TO-PASS® Telecontrol Technology
General Product Information

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., the WAGO Web portal, and easily accessed from any browser. Remote access ensures a high degree of system uptime, 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 preprocessing 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, saving in its own databank 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 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.

Advantages:

- 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
- Optional: High degree of protection

TO-PASS® Telecontrol Technology
Versions

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)

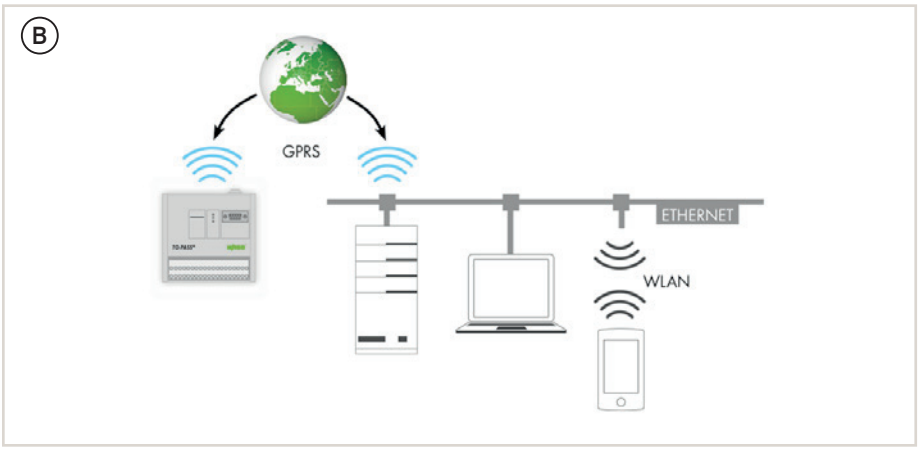
- Same as above
- Additional GPRS: Permanent online connection to the process
- Allows cyclic data transmission to the *TO-PASS*® Web Portal
- Allows cyclic data transmission to a controller with a fixed IP address that receives and further processes the data using the *TO-PASS*® Web Connector (see Application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

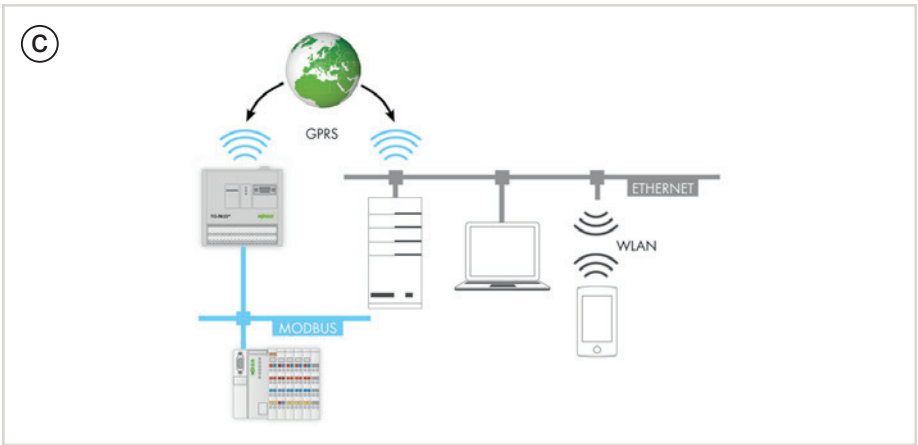
TO-PASS® Compact, MODBUS option (C)

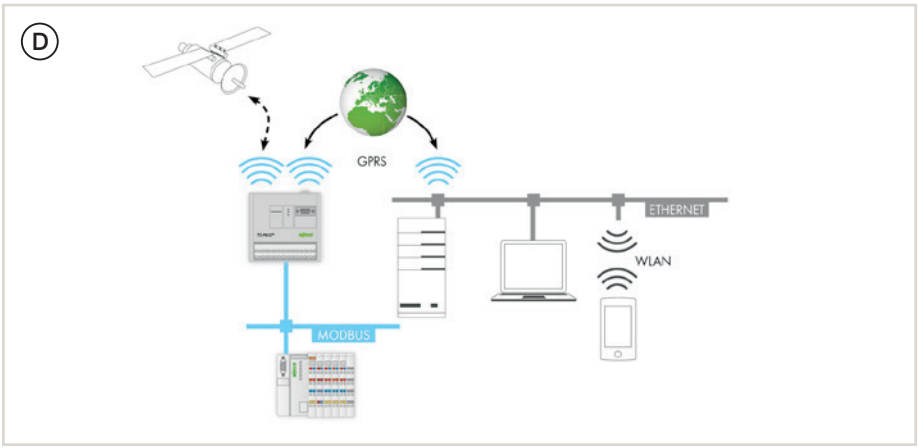
- Same as above
- Additional option for reading in data via MODBUS, e.g., from the WAGO 750 I/O-SYSTEM
- Connection via RS-232 or RS-485 depending on the version

