PROCESS SENSORS® CORPORATION

a KPM ANALYTICS brand

PSC-G54NL/NV and PSC-S54NL/NV
1-Color Pyrometer Series

The Stand Alone PSC-G54NL/NV and PSC-S54NL/NV One-Color Pyrometer Series provide pinpoint accuracy over an incredibly wide temperature range with customizable options. Choose from integrated laser aiming light or real-time color video camera sighting, ten distinct temperature ranges and four high-resolution, fixed focus optics.

These compact digital sensors are specifically designed for accuracy and reliability in harsh industrial and demanding laboratory applications. The PSC-G54N and 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
- Induction Heating
- Ceramics/Composites
- Soldering
- Sintering/Graphite
- Welding
- Semiconductor
- Kilns
- Vacuum Furnace
- R & D

FEATURES

- Compact, Self-Contained with Rugged Stainless Steel Housing
- Laser or Integrated Color Video Camera Sighting
- 10 Temperature Ranges Spanning from 200° to 3000°C
- Analog 4-20mA and Digital RS-485 Interface
- Choice of 4 Fixed Focus, High Resolution Optics
- Fast Response Time from 2ms, Adjustable up to 100 seconds
- Small Spot Size with Fixed Focus Optics
- Connect to PC to Adjust Parameters with PSCSpot Software
- RS-485 Modbus Interface Integration into Existing Data Acquisition Systems
- Robust Hardware Designed for Harsh Industrial Continuous Operations

Table 1: Temperature Range and Spectral Response

Models	PSC-G54NL PSC-G54NV	PSC-S54NL PSC-S54NV
Spectral Response	1.5 µm to 1.8 µm	0.8 µm to 1.1 µm
Temperature Ranges	200° to 1200°C 392° to 2192°F	550° to 1500°C 1022° to 2732°F
	200° to 2000°C 392° to 3632°F	600° to 1800°C 1112° to 3272°F
	250° to 1500°C 482° to 2732°F	800° to 2500°C 1472° to 4532°F
	350° to 2000°C 662° to 3632°F	900° to 3000°C 1652° to 5432°F
	250° to 2500°C 482° to 4532°F	600° to 3000°C 1112° to 5432°F

Laser Aiming

Video Camera

Table 2: Fixed Focus Optics: PSC-G54NL and PSC-G54NV

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	**10.0mm (0.393 inch)**	1.3mm (0.051 inch)	3.5mm (0.13 inch)	10.0mm (0.39 inch)	20.0mm (0.78 inch)
200° to 2000°C 392° to 3632°F	**8.0mm (0.314 inch)**	1.3mm (0.051 inch)	3.5mm (0.13 inch)	10.0mm (0.39 inch)	20.0mm (0.78 inch)
250° to 1500°C 482° to 2732°F	**5.0mm (0.196 inch)**	1.3mm (0.051 inch)	3.5mm (0.13 inch)	10.0mm (0.39 inch)	20.0mm (0.78 inch)
350° to 2000°C 662° to 3632°F	**5.0mm (0.196 inch)**	1.3mm (0.051 inch)	3.5 mm (0.13 in.)	10.0 mm (0.39 in).	20.0 mm (0.78 in.)
250° to 2500°C 482° to 4532°F	**3.5mm (0.137 inch)**	1.3mm (0.051 inch)	3.5 mm (0.13 in.)	10.0 mm (0.39 in).	20.0 mm (0.78 in.)

Table 3: Fixed Focus Optics: PSC-S54NL and PSC-S54NV

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	**10.0mm (0.393 inch)**	1.3mm (0.051 inch)	3.5mm (0.13 inch)	10.0mm (0.39 inch)	20.0mm (0.78 inch)
600° to 1800°C 1112° to 3272°F	**6.0mm (0.236 inch)**	1.3mm (0.051 inch)	3.5mm (0.13 inch)	10.0mm (0.39 inch)	20.0mm (0.78 inch)
800° to 2500°C 1472° to 4532°F	**8.0mm (0.314 inch)**	1.3mm (0.051 inch)	3.5mm (0.13 inch)	10.0mm (0.39 inch)	20.0mm (0.78 inch)
900° to 3000°C 1652° to 5432°F	**4.0mm (0.157 inch)**	1.3mm (0.051 inch)	3.5mm (0.13 inch)	10.0mm (0.39 inch)	20.0mm (0.78 inch)
600° to 3000°C 1112° to 5432°F	**4.0mm (0.157 inch)**	1.3mm (0.051 inch)	3.5mm (0.13 inch)	10.0mm (0.39 inch)	20.0mm (0.78 inch)

MODEL SELECTION GUIDE
PSC-G54NL/NV

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-G54NL Laser Sighting  or **PSC-G54NV** Video Camera Sighting 	**200° to 1200°C** 392° to 2192°F	**250**	Choose **1** of 2 Jacket Codes:
	200° to 2000°C 392° to 3632°F	**650**	**JW** = Protective Cooling Jacket With Integrated Air Purge
	250° to 1500°C 482° to 2732°F	**2000**	**00** = No Protective Jacket
	350° to 2000°C 662° to 3632°F	**4000**	Choose **1** of 2 Air Purge Codes:
			AP = Air Purge Assembly (Connects to IR Sensor)
	250° to 2500°C 482° to 4532°F		**00** = No Air Purge Assembly
Example: Model PSC-G54NL-0200-2000-650-JW-00 includes laser sighting, temperature range of 200 to 2000°C, 650mm fixed focus optics and Protective Cooling Jacket with Integrated Air Purge. (Refer to Accessories page.).			

