Modline 3 - the most advanced micro computer based non-contact temperature measurement system, featuring high performance, reliability and versatility.

The Modline 3 is a non-contact, infrared radiation thermometer designed to meet the critical needs of today's application requirements. Modline 3 features a broad line of infrared thermometers to match specific applications in many industries. The system offers a choice of sensors with sophisticated single lens reflex (SLR) focusing that can view spots as small as 0.012 inches (0.3mm), or sensors using two-color (ratio) technology to tolerate more than 95% reduction in radiant intensity, or fiber optic sensors for difficult to reach or obstructed targets.

The system consists of a high performance sensor and micro-computer based digital Indicator/Processor. Many standard features are included, only a two-point On/Off controller/alarm or a PID controller are optional. Additionally, Ircon offers standard accessories to meet the demanding application requirements, such as air purge and water cooling, sight tubes and mounting assemblies.

Modline 3 utilizes advanced micro-computer technology to process temperature signals received from the sensor. This data is accurately displayed on a highly visible LED digital display in °F or °C. Programming features and control functions are viewed on a bright, highly readable Alpha Numeric, Vacuum Fluorescent display.

Standard Features

- **High Performance Sensors**
  Select from 9 narrow spectral regions and temperature ranges to match specific applications

- **Micro-computer Technology**
  Indicator/Processor is programmed to match specific sensor requirements and control functions using front panel buttons

- **High System Accuracy**
  ± 0.6% of reading ± 1 digit, or ± 0.6% of F.S. ± 1 digit, depending on model; ± 0.1% Repeatability F.S.

- **Smart Peak Picker**
  With Decay rate controlled directly in degrees per second. Manual and Automatic Reset modes.

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Standard Features (cont’d)

- **Track and Hold**
  Hold instrument readings/outputs or allow the instrument to track real events, all via a simple contact closure from a remote switch or a relay.

- **Analog Outputs**
  Select one from four available analog outputs: 0 to 20mA, 4 to 20 mA, 5µA / °F or °C or 0 to 10 Vdc

- **Remote Analog Input**
  4 to 20mA signal input to the Modline 3 permits external adjustment of Emissivity/E-Slope or Controller Setpoint.

- **RS-485 Digital Interface**
  Digital communication port provides a complete two-way access to Modline 3 features and functions.

- **CE Compliance**
  Meets EMC directive 89/366/EEC
  Meets Low Voltage directive 73/23/EEC

Optional Features

- **2- Point On/Off Control Options**
  Two completely independent channels of control and/or alarming.

- **3-Mode Proportional Controller**
  With a multitude of features; Auto tune, Bumpless Output Transfer, 4 to 20 mA isolated output, Internal/External Setpoint control and Hi-Lo Deviation Alarms with relay outputs.
System Overview

