Data sheet

ACT20X-HUI-SAO-S

Weidmüller Interface GmbH & Co. KG
Klingenbergstraße 26
D-32758 Detmold
Germany

www.weidmueller.com

Product image, Similar to illustration

The ACT 20X HUI-SAO-S/ SAO-LP universal measurement and signal isolating converters can be configured individually.
Temperature signals from PT100 sensors and thermocouples as well as analogue DC current and voltage signals can be recorded from Ex zone 0.
On the output side, optional current/voltage (SAO-S) or 4...20 mA current loop signals (SAO-LP / SAO-S) are provided for the safe zone.
The ACT20X-HUI-SAO-S also has a relay output for configuring its switching threshold.
An integrated alarm contact is available on this device for issuing an alert in the event of a malfunction. This makes troubleshooting easier and also increases system availability.
The power supply of the signal isolating converter is either done using the integrated power supply (SAO-S) or alternatively over the output-side current loop (SAO-LP).
The rail mountable devices are designed with one channel, and are optionally available in widths of 12.5 mm (SAO-LP) or 22.5 mm (SAO-S).

General ordering data

Version	EX signal isolating converter, Ex-output: U, I, R,ϑ, Safe-output: 4-20mA/ relay, 1-channel
Order No.	8965490000
Type	ACT20X-HUI-SAO-S
GTIN (EAN)	4032248785100
Qty.	1 items

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Technical data

Approvals

Approvals	CE; CULUS; DETNORVER; FMEX; FUSAFETY; IECEXKEM; KEMAATEX
Approvals	DNVGL;
Approvals	
ROHS	Conform
UL File Number Search	UL Website
Certificate no. (cULus)	E337701

Dimensions and weights

Depth	113.6 mm	Depth (inches)	4.4724 inch
Height	119.2 mm	Height (inches)	4.6929 inch
Width	22.5 mm	Width (inches)	0.8858 inch
Net weight	202 g		

Temperatures

Storage temperature	-20 °C...85 °C	Operating temperature	-20 °C...60 °C
Humidity	0...95 % (no condensation)		

Probability of failure

SIL PAPER	SIL certificate - PDF/ Cert_Weidmueller_070902_P0002_C005_V2R1.pdf (application/pdf)	SIL in compliance with IEC 61508	2
MTBF	74 a		

Environmental Product Compliance

RoHS Compliance Status	Compliant with exemption
RoHS Exemption (if applicable/known)	7a, 7cI
REACH SVHC	Lead 7439-92-1
SCIP	2f6dd957-421a-46db-a0c2-cf1609156924

Assembling

Type of mounting	Snap mounting support rail	Mounting rail	TS 35
Mounting position	horizontal or vertical		

Input EX

Sensor	2-/3-/4-wire, RTD: PT10, PT20, PT50, PT100, PT250, PT300, PT400, PT500, PT1000, Ni50, Ni100, Ni120, Ni1000, Thermocouples: B, E, J, K, N, R, S, T ; in compliance with IEC 60584-1 and	Input resistance	configurable, 0...10 kΩ

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	L, U in compliance with DIN43710, Potentiometer, Resistance: 0 - 12 kΩ
Type	intrinsically safe circuit, active (as current source) or passive (as current sink)
Potentiometer	10 Ω...10 kΩ
Input voltage	configurable, 0...1 V DC, 0,2...1 V DC, 1...5 V DC, 0...(5)10 V, 2...10 V DC
Input current	0...20 mA, 4...20 mA
Input resistance, current	20 Ω + PTC 50 Ω

