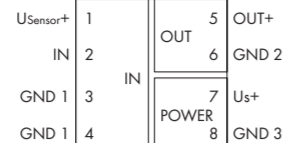


JUMPFLEX® – 857 Series

Repeater Power Supply, Configurable with Current and Voltage Output
857-420



1 Safety Information

DANGER
Do not work when devices are energized!
High voltage can cause electric shock or burns.
Switch off all power to the device prior to performing any installation, repair or maintenance work.

DANGER
Live parts are likely to be touched!
The party setting up the device is responsible for providing appropriate touch guards. The installation regulations must be observed for each individual application.

Note
Follow the instructions!
Incorrect installation may compromise safety in the event of a failure. Before installation and operation, please read these instructions thoroughly and carefully.

- Please especially observe the following:
- The device described in these instructions shall only be installed by a qualified electrician according to both DIN EN 50110-1/-2 and IEC 60364.
 - Before startup, check the device for any damage that may have occurred during shipping. The device shall not be put into operation in the event of mechanical damage.
 - Observe the applicable laws, standards and regulations.
 - Observe the current, accepted technology standards and practices at the time of installation.
 - Only install this device in closed electrical service locations in accordance with DIN EN 50178.
 - Only install this device in dry indoor rooms.
 - Do not install the devices on or in the vicinity of easily flammable materials.

Improper use and failure to follow these instructions for use will render the warranty or guarantee null and void.

2 Short Description

The 857-420 repeater power supply links 2- or 3-wire transmitters located in the field. It provides the power required and transmits the analog signals in an electrically isolated way. DIP switches accessible from the side can be used to configure the measurement ranges for input and output signals (see "Technical Data"). Measurement range configuration via DIP switch is calibrated.

The 857-421 HART repeater power supply links SMART transmitters located in the field. It provides the power required and transmits the analog signals in an electrically isolated way.

The device is supplied with 24 VDC, which can be efficiently commoned using lateral push-in type jumper bars.

The devices meet the requirements for safe isolation of input, output and supply circuits with 2.5 kV test voltage according to EN 61140.

3 Technical Data

Dimensions (mm) W × H × L	6 × 96 × 94 (height from upper-edge of DIN 35 rail)
Weight	857-420: 46.7 g 857-421: 47.8 g
Degree of protection	IP20

Input	
Input signal	857-420: 0 mA ... 20 mA, 4 mA ... 20 mA (calibrated configurable) 857-421: 4 mA ... 20 mA (with superimposed HART signal)
Input resistance I input	≤ 50 Ω
Max. input current	857-420: 50 mA 857-421: max. power supply
Transmitter supply U _{Sensor}	18 V at 30 mA
Output	
Output signal	857-420: 0 mA ... 20 mA, 4 mA ... 20 mA, 0 V ... 5 V, 1 V ... 5 V, 0 V ... 10 V, 2 V ... 10 V (calibrated configurable) 857-421: 4 mA ... 20 mA (with superimposed HART signal)
Load impedance I output	857-420: ≤ 600 Ω 857-421: 230 Ω ... 600 Ω
Load impedance V output	857-420: ≥ 2 kΩ
Offset	857-420: < 20 μA / < 10 mV 857-421: < 20 μA
Residual ripple	< 10 mV rms
General	
Nominal supply voltage U _s	24 VDC (-25 % ... +30 %)
Supply voltage range	16.8 V ... 31.2 V
Current input at 24 VDC	≤ 45 mA
Limit frequency	857-420: 100 Hz 857-421: 100 Hz / ≥ 2.5 kHz HART signal
Response time (T ₁₀₋₉₀)	< 3.5 ms
Transmission error	≤ 0.1 % of upper range value
Temperature coefficient	≤ 0.01 %/K
Test voltage (input/output/supply)	2.5 kVAC, 50 Hz, 1 min.

