

UR20-8DI-PN-FSPS-V2

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

www.weidmueller.com

Product image, Similar to illustration



SIL3; OSSD outputs; wire breakage and short-circuit detection

Safety technology is of central importance in industrial automation and machine building. If you want to reduce risks and avoid dangers for people and environment, you need solutions which satisfy stringent requirements and statutory specifications. The safety modules of the u-remote system have key features such as emergency-stop circuits and wire-breakage or short-circuit detection. They meet all SIL 3 requirements according to IEC 62061 and EN ISO 13849-1, category 4, PL e, and support the safe operation of your system.

By safely shutting down the downstream output modules, the safety modules attain maximum safety with optimum control. All input sensors are independently supplied via separate voltage paths and report the current machine status to the control unit. Restarting is either carried out in manual mode or using the autostart function. In addition, Weidmüller safety modules reduce maintenance and service times and improve response times in case of emergency – thanks to a concept of maximum transparency, e.g. using OSSD outputs.

The module electronics supply the connected actuators from the output current path (U_{OUT}).

General ordering data

| | |
|-------------------|---|
| Version | Remote I/O module, IP20, Safety, Digital signals, 8-channel |
| Order No. | 2464590000 |
| Type | UR20-8DI-PN-FSPS-V2 |
| GTIN (EAN) | 4050118479294 |
| Qty. | 1 pc(s). |
| Replacement parts | 1350970000 2465950000 |

Creation date February 24, 2023 4:14:39 PM CET

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

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Technical data

Dimensions and weights

| | | | |
|-----------------------------|---------|-----------------|------------|
| Depth | 76 mm | Depth (inches) | 2.992 inch |
| Height | 120 mm | Height (inches) | 4.724 inch |
| Width | 11.5 mm | Width (inches) | 0.453 inch |
| Mounting dimension - height | 128 mm | Net weight | 88.82 g |

Temperatures

| | | | |
|-----------------------------|-------------------|-----------------------------|-------------------|
| Storage temperature | -40 °C ... +85 °C | Operating temperature | -20 °C ... +60 °C |
| Operating temperature, min. | -20 °C | Operating temperature, max. | 60 °C |

digital inputs

| | | | |
|------------------------------|--|--------------------------|------------------------|
| Individual channel diagnosis | Yes | Input filter | configurable |
| Input type | Type 1 in acc. with IEC 61131-2, Type 3 in acc. with IEC 61131-2 | Input voltage, high | > 11 V |
| Input voltage, low | < 5 V | Module diagnosis | Yes |
| Number | 8 | Number of digital inputs | 8 |
| Reverse polarity protection | Yes | Sensor connection | 2-wire, 3-wire, 4-wire |
| Sensor supply | Yes | | |

digital outputs

| | | | |
|------------------------------|-----|-------------------|------------------------|
| Individual channel diagnosis | Yes | Module diagnosis | Yes |
| Number | 8 | Sensor connection | 2-wire, 3-wire, 4-wire |

Connection data

| | | | |
|--|----------------------|--|----------------------|
| Number | 8 | Type of connection | PUSH IN |
| Wire connection cross section, finely stranded, max. | 1.5 mm ² | Wire connection cross section, finely stranded, min. | 0.14 mm ² |
| Wire cross-section, finely stranded, max. (AWG) | AWG 16 | Wire cross-section, finely stranded, min. (AWG) | AWG 26 |
| Wire cross-section, solid, max. | 1.5 mm ² | Wire cross-section, solid, max. (AWG) | AWG 16 |
| Wire cross-section, solid, min. | 0.14 mm ² | Wire cross-section, solid, min. (AWG) | AWG 26 |

General data

| | | | |
|--------------------------|--|---------------------------|--|
| Air humidity (operation) | 10% to 95%, non-condensing as per DIN EN 61131-2 | Air humidity (storage) | 10% to 95%, non-condensing as per DIN EN 61131-2 |
| Air humidity (transport) | 10% to 95%, non-condensing as per DIN EN 61131-2 | Air pressure (operation) | ≥ 795 hPa (height ≤ 2000 m) as per DIN EN 61131-2 |
| Air pressure (storage) | 1013 hPa (height 0 m) to 700 hPa (height 3000 m) as per DIN EN 61131-2 | Air pressure (transport) | 1013 hPa (height 0 m) to 700 hPa (height 3000 m) as per DIN EN 61131-2 |
| Pollution severity | 2 | Rail | TS 35 |
| Shock | 15 g over 11 ms, half sinus wave, acc. to IEC 60068-2-27 | Surge voltage category | II |
| Test voltage | 500 V | UL 94 flammability rating | V-0 |
| Vibration resistance | 5 Hz ≤ f ≤ 8.4 Hz: 3.5-mm amplitude as per IEC 60068-2-6, 8.4 Hz ≤ f ≤ 150 Hz: 1 g acceleration as per IEC 60068-2-6 | | |

