

## ACT20X-HUI-SAO-S

Weidmüller Interface GmbH & Co. KG

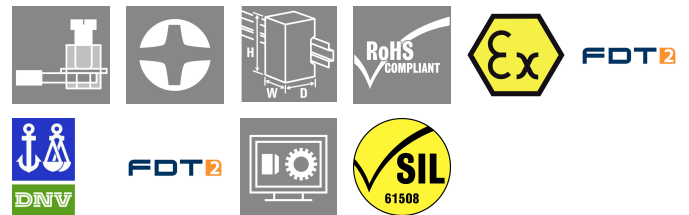
Klingenbergstraße 26

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, S, Safe-output: 4-20mA/ relay, 1-channel
Order No.	<a href="#">8965490000</a>
Type	ACT20X-HUI-SAO-S
GTIN (EAN)	4032248785100
Qty.	1 items

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**Technical data**

**Approvals**

Approvals	CE; CULUS; DETNORVER; FMEX; FUSAFETY; IECEXKEM; KEMAATEX
Approvals	DNVGL;
Approvals	



ROHS	Conform
UL File Number Search	<a href="#">UL Website</a>
Certificate no. (cULus)	E337701

**Dimensions and weights**

Depth	113.6 mm	Depth (inches)	4.4724 inch
Height	119.2 mm	Height (inches)	4.6929 inch
Width	22.5 mm	Width (inches)	0.8858 inch
Net weight	202 g		

**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 - PDF/ Cert_Weidmueller_070902_P0002_C005_V2R1.pdf (application/pdf)	SIL in compliance with IEC 61508	2
MTBF	74 a		

**Environmental Product Compliance**

RoHS Compliance Status	Compliant with exemption		
RoHS Exemption (if applicable/known)	7a, 7cl		
REACH SVHC	Lead 7439-92-1		
SCIP	2f6dd957-421a-46db-a0c2-cf1609156924		

**Assembling**

Type of mounting	Snap mounting support rail	Mounting rail	TS 35
Mounting position	horizontal or vertical		

**Input EX**

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

**Output (analogue)**

Signal output	direct or inverted	Type (analogue output)	'active','connected control must be passive'
Output behaviour on failure downscale	23 mA	Output behaviour on failure upscale	3.5 mA
Number analogue outputs	1	Load resistance current	<600 Ω
Output current	4...20 mA, loop-powered, 0/4...20 mA, 0(4)...20 mA		

**Output (Status)**

Hysteresis	0.1 mA (switching threshold)	Type	Status relay, 1 NC (voltage-free)
Alarm function	Device error, No supply voltage	Number of alarm outputs	1
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)		

**Alarm output**

Hysteresis	0.1 mA (switching threshold)	Type	Status relay, 1 NC (voltage-free)
Number of alarm outputs	1	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)

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## Technical data

### General specifications

Type of connection	Screw connection	Humidity	0...95 % (no condensation)
Protection degree	IP20	Supply voltage	19.2...31.2 V DC
Configuration	With FDT/DTM software, Requires configuration adapter 8978580000 CBX200 USB	Operating altitude	≤ 2000 m

### Insulation coordination

EMC standards	EN 61326-1	Standards	EN 61010-1
Pollution severity	2	Insulation voltage	2.6 kV (input / output)
Rated voltage	300 V		

### Data for Ex applications (ATEX)

ATEX - gas labelling	II (1) G [Ex ia Ga] IIC/IIB/ IIA	ATEX - dust labelling	II (1) D [Ex ia Da] IIIC, I (M1) [Ex ia Ma] I
IECEx - gas labelling	Ex ec nC IIC T4 Gc, [Ex ia Ga] IIC/IIB/IIA	Installation location	Device installed in safe area, zone 2

### 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 <sup>2</sup>
Clamping range, min.	0.25 mm <sup>2</sup>	Clamping range, max.	2.5 mm <sup>2</sup>
Wire connection cross section AWG, min.	AWG 26	Wire connection cross section AWG, max.	AWG 12

### Guarantee

Time interval	3 years
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### Part description

Product description The device ACT20X-HUI-SAO-S transmits analog signals from hazardous areas safely galvanically separated into non or less hazardous areas. For this purpose the input circuits are designed intrinsically safe.

