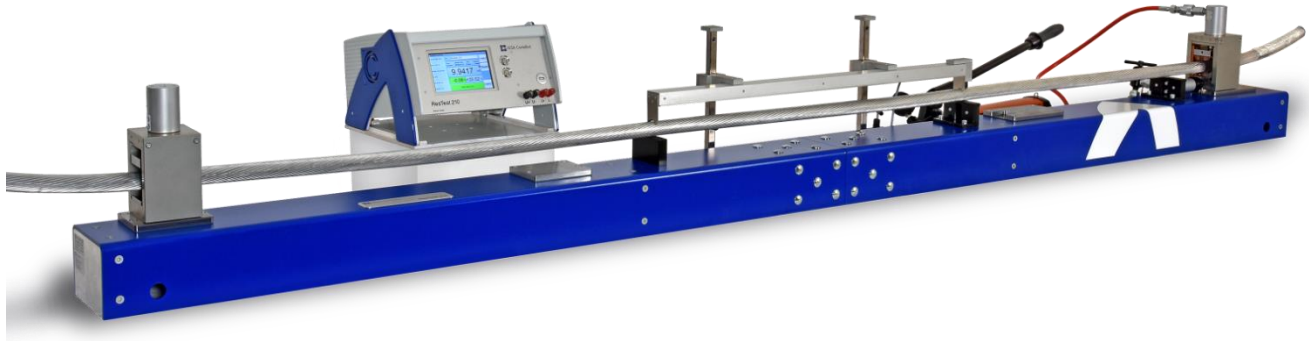


ResTest 210

Universal & powerful equipment for all types of conductors



DESCRIPTION

ResTest 210 perfectly addresses the problems encountered during the measurement of large sections conductors.

The use of hydraulic jaws ensures a good current distribution while a hydraulic jack allows for the tensioning of the sample under test. The axial injection (optional) further improves the current distribution in aluminium, and/or waterproofing / Milliken conductors. And undoubtedly, ResTest 210 can also measure conductors of smaller sections.

This fully integrated equipment not only offers operating comfort, but also the mastering of all the uncertainties connected with the measurement. Therefore, AESA specifies the overall accuracy of the measurement and not the accuracy of the micro-ohmmeter only.

KEY FEATURES

- **Very broad measuring range**
 - samples up to 4'000 mm² / 7900 MCM
- **Ideal for any conductor**
 - class 1 (rods & wires); 2 (stranded); 5&6 (flexible) conductors
 - sector-shaped & insulated conductors
 - waterproofing conductors (with the axial current injection option)
- **Two in One**
 - short samples for most conductors
 - long samples for large section aluminium conductors
- **Hydraulic system**
 - controlling of jaws compression & tension forces with a hydraulic system
- **Easy to use**
 - direct readings in Ω/km @20°C
 - push button or touch screen, embedded PC
- **Overall accuracy**
 - specifications related to the whole measurement, not the instrument only



AESA Cortailod

TECHNICAL SPECIFICATIONS

Measuring range	1 $\mu\Omega$ - 200 Ω							
Measuring length	1'000 mm							
Minimum sample length	1'700 mm / 67" (central position) or 3'500 mm / 138" (extremity position)							
Sample \varnothing (class 1)	\varnothing Min	\varnothing Max	\varnothing Min	\varnothing Max	S min	S max	S min	S max
with STD jaws	1.1 mm	63 mm	0.05"	2.5"	(1 mm ²)	(2'500 mm ²)	(17 AWG)	(4'900 MCM)
with 3T jaws	12 mm	78 mm	0.47"	3.0"	(120 mm ²)	(4'000 mm ²)	(250 MCM)	(7'900 MCM)
Accuracy (± 3 digits)	Copper				Aluminium			
	Class 1	< 1'000 mm ²	< 2'000 MCM	$\pm 0.1\%$	< 1'000 mm ²	< 2'000 MCM	$\pm 0.1\%$	
		< 1'600 mm ²	< 3'200 MCM	$\pm 0.2\%$	< 1'600 mm ²	< 3'200 MCM	$\pm 0.2\%$	
		< 2'500 mm ²	< 4'900 MCM	$\pm 0.3\%$	< 2'500 mm ²	< 4'900 MCM	$\pm 0.3\%$	
		< 4'000 mm ²	< 7'900 MCM	$\pm 0.4\%$	< 4'000 mm ²	< 7'900 MCM	$\pm 0.4\%$	
Class 2 & Sectors	< 1'000 mm ²	< 2'000 MCM	$\pm 0.1\%$	< 1'000 mm ²	< 2'000 MCM	$\pm 0.1\%$		
	< 1'600 mm ²	< 3'200 MCM	$\pm 0.2\%$	< 1'600 mm ²	< 3'200 MCM	$\pm 0.2\%$		
	< 2'500 mm ²	< 4'900 MCM	$\pm 0.3\%$	< 2'500 mm ²	< 4'900 MCM	$\pm 0.4\%$		
	< 4'000 mm ²	< 7'900 MCM	$\pm 0.4\%$	< 4'000 mm ²	< 7'900 MCM	$\pm 0.4\%$		
Class 5&6	< 35 mm ²	< 2 AWG	$\pm 0.1\%$	< 35mm ²	< 2 AWG	$\pm 0.1\%$		
	< 240 mm ²	< 450 MCM	$\pm 0.1\%$	< 240 mm ²	< 450 MCM	$\pm 0.3\%$		
	< 1'000 mm ²	< 2'000 MCM	$\pm 0.1\%$	< 1'000 mm ²	< 2'000 MCM	$\pm 0.5\%$		
Insulated	When measuring insulated conductors, the insulation should only be removed at the contact points.							
<small>The accuracy is given as typical value.</small>	<small>The accuracy of the equipment is given provided the required accessories are utilized and that the conductor itself is in excellent condition.</small>							
Resolution	4 ½ digits							
Display	State-of-the-art interface, thanks to a 7" touchscreen							
Operating modes	Simple (buttons) / Advanced (touch screen)							
Consisting of	<ul style="list-style-type: none"> Measuring ruler (with all integrated components: temperature, voltage, current,...) Control housing (embedded PC) Hydraulic pump ISO 17025 Certificate 							
Supply voltage	100 - 240 VAC							
Interfaces	3 x USB (e.g. for printer) 1 x Display Port connector for external monitor 2 x RJ45 for LAN connection							
Dimensions	3600 x 450 x 410 mm (142" x 17.7" x 16.1")							
Weight	\approx 100 kg (220 lb)							
Article No	32.0210.0001.00							