TO-PASS® Mobile (D)

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







TO-PASS® Telecontrol Technology
Item Number Key

Explanation of the components of an item number key

Series

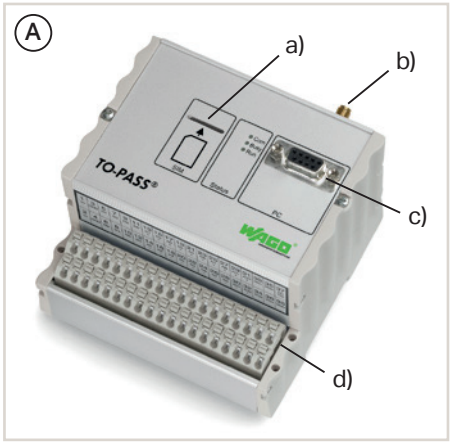
Item No. : 761-(x)xxx

1xx: Compact telecontrol module with 4DI, 4DO
2xx: Compact telecontrol module with 8DI, 4DO, 8AI, 2AO
3xx: Mobile telecontrol module with 4AI

x10: standard
x11: Additional 2 AI
x12: Additional Web option
x13: Additional 2 AI + Web option
114: Additional 2 AI + Web option + MODBUS RS-485
214: Additional event logger, data logger option
x16: Additional Web option + MODBUS RS-232
x17: Additional Web option + MODBUS RS-232

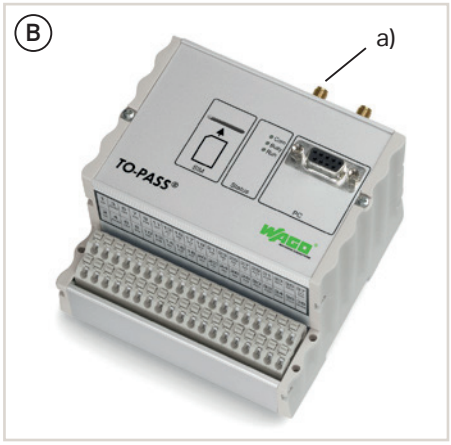
9009: Outdoor unit (without telecontrol module)

TO-PASS® Telecontrol Technology
Interfaces and Types



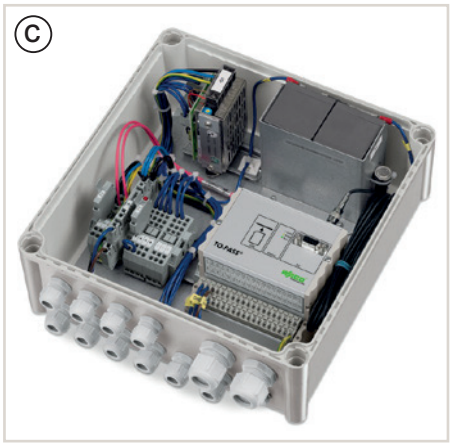
TO-PASS® Compact (A)

- Slot for SIM card (a)
- Antenna connection (b)
- RS-232/-485 serial interface (c)
- I/O connection level (d)
- W x H x D (mm) 109 x 105 x 78
  Height from upper edge of DIN-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
- Also available for self-sustaining solar
  operation
- W x H x D (mm) 280 x 130 x 310
  incl. cable grips

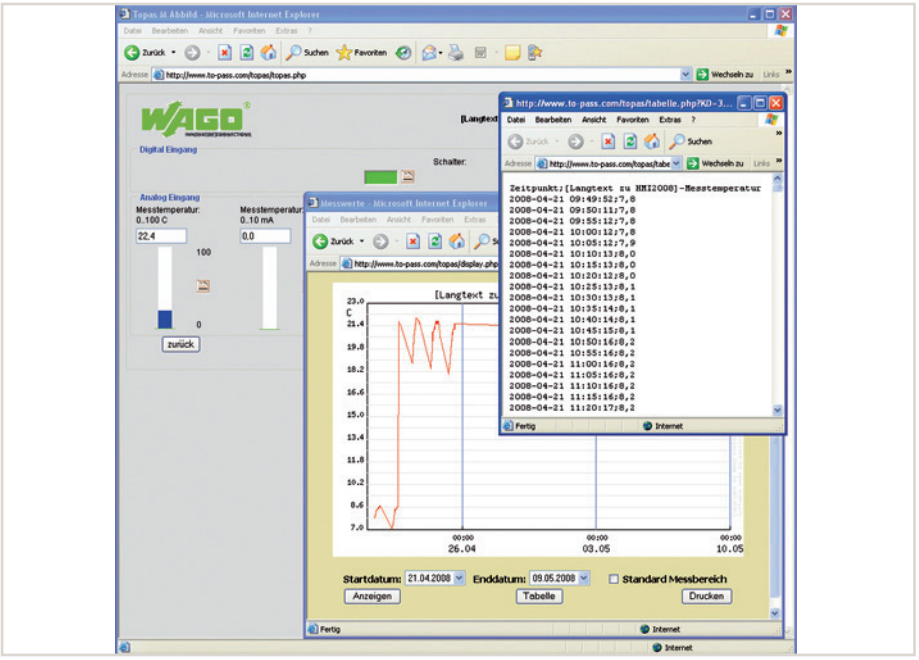
TO-PASS® Telecontrol Technology
Application and Installation Instructions

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 Webserver. The process image (i.e., states and values of all digital and analog inputs) is transmitted to the Webserver with a 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 Webserver.

