Products Launching for 2013
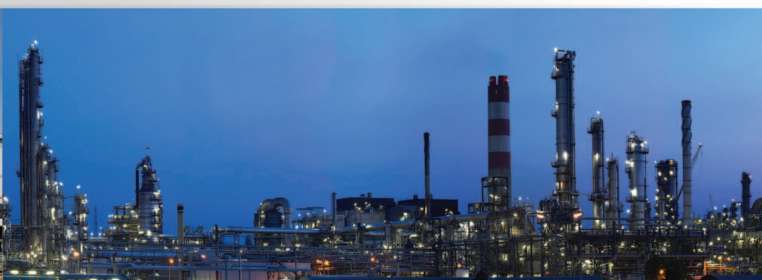
Pressure + Differential Pressure + Level

Pressure, Level and Flow *Wireless*HART™ Transmitters
LD400 *Wireless*HART™

The LD400 *Wireless*HART™ Series is a complete line of smart transmitters for differential, absolute, gauge, high static differential pressure and flow measurement as well as models for level, remote seal and sanitary applications. LD400 *Wireless*HART™ offers the best solution for all field applications demanding wireless data transmittion and highest performance. It is a robust and highly reliable solution for pressure, level and flow measurement, working in a self-organizing mesh network. These devices have low power consumption and long life battery.

- ± 0.045% accuracy;
- ± 0.2% of URL Stability - Guarantee for 12 years;
- 200:1 rangeability;
- Advanced diagnostics;
- Support for DD, EDDL and FDT/DTM;
- Local adjustment (zero and span calibration) and complete;
- Low Total Probable Error;
- Repeater/router function in mesh network;
- *"Burst Mode"* for sending periodical statements;
- Battery operation for long duration;
- *Wireless*HART™ Protocol.

LD400G *Wireless*HART™

The LD400 Inline *Wireless*HART™ transmitter allow liquid, vapors and gas gage pressure measurement, or liquid level measurement in open or closed non-pressurized tanks. Several process connection options are available for installations directly on the pipe or tank, without impulse lines and bracketing in most installations.

- ± 0.075% accuracy;
- Wetted parts: AISI 316L or Hastelloy C276

LD400I *Wireless*HART™

The LD400 Insertion *Wireless*HART™ level transmitter with extended probe is a simple option for measuring liquids in open tanks, closed non-pressurized tanks, canals, wells etc. Several types of bracketing enable a quick and fast installation on the top of the tank, for example, using existing manholes, to avoid tank drilling.

- ± 0.2% accuracy;
- Several probe lengths up to 3200 mm;
- Extended probe material: AISI304L or AISI316L;
- Diaphragm material: AISI316L or Hastelloy C276.

LD1.0
Capacitive economical pressure transmitter type Flying Leads

The LD1.0 capacitive economical pressure transmitter was designed for measuring gauge pressure of liquids, gases and vapors on many industrial applications. This low cost transmitter is the only one in the category that uses capacitive cell technology as pressure sensor to read pressure in an entirely digital way. The Flying Leads connection assures a good electrical insulation, avoiding humidity problems related to terminal connectors.

- ± 0.25% accuracy;
- 4-20 mA output signal according to the NAMUR NE43;
- HART® V5 communication protocol;
- Several options of process connections;
- Flying Leads electrical connections - no polarity;
- Zero and spam local adjustments using magnetic tool;
- Lightweight and compact;
- Configuration via HPC401, CONF401 and FDT/DTM;
- Weather protection IP66.

4-20 mA

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Density

DT400 *Wireless*HART™
Density Transmitter

The DT400 is a *Wireless*HART™ density transmitter with digital communication designed for the continuous online measurement of liquid density, directly in industrial process. The DT400 *Wireless*HART™ consists of a probe with two repeaters diaphragms immersed in the process.

A temperature sensor located in the probe, between the two repeaters diaphragms automatically compensates temperature variations in the process.

Special techniques in the production and assembly probe and temperature sensor ensure that small variations in the process temperature are quickly informed to the transmitter, which calculates the fluid density process accurately through dedicated software.

