high-accuracy
measurement
instruments

FICHA TÉCNICA DE PRODUTO

PRODUCT DATASHEET

HMI – Automação e Instrumentação, Lda.

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Data sheet DS/NHU200–EN

FieldKey NHU200
Wireless adapter

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)

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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.

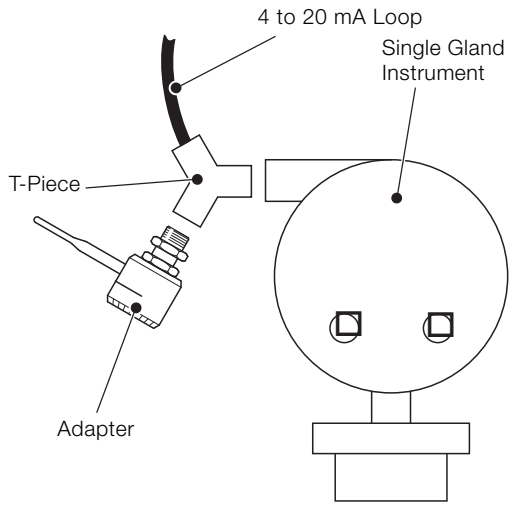

Fig. 1: Single gland instrument

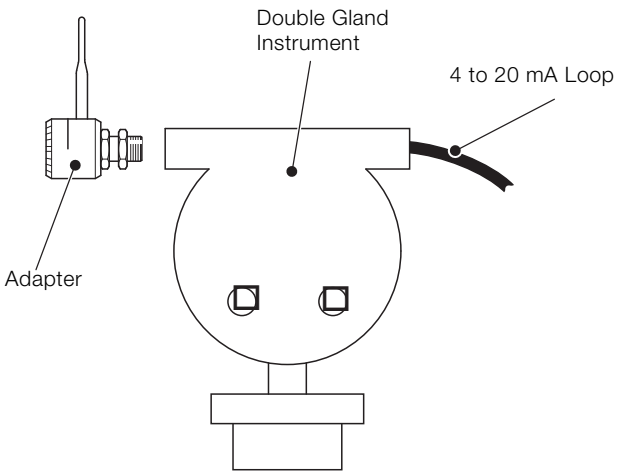

Fig. 2: Via a spare gland on an instrument

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.

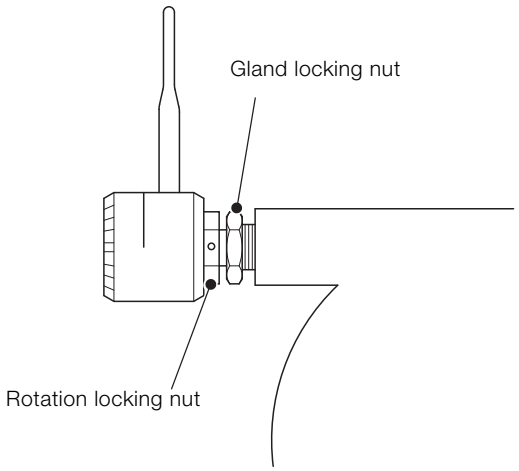

Fig. 3: Antenna positioning

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).

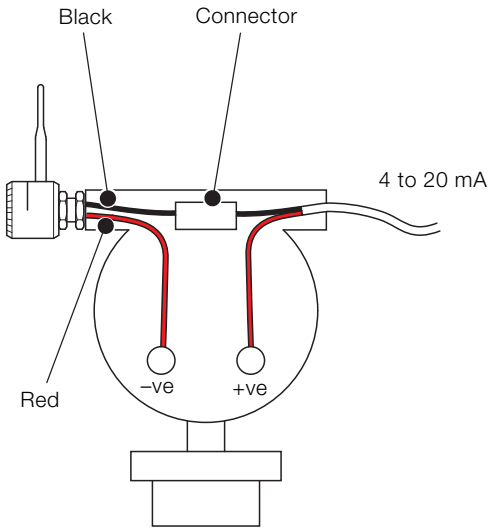

Fig. 4: Electrical connections

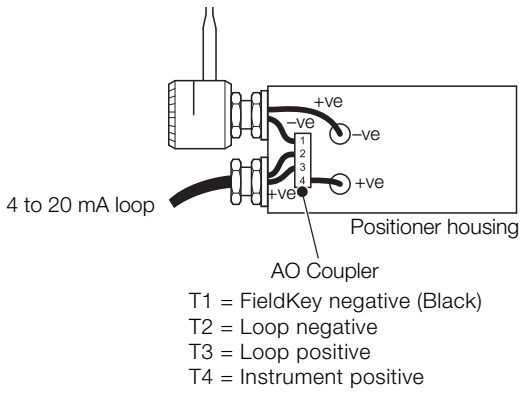

Fig. 5: Electrical connections AO coupler

FieldKey NHU200
Wireless adapter

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 consumption9 ... 51 mW
(@ 3.6 ... 22 mA)
Loop voltage dropmax 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)

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

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

Overall dimensions

Dimensions in mm (in.)