Sensor Selection Chart

<table>
<thead>
<tr>
<th>Series</th>
<th>Temp Span</th>
<th>Wavelength</th>
<th>Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>200</td>
<td>900 - 4800°F or 500 - 2600°C</td>
<td>0.7 - 1.0µ</td>
<td>Forging, annealing, hardening, foundries, most iron and steel, incandescent processes including semiconductor processes.</td>
</tr>
<tr>
<td>200 Fiber Optic</td>
<td>1200 - 4800°F or 650 - 2600°C</td>
<td>0.7 - 1.0µ</td>
<td></td>
</tr>
<tr>
<td>340</td>
<td>75 - 1500°F or 25 - 800°C</td>
<td>3.43µ</td>
<td>Thin films of polyethylene, polypropylene, vinyls and nylons.</td>
</tr>
<tr>
<td>600</td>
<td>150 - 1400°F or 80 - 800°C</td>
<td>2.0 - 2.6µ</td>
<td>Medium temperature applications for thick plastics, rubber, textiles and metals.</td>
</tr>
<tr>
<td>700</td>
<td>100 - 2500°F or 50 - 2500°C</td>
<td>4.8 - 5.3µ</td>
<td>Glass surface temperature in forming, bending, tempering, annealing and sealing.</td>
</tr>
<tr>
<td>800</td>
<td>75 - 800°F or 25 - 400°C</td>
<td>7.92µ</td>
<td>Thin films of polyester (PET) and fluorocarbon plastics.</td>
</tr>
<tr>
<td>3G 3G Fiber Optics</td>
<td>500 - 2500°F or 250 - 1400°C</td>
<td>1.5 - 1.6µ</td>
<td>Medium temperature applications, particularly ferrous and non-ferrous metals.</td>
</tr>
<tr>
<td>3G 3G Fiber Optics</td>
<td>650 - 2500°F or 350 - 1400°C</td>
<td>1.5 - 1.6µ</td>
<td></td>
</tr>
<tr>
<td>3L</td>
<td>500 - 1800°F or 250 - 1000°C</td>
<td>1.00 - 1.20µ</td>
<td>Low temperature non-ferrous metals including aluminum using two-color ratio technique.</td>
</tr>
<tr>
<td>3R 3R Fiber Optic</td>
<td>1300 - 6500°F or 700 - 3500°C</td>
<td>0.7 - 1.08µ</td>
<td>For difficult high temperature processes such as molten metal, wire rod, vacuum furnaces and kilns using two-color ratio technique.</td>
</tr>
<tr>
<td>3R 3R Fiber Optic</td>
<td>1300 - 6500°F or 700 - 3500°C</td>
<td>1.08µ and 1.65 - 1.71µ</td>
<td></td>
</tr>
<tr>
<td>3V 3V Fiber Optic</td>
<td>400 - 1200°C or 500 - 1500°C</td>
<td>0.91 - 0.97µ</td>
<td>Specifically designed for gallium arsenide wafer temperature in MBE, MOCVD and MOMBE applications.</td>
</tr>
</tbody>
</table>
Sensors

The Modline 3 system offers you the widest choice of non-contact infrared sensors to match any process. Modline 3 sensors offer sophisticated single lens reflex (SLR) focusing, that can view spots as small as 0.012 inches (0.3 mm); or for difficult, high temperature and harsh environments, some model series incorporate fiber optics for added flexibility.

The optical system, detector and electronics are housed in a rugged sealed casting rated NEMA 4 (IP66) to perform in the harsh industrial environments. Modline 3 sensors are designed to match existing mounting configurations and offer a choice of cooling and environmental protection accessories.

200 Series

Measures temperatures ranging from 900 to 4800°F (500 to 2600°C) and is intended for high temperature incandescent applications. It operates in a narrow spectral region from 0.7 to 1.0µm, utilizing an extremely stable silicon detector.

340 Series

Measures temperatures ranging from 75 to 1500°F (25 to 800°C) and is ideal for clear films of C-H type plastics or paints, waxes and oils. It operates in a very narrow wavelength band centered at 3.43µm.

600 Series

Measures temperatures ranging from 150 to 1400°F (80 to 800°C) and operates at 2.0 to 2.6µm. It’s ideal for general purpose medium temperature applications such as thick plastics, rubber, textiles and metals.

700 Series

Measures temperatures ranging from 100 to 2500°F (50 to 2500°C) and operates at 4.8 to 5.3µm. It is ideal for glass surface temperatures in forming, bending, tempering, annealing and sealing.

800 Series

Measures temperatures ranging from 75 to 800°F (25 to 400°C) and operates at 7.92µm. This series measures thin film of all polyester (PET) and fluorocarbon plastics including thin glass and ceramics.

3G Series

Medium temperature thermometer measures temperatures ranging from 500 to 2500°F (250 to 1400°C) and operates at 1.5 to 1.6µm. It utilizes an InGaAs detector for exceptional stability, wider temperature spans and ability to operate at higher ambient temperatures. This series is ideal for medium temperature applications such as ferrous and non-ferrous metals.

3L Series

Low temperature two-color thermometer measures temperatures ranging from 500 to 1800°F (250 to 1000°C) and operates at 1.55 and 1.68µm lower ranges and 1.10 and 1.68µm upper ranges. It measures temperatures from the ratio of radiation signals of two adjacent wavelengths and not from absolute intensity. It will tolerate a more than 95% reduction in radiant intensity with virtually no error. This series is most appropriate for low temperature non-ferrous metal applications including aluminum. It features two Indium Gallium Arsenide (InGaAs) detectors which measure target signals simultaneously delivering highly stable, highly accurate and fast measurements.

