

Resistance and Cross-section measurer

- ☞ On-line measurement directly on the stranding machines
- ☞ Sample measurement in laboratory available as an option
- ☞ Compact equipment specially designed for limited spaces
- ☞ Heating system controlled by microprocessor
- ☞ Elimination of destructive sample cutting
- ☞ The equipment may be used on several stranders
- ☞ No ground insulation problem due to AC
- ☞ Patented measuring principle
- ☞ Control unit with state-of-the-art touchscreen and integrated PC
- ☞ Very simple operation



Technical specifications:

Measuring ranges	Copper	Aluminium
	2.5 - 630 mm ²	2.5 - 300 mm ²
Measuring range	9 µΩ to 7 mΩ	
Measuring length	500 mm	
Operating mode	Direct / Specification	
LCD Display	State-of-the-art interface thanks to a touchscreen and a button system	
Mechanical dimension	Max Ø 60 mm	
Accuracy	± 0.1 % up to 630 mm ²	± 0.1 % up to 300 mm ²
Integrated components	Heaters System of stabilization of temperature Data storage through internal PC	
Power supply	3 X 400 V~ (3 phases) ± 15 % (340 ÷ 460 V) 50/60 Hz (EU Version) 3 X 205 V~ (3 phases) ± 15 % (175 ÷ 225 V) 50/60 Hz (US/Japan Version)	
Consumption	5.5kW with controlled heating facility 230W without controlled heating facility	
Outputs	2 x USB (for printer) 1 x Display Port connector for external monitor 2 x RJ45 for LAN connection	
Dimensions	1050 x 770 x 1370 mm 41.3 x 30.3 x 53.9 inches	
Weight	120 kg 264 lbs	
Delivered with	Connection cables User manual	
Article No:	31.8136.0001.0	



ResTest 8130 measurer is supplied with a 10" lighted screen PCT-sensor covered with a protection glass (unbreakable), perfectly suitable for a laboratory or production use.

Interface can be supplied in the language of your choice (English, French, Chinese, Arabic, Russian etc.) and changed directly by the user if needed.



The front panel is made of the screen and an illuminated button giving indication of the measurement status. This button is specially designed for production use, where the operator can easily start/stop the measurement.



On the back panel, 2 USB ports are available to connect a printer, keyboard or mouse.

2 x RJ-45 allow the connection to another computer in your network, or during a possible remote maintenance with AESA using Teamviewer.

One Display Port connector can be used to connect an external monitor (laboratory use for example).



Integrated functions:

▪ Create a library of strand specifications

Each specification includes:

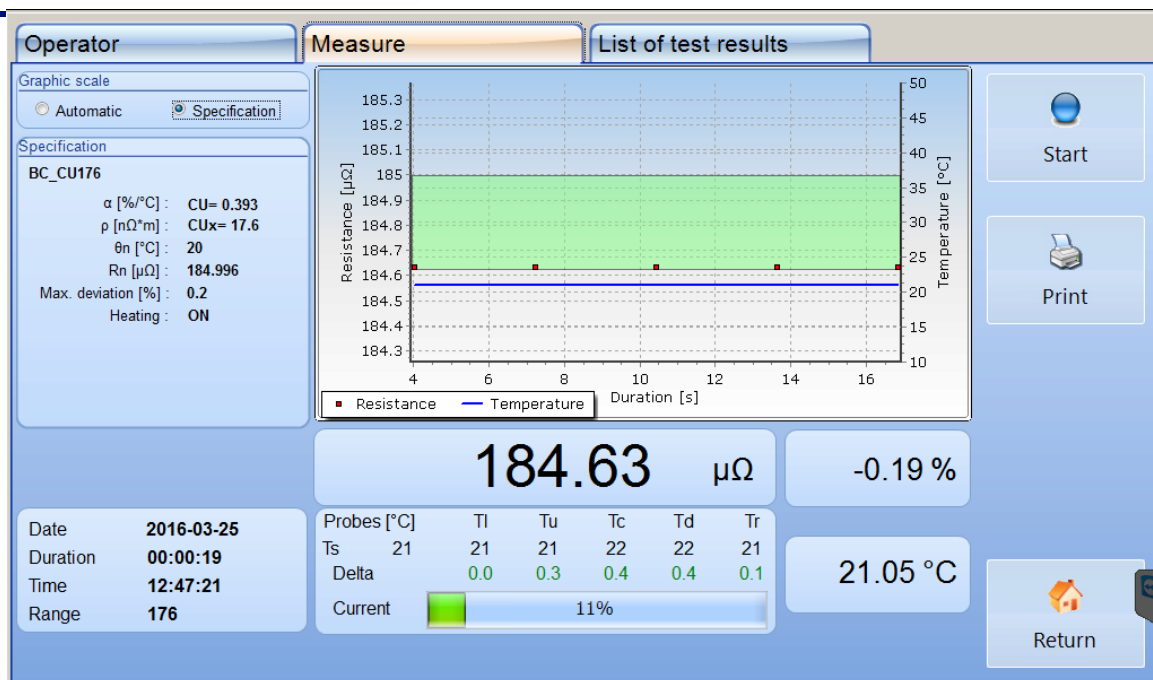
- A specification name
- The nominal resistance
- The maximum allowed deviation
- The nominal temperature
- The material being used and its physical constants α (temperature coefficient) and ρ (resistivity)

▪ Graphical display

The measurement window allows following, second after second, the evolution of the resistance and temperature values as the automatic temperature stabilization process moves on.

All possible data are given in this window, including:

- The measurement status versus the specification at the end of the process,
- The deviation to the specification,
- The margin in percentage to the limit (the raw material given away)
- The measurement duration
- Cross-section in mm^2



Reporting

The user has the possibility to create its own report, with a title and the company logo, a set of questions with the corresponding answers and all available information related to the measurement itself.

