









Modline® 7 Infrared Thermometers



Noncontact temperature sensors to serve
a wide range of applications

7V Series	72 Series	7G Series	76 Series	75 Series	77 Series	78 Series	74 Series
400 to 1200°C 0.9 – 0.97 µm	400 to 3000°C 1.0 µm	300 to 2250°C 1.6 µm	100 to 600°C 2.4 µm	250 to 2250°C 3.9 µm	250 to 2250°C 4.8 – 5.2 µm	300 to 900°C 7.9 µm	-40 to 800°C 8-14 µm
Silicon wafer MBE, silicon and gallium arsenide wafer deposition	Semiconductor, metals forging, molten glass	Ferrous, non ferrous and unoxidized metals, galvanizing lines and steel annealing	Small, low temperature targets, wire coating and annealing, as well as plastic tubing extensions	Furnace refractory, flame hardening and brazing	Glass surface temperature for bending, tempering, annealing and sealing	Ultra-thin drawn glass	Low temperature applications, such as thick plastics, food, carpeting, coated paper and thermoforming
							

Modline® 7 Highlights

Designed for rugged industrial environments, the Modline 7 sensors have 8 different series to choose from (7V, 72, 7G, 76, 75, 77, 78, 74). All sensor components are sealed within an IP65 (NEMA 4) enclosure featuring standard motorized focus control, as well as through-the-lens and laser sighting. Also included is an integral stainless steel water cooled enclosure. All Modline 7 systems are backed with a 5 year warranty.

The sensing head can operate as a stand-alone sensor, providing simultaneous analog and digital outputs of process temperatures.

Sensor setup and monitoring can be accomplished either through the optional PROC-7 processor box, the rear panel of the sensor or through the Modview Pro software, allowing the user to perform PC-based temperature monitoring, trending and archiving with an intuitive graphical user interface.

Alarms:

A programmable relay output can be triggered by:

- Product Temperature (process alarm)
- Sensor Internal Temperature (sensor alarm)
- Manually

Communications:

- Bi-directional RS-485 communications
- Windows ModView Pro Software
- Field Calibration software

Features:

- Broad temperature range -40°C to 3000°C
- Spot size down to 1 mm

Performance

Accuracy

7V	± (0.5% of reading + 1°C)	
72-1716	± (2% of reading + 2°C) for Tmeas < 450°C	± (0.3% of reading + 1°C) for Tmeas > 450°C
72-3030	± (2% of reading + 2°C) for Tmeas < 650°C	± (0.3% of reading + 1°C) for Tmeas > 650°C
7G-1116	± (0.3% of reading + 2°C)	
7G-2230	± (0.3% of reading + 1°C)	
76	± 1% of reading for Tmeas > 150°C	± 5°C for Tmeas < 150°C
75	± 2°C or ± 2%* for Tmeas < 350°C	± 1% of reading for Tmeas > 350°C
77/78	± 1% of reading	
74	± 2°C for Tmeas < 0°C	± 1% of reading or ± 1°C* for Tmeas > 0°C

*whichever is greater

Repeatability

7V	± (0.1% of reading + 1°C)	
72-1716	± (0.1% of reading + 1°C) for Tmeas > 450°C	± (1% of reading + 1°C) for Tmeas < 450°C
72-3030	± (0.1% of reading + 1°C) for Tmeas > 650°C	± (1% of reading + 1°C) for Tmeas < 650°C
7G	± (0.1% of reading + 1°C)	
76/75/77/78/74	± 0.5% of reading or ± 0.5°C*	

*whichever is greater

Temperature Resolution

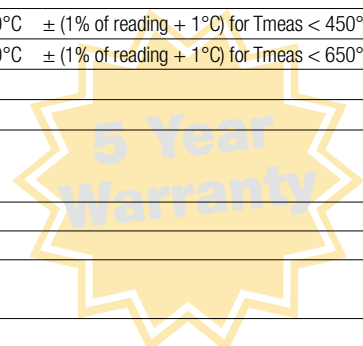
72-3030/7G-2230	0.2°C
All other models	0.1°C

Electrical

Power Supply	24 VDC ± 20%, 500 mA
Outputs Analog	0 - 20 mA, 4 - 20 mA, 14 bit resolution, max. current loop impedance: 500 ohms.
Digital RS-485	Networkable to 32 sensors, Baud rate: 300, 1200, 2400, 9600, 19200, 38400, 57600, 115200. 4-wire mode (full-duplex) or 2-wire mode (half duplex), (2-wire: max. 38400 Baud), (Proc-7 requires 38400 2-wire mode)
Relay	Contacts max. 48 V, 300 mA, response time < 2 ms, (software programmable)
Display	5 digit backlit LCD display
External Input Voltage	0 to 5 VDC functions: trigger, ambient background temperature compensation, emissivity setting, or laser ON/OFF switching

