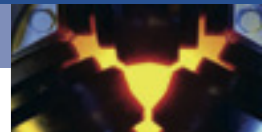# Raytek®/Ircon®
Solutions Guide

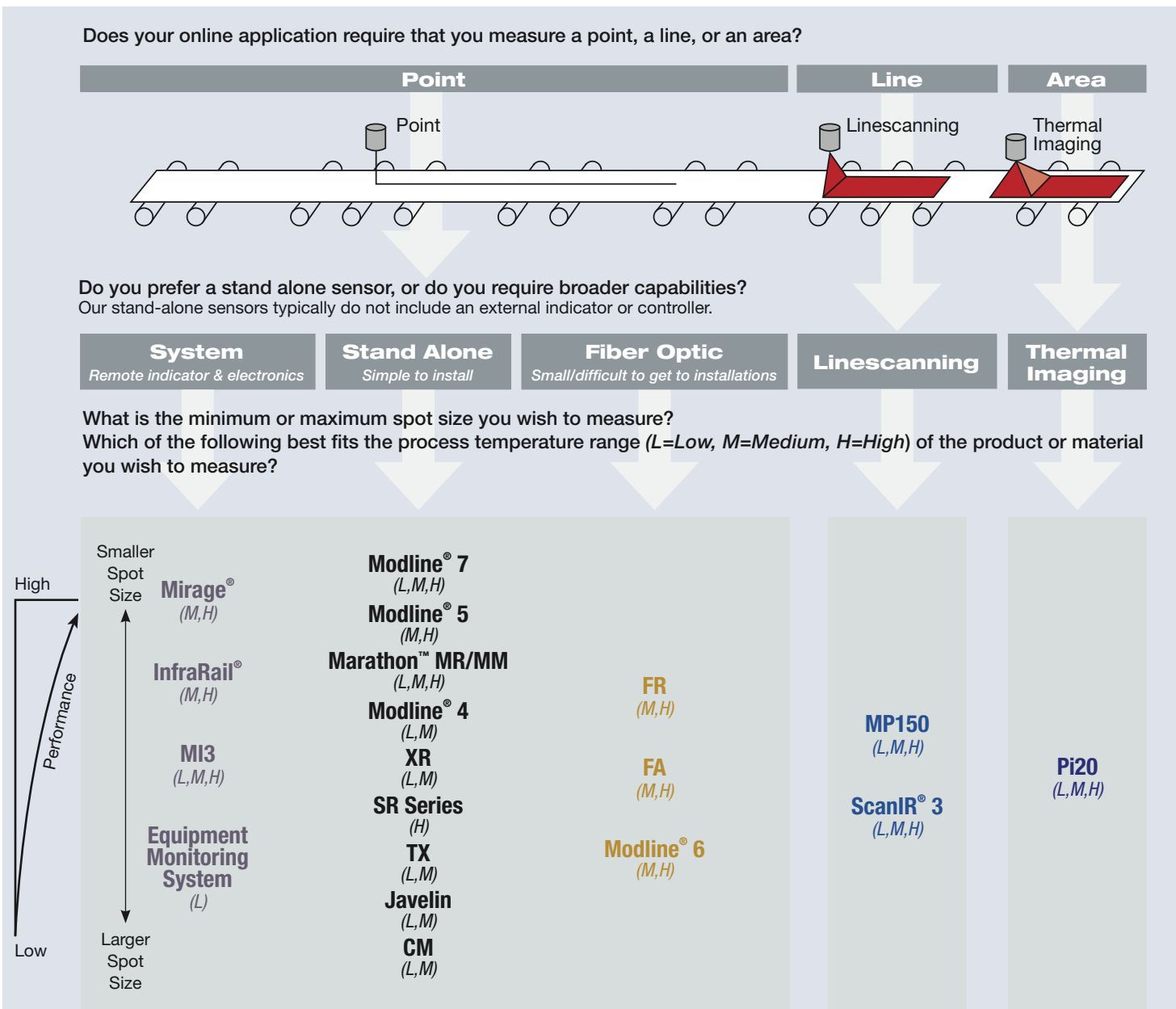**The Worldwide Leader in Noncontact Temperature Measurement**

Raytek and Ircon: IR Innovation is One!

