Kett

SCIENCE OF SENCING

MEASURING INSTRUMENTS

Rev.25

KETT ELECTRIC LABORATORY

A MESSAGE FROM THE PRESIDENT

Kett Electric Laboratory, one of Japan's leading manufacturers of measuring instruments, has during its more than 70 years of operations developed a large number of unique, technically advanced and high-performance products for agricultural and industrial use. These include moisture testers, our specialty, as well as coating thickness testers, iron detectors, and a variety of other instruments. Our moisture testers represent a giant stride of progress from former, time-consuming methods of measuring moisture content, wherein the item to be measured had to be painstakingly dried and its weight loss evaluated. Kett moisture testers automatically and quickly determine the moisture content of such varied substances as grain, wood, food, textiles, pulp, paper, chemicals, mortar, soil and hay. They have thus played a valuable role in improvement of product quality and enhancement of overall productivity, and have been officially adopted by the Food Agency and other national and prefectural governmental agencies, numerous industry associations, private companies, and individuals. Kett's coating thickness testers are also employed in quality control applications in such industries as metal plating, machinery, rolling stock and shipbuilding. In addition, our iron detectors and other measuring instruments are presently employed in industrial operations throughout Japan and the world. Singular emphasis upon research and development has gained Kett a worldwide reputation for excellence, and the reliability and ease of operation of our products have earned them widespread acceptance in agriculture and industry through out the world. On the following pages is presented a broad range of measuring equipment featuring advanced technology and high accuracy, which is capable of meeting the requirements of even the most demanding user.

M. Emori, President

TABLE OF CONTENTS


kett
Grain Moisture Tester PM-650
TIMES
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AVE.
POWER
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MOISTURE TESTERS
& INSPECTION INSTRUMENTS FOR AGRICULTURAL USE

Thanks to its strenuous efforts in research and development, the Kett Electric Laboratory has become world famous for its moisture testers and inspecting instruments for agricultural use. The increase in sales of Kett products for agricultural use that has occurred since the Laboratory's establishment in 1946 has dramatically demonstrated their widespread acceptance among agriculturists around the world, the result of their reliable performance and foolproof operation. The unique features of Kett moisture testers can be summarized as follows : First, they operate on the principle of electrical resistance, which varies minutely in accordance with the moisture content of the item measured. Second, they employ a system which provides for measurement volumes of samples under constant pressure. This eliminates differences in measured values according to the person doing the measuring. Third, the electrical circuitry of these instruments is designed in a manner that they can be checked easily and quickly, thereby providing reliability and safety of performance. With these features, Kett moisture testers, together with other inspecting instruments, are important aides in agriculture.

Instant Multiple Moisture Tester
Model PM-650 series

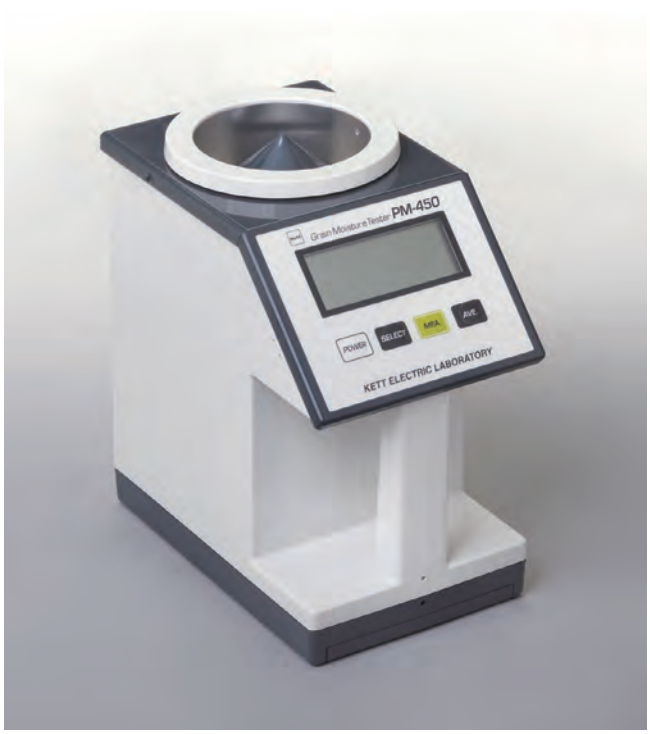
This instrument can measure the moisture content of many kinds of grain, seeds, and other products. Using a fixed sample volume allows the weight, temperature, and capacitance (dielectric) of the sample to be measured. After processing this information, with the use of the embedded microprocessor, the "Moisture Value" is displayed.Refer to the separate "Product List" for measurable grain types. Because the calibration curves of products on the "Product List" have been already stored, the measurement of a sample on the list can be instantly performed by simply pressing the product number.

[Note] The entered sample types may be different even among the same PM-650 models. The display may be different between examples in the Operating Manual and the real ones on the actual tester, but the usage is the same.

Specifications

Measurement method	Dielectric constant
Applications	Grain, Seeds
Measurement range	1-40% (sample dependent)
Sample volume	240 mL
Operating temp. range	0- 40 °C
Measurement precision	Moisture : Standard error of 0.5% or less versus drying method. (all samples with moisture content of less than 20%)
Correction function	Mass,Temperature,Shift correction (Offset correction)
Other functions	Average, auto Power off, volume weight unit of g/L (sample weight/sample volume)
Display	Digital (LCD)
Power source	4pcs. 1.5V Batteries ("AA" size Alkaline)
Dimensions and weight	125 (W) x 205 (D) x 215 (H) mm
Weight	Net 1.3kg / Shipment 4.0kg
Accessories	Hopper, Sample Cup, Brush, Batteries (1.5V "R6" Or "AA" Size, x4), Sample List
Option	Printer VZ-330 (incl. cable VZC-14)

Grain and Coffee Moisture Tester
Model PM-450 series



This instrument can measure the moisture content of many kinds of grain, seeds, and other products. Using a fixed sample volume allows the weight, temperature, and capacitance (dielectric) of the sample to be measured. After processing this information with the use of the embedded microprocessor, the “Moisture Value” is displayed. Refer to the “Product List” for measurable grain types. Because the calibration curves of products on the “Product List” have been already stored, the measurement of a sample on the list can be instantly performed by simply pressing the product number.

[Note] The entered product types may be different even among the same PM-450 models. The display may be different between examples in the Operating Manual and the real ones on the actual tester, but the usage is the same.

Specifications (PM-450 Version 4501)

Measurement method	Dielectric constant
Applications	Grain, seeds, small objects
Measurement range	1- 40% (sample dependent)
Sample volume	240 mL
Operating temp. range	0 - 40 °C
Measurement precision	Moisture:Standard error of 0.5% or less versus drying method. (all samples with moisture content of less than 20%)
Correction function	Mass : By integrated weighing scale, Temperature : By thermistor, Shift correction (Offset correction) –9.9 ~ +9.9%
Other functions	Average, auto Power off
Display	Digital (LCD)
Power source	4pcs. 1.5V Batteries ("R6" or "AA" size Alkaline)
Power consumption	240 mW
Dimensions	125 (W) x 205 (D) x 215 (H) mm
Weight	Net 1.3kg / Shipment 4.0kg
Accessories	Funnel, Manual-hopper, Brush, Product List, Batteries (1.5V “R6” Or “AA” Size Alkaline x4)

Grain Moisture Tester
Model Riceter f500 series

The endurance of the Riceter f is even greater than before, and the character display has been improved to be even easier to read. In addition, this unit has acquired ISO9001 approval for international quality systems, which alone is a valuable quality guarantee.

[Note] Other model Riceter f500 series are available.

Specifications

Measurement method	Electrical Resistance Method
Applications	Brown rice, Milled rice, Paddy, Barley, Naked Barley, Wheat,... (Depends upon model version)
Measurement range	10 ~ 35% (sample dependent)
Operating temp. range	0- 40 °C
Measurement precision	Manufactured : ±0.1%, Standard error of 0.5% or less versus drying method. (all samples with moisture content of less than 20%)
Power source	4pcs. 1.5V Batteries ("AA" size)
Dimensions	164(W) x 94 (D) x 65 (H)mm
Weight	Net 0.44kg / Shipment 1.5kg
Accessories	Sample Pans (2pcs.), Brush, Spoon With Tweezers, "AA" Size Batteries (4pcs.), User's Manual Carrying Case, Husker TR-130.

Wheat and Rice Flour Moisture Tester
Model PR-930

Kett has developed wheat and rice flour moisture tester which has been used for bread or noodles or other foods field, which has created a surge in demand for wheat and rice flour.The Wheat and Rice Flour Moisture Tester PR-930 can promptly and simply measure the moisture of wheat and riceflour in spotlight, what is more, the moisture content of "wheat and grains", the raw materials of them.

Specifications

Measurement method	Electrical Resistance Method
Applications	Wheat, Wheat flour, Rice flour, Milled rice (short and long), Paddy(short and long)
Measurement range	8 ~ 35% (sample dependent)
Operating temp. range	5- 40 °C
Measurement precision	Wheet: standard error of 0.5 % (1σ) at 130 °C, 5g crushed 2-hour method (below 20% range). Wheet flour: standard error of 0.5 % (1σ) at 130 °C, 5g 2-hour method (whole range). Rice flour: standard error of 0.5 % (1σ) at 130 °C, 5 g crushed 2-hour method (whole range). Milled rice (short & long): standard error of 0.5 % (1σ) at 130 °C, 5 g crushed 2-hour method (whole range).
	Paddy (short & long): standard error of 0.5 % (1σ) at 130 °C, 5 g crushed 2-hour method (below 20% range).
Display format	Digital (LCD, minimum display digit 0.1%, backlit equipped)
Temp. compensation	Automatic temperature correction using thermistor
Power supply	1.5 V (AA battery) x 4 pieces (auto Power off function after 5 minutes)
Power consumption:	Max. 0.3 W
Dimensions and weight	164 (W) x 94 (D) x 64.5 (H) mm, Approx. 0.44 kg
Accessories	Sampling Tray 4 Pieces (2pcs Per Each of Rice Flour and Milled Rice), Metal Plate (3 Pcs), Cleaning Brush (2types), Spoon With Tweezers, Battery (AA Size x4pcs), Battery Holder, Carrying Case

On-Line Grain Moisture Tester
Model PT-2700

The PT-2700 can be mounted into a paddy dryer or measuring scale at a rice unloading station, enabling continuous moisture measurement. When mounted into a dryer, it is possible to automatically stop the dryer while taking moisture measurements.

Specifications

Measurement method	Electrical Resistance Method
Applications	Unhusked rice (paddy)
Measured variables	Moisture, Temperature
Measurement range	Moisture: 10-35%, Temperature: 0-50˚C
Measurement precision	With respect to drying method (105˚C 5g 5H crushed), 1σ–0.5% or less, at moisture of 20% or less
Time for measurement	100 grains/ 40 s (brown rice, Milled rice)
Measured volume	100 grains per measurement
Display format	Digital (LED, smallest displayed unit: moisture 0.1%, temperature 1˚C)
Operating environment	0-50˚C, 0-80% (However, must be free of condensation risk)
External output	RS-232C interface
Power source	AC100-240V (50/60V)
Power consumption	Max 120W
Dimensions & weight	Controller 170(W) x 110(D) x 248(H) mm, 1.2kg
Accessories	Moisture Sensor PU-356, Cable With Thermistor

Single Kernel Grain Moisture Tester
Model PQ-520

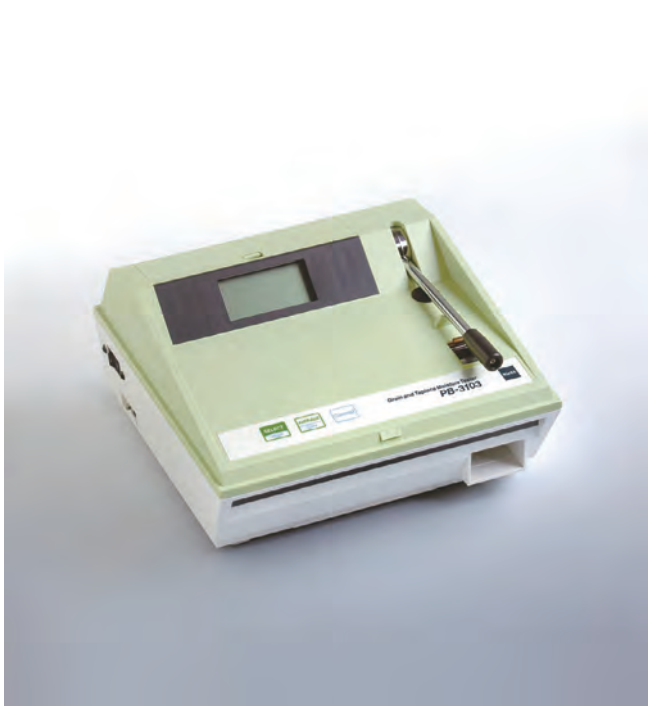
The PQ-520 Single Kernel Grain Moisture Tester provides fast and continuous measurement of moisture, one kernel at a time. It is possible to accurately determine the moisture distribution of a large sample by using this method of measurement, thus determining the appropriate time for threshing, controlling the average moisture of a received sample, and preventing uneven moisture content during drying. The sample is poured into the large sample port, and then the "start/stop" key is pressed. After completion of the measurement, the average moisture value is automatically displayed. Moisture distribution may also be displayed with a one-click operation.

Specifications

Measurement method	Electrical Resistance
Measurement range	Brown rice (11 - 20%), Milled rice (11 - 20%), Paddy rice (11-35%), Barley (10 - 40%), Wheat (10 - 40%), Naked barley (10 - 35%)
Measurement time	Less than 40 seconds / 100 kernels (during measurement of brown rice, average moisture value display time)
Measurement precision	± 0.5% (moisture less than or equal to 20%)
Statistical calculations	Average, standard deviation (printout mode)
Display content	Selected grain type, average moisture value, kernel count, time, moisture distribution (histogram)
Temperature correction	Automatic instrument temperature correction using a thermostat
Kernel count	10-1000 (Selectable)
Operating range	5-40°C, Less than 85%RH (non-condensing)
External output	RS-232C interface (for printer), USB (for PC)
Power source	AC100-240V (50/60Hz)
Power consumption	76W (maximum)
Dimensions and weight	320(W) x 254(D) x 382(H)mm 9.0kg
Accessories	Scoop, Tweezers, Electrical Power Cord
Options	Printer VZ-330 (incl. VZC-14 cable) for RS-232C output only, Data logger software PDL-01 (incl. USB cable) for USB output only

Grain Moisture Tester
Model PB-3100 series

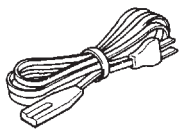
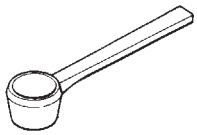
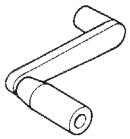
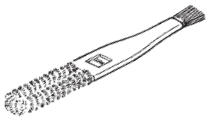
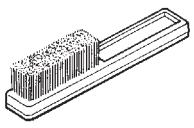
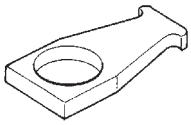
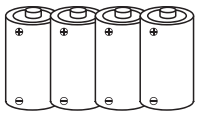
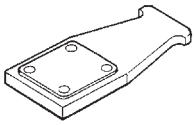
The PB-3100 series was produced based on grain moisture tester PB-1D3 which had large number of delivery results in Japan in total. As for the PB-3100 series, the moisture measurement of each world local rice and wheat is possible as well as Japanese domestic rice and wheat. The PB-3100 series, the measurement of the short, medium and long grain class is possible.



Specifications

Measurement method	Electrical resistance
Applications	Model PB-3103 Paddy,Rice,Parboiled Rice,Parboiled Paddy,Tapioka Pellet,Tapioka Flour. Model PB-3104(for pasta processing) Wheat,Flour(Cake & Noodle),Flour(Bread & Pasta), Noodle,Pasta,Corn Flour.
Measurement range	6-35% (sample dependent)
Measurement precision	Manufactured: ±0.1%, Standard error of 0.5% or less versus drying method. (all samples with moisture content of less than 20%)
Display format	Digital (LED, smallest displayed unit 0.1%)
Display content	Moisture (%), Number of times measured
Temperature correction	Automatic temperature correction acCording to thermostat
Output	Printer Terminal (based on Centronix)
Power source	AC100V /220V(50/60Hz) or 1.5 ("D" size batteries) x 4. When using battery power, continuous running time is 15 hours.
Dimensions & weight	250(W)x240(D)x125(H)mm, 3.5kg / Shipment 5.0kg
Accessories	Metal Plate, Sample Dish, Checker, Measuring Spoon, Crushing Handle, Brush, Spiral Brush, Batteries (1.5 V Alkaline "D" Size, 4 Pcs), Power Cord
Options	Printer VZ-330 (incl. cable VZC-14)

Model PB-3100 Series Accessories

Power cord		Measuring spoon	
Crushing handle		Spiral brush	
Metal plate		Brush	
Sample dish		Batteries	
Checker			

Hay Moisture Tester
Model HX-700

The control of moisture in hay is quite important for dairy farming exporters and importers. The specially designed model HX-700 makes moisture control quick and simple.

