PROCESS SENSORS® CORPORATION

a KPM ANALYTICS brand

PSC-G56N / PSC-S56N

1 Color Pyrometer Series
For Industrial and R&D Applications

The Stand Alone PSC-G56N and PSC-S56N One-Color Pyrometer Series provide pinpoint accuracy over an incredibly wide temperature range with customizable options. Choose from integrated laser aiming light, through lens sighting, or real-time color video camera sighting as well as an electronic viewfinder. The series offers ten distinct temperature ranges and four high-resolution, fixed focus optics choices.

These compact digital sensors are specifically designed for accuracy and reliability in harsh industrial and demanding laboratory applications. The PSC-G56N and PSC-S54N Series' 0/4 to 20mA output allows easy integration to existing measurement and control systems. RS-485 interface capability facilitates connection to a PC to allow all parameter settings to be set and adjusted using the PSCSpot software and optional RS-485 to USB connector.

APPLICATIONS

- Steel and Metals
- Vacuum Furnace
- Semiconductor
- Induction Heating
- Kilns
- Welding
- Ceramics/Composites
- Sintering/Graphite
- Nuclear
- R & D

FEATURES

- Temperature Display and Parameter Controls on IR Sensor Rear Panel
- Thru-lens, Laser or Integrated Color, Electronic Viewfinder Sighting
- Temperature Ranges Spanning from 200° to 3000°C
- 0/4-20mA and RS-485 Interface
- Choice of Fixed Focus Optics
- Fast Response Time from 2ms, Adjustable up to 100 seconds
- Compact, Robust Stainless Steel Housing
- RS-485 Modbus Interface Integration into Existing Data Acquisition Systems
- Rugged Hardware Designed for Harsh Industrial Continuous Operations
- Custom Optics Available

Table 1: Temperature Range and Spectral Response

Models	PSC-G56NT PSC-G56NL PSC-G56NV PSC-G56NEV	PSC-S56NT PSC-S56NL PSC-S56NV PSC-S56NEV
Spectral Response	1.5µm to 1.8µm	0.8µm to 1.1µm
Temperature Ranges	200° to 1200°C 392° to 2192°F	550° to 1500°C 1022° to 2732°F
	250° to 1500°C 482° to 2732°F	600° to 1800°C 1112° to 3272°F
	350° to 2000°C 662° to 3632°F	800° to 2500°C 1472° to 4532°F
	250° to 2500°C 482° to 4532°F	900° to 3000°C 1652° to 5432°F
	200° to 2000°C 392° to 3632°F	600° to 3000°C 1112° to 5432°F

PSC-G56NT
PSC-S56NT
THRU-LENS SIGHTING

PSC-G56NL
PSC-S56NL
LASER SIGHTING

PSC-G56NEV
PSC-S56NEV
ELECTRONIC VIEWFINDER

PSC-G56NV
PSC-S56NV
VIDEO CAMERA

Table 2: Fixed Focus Optics PSC-G56N Series

Temperature Range	Optics Aperture	Distance/Spot Size			
		Focused at 9.84" (250 mm)	Focused at 25.59" (650 mm)	Focused at 78.74" (2000 mm)	Focused at 157.48" (4000 mm)
200° to 1200°C 392° to 2192°F	**0.39 inch (10.0 mm)**	0.05 in. (1.3 mm)	0.13 in. (3.5 mm)	0.39 in. (10.0 mm)	0.78 in. (20.0 mm)
250° to 1500°C 482° to 2732°F	**0.32 inch (8.0 mm)**	0.05 in. (1.3 mm)	0.13 in. (3.5 mm)	0.39 in. (10.0 mm)	0.78 in. (20.0 mm)
350° to 2000°C 662° to 3632°F	**0.19 inch (5.0 mm)**	0.05 in. (1.3 mm)	0.13 in. (3.5 mm)	0.39 in. (10.0 mm)	0.78 in. (20.0 mm)
250° to 2500°C 482° to 4532°F	**0.19 inch (5.0 mm)**	0.05 in. (1.3 mm)	0.13 in. (3.5 mm)	0.39 in. (10.0 mm)	0.78 in. (20.0 mm)
200° to 2000°C 392° to 332°F	**0.13 inch (3.5 mm)**	0.05 in. (1.3 mm)	0.13 in. (3.5 mm)	0.39 in. (10.0 mm)	0.78 in. (20.0 mm)

