



Elektroniksysteme GmbH
Development and production of electronical systems

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Isolation amplifier Type: TV 2.1

Galvanical isolation and processing of standard industrial signals

When introducing the isolation amplifier TV 2.1 we intend to enlarge our product spectrum in regard to signal processing for common industrial applications.

The isolation amplifier TV 2.1 galvanically isolates and converts industrial standard signals (0-10V, 0-20mA und 4-20mA). Special efforts were spent on ensuring reliability and precision so that a maximum amount of functionality can be achieved at minimum costs.

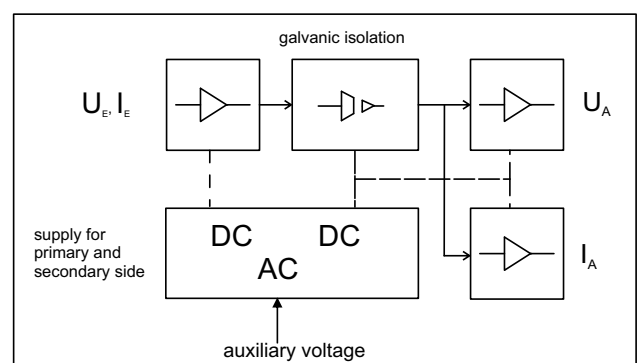
Any adjustments can be made by using the DIP switches on the front. Moreover, a lot of space is saved in your switch cabinet on account of its small sized 22mm housing and thereby guaranteeing safe and easy installation.



Function

After the measuring signal has been connected to the terminals and has passed a protective circuit it will be processed. Subsequently, it is transferred to the secondary side by opto-electronical methods. Here you can find the voltage and current output which have been designed to be short-circuit and open-circuit proof.

- galvanic isolation between input, output and supply
- flexible use due to the possible selection of input and output configurations
- signal ranges can be adapted to fit the customer's need
- extrema accuracy and precision
- compact, small sized housing
- no distortion, no falsification of measured signal, protection against erroneous measurements due to parasitic voltages or ground loops



Selection of the input and output configurations

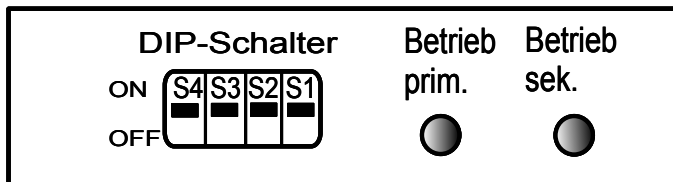
Isolation Amplifier TV 2.1	
Functions depending on the switch positions:	
S₃ = ON	
Input:	Output:
U _E = 0...10V	U _A = 0...10V
	I _{A1} = 0... 20mA I _{A2} = 4... 20mA
S₂ = ON; S₄ = ON	
Input:	Output:
I _E = 4...20mA	U _A = 0...10V
	I _{A1} = 0... 20mA I _{A2} = 4... 20mA
S₃ = ON; S₄ = ON	
Input:	Output:
I _E = 0...20mA	U _A = 0...10V
	I _{A1} = 0... 20mA I _{A2} = 4... 20mA

Operation

During operation of the isolation amplifier some parts may be energised. Serious threats to your health and physical damage may occur if the safety regulations aren't followed exactly as stated. Therefore the isolation amplifier should only be put into operation by qualified personnel. When working with high voltages be sure to stay away and to ensure the necessary distance. In order to guarantee a safe and reliable operation proper transport, storage, connection and handling have to be regarded as prerequisites. Due to the possibility of electrostatic discharges appropriate measures have to be taken to avoid them. The connection has to be done as shown in the graphic below. If the device is mounted on a DIN rail, you will find the input and supply terminals below, the output signals, however, on the top.