PSC-S54NL/NV

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-S54NL Laser Sighting  or **PSC-S54NV** Video Camera Sighting 	**550° to 1500°C** 1022° to 2732°F	**250**	Choose **1** of 2 Jacket Codes:
	600° to 1800°C 1112° to 3272°F	**650**	**JW** = Protective Cooling Jacket With Integrated Air Purge
	800° to 2500°C 1472° to 4532°F	**2000**	**00** = No Protective Jacket
	900° to 3000°C 1652° to 5432°F	**4000**	Choose **1** of 2 Air Purge Codes:
			AP = Air Purge Assembly (Connects to IR Sensor)
	600° to 3000°C 1112° to 5432°F		**00** = No Air Purge Assembly
Example: Model PSC-S54NV-0800-2500-650-JW-00 includes video sighting, temperature range of 800 to 2500°C, 650mm fixed focus optics and Protective Cooling Jacket with Integrated Air Purge. (Refer to Accessories page.).			

SPECIFICATIONS PSC-G54NL/NV and PSC-S54NL/NV

Temperature Range PSC-G54NL / NV	200° to 1200°C	200° to 2000°C	250° to 1500°C	350° to 2000°C	250° to 2500°C
	392° to 2192°F	392° to 3632°F	482° to 2732°F	662° to 3632°F	482° to 2732°F
Temperature Range PSC-S54NL / NV	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	200:1	200:1	200:1	200:1
Accuracy	0.5% of Measured Value in °C				
Reproducibility	0.1% of Measured Value in °C				
Method of Aiming	PSC-G54NL and PSC-S54NL: Laser Aiming Light, 630…680 nm, Class II, <1 mW PSC-G54NV and PSC-S54NV: Video Camera, Composite Video Signal NTSC (M), 60Hz or PAL (B), 50Hz				
Choice of Optics Types	250mm, 650mm, 2000mm, 4000mm - Refer to FOV Diagrams				
Spectral Range:	PSC-G54NL / NV 1.5µm to 1.8µm PSC-S54NL / NV 0.8µm to 1.1µm				
Emissivity ε	0.050 to 1.000				
Response Time (t95)	2ms 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				
Alarm Output	1 Opto Relay, R_{Load} Min. 48Ω (Galvanically Isolated) Adjustable Within Temperature Range				
Parameters	Adjustable Via Interface and Software, or at Device: Emissivity, Transmissivity, Ambient Radiation, 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	Approx. 600 grams (1 lb. 5.16 oz.)				
Housing	Stainless Steel Cylindrical Housing w/Plug Connector Approx. 105mm, 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-G54NL /NV or PSC-S54NL/NV, Operation Manual, Inspection Sheet, PSC Spot Software, Without Connection Cable (Must be ordered separately)				

PSCSpot Software for PSC-G54NL/NV and PSC-S54NL/NV Series

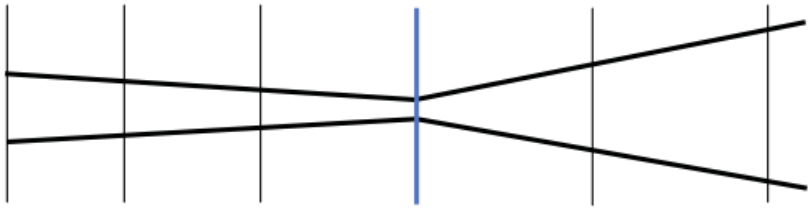
PSCSpot software is used for manual set-up and adjustment of pyrometer parameters that include emissivity, sub-temperature range, activation of peak picker, data storage settings and response time. The no-cost PSCSpot software is included with the purchase of an optional RS485 to USB adapter connection cable and facilitates recording, and creation and retention of graphic or table files.

The PSC-G54NL/NV and PSC-S54NL/NV Series is equipped with 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.

