

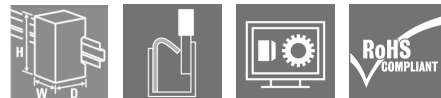
**UR20-4AI-TC-DIAG****Weidmüller Interface GmbH & Co. KG**

Klingenbergstraße 26

D-32758 Detmold

Germany

www.weidmueller.com

**Product image****Available for TC and RTD; 16-bit resolution; 50/60 Hz suppression**

The involvement of thermocouple and resistance-temperature sensors is indispensable for a variety of applications. Weidmüller's 4-channel input modules are suited for all common thermocouple elements and resistance temperature sensors. With an accuracy of 0.2% of the measurement-range end value and a resolution of 16 bit, cable break and values above or below the limit value are detected by means of individual channel diagnostics. Additional features such as an automatic 50 Hz to 60 Hz suppression or external as well as internal cold-junction compensation, as available with the RTD module, round off the scope of function.

The module electronics supply the connected sensors with power from the input current path ( $U_{IN}$ ).

**General ordering data**

|            |                                                          |
|------------|----------------------------------------------------------|
| Version    | Remote I/O module, IP20, Analog signals, Temperature, TC |
| Order No.  | <a href="#">1315710000</a>                               |
| Type       | UR20-4AI-TC-DIAG                                         |
| GTIN (EAN) | 4050118118889                                            |
| Qty.       | 1 pc(s).                                                 |

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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 |
| Mounting dimension - height | 128 mm  | Net weight      | 86 g       |
| Width                       | 11.5 mm | Width (inches)  | 0.453 inch |

## Temperatures

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

## Environmental Product Compliance

|            |                |
|------------|----------------|
| REACH SVHC | Lead 7439-92-1 |
|------------|----------------|

## analogue inputs

|                                  |                                     |                                  |                                             |
|----------------------------------|-------------------------------------|----------------------------------|---------------------------------------------|
| Accuracy                         | 0.2% FSR                            | Conversion time                  | adjustable, 36...240 ms                     |
| Individual channel diagnosis     | Yes                                 | Internal resistance U            | 1 MΩ                                        |
| Measured temperature value, max. | 2,315 °C                            | Measured temperature value, min. | -200 °C                                     |
| Module diagnosis                 | Yes                                 | Number of analogue inputs        | 4                                           |
| Resolution                       | 16 Bit                              | Reverse polarity protection      | Yes                                         |
| Sensor connection                | 2-wire                              | Temperature coefficient          | ≤ 50 ppm/K                                  |
| Type                             | J, K, T, B, N, E, R, S, L, U, C, mV | cold junction compensation       | Internal and external (int. accuracy ≤ 3 K) |

## 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                                                                  |              |        |
| Restricted area          | Positive expansion                                                     | X coordinate | 43 mm  |
|                          |                                                                        | Z coordinate | 85 mm  |
|                          |                                                                        | Y coordinate | 160 mm |
|                          | Type of restricted area thermal                                        |              |        |
|                          | Negative expansion                                                     | Z coordinate | 0 mm   |
|                          |                                                                        | Y coordinate | -40 mm |
|                          |                                                                        | X coordinate | -28 mm |
| Shock                    | 15 g over 11 ms, half sinus wave, acc. to IEC 60068-2-27               |              |        |
| Surge voltage category   | II                                                                     |              |        |
| Test voltage             | 500 V                                                                  |              |        |

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## Technical data

|                           |                                                                                                                      |
|---------------------------|----------------------------------------------------------------------------------------------------------------------|
| 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>IN</sub> (power segment of the field bus coupler), typ. | 8 mA                                     |
| Current consumption from I <sub>IN</sub> (power segment of the fieldbus coupler), typ.  | min. 8 mA                                |
|                                                                                         | nominal 8 mA                             |
|                                                                                         | max. 8 mA                                |
| Current consumption from I <sub>IN</sub> (the respective power segment)                 | < 20 mA                                  |
| Current consumption from I <sub>IN</sub> (the respective power segment)                 | max. 20 mA                               |
|                                                                                         | nominal 20 mA                            |
|                                                                                         | min. 20 mA                               |
| Reverse polarity protection                                                             | Yes                                      |
| Voltage supply                                                                          | 24 V DC +20 %/ -15 %, via the system bus |

## RS interface

|                              |     |                  |     |
|------------------------------|-----|------------------|-----|
| Individual channel diagnosis | Yes | Module diagnosis | Yes |
|------------------------------|-----|------------------|-----|

