

**UR20-8DI-PN-FSPS-V2****Weidmüller Interface GmbH & Co. KG**

Klingenbergstraße 26

D-32758 Detmold

Germany

[www.weidmueller.com](http://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.         | <a href="#">2464590000</a>                                  |
| Type              | UR20-8DI-PN-FSPS-V2                                         |
| GTIN (EAN)        | 4050118479294                                               |
| Qty.              | 1 pc(s).                                                    |
| Replacement parts | <a href="#">1350930000</a> <a href="#">2465950000</a>       |

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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 |
|---------------------|-------------------|-----------------------|-------------------|

## 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 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 |
| Sensor connection            | 2-wire, 3-wire, 4-wire |                  |     |

## Connection data

|                                                      |                      |                                                      |                      |
|------------------------------------------------------|----------------------|------------------------------------------------------|----------------------|
| Type of connection                                   | PUSH IN              | Wire connection cross section, finely stranded, max. | 1.5 mm <sup>2</sup>  |
| Wire connection cross section, finely stranded, min. | 0.14 mm <sup>2</sup> | 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 <sup>2</sup>  |
| Wire cross-section, solid, max. (AWG)                | AWG 16               | Wire cross-section, solid, min.                      | 0.14 mm <sup>2</sup> |
| 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 a                                                                                                                                       |                                  |                                                                  |

## 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    | ETIM 9.0    | EC001599    |
| ETIM 10.0   | 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 |
| ECLASS 13.0 | 27-24-26-05 | ECLASS 14.0 | 27-24-26-05 |
| ECLASS 15.0 | 27-24-26-05 |             |             |

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## Environmental Product Compliance

|                                      |                                      |
|--------------------------------------|--------------------------------------|
| RoHS Compliance Status               | Compliant with exemption             |
| RoHS Exemption (if applicable/known) | 7a, 7cl                              |
| REACH SVHC                           | Lead 7439-92-1                       |
| SCIP                                 | 82327f13-cd27-455a-ab5b-a62e1996dcf8 |

## Approvals

Approvals



Approvals MAMID

[https://mdcop.weidmueller.com/mediadelivery/rendition/900\\_319212/-T1z1mm-S800/](https://mdcop.weidmueller.com/mediadelivery/rendition/900_319212/-T1z1mm-S800/) [https://mdcop.weidmueller.com/mediadelivery/rendition/900\\_319215/-T1z1mm-S800/](https://mdcop.weidmueller.com/mediadelivery/rendition/900_319215/-T1z1mm-S800/) [https://mdcop.weidmueller.com/mediadelivery/rendition/900\\_319217/-T1z1mm-S800/](https://mdcop.weidmueller.com/mediadelivery/rendition/900_319217/-T1z1mm-S800/) [https://mdcop.weidmueller.com/mediadelivery/rendition/900\\_319220/-T1z1mm-S800/](https://mdcop.weidmueller.com/mediadelivery/rendition/900_319220/-T1z1mm-S800/) [https://mdcop.weidmueller.com/mediadelivery/rendition/900\\_319222/-T1z1mm-S800/](https://mdcop.weidmueller.com/mediadelivery/rendition/900_319222/-T1z1mm-S800/) [https://mdcop.weidmueller.com/mediadelivery/rendition/900\\_319224/-T1z1mm-S800/](https://mdcop.weidmueller.com/mediadelivery/rendition/900_319224/-T1z1mm-S800/) [https://mdcop.weidmueller.com/mediadelivery/rendition/900\\_319228/-T1z1mm-S800/](https://mdcop.weidmueller.com/mediadelivery/rendition/900_319228/-T1z1mm-S800/) [https://mdcop.weidmueller.com/mediadelivery/rendition/900\\_322323/-T1z1mm-S800/](https://mdcop.weidmueller.com/mediadelivery/rendition/900_322323/-T1z1mm-S800/) [https://mdcop.weidmueller.com/mediadelivery/rendition/900\\_319213/-T1z1mm-S800/](https://mdcop.weidmueller.com/mediadelivery/rendition/900_319213/-T1z1mm-S800/) [https://mdcop.weidmueller.com/mediadelivery/rendition/900\\_319234/-T1z1mm-S800/](https://mdcop.weidmueller.com/mediadelivery/rendition/900_319234/-T1z1mm-S800/) [https://mdcop.weidmueller.com/mediadelivery/rendition/900\\_319238/-T1z1mm-S800/](https://mdcop.weidmueller.com/mediadelivery/rendition/900_319238/-T1z1mm-S800/) [https://mdcop.weidmueller.com/mediadelivery/rendition/900\\_319240/-T1z1mm-S800/](https://mdcop.weidmueller.com/mediadelivery/rendition/900_319240/-T1z1mm-S800/) [https://mdcop.weidmueller.com/mediadelivery/rendition/900\\_319247/-T1z1mm-S800/](https://mdcop.weidmueller.com/mediadelivery/rendition/900_319247/-T1z1mm-S800/) [https://mdcop.weidmueller.com/mediadelivery/rendition/900\\_319249/-T1z1mm-S800/](https://mdcop.weidmueller.com/mediadelivery/rendition/900_319249/-T1z1mm-S800/) [https://mdcop.weidmueller.com/mediadelivery/rendition/900\\_319255/-T1z1mm-S800/](https://mdcop.weidmueller.com/mediadelivery/rendition/900_319255/-T1z1mm-S800/) [https://mdcop.weidmueller.com/mediadelivery/rendition/900\\_319260/-T1z1mm-S800/](https://mdcop.weidmueller.com/mediadelivery/rendition/900_319260/-T1z1mm-S800/)

