

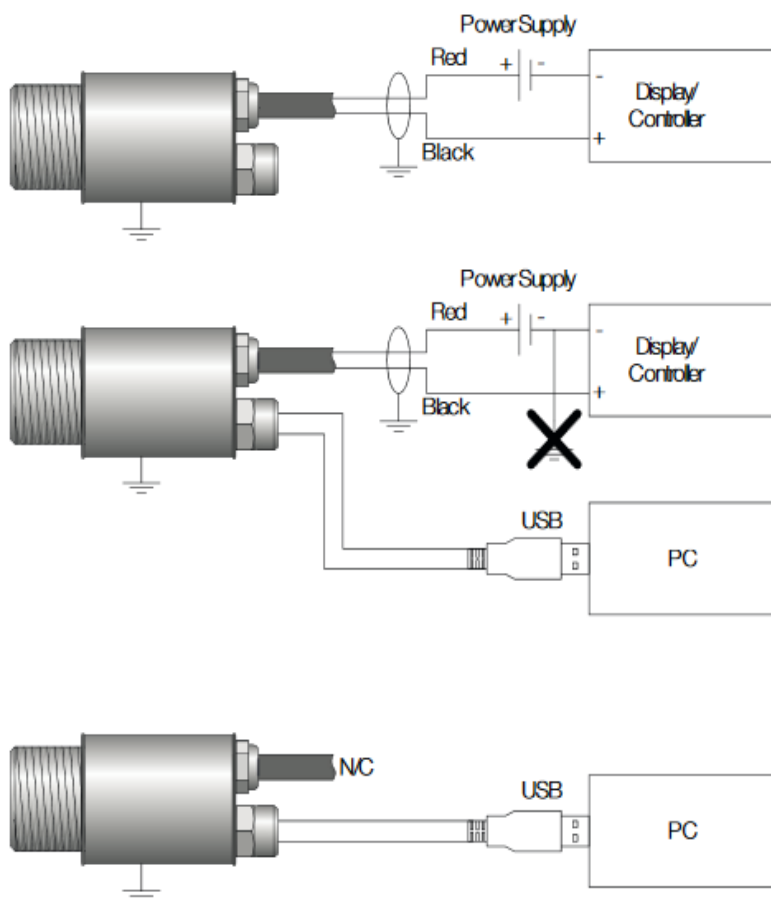
# PSC-IR-USB Series

## USB Configurable Infrared Temperature Sensors with 2-Wire, 4-20 mA Output



- Long wavelength PSC-IR-USB models suitable for low reflection materials
- Short wavelength PSC-IR-USB 2.2 models suitable for reflective targets such as metals starting at 45°C
- Temperature ranges from -40 to 2000 °C
- 2-wire, 4 to 20 mA output
- Configurable temperature range, emissivity setting etc. via USB cable and software (included)
- Features max, min, average; peak or valley hold; reflected energy compensation
- Modbus Protocol
- Stainless steel housing, sealed to IP65
- Choice of optics
- Quick and easy installation
- Wide range of accessories

### PSC-IR-USB MODELS (WIRING DIAGRAMS):



Note: The sensor must be grounded at only one point, either the cable shield or the sensor housing.

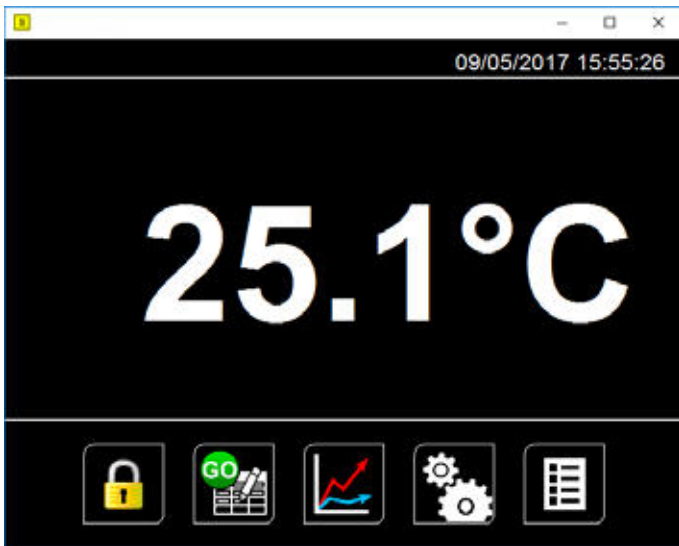
The PSC-IR-USB Series measures temperatures from -40°C to 2000°C with a response time of 200 ms. The 4 to 20mA output is compatible with most temperature indicators, controllers, recorders, or data loggers without the need for special interfacing or signal conditioning.

