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Technical Information

Easy Analog RNB150

Configurable signal duplicator for standard normalized signals

Your benefits
- Complete family in one housing
- Power supply via
  - DIN rail bus connector: less wiring, easy module change (even during operation)
  - Terminals
- Power supply 19.2 to 30 V possible
- 6.2 mm (0.244") device width
  ➔ Cost saving through reduction in space
- Installation in 120 mm (4.72") small field housings
- Easy configuration via DIP switches, most common configurations printed on device
  ➔ Configuration possible in the field
- High flexibility concerning in-/output signals
  ➔ Wide-range usage
- Low power consumption
  ➔ Small heat loss

Application
- Parallel processing of sensor signals (e.g. recorders, SPS or Energy Manager)
- DIN rail mounting as per IEC 60715
- Galvanic isolation
- Conditioning of current or voltage inputs to 0/4 to 20 mA outputs

CE

TI118R/06/en
51010018

Endress+Hauser
People for Process Automation

Function and system design

Measuring principle

Galvanic isolation, conditioning, amplification, and filtering of standard normalized signals.
Input 0...20 mA, 4...20 mA, 0...10 V or 1...5 V. Two independently configurable, galvanically isolated current outputs are available with 0...20 mA, or 4...20 mA signal (4-way isolation).
DIP switches accessible on the side of the housing allow the configuration of the input and output signal ranges.
The voltage supply (19.2...30 V DC) can either be provided via connecting terminal blocks of the module, or via the DIN rail bus connector.

Input

Measured variable

Current, voltage

Measuring range

Current input	Voltage input
0...20 mA 4...20 mA	0...10 V 1...5 V

Input

	Current input	Voltage input
Configurable	yes, pre-configured	yes, pre-configured
Max. input signal	50 mA	30 V
Input resistance	50 Ω	100 kΩ

Output

Output signal

Configurable	yes, pre-configured
Output signal	**0...20 mA**[1)] 4...20 mA
Max. output signal	22 mA
Current output load	≤ 250 Ω
Ripple	< 20 mV_{SS} (250 Ω)

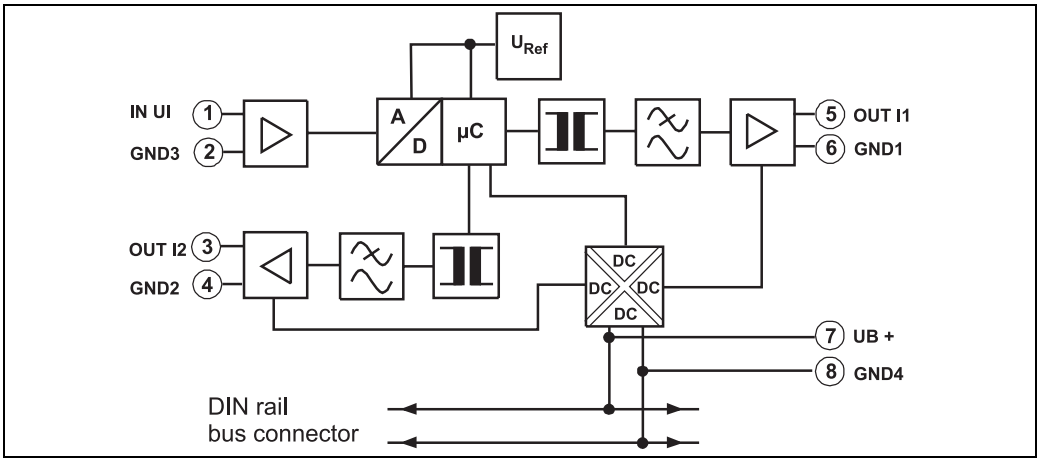
1) Presetting, , please specify different settings in your order

Galvanic isolation

Galvanic 3-way isolation
Test voltage: 1.5 kV, 50 Hz, 1 min

Power supply

Electrical connection



Terminal assignment of RNB150

Supply voltage

19.2 to 30 V

Note!
The voltage supply (19.2...30 V DC) can either be provided via connecting terminal blocks of the module, or via the DIN rail bus connector.

