

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,9, Safe-output: 4-20mA/ relay, 1-channel
Order No.	2456200000
Type	ACT20X-HUI-SAO-P
GTIN (EAN)	4050118471601
Qty.	1 Stück

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Technische Daten

Dimensions and weights

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

Temperatures

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

Probability of failure

SIL PAPER	SIL certificate	SIL in compliance with IEC 61508	2
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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	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)
Type	21.4...16.5 V DC / 0...20 mA intrinsically safe circuit		

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Output

Influence of load resistance	$\leq 0.01\%$ of span / 100 Ω	Load impedance current	$\leq 600 \Omega$
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)		

Digital output

Continuous current	≤ 2 A AC/DC (safe area, Zone 2 area)	Function	Configurable switching thresholds, Window function, Sensor error
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)
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	≤ 0.5 A AC / 0.3 A DC (safe zone), ≤ 0.5 A AC / 1 A DC (zone 2)
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)		

General specifications

Configuration	With FDT/DTM software, Requires configuration adapter 8978580000 CBX200 USB	Humidity	0...95 % (no condensation)
Power consumption	≤ 2.1 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		

Erstellungs-Datum May 25, 2023 2:30:14 PM CEST

Katalogstand 12.05.2023 / Technische Änderungen vorbehalten

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Safety-related basic specifications

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	T_{proof}	4 Years
Total failure rate for safe detected failures (λ_{SD})	0 FIT	Hardware fault tolerance (HFT)	0
Safety category	SIL 2	Relay lifetime	100000 times
Safe Failure Fraction (SFF)	93 %	Mean Time To Repair (MTTR)	24 h
Total failure rate for safe undetected failures (λ_{SU})	278 FIT	Total failure rate for dangerous detected failures (λ_{DD})	352 FIT
Total failure rate for dangerous undetected failures (λ_{DU})	43 FIT	Probability of outage PFH	$4.33 \times 10^{-8} \text{ h}^{-1}$
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)		

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		

Guarantee

Time interval	3 years
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Classifications

ETIM 6.0	EC002653	ETIM 7.0	EC002653
ETIM 8.0	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	ECLASS 12.0	27-21-01-20

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Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
SCIP	2f6dd957-421a-46db-a0c2-cf1609156924

Approvals

Approvals



ROHS	Conform
UL File Number Search	UL Website
Certificate no. (cULus)	E337701

Downloads

Approval/Certificate/Document of Conformity	Certification SIL Certification DNV GL Certification ATEX Certification IECEX Certification UL Declaration of Conformity
Engineering Data	CAD data – STEP
Software	Runtime Software – WI-Manager, DTM-Library for online installation Release notes for Weidmueller FDT-DTM Software version
User Documentation	Safety Manual for SIL application Instruction sheet Handbuch ACT20X- Serie, deutsch Manual ACT20X-series, english 20210120 Security Advisory - WI-Manager affected by MundM Software fdtCONTAINER vulnerability
Catalogues	Catalogues in PDF-format

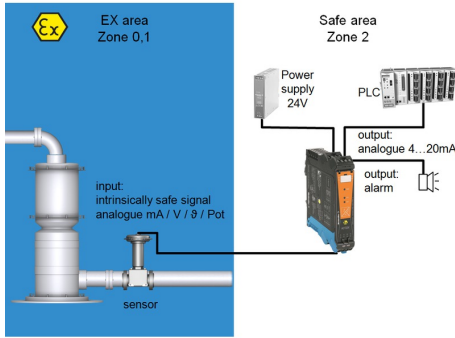
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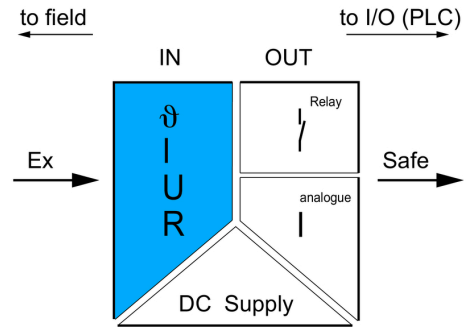
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Zeichnungen

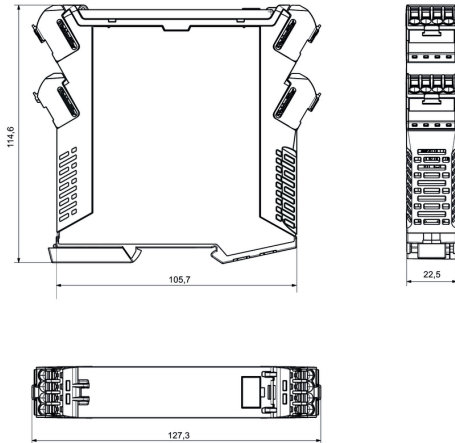
Application



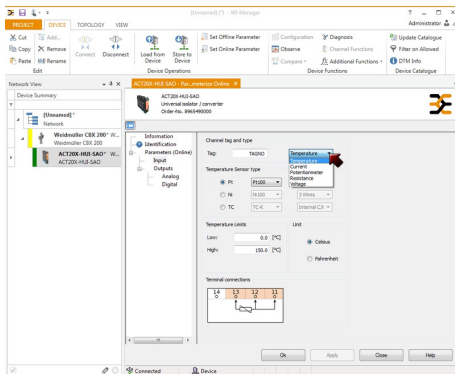
Block diagram



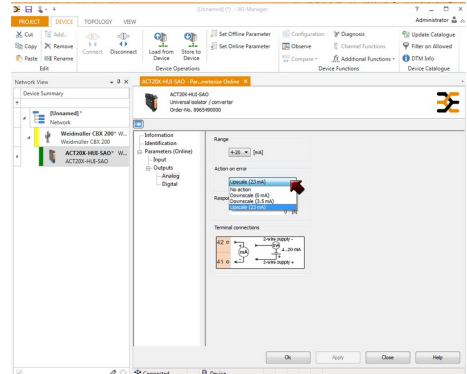
Dimensioned drawing



Similar to illustration



screenshot of temperature input configuration with FDT2 / DTM software



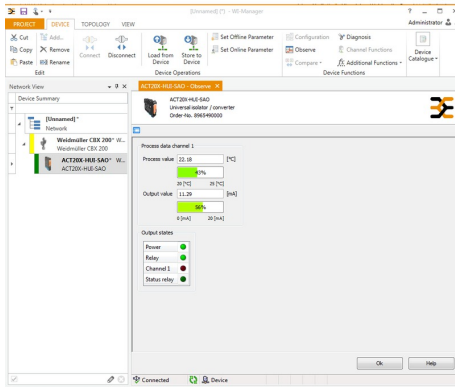
screenshot of output configuration with FDT2 / DTM software

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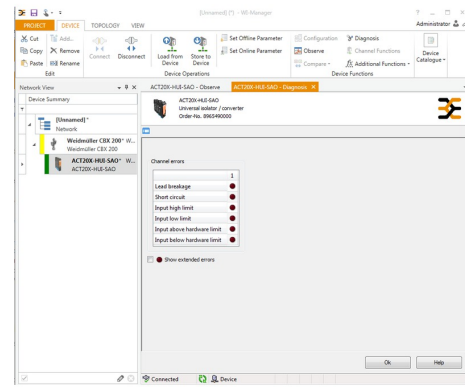
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Zeichnungen



screenshot of "observe" with FDT2 / DTM software



screenshot of "diagnosis" with FDT2 / DTM software

Connection diagram