The Raytek-Ircon solution provides a wide range of infrared temperature measurement products, including the industry's most complete line of infrared sensors, linescanners, process imaging systems and fixed thermal imagers. As a Raytek or Ircon customer, you will continue to enjoy the same high level of technical innovation, quality and service as before. With nearly a century of combined IR technology experience, our team is committed to achieving new advancements that will benefit original equipment manufacturers (OEMs) and end-users around the world

Our Applications Engineering Department is ready to assist you with the most demanding temperature measurement requirements. From metal and plastic processing, to the manufacture of glass, paper products, packaging and construction materials, we can meet all of your online process monitoring needs.

Find the right products for your applications

This guide is designed to help you identify the products that meet your application requirements. To learn more about the solutions we offer for your specific application, please contact the product specialist in your area, submit a request to www.ircon.com/tech_request or email support@raytek.com

Does your online application require that you measure a point, a line, or an area?

Point	Line	Area

Point · Linescanning · Thermal Imaging

Do you prefer a stand alone sensor, or do you require broader capabilities?
Our stand-alone sensors typically do not include an external indicator or controller.

System	Stand Alone	Fiber Optic	Linescanning	Thermal Imaging
Remote indicator & electronics	Simple to install	Small/difficult to get to installations		

What is the minimum or maximum spot size you wish to measure?
Which of the following best fits the process temperature range *(L=Low, M=Medium, H=High)* of the product or material you wish to measure?

High — Low

Performance

Smaller Spot Size — Larger Spot Size

Mirage® *(M,H)*

InfraRail® *(M,H)*

MI3 *(L,M,H)*

Equipment Monitoring System *(L)*

Modline® 7 *(L,M,H)*

Modline® 5 *(M,H)*

Marathon™ MR/MM *(L,M,H)*

Modline® 4 *(L,M)*

XR *(L,M)*

SR Series *(H)*

TX *(L,M)*

Javelin *(L,M)*

CM *(L,M)*

FR *(M,H)*

FA *(M,H)*

Modline® 6 *(M,H)*

MP150 *(L,M,H)*

ScanIR® 3 *(L,M,H)*

Pi20 *(L,M,H)*

Typical Product Applications

Following is a matrix of typical applications for our products. To learn more about the solutions we offer for your specific application, please contact the product specialist in your area, submit a request to www.ircon.com/tech_request or email support@raytek.com

Legend: ½orange, orange = **Good**; ½green, green = **Best**

Application	Point Sensors — System				Point Sensors — Stand Alone									Fiber Optic		Line Scanning		Thermal Imaging	Portable	
	EMS	MI3	Mirage	InfraRail	Modline 7	Modline 5	MR/MM	Modline 4	XR	SR Series	TX	Javelin	CM	Modline 6	FR/FA	MP150	ScanIR 3	Pi20	Ultimax Plus	3i
Spot Temperature Monitoring Systems:																				
Molten steel or glass production					½green	green	green							green	½green				orange	orange
Iron or steel forging or annealing			½green	½orange	green	½green	green							green	green				orange	orange
High temperature steel fabricating (forming, machine welding, etc. requiring wide temperature ranges)			orange	orange	½green	green	½green			½orange				green	green				½green	orange
Kiln and vacuum furnace monitoring (difficult, high temp. applications with small targets, dust and/or smoke)			orange		green	green	green			½orange				green	green				½green	orange
Non-ferrous metals			orange		½green	green								½orange	green					
Low temp. metals and small targets		½orange	½green			green	green		orange		½orange	½orange								
Silicon crystal production		orange		orange	½green	green	½green							green	½green					
Hazardous environment						green					green									
Thin film plastics, paints, waxes, oils								green	½green		orange	orange							orange	orange
Furnace walls (for glass melters)		orange		orange				green	½green		orange			green	green					orange
Glass surface temperature (for sealing, bending, annealing, tempering and forming)	orange	orange			½green			½green	green		orange	orange		green						
Thin polyester (PET) films, glass or ceramics								½green	green		orange	orange				green	green			
Paper, food, or textile production (lower temperature applications)	½green	½green			½green			½green	green		orange	½orange	½green			green	green		orange	orange
Thermoforming, calendering, embossing	½green	½green			½green			½green	green		orange	orange	½green						orange	orange
Area Temperature Scanning Thermal Imaging Systems:																				
Continuous web or flat surface processes, such as paper, fabric, panels, sheet metal or glass from a fixed position																½green	½green	orange		
Objects, molds or curved surfaces, including a wide range of materials																green	green	½green		
Construction materials (cement and gypsum)																green	orange			
Plastic film, thermoforming, extrusion, lamination																green	½green			

