Technical Information
Ti 073R/09/en
Mat.-No. 510 01410

Active barrier
preline RN 221N

Active barrier with power supply for safe separation of 4 ... 20 mA current circuits

Application areas
- Galvanic isolation of 4...20 mA current circuits
- Removing large loop circuits
- Powering 2 wire transmitters

Features and benefits
- Loop power supply, wide range power supply, flexible power source
- Bi-directional HART®-transmission
- Communication sockets for HART® sensor setting up
- Compact side by side housing
- International Ex approvals
  - ATEX
  - FM
  - CSA

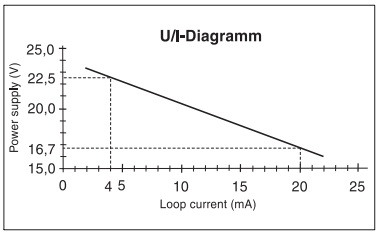
Endress+Hauser
The Power of Know How

Operation and system construction

Measurement principle	Active barrier with power supply for safe separation of 4...20 mA current signal circuits. The unit has an optional intrinsically safe input. The current transmitted from the transmitter to the input circuit (4...20 mA) is linearly transmitted to the output.
Measurement system	The unit creates a safe galvanic isolation between input and output of the circuits. Separation between hazardous and non-hazardous areas is available as an option. A built-in loop power supply can supply connected sensors with the necessary energy. A current signal is available at the output (passive output) for connection to further instrumentation. Bi-directional HART®-communication with SMART transmitters is possible using the built-in communication sockets (with resistance R = 250 Ω).

Input

Number of inputs	1
Power requirement	16.7 V ± 0.2 V (at I = 20 mA)
Open circuit voltage	26 V ± 5%
Short circuit current	≤ 40 mA
Internal resistance	328 Ω
Over range	10%



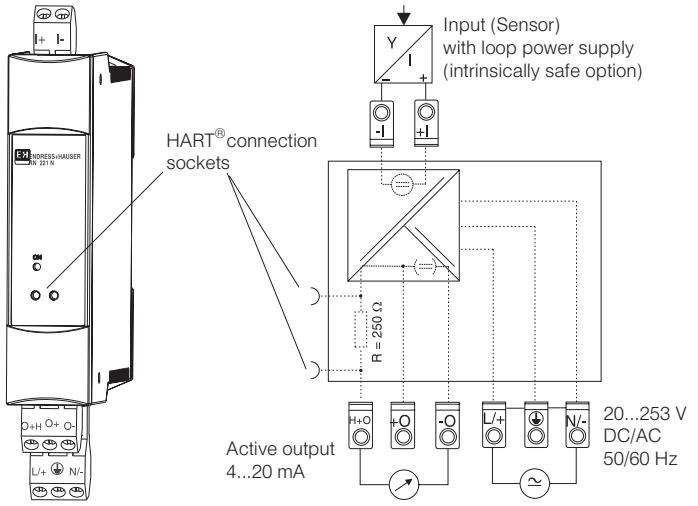
Intrinsically safe input[1] option

Open circuit voltage	27.3 V	
Short circuit current	87.6 mA	
Power consumption	597 mW	
Capacitance	86 nF [EEx ia] IIC, Cl. I, Div. 1, Gr. AB	683 nF [EEx ia] IIB, Cl. I, Div. 1, Gr. C [EEx ia] IIA, Cl. I, Div. 1, Gr. D
Inductance	5.2 mH [EEx ia] IIC, Cl. I, Div. 1, Gr. AB	18,9 mH [EEx ia] IIB, Cl. I, Div. 1, Gr. C [EEx ia] IIA, Cl. I, Div. 1, Gr. D

Output

Number	1
Open circuit voltage	24 V ± 10%
Over range	10%
Load (impedance)	0...700 Ω (without communication resistance)
Galv. isolation	To all other current circuits

Power supply

Electrical connections	
Power supply	20...253 V DC/AC, 50/60 Hz
Power consumption	Max. 2.4 W
Current requirement (Input current limitation)	$I_{max} / I_n < 15$
Electrical safety	To EN 61 010-1, Protection class I, Over voltage category II, Over current protection at installation (fuse) ≤ 10 A