Specifications

Measurement method	Electrical resistance
Measurement range	8 ~ 30% (depends on calibration & samples)
Measurement precision	Standard error : 1%
Ambient temperature	0 ~ 40°C
Power source	6pcs. 1.5V Batteries ("AA" size Alkaline)
Dimensions	110 (W) x 210 (D) x 50 (H) mm
Weight	Net 0.5kg / Shipment 4kg

Tatami (straw mat) Moisture Tester
Model HX-300

The HX-300 displays the moisture (%) by the simple insertion of a needle-shaped sensor into the surface matting, or tatami stuffing ("tatamidoko"). It is known that the moisture content of the stuffing and atmospheric temperature are big factors in the outbreak of tatami matt lice infestations. Further, high moisture content in the stuffing can also be the cause of fungi and decay. Recently, there has been an increasing move from rice straw tatami stuffing to different types of building materials. This moisture tester can measure the moisture content of tatami surfacing, rice straw stuffing and tatami board (wooden board flooring material), control of the moisture content of which is prescribed by both the Japan Industrial Standard in particular, as well as the Japan Agricultural Standard.

Specifications

Measurement method	Electrical Resistance Method
Applications	Tatami surface matting, Rice straw stuffing, Tatami board (wooden board flooring material)
Measurement range	Tatami surface matting : 8-20%, Rice straw stuffing 7-25%, Tatami board : 7-35%
Measurement precision	Standard error : Tatami surface matting 0.8%, Rice straw stuffing 1.3%, Tatami board 1.3%
Display format	Digital (LCD, smallest displayed unit 0.1%)
Allowable temp. range	0 - 40°C
Additional functions	Automatic temperature compensation, Average value display, Max value alarm setting (10 - 79%, or OFF), Auto Off (turns Power OFF automatically after approx. 5 min), Moisture value compensation (-9.9% - 9.9%)
Power source	6pcs. 1.5V Batteries ("AA" size Alkaline)
Dimensions & weight	110 (W) x 210(D) x 50(H) mm, 0.5 kg / Shipment 4kg
Accessories	2-Needle Sensor, 4pcs Spare Needles, Spacer For Sensor Needles, Wrench, Shoulder Strap, 6pcs 1.5V Batteries ("AA" Size Alkaline),etc.

Copra Moisture Tester
Model HX-120

Direct, accurate moisture percentages are obtained by simply driving the probe needles into the copra, The model HX-120 is indispensable for copra processors or exporters.

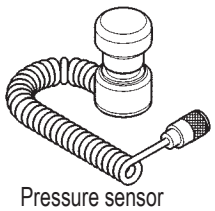
Specifications

Measurement method	Electrical resistance
Applications	Copra
Standard method	ISO 665
Measurement range	3 to 20% (dry base)
Measurement precision	Standard error 0.4% (moisture values of 10% or lower)
Display	Digital (LCD)
Resolution	0.1%
Operating temp. range	0 to 40˚C
Functions	Moisture value bias adjustment (–9.9 to +9.9%), average value,Upper limit alarm, Automatic temperature compensation, Auto Power off (automatically turns off after approximately 5 minutes)
Power supply	6pcs. 1.5 V batteries (AA alkaline)
Power consumption	approximately 0.45 W
Dimensions	110 mm (W) x 210 mm (D) x 50 mm (H)
Weight	0.5 kg / Shipment 4kg
Accessories	Two Needle Proble, Wrench, Shoulder Strap, 6pcs 1.5 V Battery (AA Alkaline), Carrying Case, Operating Manual
Options	Printer VZ-330 (incl. cable VZC-26)

Jute Moisture Tester
Model HX-400

This moisture tester was developed to precisely, and in a short period of time, measure the moisture content of a jute. The HX-400 can measure domestic and imported jute from producing countries such as India and Bangladesh, and if it's a jute distributed domestically, you can measure it just the way it is - with no modifications. The HX-400 is ideal for quality control purposes and inspection of jute during trading and dealing.

Two needle proble


Pressure sensor

Specifications

Measurement method	Electrical resistance
Applications	Jute
Measurement range	6~100%(Dry base)
Measurement precision	Standard error 0.9% (Moisture values of 20% or lower)
Display format	Digital(LCD)
Power source	6PCS. 1.5V Batteries ("AA" size Alkaline)
Dimensions & Weight	110(W)X210(D)X50(H)mm, Net 0.5kg Shipment 440(W)x400(D)x160(H), 4.3kg
Accessories	Two Needle Proble (Grip and Two 4/12inch Needles), Pressure Sensor, Wrench, Shoulder Strap, 6pcs 1.5 V Battery (AA Alkaline), Carrying Case, Operating Manual

Grain Inspector
Model RN-300

State of the art hardware is faithful to human eye.
It watches samples and reflectance and transmittance scan like human eye does. RN-300 distiguishes and analyzes the rice grain as it is like in the manner of a human eye. It displays its measurement results in numeric data with video pictures.

- Optical Measurement system body
  The sensor unit scans the sample to receive the RGB signals from it.
- 24sec. High speed process for the data and picture display. It takes only 24 seconds to displays and the analyzed numeric data and the detected picture of all the 1,148grains.
- All-in-one type, measurement, display and print out on the site
  Camera, note PC, color LCD monitor and the printer is integrated in the Instrument.
- 10,000 memory capacity for pictures and detected data
  The high performance PC allows quick and easy process of the re-data 10,000 pictures of the detected data.

Specifications

Measurement method	Optical format
Object of measurement	Brown rice, Milled rice
Grain classifications	Selectable for three, 6 and 21 classifications (Brown rice)
Processing capability	max 1148 grains per 24 seconds
Power source	AC100V±10% 50/60Hz
Dimensions	580(W) x 230(D) x 420(H)mm
Weight	Net 12.0kg
Accessories	PC, Printer, Scanner, Carrying Bag
Options	Quality print software

Rice Freshness Analyzer
Model RN-820

The "Freshness Meister" is a joint development between Kett and the Japan Grain Inspection Association. By placing Milled rice in the measuring tray, adding color with a pH indicator, then reading in with a scanner and analyzing the image of each individual grain of rice, it is possible to manage rice freshness using images and numerical values. Since it is possible to quantify the testing process without relying on detecting color differences with the naked eye, it is thus possible to completely standardize the freshness measurement. The test utilizes pH indicator specified by the Japan Grain Inspection Association.

Specifications

Measurement method	Involves taking images of Milled rice grains that have been colored with a pH indicator, then image processing and determining their freshness using the dedicated software "Freshness Meister"
Applications	Milled rice
Measurement time	72 grains/ approx 10 min
Measurement results	Ranking based on freshness standard set by the Japan Grain Inspection Association. It is also possible to rank acCording to user settings
Display content	Measurement Results : Sample ranking and average pH, pH value of individual rice grains. Graph : pie graph and histogram showing pH distribution. Image : color image and scan image of rice grains. Numerical information : sample statistical data
Power source	AC100V±10% 50/60Hz
Dimensions & weight	276(W) x 450(D) x 116(H) mm, approx. 3.1kg (scanner)
Accessories	Rice Grain Liner Plate, Shield Plate, 3x Trays, 5x Petri Dishes, Color Test Plate, Template, 2x Freshness Meister Reagent Bottles (500 ML), Lens Cleaner, Tweezer, Spoon, Stick, Measuring Cup, USB Cable, Software
Options	Rice grain liner plate for long rice, Tray for long rice, AC adapter (200-240V)

Single-grain Rice Inspector
Model RN-600

The RN-600 rice inspector shines light on each individual grain of brown rice or Milled rice in a sample to determine the color of the grain based on transparency and reflection and employs a line image sensor to determine the grain's shape characteristics in order to separate the sample into 6 classes. the RN-600 has the capability of inspecting a sample of 1000 grains of brown rice in approximately 40 seconds. and in addition to displaying the percentages of even,cracked, immature, discolored and dead grain, this information can also be recorded using an optional printer.

Specifications

Measurement method	Optical format (Color CCD, line image sensor)
Object of measurement	Brown rice (non-glutinous rice), Milled rice
Grain classifications	Even grain, cracked grain, immature grain, Discolored grain, dead grain,damaged grain
Measurable quantity	Grain Quality Specification Mode : 1-2000 grains Entire Sample Mode
Display format	Digital (dot-matrix LCD)
Display content	Number of grains per class, sample composition percentage, measurement threshold value
Processing capability	Approximately 1000 grains per 40 seconds (It deffers depending on the condition)
Operating environment	5 ~ 35°C
Light cource	LED
Power cource	AC100V ± 10%(50/60Hz)
Dimensions & weight	404(W) x 486(D) x 384(H)mm, 15.0kg
Input/Output terminals	USB 1.1, Serial I/O Terminal (RS-232C),Parallel Output Terminal (for optional printer, Centronics interface)
Accessories	Blower Brush, Measuring Spoon, Silicon Cloth, Brush, Tweezers, Fuse, Power Code, Standard Plate (not Included With RN-600 Ver.1.0), Printer VZ-360 (incl. Cable VZC-47)
Options	Data logger software NDL-01

Near Infrared Component Analyzer
Model AN-900

The AN-900 is capable of measuring moisture content, Protein and Amylose in Short & Long Brown Rice and Milled Rice. Constituents are calculated based on the transmittance of the light. Processing of samples, such as husking and grinding etc., are not necessary with the AN-900.
Measurements are started by simply loading a sample into the sample case. This allows quick, simple and non-destructive constituent analysis. Compared to the infrared reflectivity measurement method, the Near-Infrared Transmittance method employed by the AN-900 is relatively little affected by the shape or color of the sample and thus excellent measurement characteristics.

Specifications

Measurement method	Near-Infrared Transmittance (720-1100nm)
Applications	Brown Rice(Short & Long) / Milled Rice(Short & Long)
Measured constituents	Protein / Moisture Content / Amylose
Sample volume	Approx. 60mL
Measurement range	Brown Rice & Milled Rice Moisture Content 10~20%,Protein 4~12%,Amylose 10~40%
Measurement time	Approx. 30 seconds
External output	RS-232C interface
Environmental conditions	Temperature : 0~40˚C, Humidity : max of 85%RH
Power source	AC100~120V / 220~240V (50/60Hz), max 50W
Dimensions & weight	390(W)x295(D)x186(H), 9Kg (Shipment 15Kg)
Optional accessories	Printer VZ-330 (incl. cable VZC-20)

Near Infrared Component Analyzer
Model AN-820

The AN-820 is able to measure components such as moisture, protein, and amylose (reference value) contained in brown and Milled rice, without the need for preparations such as pulverizing the sample. It can also display a "quality rating value". This tester displays the component quality of rice, and we believe it is the optimal measuring device for quality control for rice producers, rice processors and wholesalers to scientifically manage the taste of rice.

Specifications

Measurement method	Near-Infrared Transmittance
Light source	Tungsten lamp (life 20,000hr)
Applications	Brown Rice, Milled rice
Measured components	Moisture, Protein, Amylose (reference value)
Display range	Moisture 10-20%, Protein 4-10%, Amylose 15-25% (reference value)
Sample volume	Approx. 60 mL
Calibration curve	Memory Capacity : 4 Components x 8 Channels
Operating environment	10-35˚C
Display format	320 x 240 dot matrix backlit LCD
Input/Output terminals	RS-232C, Printer output terminal
Display content	Calibration curve label, Protein value, Moisture value, Amylose value (reference value), Quality rating value
Power source	AC100V - 240V (50/60 Hz)
Dimensions & weight	260(W) x 350(D) x 380(H)mm, 13kg
Accessories	Power Cable, 2x Sample Case, Sampling Cup, Spare Fuse, Each of Standard Sample (Brown Rice, Milled Rice), Storage Container (standard Sample)
Options	Printer VZ-330 (incl. cable VZC-20), Data logger software NDL-01

Near Infrared Component Analyzer
Model AN-920

The AN-920 is capable of measuring moisture content, Protein and Amylose in domestic Brown Rice and Milled Rice without crushing the sample grain to pieces. Furthermore, it can display 'quality evaluation value' of domestic Brown Rice and Milled Rice. The operation is easy to understand by installing the touch panel. Furthermore, low price was realized by simple mechanism.

Specifications

Measurement method	Near-Infrared Transmittance
Light source	Tungsten lamp (life 20,000hr)
Applications	Brown Rice, Milled rice
Measured components	Moisture, Protein, Amylose (reference value)
Display range	Moisture 10-20%, Protein 4-10%, Amylose 15-25% (reference value)
Sample volume	Approx. 60 mL
Calibration curve	Memory Capacity : 4 Components x 8 Channels
Operating environment	10-35˚C
Display format	5.7-inch touch panel color LCD
Input/Output terminals	RS-232C, USB, TCP/IP
Display content	Protein value, Moisture value, Amylose value (reference value), Quality rating value
Power source	AC100V - 240V (50/60 Hz)
Dimensions & weight	230(W) x 400(D) x 250(H)mm, 8.5kg
Accessories	Power Cable, 2x Sample Case, Sampling Cup, Spare Fuse, Each of Standard Sample With Storage Container (Brown Rice, Milled Rice), Operating Manual
Options	Printer VZ-800

Near Infrared Component Analyzer
Model AN-2000WB

AN-2000WB can easily measure the moisture and protein content of wheat, barley and soybeans. For soybeans, it can also measure oil content. As the analyzer utilizes the near-infrared penetration method, sample preparation, such as crushing, etc before measurement is not required. Simply by placing the sample in the sample case and inserting this into the measuring chamber, the sample is measured automatically. An automatic elevating mechanism moves the sample case, measuring different parts of the sample and an average value is displayed after about 75s.

Specifications

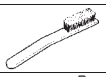
Measurement method	Near-Infrared Transmittance
Applications	Wheat, Barley, Soybeans (optional)
Measured components	Moisture, Protein, Oil (Soybeans)
Measurement range	Wheat : moisture 8-20%, protein 6-16% (CM*13.5%) Two-rowed Barley : moisture 9-20%, protein 6-15% (DM*) Six-rowed Barley : moisture 8-20%, protein 7-13% (DM*) Soybeans (optional) : moisture 6-20%, protein 25-40% (DM*), oil 15-27% *CM : Constant Moisture Basis Calculated protein value when moisture is assumed to be constant.(13.5% at this instrument) *DM : Dry Moisture Basis Calculated protein value when moisture assumed to be 0%.
Measurement time	Approx. 75s
Display format	Backlit dot matrix LCD
Input/Output terminals	RS-232C, Printer output terminal
Power source	AC100V-240V (50/60Hz)
Dimensions & weight	510(W) x 270(D) x 380(H), 9.2kg

Grain Polisher
Model PEARLEST

Removal of the bran is required for reliably measuring rice density, checking for damaged, rotten, or red-rust grains, or for determining whether glutenous and non-glutinous rice have been intermixed. The Pearlest was specifically designed to polish rice, wheat and barley for these purposes.

Specifications

Sample weight	10g
Polishing time	Brown rice : 30 sec Barley : 1 min.
Power source	AC 100/220V (50/60Hz)
Dimensions	95 (W) x 130 (D) x 160 (H) mm
Weight	Net 2.0kg / Shipment 4.0kg
Accessories	Spoon, Brush, Spatula, Agitating File,Metal Disc, and Metal Ring (1 Pc. Each)

Pearlest Parts and Accessories	
Rubber disc	
Rubber ring	
Metal disc	
Metal ring	
Spoon	
Brush	
Spatula	

Rice Husker
Model TR-130

Improved accuracy in rice moisture measurements is obtained by husking before making measurements. This device effectively husks the rice by merely rotating its handle.

Specifications

Rubber roller	27mm in diameter, hardness 85
Sample weight	8g
Dimensions	112/145(W) x 45 (D) x 70 /80 (H) mm
Weight	Net 0.28kg / Shipment 1.0kg

Rice Husker
Model TR-250

Improved accuracy in rice moisture measurements is obtained by husking it before making moisture measurements with KETT brand PB-3000 series, and all models of RICETER. This device is motorized and most effectively removes the husk from rice.