3R Series

High temperature two-color thermometer measures temperatures ranging from 1300 to 6500°F (700 to 3500°C) and operates at 0.7 to 1.08 µm and 1.08 µm. The series also uses Ircon’s two-color technique to measure difficult high temperature applications. It is ideal for processes such as molten metal, wire and rod, vacuum furnaces and kilns.

3V Series

Gallium Arsenide thermometer measures temperatures ranging from 400 to 1200°C and operates in a narrow spectral region from 0.91 to 0.97µm. This series is specifically tailored for measuring gallium arsenide (GaAs) wafer temperatures.

Fiber Optic Sensor Option

Our fiber optic sensors are the ultimate in non-contact temperature measurement for difficult-to-read or obstructed targets. The following series are available as a fiber optic version:

Series and Temperature Range

<table>
<thead>
<tr>
<th>Series</th>
<th>Temperature Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>200</td>
<td>200 to 4800°F (650 to 2600°C)</td>
</tr>
<tr>
<td>3G</td>
<td>650 to 2500°F (350 to 1400°C)</td>
</tr>
<tr>
<td>3R</td>
<td>1300 to 6500°F (700 to 3500°C)</td>
</tr>
<tr>
<td>3V</td>
<td>500 to 1500°C</td>
</tr>
</tbody>
</table>
The Modline 3 Indicator/Processor is a micro computer based signal processor designed to operate with all Modline 3 sensors, an internal menu allows the user to indicate the sensor connected and the micro-computer provides the functions for that specific sensor. No calibration is necessary when changing sensors.

**Analog Outputs**
Four selectable isolated and linear outputs are available; 4-20 mA, 0-20 mA, 5µA per degree, or 0 to 10 Vdc. The outputs are adjustable to cover any portion of the instruments available temperature span to a minimum of 10 degrees.

**Digital Interface**
RS-485 digital communication interface communicates in half duplex to the computer. Command signals are used to make temperature request, setting adjustments, system status, system configuration, on/off control functions, service functions and PID control functions.

**Auxiliary input**
A remote 4-20 mA input can be field-selected to set the emissivity, the E-Slope or controller setpoint.

**Smart Peak Picker**
The Pick Picker circuitry responds to the highest instantaneous value of temperature and holds this value even if the temperature source is interrupted by smoke, steam, dust or intermittent targets. A rate of decay adjustment allows the instrument to follow the true target temperature but not be affected by the conditions previously mentioned.

The Modline 3 Peak Picker is a smart peak picker. When viewing products that have a hot leading edge like a piece of glass, the peaking function can be delayed for as long as 10 seconds to avoid this peak temperature. In addition, it can be reset manually or a reset setpoint can be selected. Should the temperature decay below this point, the Peak Picker will automatically reset. This setpoint is adjustable anywhere within the range of the instrument.

**Track and Hold**
Many processes may require that a control output be held even if the hot target is not in sight. For example, when a billet exits an induction coil, a temperature is obtained - if no billet is present, the controller would call for heat because it senses a cool target.

With a track and hold feature, the instrument receives a contact closure and holds the last seen temperature of the billet. All functions are held (the indicator, linear outputs and controller outputs) until the contact is opened.
## Modline 3

### Operation Features

#### Front Panel Displays and Controls

- **4 Digit LED Display** indicates temperature calibration in °F or °C and out of temperature range alarm.
- **“M” Button** allows you to scroll through menu selections.
- **“F” Button** provides control function.
- **Function Display** indicates control function settings and menus in a 2 x 20 line character display.
- **Up-Down Buttons** allow you to change values.

