

## ACT20X-HDI-SDO-RNO-S

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### Product image, Similar to illustration



The ACT20X-HDI-SDO/ 2HDI-2SNO RNO/RNC isolating switch amplifiers are specially designed for recording NAMUR sensor signals and digital switching signals which originate from Ex zone 0.

Switching relays, optionally available with NO or NC contacts, transfer output signals to the safe zone.

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

The rail mounted disconnect-switch amplifiers 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: NAMUR sensor/switch, Safe-output: relay, NO contact, 1-channel |
| Order No.  | <a href="#">8965340000</a>  |
| Type       | ACT20X-HDI-SDO-RNO-S  |
| GTIN (EAN) | 403224878485 1  |
| 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 | 177 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      | 207 Years       |                                  |   |

### Input EX

|                                     |  |                    |   |
|-------------------------------------|--|--------------------|---|
| Input frequency                     | < 20 Hz                                    | Input resistance   | 1 kΩ  |
| Output signal in case of wire break | < 0.1 mA, > 6.5 mA (in case of wire break) | Pulse duration     | > 0.1 ms  |
| Resistance                          | RP = 750 Ω / RS = 15kΩ                     | Sensor             | NAMUR sensor, according to EN60947-5-6, switch with or without RS, RP |
| Sensor supply                       | 8 V DC / 8 mA                              | Trigger level high | > 2.1 mA  |
| Trigger level low                   | < 1.2 mA                                   | Type               | intrinsically safe circuit  |

### Digital output

|                          |  |                           |  |
|--------------------------|--|---------------------------|--|
| Continuous current       | ≤ 2 A AC/DC (safe area, Zone 2 area)             | Function                  | Output = input, direct or inverse (configurable)                 |
| Max. switching frequency | 20 Hz  | Nominal switching voltage | ≤ 250 V AC / 30 V DC (safe area)<br>≤ 32 V AC / 32 V DC (zone 2) |
| Switching capacity       | 500 VA / 60 W (safe area), 16 VA / 60 W (zone 2) | Type                      | Relay, 1 NO, Switching frequency 20 Hz                           |

### Alarm output

|                           |   |                    |   |
|---------------------------|---|--------------------|---|
| Alarm function            | Line interruption at the input, Short circuit at 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)<br>≤ 32 V AC / 32 V DC (zone 2)                       | Power rating       | ≤ 62.5 VA / 32 W (safe area)<br>≤ 16 VA / 32 W (Zone 2)         |
| Type                      | Status relay, 1 NC (voltage-free)   |                    |   |

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0...95 % (no condensation)

**Technical data****General specifications**

|                   |  |                    |                     |
|-------------------|--|--------------------|---------------------|
| Configuration     | With FDT/DTM software,<br>Requires configuration<br>adapter 8978580000<br>CBX200 USB | Humidity           | www.weidmueller.com |
| NAMUR supply      | 8 V DC / 8 mA  | Power consumption  | ≤ 1.3 W             |
| Protection degree | IP20   | 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 <sub>0</sub> | 12 mA DC  | Installation location | Device installed in safe<br>area, zone 2 |
| Marking                | II (1) G [Ex ia Ga] IIC/IIB/<br>IIA, II (1) D [Ex ia Da] IIIC, I<br>(M1) [Ex ia Ma] I | Power P <sub>0</sub>  | 32 mW                                    |
| Voltage U <sub>0</sub> | 10.6 V DC   |                       |  |