Specifications

Capacity	1000 pcs whole grain (approx.20g) / mm
Safety system	Automatically cutoff when overloaded
Moisture range	12 ~ 18%
Power source	AC 100V (50/60Hz)
Dimensions	205 (W) x 130 (D) x 130 (H) mm
Weight	1.8kg

Grainscope
Model TX-200

This device is used as an aid in inspecting rice quality. Whether or not there are damaged grains in a sample, the extent of damage and the ratio of damaged grains present can be quickly determined by placing the grains on the panel.

Specifications

Sample size	50 rice grain or more
Power source	4pcs. 1.5V Batteries ("AA" size Alkaline) AC 100V (50/60Hz)
Dimensions	162 (W) x 134 (D) x 80 (H) mm
Weight	Net 0.5kg / Shipment 1.5kg

Grain Crusher
Model TQ-100

This crusher is approved by the Japanese governments for official use for moisture measurements. It features a roller for crushing samples, and a light alloy body which can easily be clamped to the edge of a table with the built-in clamping screw.

Specifications

Sample weight	5g
Grain size	20 ~ 30 meshes (rice)
Dimensions	80 (W) x 70 (D) x 180 (H) mm
Weight	Net 1.2kg / Shipment 3.0kg

Harvest Monitor
Model OT-300

From the day rice sprouts, one must measure the rice paddy's ripening, and when the added amount reaches 1000˚C, hitting the peak, one must harvest the paddy. There is a real danger, however, of harvesting too early or too late. Harvesting at the appropriate time guarantees the best yield and at the same time will yield a great improvement in quality. With this unit, if you set the rice paddy yield just once, it will automatically measure the temperature and display the most fruitful time to harvest.

Specifications

Measurement method	Thermostat temperature detection
Applications	Integrated field temperature
Measurement range	A fixed area of a radius of 2km (depending on conditions)
Display format	Digital(LCD)
Power source	9V (Alkaline battery)
Dimensions & weight	Main unit: 60(W)x45(D)x105(H)mm, 0.15kg Support unit: 30x30x1300(L)mm x 2 Sunshade hood: 200(W)x200(D)x250(H)mm


Kett
SET
ALARM
00
%
1
TIMES
19.0
%
WOOD MOISTURE TESTER
MT-900
7
CONT
8
MEA
9
4
PRINT
5
6
HARD
1
2
SOFT
3
ALARM
0
–
AVERAGE
ENTER
SELECT
BIAS
ON/OFF

WOOD MOISTURE TESTERS

The first KETT wood moisture meter was marketed in 1949. It represented the first electric moisture tester of any type ever developed in Japan. KETT wood moisture meters are the leaders in the field. They are the products of long years of research into the methods of wood moisture measurement, and hence feature highly accurate results. They employ corrective tables for specific wood types based upon voluminous data on hundreds of different woods researched over many years. Their use helps to prevent deterioration of quality or possible loss caused by improper drying. They play an invaluable role in ensuring the reliability of products manufactured from wood . KETT wood moisture testers are divided into categories according to use, range of measurement and type of measurement method used, i.e. electric or high frequency.

Wood Moisture Tester
Model MT-900

MT-900 supersedes the conventional MT-700 model. We have provided two new calibration curves under the labels "Broad-leaf" and "Conifer", and by using these curves, it is possible to cover a wide moisture range - 6-80% (Broad-leaf) and 7-80% (Conifer). It is also possible to call up the calibration curves of the original 16 tree species. Furthermore, we have provided a printer output terminal so that data can be printed out by connecting to an optional printer.

Specifications

Measurement method	Electrical Resistance Method
Applications	Single plank, all wooden materials
Calibration curves	Broad leaf tree, Conifer (Standard Method : ISO 3130), 16 types of tree species
Measurement range	6-80% (Broad leaf), 7-80% (Conifer), 4-40% (when tree types No. 1 - 16 selected, will depend on particular tree species)
Measurement precision	moisture < 20% ± 0.5%; moisture ≥ 20%± 2.0% (precision compared to standard resistance)
Display format	Digital (LCD, smallest displayed unit 0.1%)
Allowable temp. range	0-40°C
Additional functions	Automatic temperature compensation, Average value display, Auto Off (turns Power OFF automatically after approx. 5 min) Max value alarm setting (10 - 79%, or OFF), moisture value compensation (-9.9% - 9.9%)
Power source	6pcs. 1.5V Batteries ("AA" size Alkaline)
Power consumption	Approx. 0.45 W
Dimensions & weight	110 (W) x 210 (D) x 50 (H) mm, Net 0.5Kg / Shipment 4Kg
Accessories	4-Needle Sensor, 10x Spare Needles, 2x Conductive Rubber Pieces, Wrench, 6x 1.5V Batteries ("AA" Size Alkaline), Carrying Case, Shoulder Strap, Tree Species Number Chart (Japanese and English)
Options	Printer VZ-330 (incl. cable VZC-26), Data logger KDL-01

Wood Moisture Tester
Model MT-700

Adopting conventional measuring principle, the MT-700 has been developed as versatile Wood moisture tester.
To make woody buildings or furniture last long, moisture control is, no doubt, the best choice tester featuring :

- Direct reading for 16 varieties of wood.
- Alarm for upper limit can be preset.
- Wide bias adjustment can be made.

Specifications

Measurement method	Electrical Resistance Method
Applications	Single plank, all wooden materials
Measurement range	5-40% (Depend on particular tree species)
Measurement precision	moisture < 20% ± 0.5%; moisture ≥ 20%± 2.0% (precision compared to standard resistance)
Display format	Digital (LCD, smallest displayed unit 0.1%)
Allowable temp. range	0-40°C
Additional functions	Automatic temperature compensation, Average value display, Auto Off (turns Power OFF automatically after approx. 5 min) Max value alarm setting (10 - 79%, or OFF), moisture value compensation (-9.9% - 9.9%)
Power source	6pcs. 1.5V Batteries ("AA" size Alkaline)
Power consumption	Approx. 0.45 W
Dimensions & weight	110 (W) x 210 (D) x 50 (H) mm, Net 0.5kg, Shipment 4kg
Accessories	4-Needle Sensor, 10x Spare Needles,Wrench, 6x 1.5V Batteries ("AA" Size Alkaline), Carrying Case, Shoulder Strap

Nondestructive Wood Moisture Tester
Model HM-530

The newest and smallest wood moisture tester, the HM-530 operates on the principle of electromagnetism. It is totally nondestructive to the surface of the wood being measured and can measure deep inside the wood. Using a built-in, powerful microcomputer, it displays direct readings. Any type of lumber can be measured by simply adjusting dials on the face of the instrument for depth, density and temperature. The tester comes with a manual listing the density of hundreds of wood types.

Specifications

Measurement method	Dielectric constant
Applications	Wood, plywood
Measurement range	2 ~ 150%
Accuracy	0.5%.
Alarm setting	4 ~ 19%
Power source	Battery 1 pc. 9V (006P Alkaline)
Dimensions	131(H) x 108(W) x 53(D)mm
Weight	Net 0.5kg / Shipment 1.5kg


Kett
ALARM 00%
13.0
%
TIMES
PAPER MOISTURE TESTER
HK-300
MEA EF 9
CONT CD 8
KL 6
AB 7
PRINT IJ 5
NAME QR 3
GH 4
CAL OP 2
AVERAGE ENTER
MN 1
CLEAR UV _
ON/OFF
ALARM ST 0
BIAS YZ
SELECT WX

OTHER MOISTURE TESTERS

Here we present some special moisture testers in addition to our grain, wood moisture testers and moisture analyzers.

Paper Moisture Tester
Model HK-300 Series (-1/-2/-3)

HK-300-1

This paper moisture sensor can measure the moisture content of a variety of paper types, such as kraft paper, liner board, copy paper and cardboard. The HK-300 series comes in three sets with different sensor types to accommodate the type of paper to be measured and the application : the HK-300-1 set includes a grip sensor, the HK-300-2 set includes an electrically conductive rubber sensor, and the HK-300-3 set includes a constant pressure sensor.

Specifications

Measurement method	Electrical Resistance Method
Applications	Kraft paper, Liner board, Copy paper, Cardboard, etc
Calibration curves	Kraft paper, Liner board, Copy paper, Cardboard
Standard method	JIS P8127 (copy paper, cardboard)
Measurement range	• Grip sensor : Copy paper, 4-15% / Cardboard, 6-20% • Conductive rubber sensor : Copy paper, 4-25% / Liner board, 6-23% / Kraft paper, 5-24% • Constant pressure sensor : Copy paper, 2-10% / Liner board, 5-15% / Kraft paper, 2-10%
Measurement precision	Standard error 0.4% (at 15% moisture or less)
Display format	Digital (LCD, smallest displayed unit 0.1%)
Power source	6x 1.5V ("AA" size Alkaline), approx 0.45W
Dimensions and weight	110(W) x 210(D) x 50(H)mm, 0.5kg
Accessories	Carrying Case, Shoulder Strap, 6x 1.5V Batteries ("AA" Size Alkaline)
Options	Printer VZ-330 (incl. cable VZC-26), Data logger KDL-01


HK-300-2


HK-300-3

Paper Moisture Tester
Model KH-70

Palm-top model KH-70 has six paper calibrations and one for customer calibration. Adopting Capacitance as measuring principle, the average moisture up to 65mm thickness can be obtained.

Specifications

Measurement method	Capacitance
Measurement range	0 ~ 33%
Accuracy	Depends on sample
Power source	Battery 9V (6LF22 Alkaline)
Dimensions	72 (W) x 150 (D) x 25 (H) mm
Weight	Net 0.15kg / Shipment 1.5kg

Concrete and Mortar Moisture Tester
Model HI-520-2

HI-520-2 is high frequency of the handy type that unified the main body and sensor parts-type moisture meter. It displays moisture value or high frequency capacity value corresponding to the quantity of water just to push a sensor part of HI-520-2 to an object lightly. In addition, it forwards measurement data to a PC from a USB terminal and can be busy in optional data logger software. HI-520-2 is used as an apparatus for moisture management widely in construction and the engineering works industries such as concrete building materials manufacturing industry, a waterproofing mechanic business, the painting business.

Specifications

Measurement method	High frequency capacitance (20MHz)
Applications/Ranges	LWC (ALA : Artificial lightweight aggregate concrete) 0 -23 % GYP (Gypsum board) 0-50 % Concrete 0-12 % ALC (Autoclaved lightweight concrete) 0-100 % Mortar 0-15 % CSB (Calcium silicate board) 0-15 % D mode 0-1999 S mode (only in S & D mode) 0-1100
Functions	Temperature correction, backlit, upper limit of moisture content alarm setting, hold, user calibrations (8 pcs.)
Display	Digital (LCD)
Power supply	9 V alkaline battery (006P) ×1
Power consumption	350 mW
Dimensions and weight	72 (W) × 146 (D) × 118 (H) mm, approx. 0.39 kg
Accessories	9 V Alkaline Battery (006P), Soft Case (with Strap)
Options	Data logger software HDL-01

Concrete and Mortar Moisture Tester
Model HI-800

To prevent removal of the mortar or tile from concrete, recently, injection of epoxy into the space between them is quite popular. However, if, moisture in the spot where epoxy should be injected is high, satisfactory adhesion can not be expected, thus this moisture meter has been developed based on the project planned by Ministry of Construction.

Specifications

Measurement method	Electric resistance
Measurement range	Concrete : 0 ~ 10% Mortar : 0 ~ 15%
Accuracy	0.5% ~ 1.5%
Measurement depth	50mm Max. Available upto 150mm as optional.
Power source	Batteries 4pcs. “AA” size
Dimensions	75 (W) x 145 (D) x 31 (H) mm
Weight	Net 0.5kg / Shipment 1.0kg

Universal Moisture Tester
Model HB-300

The HB-300 is new concept moisture tester which users can input calibrations easily by themselves for their own products.Various optional sensors can be available so that accurate measuremnt may be expected. Applications are solid, powder, granular or tablets, paste and sheets which are not including any electrolytic.

Specifications

Measurement method	Electric resistance
Measurement range	1 ~ 99% (depends on calibration & samples)
Accuracy	Depends on calibration
Ambient temperature	0 ~ 40°C
Power source	Batteries 6 pcs. “AA”size.
Dimensions	110 (W) x 210 (D) x 50 (H) mm
Weight	Net 0.5kg / Shipment 4.0kg
Options	Sensors, Printer VZ-330(incl. cable VZC-26), Data logger software KDL-01

Four Needled Sensor

Rubber Sensor

Pressure Type Sensor

Fresh Concrete, Mortar and Sand Moisture Tester
Model HI-300 / HI-330

The HI-300 and HI-330 are fresh concrete moisture testers. By loading fresh concrete (mortar) that has been wet screened on-site into the sample container and simply pressing the measure key, these testers can both easily measure the moisture content and moisture weight of the sample, and output control data to a printer. Further, in addition to measuring the moisture content of fresh concrete, the HI-330 is also capable of measuring the surface moisture of fine aggregate.

The photo shows the HI-330.

Specifications

Measurement method	High frequency volumetric method
Applications	Mortar (wet screened fresh concrete). HI-330 is for mortar or fine aggregate
Measurement range	Mortar: 20-40% (volumetric ratio). Fine aggregate: ≥15% (surface moisture), Fresh concrete: 120-240 kg/m3 (unit quantity of water)
Measurement precision (Standard deviation)	Mortar: ± 0.3% (moisture), Fine aggregate: 0.14% (surface water), Fresh concrete 1.0 kg/m3 (unit quantity of water)
Display format	Digital (LCD, smallest displayed unit 0.1%)
External output	RS-232C Interface
Power source	AC100V (when using 6V AC adaptor), or 6x 1.5V Batteries ("C" size)
Additional functions	Unit water estimation, Water/cement ratio estimation, User scale logging, Composition Data logging, Average value, 126 data point memory, Auto Power OFF after 15 min. Varies between models
Dimensions & weight	300(W) x 264(D) x 197(H) mm, 2.5kg
Accessories	Sample Case, Exchange Connectors, Dummy, AC Adaptor, Carrying Case. Variations Between Models
Options	Printer VZ-350 (incl. cable VZC-12), Wet screener TZ-610


Kett
Infrared Moisture Analyzer FD-660
120°c
15min
66.0%
AUT
Tare/Reset
Pre Heat
Menu
Select
Enter
Start/Stop

INFRARED MOISTURE ANALYZERS

The model FD series utilize the same principles as the internationally accepted air-oven method for moisture determination. Each measurement is accurate and repeatable without the need for extensive operator training. The built-in microcomputer system provides continuous sample weight monitoring, thus allowing for exact plotting of moisture versus time. Results are available much quicker with the FD series than with the standard air oven. The Model F series moisture analyzers are easy to use, feature a rugged, durable body construction and are highly accurate. Our more than 40 years of experience in this field will assist you in your moisture control efforts.

Infrared Moisture Analyzer
Model FD-800
Dual temperature sensing method

The FD-800 employs a dual temperature sensing method to achieve highly precise moisture measurements. In addition to the thermistor that measures the environment temperature within the drying chamber, it is mounted with a radiation thermometer that measures the sample temperature directly without contact.

Specifications

Measurement method	Detection of weight loss by heating & drying
Sample mass	0.1-120g (optional weight sampling)
Measurement subject	Moisture / Solid content / Weight
Measurement range	0-100% (wet base, solids); 0-500% (dry base)
Repeatability (Standard deviation)	Sample with a weight of 5g or higher : 0.05% Sample with a weight of 10g or higher : 0.02%)
Resolution	Moisture percentage 0.01% / 0.1%; Weight 1 mg Temp. setting range for thermistor (T1) : 30 - 180˚C (1˚C interval); for radiation thermometer (T2) : 30 - 250˚C (1˚C interval)
Measurement modes	Automatic stop mode, Timer stop mode, Rapid drying mode, Equilibrium drying mode, Step drying mode, Predictive (comparative) measurement mode
External output	RS-232C interface
Environmental conditions	Temperature 5~40˚C, Humidity : max of 85%RH Pollution degree 2, Altitude up to 2000m
Sample dish	SUS (diameter 130 mm, depth 13 mm)
Heat source	Mid-wave infrared quartz heater (200Wx2)
Power source	AC100~120V / 220~240V (50/60Hz), Max 900W
Dimensions & weight	220(W)x415(D)x220(H), 5.4Kg / Shipment 10Kg
Accessories	Spare Sample Pan, Aluminum Sheets, etc.
Options	Printer VZ-330 (incl. cable VZC-14), 10x Printer paper rolls, 500x Aluminum sheets, Radiation thermometer calibration kit GF-200 (digital thermometer, standard heating sample), Data logger software FDL-02, Windshield with deodorizer case FW-100

Infrared Moisture Analyzer
Model FD-720
Most advanced Moisture Analyzer

FD-720 is the most advanced new Moisture Analyzer.Equipped with high accuracy analytical balance and new designed long life(20,000 to 30,000 hours) Mid-wave Infrared quartz heater and 6 different measurement modes.The unique Bias function allows adjustment to the data Obtained by other measuring methods or other testers.