**PSC-IR-USB** models (8-14  $\mu\text{m}$ ) can measure temperature from -40°C to 1000°C. They are suitable for measuring high-emissivity materials such as paper, thick plastics, food, rubber, pharmaceuticals, asphalt, and painted surfaces.

**PSC-IR-USB 2.2** models (2.2  $\mu\text{m}$ ) offers temperature ranges from 45°C to 2000°C. This short wave sensor series provides more accurate readings than general-purpose sensors when measuring reflective surfaces such as metals. They are also capable of measuring temperatures through glass, quartz, or sapphire windows.

All PSC-IR-USB Series sensors are fully configurable from a PC, using the PSCConfig software with supplied USB cable. This user-friendly software enables the user to set the temperature range and emissivity, compensate for reflected energy, apply filtering, select max, min, average, or instantaneous readings, and configure peak or valley hold processing. Other features include data acquisition, alarms and a scrolling graphical display.

The IR sensor can operate with either the 4 to 20 mA cable connected, the USB cable connected, or both. The USB cable has an IP65 connector at the sensor end. An IP65 cap protects the sensor when the USB cable is not connected.



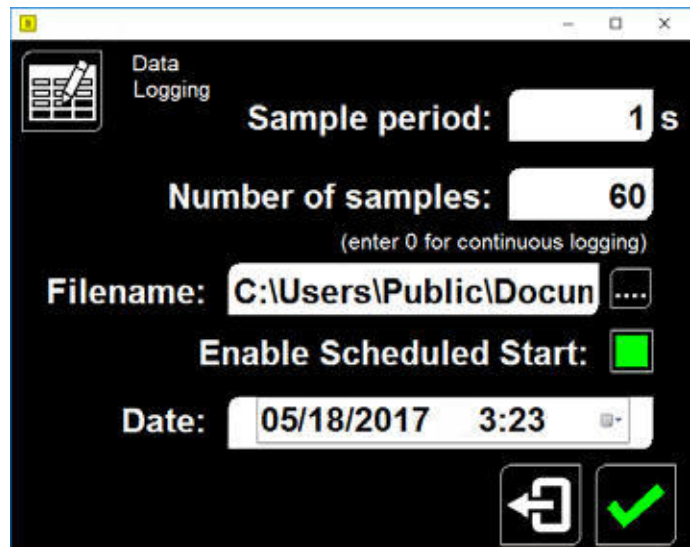
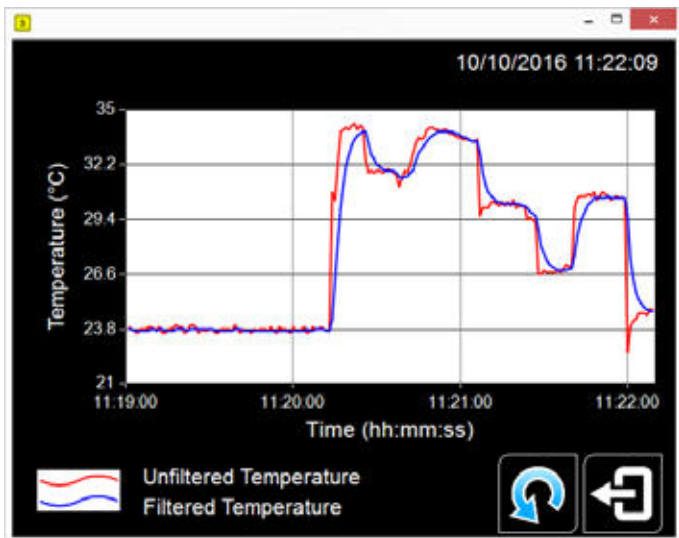
### SOFTWARE

PSCConfig is simple, touch-friendly software, compatible with versions of Windows from Vista onwards. PSCConfig is supplied with each sensor.