FOV DIAGRAMS PSC-G54NL/NV and PSC-S54NL/NV

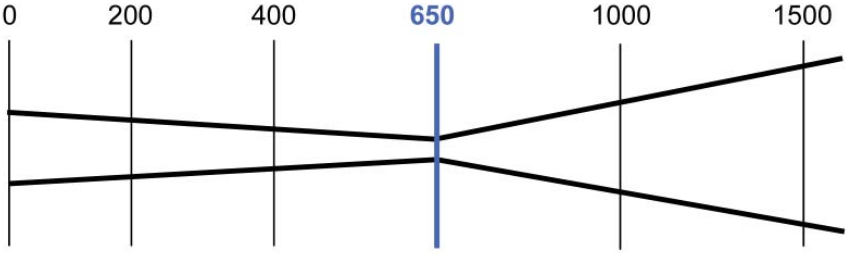
(All measurements in mm)

Optics 250



	0	100	200	250	400	500
G54N 200...1200°C **S54N** 550...1500°C	10	6.5	3	1.3	8.1	12.6
G54N 250...1500°C **S54N** 800...2500°C	8	5.3	2.6	1.3	6.9	10.6
G54N 200...2000°C 350...2000°C	5	3.5	2	1.3	5.1	7.6
G54N 250...2500°C	3.5	2.6	1.7	1.3	4.2	6.1
S54N 600...1800°C	6	4.1	2.2	1.3	5.7	8.6
S54N 900...3000°C 600...3000°C	4	2.9	1.8	1.3	4.5	6.6

Optics 650

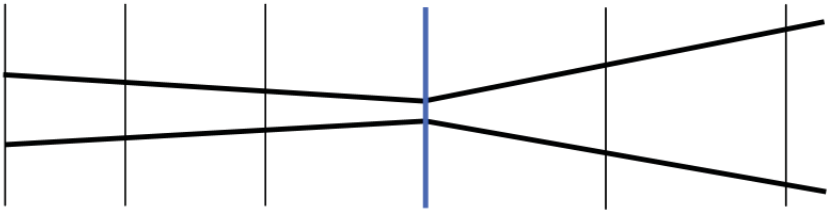


	0	200	400	650	1000	1500
G54N 200...1200°C **S54N** 550...1500°C	10	8	6	3.5	10.8	21.2
G54N 250...1500°C **S54N** 800...2500°C	8	6.6	5.2	3.5	9.7	18.5
G54N 200...2000°C 350...2000°C	5	4.5	4.1	3.5	8.1	14.6
G54N 250...2500°C	3.5	3.5	3.5	3.5	7.3	12.7
S54N 600...1800°C	6	5.2	4.5	3.5	8.6	15.9
S54N 900...3000°C 600...3000°C	4	4	3.7	3.5	7.5	13.3

FOV DIAGRAMS PSC-G54NL/NV and PSC-S54NL/NV

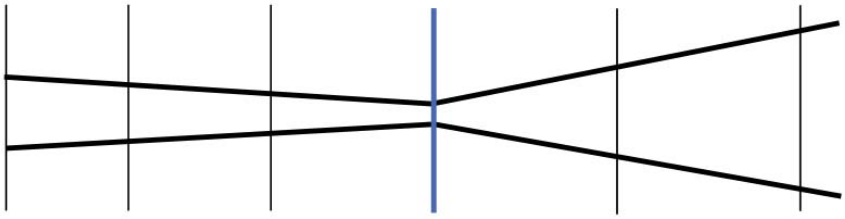
(All measurements in mm)

Optics 2000



	0	1000	1500	2000	2500	3000
G54N 200...1200°C **S54N** 550...1500°C	10	10	10	10	15	20
G54N 250...1500°C **S54N** 800...2500°C	8	9	9.5	10	14.5	19
G54N 200...2000°C 350...2000°C	5	7.5	8.8	10	13.8	17.5
G54N 250...2500°C	3.5	6.8	8.4	10	13.4	16.8
S54N 600...1800°C	6	8	9	10	14	18
S54N 900...3000°C 600...3000°C	4	7	8.5	10	13.5	17

Optics 4000



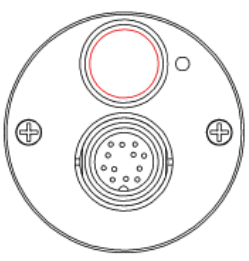
	0	2000	3000	4000	5000	6000
G54N 200...1200°C **S54N** 550...1500°C	10	15	17.5	20	27.5	35
G54N 250...1500°C **S54N** 800...2500°C	8	14	17	20	27	34
G54N 200...2000°C 350...2000°C	5	12.5	16.3	20	26.3	32.5
G54N 250...2500°C	3.5	11.8	15.9	20	15.9	31.8
S54N 600...1800°C	6	13	16.5	20	26.5	33
S54N 900...3000°C 600...3000°C	4	12	16	20	26	32

ACCESSORIES PSC-G54NL/NV and PSC-S54NL/NV

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-3310A23050	STAINLESS STEEL COOLING JACKET WITH ADJUSTABLE AIMING FLANGE	STAINLESS STEEL BALL AND SOCKET AIMING FLANGE PSC- 3310A24020
		
AIR PURGE PSC-3310A22050	REMOVABLE SEALED WINDOW ASSEMBLY Part number dependant upon window material	ADJUSTABLE MOUNTING BRACKET PSC-3310A21050
		
DHP1040 HAND HELD PROGRAMMER PSC-3310A17010	CONNECTION CABLE PSC-3310A11112	CONNECTION CABLE WITH RIGHT ANGLE CONNECTOR PSC-3310A11132

Video Sighting



Laser Sighting

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