Table 3: Fixed Focus Optics PSC-S56N Series

Temperature Range	Optics Aperture	Distance/Spot Size			
		Focused at 9.84" (250 mm)	Focused at 25.59" (650 mm)	Focused at 78.74" (2000 mm)	Focused at 157.48" (4000 mm)
550° to 1500°C 1022° to 2732°F	**0.39 inch (10.0 mm)**	0.05 in. (1.3 mm)	0.13 in. (3.5 mm)	0.39 in. (10.0 mm)	0.78 in. (20.0 mm)
600° to 1800°C 1112° to 3272°F	**0.32 inch (8.0 mm)**	0.05 in. (1.3 mm)	0.13 in. (3.5 mm)	0.39 in. (10.0 mm)	0.78 in. (20.0 mm)
800° to 2500°C 1472° to 4532°F	**0.19 inch (5.0 mm)**	0.05 in. (1.3 mm)	0.13 in. (3.5 mm)	0.39 in. (10.0 mm)	0.78 in. (20.0 mm)
900° to 3000°C 1652° to 5432°F	**0.19 inch (5.0 mm)**	0.05 in. (1.3 mm)	0.13 in. (3.5 mm)	0.39 in. (10.0 mm)	0.78 in. (20.0 mm)
600° to 3000°C 1112° to 5432°F	**0.13 inch (3.5 mm)**	0.05 in. (1.3 mm)	0.13 in. (3.5 mm)	0.39 in. (10.0 mm)	0.78 in. (20.0 mm)

MODEL SELECTION GUIDE
PSC-G56N Series

Build the model number by selecting instrument specifications required from each column.

1. Select Model Number:	2. Select Temperature Range in °C:	3. Select Fixed Focus Optics in mm:	4. Select Accessories Codes:
 PSC-G56NT Thru-lens	0200° to 1200°C 392° to 2192°F	250	Choose **1** of 2 Jacket Codes:
	0250° to 1500°C 482° to 2732°F	650	**JW** = Protective Cooling Jacket With integrated Air Purge
 PSC-G56NL Laser	0350° to 2000°C 662° to 3632°F	2000	**00** = No Protective Jacket
 PSC-G56NV Video	0250° to 2500°C 482° to 4532°F	4000	Choose **1** of 2 Air Purge Codes:
			AP = Air Purge Assembly (connects to IR Sensor)
 PSC-G56NEV Electronic Viewfinder	0200° to 2000°C 392° to 3632°F		**00** = No Air Purge Assembly

Example: Model PSC-G56NV-0250-1500-650-JW-00 includes video camera sighting, temperature range of 250 to 1500°C, 650mm fixed focus optics and protective cooling jacket with integrated air purge. (Refer to Accessories page)

MODEL SELECTION GUIDE
PSC-S56N Series

Build the model number by selecting instrument specifications required from each column.

