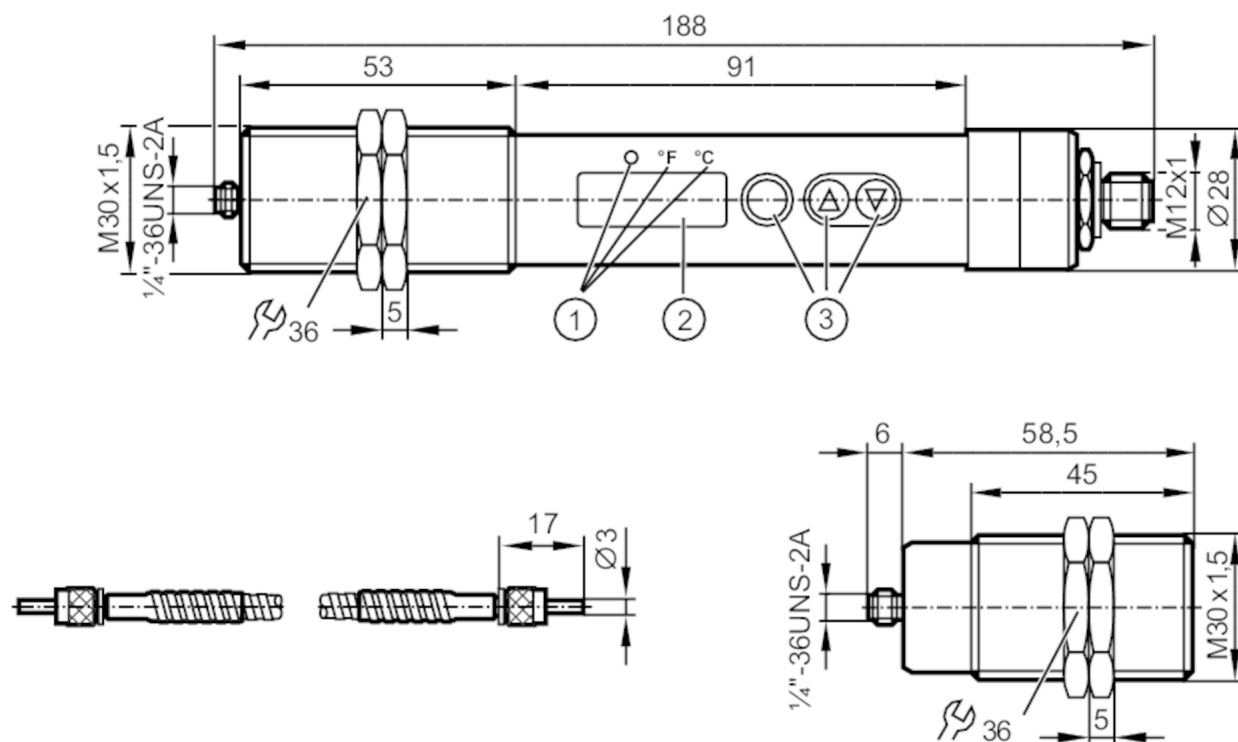


## Infrared temperature sensor

TW-150KLBM30-KFDKG/US



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



## Product characteristics

|                              |                                                           |               |
|------------------------------|-----------------------------------------------------------|---------------|
| Number of inputs and outputs | Number of digital outputs: 1; Number of analog outputs: 1 |               |
| Measuring range              | 300...1600 °C                                             | 572...2912 °F |
| Communication interface      | IO-Link                                                   |               |

## Application

|             |                                                                                                                |
|-------------|----------------------------------------------------------------------------------------------------------------|
| Application | tempering temperatures; glass melting; graphite; ceramics; metals; forging; sintering; heat treatment; rolling |
|-------------|----------------------------------------------------------------------------------------------------------------|

