

# IRtec Rayomatic 12

Split Infrared Temperature Transmitter



## INFRARED THERMOMETERS

- ▶ Miniaturized Sensing Head  
Ø14 x 28 mm
- ▶ Ambient Operating Range  
to 85°C (185°F)
- ▶ Temperature Range Up to 600°C
- ▶ Adjustable Emissivity, Range,  
Peak-picker, Valley-picker,  
Averaging
- ▶ Two Wire 4-20 mA  
Linear Current Loop
- ▶ Optics 25:1
- ▶ IP65 (NEMA 4)
- ▶ Accessories for Purging  
and Air Cooling
- ▶ Configurable Smart  
Microcontroller Technology
- ▶ RS-232 or USB for Remote Setup  
and Monitoring



## Introduction

**IRtec Rayomatic 12** is a two-piece infrared thermometer with miniature sensing head and separate electronics. The sensor is so small that it can be installed in nearly every place, but provides the same features as "normal-size" systems. With standard 4-20mA current loop output and a choice of 6:1, 12:1 or 25:1 optics, and 85°C ambient temperature range, the Rayomatic 12 meet most of industrial and automation requirements.

### Operating Principle and Construction

Non-contact temperature measurement is based on the physical principle that all objects have a natural electromagnetic radiation which changes in dependence of their temperature. The intensity of the radiated energy and its characteristic wavelength considerably depend on the objects' temperature. Infrared measurement systems like Rayomatic 12 use special lenses for collecting, focussing and filtering this radiation. An infrared (IR) detector in the ray path then generates from this the respective electrical signal that is linearized and processed in the microprocessor-controlled electronics downstream in the circuit to achieve analog and digital output variables.

### Applications

The IRtec Rayomatic 12 can be used in multiple locations to detect hot spots on moving material. The sensor is suited for plastics, rubber, wood, paper, textile, glass and ceramic, paint, varnish, asphalt, and food applications.

#### \* Paper



#### \* Paint



#### \* Plastic/Rubber



#### \* Electronic Soldering



### Signal Processing

The instrument includes signal processing features including: Emissivity, Peak-Picker, Valley-Picker, Peak Hold, Valley Hold and Averaging all of which are adjustable on the PC using the IRSetup software.

### Report of Calibration

**IRtec Rayomatic** is delivered, on request, with a traceable to the International Standards, Report of Calibration stating the nominal and actual values and the deviation errors.

### RS232/USB & Software

Optional RS232/USB PC adapter and setup software allow to configure most important parameters: emissivity, response time, measuring range, average, peak-picker, decay, peak, valley.

## Software

### IR SETUP - Configuration Software

Compatible with WIN 95/98/2000/XP, the IRSetup software package provides for:

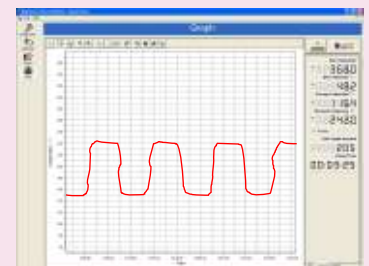
- easy sensor setup and remote controlling via USB or RS232 interface
- adjustment of signal processing functions



### LogMan - Datalogging Software

Compatible with WIN 98/2000/XP, the LogMan software package provides for:

- automatic data logging for analysis and documentation
- graphic display of temperature trends



