

IRtec Rayomatic 20

Non-Contact Process IR Temperature Transmitter



INFRARED THERMOMETERS

- ▶ Temperature Range Up to 1600°C (2912°F)
- ▶ Two Wire 4/20 mA Linear Current Loop
- ▶ Optional Built-In Laser Pinpointing with Remote Control
- ▶ Compact and Rugged Design IP65 (NEMA-4)
- ▶ Different Optics Available



All descriptions are related to a fully optioned instrument. See last page for the different configurations.

Introduction

The Eurotron **IRtec Rayomatic 20** series of non-contact infrared thermometers are compact, rugged, and reliable instruments designed with a modularity concept to meet a wide range of application requirements.

■ Principle of Operation

All object surfaces emits infrared energy. The hotter an object is, the more active its molecules are, and the more infrared energy it emits.

An infrared thermometer incorporate optics that collect the radiant infrared energy from the object and focus it onto a detector. The detector converts the energy into an electrical signal, which is amplified, digitally converted and linearize to be available as a linear electrical output signal from 4 to 20 mA. The temperature of the body can therefore be determined by measuring the intensity of this infrared energy.

■ Electronic Module

The **IRtec Rayomatic 20** represents the cutting-edge in non contact temperature measurements. The rugged treaded enclosure includes an integrated sensor with various spectral response choices for standard and specialized applications. The thermometer has a 4/20 mA output signal linear with the measuring range and can be used connected with standard indicator, data acquisition and control systems (e.g. PLC, DCS, indicators, etc.).

■ Adjustable Emissivity

The infrared energy emitted by a surface differs according to its composition and physical condition. The parameter used to characterize the object surface, is called emissivity. The **IRtec Rayomatic 20** includes two rotary switches for emissivity settings. The emissivity value can be adjusted from 0.20 to 1.00.

■ Target laser pinpointing

Each **IRtec Rayomatic 20** 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 check the appropriate alignment.

■ Report of Calibration

Each instrument can be shipped with a traceable Report of Calibration stating the nominal and actual values and the deviation errors.

■ EMC Compatibility

The **IRtec Rayomatic 20** is designed and fully tested in compliance with the Directive n. 89/336/CEE Electromagnetic Compatibility.

■ Quality System

Research, development, production, inspection and certification activities are defined by methods and procedures of Eurotron Quality System. Eurotron Quality System has been inspected in compliance with ISO 9001 by Gastec.

Applications

The **IRtec Rayomatic 20** 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, electronics and research and development.

