TDR2050
Advanced Dual Channel TDR



- **600 V CAT IV input protection filter built in**
- **Step and pulse TDR selections**
- **Distance dependant gain**
- **Trace tagging**
- **2ns pulse width**
- **Designed for use on all metallic paired cables**

DESCRIPTION

The Megger TDR2050 is a state of the art dual channel, dual trace time domain reflectometer ideal for locating faults on paired metallic cables. It is the first TDR in its class to have 600V CATIV input protection filter built in, giving the ability to connect to known live lines. This is particularly useful for detecting illegal taps without having to power down the line.

The TDR2050 has a minimum resolution of 0.1 m / 0.3 ft and a 20 km / 65,000 ft maximum range depending on the velocity factor selected and the cable type.

Various output impedances are available (25, 50, 75, 100, 125, 140 ohms) and an auto impedance matching feature. The velocity factor can be set between 0.2 and 0.99 to meet any cable test requirements.

FEATURES AND BENEFITS

The TDR2050 has a large, high resolution, color, WVGA display with easy set up features. Directional control buttons, together with soft keys, provide intuitive and easy operation for the user.

An AUTO selection option ensures that the most effective parameters are chosen depending on the range required, aiding rapid diagnosis of the TDR trace. The ability to manually override the auto function allows fine tuning to enable identification of hard to determine faults.

Dual trace and dual cursor capabilities allow full flexibility, giving the operator complete control and instant indication of distance between two points.

A trace comparison feature also allows close examination between trace conditions. Extra high resolution, together with a white-light backlight, user definable color schemes give the graphical display a vibrance, aiding the user in identifying key events on the trace.

600 V CAT IV input protection

TDR2050 is the first TDR in its class to include a built-in 600V CATIV input protection filter. The ability to connect to potentially live circuits means a more flexible instrument suited for a wider range of applications.

Trace storage

100 internal trace memories provide for the storage and recall of test results. The traces can be recalled to the display for analysis or compared with an active display to aid in fault location.

Alternatively the stored results can be downloaded to a computer, via the USB port, using the TraceXpert software and USB lead provided.

Step TDR function

The Dead Zone effect of a standard pulse TDR can mask near-end faults and make them undetectable. The addition of a step function on the TDR2050 eliminates this problem.

Step TDR technology means that the signal is injected at full stength and stays there until a disturbance is detected. This makes step TDR technology perfect for detecting near-end faults that standard pulse TDRs can miss.

Distance dependant gain

This feature eliminates the drop off of signal attenuation on longer lines by gradually increasing the gain along the returned signal, enabling a more even representation of the relative attenuation at all points along the trace.

Fault identification
Megger's own built-in AutoFind mode allows for speedy identification of faults. One press of the AutoFind key automatically adjusts the range and gain, and positions the cursor to the first major event on the cable. Press the AutoFind key again and the cursor will jump to the next detected disturbance.

FindEnd function
TDR2050 also incorporates a FindEnd function which allows the user to automatically search the trace to identify the end of the cable under test. This is useful in situations where a fast cable length measurement is required.

For those who wish to maintain manual control, manual operation allows full override access to refine the response for easy fault identification.

Color schemes
The very different light conditions that could be present when using the TDR2050, combined with the limitations of eye conditions such as color blindness, makes the addition of set color schemes in the instrument extremely important.

The TDR2050 has six additional set color schemes on top of the default and outdoor schemes included on other Megger TDRs. There are also two custom slots where the user can specify their own scheme by setting up to seven screen elements to their own choice of color.

Trace tagging
TDR2050 also incorporates a trace tagging feature which allows the user to add a name to saved traces. This could be the circuit ID, building name or any other identifying text the user wishes to save with the trace.

A text string of up to 32 alphanumeric characters can be stored against each trace and this can consist of upper case letters including accents.

TraceXpert PC software
The TDR2050 comes complete with the Megger TraceXpert software which gives full control over downloading, reporting and uploading of saved trace results. Designed around a database and programmed for ease of use and simplicity, TraceXpert offers the ideal application for all your data processing requirements.

