QUICK START GUIDE

WIRELESSHART NETWORK

WirelessHART

PEPPERL+FUCHS

PROTECTING YOUR PROCESS

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1 WirelessHART Gateway

Connections and Interfaces

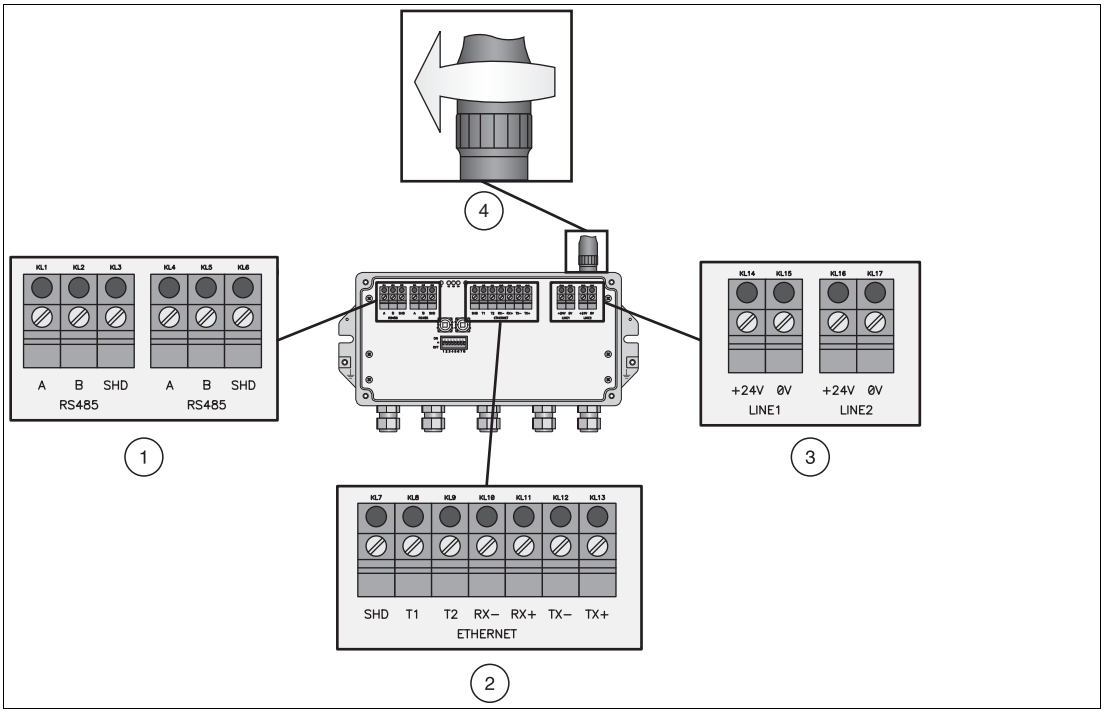

Figure 1.1 RS485, Ethernet and power supply connections of the Gateway

1 RS485 terminal blocks (daisy chain possibility)
2 Ethernet terminal block
3 Redundant power supply connection
4 Antenna connection

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Installing the WirelessHART Gateway

1. Install the Gateway in a good location considering the propagation of the radio signal.
   > Further information: chapter 3.1 of the WHA-GW manual.

