3i

3i Series Infrared Thermometer

Noncontact Temperature Measurement

Specialized Models for Specialized Applications

Advanced applications and processes need specialized tools like the Raytek 3i IR (infrared) thermometer.
The Raytek 3i series of noncontact thermometers measures surface temperature in places other thermometers cannot. With a choice of spectral responses, temperature ranges, laser sighting options and on-board data logging capabilities, the Raytek 3i meets the individual requirements of demanding users.

Raytek®
A Fluke Company

Raytek 3i Series

Overcome the limitations of contact thermometers in manufacturing plants with Raytek 3i series infrared thermometers. For the most accurate readings in hot environments, the 3i thermometer compensates for the energy reflected by the background around the target. Reflected background energy compensation allows for accurate measurement even when the area measured is reflecting energy from nearby objects with higher temperatures; for example, inside a furnace.

Varying spectral responses, laser sighting systems, and distance-to-measurement spot ratios ensure the Raytek 3i temperature measurements are precise.

LT and LR

For maintenance and quality control applications, the Raytek 3i Low Temperature (LT) and Long Range (LR) models are available for various temperature range and optical requirements.

The strong 105:1 distance-to-spot ratio of the 3i LRL2SC thermometer combined with a –30 to 1200°C temperature range and scope permits easy temperature measurements of elevated objects at great distances, such as electrical connectors in towers.

Useful in the following manufacturing situations:

- Utilities
- Electrical Connectors
- Plant Maintenance
- Paper Production
- Fire Safety

1M and 2M

Raytek high temperature infrared thermometers, such as the 3i 1M & 2M models are ideal for foundry and processing operations, such as heat treating, tempering and forging.

Due to the high-resolution 180:1 optics of the Raytek 3i 1M unit, it can take the approximate temperature measurements of molten glass by measuring the surface temperature of the port arch and bridge wall. Measuring the surface temperature of regenerator stacks or furnace melts may also assess the possibility of brick damage.

Ideally suited for:

- Iron
- Steel
- Metal Refining
- Foundry and Processing Operations
- Ceramics
- Semiconductor
- Chemical Furnaces
- Petrochemical Furnaces

G5 and P7

Accurately measure glass and plastics processing with specialized spectral responses using the Raytek 3iG5 or 3iP7 unit.

The 3iG5 model is a 5-micron instrument designed for glass manufacturing and recycling, and is useful for temperature measurements of float sheets and gobs. The 7.9-micron Raytek 3iP7 model is designed for applications in producing and converting film plastics.

Well suited for many processes within glass and plastic manufacturing.

G5
- Tempering
- Annealing
- Forming
- Sealing
- Laminating
- Bending

P7
- Lamination
- Flexo-Printing
- Film Orientation
- Extrusion and Coating
- PET, flouroplastic, Teflon®, acrylic, nylon (polyanide) cellulose, acetate, polyimide, polyurethane, PVC, polycarbonate

Laser Sighting Options

Single Laser (L2)
Single laser models are designed for accuracy over distances and pinpoint the center of the target area with a bright laser spot.

Dual Laser (DL2)
The dual laser uses two laser spots to indicate the diameter of the target area measured.

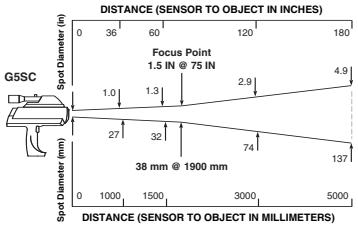
Crossed Laser (CL2)
For precise measurement of smaller targets, minimum measurement spot is indicated at the point the two laser beams meet.

Scope Only (SC) or Scope with Laser (SCL2)
Measure temperature at a distance in bright daylight. At the focus point, 3i scopes are parallax-free and provide circular reticles for pinpoint accuracy. To enhance the sighting capabilities of the scope, combine the scope with a laser equipped model.

