

ThermoView™ Pi20



High Performance Thermal Imager for Industrial Applications



ThermoView Pi20 Key Features:

- Real-time thermal imaging for moving or stationary targets
- DataTemp® DTPI thermal imaging software
- Multiple temperature ranges and lens options
- On-board Ethernet
- Full complement of accessories

ThermoView Pi20 Highlights

- ThermoView Pi20 is a rugged thermal imaging camera designed for industrial process control applications. The camera is designed with an IP54 rating.
- ThermoView Pi20 cameras are offered in two temperature ranges: -40°C to 500°C (-40°F to 932°F) and 200°C to 2000°C (392°F to 3632°F). For each temperature range, two lens options are available: 21.7° x 16° or 30° x 22°.
- ThermoView Pi20 provides easy networking over long distances using the standard Ethernet interface. This interface allows for the PC operating the DataTemp Pi (DTPi) software to be located far away. The Ethernet interface transmits up to 30 frames per second of imaging data and also allows for camera control. For long Ethernet cable runs beyond 90m (300ft), additional fiber optic Ethernet accessories are available.
- A full complement of hardware accessories includes:

Protective enclosure: To meet specifications for the demanding environments Raytek® products are typically installed into, an IP65 (NEMA 4) rated enclosure is available with integrated cooling and air purge options.

Integrated Junction Box: Allows I/O modules, power supply, and other accessories to be placed in a DIN rail backplane sealed enclosure.

Industrial power supply: A DIN rail backplane mounted power supply is provided standard with every ThermoView Pi20 camera and is also offered as an accessory. The power supply is capable of operating the ThermoView Pi20 camera, as well as the remote I/O module.

Analog and digital I/O modules: Ethernet based modules provide digital inputs, analog outputs and relay outputs when connected to DTPi software.

Fiber optic Ethernet cable and converters: For extremely long Ethernet cable runs, Raytek offers converters and fiber optic cable options.

Mounting bracket: This allows for easy installation of the ThermoView Pi20 camera. The mounting bracket provides an easy base mounting capability for the Pi20 camera and is also suitable for tripod mounting.

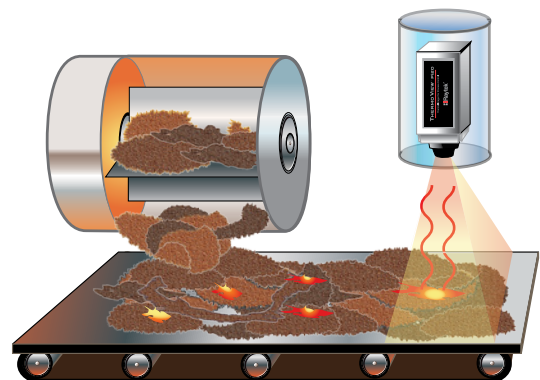
Raytek offers the following software solutions to meet your application requirements:

- The ThermoView Pi20 camera is easily interfaced to the DataTemp DTPi software. This software is fully featured to allow for real time viewing, saving and playback of images from the ThermoView Pi20 camera. The software is intuitive, easy-to-use and is designed to be set up and operational for your application within minutes. 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.
- Raytek also offers a LabVIEW™ based Software Development Kit (SDK) for users who need to develop their own customized software solutions.



The ThermoView Pi20 camera, combined with our easy-to-use, fully featured DataTemp DTPi software, allows us to target applications in furnace refractory monitoring, semiconductor and solar, fire detection and prevention, glass, plastics, automotive, building, food & beverage, and petrochemical manufacturing. In addition, we have developed customized solutions for the following applications:

- Incinerator Fire Detection
- Hotspots in Pressboard Manufacturing
- Solar Module Testing
- Coke Clinker Hotspot Monitoring
- Hotspot Monitoring in Tobacco Drying



ThermoView Pi20 Camera Specifications

	RAYPi20LT		RAYPi20HT
	Ranges below are user selectable		
Measuring range	-40°C to 120°C (-40°F to 248°F)	0°C to 500°C (32°F to 932°F)	200°C to 2000°C (392°F to 3632°F)
Measurement accuracy	±2°C or ±2 % (reading)		
Spectral range	8-14 μm		
Detector	Uncooled focal plane array		
ThermoView Pi20 lens options	21.7°LENS (MA) Manual Focus	30°LENS (MB) Manual Focus	
Field of view	Horizontal	21.7°	30.0°
	Vertical	16.4°	22.7°
I.F.O.V		1.2mrad	1.7mrad
Focus range	300 mm (12 inch) to ∞ (30°, 21.7° Lens)		
Ethernet Frame time	30 frames/sec		
Number of pixels	320 x 240		
Emissivity correction	0.10 to 1.00		
Video output	NTSC/PAL, Composite video		
Interface	Ethernet, RS-232C (requires optional cable accessory)		
LED display	To indicate power is supplied to camera		
Operating temperature	-15°C to 50°C (5°F to 122°F)		
Storage temperature	-40°C to 70°C (-40°F to 158°F)		
Humidity	Up to 90% non-condensing		
Power supply	DC + 12V (nominal)		
Power consumption	8W (Typical) 13W (MAX)		
Shock resistance	294 M/sec ² (30G), (IEC60068-2-27)		
Vibration resistance	29.4 M/sec ² (3G), (IEC60068-2-6)		
Environmental Protection	IP54, (IEC60529)		
Dimensions	Approx 65(W) x 65(H) x 208(D) mm (2.5W x 2.5H x 8.1D inches)		
Weight	Approx 1.0kg (2.20lbs)		

