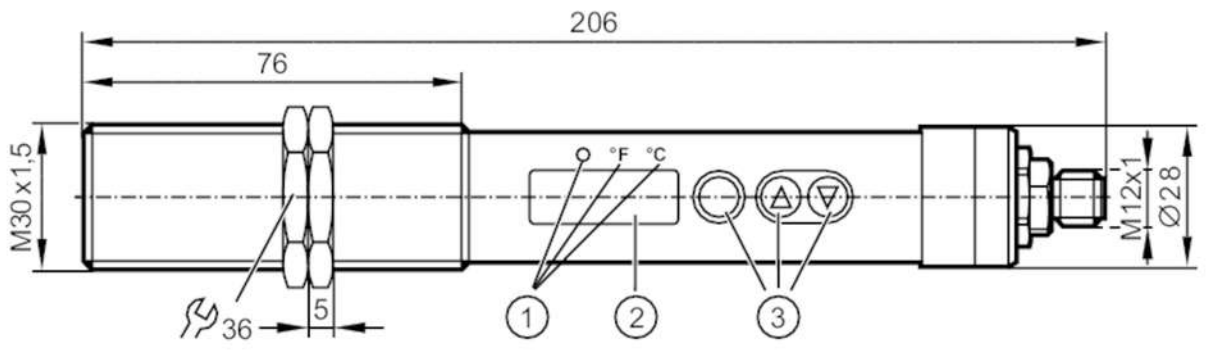
# TW2100

## Infrared temperature sensor

TW-029KLBM30-KFDKG/US




1 LEDs Display unit / switching status
2 7-segment LED display 4-digit
3 programming buttons

IO-Link

| | | | |
|---|---|---|---|
| **Product characteristics** | | | |
| Number of inputs and outputs | | Number of digital outputs: 1; Number of analogue outputs: 1 | |
| Measuring range | | 0...999.5 °C | 32...1831 °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 analogue outputs: 1 | |
| **Inputs** | | | |
| Test input | | type 3 (IEC 61131-2) | |
| **Outputs** | | | |
| Total number of outputs | | 2 | |
| Output signal | | switching signal; analogue signal; IO-Link; (configurable) | |
| Electrical design | | PNP | |
| Number of digital outputs | | 1 | |
| Output function | | normally open / normally closed; (parameterisable) | |
| Max. voltage drop switching output DC | [V] | 2.5 | |
| Permanent current rating of switching output DC | [mA] | 150 | |
| Number of analogue outputs | | 1 | |
| Analogue current output | [mA] | 4...20 | |

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| | | | |
|---|---|---|---|
| Max. load | [Ω] | 500 | |
| Short-circuit protection | | yes | |
| Type of short-circuit protection | | pulsed | |
| Short-circuit proof | | yes | |
| Overload protection | | yes | |
| **Detection zone** | | | |
| Wave length range | [µm] | 8...14 | |
| **Measuring/setting range** | | | |
| Measuring range | | 0...999.5 °C | 32...1831 °F |
| Set point SP | | 1...999.5 °C | 34...1831 °F |
| Reset point rP | | 0...998.5 °C | 32...1829 °F |
| Analogue start point | | 0...949.5 °C | 32...1741.1 °F |
| Analogue end point | | 50...999.5 °C | 122...1831 °F |
| In steps of | | 0.5 °C | 1 °F |
| Resolution | | | |
| Resolution of switching output | [K] | 0.5 | |
| Resolution of analogue 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 | |
| **Response times** | | | |
| Response time | [ms] | 100 | |
| **Software / programming** | | | |
| Adjustment of the switch point | | programming buttons | |
| Parameter setting options | | analogue range; normally open / normally 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 | |
| SIO mode | | yes | |
| Required master port type | | A | |
| Process data analogue | | 16 | |
| Process data binary | | 1 | |
| Min. process cycle time | [ms] | 3.6 | |
| Supported DeviceIDs | | **Type of operation** | **DeviceID** |
| | | default | 716 |
| **Operating conditions** | | | |
| Ambient temperature | [°C] | 0...65 | |
| Storage temperature | [°C] | -20...80 | |

