

HEAT SPY®
MONITOR R40
SERIES FIXED
INFRARED SENSOR



. Back-lit 5-Digit LCD display with 4-Key Pad for convenient on-site viewing and setting.
. 12-Pin connection cable for simultaneous analog/digital input and output. •
. 0-20 or 4-20 mA Linear Current Loop, sub-range programmable, user selectable.

• RS485 for networking, up to 32 sensors.

• Relay for alarm and PLC control, user programmable.

• External Input for reset and parameter adjusting of AVG, PEAK HOLD and VALLEY HOLD.
. Built-in Laser to simplify alignment operation. (Not available on Models P3 or F4)
. Programmable for OEM applications through RS485 for remote setup and monitoring.
. Optional non-contact Thermocouple Type IR tube with extremely long life is available as an alternative to traditional contact thermocouples

Description

Overview

A high-tech non-contact infrared sensor, designed to meet all application requirements by delivering high performance and advanced features. A rugged and waterproof IP65 (NEMA 4) one-piece system, with optics and electronics integrated in a single housing, the R40 is easy to install and offers the flexibility to handle almost any application.
The R40 includes signal processing features including Peak Hold, Valley Hold and Averaging, all of which are field adjustable via the keypad or controlled remotely when interfaced with user software.

Specifications

Sensor Specifications	
Ambient temperature	0 ° to 65 ° C, (32 ° to 149 ° F)
with air cooling	0 ° à 120 ° C, (32 ° à 250 ° F)
with water cooling	0 ° to 175 ° C, (32 ° to 350 ° F)
Storage room	-20 ° to 70 ° C (-4 ° to 158 ° F)
Relative humidity	10% to 95% non-condensing
Protection class	IP65 (NEMA-4) (with air purge)
Laser sighting	650 nm <1 mW, Class II
Shock and vibrations	MIL-STD-810D
Housing material	ANSI 304 stainless steel
Dimensions	45 mm in diameter. x 183 mm (1.77 x 7.20 inches) approx.
Weight	0.72 kg (1.58 lb)

Measurement specifications		
	1M/2M	P34 / MT / F4 / G5 / P7 / G7 / L
Precision 1	± 0.25% of reading	± 0.6% of reading or ± 1 ° C, whichever is greater
Repeatability 2	± 0.10% of reading or ± 1 ° C, whichever is greater	± 0.3% of reading or ± 0.3 ° C, whichever is greater
LCD resolution	1 ° C / 1 ° F	1 ° C / 1 ° F
Response time 3	5 mS	150 mS
Emissivity	0.10 to 1.00	0.10 to 1.00

Models and accessories

PHOTODIODE MODELS - Step 1 - Select: Series	
R40	Fixed infrared, includes: certificate of conformity and user manual

Step 2 - Select: Spectral range and temperature range			
Coded	Spectral range	Temperature range	Application
1ML	1.0µm	400 ° to 1800 ° C, (752 ° to 3272 ° F)	Molten metal / ceramic Hot graphite Ferrous metal
1MM	1.0µm	600 ° to 1800 ° C, (1112 ° to 3272 ° F)	Molten metal / ceramic Hot graphite Ferrous metal
1MH	1.0µm	600 ° to 3000 ° C, (1112 ° to 5432 ° F)	Molten metal / ceramic Hot graphite Ferrous metal
2ML	1,6µm	300 ° to 1400 ° C, (572 ° to 2552 ° F)	Hot metal Hot ceramic Non-ferrous metal
2MM	1.6 µm	400 ° to 1600 ° C, (752 ° to 2912 ° F)	Hot metal Hot ceramic Non-ferrous metal
2MH	1,6µm	400 ° to 2300 ° C, (752 ° to 4172 ° F)	Hot metal Hot ceramic Non-ferrous metal

Step 3 - Select the optics		
Coded	Optical	
D100	100:1	
F100	2mm@100mm	50:1
F300	3mm@300mm	100:1
F500	6mm@500mm	83:1

Model

Step 4 - Select the length of the connection cable	
Coded	Cable length
CB1	Cable, 1 meter, (3.28 feet) Standard

CB3	Cable, 3 meters, (9.84 feet)
CB5	Cable, 5 meters, (16.40 feet)
CB8	Cable, 8 meters, (26.24 feet)
CB15	Cable, 15 meters, (49.21 feet)
CBX	Cable, customer specified length (100 m (300 ft) max.)

