

# PSC-SSS-PM Series

## Miniature Infrared Temperature Sensors with Optional Touch Screen Display



### FEATURES

- Miniature sensing head and configurable electronics box
- Touch screen display (optional) for temperature indication and sensor system configuration
- Display screen turns bright red in alarm condition for maximum visibility
- Adjustable emissivity settings on all models
- Data logging to MicroSD Card (optional on touch screen display models)
- 4 to 20 mA or RS485 Modbus RTU outputs depending on the model
- Alarm relay outputs rated 24 V DC (optional) - no need for separate trip amplifier
- Maximum, minimum, average and real time readings, peak or valley hold, reflected energy compensation

### PSC-SSS-PM GENERAL PURPOSE Version

- High-ambient sensing heads which can withstand up to 120°C (-CB) or 180°C (-CRT) without cooling
- Suitable for a wide range of target materials such as paper, plastics, food, painted surfaces, coated metal, ceramics, liquids, powders, etc
- Resistant to interference from movement of sensing head cable (-JA, -HA models) - ideal for mounting on robot arms
- Temperature ranges from -20°C to 1000°C

### PSC-SSS-PM 2.2 HIGH TEMPERATURE Version

- Short-wavelength measurement for improved accuracy on reflective targets such as steel and many other metal surfaces
- Temperature ranges from 100°C to 2000°C
- Choice of optics, including narrow options for long-distance measurements of very hot objects

### GENERAL SPECIFICATIONS

	PSC-SSS-PM General Purpose	PSC-SSS-PM 2.2 High Temperature
<b>Temperature Range</b>	Choice of ranges from -20°C to 2000°C (see Model Numbers on page 2)	
<b>Output</b>	4 to 20 mA or RS485 Modbus (up to 247 sensors may be installed on each Modbus network)	
<b>Alarm Relays (-CRT and -BRT models)</b>	2 x Single Pole Changeover alarm relays rated 24 V DC, 1 A, isolated 500 V DC	
<b>Accuracy</b>	± 1% of reading	±1% of reading
<b>Repeatability</b>	± 0.5%	
<b>Field of View</b>	Choice of optics (see FOV tables on page 3)	
<b>Emissivity Setting Range</b>	0.20 to 1.00	0.10 to 1.00
<b>Emissivity Setting Method</b>	-CRT and -BRT models: via touch screen -BB and -BRT models: via RS485 -CB models: via two rotary switches in electronics box	
<b>Response Time, t90</b>	≤ 240 ms (90% response)	
<b>Spectral Range</b>	8 to 14 μm	2.0 to 2.6 μm
<b>Supply Voltage</b>	24 V DC ± 5%	
<b>Maximum Current Draw</b>	100 mA	
<b>Maximum Loop Impedance</b>	-CB and -CRT models: 900 Ω (4 to 20 mA output)	
<b>Max Temp Span (-CRT models)</b>	Full temperature range	
<b>Min Temp Span (-CRT models)</b>	100°C	

### MECHANICAL

	Sensing Head	Electronics Module
<b>Construction</b>	Stainless Steel 316	Cast aluminium
<b>Dimensions</b>	Ø 18 x 45 mm (see diagram)	98(w) x 64(h) x 36(d) mm
<b>Mounting</b>	M16 x 1 mm thread	Two M4 screw holes for wall mounting (see diagram)

### Cable Length (sensing head to electronics module)

1 m (standard), up to 30 m (optional)

### Weight with 1 m Cable

14 oz. (390 g)

### Cable Connections

Removable screw terminal blocks (see Connections) Conductor size: 28 AWG to 18 AWG

### Output Cable Gland

Suitable for cable diameters 3.0 to 6.5 mm

### ENVIRONMENTAL

	Sensing Head	Electronics Box (w/o touch screen)	Electronics Box (with touch screen)
<b>Environmental Rating</b>	IP65 (NEMA 4)	IP65 (NEMA 4)	-
<b>Ambient Temperature Range</b>	See below *	0°C to 60°C	0°C to 60°C
<b>Relative Humidity</b>	Maximum 95% non-condensing	Maximum 95% non-condensing	Maximum 95% non-condensing
<b>RoHS Compliant</b>	Yes	Yes	Yes

