

NEW

Kett

LZ-200W/LE-200W

Wireless Coating Thickness Testers

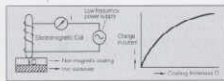


Coating Thickness Testers Free From Probe Cable.

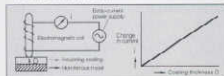
Modern society is supported by metal. Many of these metals are protected by paint, plating or oxidized coatings. Except for certain precious metals which do not tarnish, application of surface coatings is a practical method by which to protect metals from oxidation. Application of such protective coatings provides ample anti-oxidation protection for inexpensive, easily processed metals such as iron and aluminum. Today, scientific techniques are even used to manage the thickness of coatings intended solely for protection against oxidation. This is due to the close relationship between coating thickness management and economic efficiency with regard to original product costs and maintenance costs, as well as increased product value provided by a even, beautiful coatings. Kett coating thickness testers are designed to provide precise measurements of the thickness of coatings and plating on metal surfaces without damaging the surface being measured. In the past, the probes (sensors) of high precision coating thickness testers were connected to the main unit by an awkward cable. Kett's wireless coating thickness testers do away with this cable and feature a design in which signals from the probe are transmitted to the main unit by radio. The elimination of the cable results in a remarkable improvement in ease of operation and frees users from problems such as broken cable connections associated with cable-type testers. The wireless design also eliminates any worry that the cable will come into contact with other objects or get snagged on other objects while measurements are being made, thus providing improved safety. Furthermore, the wireless design is much better suited to automation of the measurement process through the use of robots, etc., thus increasing coating thickness management possibilities and expanding the range of applicable environments. At present time, Kett is the only manufacturer in the world offering wireless type coating thickness testers.



Principles of Measurement



● Fe Electromagnetic measurement type probe supplied with models LZ-300W / LE-300W / LE-300V.



● NFe Eddy-current type probe supplied with model LZ-300W.

● **Electromagnetic Type Fe Probe**
For measuring the thickness of non-magnetic coatings on magnetic metal substrates.

When an alternating current electromagnetic is brought near iron (a magnetic metal), the number of magnetic flux lines around the coil changes in relation to the separation between the electromagnetic and magnetic metal, thus causing the voltage across the terminals of the coil to change. This change in voltage is read from the direct current value and converted into a coating thickness.

● **Eddy-current Type NFe Probe**

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

When an induction coil in which a fixed eddy-current current flows is brought near metal, an eddy current is created in the surface of the metal. This eddy current changes in relation to the distance by which the induction coil and metal surface are separated. This change is read from the direct current value and converted into a coating thickness.

Examples of Applicable Type of Coatings

	● Electromagnetic Fe Probe	● Eddy-current NFe Probe
Coatings Measured	Paint / Plastic / Lacquer / Resin / Rubber / Zinc / Chrome / Tin / Copper / Aluminum / Enamel / Lining / Misc	Paint / Plastic / Lacquer / Resin / Rubber / Anode Oxidization Coatings / Alumina / Resist / Misc.
Substrate	Iron • Steel	Aluminum, copper, brass, stainless steel (non-magnetic), etc.



● 200V series wireless coating thickness tester models feature both electromagnetic and eddy-current measurement functions. Two models are available: the Model LZ-200W which features external data output terminals and the LE-200V which is designed for electromagnetic type measurement only.

● Measurement data can be output in real time or in bulk.

When using the built-in printer, measurement values and statistical information as well as input comments such as the date and lot numbers can be printed out in real time. In addition, after completing measurements the unit can output measured values, results of statistical processing and commentary input to either the built-in printer or to an externally connected printer or computer.



Model LZ-200W/LE-200W



■ Special Characteristics of Wireless Coating Thickness Testers

● Wireless Design for Extraordinary Improvement in Operability

With wireless coating thickness testers, signals from the measurement probe are transmitted to the main unit by radio. The elimination of the cable provides a remarkable improvement in ease of use and operability.

● Improved Safety and Reliability

The wireless design eliminates problems associated with cable-type designs such as the possibility that the cable connection can be cut or that the cable may become snagged, thus improving safety and reliability.

● Wireless Coating Thickness Testers Open Up New Environments

The elimination of the cable in the wireless design makes it much easier to build the probe into other devices as an independent sensor. This makes it possible to automate coating thickness measurements through the use of robots, etc.

● Support for 10 Frequency Channels

10 frequency channels (CH1 ~ CH10) are provided to prevent mutual interference between multiple wireless coating thickness testers.

