

# PSC-A10G Series

## 1-Color Pyrometers for Glass Manufacturing Applications

### Overview

Digital Single Wavelength pyrometers with 4-20 mA and RS-485 modbus RTU interface



### Features

- Temperature ranges from **75°C** to 2500°C
- Push buttons for sensor parameter adjustments
- On-board temperature display
- Rugged protective cooling/purging hardware
- Aiming: Laser, through-lens, or video camera sighting
- Fast response time: 1 millisecond
- Outputs 0/4 to 20 mA and RS485 modbus RTU
- Choice of 4 variable focus optics

### Description and applications

The high performance model PSC-A10G was designed for glass surface temperature measurement applications for forming, bending, tempering, annealing, flame sealing, float, container, automotive and lamp glass manufacturing processes.

Precision target alignment is done via integrated laser aiming light, alternative through-lens sighting, or integrated color video model (PSC-A10GV). The color video feature is useful for temperature measurement in difficult, dangerous, and inaccessible areas spaces.

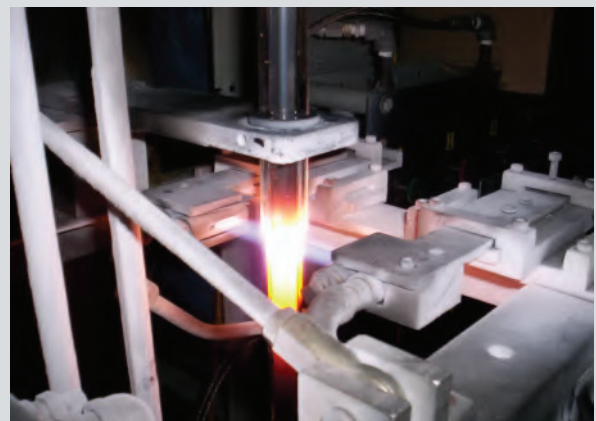
Optical and electronic components are contained in a rugged IP65 extruded aluminum housing and with its companion protective water-cooling jacket and air purge, can reliably operate in hot and harsh industrial conditions.

The linear 0/4 to 20 mA output signal offers easy implementation in pre-existing measurement and control systems. The device is equipped with a RS-485 Modbus RTU interface which allows sensor parameter adjustments remotely via a PLC or HMI.

All parameters are also adjustable via IR sensor push-buttons or a PC with PSC Spot software.

Typical pyrometer application areas:

- Lamp glass
- Float glass
- Molten glass
- Container glass
- Automotive glass



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| Technical data                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                        |                |                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------|
| Model                                                                                                                                                                                                                                                                                                                                                                                                                                         | PSC-A10GL / PSC-A10GT / PSC-A10GV                                                                                                                                                                      |                |                |
| Measuring temperature ranges                                                                                                                                                                                                                                                                                                                                                                                                                  | 75 to 1400°C                                                                                                                                                                                           | 100 to 1800 °C | 500 to 2500 °C |
| Sub temperature range                                                                                                                                                                                                                                                                                                                                                                                                                         | adjustable within measuring temperature range, minimum span 50 °C                                                                                                                                      |                |                |
| Spectral range                                                                                                                                                                                                                                                                                                                                                                                                                                | 5 µm                                                                                                                                                                                                   |                |                |
| Optics                                                                                                                                                                                                                                                                                                                                                                                                                                        | Focusable optics, measuring a spot size of 1.0 mm, 130 : 1                                                                                                                                             |                |                |
| Accuracy <sup>1</sup>                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.6 % of measured value in °C or 1 K <sup>3,4</sup>                                                                                                                                                    |                |                |
| Reproducibility <sup>1</sup>                                                                                                                                                                                                                                                                                                                                                                                                                  | 0.3 % of measured value in °C or 0.5 K <sup>3,4</sup>                                                                                                                                                  |                |                |
| NETD <sup>2</sup>                                                                                                                                                                                                                                                                                                                                                                                                                             | 0.2 K <sup>5</sup>                                                                                                                                                                                     |                |                |
| Response time (t <sub>95</sub> )                                                                                                                                                                                                                                                                                                                                                                                                              | 1 ms, adjustable up to 100 seconds set via RS-485 interface or directly at the device                                                                                                                  |                |                |
| Emissivity ε                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0.010 to 1.000, adjustable set via RS-485 interface or directly at the device                                                                                                                          |                |                |
| Data Storage                                                                                                                                                                                                                                                                                                                                                                                                                                  | minimum/maximum value storage, adjustable via RS-485 interface or directly at the device                                                                                                               |                |                |
| Outputs                                                                                                                                                                                                                                                                                                                                                                                                                                       | 0/4 to 20 mA, linear (switchable) via RS-485 interface or directly at the device, max. load 700 Ω                                                                                                      |                |                |
| Interface                                                                                                                                                                                                                                                                                                                                                                                                                                     | RS-485 (galvanically isolated), half duplex, baudrate up to 115 kBd, data protocol Modbus RTU                                                                                                          |                |                |
| Switching output/Switching threshold                                                                                                                                                                                                                                                                                                                                                                                                          | 1 opto relay, R <sub>Burden</sub> min. 48 Ω (galvanically isolated) / adjustable within temperature range                                                                                              |                |                |
| Aiming                                                                                                                                                                                                                                                                                                                                                                                                                                        | Laser aiming light, through-lens sighting, or color video (PSC-A10GL / PSC-A10GT / PSC-A10GV)                                                                                                          |                |                |
| Software                                                                                                                                                                                                                                                                                                                                                                                                                                      | PSCSpot for Windows®, optional: PSC Spot Pro                                                                                                                                                           |                |                |
| Parameters                                                                                                                                                                                                                                                                                                                                                                                                                                    | emissivity, response time, temperature unit °C or °F, storage, sub temperature range, transmittance, ambience compensation, video parameter, adjustable via RS-485 interface or directly at the device |                |                |
| User controls                                                                                                                                                                                                                                                                                                                                                                                                                                 | Laser aiming light push-button, four push buttons, display                                                                                                                                             |                |                |
| Power supply                                                                                                                                                                                                                                                                                                                                                                                                                                  | 24 V DC ± 25 %, residual ripple 500 mV                                                                                                                                                                 |                |                |
| Power consumption                                                                                                                                                                                                                                                                                                                                                                                                                             | max. 2 W                                                                                                                                                                                               |                |                |
| Operating temperature                                                                                                                                                                                                                                                                                                                                                                                                                         | 0 °C to 70 °C // 32°F to 158°F                                                                                                                                                                         |                |                |
| Storage temperature                                                                                                                                                                                                                                                                                                                                                                                                                           | –20 °C to 70 °C                                                                                                                                                                                        |                |                |
| Weight                                                                                                                                                                                                                                                                                                                                                                                                                                        | appr. 500 g // 1.1 lbs                                                                                                                                                                                 |                |                |
| Dimensions                                                                                                                                                                                                                                                                                                                                                                                                                                    | 54 mm × 54 mm x 170 mm // 2.1" x 2.1" x 6.7" (H x W x L)                                                                                                                                               |                |                |
| Housing                                                                                                                                                                                                                                                                                                                                                                                                                                       | compact housing with male connector, display and push-buttons                                                                                                                                          |                |                |
| Protection class                                                                                                                                                                                                                                                                                                                                                                                                                              | IP65 (DIN 40 050, DIN EN 60529)                                                                                                                                                                        |                |                |
| CE symbol                                                                                                                                                                                                                                                                                                                                                                                                                                     | according to EU regulations (EN 50 011)                                                                                                                                                                |                |                |
| Scope of delivery                                                                                                                                                                                                                                                                                                                                                                                                                             | PSC-A10GL/T/V, mounting screw nut, inspection sheet, manual, PSC Spot for Windows® (without connection cable, please order separately)                                                                 |                |                |
| <sup>1</sup> Specifications for black body radiator, T <sub>ambient</sub> = 23 °C, ε = 1, t <sub>95</sub> = 1 s. <sup>2</sup> Noise equivalent temperature difference. <sup>3</sup> Whichever is higher value. <sup>4</sup> From T <sub>Object</sub> = 50 °C. <sup>5</sup> At T <sub>ambient</sub> = 23 °C, t <sub>95</sub> = 100 ms, ε = 1, T <sub>Object</sub> (30 °C to 850 °C) = 150 °C, T <sub>Object</sub> (75 °C to 1400 °C) = 250 °C. |                                                                                                                                                                                                        |                |                |