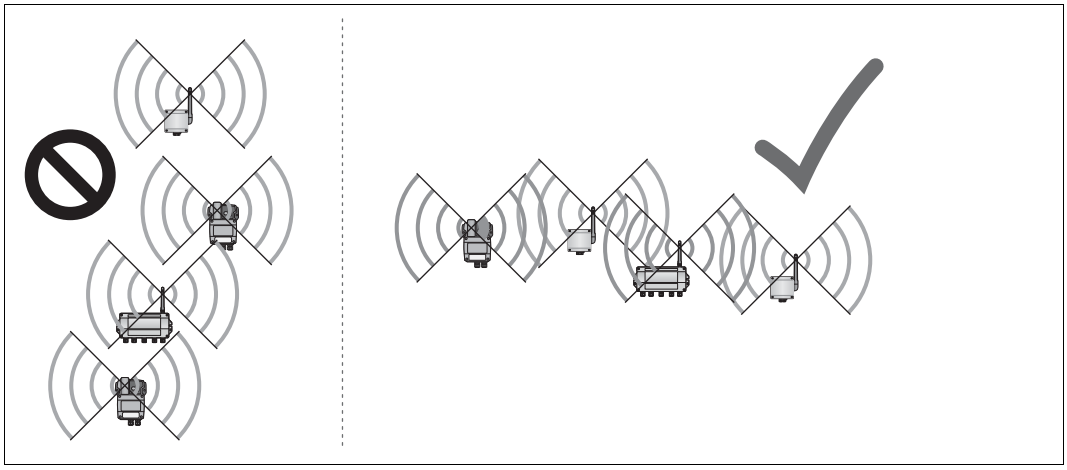

Figure 1.2 Poor positioning (left) and good positioning (right)

2. Connect the Gateway to the host system using RS485, Ethernet or both. If you are using the Ethernet connection, there are two wiring options (see following figure).
   > Further information: chapters 3.3 and 3.4 of the WHA-GW manual.

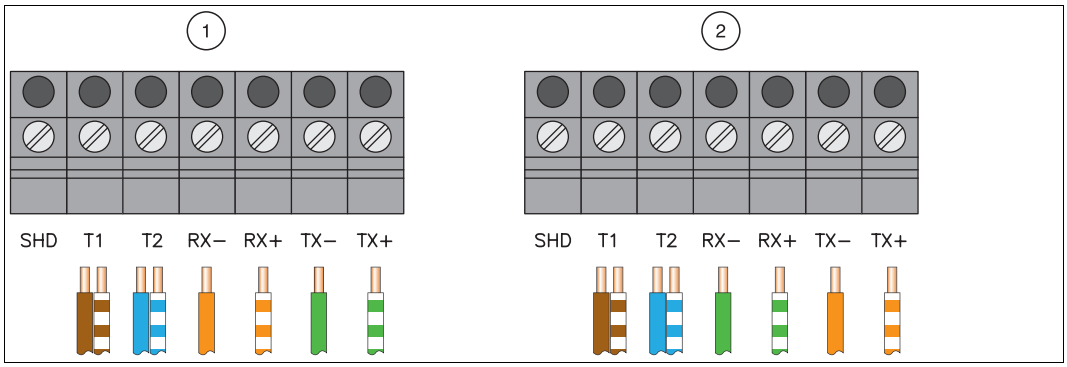

Figure 1.3 Connecting an Ethernet cable to the Ethernet terminal block

3. Screw the antenna to the antenna connection and then connect the Gateway to a power supply (see figure 1.1).
   > Further information: chapters 3.5 and 3.6 of the WHA-GW manual.

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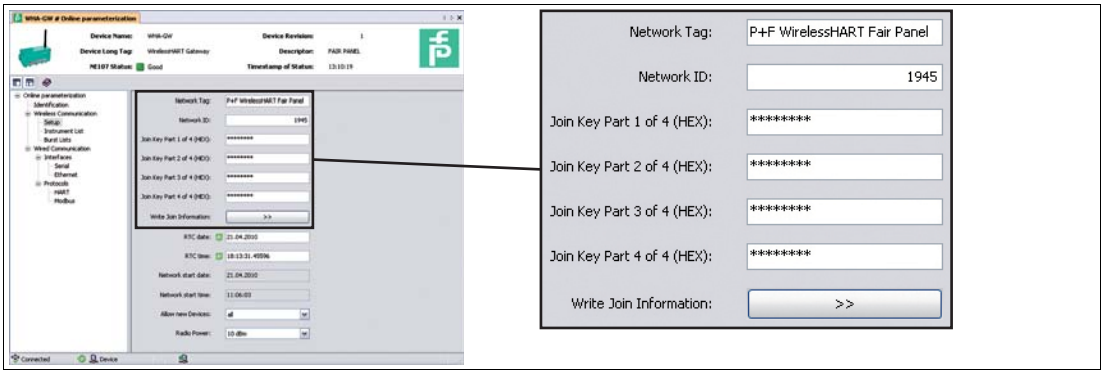
Parameterizing the WirelessHART Gateway

1. You may parameterize the Gateway using the DTM software or the browser-based web interface. Depending on your type of connection, configure the network connection and the communication DTM parameters (see table below).
   For further information refer to chapters 4 and 5.1 of the WHA-GW manual.
2. Power up the Gateway and set at least the two parameters **Network ID** and **Join Key** (Parameter > Wireless Communication > Setup, see following screenshot). Then press **Write Join Information**. Other parameters depending on your application can be set later.
   For further information refer to chapter 5.4.1 of the WHA-GW manual.

