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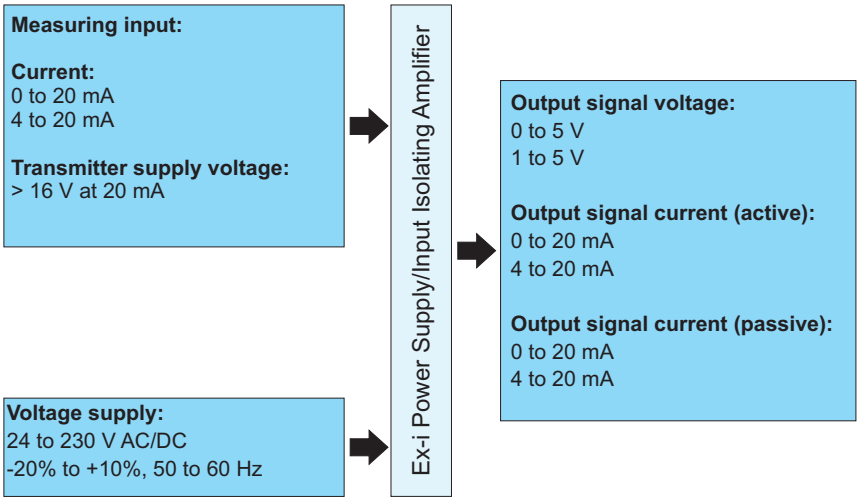
JUMO Ex-i Power Supply/ Input Isolating Amplifier

Brief description

The JUMO Ex-i power supply/input isolating amplifier 707530 is designed for operating intrinsically safe transmitters (Ex-i) and mA current sources installed in potentially explosive (Ex) areas. The connected 2-wire transmitters are supplied with energy and analog 0/4 to 20 mA measured values are transmitted from the potentially explosive area to the non-explosive area. The external connection defines whether the device operates in supply isolating amplifier mode or isolating amplifier mode. The output of the module can be operated in active or passive mode. Digital (HART) communication signals can be superimposed over the analog measured value on the Ex or non Ex side and transmitted bidirectional.
To increase the HART impedance in low-resistance systems an additional resistor can be activated in the output circuit using the switch on the device's front. The device provides a 3-way electrical isolation and the energy supply is designed as wide range power supply (24 V to 230 V).

Type 707530

Block diagram



Special features

- HART capable
- SIL2 approval
- Wide range power supply

Approvals/approval marks (see "Technical data")

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Technical data

Measuring input

Input signal current	0 to 20 mA
	4 to 20 mA
Transmitter supply voltage	> 16 V (at 20 mA)

Output

Signal output	Current output
Output signal voltage	0 V to 5 V (internal resistance, 250 Ω, 0,1%)
	1 V to 5 V (internernal resistance, 250 Ω, 0,1%)
Output signal current	0 mA to 20 mA (active)
	4 mA to 20 mA (active)
	0 mA to 20 mA (passive, external source voltage 14 to 26 V)
	4 mA to 20 mA (passive, external source voltage 14 to 26 V)
Burden/output load current output	< 600 Ω (current output)

General data

Number of channels	1
Transmission error max.	< 0,1 % (of end value)
Transmission error typical	< 0,05 % (of end value)
Temperature coefficient max.	< 0,01 %/K
Ambient temperature (operation)	-20 °C to 60 °C (any installation position)
Ambient temperature (storage/transport)	-40 °C to 80 °C
Admissible air humidity (operation)	10 % to 95 % (no condensation)
Step response (10 - 90%)	< 600 µs (for step 4 mA to 20 mA)
Status display	LED green (supply voltage)
Width	12.5 mm
Height	104 mm
Depth	114.5 mm
Flammability class according to UL 94	V0
Material of case	Polyamide (PA 6.6)
Color	Gray
EMC	EN 61326-1

Data communication (bypass)

HART function	Yes
Supported protocols	HART

Voltage supply

Range of supply voltage	24 to 230 V AC/DC, -20 % to +10 %, 50 to 60 Hz
Current consumption	< 80 mA (at 24 V DC)
Power consumption	< 1,6 W

Connection data

Conductor cross section rigid min.	0.2 mm²
Conductor cross section rigid max.	2.5 mm²
Conductor cross section flexible min.	0.2 mm²
Conductor cross section flexible max.	2.5 mm²
Conductor cross section AWG/kcmil min.	24