Environmental

Environmental rating	IP 65
EMI	CE compliant to IEC 61326
Relative Humidity	10% to 95% non-condensing
Storage Temperature	-20°C to 70°C
Ambient Temperature	without cooling: 5°C to 65°C with integral cooling: air cooling 10°C to 120°C water cooling 10°C to 175°C with high temperature waterjacket cooling: 10°C to 315°C
Vibration	MIL-STD-810D (IEC 68-2-6) 2G's, 10 - 150 Hz, 3 axis
Mechanical Shock	MIL-STD-810D (IEC 68-2-27) 5G's, 11 ms duration, 3 axis
Weight	1.8 kg



PROC-7 Processor Box

The processor box is a self-contained control unit designed to operate all Modline 7 sensors independent of Modview™ Pro software. Remote set-up and operation can be done through the digital panel when the sensor is located in hard-to-reach or hazardous locations. Configure, monitor and perform system health checks from a safe location through menu commands via RS-485 serial communication. Easily set temperature alarms, change temperature display from °F to °C, change emissivity levels, focus the sensor and turn on or off filters, such as peak hold, valley hold and averaging through a push button display. All Modline 7 menu commands are easy-to-use and ready to communicate right out of the box.



Additional features:

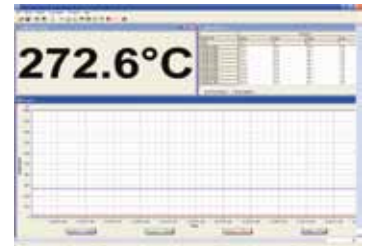
- IP65 rated
- Panel mount capable
- Sensor alarm
- Universal power input (100–240 VAC) 50/60 Hz
- Power supplied to sensor (24 VDC)
- Analog output (0 to 20mA)
- Auxiliary analog signal input for remote emissivity adjustment, background temperature compensation, valley/peak hold reset and laser ON/OFF.

PROC-7 Enclosure Specifications

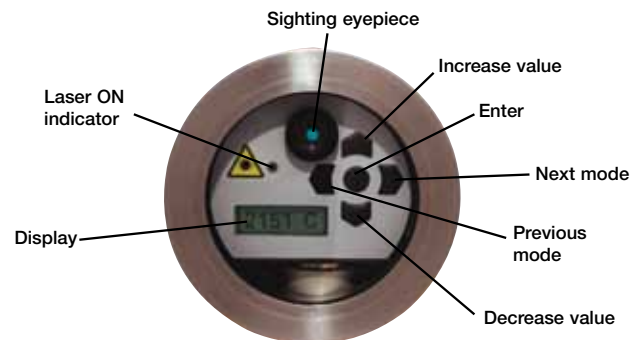
Environmental rating	IP65
Panel Ambient Temperature Rating	0°C to 50°C
Construction	Aluminum/Stainless Steel
Vibration	IEC 60068-2-6
EMI	EC 61326

ModView Pro Software

ModView Pro PC based software with built-in user interface displays target temperature and allows for sensor parameter adjustment to configure or fine tune your sensor remotely. Easily configure individual alarms for early warning detection, change temperature display from °F to °C, set or change emissivity levels, scale the range, focus the sensor, and turn on or off filters, such as peak hold, valley hold, and averaging, as well as save data for future reference, graphing or quality record keeping



Easy-to-Use Interface



Modline 7 sensor with standard integral water cooling

The Modline 7 sensor with integral water cooling enclosure enables use in ambient temperatures up to 175°C.

