

ACT20X-HDI-SDO-S

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

www.weidmueller.com

Product image, Similar to illustration



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

Negative-switching (NPN) transistor outputs are used to transmit the signals to applications in 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: Optocoupler, 1-channel |
| Order No. | 8965360000 |
| Type | ACT20X-HDI-SDO-S |
| GTIN (EAN) | 4032248784875 |
| 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 | 170 g | | |

Temperatures

| | | | |
|---------------------|----------------------------|-----------------------|----------------|
| Storage temperature | -20 °C...85 °C | Operating temperature | -20 °C...60 °C |
| Humidity | 0...95 % (no condensation) | | |

Probability of failure

| | | | |
|-----------|-----------------|----------------------------------|---|
| SIL PAPER | SIL certificate | SIL in compliance with IEC 61508 | 2 |
| MTBF | 215 a | | |

Assembling

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

Input EX

| | | | |
|--------------------|---|-------------------------------------|--|
| Input frequency | 0...5 kHz | Input resistance | 1 kΩ |
| NAMUR supply | 8 V DC / 8 mA | Output signal in case of wire break | <0.1 mA, > 6.5 mA (in case of wire break) |
| Pulse duration | > 0.1 ms | Resistance | Series resistor 750Ω, Parallel resistor 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 | 80 mA | Function | Output = input, direct or inverse (configurable) |
| Max. switching frequency | ≤ 5 kHz | Nominal switching voltage | 30 V DC |
| Type | NPN-Transistor | | |

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) ≤ 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

| | | | |
|--------------------|--|--------------------|----------------------------|
| Configuration | With FDT/DTM software, Requires configuration adapter 8978580000 CBX200 USB | Humidity | 0...95 % (no condensation) |
| Operating altitude | ≤ 2000 m | Power consumption | ≤ 1.1 W |
| Protection degree | IP20 | Type of connection | Screw connection |
| Voltage supply | 19.2...31.2 V DC | | |

Insulation coordination

| | | | |
|---------------|------------|--------------------|-------------------------|
| EMC standards | EN 61326-1 | Insulation voltage | 2.6 kV (input / output) |
| Rated voltage | 300 V | Standards | EN 61010-1 |

Data for Ex applications (ATEX)

| | | | |
|---------------|---|-----------------------|--|
| Current I_0 | 12 mA DC | 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 | 32 mW |
| Voltage U_0 | 10.6 V DC | | |

Safety-related basic specifications

| | | | |
|--|--------------------------------------|--|---------|
| Description of the "safe state" | High impedance | Device type | B |
| Diagnostic test interval | 10 s | T_{proof} | 5 a |
| Total failure rate for safe detected failures (λ_{SD}) | 0 FIT | Hardware fault tolerance (HFT) | 0 |
| Safety category | SIL 2 | Safe Failure Fraction (SFF) | 92 % |
| Mean Time To Repair (MTTR) | 8 h | Total failure rate for safe undetected fail- ures (λ_{SU}) | 275 FIT |
| Total failure rate for dangerous detected failures (λ_{DD}) | 135 FIT | Total failure rate for dangerous undetect- ed failures (λ_{DU}) | 36 FIT |
| Probability of outage PFH | $3.62 \times 10^{-9} \text{ h}^{-1}$ | Demand mode | High |
| Demand rate | 1,000 s | | |

Safety-related specifications Low demand mode

| | |
|---|--|
| Average Probability of Failure on De- mand (PFD_{avg}) | 1.58×10^{-4} ($T_{proof} = 1$ year), 3.17×10^{-4} ($T_{proof} =$ 2 years), 7.92×10^{-4} ($T_{proof} =$ 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 ² |
| Clamping range, min. | 0.25 mm ² | Clamping range, max. | 2.5 mm ² |
| Wire connection cross section AWG, min. | AWG 26 | Wire connection cross section AWG, max. | AWG 12 |

Guarantee

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

Creation date November 26, 2024 11:49:28 AM CET

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Technical data

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 | 27-21-01-20 |
| ECLASS 14.0 | 27-21-01-20 | | |

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Technical data

Tender specification sheets

Long specification

Short specification

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 an NPN switching transistor and a common alarm contact (relay/"a" contact) for status or 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 mm²**

**Protection degree:
 IP20**

Input NA-MUR sensor according to EN 60947

8

VDC / 8 mA sensor power supply

0 to

5 kHz input frequency wire-

break detection

Output

NPN transistor

30

VDC @ 80 mA

5

kHz switching frequency

< 2,

5 VDC Spannungsfall

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...31.2 VDC

Power loss approx. 1.8

W

Ambient

Creation date November 26, 2024 / **Temperature range -20 °C to +60 °C**

Catalogue status 26.11.2024 / Weidmüller reserves the right to make technical changes.

