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Supply unit for transmitters

Supply unit for 2-wire transmitters with isolated standard signal

for mounting on: DIN rail 35mm x 7.5mm EN 50 022
DIN rail 15mm EN 50 045
G rail EN 50 035

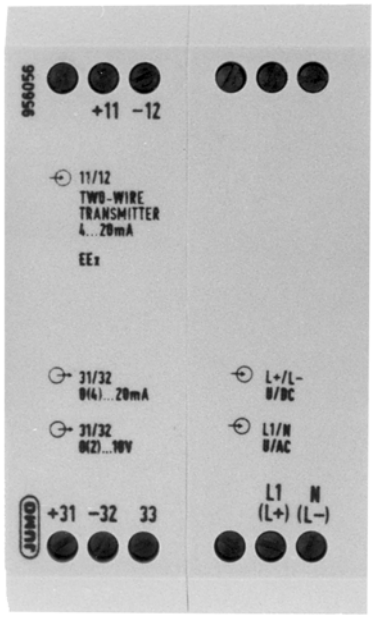
for stock items see price list

Brief description

The 707520/... supply unit for transmitters is used to supply 2-wire transmitters. It provides the power for the transmitter, isolates the signal and passes it on to the output. The electrical isolation is provided between supply and intrinsically safe input, between supply and output, and between intrinsically safe input and output.

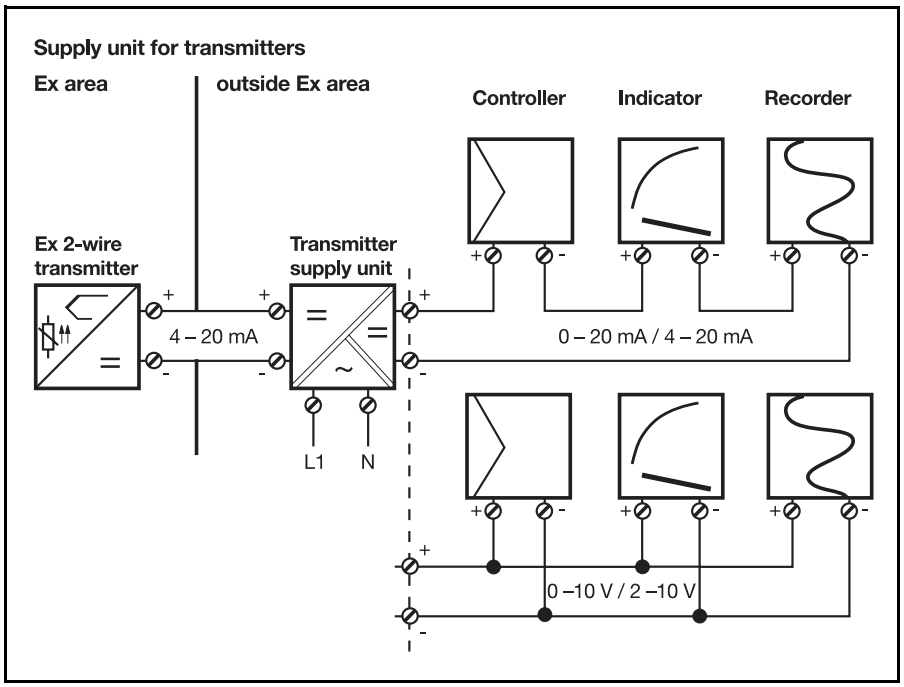
The unit is intended for industrial application and complies with the corresponding European Standards for ensuring electromagnetic compatibility (EMC). In addition, the transmitter supply unit conforms to the Directives of EN 50 014 and EN 50 020 “Electrical apparatus for use in hazardous areas”.

The input is factory-calibrated to 4 — 20 mA, at the output there is a choice between the standard signals 0(2) — 10 V and 0(4) — 20 mA.
The transmitter supply unit is built into a polycarbonate housing which can be readily clipped onto three different types of rail. Several units can be mounted close together, to save installation space.