### \*Ambient Temperature Rating (Sensing Head)

PSC-SSS-PM series: Ranges from 0°C to 120°C /180°C, depending on model (see Model Numbers on page 2)

PSC-SSS-PM 2.2: 0°C to 70°C

### ELECTROMAGNETIC COMPATIBILITY STANDARDS

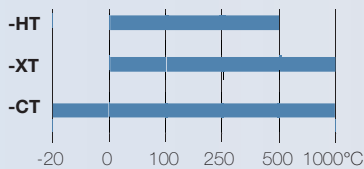
Conforms to EMC Directive EN61326-1:2006 (Electrical equipment for measurement, control and laboratory use – Industrial) as well as industrial standards for electromagnetic immunity and emissions.

## MODEL NUMBER SELECTION

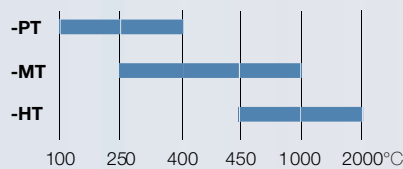
Series	Sensing Head Operating Temperature Range	Field of View	Temperature Range	Output and Interface
PSC-SSS-PM General Purpose (8-14 $\mu\text{m}$ )	MA (0-60°C)	21 (2:1) 151 (15:1) 301 (30:1) CF (close focus)	HT (0 - 500°C) XT (0 - 1000°C)	CB
			CT (-20 - 1000°C)	CRT BB BRT
	HA (0-180°C)	201 (20:1)	HT (0 - 500°C) XT (0 - 1000°C)	CB
	JA (0-120°C)		CT (-20 - 1000°C)	CRT BB BRT
PSC-SSS-PM 2.2 High Temperature (2.2 $\mu\text{m}$ )	-	151 (15:1) 251 (25:1) 751 (75:1) CF (close focus)	PT (100 - 400°C) MT (250 - 1000°C) HT (450 - 2000°C)	CB CRT BB BRT

