

ACT20M ACT20M-RTCI-CO-OLP-S

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ACT20M: The slim solution

- Safe and space-saving (6 mm) isolation and conversion
- Quick installation of the power supply unit using the CH20M mounting rail bus
- Easy configuration via DIP switch or FDT/DTM software
- Extensive approvals such as ATEX, IECEX, GL, DNV
- High interference resistance

General ordering data

Type	ACT20M-RTCI-CO-OLP-S
Order No.	1435590000
Version	Temperature converter, 2-/3-/4- wire RTD, Thermocouple, Input : Temperature, Output : 4-20 mA, (loop powered)
GTIN (EAN)	4050118240641
Qty.	1 pc(s).

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Technical data
Dimensions and weights

Width	6.1 mm	Width (inches)	0.24 inch
Height	112.5 mm	Height (inches)	4.429 inch
Depth	114.3 mm	Depth (inches)	4.5 inch
Net weight	80 g		

Temperatures

Humidity	40 °C / 93 % rel. humidity, no condensation	Storage temperature, max.	85 °C
Storage temperature, min.	-40 °C	Operating temperature	
Ambient temperature	-25 °C...+70 °C	Storage temperature	-40 °C...85 °C

Probability of failure

MTBF	207 Years
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Input

Number of inputs	1	Sensor	PT100 / 2-/3-/4-wire, Thermocouple acc. to IEC 584, type: J, Thermocouple acc. to IEC 584, type: K
Influence of the sensor cable resistance	< 0.002 Ω/Ω	Input measurement range	PT100 -200...+850 °C, Thermocouple type J -100...+1200°C, Thermocouple type K -200...+1370°C
Line resistance in measuring circuit	50 Ω @ RTD (Pt100), 10 kΩ @ TC (J, K)	Temperature input range	Configurable, min. measurement range 10°C (RTD), min. measurement range 50°C (TC)

Output

Number of outputs	1	Output current	configurable, 4...20 mA, 20...4 mA
Wire break detection		cold junction compensation	configurable internal or external cold- junction compensation (thermocouple)
Supply voltage	3.5 mA / 23 mA / none 16,8 V...31,2 V		

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Technical data**General data**

Accuracy	absolute accuracy: $< \pm 0.05$ % of the measurement range, RTD (PT100) Basic accuracy: $< \pm 0.1$ °C of the measurement range, TC (J,K) Basic accuracy: $< \pm 0.5$ °C of the measurement range	Cold-junction compensation error	$\pm(2.0 \text{ °C} + 0.4 \text{ °C} \times \Delta t)$ Δt = inside temperature – ambient temperature
Configuration	DIP switch	Galvanic isolation	2-way isolator
Mounting rail	TS 35	Power consumption, max.	0.8 W
Power consumption, typ.	0.48 W	Step response time	≤ 30 ms, < 300 ms
Supply voltage	Output loop powered, 6... 35 V	Temperature coefficient	RTD (PT100) ≤ 0.01 % of the measurement range/°C or 0.02 °C/°C, TC (J,K) 0.1 °C/°C

Insulation coordination

EMC standards	IEC 61326-1, NE 21	Galvanic isolation	2-way isolator
Insulation voltage	2.5 kV _{eff} / 1 min.	Pollution severity	2
Rated voltage	300 V _{eff}	Surge voltage category	II

Data for Ex applications (ATEX)

Marking	II 3 G Ex nA IIC T4 Gc
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Connection data

Type of connection	Screw connection	Tightening torque, min.	0.4 Nm
Tightening torque, max.	0.6 Nm	Clamping range, rated connection	2.5 mm ²
Clamping range, min.	0.5 mm ²	Clamping range, max.	2.5 mm ²
Wire connection cross section AWG, min.	AWG 30	Wire connection cross section AWG, max.	AWG 14

Rated data UL

UL certificate	E337701.pdf
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Ratings IECEx/ATEX/cUL

Certificate No. (ATEX)	KEMA10ATEX0183X	Certificate No. (IECEX)	IECEXKEM10.0090X
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Classifications

ETIM 5.0	EC002653	ETIM 6.0	EC002919
eClass 6.2	27-21-01-20	eClass 7.1	27-21-01-20
eClass 8.1	27-21-01-20	eClass 9.0	27-21-01-20
eClass 9.1	27-21-01-29		