**BB530221**  
USB adapter for PC



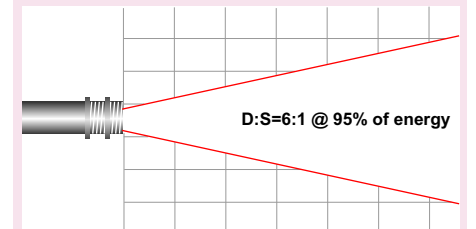
**BB530202**  
RS232 adapter for PC

### Specifications

**Output current:** 2-wire 4/20 mA  
**Response time:** 150 ms (t95)  
**Emissivity:** PC configurable from 0.10 to 1.00 (pre-set to 0.95)  
**Working temperature:**  
*Sensing head:* -10 to +85°C - 10-95% RH non condensing  
*Processor module:* -10 to +60°C - 10-95% RH non condensing  
**Environmental rating:** IP65 (NEMA-4)  
**Accuracy:** ±1% of rdg. or ±1°C  
*Relative accuracy data are stated with operative conditions +23°C ±5°C and emissivity = 1*  
**Temperature drift:** ±0.02% rdg/°C  
*for temperatures exceeding the band +23°C ±5°C*  
**Repeatability:** ±0.5% of rdg. or ±0.5°C  
**Temperature resolution:** 0.1 °C/°F  
**Signal processing:** °C/°F, Peak, Valley, emissivity, range, response time (configurable from PC)  
**Power supply:** 24 Vdc ±10% (from 4-20 mA loop power supply)  
**Storage temperature:** -30°C to +70°C (-20°F to 150°F)  
**Dimensions:**  
*Sensing head for optic 25:1:* Ø14 mm x 28 mm (0.55"x1.10") thread M12 x 1 mm  
*Sensing head for optics 6:1 and 12:1:* Ø15 mm x 36 mm (0.59"x1.42") thread M15 x 1 mm  
*Processor module:* Ø 18 mm x 82 mm (0.7"x3.2")

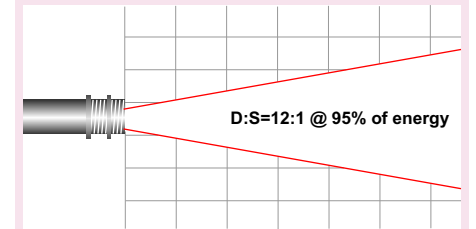
### Optics\*\*

|          |   |     |     |     |     |      |    |
|----------|---|-----|-----|-----|-----|------|----|
| Distance | 0 | 200 | 400 | 600 | 800 | 1000 | mm |
| Target   | 7 | 37  | 65  | 100 | 140 | 180  | mm |



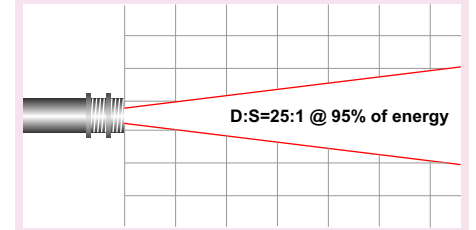
|          |      |     |     |     |     |     |     |
|----------|------|-----|-----|-----|-----|-----|-----|
| Distance | 0    | 8   | 16  | 24  | 32  | 40  | in. |
| Target   | 0.28 | 1.5 | 2.6 | 3.9 | 5.5 | 7.1 | in. |

|          |   |     |     |     |     |      |    |
|----------|---|-----|-----|-----|-----|------|----|
| Distance | 0 | 200 | 400 | 600 | 800 | 1000 | mm |
| Target   | 7 | 23  | 35  | 60  | 80  | 100  | mm |

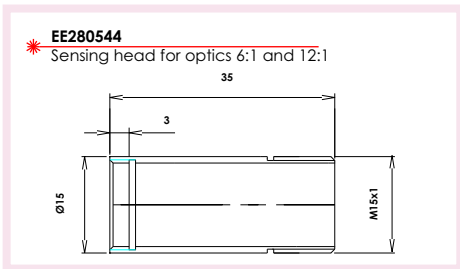
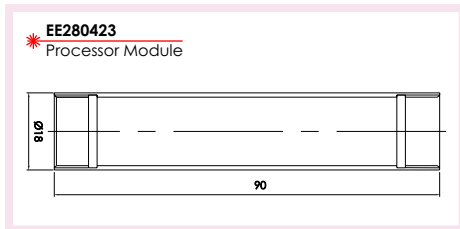
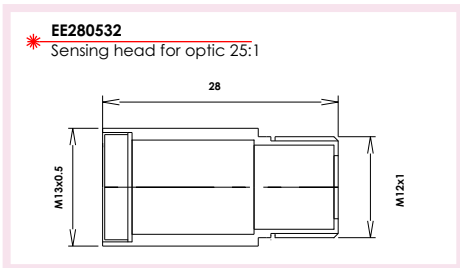


|          |      |     |     |     |     |     |     |
|----------|------|-----|-----|-----|-----|-----|-----|
| Distance | 0    | 8   | 16  | 24  | 32  | 40  | in. |
| Target   | 0.28 | 0.9 | 1.4 | 2.4 | 3.2 | 4.0 | in. |

|          |   |     |     |      |      |      |    |
|----------|---|-----|-----|------|------|------|----|
| Distance | 0 | 400 | 800 | 1200 | 1600 | 2000 | mm |
| Target   | 7 | 20  | 30  | 50   | 68   | 86   | mm |



|          |      |     |     |     |     |     |     |
|----------|------|-----|-----|-----|-----|-----|-----|
| Distance | 0    | 16  | 32  | 48  | 64  | 80  | in. |
| Target   | 0.28 | 0.7 | 1.2 | 1.9 | 2.7 | 3.4 | in. |