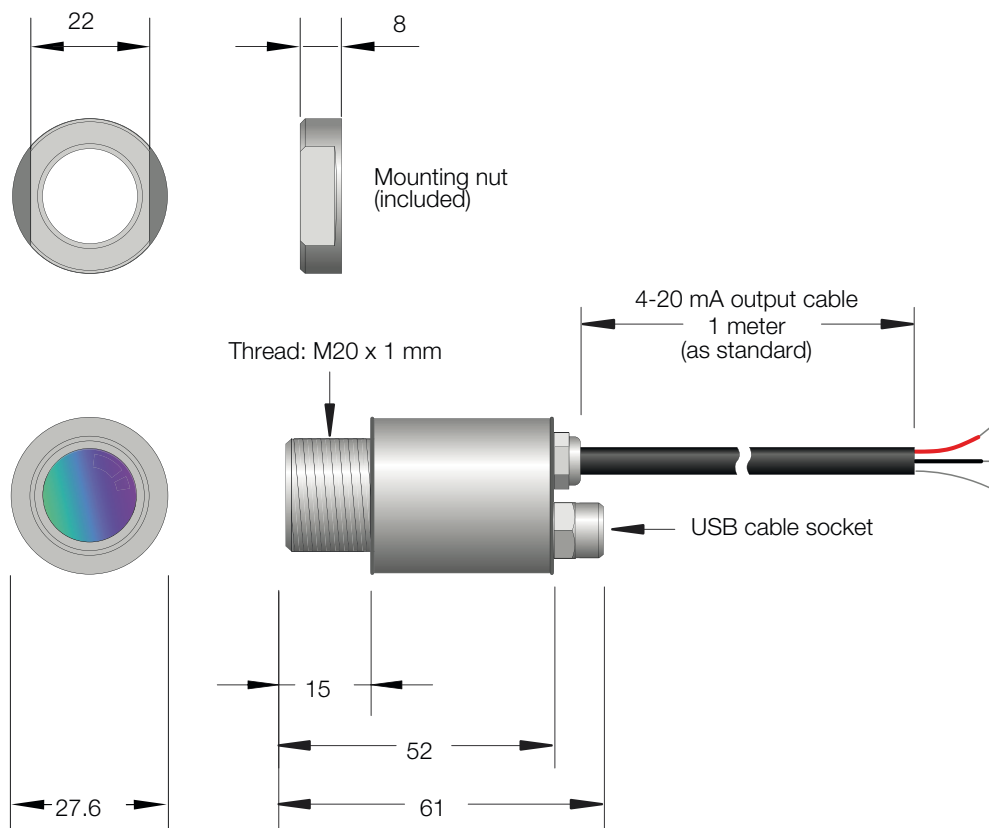
Alternatively, the sensor's Modbus protocol allows it to be used with other third party Modbus software.

### FEATURES

- Temperature display
- Scrolling temperature chart
- Data logging to comma-separated text file, compatible with Excel
- Sensor configuration:
  - Emissivity setting
  - Averaging
  - Peak/valley hold processing
  - Reflected energy compensation
  - 4-20 mA output temperature scale



