



LABOR – ASTER

INDUSTRIAL AUTOMATION



AC 083
QMS

TWO-WIRE VOLTAGE CONVERTER FOR CATHODIC PROTECTION Type U-S3-OK-uV

- Measurement of small currents $I_{min}=0.1\mu A_{dc}$ and small voltages $U_{min}=10\mu V_{dc}$ designed especially for control of cathodic protection of pipelines in particular.
- Full galvanic separation of the circuits.

APPLICATION

Converter **U-S3-OK-uV** is designed to convert small increases of voltage or current DC $U \geq 10\mu V$, $I \geq 0.1\mu A$ to current signal 4...20mA.

On the side wall of the device is a switch which decreases the input sensitivity 10 and 100 times.

Description of the switch positions is on fig. 3. The converter is designed especially for control of cathodic protection of pipelines in particular with using switch-off-and-on method measuring voltage drop on pipe section. **This method does not require 10M Ω input resistance of the converter.**

The user can calibrate the beginning and the span of the range by potentiometers (ZERO and SPAN) which are placed on the front panel of the converter.

The user has the possibility to control the output current (without disconnecting the connection cables) by connecting the ammeter as in Fig.2b.

BASIC TECHNICAL PARAMETERS

Input signal	voltage	- $\Delta U_{min}=10\mu V_{dc}$, typically (-100 μV_{dc} ...+100 μV_{dc})
	current	- $\Delta I_{min}=1\mu A_{dc}$,
Input resistance	voltage input	- $\geq 250k\Omega$
	current input	- 50 Ω
Output signal		- current loop 4...20mA powered by external voltage U_z
Supply voltage of the output circuit (U_z)		- 9...36V
Load resistance		- max 1350 Ω ($U_z=9V$)/20mA
Output current max		- 35mA
Class for voltages and currents		
	$U > 1mV$, $I > 10\mu A$	- 0.2%
	$U < 1mV$, $I < 10\mu A$	- 0.5%
Nonlinearity		
	for voltages and currents	$\pm 0.05\%$
Temperature drift		
	for input $\pm 10\mu V_{dc}$	- 0.03%/°C
	for $\Delta I \leq 10\mu A$, $\Delta U \leq 1mV$	- 0.02%/°C
	for $\Delta I > 10\mu A$, $\Delta U > 1mV$	- 0.01%/°C
Time constant		- few seconds (depending on the input signal range)
Galvanic separation		- 2kV, 50Hz between all circuits
Housing		- rail 22.5mm IP40
Mounting		- universal rail latch

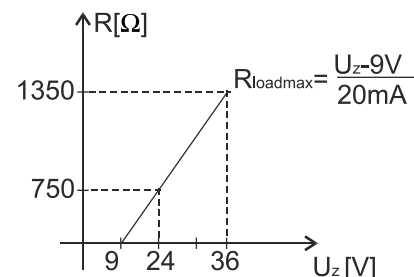
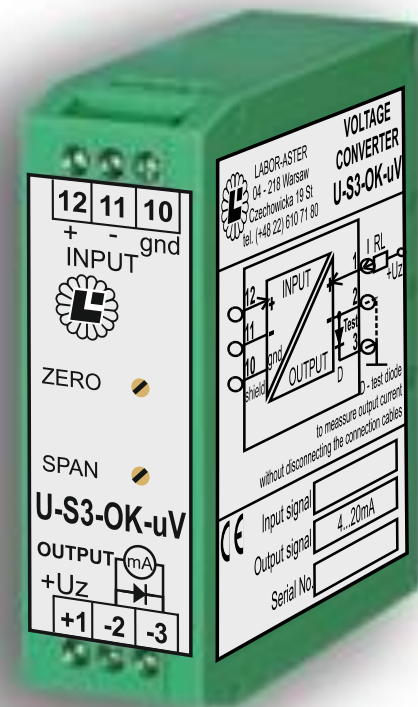