### MEASUREMENT TEMPERATURE RANGE (°C)

#### PSC-SSS-PM (General Purpose)



#### PSC-SSS-PM 2.2 (High Temperature)



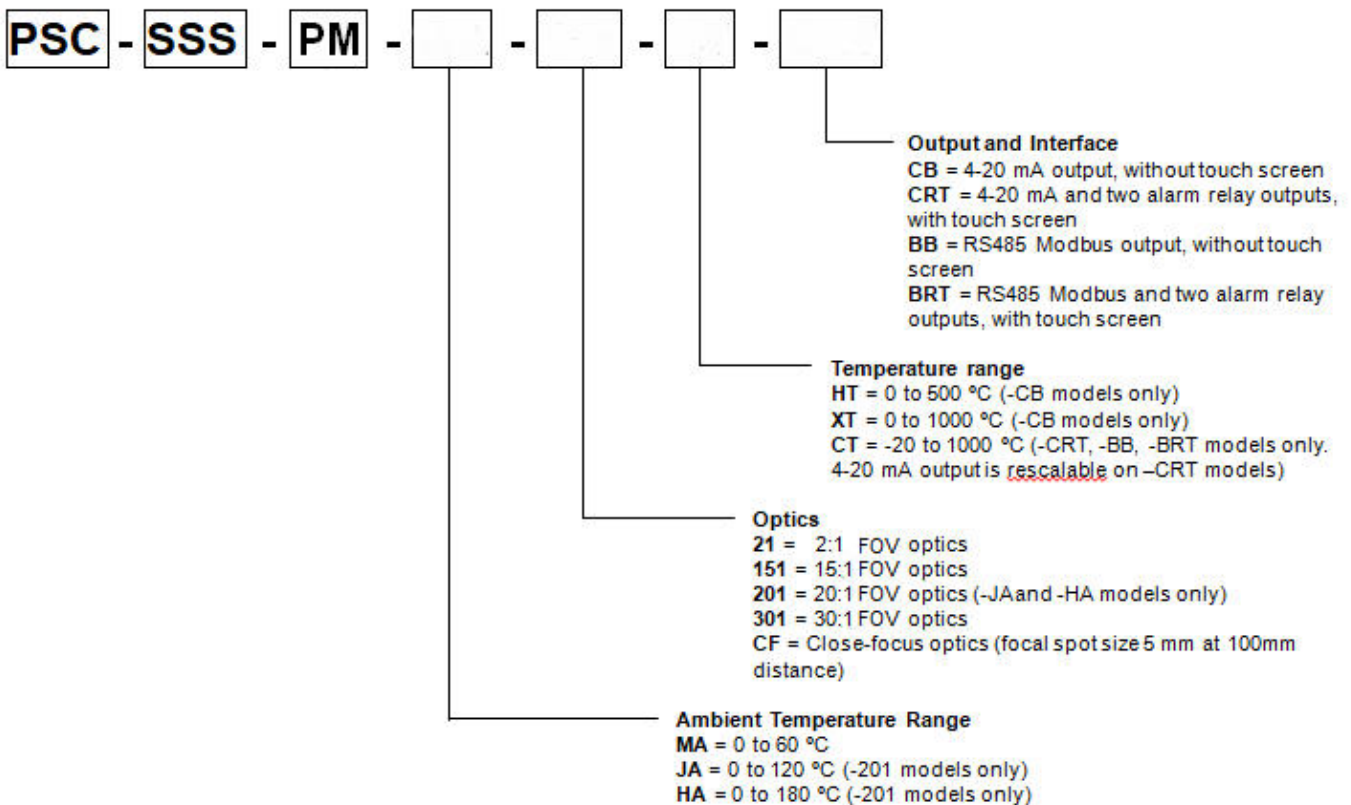
- CB models: Fixed 4 to 20 mA output scale (e.g. -XT: 0°C @ 4 mA, 1000°C @ 20 mA)
- CRT models: 4 to 20 mA output is configurable within this range
- BRT and -BB models: Digital output, full temperature range

### OUTPUT AND INTERFACE

- CB** No touch screen display, 4 - 20 mA output
- CRT** Touch screen display with 4 - 20 mA output and two alarm relay outputs
- BB** No touch screen display, RS485 Modbus output
- BRT** Touch screen display with RS485 Modbus output and two alarm relay outputs

## MODEL SELECTION GUIDE

Since the PSC-SSS-PM series has multiple IR temperature sensor variations, it can be somewhat difficult determining the correct model numbers. The model selection tables below can be used to quickly determine the correct model number of the IR temperature sensor which most perfectly suits your application.



**PSC - SSS - PM2.2** - [ ] - [ ] - [ ]

**Output and Interface**  
**CB** = 4-20 mA output, without touch screen  
**CRT** = 4-20 mA and two alarm relay outputs, with touch screen  
**BB** = RS485 Modbus output, without touch screen  
**BRT** = RS485 Modbus and two alarm relay outputs, with touch screen

**Temperature range\***  
**PT** = 100 to 400 °C  
**MT** = 250 to 1000 °C  
**HT** = 450 to 2000 °C

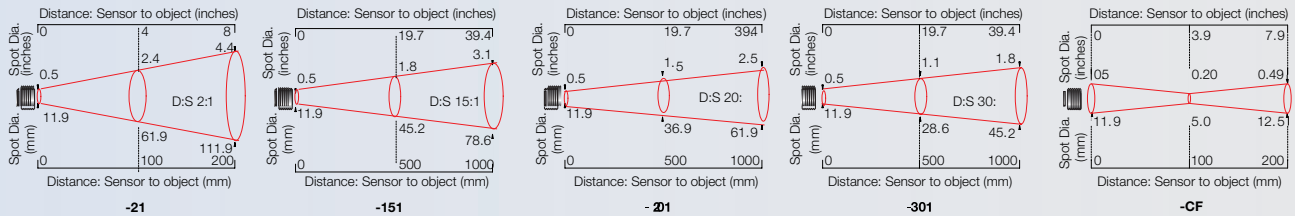
**Optics**  
**151** = 15:1 FOV optics (PT models only)  
**251** = 25:1 FOV optics  
**751** = 75:1 FOV optics  
**CF** = Close-focus optics (focal spot size 7.5 mm at 500mm distance)