**Safety-related basic specifications**

|  |                             |  |   |
|--|-----------------------------|--|---|
| Description of the "safe state"  | de-energized (relay output) | Device type  | B                                       |
| Diagnostic test interval   | 10 s                        | T <sub>proof</sub>   | 4 Years                                 |
| Total failure rate for safe detected failures<br>(λ <sub>SD</sub> )        | 0 FIT                       | Hardware fault tolerance (HFT)   | 0                                       |
| Safety category  | SIL 2                       | Relay lifetime   | 100000 times                            |
| Safe Failure Fraction (SFF)  | 90 %                        | Mean Time To Repair (MTTR)   | 8 h                                     |
| Total failure rate for safe undetected<br>failures (λ <sub>SU</sub> )      | 289 FIT                     | Total failure rate for dangerous detected<br>failures (λ <sub>DD</sub> ) | 130 FIT                                 |
| Total failure rate for dangerous<br>undetected failures (λ <sub>DU</sub> ) | 46 FIT                      | Probability of outage PFH  | 4.66 x 10 <sup>-8</sup> h <sup>-1</sup> |
| Demand mode  | High                        | Demand rate  | 1,000 s                                 |
| Demand response time   | < 10 ms (relay output)      |  |   |

**Safety-related specifications Low demand mode**

|                             |      |   |  |
|-----------------------------|------|---|--|
| Safe Failure Fraction (SFF) | 90 % | Average Probability of Failure on<br>Demand (PFD <sub>avg</sub> ) | 2.04 x 10 <sup>-4</sup> (T <sub>proof</sub> = 1<br>year), 4.08 x 10 <sup>-4</sup> (T <sub>proof</sub> =<br>2 years), 1.02 x 10 <sup>-4</sup> (T <sub>proof</sub><br>= 5 years) |
|-----------------------------|------|---|--|

**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,<br>min. | AWG 26               | Wire connection cross section AWG,<br>max. | AWG 12              |

**Guarantee**

|               |         |
|---------------|---------|
| Time interval | 3 years |
|---------------|---------|

Creation date February 28, 2023 2:15:26 PM CET

Catalogue status 18.02.2023 / We reserve the right to make technical changes.

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**Technical data**

**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

Short specification

www.weidmueller.com

**Ex isolating switch amplifiers for Namur sensors**  
**1-channel isolating switch amplifiers in 22.5 mm width with an external power supply, to transmit and isolate Namur sensor signals from Ex zones 0,1,2 into the safe zone.**  
**On the output side there is a potential-free relay contact with closing function and an alarm contact for status/error messages.**  
 The component can be configured using standard FDT/DTM software.

**Add-on housing for TS35 DIN rail installation**  
**Dimensions: L/W/H 119.2/ 22.5/ 113.6**  
**Screw connection/nominal cross-section 2.5 mm<sup>2</sup>**  
**Protection degree: IP20**  
**Input NAMUR sensor according to EN 60947**  
**8 VDC / 8 mA sensor power supply**  
**0 to 5 kHz input frequency wire-break detection**  
**Output Relay 1**  
**NO contact 250 VAC / 30 VDC @ 2A safe zone**  
**32 VAC @ 0.5 A/ 32 VDC @ 1 A zone 2**  
**Alarm output relay 1 NO contact 250 VAC / 30 VDC @ 2A safe zone**  
**32 VAC @ 0.5 A/ 32 VDC @ 1 A zone 2**  
**Auxiliary power 19 to 31.2 VDC**  
**Power loss approx. 1.8 W**  
**Ambient temperature range -20 °C to +60 °C**

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[info@weidmueller.com](mailto:info@weidmueller.com)[www.weidmueller.com](http://www.weidmueller.com)**Technical data****Environmental Product Compliance**