#### Features

- Configuration and diagnosis via FDT/DTM Software "WI-Manager".
- The device can be mounted in the safe area and in zone 2 / division 2 and receive signals from zone 0, 1, 2, 20, 21 and 22, as well as Class I/II/III, division 1, group A-G.
- The active or passive signal inputs for RTD, TC, potentiometer, V and mA are completely electrically isolated.
- The device detects automatically whether an active or passive current signal is connected.
- As cold junction compensation for the TC signal input, either the internal cold junction compensation or for even higher accuracy an external cold junction compensation terminal is used.
- Extended self diagnostic: Monitoring of error events (e.g. cable breakage) via status relay.
- Front LEDs indicates operation status and malfunction.
- 3-way galvanic isolation between input, output and power supply.

### Classifications

ETIM 8.0	EC002653	ETIM 9.0	EC002653
ETIM 10.0	EC002653	ECLASS 14.0	27-21-01-20
ECLASS 15.0	27-21-01-20		

## Tender specification sheets

Long specification	Ex universal measurement isolating transformer and trip amplifier for RTD-/ TC temperature and DC-current-/ voltage signals	Short specification	Ex universal measurement isolating transformer and trip amplifier for RTD-/ TC temperature and DC-current-/ voltage signals
	<p>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 mm<sup>2</sup>            Protection degree: IP 20            Input                    RTD:            PT100, PT500, PT1000,            Ni50, Ni 100, Ni120,            Ni1000</p> <p>Resistance 0...10 kOhm /            Potentiometer 10 Ohm...            10 kOhm                    TC-</p> <p>Type: B, E, J, K, N, R, S, T,            U, L</p> <p>0(4)...20 mA</p> <p>0...12 V/ 2...10 V            Sensor supply            28...16.5 VDC / 0...20            mA            Output</p> <p>active            0(4)...20 mA / 20..0 mA            configurable</p>		<p>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 in the safe zone as either an active 0(4)...20 mA signal or a passive 4...20 mA current loop. A relay contact (NO) is available for limit-value monitoring on the output side. Status and error messages are issued via a relay contact (NO). The component can be configured using standard FDT/DTM software.</p>

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passive 4...20 mA current  
loop 3.5...26 V DC  
Load <  
600 Ohm  
Alarm output relay 1 NO  
contact  
250  
V AC / 30 V DC @ 2A safe  
zone  
32 V  
AC @ 0.5 A/ 32 VDC @ 1  
A Zone 2  
Accuracy < 0,1  
% v.E  
Temperature coefficient <  
0,01% v.E./°C (Tu)  
Alarm output relay 1 NO  
contact  
250  
V AC / 30 V DC @ 2A safe  
zone  
32 V  
AC @ 0.5 A/ 32 VDC @ 1  
A Zone 2  
Auxiliary  
power  
19...31.2 V DC  
Power loss approx. 3.5 W  
Ambient  
temperature range  
-20 °C...+60 °C Secure  
isolation EN  
61010, 3-way isolation  
up to 2.6 kV AC/DC of all  
circuits against each other  
Working  
voltage 300  
V AC/DC at overvoltage  
category II and pollution  
degree 2  
Approvals cULus, ATEX  
IECEX, FM  
ATEX marking II 3 G ExnA  
nC IIC T4  
ATEX characteristic data  
U0 = 8.7 V DC  
IO  
= 18.4 mA DC  
PO  
= 40 mW  
Type  
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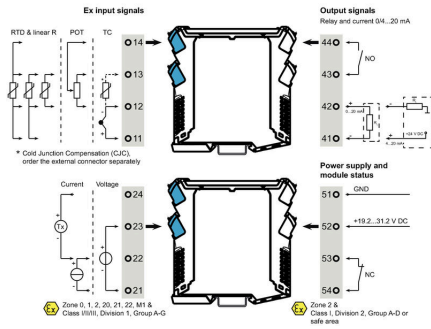
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Drawings

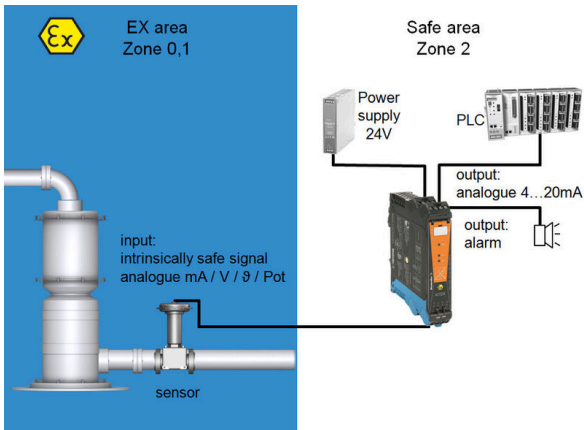
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Connection diagram

