

PSC-T40F



SELF-CONTAINED, 2-WIRE, PYROMETER FOR MEASUREMENT THROUGH FLAMES

OVERVIEW

The Process Sensors Model PSC-T40F is a compact, rugged, and simple-to-install digital pyrometer that measures temperature through hot combustion gases and clean flames. Used in a 2-wire loop powered configuration, the sensor's 4 – 20 mA linear output signal can be easily integrated into existing instrumentation for recording and process control.

The rugged stainless-steel housing with companion protective stainless-steel, water-cooling jacket with air purge, is rated for ambient temperature of 392°F / 200°C which ensures reliable operation in harsh industrial and outdoor environments.

The PSC-T40F pyrometer series, offering several fixed optics types, fast response time (60ms), small spot sizes (down to 1.6mm), and a choice of three temperature ranges from 300°C to 2500°C.

The optional USB interface simplifies pyrometer parameterization and data evaluation via PSC Spot software, without requiring a power source to operate.

APPLICATIONS

- Measurement through clean flames / hot combustion gases
- Furnace – reheat, batch, walking beams
- Glass measurement
- Tunnel kilns
- Metal industry – brazing, forming, annealing, hardening
- Boilers – black liquor recovery, power generation
- Rotating steel cast molds
- Ceramic – gas fired kilns / furnaces
- Waste / biomass incineration

INDUSTRIES

- Metals
- Steel
- Glass
- Recovery Boilers
- Petrochemical / refinery
- Waste to energy incineration

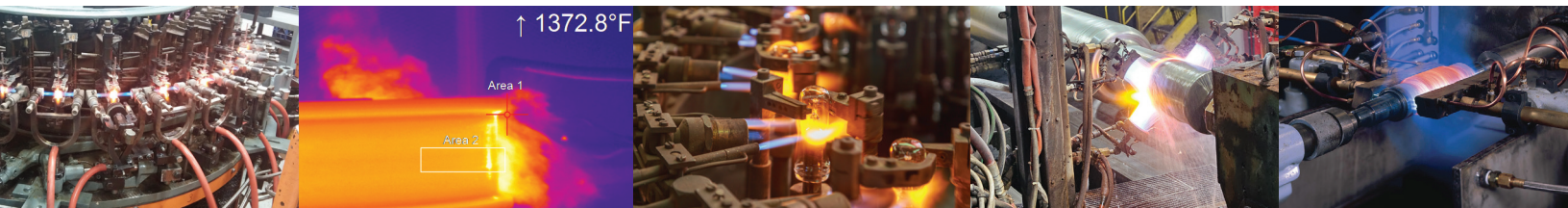


PSC-T40F FEATURES

- Wide temperature ranges from 300°C to 2500°C
- Rugged stainless steel cooling jacket with air purge
- 4 to 20 mA linear output
- Integrated USB programming cable for pyrometer adjustments
- Peak / Valley Picker
- Choice of several fixed focus optics



Heavy duty cooling jacket with integrated air purge for flange, pipe mount, or mounting bracket installations

