ACT20X-HAI-SAO-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, 1-channel
Order No.	8965430000
Type	ACT20X-HAI-SAO-S
GTIN (EAN)	4032248785049
Qty.	1 pc(s).

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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	186 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	177 Years	SFF	80 %

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_{eff}
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® 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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General specifications

Accuracy	< 0.1% span	Configuration	With FDT/DTM software, Requires configuration adapter 8978580000 CBX200 USB
Humidity	0...95 % (no condensation)	Power consumption	≤ 1.0 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 Years	Total failure rate for safe detected failures (λ_{SD})	0 FIT
Hardware fault tolerance (HFT)	0	Safety category	SIL 2
Safe Failure Fraction (SFF)	80 %	Mean Time To Repair (MTTR)	24 h
Total failure rate for safe undetected failures (λ_{SU})	0 FIT	Total failure rate for dangerous detected failures (λ_{DD})	173 FIT
Total failure rate for dangerous undetected failures (λ_{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_{avg})	1.92×10^{-4} (T_{proof} = 1 year), 3.67×10^{-4} (T_{proof} = 2 years), 8.92×10^{-4} (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

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Guarantee

Time interval	3 years

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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Tender specification sheets

Long 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. The component has an active and passive input. 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 mm² Protection degree: IP 20 Input 4...20 mA > 15 V DC sensor supply Output active mA passive 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 19.2...31.2 V DC Power loss approx. 1.8 W Ambient temperature range -20**
Short specification	**4...20**

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

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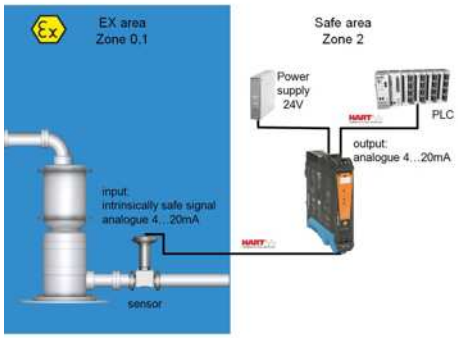
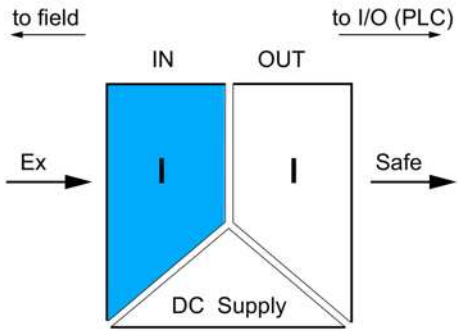
Drawings

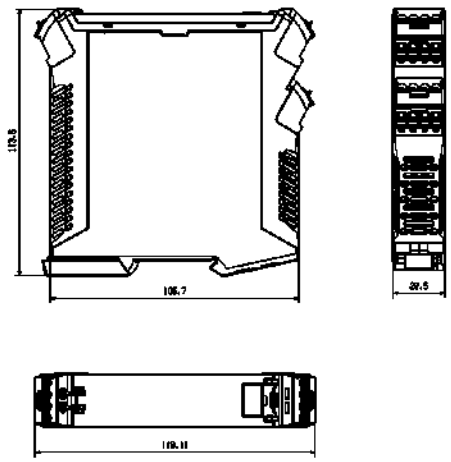
Application

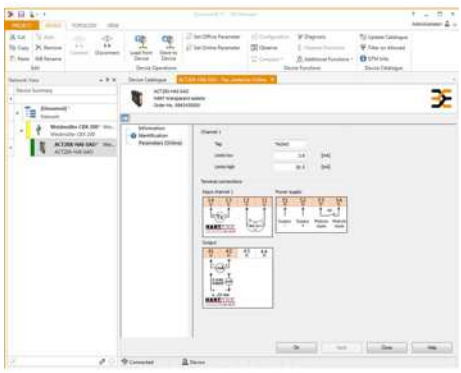


Block diagram

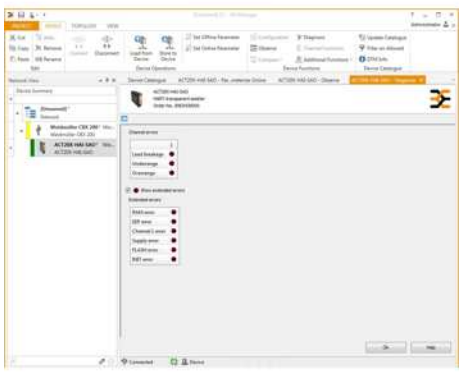


Dimensioned drawing





screenshot of configuration with FDT2 / DTM software



screenshot "diagnosis" with FDT2 / DTM software

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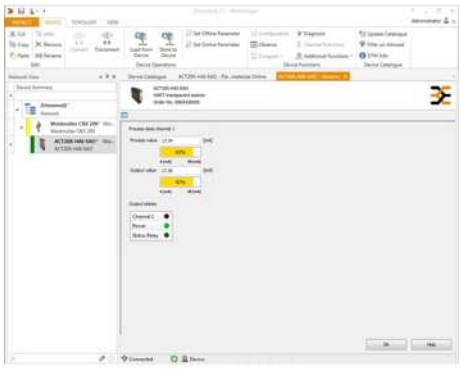

screenshot of "observe" with FDT2 / DTM software

Connection diagram