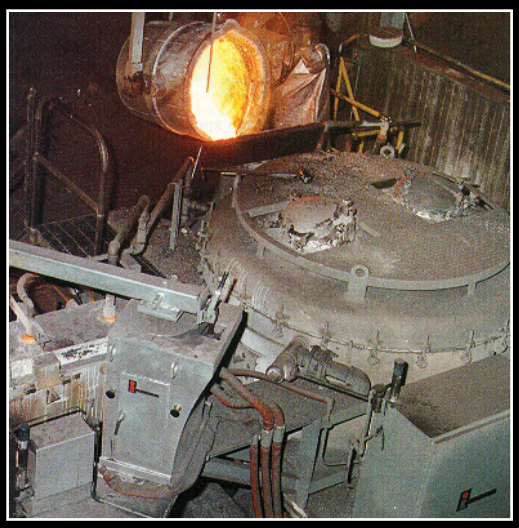
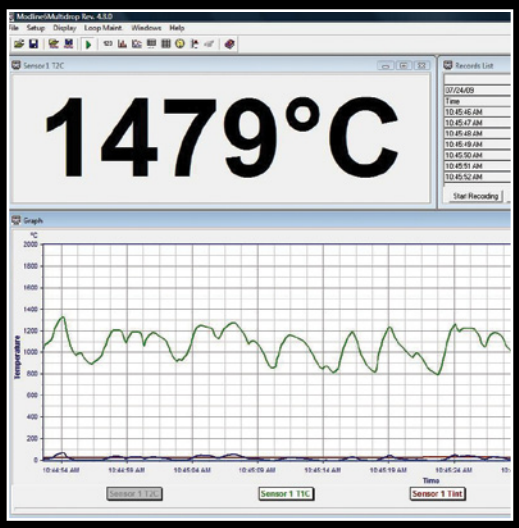
Modline® 6
Infrared Thermometers





Fiber optic noncontact stand alone temperature sensors to serve a wide range of applications

IRCON®
A Fluke Company

Modline 6 Highlights

- Rugged fiber optic measurement systems
- External user interface provides access to sensor settings and temperature indication from bright LED display
- Several models: 62 Series, 6G Series, 6R Series (Operates in 2 color mode or ratio mode)
- 62 and 6G series include background compensation capabilities
- Modline 6 infrared thermometers permit measurement of targets in harsh industrial environments that are otherwise inaccessible by non-fiber optic thermometers
- Fiber cable rated to 315ºC (600ºF) available on selected models
- Simultaneous analog and digital outputs

Modline 6 fiber optic infrared thermometers consist of a rugged fiber optic cable, plus re-imaging lens. The assembly is connected to an electronics housing containing the detector, processing electronics, brightly lit LED user interface/display, and termination connections for field wiring.

Modline 6 infrared thermometers maintain high accuracy over the ambient operating temperature range from 0º to 60ºC (32º to 140ºF) for the electronics housing.

The fixed focus re-imaging lens consists of a small stainless steel cylindrical housing and lens assembly. The re-imaging lens accommodates an air-purge accessory to prevent lens contamination and the fiber optic cable is protected by metal armor. The assembly accommodates a small bend radius for threading through tight spaces. The optional high temperature sensing head/cable option extends the temperature range to 315ºC (600ºF).

The 62-1610 sensor, specifically designed with customized accessories for measuring glass temperature from 750º to 1675ºC (1382º to 3047ºF), permits measurement of smelter, refiner, regenerator, and forehearth temperatures.

Alarms:

- Programmable relay output (dual-temperature setpoints or “fail-safe”)
- Unique attenuation alarm for 6R models (attenuation measurement US Patent No. 5,815,410)

Communications:

- Bi-directional RS485 communications
- Supports up to 32 Modline 6 Series sensors on a multipoint network
- Modline 6 Multidrop Support Software (operates under Windows® based PC’s)
- Field Calibration Software

Sensor Specifications

Performance

62 Series

Spectral Range	1.0µm (Si detector)
Accuracy	±(0.3% Tmeas +2ºC); Tmeas in ºC ± 3°C for **62-1610**
Response Time	10 ms
Emissivity	0.10–1.00 in .01 increments (single color mode)
Repeatability	±1ºC
Signal Processing	Peak Hold, Valley Hold, Averaging (all models)
Temperature Resolution	±0.05ºC (±0.1ºF)