Depending on the industrial process, density can be expressed in Density, Relative Density, Brix degree, Baumé degree, Plato degree, % of Solids, Concentration, etc.

Locally, via HART® configurator, it is possible to perform calibration, monitoring and check diagnostics.

EDT300
Alcoholic Degree Measurement System

The EDT300 is a great solution for continuous online measurement of alcoholic degree. The measurement can be expressed as alcohol by volume (ºGL) or alcohol by weight (ºINPM). The EDT provides high accuracy and repeatability, besides of easy installation and maintenance.

The EDT300 can be installed, for example, in the output of the ethanol distillation column. It is not necessary to cool the fluid since the EDT can measure the ethanol at the process temperature. The automatic control of this process can be done based on the alcoholic degree, affording excellent results, such as increased productivity and better control of product specifications.

The EDT300 has 4-20 mA + HART®, PROFIBUS-PA or FOUNDATION™ fieldbus communication protocol for configuration, monitoring and diagnostics.

- ± 0.05% ºINPM accuracy;
- Measuring range: 0 to 100 ºINPM;
- Operation temperature: 10 to 100 ºC;
- Input and output process connections: flange ½" - ANSI B16.5.

IDT300
Immersion Density Transmitter

The IDT300 is designed for the continuous online measurement of liquid density and concentration, directly in industrial process, being immersed in the process fluid, facilitating the installation and maintenance.

The complete line includes the IDT301 - 4-20 mA + HART®, IDT302 FOUNDATION™ fieldbus and IDT303 - PROFIBUS-PA. These transmitters use a patented technology to calculate the density based on the hydrostatic differential pressure.

The density and concentration can be expressed in g/cm³, kg/m³, lb/ft³, Relative Density, ºBrix, ºBe, ºINPM, ºGL, ºAPI, % of Solids, % of Concentration etc.

The IDT300 installation can be done directly in open tanks or using existing manholes, as well in underground tanks. This type of assembly enables the maintenance without stopping the process.

- ± 0.0004% g/cm³ accuracy;
- Measuring range: 0.5 to 5 g/cm³;
- Single integrated unit without moving parts;
- Factory calibration and self-calibration;
- Self-diagnostic;
- Totally digital: sensor, circuit and communication;
- Configuration via local adjustment (FOUNDATION™ fieldbus and PROFIBUS-PA);
- Operation temperature: -20 to 85 ºC.

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TP400 *Wireless*HART™
Position Transmitter

The TP400 is a *Wireless*HART™ transmitter for position measurement and it is part of the family of Smar devices.

It can measure displacement or movement of rotary or linear type based on Hall effect non-contact sensor. The digital technology and wireless communication provide an easy interface between the field and control room and several interesting features that considerably reduce the installation, operation and maintenance cost.

The TP400 *Wireless*HART™ may be installed to monitor valves and actuators position or in any equipment with linear or rotary motion such as skylights, dampers, rollers spacing, crushers, etc. There is an option for remote sensor with cable length up to 20 m.

*Wireless*HART

TT400 *Wireless*HART™
Temperature Transmitter

TT400 *Wireless*HART™ is used in all field applications demanding data wireless transition. It is a transmitter mainly intended for temperature measuring using RTDs or thermocouples, providing a *Wireless*HART™ output. This device can operate even with two sensors and in the following conditions:

- o Simple measurement, by using only one sensor;
- o Differential measurement, with two sensors (same type);
- o Backup measurement, with two sensors (same type);
- o Maximum, minimum or average measurement, two sensors (same type).

TT400 *Wireless*HART™ also has:

- ± 0.02% accuracy;
- Single unit and several options for sensors and connections;
- Advanced diagnostics;
- Support for DD/EDDL and FDT/DTM;
- Sensor back-up.

*Wireless*HART

TT481 *Wireless*HART™
Multipoint Temperature Transmitter

The TT481 *Wireless*HART™ is a temperature transmitter for 4 or 8 inputs that simplifies the installation and provides a temperature measurement per point cheaper.

