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.

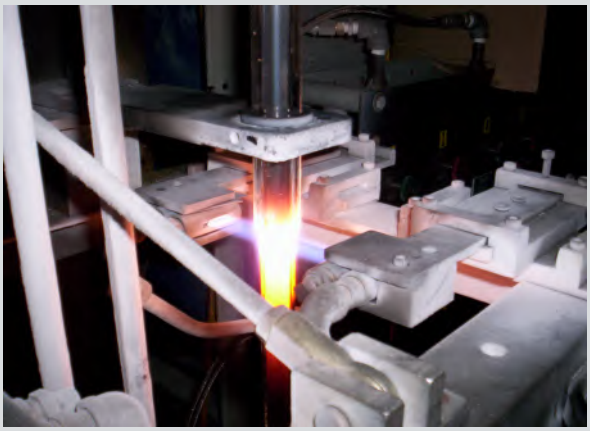
Optical and electronic components are contained in a rugged IP65 extruded aluminum housing and with its companion protective water-cooling jacket and air purge, can reliably operate in hot and harsh industrial conditions.

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 [1]	0.6 % of measured value in °C or 1 K [3, 4]		
Reproducibility [1]	0.3 % of measured value in °C or 0.5 K [3, 4]		
NETD [2]	0.2 K [5]		
Response time (t_{95})	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_{Burden} 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)		

[1] Specifications for black body radiator, $T_{ambient}$ = 23 °C, ε = 1, t_{95} = 1 s. [2] Noise equivalent temperature difference. [3] Whichever is higher value. [4] From T_{Object} = 50 °C. [5] At $T_{ambient}$ = 23 °C, t_{95} = 100 ms, ε = 1, $T_{Object\ (30\ °C\ to\ 850\ °C)}$ = 150 °C, $T_{Object\ (75\ °C\ to\ 1400\ °C)}$ = 250 °C.

Dimensional drawing pyrometer-Laser (in mm)

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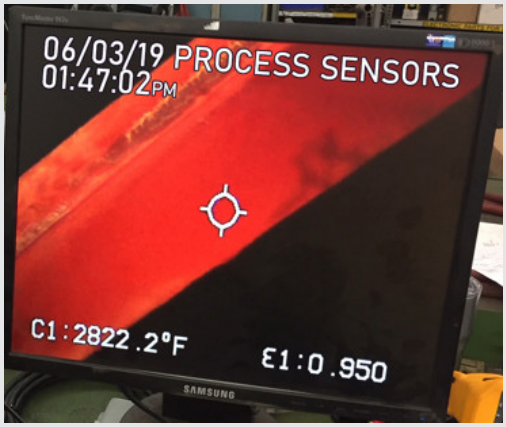
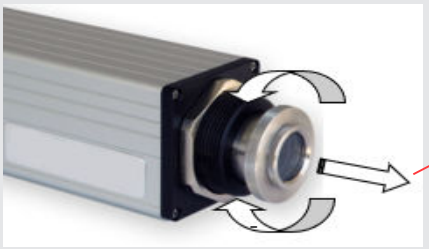
Variable focus optics					Part numbers			
Optics	Measuring temperature range	Target size M [mm]	Measurement distance a [mm]	Aperture D [mm]		Laser aiming light	Through-lens-sighting	Color-video module
I	75 °C to 1400 °C	1.0 to 1.3	130 to 140	11.6		PSC-5109511201	PSC-5109521201	PSC-5109531201
	100 °C to 1800°C					PSC-5109511202	PSC-5109521202	PSC-5109531202
	500 °C to 2500 °C					PSC-5109511203	PSC-5109521203	PSC-5109531203
II	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
III	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
IV	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)

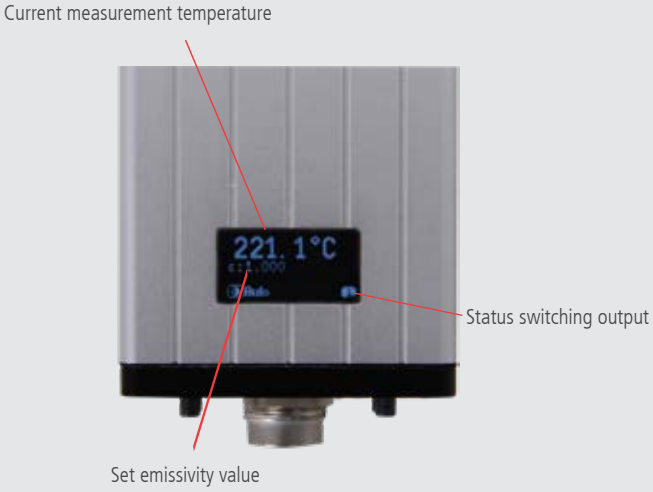


– NTSC (60 Hz), optional PAL (50 Hz)
– 510 × 496 pixels (NTSC) or 628 x 586 pixels (PAL)
– Composite video signal approx. 1 V_{SS} at 75 Ω (galvanically isolated)
– Reticule shows size of measurement field, temperature, & emissivity
– Automatic or manual exposure contrast control



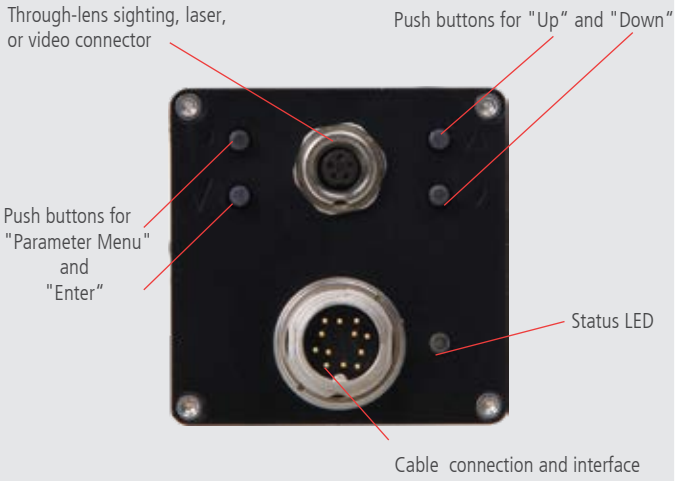
Temperature Menu Display

The digital display shows the current measurement value and the emissivity



Rear Sensor Panel

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



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Electrical, mechanical and optical accessories[1]			Order number	
Straight Connection cable (12 pin)	Connection cable, right angle (12 pin)	length 2 m length 5 m length 10 m length 20 m	PSC-3310A11111 PSC-3310A11112 PSC-3310A11113 PSC-3310A11115	PSC-3310A11131 PSC-3310A11132 PSC-3310A11133 PSC-3310A11135
Video connection cable		length 2 m length 5 m length 10 m length 20 m	PSC-3310A16521 PSC-3310A16522 PSC-3310A16523 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 with calcium fluoride window	PSC-3310A24015 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	

[1] More accessories available.

Selected accessories – images

Mounting bracket, adjustable

Part number: PSC-3310A21020

Light duty swivel base mount

Part number: PSC-3310A21025

Cooling jacket with Air Purge

Part number: PSC-3310A23031

Protective Jacket with Air Purge

Part number: PSC-3310A23040

Air purge

Part number: PSC-3310A22020

RS485 to USB Converter with cable

Part number: PSC-3310A14020

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