6G Series

Spectral Range	1.6µm (InGaAs detector)
Accuracy	±(0.3% Tmeas +2ºC); Tmeas in ºC
Response Time	10ms
Emissivity	0.10–1.00 in .01 increments
Repeatability	±1ºC
Signal Processing	Peak Hold, Valley Hold, Averaging (all models)
Temperature Resolution	±0.05ºC (±0.1ºF)

6R Series (Ratio)

Spectral Range	1.0µm nominal (Si/Si detector)
Accuracy	±(0.3% Tmeas +2ºC); Tmeas in ºC (no attenuation)
up to 95% attenuation	± (1% Tmeas +2°C) for **6R-1120 and 6R-1540**
up to 95% attenuation	± (1.3% Tmeas +2°C) for **6R-2565**
Response Time	10ms
Emissivity	0.10–1.00 in .01 increments (Single Color Mode)
E-slope Range	0.85–1.150 in 0.001 increments (Ratio Mode)
Repeatability	±1ºC
Signal Processing	Peak Hold, Averaging (all models)
Temperature Resolution	±1ºC (±2ºF)

Outputs

Analog Output (scalable)	0/4–20 mA
Digital Output	RS-485, 2 wire/4 wire, networkable to 32 sensors
Relay Output	Contacts max. 48 V, 300 mA, response time < 2 msec, (software programmable)
Power Requirements	24 VDC, 500 mA, ±20% Compliance CE low voltage directive; EN 61326

Physical/Environmental

Environmental Rating	NEMA 4, IEC 529, IP65 (Does not apply to the high temperature fiber optic cable option)
Weight	
Electronics Housing	0.75 kg (27 oz)
Re-imaging Lens	0.10 kg (3 oz)
Humidity	10 to 95% non-condensing
Vibration	(Electronics Housing) MIL-STD-810D IEC 68-2-6
Shock	(Electronics Housing) MIL-STD-810D IEC 68-2-27

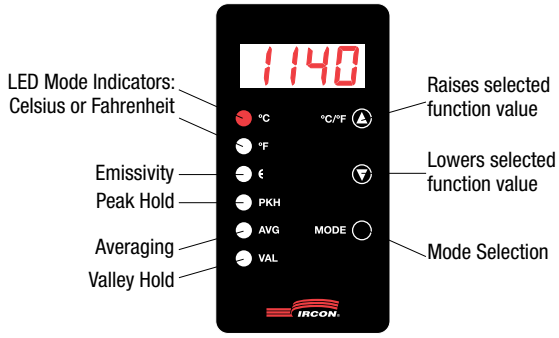
Product Compliance

EMC	EN61326-1
Safety	EN61010-1

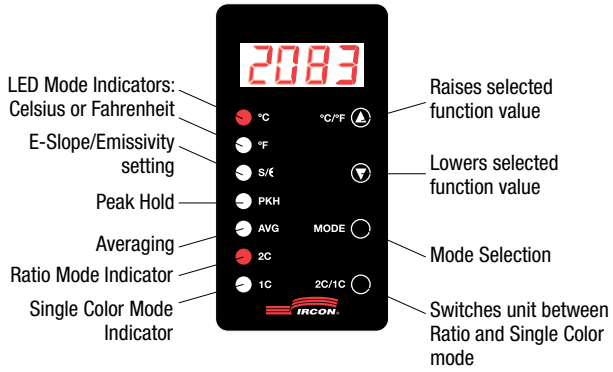
Operating Ambient Temperature

Electronic housing	0 to 60°C (32 to 140°F) -20 to 70°C (-4 to 158°F) Storage Temperature
Fiber optic cable and Re-imaging lens	0º to 200°C (32º to 392°F) Standard temperature rating 0º to 315°C (32º to 600°F) High-temperature option
Fiber optic cable protection	Rated to 200°C; stainless steel armor; Viton coating, rubber “boot”, and NEMA-4 (not available on high temperature cable); plus provision for conduit to protect fiber cable