## 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) |
|------------|----------------------|



## Infrared temperature sensor

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| 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                                                                                                               |               |
| 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]                               | 1...1.7                                                                                                              |               |
| Measuring/setting range                              |                                                                                                                      |               |
| Measuring range                                      | 300...1600 °C                                                                                                        | 572...2912 °F |
| Set point SP                                         | 301...1600 °C                                                                                                        | 574...2912 °F |
| Reset point rP                                       | 300...1599 °C                                                                                                        | 572...2910 °F |
| Analog start point                                   | 300...1400 °C                                                                                                        | 572...2552 °F |
| Analog end point                                     | 500...1600 °C                                                                                                        | 932...2912 °F |
| In steps of                                          | 1 °C                                                                                                                 | 1 °F          |
| Resolution                                           |                                                                                                                      |               |
| Resolution of switching output [K]                   | 1                                                                                                                    |               |
| Resolution of analog output [K]                      | 0.2; (+ 0.03 % of the set measuring span)                                                                            |               |
| Resolution of display [K]                            | 1                                                                                                                    |               |
| Accuracy / deviations                                |                                                                                                                      |               |
| Accuracy [K]                                         | < ± 0,5 %; (of measured value, min. 4 K (degree of emission = 1, T = 23 °C))                                         |               |
| Repeatability [K]                                    | 1                                                                                                                    |               |
| Reaction times                                       |                                                                                                                      |               |
| Response time [ms]                                   | 2; (T > 600 °C)                                                                                                      |               |
| 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                                                                                                                  |               |



## Infrared temperature sensor

TW-150KLBM30-KFDKG/US

|                                |                      |                                                                                |                                |
|--------------------------------|----------------------|--------------------------------------------------------------------------------|--------------------------------|
| 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            |                      | Type of operation                                                              | DeviceID                       |
|                                |                      | default                                                                        | 719                            |
| Operating conditions           |                      |                                                                                |                                |
| Ambient temperature [°C]       |                      | 0...65                                                                         |                                |
| Note on ambient temperature    |                      | fiber optics and measuring head: -20...250 °C                                  |                                |
| 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]                   |                      | 74                                                                             |                                |
| Mechanical data                |                      |                                                                                |                                |
| Weight [g]                     |                      | 899.5                                                                          |                                |
| Housing                        |                      | Threaded type                                                                  |                                |
| Dimensions [mm]                |                      | M30 x 1.5 / L = 188                                                            |                                |
| Thread designation             |                      | M30 x 1.5                                                                      |                                |
| Fiber optic connection         |                      | ¼"-36UNS-2A                                                                    |                                |
| Material                       |                      | threaded sleeve: stainless steel (1.4305 / 303); operator interface: polyester |                                |
| Lens material                  |                      | front lens:tempered optical glass                                              |                                |
| 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                                                                   |                                |
|                                |                      | fiber optic: 2 m                                                               |                                |
|                                |                      | Measuring head                                                                 |                                |

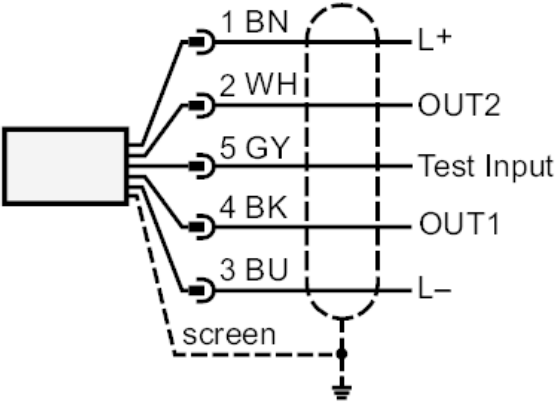


Infrared temperature sensor

TW-150KLBM30-KFDKG/US

| 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.    |
|               | On delivery the sensor is calibrated with 2 m fiber optic preinstalled.         |
|               | If the fiber optic is replaced the sensor must be recalibrated.                 |
| Pack quantity | 1 pcs.                                                                          |

| Electrical connection |
|-----------------------|
| Connection            |



OUT1: Switching output / IO-Link  
OUT2: analog output  
Core colors :  
BK = black  
BN = brown  
BU = blue  
GY = grey  
WH = white

Connector: 1 x M12

| Diagrams and graphs |                                                                    |
|---------------------|--------------------------------------------------------------------|
|                     | <p>1 diameter of the measured spot</p> <p>2 measuring distance</p> |