Fig.1 Method of determining the load resistance of a converter U-S3-OK-uV

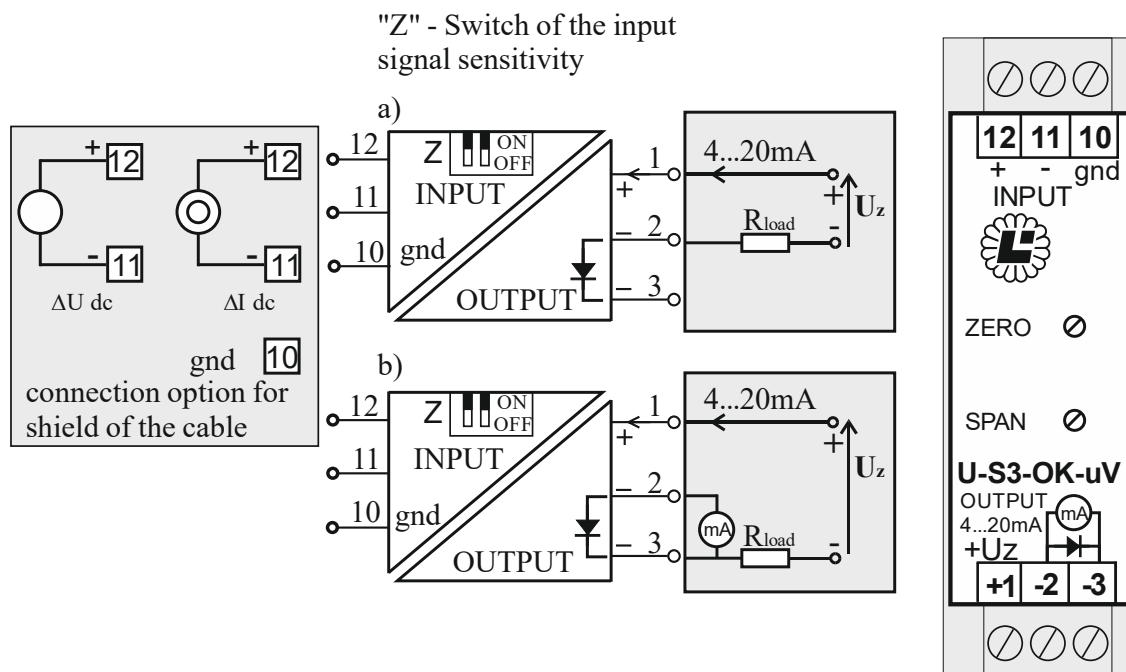


Fig.2 Functional diagram of the U-S3-OK-uV converter and terminals description

a). connection of the converter without measuring the output current

b). connection of the converter with measuring the output current

Switcher available depending on the version.

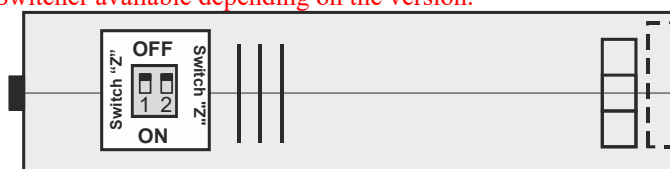


Fig.3 Switch „Z” view which switches sensitivity of the input signal according to Table 1

HOW TO ORDER :

Input range:

- range of the measured voltage,

a) without switcher, e.g.:

0...+10 μ V

-10...+10 μ V

0...+100 μ V

-100...+100 μ V

0...+1mV

-1...+1mV

0...+10mV

-10...+10mV

or other (describe)

b) with switcher, e.g.:

0...+10 μ V / 0...+100 μ V / 0...+1mV

-10...+10 μ V / -100...+100 μ V / -1...+1mV

0...+100 μ V / 0...+1mV / 0...+10mV

-100...+100 μ V / -1...+1mV / -10...+10mV

or other (describe)

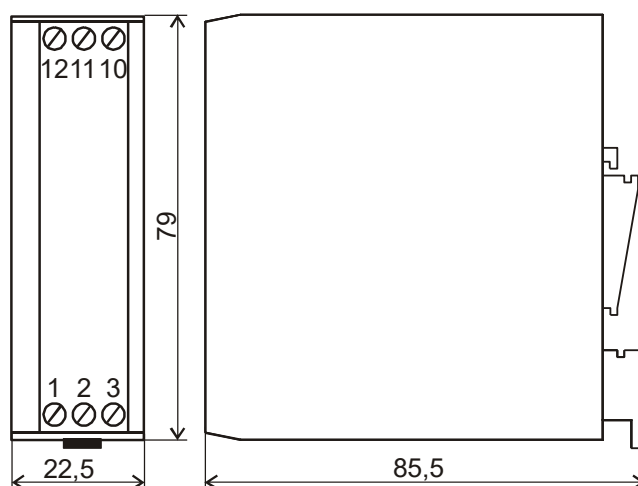


Fig.4 Dimensions of converter housing U-S3-OK-uV

Order example:

Voltage converter, input (-100 μ Vdc...+100 μ Vdc)

type: U-S3-OK-uV-(-100 μ Vdc...+100 μ Vdc)

Production and distribution:

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The manufacturer reserves the right to make changes to the product.

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