#### Rear Panel Connections

- **Analog Output Connection**
  - 0 to 20 mAdc; 4 to 20 mAdc, 5µA per/degree or 0 to 10 Vdc
- **PID Controller Output** (optional)
- **Alarm Output** for On/Off Controller (optional)
- **Power Supply Connections** for 90 to 250 Vac
- **Invalid Alarm** for 3L and 3R series only
- **Remote Reset for Peak Picker and Track/Hold**
- **Auxiliary Analog Signal Input** to adjust remotely Emissivity, E-Slope or Set Point-1
- **RS-485 Digital Interface**
  - For digital communication

### Control Function Display (In English, French or German)

Menus and functions are easily selected and displayed using two buttons, variable values are changed using up and down buttons.

- **Select Emissivity and Value 0.100 to 1.000**
- **Change Value using up/down buttons**

### Optional Accessories

Ircon provides a variety of optional accessories for the Modline 3 System for the SLR sensors or the Fiber Optic Version to simplify mounting and to protect the sensors from hostile environments.

#### SLR Sensors
- Model AA-3 Air Purge
- Models SB-1 Swivel Mounting Base
- Model WA-3 Water Cooling Accessory
- Model WJ-5 Water Cooling Jacket
- All other Flange Mount Accessories and Sight Tubes.

#### Fiber Optic Sensors
- Model AA-5 Air Purge
- Model AP-5 Adapter Plate
- Model MB-5 Angle Mounting Bracket
- Model SB-5 Swivel Mounting Base with MC-5 Mounting Clamp

### Other Standard Function Selections

- **E-Slope**: 0.850 to 1.150
- **Response Time**: 0.01 to 60 sec.
- **Peak Picker**: On/Off, Decay Rate, Reset, Remote Reset, Auto Reset, Reset Below, Delay
- **Track and Hold**: On/Off
- **Security Access**: Panel Locked/Closed/Open
- **Calibration**: Cycle Cal.
- **System Configuration Model Series**: Text Language *(English, French, German, Japanese)*
Spectral Response
Each series is designed to operate in a discrete wavelength band (see Model Selection Chart.)

Calibration / Accuracy
Accuracy @25°C:
200, 3G, 3R, 3V series within 0.6% of reading (+ 1 digit) or 5°F (3°C), whichever is greater.
340, 600, 700, 800 and 3L series within 0.6% F.S. (+ 1 digit) or 5°F (3°C) whichever is greater.

Repeatability @25°C
Within 0.1% of full-scale temperature (+1 digit)

Response Time at Analog Output
Adjustable from 0.01 to 60 seconds

NEMA 4 (IP66 rated)
Sensor Housing and Indicator/processor enclosure

Operating Ambient
(without ambient cooling)
Series 200 and 3G: 32 to 150°F (0 to 60°C)
Series 3L and 3R: 32 to 130°F (0 to 55°C)
Series 340, 600, 700, and 800: 50 to 130°F
Sensor Cable Silicone Rubber:
400°F (200°C) Max. Temp.
Indicator / Processor:
32 to 122°F (0 to 50°C)

Humidity
10 to 90% non-condensing

Enclosure
allows mounting two Indicator/Processors side-by-side in 19 inch rack; Size: 7.56 x 5.67” (192 x 144 mm)

Selectable Analog Outputs
are isolated from ground

Select. Analog Outputs (cont’d)
0 to 20 mAdc with a 1000 Ω max.
4 to 20 mAdc with a 1000 Ω max
5 mAdc / degree F or C, (1mV/°) 0 to 10 Vdc
[max 4000 mV] across 200 Ω resistor, typical deviation two degrees from display)

Digital Communication
RS-485 Digital Interface

Emissivity Range*
0.100 to 1.000.
*see pages 7 & 8 for limitations.

E Slope Range*
0.850 to 1.150.
*see pages 7 & 8 for limitations.

Power Requirements
90 to 250 Vac, 50/60 Hz, 40VA max.

Weight
Sensor: 7 to 8 lbs (3.2 to 3.6 kg) Indicator/Processor:
9 lbs (4 kg) - approximate weight

Invalid Alarm
Form C relay outputs rated at 24 VAC/DC; @ 1 Amp. Resistive or Inductive.

Peak Picker
Rise Time
Same as selected Response Time (0.01 to 60 seconds).

Adjustable Decay Rate
0.00 to 300°F (0.00 to 300°C) per second, depending on the instrument model.

