



Evaluation unit with display for PT100/PT1000  
temperature sensors

TR-...KDBR12-MFRKG/US/...../V

phase-out article

Alternative articles: TR2439  
When selecting an alternative article and accessories please note that technical data may differ!

Technical drawing of the evaluation unit showing front and side views with dimensions and callouts.

Front view dimensions: Ø34, 93, 16.5, G1/2.

Side view dimensions: 48, 60, M12 x 1, 30.

Callouts: 1 (alphanumeric display 4-digit), 2 (status LEDs), 3 (programming button), 4 (connector for temperature sensor M12 x 1).

1 alphanumeric display 4-digit  
2 status LEDs  
3 programming button  
4 connector for temperature sensor M12 x 1



| Product characteristics      |                                                             |                                         |
|------------------------------|-------------------------------------------------------------|-----------------------------------------|
| Number of inputs and outputs | Number of digital outputs: 1; Number of analogue outputs: 1 |                                         |
| Measuring range              | -40...300 °C                                                | -40...572 °F                            |
| Communication interface      | IO-Link                                                     |                                         |
| Process connection           | threaded connection G 1/2 external thread                   |                                         |
| Application                  |                                                             |                                         |
| Special feature              | Gold-plated contacts                                        |                                         |
| Application                  | for Pt100 and Pt1000 measuring elements                     |                                         |
| Electrical data              |                                                             |                                         |
| Operating voltage            | [V]                                                         | 18...32 DC; ("supply class 2" to cULus) |
| Current consumption          | [mA]                                                        | < 50                                    |
| Protection class             |                                                             | III                                     |
| Reverse polarity protection  |                                                             | yes                                     |
| Power-on delay time          | [s]                                                         | 1                                       |
| Integrated watchdog          |                                                             | yes                                     |
| Inputs / outputs             |                                                             |                                         |
| Number of inputs and outputs | Number of digital outputs: 1; Number of analogue outputs: 1 |                                         |



## Evaluation unit with display for PT100/PT1000 temperature sensors

TR-...KDBR12-MFRKG/USI/...../V

| Outputs                                              |                                                            |                |
|------------------------------------------------------|------------------------------------------------------------|----------------|
| Total number of outputs                              | 2                                                          |                |
| Output signal                                        | switching signal; analogue signal; IO-Link; (configurable) |                |
| Electrical design                                    | PNP/NPN                                                    |                |
| Number of digital outputs                            | 1                                                          |                |
| Output function                                      | normally open / normally closed; (parameterisable)         |                |
| Max. voltage drop switching output DC [V]            | 2                                                          |                |
| Permanent current rating of switching output DC [mA] | 250                                                        |                |
| Number of analogue outputs                           | 1                                                          |                |
| Analogue current output [mA]                         | 4...20; (response time analogue output: 384 ms)            |                |
| Max. load [Ω]                                        | (Ub - 10 V) x 50                                           |                |
| Analogue voltage output [V]                          | 0...10; (response time analogue output: 384 ms)            |                |
| Min. load resistance [Ω]                             | 2000                                                       |                |
| Short-circuit protection                             | yes                                                        |                |
| Type of short-circuit protection                     | pulsed                                                     |                |
| Overload protection                                  | yes                                                        |                |
| Measuring/setting range                              |                                                            |                |
| Measuring range                                      | -40...300 °C                                               | -40...572 °F   |
| Set point SP                                         | -39.8...300 °C                                             | -39.6...572 °F |
| Reset point rP                                       | -40...299.8 °C                                             | -40...571.6 °F |
| Analogue start point                                 | -40...295 °C                                               | -40...563 °F   |
| Analogue end point                                   | -35...300 °C                                               | -31...572 °F   |
| In steps of                                          | 0.1 °C                                                     | 0.1 °F         |
| Resolution                                           |                                                            |                |
| Resolution of switching output [K]                   | 0.1                                                        |                |
| Resolution of analogue output [K]                    | 0.1                                                        |                |
| Resolution of display [K]                            | 0.1                                                        |                |
| Accuracy / deviations                                |                                                            |                |
| Switch point accuracy [K]                            | ± 0,3                                                      |                |
| Precision analogue output [K]                        | ± 0,3                                                      |                |
| Display accuracy [K]                                 | ± 0,3                                                      |                |
| Temperature drift per 10 K [K]                       | 0.1                                                        |                |
| Response times                                       |                                                            |                |
| Response time [ms]                                   | 130                                                        |                |
| Interfaces                                           |                                                            |                |
| Communication interface                              | IO-Link                                                    |                |
| Transmission type                                    | COM2 (38,4 kBaud)                                          |                |
| IO-Link revision                                     | 1.0                                                        |                |
| Operating conditions                                 |                                                            |                |
| Ambient temperature [°C]                             | -25...70                                                   |                |
| Storage temperature [°C]                             | -40...85                                                   |                |



