ACT20X
ACT20X-HUI-SAO-S

Weidmüller Interface GmbH & Co. KG
Klingenbergstraße 26
D-32758 Detmold
Germany
Fon: +49 5231 14-0
Fax: +49 5231 14-292083
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

Type	ACT20X-HUI-SAO-S
Order No.	8965490000
Version	EX signal isolating converter, Ex-output: U, I, R,9, Safe-output: 4-20mA/ relay, 1-channel
GTIN (EAN)	4032248785100
Qty.	1 pc(s).

ACT20X
ACT20X-HUI-SAO-S

Weidmüller Interface GmbH & Co. KG
Klingenbergstraße 26
D-32758 Detmold
Germany
Fon: +49 5231 14-0
Fax: +49 5231 14-292083
www.weidmueller.com

Technical data

Dimensions and weights

Width	22.5 mm	Width (inches)	0.886 inch
Height	119.2 mm	Height (inches)	4.693 inch
Depth	113.6 mm	Depth (inches)	4.472 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		

Probability of failure

MTBF	74 Years

Environmental Product Compliance

REACH SVHC	Lead 7439-92-1

Rated data UL

UL certificate	E337701.pdf

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	10 Ω...10 kΩ	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	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)		

ACT20X
ACT20X-HUI-SAO-S

Weidmüller Interface GmbH & Co. KG
Klingenbergstraße 26
D-32758 Detmold
Germany
Fon: +49 5231 14-0
Fax: +49 5231 14-292083
www.weidmueller.com

Technical data

Output

Type	active (as current source) or passive (as current sink)	Influence of load resistance	≤ 0.01% of span / 100 Ω
Output signal limit	3.8...20.5 mA / 0...20.5 mA (dependent on range)	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	≤ 600 Ω		

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

Configuration	With FDT/DTM software	Voltage supply	19.2...31.2 V DC
Type of connection	Screw connection	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)
Pollution severity	2	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		

ACT20X
ACT20X-HUI-SAO-S

Weidmüller Interface GmbH & Co. KG
Klingenbergstraße 26
D-32758 Detmold
Germany
Fon: +49 5231 14-0
Fax: +49 5231 14-292083
www.weidmueller.com

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	$4.33 \times 10^{-8}\ h^{-1}$		

Safety-related specifications Low demand mode

Average Probability of Failure on Demand (PFD_{avg})	2.82×10^{-4} (T_{proof} = 1 year), 4.63×10^{-4} (T_{proof} = 2 years), 1.00×10^{-3} (T_{proof} = 5 years), additional data in the safety manual

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

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	UNSPSC	30-21-18-01

Product information

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

ACT20X
ACT20X-HUI-SAO-S

Weidmüller Interface GmbH & Co. KG
Klingenbergstraße 26
D-32758 Detmold
Germany
Fon: +49 5231 14-0
Fax: +49 5231 14-292083
www.weidmueller.com

Technical data

Approvals

Approvals	
Approvals	DNVGL;
ROHS	Conform

Downloads

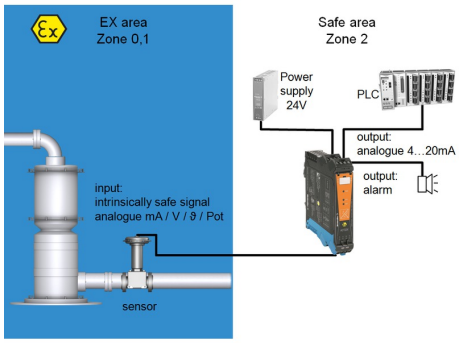
Approval/Certificate/Document of Conformity	Certification SIL Certification DNV GL Certification ATEX Certification IECEx Certification UL Declaration of Conformity
Brochure/Catalogue	CAT 4.1 ELECTR 16/17 EN
Engineering Data	EPLAN, WSCAD
Engineering Data	STEP
Software	WI-Manager, DTM-Library for online installation V.1.2.0
User Documentation	Instruction sheet MAN SAFETY ACT20X-HUI-SAO Handbuch ACT20X- Serie, deutsch Manual ACT20X- series, english