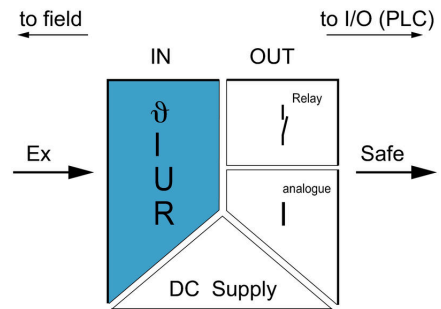


Limit value setting options

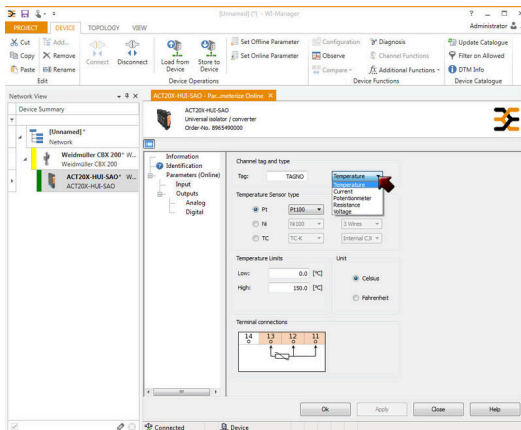
Application



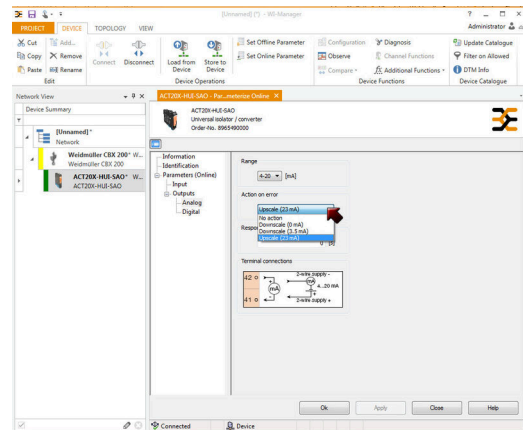
Block diagram



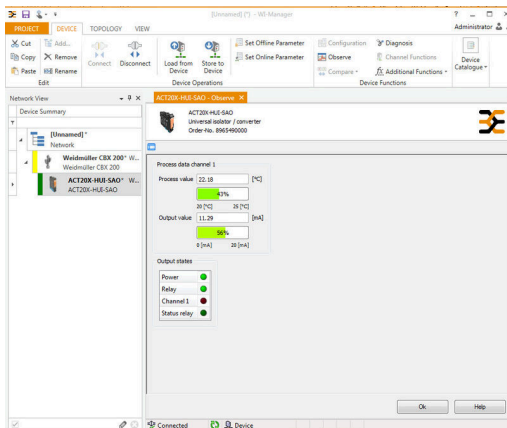
# Drawings



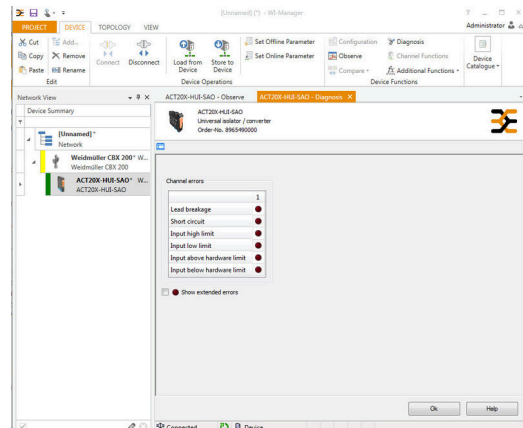
screenshot of input configuration with FDT2 / DTM software