Line resistance in measuring circuit	≤ 50 Ω
Sensor supply	21.4...16.5 V DC / 0...20 mA
Temperature input range	Configurable, PT100: -200...+850 °C, PT200: -200...+850 °C, PT1000: -200...+850 °C, NI100: -60°C...+250 °C, Ni120: -80 °C...+320 °C, NI1000: -60°C...+250 °C, B: +100...+1820 °C, E: (-100...+1000 °C), J: (-100...+1200 °C), K: (-180...+1372 °C), L: (-200...+900 °C), N: (-180...+1300 °C), R: (-50...+1760 °C), S: (-50...+1760 °C), T: (-200...+400 °C), U: (-200...+600 °C), W3: (0...+2300 °C), W5: (0...+2300 °C), LR: (-200...+800 °C)
Input resistance, voltage	> 10 MΩ @ 600 mV, 2 MΩ @ 28 V

Output (analogue)

Signal output	direct or inverted
Output behaviour on failure downscale	23 mA
Number analogue outputs	1
Output current	4...20 mA, loop-powered, 0/4...20 mA, 0(4)...20 mA

Type (analogue output)	'active','connected control must be passive'
Output behaviour on failure upscale	3.5 mA
Load resistance current	<600 Ω

Output (Status)

Hysteresis	0.1 mA (switching threshold)
Alarm function	Device error, No supply voltage
Nominal switching voltage	≤ 125 V AC / 110 V DC (safe area) ≤ 32 V AC / 32 V DC (zone 2)
Power rating	≤ 62.5 VA / 32 W (safe area) ≤ 16 VA / 32 W (Zone 2)

Type	Status relay, 1 NC (voltage-free)
Number of alarm outputs	1
Continuous current	≤ 0.5 A AC / 0.3 A DC (safe zone), ≤ 0,5 A AC / 1 A DC (zone 2)

Alarm output

Hysteresis	0.1 mA (switching threshold)
Number of alarm outputs	1
Continuous current	≤ 0.5 A AC / 0.3 A DC (safe zone), ≤ 0,5 A AC / 1 A DC (zone 2)

Type	Status relay, 1 NC (voltage-free)
Nominal switching voltage	≤ 125 V AC / 110 V DC (safe area) ≤ 32 V AC / 32 V DC (zone 2)
Power rating	≤ 62.5 VA / 32 W (safe area) ≤ 16 VA / 32 W (Zone 2)

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Technical data

General specifications

Type of connection	Screw connection	Humidity	0...95 % (no condensation)
Protection degree	IP20	Supply voltage	19.2...31.2 V DC
Configuration	With FDT/DTM software, Requires configuration adapter 8978580000 CBX200 USB	Operating altitude	≤ 2000 m

Insulation coordination

EMC standards	EN 61326-1	Standards	EN 61010-1
Pollution severity	2	Insulation voltage	2.6 kV (input / output)
Rated voltage	300 V		

Data for Ex applications (ATEX)

ATEX - gas labelling	II (1) G [Ex ia Ga] IIC/IIB/IIA	ATEX - dust labelling	II (1) D [Ex ia Da] IIIC, I (M1) [Ex ia Ma] I
IECEx - gas labelling	Ex ec nC IIC T4 Gc, [Ex ia Ga] IIC/IIB/IIA	Installation location	Device installed in safe area, zone 2

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 mm²
Clamping range, min.	0.25 mm²	Clamping range, max.	2.5 mm²
Wire connection cross section AWG, min.	AWG 26	Wire connection cross section AWG, max.	AWG 12

Guarantee

Time interval	3 years

Part description

Product description	The device ACT20X-HUI-SAO-S transmits analog signals from hazardous areas safely galvanically separated into non or less hazardous areas. For this purpose the input circuits are designed intrinsically safe. Features • Configuration and diagnosis via FDT/DTM Software “WI-Manager”. • The device can be mounted in the safe area and in zone 2 / division 2 and receive signals from zone 0, 1, 2, 20, 21 and 22, as well as Class I/II/III, division 1, group A-G. • The active or passive signal inputs for RTD, TC, potentiometer, V and mA are completely electrically isolated. • The device detects automatically whether an active or passive current signal is connected. • As cold junction compensation for the TC signal input, either the internal cold junction compensation or for even higher accuracy an external cold junction compensation terminal is used. • Extended self diagnostic: Monitoring of error events (e.g. cable breakage) via status relay. • Front LEDs indicates operation status and malfunction. • 3-way galvanic isolation between input, output and power supply.

