

IRtec Rayomatic 40

Smart Non-Contact IR Process Thermometers



INFRARED THERMOMETERS

- ▶ Temperature Range Up to 2000°C (3630°F)
- ▶ Two Wire 4/20 mA
Linear Current Loop TRX
- ▶ Serial Communication for
Configuration Set-up and
Data Logging
- ▶ Built-in Laser
- ▶ Optional Pinpointing
with Remote Control
- ▶ Traceable Report of Calibration
- ▶ Windows™ Software for
Remote Setup and Data Logging



Introduction

Eurotron **IRtec** Rayomatic series of microcontroller based smart temperature transmitters represents a real innovative step in non contact temperature measurement.

A compact, high technology, fully modular, designed to meet all application requirements by offering high performance and advanced functionality.

An optional laser aiming system simplify the identification of the measuring surface area.

IRtec Rayomatic is a 2-wire current loop (4-20 mA) transmitter and it can digitally communicate connecting to the same current loop. This features allows networked control and communication from a PC RS-232 serial port using a PCHRT/RS-232 adapter.

■ Laser Pinpointing

Each **IRtec** Rayomatic transmitter can be optionally equipped with a laser pinpointing system to simplify alignment operation. When the target has small and critical dimensions the laser aiming system can be activated by the process operator to verify appropriate alignment.

■ Digital Communication

The smart **IRtec** Rayomatic uses a digital communication method superimposed on the 2 wire 4-20 mA current loop to communicate with PCs, lap-tops and/or handheld communicators. The communication capability also means that a PC can be used both for remote calibration and transmitter operative mode configuration.

The digital protocol operates using the frequency shift keying (FSK) principle, which is based on the Bell 202 communication standard where sine waves are superimposed on the DC analog signal to gives simultaneous analog and digital communication.

■ 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.

Applications

The **IRtec** Rayomatic 40 series of thermometers are suitable for a wide range of manufacturing and processing industries such as: ferrous and non-ferrous metals, glass, minerals, ceramics, chemicals, incinerators, electronics and research and development.

* Melting



* Research and Development (-70°C application)



* Metal Treatments



* Incinerator



Software

IR SETUP - Configuration Software

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

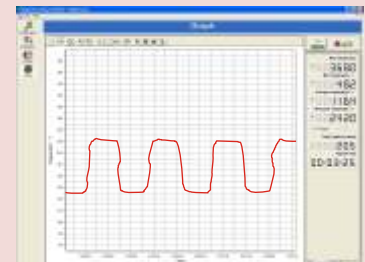
- easy sensor setup and remote controlling via USB or RS232 interface
- adjustment of signal processing functions
- programming of the 4-20mA signal



