

## ACT20X-2HAI-2SAO-S

**Weidmüller Interface GmbH & Co. KG**  
 Klingenbergstraße 26  
 D-32758 Detmold  
 Germany

www.weidmueller.com

### Product image, Similar to illustration



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

Version	EX signal isolating converter, Ex-input: 4 - 20 mA, Safe-output: 4-20mA, 2-channel
Order No.	<a href="#">8965440000</a>
Type	ACT20X-2HAI-2SAO-S
GTIN (EAN)	4032248785056
Qty.	1 pc(s).

Creation date November 1, 2023 10:33:19 AM CET

Catalogue status 28.10.2023 / We reserve the right to make technical changes.

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## Technical data

### Dimensions and weights

Depth	113.6 mm	Depth (inches)	4.472 inch
Height	119.2 mm	Height (inches)	4.693 inch
Width	22.5 mm	Width (inches)	0.886 inch
Net weight	212 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
MTBF	315 a		

### Assembling

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

### Input EX

Input current	4...20 mA	Input frequency	0,5...2,5 kHz @ 3,5...23 mA bi-directional HART <sup>®</sup> signal
Output signal in case of wire break	< 1 mA	Residual ripple (current loop)	< 7.5 mV <sub>eff</sub>
Sensor supply	> 16 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

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

### Alarm output

Alarm function	Signal limit exceeded, Line interruption at the 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)		

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## Technical data

## General specifications

Accuracy	< 0.1% span	Configuration	With FDT/DTM software, Requires configuration adapter 8978580000 CBX200 USB
Humidity	0...95 % (no condensation)	Power consumption	≤ 1.9 W
Protection degree	IP20	Step response time	≤ 5 ms
Temperature coefficient	<0.01% of span/°C (TU)	Type of connection	Screw connection
Voltage supply	19.2...31.2 V DC		

## Insulation coordination

EMC standards	DIN EN 61326, NE 21	Insulation voltage	2.6 kV (input / output)
Pollution severity	2	Rated voltage	300 V
Surge voltage category	II		

## Data for Ex applications (ATEX)

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

## Safety-related basic specifications

Description of the "safe state"	analogue Output ≤ 3.6 mA or output ≥ 21 mA	Device type	A
$T_{proof}$	5 a	Total failure rate for safe detected failures ( $\lambda_{SD}$ )	0 FIT
Hardware fault tolerance (HFT)	0	Safety category	SIL 2, SIL 3 on use of 2 devices with special wiring
Safe Failure Fraction (SFF)	80 %	Mean Time To Repair (MTTR)	24 h
Total failure rate for safe undetected failures ( $\lambda_{SU}$ )	0 FIT	Total failure rate for dangerous detected failures ( $\lambda_{DD}$ )	173 FIT
Total failure rate for dangerous undetected failures ( $\lambda_{DU}$ )	41 FIT	Probability of outage PFH	$4.1 \times 10^{-8} h^{-1}$
Demand mode	High		

## 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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## 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

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**Technical data**

**Guarantee**

Time interval 3 years

**Classifications**

ETIM 6.0	EC002653	ETIM 7.0	EC002653
ETIM 8.0	EC002653	ETIM 9.0	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	ECLASS 13.0	27210120

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## Technical data

## Tender specification sheets

Long specification

Short specification

**Ex supply isolator for standard DC current signals, 2-channel, HART transparent 2-channel supply isolator in 22.5 mm width with external power supply, for transmitting and isolating 4...20 mA standard signals from Ex Zones 0,1,2 to the safe**

**zones. This component has active and passive inputs. External sensors can be supplied with > 15 VDC. The 4...20 mA output circuit can be operated either passively or actively. Status and error messages are available 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 2 x  
4...20 mA**

**> 15 V DC sensor  
supply  
Output**

**active 2  
x 4...20 mA  
passive 2 x 4...20 mA  
current loop max. 26 V  
DC**

**Load <  
600 Ohm  
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 supply 3 W  
Ambient  
temperature range -20  
to +70 °C**

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Ex supply isolator for  
standard DC current

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**Technical data****Environmental Product Compliance**

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

**Approvals**

Approvals



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

**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="#">CAD data – STEP</a>
Software	<a href="#">WI-Manager, DTM-Library for online installation</a> <a href="#">Release notes for Weidmueller FDT-DTM Software version</a>
User Documentation	<a href="#">Device description – Instruction sheet</a> <a href="#">Application notes – Safety Manual for SIL application</a> <a href="#">Handbuch ACT20X- Serie, deutsch</a> <a href="#">Manual ACT20X- series, english</a> <a href="#">20210120 Security Advisory - WI-Manager affected by MundM Software fdtCONTAINER vulnerability</a>
Catalogues	<a href="#">Catalogues in PDF-format</a>
Brochures	