### UNIT DIMENSIONS

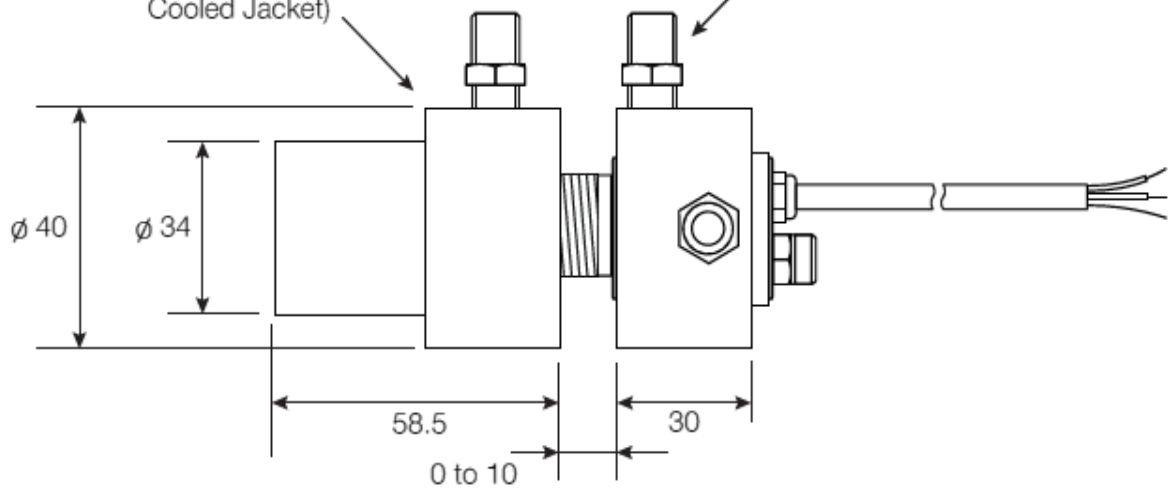


### AIR/WATER COOLED HOUSING DIMENSIONS

Air/Water Cooled Jacket (optional)

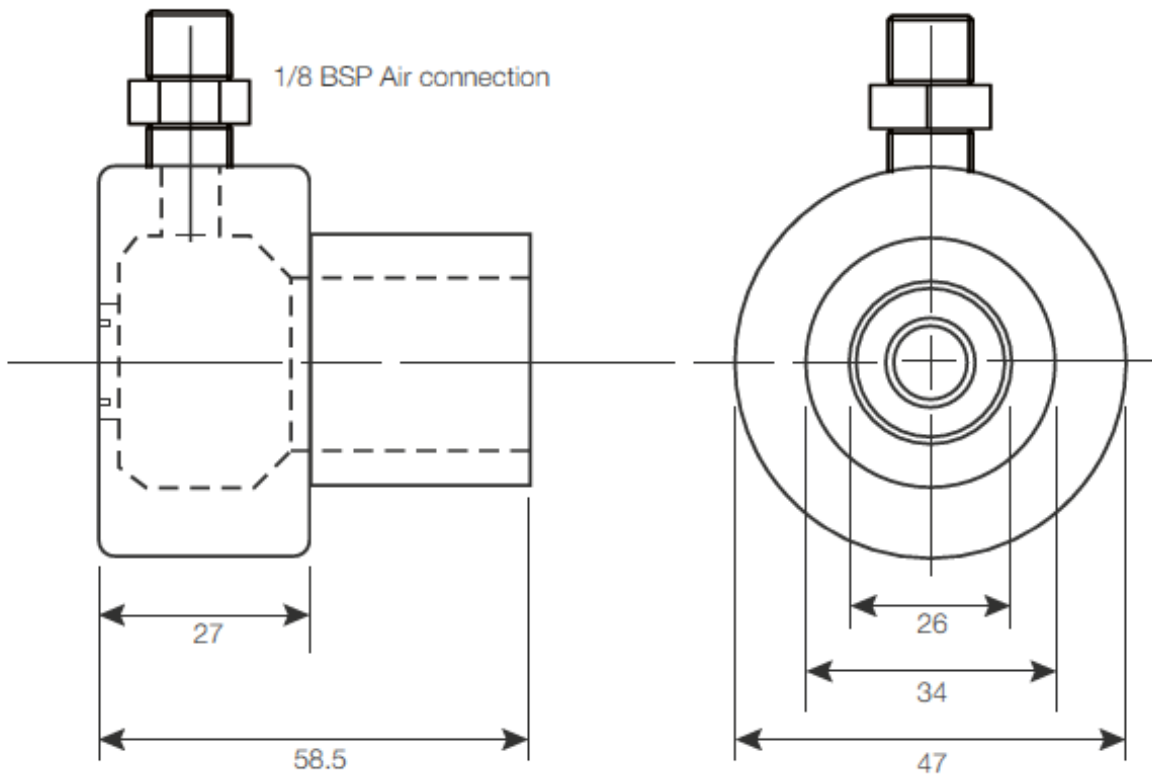
Air Purge Collar (included with Air/Water Cooled Jacket)