Specifications

Measurement Method	Heat drying and weight loss
Sample mass	0.5~120g
Measurement subject	Moisture / Solid content / Weight
Reproducibility (Standard deviation)	Sample with a weight of 5g or higher : 0.05% Sample with a weight of 10g or higher : 0.02%
Measurement range	0~100%(wet base, solids), 0~500%(dry base)
Resolution	0.01%, 1mg
Temp. range	30-180˚C
Measurement modes	Automatic operation mode : Timed operation mode (1~240min or continuous) : High-speed drying mode : Low-speed drying mode : Stepped drying mode (max of 5 steps) : Predictive measurement mode
External output	RS-232C interface
Environmental conditions	Temperature 5~40˚C, Humidity : max of 85%RH Pollution degree 2, Altitude up to 2000m
Sample dish	SUS (diameter 130 mm, depth 13 mm)
Heat source	Mid-wave infrared quartz heater (200Wx2)
Power supply	AC100~120V / 220~240V (50/60Hz), Max 900W
Size and Weight	220(W)x415(D)x190(H), 4.5Kg / Shipment 10Kg
Accessories	Sample dish 2 pcs, Sample dish handler 2 pcs, Wind shield, Sample dish tray, Spoon and spatula set, Spare fuses(T8A 250V) 2 pcs, Power Cord, Aluminum sheets(20 pcs)x2, Operating Manual
Options	Printer VZ-330 (incl. cable VZC-14), Data logger software FDL-02, Radiation thermometer calibration kit GF-100, Windshield with deodorizer case FW-100

Infrared Moisture Analyzer
Model FD-660
Simple Operating Type

The development concept of infrared moisture analyzer FD-660 in total is "simple operability". On this account the operation of this container is simple, and the indication becomes plain, too. However, the basic function is equipped enough.The heating department of FD-660 adopts the carbon heater which thermal efficiency is good. In addition, the carbon heater is eco-friendly because the harmful inorganic materials are not used.

Specifications

Measurement method	Detection of weight loss by heating & drying
Sample mass	1 - 80g (optional weight sampling)
Measurement subject	Moisture / Solid content / Weight
Measurement range	0 - 100% (wet base, solids), 0 - 500% (dry base)
Repeatability(standard deviation)	Samples with a weight of 5g or higher : 0.1%
Resolution	Moisture percentage 0.01% / 0.1%; Weight: 0.005g (The indication of 0.01% is not a guarantee of accuracy.)
Measurement modes	Automatic stop mode, Timer stop mode (1 - 120 min.)
Temperature setting range	30 to 180˚C (in steps of 1˚C, temperature on dish)
Display	Backlit LCD display (96 x 40mm)
External output	RS-232C interface
Environmental conditions	Temperature 5-40˚C, Humidity : 85%RH or less (no condensation)
Sample dish	SUS (diameter 110 mm, depth 11 mm)
Heat source	Organic carbon heater (280 W x 2)
Power source	AC100~120V / 220~240V (50/60Hz), Max900W
Dimensions & weight	222(W)x360(D)x196(H), 3.2Kg / Shipment 8Kg
Accessories	Sample Dish x2, Sample Dish Handler, Wind Shield, Sample Dish Tray, Spoon, Spare Fuse, Package of Aluminum Foil Sheets (10 Per Package), Power Cord (Power Plug Conversion Adapter)
Options	Printer VZ-330 (incl. cable VZC-14), Printer paper (10 rolls), package of Aluminum foil sheets (500 sheets), RS-232C cable VZC-52, Data Logger software FDL-02, Sample crusher TQ-100, Deodorizing windshield case FW-100

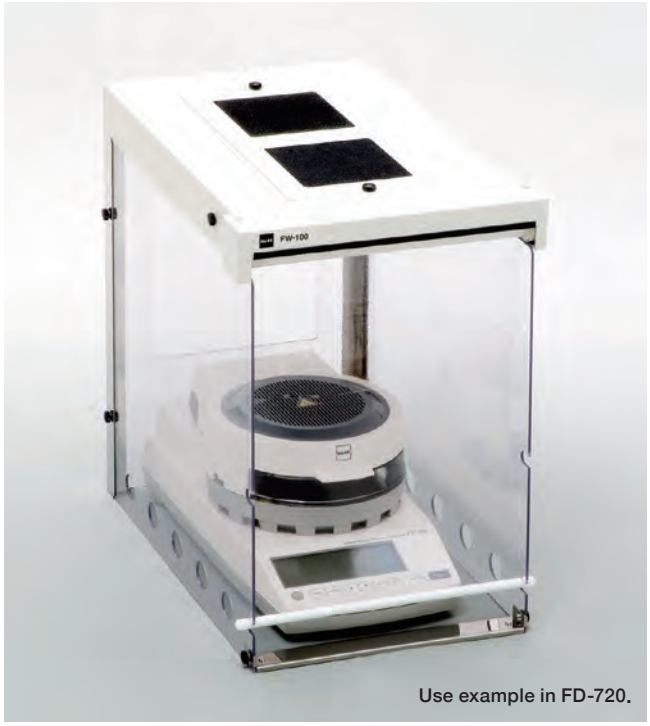
Micro Moisture Analyzer
Model FM-300A

This simple-to-use system allows the user to accurately measure samples as low as two parts per million(2ppm).
Unlike Karl Fisher Titrators since no chemical reagents are used, only moisture is measured (as chemical interaction is eliminated).Kett's FM-300A eliminates the cost of reagents and preparation necessary for Karl Fisher Titrators as well as the expensive disposal cost of the verious wastes.

Specifications

Measurement method	Filter Moisture Adsorption
Sample mass	10mg~5g
Resolution	0.01mg) / 2ppm (When a sample weights 5g)
Measurement mode	Time/Automatic measurement
External I/O	Standard RS-232C serial interface Parallel out-put for optional printer
Heat source	400W EC heater
Power source	AC100/120/220/240V(50/60Hz)
Dimension & weight	Net ; 585(W)x520(D)x480(H)mm, approx.37kg Shipment ; (Wooden)750x620x550(mm), approx.48kg (Carton)520x420x380(mm), approx.8.5kg
Options	Printer VZ-330 (incl. cable VZC-15), Data logger software(KDL-01)

Windshield with Deodorizer
Model FW-100



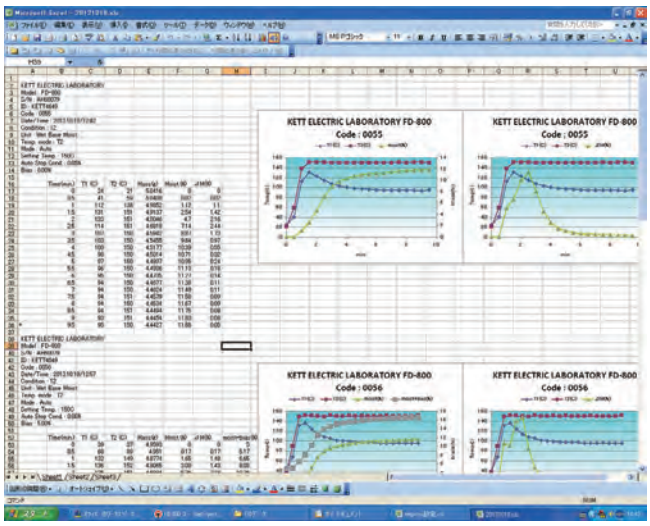
Use example in FD-720.

FW-100 is a windshield for the infrared moisture analyzer FD series, fitted with a deodorizing function. When an infrared moisture balance is placed within, the FW-100 reduces the effect of external air currents on the high precision balance. Furthermore, depending on the sample type, unpleasant odors may sometimes be emitted during moisture measurement. The deodorizing filter reduces this odor.

Specifications

Dimensions	333 (W) x 465 (D) x 509 (H) mm(when assembled)
Weight	5.3 kg
Applicable devices	FD-800, FD-720, FD-660, FD-620, FD-610, FD-600, FD-240
Set contains	Upper Lid (includes shutter, 2x deodorizing filters), 2x Side panels, Rear panel, Front face metal fixtures
Replacement parts	Deodorizing filter

Data Logger Software
Software "FDL-02"



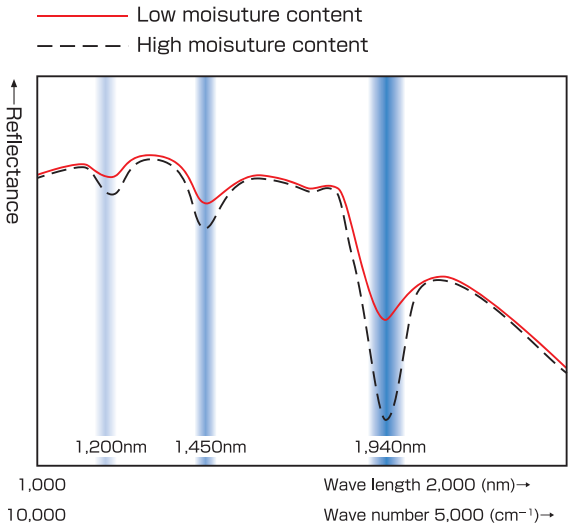
The FDL-02 software is software for processing measurement data from our “Infrared moisture analyzer FD-660, FD-720 and FD-800” via an RS-232C, on a personal computer (“PC” below) running Microsoft Windows 2000 / XP/ Vista. Measurement data uploaded into the PC can be automatically pasted into Microsoft Excel (“Excel” below). This document describes how to operate the “FDL-02 software”. Please read thoroughly before use. For instructions on using the computer, operating system (Microsoft Windows XP / Vista(32bit) / 7 / 8 / 8.1), application software (Microsoft Excel 2003 / 2010 / 2013), etc, please refer to individual operating manuals.

Compatible infrared moisture analyzers:
Model: FD-660 / FD-720 / FD-800


Near Infrared Grain Tester
AN-920
01-10-2016 11:00
01 Short Brown Rice

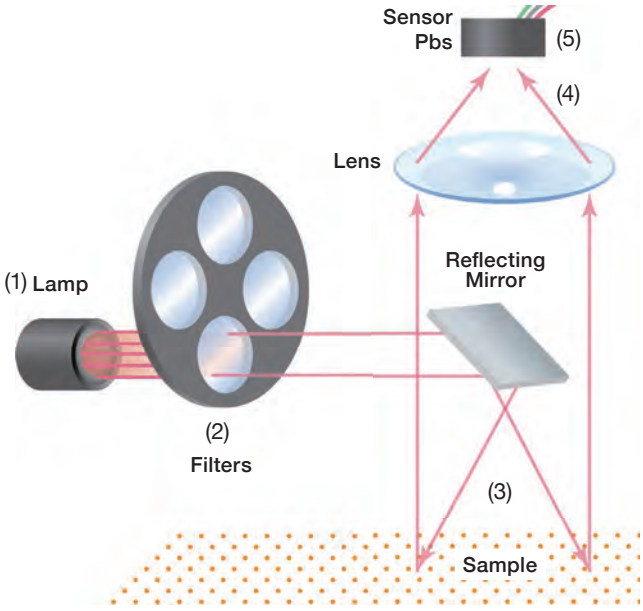
NEAR INFRARED COMPOSITION ANALYZERS & MOISTURE METERS

Analyzing the constituents in foods makes it possible to understand the foods nutritional value. Measurement plays an important role in the betterment of people and in the improved use of products. Kett is a pioneer in advanced measuring devices utilizing near-infrared light and continues to produce measuring devices designed to meet the various needs of our times. Building a record of achievements in the fields of medicine, health, and foods, Kett near-infrared measuring devices have gained an even greater reputation.



Principle of near infrared light absorption

When a substance containing component is illuminated with near infrared light, the energy of the light is absorbed by the material. This absorption is proportional to the amount of constituent within the product. This phenomenon occurs due to the structure of the component molecule. These molecules resonate with certain wavelengths of near-infrared light.
The process of resonating captures and uses the energy of the light rather than reflecting it.
To measure constituents, at least 5-7 filters with different wavelengths should be used.



Near-infrared component analyzer mechanical design:

(1) A tungsten light bulb is used to generate near infrared energy.
(2) A rotation disk containing narrow bandpass optical filters is spun in front of the tungsten bulb. The filters pass specific wavelengths of light which are absobed by component as well as reference wavelengths.
(3) The 5-7 wavelength bands are alternatively directed on to the sample.
(4) An optical sensor (lead sulfide) measures the amount of energy which is reflected from the sample for each of the wave lengths.
(5) The internal micro-computer calculates the ratio of the amount of light absorbed at the 5-7 wavelengths bands. This ration is used to determine the amount of constituents within the sample.

Samples and their moisture content

Subject	Installation location	Components to measure	Range (%)	SEP (%)
Raw wheat grain	Over conveyor	Moisture	20-40	0.8
Dry wheat grain	Over conveyor	Moisture	8-20	0.4
Wheat flour	Inside pipe	Moisture	8-18	0.2
Wheat flour	Inside pipe	Protein	7-15	0.3
Corn grits	Over conveyor	Moisture	6-19	0.3
Powdered skim milk	Inside pipe	Moisture	2-8	0.1
Powdered skim milk	Inside pipe	Oil	0.5-1.5	0.05
Butter	Over conveyor	Moisture	13-20	0.2

Subject	Installation location	Components to measure	Range (%)	SEP (%)
Yogurt	Inside pipe	Oil	2.5-5	0.05
Yogurt	Inside pipe	Protein	3-5	0.05
Sugar	Over conveyor	Moisture	0-5	0.05
Salt	Over conveyor	Moisture	0-5	0.02
Salt	Over conveyor	Mg concentration	0-0.06	0.002
Dired seaweed	Over conveyor	Moisture	7-12	0.2
Dired seaweed	Over conveyor	Protein	20-60	1
Frying oil	Inside pipe	Acid value	0-1.5	0.1

NIR Moisture Meter

Model KJT-130

Handheld Model

The first-ever battery operated moisture meter
The world's first rechargeable battery operated portable moisture meter enables measurements where no AC power is available. The instrument requires a 6.8 volt DC source. A battery compatible with the Sony 8mm video Handycam(tm) can be used.

Distance indicator
A unique and easily used system is employed to determine the measuring distance from the instrument to the object. Two light sources are used, a red and a white. When the red circle of light (10mm) is within the white circle (25mm) then the instrument is 150mm from the object and at the correct measuring distance.

Simple analytical curve selection
Five different analytical curves can be programmed into the F1 through F5 keys. At the touch of an F button the appropriate curve is selected.

Storage of up to 99 readings
The instrument will store up to 99 moisture measurements in nonvolatile memory. Even removing power will not cause memory loss. Also stored are the time the readings were taken and the actual absorbance data.

Small and light
The unit is lightweight (1.1kg) and compact, easily carried to the measurement site. It can be mounted on a standard tripod or other available support accessories.

Data hold function
A Simple button press will keep the last measurement made on the display until the sampling mode button is pressed. In normal on-line applications, measurements can be continuously displayed.

Optional parts list

Model	Model name	Description
KJT-130-CBL	RS-232C cable	One-side D-SUB25P-M
KJT-130-ADC	AC adapter	DC6V
KJT-130-FDP	Hood extension	150mm when mounted
KJT-130-PRT	Thermosensitive printer	4 size "AA" dry-cell batteries
KJT-130-RSP	Printer cable	
KJT-130-BAT	Battery pack	6V, 2400mAH
KJT-130-PC	PC software	NEC PC-9801

Specifications

Measurement distance	150mm±25mm
Measurement diameter	ø25mm (150mm)
Measurement distance Indication	The red LED beam falls on the circumference of the measurement beam.
Response time	2 seconds
Display refresh cycle	0.2 seconds
Number of analytical curves	50
Display	LCD with back light
Display character	Alphanumeric characters, symbols
External communications	RS-232C, Equivalent to Hirose MX30-6P-C.
External output data	Measured data, Analytical curve data, Input data for analytical curve calculation
External connecting devices	Dedicated printer (one-way communication) IBM PC compatible (two-way communication)
Power source	Nickel metal hydride battery "AA"size x 6pcs
Mounting screw for fixing	3/8-inch standard mounting screw
Ambient temperature	10 to 30°C (temperature compensation range)
Ambient humidity	0 to 80%RH (without condensation)
Dimensions	210 (W) x 102 (D) x 172 (H) mm
Weight	Net 1.1kg / Shipment 3.0kg
Accessories	Battery, Carrying Case, Hood With Zero Adjustment Plate AC100V To 240V Charger, Strap

NIR Moisture Analyzer
Model KB-230
Desk Top Model

Measurement of samples with rough grains
The KB-230 measures by emitting near-infrared at the flat bottom plane, rotating the rotation table to obtain higher uniformity. In this method, variation in measurement is reduced.