|            |                                      |  |
|------------|--------------------------------------|--|
| REACH SVHC | Lead 7439-92-1                       | <a href="http://www.weidmueller.com">www.weidmueller.com</a> |
| 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><br><a href="#">Certification DNV GL</a><br><a href="#">Certification ATEX</a><br><a href="#">Certification IECEX</a><br><a href="#">Declaration of Conformity</a>  |
| Engineering Data                            | <a href="#">CAD data – STEP</a>  |
| Engineering Data                            | <a href="#">WSCAD</a>  |
| Software                                    | <a href="#">Library and function block – WI-Manager, DTM-Library for online installation</a><br><a href="#">Release notes for Weidmueller FDT-DTM Software version</a>   |
| User Documentation                          | <a href="#">Instruction sheet</a><br><a href="#">Safety Manual for SIL application</a><br><a href="#">Handbuch ACT20X- Serie, deutsch</a><br><a href="#">Manual ACT20X- series, english</a><br><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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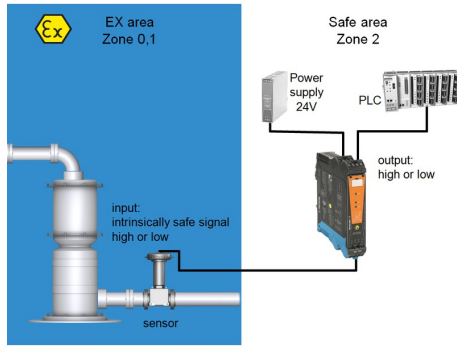
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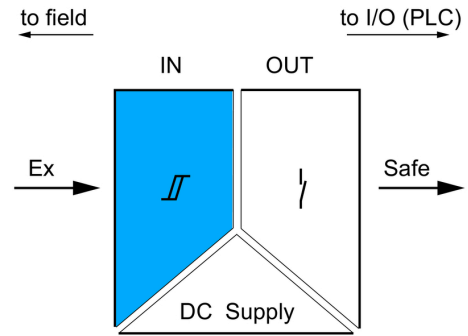
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**Drawings**

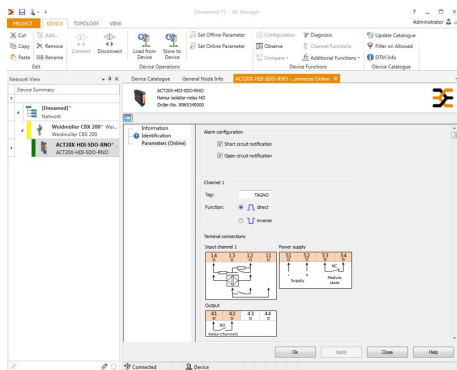
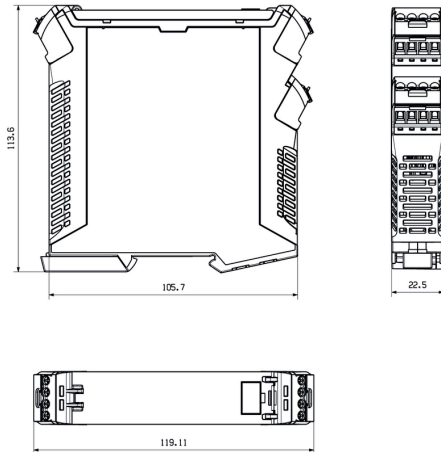
**Application**



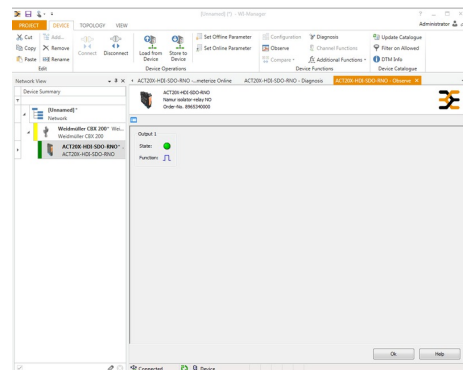
**Block diagram**



**Dimensioned drawing**



screenshot of configuration with FDT2 / DTM software



screenshot of "observe" with FDT2 / DTM software

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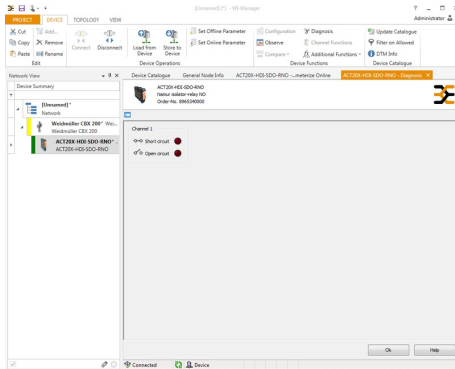
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**Drawings**



screenshot of "diagnosis" with FDT2 / DTM software

**Connection diagram**