Peak Picker Reset
Internal Reset
two Modes: Manual and Auto
External Resetvia contact closure.

Relay Delay Time
1 to 2 milliseconds

Hysteresis
2°F (2°C)

PID Controller with Auto Tune and Deviation Alarms
Pid Output
4 to 20 mAdc isolated.
1000 Ohm maximum.

Remote Set Point
Input Signal 4 to 20 mA, daisy chain compatible.

Internal Set Point
Adjustable over full temperature span of the instrument model.

Proportional Band (P)
0.1 to 200.0%

Reset Rate
(I) - 0.01 to 99.00 repeats per minute with an Off position.

Rate Time
(D) - 0.001 to 9.900 minutes, with Off position.

Load Demand
0 to 100% of output

Manual Adjust
0.0 to 100.0% of output

Deviation Alarm Set Points
Adjustable for HI and LO set points over full temperature span of instrument model, each with Off position.

Deviation Alarm Output
Relay Outputs for HI and LO Alarms. Use two Form C relay outputs rated at 24 V AC/DC; @ 1 Amp. Resistive or Inductive.
# Model Identification Chart

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**BLOCK A**
- 33 = Modline 3 Series 340

**BLOCK B**
- 05F05 = 150 to 500°F Temperature Range D/50 Resolution

**BLOCK C**
- 0 = Signal Conditioning Peak Picker and Track and Hold

**BLOCK D**
- 0 = Analog Signal Output - 4 to 20mA, 0 to 20mA, and 5mA per degree

**BLOCK E**
- 0 = Digital Communication RS-485 Digital Interface

**BLOCK F**
- 0 = No Controller Output

### BLOCK A - Series Designation
- 32 = 200 Series
- 33 = 340 Series
- 36 = 600 Series
- 37 = 700 Series
- 38 = 800 Series
- 3G = 3G Series
- 3L = 3L Series
- 3R = 3R Series
- 3V = 3V Series

### BLOCK B - Temperature Range, Optical Characteristics and Fiber Optic Options (Check One)

#### 200 Series
- Fiber Optic Options**
- 10 ft (3 m) fiber optic cable
  - 15CF5 = 650 – 1500°F D/30
  - 15CF8 = 650 – 1500°F Extension Tip
  - 20CF6 = 700 – 2000°F D/60
  - 20CF7 = 700 – 2000°F D/30 x D/150
  - 26CF6 = 750 – 2600°F D/30 x D/150
  - 26CF7 = 750 – 2600°F Extension Tip
- ** Emissivity span is restricted to 0.2 to 1.0 for the first 100°F (55°C) for all temperature ranges.

#### 340 Series
- Fiber Optic Options**
- 10 ft (3 m) fiber optic cable
  - 04F05 = 75 – 400°F D/50*
  - 05F05 = 150 – 500°F D/50**
  - 06F05 = 200 – 600°F D/50
  - 10F10 = 300 – 1000°F D/100
  - 15F10 = 500 – 1500°F D/100
- ** Emissivity span is restricted to 0.2 to 1.0 for the first 100°F (55°C) for all temperature ranges.

#### 600 Series SLR Version (cont’d)
- 02F15 = 80 – 200°C D/150*
- 03C15 = 120 – 300°C D/150*
- 04C15 = 160 – 400°C D/150
- 06C15 = 250 – 600°C D/150
- 08C15 = 350 – 800°C D/150
- * Limited range of response time adjustment is 2.00 to 60 seconds.

#### 700 Series – 4.8 to 5.3μ
- 06F05 = 100 – 600°F D/50*
- 10F05 = 200 – 1000°F D/50**
- 15F10 = 500 – 1500°F D/100
- 25F10 = 500 – 2500°F D/100
- 03C05 = 50 – 300°C D/50*
- 06C05 = 100 – 600°C D/50**
- 08C10 = 300 – 800°C D/100
- 13C10 = 300 – 1300°C D/100
- 25C10 = 1000 – 2500°C D/100
- * Limited range of response time adjustment is 0.10 to 60 seconds.