Classifications

ETIM 8.0	EC002653	ETIM 9.0	EC002653
ETIM 10.0	EC002653	ECLASS 14.0	27-21-01-20
ECLASS 15.0	27-21-01-20		

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Technical data

Tender specification sheets

Long specification	Ex universal measurement isolating transformer and trip amplifier for RTD-/ TC temperature and DC-current-/ voltage signals 1-channel measurement isolating transformer and trip amplifier in 22.5 mm width with external power supply, for capturing and isolating RTD- / TC sensors, resistors , potentiometers and DC current signals 0(4)...20 mA and voltages 0...12 V from Ex zones 0,1,2. Sensors can be supplied via the 0...20 mA current loop. The output can be operated as either an active 0(4)...20 mA signal or as a passive 4...20 mA current loop. A relay contact (NO) is available on the output side for limit value monitoring. Status/error messages are issued via a relay contact (NO). The component can be configured using standard FDT/DTM software. Add-on housing for TS35 rail mounting Dimensions: L/W/H 119.2/ 22.5/ 113.6 Screw connection/ Nominal cross-section 2.5 mm2 Protection degree: IP 20 Input RTD: PT100, PT500, PT1000, Ni50, Ni100, Ni120, Ni1000 Resistance 0...10 kOHm / Potentiometer 10 Ohm... 10 kOhm TC-Type: B, E, J, K, N, R, S, T, U, L 0(4)...20 mA 0...12 V/ 2...10 V Sensor supply 28...16.5 VDC / 0...20 mA Output active 0(4)...20 mA / 20..0 mA configurable	Short specification	Ex universal measurement isolating transformer and trip amplifier for RTD-/ TC temperature and DC-current-/ voltage signals 1-channel measurement isolating transformer and trip amplifier in 22.5 mm width with external power supply, for capturing and isolating RTD- / TC sensors, resistors , potentiometers and DC current signals 0(4)...20 mA and voltages 0...12 V from Ex zones 0,1,2. Sensors can be supplied via the 0...20 mA current loop. The output can be operated in the safe zone as either an active 0(4)...20 mA signal or a passive 4...20 mA current loop. A relay contact (NO) is available for limit-value monitoring on the output side. Status and error messages are issued via a relay contact (NO). The component can be configured using standard FDT/DTM software.

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Technical data

	passive 4...20 mA current loop 3.5...26 V DC
Load	< 600 Ohm
Alarm output relay	1 NO contact 250 V AC / 30 V DC @ 2A safe zone 32 V AC @ 0.5 A/ 32 VDC @ 1 A Zone 2
Accuracy	< 0,1 % v.E
Temperature coefficient	< 0,01% v.E./°C (Tu)
Alarm output relay	1 NO contact 250 V AC / 30 V DC @ 2A safe zone 32 V AC @ 0.5 A/ 32 VDC @ 1 A Zone 2
Auxiliary power	19...31.2 V DC
Power loss	approx. 3.5 W
Ambient temperature range	-20 °C...+60 °C
Secure isolation	EN 61010, 3-way isolation up to 2.6 kV AC/DC of all circuits against each other
Working voltage	300 V AC/DC at overvoltage category II and pollution degree 2
Approvals	cULus, ATEX IECEX, FM
ATEX marking	II 3 G ExnA nC IIC T4
ATEX characteristic data	U0 = 8.7 V DC I0 = 18.4 mA DC P0 = 40 mW
Type	ACT20X-HUI-SAO-S