Summary of Raytek and Ircon noncontact temperature sensing products

Equipment Monitoring System MI3 Modline 7 Modline 5 Modline 4

		EMS	MI3	Mirage	InfraRail	Modline 7	Modline 5	MR/MM	Modline 4	XR
Will your application require fixed focus or an adjustable focus lens?	Fixed	X	X		X	X		X	X	X
	Adjustable			X	X	X	X	X		
What is the response time required for proper control monitoring?	Range up to in seconds	130ms	10ms	10ms	10ms	2ms	6ms	1ms	150ms	150ms
What type of output from our sensor does your application/controller require?	Analog		4–20mA, 0-5/ 10Vdc J, K, t/c	4–20mA, 0-20mA 0-10Vdc	4–20mA loop power	4–20mA, 0-20mA	4–20mA	4–20mA	4–20mA loop power	4–20mA, 0-5V J/K t/c
	Serial	USB/RS-485	USB/RS-485 Modbus, Profibus, Ethernet, Profinet			RS-485	RS-485	RS-485		RS-485
What temperature range do you need to measure?		-40-600ºC (-40-1112ºF)	-40-1800ºC (-40-3272ºF)	80-3500ºC (150-6500ºF)	375-3000ºC (700-5432ºF)	-40-3000ºC (-40-5432ºF)	50-3000ºC (122-5432ºF)	-40-3000ºC (-40-5432ºF)	-50-1300ºC (-58-2600ºF)	-40-1650ºC (-40-3002ºF)
What is the minimum or maximum spot size you require?		D:S 10:1	D:S 100:1	D:S 300:1	D:S 300:1	D:S 300:1	D:S 300:1	D:S 300:1	D:S 30:1	D:S 50:1
Does this product come with or require PC software?		Yes*	Yes*	No	No	Yes*	Yes*	Yes*	No	Yes*
What special features will you require?										
Adjustable emissivity		X	X	X	X	X	X	X	X	X
Peak picker/Valley hold		X	X	X	X	X	X	X	X	X
Adjustable response time			X	X	X	X	X	X	X	
Process alarm capabilities			X	X		X		X		X
Integrated panel-mounted indicator/processor				X						
Remote display (optional)		X	X			X	DPM or MSI	X	X	X
Video camera sighting						X		X		
Dynamic background compensation		X	X			X		X		X
Object linking & embedding for process control (OPC)										
Target sighting				Visible	Visible	Laser/Visible	Laser/Visible	Laser/Visible Camera		Laser
Explosion proof/Intrinsically safe							X			
Dirty window detection						X	X	X		
Fiber Optic Lens										

*For advanced data trending, thermal imaging, or control capabilities. Please refer to software page of this brochure for descriptions.