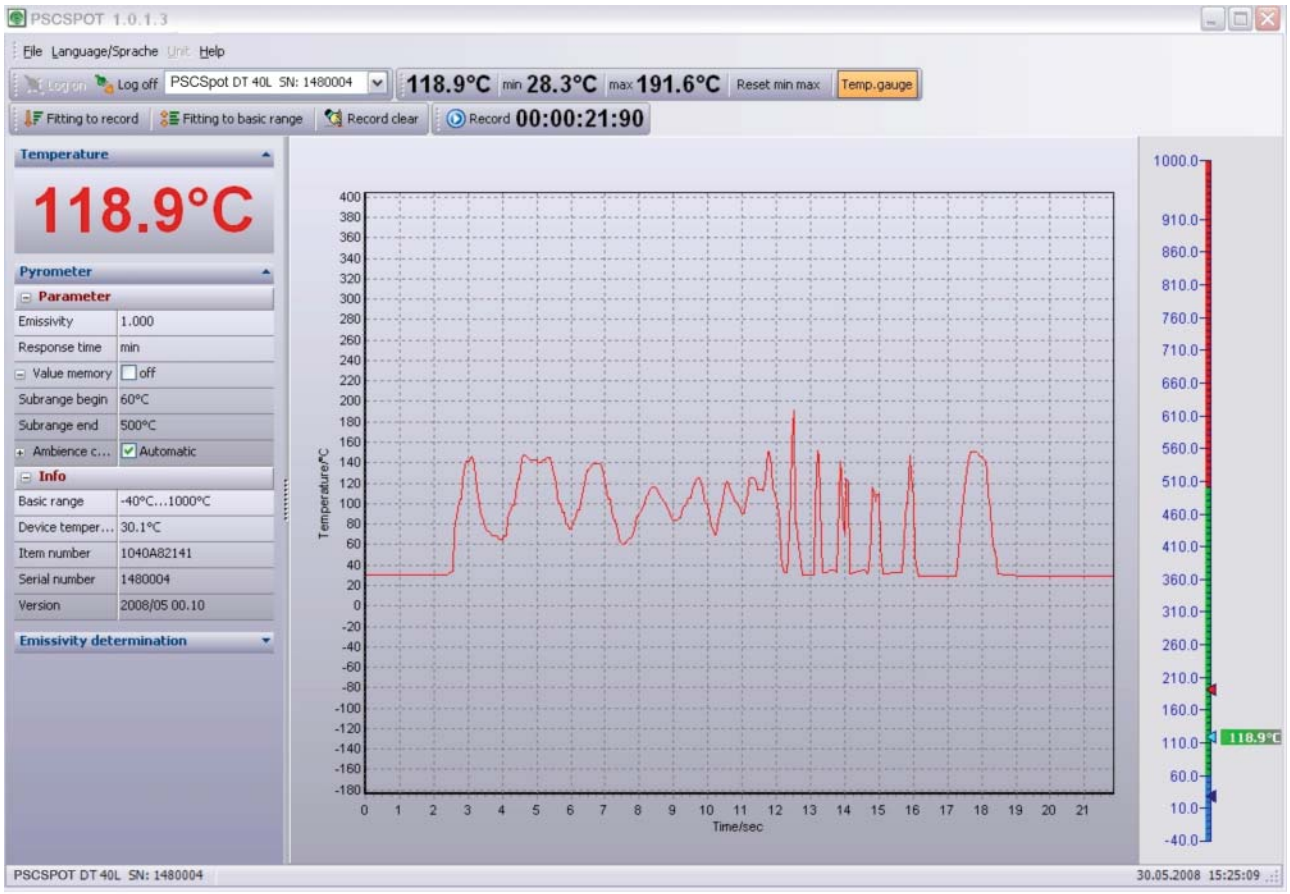
1. Select Model Number:	2. Select Temperature Range in °C:	3. Select Fixed Focus Optics in mm:	4. Select Accessories Codes:
 PSC-S56NT Thru-lens	0550°C to 1500°C 1022° to 2732°F	250	Choose **1** of 2 Jacket Codes:
	0600° to 1800°C 1112° to 3272°F	650	**JW** = Protective Cooling Jacket With integrated Air Purge
 PSC-S56NL Laser	0800° to 2500°C 1472° to 4532°F	2000	**00** = No Protective Jacket
 PSC-S56NV Video	0900° to 3000°C 1652° to 5432°F	4000	Choose **1** of 2 Air Purge Codes:
			AP = Air Purge Assembly (connects to IR Sensor)
 PSC-S56NEV Electronic Viewfinder	0600° to 3000°C 1112° to 5432°F		**00** = No Air Purge Assembly

Example: Model PSC-S56NL-0900-3000-4000-JW-00 includes laser sighting, temperature range of 900 to 3000°C, 4000mm fixed focus optics and protective cooling jacket with integrated air purge. (Refer to Accessories page)

PSCSpot Software for PSC-G56N and PSC-S56N Series

PSCSpot software is used for manual set-up and adjustment of pyrometer parameters that include ratio correction, emissivity, sub-temperature range, data storage settings and response time to the application. The no-cost PSCSpot software is included with the purchase of an optional RS-485 to USB adapter and connection cable. The PSCSpot software facilitates recording, and creation and retention of graphic or table files.

