Making wireless networks easy

**Wireless upgrade adapter**
- Add WirelessHART capability to an installed HART Instrument
- 2.4 GHz operating frequency (ISM Band)

**Range**
- Up to 200 m (656 ft) Outside
- Up to 50 m (164 ft) Inside

**Loop powered**
- Does not require battery power
- Automatically adapts to available power

**Robust design**
- Fixed antenna with rotating housing
- Potted electronics

**Small size to assist with installation**
- Body 47 x 47 mm (1.85 x 1.85 in.)
- M20 and ½ in. NPT fitting

**Built to survive**
- IP 67 and NEMA 4X environmental protection

**WirelessHART standard**
- Reliable and simple wireless mesh network
- Adapts to nearby wireless networks (co-existence)
- Data encryption and authentication
- Channel hopping

**Certification**
- IP 67
- HART 7
- 802.15.4 radio

**Applications**
- Condition monitoring (ABB Asset Vision)
- Read all Process values from installed HART instruments
- Network repeater (extender)
Adapter mounting

The adapter can be mounted on the field instrument via a spare cable gland entry or via a T-Piece if no spare gland is available. It would also be possible to connect the adapter at another convenient point in the 4 to 20 mA loop, for example at a junction box.

Fig. 1: Single gland instrument

Fig. 2: Via a spare gland on an instrument
Antenna

Omnidirectional antenna with vertical polarization.

Antenna positioning
The antenna is positioned by rotating the adaptor housing until the antenna is in the best position (normally in a vertical direction). The housing can be locked by adjusting the Rotation locking nut.

Electrical connections
The FieldKey wireless adapter uses energy harvesting where power is taken from the 4 to 20 mA instrument loop, as a result there is no battery to install or maintain. The adapter is wired in series with the instrument loop as shown in this diagram. It may take up to 3 minutes for the adapter to store sufficient energy for it to be ready for commissioning (set Network Identity and Join Key).

Fig. 3: Antenna positioning

Fig. 4: Electrical connections

Fig. 5: Electrical connections AO coupler
Technical specification

**Electrical specifications**

- **Communication type**
  - HART

- **Protocol version**
  - HART Version 7.0 wired and wireless
  - HART Version 5.9 wired

- **Transmission range**
  - up to 200 m outside

- **Device loop power**
  - Power consumption: 9 ... 51 mW (@ 3.6 ... 22 mA)
  - Loop voltage drop: max 2.3 V (no external 250 Ω resistor required)

- **Diagnosis**
  - Device status NE 107

- **Wired communication quality and statistics**

- **Wireless communication quality and statistics**

- **Join status**

- **Subdevice status**

- **Subdevice information**

**Ambient specifications**

- **Ambient temperature**
  - –40 ... 85 °C (–40 ... 185 °F)

- **Transport/Storage temperature**
  - –40 ... 85 °C (–40 ... 185 °F)

- **Climate class**
  - CX, –40 ... 85 °C (–40 ... 185 °F)
  - 5 ... 95 % relative humidity (acc. with DIN EN 60654)

- **Relative humidity**
  - max. 100 %, condensation permitted (acc. with EC 68000-2-30)

**Mechanical specifications**

- **Weight**
  - 220 g (0.48 lb)

- **Housing material**
  - Polycarbonate

- **Color**
  - Grey RAL9002

- **Gland connection size**
  - Gland connection size M20 x 1.5 (AISI 316 SST) or 1/2 in. NPT (AISI 316 SST)

- **Type of connection cable**
  - 0.75 mm² / AWG 20
  - 0.3 m

- **Antenna**
  - Type
  - Omnidirectional antenna with vertical polarization, IP 67

- **T-Piece**
  - Material
  - Stainless steel AISI 316 SST

- **Connections**
  - M20 x 1.5 or 1/2 in. NPT

- **Vibration resistance**
  - 10 ... 2000 Hz at 5 g in acc. with IEC 60068-2-6 during operation and transport

- **Shock resistance**
  - gn = 30 in acc. with IEC 60068-2-27 during operation and transport

- **Type of protection**
  - IP 67 / NEMA 4X
Overall dimensions

Dimensions in mm (in.)

Fig. 6: Overall dimensions
### FieldKey NHU200

**Wireless adapter**

![Overall dimensions wireless T-piece](image)

**Fig. 7: Overall dimensions wireless T-piece**

<table>
<thead>
<tr>
<th>Index</th>
<th>Part No.</th>
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## Ordering information

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