

RECORDERS CONTROLLERS RADIATION THERMOMETERS MOISTURE METERS SENSORS THYRISTOR REGULATORS TRACEABILITY



EPC / PRODUCTS / APPLICATION / SOFTWARE / ACCESSORIES / CONSUMABLES / SERVICES

Analytical Technologies Limited

An ISO 9001 Certified Company

www.analyticalgroup.net

►► Induction Heating

Infrared radiation thermometer

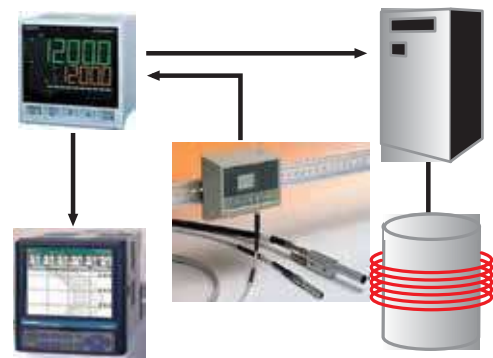
IR-FA series

Digital indicating controller

DB600 series

Graphic recorder

KR2000 series



►► Vacuum Furnace

Hybrid memory recorder

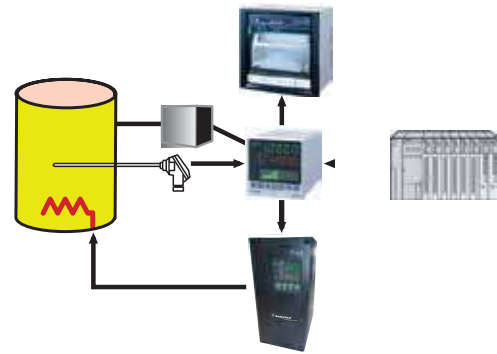
AH4000 series

Program controller

KP series

Thyristor regulator

JJ series



►► Film Drying Process

Infrared radiation thermometer

IR-CZ series

Moisture meter

IRMA series

Graphic recorder

KR2S series



►► Metal Forging

Graphic recorder

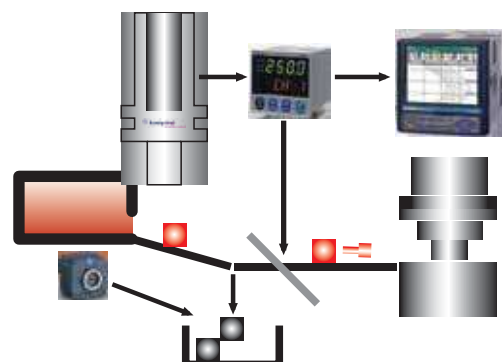
KR2000 series

Infrared radiation thermometer

IR-SA series

Thermal image sensor

TP series



►► Semiconductors

Monitor

Infrared radiation thermometer

IR-CA series

SolidPak thermocouple

NCZ series

Thyristor regulator

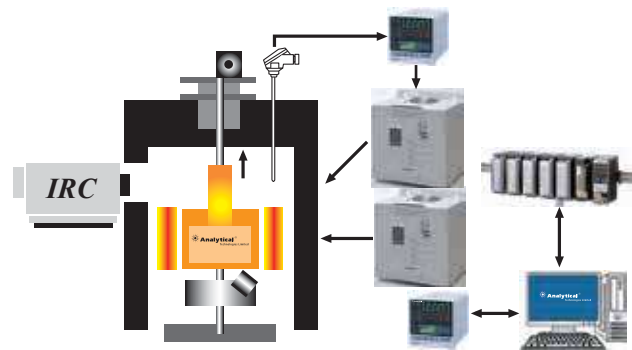
JW series

Program controller

KP series

Network logger

KE series



►► Continuous Annealing Furnace

Package software

CISAS

Digital indicating controller

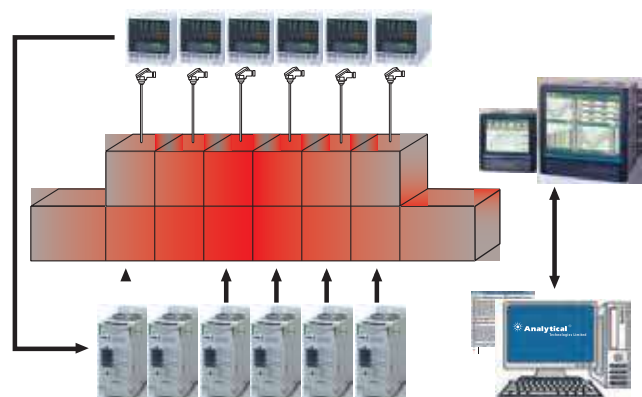
DB series

Thyristor regulator

JU series

Graphic recorder

KR series



►► RECORDERS

HYBRID MEMORY RECORDER

AH4000 AL4000 SERIES

These recorders are a hybrid recorder which employs bright and clear, easy to view LCD display. Measuring value display is prepared as 1 point display, multi-points simultaneous display and digital display + bar graph display.

Various measuring and recording setting can be easily done by front key switch and confirmed by LCD digital display.



- SD card as data storage (512MB, 1GB, 2GB)
- Setting/Recording software available (Standard attached)

►► Main Specifications

No. of measuring points	(AL) 6 points (AH) 6, 12, 24 points (AL/AH) 1 pen, 2 pens, 3 pens, 4 pens
Input types	DC voltage, DC current, Thermocouple, Resistance thermometer
Accuracy rating	±0.1% ±1 digit (DC voltage input)
Chart speed	1 to 1500mm / h (Dotting type) 1 to 600mm / h, 1 to 200mm/min (pen type)
Power supply	100 to 240VAC, 50/60Hz
Communications	Ethernet, RS232C, RS422A, RS485 (Option)
Dimensions	(AL) 144 X 144 X 216mm (AH) 288 X 288 X 216mm

►► GRAPHIC RECORDER

KR2000 KR2S SERIES

KR2000 & KR2S Series are network-compatible paperless recorders with high performance and high operating function employed high visibility 5.6" & 5.7" TFT color LCD display. Furthermore KR2S series has touch panel function. The recorder can be used for various applications such as data management, research, development, remote and wide range monitoring by utilizing internet environment.