Instant response
Just place the sample on the measurement window, close the light shielding cover, and then press the measurement button.

Two types of measuring mode
There is a normal measurement mode, in which the average of the measurements will be displayed; a continuous measurement mode, in which chronological change of the moisture can be checked.

Selectable sample cell and measuring method
Not only the accessory Petri dish, the sample cell can be selected from disposable polyethylene bag or sheet. Otherwise, the sample can be placed directly. For the samples that is impenetrable to near-infrared, the light shielding cover is not necessary. Therefore, the cover can be removed and the work efficiency will improve.

Covers wide range of measuring objects
Wide variety of samples can be measured including agricultural products, food product materials, processed goods, medical and pharmaceutical products, papers, and minerals. Also, any types and forms can be measured.

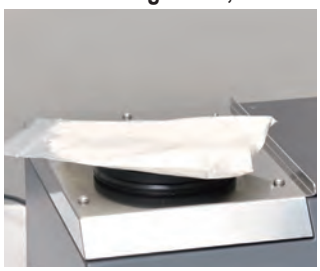
*** Making a calibration curve is necessary.**

A function to make a calibration curve
If samples are prepared so that they cover the target moisture range equally, the calibration curve can be made just using this device.

Petri dish: Grains, etc.

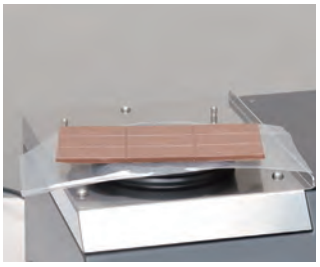
It is suitable for uneven grains, large grains, or grains whose moisture degree largely fluctuates.

Plastic bag: Flour, etc.



It is suitable for grains, powders, sheets, or ones whose moisture degree largely fluctuates.

Polyethylene sheet: Chocolate, etc.



It is suitable for large solid that may taint the measurement window.

Direct placement: Dried noodles, etc.

It is suitable for large solid that will not taint the measurement window.

Specifications

Measurement method	Near-infrared reflection, light projected/received at the bottom plane
Spectroscopy	Filter
Measurement diameter	ø25mm
Measurement time	Normal measurement: 7 sec. (subject to the setting)Continuous measurement: 0.5 sec. interval
Display refresh cycle	0.3 seconds
Number of analytical curves	50
Light source	Tungsten lamp (standard life: 20000 hours)
Display	Organic EL
Input/Output	USB (for PC I/O), RS-232C (for printer output)
Light source	Tungsten lamp
Operating humidity range	5 to 35°C (no condensation) / 30 to 80%RH
Power supply	100-240 V AC (50/60Hz), 40W
Dimensions/Weight	415 (W) x 370 (D) x 226 (H) mm / 13 kg
Accessories	Light shielding cover, Sample cell (Petri dish, ø90 mm), Zero-adjustment plate, Sample cell holder, Power cable, Fuse (spare), First Guide, Operating Manual

NIR Composition Analyzers

Model KJT-270 / KTE-270F

Desk Top Models

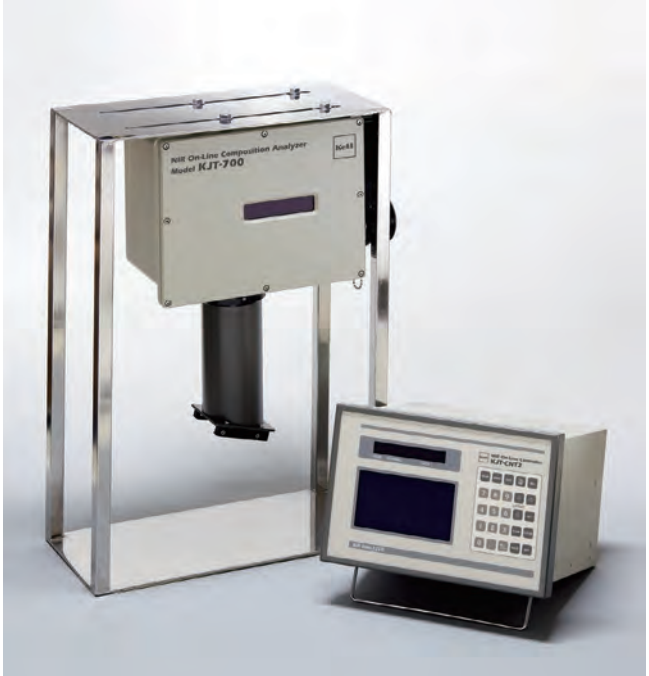
The KJT-270 is a desktop near-infrared composition analyzer. Just put the sample in the sample tray and place the tray on the turntable, and this high-precision component analyzer can measure it. When testing simple substances, this unit can display 4 component analyses consecutively, and when connected to a personal computer, 4 component analyses can be displayed simultaneously. The KTE-270F enables measurement with both transmittance and reflectance. By preparing two fiber probes for transmittance and reflectance, 270F can be available for many samples.

- Plural components can be measured by a single operation.
- Low cost and compact.
- Even liquid sample can be measured.
- 270F enables measurement with both transmittance and reflectance.
- The PC software is supplied as standard equipment.

Specifications

Measurement method	KJT-270: Near infrared Reflectance KTE-270F: Near infrared transmittance and reflectance
Applications	Milk powder, Wheat flour, Buckwheat powder, Rice powder, Fish powder, Feed, Processed paper, Non-woven paper, Organic solvent, Film, etc.
Components	Moisture, Protein, Oil, Sugar content, Fiber content, etc.
Measurement range	differs depending on the sample
Display format	Digital(LED)
Output	RS-232C interface
Power source	AC100-240V(50/60Hz)
Dimensions & Weight	249(W)x300(D)x335(H)mm, 9.5kg

NIR Composition Analyzer
Model KJT-700
On-Line Models



Controller KJT-CNT2 is optional (Front).

A CPU is installed in the sensor head for intelligent operation. The KJT-700 allows flexible system configurations to meet a variety of application.The sensor head display yses high intensity red LED's for clear visibility lighted areas. The processor unit uses both high intensity LED's and LCD display for alphanumeric characters.The sensor head can be remotely monitored for information such as reflectance voltages, reference wavelengths, temperatures and humidity. When there is a change in the material being measured which results only in an offset bias (instead of a slope change), this function can be offset value rather than changing the analytical curve.The KJT-700 production line model can be integrated into a closed loop systems. The instrument responds to commands send from the host through the RS-232C communication line.

Specifications

Measurement method	Near infrared Reflectance
Measurement distance	350mm±50mm
Measurement diameter	Φ50mm (at 350mm)
Light source	Tungsten lamp (20000 hours or more)
Display	Red color 7 segment LED
Number of analytical curves	99
Ambient temperature	0 - 40°C
Ambient humidity	0 - 95%RH (without condensation)
External communications	RS-485×2, DC4-20mA
Power source	AC 100V / 200V±10% (50/60Hz)
Power consumption	50VA
Protection	Against dust and drop-proof
Dimensions & Weight	361(W)×177(D)×451(H)mm, 11 kg
Accessories	Power cable, Zero adjustment plate, Mounting bolt, etc.
Options	Controller KJT-CN2T, etc.

NIR Composition Analyzer
Model KJT-70-5 / 70-7
On-Line Models

Controller KJT-CNT2 is optional (Rear).

Low cost KJT-70-5 (equipped 5 filters) and KJT-70-7 (equipped 7 filters) can be available to satisfy customer's requirement.The PC software supplied as standard accessory makes controller optional.The sensor head can be remotely monitored for information such as reflectance voltages, reference wavelengths, temperature and humidity.

Specifications

Measurement method	Near infrared Reflectance
Measurement distance	170mm±10mm
Measurement diameter	Φ40mm (at 170mm),Option Φ15mm
Light source	Tungsten lamp (20000 hours or more)
Display	Red color 7 segment LED
External communications	RS-232C / RS-485, DC4-20mA
Number of analytical curves	50
Ambient temperature	0 - 40°C
Ambient humidity	0 - 95RH (without condensation)
Power source	AC 100V / 200V±10% (50/60Hz)
Power consumption	50VA
Protection	Against dust and drop-proof
Dimensions & Weight	322(W)×176(D)×319(H)mm, 8 kg (with cooling fan 9.3 kg)
Accessories	Power Cable, Zero Adjustment Plate, Mounting Bolt, etc.
Options	Controller KJT-CN2T, etc.

NIR Moisture Analyzer
Model KB-30
On-Line Model

KB-30 successfully can be connected to a personal computer, which made its main part design simple and realized a low price. When necessary, you can also use it by itself alone after all the settings have been completed. KB-30 is composed with tested long life parts. The electric bulb and the wheel motor can be replaced in a short time with ease of access. KB-30 has realized easy operation by dialogue with the software based on Windows OS.(Windows is a registered trademark of Microsoft Corporation.)KB-30 can use both outer communications RS-232C and RS-485 with a jump switch inside of it. It can be connected with 15 sensor heads via RS-485.

Specifications

Measurement method	Near infrared Reflectance
Measurement distance	260mm±30mm
Measurement diameter	Φ25mm (at 260mm)
Light source	Tungsten lamp (20000 hours or more)
Display	Red color 7 segment LED
External communications	RS-232C/RS-485
Number of analytical curves	50
Ambient temperature	5-35˚C
Ambient humidity	30 - 80%RH (without condensation)
Power source	AC 100V - 240V (50/60Hz)
Power consumption	50VA
Protection	IP66
Dimensions & Weight	268(W)×140(D)×306(H)mm, 7kg
Accessories	Power Cable, Zero Adjustment Plate, Mounting Bolt, etc.
Options	Controller KJT-CN2T, PC Software, RS-232C cable 3m

NIR General-purpose Controller
Model KJT-CNT2

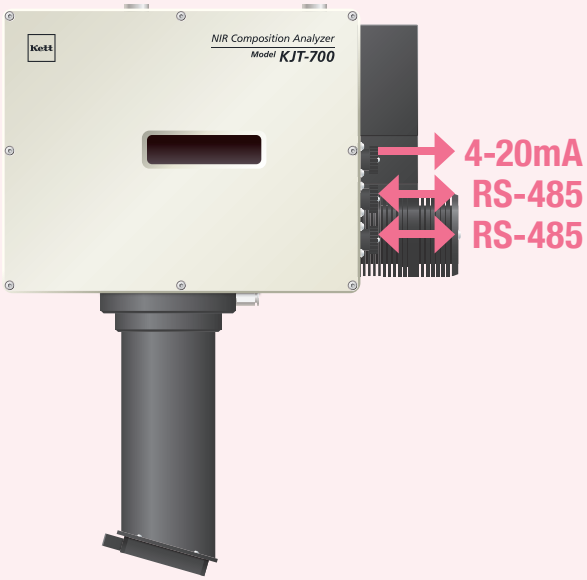
Controller KJT-CNT2 combines it with the near infrared composition Analyzer KJT series and near-infrared moisture Analyzer KB series in total in total and uses it. It is a control unit it controls a sensor head of the KJT / KB series or to forward the measurement data from a sensor head to an uptake PC.A sensor head equivalent is KJT-700, KJT-70, KB-30.

Specifications

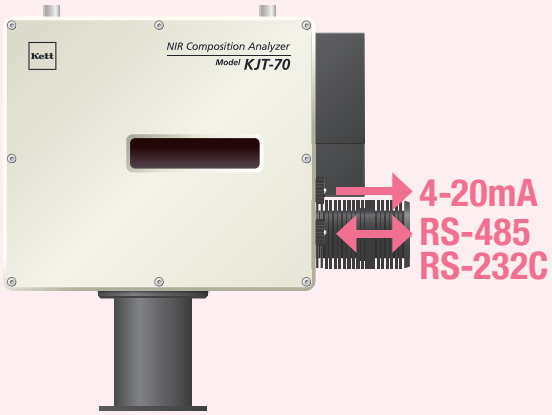
Number of analytical curves	Max 99
Time constant	0 - 99.9(0.1sec./step)
Display refresh cycle	0.5 seconds
Analog current output	DC4 - 20mA
External communications	RS-485, RS-232C / USB / LAN(Option)
Fialure output	Contact point output
Alarm output	Complies with upper/lower limit setting values
Ambient temperature	0-40°C
Ambient humidity	0-95%RH (without condensation)
Displays	Red color 7 segment LED, LCD display
Power source	AC 100V / 200V±10% (50/60Hz)
Power consumption	20VA
Dimensions	270(W) × 258(D) × 196-246(H)mm
Weight	7kg
Option	Interface board

