

TO-PASS® Telecontrol Technology

◀ Section 3

Controllers

- Programmable fieldbus controllers for telecontrol technology

TO-PASS® Telecontrol Technology

- Telecontrol technology based on GSM/GPRS

Section 8 ▶

Radio Technology

- Bluetooth®
- WLAN
- EnOcean®

	Page
General Product Information	558
Versions	559
Item Number Keys	560
Interfaces and Configurations	561
Application and Installation Instructions	562
Standards and Rated Conditions	563



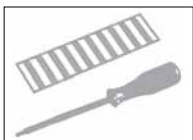
	Description	Item No.	
TO-PASS® Telecontrol Module, compact	Compact	761-110	564
	Compact, 2 AI	761-111	565
	Compact, Web	761-112	566
	Compact, 2 AI, Web	761-113	567
	Compact, 2 AI, Web, MODBUS, RS-485	761-114	568
	Compact	761-210	569
	Compact, 8 AI, Event Logger, Data Logger	761-214	570
	Compact, 8 AI, Web, MODBUS	761-216	571
	Compact, 8 AI, Web, MODBUS, RS-485	761-217	572



TO-PASS® Mobile	4 AI	761-314	573
	4 AI, Web, MODBUS RS-232	761-316	574



TO-PASS® Outdoor	Outdoor housing	761-9009	575
-------------------------	-----------------	----------	-----



Accessories	Antenna accessory, USB adapter, serial cable, accumulator		576
--------------------	---	--	-----

From Fault Detector to Intelligent Telecontrol PLC

The TO-PASS® product series makes it possible to monitor remote objects even in harsh environmental conditions at any time. The devices use the GSM mobile radio network and can communicate wirelessly without data lines or radio links.

Data can be sent to a user-selected destination (e.g., WAGO Web portal) and easily accessed from any browser. Remote access ensures a high degree of system up-time, while simultaneously relieving service personnel from the burden of performing time-consuming, on-site inspections. With an appropriate GSM service provider contract, wireless connection is more efficient and cost-effective than a standard wired connection. TO-PASS® Compact modules can be commissioned via configuration tool without programming knowledge, serving as a convenient gateway into wireless communication and telecontrol technology.

Application: Error Message Monitoring

Error messages are recorded locally and reported via SMS, e-mail or fax. Conversely, outputs can be connected via SMS.

Application: Cyclic monitoring

Process data is recorded cyclically, transmitted over the Web via GPRS and saved centrally. All options for analysis and further processing including engagement in the process are available.

Application: Detection and Object Tracking

Using GPS, TO-PASS® Mobile makes it possible to capture position and process values. This permits tracking of personnel and vehicles, trip monitoring, fleet management and much more.

Application: Intelligent Telecontrol PLC

The combination of intelligent data pre-processing with integration into the central TO-PASS® data storage provides optimal scalability for comprehensive support of even the most complex applications.

Data Collection/Distribution via Web Portal

The TO-PASS® Web Portal is an adaptive portal capable of identifying and independently visualizing values from the TO-PASS® Compact modules – no programming required. It makes it easy to view and manage data in a Web browser on the Internet.

Remote Parameterization

All TO-PASS® devices can also be configured remotely using the CSD service of the GSM network.

Integrated Position Determination

An integrated GPS receiver allows TO-PASS® Mobile devices to detect position within 20 meters and to manage this together with the actual process values. This can be helpful, for example, to record compliance of a cold chain for food transport on land and at sea without interruption.

High Degree of Protection

TO-PASS® Outdoor makes it possible to use the telecontrol modules even under difficult environmental conditions. The enclosure protects against moisture. An integrated UPS bridges power failures and can also, for example, send an error message. The option of integrating enclosure heating extends the unit's operating temperature range, opening it up to additional applications, such as wind power plants. Solar operation also ensures stand-alone use.

Approvals

TO-PASS® devices have a broad range of approvals for worldwide telephone networks. That means unrestricted applicability throughout the European Union. There are also approvals for Croatia, Turkey, Singapore, USA, Canada and Mexico. Approvals for other countries are available on request.

- Very easy to use
- Versions for different requirements
- Parameterization without programming knowledge
- Great coverage and availability of the GSM network
- Data collection/distribution via Web portal
- Low ongoing mobile radio costs typically < 10 € / month
- Optional: High degree of protection



TO-PASS® Compact (A)

- Compact telecontrol modules
- With integrated GSM modem
- With integrated I/Os in different configurations
- Message dispatch via SMS, e-mail, fax or over the phone
- Switching of outputs via SMS

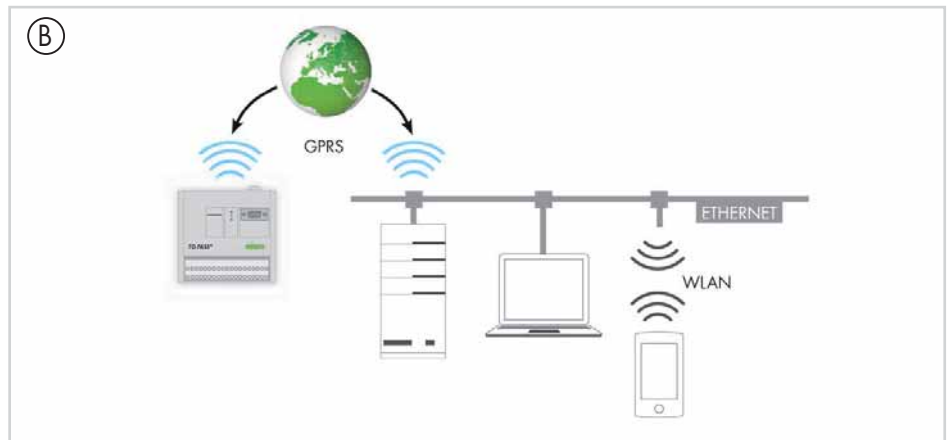
TO-PASS® Compact, Event/Process Memory Option (A)

- Same as above
- Also local storage of all status changes
- Also local storage of all process values (cyclic, settable)



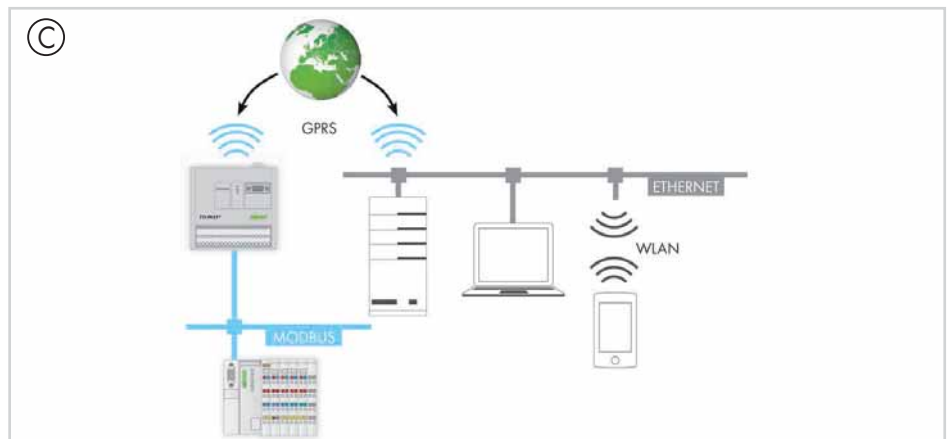
TO-PASS® Compact, Web Option (B)

- Same as above
- Also GPRS: permanent online connection to the process
- Allows cyclic data transmission to the TO-PASS® Web Portal
- Allows cyclic data transmission to a controller with a fixed IP address that receives and further processes the data using the TO-PASS® Web Connector (see Application Notes)
- Allows cyclic data transmission to any PC with a fixed IP address furnished with the TO-PASS® communication protocol



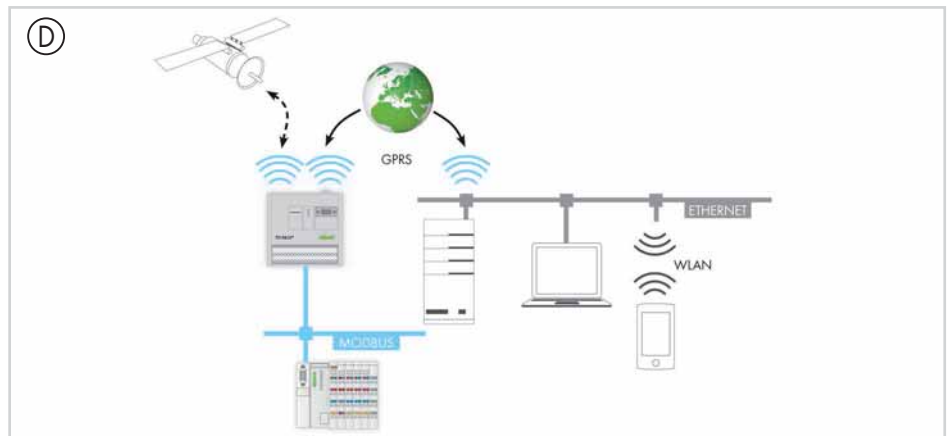
TO-PASS® Compact, MODBUS Option (C)