	Parameterization		
	via RS485 Comm DTM	**via Ethernet Comm DTM**	**via web interface**
Required software	PACTware and "HART Communication" DTM	PACTware and "HART IP Communication" DTM	Web browser
Windows® settings	Check COM port of RS485–RS232/USB converter: Device Manager > Ports(COM & LPT)	Local Area Connection Properties > Internet Protocol (TCP/IP): IP address: 192.168.1.x (x being a number between 0 ... 255 except "1") Subnet mask: 255.255.255.0	
DTM/Browser settings	Comm Interface: HART multiplexer Port: COM port of RS485–RS232/USB converter	Bus address: 1 Gateway IP address: 192.168.1.1 UDP port: 5094	Proxies: deactivated Enter 192.168.1.1 to access web interface User name: admin Password: admin



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2 WirelessHART Adapter

Connections and Interfaces

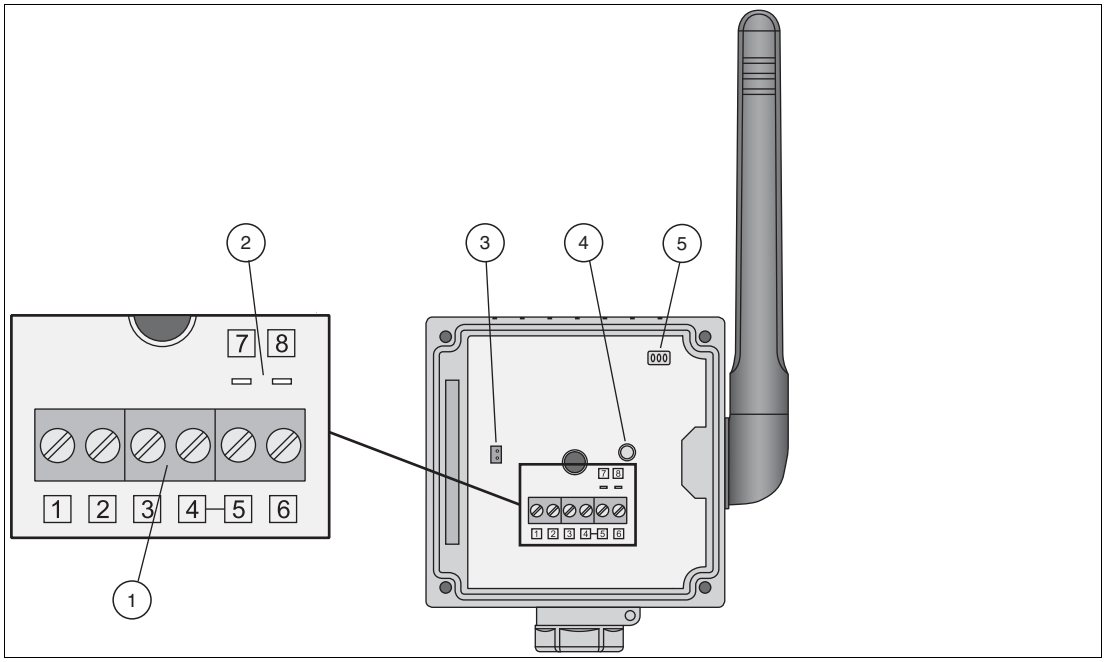

Figure 2.1 Connections and interfaces of the WirelessHART Adapter

1 Terminal block for connection of wired HART field device(s)
2 Pins for connection of HART modem
3 Battery connector
4 Button
5 LEDs