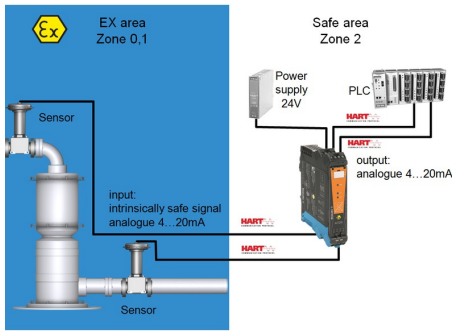
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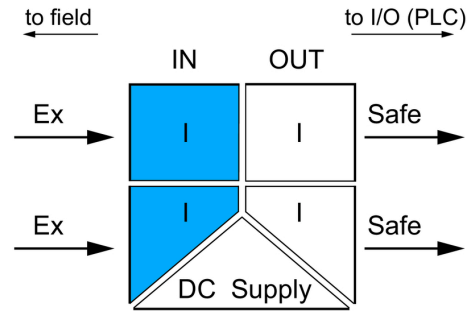
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**Drawings**

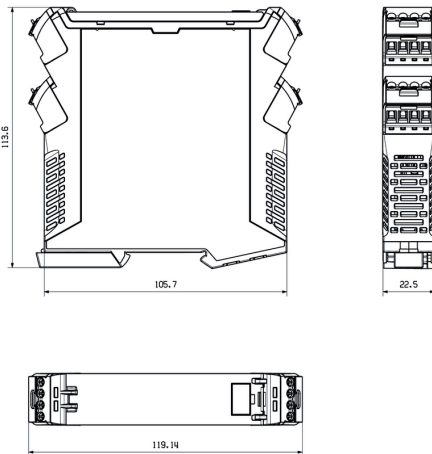
**Application**



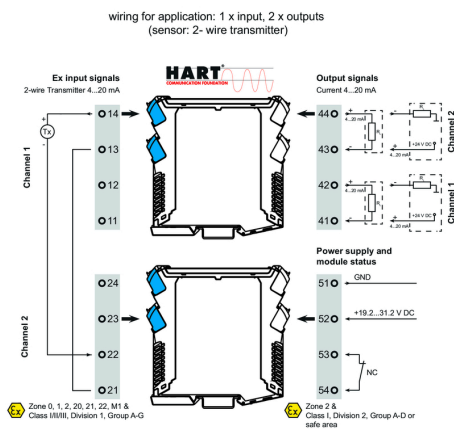
**Block diagram**



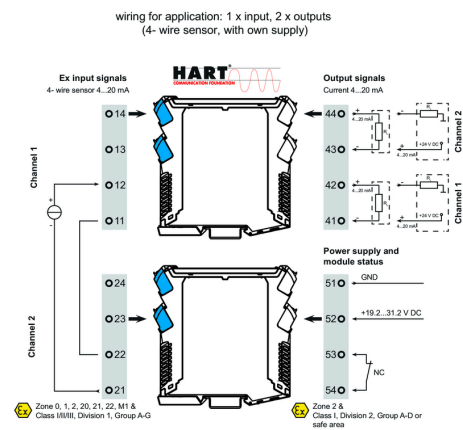
**Dimensioned drawing**



**Wiring example**



**Wiring example**

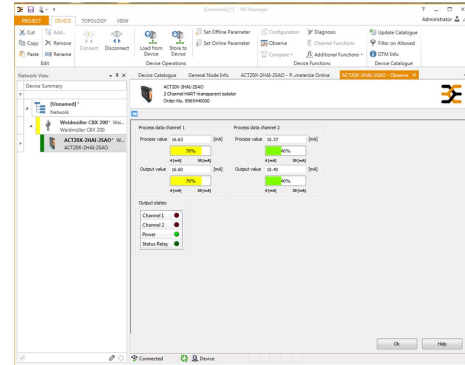
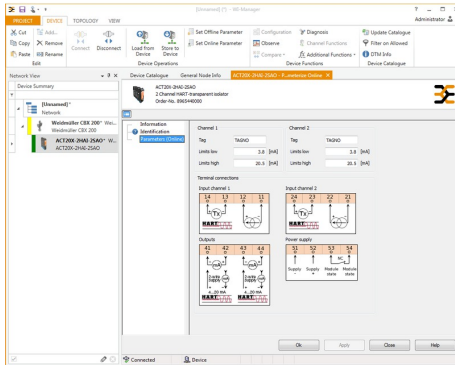


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**Drawings**



screenshot of configuration with FDT2 /DTM software

screenshot of "observe" with FDT2 / DTM software

**Connection diagram**

