

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, 9, Safe-output: 4-20mA/ relay, 1-channel
Order No.	8965490000
Type	ACT20X-HUI-SAO-S
GTIN (EAN)	4032248785100
Qty.	1 pc(s).

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Technical data

Dimensions and weights

Depth	113.6 mm	Depth (inches)	4.472 inch
Height	119.2 mm	Height (inches)	4.693 inch
Net weight	202 g	Width	22.5 mm
Width (inches)	0.886 inch		

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	MTBF	74 Years
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Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
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Input EX

Input current	0...20 mA, 4...20 mA	Input resistance	configurable, 0...10 kΩ
Input resistance, current	20 Ω + PTC 50 Ω	Input resistance, voltage	> 10 MΩ @ 600 mV, 2 MΩ @ 28 V
Input voltage	configurable, 0...1 V DC, 0,2...1 V DC, 1...5 V DC, 0...(5)10 V, 2...10 V DC	Line resistance in measuring circuit	≤ 50 Ω
Potentiometer		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 L, U in compliance with DIN43710, Potentiometer, Resistance: 0 - 12 kΩ
Sensor supply	10 Ω...10 kΩ 21.4...16.5 V DC / 0...20 mA	Temperature input range	Adjustable from -200...+800°C
Type	intrinsically safe circuit, active (as current source) or passive (as current sink)		

Output

Influence of load resistance	≤ 0.01% of span / 100 Ω	Load impedance current	≤ 600 Ω
Output current	0...23 mA, configurable: 0...20 / 4...20 / 20...4 mA, configurable downscale (3.5 mA) / upscale (23 mA) @ error	Output signal limit	3.8...20.5 mA / 0...20.5 mA (dependent on range)
Type	active (as current source) or passive (as current sink)		

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Digital output

Continuous current	$\leq 2 \text{ A AC/DC}$ (safe area, Zone 2 area)	Function	Configurable switching thresholds, Window function, Sensor error
Nominal switching voltage	$\leq 250 \text{ V AC} / 30 \text{ V DC}$ (safe area) $\leq 32 \text{ V AC} / 32 \text{ V DC}$ (zone 2)	Power rating	$\leq 500 \text{ VA} / 60 \text{ W}$ (safe area) $\leq 16 \text{ VA} / 32 \text{ W}$ (Zone 2)
Type	Relay, 1 NO		

Alarm output

Alarm function	Short circuit at input, Open circuit at input, No supply voltage, Device error	Continuous current	$\leq 0.5 \text{ A AC} / 0.3 \text{ A DC}$ (safe zone), $\leq 0.5 \text{ A AC} / 1 \text{ A DC}$ (zone 2)
Nominal switching voltage	$\leq 125 \text{ V AC} / 110 \text{ V DC}$ (safe area) $\leq 32 \text{ V AC} / 32 \text{ V DC}$ (zone 2)	Power rating	$\leq 62.5 \text{ VA} / 32 \text{ W}$ (safe area) $\leq 16 \text{ VA} / 32 \text{ W}$ (Zone 2)
Type	Status relay, 1 NC (voltage-free)		

General specifications

Configuration	With FDT/DTM software	Humidity	0...95 % (no condensation)
Power consumption	$\leq 2.1 \text{ W}$	Protection degree	IP20
Type of connection	Screw connection	Voltage supply	19.2...31.2 V DC

Insulation coordination

EMC standards	DIN EN 61326, NE 21	Insulation voltage	2.6 kV (input / output)
Pollution severity	2	Rated voltage	300 V

Data for Ex applications (ATEX)

Current I_0	18.4 mA	Installation location	Device installed in safe area, zone 2
Marking	II (1) G [Ex ia Ga] IIC/IIB/ IIA, I (M1) [Ex ia Ma] I, II (1) G [Ex ia Ga] IIC, II (1) D [Ex ia Da] IIIC	Power P_0	40 mW
Voltage U_0	8.7 V DC		

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Safety-related basic specifications

Demand mode	High	Demand rate	3,000 s
Demand response time	Signal input: < 0.5 s (opto output), Temperature input: < 1.1 s (opto output)	Description of the "safe state"	analogue Output ≤ 3.6 mA or output ≥ 21 mA, de-energized (relay output)
Device type	B	Diagnostic test interval	30 s
Hardware fault tolerance (HFT)	0	Mean Time To Repair (MTTR)	24 h
Probability of outage PFH	$4.33 \times 10^{-8} \text{ h}^{-1}$	Relay lifetime	100000 times
Safe Failure Fraction (SFF)	93 %	Safety category	SIL 2
T_{proof}	4 Years	Total failure rate for dangerous detected failures (λ_{DD})	352 FIT
Total failure rate for dangerous undetected failures (λ_{DU})	43 FIT	Total failure rate for safe detected failures (λ_{SD})	0 FIT
Total failure rate for safe undetected failures (λ_{SU})	278 FIT		

Safety-related specifications Low demand mode

Average Probability of Failure on Demand (PFD _{avg})	2.82×10^{-4} ($T_{\text{proof}} = 1 \text{ year}$), 4.63 $\times 10^{-4}$ ($T_{\text{proof}} = 2 \text{ years}$), 1.00×10^{-3} ($T_{\text{proof}} = 5 \text{ years}$), additional data in the safety manual
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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.	0.25 mm ²	Clamping range, max.	2.5 mm ²
Wire connection cross section AWG, min.	AWG 26	Wire connection cross section AWG, max.	AWG 12

Classifications

ETIM 6.0	EC002653	ETIM 7.0	EC002653
ECLASS 9.0	27-21-01-20	ECLASS 9.1	27-21-01-20
ECLASS 10.0	27-21-01-20	ECLASS 11.0	27-21-01-20

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Tender specification sheets

Long specification

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 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

Creation date March 30, 2021 12:04:31 AM CEST

Output

Catalogue status 12.03.2021 / We reserve the right to make technical changes.

active
0(4)...20 mA / 20..0 mA
configurable

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Technical data**Important note**

Product information

Weidmüller provides an extended guarantee period of 36 months for this device.