KR2000

KR2S

- 6 or 12 channels measurement at sampling rate of 1sec or 100ms
- Simple no-manual operations. Large data memory

►► Main Specifications

No. of measuring points	6, 12 points
Input types	DC voltage, DC current, Thermocouple, Resistance thermometer
Accuracy rating	±0.1% ±1 digit (DC voltage input)
Chart speed	±0.1% ±1 digit (DC voltage input)
Power supply	100 to 240VAC, 50/60Hz
Communications	Ethernet, RS232C, RS422A, RS485 (Option)
Dimensions	(KR2000) 144X144X204mm(KR2S) 144X144X235.7mm

►► GRAPHIC RECORDER

KR3000 KR3S SERIES

KR3000 & KR3S Series are network-compatible paperless recorders with high visibility max. 12.1" TFT color LCD display and touch panel operation system. High speed of fastest sampling rate 100ms for 48 points and high accuracy of $\pm 0.1\%$ were realized, and measured data is stored into internal memory and maximum 8GB compact flash card (CF card). As it can be monitored by a web browser display on several computers on intranet or internet, FTP transfer of data file and Email notification are also available.



- Max large sized 12.1" TFT color LCD touch panel display.
- Large capacity of data memory and various recording method.
- Multi points recording with high speed/high accuracy.

►► Main Specifications

No. of measuring points	(KL) 6 points (KH) 6, 12, 24 points
Input types	DC voltage, DC current, Thermocouple, Resistance thermometer
Accuracy rating	$\pm 0.1\% \pm 1$ digit (DC voltage input)
Power supply	to 240VAC, 50 / 60Hz
Communications	Ethernet, RS232C, RS422A, RS485 (Option)
Dimensions	(KR3000) 288X288X218mm, (KR3S) 288X288X180mm

►► HYBRID RECORDER

KH4000 KL4000 SERIES

KH4000 Series hybrid recorders realize simple and easy operation as analog recorders. Not only can each measured value be read from the custom made analog scale plate which incorporates input type and measurement value input, but a comprehensive LED display also enables precise digital measurements to be taken by the user.



►► Main Specifications

No. of measuring points	(KL) 6 points (KH) 6, 12, 24 points
Input types	DC voltage, DC current, Thermocouple, Resistance thermometer
Accuracy rating	$\pm 0.1\% \pm 1$ digit (DC voltage input)
Power supply	100 to 240VAC, 50 / 60Hz

Communications	Ethernet, RS232C, RS422A, RS485 (Option)
Dimensions:	(KL) 144 X 144 X 216mm, (KH) 288 X 288 X 216mm

►► HYBRID RECORDER LE5000 SERIES

LE5000 series are 250mm hybrid recorders with multi-range input. Innovative design high performance recorder provides high accuracy $\pm 0.05\%$; high speed sampling 0.1 second for 36 points and high speed recording, 3 seconds/line. Simple operational keys and PC setting functions drastically improved usability of recording system.

- High speed sampling at 0.1 sec for 36 points and high-speed recording
- Operation keys are functionally designed for ease of use
- High accuracy of 0.05%



►► Main Specifications

No. of measuring points	12, 24, 36 and 48 channels
Input signals	DC voltage 8 kinds, Thermocouple 28 kinds, Resistance thermometer 8 kinds, DC current (shunt resistors)
Accuracy rating	$\pm 0.05\%$ ± 1 digit (DC voltage)
Power supply	100 to 240VAC, 50/60Hz
Communications	Ethernet, RS422A, RS485 (option)

►► ANALOG RECORDERS EH3000 EL3000 ES600 SERIES

1 to 12-point, dotting types and 1 to 3-pen types are available.

- Various options for many applications.
- High accuracy on 180mm industrial recorders.
- Robust analog recorders.

1-point, 2-point, 3-point, 6-point dotting types and 1 to 3-pen types are available

- Small and light-weight.
- Various models and options.



EH3000 DOT

EH3000 PEN



EL3000 DOT

EL3000 PEN

►► Main Specifications

No. of measuring points	(EH3000 DOT) 1 to 12 points (EH3000/EL3000 PEN) 1 to 3 pens (EL3000 DOT) 1 to 6 points
Input types	DC voltage, DC current, Thermocouple, Resistance thermometer
Accuracy rating	EH) $\pm 0.25\% \pm 1$ digit (DC voltage input) EL) $\pm 0.5\% \pm 1$ digit (DC voltage input)
Power supply	100 to 240VAC, 50 / 60Hz

ES600:

1-point, 2-point, 3-point, 6-point dotting type and 1-pen types are available in the recorders.

- Small and light-weight (depth-200mm)
- Reliable self-balancing type



ES600

►► Main Specifications

No. of measuring points	1 to 6 points, 1pen
Input types	DC voltage, DC current, Thermocouple, Resistance thermometer
Accuracy rating	(EH) $\pm 0.25\% \pm 1$ digit (DC voltage input) EL) $\pm 0.5\% \pm 1$ digit (DC voltage input)
Power supply	100 to 240VAC, 50 / 60Hz

DIGITAL INDICATING CONTROLLERS

►► DIGITAL INDICATING CONTROLLERS

DB600 SERIES

The DB600 series have three types of size (DB670 96 x 96mm, DB650...48 x 96mm, DB630...48 x 48 mm). Various functions including universal input and multiple setting values (8 types) are provided as standard.