See also EN 61010, 3-

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Technical data**Environmental Product Compliance**

| | |
|--------------------------------------|--------------------------------------|
| RoHS Compliance Status | Compliant with exemption |
| RoHS Exemption (if applicable/known) | 7a, 7cl |
| 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

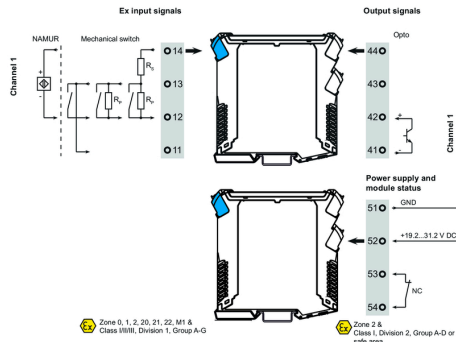
| | |
|---|--|
| Approval/Certificate/Document of Conformity | Application notes – Certification SIL Certification DNV GL Application notes – Certification ATEX Application notes – Certification IECEX UL certification for canada Declaration of Conformity |
| Engineering Data | CAD data – STEP |
| Software | 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 | |

ACT20X-HDI-SDO-S

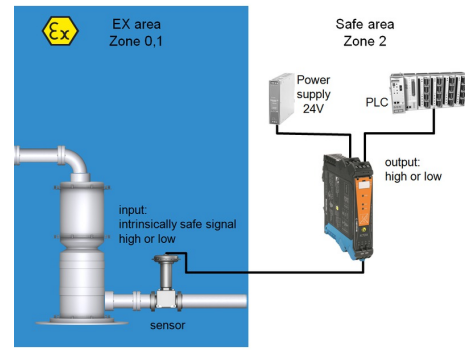
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Drawings

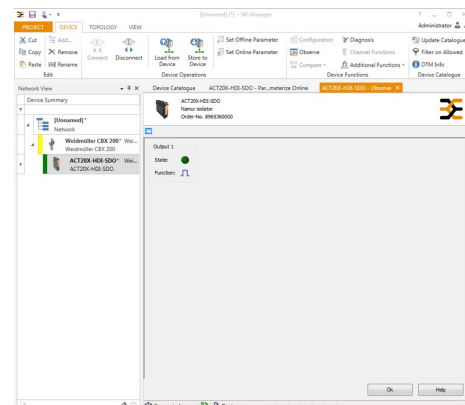
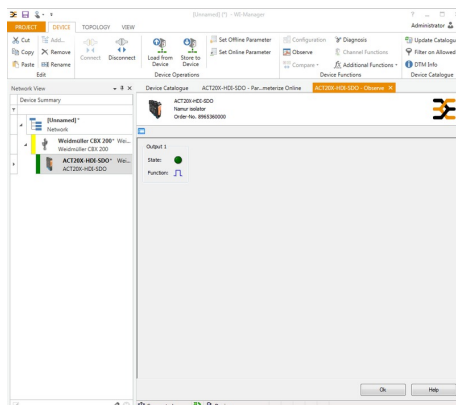
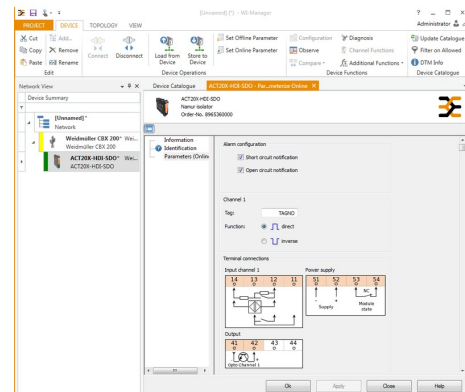
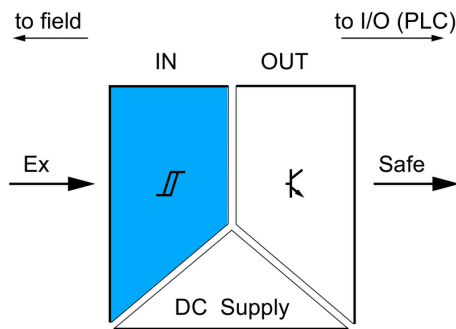
Connection diagram



Application



Block diagram



screenshot of "observe" with FDT2 / DTM software

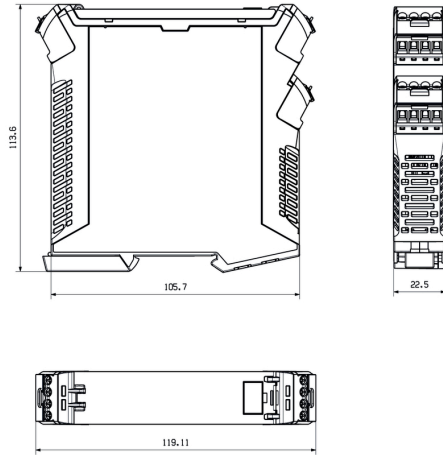
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Drawings

Dimensioned drawing



Removable terminals with coding