

CENTURION MODEL	TK30	TS50L	TS50H	TS100L	TS100H
TYPICAL APPLICATIONS	Rotary Kilns	Aluminium Rolling	Steel Rolling	Electrolytic Refining	Batch Processes
Scanning Rate	20 to 30Hz	10 to 50Hz		10 to 100Hz	
Scanning Field of View	100°	Selectable to 100°		Selectable to 100°	
Aperture	46mm				
Focus	1m to Infinity				
Temperature Range	100-700°C	0-300°C	600-1300°C	0-300°C	600-1300°C
Filter	Atmospheric	Optional	N/A	Optional	Optional
Spectral Range	3.3µm-4.2µm	3.0µm-5.0µm	1.45µm-1.55µm	3.0µm-5.0µm	1.45µm-1.55µm
Spatial Resolution					
Spot Detection (50% modulation)	<1 mrad	2 mrad	1 mrad	2 mrad	1 mrad
Temperature Measurement (90% modulation)	<2 mrad	4 mrad	3 mrad	4 mrad	3 mrad
Thermal Sensitivity					
	8°C at 100°C	2.5°C at 0°C	<0.5°C at 600-800°C <0.25°C at 800-1300°C	2.5°C at 0°C	<0.5°C at 600-800°C <0.25°C at 800-1300°C
Accuracy					
	± 4°C at 100-250°C <1% at 250-700°C	± 1.5°C at 40-100°C ± 1.5% at 100-300°C	<5°C at 600-1300°C	± 1.5% at 100-300°C	<5°C at 600-1300°C
Repeatability					
Short term	<1°C	<1°C	<1°C	<1°C	<1°C
Long term	± 5°C (One Calibration per Year)				
Scanline Stability					
	± 0.1°	± 0.1°	± 0.1°	± 0.1°	± 0.1°
Detector Type	MCT				
Micro Blackbodies					
Ref. 1	100°C	100°C	None	100°C	None
Ref. 2	250°C	250°C	None	250°C	None

SIGNAL PROCESSING	
Digitisation	1 MHz ADC, 14bit, high speed A-D Converter, PosiTrak™ Geometric Linearisation, 1120 Linear Samples/Scan
Electronic Processing	2 x 16bit Micro Processor
Embedded Software	Real Time Averaging, Measurement, Alarms, Zones, Cursor, Max/Min/Mean, Alarm Processing, Temperature Maps, Spot Area Processing, Diagnostics, Interfacing

PC INTERFACING SOFTWARE		PC/Computer	PC/Workstation/Stand Alone			
Windows 95, 98, 2000, NT4		✓	✓	✓	✓	✓
MEMORY						
DRAM	4Mb for Data Storage and Data Processing					
FLASH	512K Bytes Memory					
COMMUNICATIONS						
Isolated Input/Output Signals	RS232C, RS485/422	RS232C, RS485/422	RS232C, RS485/422			RS232C, RS485/422
Baud Rate	RS422/485 1Mbaud	1Mbaud	1Mbaud			1Mbaud

ENVIRONMENTAL DETAILS	
Operating Ambient Temperature Range	- 5°C to + 50°C (please inquire for water cooling)
Operating Ambient Relative Humidity (non-condensing)	93% RH at + 40°C
Enclosure Classification (IEC 529)	IP62
Size (W x H x D) mm	260 x 336 x 340
Weight	
Scanner	25 Kg
Cradle	5.5 Kg
Baseplate	2.6 Kg
Integral Power Supply	Requirements: 100-240V 50-60Hz
Power Consumption	50 Watts, 55 Watts Max, 80 Watts Max

ACCESSORIES	
Filters	
Atmospheric (3.3µm to 4.2µm)	100-700°C
Glass (above 4.8µm)	60-450°C
Plastic (3.43µm)	10-350°C
Custom	180-1000°C
Air Purge	Optional on all Models
Heavy Duty Blower Fan	Optional
Fan Filter Pack including Flow Indicator	Optional on all Models
Internal Heater (-30°C ambient)	Optional on all Models
Water Jacket	Optional on all Models
Alignment Telescope	Optional on all Models
Mounting Cradle	Optional on all Models
Pivot Baseplate	Optional on all Models
Remote I/O Module	Optional on all Models