**MODEL NUMBER EXAMPLE: PSC-SSS-PM2.2-251-MT-CRT**

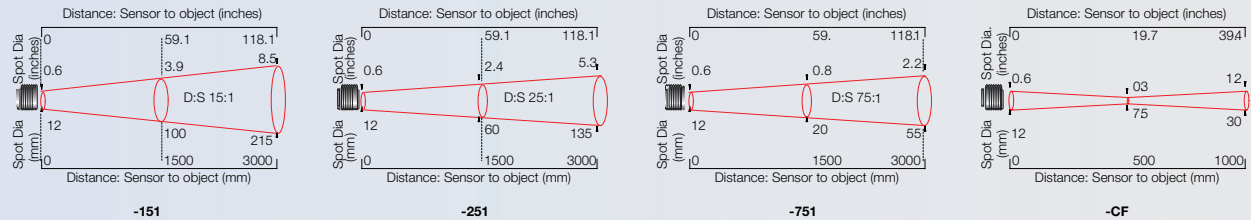
PSC-SSS-PM2.2 is the Process Sensors model series with a 2.2 um wavelength. 251 provides a FOV of 25:1, and MT indicates a temperature range of 250 to 1000°C. CRT indicates a Touch Screen Display with a 4-20mA output and two alarm relays.

**FIELD OF VIEW (PSC-SSS-PM - General Purpose)**

Diameter of target spot measured versus distance from sensing head 90%energy



**FIELD OF VIEW (PSC-SSS-PM2.2 - Short Wavelength)**



## TOUCH SCREEN DISPLAY (-CRT AND -BRT MODELS)

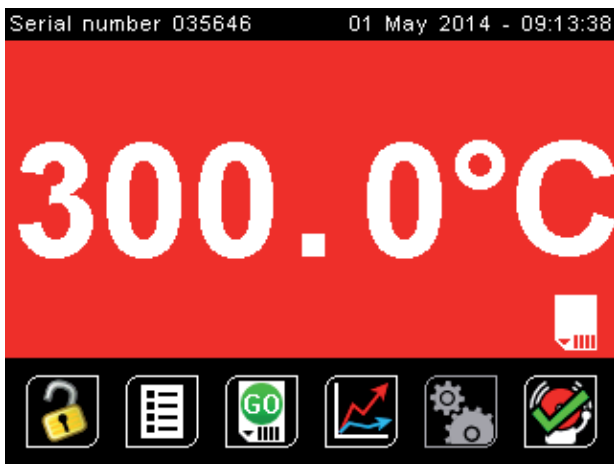
The optional backlit touch screen display mounted in the lid of the electronics box provides a large, bright display of the measured temperature, as well as allowing full configuration of the IR sensor. The graph view shows the history of the measured temperature.

In alarm conditions, the display changes color to provide an immediate and obvious alarm indication. Alarm modes and levels can be configured via the touch screen display.

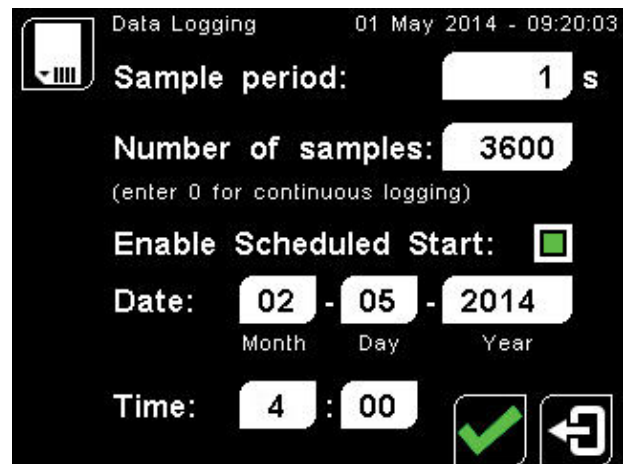
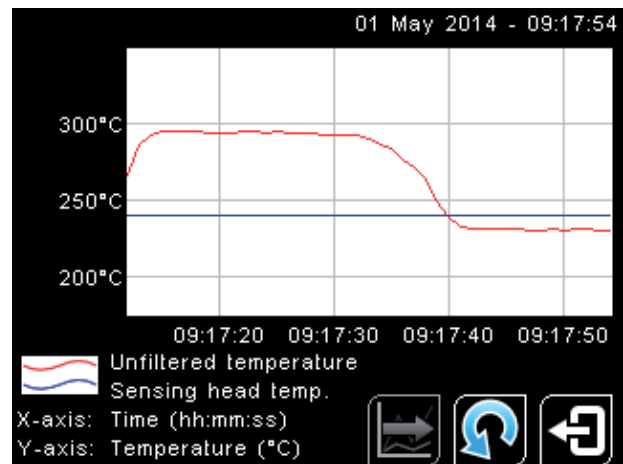
## TOUCH SCREEN SPECIFICATIONS