Temperature information is available via *Wireless*HART™ digital communication protocol. The TT481 offers:

- ± 0.03% accuracy;
- RTDs and thermocouples linearization;
- Lightweight and compact;
- Simple or differential measuring;
- Several type of sensors, 2 or 3-wire;
- Supports DD/EDDL and FDT/DTM;
- Inputs accept 4-20 mA signal for easy integration between 4-20 mA devices to *Wireless*HART™ network.

*Wireless*HART

TT1.0
Economical Temperature Transmitter

The TT1.0 is a temperature transmitter extremely versatile, accepting several types of sensors, like load cells, etc.

The same unit may be used for different measuring ranges and different types of sensors that include a wide variety of RTDs and thermocouples, besides the inputs for millivolt and resistance. Thus, the plant inventory can be standardized, as it can replace several types and models of conventional transmitters.

The TT1.0 is the best cost/benefit in its class.
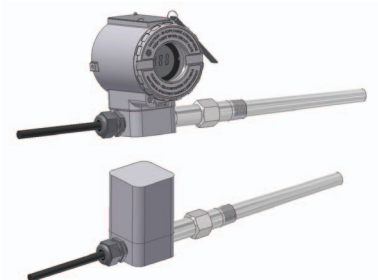
4-20 mA HART COMMUNICATION PROTOCOL

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PROFIBUS-PA REMOTE I/O

DC303
Remote I/O PROFIBUS-PA

DC303 Remote I/O makes integration of PROFIBUS and conventional I/O easy. Discrete devices such as pressure switches, push buttons, on/off valves, pumps and conveyors are integrated to the system over the PROFIBUS-PA field-level network using DC303. It is a single integrated easy to use piece of equipment including power, control, networking and I/O under one compact device requiring less panel space than other solutions. The DC303 is an integral part of SYSTEM302 but also integrates into other systems supporting PROFIBUS.

The DC303 has 16 Discrete Input Function Blocks (DIs) and up to 8 Discrete Output Function Blocks (DOs). The DC303 has a Built-in Flexible Function Block (FFB) for logic execution such as: AND, OR, XOR and NOT. Functions as: Timer On-Delay, Timer Off-Delay, Timer Pulse, Pulse Counter Down (CTD), Pulse Counter Up (CTU), Flip-Flop RS and Flip-Flop SR.

FRI303
Remote I/O PROFIBUS-PA

The FRI303 can be located at the field and it is a suitable solution for discrete signals. The FRI303 is fully configured through the SYSTEM302 or any other PROFIBUS configuration tool based on EDDL or FDT/DTM.

The FRI303 may be installed close to the conventional discrete elements, thereby eliminating long wire runs, associated marshalling panels and cable trays for the conventional output, with subsequent savings further reducing overall system costs. It is applicable to connect motor control centers, variable speed drives, and electrical actuators and motor operated valves to PROFIBUS-PA.

The FRI303 has 02 Discrete Input (DI) blocks and 02 Discrete Output (DO) blocks.

Controller

DF100
HSE/*Wireless*HART™ Controller

The DF100 controller is a key element in the distributed architecture of the field control systems. Combines powerful communication features with access to field devices via *Wireless*HART™ protocol.

This controller has features entirely new when compared with the DFI302 modular line. The DF100 can be used in outdoors, because it has ingress protection IP66. In addition, it makes possible to work with the new specification HSE WIO of Fieldbus Foundation, and Modbus communication via EIA-485 port.

- 1 *Wireless*HART™ channel (HART® 7 specification of HART® Communication Foundation);
- 2 10/100 Mbps Ethernet ports;
- 1 EIA-485 port (for Modbus communication)
- It integrates up to 100 *Wireless*HART™ devices;
- Modbus gateway;
- Integrated webserver for diagnostic and parameterization;
- Real Time Clock (RTC) and watchdog;
- Support for HSE WIO of Fieldbus Foundation architecture;
- Ingress protection IP66 (supports outdoor);
- Operation temperature: -40 ºC to 60 ºC;
- Operation voltage: 20 Vdc to 30 Vdc, 11W maximum.

