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# Metro.Cable a custom TDR

*in Test we Trust*

**ALBEDO Metro.Cable is a customizable time-domain reflectometer (TDR) capable to characterize and locate faults in metallic cables of any nature including coaxial, twisted pair wire, or special cables used in Power Lines**

Metro.Cable is a hand-held device designed for those companies working with transmission and power cables.

## Near-end adapter

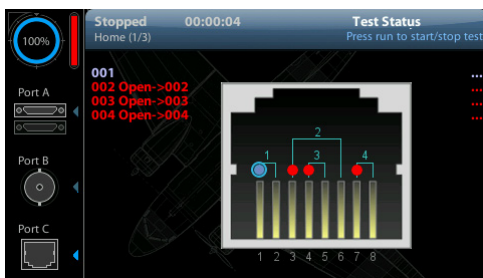
Near-end adapter is a switching matrix that allow the selection of any pair of conductors to execute the TDR test.

## Far-end Active Loop adapter

Far-end adapter communicated with an independent media with the Metro.Cable board can open/close any two circuits, generate a tone or a special impedance.

**“Any cable can be verified including customer designed cables and avionic circuits**

## Transmission Cables



Metro.Cable can measure cable length, distance to faults, for coaxial, twisted pairs that are being used in Ethernet installations using RJ45 twisted pairs and E1, TV or any other installations using BCN.

## Avionics

Metro.Cable is used on aviation wiring for both preventative maintenance and fault location because time domain reflectometry has the advantage of precisely locating the fault location within thousands of miles of aviation wiring.

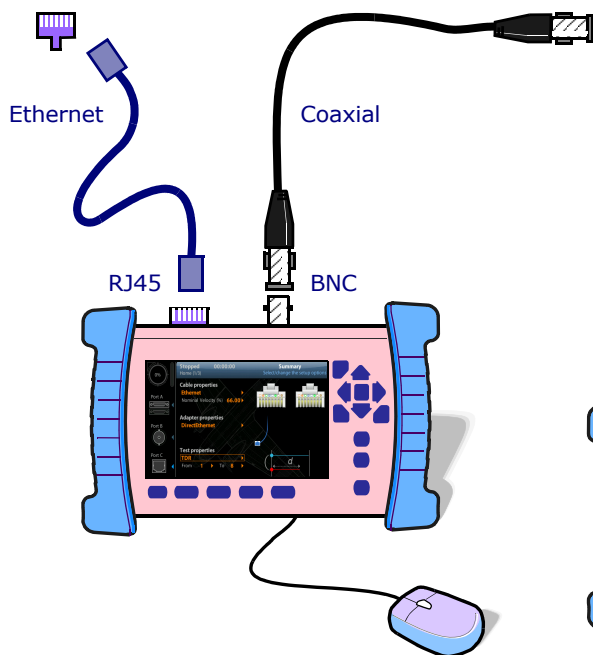
## Special Power cables



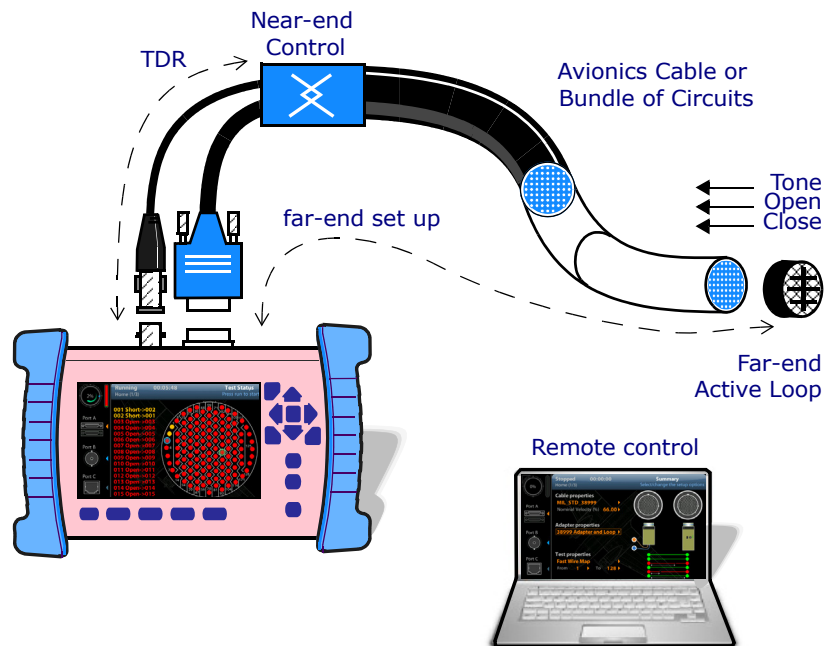
In order to satisfy the necessity of TDR in special cables made of two or any number of conductors, ALBEDO has developed a technology consisting in two adapters the Near-end adapter and the Far-end Active Loop adapter.

