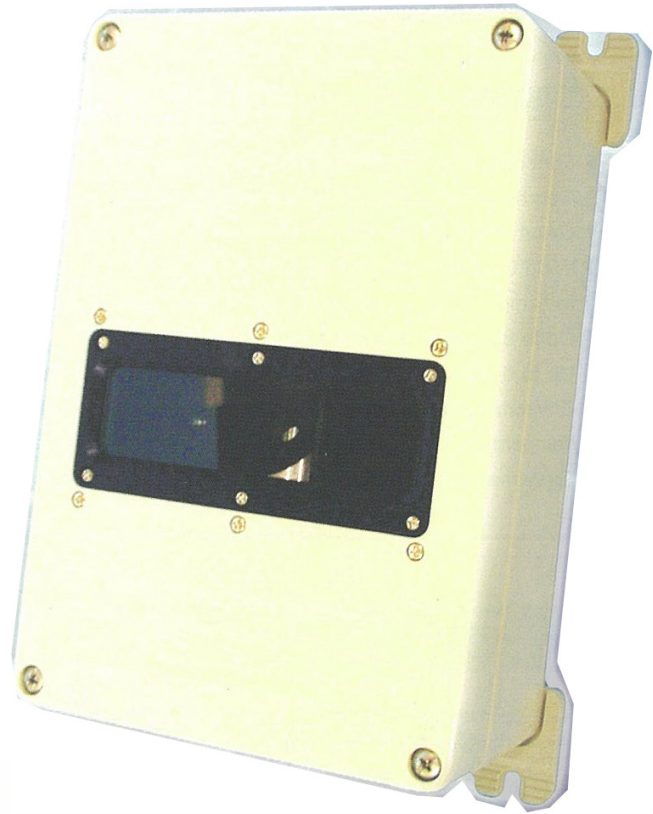


ACI Inc.



Kiln Shell Temperature Monitoring System

- Fast detection of hot spots or abnormal temperature condition by monitoring shell temperature over the whole surface of the kiln.
- High reliability provided by great quantity of actual sales results in cement industry.
- Great benefits of standard and optional software.

■ SUMMARY

This system automatically measures temperature distribution of cement rotary kiln surface continuously.

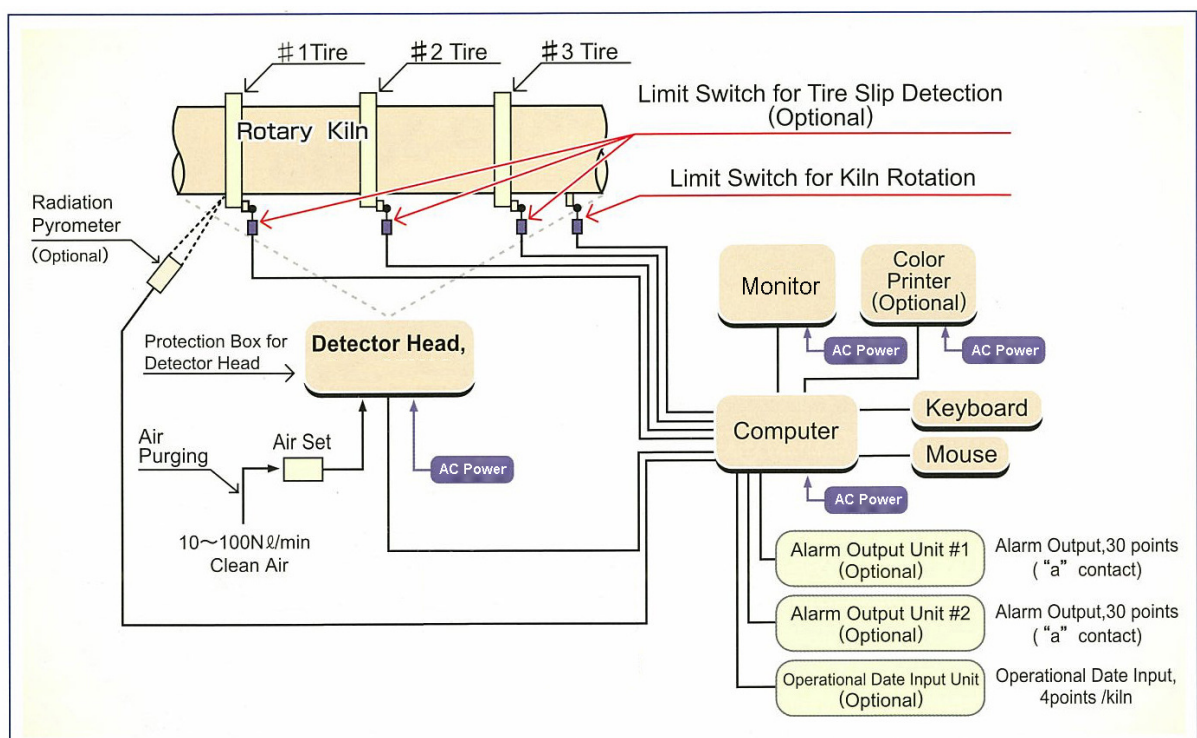
Superior optics and electronics enable fast detection of abnormal temperature and various management parameters of burning condition or refractory drop-out and provides immediate alarm.