- Large easy-to-view 5 digit display
- Highly-functional operation screen and setting screen
- Simple program (4 patterns, 12 steps)



DB670

DB650

DB630

►► Main Specifications

No. of measuring points	Thermocouple (B,R,S,K,E,J,T,N,others) Resistance thermometer (Pt100,JPt100,Pt50) DC voltage (± 20 mV, ± 100 mV, ± 5 V, ± 10 V)
--------------------------------	---

Accuracy rating	±0.1% of FS ± 1 digit of measuring range
Control system	PID system or Z control
Output type	ON-OFF pulse output, ON-OFF servo output (DB65 0 and DB670 only) Current output, SSR drive pulse output, Voltage output
Power supply	100 to 240VAC or 24VAC/24VDC
Communication interface	DB670 RS422A, RS485(option) DB650 RS422A, RS485(option) DB630 RS485(option)
Dimensions	DB670 96 x 96 x 73mm DB650 48 x 96 x 73mm DB630 48 x 48 x 88mm

►► DIGITAL INDICATING CONTROLLERS LT/LTA SERIES

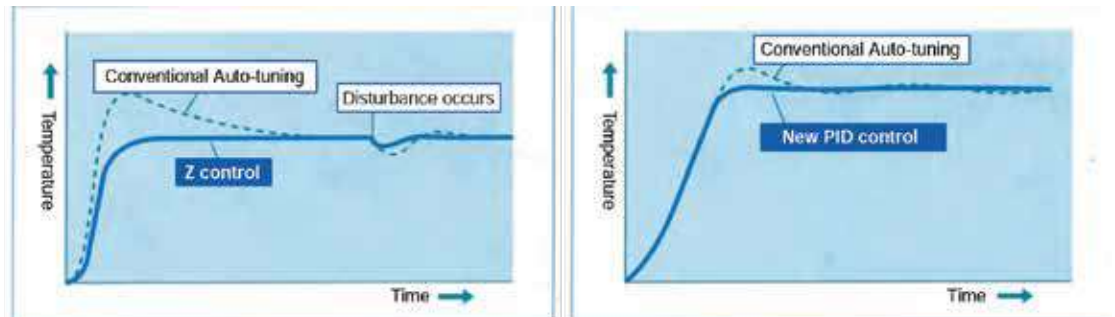


	LT110	LT230	LT23A	LT35A/37A	LT45A/47A
Input type Thermocouple	LT45A/47A		B,R,S,N,K,E,J,T,U,L		
Resistance thermometer	Pt100,JPt100				
DC voltage	-----		±5V	0 to 5V	
DC current	-----		4 to 20mA		
Accuracy rating Thermocouple	±0.3% of ± 1 digit or ±2°C, whichever larger	±0.25% of FS ± 1 digit	±0.5% of FS ± 1 digit	±0.2% of FS ± 1 digit	±0.1% of FS ± 1 digit
Resistance Thermometer	±0.2% of scale range ± 1 digit				

Sampling	250msec	500msec	500msec	300msec	100msec
Control system	PID system (2-position is available)		PID system (2-position is available)		
Output type	ON-OFF pulse, SSR drive pulse, Current output		ON-OFF pulse, SSR drive pulse, Current output, Voltage output		
Power supply	100 to 240VAC		100 to 240VAC 24 to 48 VDC	100 to 240VAC 21.6 to 26.4 VDC	
Dimensions t(mm)	96 x 96x 127	48 x 48x 122	48 x 48 x 60	48 x 96 x 65 / 96 x 96 x 65	

Z Control (Economical control)

Z control is a control algorithm learned from plants. Compared to conventional control algorithm, Z control is the algorithms that keeps start-up speed and improves overshoot suppressive effect, energy saving effect, disturbance suppressive effect and shorten the settling time. Hemathermal nature of organism is robust to the environmental change and energy saving structure. Z control includes this ecological algorithm and compared to conventional control, it improves robustness of energy saving effect, parameter variation and load variation. For the compatibility with PID control, parameter is similar parameter as PID control.



EASY-TO-OPERATE AND ABUNDANT FUNCTIONS

▶▶ DIGITAL INDICATING CONTROLLERS DB SERIES

The DB series is a 96 x 96mm digital indicating controller with the indicating accuracy of $\pm 0.1\%$ and the control cycle of approximately 0.1 seconds. Various function including universal input and multiple setting values (8 types) are provided as standard.



DB1000

- Large easy-to-view 5 digit display
- Highly-functional operation screen and setting screen
- Outstanding controllability
- Conforming to international safety standards and CE market and conform.

►► Main Specifications

Input type	Thermocouple (B,R,S,K,E,J,T,N,others) Resistance thermometer (Pt100,Pt-Co,others) DC voltage ($\pm 10\text{mV}, \pm 20\text{mV}, \pm 50\text{mV}, \pm 100\text{mV}, \pm 5\text{V}, \pm 10\text{V}$)
Accuracy rating	$\pm 0.1\%$ of measuring range ± 1 digit
Control system	PID system or Z control
Output type	ON-OFF pulse, ON-OFF servo, Current output, SSR drive pulse, Voltage output
Power supply	100 to 240VAC or 24VAC/24VDC
Communication interface	RS232C, RS422A, RS485(option)
Dimensions	96 x 96 x 127mm

►► DIGITAL INDICATING CONTROLLERS CP SERIES

CP350/370 series is ATL new digital indicating controller.

High function and optional programmed control mode are provided.

- Adopt MODBUS communications mode, CE marking
- Universal power supply (100-240V AC).
- More programmed control mode.
- Can select the PID mode from total PID type or differential type.



►► Main Specifications

Input type	Thermocouple (B,R,S,K,E,J,T,N,others) Resistance thermometer (Pt100,JPt100) DC voltage ($\pm 5\text{V}$)
Accuracy rating	$\pm 0.25\%$ of measuring range ± 1 digit
Control system	PID system
Output type	ON-OFF pulse, Current output, SSR drive pulse, Voltage out put
Power supply	100 to 240VAC
Dimensions	CP350...48 x 96 x 132 mm, CP370...96 x 96 x 132 mm

PROGRAM CONTROLLERS

KP SERIES

The KP1000 series is a 96 x 96mm digital program controller with the indicating accuracy of $\pm 0.1\%$ and the control cycle of approximately 0.1 seconds and maximum 19 program patterns (maximum 19 steps/pattern). Various function including the whole program pattern display-screen and universal input are provided as standard.