Standard Package Components

ThermoView Pi20 Thermal Imager package includes:

Model	Standard RAYPi20 camera shipment
■ RAYPi20XXXX	RAYPi20 camera
■ XXXPi20PSC	Power supply cable 7.5m (24ft)
■ XXXPi20EC1	Ethernet cable 7.5m (24ft)
■ XXXPi20ECC	Ethernet crossover adapter
■ XXXPi20PS1	Industrial power supply
	Quick Start instructions
	Installation and operations manual and ThermoView start-up software application (TSA) on CD

Raytek
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Field of View Calculator

Select Camera
ThermoView Pi20

Select Units
Meters

Select Lens
30 Degree 14mm

Enter distance to Target
5.00 m

Pixel Size = 0.839 cm x 0.839 cm

2.69 m

2.01 m

5.00 m
Distance to Target

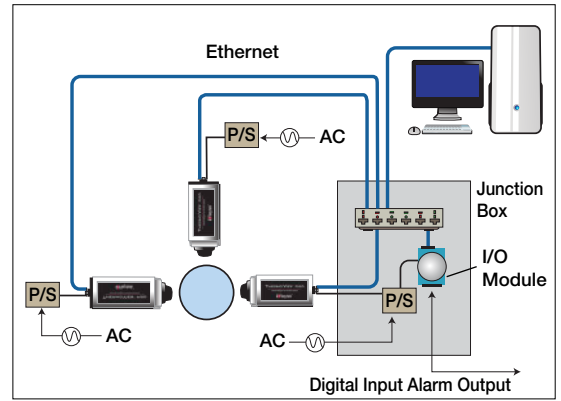
*The calculated pixel size is based on the detector pitch and focal length. Practically, the area on the target remote to the target than that determined by the calculated pixel size. Please refer to the operators manual for additional details.

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ThermoView Pi20 Camera Ordering Information

Cameras

Raytek Model	Description	Field of View
RAYPi20LTMA	-40°C to 500°C (-40°F to 932°F), 21.7° lens	21.7° x 16°
RAYPi20HTMA	200°C to 2000°C (392°F to 3632°F), 21.7° lens	21.7° x 16°
RAYPi20LTMB	-40°C to 500°C (-40°F to 932°F), 30° lens	30° x 22°
RAYPi20HTMB	200°C to 2000°C (392°F to 3632°F), 30° lens	30° x 22°



ThermoView Pi20 multi camera set-up example

Accessories

Part Number	Item	Description
XXXPi20ENCAP	Protective enclosure (water-cooled/air purge)	IP65 Sealing, integrated water cooling 0°C to 200°C (32°F to 392°F). Includes air purge.
XXXPi20PS1	Industrial Power Supply	DIN rail backplane mountable power supply to power a single camera as well as Analog and Digital I/O Modules
XXXPi206060	Digital Input/Relay Output Module	Ethernet based to provide (6) digital inputs and (6) relay outputs
XXXPi206024	Digital I/O and Analog Output Module	Ethernet based providing (2) digital inputs, (2) digital outputs and (2) analog outputs
XXXPi20MB	Mounting Bracket	Includes 1/4-20 holes for tripod mounting
XXXPi20PSC	Power Supply Cable 7.5m (24ft)	7.5m (24ft) Power supply cable
XXXPi20EC1	Ethernet Cable 7.5m (24ft)	7.5m (24ft) Straight Ethernet cable uses the following connectors: (1) IP67 RJ45 (camera) (1) IP20 RJ45 (PC or switch)
XXXPi20EC3	Ethernet Cable 25m (82ft)	25m (82ft) Straight Ethernet cable
XXXPi20ECC	Ethernet Crossover Adapter	Ethernet crossover adapter for direct connect to camera
XXXPi20MC	Fiber Optics Media Converter	Fiber optic to RJ45 Ethernet converter (Requires two for a set)
XXXPi20F01	Fiber Optic Cable 150m (492ft)	150m (492ft) Fiber Optic patch cord
XXXPi20F02	Fiber Optic Cable 300m (984ft)	300m (984ft) Fiber Optic patch cord
XXXPi20SC	Serial Cable	RS-232C Cable optional camera connection
XXXPi20SWH1	5 Port Gigabit Ethernet Switch	5 Port GigE accessory used to allow I/O modules, camera, and PC to be connected on a single network
XXXPi20ECS	Ethernet Cable (short) for Junction Box	Ethernet cable to allow the I/O modules to easily be connected to switch inside Junction Box
XXXPi20CAB	Junction Box	DIN rail backplane designed to contain P/S, I/O modules, switch, etc. (These items must be ordered separately)
XXXPi20CC	Carrying Case	Carrying case designed to contain RAYPi20 camera and standard package components
XXXPi20DTPi	DataTemp DTPi Software	PC based process control/monitoring software
XXXPi20SDK	Raytek SDK	LabView Based SDK (Software Development Kit) for ThermoView Pi20 camera

The Worldwide Leader in Noncontact Temperature Measurement

Raytek Corporation
Worldwide Headquarters
 Santa Cruz, CA USA
 Tel: 1 800 227 8074 (USA and Canada, only)
 1 831 458 3900
solutions@raytek.com

European Headquarters
 Berlin, Germany United Kingdom
 Tel: 49 30 4 78 00 80 Tel: +44 1908 630 800
raytek@raytek.de ukinfo@raytek.com

China Headquarters
 Beijing, China
 Tel: 8610 6438 4691
info@raytek.com.cn

To find a Raytek office near you, please visit www.raytek.com

Worldwide Service

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 For more information, contact your local office or e-mail support@raytek.com



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