#### 800 Series – 7.92μ (0.3µ Band)
- 08F02 = 75 – 800°F D/20
- 04C02 = 25 – 400°C D/20
- * Limited range of response time adjustment is 0.25 to 60 seconds.

**Note:** Model Selection Chart continued on following page.
Modline 3 Catalog

Model Selection Chart (continued)

<table>
<thead>
<tr>
<th>BLOCK B (cont.)</th>
<th>3G Series SLR Version* – 1.5 to 1.6 µ</th>
</tr>
</thead>
<tbody>
<tr>
<td>18F05 = 500 – 1800°F</td>
<td>D/50</td>
</tr>
<tr>
<td>20F10 = 600 – 2000°F</td>
<td>D/100</td>
</tr>
<tr>
<td>25F15 = 700 – 2500°F</td>
<td>D/150</td>
</tr>
<tr>
<td>10C05 = 250 – 1000°C</td>
<td>D/50</td>
</tr>
<tr>
<td>11C10 = 350 – 1100°C</td>
<td>D/100</td>
</tr>
<tr>
<td>14C15 = 400 – 1400°C</td>
<td>D/150</td>
</tr>
<tr>
<td>* Emissivity span is restricted to 0.3 to 1.0 for the first 100°F (55°C) for all temperature ranges.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BLOCK B (cont.)</th>
<th>3R Series SLR Version – 0.7 to 1.08 µ and 1.08 µ</th>
</tr>
</thead>
<tbody>
<tr>
<td>25F05 = 1300 – 2500°F</td>
<td>D/50</td>
</tr>
<tr>
<td>32F05 = 1800 – 3200°F</td>
<td>D/50</td>
</tr>
<tr>
<td>40F10 = 2000 – 4000°F</td>
<td>D/100</td>
</tr>
<tr>
<td>65F15 = 2500 – 6500°F</td>
<td>D/150</td>
</tr>
<tr>
<td>14C05 = 700 – 1400°C</td>
<td>D/50</td>
</tr>
<tr>
<td>16C05 = 900 – 1600°C</td>
<td>D/50</td>
</tr>
<tr>
<td>20C10 = 1100 – 2000°C</td>
<td>D/100</td>
</tr>
<tr>
<td>24C05 = 900 – 2400°C</td>
<td>D/50</td>
</tr>
<tr>
<td>35C15 = 1500 – 3500°C</td>
<td>D/150</td>
</tr>
<tr>
<td>* Indicates spectral response of 1.00 to 1.20 µ and 1.65 to 1.71 µ.</td>
<td></td>
</tr>
<tr>
<td>** Response time of 0.02 to 60 seconds for all models.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3G Series Fiber Optic Options*</th>
<th>10 ft (3 m) fiber optic cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>22FF5 = 650 – 2200°F</td>
<td>D/30</td>
</tr>
<tr>
<td>22FF8 = 650 – 2200°F</td>
<td>Extension Tip</td>
</tr>
<tr>
<td>25FF6 = 800 – 2500°F</td>
<td>D/60</td>
</tr>
<tr>
<td>25FF7 = 800 – 2500°F</td>
<td>D/30 x D/150</td>
</tr>
<tr>
<td>25FF8 = 800 – 2500°F</td>
<td>Extension Tip</td>
</tr>
<tr>
<td>12CF5 = 350 – 1200°C</td>
<td>D/30</td>
</tr>
<tr>
<td>12CF8 = 350 – 1200°C</td>
<td>Extension Tip</td>
</tr>
<tr>
<td>14CF6 = 450 – 1400°C</td>
<td>D/60</td>
</tr>
<tr>
<td>14CF7 = 450 – 1400°C</td>
<td>D/30 x D/150</td>
</tr>
<tr>
<td>14CF8 = 450 – 1400°C</td>
<td>Extension Tip</td>
</tr>
<tr>
<td>* Emissivity span is restricted to 0.3 to 1.0 for the first 100°F (55°C) for all temperature ranges.</td>
<td></td>
</tr>
</tbody>
</table>

| 3L Series** – 1.5 to 1.6 µ and 1.65 to 1.71µ |
|-------------------------------|-------------------------------|
| 10F05 = 500 – 1000°F | D/50 |
| 14F10 = 700 – 1400°F | D/100 |
| 18F10 = 1000 – 1800°F | D/100* |
| 05C05 = 250 – 550°C | D/50 |
| 07C10 = 400 – 750°C | D/100 |
| 10C10 = 550 – 1000°C | D/100* |
| * Indicates spectral response of 1.00 to 1.20 µ and 1.65 to 1.71 µ. |
| ** Response time of 0.02 to 60 seconds for all models. |