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Accessories

RHP303
PROFIBUS Hub Repeater

The RHP303 is a modular repeater designed to support the requirements of PROFIBUS networks and systems.

Applications and advantages:

- Ideal for dense networks;
- Bus segmentation and isolation in areas subjected to electromagnetic interference;
- Increase the system availability;
- Increase the cabling distance up to 1200m per channel;
- Baud rate from 9.6 kbits/s to 12 Mbits/s;
- Increase the number of devices up to 32 per segment;
- Use in hybrid topologies allowing spurs and tree/star topologies;
- PROFIBUS hub;
- 5 isolated channels with transient protection;
- No limits for repeaters in series or cascades;
- Economic, robust and easy installation solution;
- Applicable in Modbus EIA-485 networks.
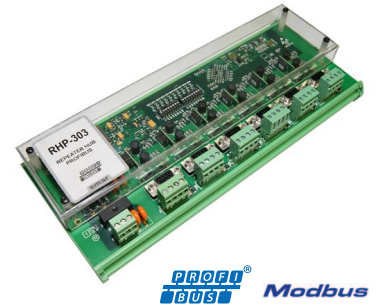
RP400
*Wireless*HART™ Repeater

The RP400 is a *Wireless*HART™ network dedicated device and its main function is to extend the network range working as a router manager, simplifying the design and implementation of a wireless network. The device is passive and has no actuation in the industrial process. The *Wireless*HART™ communication network is structured as a mash. The Mesh network allows the network nodes to communicate with each other establishing redundant paths to the gateway, increasing the network availability. This type of networks also allows scalability simply by adding additional nodes or the RP400 repeaters into the network. Another characteristic is that the bigger is the network, the more reliable it becomes because more alternative paths will be created.

The main characteristics of the RP400 are:

- *Wireless*HART™ digital communication;
- Increase of communication routes, facilitating the *Wireless*HART™ network scalability;
- Availability increase through alternative paths in the Mesh network;
- Excellent payout solution.

IR290
4-20 mA Remote Indicator

The IR290 is a 4-20 mA remote indicator, used for monitoring analog variables in industrial and laboratorial processes with an accuracy of 0.1%.

The local adjustment via the magnetic tool simplifies configuration done by the operators.
It allows calibration from the 4-20 mA signal as well as the factory backup configuration which is password protected.

It has several engineering units such as: mA, %, pressure units, temperature, flow, volume, density and etc.

4-20 mA

IR303
Remote PROFIBUS-PA Indicator

IR303 is a PROFIBUS-PA remote Indicator which works with any PROFIBUS-DP Class 1 master to display the output of remote PROFIBUS-PA devices. Up to eight cyclical variables from either one device or eight different devices can be monitored. The IR303 is distributed on the PROFIBUS-PA bus and allows the user to visualize devices at easy-to-access locations without moving to the actual location where devices are installed, or entering difficult-to-access or hazardous sites. It is a perfect match to work with the TT383 - Eight Input Temperature Transmitter with PROFIBUS-PA.

RP303
1 channel PROFIBUS-DP Repeater

The RP303 is a repeater designed to support the requirements associated to the use of PROFIBUS networks and systems.

See below its application and advantages:

- Ideal for dense networks;
- Bus segmentation and isolation in areas subjected to electromagnetic interference;
- Increase the system availability;
- Increase the cabling distance up to 1200 m per channel;
- Baud rate from 9.6 kbits/s to 12 Mbits/s;
- Increase the number of devices up to 32 per segment;
- Use in hybrid topologies allowing spurs and tree/star topologies;
- 1 isolated channel with transient protection;
- No limits for repeaters in series or cascades;
- Economic, robust and easy installation solution;
- Applicable in Modbus EIA-485 networks.

AT303
Active PROFIBUS-DP Terminator

The AT303 is an active terminator designed to increase availability in a PROFIBUS network and facilitate access to any PROFIBUS-DP node without disturbing the network. In this way, any PROFIBUS slave can be turned off.