Optical Resolutions

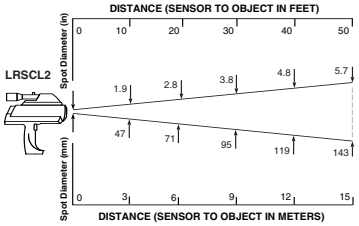
D:S (distance to spot using 90% encircled energy at focal point)

G5SC for Glass



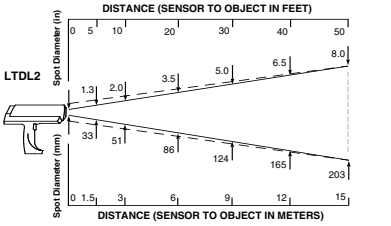
FOCUS POINT D:S = 50:1 FAR FIELD D:S = 30:1
IR Spot Diameter at Lens = 23 mm (0.9 in)

Long Range



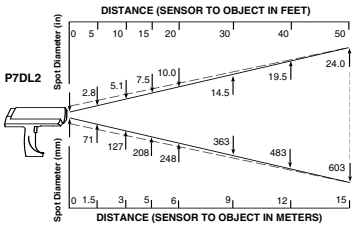
FOCUS POINT D:S = 105:1 @ 15 m (50 ft) FAR FIELD D:S = 90:1
IR Spot Diameter at Lens = 23 mm (0.9 in)

Low Temperature



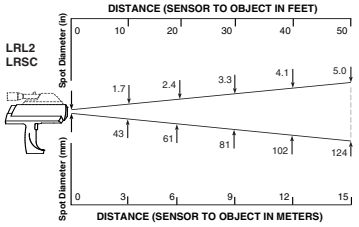
FOCUS POINT D:S = 75:1 @15 m (50 ft) FAR FIELD D:S = 68:1
IR Spot Diameter at Lens = 23 mm (0.9 in) IR Beam Profile
Laser Diameter at Lens = 40 mm (1.6 in) Laser Profile

P7DL for Thin Film Plastics



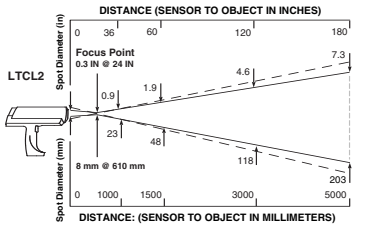
FOCUS POINT D:S = 25:1 @15 m (50 ft) FAR FIELD D:S = 23:1
IR Spot Diameter at Lens = 23 mm (0.9 in) IR Beam Profile
Laser Diameter at Lens = 40 mm (1.6 in) Laser Profile

Long Range



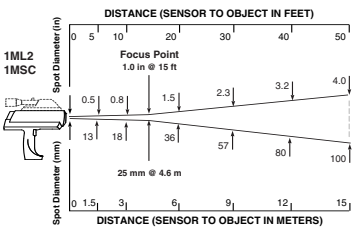
FOCUS POINT D:S = 120:1 @ 15 m (50 ft) FAR FIELD D:S = 100:1
IR Spot Diameter at Lens = 23 mm (0.9 in)

Low Temperature



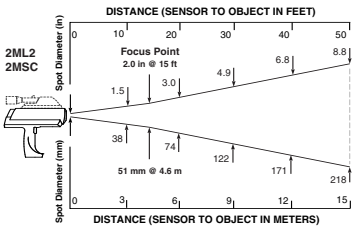
FOCUS POINT D:S = 75:1 FAR FIELD D:S = 20:1
IR Spot Diameter at Lens = 23 mm (0.9 in) IR Beam Profile
Laser Diameter at Lens = 40 mm (1.6 in) Laser Profile

1M for Metals and Molten Glass



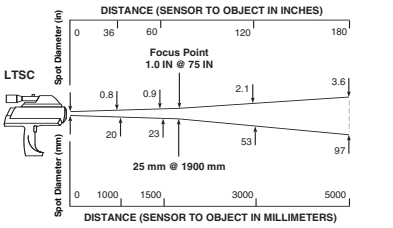
FOCUS POINT D:S = 180:1 FAR FIELD D:S = 140:1
IR Spot Diameter at Lens = 7 mm (0.3 in)