The PSC-G56N and PSC-S56N Series is equipped with 0/4 to 20mA analog output and RS-485 interface, so that files can be utilized and evaluated for quality assurance purposes. The PSCSpot software allows data recording in real-time via a PC with minimum computer requirements of 500MHz clock frequency and any Windows® operating system.



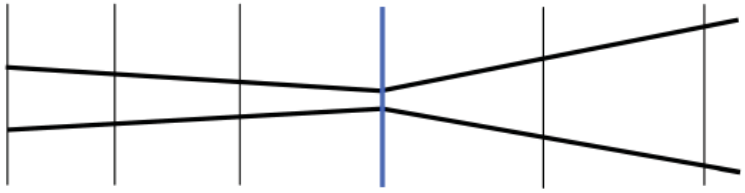
Typical Industrial Applications

FOV DIAGRAMS

PSC-G56N and PSC-S56N Series

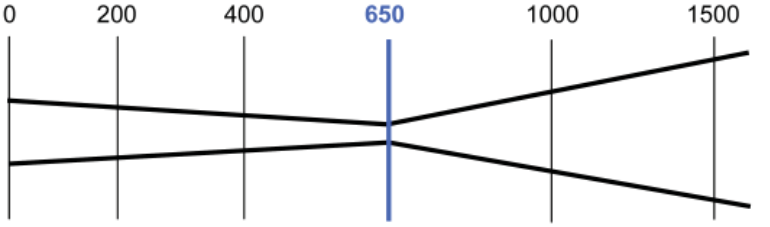
(All measurements in mm)

Optics 250



G56N 200...1200°C **S56N** 550...1500°C	10	6.5	3	**1.3**	8.1	12.6 Spot size
G56N 250...1500°C **S56N** 800...2500°C	8	5.3	2.6	**1.3**	6.9	10.6
G56N 200...2000°C 350...2000°C	5	3.5	2	**1.3**	5.1	7.6
G56N 250...2500°C	3.5	2.6	1.7	**1.3**	4.2	6.1
S56N 600...1800°C	6	4.1	2.2	**1.3**	5.7	8.6
S56N 900...3000°C 600...3000°C	4	2.9	1.8	**1.3**	4.5	6.6

Optics 650



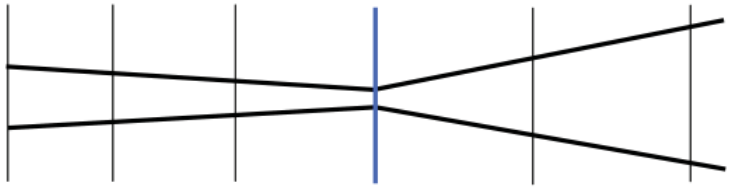
G56N 200...1200°C **S56N** 550...1500°C	10	8	6	**3.5**	10.8	21.2 Spot size
G56N 250...1500°C **S56N** 800...2500°C	8	6.6	5.2	**3.5**	9.7	18.5
G56N 200...2000°C 350...2000°C	5	4.5	4.1	**3.5**	8.1	14.6
G56N 250...2500°C	3.5	3.5	3.5	**3.5**	7.3	12.7
S56N 600...1800°C	6	5.2	4.5	**3.5**	8.6	15.9
S56N 900...3000°C 600...3000°C	4	4	3.7	**3.5**	7.5	13.3

FOV DIAGRAMS

PSC-G56N and PSC-S56N Series

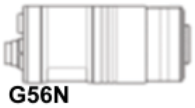
(All measurements in mm)