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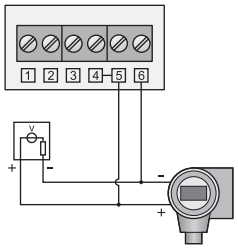
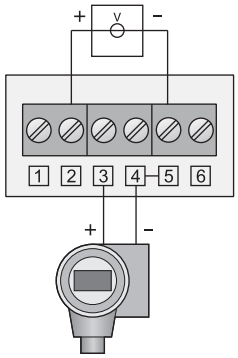
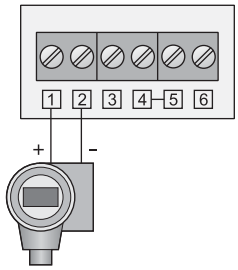
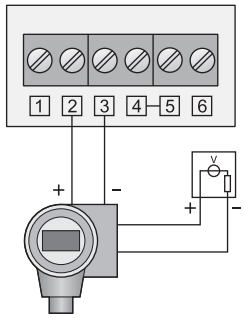
Installing the WirelessHART Adapter

1. Install the adapter in a good location considering the propagation of the radio signal (see Figure 1.2 on page 5).
   > Further information: chapters 3.1 and 3.2 of the WHA-ADP manual.
2. Choose one of the four different ways of connecting a field device to the adapter (see following table). Then connect the field device to the adapter.
   > Further information: chapter 3.3 of the WHA-ADP manual.

Installation			
In a 4 ... 20 mA loop		**Stand-alone**	
With communication resistor *	Without communication resistor *	2-wire device	4-wire device
			

* Alternative wiring options can be found in the manual

Connecting the battery

1. Insert the battery as shown in the following figure. The clips of the battery should snap into place.
   > Further information: chapter 4.2 of the WHA-ADP manual.
2. Power the adapter by plugging the battery cable into the battery connector as shown in the following figure.
   > Further information: chapter 4.2 of the WHA-ADP manual.

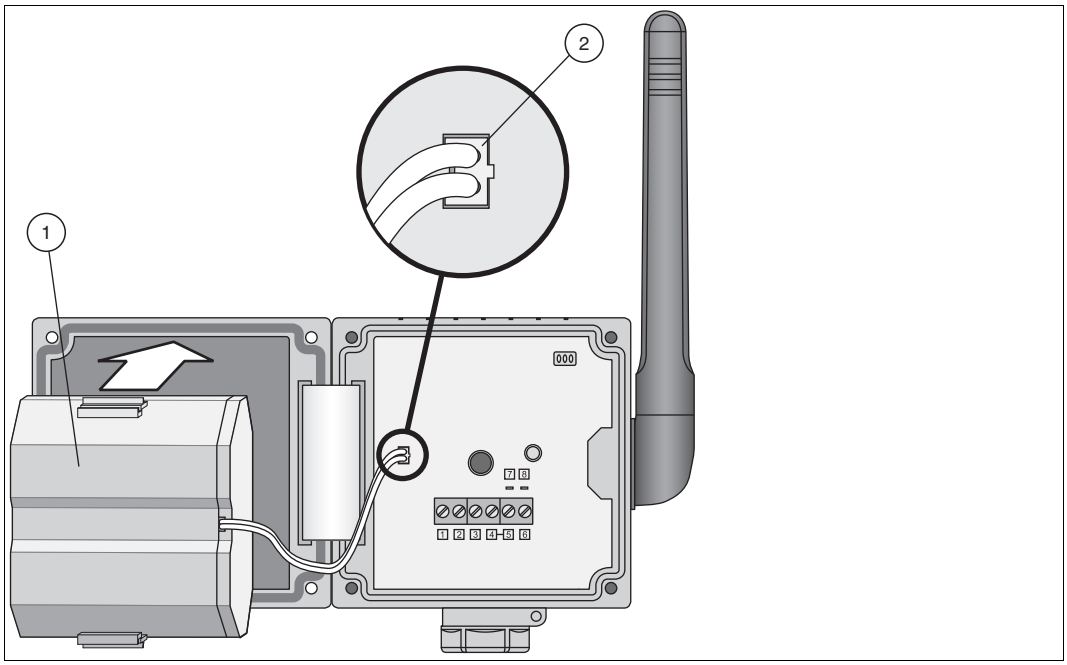


Figure 2.2 Inserting and connecting the battery

1 Battery

2 Battery cable plugged into battery connector

Parameterizing the field device

1. Connect a configuration tool (e.g. PACTware) to the field device using a HART modem.

   If the adapter shall power the field device, power the adapter by connecting the battery. During the start-up phase of the adapter the field device goes on and off again.

   If – after starting the communication – the field device does not power up again, power the field device for 5 minutes (time can be configured) by pushing the adapter button for more than 10 seconds until the LED flashes.