- Same as above
- Additional option for reading in data via MODBUS, e.g., from the WAGO-I/O-SYSTEM 750
- Connection via RS-232 or RS-485 depending on the version

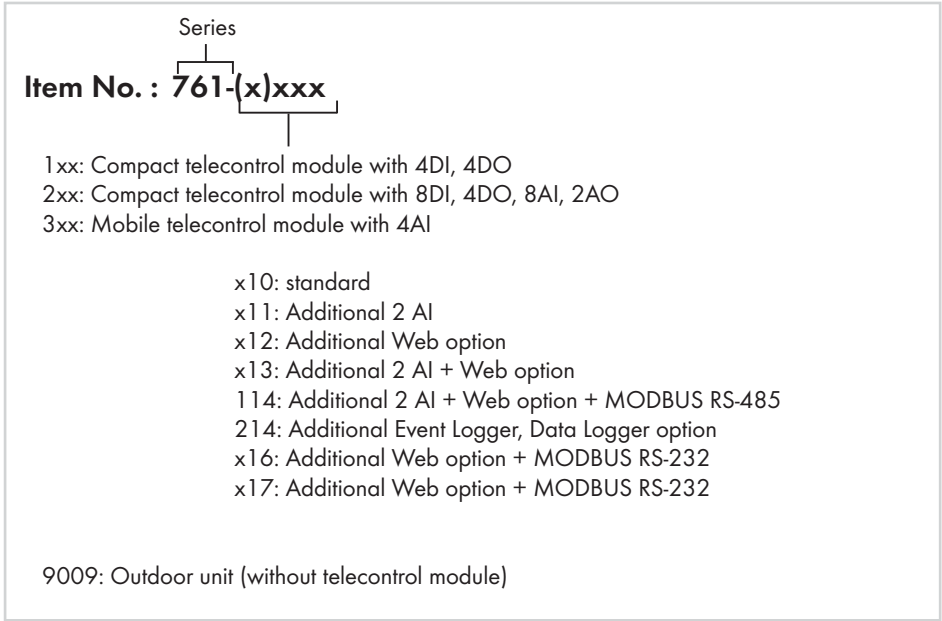


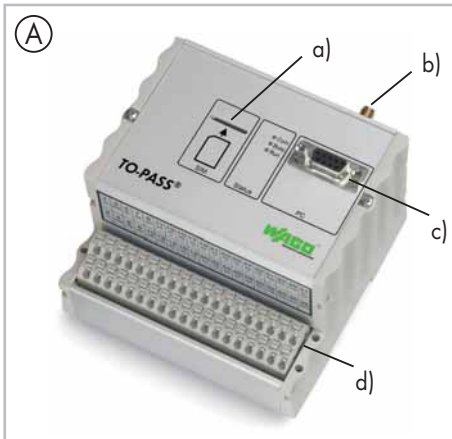
TO-PASS® Mobile (D)

- Like TO-PASS® Compact
- Additional option for position determination via GPS



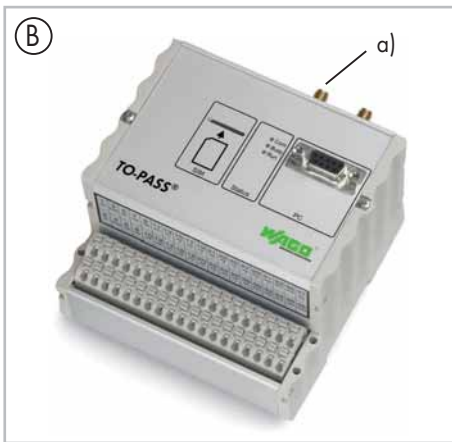
Explanation of the components for the item number key





TO-PASS® Compact (A)

- Slot for SIM card (a)
- Antenna connection (b)
- RS-232/-485 serial interface (c)
- I/O connection level (d)
- W x H x L (mm) 109 x 78 x 105
Height from upper edge of DIN 35 rail



TO-PASS® Mobile (B)

- Like TO-PASS® Compact
- Additional antenna connection for GPS receivers (a)



TO-PASS® Outdoor (C)

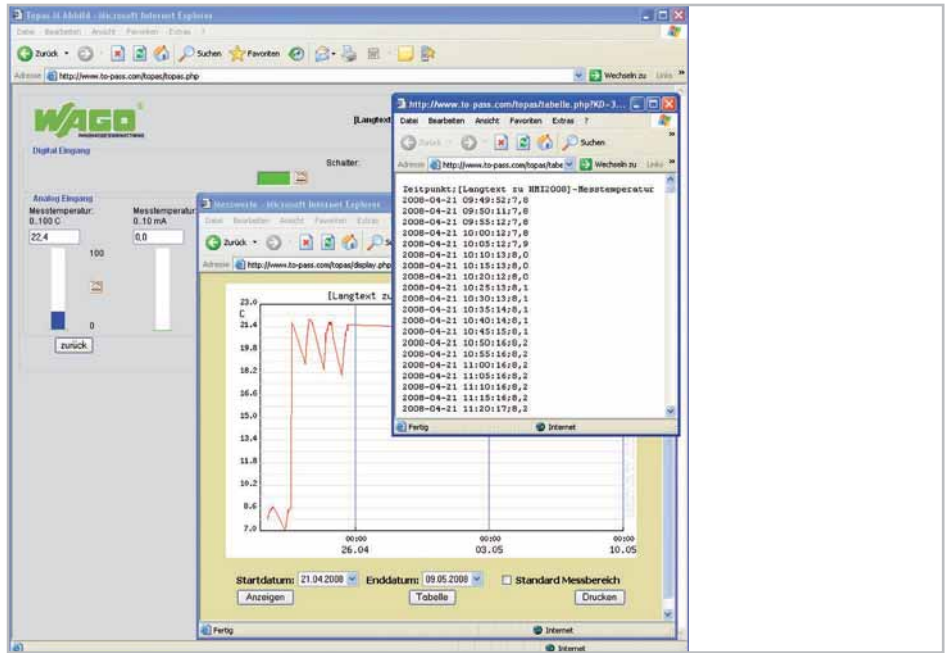
- Compact unit for mounting telecontrol modules in an IP66 enclosure
- Integrated GSM antenna
- 230 VAC supply voltage
- Power failure protection by batteries
- Option: Temperatures down to -4 °C are possible with built-in heater
- Self-sustaining solar operation mode also available
- W x H x L (mm) 280 x 130 x 310
incl. cable grips

Manage Data with TO-PASS® Web Portal

The TO-PASS® Compact and TO-PASS® Mobile device versions with Web functionality are able to transmit data cyclically to a central Web server. The process image (i.e., states and values of all digital and analog inputs) is transmitted to the Web server with time stamp at a variably configurable interval and then stored in a database. Standard data loggers and the cumbersome process of reading out data are no longer necessary.

The TO-PASS® Web Portal can be used as a Web server.

In addition to simple data storage, it provides password-protected visualization with current process data representation and chart recorder for measured value history. Controlling and managing your data is simplified by using an Internet browser via www.to-pass.com. More information on the TO-PASS® Web Portal is available in Section 1.

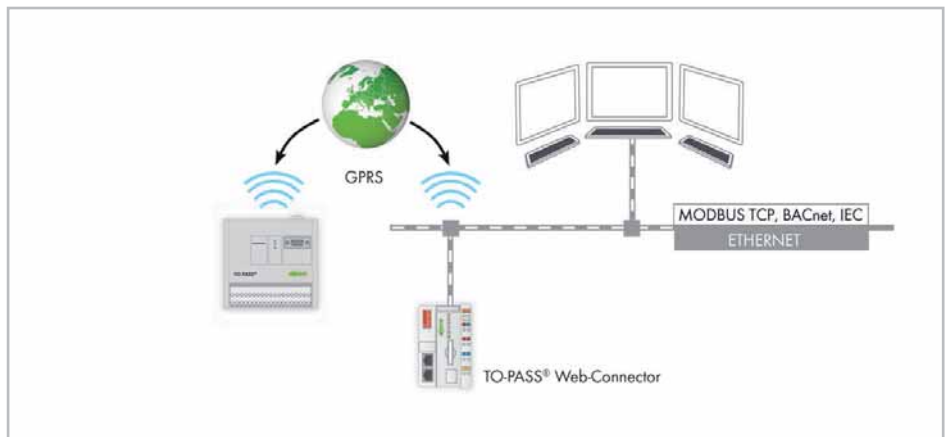


Application: TO-PASS® Web Portal as a central Web server with evaluation function

Forward Data with TO-PASS® Web Connector

The TO-PASS® Web Connector function block is available for easy integration of fault detectors in the control system. Error and event messages are transmitted by GPRS data string via HTTP to a WAGO controller with a fixed IP address. These in turn are capable of passing the data to a central control system via different communication protocols (e.g., MODBUS TCP, BACnet, IEC telecontrol protocols).

Refer to Section 3 for suitable controllers.