Input and output specification

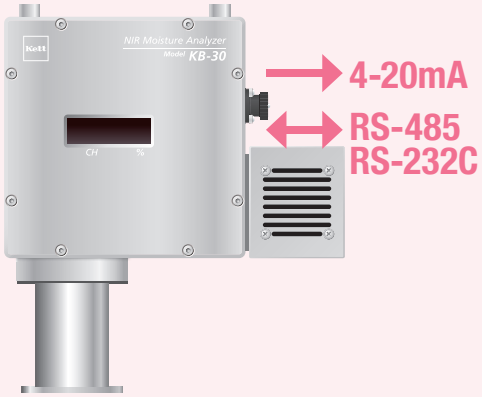
KJT-700



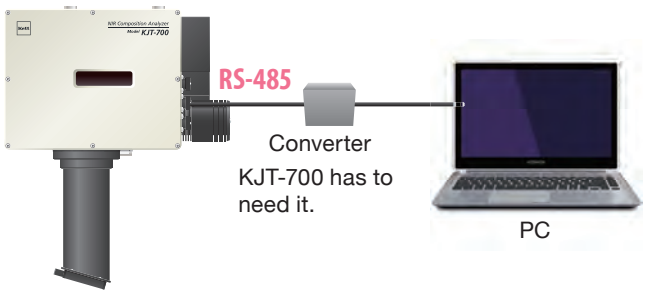
KJT-70

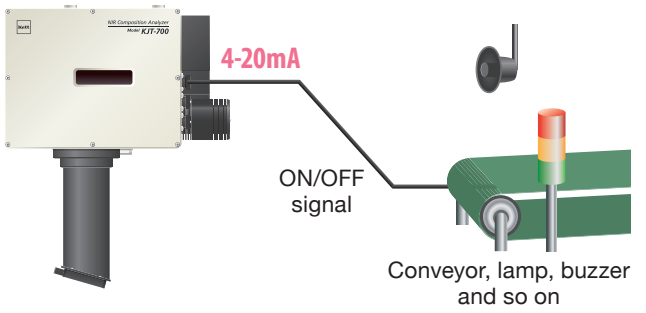


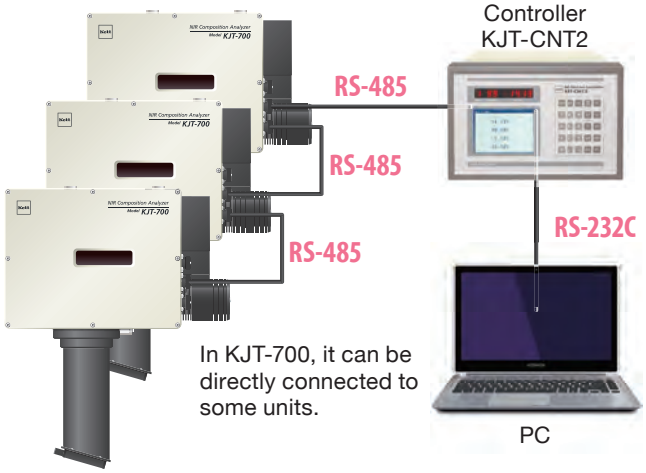
KB-30

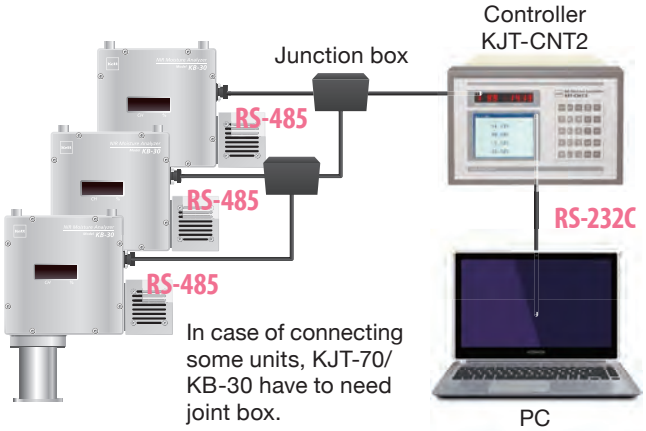


Connection example

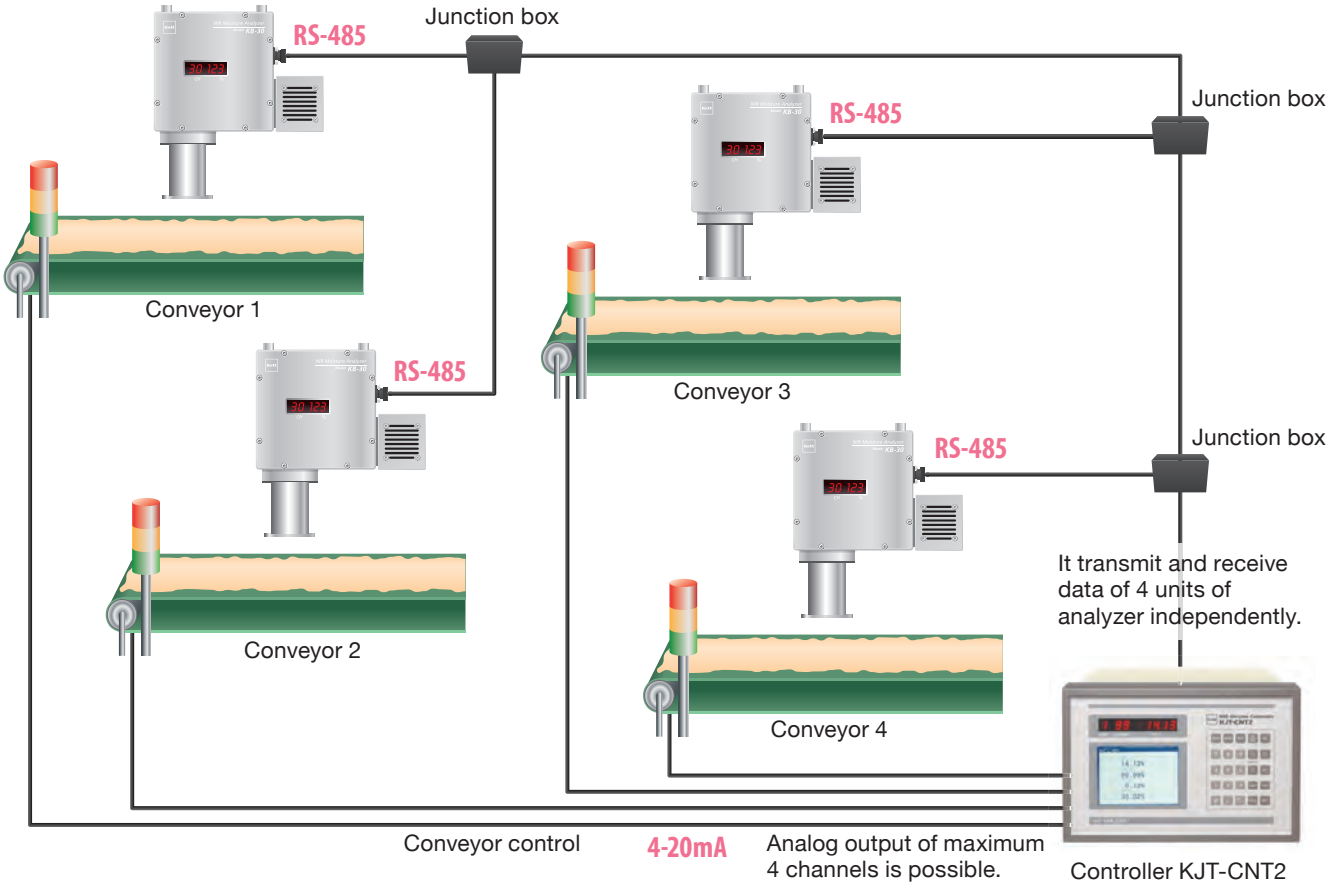


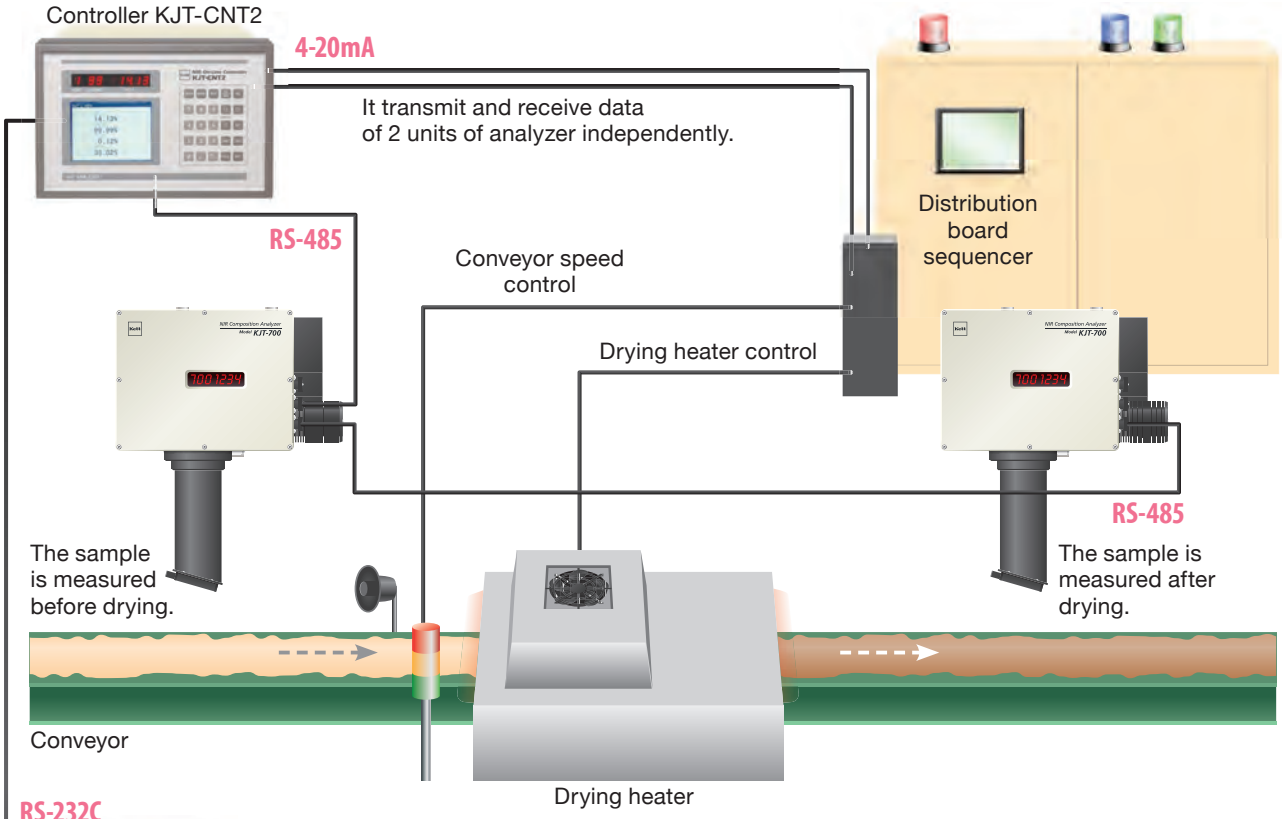






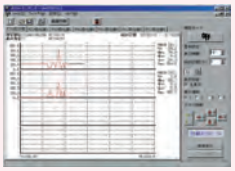
Configuration example



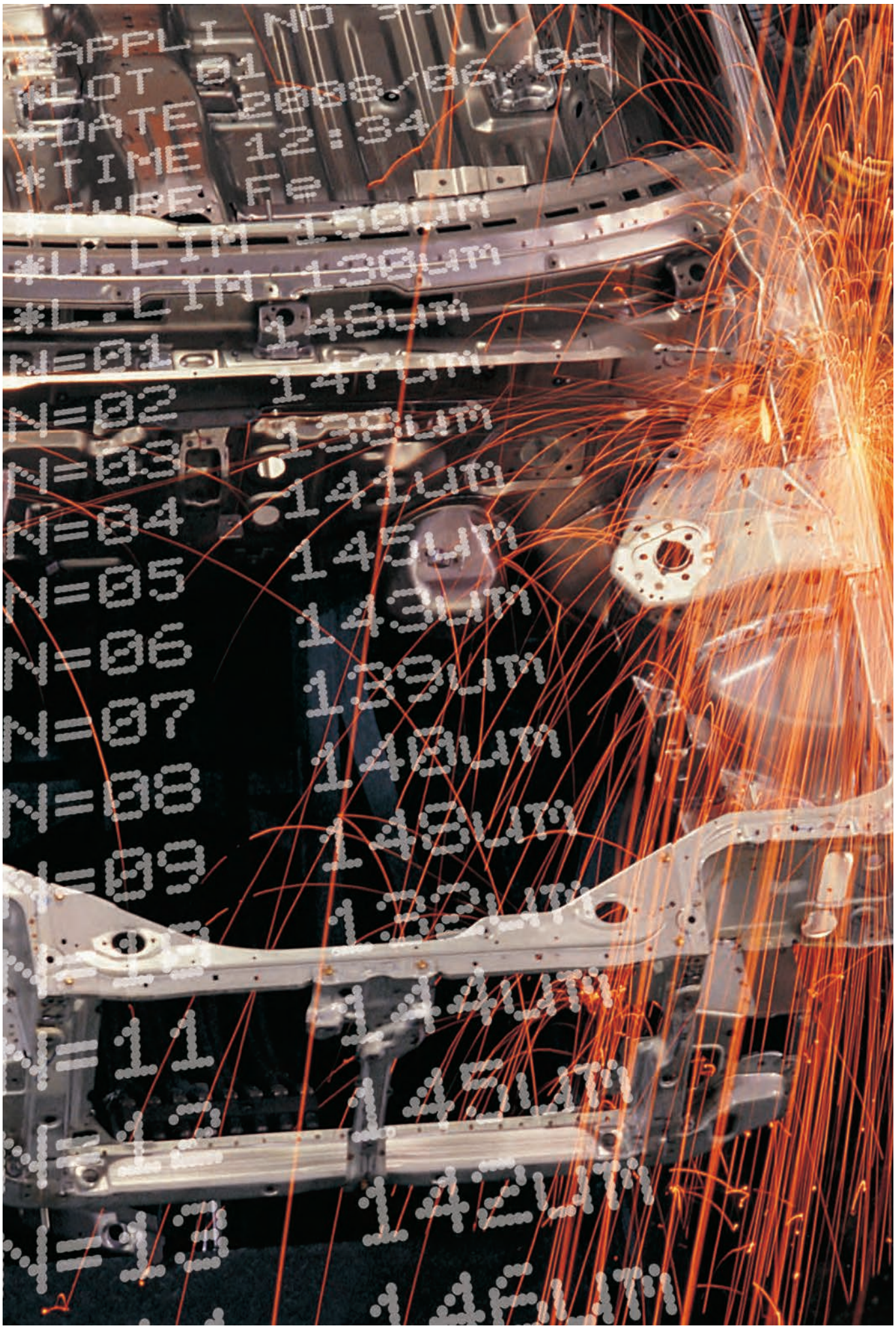


PC software (Accessory)

It is possible to display numerical data, write as CSV data, read to excel, confirm calculation result of calibration curve, display calibration curve graph and transmit calibration curve to main unit easily. In addition, it is possible that trend display of various statistical processing result of maximum 4 channels that read online is done.



4ch trend display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COATING THICKNESS TESTERS

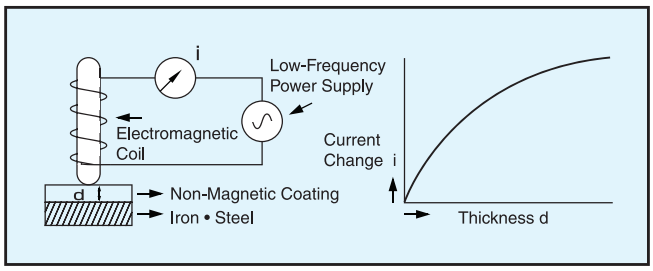
KETT's thickness testers are the finest nondestructive testers of their kind, developed as the result of years of experience in the technology of electronic thickness testers. They are capable of accurately measuring the thickness of coatings on nonferrous and on ferrous substrates which cannot be done by conventional thickness testers. Direct readings are displayed in digital format on these extremely easy-to-use, portable instruments.

• Principle of measurement.

Electromagnetic induction method :

For measuring the thickness of non-magnetic coatings on magnetic metal substrates.

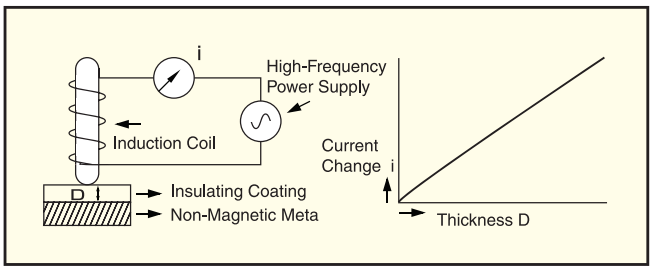
When an alternating current electromagnet is brought near iron (or other magnetic metal) the number of magnetic flux lines passing through the coil changes in proportion to the distance, thereby causing a change in the voltage at the ends of the coil. This change in voltage is determined from the current value and this is used to compute the thickness of the coating.



Eddy Current method :

For measuring the thickness of insulating coatings on non-magnetic metal substrates.

An eddy current is produced in the surface of a metal when a coil through which a current of fixed frequency is brought near the metal. This eddy current and the voltage at the ends of the coil change in proportion to the distance between the coil and the metal surface. This change can be determined from the current value and this is used to calculate the thickness of the coating.

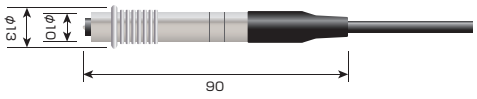
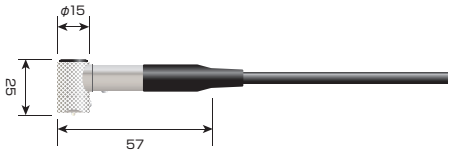
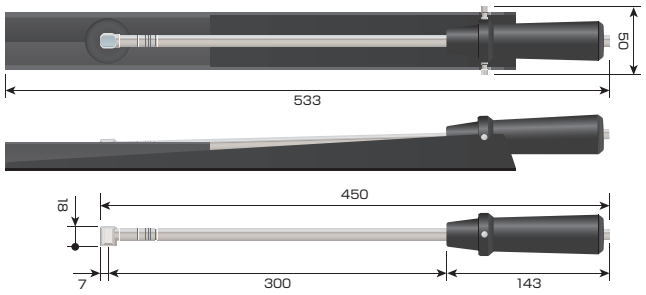


• Selection table for coating thickness measurement methods.