62 and 6G User Interface

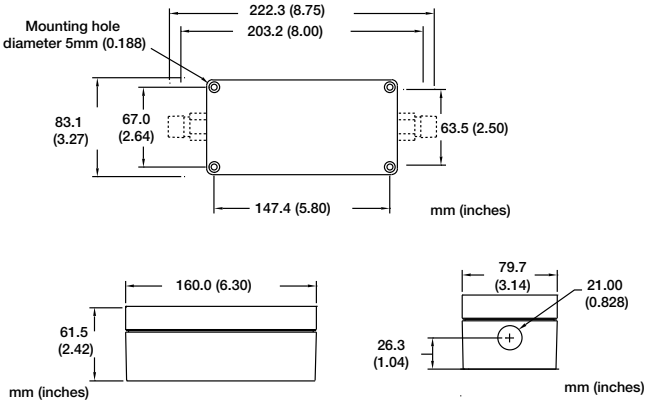


6R User Interface

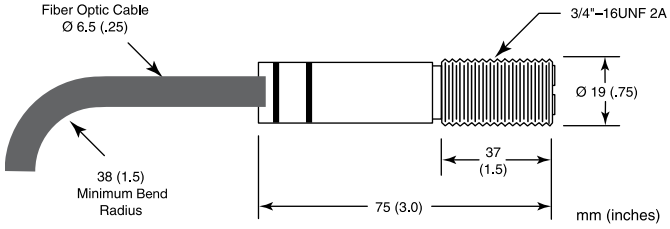


Physical Dimensions

Electronics Housing



Re-imaging Lens



Accessories

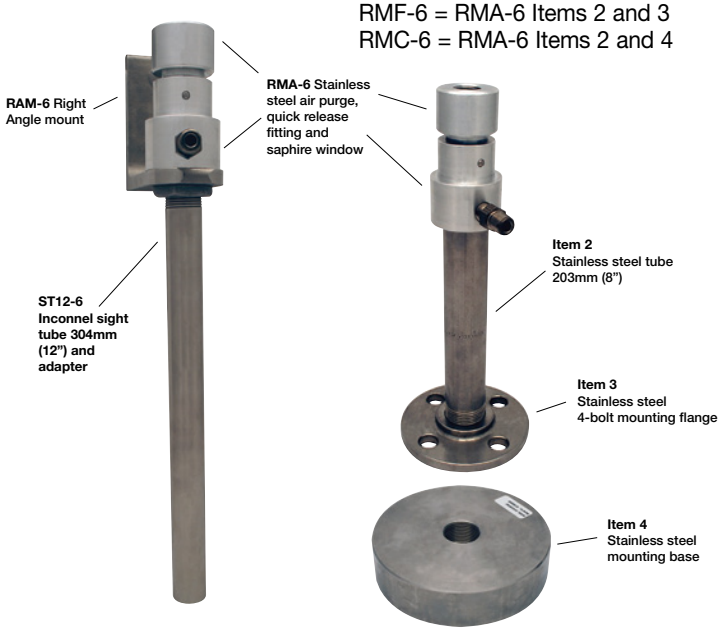
MB-6 Adjustable Mounting Bracket
Adjustable mounting bracket for Modline 6 re-imaging lens

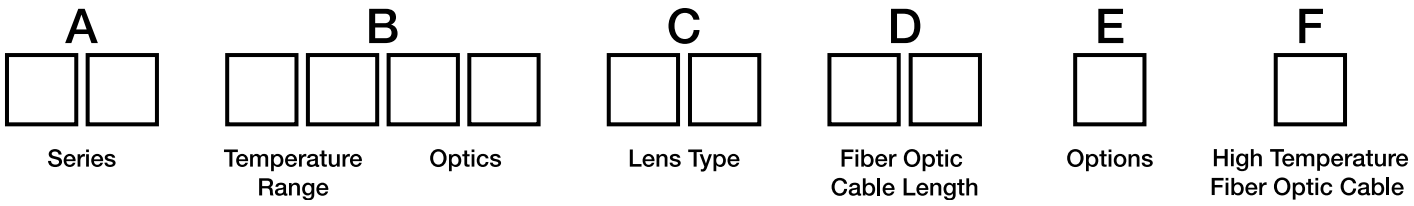
AP-6 Air Purge Collar
Air purge collar and stainless steel sighting-tube, 152mm (6 in) long, 25mm (1 in) diameter

