

ACT20X-HUI-SAO-P**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.	2456200000
Type	ACT20X-HUI-SAO-P
GTIN (EAN)	4050118471601
Qty.	1 pc(s).

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Technical data

Dimensions and weights

Depth	114.6 mm	Depth (inches)	4.512 inch
Height	127.3 mm	Height (inches)	5.012 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
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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
Temperature input range	10 Ω...10 kΩ 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 / NC contact		

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

Humidity	0...95 % (no condensation)	Power consumption	$\leq 2.1 \text{ W}$
Protection degree	IP20	Type of connection	PUSH IN
Voltage supply	19.2...31.2 V DC		

Insulation coordination

EMC standards	DIN EN 61326, NE 21	Insulation voltage	2.6 kV (input / output)
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 x 10^{-4} ($T_{\text{proof}} = 1 \text{ year}$), 4.63 x 10^{-4} ($T_{\text{proof}} = 2 \text{ years}$), 1.00 x 10^{-3} ($T_{\text{proof}} = 5 \text{ years}$), additional data in the safety manual
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Connection data

Type of connection	PUSH IN	Wire connection cross section AWG, min.	AWG 26
Wire connection cross section AWG, max.	AWG 14	Wire cross-section, solid, min.	0.2 mm ²
Wire cross-section, solid, max.	2.5 mm ²	Wire connection cross section, finely stranded, min.	0.2 mm ²
Wire connection cross section, finely stranded, max.	2.5 mm ²	Wire connection cross-section, finely stranded with wire-end ferrules DIN 46228/4, min.	0.2 mm ²
Wire connection cross-section, finely stranded with wire-end ferrules DIN 46228/4, max.	2.5 mm ²		

Classifications

ETIM 6.0	EC002653	ETIM 7.0	EC002653
ECLASS 9.0	27-21-01-20	ECLASS 9.1	27-21-01-90
ECLASS 10.0	27-21-01-20	ECLASS 11.0	27-21-01-20

Approvals

Approvals



ROHS

Conform

UL File Number Search

E337701

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Technical data

Downloads

Approval/Certificate/Document of
Conformity

[Certification SIL](#)
[Certification DNV GL](#)
[Certification ATEX](#)
[Certification IECEx](#)
[Certification UL](#)
[Declaration of Conformity](#)

Software

[WI-Manager, DTM-Library for online installation V.1.2.2](#)

User Documentation

[Safety Manual for SIL application](#)
[Instruction sheet](#)
[Handbuch ACT20X- Serie, deutsch](#)
[Manual ACT20X- series, english](#)

Brochure/Catalogue

[Catalogues in PDF-format](#)

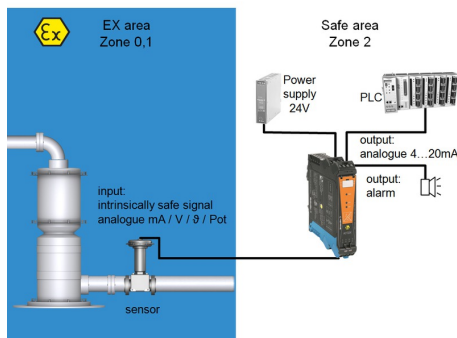
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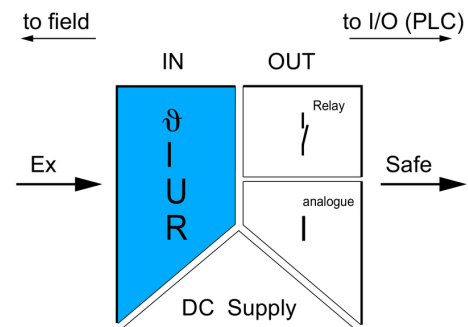
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Drawings

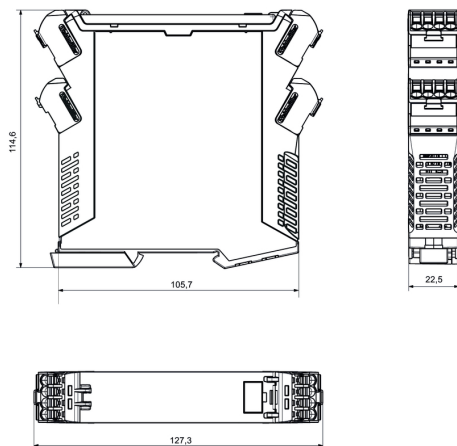
Application



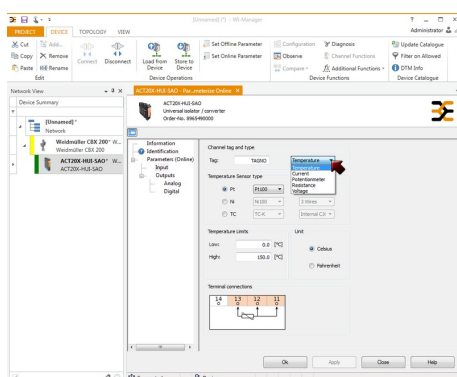
Block diagram



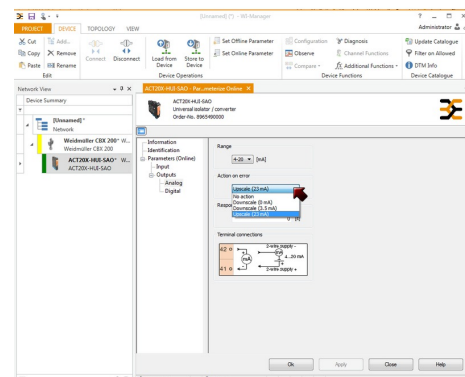
Dimensioned drawing



Similar to illustration



screenshot of temperature input
configuration with FDT2 / DTM software



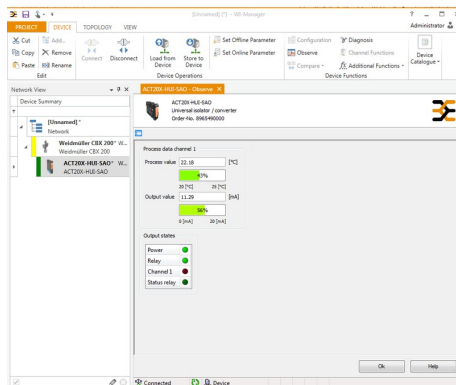
screenshot of output configuration
with FDT2 / DTM software

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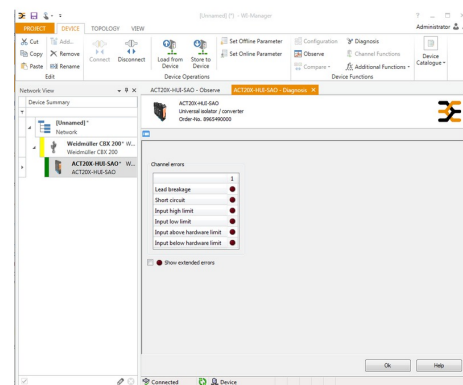
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Drawings



screenshot of "observe" with FDT2 / DTM software



screenshot of "diagnosis" with FDT2 / DTM software

Connection diagram

