

## UR20-4DI-4DO-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, 4-channel
Order No.	<a href="#">2464570000</a>
Type	UR20-4DI-4DO-PN-FSPS-V2
GTIN (EAN)	4050118479270
Qty.	1 pc(s).
Replacement parts	<a href="#">1350970000</a> <a href="#">2466000000</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	89.7 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	4	Number of digital inputs	4
Reverse polarity protection	Yes	Sensor supply	Yes
Short-circuit-proof	Yes		

## digital outputs

Actuator connection	2-wire	Feedback-free	No
Individual channel diagnosis	Yes	Module diagnosis	Yes
Number	4	Number of digital outputs	4
Output current per channel, max.	0.5 A	Output current per module, max.	2 A
Response time of the protective circuit (current limiting)	< 100µs	Short-circuit-proof	Yes

## Connection data

Number	4	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

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## Technical data

## 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		

## Power supply

Current consumption from I <sub>OUT</sub> (the respective power segment)	30 mA	Current consumption from I <sub>sys</sub> , 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	SIL 3	Achievable safety level, outputs	SIL 3
HFT (hardware fault tolerance), inputs	Single-channel circuit 1oo1: 0, Dual-channel circuit 1oo2: 1	HFT (hardware fault tolerance), outputs	1
PFD (probability of failure on demand), inputs	Single-channel circuit 1oo1: 8,77*10 <sup>-4</sup> , Dual-channel circuit 1oo2: 1,85*10 <sup>-5</sup>	PFD (probability of failure on demand), outputs	1,85*10 <sup>-5</sup>
PFH (probability of failure per hour in 1/h), inputs	Single-channel circuit 1oo1: 10 <sup>-8</sup> , Dual-channel circuit 1oo2: 2,17*10 <sup>-10</sup>	PFH (probability of failure per hour in 1/h), outputs	2,17*10 <sup>-10</sup>
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	Achievable safety level, outputs	SILCL 3 (IEC 62061)
Error response time	Single-channel circuit 1oo1: 5 s	PFH (probability of failure per hour in 1/h), inputs	Single-channel circuit 1oo1: 10 <sup>-8</sup> , Dual-channel circuit 1oo2: 2,94*10 <sup>-9</sup>
PFH (probability of failure per hour in 1/h), outputs	5.56*10 <sup>-9</sup>		

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## Technical data

### 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)	Achievable safety level, outputs	Ple, category 4
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 and output 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

### Approvals

Approvals



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

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## Technical data

## Downloads

Approval/Certificate/Document of Conformity	<a href="#">TÜV certificate_Safety-IO-module.pdf</a> <a href="#">RINA certificate</a> <a href="#">DEMKO15ATEX1525X</a> <a href="#">UKCA Declaration of Conformity - EN</a> <a href="#">CE Declaration of Conformity - DE</a>
Engineering Data	<a href="#">CAD data – STEP</a> <a href="#">Compatibility information – Combinability of UR20</a>
Product Change Notification	<a href="#">Release-Notes - Firmware</a>
Software	<a href="#">Firmware – Archive firmware UR20-4DI-4DO-PN-FSPS-V2</a> <a href="#">Firmware – Current firmware UR20-4DI-4DO-PN-FSPS-V2</a> <a href="#">Runtime Software – CPD-Tool (PROFIsafe_parameter-checksum-generator)</a> <a href="#">Library and function block – SISTEMA library 2.0</a>
User Documentation	<a href="#">MAN_U-REMOTE_DE</a> <a href="#">MAN_U-REMOTE_EN</a> <a href="#">MAN_U-REMOTE_FS_DE</a> <a href="#">MAN_U-REMOTE_FS_EN</a> <a href="#">Application notes - PROFISAFE Siemens PLC STEP7 V5.5 EN</a> <a href="#">Application notes - PROFISAFE Siemens PLC TIA-Portal EN</a> <a href="#">Quick start guide – Getting started with PROFINET applications</a>
Catalogues	<a href="#">Catalogues in PDF-format</a>

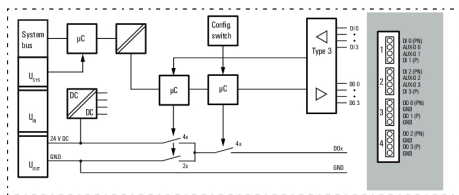
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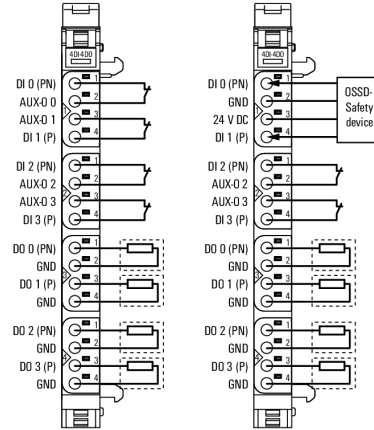
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**Drawings**

**Block diagram**

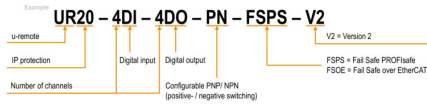


**Connection diagram**



**Explanation of abbreviations**

**Safe I/O modules**



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## Accessories

### Aluminum



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

#### General ordering data

Type	TS 35X7.5 2M/AL/BK	Version
Order No.	<a href="#">0330800000</a>	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.	<a href="#">1747350000</a>	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.	<a href="#">1341610000</a>	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



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## General ordering data

Type	DEK 5/8-11.5 MC NE WS	Version	
Order No.	<a href="#">1341630000</a>	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.	<a href="#">1323710000</a>	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.

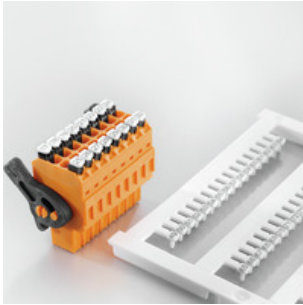
### General ordering data

Type	UR20-SM-ACC	Version
Order No.	<a href="#">1339920000</a>	Cover, ,
GTIN (EAN)	4050118144727	
Qty.	20 pc(s).	
Type	UR20-EBK-ACC	Version
Order No.	<a href="#">1346610000</a>	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.	<a href="#">1323700000</a>	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.	<a href="#">0514500000</a>	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.	<a href="#">7915060000</a>	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.	<a href="#">0383400000</a>	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.	<a href="#">0514510000</a>	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.	<a href="#">1350970000</a>	Replacement part , Flange-mounted housing	Cardboard
GTIN (EAN)	4050118398342		box
Qty.	5 pc(s).		

**Plugkit**



**General ordering data**

Type	UR20-PK-2464570000-SP	Version
Order No.	<a href="#">2466000000</a>	Replacement part
GTIN (EAN)	4050118480559	
Qty.	5 pc(s).	