

ACT20X ACT20X-HUI-SAO-P

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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

Type	ACT20X-HUI-SAO-P
Order No.	2456200000
Version	EX signal isolating converter, Ex-output: U, I, R, ̢, Safe-output: 4-20mA/ relay, 1-channel
GTIN (EAN)	4050118471601
Qty.	1 pc(s).

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Technical data
Dimensions and weights

Width	22.5 mm	Width (inches)	0.886 inch
Height	127.3 mm	Height (inches)	5.012 inch
Depth	114.6 mm	Depth (inches)	4.512 inch
Net weight	202 g		

Temperatures

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

Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
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Rated data UL

UL certificate	E337701.pdf
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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

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

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Technical data
Alarm output

Alarm function	No supply voltage, Device error	Type	Relay, 1 NC (voltage-free)
Nominal switching voltage	≤ 125 V AC / 110 V DC (safe area) ≤ 32 V AC / 32 V DC (zone 2)	Continuous current	≤ 0.5 A AC / 0.3 A DC (safe zone), ≤ 0.5 A AC / 1 A DC (zone 2)
Power rating	≤ 62.5 VA / 32 W (safe area) ≤ 16 VA / 32 W (Zone 2)		

General specifications

Voltage supply	19.2...31.2 V DC	Type of connection	PUSH IN
Power consumption	≤ 2.1 W	Protection degree	IP20
Humidity	0...95 % (no condensation)		

Insulation coordination

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

Digital output

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

Data for Ex applications (ATEX)

Voltage U_0	8.7 V DC	Current I_0	18.4 mA
Power P_0	40 mW	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
Installation location	Device installed in safe area, zone 2		

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Technical data

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
Relay lifetime	100000 times	Safe Failure Fraction (SFF)	93 %
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 category	SIL 2
Probability of outage PFH	4.33 x 10 ⁻⁸ h ⁻¹		

Safety-related specifications Low demand mode

Average Probability of Failure on Demand (PFD _{avg})	2.82 x 10 ⁻⁴ (T _{proof} = 1 year), 4.63 x 10 ⁻⁴ (T _{proof} = 2 years), 1.00 x 10 ⁻³ (T _{proof} = 5 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		

Approvals

Approvals



ROHS

Conform

Data sheet**ACT20X
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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.1.2.0
User Documentation	MAN SAFETY ACT20X-HUI-SAO Instruction sheet Handbuch ACT20X- Serie, deutsch Manual ACT20X- series, english

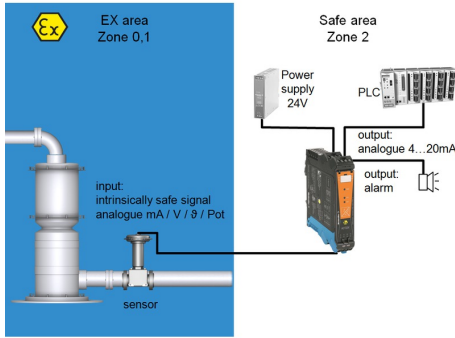
Data sheet

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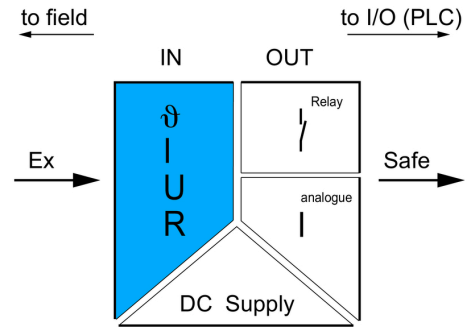
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Drawings

