USER INSTRUCTIONS English

Signal Splitter / Repeater DN 21000

Read these instructions before using the product and retain for future information.

DN 21000

► Before Startup

When operating the signal converter, certain parts of the module can carry dangerous voltage! Ignoring the warnings can lead to serious injury and/or cause damage!

The signal converter should only be installed and put into operation by qualified staff. The staff must have studied the warnings in these operating instructions thoroughly.

The signal converter may not be put into operation if the housing is open.

In applications with high operating voltages sufficient distance and isolation as well as shock protection must be ensured.

Safe and trouble-free operation of this device can only be guaranteed if transport, storage and installation are carried out correctly and operation an maintenance are carried out with care.

Appropriate safety measures against electrostatic discharge (ESD) should be taken during range selection and assembly on the transmitter.

► Short description

The Signal Splitter/Repeater is used for isolation, conversion and distribution of 0/4 ... 20 mA, 0/1 ... 5 V and 0/2 … 10 V standard signals. The measuring input can also supply the loop power for 2-wire transmitters.

The input and two isolated outputs can be easily configured by using DIP switch. Due to the calibrated range selection no further adjustment is necessary.

The 4-way isolation guarantees reliable decoupling of the sensor circuit from the processing circuit and prevents linked measurement circuits from influencing each other. The Protective Separation with high isolation level provides protection for personnel and downstream devices against impermissibly high voltage.

The auxiliary power can be supplied via the connection terminals or type-specific via the optional In-Rail-Bus connector (see accessories). A green LED on the front of the unit has been provided to monitor the power supply.

► Functioning

The input signal is modulated and then electrically decoupled using a transformer. The isolated signal is then made available at the output, demodulated, filtered and amplified.

► Settings

Set the input and output ranges with DIP switch as indicated in the following table:

Range	Input				Output 1			Output 2		
S1-	1	2	3	4	5	6	7	8	9	10
0…20 mA										
4…20 mA				●			●			●
0…10 V		●	●		●			●		
2…10 V		●	●	●	●		●	●		●
0…5 V		●			●	●		●	●	
1…5 V		●		●	●	●	●	●	●	●
Loop Supply										
Tx 0…20 mA	●									
Tx 4…20 mA	●			●						

Factory settings: all switches in position OFF ● = on

► Mounting, Electrical Connection

The repeater power supply is mounted on standard 35 mm DIN rail.

Terminal assignments

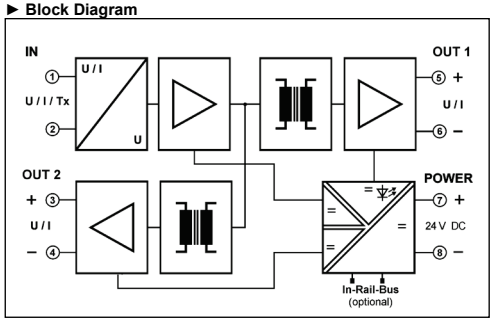
1	Input	I −	U +	Tx +	5	Output 1	U/I +
2	Input	I +	U −	Tx −	6	Output 1	U/I −
3	Output 2	U/I +			7	Power supply +	
4	Output 2	U/I −			8	Power supply −	

