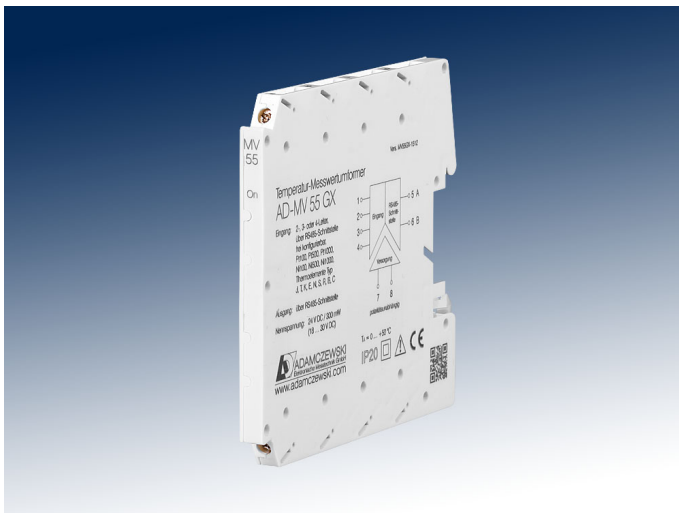


Description

The digital temperature measuring converter of series AD-MV55 GX are freely programmable digital measuring transducer with RS485 interface. Device addresses from 1 to 99 can be set via the laterally accessible address switches. The input of all characteristics directly on the device, or use the configuration software "AD-Studio". The device fulfils all tasks of a universal measuring value recording through integral function modules such as selectable relay functions, simulation modus, free linearizing curves and a wide range of supply voltage. The operating voltage is indicated by a green LED. The data communication is signaled by a yellow LED. Invalid measurement signals outside the defined measuring range are detected. In this case, the green LED flashes. The power supply as well as the RS485 bus interface is possible via the rear DIN rail connector.



Specific characteristics

- Resistance thermometer inputs, types Pt/Ni 100, Pt/Ni 500, Pt/Ni 1000
- Thermocouples inputs, types J, T, K, E, N, S, R, B, C or inputs a mV/T-characteristic curve. Selectable internal or external reference junction
- A bipolar mV-Voltage input. Free linearizing curves possible.
- Freely definable scaling of the quantity to be measured through stating range, decimal point position and unit from the list or defined unit.
- Zoom function, expanded scale, linearizing, inverse modus.
- Non-volatile saving of all set parameters.

Business data

Order number

AD-MV 55 GX

Technical specifications

Resistance thermometer inputs Pt100, Pt500, Pt1000 to DIN EN 60751

Measuring range	-200 ... +850 °C
Connection method	2-, 3- oder 4-wire system
Resolution	16 Bit
Accuracy	0,5 K
Smallest measuring spans	30 K
Max line resistance ¹⁾	10 Ohm/cable
Sensor supply	
Pt100	1 mA
Pt500, Pt1000	210 µA

¹⁾ With 2-conductor the line resistance comes as an offset into the measurement.

Resistance thermometer inputs Ni100, Ni500, Ni1000 to DIN EN 43760

Measuring range	-60 ... +230 °C
Connection method	2-, 3- oder 4-wire system
Resolution	16 Bit
Accuracy	0,5 K
Smallest measuring spans	30 K
Max line resistance ¹⁾	10 Ohm/cable
Sensor supply	
Ni100	1 mA
Ni500, Ni1000	210 µA

¹⁾ With 2-conductor the line resistance comes as an offset into the measurement.

Thermocouples

Comparative place:

Internal	measurement with LM35 in the device connecting terminals
External	Cold junction temperature selectable by parameters
Resolution	16 Bit
Accuracy	0,2 % of measuring range
Measuring range type J	-200 ... +1200 °C
To DIN EN 60584:	
Measuring range type T	-200 ... +400 °C
Measuring range type K	-200 ... +1360 °C
Measuring range type E	-200 ... +1000 °C
Measuring range type N	-200 ... +1300 °C
Measuring range type S	-40 ... +1760 °C
Measuring range type R	-40 ... +1760 °C
Measuring range type B	+400 ... +1800 °C
After standard ASTM E988:	
Measuring range type C	0 ... +2320 °C
Smallest measuring spans	100 K

Voltage inputs

Measuring range	-18 ... +18 mV
	-36 ... +36 mV
	-72 ... +72 mV
	-144 ... +144 mV
Resolution	16 Bit
Accuracy	0,2 % of measuring range

Technical specifications

Transmission behaviour

Sampling rate	1 measure/s
Temperature influence	+/-100 ppm/K of full scale

RS485-Bus

Software protocol	Modbus-RTU
Data format	19200, e, 8, 1
Max. bus users	99
Bus termination	120 ohms both sides at the end
Max. length of bus	500 m (no spur lines)
Cable	twisted and shielded