* Steel Production



* Glass



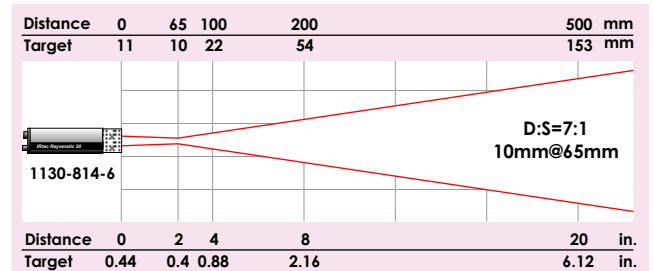
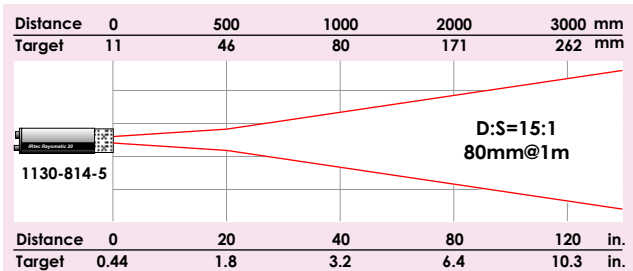
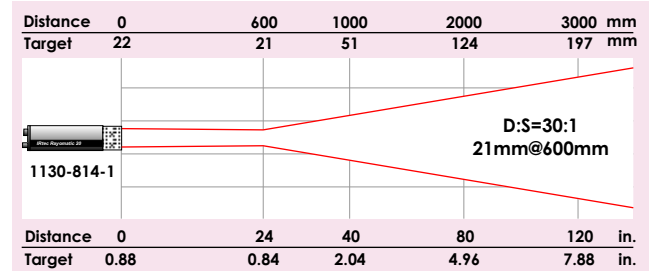
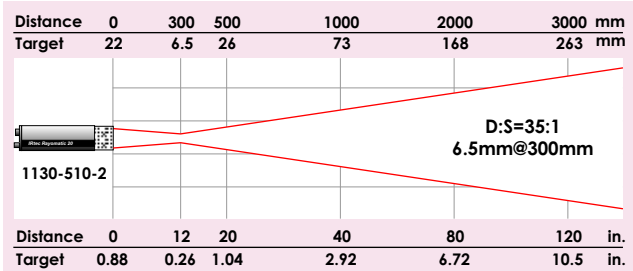
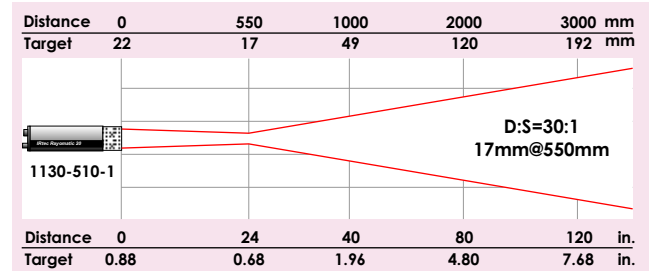
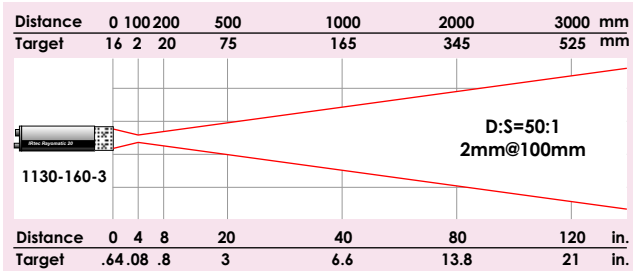
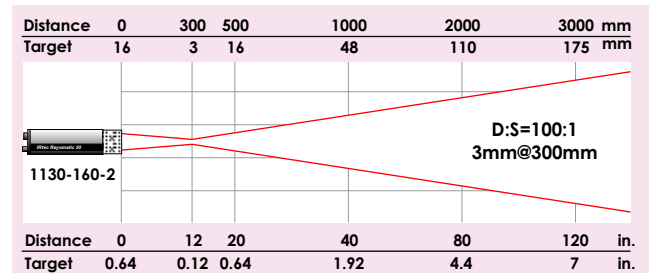
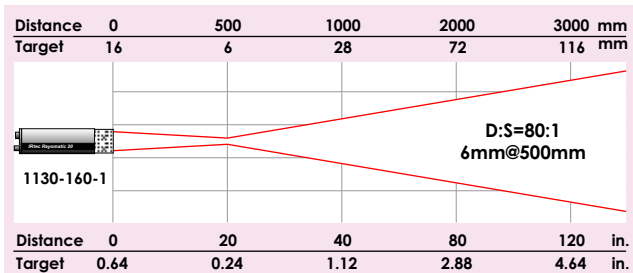
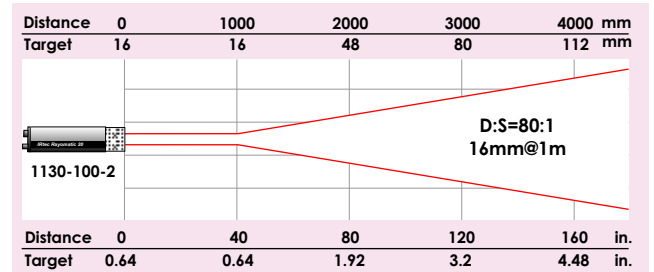
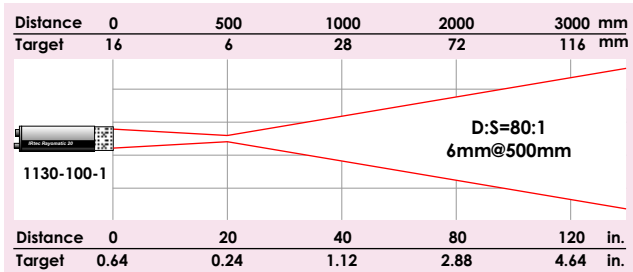
* Heating1



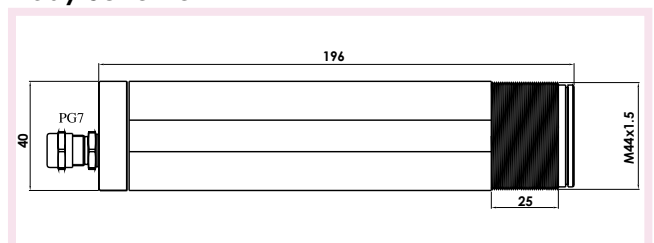
* Heating



Optics*



Body Scheme



* Targets are calculated @ 95% of energy

Ordering Code

Specifications

Code
1130 IRtec Rayomatic 20, two mounting nuts and instruction manual.

