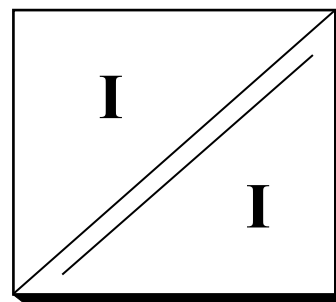# SEPARATOR T924PS2

- 2 channels 4÷20mA / 4÷20mA
- accuracy class 0.05
- galvanic isolation 2.5 kVrms
- supplies 2-wire transmitter on input side
- universal DIN-rail enclosure

Every channel of T924SP2 is independent and forms a passive separator of 4÷20mA signal (in fact, separator operates linearly from 2.5mA to about 25mA where internal limiting circuit turns on). Factory test isolation voltage equals 2.5kVrms.

Every channel works as a constant current transformer that carries energy from output to input while magnetic field feedback ensures accurate reproduction of input load current at the output. Basic error within the nominal 4÷20mA signal range, including nonlinearity, does not exceed ±0.05%. Some of the energy transfered is lost on protection elements and used to supply internal circuitry of the separator, which is seen externally as additional voltage drop that adds to voltage drop at input. This additional voltage drop reaches 3.6V at 20mA. Voltage drop on the output (and thus supply voltage and load resistance) has some influence on accuracy but within 20÷28V it will be less than ±0.05%.

Typical application is presented below – separator is simply inserted into current loop supplying a 4÷20mA transmitter by breaking the 2-wire line and connecting the wires to respective input and output terminals of the separator. Energy suppling the transmitter is transferred to input, while the current forced by transmitter is mirrored at output. Allowed voltage drop on output is limited to 28V but assuming supply voltage, U_Z, of 24V, internal voltage drop of 3.6V, and R_L=50Ω, still 19V is left for input transmitter supply (at $I_{WE}=I_{WY}$=20mA).
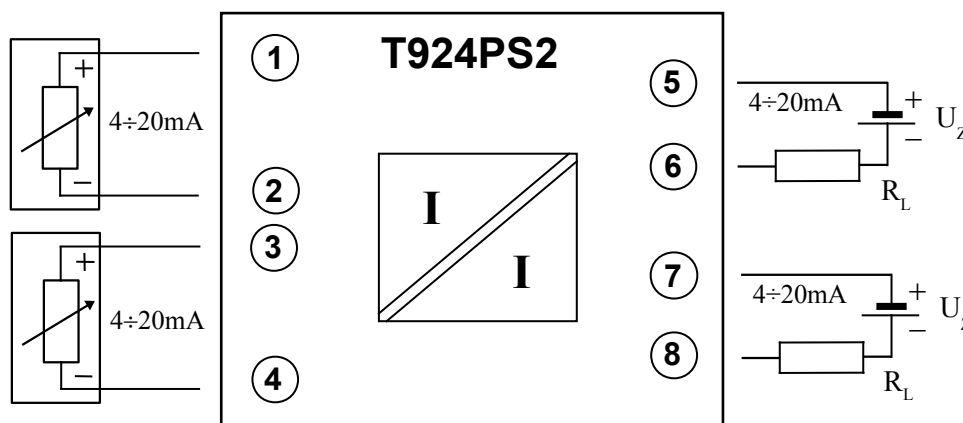
One of the main advantages of the module is a system of overvoltage and overcurrent protections preventing accidental damage during installation or malfunction of other automation elements during exploitation. Both input and output are protected against overvoltage and bias reversal. The input current is limited internally to ca. 25mA which is rare in passive separators. Absolute maximum ratings are listed at the end of the data sheet.

Separator fits into 12.5mm wide enclosure, made of self-extinguishing material, which may be mounted on standard 35mm 'top-hat' rails. All terminals may be easily disconnected allowing for easy and quick assembly or removal of the module.

Technical data:

Input:	input current (terminals 1-2, 3-4)	$4 \div 20$ mA
	voltage drop (I_{IN}=20mA)	$U_Z - 3.6V - (I_{OUT} \times R_L)$
Output:	output current (terminals 5-6, 7-8)	$4 \div 20$ mA
	voltage drop, $U_Z - (4mA \times R_L)$	$\leq 28V$
Accuracy class:		0.05
Isolation test voltage:		2.5 kVrms 1min.
		(input/output and between channels)

General technical parameters:

frequency band (-3dB, R_L=50Ω)	450 Hz
output noise	$< 15\ \mu A_{rms}$
maximal nonlinearity error	< 0.02 %
output voltage drop influence ($20 \div 28V$)	< 0.01%/V
temperature coefficient	50ppm/°C
warm-up time	< 1 min
operating temperature range	$-25 \div 60$ °C
storage temperature range	$-40 \div 80$ °C
ambient relative humidity	$5 \div 90$ % (no condensation)
ambient pressure	1000 ± 200 hPa
external magnetic field	$0 \div 400$ A/m
working position	irrelevant
external dimensions	$12.5 \times 99 \times 114.5$ mm^3
housing protection type	IP 20

Absolute maximum ratings:

voltage applied to input terminals	100 V
input current (internally limited)	25 mA
voltage applied to output terminals	100 V

$C\hspace{-0.2em}\epsilon$