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

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## Downloads

|                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Approval/Certificate/Document of Conformity | <a href="#">KC certificate</a><br><a href="#">TÜV_certificate_Safety-IO-module.pdf</a><br><a href="#">Lloyds Register certificate</a><br><a href="#">DNV certificate</a><br><a href="#">DEMKO 15ATEX 1525X</a><br><a href="#">KR Korean register certificate</a><br><a href="#">CCS certificate</a><br><a href="#">CCS certificate</a><br><a href="#">UKCA Declaration of Conformity - EN</a><br><a href="#">CE Declaration of Conformity - DE</a> |
| Engineering Data                            | <a href="#">CAD data – STEP</a><br><a href="#">Application notes – Application notes - PROFISAFE Siemens PLC STEP7 V5.5 EN</a><br><a href="#">Application notes – Application notes - PROFISAFE Siemens PLC TIA-Portal EN</a><br><a href="#">Compatibility information – Combinability of UR20</a><br><a href="#">Quick start guide – Getting started with PROFINET applications</a>                                                               |
| Product Change Notification                 | <a href="#">Release-Notes - Firmware</a>                                                                                                                                                                                                                                                                                                                                                                                                           |
| Software                                    | <a href="#">Firmware – Archive firmware UR20-8DI-PN-FSPS-V2</a><br><a href="#">Runtime Software – CPD-Tool PROFIsafe parameter checksum generator</a><br><a href="#">Library and function block – SISTEMA library 2.0</a>                                                                                                                                                                                                                          |
| User Documentation                          | <a href="#">Handbuch u-remote DE</a><br><a href="#">Manual u-remote EN</a><br><a href="#">MAN_U-REMOTE_FS_DE</a><br><a href="#">MAN_U-REMOTE_FS_EN</a>                                                                                                                                                                                                                                                                                             |
| Catalogues                                  | <a href="#">Catalogues in PDF-format</a>                                                                                                                                                                                                                                                                                                                                                                                                           |

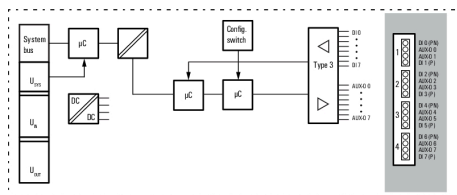
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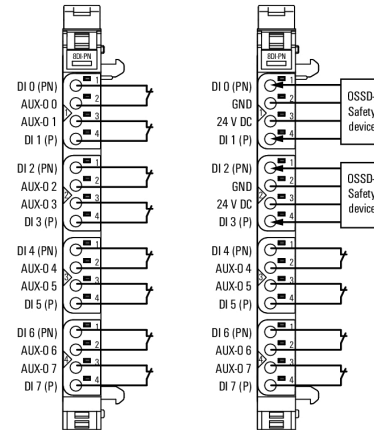
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## Drawings

## Block diagram



## Connection diagram



## Explanation of abbreviations

## Safe I/O modules

