

Shunt / mV – Isolation Amplifier

MV100

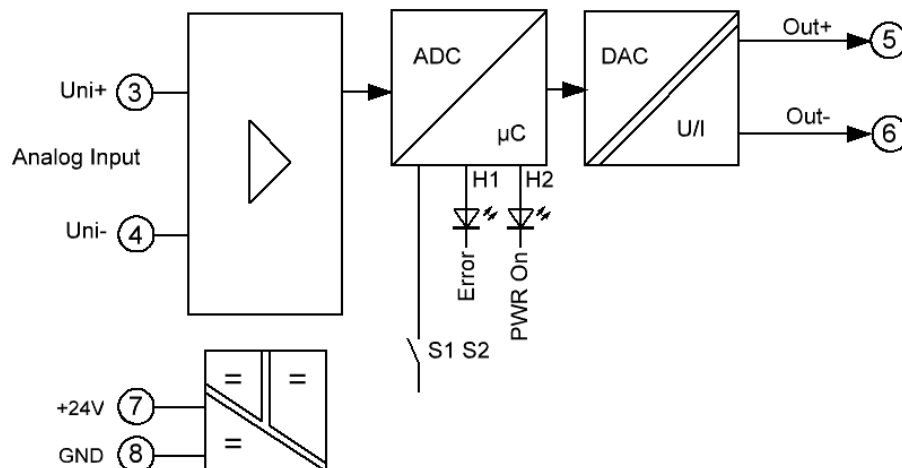
Characteristics:

- Shunt voltages uni- / bipolar
- Linearity error < 0.1%
- Measuring range configurable (\pm) 60mV...(\pm)1000mV
- 3-way galvanic isolation between input - output - auxiliary energy
- Current or voltage output configurable
- 24VDC power supply
- for mounting rail installation TS35
- Clear terminal labeling
- Device width 6.2 mm
- High reliability, 5-year warranty

Description:

The mV / shunt isolating amplifier MV100 is used to evaluate and convert typical shunt measuring resistors with voltages of 60mV...1000mV, unipolar and bipolar, into linear standard signals of 0/4...(\pm)20mA, 0/2...(\pm)10mA or 0/2...(\pm)10V, 0/1...(\pm)5V. The measuring range can be calibrated by the user via DIP switches (according to Table 1), so readjustment is neither necessary nor possible. In addition, the measuring rate can be selected (according to Table 2). A yellow LED on the front of the housing indicates that the device is ready for operation. A red LED signals an incorrectly set measuring range. Input, output and auxiliary power are isolated from each other via a genuine 3-way isolation.

An auxiliary power supply of 24V is required to supply the measuring amplifier. The devices are housed in a space-saving plastic housing only 6.2 mm wide and are suitable for mounting on TS35 mounting rails.



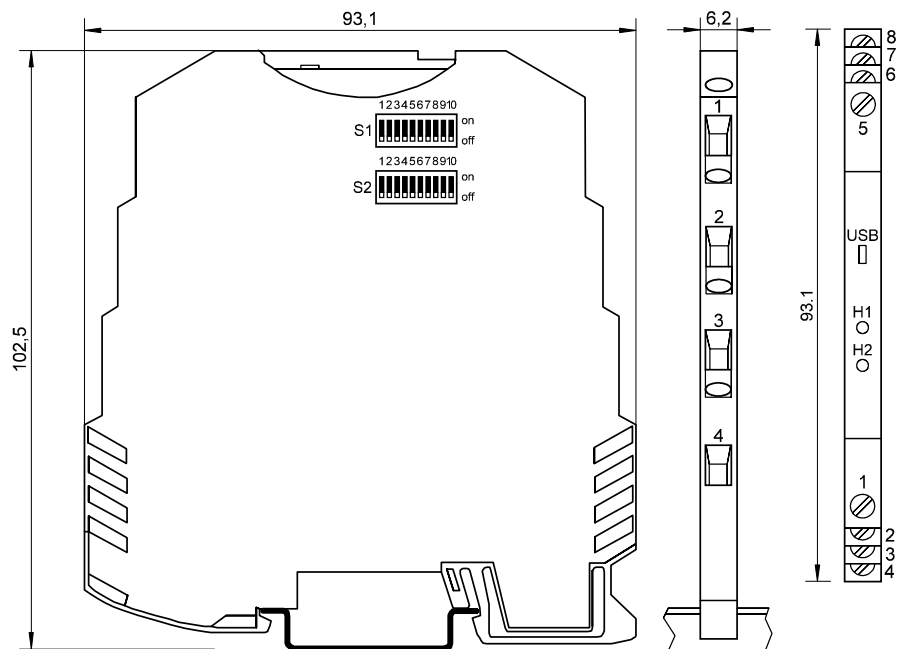


Table 1

DIP Switch S1 (● = On)								
Measuring range					Output signal			
1	2	3	4		5	6	7	8
●				0...60mV	●			0...10V
	●			0...100mV		●		2...10V
●	●			0...150mV	●	●		0...5V
		●		0...250mV			●	1...5V
●	●	●		0...300mV	●		●	0...20 mA
	●	●		0...500mV		●	●	4...20 mA
●	●	●		0...1000mV	●	●	●	0...10mA
			●	±60mV				● 2...10mA
●			●	±100mV	●			● ±10V
	●		●	±150mV		●		● ±5V
●	●		●	±250mV	●	●		● ±20mA
		●	●	±300mV			●	● ±10mA
●		●	●	±500mV	●		●	● n.c
	●	●	●	±1000mV		●	●	● n.c
●	●	●	●	n.c	●	●	●	● n.c