The AT303 terminator can be assembled inside the control cabinets in a DIN rail or in field junction boxes. See below some of its characteristics:

- Isolated 24 Vdc power supply inputs;
- Galvanic isolation;
- Baud rate from 9.6 kbits/s to 12 Mbits/s;
- Power supply indication LED;
- 1 DB9 frontal PROFIBUS-DP connector;
- 1 PROFIBUS-DP connector per terminal.

SUP303
PROFIBUS-DP Network Transient Suppressor

The SUP303 is designed to protect the PROFIBUS-SP network against transient suppression.

Easy installation in a DIN rail support, it can be connected throughout the network segment or node in order to guarantee the integrity of PROFIBUS signals against power supply spikes, transients and even lightning bolts. Designed to work with baud rate from 9.6 kbits/s to 12 Mbits/s.

RPR303
PROFIBUS-DP Reflection Protector and Signal Regenerator

This device regenerates the PROFIBUS-DP signals, eliminates signal reflections and minimizes noises, caused by EMI, crosstalk, attenuations, distortions, interferences and impulse, differential and longitudinal. It also recovers the signals maintaining its quality and avoiding intermittences in the PROFIBUS network communication.

The signal reflections are very difficult to diagnostic and are the main cause of problems in a PROFIBUS network. They can happen every time there is an impedance change, caused by the bus splices and spurs.

This is a device designed to increase the PROFIBUS-DP network availability.

JB400 & JM400

Intelligent Junction Box for 4,6 or 8 Spurs

- Complies with physical layer IEC61158-2, for PROFIBUS-PA and FOUNDATION™ fieldbus);
- Intelligent short-circuits protection on every spur, avoiding short-circuit propagation. The spur returns to normal condition when the short-circuit is removed;
- Fast and easy installation;
- Maintenance during plant operation.

PBI-PLUS

USB Interface for PROFIBUS-PA

PBI-PLUS is a smart communication converter between PROFIBUS-PA devices and an USB port. It originated in the need to interface PROFIBUS-PA devices (transmitters, controllers, sensors, actuators, converters, etc.) with devices have USB ports such as PCs, notebooks etc.

PBI-PLUS enables the use of PCs and notebooks to implement this human-machine interface, replacing, with several advantages, dedicated terminals (programmers). It allows monitoring service, actuation, configuration and PA network management to be executed together with the host (resident application), which can implement from a simple programmer or line analyzer up to a supervisory process system.

CRG300

Cable Route Guide

This is a mechanical device that facilitates the routing of HART®, PROFIBUS-PA, PROFIBUS-DP, FOUNDATION™ fieldbus, AS-i, DeviceNet, Modbus and Conventional cables to guarantee the correct curviness of the cable. Whenever this curviness is violated there is a change in the cable impedance, causing signal reflection. This device was designed for cabinet and field mounting.

4-20 mA

WSP300

Intelligent Protector for 4, 6 or 8 spurs

The WSP300 protects against short circuits in spurs, limiting the current in each spur at 50 mA, so that the short circuit does not propagate to other spurs and to the main trunk. There is a terminator integrated and a LED indicator for short circuit. In normal operation, each protective circuit consumes less than 1 mA. After removal of the short circuit, the spur returns to normal operation, the protection circuit is disabled and the LED is dimmed. It is part of JB400:

- Complies with IEC61158-2 (PROFIBUS-PA and FOUNDATION™ fieldbus Physical Layer);
- For panel or field junction box mounting;
- Fast and easy installation;
- Maintenance during plant operation.

HSC303

High Speed Coupler PROFIBUS-DP/PA for 2 or 4 channels

The HSC303 is a high speed coupler PROFIBUS-DP/PA, up to 12 Mbits that provides a seamless integration between PROFIBUS-DP and PROFIBUS-PA segments.

The HSC303 requires no configuration and is transparent to the PROFIBUS-DP master, i.e., it does not need a PROFIBUS address.

- Transparent from 9.6 kbps up to 12 Mbps;
- Can directly replace non-Ex PROFIBUS-PA couplers;
- Options for 340 mA or 500 mA maximum current per PROFIBUS-PA channel;
- Can be used with intrinsic safety barriers.

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