

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: |
| | 250° to 2500°C 482° to 4532°F | | AP = Air Purge Assembly (Connects to IR Sensor) |
| | | | 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: |
| | 600° to 3000°C 1112° to 5432°F | | AP = Air Purge Assembly (Connects to IR Sensor) |
| | | | 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. 48 Ω (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 \pm 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, ϕ 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

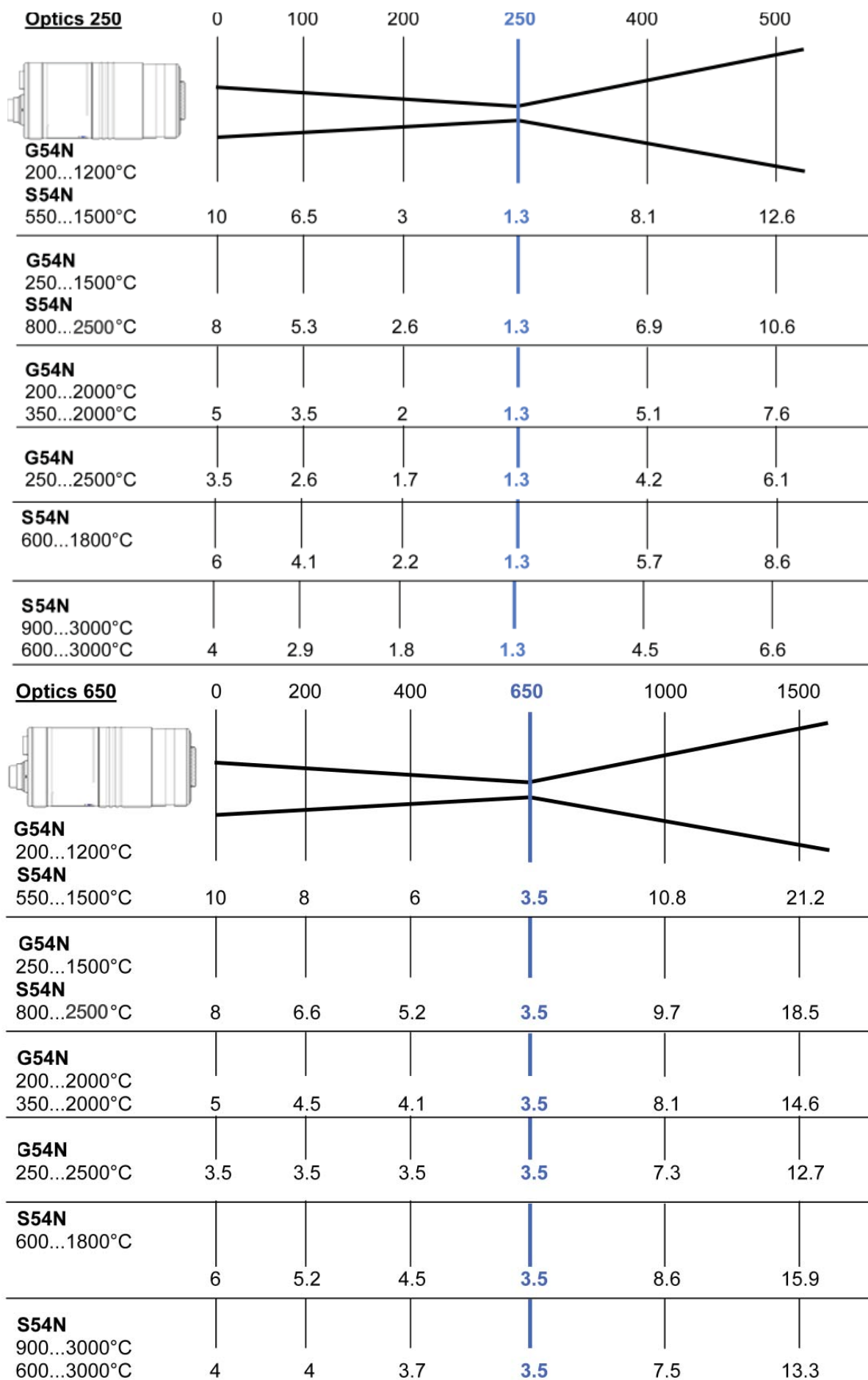
PSCSpot software is used for manual set-up and adjustment of pyrometer parameters that include emissivity, sub-temperature range, activation of peak picker, data storage settings and response time. The no-cost PSCSpot software is included with the purchase of an optional RS485 to USB adapter connection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



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

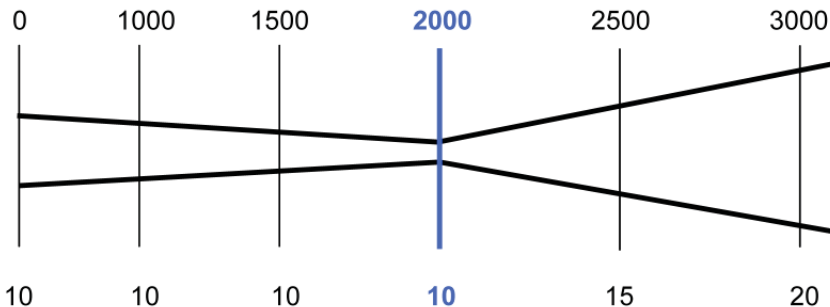
(All measurements in mm)

Optics 2000



G54N
200...1200°C

S54N
550...1500°C



G54N
250...1500°C

S54N
800...2500°C



G54N
200...2000°C

S54N
350...2000°C



G54N
250...2500°C



S54N
600...1800°C



S54N
900...3000°C

S54N
600...3000°C

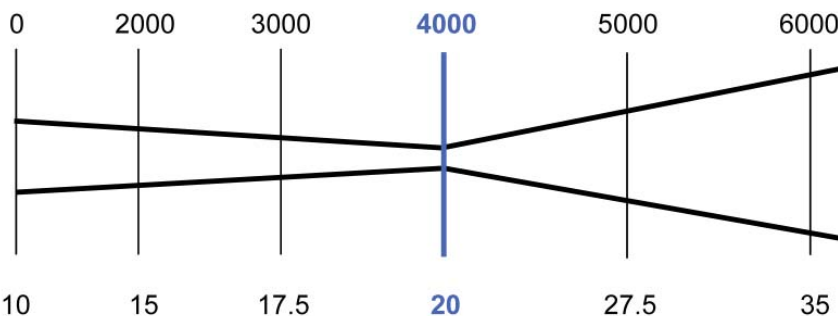


Optics 4000



G54N
200...1200°C

S54N
550...1500°C



G54N
250...1500°C

S54N
800...2500°C



G54N
200...2000°C

S54N
350...2000°C



G54N
250...2500°C



S54N
600...1800°C



S54N
900...3000°C

S54N
600...3000°C



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 |