The report can be generated as a printed page or, in a condensed format, on a sticker.

The use of stickers obviously needs an adapted printer. The size of the stickers can be defined in the AESA software.

The screenshot shows the 'Printer' tab of the AESA Cortailod software. The left panel contains fields for 'Logo' (AESACortailod), 'Title' (AESACortailod), 'Reptest', and 'Header texts' (Order number, Manufacturing number, Reel number, Machine number, Operator name, Specification, #, #, #, #). The right panel displays a preview of the report, including the AESACortailod logo, date (21.03.2016), time (12:12), α (0.393 %/°C), θ_N (20 °C), ε (0.4 °C), RN (17.6 μΩ/m), DMax (0.20 %), Range, ID (1234506789), and a barcode. The measurement status is 'Pass out of tolerance'. The bottom panel shows printer settings: Microsoft XPS Document, Margin [mm] (2), Height logo [mm] (20), Show print dialog, Preview, Header, .Portrait, .Landscape, Manual, Automatic, and a 'Return' button.



▪ Maintenance

The “AESA support” button allows launching Teamviewer for a remote connection. A button will be added to have a user manual in PDF file.

The users can access to two different menus:

1. **Direct measurement:** All parameters can be modified (as α : Temperature coefficient, ρ Resistivity, allowing to show the section of the conductor in [mm²], Θ_n : Nominal temperature at which the resistance value is given (generally 20 [°C] etc.) Libraries of these coefficients are available in a dedicated Menu. They can be completed depending on your needs.
2. **Specification measurement:** The operator preselects a specification (created previously by a supervisor). Graphical information is also available. It is possible to select previous measurement and to print the last value measured.

All measurements are stored thanks to an internal PC. The data can be used for post-analysis, measurement verifications or printing if needed.

Options

1. Copper rod 11mm length 1m with certificate ISO 17025

Article No: 45.0030.0005.0

Delivered with ISO 17025 certificate



2. Control box type AESA 7394

Article No: 45.7394.0001.0



Delivered with ISO 17025 certificate



3. Printers



Adapted support for printer

Article No: 51.0001.0031.0

HP Laserjet P2035 printer

Article No: 51.0500.0018.0

Label printer type Brother QL-570

Article No: 51.0500.0012.0



AESA SA
AESA ResTest Resistance Bridge

ID	AESA310	Sn :	1#05659
Date	4/15/2011	Time	8:49:00 AM
α_{CU}	0.393 %/°C	6N1	20 °C
Rmes	+3.8109 Ω /km	Duration	00:00:14 / 2
Tmes	+20.70 °C		

4. Protective cover

Article No: 51.0030.0077.0



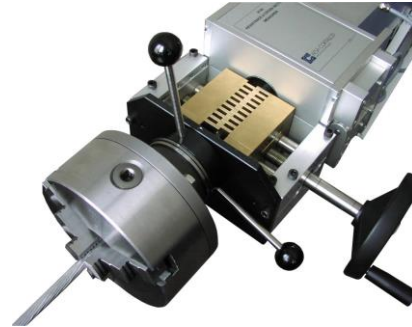
Protective cover for 8136



5. Cable tensioner

Article No: 51.0030.0081.0

Specially designed for laboratory purposes, this tool allows a very accurate copper and aluminium samples testing by straightening the samples and twisting them if needed (note: the force is not quantifiable).
Special design for the 8136 model, integrating a support system.



6. Daily Cost

Article No : 60.0100.0005.0

➤ In-site Commissioning and Training

The commissioning and training will be performed as soon as the equipment is in your plant and are part of our main quotation.

Duration	1 day
Place	in your plant
Staff	1 AESA engineer and 1 technician from your staff
Price	See main quotation - Article No : 61.0001.0001.0
Inclusions	All costs including flight and hotel expenses
Exclusions	Taxes (as withholding tax)

Any additional day on site required by the customer will be charged at our daily cost ([Article No : 60.0100.0005.0](#)).

This price includes the working daily rate + all costs of our engineer.

➤ In-house Training

The customer has the possibility to do the training on his system in our office in Colombier, Switzerland.

Duration	Upon request
Place	AESA's office in Colombier / Switzerland
Staff	1 AESA engineer and max 4 trainees from your staff
Price per day	See optional item No : 60.0100.0005.0
Inclusions	Documentation and training session
Exclusions	All costs of the trainees (i.e travel, accommodation, food, pocket money fees have to be borne by the customer)



Notice for measurements of aluminium strands above 300 mm²

Whereas resistance-per-unit-length measurements are generally unproblematic on copper conductors, they can be prone to significant error on aluminium products.

Experience shows that a standard 8130 system may not give consistently satisfactory precision on large section aluminium strands. This is because of uneven current distribution among the wires in the strand layers. Effectively, when aluminium is exposed to the air, a very thin layer of insulating aluminium oxide forms on the surface, and this causes unpredictable variations in the radial conductivity between wires.

To overcome this problem linked to the physical properties of aluminium, it is required to take a sample of the strand to be tested and to solder both sample ends before taking a measurement. This process ensures a good quality electrical contact between all wires composing the strand and consequently allows proceeding with accurate measurements.

For our customers who need to measure large aluminium strands directly on the stranding machine, AESA developed an enhanced version of its 8134 and 8136 units, called the 8135.

The 8135 implements a specially tested cable grip method that locally breaks down the insulating oxide layer on the strands without damaging the cord, by applying hydraulically a force up to several tonnes for large diameter cords.

It is important to mention that the 8135 measurer, due to its dedicated features linked to the measurement of large aluminium strands requires, compared to the 8134 or 8136 units, an additional budget of about CHF 30'000.

For further information, please contact AESA.