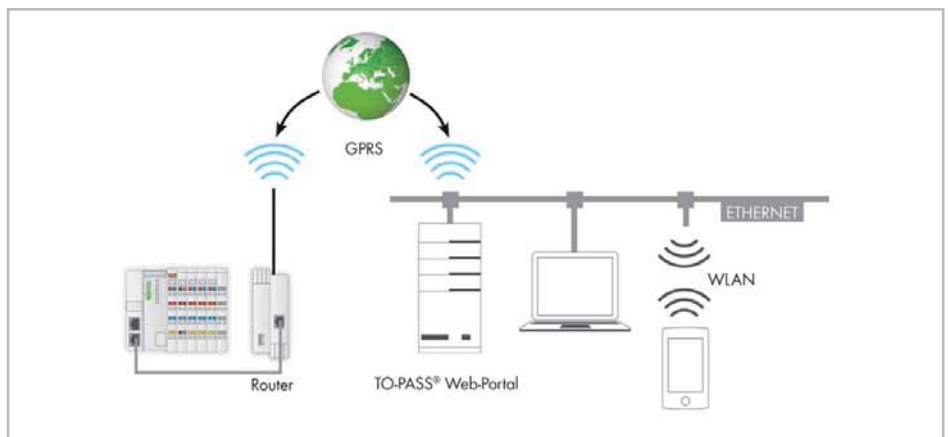


Application: TO-PASS® Web Connector as a link between local data and control system

Intelligent Decentralized Data Preprocessing

The combination of a programmable fieldbus controller, connected WAGO-I/O-SYSTEM 750 and TO-PASS® are appropriate for telecontrol tasks that require a local controller. Connection to the GPRS is made via a standard router – we can recommend one as needed. Prepared function blocks are available for communication with the TO-PASS® Web Portal. These intelligent telecontrol stations can also be fully integrated in the TO-PASS® infrastructure for seamlessly adapting into the application environment.

Information on WAGO-I/O-SYSTEM 750 controllers is available in Section 3.



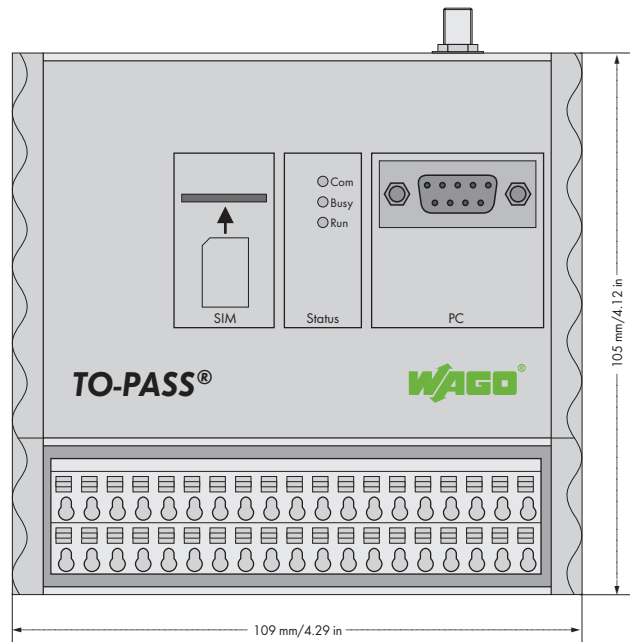
Application: Programmable fieldbus controller with WAGO-I/O-SYSTEM 750 as a data logger and data preprocessor for TO-PASS®

General Specifications

Operating voltage	10–30 VDC
Operating temperature	-20 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Relative humidity (without condensation)	95 %
Operating altitude	0 m ... 2000 m
Altitude at storage/transport	0 m ... 15000 m
Degree of contamination	2 acc. to IEC 61131-2
Vibration resistance	4g acc. to IEC 60068-2-6
Shock resistance	15g acc. to IEC 60068-2-27
EMC immunity to interference	EN 61000-6-2
EMC emission of interference	EN 61000-6-3
Protection type	IP20
Type of mounting	on DIN-rail
Mounting position	any
Antenna connection	SMA socket
Connection technology	250 Series Terminal Blocks with PUSH WIRE® connection
Conductor cross-section; stripped lengths	0.5 mm² ... 1.5 mm²/22 ... 14 AWG; 9 mm/0.35 in.

TO-PASS® Compact

Telecontrol module for fault detection/indication, monitoring and remote control



Compact telecontrol module for fault detection/indication and monitoring of machines and installations over a GSM network. The module can be used in many countries via an integrated quad-band GSM modem. Messages are sent via SMS, e-mail, fax or phone call. In addition, the process image can be transmitted in an adjustable cycle to a user-selected Internet address. Switching of outputs is performed via SMS.

4 digital inputs, 4 digital outputs and 2 analog inputs with integrated GSM modem. Ideal for applications in distributed stations for temperatures ranging from -20°C to $+70^{\circ}\text{C}$. Ability to mount on DIN-rail and intuitive user software make unit easy to handle. Operating voltage ranges from +10V to 30VDC.

Special functions:

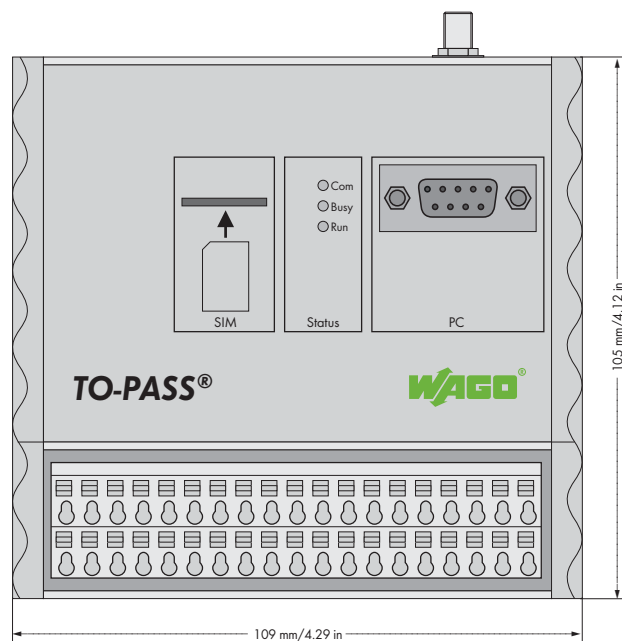
- Acknowledgment: Acknowledging any fault message
- Stand-by: Automatic remote switching of the stand-by service
- Remote parametrization: Programming and remote control conveniently performed from the office

Description	Item No.	Pack. Unit
TO-PASS® Compact	761-110	1
Accessories		
Antennas, USB adapter and power supply units	see pages 576 ... 577	
TO-PASS® Configuration Software	see Section 1	
Approvals		
Approvals	for all EU countries	
	Approvals for other countries on request	
UL 508		
Technical Data		
Operating temperature	-20°C ... $+70^{\circ}\text{C}$	
Type of mounting	DIN 35 rail	
Antenna connection	SMA	
Wire connection	Terminal strips (WAGO 250 Series) with push-wire connection	
Cross sections	0.5 mm^2 ... 1.5 mm^2 / AWG 22 ... 14	
Strip lengths	9 mm / 0.35 in	
Dimensions (mm) W x H x L	109 x 78 x 105	
Weight	412 g	
Storage temperature	-40°C ... $+85^{\circ}\text{C}$	
Degree of protection	IP20	
EMC immunity of interference	acc. to EN 61000-6-2	
EMC emission of interference	acc. to EN 61000-6-3	

Technical Data	
Digital inputs:	
Number of inputs	4 (Type 3)
Input current	max. 2.9 mA at 30 V DC
Signal voltage (0)	0 V ... 5 V DC
Signal voltage (1)	7 V ... 30 V DC
Digital outputs:	
No. of outputs	4 contacts
Output current (max.)	0.5 A/ 30 V DC, short-circuit protected
Communication	GSM quad-band
Communication types	SMS (bidirectional), telecommunication dial-up connection (CSD)
Signaling	3 LEDs for operating status indication
Operating voltage	+10 V ... +30 V DC
Closed current	approx. 20 mA at +24V operating voltage
Current during transmission	< 500 mA at +24V operating voltage

TO-PASS[®] Compact, 2 AI

Telecontrol module for fault detection/indication, monitoring and remote control



Compact telecontrol module for fault detection/indication and monitoring of machines and installations over a GSM network. The module can be used in many countries via an integrated quad-band GSM modem. Messages are sent via SMS, e-mail, fax or phone call. Switching of outputs is performed via SMS. 4 digital inputs, 4 digital outputs and 2 analog inputs with integrated GSM modem. Ideal for applications in distributed stations for temperatures ranging from -20 °C to +70 °C. Ability to mount on DIN-rail and intuitive user software make unit easy to handle. Operating voltage ranges from +10V to 30VDC.

