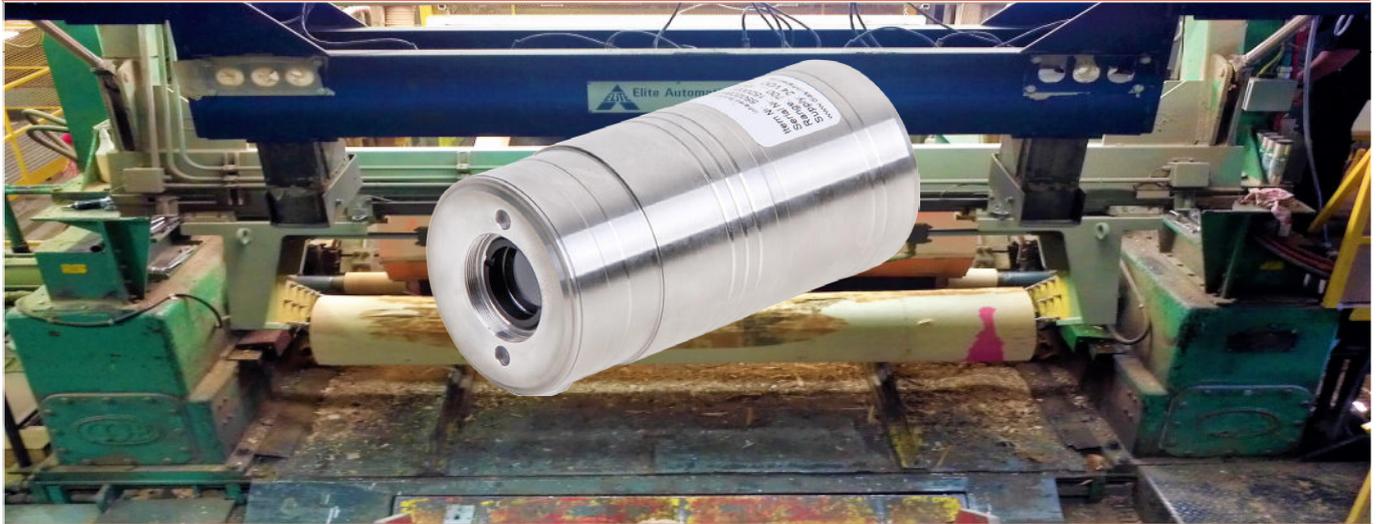


PSC-T54L

Self-Contained 1-Color Pyrometer for General Purpose Applications

Digital pyrometer with 4-20mA output and RS-485 Modbus RTU Protocol



Special features

- Temperature ranges between -40°C and 1000°C
- Small spot sizes with high resolution optics-FOV 100:1
- 0/4 to 20 mA linear output, switchable
- Dual lasers for aiming
- Fast response time (10 ms)
- Integrated RS-485 interface and Modbus RTU

Description and application

The digital model PSC-T54L series pyrometers are specifically designed for general purpose applications. They are suitable for temperature measurement between -40 to 1000°C on non-metallic or coated metallic surfaces.

The compact, rugged stainless steel housing with companion cooling jacket facilitates operation under even the most difficult ambient conditions. The PSC-T54L can measure small spot sizes starting from 0.028" (0.7 mm).

With a quick response time of 10 ms (adjustable) the PSC-T54L can pick up the tiniest changes in temperature faster than other devices, i.e., thermocouples.

The IR sensor provides dual lasers to determine focus distance and is used to aim and pinpoint the target under measurement. The laser can be activated remotely via RS-485 communication interface.

The standard 0/4 to 20 mA linear temperature output signal allows for easy implementation into existing measurement and control systems.

The PSC-T54L possesses a galvanically isolated RS-485 interface. As such, the devices are bus-compatible and use the Modbus RTU protocol.

The pyrometer can be connected to a computer via an optional RS-485 to USB interface adapter. By connecting the IR sensor with a PC using PSCSpot software, parameters such as emissivity, sub-temperature range, data storage settings, and response time can be adjusted.

The IR sensor parameters can also be adjusted via RS-485 interface or through the optional available handheld programming device DHP 1040.