1/8" BSP fittings for air or water



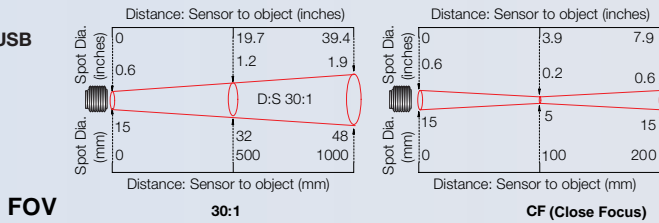
Thread available for mounting nut and bracket

### AIR PURGE DIMENSIONS



## OPTICS Diameter of target spot measured versus distance from sensing head (90% energy)

### PSC-IR-USB models:

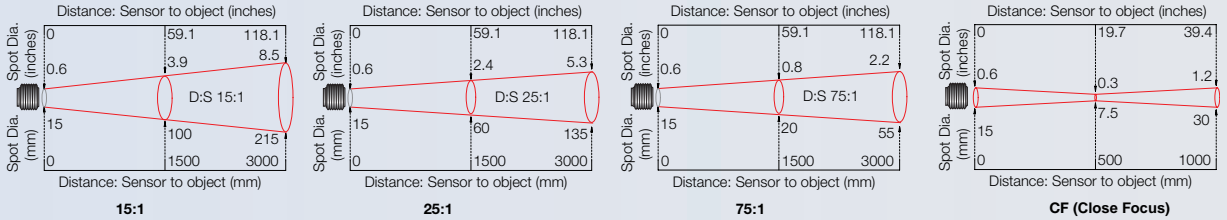


**FOV**

**30:1**

**CF (Close Focus)**

### PSC-IR-USB 2.2 models:



**15:1**

**25:1**

**75:1**

**CF (Close Focus)**

## GENERAL SPECIFICATIONS

|                           | PSC-IR-USB<br>Dull Surface Targets               | PSC-IR-USB 2.2<br>Reflective Metal Targets   |
|---------------------------|--|--|
| <b>Temperature Range</b>  | Choice of ranges from -40°C to 1000°C            | Choice of ranges from 45°C* to 2000°C (see Minimum Measurable Temperature and Model Numbers) |
| <b>Field-of-View</b>      | Choice of optics (see Optics and Model Numbers)  |  |
| <b>Output</b>             | 2-wire, 4 to 20 mA<br>(linear with temperature)  | 4 to 20 mA<br>(linear with temperature)  |
| <b>Configuration</b>      | Via PC port conforming to USB 2.0                |  |
| <b>Accuracy *</b>         | ±1°C or ±1% of reading, whichever is greater     | ±2°C or ±1% of reading, whichever is greater   |
| <b>Repeatability *</b>    | ±0.5% of reading or ±0.5°C, whichever is greater |  |
| <b>Emissivity Setting</b> | 0.1 to 1.0                                       |  |
| <b>Response Time, t90</b> | ≤ 200 ms (90% response)                          |  |
| <b>Spectral Range</b>     | 8 to 14 μm                                       | 2.2 μm   |
| <b>Power Requirement</b>  | 6 to 28 VDC                                      |  |
| <b>Sensor Voltage</b>     | 6 V DC minimum                                   | 11 V DC minimum  |
| <b>Max Loop Impedance</b> | 900 Ω @ 24 V DC                                  |  |
| <b>Maximum Span</b>       | Full temperature range                           |  |
| <b>Minimum Span</b>       | 100°C  |  |