Special functions:

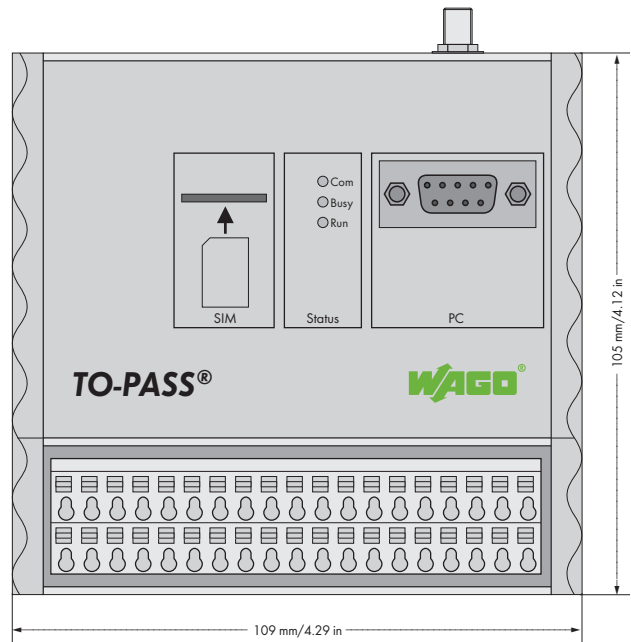
- Acknowledgment: Acknowledging any fault message
- Stand-by: Automatic remote switching of the stand-by service
- Remote parametrization: Programming and remote control conveniently performed from the office

Description	Item No.	Pack. Unit
TO-PASS [®] Compact, 2 AI	761-111	1
Accessories		
Antennas, USB adapter and power supply units	see pages 576 ... 577	
TO-PASS [®] Configuration Software	see Section 1	
Approvals		
Approvals	for all EU countries	
	Approvals for other countries on request	
UL 508		
Technical Data		
Operating temperature	-20 °C ... +70 °C	
Type of mounting	DIN 35 rail	
Antenna connection	SMA	
Wire connection	Terminal strips (WAGO 250 Series) with push-wire connection	
Cross sections	0.5 mm ² ... 1.5 mm ² / AWG 22 ... 14	
Strip lengths	9 mm / 0.35 in	
Dimensions (mm) W x H x L	109 x 78 x 105	
Weight	412 g	
Storage temperature	-40 °C ... +85 °C	
Degree of protection	IP20	
EMC immunity of interference	acc. to EN 61000-6-2	
EMC emission of interference	acc. to EN 61000-6-3	

Technical Data	
Digital inputs:	
Number of inputs	4 (Type 3)
Input current	max. 2.9 mA at 30 V DC
Signal voltage (0)	0 V ... 5 V DC
Signal voltage (1)	7 V ... 30 V DC
Analog inputs:	
Number of inputs	2 (0/4 mA ... 20 mA)
Internal resistance	approx. 200 Ω / 20 mA
Measuring error (25 °C)	< ± 1 % of the full scale value
Temperature coefficient	< ± 0.1 % / K of the full scale value
Digital outputs:	
No. of outputs	4 contacts
Output current (max.)	0.5 A / 30 V DC, short-circuit protected
Communication	GSM quad-band
Communication types	SMS (bidirectional), telecommunication dial-up connection (CSD)
Signaling	3 LEDs for operating status indication
Operating voltage	+10 V ... +30 V DC
Closed current	approx. 20 mA at +24V operating voltage
Current during transmission	< 500 mA at +24V operating voltage

TO-PASS® Compact, WEB

Telecontrol module for fault detection/indication, monitoring and remote control



Compact telecontrol module for fault detection/indication and Internet connectivity for machines and installations over a GSM network. The module can be used in many countries via an integrated quad-band GSM modem. Messages are sent via SMS, e-mail, fax or phone call. In addition, the process image can be transmitted in an adjustable cycle to a user-selected Internet address. Switching of outputs is performed via SMS. 4 digital inputs and 4 digital outputs with integrated GSM modem. Ideal for applications in distributed stations for temperatures ranging from -20°C to $+70^{\circ}\text{C}$. Ability to mount on DIN-rail and intuitive user software make unit easy to handle. Operating voltage ranges from +10V to 30VDC.

Special functions:

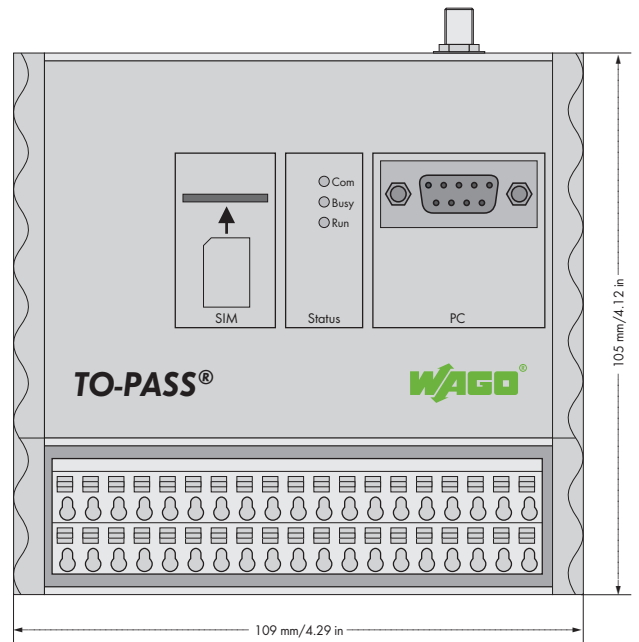
- Acknowledgment: Acknowledging any fault message
- Stand-by: Automatic remote switching of the stand-by service
- Remote parametrization: Programming and process visualization conveniently performed from the office
- GPRS-dedicated line: Permanent online connection to the process on a WEB server or PC with fixed IP address (e.g., DSL connection)

Description	Item No.	Pack. Unit
TO-PASS® Compact, WEB	761-112	1
Accessories		
Antennas, USB adapter and power supply units	see pages 576 ... 577	
TO-PASS® Configuration Software	see Section 1	
TO-PASS® Web Portal	see Section 1	
Approvals		
Approvals	for all EU countries	
	Approvals for other countries on request	
UL 508		
Technical Data		
Operating temperature	-20°C ... $+70^{\circ}\text{C}$	
Type of mounting	DIN 35 rail	
Antenna connection	SMA	
Wire connection	Terminal strips (WAGO 250 Series) with push-wire connection	
Cross sections	0.5 mm^2 ... 1.5 mm^2 / AWG 22 ... 14	
Strip lengths	9 mm / 0.35 in	
Dimensions (mm) W x H x L	109 x 78 x 105	
Weight	412 g	
Storage temperature	-40°C ... $+85^{\circ}\text{C}$	
Degree of protection	IP20	
EMC immunity of interference	acc. to EN 61000-6-2	
EMC emission of interference	acc. to EN 61000-6-3	

Technical Data	
Digital inputs:	
Number of inputs	4 (Type 3)
Input current	max. 2.9 mA at 30 V DC
Signal voltage (0)	0 V ... 5 V DC
Signal voltage (1)	7 V ... 30 V DC
Digital outputs:	
No. of outputs	4 contacts
Output current (max.)	0.5 A / 30 V DC, short-circuit protected
Communication	GSM quad-band
Communication types	SMS (bidirectional), telecommunication dial-up connection (CSD)
	GPRS connection to Internet
Signaling	3 LEDs for operating status indication
Operating voltage	+10 V ... +30 V DC
Closed current	approx. 20 mA at +24V operating voltage
Current during transmission	< 500 mA at +24V operating voltage

TO-PASS[®] Compact, 2 AI, WEB

Telecontrol module for fault detection/indication, monitoring and remote control



Compact telecontrol module for fault detection/indication and Internet connectivity for machines and installations over a GSM network. The module can be used in many countries via an integrated quad-band GSM modem. Messages are sent via SMS, e-mail, fax or phone call. In addition, the process image can be transmitted in an adjustable cycle to a user-selected Internet address. Switching of outputs is performed via SMS.

4 digital inputs, 4 digital outputs and 2 analog inputs with integrated GSM modem. Ideal for applications in distributed stations for temperatures ranging from -20 °C to +70 °C. Ability to mount on DIN-rail and intuitive user software make unit easy to handle. Operating voltage ranges from +10V to 30VDC.

Special functions:

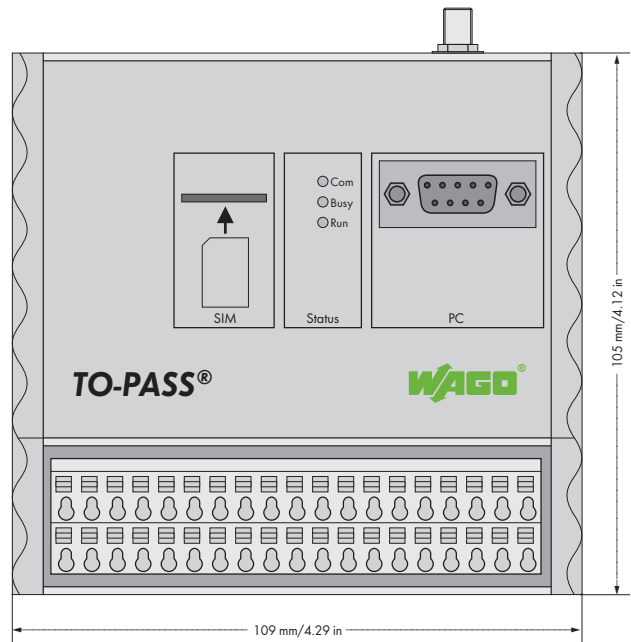
- Acknowledgment: Acknowledging any fault message
- Stand-by: Automatic remote switching of the stand-by service
- Remote parametrization: Programming and process visualization conveniently performed from the office
- GPRS-dedicated line: Permanent online connection to the process on a WEB server or PC with fixed IP address (e.g., DSL connection)