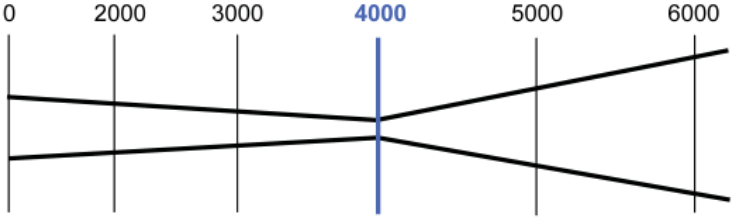
Optics 2000



	Spot size					
G56N 200...1200°C **S56N** 550...1500°C	10	10	10	**10**	15	20
G56N 250...1500°C **S56N** 800...2500°C	8	9	9.5	**10**	14.5	19
G56N 200...2000°C 350...2000°C	5	7.5	8.8	**10**	13.8	17.5
G56N 250...2500°C	3.5	6.8	8.4	**10**	13.4	16.8
S56N 600...1800°C	6	8	9	**10**	14	18
S56N 900...3000°C 600...3000°C	4	7	8.5	**10**	13.5	17

Optics 4000





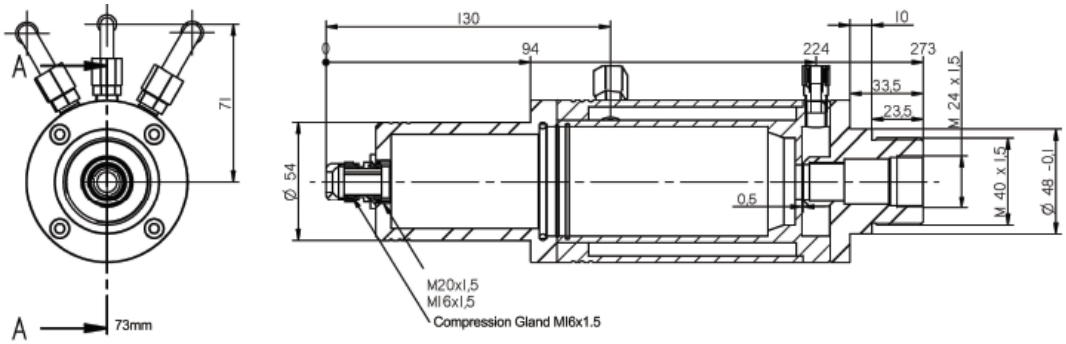
	Spot size					
G56N 200...1200°C **S56N** 550...1500°C	10	15	17.5	**20**	27.5	35
G56N 250...1500°C **S56N** 800...2500°C	8	14	17	**20**	27	34
G56N 200...2000°C 350...2000°C	5	12.5	16.3	**20**	26.3	32.5
G56N 250...2500°C	3.5	11.8	15.9	**20**	15.9	31.8
S56N 600...1800°C	6	13	16.5	**20**	26.5	33
S56N 900...3000°C 600...3000°C	4	12	16	**20**	26	32

ACCESSORIES PSC-SR56N and PSC-S56N Series

The circumstances under which Process Sensors pyrometers are used are many and varied. In order to accommodate these differences and to ensure reliable, trouble-free operation, we have designed a large comprehensive family of accessories. Some are purely protective, while others simplify a measurement that would be difficult or impossible otherwise. Pictured below is a sampling.

		
STAINLESS STEEL COOLING JACKET WITH INTEGRATED AIR PURGE PSC-3310A23056	STAINLESS STEEL COOLING JACKET WITH ADJUSTABLE AIMING FLANGE PSC-3310A24020	STAINLESS STEEL BALL AND SOCKET AIMING FLANGE PSC- 3310A11132
		
AIR PURGE PSC-3310A22050	REMOVABLE SEALED WINDOW ASSEMBLY Part number dependant upon window material	ADJUSTABLE MOUNTING BRACKET PSC-3310A21050
		
DHP1040 HAND HELD PROGRAMMER PSC-331A17010	CONNECTION CABLE WITH STRAIGHT CONNECTOR PSC-3310A1111	CONNECTION CABLE WITH RIGHT ANGLE CONNECTOR PSC-310A11132

Cooling Jacket with integrated Air Purge Dimensions (in mm)