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Power supply

| | | | |
|--|--|---|-------|
| Current consumption from I_{IN} (the respective power segment) | 30 mA | Current consumption from I_{OUT} (the respective power segment) | 30 mA |
| Current consumption from I_{sys} , typ. | 8 mA | Reverse polarity protection | Yes |
| Voltage supply | 24 V DC +20 %/ -15 %, via the system bus | | |

Safety characteristics in acc. with EN 61508

| | | | |
|--|---|---|--|
| Achievable safety level, inputs | Single-channel circuit 1oo1: SIL 2 | HFT (hardware fault tolerance), inputs | Single-channel circuit 1oo1: 0, Dual-channel circuit 1oo2: 1 |
| PFD (probability of failure on demand), inputs | Single-channel circuit 1oo1: $8,77 \cdot 10^{-4}$, Dual-channel circuit 1oo2: $1,85 \cdot 10^{-5}$ | PFD (probability of failure on demand), outputs | $1,85 \cdot 10^{-5}$ |
| PFH (probability of failure per hour in 1/h), inputs | Single-channel circuit 1oo1: 10^{-8} , Dual-channel circuit 1oo2: $2,17 \cdot 10^{-10}$ | Proportion of safety-related outages (SFF) | 98 % |

Safety characteristics in acc. with EN 62061

| | | | |
|--|--|---------------------|-----------------------------------|
| Achievable safety level, inputs | Single-channel circuit 1oo1: SILCL 2, Dual-channel circuit 1oo2: SILCL 3 | Error response time | Single-channel circuit 1oo1: 10 s |
| PFH (probability of failure per hour in 1/h), inputs | Single-channel circuit 1oo1: 10^{-8} , Dual-channel circuit 1oo2: $2,94 \cdot 10^{-9}$ | | |

Safety characteristics in acc. with EN ISO 13849

| | | | |
|---------------------------------|---|----------------------------------|--|
| Achievable safety level, inputs | PLd, category 2 (DIN EN ISO 13849-1) / architecture 1oo1 (1 channel), Ple, category 4 (DIN EN ISO 13849-1) / architecture 1oo2 (2 channels) | Diagnostic coverage (DC), inputs | Single-channel circuit 1oo1: 90%, Dual-channel circuit 1oo2: 99% |
| MTTF | 100 Years | | |

System data

| | | | |
|---------------------|------------------------------|--|------------------------------------|
| Field bus protocol | PROFINET IRT, PROFIBUS DP-V1 | Galvanic isolation | 500 V DC between the current paths |
| Interface | u-remote system bus | Module type | Safe input module |
| Possible connection | 2-wire, 4-wire | Transmission speed of system bus, max. | 48 Mbit |

Classifications

| | | | |
|-------------|-------------|-------------|-------------|
| ETIM 6.0 | EC001599 | ETIM 7.0 | EC001599 |
| ETIM 8.0 | EC001599 | ECLASS 9.0 | 27-24-26-05 |
| ECLASS 9.1 | 27-24-26-05 | ECLASS 10.0 | 27-24-26-05 |
| ECLASS 11.0 | 27-24-26-05 | ECLASS 12.0 | 27-24-26-05 |

Environmental Product Compliance

| | |
|------------|--------------------------------------|
| REACH SVHC | Lead 7439-92-1 |
| SCIP | 82327f13-cd27-455a-ab5b-a62e1996dcf8 |

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Technical data

Approvals

Approvals



| | |
|---------------------------|------------|
| ROHS | Conform |
| UL File Number Search | UL Website |
| Certificate no. (cULus) | E141197 |
| Certificate no. (cULusEX) | E223527 |

