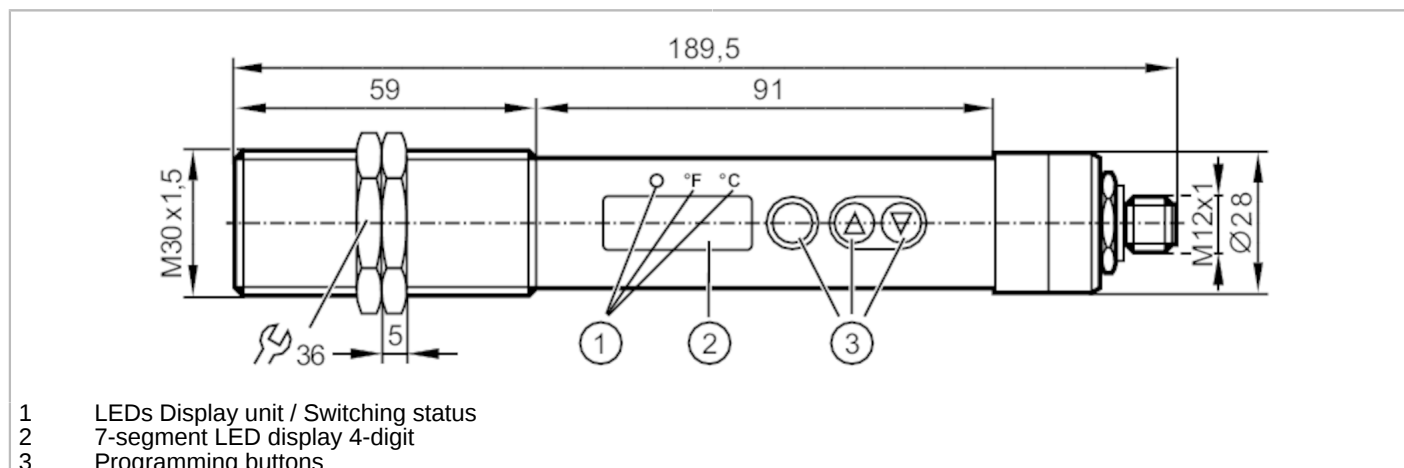


# TW2003



## Infrared temperature sensor

TW-030KLBM30-KFDKG/US



| Product characteristics      |                                                           |
|------------------------------|-----------------------------------------------------------|
| Number of inputs and outputs | Number of digital outputs: 1; Number of analog outputs: 1 |
| Measuring range              | -30...300 °C      -22...572 °F                            |
| Communication interface      | IO-Link                                                   |

| Application |                                                                                                                 |
|-------------|-----------------------------------------------------------------------------------------------------------------|
| Application | asphalt; coated metal; liquids; glass; rubber; wood; ceramics; plastics; lacquers; food products; paper; fabric |

| Electrical data                 |                            |
|---------------------------------|----------------------------|
| Operating voltage [V]           | 18...32 DC; (to SELV/PELV) |
| Current consumption [mA]        | < 50                       |
| Min. insulation resistance [MΩ] | 100; (50 V DC)             |
| Protection class                | III                        |
| Reverse polarity protection     | yes                        |
| Power-on delay time [s]         | < 1                        |

| Inputs / outputs             |                                                           |
|------------------------------|-----------------------------------------------------------|
| Number of inputs and outputs | Number of digital outputs: 1; Number of analog outputs: 1 |

| Inputs     |                      |
|------------|----------------------|
| Test input | type 3 (IEC 61131-2) |

| Outputs                                              |                                                          |
|------------------------------------------------------|----------------------------------------------------------|
| Total number of outputs                              | 2                                                        |
| Output signal                                        | switching signal; analog signal; IO-Link; (configurable) |
| Electrical design                                    | PNP                                                      |
| Number of digital outputs                            | 1                                                        |
| Output function                                      | normally open / closed; (configurable)                   |
| Max. voltage drop switching output DC [V]            | 2.5                                                      |
| Permanent current rating of switching output DC [mA] | 150                                                      |
| Number of analog outputs                             | 1                                                        |
| Analog current output [mA]                           | 4...20                                                   |