\* Object temperature > Tmin (see graph of Minimum Measurable Temperature)

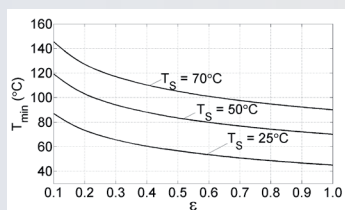
## MECHANICAL

|                                 |                             |
|---------------------------------|-----------------------------|
| <b>Construction</b>             | Stainless Steel             |
| <b>Dimensions</b>               | Ø 25 mm x 106.5 mm          |
| <b>Thread mounting</b>          | M20 x 1 mm pitch            |
| <b>Weight with Output Cable</b> | 175 g                       |
| <b>Output Cable Length</b>      | 1 m (longer cable to order) |
| <b>USB Cable Length</b>         | 1 m                         |

## ENVIRONMENTAL

|                             |   |
|-----------------------------|---|
| <b>Environmental Rating</b> | IP65  |
| <b>Ambient Temperature</b>  | 0°C to 70°C (cooling available for higher temperatures) |
| <b>Relative Humidity</b>    | 95% max. non-condensing                                 |

## MINIMUM MEASURABLE TEMPERATURE (PSC-IR-15LT2.2 only)



Graph showing the minimum measurable object temperature ( $T_{min}$ ), determined by surface emissivity ( $\epsilon$ ) and sensor temperature ( $T_s$ ).

## ACCESSORIES



Laser Sighting Tool **PSC-APL**



Adjustable mounting bracket  
**PSC-ABL**



Air/water cooled housing  
**PSC-WJ**



Air purge  
**PSC-APL**

## OTHER ACCESSORIES

Extended 4-20 mA output cable (30 m max):

- for PSC-IR-USB models without cooling **PSC-PUACE**
- for high-temperature PSC-IR-USB models with (WJ) cooling **PSC-PUACEHT**
- Protective plastic window with stainless steel holder for PSC-IR-USB models **PSC-PWL**
- 3-point calibration certificate **PSC-CALCERT**
- Fixed mounting bracket **PSC-FBL**

## MODEL NUMBERS - 8-14 μm Wavelength

**PSC-IR-USBxx xx**

|                      |  |
|----------------------|--|
| <b>Cooling</b>       | <b>(blank)</b> = Sensor without cooling                      |
| <b>WJ</b> =          | Air/water cooled jacket with air purge collar                |
| <b>Field of view</b> |  |
| <b>30</b> =          | 30:1 divergent optics  |
| <b>CF</b> =          | Close-focus optics (focal spot size 5 mm at 100 mm distance) |

## MODEL NUMBERS - 2.2 μm Wavelength

**PSC-IR-USBxx xx 2.2 xx**

|                          |  |
|--------------------------|--|
| <b>Cooling</b>           | <b>(blank)</b> = Uncooled sensor   |
| <b>WJ</b> =              | Air/water cooled jacket with air purge collar  |
| <b>Temperature range</b> |  |
| <b>LT</b> =              | 45 to 300 °C (PSC-IR-USB-15LT2.2 only)   |
| <b>PT</b> =              | 100 to 400 °C (PSC-IR-USB-15PT2.2 only)  |
| <b>MT</b> =              | 250 to 1000 °C   |
| <b>HT</b> =              | 450 to 2000 °C   |
| <b>Field of view</b>     |  |
| <b>15</b> =              | 15:1 divergent optics (PSC-IR-USB15LT or PT)   |
| <b>25</b> =              | 25:1 divergent optics (PSC-IR-USB25MT or HT)   |
| <b>75</b> =              | 75:1 divergent optics (PSC-IR-USB75MT or HT)   |
| <b>CF</b> =              | Close-focus optics (focal spot size 7.5 mm at 500 mm distance) (PSC-IR-USB-CFMT or HT) |

## Process Sensors

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Updated: 12/18/17  
Specifications subject to change without notice