- Large easy-to-view 5 digit display.
- Highly-functional operation screen and setting screen.
- Easily identifiable pattern progress display.
- Outstanding controllability.
- Conforming to international safety standards and CE market and conform.



►► Main Specifications

Input type	Thermocouple (B,R,S,K,E,J,T,N,others) Resistance thermometer (Pt100,Pt-Co,others) DC voltage ($\pm 10\text{mV}$, $\pm 20\text{mV}$, $\pm 50\text{mV}$, $\pm 100\text{mV}$, $\pm 5\text{V}$, $\pm 10\text{V}$)
Accuracy rating	$\pm 0.1\%$ of measuring range ± 1 digit
Control system	PID system or Z control
Output type	ON-OFF pulse, ON-OFF servo, Current output, SSR drive pulse, Voltage output
Power supply	100 to 240VAC or 24VAC/24VDC
Communication interface	RS232C, RS422A, RS485(option)
Dimensions	96 x 96 x 127mm

►► PROGRAM CONTROLLERS

DP-G SERIES

The DP-G series is graphic program controller employed high visibility 5.6" TFT color LCD display. Maximum 200 types of program pattern (Maximum 4000 steps) are stored and performance pattern is selectable

- Easy program pattern setting on graphic screen
- High performance and universal input
- Storing settings in CF card



DP 1000G

►► Main Specifications

Input type	Thermocouple (B,R,S,K,E,J,T,N,others) Resistance thermometer (Pt100,Pt-Co,others) DC voltage ($\pm 10\text{mV}$, $\pm 20\text{mV}$, $\pm 50\text{mV}$, $\pm 100\text{mV}$, $\pm 5\text{V}$, $\pm 10\text{V}$)
Accuracy rating	$\pm 0.1\%$ of measuring range ± 1 digit

Control system	PID system
Output type	ON-OFF pulse, ON-OFF servo, Current output, SSR drive pulse, Voltage output
Power supply	100 to 240VAC or 24VAC/24VDC
Communication interface	RS232C, RS422A, RS485(option)
Dimensions	144 x 144 x 252 mm

HIGH-SPEED INFRARED RADIATION THERMOMETER IR-CZ SERIES

- Reduced optical error measurement caused by dust and contaminants
- High response, 2 to 15ms
- Significantly effective for distinctive applications
 - Ceramic high-temp. baking process
 - Crystal growing



►► Main Specifications

Temperature range	350 to 2000°C / 400 to 3100°C / 500 to 3500 °C
Response time	2 to 15ms
Analog output	4 to 20mADC

INFRARED RADIATION THERMOMETER IR-BA SERIES

The IR-BA series is a non-contact and high-speed compact radiation thermometer. The card sized detector with built-in converting function of 4-20mA output signal can easily be installed in narrow places, production lines and small equipment. A standard speed type and a high speed type (50ms/95%) are respectively available for these standard type and small-target/short-distance type and small-target/long-distance type, and also various applicable types like as glass, lamp-anneal, film and burning gas.

- High response: Standard: 100ms, High-speed: 50ms
- Compact & lightweight: W32XH56XD100mm, 220g



►► Main Specifications

Detecting element/ measuring wavelength	Thermopile Temperature range
Temperature range	0 to 300°C, 0 to 600°C
Output	4 to 20mADC
Power supply	12 to 24 VDC

INFRARED RADIATION THERMOMETER IR-CA SERIES

The IR-CA product line of noncontact infrared thermometers provides broad selection of units to match your applications and requirements for non-contact temperature measurement. The product line consists of 15 different series grouped into general purpose and application specific models.

- Functional digital display and parameter setup keys.
- High accuracy, high-speed response, high reliability
- High distance factor in focusable model to enable ease of installation.
- Optional RS485 communications.
- Remote setup and monitoring by IR-GZ connectable up to 32 IR-CA.
- Software package IR-VXC1E.
- Variety of accessories to protect the IR-CA under harsh environment.



FIBER OPTIC RADIATION THERMOMETER IR-FA SERIES

The IR-FA series is a fiber optic radiation thermometer featuring multi-function and high-speed response (10ms). Three types: single-color type for low temperature; single-color type for medium/ high temperature and two-color type, are available.

- Low temperature type with high-speed response and short wavelength enables to measure objects with low emissivity like as metals.
- Medium/high temperature type with high accuracy ± 0.5 to 1% for 1000 to 2000°C) and high-speed response is for various temperature measurement fields.
- Two-color type is stable with less effectiveness of smoke, vapor, dust and lack-of-view.



►► Main Specifications

Detecting element/measuring wavelength:

Single-color type	PbS / 2.0 μ m, InGaAs / 1.55 μ m, Si / 0.9 μ m,
Two-color type	Hybrid element 0.9 / 1.55 μ m,
Output	4 to 20mA DC
Power supply	24VDC

FURNACE MONITORING SYSTEM CPA-R SERIES

The CPA-R series utilizes a CCD camera, which has sensitivity at 1.0 μ m and image processing unit that provides an image and converts video signal from the camera into temperature information. The special high temperature optics lens array system can be inserted through a small insertion hole on many types of furnaces.



►► Main Specifications

Lens array and camera unit

Viewable angle	H96° X 70° (100° Lens)
Wavelength	0.8 to 1.0μm
Temperature range	700°C to 2500°C (Assignable span:200°C to 500°C)
Accuracy	±1% at full scale (black body)

Image processing unit

The image processing unit has an 8.3" LCD touch panel that displays wide-angle image and temperature information. It also provides the capability of up to 40 points of contact Inputs/outputs as well as 32 points of analog outputs through an external I/O unit.