► Technical Data

Input	Current	Voltage
Input signal (calibrated switchable)	0 … 20 mA 4 … 20 mA	0 … 10 V 0 … 5 V 2 … 10 V 1 … 5 V
Input resistance	≤ 35 Ω	≥ 100 kΩ
Overload	≤ 50 mA	≤ 30 V
2-wire Transmitter supply (Tx, switchable)	16 V at 20 mA (open circuit/short circuit < 22 V/35 mA)	
Output 1 / Output 2	**Current**	**Voltage**
Output signal (calibrated switchable)	0 … 20 mA 4 … 20 mA	0 … 10 V 0 … 5 V 2 … 10 V 1 … 5 V
Load	≤ 6 V (300 Ω at 20 mA)	≤ 2 mA (5 kΩ at 10 V)
Linear transmission range	-1 to +110 %	
Residual ripple	< 10 mV_{rms}	
General data		
Transmission error	< 0.1 % full scale	
Temperature coefficient[1]	< 100 ppm/K	
Cut-off frequency -3 dB	5 kHz	
Response time T_{99}	150 µs	
Test voltage	3 kV, 50 Hz, 1 min. input against output I against output II against power supply	
Working voltage[2] (Basic insulation)	600 V AC/DC for overvoltage category II and contamination class 2 acc. to EN 61010-1	
Protection against dangerous body currents[2]	Protective Separation by reinforced insulation acc. to EN 61010-1 up to 300 V AC/DC for overvoltage category II and contamination class 2 between input and output and power supply.	
Ambient temperature	Operation Transport and storage	-25 °C to +70 °C (-13 to +158 °F) -40 °C to +85 °C (-40 to +185 °F)
Power supply	24 V DC	16.8 V … 31.2 V, approx. 1.4 W
EMC[3]	EN 61326-1	
MTBF	272 years acc. to SN 29500 (stationary continuous operating, average ambient temperature 40 °C)	
Construction	6.2 mm (0.244'') housing, protection type: IP 20 mounting on 35 mm DIN rail acc. to EN 60715	
Connection terminals (see order information)	- Screw terminals (plus-minus clamp screws) - Cage clamp terminals (Push-In)	
Weight	Approx. 70 g	

1) Average TC in specified operating temperature range
2) As far as relevant the standards and rules mentioned above are considered by development and production of our devices. In addition relevant assembly rules are to be considered by installation of our devices in other equipment. For applications with high working voltages, take measures to prevent accidental contact and make sure that there is sufficient distance or insulation between adjacent situated devices.
3) Minor deviations possible during interference

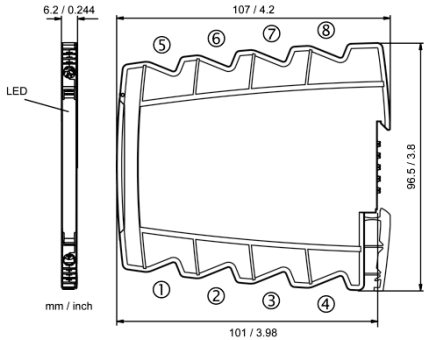
► Block Diagram



► Order Information

Signal Splitter/Repeater	Order No.
Screw terminals	DN 21000 S
Screw terminals, In-Rail-Bus	DN 21000 B
Push-In terminals	DN 21004 S
Push-In terminals, In-Rail-Bus	DN 21004 B

► Dimensions



► Connection data

Connection	Screw terminals	Push-In terminals
Wire cross-section stranded ferruled	0.5 mm^2 - 2.5 mm^2 AWG 20 - 14	0.5 mm^2 - 1.5 mm^2 AWG 20 - 16
Wire cross-section solid wire	0.5 mm^2 - 2.5 mm^2 AWG 20 - 14	0.5 mm^2 - 2.5 mm^2 AWG 20 - 14
Stripped length	8 mm / 0.3 in	8 mm / 0.3 in
Screw terminal torque	0.6 Nm / 5 lbf in	-

LIMITED WARRANTY

DRAGO Automation GmbH hereby warrants that the Product will be free from defects in materials or workmanship for a period of **five (5) years** from the date of delivery ("Limited Warranty"). This Limited Warranty is limited to repair or replacement at DRAGO's option and is effective only for the first end-user of the Product. This Limited Warranty applies only if the Product:

1. is installed according to the instructions furnished by DRAGO;
2. is connected to a proper power supply;
3. is not misused or abused; and
4. there is no evidence of tampering, mishandling, neglect, accidental damage, modification or repair without the approval of DRAGO or damage done to the Product by anyone other than DRAGO.

Delivery conditions are based upon the „GENERAL CONDITIONS FOR THE SUPPLY OF PRODUCTS AND SERVICES OF THE ELECTRICAL AND ELECTRONICS INDUSTRY", recommended by the Zentralverband Elektrotechnik- und Elektronikindustrie (ZVEI) e.V. .

Subject to change!

DRAGO Automation GmbH
Waldstrasse 86 - 90
13403 BERLIN
GERMANY

Phone: +49 (0)30 40 99 82 - 0
E-Mail: info@drago-automation.de
Internet: www.drago-automation.de

03-2019