel PN only
- 4) Basic Panel DP only
- 5) Connection using a Mitsubishi PC cable SC-09 with integrated level converter RS 232/RS 422

##### Note:

For detailed information on cable assignment, refer to WinCC Online Help; see also FAQs:

<http://support.automation.siemens.com/WW/view/en/29034071>

Controller Target hardware (PROTOCOL) (physics)	SIMATIC HMI			
	Basic Panel	Comfort Panel Outdoor	KTPx00(F) Mobile	WinCC Runtime Advanced
<b>Modicon (MODBUS TCP/IP)</b> via MODBUS TCP/IP network to max. 4 x controllers <sup>2)</sup> <ul style="list-style-type: none"> <li>Concept Quantum, Unity Quantum</li> <li>Momentum</li> <li>Premium (TSX57)</li> <li>TSX Micro (TSX37)</li> <li>Modicon M340 20x0 (except 2010)</li> </ul>	• <sup>3)</sup>	•	•	•
via TCP/IP Modbus Plus Bridge 174 CEV 200 40 and MODBUS PLUS network to max. 4 x controllers <sup>2)</sup> <ul style="list-style-type: none"> <li>Concept Quantum, Unity Quantum</li> <li>Momentum</li> <li>Compact</li> </ul>	• <sup>3)</sup>	•	•	•
<b>Modicon (MODBUS RTU)</b> to max. 1 x controller <ul style="list-style-type: none"> <li>Concept Quantum</li> <li>Momentum</li> <li>Compact (RS 232)</li> </ul>	• <sup>4) 5)</sup>	• <sup>4)</sup>	–	•
via bridge BM85-000 or PLC with bridge functionality and MODBUS PLUS network to max. 4 x controllers <sup>2)</sup> <ul style="list-style-type: none"> <li>Concept Quantum</li> <li>Compact (RS 232)</li> </ul>	• <sup>4) 5)</sup>	• <sup>4)</sup>	–	•

- System interface possible
- System interface not possible

- 1) Mobile Panel connection via special connecting cable and connection box (see Mobile Panels), see Manual for cable assignment
- 2) The following listed controllers can be combined as required
- 3) Basic Panel PN only
- 4) The RS 422/RS 232 adapter 6AV6671-8XE00-0AX0 is required for Basic Panels and Mobile Panels
- 5) Basic Panel DP only

##### Note:

For detailed information on cable assignment, refer to WinCC Online Help; see also FAQs:

<http://support.automation.siemens.com/WW/view/en/29034071>

**Operator panels**  
System interfaces with WinCC (TIA Portal)

**Controllers from other manufacturers**

**Overview** (continued)

Controller Target hardware (PROTOCOL) (physics)	SIMATIC HMI			
	Basic Panel	Comfort Panel Outdoor	KTPx00(F) Mobile	WinCC Runtime Advanced
<b>Omron (Link/Multi Link)</b>				
to max. 1 x controller • CP1L, CP1H, CP1E • CJ1M, CJ1H, CJ1G • CJ2H • CS1G, CS1H, CS1D • CP2MC (RS 232)	–	• <sup>2)</sup>	–	•
via converter NT-AL001 and RS 422 network to max. 4 x controllers <sup>2)</sup> • CP1L, CP1H, CP1E • CJ1M, CJ1H, CJ1G • CJ2H • CS1G, CS1H, CS1D • CP2MC (RS 232)	–	• <sup>2)</sup>	–	•
via RS 422 network to max. 4 x controllers <sup>2)</sup> • CP1L, CP1H, CP1E • CJ1M, CJ1H, CJ1G (RS 422)	• <sup>3)</sup>	•	–	–
via RS422 network to max. 4 x controllers <sup>2)</sup> • CJ2H • CS1G, CS1H, CS1D • CP2MC (RS 422)	–	–	–	–

- System interface possible
- System interface not possible

<sup>1)</sup> The controllers listed below can be combined in any way required; connection via RS 422 interface of the controller or via RS 422 module  
<sup>2)</sup> The RS 422/RS 232 adapter 6AV6671-8XE00-0AX0 is required for Basic Panels and Mobile Panels  
<sup>3)</sup> Basic Panel DP only

Note:

For detailed information on cable assignment, refer to WinCC Online Help; see also FAQs:

<http://support.automation.siemens.com/WW/view/en/29034071>

