RS PRO

Datasheet

161-8103

Infrared Temperature Sensor

- **Non-contact industrial temperature sensor**
- **Measures surface temperatures from 0°C to 1000°C with a 250 ms response time**
- **Built-in temperature display and controls**
- **Simultaneous voltage and alarm outputs**
- **Extremely small size - just 30 x Ø31 mm**
- **Low cost and high performance**

GENERAL SPECIFICATIONS

Measurable Temperature Range	0 to 1000°C
Analogue Output	Selectable 0-5, 1-5 or 0-10 V DC, linear with measured temperature
Alarm Output	Open collector with adjustable temperature threshold and hysteresis
Field of View	15:1 divergent optics
Accuracy	± 1.5% of reading or ± 1.5°C, whichever is greater
Repeatability	± 0.5% of reading or ± 0.5°C, whichever is greater
Response Time	250 ms
Emissivity	Adjustable via display and buttons
Emissivity Setting Range	0.20 to 1.00
Max Temperature Span (Linear Output)	1000°C
Min Temperature Span (Linear Output)	100°C
Spectral Range	8-14 μm
Supply Voltage	24 V DC (max 28 V DC)
Min. Supply Voltage (at Sensor)	6 V DC (12 V DC if the output is set to 0-10 V)
Max Current Draw	30 mA
Open Collector Alarm Output	6 to 24 V DC, 50 mA max (see Connections)

ENVIRONMENTAL

Environmental Rating	IP65
Ambient Temperature Range	0°C to 70°C
Relative Humidity	95% max. non-condensing

CONFORMITY

Electromagnetic Compatibility (EMC)	EN61326-1, EN61326-2-3 (Electrical Equipment for Measurement, Control and Laboratory Use - EMC Requirements)
RoHS Compliant	Yes

CONFIGURATION

Configurable Parameters	• Temperature range (linear output) • Alarm output threshold and hysteresis • Emissivity setting • Reflected temperature
Temperature Units	°C / °F
Signal Processing	Averaging Period (0.25 to 60 seconds)
Peak / Valley Hold	Hold Period (0.25 to 1200 seconds)

MECHANICAL SPECIFICATIONS

Construction	Black anodised aluminium and red ABS
Cable Length	1 metre
Weight with Cable	65 g

OPTIONS & ACCESSORIES
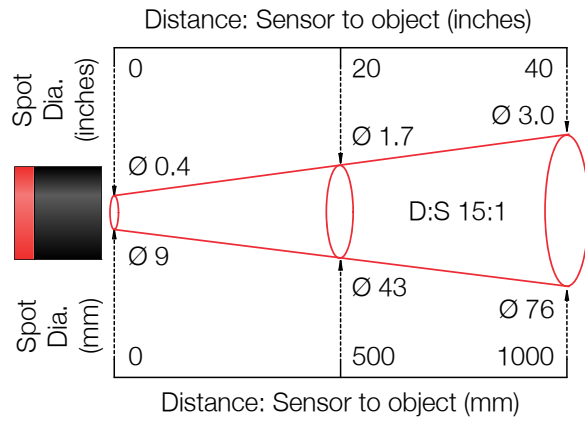

Mounting bracket

(RS Stock No. 905-8777)