Type 707520/... (with Ex protection)

System diagrams



Features

- Ex version
  ⟨Ex⟩ II (1) G D [EEx ia] IIC or [EEx ia] IIB
  II (2) G D [EEx ib] IIC or [EEx ib] IIB
- Supply unit to provide power for 2-wire transmitters, electrically isolated

Technical data

Input

Input signal	current 4 — 20mA intrinsically safe
Voltage at transmitter	14V approx. at 20mA

Output

	Current	**Voltage**
Output signal	0 — 20mA or 4 — 20mA (see order details)	0 — 10V or 2 — 10V (see order details)
Current/voltage changeover	changeover from current to voltage is made through a wire link at terminals 32 and 33 in conjunction with an internal burden resistance of 500Ω.	
Permitted output burden	750Ω max.	250kΩ min. (voltage error through R_{load} 0.2% max.)
Characteristic	linear	
Response to short-circuit at input	I_A > 22 mA	
Response on open input	I_A approx. 0 mA	
Current /voltage limitation	< 30mA	< 20V

Accuracy (referred to the maximum output signal)

Deviation from characteristic	< 0.15%
Time constant	< 50msec
Ripple of output signal	< 1%
Ambient temperature error	< 0.2% per 10°C
Burden error	< 0.1% per 100% change
Supply error per 10%	< 0.05%

Electrical data

Supply AC voltage AC voltage DC voltage	230V AC +10/-15% 48 — 63Hz, 24V AC +10/-15% 48 — 63Hz, 18 — 32V DC +0/-0%
Power consumption at rated voltage	AC: 3VA approx. DC: 2.2W approx.
Permitted ripple within the specified voltage limits	< 2.5V_{p-p}
Isolation between	supply and intrinsically safe input supply and output intrinsically safe input and output
Insulation voltage	The intrinsically safe supply circuit has a safe isolation up to a summed peak value of 375V for the nominal voltages from those circuits which are not intrinsically safe.
Electrical safety	overvoltage category II, pollution degree 2 to EN 61 010
EMC - interference emission - immunity to interference	EN 61 326 Class B to industrial requirements

Ambient conditions

Permissible ambient temperature	-20 to +65°C
Storage temperature	-40 to +85°C

Housing

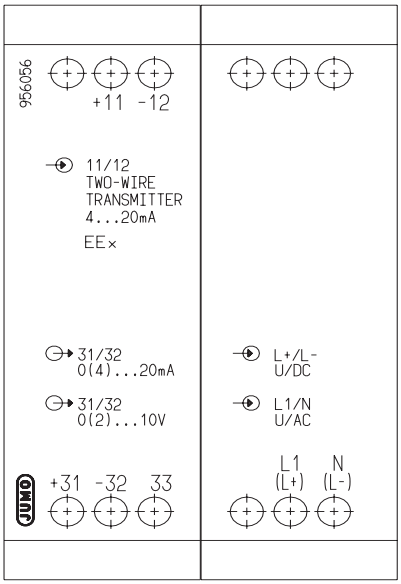
Material	polycarbonate
Protection	IP20 to DIN 40 050
Mounting	on DIN rail (EN 50 022 or EN 50 045) and G rail (EN 50 035) inside the non-hazardous area
Weight	350g

Ex protection
Extract from the EC Type-Examination Certificate DTM 01 ATEX E 137

Marking	⟨Ex⟩ II (1) G D [EEx ia] IIC or [EEx ia] IIB II (2) G D [EEx ib] IIC or [EEx ib] IIB
Ambient temperature range	-20 °C ≤ Ta ≤ +65 °C
Non-intrinsically safe circuits	
Supply circuit (auxiliary supply)	
Operating voltage	U_n = 230 V AC +10/-15 %, 48 — 63 Hz or U_n = 24 V AC +10/-15 %, 48 — 63 Hz or U_n = 18 — 32 V DC ±0% U_m = 250 V AC
Signal circuit	
Voltage	15 V DC U_m = 250 V AC
Intrinsically safe supply and signal circuit	
Maximum safe values - voltage - current - power - characteristic	 U_o = 25 V DC I_o = 87.4 mA P_o = 547 mW linear
Max. permissible external inductance/capacitance EEx ia IIC / EEx ib IIC EEx ia IIB / EEx ib IIB for combined operation: EEx ia IIC EEx ia IIB	 L_o = 4 mH / C_o = 105 nF L_o = 15 mH / C_o = 620 nF L_o = 1 mH / C_o = 30 nF L_o = 2 mH / C_o = 18 nF L_o = 3.3 mH / C_o = 152 nF L_o = 5 mH / C_o = 130 nF
Maximum external inductance-resistance ratio - supply circuit Group IIC - supply circuit Group IIB	 L_o/R_o = 0.065 mH/Ω L_o/R_o = 0.26 mH/Ω

