

**ACT20X**  
**ACT20X-2SAI-2HAO-S**

**Weidmüller Interface 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**

|            |                                                                                    |
|------------|------------------------------------------------------------------------------------|
| Type       | ACT20X-2SAI-2HAO-S                                                                 |
| Order No.  | <a href="#">8965460000</a>                                                         |
| Version    | EX signal isolating converter, Safe-input: 4-20mA, Ex output: 4 - 20 mA, 2-channel |
| GTIN (EAN) | 4032248785070                                                                      |
| Qty.       | 1 pc(s).                                                                           |

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### Technical data

#### Dimensions and weights

|            |          |                 |            |
|------------|----------|-----------------|------------|
| Width      | 22.5 mm  | Width (inches)  | 0.886 inch |
| Height     | 119.2 mm | Height (inches) | 4.693 inch |
| Depth      | 113.6 mm | Depth (inches)  | 4.472 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 | 135 Years |
|------|-----------|

#### Environmental Product Compliance

|            |                |
|------------|----------------|
| REACH SVHC | Lead 7439-92-1 |
|------------|----------------|

#### Rated data UL

|                |             |
|----------------|-------------|
| UL certificate | E337701.pdf |
|----------------|-------------|

#### Input EX

|                                     |          |                      |                                                                     |
|-------------------------------------|----------|----------------------|---------------------------------------------------------------------|
| Input current                       | 4...20mA | 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   | Voltage drop         | < 2 V                                                               |
| Voltage drop not powered            | < 6 V    | Voltage drop powered | < 2 V                                                               |

#### Input

|               |          |                 |                                                                     |
|---------------|----------|-----------------|---------------------------------------------------------------------|
| Input current | 4...20mA | Input frequency | 0,5...2,5 kHz @ 3,5...23 mA bi-directional HART <sup>®</sup> signal |
| Voltage drop  | < 2 V    |                 |                                                                     |

#### Output

|                                |                                                                     |                              |                         |
|--------------------------------|---------------------------------------------------------------------|------------------------------|-------------------------|
| Type                           | intrinsically safe circuit                                          | Influence of load resistance | ≤ 0.01% of span / 100 Ω |
| 2-wire supply                  | > 14.5 V @ 20 mA                                                    | Output signal limit          | < 28 mA                 |
| Residual ripple (current loop) | < 7.5 mV <sub>eff</sub>                                             | Output current               | 4...20 mA (max. 23 mA)  |
| Cut-off frequency (-3 dB)      | 0.5...2.5 kHz @ 3.5...23 mA bi-directional HART <sup>®</sup> signal | load impedance current       | ≤ 725 Ω                 |

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### 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)<br>≤ 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)<br>≤ 16 VA / 32 W (Zone 2)                                | Hysteresis         | 0.1 mA (switching threshold)                                    |
| Switching thresholds      | 0...29.9 mA (programmable)                                                             |                    |                                                                 |

### General specifications

|                    |                            |                         |                         |
|--------------------|----------------------------|-------------------------|-------------------------|
| Configuration      | With FDT/DTM software      | Voltage supply          | 19.2...31.2 V DC        |
| Type of connection | Screw connection           | Power consumption       | ≤ 1.8 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 $U_0$         | 28 V DC                               | Current $I_0$ | 93 mA                                                                          |
| Power $P_0$           | < 650 mW                              | 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                                               | $4.8 \times 10^{-8} h^{-1}$ |                                                                       |                                            |

### Safety-related specifications Low demand mode

|                                                                |                                                                                                                                              |
|----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| Average Probability of Failure on Demand (PFD <sub>avg</sub> ) | $2.29 \times 10^{-4}$ ( $T_{proof} = 1$ year), $4.37 \times 10^{-4}$ ( $T_{proof} = 2$ years), $1.06 \times 10^{-4}$ ( $T_{proof} = 5$ year) |
|----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|

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## Technical data

### 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              |

### Ratings IECEx/ATEX/cUL

|                         |                 |                    |                     |
|-------------------------|-----------------|--------------------|---------------------|
| ATEX certificate        | 11ATEX0164X.pdf | IEC Ex certificate | IECEx certification |
| Certificate no. (cULus) | E337701         |                    |                     |

### Classifications

|             |             |            |             |
|-------------|-------------|------------|-------------|
| ETIM 6.0    | EC002475    | ETIM 7.0   | EC002475    |
| eClass 9.0  | 27-21-01-23 | eClass 9.1 | 27-21-01-23 |
| eClass 10.0 | 27-21-01-23 | UNSPSC     | 30-21-18-01 |

### Product information

|                     |                                                                                |
|---------------------|--------------------------------------------------------------------------------|
| Product information | Weidmüller provides an extended guarantee period of 36 months for this device. |
|---------------------|--------------------------------------------------------------------------------|