SR Series	TX	Javelin	CM	Modline 6	FR/FA	MP150	ScanIR 3	Pi20	Ultimax Plus	3i
	X	X	X	X	X	X	X	X	X	X
X									X	
10ms	165ms	165ms	150ms	10ms	10ms	150HZ	150HZ	150HZ	50ms	550ms
4–20mA	4–20mA	4–20mA, 0-5V J/K t/c	0-5V J/K	4–20mA	4–20mA	4–20mA	4–20mA, 0-20mA, 0-10V, Digital I/O	4–20mA	0-1.0Vdc	1mV/°C or 1mV/°F
	RS-485		RS-232	RS-485	RS-485	Ethernet	Ethernet	Ethernet	RS-232	RS-232
700-3500°C (1300-6500°F)	-18-2372°C (0-3600°F)	-20-1300°C (-4-2400°F)	-20-500°C (-4-932°F)	250-3000°C (482-5432°F)	250-3000°C (482-5432°F)	0-2300°C** (32-4172°F)**	0-2300°C** (32-4172°F)**	-40-2000°C (-40-3632°F)	-50-3000°C (-58-5432°F)	-30-3000°C (-22-5432°F)
D:S 150:1	D:S 60:1	D:S 30:1	D:S 13:1	D:S 100:1	D:S 100:1	D:S 200:1	D:S 200:1	Call Application Support	Call Application Support	Call Application Support
No	Yes*	No	Yes*	Yes*	Yes*	Yes*	Yes*	Yes*	Yes	Yes
X	X	X		X	X	X	X	X	X	X
	X	X		X	X	X	X		X	
X		X		X	X	X	X	X	X	
	X			X	X	X	X	X	X	X
X	X	X			X					
						X	X	X		
						X	X	X		
Visible				Laser	Laser	Laser	Laser			
	X									
				X	X					
				X	X					

**Represents the extended temperature range for both the MP150 and ScanIR3 linescanners, standard temperature range for both models is 20–1200°C (68–2192°F).

DataTemp DTPi software screen

*ModView Pro
software screen*

*ModView Configuration
software screen*

*ModView Calibration
software screen*

*DataTemp Multidrop
software screen*

Software Solutions

Thermal Imaging Solutions

DataTemp® DTPi Software

Our companion software for the ThermoView™ Pi20 fixed thermal imager is a fully featured software for process control, process monitoring, and R&D applications. If your application requires that you need to monitor the process, DTPi software provides a variety of displays to show that your process is under control. We have developed solutions targeting a wide range of applications, including among others, incinerator fire detection, hotspots in pressboard manufacturing, solar module testing, coke clinker hotspot monitoring, and hotspot monitoring in tobacco drying.

DTPi software can support up to 16 Pi20 cameras simultaneously, with up to 192 process alarms assigned on each camera. With this PC based software, you can view and analyze live or archived images. In addition, the software interfaces to remote I/O modules to be used as triggering inputs, process alarm and analog outputs. Alarm outputs can be assigned to specific relay outputs for feedback control of your process. Additionally, multiple alarms can be assigned to a specific relay to provide an overall passing condition output.

Spot Infrared Sensors

ModView™ Pro Software

ModView Pro software with built-in user interface displays target temperature and allows for sensor parameter adjustment to configure or fine tune your sensor remotely. You can easily change the temperature display from °F to °C, set or change emissivity levels, scale the range, focus the sensor, and turn on or off filters, such as peak hold, valley hold, and averaging, as well as save data for future reference or graphing. Preset alarms for early warning detection, system on/off control or for quality record keeping are also included.
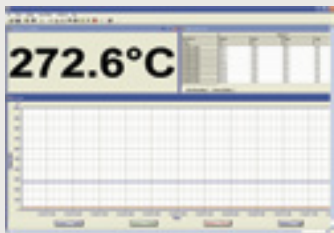
ModView Configuration Software

Shipped with every Modline 5 sensor, this software enables remote configuration and monitoring, and makes initial setup and ongoing setting adjustments easy.

ModView Calibration Software

Designed for Modline 5 users who require periodic verification of sensor calibration, this software, along with a blackbody source and Modline 5 Transfer Standard Unit, helps to assure that other Modline 5 devices are measuring accurately.