<b>Touch Screen Display Format</b>	2.83" (72 mm) resistive touch TFT, 320 x 240 pixels, backlit
<b>Configurable Parameters</b>	Temperature range, temperature units, emissivity setting, reflected energy compensation, alarms, signal processing, Modbus address (-BRT models), date and time, data logging
<b>Temperature Units</b>	°C or °F configurable
<b>Temperature Resolution</b>	0.1°
<b>Alarm Configuration</b>	Two alarms with adjustable level, individually configurable as HI or LO. Alarm 2 can be set to target temperature or sensing head internal temperature
<b>Signal Processing</b>	Average, peak hold, valley hold, minimum, maximum

## EXAMPLE SCREENSHOTS



Screen shown with red background to indicate alarm condition



## DATA LOGGING SPECIFICATIONS

<b>Data Logging Interval</b>	1 to 86,400 seconds (1 day)
<b>MicroSD Card</b>	Max. capacity: 32 GB (not included)
<b>Internal Clock Battery</b>	1 x BR 1225 3V (not included)
<b>Variables Logged</b>	Target temperature, sensing head temperature, electronics module temperature, max, min, average, emissivity setting, reflected energy compensation temperature, alarm events
<b>File format</b>	.csv
<b>Configurable Parameters</b>	Sample period, number of samples, scheduled start date and time

## DATA LOGGING WITH TOUCH SCREEN DISPLAY

The PSC-SSS-PM series (-CRT & -BRT versions) can be used as a standalone data logger and includes a MicroSD card slot for data logging, which can be configured via the touch screen interface. The user can select the sample rate and the number of samples to be taken and schedule the data logging to start at a certain time.

With a 2 GB card, the user can store 28.4 million readings, which provides almost 1 year's worth of data at the fastest possible sample rate of 1 per second.

Data is stored on the MicroSD card in .csv format and can be viewed and edited easily using spreadsheet software. Alarm events can also be logged to the MicroSD Card.

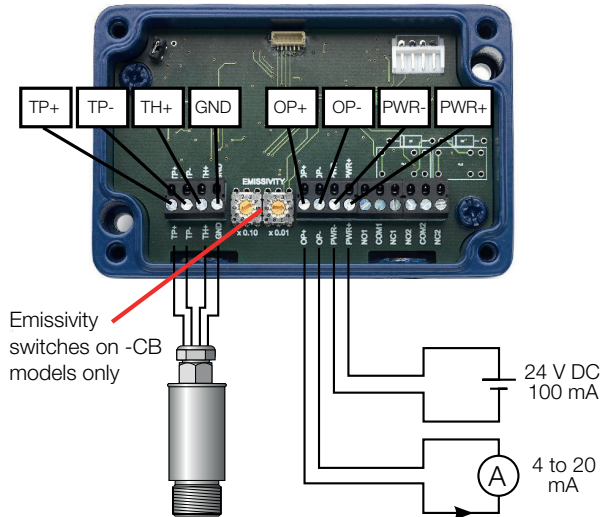
A MicroSD card with SD card adapter is available as an optional accessory.

