



RAYOMATIC 40

0.9 / 1.6 / 8-14 / 3.43 / 3.9 / 4.2-4.8 /
5.1 / 7.9 μm smart process infrared
thermometer up to 2000°C, digital
communication signal

The smart process infrared thermometers IRtec RAYOMATIC 40 can measure temperatures up to 2000°C. IRtec RAYOMATIC 40 have a 2-wire 4-20 mA linear output signal with a superimposed digital communication signal.

- 4-20 mA output signal with superimposed digital signal
- Remote control by computer
- Emissivity adjustable by PC
- Advanced signal processing: Emissivity, peak-picker, valley-picker, peak hold, valley hold and averaging
- Optional laser pointing system

Description

The smart process infrared thermometers IRtec RAYOMATIC 40 can measure temperatures up to 2000°C. Compact, rugged and reliable, the different models of the series can be equipped with various optics offering different spectral responses, which meets the requirements of a large number of standard and specialized industrial applications.

IRtec RAYOMATIC 40 have a 2-wire 4-20 mA linear output signal with a superimposed digital communication signal. They can be used as a transmitter and can be easily connected to any standard indicator, data acquisition system or control panel. The digital signal allows communication with a computer or a dedicated communicator, for instrument remote configuration and calibration.



The emissivity value can be adjusted by PC from 0.30 to 1.00.

An optional integrated laser pointer system facilitates the identification of the measured surface area.

Applications:

IRtec RAYOMATIC 40 series is suitable for a wide range of manufacturing and processing industry applications: ferrous and non-ferrous metals, glass, minerals, ceramics, chemicals, electronics and research and development.

Key features:

- 4-20 mA output signal with superimposed digital signal
- Remote control by computer
- Emissivity adjustable by PC
- Advanced signal processing: Emissivity, peak-picker, valley-picker, peak hold, valley hold and averaging
- Optional laser pointing system

Specifications

Infrared temperature measurement

Models	100-1	100-2	160-1	160-2	160-3
Temperature range	600 to 1600°C		300 to 1300°C		
Spectral response	0.9 µm		1.6 µm		
Diameter @ distance	6 mm @ 500 mm	16 mm @ 1 m	6 mm @ 500 mm	3 mm @ 300 mm	2 mm @ 100 mm
Accuracy	±0.5% RDG				
Repeatability	±0.25% RDG				
Response time	28 ms				

Models	814-1	814-2	814-3	814-5	814-6
Temperature range	(-25) to 1000°C	0 to 1000°C		0 to 800°C	0 to 400°C
Spectral response	8 - 14 µm				
Diameter @ distance	21 mm @ 600 mm	9 mm @ 300 mm	3.5 mm @ 150 mm	80 mm @ 1 m	10 mm @ 65 mm
Accuracy	±1% RDG				
Repeatability	±0.5% RDG				
Response time	100 ms				

Models	343-1	390-1	460-1	510-1	510-2	790-1
Temperature range	100 to 400°C	600 to 1300°C	400 to 1600°C	150 to 1300°C	800 to 2000°C	100 to 1000°C
Spectral response	3.43 µm	3.90 µm	4.2 to 4.8 µm	5.1 µm		7.9 µm
Diameter @ distance	26 mm @ 500 mm	17 mm @ 550 mm			6.5 mm @ 300 mm	17 mm @ 550 mm
Accuracy	±1% RDG					
Repeatability	±0.5% RDG					
Response time	1 s	100 ms				1 s

Further features

Emissivity	Adjustable from 0.30 to 1.00
Stability	$\pm 0.45^{\circ}\text{C}/^{\circ}\text{C}$ beyond operating limits
Working temperature	From -20°C to $+60^{\circ}\text{C}$ (0 to 50°C for laser)
Calculation functions	Average, max, min, diff, ambient temperature compensation
Laser	Red pointing laser
Digital communication	Superimposed digital signal to 4-20 mA
Output	4-20 mA 2-wire current loop – max load 700 W

Optics

General specifications

Size	$\varnothing 45 \times 200$ mm
Weight of electronic module	0.5 Kg
Power supply	12 to 32 VDC
Interfaces	RS 232

Environmental specifications

Reference conditions	$23^{\circ}\text{C} \pm 5^{\circ}\text{C}$
Storage conditions	Models 814-x: $+10^{\circ}\text{C}$ to 70°C Further models: -30°C to $+70^{\circ}\text{C}$
IP protection	IP 65

Models and accessories

Instruments:

Ordering code structure: 1140-XXX - A - B - C - D - E / X

Please select the required options from tables A, B... below to define the right device reference.