Marathon and XR Field Calibration Software

The Field Calibration software detects your Marathon sensor and displays the appropriate screen specific to your sensor. Simply install the software, setup your sensor, and calibrate. The field calibration software allows convenient, reliable calibration of Marathon infrared thermometers.
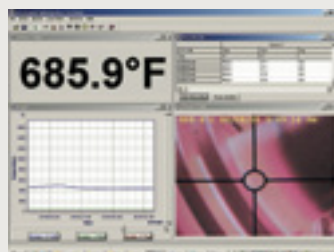
DataTemp® Multidrop Software

The DataTemp MultiDrop configures and monitors data from single or multi-dropped Marathon sensors. Monitor trends with on-screen graphing. Data logging for analysis or for quality record-keeping requirements.

CS210 system software screen

GS150 system software screen

EC150 system software screen
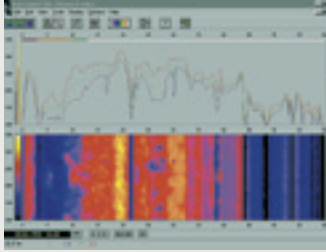

ScanView Pro software screen

Software Solutions

Process Imaging Systems (Raytek)

We offer customized process imaging systems to meet specific application requirements for kiln shell monitoring, gypsum wall board production, thermoforming machine control, extrusion coating and glass processing:
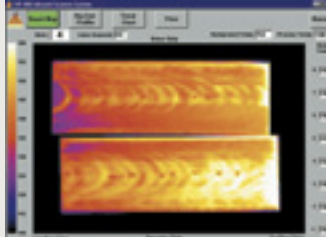
Cement/Lime Kilns—CS210

CS210 is a comprehensive temperature measurement system for monitoring, control and analysis of rotating kiln shells used in cement and lime production.

Glass Processing—GS150/GS150LE

Thermal imaging and analysis for defect detection and quality improvement in glass annealing/tempering and glass bending processes.

Wallboard—TIP450E

Detailed dryer balance analysis and thermal mapping improves board quality, production throughput fuel savings, defect detection and scrap reduction.
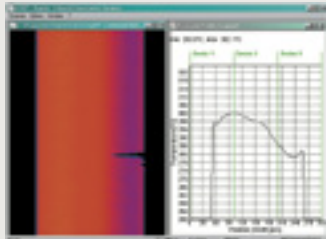
Thermoforming—TF150

Thermal imaging and analysis to reduce scrap, improve product quality and operating economy of thermoforming processes.

Plastic Extrusion—EC150/ES150

Thermal imaging and analysis for real-time defection and quality improvement of plastic extrusion, coating and lamination processes.
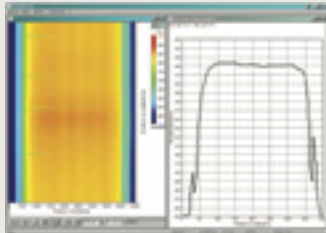
ScanIR3 ScanView™ Pro Software (Ircon)

Real-time thermal imaging is provided by ScanView™ Pro software for temperature monitoring, display and analysis. With ScanView Pro software, you can quickly detect a hot spot or non-uniformity before it becomes a problem.

The ScanView Pro software provides features to subdivide thermal images from the ScanIR3 linescanner into portions of specific interest. Temperatures in each portion can be processed for certain math functions, like average, maximum or minimum temperatures. In case of a thermal defect, the software triggers an alarm.

For interfacing with other control systems, temperatures are available as current or voltage analog outputs by virtue of the analog output modules provided as an option with the processor box. No PC is necessary to provide these outputs.

Product Accessories

Raytek

Ircon

Air and water jackets are rugged housings designed to fully or partially enclose sensing heads from high ambient temperatures up to 315ºC (600ºF).

Air purges are designed to keep the sensor optics clean and free of contaminants.

Mounting bases, flanges, and brackets

Sensor displays

Fiber optic lens assemblies for temperature monitoring from restricted or awkwardly positioned perspectives.

Line scanning and thermal imager enclosures for ambient temperatures up to 1093ºC (2000ºF)

Enclosures for explosion proof and hazardous locations.

The Worldwide Leader in Noncontact Temperature Measurement

www.raytek.com

www.ircon.com

Raytek is an ISO 9001 certified company