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|                                  |     |                    |
|----------------------------------|-----|--------------------|
| Max. load                        | [Ω] | 500                |
| Short-circuit protection         |     | yes                |
| Type of short-circuit protection |     | yes (non-latching) |
| Short-circuit proof              |     | yes                |
| Overload protection              |     | yes                |

### Monitoring range

|                   |      |        |
|-------------------|------|--------|
| Wave length range | [μm] | 8...14 |
|-------------------|------|--------|

### Measuring/setting range

|                    |              |                |
|--------------------|--------------|----------------|
| Measuring range    | -30...300 °C | -22...572 °F   |
| Set point SP       | -29...300 °C | -20.2...572 °F |
| Reset point rP     | -30...299 °C | -22...570.2 °F |
| Analog start point | -30...250 °C | -22...482 °F   |
| Analog end point   | 20...300 °C  | 68...572 °F    |
| In steps of        | 0.5 °C       | 1 °F           |

### Resolution

|                                |     |                                           |
|--------------------------------|-----|-------------------------------------------|
| Resolution of switching output | [K] | 0.5                                       |
| Resolution of analog output    | [K] | 0.2; (+ 0.03 % of the set measuring span) |
| Resolution of display          | [K] | 0.5                                       |

### Accuracy / deviations

|               |     |                                                                            |
|---------------|-----|----------------------------------------------------------------------------|
| Accuracy      | [K] | < ± 1 %; (of measured value, min. 2 K (degree of emission = 1, T = 23 °C)) |
| Repeatability | [K] | 1                                                                          |

### Reaction times

|               |      |     |
|---------------|------|-----|
| Response time | [ms] | 100 |
|---------------|------|-----|

### Software / programming

|                                |                                                                                                                      |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------|
| Adjustment of the switch point | Programming buttons                                                                                                  |
| Parameter setting options      | Analog range; normally open / closed; switch-on/switch-off delay; Damping; Peakhold; emissivity; simulation function |

### Interfaces

|                            |                          |                         |
|----------------------------|--------------------------|-------------------------|
| Communication interface    | IO-Link                  |                         |
| Transmission type          | COM2 (38,4 kBaud)        |                         |
| IO-Link revision           | 1.1                      |                         |
| SDCI standard              | IEC 61131-9              |                         |
| Profiles                   | Smart Sensor - SSP 0     | Generic Profiled Sensor |
|                            | Function                 | Device identification   |
|                            | Function                 | Process data variable   |
|                            | Function                 | Device diagnosis        |
| SIO mode                   | yes                      |                         |
| Required master port class | A                        |                         |
| Process data analog        | 16                       |                         |
| Process data binary        | 1                        |                         |
| Min. process cycle time    | [ms]                     | 3.6                     |
| Supported DeviceIDs        | <b>Type of operation</b> | <b>DeviceID</b>         |
|                            | default                  | 1502                    |

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## Infrared temperature sensor