The MicroSD card slot and battery holder are located on the touch screen display circuit board in the lid of the PSC-SSS-PM. Temperature readings are time and date stamped using the sensor's internal clock. The clock is reset when the power is disconnected, or it will continue if the optional battery is installed.

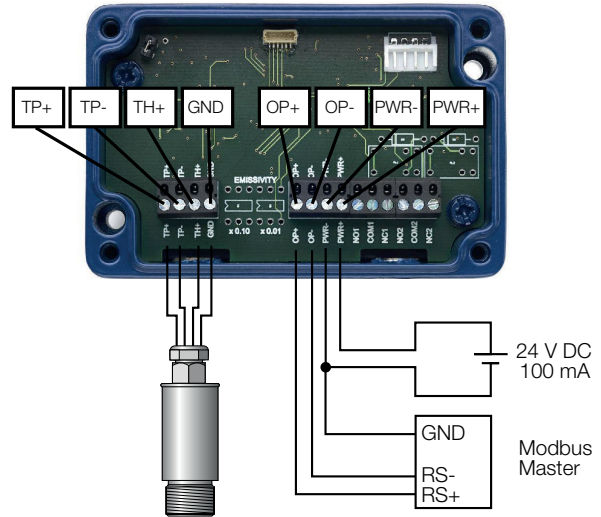


## WIRING CONNECTIONS

Analog 4-20 mA version  
-CB and -CRT models

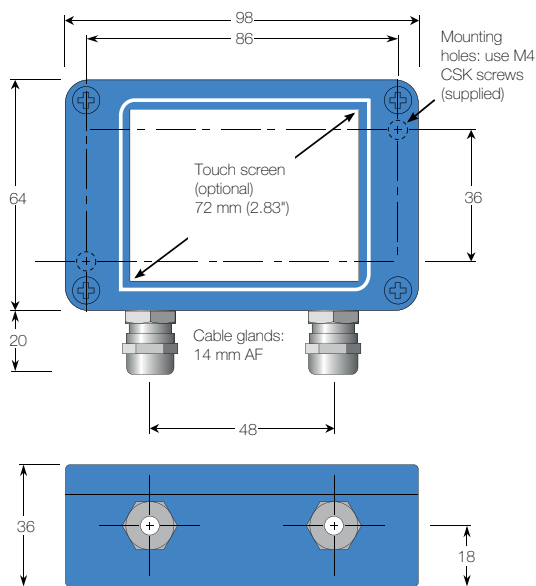


Digital RS485 Modbus version  
-BB and -BRT models

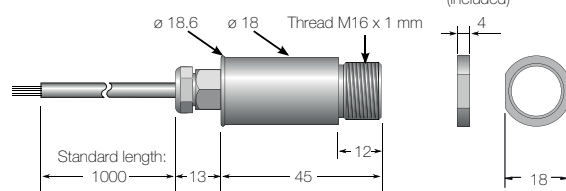


## DIMENSIONS AND ACCESSORIES

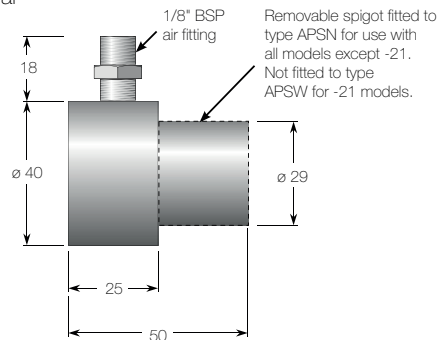
Electronics Module



Sensing Head



Air Purge Collar



All dimensions in mm

## ACCESSORIES

- MicroSD Card with SD Card adapter: stores logged data (-CRT and -BRT models) **MSD**
- Extended cable between sensing head & electronics box (PSC-SSS-PM -MA models) **PMCE**, (PSC-SSS-PM -HA and -JA models) **PMCEHT**, (PSC-SSS-PM 2.2 models) **PM2.2CE**
- Calibration certificate **CALCERTA**
- Laser sighting tool **LSTS**
- Mounting bracket, Adjustable **ABS**, Fixed **FBS**
- 6-channel Modbus temperature display with data logging **PM180**