   > Further information: chapter 4.1 of the WHA-ADP manual.

2. Set the following parameters for the field device.

   - Device Tag and Long Tag (Hart 6 and 7 instruments) or Device Tag and Message (Hart 5 instruments).

   - Polling address should be 1 or higher in case of a stand-alone installation of a 2-wire device. This reduces the power consumption. In any case note down the address.

   > Further information: chapter 4.1 of the WHA-ADP manual.

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Parameterizing the WirelessHART Adapter

1. Connect a configuration tool (e.g. PACTware) to the adapter using a HART modem and pins 7 and 8 (see figure 2.1).
   > Further information: chapter 4.3 of the WHA-ADP manual.
2. Set the following parameters for the adapter.
   > Further information: chapter 5 of the WHA-ADP manual.

Note!

The following parameters marked with an asterisk (*) may be configured wirelessly at a later time. For security reasons the other parameters have to be configured using the wired connection.

Parameterization > Identification

Set **Device Tag**, **Long Tag** and **Country Code**. Best practice: provide a link to the attached field device under **Descriptor**.

Parameterization > Wireless Communication (see following screenshot)

Set **Network ID** and **Join Key**. Press **Execute Join** to initiate the join sequence. Wait until "Normal operation commencing" is shown.

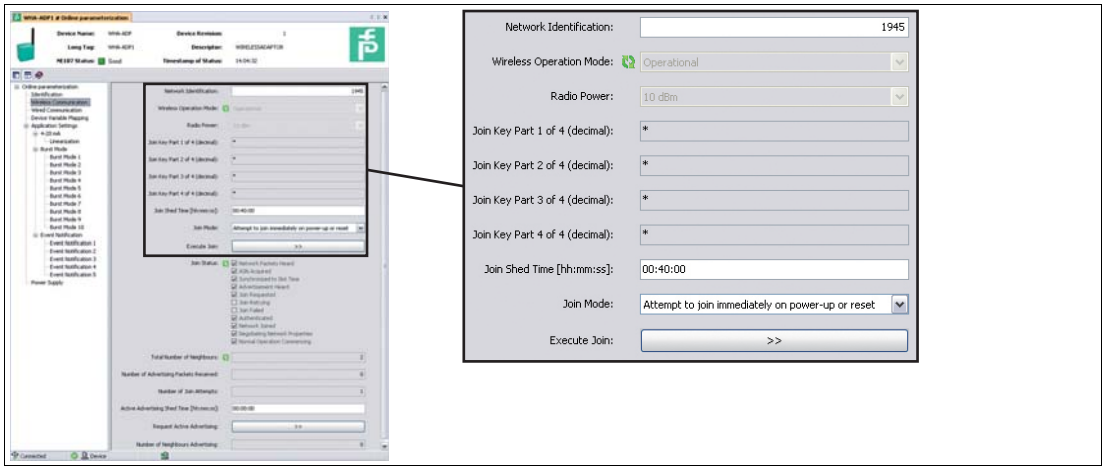

Figure 2.3 Parameterization > Wireless Communication

* Parameterization > Wired Communication (see following screenshot)

Check if the field device was found by the adapter. If not, adjust the parameters. Especially **Lowest Scan Address** and **Highest Scan Address** have to match the actual field device address. In this case rescan the wired interface using **Scan Subdevices**. If still no instrument can be found, please check the settings under **Power Supply**.

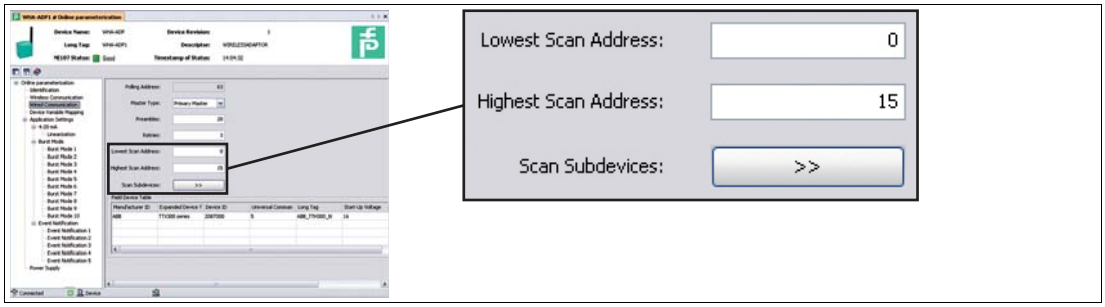

Figure 2.4 Parameterization > Wired Communication

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***** Parameterization > Device Variable Mapping

Define the device variables the adapter shall provide. Best practice: "Temperature" as SV, "RSL of best neighbour" as TV, and "Estimated Lifetime" as QV. The PV is always the loop current.