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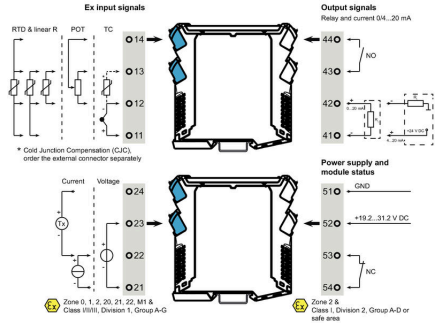
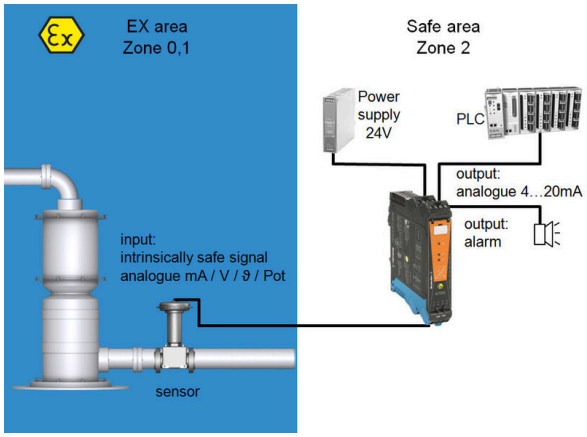
Drawings

Connection diagram

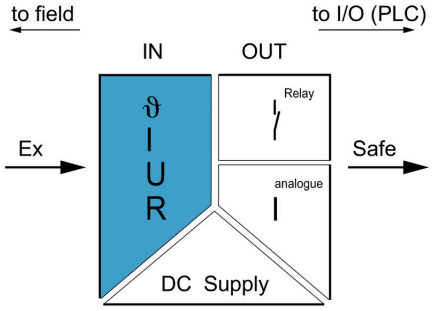


Limit value setting options

Application



Block diagram



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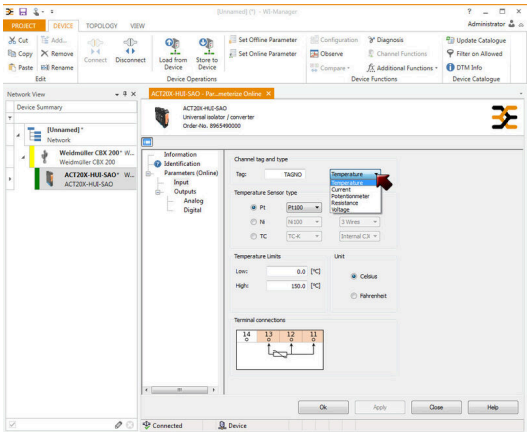
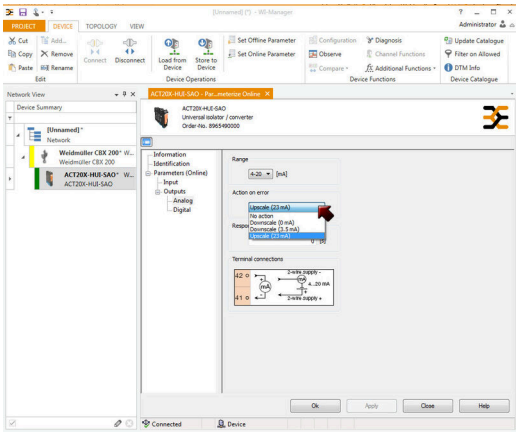
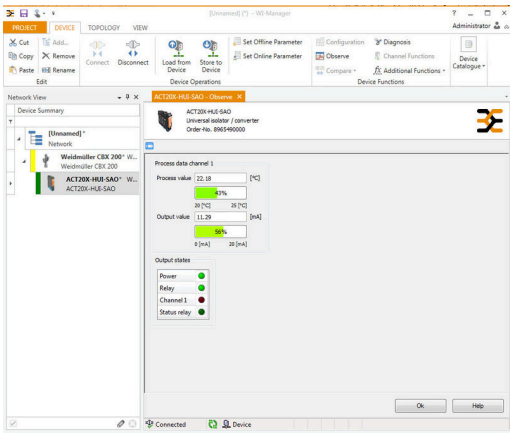
Drawings