RA-6	Right angle mirror
AL-6	Aiming-light (battery powered) for fiber optic front end.
PW-6	Sapphire protective window mounted in stainless steel bezel
EE3-6	High temperature fiber-optic housing with air-knife purge and sapphire protective window, 3M air/protection hose. For extreme environments. Ambient temperature <= 450ºC (842ºF)
EE6-6	High temperature fiber-optic housing with air-knife purge and sapphire protective window, 6M air/protection hose. For extreme environments. Ambient temperature <= 450ºC (842ºF)
POI-6	Power supply (24VDC, 110/220VAC input) & terminal block mounted in a NEMA-4 (IP65) enclosure
PS-6	24 VDC 1.1 A switching power supply (110/220VAC input)
TSP-6	Spare terminal block accessory
TSPE-6	Spare terminal block in a NEMA-4 enclosure
TSIC-6	DB25 to terminal strip interface converter, recommended for direct wiring between a serial interface and the terminal block
PS4851-6	XXX485CVT with 110VAC power adapter
PS4852-6	XXX485CVT with 220VAC power adapter
485-6	DB25 to DB25 interface converter
USB-6	USB to serial COM port converter

Glass Tank Mounting Accessory
Consists of RAM-6, RMA-6, and ST12-6 accessories, as shown

Rooftop Mounting/Purging
Flexible accessory selections allow you to pick and choose the accessories you need.
RMAP-6 = RMA-6 Item 2
RMF-6 = RMA-6 Items 2 and 3
RMC-6 = RMA-6 Items 2 and 4





Block A & B	Temperature Range	Spectral Range	Optical Resolution	Block C Lens type and spot size at focus position (one lens/sensor)		
				2D Lens	2E Lens	2F Lens
62-0902	475-900ºC (752-1652ºF)	1 µm	D/20	76mm (3") @1524mm (60")	4mm (0.17") @102mm (4")	15mm (0.6") @305mm (12")
62-1610	750-1675ºC (1382-3047ºF)	1 µm	D/100	16mm (0.62") @1524mm (60")	Not Available	Not Available
62-1910	800-1900ºC (1472-3452ºF)	1 µm	D/100	16mm (0.62") @1524mm (60")	1mm (0.04") @102mm (4")	2.8mm (0.11") @305mm (12")
62-3010	1200-3000ºC (2192-5432ºF)	1 µm	D/100	16mm (0.62") @1524mm (60")	1mm (0.04") @102mm (4")	2.8mm (0.11") @305mm (12")
				GA Lens	GB Lens	GC Lens
6G-0820	250-800ºC (482-1472ºF)	1.6 µm	D/20	76mm (3") @1524mm (60")	4mm (0.17") @102mm (4")	15mm (0.6") @305mm (12")
6G-1740	400-1700ºC (752-3092ºF)	1.6 µm	D/40	38mm (1.5") @1524mm (60")	2.5mm (0.1") @102mm (4")	7mm (0.26") @305mm (12")
				RD Lens	RE Lens	RF Lens
6R-1120	500-1100ºC (932-2012ºF)	Ratio	D/20	83mm (3.3") @1524mm (60")	5mm (0.2") @102mm (4")	15mm (0.6") @305mm (12")
6R-1540	700-1500ºC (1292-2732ºF)	Ratio	D/40	44mm (1.7") @1524mm (60")	3mm (0.1") @102mm (4")	8mm (0.3") @305mm (12")
6R-2565	1000-2500ºC (1832-4532ºF)	Ratio	D/65	27mm (1.05") @1524mm (60")	1.6mm (0.06") @102mm (4")	5mm (0.18") @305mm (12")

Factory-Installed Sensor Options

Block D Fiber Optic Cable Length (must be selected at the time of placement)

01	1 meter (» 3 ft.) length fiber cable with connectors
03	3 meter (»10 ft.) length fiber cable with connectors
06	6 meter (» 20 ft.) length fiber cable with connectors
10	10 meter (» 33 ft.) length fiber cable with connectors
22	22 meter (» 72 ft.) length fiber cable with connectors*

** For use with all 6R and 62-1610 sensors only. Not available with other models*
Quote nominal 6 weeks delivery time for 1m, 6m, 10m and 22m fiber-cable lengths

Block E Options (must be selected at the time of order)

0	None

Block F High Temp. Fiber Cable & Lens (must be specified at the time of placement)

0	Standard cable option selected
1	High-temperature fiber optic cable and re-imaging lens rated to 315°C (600°F) ambient temperature**

** Quote nominal 6 weeks delivery time for high temperature cable

Primary Applications

62 Primary Applications
High Temperature Processes:
Metal forging, annealing, hardening foundries and incandescent processes

6G Primary Applications
Mid to High Temperature Processes:
Ferrous and non-ferrous metal treating

6R Primary Applications
Difficult High Temperature Processes:
Molten metals, small wires, small rods, vacuum furnaces and kilns

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The Worldwide Leader in Noncontact Temperature Measurement

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