



WIRELESS LINE



WirelessHART™

Wireless Line

WirelessHART™ has grown as user choice, as a complementary technology standing side-by-side with other digital wireless field networks.

smar
Technology Company

In the past few years the wireless network technology underwent great technological development, one that can provide: safety, reliability, stability, self-organizations (mesh), low consumption, power management systems and long life batteries.



In terms of benefits, among others the following can be mentioned:

- Cost reduction and simplification of cabling installation;
- Maintenance costs reductions due to the simplicity of installations;
- Monitoring in location of difficult access or exposed to risk situations;
- Scalability;
- Physical integrity of installations with less probability of mechanical and electrical damages like cable breaking, bus short circuits, chemical attacks, etc.

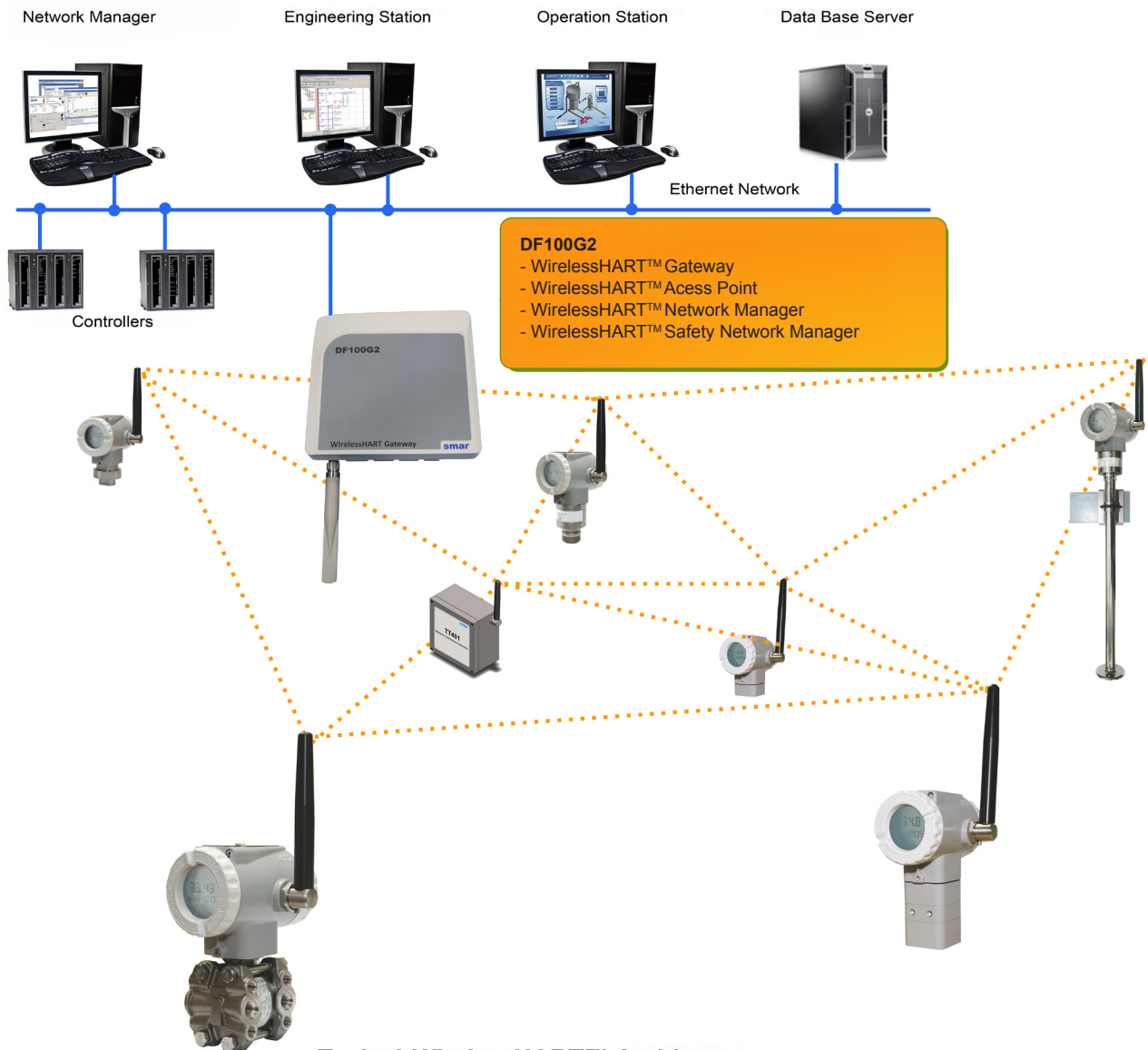
WirelessHART™ has grown as user choice, as a complementary technology standing side-by-side with other digital wireless field networks.