<table>
<thead>
<tr>
<th>3R Series Fiber Optic Version</th>
<th>10 ft (3 m) fiber optic cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>25FF5 = 1300 – 2500°F</td>
<td>D/30</td>
</tr>
<tr>
<td>25FF8 = 1300 – 2500°F</td>
<td>Extension Tip</td>
</tr>
<tr>
<td>32FF5 = 1800 – 3200°F</td>
<td>D/30</td>
</tr>
<tr>
<td>32FF8 = 1800 – 3200°F</td>
<td>Extension Tip</td>
</tr>
<tr>
<td>40FF5 = 2000 – 4000°F</td>
<td>D/30</td>
</tr>
<tr>
<td>40FF8 = 2000 – 4000°F</td>
<td>Extension Tip</td>
</tr>
<tr>
<td>65FF6 = 2500 – 6500°F</td>
<td>D/60</td>
</tr>
<tr>
<td>65FF7 = 2500 – 6500°F</td>
<td>D/30 x D/150</td>
</tr>
<tr>
<td>14CF5 = 700 – 1400°C</td>
<td>D/30</td>
</tr>
<tr>
<td>14CF8 = 700 – 1400°C</td>
<td>Extension Tip</td>
</tr>
<tr>
<td>16CF5 = 900 – 1600°C</td>
<td>D/30</td>
</tr>
<tr>
<td>16CF8 = 900 – 1600°C</td>
<td>Extension Tip</td>
</tr>
<tr>
<td>20CF5 = 1100 – 2000°C</td>
<td>D/30</td>
</tr>
<tr>
<td>20CF8 = 1100 – 2000°C</td>
<td>Extension Tip</td>
</tr>
<tr>
<td>24CF6 = 900 – 2400°C</td>
<td>D/60</td>
</tr>
<tr>
<td>24CF7 = 900 – 2400°C</td>
<td>D/30 x D/150</td>
</tr>
<tr>
<td>35CF6 = 1500 – 3500°C</td>
<td>D/60</td>
</tr>
<tr>
<td>35CF7 = 1500 – 3500°C</td>
<td>D/30 x D/150</td>
</tr>
<tr>
<td>3V Series SLR Version* – 0.91 to 0.97 µ</td>
<td></td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td>10F02 = 400 – 1000°C</td>
<td>D/20</td>
</tr>
<tr>
<td>12C05 = 450 – 1200°C</td>
<td>D/50</td>
</tr>
<tr>
<td>* Adjustable range of response time 0.10 to 60 seconds</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3V Series Fiber Optic Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>15CF5 = 500 – 1500°C</td>
</tr>
<tr>
<td>15CF8 = 500 – 1500°C</td>
</tr>
<tr>
<td>† These models are restricted to sensing head ambient temperatures of 50 to 113°F (10 to 45°C) and a minimum emissivity setting of 0.400.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BLOCK C Signal Conditioning</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 = Peak Picker and Track &amp; Hold</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BLOCK D Analog Signal Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 = 4 to 20mA, 0 to 20mA, or 5µA per Degree</td>
</tr>
<tr>
<td>1 = 0 to 10 Vdc</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BLOCK E Digital Communication</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 = RS 485 Digital Interface</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BLOCK F Controller Outputs</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 = None</td>
</tr>
<tr>
<td>1 = PID Controller with deviation alarms and 4 to 20mA isolated output</td>
</tr>
<tr>
<td>2 = 2-Point On/Off Controller with relay outputs</td>
</tr>
</tbody>
</table>

Note: Specifications subject to change without notice.

The Worldwide Leader in Noncontact Temperature Measurement

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