[1] Peak values in fault condition

Accuracy

Reference conditions	Calibration temperature at 25 °C
Linearity	≤ 0.15%
Load influence	≤ 0.1%
Ambient temperature influence	≤ 0.1% in range 0 °C...50 °C ≤ 0.2%/10 K in range -20 °C... 0 °C

Application conditions

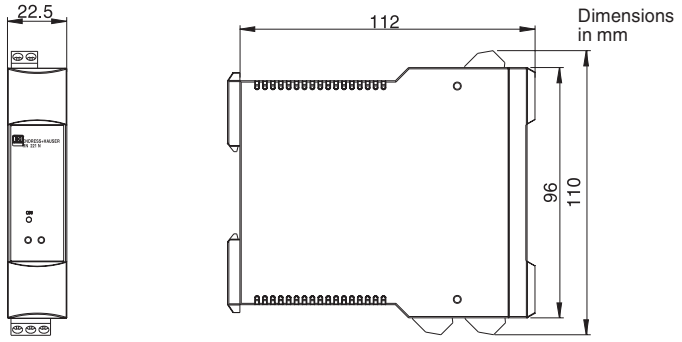
Installation conditions

Installation angle	No limitation
Installation hints	Vibration free installation point, protect from external heating

Ambient conditions

Ambient temperature	-20...+50 °C
Storage temperature	-20...+70 °C
Climatic class	To EN 60 654-1 Class B2
Ingress protection	IP 20
Electromagnetic compatibility (EMC)	Immunity to EN 61 326, Class A (industrial environment)

Mechanical construction

Model/dimensions	 Housing for top hat DIN rail to EN 50 022-35
Weight	approx. 150 g Materials
Terminals	- Keyed plug-on screw terminals, core size 2.5 mm² solid, or strands with ferrules - Front mounted communication socket for 2 mm jack plugs

Display and operating level

Display elements	LED yellow in series to current output: Illuminates, when output current circuit is closed LED current > 2 mA
Remote communication	HART® communication: - Communication signals are transmitted bi-directionally. Communication resistance: - Resistance for HART® communication 250 Ω built in. Please take note of voltage drop!

Certification

CE-Mark	89/336/EWG and 73/23/EWG guide lines
Ex-protection	ATEX II (1) GD [EEx ia] IIC FM AIS Class I, II, II, Div. 1+2, Gr. A, B, C, D, E, F, G CSA [Ex ia] Class I Div. 1+2, Groups ABCD Class II Div. 1+2, Groups EFG Class III Div. 1+2

Technical alterations reserved!

How to order

Active barrier Preline RN 221N

for powering 2 wire transmitters, In/outputs 4 to 20 mA, 1:1 transmission, bi-directional HART®-communication

Certification
A - Version for non-Ex areas
B - ATEX II (1) GD [EEx ia] IIC
C - FM AIS Cl. I-III, Div. 1+2, Gr. A - G
D - CSA [Ex ia], Cl. I-III, Div. 1+2, Group A - G
E - TIIS [Ex ia] IIC

Power supply
1 - 20 to 253 V DC/AC, 50/60 Hz

RN 221N-			⇐ **Order code**

Accessories

IP 66 protective housing for field installation of top hat DIN rail units — Order No.: 510 02468

Further documentation

Operating manual	KA 124R/09/a3	No.: 510 03567
ATEX Safety instructions	XA 005R/09/a3	No.: 510 01907
Product group brochure - DIN-rail units	PG 004R/09/en	No.: 510 03839

United Kingdom

Endress+Hauser Ltd.
Floats Road
Manchester
M23 9NF

Tel. (0161) 286 5000
Fax (0161) 998 1841
http://www.uk.endress.com

Export Division

Endress+Hauser GmbH + Co
Instrument International
P.O. Box 2222
D-79574 Weil am Rhein
Germany

Tel. 07621 975 02
Fax 07621 975 346
Tx. 773926

http://www.endress.com
info@ii.endress.com

Endress+Hauser
The Power of Know How