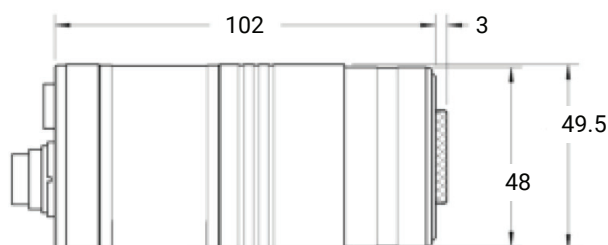


TECHNICAL DATA

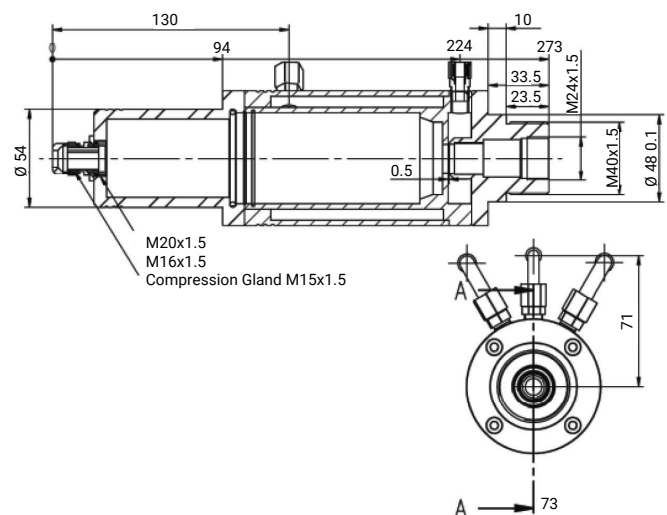
Temperature Range	300°C to 1300°C (572°F to 2372°F) / 400°C to 1400°C (752°F to 2552°F) / 500°C to 2500°C (932°F to 4532°F)
Fixed Optics	100, 300, and 800. Aperture diameter D = 15 mm
Sub Temperature Range	Adjustable within overall temperature range, minimum span 51°C
Spectral Range	~3.9 μm
Distance Ratio	> 50 : 1
Measurement Uncertainty ¹	1.0% of meas. value in °C or 0.5 K
Reproducibility ¹	0.5% of meas. value in °C or 1 K
NETD ²	0.1 K ³
Response Time (t ₉₅)	60 ms, adjustable up to 100 s, adjustable via USB interface
Emissivity	0.200 to 1.000, adjustable via USB interface
Data storage	Maximum or minimum value storage, adjustable via USB interface
Output	4 to 20 mA, temperature linear, max. load burden : 600 Ω at 24 V
Interface	Galvanically isolated USB interface
Aiming	None or optional integrated LED aiming light
Software	PSC Spot for Windows®
Parameters	Emissivity, response time, data storage, sub range, adjustable via USB interface and software
Power Supply	24 V DC ± 25 %. Residual ripple 500 mV, LED aiming light: 7 V to 30 V DC, <200 mW
Power Consumption	Max. 0.6 W (without aiming light)
Operating Temperature	0°C to 70°C (32°F to 158°F)
Storage Temperature	-20°C to 70°C (-4°F to 158°F)
Dimensions	Thread 40 x 1.5, length 125 mm
Housing	Stainless steel with connector
Safety Class	IP 65 (according to DIN EN 605.29 and DIN 40050)
CE-Symbol	According to EU regulations (EN 50 011)
Scope of Delivery	PSC-T40F, manual, mounting screw nuts, inspection sheet, PSC Spot Software for Windows® (without connecting cable, please order separately)

¹For black body radiator, T = 23°C, t₉₅ = 1 s, whichever is higher value. ²Noise equivalent temperature difference. ³T_μ=23°C, ε=1, t₉₅=200 ms, T_{Object (300°C to 1300°C)} = 400°C, T_{Object (400°C to 1400°C)} = 500 °C, T_{Object (500°C to 2500°C)} = 700 °C

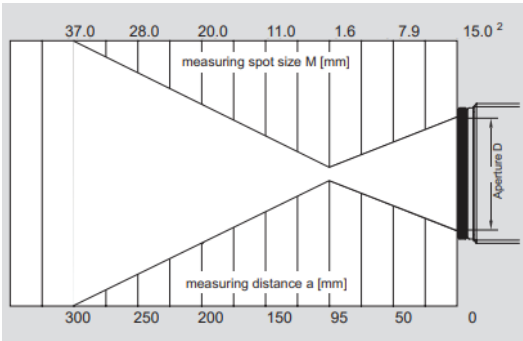
DIMENSIONAL DRAWING (IN MM)



COOLING JACKET & AIR PURGE (IN MM)

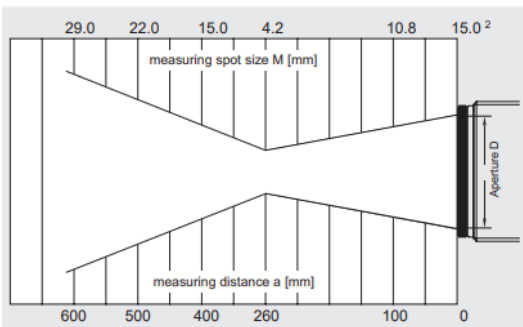


OPTICS 100 (FOCUSED AT A = 95MM MEASURING DISTANCE, IN BOLD)