## Serial inputs

|                              |     |                  |     |
|------------------------------|-----|------------------|-----|
| Individual channel diagnosis | Yes | Module diagnosis | Yes |
|------------------------------|-----|------------------|-----|

## System data

|                    |                                |                                                                                                |
|--------------------|--------------------------------|------------------------------------------------------------------------------------------------|
| Diagnostic data    | Field bus protocol             | CANopen, DeviceNet, EtherCAT, EtherNet/IP, Modbus/TCP, PROFINET IRT, PROFIBUS DP-V1, POWERLINK |
|                    | 20 Byte                        |                                                                                                |
| Galvanic isolation | DC 500 V between current paths | Interface u-remote system bus                                                                  |
| Module type        | Temperature module             | Parameter data 32 Byte                                                                         |
| Process data       | 8 Byte                         | Transmission speed of system bus, max. 48 Mbit                                                 |

## Classifications

|             |             |             |             |
|-------------|-------------|-------------|-------------|
| ETIM 6.0    | EC001596    | ETIM 7.0    | EC001596    |
| ECLASS 9.0  | 27-24-26-01 | ECLASS 9.1  | 27-24-26-01 |
| ECLASS 10.0 | 27-24-26-01 | ECLASS 11.0 | 27-24-26-01 |

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## Technical data

## Tender specification sheets

|                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Long specification | <p>4AI-TC-DIAG 4-channel analogue input module</p> <p>Automatic 50-60 Hz suppression Internal or external cold-junction compensation possible</p> <p>For various TC sensors</p> <p>Connection system: PUSH-IN Dimensions (HxWxD): 120 mm (with lever: 128 mm), 11.5 mm, 76 mm</p> <p>Module status: display via collective message, LED at the top of the module</p> <p>Channel status: indication directly at the contact point</p> <p>Weight: 86 g</p> <p>Module diagnosis: yes</p> <p>Individual channel diagnosis: yes</p> <p>Operating temperature: -20°C - +60°C</p> <p>Process data: 8 bytes</p> <p>Parameter data: 32 bytes</p> <p>Diagnostic data: 20 bytes</p> <p>Galvanic isolation: between field and system bus</p> <p>Supply voltage: 24 VDC</p> <p>+25% / -15%</p> <p>Internal current consumption: 8 mA</p> <p>Supply current consumption: 20 mA</p> <p>Accuracy: 0.2% over the entire voltage range</p> <p>Conversion time: 36 - 240 ms</p> <p>Internal resistance I: &gt; 1 MΩ</p> <p>Resolution: 16 bits</p> <p>Brand: Weidmüller Type: UR20-4AI-TC-DIAG</p> |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Approvals

Approvals



|                       |         |
|-----------------------|---------|
| ROHS                  | Conform |
| UL File Number Search | E141197 |

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[www.weidmueller.com](http://www.weidmueller.com)**Technical data****Downloads**

|                                                |                                                               |
|------------------------------------------------|---------------------------------------------------------------|
| Approval/Certificate/Document of<br>Conformity | <a href="#">Declaration of Conformity</a>                     |
|                                                | <a href="#">Compass safe distance certificate</a>             |
|                                                | <a href="#">Lloyds Register certificate</a>                   |
|                                                | <a href="#">DNV/GL certificate</a>                            |
|                                                | <a href="#">ABS certificate</a>                               |
|                                                | <a href="#">RINA certificate</a>                              |
|                                                | <a href="#">Bureau Veritas - Type Approval Certificate</a>    |
|                                                | <a href="#">PRS (Polish Register of Shipping)</a>             |
|                                                | <a href="#">NIPPON KAIJI KYOKAI Certificate</a>               |
| Engineering Data                               | <a href="#">STEP</a>                                          |
| Engineering Data                               | <a href="#">EPLAN, WSCAD, Zuken E3.S</a>                      |
| Product Change Notification                    | <a href="#">Release-Notes - Firmware</a>                      |
| Software                                       | <a href="#">Firmware UR20-4AI-RTD-DIAG   UR20-4AI-TC-DIAG</a> |
|                                                | <a href="#">Archiv_Firmware_UR20-4AI-RTD-TC</a>               |
| User Documentation                             | <a href="#">MAN_U-REMOTE_DE</a>                               |
|                                                | <a href="#">MAN_U-REMOTE_EN</a>                               |

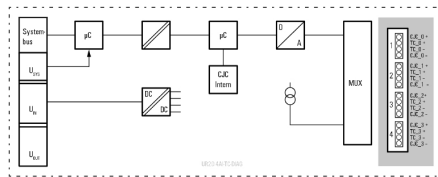
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## Drawings

### Block diagram



### Connection diagram