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



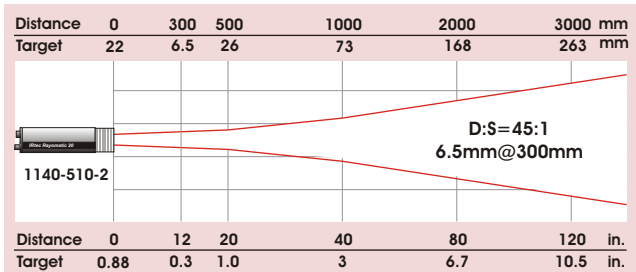
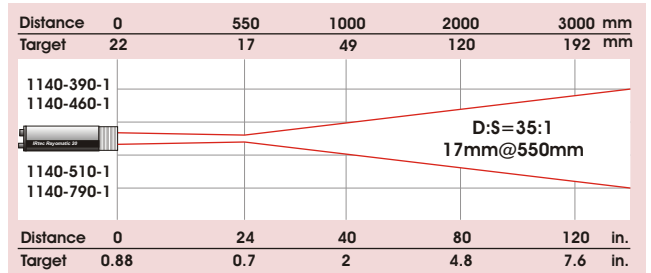
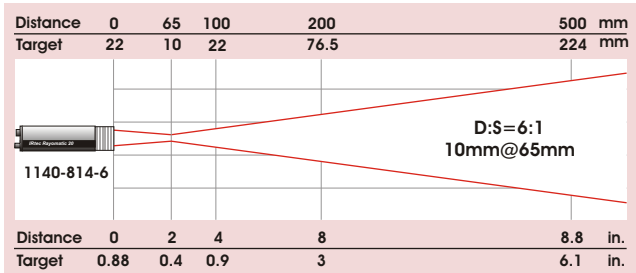
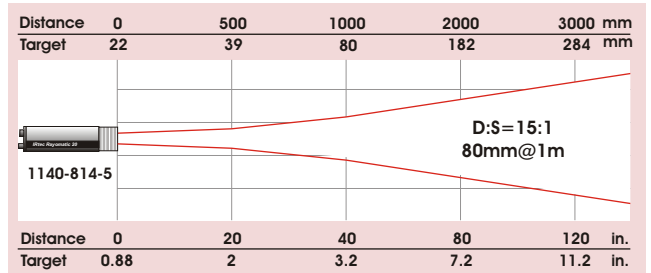
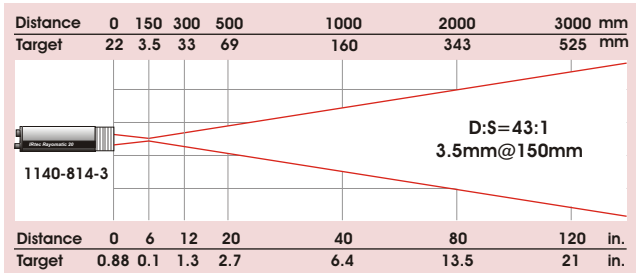
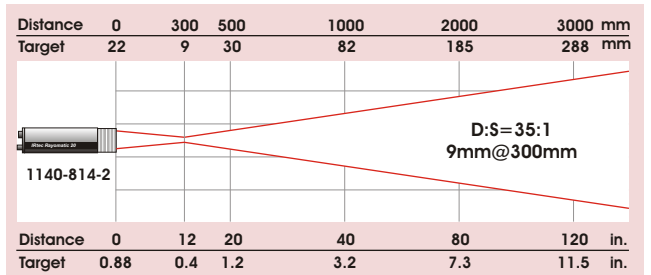
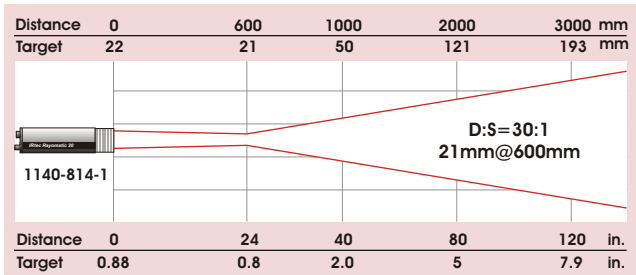
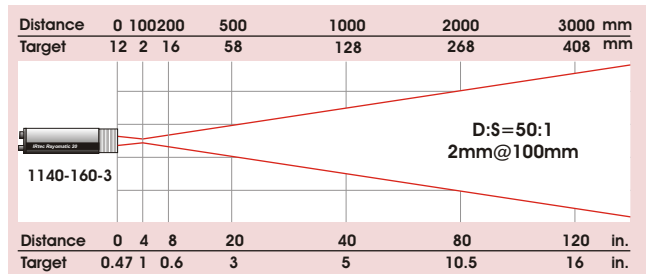
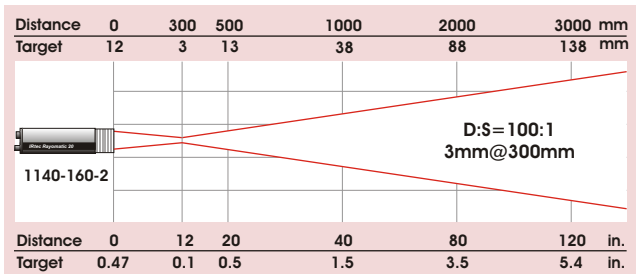
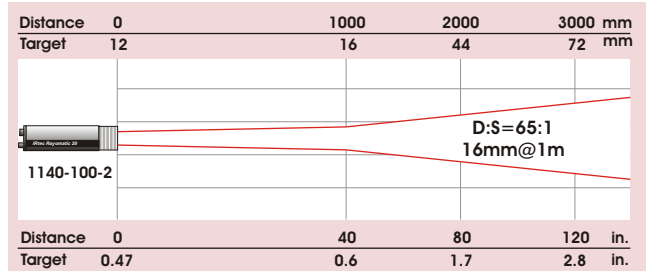
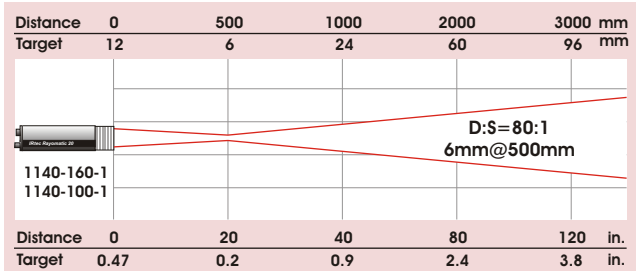
BB530207
RS232/USB
adapter for PC



