

Cable Fault Locator TDR RI-10M2 with Cable Bridge



This device combines functions of TDR and cable bridge.

TDR RI-10M2 – a single-channel cable locator with a bridge measurements unit, designed to determine the nature and location of the irregularities and damages of the cable line ((opens, shorts, wet/corroded splices, water in the cable, load coils, bridged taps, unknown splices, splits and re-splits, capture intermittent fault etc.), as well as for measuring the main parameters of cable lines using bridge method (loop resistance, insulation resistance, capacitance, cable asymmetry, voltage, distance to leakage and breakage).

TDR-10M2 – a compact device designed to work in the field settings.

TDR-10M2 device consists of two blocks in one case: TDR and Cable Bridge.

Designed for measurements on balanced and unbalanced cables.

Features

Types of measurements provided by the TDR unit:

- cable length measurement;
- measuring distances to impedance discontinuities or damages;
- measurement of the velocity factor of the line to its length known;
- determines the nature of injuries;
- Types of measurements provided by the cable bridge unit:
- loop resistance measurement;
- insulation resistance;
- measurement of capacitance;
- measurement of DC and AC;
- resistance difference definition;
- determination of the distance to the point of reducing the insulation;
- determination of the distance to the point of breaking the cable core;
- determine the distance to a short-circuit cable wires.
- insulation test voltages.

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Sphere of application

TDR-10M2 is used to control the laying and operation of the following types of cables:

- System Cables Communications;
- Signal and Control Cables ;
- Power cables;
- Aerial cable lines;
- Computer Networks;
- TV and radio cable lines;
- to determine the length of the cable in its production, storage and trade.

Cable bridge is a universal measuring device, which includes a set of schemes implemented by DC bridges and ballistic measurement method. Using measurements of the proposed schemes, we can determine the parameters of the cable (loop resistance, insulation resistance, resistive asymmetry, electric capacitance), and calculate the distance to the fault (open, low insulation resistance, short circuit). Microprocessor processing enables to automate calculations and automatically selects the measurement range.

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Technical specifications

TDR-mode:

The range of distance measurement (time delay)	from 0 to 50000 m (from 0 to 500 μ s)
Subranges measurements	0 – 125m (0 – 1.25 μ s); 0 – 250 m (0 – 2.5 μ s); 0 – 500 m (0 – 5 μ s); 0 – 1000 m (0 – 10 μ s); 0 – 2500 m (0 – 25 μ s); 0 – 5000 m (0 – 50 μ s); 0 – 12500 m (0 – 125 μ s); 0 – 25000 m (0 – 250 μ s); 0 – 50000 m (0 – 500 μ s)
Instrumental error of the distance measurement	from 0.04% to 0.4% depending on subrange measurements
Effective sampling rate	200 MHz
Range of impedance matching	from 25 Ω to 600 Ω
Pulse width	from 10 ns to 50 μ s
Pulse amplitude	10 V on the matched load
Sensitivity receiving tract	1 mV (80 dB)
VOP	33.3% ... 99.9% (step 0.1%)

Cable-Bridge mode:

Limits of permissible absolute error of measurement of the loop resistance	in the range of 1.0 ohms to 9900 ohms \pm (0,005 R + 0,2) ohms
Limits of permissible absolute error of measurement of the insulation resistance	when measuring DC voltage (180 \pm 10) V in the range of from 10 ohms to 999 kohms \pm 0,01 R in the range from 1 to 999 MOhms \pm 0,02 R in the range from 1000 to 10,000 MOhms \pm 0,1 R
Limits of permissible absolute error of measurement of electrical capacitance	ranging from 1 nF to 3000 nF \pm (0,1 C 1) nF
Limits of permissible absolute error of measurement of the DC voltage	in the range from 1 V to 200 V \pm (0,01 U + 1) V
Limits of permissible absolute error of measurement of AC voltage frequency (50 \pm 5) Hz	ranging from 10 V to 250 V \pm (0,02 U + 2) V

Common:

Display	monochrome 3.8 " (320x240 pixels)
Continuous operating time on battery power	at least 8 hours
Time of continuous operation through the power supply	Unlimited
Overall dimensions	110x230x190 mm
Operating Temperature Range	from -20 $^{\circ}$ C to +40 $^{\circ}$ C
Weight of device with battery	not more than 2.0 kg