

**ACT20X**  
**ACT20X-2HAI-2SAO-P**

**Weidmüller Interface GmbH & Co. KG**  
Klingenbergstraße 26  
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Germany  
Fon: +49 5231 14-0  
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**Product image**

The ACT20X-HAI-SAO/2HAI-2SAO HART-protocol transparent current-supply isolators are capable of transmitting 4...20 mA signals from Ex zone 0 into the safe zone.

External sensors can be supplied with power through the device.

Integrated alarm contacts issue an alert in the event of a malfunction; this makes troubleshooting easier and increases system availability.

The rail mounted current-supply isolators are optionally available in one- or two-channel versions.

With 11 mm width per channel, the devices need little space in the electrical cabinet.

**General ordering data**

Type	ACT20X-2HAI-2SAO-P
Order No.	<a href="#">2456 150000</a>
Version	EX signal isolating converter, Ex-input: 4 - 20 mA, Safe-output: 4-20mA, 2-channel
GTIN (EAN)	4050118471281
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	212 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	315 Years
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**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	4...20mA	Input frequency	0.5...2.5 kHz @ 3.5...23 mA bi-directional HART® signal
Output signal in case of wire break	< 1 mA	Residual ripple (current loop)	< 7.5 mV <sub>eff</sub>
Sensor supply	3.8...26 V DC	Type	intrinsically safe circuit, active (as current source) or passive (as current sink)
Voltage drop not powered	< 6 V	Voltage drop powered	< 4.5 V

**Output**

Load stability	≤ 0.01 % of end value / 100 Ω	Type	active (as current source) or passive (as current sink)
Influence of load resistance	≤ 0.01% of span / 100 Ω	2-wire supply	≤ 26 V DC
Output signal limit	< 28 mA	Output current	4...20 mA
Cut-off frequency (-3 dB)	0.5...2.5 kHz @ 3.5...23 mA bi-directional HART® signal	Load impedance current	≤ 600 Ω

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**Technical data****Alarm output**

Alarm function	Signal limit exceeded, Line interruption at the input, 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	PUSH IN	Power consumption	≤ 1.9 W
Accuracy	< 0.1% span	Temperature coefficient	< 0.01% of span/°C (TU)
Step response time	≤ 5 ms	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		

**Data for Ex applications (ATEX)**

Voltage $U_0$	Current loop 28 V / externally 10 V	Current $I_0$	Current loop 93 mA / externally 10 mA
Power $P_0$	Current loop 0.65 W / externally 0.1 W	Marking	II (1) G [Ex ia Ga] IIC/IIB/IIA, II (1) D [Ex ia Da] IIIC, I (M1) [Ex ia Ma] I
Installation location	Device installed in safe area, zone 2		

**Safety-related basic specifications**

Demand mode	High	Description of the "safe state"	analogue Output ≤ 3.6 mA or output ≥ 21 mA
Device type	A	Hardware fault tolerance (HFT)	0
Mean Time To Repair (MTTR)	24 h	Safe Failure Fraction (SFF)	85 %
$T_{proof}$	5 Years	Total failure rate for dangerous detected failures ( $\lambda_{DD}$ )	127 FIT
Total failure rate for dangerous undetected failures ( $\lambda_{DU}$ )	48 FIT	Total failure rate for safe detected failures ( $\lambda_{SD}$ )	0 FIT
Total failure rate for safe undetected failures ( $\lambda_{SU}$ )	164 FIT	Safety category	SIL 2
Probability of outage PFH	$4.1 \times 10^{-8} \text{ h}^{-1}$		

**Safety-related specifications Low demand mode**

Average Probability of Failure on Demand (PFD <sub>avg</sub> )	$1.92 \times 10^{-4}$ ( $T_{proof} = 1$ year), $3.67 \times 10^{-4}$ ( $T_{proof} = 2$ years), $8.92 \times 10^{-4}$ ( $T_{proof} = 5$ years), additional data in the safety manual
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**Technical data****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 <sup>2</sup>
Wire cross-section, solid, max.	2.5 mm <sup>2</sup>	Wire connection cross-section, finely stranded, min.	0.2 mm <sup>2</sup>
Wire connection cross section, finely stranded, max.	2.5 mm <sup>2</sup>	Wire connection cross-section, finely stranded with wire-end ferrules DIN 46228/4, min.	0.2 mm <sup>2</sup>
Wire connection cross-section, finely stranded with wire-end ferrules DIN 46228/4, max.	2.5 mm <sup>2</sup>		

**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

**Downloads**

Approval/Certificate/Document of Conformity	<a href="#">Certification SIL</a> <a href="#">Certification DNV_GL</a> <a href="#">Certification ATEX</a> <a href="#">Certification IECEX</a> <a href="#">Certification UL</a> <a href="#">Declaration of Conformity</a>
Engineering Data	<a href="#">STEP</a>
Software	<a href="#">WI-Manager, DTM-Library for online installation V.1.2.0</a>
User Documentation	<a href="#">SIL certificate</a> <a href="#">Instruction sheet</a> <a href="#">Handbuch ACT20X- Serie, deutsch</a> <a href="#">Manual ACT20X- series, english</a>