ACT20X
ACT20X-HUI-SAO-S

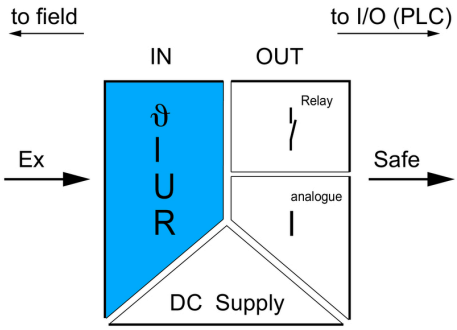
Weidmüller Interface GmbH & Co. KG
Klingenbergstraße 26
D-32758 Detmold
Germany
Fon: +49 5231 14-0
Fax: +49 5231 14-292083
www.weidmueller.com

Drawings

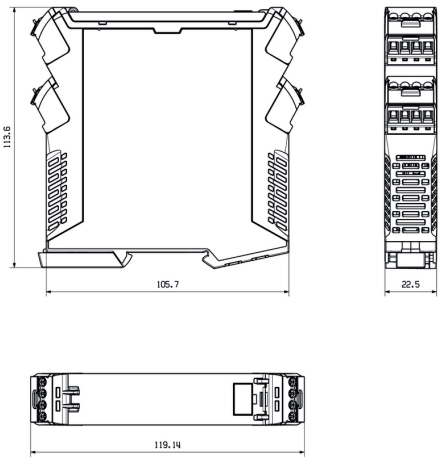
Application

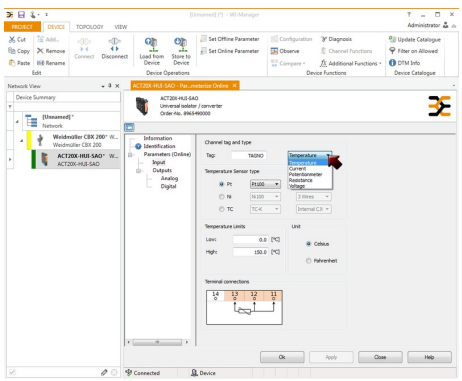


Block diagram

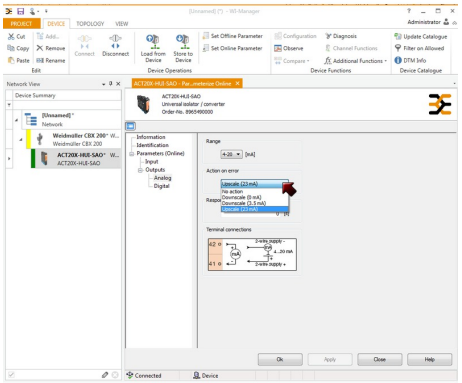


Dimensioned drawing





screenshot of temperature input configuration with FDT2 / DTM software

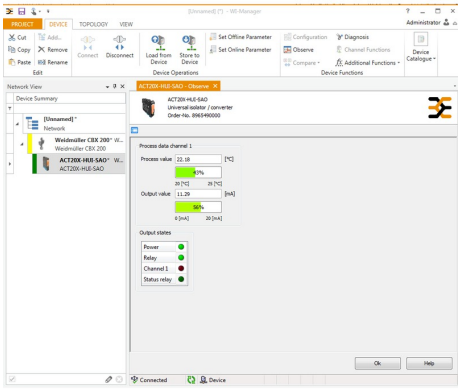


screenshot of output configuration with FDT2 / DTM software

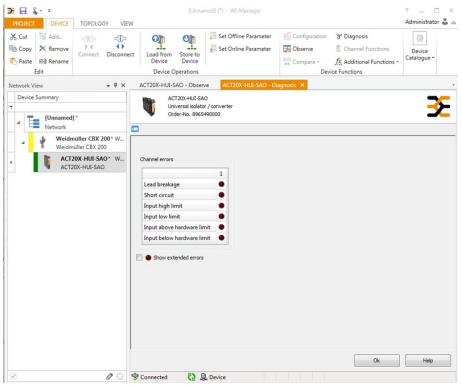
ACT20X
ACT20X-HUI-SAO-S

Weidmüller Interface GmbH & Co. KG
Klingenbergstraße 26
D-32758 Detmold
Germany
Fon: +49 5231 14-0
Fax: +49 5231 14-292083
www.weidmueller.com

Drawings



screenshot of "observe" with FDT2 / DTM software



screenshot of "diagnosis" with FDT2 / DTM software

Connection diagram