►► Main Specifications

Camera control	Up to 3 Cameras
Display	8.4" Color LCD (touch panel)
External input/output	Contact output max 40 points
Protective Structure	IP65 (Front Panel)

NON-CONTACT TEMPERATURE MEASUREMENT

►► PALM SIZED INFRARED RADIATION THERMOMETER IR-TE2

Washable!! Non-contact temperature measurement in one second!!
 Model IR-TE2 palm-sized infrared thermometer is designed to measure the surface temperature of objects without making contact with them. The built-in laser sighting pinpoints the center of the area being measured on the target.



- Conforms to IP67 (dustproof and waterproof) and washable.
- ABS resin housing with sanitary specification fits in your safety program. CE marking
- Wide temperature range of -40 to 300°C (-40 to 572°F) - °C/°F selectable

ON-LINE INFRARED RADIATION THERMOMETER IR-SA SERIES

The IR-SA series of infrared Radiation thermometer provides broad selection of small and robust units to match your on-line applications for non-contact temperature measurement from 0 to 2500°C under harsh environment. Four models are available with MODBUS connectivity for parameter setup through remote setting unit or PC

- Withstand temperature 90°C, IP67, CE marking
- Fast response time of 0.002 seconds for IR-SAI/IR-SAS
- RS485 MODBUS connectivity
- Telescope or laser pointer for targeting



▶▶ HAND-HELD TYPE INFRARED RADIATION THERMOMETER IR-TAP

The IR-TA series handheld type thermometer is easy to use and can be applied to a variety of applications. The built-in laser sight helps to pinpoint a measured spot accurately.

- Temperature range: -40 to 500°C
- Spot size: $\phi 30 / 1000\text{mm}$
- CE marking



RADIATION THERMOMETER IR-H SERIES

The handheld thermometer is a small and lightweight with a clear view-finder. The direct view-finder enables to measure a small object with a long distance.

- Temperature range from 400°C to 3000°C (IR-HQH)
- CE marking
- Low temperature area and emissivity are measured by connecting a K-type thermocouple separately prepared.



▶▶ Main Specifications

Detecting element	Si (IR-HS), InGaAs (IR-HI), Si/InGaAs (IR-HQH)
Response time	0.2 seconds
Power supply	2AA batteries

▶▶ RADIATION DIGITAL THERMOMETER IR-AH SERIES

The hand-held thermometer offers a wide measuring range of 600°C to 3000°C for IR-AHS, 900°C to 3000°C for IR-AHU, and 50°C to 1000°C for IR-AHT, digital display of the measured value in view-finder and LCD display, plus storage of measured data.

- A data logging software package for easy data treatment.
- CE marking.



►► Main Specifications

Detecting element	Detecting element: Si, Thermopile
Power supply	4AA batteries

THERMAL IMAGING SENSOR

►► HAND-HELD TYPE THERMAL IMAGING SENSOR TP-S

The TP-S series is a ultra small handy thermal image sensor both industrial and commercial use.

- Temp.range of -10 to 180°C
- 2000 pixel resolution
- Just one click operation and instant glance
- Temperature range: -10 to 180°C
- ABS resin(anti bacterial)
- CE marking



►► THERMAL IMAGING SENSOR TP SERIES

The TP series is a compact infrared thermal imaging sensor utilizing a thermopile array detector.

- Easy to use and implement
- 2000 pixel resolution
- Built-in alarms
- IP65/NEMA4, CE marking



►► Main Specifications

Tempreture Range	-20 to 300°C, 100 to 800°C.
Resolution	0.5°C (At black body temperature of 100°C).
Accuracy	±2% of reading or ±3°C whichever lager (At ambient temp of 25°C±2°C).
Power Supply	12 to 24VDC.

►► THERMAL IMAGING SYSTEM CPA-L SERIES

Fixed mount type thermal image measuring device for online monitoring, measurement, and inspection

The CPA-L series consists of a fixed mount type camera using an uncooled element and a controller.

The camera, supporting measuring wavelengths of 8 to 14 μm and a temperature detecting range of -40°C to 500°C , is compact, lightweight, and excellent in dust and drip proofing performance.

The controller has image processing functions such as binarization and particle analysis functions in addition to the temperature measurement processing function and can provide output via a LAN and as analog/digital signals.



TEMPERATURE / HUMIDITY SENSORS

HANDHELD TYPE TEMPERATURE/HUMIDITY METER HN-EH SERIES

Speedy, lightweight, high accuracy !! Measurement in 30-seconds level !! HN-EH series is accurate handheld type temperature/humidity meter with the measuring range of -20 to 70°C (sensor built-in type -10 to 45°C) and 5 to $95\%\text{RH}$. Two types of model, simple basic type (sensor built-in type only) and standard type (sensor built-in type and probe type), can be selected to meet various applications requirement.



- Overriding fast response time, measurement 30-seconds level
- Small, lightweight (sensor built-in type approx. 120g) and easy operation
- Low running cost, built-in type sensor unit is interchangeable by user

►► Main Specifications

Measuring range	Temperature -10 to 45°C (Sensor built-in type) -20 to 70°C (Probe type) Relative humidity 5 to $95\%\text{RH}$ (no dew condensation) Dew point temperature -35 to 55°C (standard type only)
Measuring resolution	Temperature 0.1°C , Relative, humidity $0.1\%\text{RH}$
Response	Temperature 40 seconds or less (under 0.5m/s ventilation, 90% step response of approx. $50^{\circ}\text{C} \rightarrow 25^{\circ}\text{C}$) Humidity 40 seconds or less (25°C constant, under 0.1m/s ventilation, 90% step response of approx. $30\%\text{RH} \rightarrow 50\%\text{RH}$)
Standard	CE marking

DIGITAL THERMOMETER FOR FOODS MODEL MF1000

The portable thermometer model MF1000 is combined with a needle type sensor for measurement of internal temperature of foods or liquid temperature.