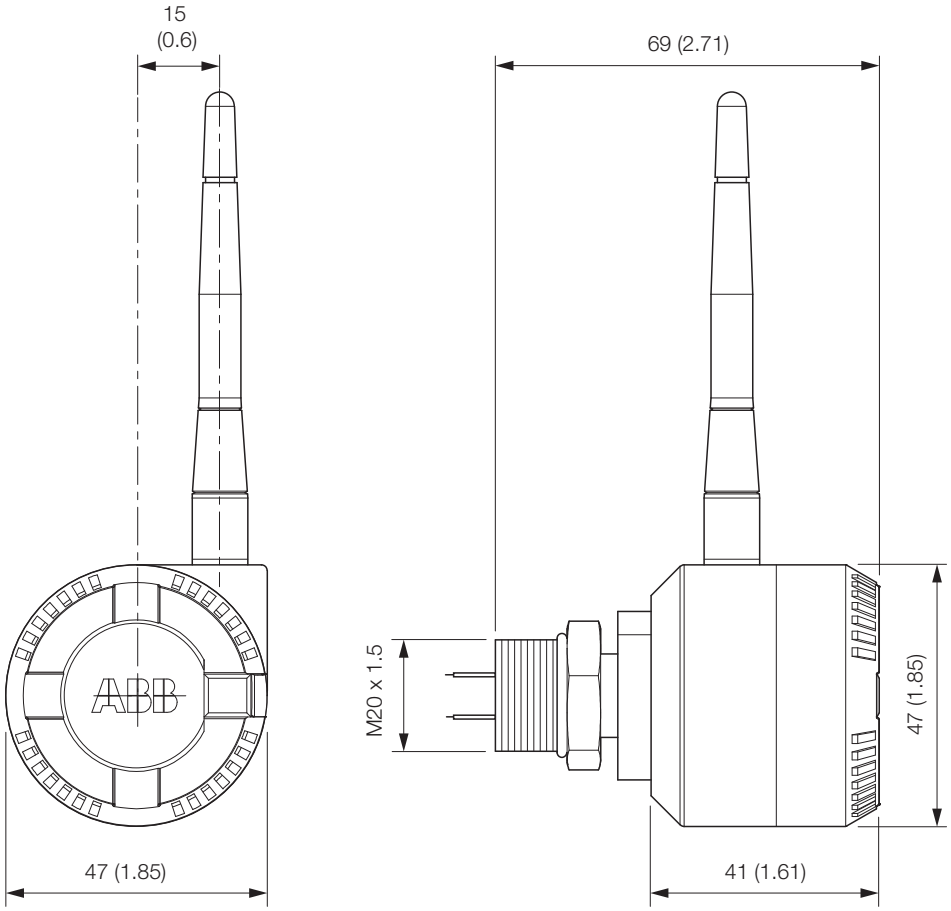

Fig. 6: Overall dimensions

FieldKey NHU200
Wireless adapter

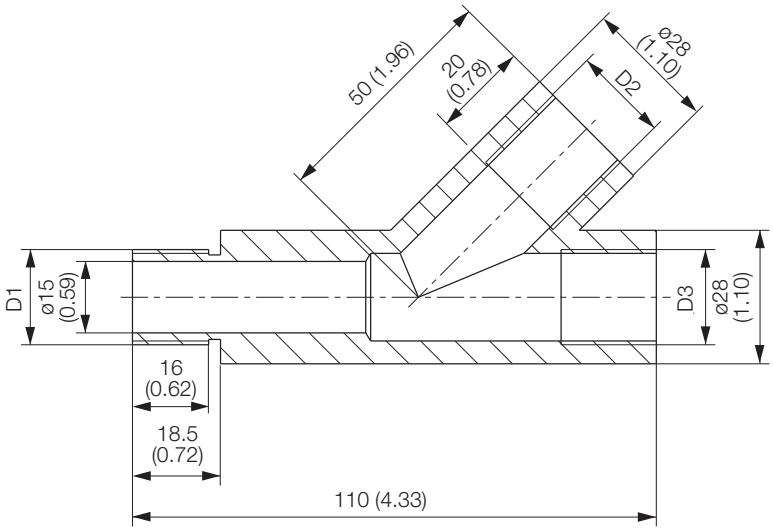

Fig. 7: Overall dimensions wireless T-piece

Index	Part No.	D1	D2	D3
1	CNW IP0010	M20 x 1.5-6g	M20 x 1.5-6H	M20 x 1.5-6H
2	CNW IP0011	½ " NPT	½ " NPT	½ " NPT

Ordering information

FieldKey NHU200 wireless adapter	NHU200	XX	X	X	X	XX	XX
Adapter HART FSK to Wireless Network							
Loop powered - fixed antenna		WL					
Includes DD and DTM for host integration							
Includes CE Mark							
Wireless Protocol							
Wireless HART			1				
Others			9				
Design							
Wireless Adapter using a spare instrument gland for connection				A			
Wireless Adapter for use where the instrument has no spare gland for connection includes T-piece pipe mount				B			
Gland Connection Size / Material							
M20 x 1.5 / AISI 316 SST					5		
1/2 in. NPT / AISI 316 SST					6		
Explosion Protection Certification							
General purpose non-hazardous area						Y0	
Documentation Language							
English							M5

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3KXN674200R1001

DS/NHU200-EN 03.2011

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high-accuracy
measurement
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	Device Management, Fieldbus and Wireless		Flow Measurement
	Force Measurement		Level Measurement
	Natural Gas Measurement		Pressure Measurement
	Recorders and Controllers		Temperature Measurement

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