● Both Electromagnetic and Eddy-current Type Wireless Coating Thickness Tester Probes are Available

Both electromagnetic and eddy-current probes are supplied as accessories with dual type coating thickness testers. Electromagnetic type probes are supplied with electromagnetic-type only testers.

● Automatic Switching Between Probe Types in Dual Type Models

Dual type models automatically detect the probe type when the user switches between electromagnetic and eddy-current probes.

● Optional Probe Connection Cables Available

High levels of electromagnetic noise in the environment can interfere with wireless communications between the probe and the main unit. Optional probe connection cables are available for these types of environments, thus allowing the coating thickness tester to operate as a conventional cable-type tester.

● Probes Feature Single-Point Contacts for Stable Measurement Results

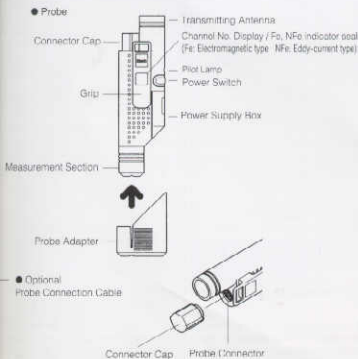
The single-point contact design provides for stable measurement results unaffected by differences in individuals using making measurements. The supplied probe adapter makes measurements of cylindrical objects and continuous measurements of flat surfaces even easier.

● Calibration Memory Functions

Pre-adjusted calibration settings are retained in the unit's memory even if the power is turned off. This eliminates the need for re-adjustment when the unit is turned back on when the material being measured is the same. (The LZ-200W features 4 calibration memories each for electromagnetic and Eddy-current measurement use. The LE-200W features 4 calibration memories for electromagnetic measurement.)

● Support for Simple Statistical Functions

Statistical processing such as the number of measurements, average measurement values, standard deviation, minimum and maximum values and block numbers can be performed through key operations.



● An optional probe connection cable allows the unit to be used as a conventional cable-type coating thickness tester.



● Applications for wireless coating thickness testers in a wide range of fields

● LZ-200W/LE-200W Specifications

Model	LZ-200W	LE-200W
Measurement Principle	Dual Electromagnetic / Eddy current	Electromagnetic
Applications	Non-magnetic coatings on iron and steel (magnetic metal) substrates and insulating coatings on non-magnetic metal substrates	Non-magnetic coatings on iron and steel (magnetic metal) substrates
Measurement Range	Electromagnetic Type: 0 - 1500µm or 60.00mil Eddy-current Type: 0 - 800µm or 32.00mil	Electromagnetic Type: 0 - 1500µm or 60.00mil
Measurement Precision	Electromagnetic type: ±0.3µm (absolute error) under 50µm ±2% (relative error) at or above 50µm Eddy-current type: ±0.1µm (absolute error) under 50µm ±3% (relative error) at or above 50µm	Electromagnetic type: ±0.3µm (absolute error) under 50µm ±2% (relative error) at or above 50µm
Resolution	0.1µm under 100µm, 1µm over 100µm	
Minimum Measurable Surface Area	7 x 7mm	
Number of Calibration Metrics	4 Electromagnetic type, 4 Eddy-current type	4 Electromagnetic type
Units of Measurement	µm or mils (switchable)	
Measurement Results	1500 coating thickness measurements maximum	
Memory Capacity	Number of measurements, average value, standard deviation, maximum value, minimum value, block numbers	
Statistical Functions	Number of measurements, average value, standard deviation, maximum value, minimum value, block numbers	
Display	16-digit dot-matrix LCD	
External Output	Standard RS-232C (transmission speed 2400bps)	
Power Supply	Main Unit: 100V AC or 9V DC (10 size AA alkaline batteries, 6 batteries for circuit section and 4 for the printer section.) Probe: 7.5V cylinder battery 2CR 1/3 (Uses 1)	
Battery Lifespan	Main unit: 30 hours Probe: 14 hours	
Operating Temperature	0 - 40°C	
Transmission format	28.8KHz band radio frequency	
Dimensions / Weight	Main Unit: 140(W) x 250(D) x 80(H) mm 1100g Probe: 28(W) x 38(D) x 134(H) mm 80g	
Accessories	Iron substrate (1), infinite adjustment dummy (1), calibration plates (1 out of 6), size AA alkaline batteries (10), 2CR 1/3 cylinder battery (1, LZ-200W has two sets worth), button battery holder (1, LZ-200W has two sets worth), User's Manual, Probe Adapter (1), AC adapter (1), printer paper (2)	
Options	Probe connect-on cable, computer connection cable	



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