- Washable and anti-bacteria surface housing



►► Main Specifications

Temperature range	-40 to 260°C
Measuring accuracy	±0.5°C
Response time	2 seconds
Sensor	K type thermocouple
Sealing	IP67 (waterproof and dustproof)
Standard	CE marking

ROLLER SURFACE THERMOCOUPLES CO15 SERIES

The thermocouples are designed for non-contact measurement of surface temperature of moving or rolling materials such as heating rollers, moving belts and plastic sheets.

- Built-in compensating circuit for the difference between actual temperature and adjustment atmospheric temperature.
- Affection-free from emissivity of surface.



►► Main Specifications

Element	K type thermocouple
Measuring accuracy	Within ±5°C in 200°C span
Measuring distance	1 to 2mm (fixed)
Output	E.M.F. of K type thermocouple

PALM-SIZED TEMPERATURE/HUMIDITY METER HN-CH SERIES

The HN-CH series is reliable and accurate palm-sized temperature/humidity meter with the humidity range of 0 to 100%RH by using a newly developed capacitance type humidity sensor. The data logging function capable to store each 8000 readings of temperature and humidity into memory is built-in.

- Three types of sensors, sensor built-in type, probe type and separated type available for various applications



►► Main Specifications

Relative humidity

Sensor	High-polymer capacitance type
Measuring range	0 to 100% RH
Accuracy rating	±2%RH

Temperature

Sensor	Semiconductor type
Measuring range	Measuring range: -10 to 50°C
Accuracy rating	Temperature and humidity -each 8000 data (16000 data in total)
Display	Current data, replaying data, parameters
Communications interface	RS232C or RS485
Power supply	2AA batteries or 100-240 V AC (with AC adapter; sold separately)
Standard	CE marking

SELECTION FROM VARIOUS SENSORS FOR EACH APPLICATION

►► HANDHELD DIGITAL THERMOMETER MC1000 SERIES

MC1000 is a handheld digital thermometer having an easy-to-read large LCD display and light weight. Arange of temperature probes with a variety of shapes and sizes to suitthe application requirements

- Dual displays for measured data and arithmetic result
- Multi-input (thermocouple/RTD) allows various applications
- Exclusive connector prevents accidental probe disconnection



►► Main Specifications Measuring range

Thermocouple type	K -200 to 1370°C T -200 to 400°C -200 to 500°C -200 to 500°C
Display	3-1/2 digital LCD with backlight
Computation	Max/min/average/relatives
Power supply	2AA batteries
Standard	CE marking
Dimensions	76(W) X 164(H) X 36.3(D)mm

TEMPERATURE CARD LOGGER MR SERIES

MR series is a small size and lightweightcard logger. Various types of external mounting sensors including a built-in type are available.

- A traceability or inspection certificate which can be used for HACCP or ISO9000, is available. (Separate purchase required)
- Capable to store up 6000 data per channel
- Conforms to CE marking and IP64



►► Main Specifications

Measuring range	-40 to 60°C, 0 to 100°C, 50 to 150°C
Accuracy rating	±1.0°C ±1 digit (±0.5°C ±1 digit for -5 to 50°C)
Sensor	Automatic switchover of built-in/external sensor. External sensor operates when it is connected Measuring range of the built-in sensor: -40 to 60°C
Number of storing data	6000 data (about 8-month data storage at 60-minute measuring interval)
Storing mode	Automatic stop mode under specified conditions or endless mode by a PC
Communications	Built-in (connection to a PC through a datareadout unit)
Standard	IP64, CE-marking
External dimensions	54(W) X 110(H) X 20.5(D)mm
Weight	95g (including batteries)
Power supply	2AAA batteries
Battery life	Approx. 1 year (at 25°C and 10-minute interval)

THERMO HYGROMETER HN-C SERIES

HN-C series using developed humidity element features high performance and reliability 2-wire transmission type thermo-hygrometers for the wide measuring range of 0 to 100%. Models with temperature output of 3-wire type Pt100 is available. Wall-mount type, separated type and inserting type are available for various application. Heat-resistive and separated type, which can be used in operating temperature of -40 to 180°C is available, too.



►► Main Specifications

Humidity

Measuring range	0 to 100% (no dew condensation)
Accuracy range	±2%RH (at 0 to 90%RH and 25°C) ±3%RH (at 90 to 95%RH and 25°C)
Coefficient of relative humidity / temperature	±0.1%RH / °C (at 5 to 80°C)

Temperature

Measuring range	-40 to 180°C
Accuracy range	±0.3°C (±0.5°C Heat-resistive separated type)

►► HANDY LOGGER MR2041 SERIES

Handy logger MR2041 is a palm size data logger, it is capable of storing up to 1000 temperature data per each channel. Power supply of logger is selectable from AA battery or AC adaptor, so it is usable as a portable type logger or fixing type logger. Using the exclusive software, recording/recalling of data and programming of logging parameters can be executed with logger or through a PC.

- Input signals: thermocouple, K, E, J, T, 0 to 5V, 0 to 20mA
- Simultaneous 4 channels, measurement and display
- Data processable through a PC



►► Main Specifications

Measuring range

Thermocouple	K -200.0 to 1370.0°C E -200.0 to 700.0°C J -200.0 to 700.0°C T -200.0 to 400.0°C
DC voltage	0 to 5V (scale -9999 to 9999)
DC current	0 to 20mA (scale -9999 to 9999)

Accuracy rating

Thermocouple	$\pm(0.1\% \text{ of measuring value} + 0.3^\circ\text{C}) > -100^\circ\text{C}$ $\pm(0.1\% \text{ of measuring value} + 0.6^\circ\text{C}) < 100^\circ\text{C}$
DC voltage	(0.1% of measuring value + 0.2% of range)

ON-LINE MEASUREMENT OF INFRARED MULTI ANALYZER, MOISTURE (THICKNESS) METERS

INFRARED MULTI ANALYZER

The IM series is on-line multi analyzer utilizing the infrared absorption. Converting capabilities are built into the compact designed detector unit for easy installation and operation.