n.c without function / settings not permitted

Table 2

DIP Switch S2 (• = On)					
Measuring rate					
1	2	3	4	Measuring frequency	Measuring time
				2000 Hz	0,5 ms
•				1000 Hz	1 ms
	•			640 Hz	1,5 ms
•	•			320 Hz	3 ms
		•		160 Hz	6 ms
•		•		80 Hz	12,5 ms
	•	•		40 Hz	25 ms
•	•	•		20 Hz	50 ms
			•	10 Hz	100 ms
•			•	5 Hz	200 ms
	•		•	n.c	n.c
•	•		•	n.c	n.c
		•	•	n.c	n.c
•		•	•	n.c	n.c
	•	•	•	n.c	n.c
•	•	•	•	n.c	n.c

Default setting

On delivery, all DIP switches are set to the “off” position. The following setting is configured.	
Function	Setting
Measuring range	±60mV
Output	0...±10 V
Measuring cycle	100 ms

Technical data

Auxiliary power:

Power supply : 19,2...36V DC
 Current consumption : < 0,7VA

Input:

Measuring ranges :

unipolar	0...60mV	0...100mV	0...150mV	0...250mV	0...300mV	0...500mV	0...1V
bipolar	0...±60mV	0...±100mV	0...±150mV	0...±250mV	0...±300mV	0...±500mV	0...±1V

Overload : max. 50 % of the set measuring range
 Sampling time : 0,5ms; 1ms; 1,5ms; 3ms; 6ms; 12,5ms; 25ms; 50ms; 100ms; 200ms

Analog Output:

Voltage output : 0(2)...(±)10 V or 0(1)...(±)5V / Load > 10KΩ
 Max. Output voltage : ±10,4V
 Current output : 0(4)...(±)20 mA or 0(2)...(±)10 mA / Burden max. 500Ω
 Max. output current : ±20,8mA
 If measuring range is exceeded: Output voltage or output current not defined
 Burden error : < 0,01%

Accuracy:

Linearity error : < 0,05%
 Measuring accuracy : < 0,05%
 Resolution : 15 Bit plus sign
 Temperature coefficient: < 0,01% / K

General data:

Operating temperature : 0...50°C
 Storage temperature : -25...+85°C, condensation before putting into operation is not allowed
 Test voltage : 1,5kVAC / 50Hz / 60 seconds / between input / output / auxiliary power
 Rated insulation voltage: 150V AC/DC
 Basic insulation, Surge voltage category 2, pollution degree 2 according to DIN EN61010-1.
 MTBF : 168 years mean time between failures – according to EN 61709 (SN 29500).
 Requirements: Stationary operation in clean rooms, average ambient temperature 40 °C, no aeration, continuous operation
 CE conformity : EN 61326-1, EN 61000-4-2/3*/4/5/6*, EN 61000-6-4
 * during measurements are small deviations possible

Body:

Dimension : 6,2mm adjoin body, 6,2x93,1x102,5
 Material : PA / V0
 Protection category : IP20
 Connection : M3-screw-type terminal 0, 14 - 2,5mm², flexible or inflexible
 Fixing : Snap-on mounting for norm rail TS35
 Weight : 60g

Note on safety:



Disconnect the power supply before attempting to open the unit.

During the operation of this module it is possible that parts of the module, even there is extra-low voltage, (for example shunt measurement) are under dangerous voltage! Therefore a non-observance of this caution may cause damage of property or physical injury.

Only trained qualified personnel should install or operate the unit. Before installation the qualified personnel should read the documentation and should familiarize themselves with the unit.

If there is visible damage to the body of the unit it should be immediately replaced and not put into operation.



Please ensure that there is a sufficient prevention against electrostatic discharge during installation of the unit.

Installation Information:

Pay attention and make sure the unit is far away from mounted sources that may disturb the device such as magnetic coils, transformers, frequency converters etc.

Wiring advice:

Use only shielded cables. The shield is to be connected extensively to ground. Do not mix power- and signal-wires/cables in the same cable tray.

Limited warranty:

The LEG Industrie-Elektronik GmbH warranted that the product does not have any material or processing defects in a period of 5 years after date of delivery.

It is up to the choice of LEG to repair or to exchange an inoperative unit.

Subsequent damages or any claim for indemnification above the functionality of the unit are excluded.

This limited warranty is only valid if ...

1. the product was installed and put into operation according to the LEG operation documentation;
2. the technical configuration of the power supply was abided;
3. the product was not used for unintended purposes;
4. there were no unauthorized modifications or manipulations, misuse or repairs without previous agreement from LEG .

Our Terms of Trade are based on the "General Conditions for the supply of products and services of the Electrical and Electronics Industry" including the "Complementary Clause: Extended Reservation of Property" of the ZVEI e.V. (German Association of Electrical Manufacturers).

Miscellaneous:

We expressly reserve the right, without previous notice, to correct errors contained in any data of this information brochure, and to make alterations to the program and technical modifications.