Measured temperature distribution data synchronized with the kiln rotation is conveyed to and stored into hard disk drive in a computer. 3D or 2D images and profile data is processed and displayed on monitor.

System is simple consisting of detector head and computer only.
It is very easy to install this system at user site.

■ FEATURES

1. Fast detection of hot spot and alarm capability.
2. Combination of powerful optics and electronics.
3. Great utility software.
4. Wide temperature range of 100~600°C.
5. Maximum 100 degree scanning angle of detector head.
6. Up to 60 zones of alarm setting.
7. Up to 6 detector heads can be connected to one system.
8. Temperature measurement or abnormal temperature monitoring beneath the tire of kiln available as an option.
9. Easy maintenance due to simple construction of the system.

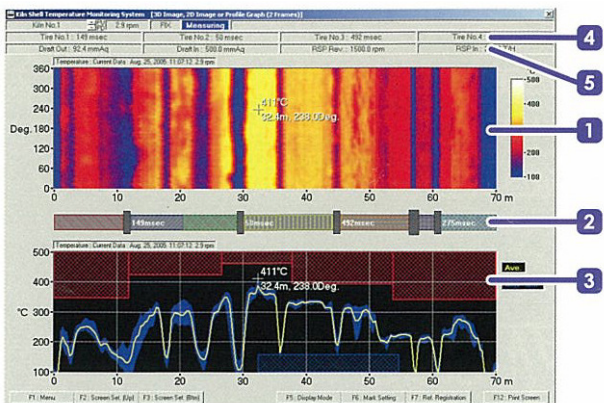


SOFTWARE

FUNCTION OF DISPLAY	<ul style="list-style-type: none"> • 3D image • 2D image • Profile 	<ul style="list-style-type: none"> • Zoom Up on 2D image • Profile of specified location • Comparison of temperature profile 	<ul style="list-style-type: none"> • Trend display of specified location • Trend display of kiln rotation speed • Trend display of tire slip • Refractory management software
VARIETY OF DISPLAY DATA	<ul style="list-style-type: none"> • Temperature data • Calculated coating thickness • Kiln rotation speed 		<ul style="list-style-type: none"> • Tire slip data (optional) • Operation data (optional)
ALARM FUNCTION	<ul style="list-style-type: none"> • Upper/Lower threshold • Alarm output • Alarm log 	<ul style="list-style-type: none"> Adjustable up to 60 zones on longitudinal direction of kiln, both upper and lower temperature alarm thresholds are adjustable for average or maximum or minimum temperature on each zone. Alarm condition is displayed on monitor. Analog output of contact signal for the activated alarm is available when optional alarm output is selected. Alarm condition is also recorded and stored in computer as alarm log, it is easy to check past alarm record. 	
DATA ANALYSIS FUNCTION	<ul style="list-style-type: none"> • Temperature difference Image display • Temperature data whole Display image 	<ul style="list-style-type: none"> Thermal image and temperature profile graph is displayed by calculating difference between two specified temperature data. 7 data of 2D image and temperature profile on one screen are displayed simultaneously. 	
DATA STORAGE	Temperature data and kiln rotation data are stored into hard drive of a computer at specified time interval. In case one hour interval is specified, data of two years operation can be stored.		
DATA READOUT	Data read out from hard drive is displayed as above “function of display image”.		
PC REQUIREMENTS	Operating system of Microsoft Win 7 or earlier version is required for normal operation of the system.		
RENEWAL CYCLE OF DATA AND DISPLAY	After every two rotations of kiln.		
OTHER FEATURES	<ul style="list-style-type: none"> • Display of maximum temperature and the location on whole kiln surface. • Selectable color pallets (patterns). • Display of alarm thresholds on trend graph. • Selectable two patters of print direction (vertical or horizontal). • Selectable print time (Specified time or specified interval). 		