Approvals

Approvals



Approvals	DNVGL;
ROHS	Conform
UL File Number Search	E337701

Downloads

Approval/Certificate/Document of Conformity	Certification SIL Certification DNV GL Certification ATEX Certification IECEx Certification UL Declaration of Conformity
Engineering Data	STEP
Engineering Data	EPLAN, WSCAD
Software	WI-Manager, DTM-Library for online installation V.1.2.2
User Documentation	Instruction sheet Safety Manual for SIL application Handbuch ACT20X- Serie, deutsch Manual ACT20X- series, english

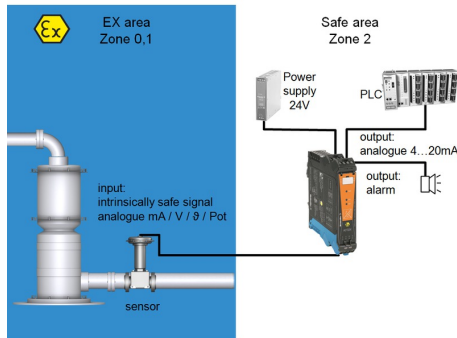
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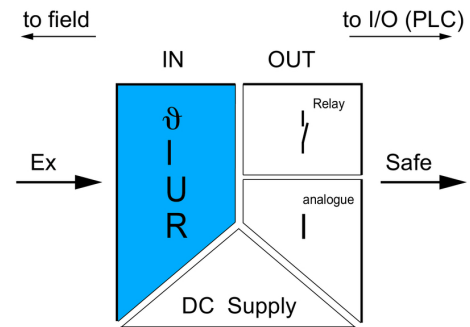
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Drawings

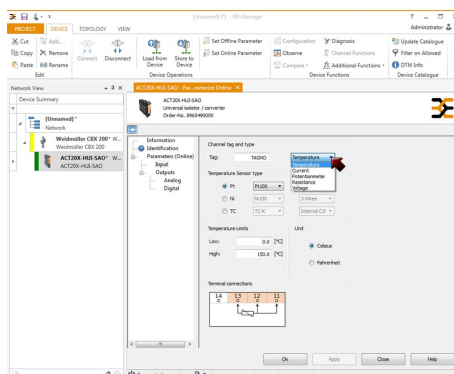
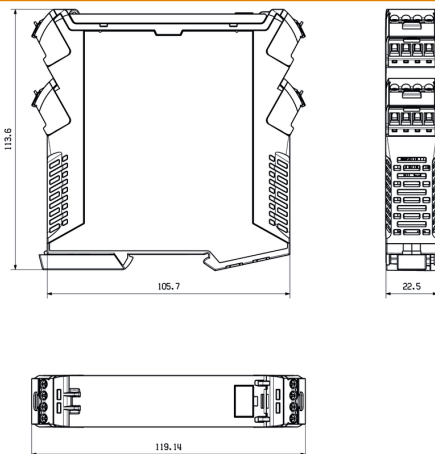
Application



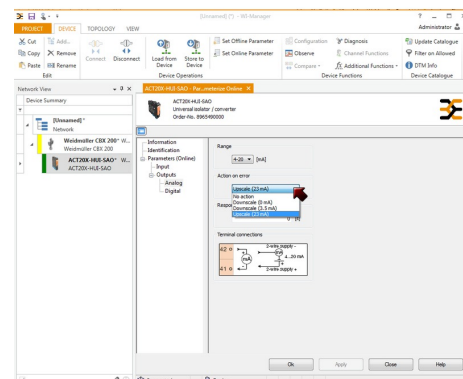
Block diagram



Dimensioned drawing



screenshot of temperature input configuration with FDT2 / DTM software



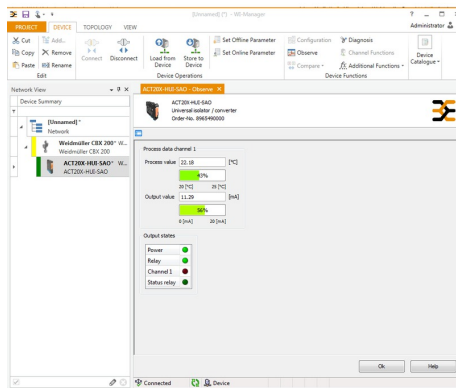
screenshot of output configuration with FDT2 / DTM software

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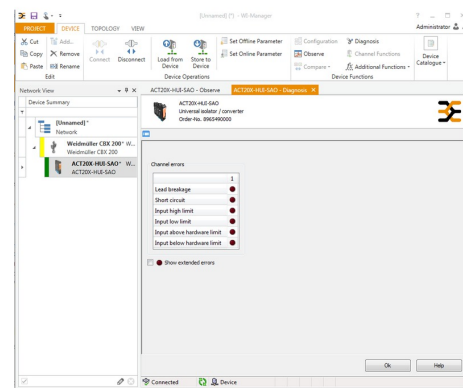
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Drawings



screenshot of "observe" with FDT2 / DTM software



screenshot of "diagnosis" with FDT2 / DTM software

Connection diagram