Current consumption

< 30 mA

Power consumption

< 600 mW

Performance characteristics

Reference operating conditions

+23 °C ± 5 °C (73.4 °F ± 9 °F)

Maximum measured error

0.2 % of end value, typ. 0.1 %

Temperature coefficient

max. < 0.01 %/K (0.006%/°F)
typ. < 0.004 %/K (0.002%/°F)

Step response

10 ms

Cut-off frequency

35 Hz

Installation

Installation notes

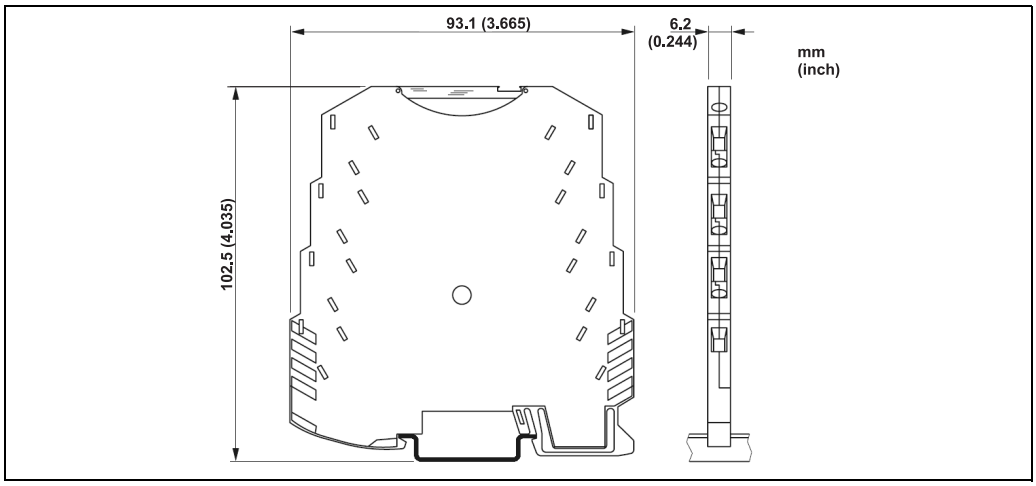
Installation on DIN rail according to IEC 60715.
The DIN rail bus connector can be used to provide the supply voltage (see "Accessories").

Environment

Ambient temperature limits	-20 °C to +60 °C (-4 °F to +140 °F)
Storage temperature	-40 °C to +85 °C (-40 °F to +185 °F)
Climate class	IEC 60654-1, B2
Degree of protection	IP20
Vibration resistance	4G
Electromagnetic compatibility	CE compliant

Mechanical construction

Design, dimensions



Dimensions of the Easy Analog devices

Weight	approx. 55 g
Material	Housing: PBT

Connection data

Conductor cross section solid min.	0.14 mm²
Conductor cross section solid max.	2.5 mm²
Conductor cross section stranded min.	0.2 mm²
Conductor cross section stranded max.	2.5 mm²
Conductor cross section AWG/kcmil min.	26
Conductor cross section AWG/kcmil max.	12
Stripping length	12 mm (0.47")
Screw thread	M3
Connection type	Screw connection

Human interface

The RNB150 signal duplicator can be configured via DIP switches on the side of the housing.

Certificates and approvals

CE mark

The device complies with the legal requirements of the EC directives. Endress+Hauser confirms that the device has been successfully tested by affixing to it the CE mark.