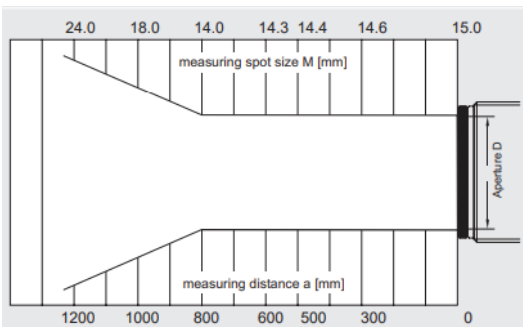
Measuring distance in. (mm)	0	1.97 (50)	3.74 (95)	3.94 (100)	5.9 (15)	7.87 (200)	9.84 (250)	11.81 (300)	13.77 (350)	15.7 (400)
Measuring field diameter M in. (mm)										
PSC-T40F (300°C to 2500°C)	15 (381)	7.9 (200.6)	1.6 (40.6)	2 (50.8)	11 (279.4)	20 (508)	28 (711.2)	37 (939.8)	46 (1168.4)	55 (1397)

OPTICS 300 (FOCUSED AT A= 250/260 MM MEASURING DISTANCE, IN BOLD)



Measuring distance in. (mm)	0	3.94 (100)	7.87 (200)	10.2 (260)	11.6 (295)	11.81 (300)	15.7 (400)	19.7 (500)	23.6 (600)	31.5 (800)
Measuring field diameter M in. (mm)										
PSC-T40F (300°C to 2500°C)	15 (361)	10.8 (278.3)	6.7 (170.2)	4.2 (106.7)	5.5 (139.7)	6 (152.4)	15 (381)	22 (558.9)	29 (736.6)	44 (1117.6)

OPTICS 800 (FOCUSED AT A= 800 MM MEASURING DISTANCE, IN BOLD)



Measuring distance in. (mm)	0	11.81 (300)	19.7 (500)	23.6 (600)	30.7 (780)	31.5 (800)	39.3 (1000)	47.2 (1200)	59 (1500)	78.7 (2000)
Measuring field diameter M in. (mm)										
PSC-T40F (300°C to 2500°C)	15 (381)	14.6 (370.8)	14.4 (365.8)	14.3 (362.2)	14.1 (358.1)	14 (355.6)	18 (457.2)	24 (609.6)	32 (812.8)	48 (1219.2)

ELECTRICAL, MECHANICAL, AND OPTIONAL ACCESSORIES

Part Number	Description
PSC-3310A11511	Pyrometer cable; length 2 m
PSC-3310A11512	Pyrometer cable; length 5 m
PSC-3310A11513	Pyrometer cable; length 10 m
PSC-3310A11514	Pyrometer cable; length 15 m
PSC-3310A11515	Pyrometer cable; length 20 m
PSC-3310A11517	Pyrometer cable; length 30 m

ACCESSORIES

Part Number	Description
PSC-3310A21210	Window slide (without window)
PSC-3310A22010	Air purge
950-004	Power supply 24 VDC / 1.5A
TBD	Digital temperature display
PSC-3310A14010	USB programming cable; length 1.8 m, screened
PSC-3310A21010	Mounting bracket; fixed
PSC-3310A21011	Adjustable mounting bracket for pyrometer
PSC-3310A21050	Mounting bracket; adjustable for water cooling jackets
PSC-3310A23010	Cooling jacket, stainless steel with integrated air purge with end cap (PSC-3310A23015)
PSC-3310A24010	Vacuum flange; KF 16
PSC-3310A34041	Vacuum flange; with ZnSe window



Adjustable mounting bracket for cooling jacket
P/N PSC-3310A21050



Air purge
P/N PSC-3310A22010



Cooling jacket with air purge
P/N PSC-3310A23010



Heavy duty cooling jacket with integrated air purge
P/N PSC-3310A23010
(with end cap P/N PSC-3310A23015)



Power supply 24 VDC (din rail)
P/N 950-004



Digital Temperature Display

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