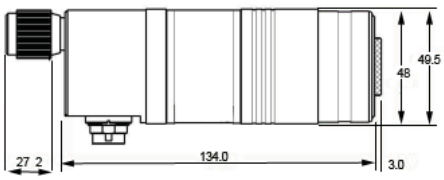


SPECIFICATIONS PSC-G56N and PSC-S56N Series

Temperature Range PSC-G56N Series	200° to 1200°C	250° to 1500°C	350° to 2000°C	250° to 2500°C	200° to 2000°C
	392° to 2192°F	482° to 2732°F	622° to 3632°F	482° to 4532°F	392° to 3632°F
Temperature Range PSC-S56N Series	550° to 1500°C	600° to 1800°C	800° to 2500°C	900° to 3000°C	600° to 3000°C
	1022° to 2732°F	1112° to 3272°F	1472° to 4532°F	1652° to 5432°F	1112° to 5432°F
Sub Temperature Range	Adjustable Within Overall Temperature Range, Minimum Span 50°C (122°F)				
Field of View Ratio	200:1	300:1	300:1	300:1	200:1
Accuracy	0.5% of Measured Value in °C				
Reproducibility	0.1% of Measured Value in °C				
Aiming	PSC-G56NT and PSC-S56NT: Optical Through Lens Sighting PSC-G56NL and PSC-S56NL: Laser Aiming Light, 630…680 nm, Class II, <1 mW PSC-G56NV and PSC-S56NV: Video Camera, Composite Video Signal NTSC (M), 60Hz or PAL (B), 50Hz PSC-G56NEV and PSC-S56NEV: Electronic Viewfinder				
Choice of Optics Types	250mm, 650mm, 2000mm, 4000mm				
Spectral Range	PSC-G56N 1.5µm to 1.8µm		PSC-S56N 0.8µm to 1.1µm		
Ratio Correction K	0.800 to 1.200				
Emissivity ε	0.050 to 1.000				
Response Time (t95)	5 ms (min.) Adjustable up to 100 seconds				
NETD	0.1K				
Transmissivity	50% to 100%				
Output	0/4 mA to 20 mA, Temperature Linear, Max. Load 500 Ω (Galvanically Isolated)				
Interface	RS-485 (Galvanically Isolated), Half Duplex, Max. 115 kBd, Modbus RTU				
Switching Output/Threshold	1 Opto Relay, R_{Load} Min. 48Ω (Galvanically Isolated) Adjustable Within Temperature Range				
Parameters	Adjustable Via Interface and Software, or at Device: Ratio Correction, Emissivity, Transmissivity, Response Time, Data Storage Settings, Sub Range of Measurement Output, Switching Thresholds of Switching Output				
Power Supply	24 V DC ± 25%, Residual Ripple 500 mV				
Power Consumption	Max. 1.5W (Without Load at Switching Output)				
Operating Temperature	0° to 70°C (32° to 158°F)				
Storage Temperature	-20° to 70°C (-4° to 158°F)				
Weight	750 grams (1 lb. 10.45 oz.)				
Housing	S.S. Cylindrical Housing w/Plug Connector 140mm (w/o through lens sighting or electrical viewfinder), Ø 50mm				
Safety Class	IP65 According to DIN EN 60529 and DIN 40050				
Test Regulation	EN 55 011: 1998, Limit Class A				
CE Symbol	According to EU Regulations				
Standard Equipment	PSC-G56N or PSC-S56N, Operation Manual, Inspection Sheet, PSC Spot Software, Without Connection Cable (Must be ordered separately)				

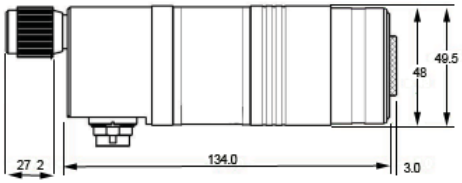
Product Dimensions in mm

Through-Lens Sighting

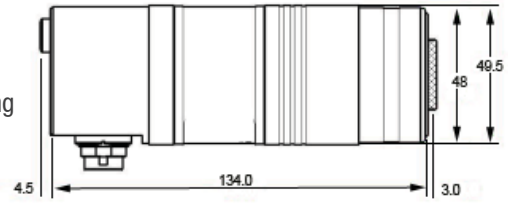


Laser Sighting

Electronic Viewfinder Sighting



Video Camera Sighting



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