***** Parameterization > Application Settings > ... (see following screenshot)

- For simple 4 ... 20 mA transmitters set the corresponding parameters in the **4-20 mA** submenu.
- For HART devices set the **Burst Mode** and **Event Notification** parameters and press **Apply** to activate the burst mode. Best practice: see following table.

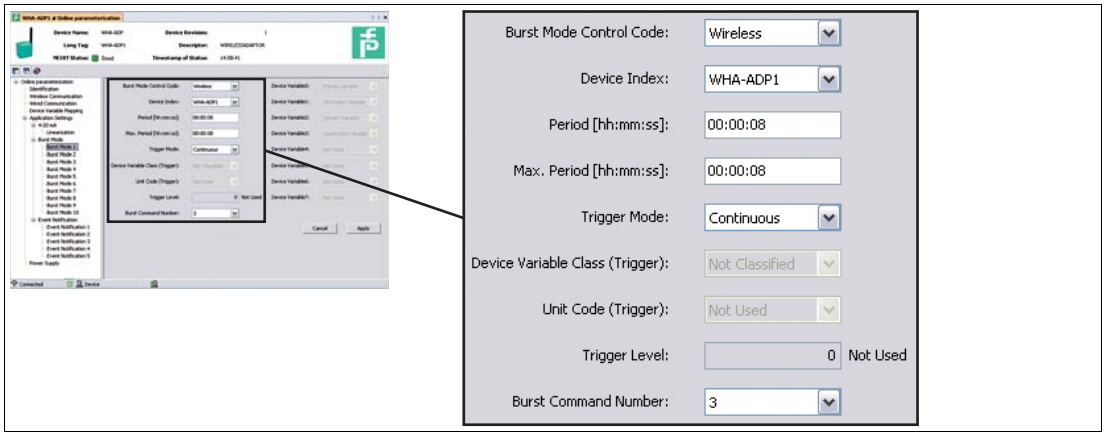

Figure 2.5 Parameterization > Application Settings > Burst Mode (see following table)

Best practice setup for Parameterization > Application Settings > Burst Mode			
DTM Parameter	**Burst Mode 1 values**	**Burst Mode 2 values**	**Burst Mode 3 values**
Burst Mode Control Code	Wireless	Wireless	Wireless
Device Index	WHA-ADP	WHA-ADP	Field Device
Period (min. and max.)	00:05:00	00:05:00	depending on your application
Trigger Mode	Continuous	Continuous	Continuous
Burst Command Number	3	48	3

***** Parameterization > Power Supply

Check that the best values for power management of the field device(s) are used. If in doubt consult the manual of the field device or contact its supplier.

3 WirelessHART Temperature Converter

Installing the WirelessHART temperature converter

1. Install the temperature converter in a good location considering the propagation of the radio signal (see Figure 1.2 on page 5).
   > Further information: chapters 3.1 and 3.2 of the WHA-UT manual.
2. Connect the temperature sensor(s) to the terminals of the sensor interface.
   > Further information: chapter 3.3 of the WHA-UT manual.