Thermoteknix Systems Ltd., Mount Pleasant House,
Mount Pleasant, Cambridge CB3 0RN, England
Tel: Int + 44 1223 500 777 Fax: Int + 44 1223 500 888
e-mail: sales@thermoteknix.com Web site: www.thermoteknix.com

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Printed on environmentally friendly paper made with 100% chlorine free pulp. C3K 11/00

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CENTURION

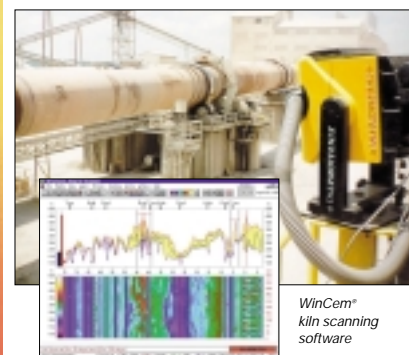
Integral, Hi-Speed Infrared Linescan System



Centurion TK Series



Centurion TS Series
with optional water cooled heat shield



WinCem®
kiln scanning
software



WinStrip®
strip scanning
software

Centurion TK Model Applications

- Rotary Kilns (Cement/Lime)

Centurion TS Model Applications

- Steel and Metals Rolling
- Induction Heating
- Aluminium Rolling
- Glass: Float, Formed and Shaped
- Electrolysis
- Plastics



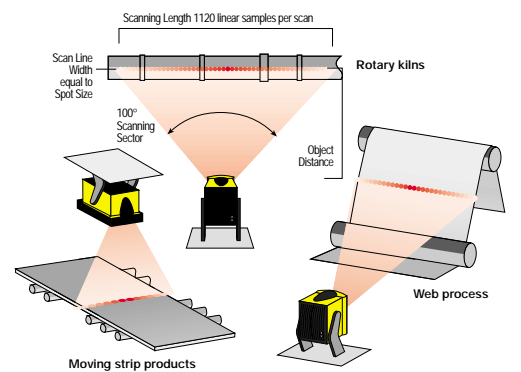
More than just an image

Centurion hardware & software information

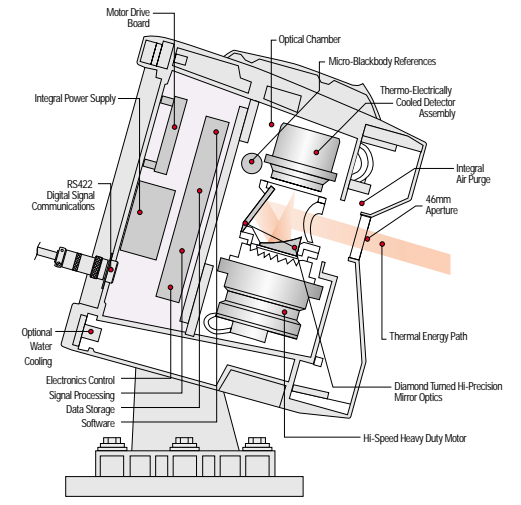
The Centurion infrared linescan camera features advanced reflective optics. For maximum resolution and accuracy, aspheric, diamond turned mirrors replace the less efficient, energy absorbing lenses used by conventional linescanners.

Self-contained heavy duty power supply, brushless motor, powerful microprocessor electronics and software are integrated to achieve the single solution for faster, non-contact, linescan temperature measurement.

Centurion applications



Centurion cross-section



The Product

The **Centurion** infrared linescanner is a revolutionary camera that sets new standards for high speed, accurate, on-line temperature monitoring. Based on state-of-the-art aerospace optics, it combines signal processing, data storage and communications into one integral unit. Designed to withstand the harshest environment, Centurion cameras are built for continuous performance and reliability.