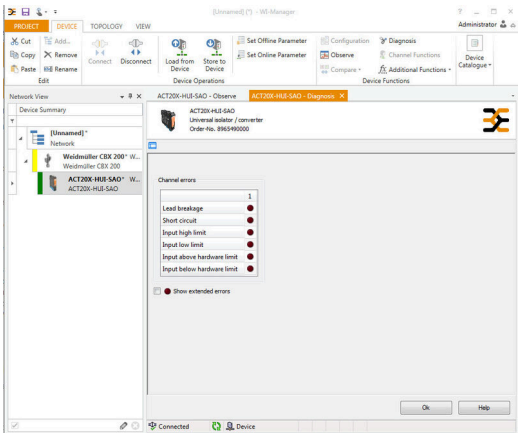
screenshot of input configuration
with FDT2 / DTM software



screenshot of output configuration
with FDT2 / DTM software



screenshot of "observe" with FDT2 / DTM software



screenshot of "observe" with FDT2 / DTM software

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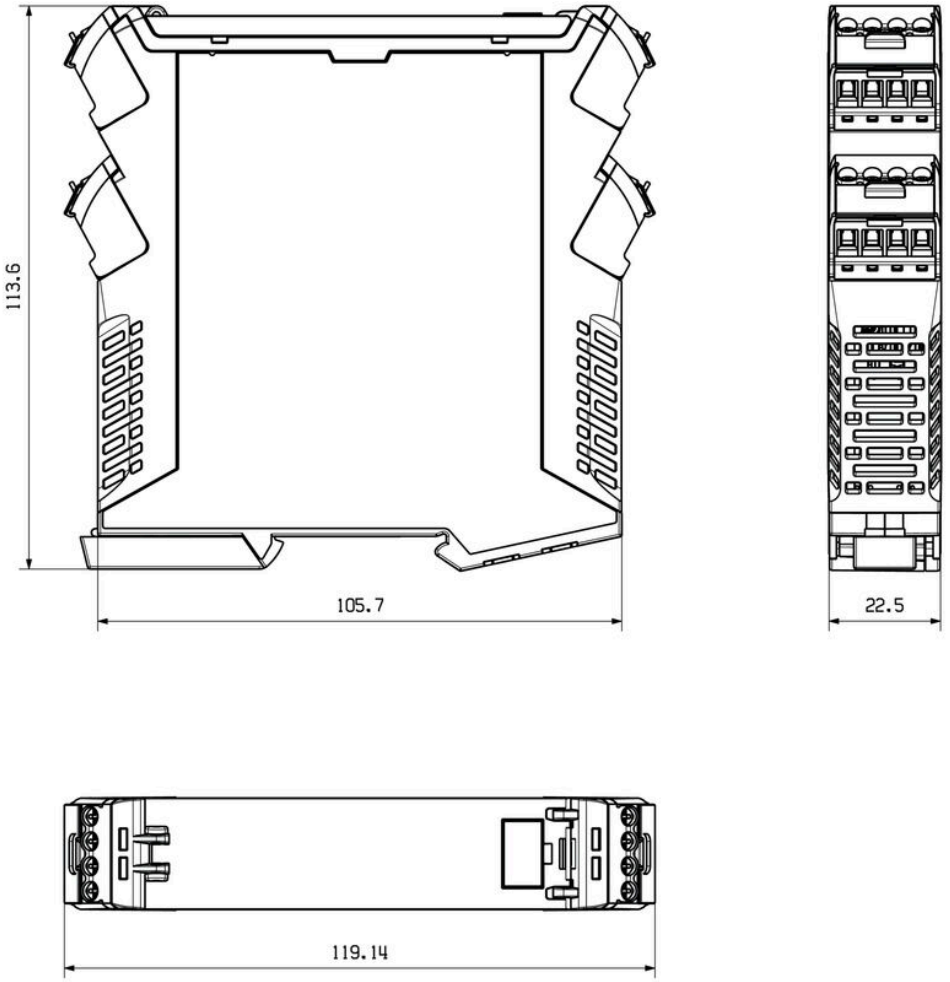

Dimensioned drawing

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Drawings

Removable terminals with coding