2M for Metals



FOCUS POINT D:S = 90:1 FAR FIELD D:S = 60:1
IR Spot Diameter at Lens = 23 mm (0.9 in)

Low Temperature



FOCUS POINT D:S = 75:1 FAR FIELD D:S = 40:1
IR Spot Diameter at Lens = 23 mm (0.9 in)

3i Models		Low Temp (LT)	Long Range (LR)	1 Micron (1M)	2 Micron (2M)	Glass (G5)	Plastic (P7)
Sighting Options	Single Laser (L2) Class II	-	LRL2	1ML2	2ML2	-	-
	Dual Laser (DL2) Class II	LTDL2	-	-	-	-	P7DL2
	Crossed Laser (CL2) Class II	LTCL2	-	-	-	-	-
	Scope (SC)	LTSC	LRSC	1MSC	2MSC	G5SC	-
	Scope with Laser (SCL2) Class II	-	LRSCL2	-	-	-	-

Specifications and Features

Model	LT	LR	LRSCL2	1M	2M	G5	P7
Temperature Range	-30/1200ºC			600/3000ºC	200/1800ºC	150/1800ºC	10/800ºC
Accuracy	±1% of reading or ±1ºC (±1.5ºF) whichever is greater at 23ºC ±5ºC (73ºF ±9ºF) ambient operating temperature			±0.5% of reading or ±1ºC whichever is greater at 23ºC ±5ºC ambient operating temperature	±1% of reading or ±1ºC whichever is greater at 23ºC ±5ºC ambient operating temperature		
Repeatability	±0.5% of reading or ±1ºC, whichever is greater						
Response Time (95%)	700 mSec			550 mSec		700 mSec	
Spectral Response	8 to 14µm			1.0µm	1.6µm	5µm	7.9µm
Adjustable Emissivity (from 0.1 to 1.0 by 0.01)	✓	✓	✓	✓	✓	✓	✓
Ambient Operating Temperature	0 to 50ºC						
Relative Humidity	10 to 90%, noncondensing @ up to 30ºC						
Storage Temperature	-20 to 50ºC without batteries						
Weight/Dimensions	Laser Models: 208 H x 257 L x 71 W mm / 794 g Scope Models: 244 H x 257 L x 71 W mm / 1000 g						
Power	4 AA batteries or 6 to 9 V, 200 mA DC power supply						
Battery Life (Alkaline)	21–25 hours						
Laser	Models with laser are IEC Class2/FDA Class II (<1mW)						
Reflected Energy Compensation	✓	✓	✓	✓	✓	✓	✓
Distance to Spot (D:S)	75:1	120:1	105:1	180:1	90:1	50:1	25:1
MAX, MIN, DIF, AVG Temperatures	✓	✓	✓	✓	✓	✓	✓
Display Hold	7 Seconds						
Backlit LCD	✓	✓	✓	✓	✓	✓	
Temperature Display	ºC or ºF (selectable), multifunction 4-digit backlit LCD						
Display Resolution	1ºC or 1ºF						
Locking Trigger	✓	✓	✓	✓	✓	✓	✓
Tripod Mounting	✓	✓	✓	✓	✓	✓	✓
Audible/Visible Hi/Lo Alarms	✓	✓	✓	✓	✓	✓	✓
Analog Output	1mV/ºC			1mV/ºC	1mV/ºC		
Digital Output	RS232, 9600 baud, output interval adjustable from 1 to 9999 seconds						
100 Point Data Logging	✓	✓	✓	✓	✓	✓	✓
Options/ Accessories	Nylon carry case with shoulder strap • NIST Certification (Must be specified at time of order) Variable brightness filters (scope and G5 only) • 110V/60Hz or 220V/50Hz voltage adapters Portable printer and cable • Computer, analog, and printer cables • DataTemp 2 software Hard shell case						

www.raytek.com
for up-to-the-minute features

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