Typical Industry Applications:

- Paper & Packaging
- Powders & Bulk solids
- Ceramics
- Wallboard
- Food
- Thermoforming
- Glass & Composites



PSC-T54L

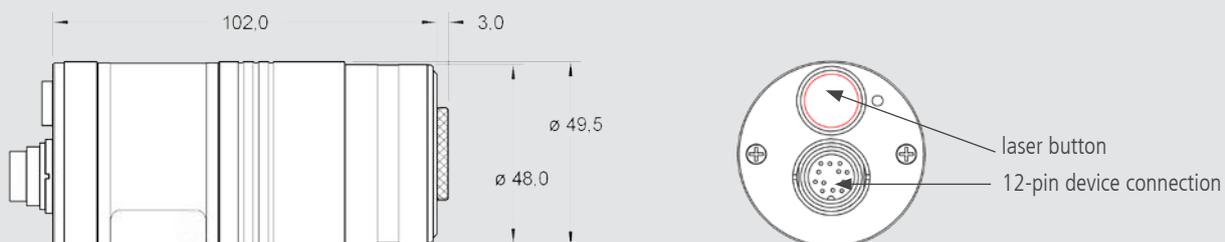
Self-Contained 1-Color Pyrometer for General Purpose Applications

Technical data

Model	PSC-T54L			
Temperature ranges	0 °C to 1000 °C / 32°F to 1832°F		-40 °C to 1000 °C / -40°F to 2183.2°F	
Fixed optics	75	200	600	1500
Part number	PSC-4548261202	PSC-4548262201	PSC-4548263201	PSC-4548264201
Sub temperature range	adjustable via RS-485 interface within temperature range, minimum span 50 °C			
Spectral range	8 to 14 µm			
Distance ratio	approx. 75 : 1 (fixed optics 200, 600, 1500) or approx. 100 : 1 (fixed optics 75)			
Measurement accuracy ¹	0.6 % of measured value in °C or 1 K ²			
Reproducibility ¹	0.3 % of measured value in °C or 0.5 K ²			
NETD ³	< 0.15 K ⁴			
Response time (t90)	10 ms (min.), adjustable via RS-485 interface			
Emissivity	0.200 to 1.000, adjustable via RS-485 interface			
Data storage	minimum/maximum data storage, adjustable via RS-485 interface			
Output	0/4 to 20 mA, temperature linear, max. burden: 700 Ω			
Interface	RS-485 (galvanically isolated), half duplex, max. baud rate 115 kBd, data protocol Modbus RTU			
Aiming	double laser, 645 nm to 660 nm, class II, < 1 mW			
Switching output/ threshold	1 opto relay, R _{Load} mind. 48 Ω (galvanically isolated)/adjustable within temperature range			
Software	PSCSpot for Windows			
Parameters	emissivity, response time, data storage, sub temperature range, transmissivity, ambient radiation, adjustable via RS-485 interface			
Power supply	24 V DC ± 25 %, residual ripple 500 mV			
Power consumption	max. 1.5 W			
Operating temperature	0 °C to 70 °C (32 °F to 158 °F)			
Storage temperature	-20 °C to 70 °C (-4 °F to 158 °F)			
Weight	approx. 600 g (11.5 lbs)			
Housing	stainless steel round housing with plug connector, length approx. 105 mm, diameter 50 mm			
Protection class	IP 65 (according to DIN EN 60529 und DIN 40050)			
CE symbol	according to EU regulations (EN 50 011)			
Scope of delivery	PSC-T54L, manual, inspection sheet, PSCSpot for Windows® (without connection cable, please order separately)			

¹ Specifications for black bodies, T_{ambient} = 23 °C, t95 = 1 s. ² Whichever is higher value. ³ Noise equivalent temperature difference. ⁴ T_{ambient} = 23 °C, ε = 1, t95 = 100 ms, T_{Object} = 300 °C

Pyrometer Dimensional drawing (mm)



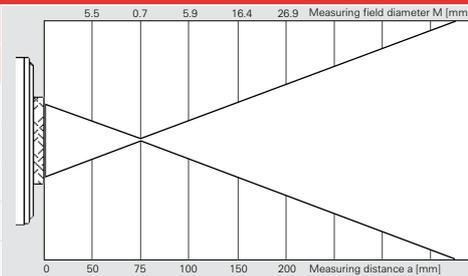
PSC-T54L

Self-Contained 1-Color Pyrometer for General Purpose Applications

Optics types 75, 200, 600 and 1500 (aperture D = 15 mm)

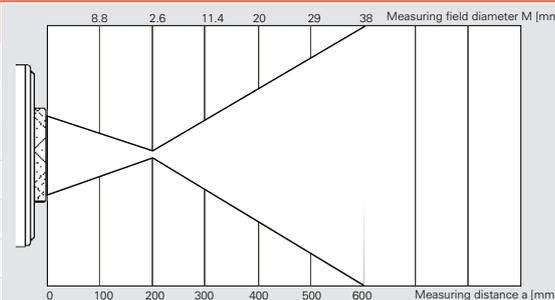
Optics 75 (focus point at 75 mm measuring distance, marked in bold)