TW-030KLBM30-KFDKG/US

| Operating conditions          |                   |                                                                                                                                                                 |
|-------------------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ambient temperature           | [°C]              | 0...65                                                                                                                                                          |
| Storage temperature           | [°C]              | -20...80                                                                                                                                                        |
| Max. relative air humidity    | [%]               | 95; (non condensing)                                                                                                                                            |
| Protection                    |                   | IP 65                                                                                                                                                           |
| Tests / approvals             |                   |                                                                                                                                                                 |
| EMC                           | DIN EN 61000-6-2  |                                                                                                                                                                 |
|                               | DIN EN 61000-6-4  |                                                                                                                                                                 |
| Shock resistance              | DIN EN 60068-2-27 | 30 g (11 ms)                                                                                                                                                    |
| Vibration resistance          | DIN EN 60068-2-6  | 5 g (10...2000 Hz)                                                                                                                                              |
| MTTF                          | [years]           | 88.4                                                                                                                                                            |
| Mechanical data               |                   |                                                                                                                                                                 |
| Weight                        | [g]               | 410.2                                                                                                                                                           |
| Housing                       |                   | Threaded type                                                                                                                                                   |
| Dimensions                    | [mm]              | M30 x 1.5 / L = 189.5                                                                                                                                           |
| Thread designation            |                   | M30 x 1.5                                                                                                                                                       |
| Material                      |                   | threaded sleeve: stainless steel (1.4305 / 303); operator interface: polyester                                                                                  |
| Lens material                 |                   | front lens: Infrared transparent crystal lens with anti-reflex coating                                                                                          |
| Displays / operating elements |                   |                                                                                                                                                                 |
| Display                       | Display unit      | 2 x LED, yellow                                                                                                                                                 |
|                               | Switching status  | 1 x LED, yellow                                                                                                                                                 |
|                               | Function display  | 7-segment LED display, 4-digit                                                                                                                                  |
|                               | Measured values   | 7-segment LED display, 4-digit                                                                                                                                  |
| Operating elements            | 3                 | Pushbuttons                                                                                                                                                     |
| Accessories                   |                   |                                                                                                                                                                 |
| Items supplied                |                   | lock nuts: 2                                                                                                                                                    |
| Remarks                       |                   |                                                                                                                                                                 |
| Remarks                       |                   | Use a screened cable to protect infrared temperature sensors from interference.<br>The screen must be connected to the housing of the sensor via the connector. |
| Pack quantity                 |                   | 1 pcs.                                                                                                                                                          |

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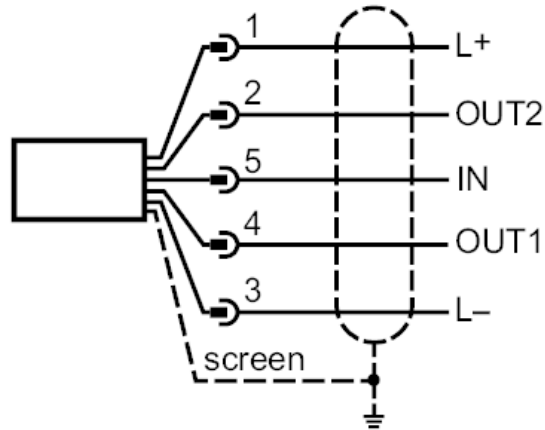


## Infrared temperature sensor

TW-030KLBM30-KFDKG/US

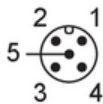
### Electrical connection

#### Connection

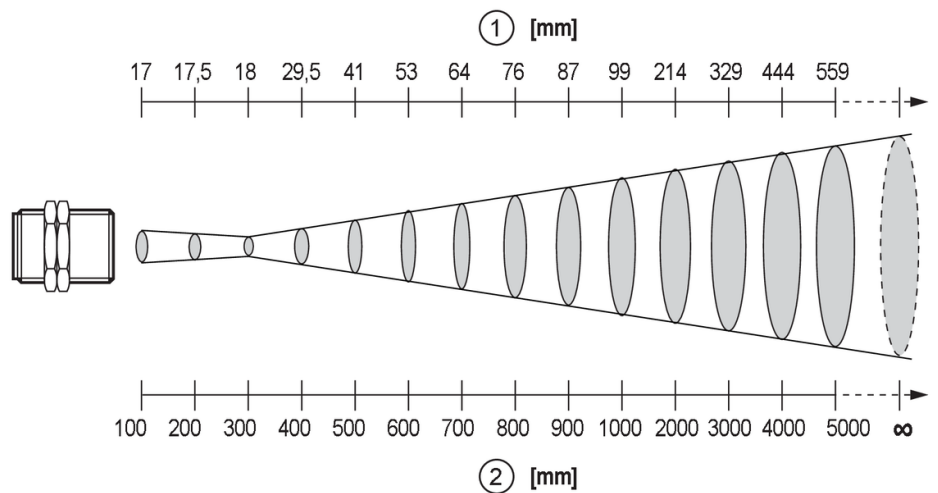


OUT1: Switching output / IO-Link  
OUT2: analog output  
IN: Test input

Connector: 1 x M12; coding: A



### Diagrams and graphs



- 1 diameter of the measured spot
- 2 measuring distance