- Up to 10 wavelength, capable of measuring 4 constituents
- Ethernet, MODBUS communications
- High-speed & High-repeatability (28ms)
- Self-diagnostic function, easy maintenance



►► Main Specifications

Measuring range

Measuring system	Infrared reflection type
Measuring wavelength	Up to 10 wavelengths
Measuring scope	Up to 4 constituents
Computing function	Ratio calculation for 2-color or 3-color, and multiple regression calculation

Calibration curve	Linear, quadratic, cubic and multiple regression line
DC current	0 to 20mA (scale -9999 to 9999)

ELECTRIC HEATERS CONTROL AND TEMPERATURE SENSORS THYRISTOR REGULATORS

SINGLE/THREE-PHASE THYRISTOR REGULATORS JU/JW SERIES

The JU/JW series of thyristor regulators feature a compact size and light weight and enable high-density installation. Their methods of control include two ways, the phase-angle control and zerocross control systems. In the phase-angle control systems, the voltage, current and power feedback control types and a type without feedback control are available for the selection of an optimum type according to the characteristics of the heater used.

- Compact, lightweight and high-density installation.
- Phase-angle firing and zero-cross firing are selectable.
- Setting communication unit displays voltage, current, power and heater measurement values, and enables parameter setup and operation selection.
- Prepare heater disconnection alarm and current limiter.



►► Main Specifications JU

Phase	Single phase
Rated voltage	100, 110, 120, 200, 220, 240, 380, 400, 440V AC (to be specified)
Rated frequency	50/60Hz (automatic selection)
Rated current	10, 20, 30, 50, 75, 100, 150, 200, 250, 300, 400, 500, 750, 1000A (to be specified)

JW

Phase	Three phase
Rated voltage	200V AC (200V/220V/240V selectable) 400V AC (380V/400V/440V selectable)
Rated frequency	50/60Hz (automatic selection)
Rated current	10, 20, 30, 50, 75, 100, 150, 200, 250, 300, 400, 500, 750, 1000A (to be specified)

THYRISTOR REGULATORS JJ SERIES

- Display voltage/current/power & heater resistance
- Easy setting for parameter such as elevation, soft-start and so on
- Outputs data to PLC or PC with communication function (option) and parameter can be changed from host unit
- Alarm contents are displayed when alarm is activated. Output alarm contact from AL1 and AL2 depending on the situation
- Phase-angle firing and zero-cross firing are selectable
- Switching between feedback and non-feedback of voltage, current and power in phase angle firing are possible



SINGLE-PHASE THYRISTOR REGULATORS JB SERIES

The small and lightweight thyristor regulators for single-phase loads are characterized with high panel installation density. Two control systems, a phase-angle firing system for continuous power control and a zero-cross firing system, are built-in and selectable for various applications and power environment. The applications include small electric furnaces, calibration bath, casting dies heating and heating units for laboratory use.



- Switching between fixed time base and variable tibase in zero firing are possible
- Heater disconnection alarm and current limiter is available as option
- CE marking will be conformed.



Built-in Setting Communication display unit

▶▶ Main Specifications

Phase	Single-phase
Rated voltage	100 to 120 VAC and 200 to 240 VAC (selection by terminals)
Rated frequency	50/60Hz (automatic selection)
Rated current	20, 30, 40, 50, 75, 100A (to be specified)
Input signal	4 to 20mADC, 1 to 5VDC or on-off contact
Output range	0 to 98% of rated voltage
Minimum load current	0.5A (at 98% output)
Applicable loads	Resistive load Inductive load (transformer primary control and phase control system only)
Control system	Phase-angle firing and zero-cross firing (selectable)

SHEATH THERMOCOUPLES SHEATH RESISTANCE THERMOMETERS

The temperature sensors filled with high-purity magnesium oxide in protective tube provide excellent response along with vibration resistance and corrosion resistance.



▶▶ Main Specifications

Thermocouples

Class	JIS 1 (class 0.4), 2 (class 0.75)
Element	K, J, E, T, N,
Measuring temperature	Arroy B (NB), X (XL) -200 to 1050°C

Protective tube diameter	0.15, 0.3, 0.5, 1.0, 1.6, 3.2, 4.8, 6.4, 8.0mmφ
Protective tube length	300, 500, 750, 1000, 1500, 2000mm~
Protective tube material	SUS316, SUS310S, NCF600 J, E, T... SUS316 (Protection tube of 0.3 and 0.5mmφ only available on K element and NCF600)
Protective tube length	300, 500, 750, 1000, 1500, 2000mm~

Resistance thermometers

Class	JIS A, B
Element	Pt100, JPt100, 3-wire
Nominal current	2mA, 1mADC
Protection tube diameter	-200 to 500°C
Protection tube length	.2, 4.8, 6.4, 8.0mmφ
Protection tube material	300, 500, 750, 1000, 1500, 2000mm
Protection tube material	SUS316

STANDARD SENSORS AND RADIATION THERMOMETERS TRACEABILITY

SMALL TYPE LOW TEMPERATURE COMPARATIVE CALIBRATION EQUIPMENT

▶▶ KT-H SERIES

Realize low temperature calibration at -100°C and compact & light weight body. For on-site calibration of resistance thermometer and thermocouple!

▶▶ Main Specifications

Calibration Temperature Range	100 to 50°C (KT-H503) -30 to 155°C (KT-H504) -20 to 155°C (KT-H504S)
-------------------------------	--



▶▶ Fixed point IR-ROA SERIES STANDARD RADIATION black body furnace, model :

IR-R0A is a highly precise fixed point black body furnace that can use for the temperature standard for radiation thermometer. IR-R0A has 6 kinds of fixed point cell from In (157°C) in low temperature to Cu (1085°C) in high temperature.



- Realization of a good plateau by the improvement of the temperature distribution
- Lineup In to Cu point
- Changeable to other fixed points by cell exchange easily
- Compact size (184 X 370 X 360mm), weight (13kg)

►► Main Specifications

In point	156.60 °C	Sn point	231.93°C
Zn point	419.53 °C	Al point	660.32°C
Ag point	961.78 °C	Cu point	1084.62°C

COMPARISON BLACKBODY FURNACE

MODELS IR-R24,IR-R26,IR-R27

The comparison type blackbody furnaces were developed jointly with National Research Laboratory of Metrology for calibration of radiation thermometers and have large aperture diameters.