### Approvals

Approvals



|           |         |
|-----------|---------|
| Approvals | DNVGL;  |
| ROHS      | Conform |

### Downloads

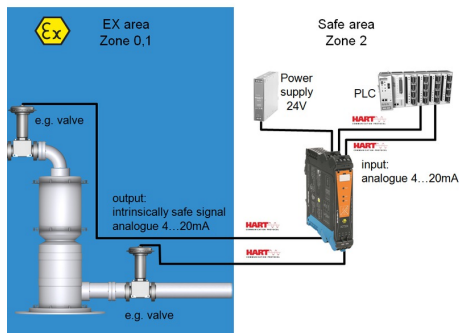
|                                             |                                                                                                                                                                                                                                         |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Approval/Certificate/Document of Conformity | <a href="#">Certification SIL</a><br><a href="#">Certification DNV GL</a><br><a href="#">Certification ATEX</a><br><a href="#">Certification IECEx</a><br><a href="#">Certification UL</a><br><a href="#">Declaration of Conformity</a> |
| Brochure/Catalogue                          | <a href="#">CAT 4.1 ELECTR 16/17 EN</a>                                                                                                                                                                                                 |
| Engineering Data                            | <a href="#">EPLAN, WSCAD</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="#">Instruction sheet</a><br><a href="#">SIL certificate</a><br><a href="#">Handbuch ACT20X- Serie, deutsch</a><br><a href="#">Manual ACT20X- series, english</a>                                                               |

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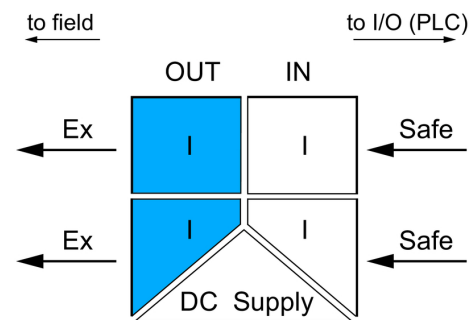
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## Drawings

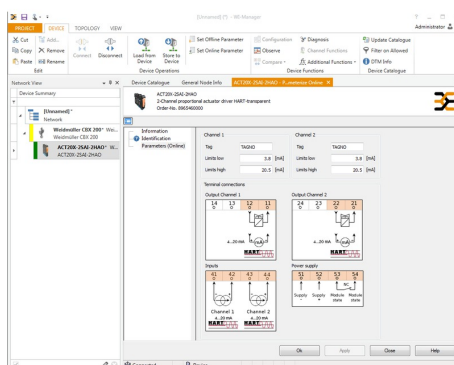
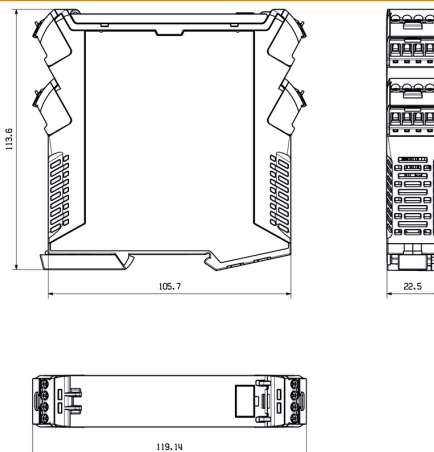
### Application



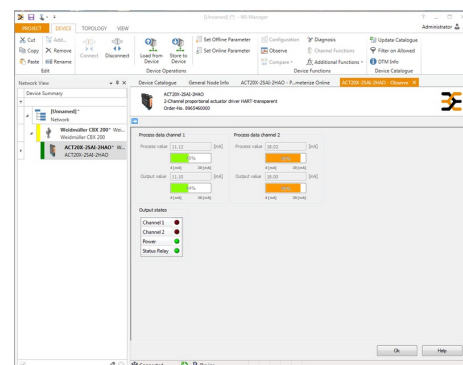
### Block diagram



### Dimensioned drawing



screenshot of configuration with FDT2 / DTM software

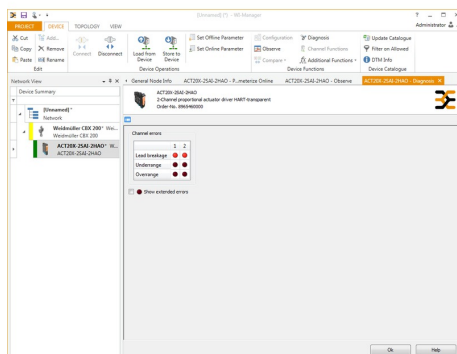


screenshot of "observe" with FDT2 / DTM software

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## Drawings



screenshot of "diagnosis" with FDT2 / DTM software

## Connection diagram