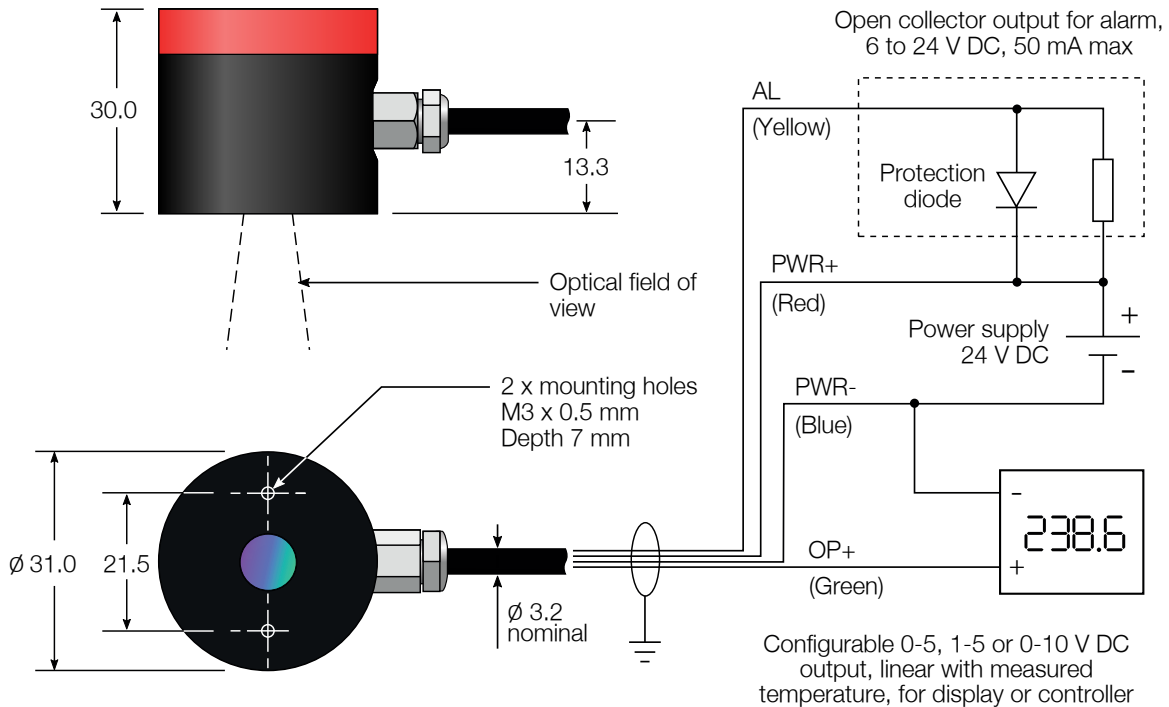Air purge collar

(RS Stock No. 905-8770)

OPTICS

The sensor measures the average temperature within a spot. The size of this spot depends on the distance between the sensor and the target surface.

The sensor may be used at longer distances than shown, and will measure a larger spot.

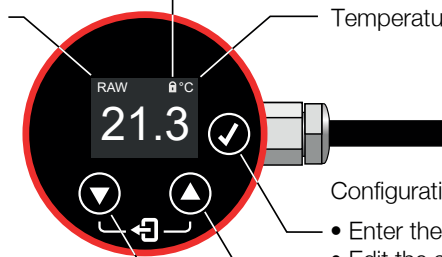The measurement accuracy is not affected by the measurement distance.

Distance: Sensor to object (inches)

Spot Dia. (inches)

| 0 | 20 | 40 |

Ø 3.0

Ø 1.7

Ø 0.4

D:S 15:1

Ø 9

Ø 43

Ø 76

Spot Dia. (mm)

| 0 | 500 | 1000 |

Distance: Sensor to object (mm)

DIMENSIONS AND CONNECTIONS

30.0

13.3

Optical field of view

Open collector output for alarm,
6 to 24 V DC, 50 mA max

AL
(Yellow)

Protection diode

PWR+
(Red)

Power supply
24 V DC

+

−

PWR-
(Blue)

2 x mounting holes
M3 x 0.5 mm
Depth 7 mm

Ø 31.0   21.5

Ø 3.2
nominal

238.6

OP+
(Green)

Configurable 0-5, 1-5 or 0-10 V DC
output, linear with measured
temperature, for display or controller

DISPLAY AND CONTROLS

Display:
64 x 48 pixel OLED

Lock icon
(to change the settings, unlock the sensor)

Displayed
temperature type

Temperature units (°C or °F)

RAW   °C
21.3

Configuration buttons:
- Enter the settings menu
- Edit the selected setting
- Confirm the setting

- Scroll between screens and settings
- Press both at once to exit / go back