## Evaluation unit with display for PT100/PT1000 temperature sensors

TR-...KDBR12-MFRKG/US/...../V

Protection

IP 67

### Tests / approvals

|                      |                           |                     |
|----------------------|---------------------------|---------------------|
| EMC                  | DIN EN 61000-4-2 ESD      | 4 kV CD / 8 kV AD   |
|                      | EN 61000-4-3 HF radiated  | 10 V/m              |
|                      | DIN EN 61000-4-4 Burst    | 2 kV                |
|                      | DIN EN 61000-4-5 Surge    | 1 kV                |
|                      | EN 61000-4-6 HF conducted | 10 V                |
| Shock resistance     | DIN IEC 68-2-27           | 50 g (11 ms)        |
| Vibration resistance | DIN EN 60068-2-6          | 20 g (10...2000 Hz) |
| MTTF [ANN]           |                           | 207                 |

### Mechanical data

|                    |                                                      |
|--------------------|------------------------------------------------------|
| Weight [g]         | 231.2                                                |
| Materials          | stainless steel (1.4301 / 304); EPDM/X; PC; PBT; FKM |
| Process connection | threaded connection G 1/2 external thread            |

### Displays / operating elements

|         |                  |                               |
|---------|------------------|-------------------------------|
| Display | Display unit     | 2 x LED, green                |
|         | switching status | LED, yellow                   |
|         | measured values  | alphanumeric display, 4-digit |
|         | programming      | alphanumeric display, 4-digit |

### Remarks

|               |        |
|---------------|--------|
| Pack quantity | 1 pcs. |
|---------------|--------|

### Electrical connection

Connector: 1 x M12; coding: A; Contacts: gold-plated

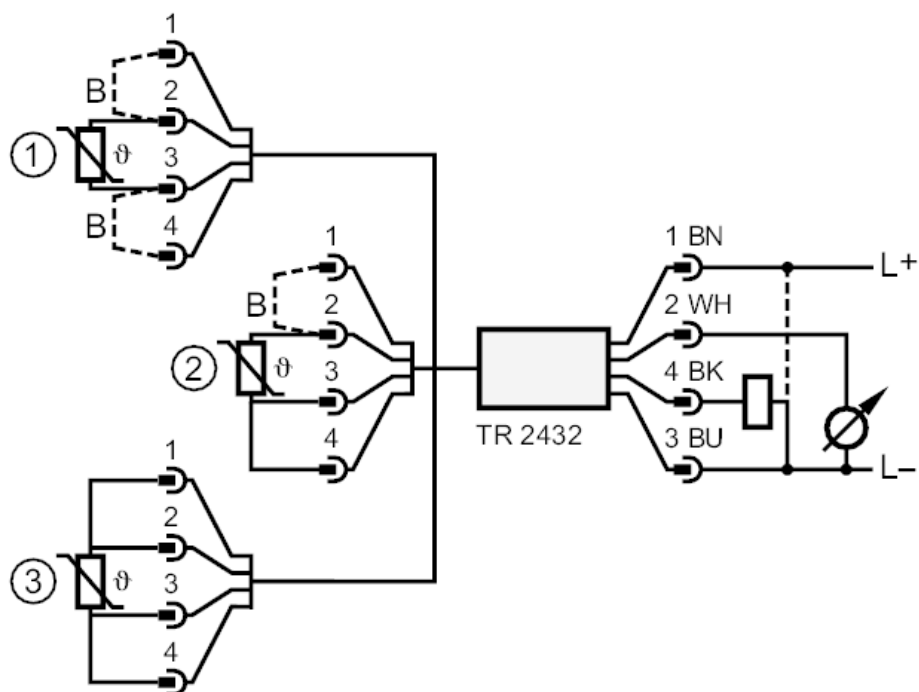




## Evaluation unit with display for PT100/PT1000 temperature sensors

TR-...KDBR12-MFRKG/US/...../V

### Connection



- 1 = two-wire sensor
- 2 = three-wire sensor
- 3 = four-wire sensor
- B = link