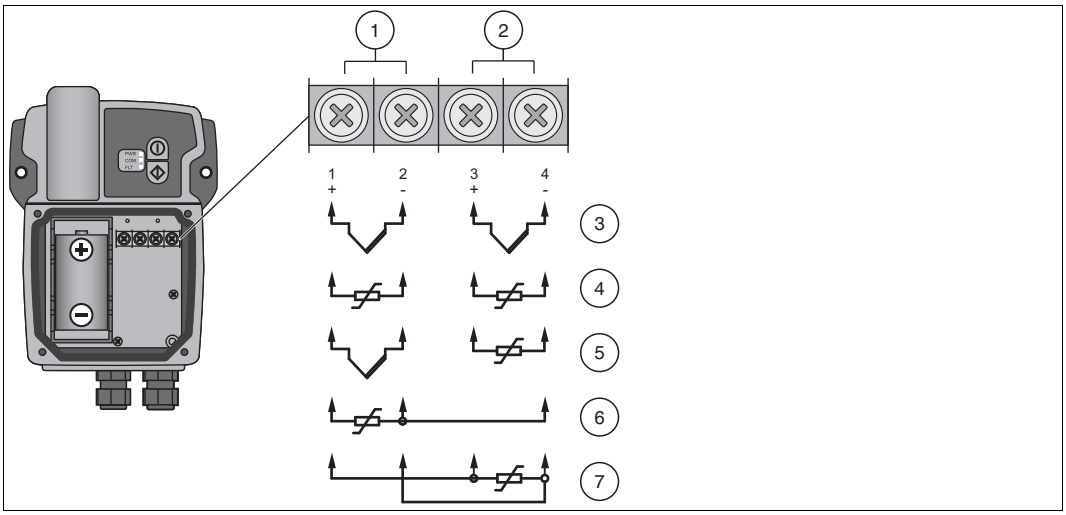

Figure 3.1 Connecting RTDs and/or TCs to the sensor interface

1 Input 1
2 Input 2
3 Two TCs
4 Two RTDs in 2-wire configuration
5 One TC and one RTD in 2-wire configuration (the two channels are interchangeable)
6 One RTD in 3-wire configuration
7 One RTD in 4-wire configuration

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Parameterizing the WirelessHART temperature converter

1. Power the temperature converter by inserting the battery into the battery holder observing polarity.
   > Further information: chapter 4.1 of the WHA-UT manual.

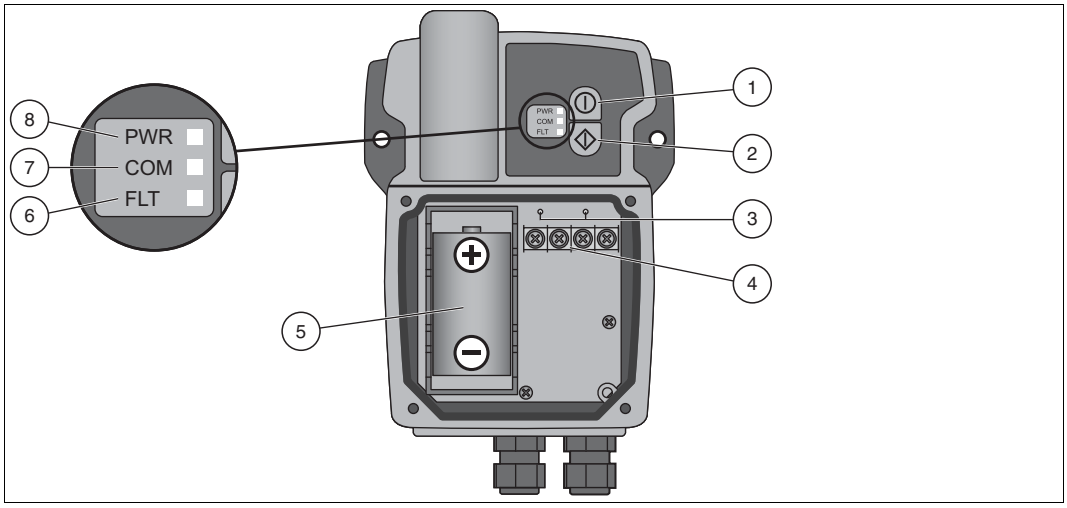

Figure 3.2 Connections and Interfaces

1 Button A
2 Button B
3 Wired HART connectors for HART modem
4 Sensor terminals
5 Battery
6 Red fault LED
7 Yellow communication LED
8 Green power LED

2. Switch the temperature converter on by pressing button A (the upper button) for 5 seconds.
   > Further information: chapter 4.2 of the WHA-UT manual.
3. Connect a configuration tool (e.g. PACTware) to the temperature converter using a modem and the HART connectors located above the sensor interface.
   Note that you must use 20 preambles for HART communication with the WHA-UT. Otherwise the WHA-UT will not respond.
   > Further information: chapter 4.3 of the WHA-UT manual.
4. Set the following parameters for the temperature converter (view next page).
   > Further information: chapter 5 of the WHA-UT manual.