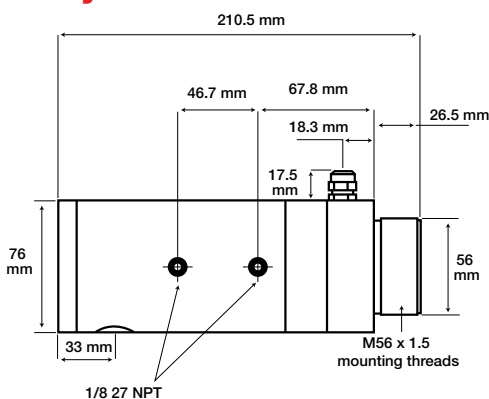


Modline 7 sensor with optional high temperature water jacket accessory

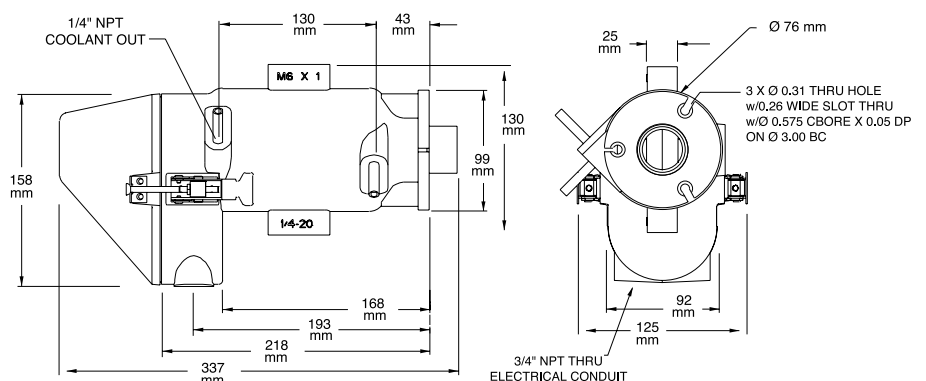
For high ambient temperature applications, the Modline 7 with high temperature water jacket and integrated air purge enables use in ambient temperatures up to 315°C.



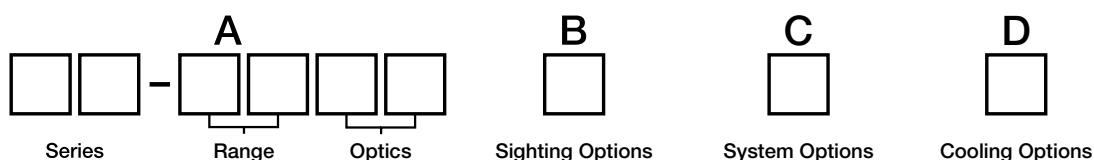
Physical Dimensions



Modline 7 sensor with integral water cooling and optional air purge collar



Modline 7 high temperature water jacket



Block A	Temperature Range	Spectral Range	Optical Resolution (measured at focal point)	Response Time	Primary Applications
7V-1002	400-1000°C	0.9–0.97µm	D/20	100 ms	Specifically developed for MBE, silicon and gallium arsenide wafer deposition
7V-1205	450-1200°C	0.9–0.97µm	D/50	10 ms	
72-1716	400-1740°C	1.0 µm	D/160	2 ms	Semiconductor, metals forging, molten glass
72-3030	540-3000°C	1.0 µm	D/300		
7G-1116	300-1100°C	1.6 µm	D/160	2 ms	Ferrous, non ferrous and unoxidized metals, galvanizing lines and steel annealing
7G-2230	450-2250°C	1.6 µm	D/300		
76-0607	100-600°C	2.4 µm	D/70	20 ms	Small, low temperature targets, wire coating and annealing, as well as plastic tubing extensions
75-1107	250-1100°C	3.9 µm	D/70	120 ms	Furnace refractory, flame hardening and brazing
75-2207	450-2250°C				
77-1607	250-1650°C	4.8–5.2 µm	D/70	60 ms	Glass surface temperatures for bending, tempering, annealing and sealing
77-2207	450-2250°C				
78-0910	300-900°C	7.9 µm	D/100	120 ms	Ultra-thin drawn glass
74-0807	-40-800°C	8-14 µm	D/70	120 ms	Low temperature applications, such as thick plastics, food, carpeting, coated paper and thermoforming

Block B Sighting Options

0 Visible/Laser Sighting

Block C System Options

0 Stand Alone Sensor

1 Processor Box with integrated digital panel meter and power supply in IP65 rated enclosure

Block D Cooling Options

0 Sensor with integral water cooling for ambient temperatures up to 175°C

1 Sensor supplied with WJ-7 waterjacket accessory for ambient temperatures up to 315°C

Accessories

PROC-7 Processor box with integrated digital panel meter and power supply in IP65 rated enclosure

(PBAK-7 required when replacing the Modline® 3 processor box if panel mounted)

DPM-7 Digital panel meter (Individual unit only)

PBAK-7 Processor box adaptor kit (panel mount)

(Used when replacing an existing Modline® 3 processor box with a Modline 7. Kit consisting of mounting brackets & hardware)

APA-7 Aluminum air purge collar

APS-7 Stainless steel air purge collar

RAM-7 Stainless steel adjustable bracket

WJMB-7 Adjustable mounting base for water jacket

WJMFST-7 Mounting flange for use with sighting tubes

WJST12 30cm (12") Stainless steel sight tube (up to 800°C)

POI-7 Power supply (24VDC, 100/240VAC input) & terminal block mounted in a NEMA 4 (IP65) enclosure

PS-7 24VDC 1.2A Industrial power supply, DIN rail mount (100/240VAC input)

TSP-7 Spare terminal block accessory

The Worldwide Leader in Noncontact Temperature Measurement

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