OPTIONS

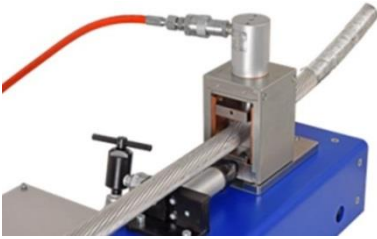
- Three-teeth (3T) jaws (120° - for class 1&2)
- Axial current injection
- Integrated water bath
- Electric pump
- Label printer
- Remote control software
- Conductivity / Resistivity
- ISO17025 certified calibration box
- ISO17025 certified rod
- Warranty extension
- Maintenance contract

AESA proposes other specific equipment for the measurement in the laboratory and directly on the production line.

KEY BENEFITS

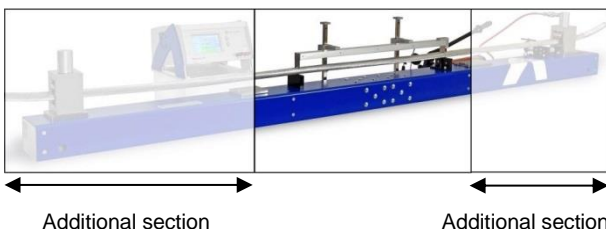
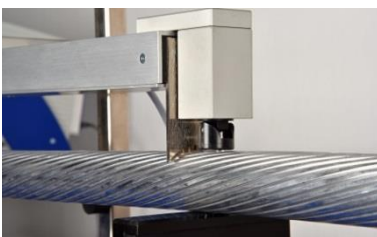


ISO 17025 ACCREDITED



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	θN1	20 °C
Rmes	+3.8109 Ω/km	Duration	00:00:14 / 2
Tmes	+20.70 °C		

ROI < 1 year



USER-FRIENDLY

- ResTest software is multi-lingual
- Direct results without post calculation
- Only two buttons for simplified use in production
- Extended functions for the use in the laboratory

ACCURATE

- The equipment is certified ISO 17025
- All uncertainties are factored in
- The risk of human error is reduced to its strict minimum
- Specifications apply to the overall measurement
- Improved repeatability, thanks to the control of hydraulic force

POWERFUL

- The hydraulics jaws ensure homogeneous current distribution
- The sample is tightened with a hydraulic jack
- Data tables recommending adequate pressure for reproducible results

SMART

- All data (results and conditions) are saved in its internal PC
- Labels can be printed directly on site
- Data can be exported through the LAN
- Traceability is easily managed

COST EFFECTIVE

- High accuracy allows raw material savings
- Simplicity of use reduces operational costs
- Reliable information allows process improvement
- Options can make the system even more efficient

UNIVERSAL

- Very broad measuring range (cross-sections)
- All type of cables can be measured
 - class 1 (solid conductors)
 - class 2 (stranded conductors)
 - class 5/6 (flexible conductors)
 - sector shaped conductors
 - insulated conductors

TWO in ONE

The hydraulic jaws can be placed in two positions

- Central position for small sections and copper (small samples)
- At the extremities for large aluminium sections (long samples)

Options

1. Three-teeth jaws for class 1 & 2

Article No: 51.0180.0038.0

The kit of 120° three-teeth jaws is required for aluminium conductors larger than 400mm².