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Conductor cross section AWG/kcmil max.	14
Stripping length	8 mm
Thread	M3
Connection type	Screw connection
Tightening torque min.	0.5 Nm
Tightening torque max.	0.6 Nm

Approvals/approval marks

Approval marks	Testing agency	Certificates/ certification numbers	Inspection basis	Valid for
⟨Ex⟩ II (1) G [Ex ia Ga] IIC/IIB ⟨Ex⟩ II (1) D [Ex ia Da] IIIC ⟨Ex⟩ II 3 (1) G Ex nA [ia Ga] IIC/IIB T4 Gc	DEKRA	BVS 12 ATEX E 090 X	EN 60079-0:2009 EN 60079-11:2012 EN 60079-15:2010 EN 60079-26:2007	
SIL2	DEKRA		EN 61508	
UL us	Underwriters Laboratories	E354603 C.D.-No 83135047	UL 61010-1 UL 913	USA

Connections

The connection diagram in the data sheet provides preliminary information about the connection possibilities. Only use the operating manual for the electrical connection. The knowledge and the correct technical execution of the safety information/instructions contained in these documents are mandatory for installation, electrical connection, and commissioning/start-up as well as for safety during operation.

Input (Ex-i)

Connection for	Terminals
Supply isolating amplifier mode (2-wire transmitter)	4.1 (+) and 4.2 (-)
Input isolating amplifier mode (4-wire transmitter or power sources)	4.2 (+) and 4.3 (-)

Output of current without HART communication

Connection for	Terminals	DIP-switch position[a]	
		S1	S2
Source (passive input card)	3.1 (+) and 3.2 (-)	I	II
Sink (active input card)	3.2 (+) and 3.3 (-)	I	II

[a] The two DIP-switches are located at the front of the device. Settings made to the device with DIP switches must occur in a voltage-free state.

Output of current with HART communication

Connection for	Electrical circuit impedance	Connection		DIP-switch position[a]	
		of the input card at terminal	of the HART communicator	S1	S2
Source (passive input card)	≥ 250 Ω	3.1 (+) and 3.2 (-)	3.1 and 3.2	I	II
	< 250 Ω	3.1 (+) and 3.2 (-)	3.2 and 3.3	I	I
Sink (active input card)	≥ 250 Ω	3.2 (+) and 3.3 (-)	3.2 and 3.3	I	II
	< 250 Ω	3.2 (+) and 3.3 (-)	-	I	II

[a] The two DIP-switches are located at the front of the device. Settings made to the device with DIP switches must occur in a voltage-free state.

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Output Voltage

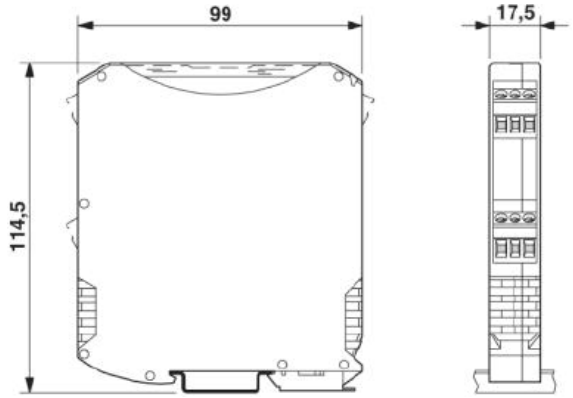
Connection for	Connection of the input card at the terminal	DIP-switch position[a]	
		S1	S2
Source - passive input card	3.1 (+) and 3.2 (-)	II	II

[a] The two DIP-switches are located at the front of the device. Settings made to the device with DIP switches must occur in a voltage-free state.

Voltage supply

Connection for	Connection at terminals
24 to 230 V AC/DC, 50/60 Hz	1.1 and 1.2

Dimensions



Order details

	(1) Basic type
707530	Ex-i power supply/input isolating amplifier
	(2) Voltage supply
38	24 to 230 V AC/DC, -20 % to +10 %, 50 to 60 Hz

	(1)		(2)
Order code		/	
Order example	707530	/	38

Scope of delivery

1 Ex-i power supply/input isolating amplifier in the ordered version
1 Operating manual

Accessories

Article	Part no.
JUMO dTRANS T01 Ex	00372362
JUMO dTRANS T01 Ex HART	00391004