Series	Spectral range / temperature code	Optical code	Connection cable length code
R40			
Insert the codes in the boxes above to construct the part number			

THERMOPILE MODELS - Step 1 - Select Series			
R40		Fixed infrared, includes: certificate of conformity and user manual	
Step 2 - Select: Spectral and Temperature Range			
Coded	Spectral range	Temperature difference	Application
P3M	3,43µm	100 ° to 300 ° C, (212 ° to 572 ° F)	Plastics
P3H	3,43µm	100 ° to 500 ° C, (212 ° to 932 ° F)	Plastics
MTM	3,9µm	600 ° to 1300 ° C, (1112 ° to 2372 ° F)	Through the flame
MTH	3,9µm	600 ° to 1500 ° C, (1112 ° to 2732 ° F)	Through the flame
F4M	4.11 to 4.72µm	400 ° to 1500˚C, (752 ° to 2732 ° F)	Flue gas
F4H	4.11 to 4.72µm	400 ° to 1600 ° C, (752 ° to 2912 ° F)	Flue gas
G5M	5,1µm	400 ° to 1600˚C, (752 ° to 2912 ° F)	Glass
G5H	5,1µm	400 ° to 2250 ° C, (752 ° to 4082 ° F)	Glass
P7	7,9µm	40 ° to 600 ° C, (104 ° to 1112 ° F)	Plastics
G7	7,9µm	40 ° to 1000 ° C, (104	Glass

		° to 1832 ° F)	
LTL	8 to 14µm	0 ° to 600˚C, (32 ° to 1112 ° F)	Low temperature
LTM	8 to 14µm	0 ° to 800˚C, (32 ° to 1472 ° F)	Medium temperature

Step 3 - Select the optics		
Coded		Optical
D30		30 :1
F150	3.5mm@150mm	42:1
F300	8mm@300mm	37.5:1
F600	20mm@600mm	30:1

Step 4 - Select the length of the connection cable	
Coded	Cable length
CB1	Cable, 1 meter, (3.28 feet) (Standard)
CB3	Cable, 3 meters, (9.84 feet)
CB5	Cable, 5 meters, (16.40 feet)
CB8	Cable, 5 meters, (16.40 feet) Cable, 8 meters, (26.24 feet)
CB15	Cable, 15 meters, (49.21 feet)
CBX	Cable, customer specified length (100 m (300 ft) max.)

Series	Spectral range / temperature code	Optical code	Connection cable length code
R40			
Insert the codes in the boxes above to construct the part number			

Accessories

R40 Surface mount brackets
16451 - R40 surface mount bracket, fixed, diameter: 45mm (1.77 ")

16453 - R40 surface mount bracket, adjustable, diameter: 45mm (1.77 ")
Shown

SIGHT TUBES / IR Tube

R40 / 60 series for use with R40 Code D100 optics (D to S: 100: 1).

M30 x 1, length: 11.81 in (300 mm)

16491-1 - SS304, 1500 ° F (800 ° C)

16491-2 - Inconel, 2000 ° F (1100 ° C)

16491-3 - Silicon Carbide, 3000 ° F (1600 ° C)

16491-4 - High purity alumina, (99.8%), 3500 ° F (1900 ° C)

16491-5 - Glassy carbon, 5430 ° F (3000 ° C)

R40 / 60 series IR thermocouple tube for use with R40 Code F300 optics (D to S: 100: 1). M30 x 1, length: 11.81 in (300 mm)

16492-1 - SS304, 1500 ° F (800 ° C)

16492-2 - Inconel, 2000 ° F (1100 ° C)

16492-3 - Silicon Carbide, 3000 ° F (1600 ° C)

16492-4 - High purity alumina, (99.8%), 3500 ° F (1900 ° C)

16492-5 - Glassy carbon, 5430 ° F (3000 ° C)

R40 air purge

16472 - Air purge R40, M44x1.5 to M30x1

PROTECTION WINDOWS R40 Protective windows (includes locking ring)

16465-1 - BK7 protection window for R40 to be used with models 1M and 2M.

16465-2 - Sapphire protection window for R40 for use with models 1M, 2M, MT, F4 and G5.

16465-3 - ZnSe protection window for R40 for use with P3, MT, F4, G5, P7 and LT models.

AIR / WATER COOLING JACKET

R40 air / water cooling jacket

16460 - R40 air / water cooling jacket

supply

16116 - Compact AC / DC power supply unit, 24V, 31W

16117 - AC / DC power supply unit, 24V, 25 to 150 W