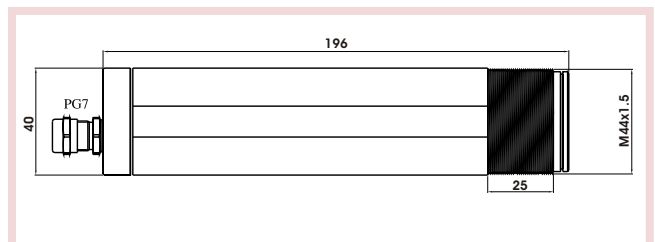
BB530200
RS232 adapter
for PC

OPTICS

Nominal target @ 95% energy



Body Scheme



Specifications
Ordering Code
Response time:

100&160 Models: 28 ms (t95)

343 & 790 Models: 1 s (t95)

Other Models: 100 ms (t95)

Target pinpointing:

optional on-board laser aiming system with remote command

Emissivity:

adjustable from 0.30 to 1.00 by PC

Working Temperature:

-20 to +60°C (0 to 50 for laser operations)

Environmental rating:

IP65(Nema-4)

Accuracy:

100&160 Models: ±0.5% of the reading

Other Models: ±1% of the reading or ±1°C whichever is greater

Relative accuracy data are stated with operative conditions +23°C ±5°C and emissivity = 1.

Temperature drift:

± 0.45°C/°C for *t* Temperature exceeding the band +23°C ±5°C.

Repeatability:

100&160 Models: ±0.25% of the rdg

Other Models: ±0.5% of the rdg

Signal processing:

°C/°F, averaging, peak picking

Digital communication:

Bell202 superimposed on 2-wire current loop. RS232 with optional adapter.

Maximum load:

700 ohm on signal current loop

Power supply:

12-32 Vdc (4-20 mA loop power)

12-32 Vdc (optional laser pinpointing)

Storage temperature:

814 model: +10 to 70°C

Other Models: -30 to 70°C

Dimensions and weight:

Ø45 mm x 200 mm - 0.5 kg nett

Code

1140 IRtec Rayomatic 40, two mounting nuts, calibration certificate and instruction manual.

| Table A-B | CWL | Ø vs. Distance *** | Range |
|-----------|------------|--------------------|-----------------------------------|
| 100-1 | 0.9 µm | 6 mm @ 500 mm | 600°C to +1600°C (1100 to 2900°F) |
| 100-2 | 0.9 µm | 16 mm @ 1 m | 600°C to +1600°C (1100 to 2900°F) |
| 160-1 | 1.6 µm | 6 mm @ 500 mm | 300°C to +1300°C (570 to 2350°F) |
| 160-2 | 1.6 µm | 3 mm @ 300 mm | 300°C to +1300°C (570 to 2350°F) |
| 160-3 | 1.6 µm | 2 mm @ 100 mm | 300°C to +1300°C (570 to 2350°F) |
| 814-1 | 8-14 µm | 21 mm @ 600 mm | -25°C to +1000°C (-15 to 1800°F) |
| 814-2 | 8-14 µm | 9 mm @ 300 mm | 0°C to +1000°C (32 to 1800°F) |
| 814-3 | 8-14 µm | 3.5 mm @ 150 mm | 0°C to +1000°C (32 to 1830°F) |
| 814-5** | 8-14 µm | 80 mm @ 1 m | 0 to +800°C (32 to 1450°F) |
| 814-6** | 8-14 µm | 10 mm @ 65 mm | 0 to +400°C (32 to 750°F) |
| 343-1 | 3.43 µm | 26 mm @ 500 mm | +100°C to +400°C (210 to 750°F) |
| 390-1 | 3.9 µm | 17 mm @ 550 mm | 600°C to +1300°C (1100 to 2370°F) |
| 460-1 | 4.2-4.8 µm | 17 mm @ 550 mm | 400°C to +1600°C (750 to 2900°F) |
| 510-1 | 5.1 µm | 17 mm @ 550 mm | 150°C to +1300°C (300 to 2370°F) |
| 510-2 | 5.1 µm | 6.5 mm @ 300 mm | 800°C to +2600°C (1470 to 3630°F) |
| 790-1 | 7.9 µm | 17 mm @ 550 mm | 100°C to +1000°C (210 to 1830°F) |

Table C Signal Output

2 smart 2 wire 4/20 mA with digital communication

Table D Pinpointing System

0 none
1 laser pinpointing with remote command

Table E Electrical Connections

0 none
1 2m long shielded cable
2 8m long shielded cable
9 length on request

Table F Report of Calibration

1 Traceable NIST or EA with data

1140-100-1-2 - 1 - 1 - 1 Typical ordering code

*Accuracy data unchanged up to a target obscuration of 90/95% (or equivalent smaller dimensions of target surface area).

**Optional laser pinpointing system not available.

***Data verified at 95% of received energy.

***Multiply the actual target by 1.2 when optional laser pinpointing is installed.

The output signal can be scaled at 4 a 20 mA to obtain a measuring span of 200°C.

Accessories

The thermometer is protected with an aluminum case and it is able to be used in the most severe industrial environments with IP65 protection. Accessories are available for air purge, cooling jacket system, supports, flanges and sighting tubes.

| | | | | | |
|-----------------|---|-----------------|-----------------------------|-----------------|-----------------------------|
| EE290075 | Water cooling jacket | EE280114 | Sighting tube L=150 mm ¾" | EE280279 | Sighting tube L=600 mm 1" ½ |
| EE290076 | Compact air purge M44P | | Inconel 600 - 800°C | | Inconel 600 - 800°C |
| EE290077 | Compact air purge P | EE280222 | Sighting tube L=300 mm ¾" | EE280059 | Sighting tube L=300 mm 1" ½ |
| EE290078 | Compact air purge 1" BSPPP | | Inconel 600 - 800°C | | AlSi 304/310 - 800°C |
| EE290079 | Compact air purge 1" ½ BSPPP | EE280281 | Sighting tube L=150 mm ¾" | EE280278 | Sighting tube L=600 mm 1" ½ |
| EE280113 | Flange from 1" ½ BSPP male to ¾" BSPP female - AISI 304 | | AlSi 310 - 800°C | | AlSi 304/310 - 800°C |
| EE280223 | Flange from 1" ½ BSPP male to ¾" BSPP female - AISI 304 | EE280280 | Sighting tube L=300 mm ¾" | EE280215 | Sighting tube L=600 mm 1" ½ |
| EE280292 | Flange from 1" ½ BSPP male to ¾" BSPP female - AISI 304 | | AlSi 310 - 800°C | | Alumina - 1500°C |
| EE280115 | Flange through hole 1" ½ BSPP | EE280137 | Sighting tube L=400 mm 1" ¼ | EE280217 | Sighting tube L=450 mm 1" ½ |
| EE280282 | Flange through hole 1" ½ BSPP | | Inconel 600 - 800°C | | Silicon Carbide - 1500°C |
| | | EE280212 | Sighting tube L=300 mm 1" ½ | EE280216 | Sighting tube L=600 mm 1" ½ |
| | | | Inconel 600 - 800°C | | Alumina - 1500°C |
| | | | | EE280218 | Sighting tube L=450 mm 1" ½ |
| | | | | | Silicon Carbide - 1500°C |