# TW2100

## Infrared temperature sensor

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| | | | |
|---|---|---|---|
| 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] | 84 | |
| **Mechanical data** | | | |
| Weight | [g] | 445 | |
| Housing | | threaded type | |
| Dimensions | [mm] | M30 x 1.5 / L = 206 | |
| Thread designation | | M30 x 1.5 | |
| Materials | | threaded sleeve: stainless steel (303/1.4305); polyester | |
| Lens material | | 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 |
| | | setting aid | LED pilot light, green |
| Operating elements | | 3 | pushbuttons |
| **Accessories** | | | |
| Items supplied | | lock nuts: 2 | |
| **Remarks** | | | |
| Remarks | | Use a screened cable to protect infrared temperature sensors from interference. | |
| | | The screen must be connected to the housing of the sensor via the connector. | |
| Pack quantity | | 1 pcs. | |

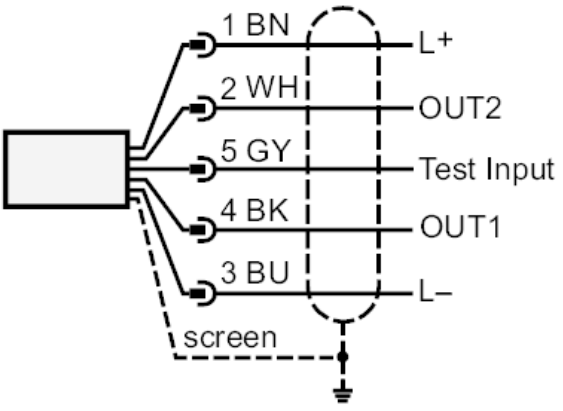
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## Infrared temperature sensor

**TW-029KLBM30-KFDKG/US**

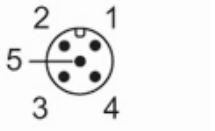
## Electrical connection

### Connection




| | |
|---|---|
| OUT1: | switching output / IO-Link |
| OUT2: | analogue output |
| | Core colours : |
| BK = | black |
| BN = | brown |
| BU = | blue |
| GY = | grey |
| WH = | white |

Connector: 1 x M12; coding: A

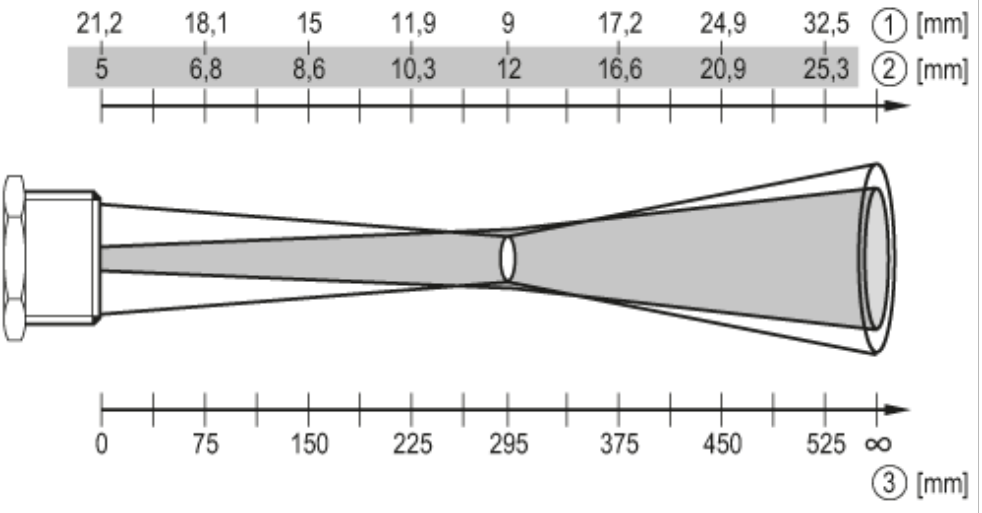


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## Infrared temperature sensor

TW-029KLBM30-KFDKG/US

## Diagrams and graphs




1 diameter of the measured spot

2 diameter LED pilot light

3 measuring distance