### Dimensional drawing pyrometer-Laser (in mm)

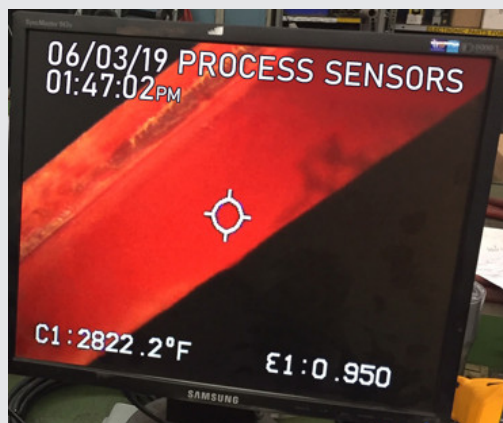


# PSC-A10G Series

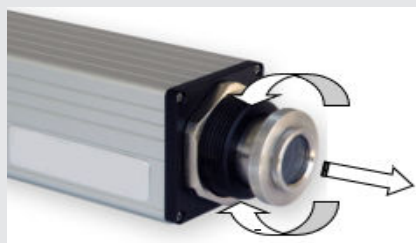
## 1-Color Pyrometers for Glass Manufacturing Applications

| Variable focus optics |                             |                    |                             |                 | Part numbers |                    |                       |                    |
|-----------------------|-----------------------------|--------------------|-----------------------------|-----------------|--------------|--------------------|-----------------------|--------------------|
| Optics                | Measuring temperature range | Target size M [mm] | Measurement distance a [mm] | Aperture D [mm] |              | Laser aiming light | Through-lens-sighting | Color-video module |
| 1                     | 75 °C to 1400 °C            | 1.0 to 1.3         | 130 to 140                  | 11.6            |              | PSC-5109511201     | PSC-5109521201        | PSC-5109531201     |
|                       | 100 °C to 1800 °C           |                    |                             |                 |              | PSC-5109511202     | PSC-5109521202        | PSC-5109531202     |
|                       | 500 °C to 2500 °C           |                    |                             |                 |              | PSC-5109511203     | PSC-5109521203        | PSC-5109531203     |
| 2                     | 75 °C to 1400 °C            | 1.3 to 1.9         | 170 to 190                  | 11.6            |              | PSC-5109512201     | PSC-5109522201        | PSC-5109532201     |
|                       | 100 °C to 1800 °C           |                    |                             |                 |              | PSC-5109512202     | PSC-5109522202        | PSC-5109532202     |
|                       | 500 °C to 2500 °C           |                    |                             |                 |              | PSC-5109512203     | PSC-5109522203        | PSC-5109532203     |
| 3                     | 75 °C to 1400 °C            | 1.8 to 2.9         | 230 to 290                  | 11.6            |              | PSC-5109513201     | PSC-5109523201        | PSC-5109533201     |
|                       | 100 °C to 1800 °C           |                    |                             |                 |              | PSC-5109513202     | PSC-5109523202        | PSC-5109533202     |
|                       | 500 °C to 2500 °C           |                    |                             |                 |              | PSC-5109513203     | PSC-5109523203        | PSC-5109533203     |
| 4                     | 75 °C to 1400 °C            | 3.2 to 7.1         | 360 to 710                  | 11.6            |              | PSC-5109514201     | PSC-5109524201        | PSC-5109534201     |
|                       | 100 °C to 1800 °C           |                    |                             |                 |              | PSC-5109514202     | PSC-5109524202        | PSC-5109534202     |
|                       | 500 °C to 2500 °C           |                    |                             |                 |              | PSC-5109514203     | PSC-5109524203        | PSC-5109534203     |

### Focusing adjustment of optics and Color video output (PSC-A10GV)



- NTSC (60 Hz), optional PAL (50 Hz)
- 510 × 496 pixels (NTSC) or 628 × 586 pixels (PAL)
- Composite video signal approx. 1 V<sub>SS</sub> at 75 Ω (galvanically isolated)
- Reticule shows size of measurement field, temperature, & emissivity
- Automatic or manual exposure contrast control