2. Axial current injection

AESA Cortailod has developed a new patent filed method for measuring the linear resistance. Rather than injecting it transversely, current is injected axially. In this way, each wire in the conductor is in direct contact with the current source, thus minimizing the contact resistance effect between wires. As a result, the accuracy and reliability of the measurement is significantly enhanced. It is especially recommended for large section conductors, aluminium and/or waterproofing / Milliken cables.



Kit		Conductor size	Part number
1	small	50 - 630 mm ²	51.0030.0104.0
2	medium	400 - 2'000 mm ²	51.0030.0105.0
3	large	630 - 3'500 mm ²	51.0030.0106.0
1 + 3	combined	50 - 3'500 mm ²	51.0030.0107.0

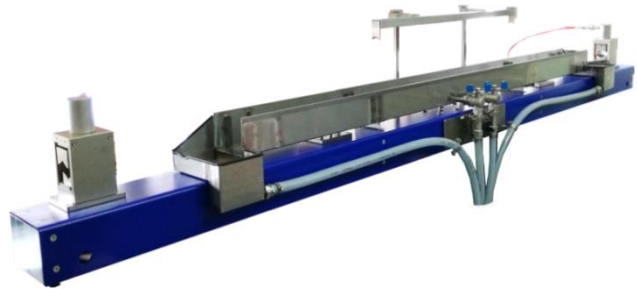
3. Integrated water bath

Article No: 51.0030.0093.0

This option is an accessory that allows rapid pre-stabilisation of the temperature of the sample to be measured. It is well suited for hot large conductors.

This option includes:

- Integrated water bath
- Water pump
- Accessories (tubes, cables)
- Adapting material for ResTest 210
- Assembly manual



4. Electric Pump

Article No: 51.0900.0006.0

In the standard version, the system is equipped with a manual pump. It is also possible to integrate an electric pump.



5. Label printer (e.g. Brother QL-700)

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	θ_{N1}	20 °C
Rmes	+3.8109 Ω /km	Duration	00:00:14 / 2
Tmes	+20.70 °C		

This printer is directly connected to the USB port, printing labels like the example above.

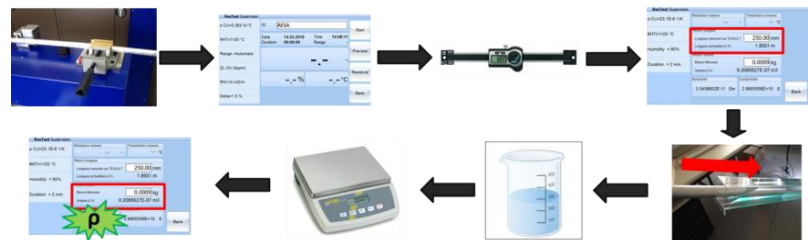
6. Conductivity / Resistivity option

Article No: 51.0030.0079.0

AESA Cortailod developed a novel, fast and accurate solution to measure the conductivity / resistivity. The principle consists in 3 different steps:

1. Resistance & temperature (with ResTest)
2. Length with special ruler
3. Cross-section by volume measurement

→ Results are automatically computed & displayed



This new solution fills a gap in the linear resistance field with the precise conductivity / resistivity measurement for class 1 conductors (according to the IEC 60228 standard) in raw material incoming inspection test.

7. Remote control software (ResSoft)

Article No: 52.0030.0007.0

This software allows driving the resistance bridge in a remote mode with a compatible PC-Type computer. This is done using a USB interface.

This software enables:

- Library of conductor specifications
- Measurement monitoring
- Reporting
- Maintenance



8. ISO 17025 certified calibration box ResCal 2

Article No: 45.0001.0002.0

This standard is needed to verify the accuracy of each range of the ohmmeter. This standard is delivered with an ISO 17025 certificate.

Specification: $\pm 0.1\%$ and $\pm 50 \text{ ppm}/^\circ\text{C}$

Including 4 reference values:

- 0.1 m Ω
- 1.0 m Ω
- 10.0 m Ω
- 100.0 m Ω

Delivered with ISO 17025 certificate

ISO 17025 ACCREDITED



9. ISO 17025 certified manganin rod $\varnothing 5.5 \text{ mm}$

Article No: 45.0030.0002.0

This standard is needed to verify the overall accuracy of the equipment, including the ruler and clamping jaws. This standard is delivered with an ISO 17025 certificate.

ISO 17025 ACCREDITED



10. Warranty Extension

Article No: 60.0900.0004.0

AESA is confident with its technology and the quality of its goods. This is why the system is supplied with a 2-years warranty period. In order to protect its customer's investment, AESA offers the possibility to extend the warranty period to 3 years

11. Maintenance contract

Article No: 60.0100.0002.0

Even the most reliable systems require regular, planned and preventive maintenance as well as periodical calibrations. AESA proposes service packages to extend the operating life of your equipment, control of your maintenance costs and ensure optimal performances