Description	Item No.	Pack. Unit
TO-PASS [®] Compact, 2 AI, WEB	761-113	1
Accessories		
Antennas, USB adapter and power supply units	see pages 576 ... 577	
TO-PASS [®] Configuration Software	see Section 1	
TO-PASS [®] Web Portal	see Section 1	
Approvals		
Approvals	for all EU countries	
	Approvals for other countries on request	
UL 508		
Technical Data		
Operating temperature	-20 °C ... +70 °C	
Type of mounting	DIN 35 rail	
Antenna connection	SMA	
Wire connection	Terminal strips (WAGO 250 Series) with push-wire connection	
Cross sections	0.5 mm ² ... 1.5 mm ² / AWG 22 ... 14	
Strip lengths	9 mm /0.35 in	
Dimensions (mm) W x H x L	109 x 78 x 105	
Weight	412 g	
Storage temperature	-40 °C ... +85 °C	
Degree of protection	IP20	
EMC immunity of interference	acc. to EN 61000-6-2	
EMC emission of interference	acc. to EN 61000-6-3	

Technical Data	
Digital inputs:	
Number of inputs	4 (Type 3)
Input current	max. 2.9 mA at 30 V DC
Signal voltage (0)	0 V ... 5 V DC
Signal voltage (1)	7 V ... 30 V DC
Analog inputs:	
Number of inputs	2 (0/4 mA ... 20 mA)
Internal resistance	approx. 200 Ω / 20 mA
Measuring error (25 °C)	< ± 1 % of the full scale value
Temperature coefficient	< ± 0.1 % / K of the full scale value
Digital outputs:	
No. of outputs	4 contacts
Output current (max.)	0.5 A/ 30 V DC, short-circuit protected
Communication	GSM quad-band
Communication types	SMS (bidirectional), telecommunication dial-up connection (CSD), GPRS connection to Internet
Signaling	3 LEDs for operating status indication
Operating voltage	+10 V ... +30 V DC
Closed current	approx. 20 mA at +24V operating voltage
Current during transmission	< 500 mA at +24V operating voltage

TO-PASS[®] Compact, 2 AI, Web, MODBUS, RS-485

Telecontrol module for fault detection/indication, monitoring and remote control



Compact telecontrol module provides fault detection/indication and Internet connectivity for machines and installations over a GSM network. The module can be used in many countries via an integrated quad-band GSM modem. Messages are sent via SMS, e-mail, fax or phone call. In addition, the process image can be transmitted in an adjustable cycle to a user-selected Internet address. A MODBUS slave (e.g., 750-815) can be connected via RS-485 interface to link additional process values. Switching of outputs is performed via SMS or TO-PASS[®] Web Portal.

The module is equipped with 4 digital inputs, 4 analog outputs and 2 digital inputs, including an integrated GSM modem. Ideal for applications in distributed stations for temperatures ranging from -20 °C to +70 °C. Ability to mount on DIN-rail and intuitive user software make unit easy to use.

Operating voltage ranges from +10 to +30 VDC.

Specialty functions:

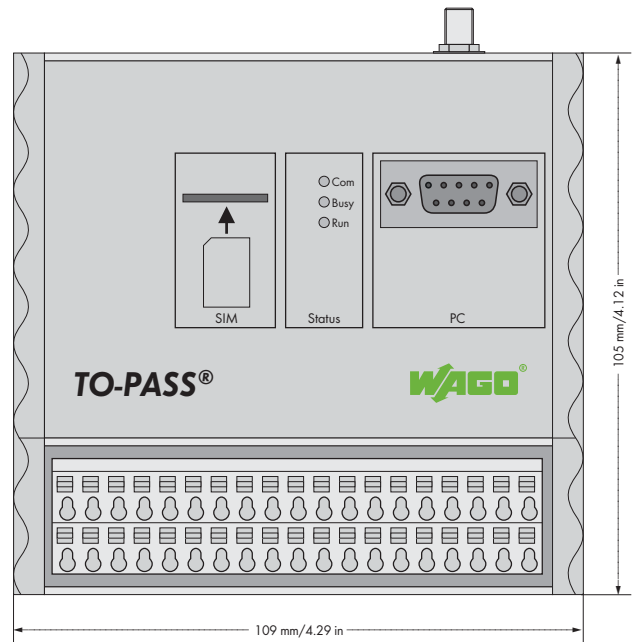
- Acknowledgement: Any fault message
- Stand-by: Automatic remote switching of stand-by service
- Remote parameterization: Programming and process visualization conveniently performed from the office
- GPRS-dedicated line: Permanent online connection to the process on a Web server or PC with fixed IP address (e.g., DSL connection)
- Counter function: Maximum four of the digital inputs can be used as up or down counter. The maximum operating frequency is 1250 Hz.

Description	Item No.	Pack. Unit
TO-PASS[®] Compact, 2 AI, Web, MODBUS, RS-485	761-114	1
Accessories		
Antennas, USB adapter and power supply units	see pages 576 ... 577	
TO-PASS[®] Configuration Software	see Section 1	
TO-PASS[®] Web Portal	see Section 1	
Approvals		
Approvals	for all EU countries	
UL 508	Approvals for other countries on request pending	
Technical Data		
Operating temperature	-20 °C ... +70 °C	
Type of mounting	DIN 35 rail	
Antenna connection	SMA	
Wire connection	Terminal strips (WAGO 250 Series) with PUSH WIRE [®] connection	
Cross sections	0.5 mm ² ... 1.5 mm ² / AWG 22 ... 14	
Strip lengths	9 mm / 0.35 in	
Dimensions (mm) W x H x L	109 x 78 x 105	
Weight	412 g	
Storage temperature	-40 °C ... +85 °C	
Degree of protection	IP20	
EMC immunity of interference	acc. to EN 61000-6-2	
EMC emission of interference	acc. to EN 61000-6-3	

Technical Data	
MODBUS	
Transmission modes	RS-485 (2-conductor), RTU Master
Baud rate	9.6 and 19.2 kbaud (8N1, 8E1, 8O1, 8N1)
Read-out register	max. 64 registers (input or holding)
Digital inputs:	
Number of inputs	4 (Type 3)
Input current	max. 2.9 mA at 30 V DC
Signal voltage (0)	0 V ... 5 V DC
Signal voltage (1)	7 V ... 30 V DC
Analog inputs:	
Number of inputs	2 (0/4 mA ... 20 mA)
Internal resistance	approx. 200 Ω / 20 mA
Measuring error (25 °C)	< ± 1 % of the full scale value
Temperature coefficient	< ± 0.1 % / K of the full scale value
Digital outputs:	
No. of outputs	4 contacts
Output current (max.)	0.5 A / 30 V DC, short-circuit protected
Analog outputs:	
Measuring error (25 °C)	< ± 1 % of the full scale value
Temperature coefficient	< ± 0.1 % / K of the full scale value
Communication	GSM quad-band
Communication types	SMS (bidirectional), telecommunication dial-up connection (CSD)
	GPRS connection to Internet
Signaling	3 LEDs for operating status indication
Operating voltage	+10 V ... +30 V DC
Closed current	approx. 20 mA at +24V operating voltage
Current during transmission	< 500 mA at +24V operating voltage

TO-PASS® Compact

Telecontrol module for fault detection/indication, monitoring and remote control



Universal telecontrol module for fault detection/indication and monitoring of machines and installations over a GSM network. The module can be used in many countries via an integrated quad-band GSM modem. Messages are sent via SMS, e-mail, fax or phone call. Switching of outputs is performed via SMS. 8 digital inputs, 4 digital outputs with integrated GSM modem. Ideal for applications in distributed stations for temperatures ranging from -20°C to $+70^{\circ}\text{C}$. Ability to mount on DIN-rail and intuitive user software make unit easy to handle. Operating voltage ranges from +10V to 30VDC.

Special functions:

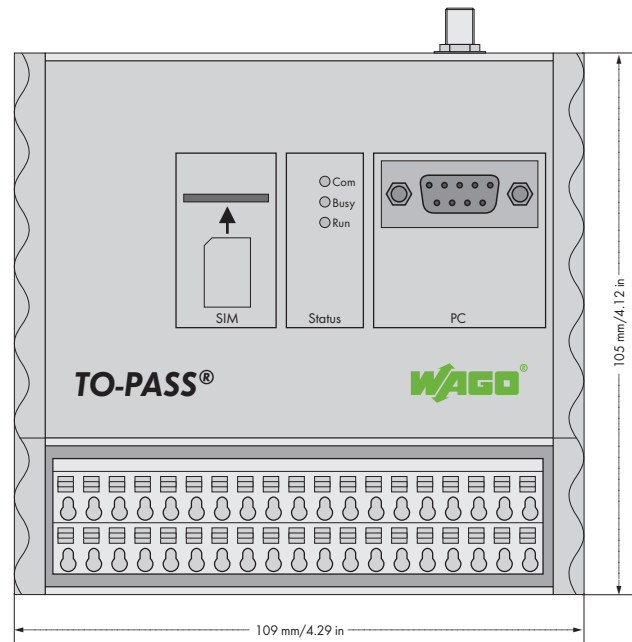
- Acknowledgment: Acknowledging any fault message
- Stand-by: Automatic remote switching of the stand-by service
- Remote parametrization: Programming and remote control conveniently performed from the office