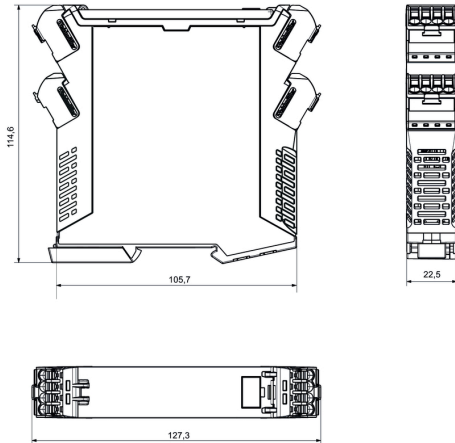
Application



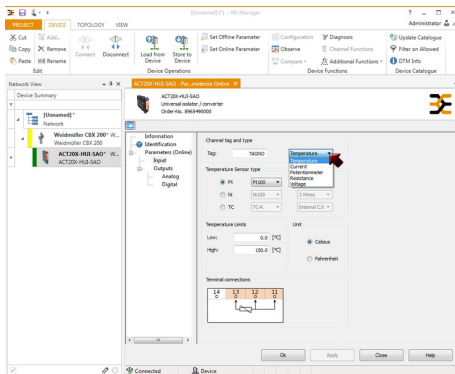
Block diagram



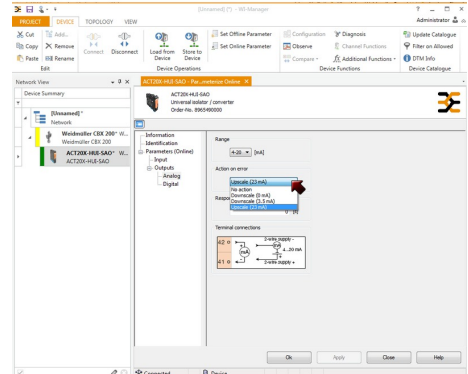
Dimensioned drawing



Similar to illustration



screenshot of temperature input configuration with FDT2 / DTM software



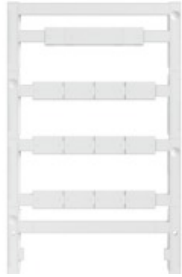
screenshot of output configuration with FDT2 / DTM software

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Accessories

Accessories



Accessories for the analogue signal processing products:

- End plates: for components with terminal-block design
- Retaining clips: for mounting IP6X signal isolators and displays
- Calibration devices: for calibrating and setting analogue signal converters
- MICRO interface: for direct transmission to a controller thus minimizing the wiring overhead
- markers
- Programming adapter: for configuring PC-configurable modules
- Cross-connector
- Power supply modules / power supplies
- Optional connection terminals and cold-junction compensation terminals

General ordering data

Type	CBX200 USB
Order No.	8978580000
GTIN (EAN)	4032248813759
Qty.	1 pc(s).

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General ordering data

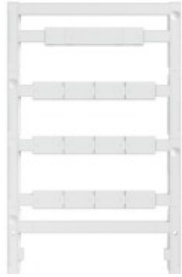
Type	ESG 8/13.5/43.3 SAI AU	Version	
Order No.	1912130000	ESG, Device markers x 13.5 mm, PA 66, Colour: Transparent	
GTIN (EAN)	4032248541164		
Qty.	5 pc(s).		

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Accessories

Accessories for network-compatible current measuring transducers



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- markers
- Programming adapter: for configuring PC-configurable modules
- Cross-connector
- Power supply modules / power supplies
- Optional connection terminals and cold-junction compensation terminals

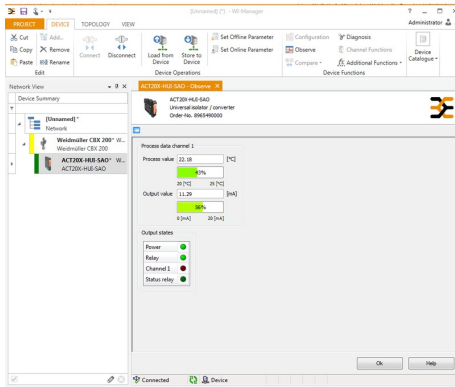
General ordering data

Type	ESG 6.6/20 BHZ 5.00/04	Version
Order No.	1082540000	ESG, Device markers x 20 mm, PA 66, Colour: white
GTIN (EAN)	4032248845439	
Qty.	200 pc(s).	

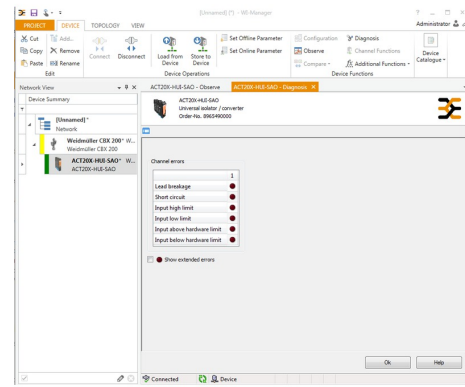
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Drawings



screenshot of "observe" with FDT2 / DTM software



screenshot of "diagnosis" with FDT2 / DTM software

Connection diagram