Safe isolation (input/output/supply) acc. to DIN EN 61140-1 by increased isolation	DIN EN 61010-1
Rated voltage	300 V AC/DC
Overvoltage category	II
Rated impulse voltage	2.5 kV
Pollution degree	2
Electrical isolation (input/output/supply)	DIN EN 61010-1
Rated voltage	600 V AC/DC
Overvoltage category	II
Rated impulse voltage	4.0 kV
Pollution degree	2

Connection technology	Push-in CAGE CLAMP®
Solid "s"	0.08 mm ² ... 2.5 mm ² (AWG 28 ... 14)
Fine-stranded "F-st"	0.34 mm ² ... 2.5 mm ² (AWG 22 ... 14)
Strip length	9 mm ... 10 mm / 0.37 in

Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Operating altitude above sea level	Max. 2000 m

4 Standards and Approvals

4.1 Overview

EMC	EN 61000-6-2, EN 61000-6-4, DIN EN 61326-1	
UL US	UL 508	File No. E175199

5 Pin Assignment

Pos.	Assignment	Pos.	Assignment
(1)	U _{Sensor} +	(5)	OUT +
(2)	IN	(6)	GND 2
(3)	GND 1	(7)	U _s +
(4)	GND 1	(8)	GND 3
(a)	Transparent cover		
(b)	DIP switch		
(c)	Snap-in mounting foot		

Pos.	Assignment	Pos.	Assignment
(1)	U _{Sensor} +	(5)	OUT +
(2)	IN	(6)	GND 2
(3)	GND 1	(7)	U _s +
(4)	GND 1	(8)	GND 3
(a)	Transparent cover		
(b)	Technical data		
(c)	Snap-in mounting foot		

6 Assembly

NOTICE
Avoid electrostatic discharge!
The devices are equipped with electronic components that you may destroy by electrostatic discharge when you touch. Pay attention while handling the devices to good grounding of the environment (persons, job and packing).

Install the device according to EN 60715 by snapping it onto DIN 35 rails without using any tools. For secure fixing on the DIN rail we recommend mounting an end stop (e.g., Item No. 249-116) at the beginning and at the end of the modules.

Use separators (Item No. 209-191) between adjacent contacts for safe disconnection when devices have been snapped in on each side.

To remove the device, rotate the snap-in mounting foot out of place, e.g., using the operating tool. Turn the device to release it from the DIN rail.

7 Wiring

DANGER
Ensure a standard connection!
To minimize any hazardous situations resulting in personal injury or to avoid failures in your system, the data and power supply lines shall be installed according to standards, with careful attention given to ensuring the correct terminal assignment. Always adhere to the EMC directives applicable to your application.

Always observe the max. permissible conductor cross sections for the signal and power cables (see "Technical Data").

Perform wiring of the device using an operating tool.

Wiring the device Slightly pull on the wire to ensure that it is securely connected.	Removing the wiring

Push-in type jumper bars (859 series) can be used for potential commoning (see "Accessories").

8 LEDs and Error Indication

The LED (green), which is visible on the front, displays the following states:

- Green LED lit: Supply voltage is applied

9 Configuration (857-420 only)

You have the following option to configure the device:

DIP switch	

9.1 DIP Switches

To set the DIP switches (b), use an operating tool (see „Accessories“).

- = ON Default settings

DIP switch S1 (6-fold)						Input signal	Output signal
1	2	3	4	5	6		
					n. c.	0 mA ... 20 mA	0 mA ... 20 mA
			•		n. c.	0 mA ... 20 mA	4 mA ... 20 mA
•	•				n. c.	0 mA ... 20 mA	0 V ... 10 V
•	•	•			n. c.	0 mA ... 20 mA	2 V ... 10 V
•	•	•	•		n. c.	0 mA ... 20 mA	0 V ... 5 V
•	•	•	•	•	n. c.	0 mA ... 20 mA	1 V ... 5 V
				•	n. c.	4 mA ... 20 mA	0 mA ... 20 mA
					n. c.	4 mA ... 20 mA	4 mA ... 20 mA
•	•			•	n. c.	4 mA ... 20 mA	0 V ... 10 V
•	•				n. c.	4 mA ... 20 mA	2 V ... 10 V
•	•	•		•	n. c.	4 mA ... 20 mA	0 V ... 5 V
•	•	•			n. c.	4 mA ... 20 mA	1 V ... 5 V