Description	Item No.	Pack. Unit
TO-PASS® Compact	761-210	1
Accessories		
Antennas, USB adapter and power supply units	see pages 576 ... 577	
TO-PASS® Configuration Software	see Section 1	
Approvals		
Approvals	for all EU countries	
	Approvals for other countries on request	
UL 508		
Technical Data		
Operating temperature	-20°C ... $+70^{\circ}\text{C}$	
Type of mounting	DIN 35 rail	
Antenna connection	SMA	
Wire connection	Terminal strips (WAGO 250 Series) with push-wire connection	
Cross sections	0.5 mm^2 ... 1.5 mm^2 / AWG 22 ... 14	
Strip lengths	9 mm /0.35 in	
Dimensions (mm) W x H x L	109 x 78 x 105	
Weight	412 g	
Storage temperature	-40°C ... $+85^{\circ}\text{C}$	
Degree of protection	IP20	
EMC immunity of interference	acc. to EN 61000-6-2	
EMC emission of interference	acc. to EN 61000-6-3	

Technical Data	
Digital inputs:	
Number of inputs	8 (Type 3)
Input current	max. 2.9 mA at 30 V DC
Signal voltage (0)	0 V ... 5 V DC
Signal voltage (1)	7 V ... 30 V DC
Digital outputs:	
No. of outputs	4 contacts
Output current (max.)	0.5 A/ 30 V DC, short-circuit protected
Communication	GSM quad-band
Communication types	SMS (bidirectional), telecommunication dial-up connection (CSD)
Signaling	3 LEDs for operating status indication
Operating voltage	+10 V ... +30 V DC
Closed current	approx. 20 mA at +24V operating voltage
Current during transmission	< 500 mA at +24V operating voltage

9 TO-PASS® Compact, 8 AI, ELog, DLog

Telecontrol module for fault detection/indication, monitoring and remote control



Universal telecontrol module for fault detection/indication and monitoring of machines and installations over a GSM network. The module can be used in many countries via an integrated quad-band GSM modem. Messages are sent via SMS, e-mail, fax or phone call. An integrated event logger creates the process image of all occurring events and stores all digital and analog values available at the telecontrol module. The data memory stores up to 4096 process images in an adjustable cycle time. Switching of outputs is performed via SMS.

8 digital inputs, 8 analog inputs, 4 digital outputs and 2 analog outputs with integrated GSM modem. Ideal for applications in distributed stations for temperatures ranging from -20 °C to +70 °C. Ability to mount on DIN-rail and intuitive user software make unit easy to handle.

Operating voltage ranges from +10V to 30VDC.

Special functions:

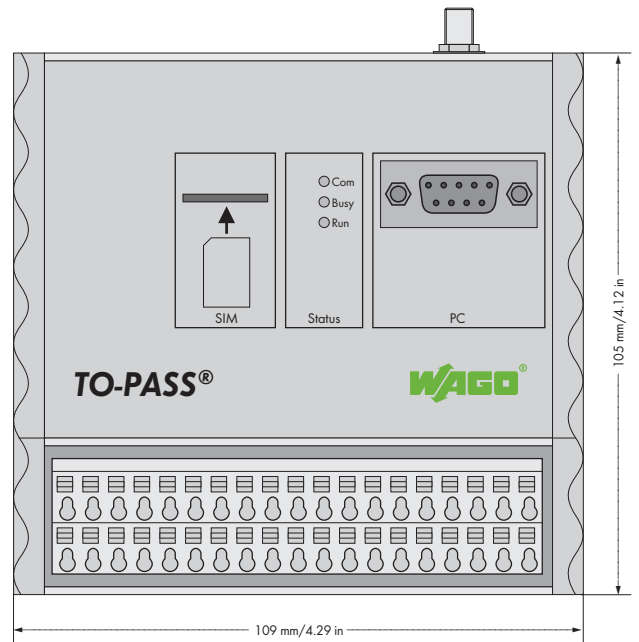
- Acknowledgment: Acknowledging any fault message
- Stand-by: Automatic remote switching of the stand-by service
- Remote parametrization: Programming and remote control conveniently performed from the office
- Event logger: Saves all occurring status changes
- Data logger: Saves all process values with adjustable cycle

Description	Item No.	Pack. Unit
TO-PASS® Compact, 8 AI, ELog, DLog	761-214	1
Accessories		
Antennas, USB adapter and power supply units	see pages 576 ... 577	
TO-PASS® Configuration Software	see Section 1	
Approvals		
Approvals	for all EU countries	
	Approvals for other countries on request	
UL 508		
Technical Data		
Operating temperature	-20 °C ... +70 °C	
Type of mounting	DIN 35 rail	
Antenna connection	SMA	
Wire connection	Terminal strips (WAGO 250 Series) with push-wire connection	
Cross sections	0.5 mm ² ... 1.5 mm ² / AWG 22 ... 14	
Strip lengths	9 mm / 0.35 in	
Dimensions (mm) W x H x L	109 x 78 x 105	
Weight	412 g	
Storage temperature	-40 °C ... +85 °C	
Degree of protection	IP20	
EMC immunity of interference	acc. to EN 61000-6-2	
EMC emission of interference	acc. to EN 61000-6-3	

Technical Data	
Digital inputs:	
Number of inputs	8 (Type 3)
Input current	max. 2.9 mA at 30 V DC
Signal voltage (0)	0 V ... 5 V DC
Signal voltage (1)	7 V ... 30 V DC
Analog inputs:	
Number of inputs	8 (0/4 mA ... 20 mA)
Internal resistance	approx. 200 Ω / 20 mA
Measuring error (25 °C)	< ± 1 % of the full scale value
Temperature coefficient	< ± 0.1 % / K of the full scale value
Digital outputs:	
No. of outputs	4 contacts
Output current (max.)	0.5 A / 30 V DC, short-circuit protected
Analog outputs:	
No. of outputs	2 (0/4 mA ... 20 mA)
Load impedance	≤ 600 Ω
Measuring error (25 °C)	< ± 1 % of the full scale value
Temperature coefficient	< ± 0.1 % / K of the full scale value
Communication	GSM quad-band
Communication types	SMS (bidirectional), telecommunication dial-up connection (CSD)
Signaling	3 LEDs for operating status indication
Operating voltage	+10 V ... +30 V DC
Closed current	approx. 20 mA at +24V operating voltage
Current during transmission	< 500 mA at +24V operating voltage

TO-PASS[®] Compact, 8 AI, WEB, MODBUS

Telecontrol module for fault detection/indication, monitoring and remote control



Universal telecontrol module for fault detection/indication and Internet connectivity for machines and installations over a GSM network. The module can be used in many countries via an integrated quad-band GSM modem. Messages are sent via SMS, e-mail, fax or phone call. The data memory stores up to 4096 process images in an adjustable cycle time. In addition, the process image can be transmitted in an adjustable cycle to a user-selected Internet address. A Modbus slave (e.g., 750-816) can be connected via RS-232 interface to link additional process values. Switching of outputs is performed via SMS.

8 digital inputs, 8 analog inputs, 4 digital outputs and 2 analog outputs with integrated GSM modem. Ideal for applications in distributed stations for temperatures ranging from -20 °C to +70 °C.

Ability to mount on DIN-rail and intuitive user software make unit easy to handle. Operating voltage ranges from +10V to 30VDC.

Special functions:

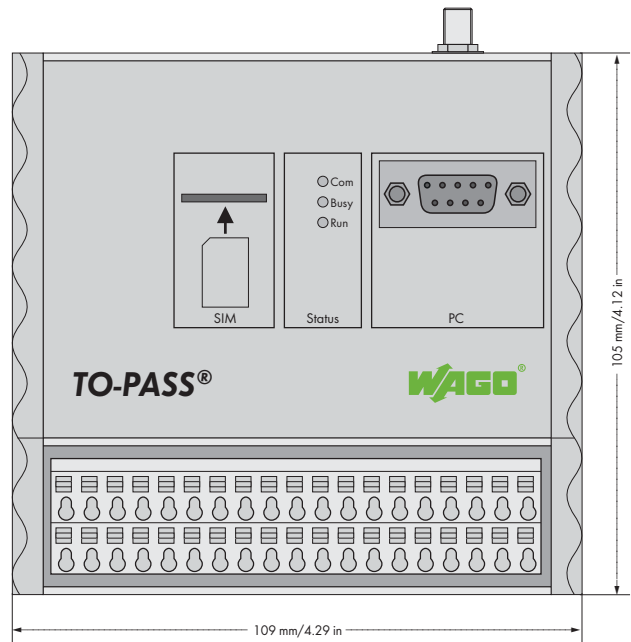
- Acknowledgment: Acknowledging any fault message
- Stand-by: Automatic remote switching of the stand-by service
- Remote parametrization: Programming and process visualization conveniently performed from the office
- GPRS-dedicated line: Permanent online connection to the process on a WEB server or PC with fixed IP address (e.g., DSL connection)
- Event logger: Saves all occurring status changes
- Data logger: Saves all process values with adjustable cycle