Table A	CWL	Ø vs. Distance**	Range
100 - 1	0.9µm	6mm @ 500mm	600 - 1600°C (1100 - 2900°F)
100 - 2	0.9µm	16mm @ 1m	600 - 1600°C (1100 - 2900°F)
160 - 1	1.6µm	6mm @ 500mm	300 - 1300°C (570 - 2350°F)
160 - 2	1.6µm	3mm @ 300mm	300 - 1300°C (570 - 2350°F)
160 - 3	1.6µm	2mm @ 100mm	300 - 1300°C (570 - 2350°F)
510 - 1	5.1µm	17mm @ 550mm	150 - 1300°C (300 - 2350°F)
510 - 2	5.1µm	6.5mm @ 300mm	800 - 2000°C (1470 - 3630°F)
814 - 1	8-14µm	21mm @ 600mm	-25 - 1000°C (-15 - 1800°F)
814 - 5	8-14µm	80mm @ 1m	0 - 800°C (32 - 1470°F)
814 - 6	8-14µm	10mm @ 65mm	0 - 400°C (32 - 750°F)

Table B Signal Output
 1 2 wires linear 4-20mA

Table C Pinpointing System
 0 none
 1 laser with remote command

Table D Electrical Connections
 0 none
 1 2m long shielded cable
 2 8m long shielded cable
 9 length on request

Table E Report of Calibration
 0 None
 1 NIST Traceable Certificate with data

1130 -100-1-1 - 1 - 1 - 1

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

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	EE280280 Sighting tube L=300 mm ¾"
EE290076 Compact air purge M44P	AISI 310 - 800°C
EE290077 Compact air purge P	EE280137 Sighting tube L=400 mm 1" ¼
EE290078 Compact air purge 1" BSPPP	Inconel 600 - 800°C
EE290079 Compact air purge 1" 1/2 BSPPP	EE280212 Sighting tube L=300 mm 1" ½
EE280113 Flange from 1" ½ BSPP male to ¾" BSPP female - AISI 304	Inconel 600 - 800°C
EE280223 Flange from 1" ½ BSPP male to ¾" BSPP female - AISI 304	EE280279 Sighting tube L=600 mm 1" ½
EE280292 Flange from 1" ½ BSPP male to ¾" BSPP female - AISI 304	Inconel 600 - 800°C
EE280115 Flange through hole 1" ½ BSPP	EE280059 Sighting tube L=300 mm 1" ½
EE280282 Flange through hole 1" ½ BSPP	AISI 304/310 - 800°C
EE280114 Sighting tube L=150 mm ¾"	EE280278 Sighting tube L=600 mm 1" ½
Inconel 600 - 800°C	AISI 304/310 - 800°C
EE280222 Sighting tube L=300 mm ¾"	EE280215 Sighting tube L=600 mm 1" ½
Inconel 600 - 800°C	Alumina - 1500°C
EE280281 Sighting tube L=150 mm ¾"	EE280217 Sighting tube L=450 mm 1" ½
	Silicon Carbide - 1500°C
	EE280216 Sighting tube L=600 mm 1" ½
	Alumina - 1500°C
	EE280218 Sighting tube L=450 mm 1" ½
	Silicon Carbide - 1500°C

Response time:

100&160 Models: 28 ms (t95)
814 Model: 100 ms (t95)
510 Models: 100 ms (t95)

Target pinpointing:

optional on-board laser aiming system with remote command

Emissivity:

adjustable from 0.30 to 1.00 with rotary switches

Working temperature:

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

Environmental rating:

IP65 (NEMA-4)

Accuracy:

100&160 Models: ±0.5% of the reading
510 Model: ±1% of the reading
814 Model: ±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:

±0.02% rdg/°C for temperatures exceeding the band +23°C ±5°C

Repeatability:

100&160 models: ±0.25% of the reading or ±0.5°C whichever is greater
510 Model: ±0.5% of the reading
814 Model: ±0.5% of the reading

Signal processing:

°C/°F, Averaging

Maximum load:

700 ohm on signal current loop

Power supply:

12-32 Vdc (4-20 mA loop power supply)
 12-32 Vdc max. 45 mA (laser target pinpointing system)

Storage temperature:

100, 160 & 510 models -30°C to +70°C
814 Model: +10 to +70°C

Dimensions and weight:

Ø 45 mm x 200 mm - 0.5 kg nett