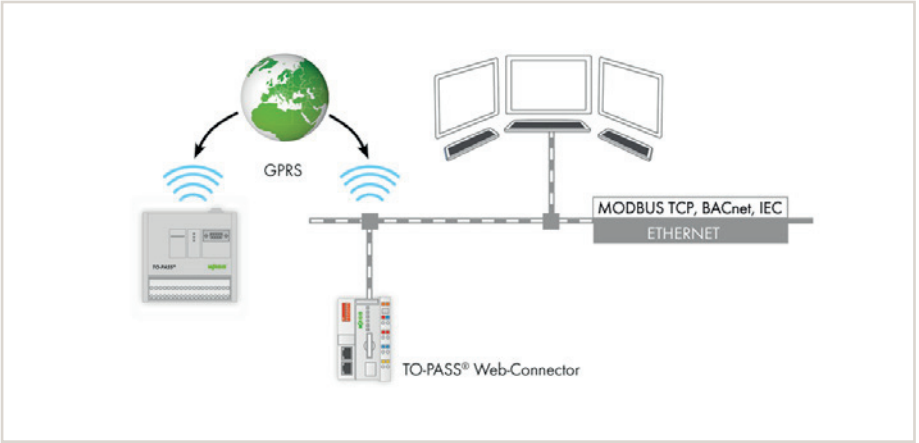
In addition to simple data storage, it provides password-protected visualization with current process data representation and chart recorder for measured value history. Controlling and managing your data is simplified by using an Internet browser via www.to-pass.com. More information on the *TO-PASS*®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



Application: *TO-PASS*® Web Portal as a central Webserver 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.

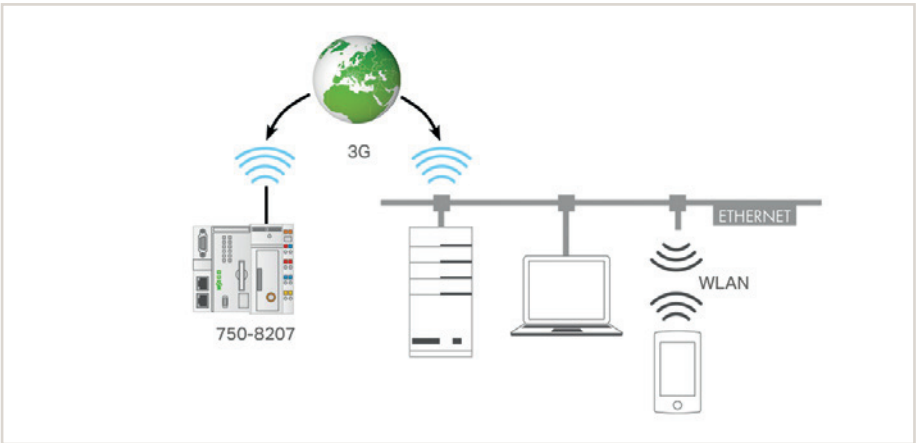


Application: *TO-PASS*® Web Connector as a link between local data and control system

Intelligent, Decentral Data Preprocessing

The controller with integrated mobile modem is recommended for telecontrol tasks requiring on-site control. 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 750 I/O-SYSTEM controllers is available in Section 3.



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

TO-PASS® Telecontrol Technology
Standards and Rated Conditions

General Specifications	
Supply voltage	10–30 VDC
Ambient temperature (operation)	–20 … +70 °C°C
Ambient temperature (storage)	–40 … +85 °C
Relative humidity	95 %, without condensation
Operating altitude	0 … 2000 m
Altitude at storage/transport	0 … 15000 m
Pollution degree	2 per IEC 61131-2
Vibration resistance	4 g acc. IEC 60068-2-6
Shock resistance	15 g per IEC 60068-2-27
EMC immunity to interference	Per EN 61000-6-2
EMC emission of interference	Per EN 61000-6-3
Protection type	IP20
Mounting type	On 35 mm DIN-rail
Mounting position	Any
Connection technology: Antenna	SMA socket
Connection technology: Inputs/outputs	250 Series Terminal Blocks with PUSH WIRE® connection
Conductor size; strip length	0.5–1.5 mm² / 22–14 AWG; 9–10 mm / 0.35–0.39 inch

Approvals

Overview of the approvals in the article comparison in Section 12, Technical Appendix, or online under www.wago.com