Data sheet

ACT20X-2SAI-2HAO-S

Weidmüller Interfaces GmbH & Co. KG

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Product image, Similar to illustration

The ACT20X-SAI-HAO/2SAI-2HAO current output isolators are suitable for controlling field devices in Ex areas, up to Zone 0.
The input/output-side HART protocol transparent signal connection is implemented using 4 to 20 mA current loops.
Integrated alarm contacts issue an alert in the event of a malfunction; this makes troubleshooting easier and increases system availability.
The rail-mounted current output 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, Safe-input: 4-20mA, Ex output: 4 - 20 mA, 2-channel
Order No.	8965460000
Type	ACT20X-2SAI-2HAO-S
GTIN (EAN)	4032248785070
Qty.	1 pc(s).

Creation date February 21, 2023 2:26:52 PM CET

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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	135 Years		

Input

Input current	4...20mA	Input frequency	0,5...2,5 kHz @ 3,5...23 mA bi-directional HART® signal
Number of inputs	2	Voltage drop	< 2 V

Output

2-wire supply	> 14.5 V @ 20 mA	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	≤ 725 Ω
Output current	4...20 mA (max. 23 mA)	Output signal limit	< 28 mA
Residual ripple (current loop)	< 7.5 mV_{eff}	Type	intrinsically safe circuit

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)
Hysteresis	0.1 mA (switching threshold)	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)	Switching thresholds	0...29.9 mA (programmable)
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	≤1.8 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)
Rated voltage	300 V		

Data for Ex applications (ATEX)

Current I_0	93 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	< 650 mW
Voltage U_0	28 V DC		

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)	85 %	Mean Time To Repair (MTTR)	24 h
Total failure rate for safe undetected failures (λ_{SU})	164 FIT	Total failure rate for dangerous detected failures (λ_{DD})	127 FIT
Total failure rate for dangerous undetected failures (λ_{DU})	48 FIT	Probability of outage PFH	4.8×10^{-8} h^{-1}
Demand mode	High		

Safety-related specifications Low demand mode

Average Probability of Failure on Demand (PFD_{avg})	2.29×10^{-4} (T_{proof} = 1 year), 4.37×10^{-4} (T_{proof} = 2 years), 1.06×10^{-4} (T_{proof} = 5 year)

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

Guarantee

Time interval	3 years

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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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Technical data

Tender specification sheets

Long specification

Ex output isolation amplifier for standard DC current signals, 2-channel, HART transparent
2-channel output isolation amplifier in 22.5 mm width with external power supply, for transmitting and isolating standard signals 4 to 20 mA from the safe zone to Ex zones 0,1,2.
Status-/ 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 2 x 4...20 mA

Output x 4...20 mA
Load < 600 Ohm Kanal
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 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

Short specification

2

Ex output isolation amplifier for standard DC current signals, 2-channel, HART transparent
2-channel output isolation amplifier in 22.5 mm width with external power supply,

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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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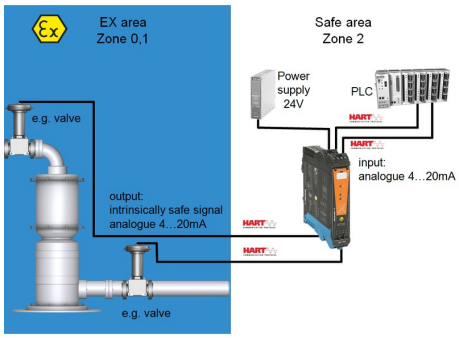
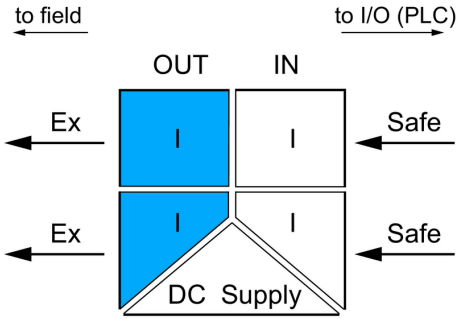
Drawings

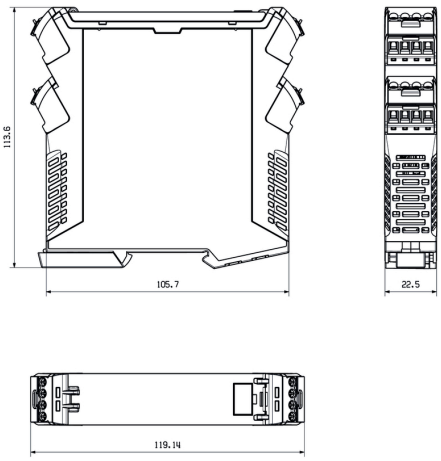
Application

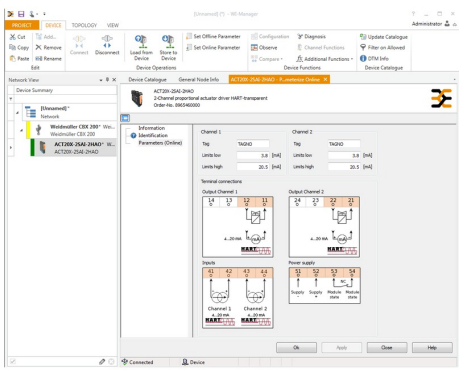


Block diagram

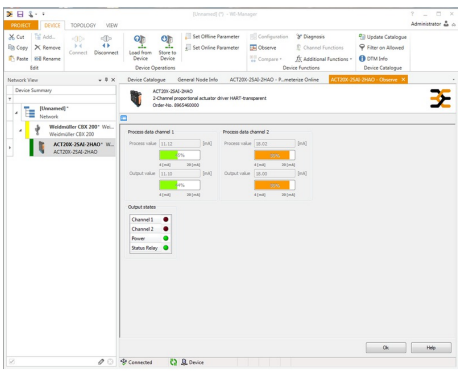


Dimensioned drawing





screenshot of configuration with FDT2 / DTM software



screenshot of "observe" with FDT2 / DTM software

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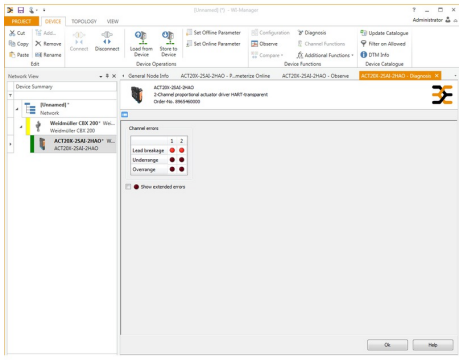
Drawings



screenshot of "diagnosis" with FDT2 / DTM software

Connection diagram