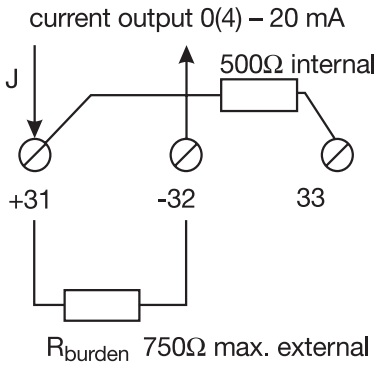
Connection diagram

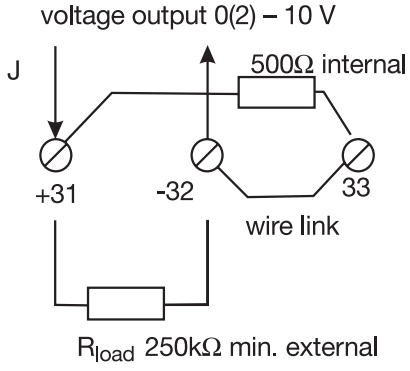
707520/...



Connection for		Terminals		
	Supply as on nameplate	L1 N	line neutral	AC
		L+ L-		DC
Analog inputs				
	2-wire transmitter 4 — 20mA EEx ia IIC	+11 -12	intrinsically safe circuit lead resistance $R = \frac{14V - U_B}{20mA}$ U_B = min. operating voltage of the 2-wire transmitter that is connected	
Analog outputs				
	voltage 0(2) — 10V	+31 -32 33	R_{load} 250kΩ min. wire link to terminal -32	
	current 0(4) — 20mA	+31 -32	R_{burden} 750Ω max.	

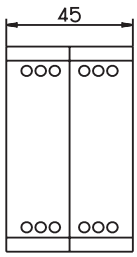
Current/voltage output



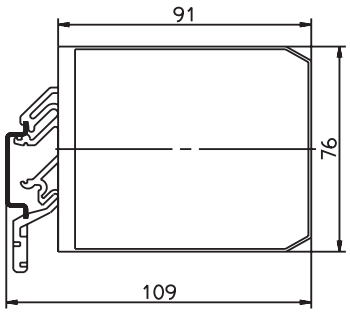


Dimensions

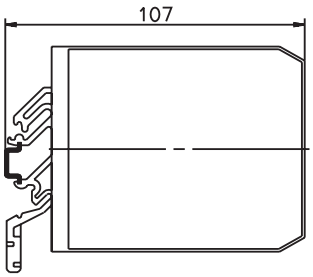
707520/...



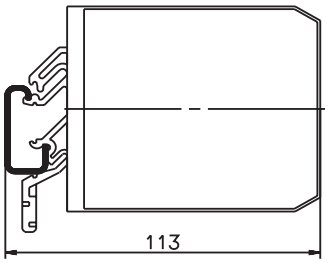
DIN rail 35 mm x 7.5 mm EN 50 022



DIN rail 15 mm EN 50 045



G rail 35 mm EN 50 035



Order details: Supply unit for transmitters

			(1) Basic version
		707520	Supply unit for 2-wire transmitters Dimensions: 45mm x 76mm x 91mm (W x H x D)
			(2) Input
x		091	4 — 20mA
			(3) Output (proportional DC current - configurable)
x		030	0 — 20mA/0 — 10V
x		032	4 — 20mA/2 — 10V
			(4) Supply
x		02	230V AC +10/-15%, 48 — 63Hz
x		08	24V AC +10/-15%, 48 — 63Hz
x		24	18 — 32V DC ±0%

	(1)		(2)		(3)		(4)
Order code	707520	/	091	-		-	
Order example	707520	/	091	-	030	-	02