LEDs

Green [On]	Supply (blinking on error)
Yellow [D]	RS485 Communication

Controls

Address switch	10 + 1
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Supply

Supply voltage	18 ... 30 V DC
Max power consumption at 24V DC	300 mW

Housing

Dimensions (WxHxD)	6,2 x 92 x 101 mm ³
Manner of fastening	DIN rail mounting 35mm, EN 50022
Type of protection	IP 20
Connection method	screw clamp
Bolting torque terminals	0,5 Nm
Wire cross section	max. 2,5 mm ²
Weight	~ 70 g

Environmental conditions

Permissible ambient temperature	-10 ... +50 °C
Storage and transport	-10 ... +70 °C (no condensation)

EMC

Product family standard ²⁾	EN 61326-1
Emission ³⁾	EN 55011, CISPR11 Cl. A, Gr. 1

²⁾ During electromagnetic disturbance minor changes in output signal are possible.

³⁾ Warning:

This device is not intended to be used in residential areas and can not ensure adequate protection of radio reception in such environments.

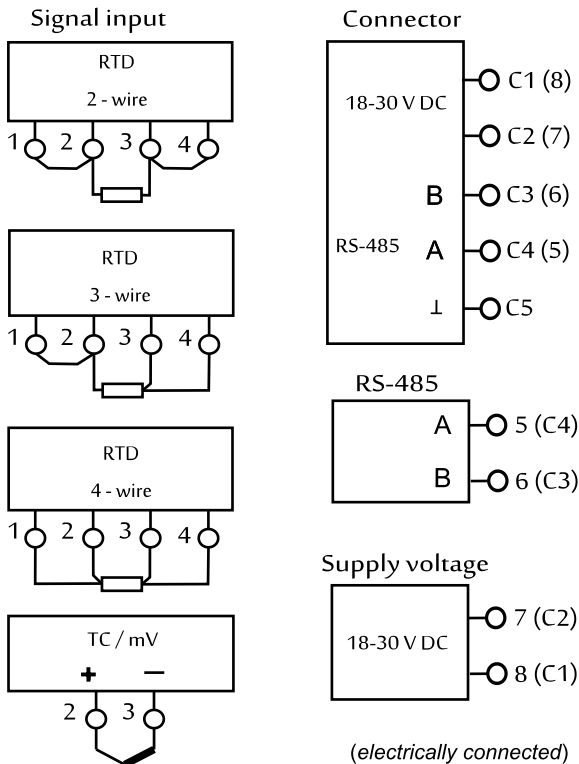
Electrical safety requirements

Product family standard	EN 61010-1
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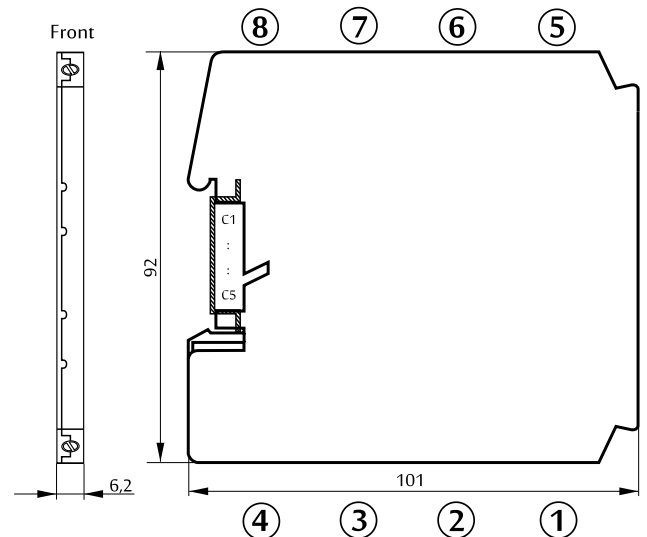
Galvanic isolation, test voltages

Signal / supply unit	1,5 kV, 50 Hz (1 min.)
Signal / RS485 bus	no galvanic isolation

Block and wiring diagram



Dimensions



Modbus Communication

The AD-MV 55 GX has an RS485 bus interface on which the Modbus RTU protocol is used. About this bus interface all measured data of the device can be read. The preset standard data format is 19200,e,8,1. Adaptation to a different data format is possible at any time. The bus address (1...99) is set to the side-mounted rotary switches. The address 0 is not permitted for the bus operation. However, on this zero position the device only via the standard data format (19200, e, 8.1) accessible. The position 0 thus represents a service position, the example can be used during parameterization error.

The AD-MV 55 GX supports two Modbus functions. These are the functions "Read Holding Registers" (0x03) and "Write Holding Registers" (0x10). With the "Read Holding Registers" function data can be read from the device and written with "Write Holding Registers" data. The individual register width is 16 bits. Please see the Modbus specification for detailed explanations of the Modbus communication. This is online available for free, but can also be purchased from the Adamczewski homepage.