Other standards and guidelines

IEC 60529: Degrees of protection through housing (IP code)

IEC 61010: Protection measures for electrical equipment for measurement, control, regulation and laboratory procedures

EN 61326/A1 (IEC 1326): Electromagnetic compatibility (EMC requirements)

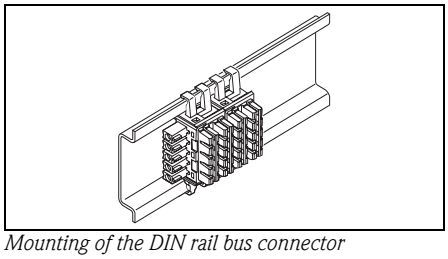
Ordering information

Product structure RNB150

Signal duplicator RNB150						
Galvanic isolation, conditioning, amplification and filtering of analog standard signals. DIP switch: configuration of in-/output signal ranges. Power supply (19.2...30 V DC) via connecting terminal blocks or DIN rail bus connector.						
	Approvals:					
	A	Non-hazardous area				
		Input:				
		A	0-20 mA			
		B	0-10 V			
			Connection:			
			1	Screw strip		
			3	Screw connection, power terminal block		
			4	Screw connection, DIN rail bus connector		
			5	Screw connection, power terminal block, DIN rail bus connector		
				Version:		
				A	Standard	
RNB150-	A			A	⇐ Order code complete	

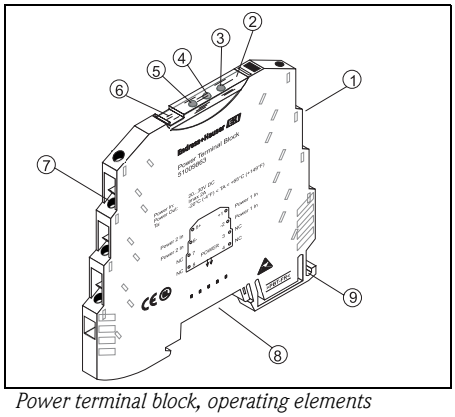
Accessories

DIN rail bus connector (order no. 51009864)



Mounting of the DIN rail bus connector

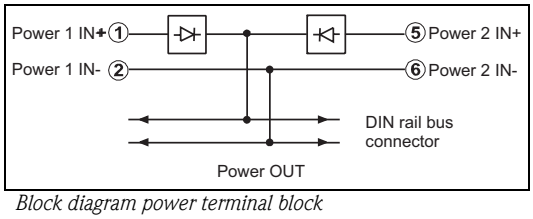
Power terminal block (order no. 51009863)



Power terminal block, operating elements

1 Input: Supply voltage 1
2 Transparent cover
3 LED: Reverse polarity indicator Power IN1
4 LED: Bus voltage state indicator
5 LED: Reverse polarity indicator Power IN2
6 Groove for Tag
7 Input: Supply voltage 2
8 Connection for DIN rail bus connector
9 Universal snap on foot for mounting rails

The power terminal block is used to feed the supply voltage to the DIN rail bus connector (order no. 51009864, see above).
Design and dimensions are the same as for all other Easy Analog devices except RNB130.
Two separate voltage inputs allow a redundant voltage supply of 24 V DC and a maximum current of 2 A.
A green LED on the front panel (fig. on the left, pos. 4) lights up when there is supply voltage on the DIN rail bus connector.
Red LEDs (fig. on the left, pos. 3 and 5) light up when supply voltages are connected to the wrong poles. When the supply voltage has been connected correctly, the respective red LED extinguishes.



Block diagram power terminal block

The power terminal block can be snapped onto all 35 mm DIN rails following IEC 60715.

System power supply RNB130

Further information can be found in the respective Technical Information (see "Documentation").

Documentation

- Technical Information RNB110, RNB111 and RNB112 (TI116R/09/en)
- Technical Information RNB127 and RNB128 (TI117R/09/en)
- Technical Information RNB140 (TI119R/09/en)
- Technical Information RNB130 (TI120R/09/en)
- Operating instructions RNB150 (BA212R/09/b4)
- Brochure "System Components" (FA016K/09/en)

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FrameMaker+SGML 6.0