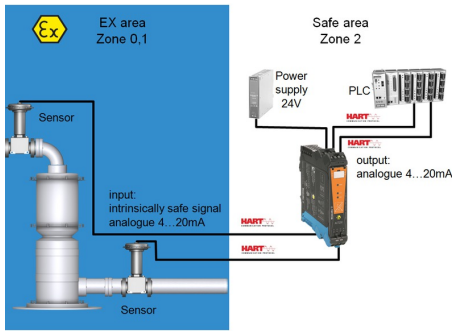
**Data sheet**

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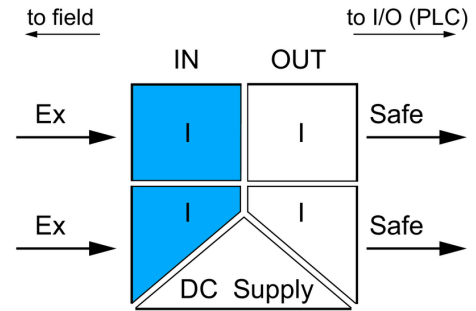
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**Drawings**

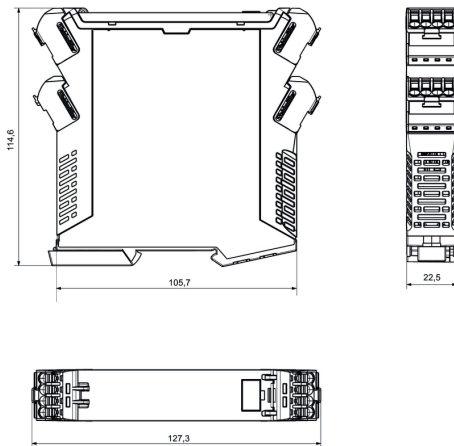
**Application**



**Block diagram**



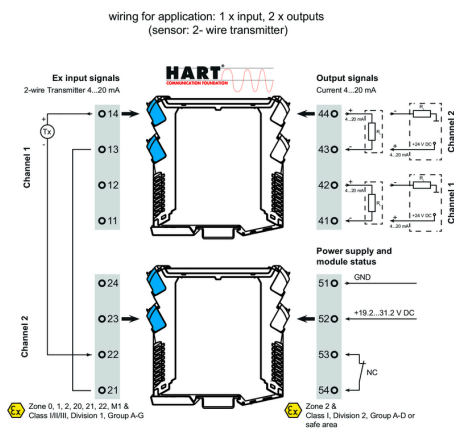
**Dimensioned drawing**



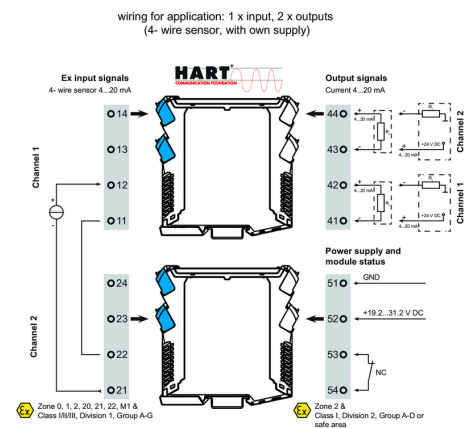
**Similar to illustration**



**Wiring example**



**Wiring example**



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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.	<a href="#">8978580000</a>
GTIN (EAN)	4032248813759
Qty.	1 pc(s).

**Accessories**



Accessories for the analogue signal processing products:

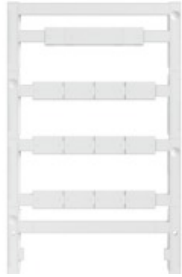
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- Power supply modules / power supplies
- Optional connection terminals and cold-junction compensation terminals

**General ordering data**

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	
GTIN (EAN)	4032248541164		
Qty.	5 pc(s).		

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**Accessories****Accessories for network-compatible current measuring transducers**

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- markers
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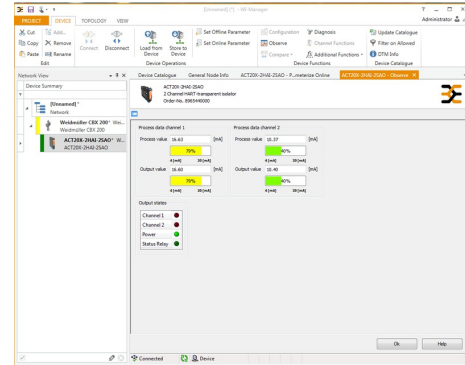
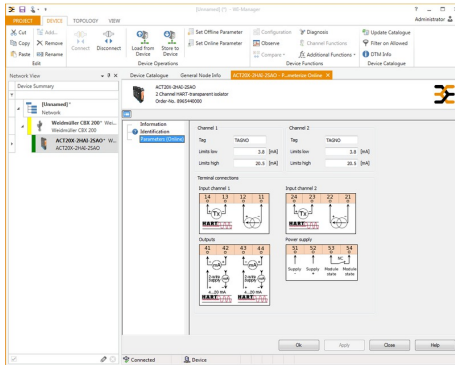
**General ordering data**

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
GTIN (EAN)	4032248845439	
Qty.	200 pc(s).	

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**Drawings**



screenshot of configuration with FDT2 /DTM software

screenshot of "observe" with FDT2 / DTM software

**Connection diagram**