The following Modbus data are accessible via the RS485 bus:

Observations

Start address	Reg. number	Name	Unit	Datatype	[Code] = Value	read	write
40113	1	signal status	keine	U16	0 / 1 / 2 / 4	yes	no
40851	2	signal value	°C / mV	float	####,#	yes	no
40852	6	scale unit	°C / mV	string	unit	yes	no
40811	2	terminal temperature	°C	float	##,####	yes	no

Parameters

Start address	Reg. number	Name	Unit	Datatype	[Code] = Value	read	write
43101	2	filter value	numeric	float	seconds	yes	yes
43001	1	signal type	list	U16	[0]=RTD; [1]= TC; [2]=mV	yes	yes
43002	1	RTD type	list	U16	RTD-Liste	yes	yes
43003	1	RTD connectivity	list	U16	2-3-4-Leiter	yes	yes
43201	2	range begin Pt100	°C	float	-200...+850	yes	yes
43301	2	range end Pt100	°C	float	-200...+850	yes	yes
43202	2	range begin Pt500	°C	float	-200...+850	yes	yes
43302	2	range end Pt500	°C	float	-200...+850	yes	yes
43203	2	range begin Pt1000	°C	float	-200...+850	yes	yes
43303	2	range end Pt1000	°C	float	-200...+850	yes	yes
43204	2	range begin Ni100	°C	float	-60...+230	yes	yes
43304	2	range end Ni100	°C	float	-60...+230	yes	yes
43205	2	range begin Ni500	°C	float	-60...+230	yes	yes
43305	2	range end Ni500	°C	float	-60...+230	yes	yes
43206	2	range begin Ni1000	°C	float	-60...+230	yes	yes
43306	2	range end Ni1000	°C	float	-60...+230	yes	yes
43207	2	range begin R/T	°C	float	-200...1500	yes	yes
43307	2	range end R/T	°C	float	-200...1500	yes	yes
43401	2	R/T characteristic X1	Ohm	float	0...4000	yes	yes
43425	2	R/T characteristic Y1	°C	float	-200...1500	yes	yes
43400 + n	2	R/T characteristic Xn	Ohm	float	0...4000	yes	yes
43424 + n	2	R/T characteristic Yn	°C	float	-200...1500	yes	yes
43424	2	R/T characteristic X24	Ohm	float	0...4000	yes	yes
43448	2	R/T characteristic Y24	°C	float	-200...1500	yes	yes
43004	1	TC type	list	U16	TC-Liste	yes	yes
43005	1	junction	list	U16	[0]=int.; [1]=ext.	yes	yes
43102	2	junction temperature	°C	float	0...100	yes	yes
43208	2	range begin Typ J	°C	float	-200...+1200	yes	yes
43308	2	range end Typ J	°C	float	-200...+1200	yes	yes
43209	2	range begin Typ T	°C	float	-200...+400	yes	yes
43309	2	range end Typ T	°C	float	-200...+400	yes	yes
43210	2	range begin Typ K	°C	float	-200...+1360	yes	yes
43310	2	range end Typ K	°C	float	-200...+1360	yes	yes
43211	2	range begin Typ E	°C	float	-200...+1000	yes	yes
43311	2	range end Typ E	°C	float	-200...+1000	yes	yes
43212	2	range begin Typ N	°C	float	-200...+1300	yes	yes
43312	2	range end Typ N	°C	float	-200...+1300	yes	yes
43213	2	range begin Typ S	°C	float	-40...+1760	yes	yes
43313	2	range end Typ S	°C	float	-40...+1760	yes	yes
43214	2	range begin Typ R	°C	float	-40...+1760	yes	yes
43314	2	range end Typ R	°C	float	-40...+1760	yes	yes
43215	2	range begin Typ B	°C	float	+400...+1800	yes	yes
43315	2	range end Typ B	°C	float	+400...+1800	yes	yes
43216	2	range begin Typ C	°C	float	0...+2320	yes	yes
43316	2	range end Typ C	°C	float	0...+2320	yes	yes
43217	2	range begin U/T	°C	float	-200...+2500	yes	yes
43317	2	range end U/T	°C	float	-200...+2500	yes	yes

43449	2	U/T characteristic X1	mV	float	-144...144	yes	yes
43473	2	U/T characteristic Y1	°C	float	-200...1500	yes	yes
43448 + n	2	U/T characteristic Xn	mV	float	-144...144	yes	yes
43472 + n	2	U/T characteristic Yn	°C	float	-200...1500	yes	yes
43472	2	U/T characteristic X24	mV	float	-144...144	yes	yes
43496	2	U/T characteristic Y24	°C	float	-200...1500	yes	yes
42997	1	baud rate	index	U16	see list below	yes	yes
42998	1	parity		U16	[0]=even; [1]=odd; [2]=no	yes	yes

Coding baudrate list

Index	0	1	2	3	4	5	6	7	8	9
baud	2400	4800	9600	14400	19200	28800	38400	57600	76800	115200