9.1.1 Default Settings

Input signal	0 mA ... 20 mA
Output signal	0 mA ... 20 mA

10 Pin Assignment

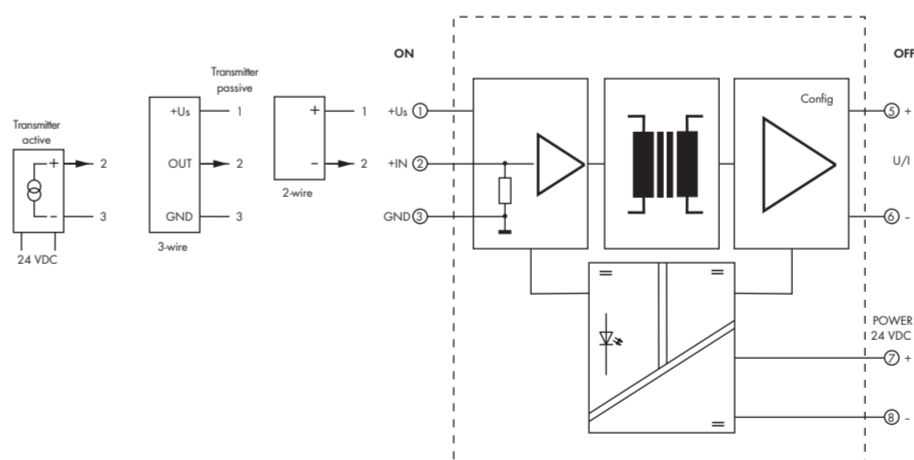


Figure 1: Pin Assignment

11 Simultaneous Signal Transmission, Analog and Digital (857-421 only)

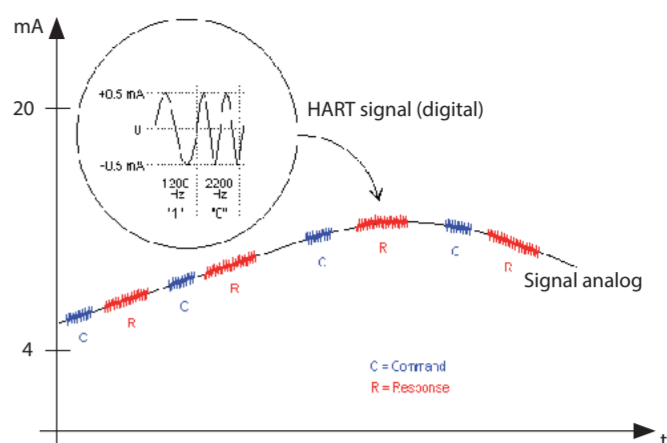


Figure 2: Simultaneous Signal Transmission, Analog and Digital

12 Accessories

Details about accessories are given in the main catalog, Vol. 4 "INTERFACE ELECTRONIC" or on the Internet at www.wago.com.

12.1 Tools

Use only the following tool:

Operating tool with partially insulated shaft	Type 2, (3.5 × 0.5) mm blade	210-720
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12.2 Push-In Type Jumper Bars

For easy wiring, you can install the push-in type jumper bar before attaching the connecting leads. Push the jumper bar into place all the way to the stop.

12.3 JUMPFLEX® Interface Adapter

You can use the JUMPFLEX® Interface Adapter for easy connection of system cabling via WAGO Ribbon Cables.

JUMPFLEX® Interface Adapter for up to 8 devices, with a 16-pin ribbon cable connector based on DIN 41651, analog	857-980
WAGO Ribbon Cable, 16-pin, open end, length: 2 m	706-100/1602-200
JUMPFLEX® Supply and Through Module	857-979

12.4 Marking

Use the WMB MultiMarking system for marking.