Measurement distance a [mm]	0	50	75	100	150	200	250
Temperature range	Measuring field diameter M [mm]						
PSC-T54L (0 to 1000 °C)	15.0	5.5	0.7	5.9	16.4	26.9	37.3



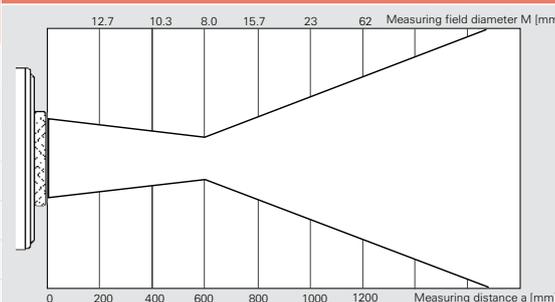
Optics 200 (focus point at 200 mm measuring distance, marked in bold)

Measurement distance a [mm]	0	100	200	300	400	500	600
Temperature range	Measuring field diameter M [mm]						
PSC-T54L (-40 to 1000 °C)	15.0	8.8	2.6	11.4	20	29	38



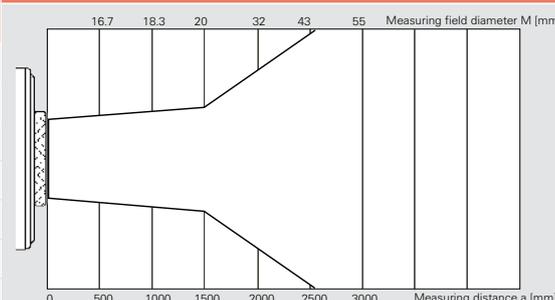
Optics 600 (focus point at 600 mm measuring distance, marked in bold)

Measurement distance a [mm]	0	200	400	600	800	1000	2000
Temperature range	Measuring field diameter M [mm]						
PSC-T54L (-40 to 1000 °C)	15.0	12.7	10.3	8.0	15.7	23	62



Optics 1500 (focus point at 1500 mm measuring distance, marked in bold)

Measurement distance a [mm]	0	500	1000	1500	2000	2500	3000
Temperature range	Measuring field diameter M [mm]						
PSC-T54L (-40 to 1000 °C)	15.0	16.7	18.3	20.0	32	43	55



PSCSpot Software

Free PSCSpot Software is provided for the storage, processing, and evaluation of real time measured data obtained by the PSC-T54L pyrometer series. It is connected to the computer via an optional RS-485 to USB interface adapter.



Functions:

- Measurement data logging with real-time display, parameterization of pyrometers
- Trigger functions^{*)} and auto save^{*)}
- Extensive statistical analysis of measurement data
- Measurement cursor, print functions, automatic emissivity determination
- Export of measured data as text file and automatic creation of Microsoft Excel[®] spreadsheets
- Integrated report function with customized templates for Microsoft Word[®]
- Integrated calculator for easy calculation of optics parameters

PSC-T54L

Self-Contained 1-Color Pyrometer for General Purpose Applications

Electrical, mechanical and optical accessories		Part number
Connection cable, straight plug, 12 pin	Length 2 m	PSC-3310A11111
	Length 5 m	PSC-3310A11112
	Length 10 m	PSC-3310A11113
	Length 15 m	PSC-3310A11114
	Length 20 m	PSC-3310A11115
	Length 25 m	PSC-3310A11116
	Length 30 m	PSC-3310A11117
Connection cable, right angle plug, with aiming light button, 12 pin	Length 2 m	PSC-3310A11151
	Length 5 m	PSC-3310A11152
	Length 10 m	PSC-3310A11153
	Length 15 m	PSC-3310A11154
	Length 20 m	PSC-3310A11155
	Length 25 m	PSC-3310A11156
	Length 30 m	PSC-3310A11157
Mounting bracket	adjustable	PSC-3310A21050
Cooling jacket	including air purge unit, without mounting angle	PSC-3310A23050
Ball flange	M40 × 1.5	PSC-3310A24020
Air purge		PSC-3310A22050
Power supply	24 V DC, 1.0 A	PSC-950-004
DHP 1040	handheld programming device for pyrometer parameterization	PSC-3310A17010

¹ Further accessories on request.

Accessories

Adjustable mounting angle	Cooling jacket	Air purge
Part number: PSC-3310A21050 	Part number: PSC-3310A23050  *rated for up to 450°F	Part number: PSC-3310A22050 
Ball flange	Coupling for ball flange	Handheld programming device DHP 1040
Part number: PSC-3310A24020 	Part number: PSC-3310A24021 	Part number: PSC-3310A17010 