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KR4 - I/U

Current analog signal converter
0/4-20mA for analogue voltage signal 0-10V
in a housing for a DIN rail



1. Main description of KR4-I/U

The KR4-I / U converter is used to convert a 4-20mA analog current signal into a 0-10V analog voltage signal. A 4-20mA current signal produced by any other electrical / electronic device can be provided for an analog input. The analog input can also be connected to a 2-wire passive transducer of any physical size (eg temperature, pressure) operating in the standard of 4 20mA.

The signal from the analog output can control any electrical device that has a voltage input of 0-10V. For example, with the KR4-I / U converter, a 2-wire pressure transmitter operating in the 4-mA standard can be connected to the analogue 0-10V voltage input of the PLC.

The current input of the KR4-I / U converter is protected against damage, for example by connecting it to the +24V supply voltage by mistake. The voltage output of the KR4-I / U converter is protected against damage, eg by shorting the output to ground.

2. Calibration of KR4-I / U input and output signals

The values of analog signals - input current and voltage output are calibrated by the manufacturer at the production stage of the device. However, it is possible to independently correct these signals in a small range +/- several percent. For this purpose, internal multi-turn potentiometers are used, the knobs of which are available after removing the upper housing panel. Note - do not mindlessly turn the knobs of the calibration potentiometers, as this will cause major inaccuracies in analog signal processing and the need to carry out a new KR4-I / U calibration.

The method of correct calibration KR4-I / U:

To perform the calibration you need a precise voltmeter for direct voltage and a precise source of constant current signal with a value of 12mA to 18mA. First, the voltage output signal should be calibrated.

To do this:

- connect 24V power supply to terminals 1 and 2 KR4-I / U
- connect terminals 1 and 3 together (supplying voltage + 24V to current input is acceptable for calibration purposes)
- connect a voltmeter to the voltage signal output
- by adjusting the potentiometer located closer to the voltage output, set the voltage value equal to 10V

Then the value of the current input signal should be calibrated.

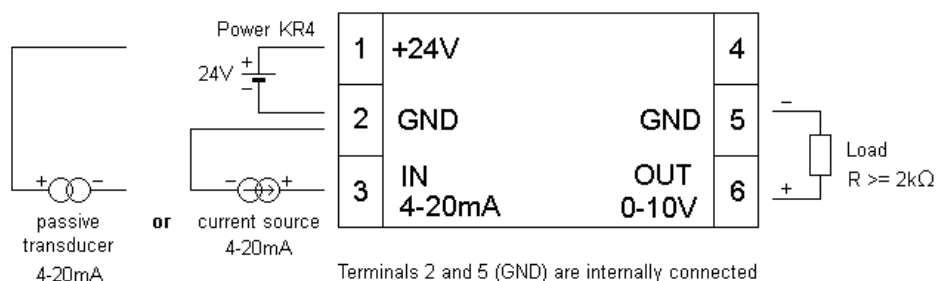
To do this:

- connect 24V power supply to terminals 1 and 2 KR4-I / U
- connect a voltmeter to the voltage signal output
- provide a stable and known value from the range of 12mA to 18mA to the current input
- by adjusting the potentiometer located closer to the current input, set the voltage value at the output corresponding to the input current, eg 12mA → 5V or 13.6mA → 6V, or 15.2mA → 7V, or 16mA → 7.5V, or 16.8 mA → 8V, or 18.4mA → 9V (please note that the 0-20mA signal is not processed, only 4-20mA for 0-10V)

3. Description of KR4-I / U terminals

- 1 - power supply terminal + 24V
- 2, 5 - internally connected - ground for signals: power, input and output
- 3 - input of 4-20 mA analog current signal
- 4 - unused terminal
- 6 - output of analog voltage signal 0-10V

4. Connection diagram of KR4-I/U converter



5. Technical data KR4 - I/U.

Power supply:

- power supply voltage: **24V +/-20%**
- power consumption:
 - **3mA max, with an unloaded voltage output**
 - **8mA max, at a voltage output of up to 2kΩ**

Current input:

- the voltage drop at the input: **5V max, at 20mA (corresponds to the input resistance 250Ω)**
- current limit: **30mA - protection against applying too high voltage - max 30V**

Voltage output:

- load resistance: **2kΩ or more**
- short-circuit protection: **30mA - protection against short circuit to ground**

- accuracy of analog signal processing: **+/- 0.2%**
- response / conversion time (10-90%): **0.1sek**
- operating temperature range: **0-65 °C**
- relative humidity range: **0-90% (without condensation)**
- level of security: **IP20**
- work position: **any**
- housing dimensions: **17.5 x 94 x 65 mm**
- assembly: **in a housing for a DIN rail (TS35)**