1140-100 IRtec RAYOMATIC 40_0.9 μm : +600°C to 1600°C

Table A - Range - Optics

- | | |
|---|-----------------------------------|
| 1 | +600 to 1600°C - 6 mm at 500 mm |
| 2 | +600 to 1600°C - 16 mm at 1000 mm |

Table B - Output signal

- | | |
|---|---|
| 2 | Linear 4-20 mA with smart digital communication |
|---|---|

Table C - Pinpointing system

- | | |
|---|---------------------|
| 0 | None |
| 1 | Laser with dot spot |

Table D - 4-20 mA connection cable

- | | |
|---|-----------------------------|
| 1 | 2 m long shielded cable |
| 2 | 8 m long shielded cable |
| 9 | Special length upon request |

Table E - Calibration report

- | | |
|----|--------------------------------------|
| NO | None |
| EC | Factory traceable calibration report |

Table X - Personal settings

- | | |
|-----|----------------------------|
| ENG | English instruction manual |
| FRA | French instruction manual |

1140-160 IRtec RAYOMATIC 40_1.6 μm : +300°C to 1300°C

Table A - Range - Optics

- | | |
|---|---------------------------------|
| 1 | +300 to 1300°C - 6 mm at 500 mm |
| 2 | +300 to 1300°C - 3 mm at 300 mm |
| 3 | +300 to 1300°C - 2 mm at 100 mm |

Table B - Output signal

2 Linear 4-20 mA with smart digital communication

Table C - Pinpointing system

0 None

1 Laser with dot spot

Table D - 4-20 mA connection cable

1 2 m long shielded cable

2 8 m long shielded cable

9 Special length upon request

Table E - Calibration report

NO None

EC Factory traceable calibration report

Table X - Personal settings

ENG English instruction manual

FRA French instruction manual

1160-814 IRtec RAYOMATIC 40_8-14 μm

Table A - Range - Optics

1 -25 to 1000°C - 21 mm at 600 mm

2 0 to 1000°C - 9 mm at 300 mm

3 0 to 1000°C - 3.5 mm at 140 mm

5 0 to 800°C - 80 mm at 1000 mm

6 0 to 400°C - 10 mm at 65 mm

Table B - Output signal

2 Linear 4-20 mA with smart digital communication

Table C - Pinpointing system

0 None

1 Laser with dot spot

Table D - 4-20 mA connection cable

1 2 m long shielded cable

2 8 m long shielded cable

9 Special length upon request

Table E - Calibration report

NO	None
EC	Factory traceable calibration report

Table X - Personal settings

ENG	English instruction manual
FRA	French instruction manual

1140 510 IRtec RAYOMATIC 40_5.1 μm

Table A - Range - Optics

1	-150 to 1300°C - 17 mm at 550 mm
2	-800 to 2000°C - 8.5 mm at 300 mm

Table B - Output signal

2	Linear 4-20 mA with smart digital communication
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Table C - Pinpointing system

0	None
1	Laser with dot spot

Table D - 4-20 mA connection cable

1	2 m long shielded cable
2	8 m long shielded cable
9	Special length upon request

Table E - Calibration report

NO	None
EC	Factory traceable calibration report

Table X - Personal settings

ENG	English instruction manual
FRA	French instruction manual

1160 IRtec RAYOMATIC 40_Special waveband

Table A - Range - Optics

343-1	3.43 μm - 400 to 1600°C - 17 mm at 550 mm
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390-1	3.9 μm - 600 to 1300°C - 17 mm at 550 mm
460-1	4.6 μm - 400 to 1600°C - 17 mm at 550 mm
790-1	7.9 μm - 40 to 600°C - 17 mm at 550 mm

Table B - Output signal

2	Linear 4-20 mA with smart digital communication
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Table C - Pinpointing system

0	None
1	Laser with dot spot

Table D - 4-20 mA connection cable

1	2 m long shielded cable
2	8 m long shielded cable
9	Special length upon request

Table E - Calibration report

NO	None
EC	Factory traceable calibration report

Table X - Personal settings

ENG	English instruction manual
FRA	French instruction manual

Accessories:

Air Purge and Miscellaneous

EE280315	DN100 1" 1/2 adapter flange for EE290075 M44x1.5 + Window holder
EE280328	DN100 flange for EE290075 M44x1.5
EE280329	DN100 1" 1/2 adapter flange for EE290075 M44x1.5
EE290072	2 axis orientable support
EE290074	1 axis orientable support
EE290075	Water cooling system - INOX
EE290076	Air purge system M44x1.5
EE290077	Air purge system unthread
EE290078	Air purge system 1"

EE290079	Air purge system 1"1/2
EE290133	Air cooling system with air purge
EE360009	BK7 window (35 x 2 mm) for EE280315
EE360066	Zaffire window (35 x 2 mm) for EE280315
EE360082	ZnSe window (35 x 2 mm) for EE280315

Flange

EE280223	AISI304 - from 1" 1/2 to 3/4" flange
EE280282	AISI304 - from 1" 1/2 to 1" 1/2 flange BSPP
EE280292	AISI304 - from 1" 1/2 to 1 " 1/4 flange
EE290113	AISI304 - from 1" 1/2 to 3/4" flange

Sighting Tube

EE280059	AISI304 1" 1/2 L=450 mm sighting tube
EE280278	AISI304 1" 1/2 L=600 mm 1" 1/2 sighting tube
EE280280	AISI304 L=300 mm 3/4" sighting tube
EE280281	AISI304 L=150 mm 3/4" sighting tube
EE280564	AISI316 1"1/4 L=400 mm sighting tube

Packing information:

Instrument only

Size 45 mm diameter x 200 mm

Weight (net) 0.5 kg