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Note!

The parameters marked with an asterisk (*) may be configured wirelessly at a later time. For security reasons the other parameters have to be configured with the wired connection.

Parameterization > Identification

Set **Device Long Tag** and **Short Device Tag**.

Parameterization > Wireless Communication (see following screenshot)

Set **Network ID** and **Join Key**. Press **Execute Join** to initiate the join sequence. Wait until "Normal operation commencing" is shown.

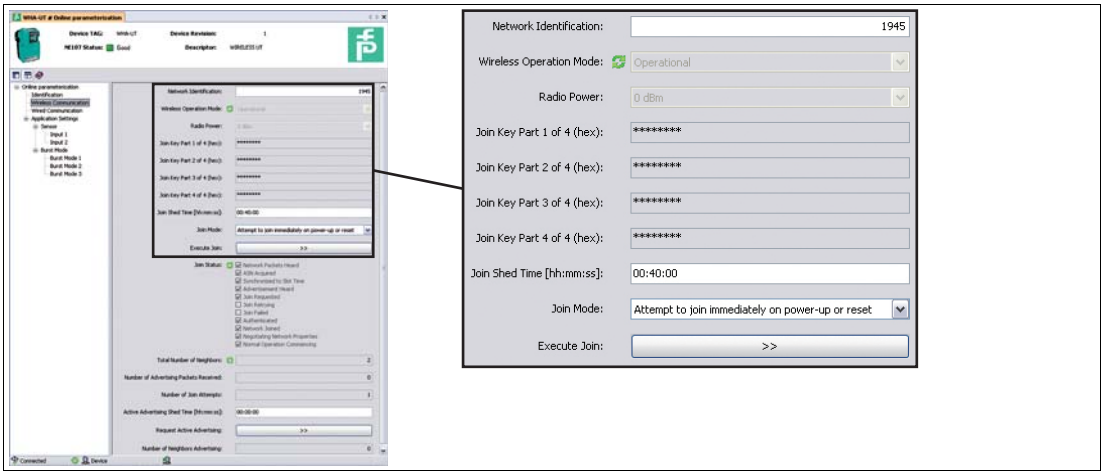

Figure 3.3 Parameterization > Wireless Communication

* Parameterization > Application Settings > Sensor

Set the **Sensor Type** connected to input 1 or input 2 of the temperature converter.

* Parameterization > Application Settings > Burst Mode (see following screenshot)

Define the device variables the adapter shall provide and press **Apply** to activate the burst mode. Best practice: see following table.

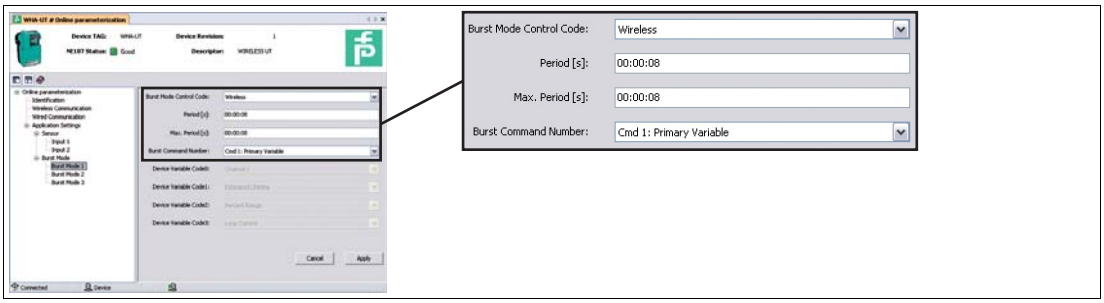

Figure 3.4 Parameterization > Application Settings > Burst Mode (see following table)

DTM Parameter	Burst Mode 1 values	Burst Mode 2 values
Burst Mode Control Code	Wireless	Wireless
Period (min. and max.)	depending on application	00:05:00
Burst Command Number	3	48

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Worldwide Headquarters
Pepperl+Fuchs GmbH
68307 Mannheim · Germany
Tel. +49 621 776-0
E-mail: info@de.pepperl-fuchs.com

For the Pepperl+Fuchs representative
closest to you check www.pepperl-fuchs.com/pfcontact

www.pepperl-fuchs.com

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