Focusable optics

### Temperature Menu Display

The digital display shows the current measurement value and the emissivity

Current measurement temperature



Status switching output

Set emissivity value

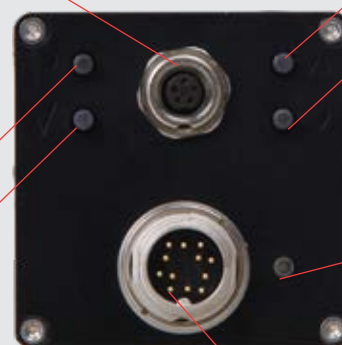
### Rear Sensor Panel

The parameters can be set by using the control keys at the rear side of the device. The value set is transferred directly.

Through-lens sighting, laser, or video connector

Push buttons for "Up" and "Down"

Push buttons for "Parameter Menu" and "Enter"



Status LED

Cable connection and interface

# PSC-A10G Series

## 1-Color Pyrometers for Glass Manufacturing Applications

| Electrical, mechanical and optical accessories <sup>1</sup> |                                        |                                                     | Order number                     |                |
|-------------------------------------------------------------|----------------------------------------|-----------------------------------------------------|----------------------------------|----------------|
| Straight Connection cable (12 pin)                          | Connection cable, right angle (12 pin) | length 2 m                                          | PSC-3310A11111                   | PSC-3310A11131 |
|                                                             |                                        | length 5 m                                          | PSC-3310A11112                   | PSC-3310A11132 |
|                                                             |                                        | length 10 m                                         | PSC-3310A11113                   | PSC-3310A11133 |
|                                                             |                                        | length 20 m                                         | PSC-3310A11115                   | PSC-3310A11135 |
| Video connection cable                                      |                                        | length 2 m                                          | PSC-3310A16521                   |                |
|                                                             |                                        | length 5 m                                          | PSC-3310A16522                   |                |
|                                                             |                                        | length 10 m                                         | PSC-3310A16523                   |                |
|                                                             |                                        | length 20 m                                         | PSC-3310A16525                   |                |
| Mounting bracket                                            |                                        | adjustable                                          | PSC-3310A21020                   |                |
| Air purge adapter                                           |                                        | stainless steel, purge air 0.1 to 0.5 bar, oil-free | PSC-3310A22020                   |                |
| Vacuum flange                                               |                                        | KF 16<br>with calcium fluoride window               | PSC-3310A24015<br>PSC-3310A34031 |                |
| Mirror 90°                                                  |                                        | including air purge                                 | PSC-3310A24110                   |                |
| Power supply                                                |                                        | 24 V DC, 1.5 A                                      | 950-004                          |                |
| Interface module                                            |                                        | RS-485 to USB                                       | PSC-3310A14020                   |                |
| Adapter                                                     |                                        | Video/USB                                           | PSC-3310A14030                   |                |
| TFT display/TFT display industrial                          |                                        | 3.5" with 2 m cable                                 | PSC-3310A16110 / PSC-3310A16120  |                |
|                                                             |                                        |                                                     |                                  |                |
| <sup>1</sup> More accessories available.                    |                                        |                                                     |                                  |                |

### Selected accessories – images

| Mounting bracket, adjustable                                                                                       | Light duty swivel base mount                                                                                       | Cooling jacket with Air Purge                                                                                        |
|--------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| Part number: PSC-3310A21020<br> | Part number: PSC-3310A21025<br> | Part number: PSC-3310A23031<br> |
| Protective Jacket with Air Purge                                                                                   | Air purge                                                                                                          | RS485 to USB Converter with cable                                                                                    |
| Part number: PSC-3310A23040<br> | Part number: PSC-3310A22020<br> | Part number: PSC-3310A14020<br> |

Process Sensors IR  
787 Susquehanna Avenue  
Franklin Lakes, NJ 07417  
PH: 774-399-0461

PROCESS SENSORS CORPORATION  
[www.processsensorsIR.com](http://www.processsensorsIR.com)  
[irtemp@kpmanalytics.com](mailto:irtemp@kpmanalytics.com)

KPM Analytics  
8 Technology Drive  
Westborough, MA 01581  
PH: 774-399-0500