Description	Item No.	Pack. Unit
TO-PASS [®] Compact, 8 AI, WEB, MODBUS	761-216	1
Accessories		
Antennas, USB adapter and power supply units	see pages 576 ... 577	
TO-PASS [®] Configuration Software	see Section 1	
TO-PASS [®] Web Portal	see Section 1	
Approvals		
Approvals	for all EU countries	
	Approvals for other countries on request	
UL 508		
Technical Data		
Operating temperature	-20 °C ... +70 °C	
Type of mounting	DIN 35 rail	
Antenna connection	SMA	
Wire connection	Terminal strips (WAGO 250 Series) with push-wire connection	
Cross sections	0.5 mm ² ... 1.5 mm ² / AWG 22 ... 14	
Strip lengths	9 mm / 0.35 in	
Dimensions (mm) W x H x L	109 x 78 x 105	
Weight	412 g	
Storage temperature	-40 °C ... +85 °C	
Degree of protection	IP20	
EMC immunity of interference	acc. to EN 61000-6-2	
EMC emission of interference	acc. to EN 61000-6-3	

Technical Data	
Digital inputs:	
Number of inputs	8 (Type 3)
Input current	max. 2.9 mA at 30 V DC
Signal voltage (0)	0 V ... 5 V DC
Signal voltage (1)	7 V ... 30 V DC
Analog inputs:	
Number of inputs	8 (0/4 mA ... 20 mA)
Internal resistance	approx. 200 Ω / 20 mA
Measuring error (25 °C)	< ± 1 % of the full scale value
Temperature coefficient	< ± 0.1 % / K of the full scale value
Digital outputs:	
No. of outputs	4 contacts
Output current (max.)	0.5 A / 30 V DC, short-circuit protected
Analog outputs:	
No. of outputs	2 (0/4 mA ... 20 mA)
Load impedance	≤ 600 Ω
Measuring error (25 °C)	< ± 1 % of the full scale value
Temperature coefficient	< ± 0.1 % / K of the full scale value
Communication	GSM quad-band
Communication types	SMS (bidirectional), telecommunication dial-up connection (CSD)
	GPRS connection to Internet
Signaling	3 LEDs for operating status indication
Operating voltage	+10 V ... +30 V DC
Closed current	approx. 20 mA at +24V operating voltage
Current during transmission	< 500 mA at +24V operating voltage

TO-PASS® Compact, 8 AI, Web, MODBUS, RS-485

Telecontrol module for fault detection/indication, monitoring and remote control



Universal telecontrol module for fault detection/indication and Internet connectivity for machines and installations over a GSM network. The module can be used in many countries via an integrated quad-band GSM modem. Messages are sent via SMS, e-mail, fax or phone call. The data memory stores up to 4096 process images in an adjustable cycle time. In addition, the process image can be transmitted in an adjustable cycle to a user-selected Internet address. A MODBUS slave (e.g., 750-815) can be connected via RS-485 interface to link additional process values. Switching of outputs is performed via SMS or TO-PASS® Web Portal. The module is equipped with 8 digital inputs, 8 analog inputs, 4 digital outputs and 2 analog outputs, including an integrated GSM modem. Ideal for applications in distributed stations for temperatures ranging from -20°C to $+70^{\circ}\text{C}$. Ability to mount on DIN-rail and intuitive user software make unit easy to handle. Operating voltage ranges from +10 to +30 VDC.

Specialty functions:

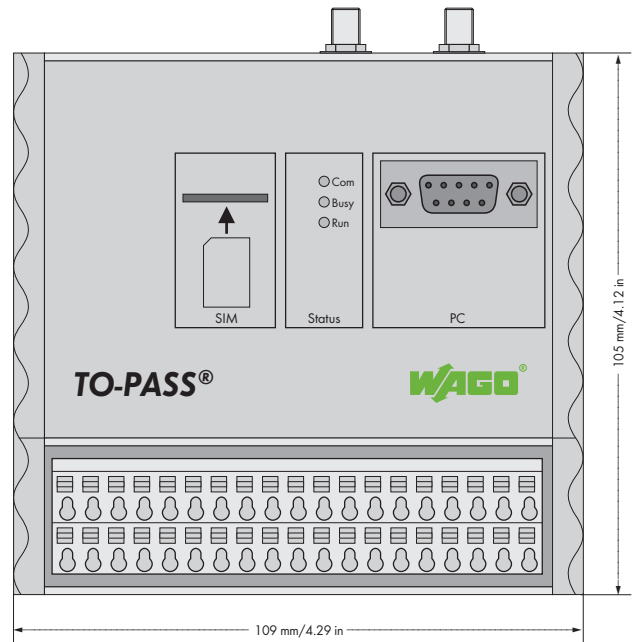
- Acknowledgment: Acknowledging any fault message
- Stand-by: Automatic remote switching of stand-by service
- Remote parameterization: Programming and process visualization conveniently performed from the office
- GPRS-dedicated line: Permanent online connection to the process on a WEB server or PC with fixed IP address (e.g., DSL connection)
- Event logger: Saves all occurring status changes
- Data logger: Saves all process values with adjustable cycle
- Counter function: Maximum four of the digital inputs can be used as up or down counter. The maximum operating frequency is 1250 Hz.

Description	Item No.	Pack. Unit
TO-PASS® Compact, 8 AI, Web, MODBUS, RS-485	761-217	1
Accessories		
Antennas, USB adapter and power supply units	see pages 576 ... 577	
TO-PASS® Configuration Software	see Section 1	
TO-PASS® Web Portal	see Section 1	
Approvals		
Approvals	for all EU countries	
UL 508	Approvals for other countries on request pending	
Technical Data		
Operating temperature	-20°C ... $+70^{\circ}\text{C}$	
Type of mounting	DIN 35 rail	
Antenna connection	SMA	
Wire connection	Terminal strips (WAGO 250 Series) with PUSH WIRE® connection	
Cross sections	0.5 mm^2 ... 1.5 mm^2 / AWG 22 ... 14	
Strip lengths	9 mm / 0.35 in	
Dimensions (mm) W x H x L	109 x 78 x 105	
Weight	412 g	
Storage temperature	-40°C ... $+85^{\circ}\text{C}$	
Degree of protection	IP20	
EMC immunity of interference	acc. to EN 61000-6-2	
EMC emission of interference	acc. to EN 61000-6-3	

Technical Data	
MODBUS	
Transmission modes	RS-485 (2-conductor), RTU Master
Baud rate	9.6 and 19.2 kbaud (8N1, 8E1, 8O1, 8N1)
Read-out register	max. 64 registers (input or holding)
Digital inputs:	
Number of inputs	8 (Type 3)
Input current	max. 2.9 mA at 30 V DC
Signal voltage (0)	0 V ... 5 V DC
Signal voltage (1)	7 V ... 30 V DC
Analog inputs:	
Number of inputs	8 (0/4 mA ... 20 mA)
Internal resistance	approx. $200\ \Omega$ / 20 mA
Measuring error (25 °C)	$< \pm 1\%$ of the full scale value
Temperature coefficient	$< \pm 0.1\%$ / K of the full scale value
Digital outputs:	
No. of outputs	4 contacts
Output current (max.)	0.5 A / 30 V DC, short-circuit protected
Analog outputs:	
No. of outputs	2 (0/4 mA ... 20 mA)
Load impedance	$\leq 600\ \Omega$
Measuring error (25 °C)	$< \pm 1\%$ of the full scale value
Temperature coefficient	$< \pm 0.1\%$ / K of the full scale value
Communication	GSM quad-band
Communication types	SMS (bidirectional), telecommunication dial-up connection (CSD)
	GPRS connection to Internet
Signaling	3 LEDs for operating status indication
Operating voltage	+10 V ... +30 V DC
Closed current	approx. 20 mA at +24V operating voltage
Current during transmission	$< 500\text{ mA}$ at +24V operating voltage

TO-PASS® Mobile, 4 AI

Telecontrol module for fault detection/indication, position monitoring and remote control



Universal telecontrol module for fault detection/indication and position monitoring of machines and products over a GSM network. The module can be used in many countries via an integrated quad-band GSM modem. Messages are sent via SMS, e-mail, fax or phone call. The data memory stores up to 4096 process images in an adjustable cycle time. Switching of outputs is performed via SMS.

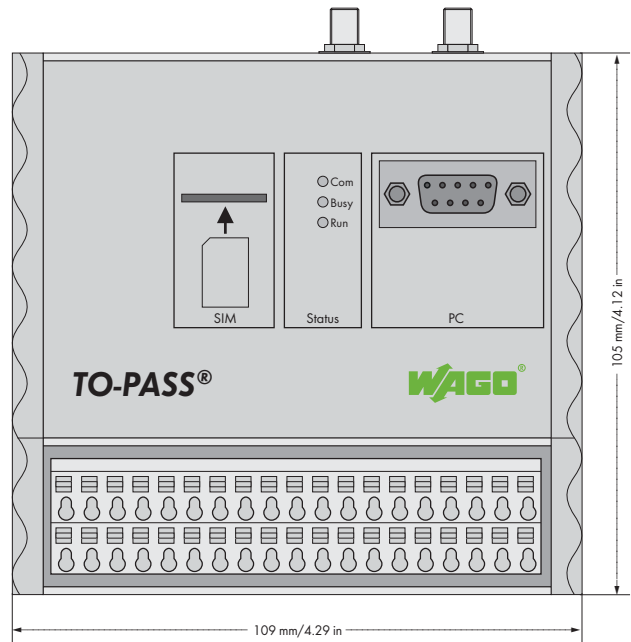
The module is equipped with 4 digital inputs, 4 analog inputs, 2 digital outputs and GPS position data, including an integrated GSM modem. Ideal for applications in distributed stations for temperatures ranging from -20 °C to +70 °C. Ability to mount on DIN-rail and intuitive user software make unit easy to handle. Operating voltage +10V ... +30V DC.