The internationally recognized HART® technology now offers a robust protocol designed for numerous applications, with the advantage of the wireless feature. Installation economy and efficient management of energy, quick access to information from the field, robust communication, information integrity and network security: this and many other advantages make up the *WirelessHART™* technology (learn more at www.hartcomm.org), which came to the universe of automation to innovate and revolutionize.

Based on a wireless mesh network communication protocol, the *WirelessHART™* protocol ensures compatibility between existing HART® devices, commands and tools. Basically, a network *WirelessHART™* is composed of elements as shown in the figure below.

The figure elements, on the network, constitute the mesh network. They are:

- **Host** - workstation that allows interaction with the process. Through the *WirelessHART™* Gateway, the host gathers data from instruments connected to the network in question.
- **WirelessHART™ Gateway** - it converts data between the host and devices connected to the network. The Gateway DF100G2 is used combined with Smar wireless transmitters. It incorporates Network Manager, and Access Point features.



Typical *WirelessHART™* Architecture

- **Network Manager** - it distributes, among other responsibilities, the network identity, publicizing its existence; distributes individual security keys to the devices; assigns a communication band to them; manages the communication routes between them, etc. It is an application that can be embedded in the *WirelessHART™* Gateway.
- **Access Point** - in a simple way, can be understood as the *WirelessHART™* radio installed in the gateway.
- **WirelessHART™ Field Devices** - work, beyond their functionalities as transmitters, as routers (repeaters), i.e., they are able to retransmit messages from other devices on the network.

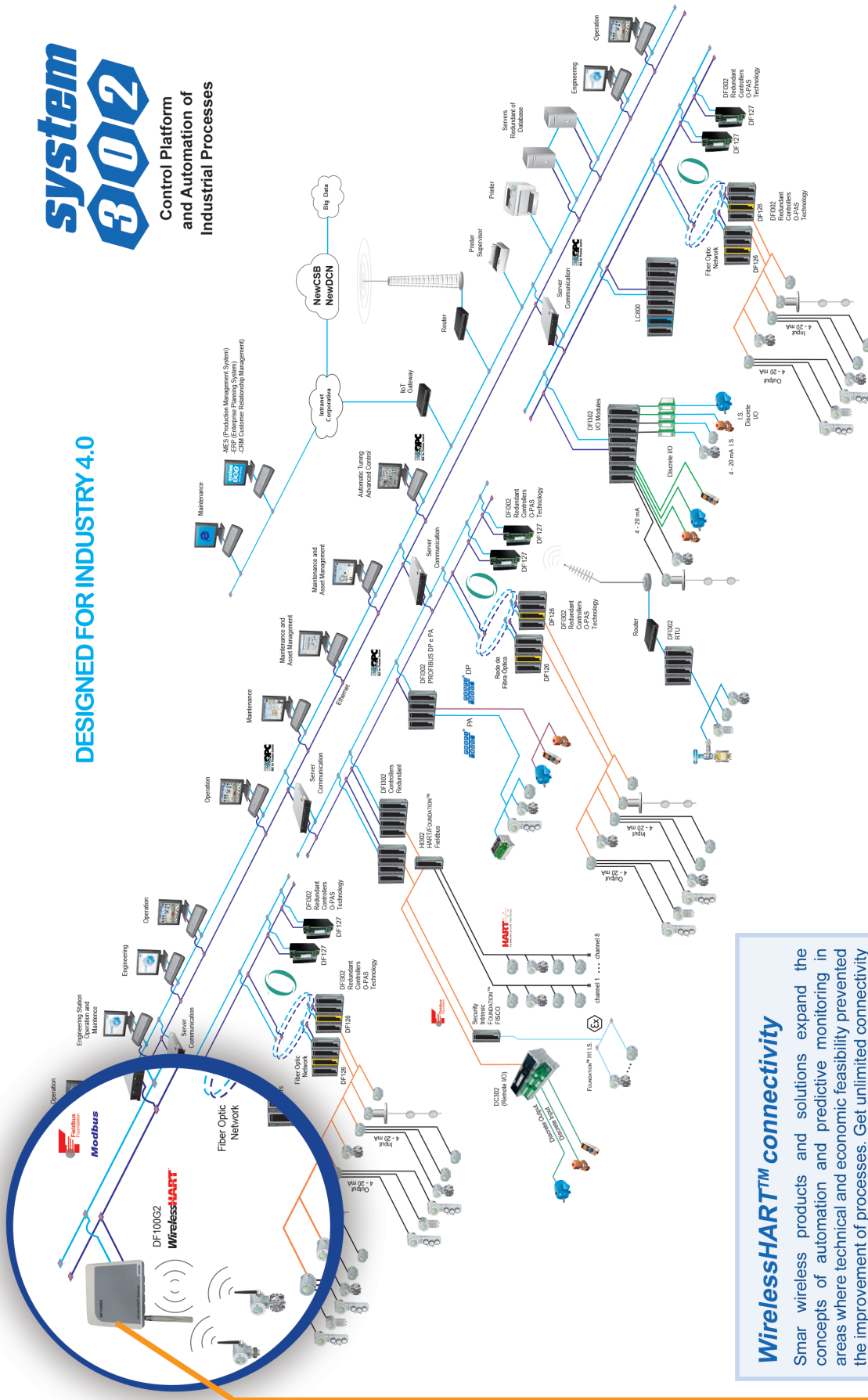
WirelessHART™ devices should be installed on field and configured the same way as conventional wired HART® devices. This is possible by updating and uploading properly the DD files on the configurator. This, on its part, can also be used normally.