screenshot of output configuration with FDT2 / DTM software



screenshot of "observe" with FDT2 / DTM software



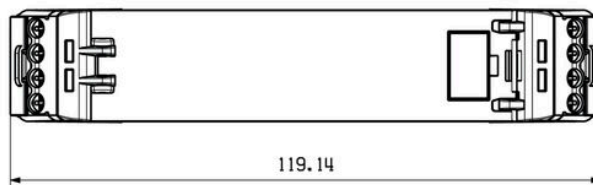
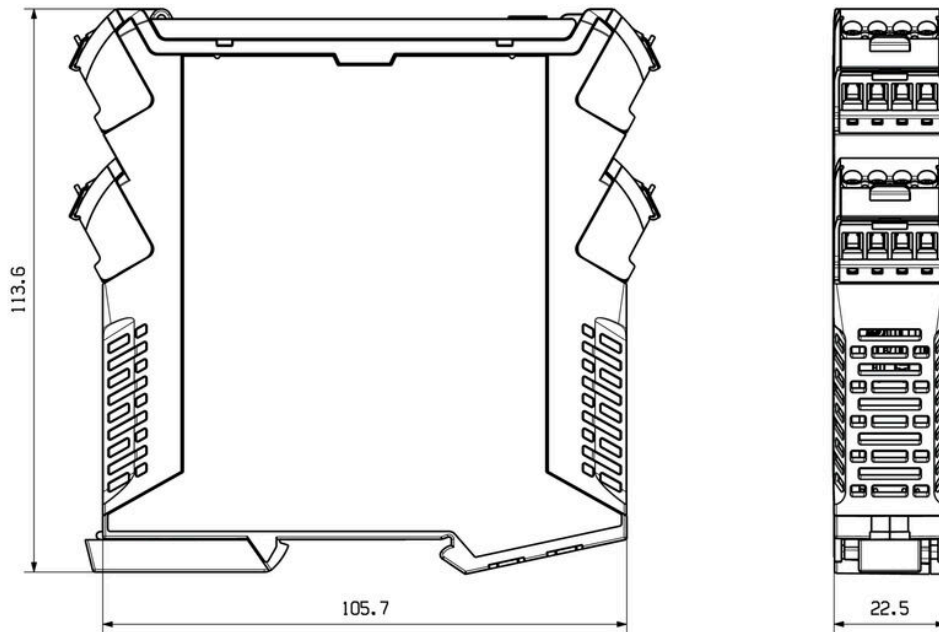
screenshot of "diagnose" with FDT2 / DTM software

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**Drawings**

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Dimensioned drawing



Removable terminals with coding

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## Accessories

### Configuration interfaces



#### General ordering data

Type	CBX200 USB	Version	
Order No.	<a href="#">8978580000</a>		
GTIN (EAN)	4032248813759		
Qty.	1 ST		

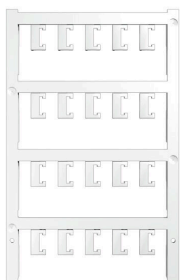
### Cold-junction compensation terminals



#### General ordering data

Type	ACT20X-CJC-HTI-S PRT 2 1	Version	
Order No.	<a href="#">1160650000</a>		(CJC) cold-junction compensation terminal for ACT20X thermal
GTIN (EAN)	4032248948352		module, built-in PT100 sensor, Labelling for channel 2 (21, 22, 23,
Qty.	1 ST		24)

### Blank



ESG is the tried-and-tested marker in MultiCard format for use on many well-known electrical devices. The result is high-quality device marking with a high-contrast appearance.

Various types are available for devices from manufacturers like Siemens, ABB, Beckhoff etc. Advantages at a glance:

- Tags for universal usage, self-adhesive or clip-on tags, depending on type
- For aligned equipment, e.g. circuit breakers, we supply ESG markers for clipping onto tag rails
- Individual laser-quality printing according to specifications

For custom printing: Please send us a file of our labeling software M-Print PRO or M-Print PRO Online (without installation) for your labeling specifications.

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## Accessories

### General ordering data

Type	ESG 6.6/20 BHZ 5.00/04	Version	
Order No.	<a href="#">1082540000</a>	ESG, Device markers x 20 mm, PA 66, Colour: white, pluggable	
GTIN (EAN)	4032248845439		
Qty.	200 ST		
Type	ESG 8/13.5/43.3 SAI AU	Version	
Order No.	<a href="#">1912130000</a>	ESG, Device markers x 13.5 mm, PA 66, Colour: Transparent, pluggable	
GTIN (EAN)	4032248541164		
Qty.	5 ST		