Downloads

| | |
|---|--|
| Approval/Certificate/Document of Conformity | TÜV_certificate_Safety-IO-module.pdf DEMKO15ATEX1525X UKCA Declaration of Conformity - EN CE Declaration of Conformity - DE |
| Engineering Data | CAD data – STEP Compatibility information – Combinability of UR20 |
| Product Change Notification | Release-Notes - Firmware |
| Software | Firmware – Archive firmware UR20-8DI-PN-FSPS-V2 Runtime Software – CPD-Tool (PROFIsafe_parameter-checksum-generator) Library and function block – SISTEMA library 2.0 |
| User Documentation | MAN_U-REMOTE_DE MAN_U-REMOTE_EN MAN_U-REMOTE_FS_DE MAN_U-REMOTE_FS_EN Application notes - PROFISAFE Siemens PLC STEP7 V5.5 EN Application notes - PROFISAFE Siemens PLC TIA-Portal EN Quick start guide – Getting started with PROFINET applications |
| Catalogues | Catalogues in PDF-format |

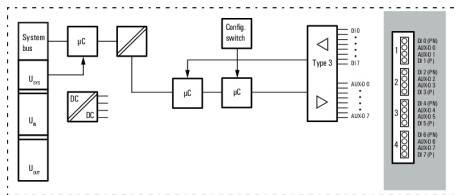
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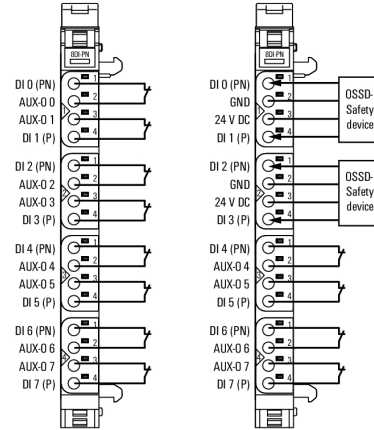
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Drawings

Block diagram

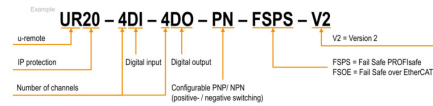


Connection diagram



Explanation of abbreviations

Safe I/O modules



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Accessories**Aluminum**

Aluminum has the second best electrical conductivity after copper. One advantage is low weight, anMiscellaneous is outstanding corrosion protection.

General ordering data

| | | |
|------------|----------------------------|--|
| Type | TS 35X7.5 2M/AL/BK | Version |
| Order No. | 0330800000 | Rail, TS 35, TS 35 x 7.5, without slot, Aluminium, untreated |
| GTIN (EAN) | 4008190100650 | |
| Qty. | 2 m | |

Stainless steel

Stainless steel is a collective term for all types of steel (alloys) with a high degree of purity and corrosion resistance.

General ordering data

| | | |
|------------|----------------------------|--|
| Type | TS 35X7.5 2M/CRN | Version |
| Order No. | 1747350000 | Rail, TS 35, TS 35 x 7.5, without slot, Stainless steel, rust-proof, |
| GTIN (EAN) | 4032248003372 | Stainless steel 1.4301, untreated |
| Qty. | 2 m | |

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Accessories

Custom printing



The Dekafix (DEK) marker is the universal marker for all conductor and plug-in connectors as well as for electronic sub-assemblies. The system is ideal for short number sequences and covers a wide range of ready-printed markers.

Strips for fast installation in only one work step. The printing is easy to read, rich in contrast and available in various widths.

- Large range of ready-to-use markers
- Strips for fast installation
- Terminal markers, suitable for all Weidmüller cable connectors
- Available as blank MultiCard or with standard printing

For custom printing: Please send us a file of our labeling software M-Print PRO or M-Print PRO Online (without installation) for your labeling specifications.

General ordering data

| | | | |
|------------|----------------------------|---------|---|
| Type | DEK 5/8-11.5 MC SDR | Version | |
| Order No. | 1341610000 | | Dekafix, Terminal marker, 5 x 8 mm, Pitch in mm (P): 8.00 |
| GTIN (EAN) | 4050118146059 | | Weidmueller, To customer specification |
| Qty. | 100 pc(s). | | |

Blank



The Dekafix (DEK) marker is the universal marker for all conductor and plug-in connectors as well as for electronic sub-assemblies. The system is ideal for short number sequences and covers a wide range of ready-printed markers.

Strips for fast installation in only one work step. The printing is easy to read, rich in contrast and available in various widths.

- Large range of ready-to-use markers
- Strips for fast installation
- Terminal markers, suitable for all Weidmüller cable connectors
- Available as blank MultiCard or with standard printing

For custom printing: Please send us a file of our labeling software M-Print PRO or M-Print PRO Online (without installation) for your labeling specifications.