It is noteworthy also that these devices can be either configured previously, in workbench, as well as at the time of installation.

system 302

Control Platform
and Automation of
Industrial Processes

DESIGNED FOR INDUSTRY 4.0



WirelessHART™ connectivity

Smart wireless products and solutions expand the concepts of automation and predictive monitoring in areas where technical and economic feasibility prevented the improvement of processes. Get unlimited connectivity with full security, data reliability and energy efficiency.

PROVIDING RELIABLE CHOICES

HART Modbus WirelessHART

OPEN AUTOMATION

DF100G2

WirelessHART™ Gateway

The DF100G2 Gateway is a wireless, WirelessHART (IEC 62591) compliant process automation infrastructure device that manages WirelessHART mesh field instrument networks.

It is a rugged field gateway that meets stringent wireless process automation requirements for mission-critical applications. Highly scalable networks that cover large geographic areas can be deployed due to the industry-leading wireless range of WirelessHART communications. Support for split-second process reporting enables deployment of field instruments involved in both monitoring and control. Monitor, configure and manage field instruments through an intuitive web-based application.

- WirelessHART connectivity;
- HART-IP and MODBUS connectivity;
- Long line-of-sight range for communication with the field instrument - Consult Nova Smar;
- Up to 250 field instruments per Gateway;
- Wide range of process intermittency rates;
- Secure and reliable transfer of large files collected by field instruments;
- Supports two-layer WirelessHART authentication, AES-128 encryption and SSL/HTTPS certificate-based gateway access;
- Remote update and diagnostics capability.



Field Devices

Pressure, Level and Flow WirelessHART™ Transmitters

LD400 WirelessHART™

The LD400 WirelessHART™ 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 WirelessHART™ offers the best solution for all field applications demanding wireless data transmission 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.

- 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;
- WirelessHART™ Protocol;
- $\pm 0.045\%$ accuracy;
- $\pm 0.2\%$ of URL Stability for 12 years;
- Up to 200:1 rangeability.



WirelessHART

LD400G WirelessHART™

The LD400 Inline WirelessHART™ 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.

- $\pm 0.065\%$ accuracy;
- Wetted parts: AISI 316L or Hastelloy C276



WirelessHART

TT481 *WirelessHART*[™] Multipoint Temperature Transmitter

The TT481 *WirelessHART*[™] 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 *WirelessHART*[™] digital communication protocol. The TT481 offers:

- $\pm 0.1\%$ 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 *WirelessHART*[™] network.



TT400 *WirelessHART*[™] Temperature Transmitter

TT400 *WirelessHART*[™] is used in all field applications demanding data wireless transition. It accepts signals from mV generators (thermocouples) or resistive sensors (RTDs). 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 *WirelessHART*[™] also has:

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



TP400 WirelessHART™ Position Transmitter

The TP400 is a *WirelessHART™* 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 *WirelessHART™* 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.



WirelessHART

RP400 WirelessHART™ Repeater

The RP400 is a *WirelessHART™* 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 *WirelessHART™* communication network is structured as a mesh. 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:

- *WirelessHART™* digital communication;
- Increase of communication routes, facilitating the *WirelessHART™* network scalability;
- Availability increase through alternative paths in the Mesh network;
- Solution with excellent cost/benefit ratio.



WirelessHART

Wireless Line



Consult our
representatives



Rua Dr. Antônio Furlan Junior, 1028 - Sertãozinho, SP - CEP: 14170-480
insales@smar.com.br | +55 (16) 3946-3599 | www.smar.com