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Product information

Product information	<p>ACT20M-RTCI-CO-(E)OLP-S Configurable passive signal converter for temperature measurement of PT100, 2-, 3-, 4-wires and thermocouples type J and K. The 6.1 mm wide ACT20M-RTCI-CO-(E)OLP-S signal converter is output-current loop-powered and suitable for converting and isolating RTD and TC signals. Input and output parameters as well as a fast conversion time of 30 ms or 300 ms can be configured via DIP switch. The ACT20M temperature converter detects sensor errors (short-circuit, cable break) and issues corresponding NAMUR signal limits at the output (configurable upscale/downscale). On the ACT20M-RTCI-CO-OLP-S the input/output channel is completely galvanically isolated with 2.5 kV. The ACT20M-RTCI-CO-EOLP-S does not have any galvanic isolation. The ACT20M product family features high accuracy of < 0.05% of the measurement range, a large temperature range of -25°C (0°C)...+70°C, outstanding EMC characteristics and international approvals (cULus, ATEX Zone2, FM Div2, GL, DNV). This permits use around the globe in a wide range of applications. Power is supplied directly on the module via the output-current loop.</p>
Instructions for accessories	DIN mounting rail, see accessories

Approvals

Approvals



ROHS	Conform
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Downloads

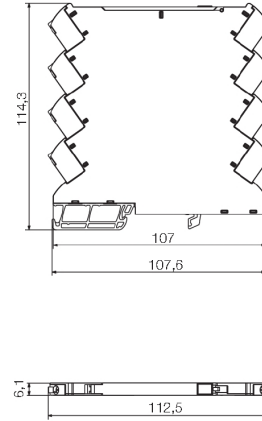
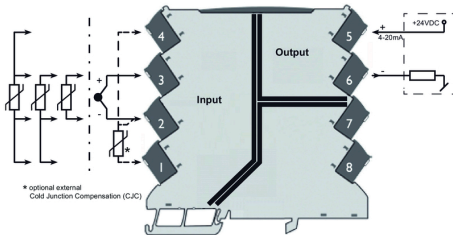
Approval/Certificate/Document of Conformity	Declaration of Conformity
Brochure/Catalogue	CAT 4.1 ELECTR 16/17 EN
Engineering Data	EPLAN, WSCAD, Zuken E3.S
Engineering Data	STEP
Software	DIP switch configuration tool
User Documentation	instruction sheet

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Drawings

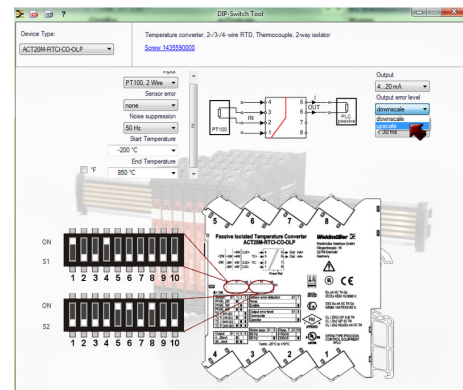
Connection diagram



DIP switch setting

	Temperature range [°C]											
	Pt100, -200...+850 °C				TC, J, -100...+200 °C				TC, K, -800...+1372 °C			
	Min.	S2	Max.	S2	Min.	S2	Max.	S2	Min.	S2	Max.	S2
RTD & TC sensor type	PT100	PT100	TC	TC	PT100	PT100	TC	TC	PT100	PT100	TC	TC
Pt100, 2 wire	1	1	1	1	1	1	1	1	1	1	1	1
Pt100, 3 wire	2	2	2	2	2	2	2	2	2	2	2	2
Pt100, 4 wire	3	3	3	3	3	3	3	3	3	3	3	3
External CJC	4	4	4	4	4	4	4	4	4	4	4	4
External CJC II	5	5	5	5	5	5	5	5	5	5	5	5
External CJC III	6	6	6	6	6	6	6	6	6	6	6	6
External CJC IV	7	7	7	7	7	7	7	7	7	7	7	7
External CJC V	8	8	8	8	8	8	8	8	8	8	8	8
Output	9	9	9	9	9	9	9	9	9	9	9	9
4...20 mA	10	10	10	10	10	10	10	10	10	10	10	10
20...4 mA	11	11	11	11	11	11	11	11	11	11	11	11
Sensor error detection	12	12	12	12	12	12	12	12	12	12	12	12
none	13	13	13	13	13	13	13	13	13	13	13	13
enabled	14	14	14	14	14	14	14	14	14	14	14	14
Output error level	15	15	15	15	15	15	15	15	15	15	15	15
open	16	16	16	16	16	16	16	16	16	16	16	16
warning	17	17	17	17	17	17	17	17	17	17	17	17
Noise suppression	18	18	18	18	18	18	18	18	18	18	18	18
50 Hz	19	19	19	19	19	19	19	19	19	19	19	19
Response time	20	20	20	20	20	20	20	20	20	20	20	20
60 ms	21	21	21	21	21	21	21	21	21	21	21	21
300 ms	22	22	22	22	22	22	22	22	22	22	22	22

example for DIP switch setting
(with ACT20M tool software)



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(with ACT20M tool software)