General ordering data

| | | | |
|------------|----------------------------|---------|---|
| Type | DEK 5/8-11.5 MC NE WS | Version | |
| Order No. | 1341630000 | | Dekafix, Terminal marker, 5 x 8 mm, Pitch in mm (P): 8.00 |
| GTIN (EAN) | 4050118145946 | | Weidmueller, white |
| Qty. | 500 pc(s). | | |

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Accessories

Blank



General ordering data

| | | |
|------------|----------------------------|---|
| Type | PM 2.7/2.6 MC NE WS | Version |
| Order No. | 1323710000 | OMNIMATE Signal - series PM, Pusher markers, 2.7 x 2.6 mm, Pitch in |
| GTIN (EAN) | 4050118126778 | mm (P): 3.50 Weidmueller, white |
| Qty. | 960 pc(s). | |

Accessories



Potential-distribution modules; system accessory

A wide range of accessory modules is available for individual requirements of machine and plant engineering. Various potential distribution modules are available for the supply of sensors with 2- to 4-wire connection technology directly from the remote I/O system. These offer 16 "PUSH IN" potential points and supply your application with any auxiliary potential available. An empty module, where the system bus and voltage supply are looped through, allows you to plan expansion slots in a system and to start these up without any interruptions if required.

General ordering data

| | | |
|------------|----------------------------|----------|
| Type | UR20-SM-ACC | Version |
| Order No. | 1339920000 | Cover, , |
| GTIN (EAN) | 4050118144727 | |
| Qty. | 20 pc(s). | |

| | | |
|------------|----------------------------|----------------|
| Type | UR20-EBK-ACC | Version |
| Order No. | 1346610000 | End bracket, , |
| GTIN (EAN) | 4050118151596 | |
| Qty. | 5 pc(s). | |

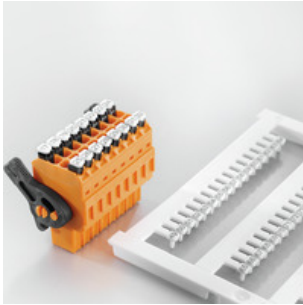
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Accessories

Custom printing



General ordering data

| | | |
|------------|----------------------------|---|
| Type | PM 2.7/2.6 MC SDR | Version |
| Order No. | 1323700000 | OMNIMATE Signal - series PM, Pusher markers, 2.7 x 2.6 mm, Pitch in |
| GTIN (EAN) | 4050118126761 | mm (P): 3.50 Weidmueller, To customer specification |
| Qty. | 192 pc(s). | |

Steel



Steel DIN rails are the most widespread on the market. Among metal DIN rails, they have the lowest shortcircuit protection, similar to stainless steel.

General ordering data

| | | |
|------------|----------------------------|---|
| Type | TS 35X7.5/LL 2M/ST/ZN | Version |
| Order No. | 0514500000 | Rail, TS 35, TS 35 x 7.5, with slot, Steel, galvanic zinc plated and |
| GTIN (EAN) | 4008190046019 | passivated |
| Qty. | 2 m | |
| Type | TS 35X7.5/LL 2M/ST/SZ | Version |
| Order No. | 7915060000 | Rail, TS 35, TS 35 x 7.5, with slot, Steel, galvanic zinc plated and |
| GTIN (EAN) | 4032248296279 | passivated |
| Qty. | 2 m | |
| Type | TS 35X7.5 2M/ST/ZN | Version |
| Order No. | 0383400000 | Rail, TS 35, TS 35 x 7.5, without slot, Steel, galvanic zinc plated and |
| GTIN (EAN) | 4008190088026 | passivated |
| Qty. | 2 m | |
| Type | TS 35X7.5/LL 1M/ST/ZN | Version |
| Order No. | 0514510000 | Rail, TS 35, TS 35 x 7.5, with slot, Steel, galvanic zinc plated and |
| GTIN (EAN) | 4008190116620 | passivated |
| Qty. | 1 m | |

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Replacement parts

Basic modules



General ordering data

| Type | UR20-BM-PF-O-SIL-SP | Version | Packaging |
|------------|----------------------------|---|-----------|
| Order No. | 1350970000 | Replacement part , Flange-mounted housing | Cardboard |
| GTIN (EAN) | 4050118398342 | | box |
| Qty. | 5 pc(s). | | |

Plugkit



General ordering data

| Type | UR20-PK-2464590000-SP | Version |
|------------|----------------------------|------------------|
| Order No. | 2465950000 | Replacement part |
| GTIN (EAN) | 4050118480641 | |
| Qty. | 5 pc(s). | |