Substrate \ Coating	Aluminium	Lead	Chromium	Anodiging Chromale Phosphate	Enamel Paint Rubber Plastics	Gold	Cadmium	Copper	Solde	Brass	Nickel (magnetic)	Nickel (electroless)	Palladium	PVD CVD coatings	Rhodium	Silver	Zinc	Tln
Aluminium and alloys		Ⓑ	Ⓧ Ⓑ	Ni:Fe	Ni:Fe Ⓑ	Ⓑ	Ⓑ	Ⓑ	Ⓑ	Ⓑ	Fe Ⓑ	Ⓑ	Ⓑ		Ⓑ	Ⓑ	Ⓑ	Ⓑ
Glass Ceramic Plastic	Ⓧ Ⓑ	Ⓑ	Ⓑ			Ⓑ	Ⓑ	Ⓧ Ⓑ	Ⓑ	Ⓑ	Fe Ⓑ	Ⓑ	Ⓑ	Ⓑ	Ⓑ	Ⓑ	Ⓑ	Ⓑ
Gold			Ⓑ		Ⓑ								Ⓑ		Ⓑ	Ⓑ		
Hard metals	Ⓑ	Ⓑ	Ⓧ Ⓑ	Ni:Fe	Ni:Fe Ⓑ	Ⓑ	Ⓑ		Ⓑ		Fe		Ⓑ	Ⓑ	Ⓑ	Ⓑ		Ⓑ
Kovar	Fe Ⓑ	Fe Ⓑ	Fe		Fe Ⓑ	Ⓑ	Fe Ⓑ	Fe	Fe Ⓑ	Fe			Fe Ⓑ	Fe Ⓑ	Fe Ⓑ	Fe Ⓑ	Fe	Fe Ⓑ
Copper and alloys	Ⓑ	Ⓑ	Ⓧ Ⓑ	Ni:Fe	Ni:Fe Ⓑ	Ⓑ	Ⓑ		Ⓑ		Fe		Ⓑ	Ⓑ	Ⓑ	Ⓑ		Ⓑ
Nickel	Ⓑ	Ⓑ			Ⓑ	Ⓑ	Ⓑ		Ⓑ				Ⓑ	Ⓑ	Ⓑ	Ⓑ	Ⓑ	Ⓑ
Silver					Ni:Fe Ⓑ	Ⓑ						Ⓑ						
Iron and Steel	Fe Ⓑ	Fe Ⓑ	Fe	Fe	Fe Ⓑ	Fe Ⓑ	Fe Ⓑ	Fe	Fe Ⓑ	Fe	Fe	Fe	Fe Ⓑ	Fe Ⓑ	Fe Ⓑ	Fe Ⓑ	Fe	Fe Ⓑ
Steel (non-magnetic)	Ⓑ	Ⓑ			Ni:Fe Ⓑ	Ⓑ	Ⓑ		Ⓑ		Fe		Ⓑ	Ⓑ	Ⓑ	Ⓑ		Ⓑ
Titanium and alloys		Ⓑ			Ni:Fe Ⓑ	Ⓑ	Ⓑ	Ⓑ	Ⓑ	Ⓑ	Fe Ⓑ		Ⓑ		Ⓑ	Ⓑ	Ⓑ	Ⓑ
Zinc and alloy	Ⓑ	Ⓑ			Ni:Fe Ⓑ	Ⓑ	Ⓑ		Ⓑ		Fe		Ⓑ	Ⓑ	Ⓑ	Ⓑ		Ⓑ

Fe Electromagnetic Induction Method Fe Modified Magnetic Method Ni:Fe Eddy-Current Method Ⓑ Beta-Backscattering Method Ⓧ X-ray Fluorescence Method

• Figure of probe external form. (Reduced scale lack of unity.)

Probe type	Normal type probe : LEP-J / LHP-J	L shape probe : LEP-21L / LHP-21L
Product model	LE-200J/LH-200J/LZ-200J LE-373/LH-373/LZ-373	LE-200J/LH-200J/LZ-200J LE-373/LH-373/LZ-373
Dimensions		
Probe type	Probe for pipe inside measurement : LEP-22	
Product model	LE-200J	
Dimensions		

• The contents of an attached calibration foil.

Model	Qty	Thickness								Material
LE-200J / LZ-200J	6	10μm	50μm	100μm	350μm		800μm	1000μm		Polyester Film
LH-200J	5	10μm	50μm	100μm	350μm		800μm			Polyester Film
LE-373 / LZ-373	6	10μm	50μm	100μm		500μm		1000μm	1500μm	Polyester Film
LH-373	5	10μm	50μm	100μm		500μm		1000μm		
LZ-990	3		50μm	100μm				1000μm		Polyester Film

Attention : The thickness of calibration foils attached to the product sets the thing which we really measured. Therefore, it is not numerical value same as a list shown below.

• Conformity Standard.

Measurement method	Model	Standard	
Electromagnetic Induction	LE-200J LE-373	JIS K5600-1-7, JIS H0401, JIS H8401, JIS H8501, JIS H8641 / ISO 1460, ISO 2064, ISO 2178, ISO 2808, ISO 19840 / BS 3900-C5 / ASTM B 499, ASTM D 7091-5, ASTM E 376	
Eddy-current	LH-200J LH-373	JIS K5600-1-7, JIS H8501, JIS H8680-2 / ISO 2064, ISO 2360, ISO 2808, ISO 19840 / BS 3900-C5 / ASTM B 244, ASTM D 7091-5, ASTM E 376	
Electromagnetic Induction and Eddy-current	LZ-200J LZ-373 LZ-990	Electromagnetic Induction	JIS K5600-1-7, JIS H0401, JIS H8401, JIS H8501, JIS H8641 / ISO 1460, ISO 2064, ISO 2178, ISO 2808, ISO 19840 / BS 3900-C5 / ASTM B 499, ASTM D 7091-5, ASTM E 376
		Eddy-current	JIS K5600-1-7, JIS H8501, JIS H8680-2 / ISO 2064, ISO 2360, ISO 2808, ISO 19840 / BS 3900-C5 / ASTM B 244, ASTM D 7091-5, ASTM E 376

Electromagnetic Coating Thickness Tester
Model LE-200J

The LE-200J is a portable coating thickness tester with a built-in printer. This unit can accurately and quickly measures many items such as magnetic plating (electrolyzed nickel plating not included), coating, painting, and lining without injuring or damaging the item. Furthermore, you can print out the measurement results on-site with the internal printer.

Specifications

Measurement method	Electromagnetic induction
Applications	Non-magnetic coating on iron and steel (ferrous) substrates
Measurement range	0-1500µm or 60.00mils
Measurement precision	Under 15µm: ±0.3µm, 15µm or greater: ±2%
Resolution	0.1µm (less than 100µm), 1.0µm (100µm or greater)
Statistical functions	Number of measurements, Average value, Standard deviation, Maximum value, Minimum value, Block numbers
Probe	One-point contact fixed pressure (LEP-J)
Display format	Digital (LCD, smallest displayed unit 0.1µm)
Output	RS-232C interface (transmission speed-2400bps)
Power source	AC100V/220V(50/60Hz) or 1.5 ("AA" size Alkaline batteries) x 6 (main unit), Printer ("AA" size Alkaline batteries) x 4
Dimensions & Weight	120(W)x250(D)x55(H)mm, 1.0kg / Shipment 2.5kg
Accessories	Calibration Plate, Iron Substrate, Batteries (1.5V, "AA" Size Alkaline), Probe Adapter, AC Adapter, Printer Paper, Carrying Case
Options	L Probe LEP-21L(Probe for use on the inside surface of pipes),Data Management Software "McWave Series" and "MultiProp" (McWave Series and MultiProp are products of CEC Co.)

Eddy-current Coating Thickness Tester
Model LH-200J

This unit is a compact coating thickness tester complete with a built-in printer. With the LH-200J, you can quickly and accurately measure objects without worrying about damaging the insulating coating on non-ferrous substrates and printout your results right on the spot. This unit is also equipped with handy features such as statistical calculations, calibration, memory, and limit setup.

Specifications

Measurement method	Eddy-current
Applications	Insulating coatings on non-ferrous substrates
Measurement range	0-800µm or 32.00mils
Measurement precision	Under 50µm : ±1µm, 50µm or greater : ±2%
Resolution	0.1µm (less than 100µm), 1.0µm (100µm or greater)
Statistical functions	Number of measurements, Average value, Standard deviation, Maximum value, Minimum value, Block numbers
Probe	One-point contact fixed pressure (LHP-J)
Display format	Digital (LCD, smallest displayed unit 0.1µm)
Output	RS-232C interface (transmission speed-2400bps)
Power source	AC100V/220V(50/60Hz) or 1.5 ("AA" size Alkaline batteries) x 6 (main unit), Printer ("AA" size Alkaline batteries) x 4
Dimensions & Weight	120(W)x250(D)x55(H)mm, 1.0kg / Shipment 2.5kg
Accessories	Calibration Plate, Aluminium Substrate, Batteries (1.5V, "AA" Size Alkaline), Probe Adapter, AC Adapter, Printer Paper, Carrying Case
Options	Data Management Software "McWave Series" and "MultiProp" (McWave Series and MultiProp are products of CEC Co.)

Dual-Type Coating Thickness Tester
Model LZ-200J

The LZ-200J is a portable coating thickness tester equipped with electromagnetic and eddy-current testing methods and an internal printer. This unit can quickly and easily handle coating thickness measurements of various types of coatings on iron and steel of non-ferrous substrates. Plus, this unit is equipped with many valuable functions such as calibration, memory, limit setup, and a statistical calculation function that, at the press of a button, allows you to find the average value, standard deviation, and largest and smallest values measured.

Specifications

Measurement method	Electromagnetic induction/Eddy-current
Applications	Non-magnetic coating on iron and steel (ferrous) substrates and Insulating coatings on non-ferrous substrates.
Measurement range	Electromagnetic: 0-1500µm or 60.00mils Eddy-current: 0-800µm or 32.00mils
Measurement precision	Electromagnetic : Under 15µm ±0.3mm, 15µm or greater ±2% Eddy-current : Under 50µm: ±1µm, 50µm or greater: ±3%
Resolution	0.1µm (less than 100µm), 1.0µm (100µm or greater)
Statistical functions	Number of measurements, Average value, Standard deviation, Maximum value, Minimum value, Block numbers.
Probe	One-point contact fixed pressure (LEP-J, LHP-J)
Display format	Digital (LCD, smallest displayed unit 0.1mm)
Output	RS-232C interface (transmission speed-2400bps)
Power source	AC100V/220V (50/60Hz) or 1.5 ("AA" size Alkaline batteries) x 6 (main unit), Printer ("AA" size Alkaline batteries) x 4
Dimensions & Weight	120(W)x250(D)x55(H)mm, 1.0kg / Shipment 2.5kg
Accessories	Calibration Plate, Iron Substrate, Aluminium Substrate, Batteries (1.5V, "AA" Size Alkaline), Probe Adapter, AC Adapter, Printer Paper, Carrying Case
Options	Data Management Software "McWave Series" and "MultiProp" (McWave Series and MultiProp are products of CEC Co.)

Electromagnetic Coating Thickness Tester
Model LE-373

The LE-373 is an electromagnetic coating thickness tester for measuring the thickness of coatings such as paint or plating (except electro nickel coating) on magnetic substrates.It can transmit data to a printer or computer, and includes 16 different functions such as application (calibration curve) memory, measurement data memory, upper and lower limit setting for coating thickness management, simple statistical processing, and data output.

Specifications

Measurement method	Electromagnetic Induction Method
Applications	Non-magnetic coating on ferrous metal
Measurement range	0-2500μm or 99.0mils
Measurement precision	<50 μm ± 1 μm, ≥50 μm to <1000 μm ± 2%,≥1000 μm ± 3%
Resolution	<100 μm, 0.1 μm; ≥100 μm, 1 μm
Data memory	Approx. 39.000 points
Application memory	100 types of calibrations curves
Probe	Single-point constant-pressure type probe (LEP-J)
Display method	Digital (LCD with backlit, smallest displayed unit 0.1 μm)
External output	PC(USB or RS-232C),printer(RS-232C)
Power supply	1.5V alkaline batteries ("AA" size x 4)
Power consumption	80 mW (with backlit off)
Battery life	100 hours (continuous use with backlit off)
Operating ambient temp.	0-40˚C
Functions	16 types of internal functions
Dimensions & Weight	75(W) x 145(D) x 31(H) mm, 0.34 kg
Accessories	Calibration Plate Set, Ferrous Metal Substrate, Carrying Case, 1.5V Alkaline Batteries ("AA" Size x 4),Probe Adaptor
Options	Calibration plates (thicknesses other than those available as standard accessories), Measuring stand LW-990, Printer VZ-380, Printer cable (can be connected to a PC via commercially available USB converter), Data logger software "LDL-03", Data management software "McWave Series" and "MultiProp"

Eddy-current Coating Thickness Tester
Model LH-373

The LH-373 is a coating thickness tester for measuring the thickness of insulating coatings on non-magnetic metal substrates.It is capable of measuring relatively thin coatings such as alumite with high accuracy.As with the LE-373, there are added functions to output data to a printer or computer, and carry out simple statistical processing including times measured, average, maximum and minimum values, and standard deviation.

Specifications

Measurement method	Eddy-current Method
Applications	Insulating coating on non-ferrous metal substrate
Measurement range	0-1200μm or 47.0mils
Measurement precision	<50 μm ± 1 μm, ≥50 μm to <1000 μm ± 2%,≥1000 μm ± 3%
Resolution	<100 μm, 0.1 μm; ≥100 μm, 1 μm
Data memory	Approx. 39.000 points
Application memory	100 types of calibrations curves
Probe	Single-point constant-pressure type probe (LHP-J)
Display method	Digital (LCD with backlit, smallest displayed unit 0.1 μm)
External output	PC(USB or RS-232C),printer(RS-232C)
Power supply	1.5V alkaline batteries ("AA" size x 4)
Power consumption	80 mW (with backlit off)
Battery life	100 hours (continuous use with backlit off)
Operating ambient temp.	0-40˚C
Functions	16 types of internal functions
Dimensions & Weight	75(W) x 145(D) x 31(H) mm, 0.34 kg
Accessories	Calibration Plate Set, Aluminium Substrate, Carrying Case, 1.5V Alkaline Batteries ("AA" Size x 4),Probe Adaptor
Options	Calibration plates (thicknesses other than those available as standard accessories), Measuring stand LW-990, Printer VZ-380, Printer cable (can be connected to a PC via commercially available USB converter), Data logger software LDL-03, Data management software "McWave Series" and "MultiProp"

Dual-Type Coating Thickness Tester
Model LZ-373

The LZ-373 is a dual type coating thickness tester capable of measuring the thickness of coatings on both magnetic substrates and non-magnetic metal substrates.It is ideal for workplaces handling a variety of materials and coatings. It includes 16 added functions as well as data output to a printer or computer, and simple statistical processing including times measured, average, maximum and minimum values, and standard deviation.

Specifications

Measurement method	Uses both Electromagnetic Induction and Eddy-current Methods
Applications	Non-magnetic coating on ferrous metal substrate and insulating coating on non-ferrous metal substrate
Measurement range	Electromagnetic Induction : 0-2500µm or 99.0mils Eddy-current : 0-1200µm or 47.0mils
Measurement precision	<50 µm ± 1 µm, ≥50 µm to <1000 µm ± 2%,≥1000 µm ± 3%
Resolution	<100 µm, 0.1 µm; ≥100 µm, 1 µm
Data memory	Approx. 39.000 points
Application memory	50 types of electromagnetic calibrations curves, 50 types of eddy current calibration curves.
Probe	Single-point constant-pressure type probe (LEP-J, LHP-J)
Display method	Digital (LCD with backlit, smallest displayed unit 0.1 µm)
External output	PC(USB or RS-232C),printer(RS-232C)
Power supply	1.5V alkaline batteries (“AA” size x 4)
Power consumption	80 mW (with backlit off)
Battery life	100 hours (continuous use with backlit off)
Operating ambient temp.	0-40˚C
Functions	16 types of internal functions
Dimensions & Weight	75(W) x 145(D) x 31(H) mm, 0.34 kg
Accessories	Calibration Plate Set,Ferrous Metal Substrate, Aluminium Substrate, Carrying Case, 1.5V Alkaline Batteries (“AA” Size x 4),Probe Adaptor
Options	Calibration plates (thicknesses other than those available as standard accessories), Measuring stand LW-990, Printer VZ-380, Printer cable (can be connected to a PC via commercially available USB converter), Data logger software “LDL-03”, Data management software “McWave Series” and “MultiProp”

Dual-Type Coating Thickness Tester
Model LZ-990 "ESCAL"

This dual-type coating thickness tester LZ-990 "ESCAL" is a simple, compact coating thickness tester. It is possible to measure the thickness of films coated onto ferrous and non-ferrous substrates. Further, it can automatically determine the type of substrate material and switch to the required measurement mode.