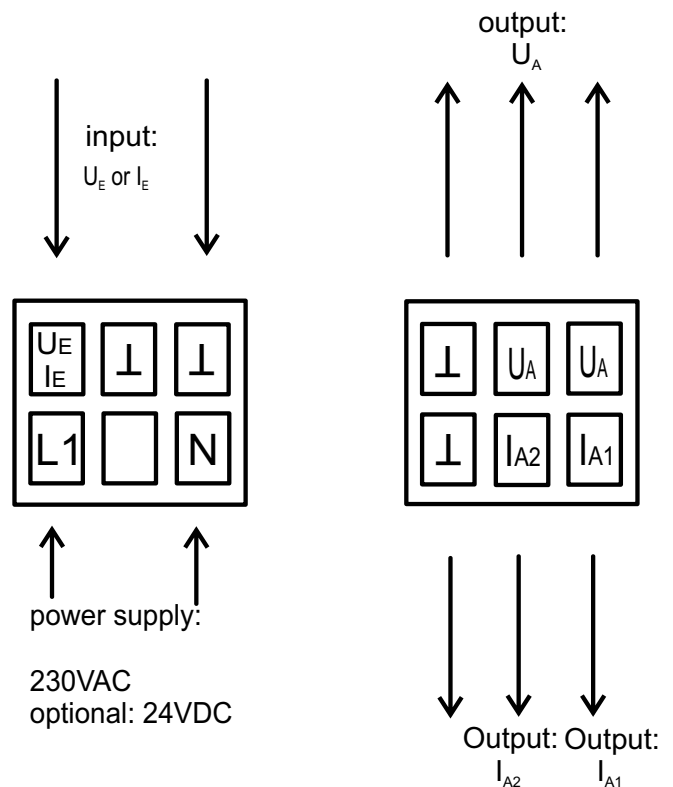
Front side

LEDs "Betrieb prim" and "Betrieb sek" indicate that the isolation amplifier is ready for operation. The DIP switches can also be found on the front side. During operation both LEDs have to light.

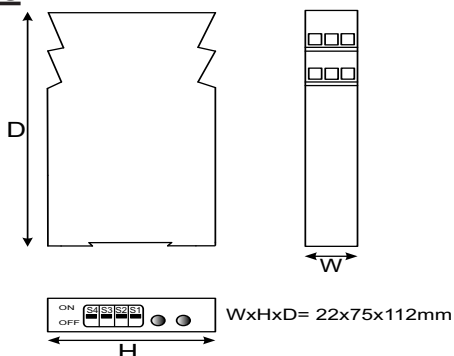


Setting the desired configuration of input and output signals can be done with the help of S2, S3 and S4 (S1 doesn't matter in this case). The output signals U_A and I_A can be tapped at the same time - their ground connection is the same. As far as the input signal is concerned, either U_E or I_E can be used.

Terminals



Dimensions



WxHxD= 22x75x112mm

Technical Data

Input		
signal	voltage:	current:
input signal	0...10V, 0...5V	0...20mA, 4...20mA
input resistance	approx. 500k Ω	500 Ω
input capacitance	approx. 0,8nF	

Output		
signal	voltage:	current:
output signal	0...10V, 0...5V	0...20mA, 4...20mA
load	> 1k Ω	approx. 0 Ω ... 600 Ω
current limitation	approx. 25mA	
Voltage and current output can be used at the same time.		

Accuracy	
transmission error	$\leq 0,1\%$ of measured value
temperature coefficient	$\leq 0,2\%$ / 10K of end value
cut-off frequency	> 12kHz
change of load	$\leq 0,1\%$ of end value
adjustment time	< 120ms

Additional technical data	
power supply	230VAC $\pm 15\%$, 50-60Hz optional: 24V DC
ambient temperature	operation: -20°C...+65°C
	storage: -40°C ...+85°C
climatic conditions	rel. humidity < 75% in general, without condensation
input power	2,60VA
kind of protection	IP 30, terminals: IP 20 according to EN 60529
interference resistance	EN 50082-2, EN 61326-1
transient emissions	EN 50081-1
housing	polyamid UL94, VO "lichtgrau", RAL 7035, IP 30
mounting	vertical on a 35mm DIN rail (DIN EN 60715 TH35)
test voltage	4kV, 50Hz, input against output against power supply
weight	160g
dimensions	WxHxD = 22x75x112mm
electrical connection	screw clamp terminals for wires with max. 2,5mm ²
model	galvanic 3-port isolation (input, output, supply)
CE-conformity	according to EMV-regulation 2004/108/EG and 2006/95/EG