►► Main Specifications

Temperature range	50 to 450°C (low temperature type) 200 to 1050°C (medium temperature type) 800°C to 1450°C (high temperature type)
Aperture diameter	φ60mm (low temperature type) φ50mm (medium temperature type) φ30mm (high temperature type)

STANDARD RESISTANCE THERMOMETER R800 SERIES

The standard platinum resistance thermometers, which have been commercialized under the guidance of National Research Laboratory of Metrology, conform to International Temperature Scale, 1990 (ITS-90).

- From vapor point of helium to freezing point of silver



►► Main Specifications

Measuring range	13K to 30°C (R800-0), 90K to 661°C (R800-2) 0 to 962°C (R800-3, 3L), 4K to 0°C (R800-4)
------------------------	---

STANDARD RADIATION THERMOMETER IR-RST SERIES

Standard Radiation Thermometer IR-RST series has been developed under collaborative research with the National Metrology Institute of Japan (NMIJ), which is applicable for traceability of calibrating conventional radiation thermometers.



►► Main Specifications

Detecting element	Silicon Photo Diode, InGaAs Photo Diode
Measuring range	400 to 2000 °C (0.9μm) 3-step selection 1000 to 3000 °C (0.65μm) 3-step selection 150 to 1100 °C (1.6μm) 3-step selection

HEAT PIPE TYPE FIXED POINT CALIBRATION FURNACE KT-F116

KT-F116 conducts fixed point calibration of resistance thermometer and thermocouple by realizing freezing point of Al and Ag, combining with shield fixed point cell.

- Na heat pipe is used for soaking pipe and realize 0 °C p-p/200mm.
- No need of gas exchange, adopts shield fixed point cell, which is easy to use.
- Able to maintain more than 10 hours of plateau by adjusting furnace temperature.



►► Main Specifications

Furnace operating temperature range	600 to 1000 °C
Fixed point Metal	Al and Ag

STANDARD THERMOCOUPLE C800 SERIES

The standard thermocouples are for calibration of thermocouples.

Three kinds of S type, R type and B type thermocouples are available.

- Temperature-thermoelectromotive force tables are prepared on request.



►► Main Specifications

Element diameter T	Ø0.5mm
Measuring range	Maximum 1100°C(S, R) Maximum 1554°C(B)

►► Servicing, Validation, Trainings and Preventive Maintenance :

Servicing	:We have team of service engineers who can attend to any make of instrument promptly @the most affordable cost.
Trainings	:We also take up preventive maintenance to reduce downtime of instrument's Trainings.
AMC's/CMC	: We offer user training both in-House and at customer sites on instrument principles, operations, troubleshooting.
Validations	: We have protocols for carrying out periodic Validations as per GLP/ GMP/USFDA norms.
Instruments	: We offer instruments/Renting Services Modules like pumps, detector etc. on Rent.



►► About Analytical Technologies

Analytical Technologies is synonymous for offering technologies for doing analysis and is the Fastest Growing Global Brand having presence in at least 96 countries across the globe. Analytical Technologies Limited is an ISO :9001 Certified Company engaged in Designing, Manufaturing, Marketing & providing Services for the Analytical, Chromatography, Spectroscopy, Bio Technology, Bio Medical, Clinical Diagnostics, Material Science & General Laboratory Instrumentation. Analytical Technologies, India has across the Country operations with at least 4 Regional Offices, 6 Branch Offices & Service Centers. Distributors & Channel partners worldwide.

►► Our Products & Technologies

						
UV/VIS Spectro 2080+ Double Beam	Infra FTIR	Optima Gas Chromatograph 3007	Optima Gas Chromatograph 2979 Plus	Flash Chromatograph	Atomic Absorption Spectrophotometer	Liquid Partical Counter
						
Optical Emission Spectrophotometer	DSC/TGA	Semi Auto Bio Chemistry Analyzer	HEMA 2062 Hematology Analyzer	Micro Plate Reader/Washer	URINOVA 2800 Urine Analyzer	Total Organic Carbon 3800
						
Fully Automated CLIA	NOVA-2100 Chemistry Analyzer	PCR/Gradient PCR/ RTPCR	TOC Analyzer	Laser Particle Size Analyzer	Ion Chromatograph	Water purification system

▶▶ Regulatory compliances



▶▶ Corporate Social Responsibility

Analytical Foundation is a Nonprofit Organization (NGO) found for the purpose of:



- 1. Research & Innovation Scientist's awards / QC Professional Award : Quality life is possible by innovation only and the innovation is possible by research only, hence ANALYTICAL FOUNDATION is committed to identify such personalities for their contributions across various field of Science and Technology and awarding them yearly. To participate for award, send us your details of research / testing / publication at info@analyticalfoundation.org
- 2. Improving quality of life by offering YOGA Training courses, Work shops / Seminars etc.
- 3. ANALYTICAL FOUNDATION aims to DETOXYFY human minds, souls and body by means of Yoga, Meditation, Ayurveda, Health Care, Awards, Media, Events, Camps etc.

▶▶ Reach us @



HPLC Solutions		MultipleLabs	Analytical Bio-Med	Analytical Distributors	Analytical Foundation (Trust)
Corporate & Regd. Office: Analytical House, # E67 & E68, Ravi Park, Vasna Road, Baroda, Gujarat 390 015. INDIA		T: +91 265 2253620 +91 265 2252839 +91 265 2252370 F: +91 265 2254395	E: info@hplctechnologies.com info@multiplelabs.com info@analyticalbiomed.com	W. www.ais-india.com www.analyticalgroup.net www.hplctechnologies.com www.multiplelabs.com	Sales & Support Offices: across the country : Distributors & Channel partners World Wide