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## TRANSMISSION CABLE TEST



## POWER AND TELECONTROL CABLE TEST



### Functional Specs

TDR	
Interfaces	<ul style="list-style-type: none"> <li>BNC (coaxial)</li> <li>RJ45 (twisted pairs)</li> <li>Customer defined</li> </ul>
Input Impedance	<ul style="list-style-type: none"> <li>BNC 50 Ohm</li> <li>RJ45: 100 Ohm</li> <li>Customer cable: undefined</li> </ul>
TDR	<ul style="list-style-type: none"> <li>Stimulus: Impulse</li> <li>Amplitude: 3 V</li> <li>Impulse width: 100 ns</li> <li>Stimulus Repetition Rate: 300 KHz</li> <li>Step Resolution in free space: 100 mm</li> </ul>
Max Non-Destruct Voltage	<ul style="list-style-type: none"> <li>BNC: <math>\pm 325</math> Vdc</li> <li>RJ45: <math>\pm 3000</math> Vdc</li> </ul>
Max Input Pulse Voltage	<ul style="list-style-type: none"> <li>+5 Vp</li> </ul>

Features	
Customizable	<ul style="list-style-type: none"> <li>Type of cable from two to n conductors</li> </ul>
Cable Fault	<ul style="list-style-type: none"> <li>Customer cable wiremap</li> <li>RJ45 cable d &gt; 100 m</li> <li>Coaxial cable d &gt; 100 m</li> </ul>
ESD protection	<ul style="list-style-type: none"> <li>BNC: IEC 61000-4-2*</li> <li>Level 4: <math>\pm 12</math> kV</li> <li>RJ45: 1500 Vrms / 0.5 mA / 60 s</li> </ul>
Functions	<ul style="list-style-type: none"> <li>Opens, shorts, splitters, high resistance, bandwidth, impedance</li> </ul>
Operation	<ul style="list-style-type: none"> <li>Sequential test for each n pairs</li> </ul>

(\*)Standard test condition is IEC61000-4-2 level 4 test circuit with each (AOUT/BOUT) pin subjected to  $\pm 12$  kV contact discharge for 1000 pulses. Discharges are timed at 1 second intervals and all 1000 strikes are completed in one continuous test run.  
The TDR accuracy is  $\pm 10$ cm and the maximum test length is 150m.

Platform	
Hand-held Instrument	<ul style="list-style-type: none"> <li>Touchscreen 480 x 272 TFT, Mouse, USB &amp; Ethernet ports; 1.0 kg, 223 x 144 x 65mm; IP-54</li> <li>Soft LEDs All events at a glance</li> <li>Rechargeable Batteries continuous working up to 12 hours continuous operation. Fast recharging time</li> <li>AC Power Adapter Input: 100 ~ 240 V AC, 50/60 Hz</li> <li>Operating Temperature <math>0^{\circ}\text{C} \sim 50^{\circ}\text{C}</math>, Storage Temperature <math>-20^{\circ}\text{C} \sim 70^{\circ}\text{C}</math>, Humidity 5% ~ 95%; IP rating 54</li> <li>SNMP, MIB and VNC remote control</li> </ul>



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