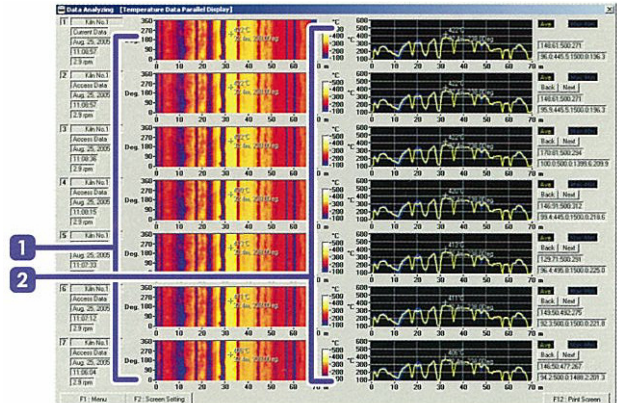
Standard Display Image Measurement mode

1. 2D image (with maximum temperature display).
2. Outline of kiln (with zone mark display)
3. Temp. profile (with alarm setting zone display).
4. Data of tire slip (optional).
5. Operation data (optional).



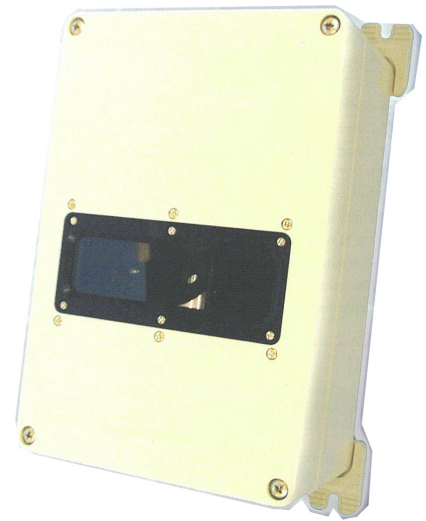
Display of complete Image of temperature data

1. 2D image (up to 7 stored images can be displayed simultaneously)
2. Temperature profile (up to 7 stored images can be displayed simultaneously)



■ TECHNICAL SPECIFICATIONS

Model	A-KSTMS
Temperature range	100~600°C
Accuracy	±4°C <400°C ±6°C at 400°C~ 600°C
Focusing	0.5m ~ ∞
Distance factor	1 : 200
Measuring points	1024 points/line
Scanning type	Rotating mirror
Scanning sector	100 degrees
Rotating speed of scanning mirror	10Hz (100ms)
Spectral response	4.5μm (MCT)
Output signal	Brightness and mirror synchronized signal
Power requirement	24VDC ±10%
Weight	2.2Kgs
Operating ambient Temperature	-5~45°C
Approx. dimensions	140W x 230H x 77D
Resolution	3°C <400°C 2°C >400°C
Response time	0.1ms (0~90%)
Emissivity correction	1.0~0.2
Housing material	Aluminum



■ OPTIONS

Limit switch for tire slip detection	This switch is the must for optional tire slip detection. This option can be applied for up to 7 locations of 1 kiln.	Operational data input unit	Other operational data such as air pressure or burner condition can be fed through this unit and displayed on monitor. (up to maximum 4 signals)
Alarm output unit	In case of alarm contact signal output is activated, Maximum 2 alarm units with total 60 points (30 points each) can be connected.	Color Printer	Any WINDOWS Compatible color printer can be used. Please consult factory for compatibility issues.
Radiation pyrometer	Range: 0-600°C Output: 4-20mA DC Power: 12-24V DC Spot size & distance: φ 40/500mm W/Protective case (purge air available)	RACK	For simple installation of computer, monitor and printer.
		NOISE FILTER	This filter is used when signal line is under influence of noise but the selection of filter depends on the cause of noise
		Lightening protection device	To avoid damage from struck by lightening, it is recommended to use this device.

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