Special functions:

- Acknowledgment: Acknowledging any fault message
- Stand-by: Automatic remote switching of the stand-by service
- Remote parameterization: Programming and remote control conveniently performed from the office
- Event logger: Saves all occurring status changes
- Data logger: Saves all process values with adjustable cycle

Description	Item No.	Pack. Unit
TO-PASS® Mobile, 4 AI	761-314	1
Accessories		
Antennas, USB adapter and power supply units	see pages 576 ... 577	
TO-PASS® Configuration Software	see Section 1	
Approvals		
Approvals	for all EU countries	
	Approvals for other countries on request	
Technical Data		
Operating temperature	-20 °C ... +70 °C	
Type of mounting	DIN 35 rail	
Antenna connection	SMA socket (for both GSM and GPS)	
Wire connection	Terminal strips (WAGO 250 Series) with push-wire connection	
Cross sections	0.5 mm ² ... 1.5 mm ² / AWG 22 ... 14	
Strip lengths	9 mm / 0.35 in	
Dimensions (mm) W x H x L	109 x 78 x 105	
Weight	412 g	
Storage temperature	-40 °C ... +85 °C	
Degree of protection	IP20	
EMC immunity of interference	acc. to EN 61000-6-2	
EMC emission of interference	acc. to EN 61000-6-3	

Technical Data	
Digital inputs:	
Number of inputs	4 (Type 3)
Input current	max. 2.9 mA at 30 V DC
Signal voltage (0)	0 V ... 5 V DC
Signal voltage (1)	7 V ... 30 V DC
Analog inputs:	
Number of inputs	4 (0/4 mA ... 20 mA)
Internal resistance	approx. 200 Ω / 20 mA
Measuring error (25 °C)	< ± 1 % of the full scale value
Temperature coefficient	< ± 0.1 % / K of the full scale value
Digital outputs:	
No. of outputs	2 contacts
Output current (max.)	0.5 A / 30 V DC, short-circuit protected
Communication	GSM quad-band
Communication types	SMS (bidirectional), telecommunication dial-up connection (CSD)
Signaling	3 LEDs for operating status indication
Operating voltage	+10 V ... +30 V DC
Closed current	approx. 35 mA at +24V operating voltage
Current during transmission	< 500 mA at +24V operating voltage



Universal telecontrol module for fault detection/indication, position monitoring and Internet connectivity of machines/products over a GSM network. The module can be used in many countries via an integrated quad-band GSM modem. Messages are sent via SMS, e-mail, fax or phone call. The data memory stores up to 4096 process images in an adjustable cycle time. In addition, the process image and GPS position data can be transmitted in an adjustable cycle to a user-selected Internet address. A MODBUS slave (e.g., 750-816) can be connected via RS-232 interface to link additional process values. Switching of outputs is performed via SMS. The module is equipped with 4 digital inputs, 4 analog inputs, 2 digital outputs and GPS position data, including an integrated GSM modem. Ideal for applications in distributed stations for temperatures ranging from -20 °C to +70 °C.

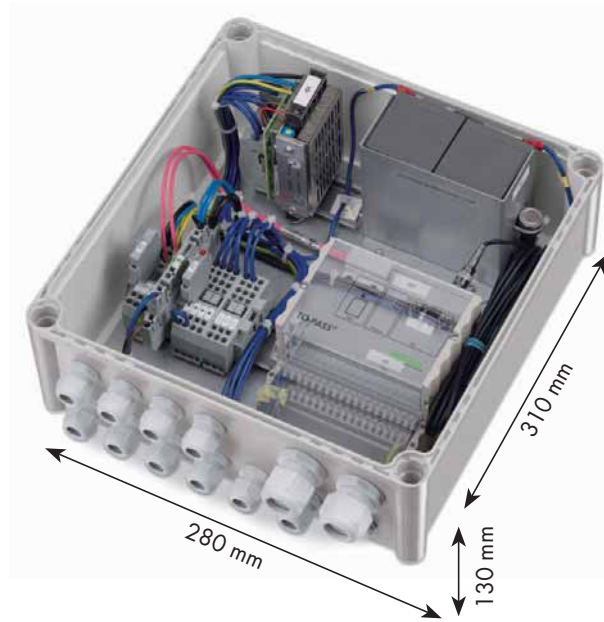
Ability to mount on DIN-rail and intuitive user software make unit easy to handle. Operating voltage +10V ... +30V DC.

Special functions:

- Acknowledgment: Acknowledging any fault message
- Stand-by: Automatic remote switching of the stand-by service
- Remote parameterization: Programming and process visualization conveniently performed from the office
- GPRS-dedicated line: Permanent online connection to the process on a WEB server or PC with fixed IP address (e.g., DSL connection)
- Event logger: Saves all occurring status changes
- Data logger: Saves all process values with adjustable cycle

Description	Item No.	Pack. Unit
TO-PASS® Mobile, 4 AI, Web, MODBUS	761-316	1
Accessories		
Antennas, USB adapter and power supply units	see pages 576 ... 577	
TO-PASS® Configuration Software	see Section 1	
TO-PASS® Web Portal	see Section 1	
Approvals		
Approvals	for all EU countries	
	Approvals for other countries on request	
Technical Data		
Operating temperature	-20 °C ... +70 °C	
Type of mounting	DIN 35 rail	
Antenna connection	SMA socket (for both GSM and GPS)	
Wire connection	Terminal strips (WAGO 250 Series) with push-wire connection	
Cross sections	0.5 mm ² ... 1.5 mm ² / AWG 22 ... 14	
Strip lengths	9 mm / 0.35 in	
Dimensions (mm) W x H x L	109 x 78 x 105	
Weight	412 g	
Storage temperature	-40 °C ... +85 °C	
Degree of protection	IP20	
EMC immunity of interference	acc. to EN 61000-6-2	
EMC emission of interference	acc. to EN 61000-6-3	

Technical Data	
Digital inputs:	
Number of inputs	4 (Type 3)
Input current	max. 2.9 mA at 30 V DC
Signal voltage (0)	0 V ... 5 V DC
Signal voltage (1)	7 V ... 30 V DC
Analog inputs:	
Number of inputs	4 (0/4 mA ... 20 mA)
Internal resistance	approx. 200 Ω / 20 mA
Measuring error (25 °C)	< ± 1 % of the full scale value
Temperature coefficient	< ± 0.1 % / K of the full scale value
Digital outputs:	
No. of outputs	2 contacts
Output current (max.)	0.5 A / 30 V DC, short-circuit protected
Communication	GSM quad-band
Communication types	SMS (bidirectional), telecommunication dial-up connection (CSD), GPRS connection to Internet
Signaling	3 LEDs for operating status indication
Operating voltage	+10 V ... +30 V DC
Closed current	approx. 35 mA at +24V operating voltage
Current during transmission	< 500 mA at +24V operating voltage



TO-PASS® Outdoor is a compact, IP66 enclosure for the installation of TO-PASS® telecontrol modules. The unit is equipped with an integrated GSM antenna, 230 VAC to 24 VDC power supply; power failure protection is provided by two batteries, and terminal block connections are included for the supply of additional sensors. The TO-PASS® telecontrol module is not included in delivery and must be ordered separately.

Description	Item No.	Pack. Unit
Outdoor enclosure	761-9009	1
Included	IP66 housing with integrated GSM antenna;	
	power supply unit	
	230 VAC to 30 VDC;	
	2 batteries;	
	terminal block connections;	
	cables;	
	heating	
Accessories	Item No.	Pack. Unit
TO-PASS® Compact telecontrol modules	see pages 564 ... 572	

Technical Data	
Supply voltage	230 VAC;
	Supply of external field sensors:
	30 VDC / max. 150 mA
External fuse	B-16A; C-10A
Degree of protection	IP66
Enclosure	Polycarbonate
Rated power	approx. 42 W (heating included)
Self consumption	approx. 1.5 W at 230 VAC (for charged batteries and a TO-PASS® module without sensors and heating)
Battery capacity	24 V / 1.2 Ah / annual maintenance required;
	Battery runtimes: approx. 24 hours at 5 minute transmission cycle without considering the supply of decentralized peripheral devices
Heater	8 W
Heater switch	at 5 °C ON, at 15 °C OFF
Frequency range	Antenna: GSM (900 MHz)
Dimensions (mm) W x H x L	280x130x310*
	*incl. cable grips
Ambient operating temperature	-4 °C ... +32 °C
Weight	4,8 kg
Cable grip	10 x M16, 2 x M25
Assembly	4 x drilled holes of 7 mm diameter
Type of mounting	Protected wall mount (no direct sunlight)
EMC immunity of interference	acc. to EN 61000-6-2
EMC emission of interference	acc. to EN 61000-6-4