Specifications

Measurement method	Uses both electromagnetic induction and eddy-current methods (with automatic selection function)
Applications	Non-magnetic coating on ferrous metal substrate and insulating coating on non-ferrous metal substrate
Measurement range	0-2000µm or 0-80mils
Measurement precision	<50 µm ± 1 µm, ≥50 µm to <1000 µm ± 2%, ≥1000 µm to <2000 µm ± 3%
Resolution	<100 µm, 0.1 µm; ≥100 µm, 1 µm
Display format	Digital (backlit LCD, smallest displayed unit 0.1 µm)
Data memory	Approx. 1000 points
Application memory	8 Types of electromagnetic or eddy current methods, total 16 Calibration curves
Power source	2x 1.5V Batteries ("AAA" size Alkaline)
Power consumption	40 mW (when backlit OFF)
Operating ambient temp.	0-40˚C
Functions	Application memory (calibration curves), Measured data memory, Data delete, Data output, Lot classification, Auto Power ON/OFF, Clock, Upper and lower limits, Statistical calculations, Backlight, Unit setting, etc, total 15 functions
External output	Can be output to PC (USB) or printer (RS-232C)
Dimensions & weight	82(W) x 99.5(D) x 32(H) mm, approx. 160g.
Accessories	Zero plate holder (Ferrous metal substrate, Aluminum substrate), Calibration plates (50, 100, 1000 µm), Carrying pouch, 2x 1.5V Batteries ("AAA" size Alkaline), Instructions, WristStrap
Options	Calibration plates (thicknesses other than those available as standard accessories), Measuring stand LW-990, Printer VZ-330 (incl. cable VZC-27), USB PC cable, Transparent protective cover, Data Logger Software LDL-01

Measuring Bench
Model LW-990

Fitted up with the coating thickness tester LZ-990 "ESCAL"

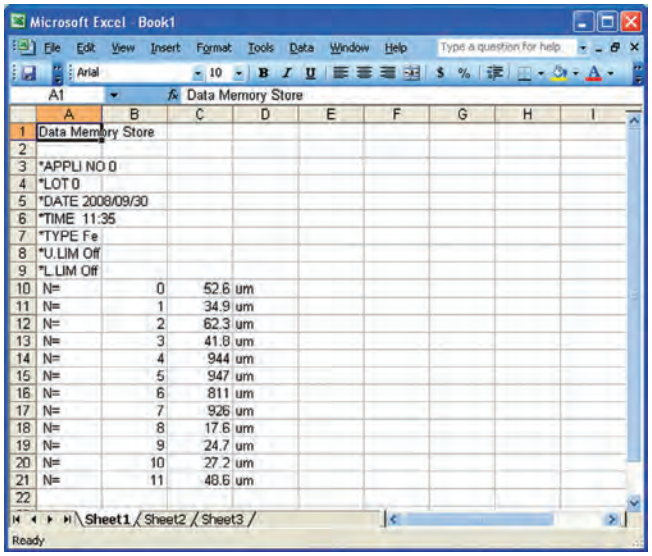
Either the probe of a coating thickness tester or the integrated coated thickness tester is affixed to the vertically adjustable part of the coating thickness tester bench LW-990. As a result, the measuring part of the thickness tester becomes able to contact measured objects with a constant pressure and at a constant angle. This will reduce human errors in measuring the thickness and enable a repeatable high-precision measuring. It will work effectively in measuring the thickness of tubular or curved objects, in particular. The stand is compatible not only with probe-type coating thickness testers, but also with the dual type coating thickness tester LZ-990 "ESCAL".

Specifications

Dimension & Weight	150(W) x 210(D) x 280(H) mm, 2.5 kg
Compatible sensors	Probe type: LEP and LHP-20/20C/30/30C/J Hand-held type: LZ-990
Accessories	Two Screws, Attachment For LZ-990, Cable Grip, Probe Holder (black / White), Probe Attachment, Bolts, Shaft Stand, Two Hexagonal Wrenches, Accessory Case, Manual

Fitted up with LZ-373.

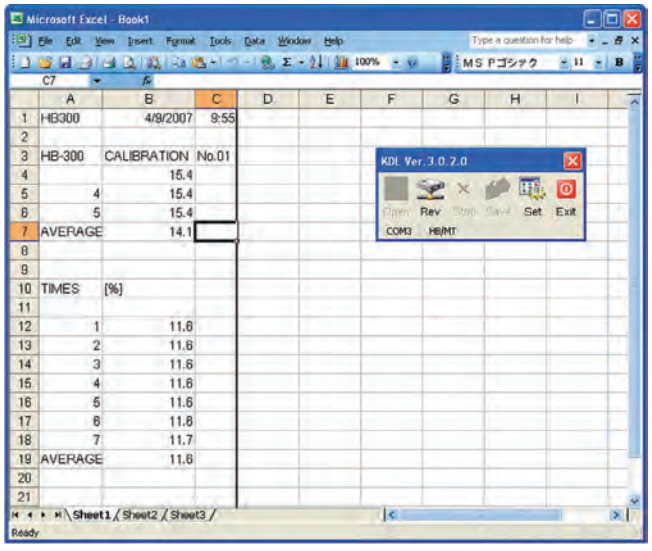
Data Logger Software
Software "LDL-01 / LDL-02 / LDL-03"



Data logger software LDL-01 / LDL-02 / LDL-03 has been developed to read data output from the Kett product RS-232C into a personal computer operating on Microsoft Windows XP / Vista / 7 / 8 / 8.1 /10.
Data logger software uses a worksheet compatible with Microsoft Excel 2003 / 2007 / 2010 / 2013 / 2016 (only LDL-01) saving as a file, the data saved using this software can be read directly into Microsoft Excel.

Compatible coating thickness testers:
LDL-01 : LZ-990
LDL-02 : LE-370, LH-370, LZ-370
LDL-03 : LE-373, LH-373, LZ-373

Data Logger Software
Software "KDL-01"



Data logger software KDL-01 has been developed to read data output from the Kett product, RS-232C into a personal computer operating on Microsoft Windows OS. Data logger software uses a worksheet compatible with Microsoft Excel saving as a file, the data saved using this software can be read directly into Microsoft Excel.

Compatible coating thickness testers:
LE-200J, LH-200J, LZ-200J

Compatible other instruments:

Infrared Moisture Analyzer FD-610	Windows XP / Vista / 7 / 8 / 8.1 Excel 2003 / 2010
Micro Moisture Analyzer FM-300A	Windows XP / 7(32bit) / 10(64bit) Excel 2003 / 2013(32bit) / 2016(32bit)
Wood Moisture Tester MT-900	Windows XP / Vista / 7 / 8 / 8.1 / 10 Excel 2003 / 2007 / 2010 / 2013 / 2016
Paper Moisture Tester HK-300 series	Windows XP / Vista / 7 / 8 / 8.1 / 10 Excel 2003 / 2007 / 2010 / 2013 / 2016
Universal Moisture Tester HB-300	Windows XP / Vista / 7 / 8 / 8.1 / 10 Excel 2003 / 2007 / 2010 / 2013 / 2016

Data Collection Software for Coating Thickness Testers

McWAVE Lite / McWAVE Std. McWAVE Pro. / MultiProp.

The McWAVE Series software package reads in measurement data from coating thickness testers into a computer, analyzes it, performs various statistical management tasks, and can even print out graphs based on the data. Furthermore, this software can export data to MS Excel or other programs as a data file.

McWAVE Lite

Statistical Functions: Lot as well as average value of all data, Standard deviation, Maximum value, Minimum value, Range, Coefficient of change.
Operating Environment Computers running Windows Microsoft Windows NT / 95 / 98 / 2000 / XP / Vista / 7 / 8

McWAVE Std

Statistical Functions: Lot as well as average value of all data, Standard deviation, Maximum value, Minimum value, Range, Coefficient of change, N value X-R: Displays the statistical values and data measurements of the lot units by moving the cursor above the graph Histogram: Series, range, : Å}3É– optional range, formal distribution and 12 varieties of statistical value displays Printing: Data column, X-R graph, histogram.
Operating Environment Computers running Windows NT / 95 / 98 / 2000 / XP / Vista / 7 / 8

McWAVE Pro

Statistical Functions: Lot as well as average value of all data, Standard deviation, Maximum value, Minimum value, Range, Coefficient of change, N value X-R: Displays the statistical values and data measurements of the lot units by moving the cursor above the graph Histogram: Series, range, : Å}3É– optional range, formal distribution and 12 varieties of statistical value displays Printing: Data column, X-R graph, histogram.Data Logging and Analysis on PC.
Operating Environment Computers running Windows NT / 95 / 98 / 2000 / XP / Vista / 7 / 8

MultiProp

Data Entry: 500 memory slots for received data, 999 for construction management, 500 for editing entries (construction credits) Form Printing: Designated form, Histogram, Picture of constructed form management, One look results chart, X-R graph Form Types: The Ministry of Construction, Fukuhoku Highway, Shuto Expressway, English, Hanshin Expressway, Floodgate 4, Monorail, Osaka, Honshikodan, Nagoya Expressway, Chubu Chiken, Tokyo, Iwate-ken, Floodgate 5, The Ministry of Construction (Official), Hokuriku Chiken, English (JH), Hanshin Expressway (Official), Hanshin Expressway (2), Monorail (official), Odorokyo Painting Manual
Operating Environmentĺ Computers running Windows NT / 95 / 98 / 2000 / XP / Vista / 7 / 8
(McWave and MultiProp are products of CEC Co.)

METAL DETECTORS

Sensors play an active role in preventing danger and locating items. For example, they can be used to prevent metal fragments from becoming mixed in with clothing or to determine the position of metal pipes buried in the ground. Another benefit of metal detection is the increase in safety and work efficiency, a necessary part of measurement. Accurate checks help to guarantee safety and work without wasted effort and make more valuable time available. Kett's metal detectors are renowned for their superior performance and easy handling, and a variety of our proven instruments are being used for important jobs in many different places all around the world.

Metal Detector
Model EB-610

Hand-held detector has an extremely high sensitivity, and is useful wherever large detection ranges are required, for instance in the check of suspicious mail such as parcels, for checks in the field of law enforcement, in forensic medicine when foreign substances have been detected in the human medicine when foreign substances have been detected in the human body, etc. This detector with food, textiles, or clothing and sounds a warning.(FOR RESTRICTED AREA ONLY)

Specifications

Detection Method	Pulse induction
Warning Method	Buzzer
Power Source	9V battery (006P)
Dimensions & Weight	115(W)x 170(H)mm, 0.28kg

The detection power of this unit depends on the size and position of the piece of metal. For inquiries regarding details, please contact us.


1st 43.2
Rice Whiteness Tester C-600
PRT
DEL
ENT
STD
AVG
C-600

OTHER INSTRUMENTS

In addition to moisture testers and coating thickness gauges, Kett also offers a complete line of unique instruments.

Friction Meter
Model Muse TYPE:94i-II

In the past, static friction was typically measured using the incline method and a strain gage.
Now Muse TYPE:94i-II makes it very easy for anyone to measure the static friction coefficient of objects.

Specifications

Measurement range	static friction coefficient 0.000~1.600
Resolution	0.001
Detector	VCM photosensor
Indicator	7 Segment Red Color LED 4 Digits
Power source	Batteries 4pcs. “AA” size Alkaline
Dimensions	188 (W) x 62 (D) x 64 (H) mm
Weight	Net 0.6kg / Shipment 2.0kg

Friction Meter
Model 3D Muse TYPE:37N

Using the Friction Meter 3D Muse Type:37N, which does not require operators to have special skills or experience, anyone can easily measure the static friction coefficient between objects.

Specifications

Measurement range	Coefficient of static friction : 0.000-1.250 (Refer to Section 9-4)
Resolution	0.001
Detector	VCM photosensor
Indicator	LED 7 segments
Power source	Batteries 4pcs. “AA” size Alkaline
Dimensions	140 (W) x 56 (D) x 140 (H) mm
Weight	Net 0.8kg / Shipment 2.0kg

Fresh Concrete Shaker
Model TZ-610

TZ-610 is a fresh-concrete shaker, designed to create uniform fresh-concrete test samples for the fresh concrete moisture tester HI-300 and the fresh concrete and sand moisture tester HI-330. It does its job quickly with a minimum human-caused disparity.The shaker is recommended as an option for the fresh concrete moisture tester HI-300 and the fresh concrete and sand moisture tester HI-330. It contains a rechargeable power source and so is usable even when sufficient on-site power is unavailable.

Specifications

Shaking method	vibrator style
Applications	fresh concrete
Time required	approx 5 min (with three cases of test samples for the fresh concrete and sand moisture tester)
Ambient temperatures	0-40 °C
Power source	Custom-ordered 14.4V nickel cadmium rechargeable battery
Dimension & Weight	360(W) x 454(D) x 620(H) mm, approx 16.0 kg.
Accessories	Mixer (#4.75 Mm), Spatula, Sample Reception Bat, Two Custom-ordered 14.4V Nickel Cadmium Rechargeable Batteries, Custom-ordered Recharger C1414 (AC 100V, 50/60Hz)

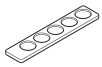
Powder Whiteness Tester
Models C-130

This instrument measures the whiteness of various powders, such as starch, wheat, sugar, drugs and cement. It is smaller and lighter than the conventional C-100. The amount of sample required for measurement has been reduced by redesigning the sample case. In addition, sample packing has been made easier. Less time needed for preparation and a shorter warm-up period sensitivity adjustment time at start-up results in faster measurements. The use of LEDs for the light source means lower power consumption and internal heat. Regular cleaning of the glass filter is necessary for accurate measurements. A redesigned filter section simplifies cleaning.

Specifications

Measurement method	Reflectivity measurement
Applications	Various types of powder (Starch, Wheat flour, Tapioca flour, Cement etc.)
Measurement item	Whiteness (different from JIS whiteness)
Measurement range	5.0-120.0
Resolution	0.1
Display format	Fluorescent display tube
Functions	User calibration curve, sensitivity adjustment notification, average, printer output
Environment	Temp. : 5~40˚C, Humidity : 30~85%RH (non-condensing)
Light source	Blue LED
Output	RS-232C
Power source	AC 100-120V, AC 200-240V (50/60Hz)
Dimensions & Weight	375 (W) × 220 (D) ×250 (H) mm, Net7.0 kg
Accessories	Whiteness Standard Plate, Whiteness Standard Plate Case, Sample Platter x 5, Sample Platter Holder, Spoon With Spatula, Brush, Cleaning Brush, Blower Brush, Glass Wiper, Replacement Fuse, Power Cord, Power Plug Conversion Adapter, Simple Guide To Sampling
Options	Printer VZ-330 (incl. cable VZC-14)

Model C-130 Accessories

Whiteness Standard Plate		Power Cord A (100V-120V)	
Whiteness Standard Plate Case		Power Cord B (220V-240V)	
Sample Platter x 5		Simple Guide to Sampling	
Sample Platter Holder		Optional printer VZ-330 (incl. printer cable VZC14)	
Spoon With Spatula			
Brush			
Cleaning Brush			
Blower Brush			
Glass Wiper			
Replacement Fuse			
Power Plug Conversion Adapter			

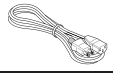
Rice Whiteness Tester
Models C-600

This instrument is designed to measure the whiteness of rice. Rice whiteness directly correlates with the amount of milling.
Therefore, you can use this device to indirectly measure the milling percentage of a rice sample (glutinous and non-glutinous).To make a test, simply insert sample case containing rice. Both the number of measurements and the whiteness value will be immediately displayed. The vacuume fluorescent display has excellent visibility, making it easy for anyone to see the measurement. By using the supplied sample cup and "fixed quantity" shooter, a constant sample a mount is tested, substantially reducing measurement variation.

Specifications

Measurement method	Light Reflectance
Products	Polished, Brown and Pre-washed rice - Glutinous and non-glutinous
Measurement item	Whiteness
Range	5.0-69.9
Resolution	0.1
Display	Fluorescent LED
Functions	Whiteness, Average
Environment	Temperature : 5-40˚C, Humidity : 30-85%RH (non-condensing)
Light source	Blue LED
External output	RS-232C
Power	AC100-240V (50/60Hz)
Consumption	35W (100V)、60W (240V)
Dimensions & Weight	290 (W) x295 (D) x185 (H) mm, 5.0kg
Accessories	Whiteness Standard Plate, Sample Case, Sample Platter, Fixed Quantity Shooter,sample Cup, Main Unit Cover, Glass Wipe, Replacement Sponge, Replacement Packing(x3), Replacement Fuse, Power Cord, Power Plug Adapter
Options	Printer VZ-330 (incl. cable VZC-14)

Model C-600 Accessories

Standard case		Plug adapter	
Sampling cace		Optional printer VZ-330 (incl. printer cable VZC14)	
Sampling dish			
Sample packing tool			
Sample cup			
Dust cover			
Cleaning cloth			
Sponge			
Packin sheet			
Fuse			
Power cord			

KETT ELECTRIC LABORATORY

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URL http://www.kett.co.jp/ E-mail overseas@kett.co.jp

Requests

Safety precautions

- **Please read the "Operating Manual" carefully before using in order to use the device correctly and safely.**
- **Do not place anywhere there is a great deal of water, humidity, steam, dust, or oily smoke. These can cause malfunction.**

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- **For enquiries regarding this product, please contact us at the address above, or by e-mail.**
- **To improve the product, specifications and the external appearance may be changed without notice. In addition, please note that due to printing, the product's color may appear different from the actual article.**

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