### Ordering Code

|   |  |
|---|--|
| <b>Code</b>   | <b>Model</b>   |
| 1152  | IRtec Rayomatic 12, two head mounting nuts, two body mounting clips, 1m shielded cable and instruction manual. |
| <b>Table A-B</b>  | <b>CWL</b> <b>Range*</b> <b>Ø Target / Distance**</b> <b>D:S</b>   |
| 814 - 1   | 8-14µm      0 to 600°C (32 to 1100°F)      65@400mm      6:1   |
| 814 - 2   | 8-14µm      0 to 600°C (32 to 1100°F)      35@400mm      12:1  |
| 814 - 3   | 8-14µm      0 to 600°C (32 to 1100°F)      30@800mm      25:1  |
| <b>Table C</b>  | <b>Signal Output</b>   |
| 1   | 2-wire linear 4-20mA   |
| <b>Table D</b>  | <b>Option</b>  |
| 0   | None   |
| 1   | RS232 PC adapter cable + Windows Setup software  |
| 2   | Head to electronics cable 3 m. (instead of 1 m.)   |
| <b>Table E</b>  | <b>Electrical Connections</b>  |
| 1   | 1m long shielded cable (PVC max 105°C)   |
| 2   | 8m long shielded cable (PVC max)   |
| <b>Table F</b>  | <b>Calibration Certificate</b>   |
| 0   | None   |
| 1   | NIST / EA traceable with   |
| 1152 - 814-2 - 1 - 2 - 1 - 1      Typical ordering code |  |

### Accessories



**BB290195**  
IRSetup Software

**BB290196**  
LogMan Software


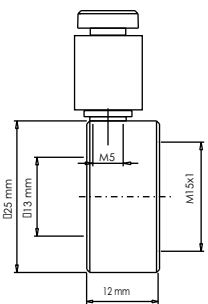
\* Temperature range can be programmed using the setup software to a minimum 200°C span.  
 \*\* Target measured @95% of energy

**Accessories**


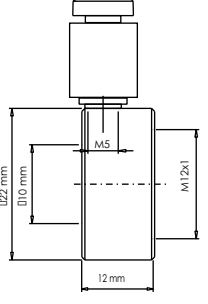
**Models 814-1 and 814-2**

**Model 814-4**


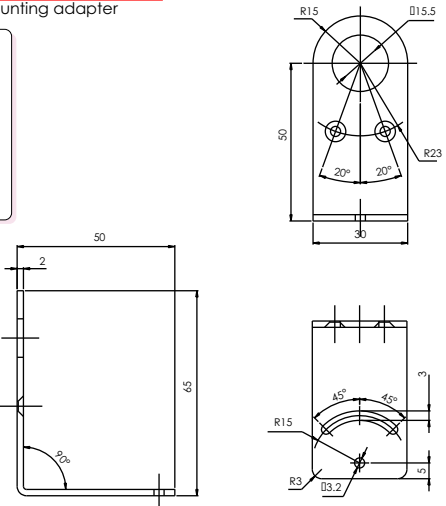
**EE290124**  
\* Standard air purge


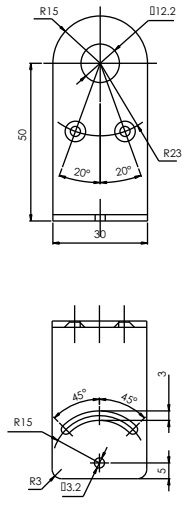
**EE290148**  
\* Standard air purge


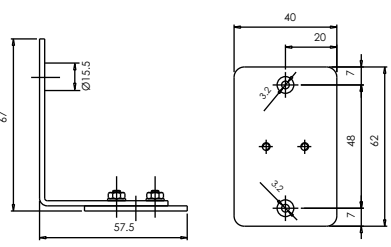
**EE290123**  
\* 90° square mounting adapter


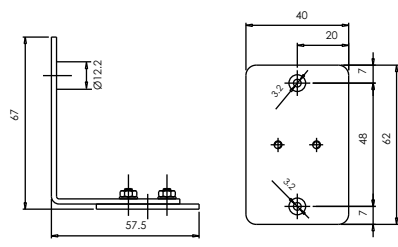
**EE290147**  
\* 90° square mounting adapter

**EE290125**  
\* 2D adjustable mounting adapter

**EE290149**  
\* 2D adjustable mounting adapter


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