Applications

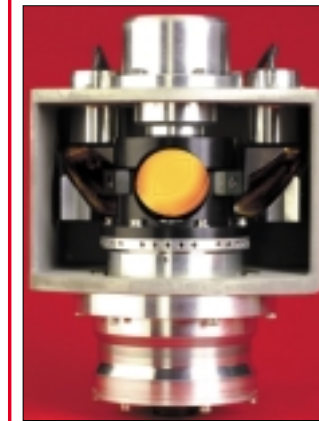
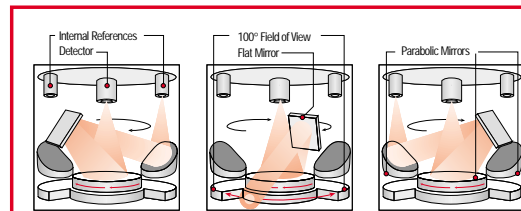
The Centurion TS50 and TS100 series are designed for moving strip product lines, continuous and batch processes. Low temperature (L) and high temperature (H) models are available. The TK30 model is specifically designed for rotary kiln shell scanning. From stand alone temperature measurement to "smart" sensors performing complex real-time computation as a part of open/closed loop control strategy, Centurion cameras have the flexibility and power for the most demanding tasks.

Up to 1120 linear measurements per scan at speeds between 20 and 100Hz, temperature ranges from 0 to 1600°C and a software configurable field of view from 10° - 100°, ensure that the Centurion is ideal for every type of quality assurance and process control.

Principle of Operation

The electro-mechanical scan unit includes a mirror assembly which revolves on a precision engineered spindle at digitally controlled speeds to scan the field of view. As the spindle rotates, heat from the target enters through a large aperture for maximum sensitivity at high scanning speeds. The beam is reflected onto an off-axis parabolic mirror which focuses the energy onto the infrared detector. The resulting signal is equivalent to more than 1,000 fixed pyrometers simultaneously viewing the target.

Since 1982, Thermoteknix has been recognised throughout the world for its pioneering infrared technology and customer commitment.



A rugged optical frame with precision mirrors, micro-blackbody references and heavy duty motor give accuracy, high resolution and long term reliability

Motor

A heavy duty, brushless DC motor uses sealed-for-life, large diameter bearings for long term reliability. The balanced optical assembly is mounted directly onto the motor shaft for minimum wear and consistent performance at speeds up to 100Hz. The speed can be regulated to match the process.

Micro-Blackbody References

Two digitally controlled Micro-Blackbody internal references are scanned every revolution to ensure constant temperature measurement and accuracy.

Communications

RS422/485 high speed links provide two way communications for data transfer and on-line diagnostics or firmware upgrade. Twisted pair or fibre optic cabling are supported.

Electronics

State-of-the-art embedded processors monitor and control all aspects of Centurion operation. A 14 bit precision Analogue to Digital Converter selectively digitises up to 1120 points per scan. Data is dynamically processed and stored in the onboard RAM before onward transmission. The architecture is configurable under software control for individual applications.

Environmental Protection

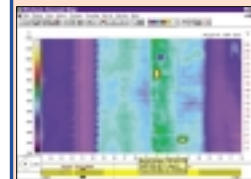
Designed to withstand harsh and challenging environments, the self-contained electronics compartment is enclosed in a robust double skinned aluminium casting. This allows for optional air or water cooling for high ambient temperatures or hot climate usage. An integral plenum chamber provides uniform air mixing and air purge for a dust and maintenance-free viewing window.

SOFTWARE

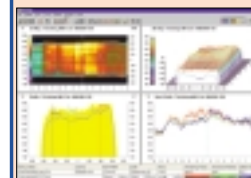
Windows™ '95, '98, 2000 or NT software is supplied for Centurion set-up, calibration, scan display and storage. Temperature range, palette change and measurements can all be made with the user-friendly software. On-line Help menus ensure prompt familiarity for those new to the Windows™ environment.



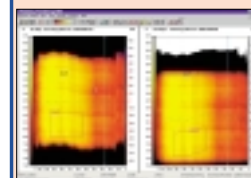
WinCem™ Coating Display



WinCem™ Zoomed Map Display



WinStrip™ Multi-data Screen



WinStrip™ Finishing Mill Exit Display

Accessories

A selection of hardware and software accessories are available for the needs of specific installations and applications.

Configuration

On-line software configuration is NT4, Windows '95, '98 and 2000 compatible.

