## **QUICK START GUIDE**

## WIRELESSHART NETWORK



Wireless HART



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### 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





#### 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)

 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.



#### Parameterizing the WirelessHART Gateway

- 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.
- 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 <sup>®</sup> 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		

Whith CMF # Dollare parameterization Device Name Device Long Tag	WHA-QW Device Revision     Whatewark Catanoo      Windows/WET Gatanoo     Descriptor	ная ниц. Ная ниц.	Network Tag:	P+F WirelessHART Fair Panel
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	80C date: () 21.04.2000 83C date: () 21.04.2000 83C lites: () 18.13.21.490% Network dat date: (21.04.2000		Join Key Part 4 of 4 (HEX):	****
	Network start litee: 11.06-03 Allow new Devices: al. w		Write Join Information:	>>

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### 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.
- 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.







#### 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.





#### 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.
- 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**.

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<ul> <li>Burit Hole</li> <li>Burit Hole</li> <li>Burit Hole 2</li> <li>Burit Hole 2</li> <li>Burit Hole 3</li> <li>Burit Hole 5</li> <li>Burit Hole 5</li> <li>Burit Hole 5</li> <li>Burit Hole 5</li> </ul>	Lover Sun Alberts 0 Infect San Alberts 0 San Mahama 0 Jan Mahama 0	Scan Subdevices:	>>	
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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 v								
Burst Mode Control Code	Wireless	Wireless	Wireless					
Device Index	WHA-ADP	WHA-ADP	Field Device					
<b>Period</b> (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.



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### WirelessHART Temperature Converter

#### Installing the WirelessHART temperature converter

- 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





#### 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.
- 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.





#### 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.

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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.

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E Ordine parameterisation Identification Wireless Communication	Burst Hole Cardral Code:	Western M	Max. Period [s]:	00:00:08	
Application Settings     Sensor     Jigikt 1	Max. Period (c)	0.00.00	Burst Command Number:	Cmd 1: Primary Variable	~
Post 2 = Barit Hode Barit Hode 1	Bunit Constant Notices Device Variable Codelli	Cod 1: Prinary Variable			
Burit Mole 2 Burit Mole 3	Device Variable Code()				
	Device Variable Code2:				
	Device Venable Codell				
		Asty			
P Connected Q Deves	2				

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	



# PROCESS AUTOMATION – PROTECTING YOUR PROCESS



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