ADDITIONAL FEATURES
- Backlit graphics color LCD (800x480)
- Resolution to 0.1 m
- AutoFind guide to potential fault location
- USB connection to PC allowing upload and download of traces
- For use on power circuits to 600 V CAT IV
- Power blocking filter built-in
- Environmental protection to IP54
- 2 ns pulse for near end fault location
- AUTO option selecting gain and pulse for each range
- AUTO option matches output impedance to cable
- Display distance in meters or feet
- Li-ion rechargeable battery (12 hours typical life)

APPLICATIONS
- Personnel involved in the location of cable faults as part of a responsive or routine maintenance programm.
- Electrical inspectors during quality checks following work on all new cable installations and modifications to existing cable installations.
- Testing reels of cable for shipping damage, cable shortages, cable usage, and inventory management.
- Testing for faults on hidden cabling in vehicles such as trains and airplanes where access is restricted and voltage may be present.
- Tracking down illegal connections (taps) on the power system.
- Checking for performance on umbilical cables in oceanographic and mining situations.
- Maintaining rail network signal communications and power cabling.
- Ensuring safe and efficient state of commercial heating and air conditioning cable.

SPECFICATIONS
Except where otherwise stated, this specification applies at an ambient temperature of 20°C

General
Range
Up to 20000 m with a minimum resolution of 0.1 m

m	ft	ns
10	30	125
25	80	250
50	160	500
100	320	100
250	800	2,500
500	1,600	5,000
1,000	3,200	10,000
2,500	8,000	25,000
5,000	16,000	50,000
10,000	32,500	100,000
20,000	65,000	200,000

Accuracy	±1% of range ±1 pixel at 0.67 VF [Note: The measurement accuracy is for the indicated cursor position only and is conditional on the velocity factor being correct.
Resolution	1% of range
Input protection	This instrument complies with IEC61010-1 to protect the user in the event of connection to live systems. TDR2050 is rated at 600 V CAT IV and is specifically designed to allow use on energized systems up to the rated voltage.
Output pulse	Up to 20 volts peak to peak into open circuit. Pulse widths determined by range and cable
Gain	Set for each range with user selectable steps (in manual operating mode)
Velocity factor	Variable from 0.2 to 0.99 in steps of 0.01

TX Null	Automatic Trace Tagging —32 characters chosen from upper case letters including accents Color schemes - Default, Outdoor, Custom Step TDR - Eliminates the Dead Zone effect DDG - Available in ranges 1000 m and above in 0.5 dB steps Cable Impedance - 25, 50, 75, 100, 125, 140 ohm + AUTO
Power down	User programmable auto power off timer 1, 5, 10 mins or never
Battery	Li-ion rechargeable battery
Battery charge time	6 hours at 0 °C to 40 °C
Battery life	12 hours typical
Safety	Instruments comply with IEC61010-1 for connections to live systems rated at 600 V CAT IV. Fused leads must be used if the voltage between terminals exceeds 300 V. Compliant with EN60950-1, EN61010-1, UN38.3 and EN62133
EMC	Complies with Electromagnetic Compatibility Specifications (Light industrial) BS EN 61326-1, with a minimum performance of 'B' for all immunity tests.

Mechanical

IP rating	Designed for use indoors or outdoors and rated to IP54
Case	ABS
Dimensions	290 mm x 190 mm x 55 mm 11.4 in. x 7.5 in. x 2.2 in.
Weight	1.7 kg / 3.8 lbs
Connectors	Four 4mm-safety terminals. Other standard push on adapters will fit.
Test leads	1.5 meter fused leads
Display	800 x 480 pixel color graphics LCD, viewable in external environments. **Color Schemes** Selectable x8 Custom x2
Backlight	Permanent backlight with all color schemes (adjustable brightness)

Environmental

Operating temperature range and humidity	-15 °C to +50 °C (5 °F to 122 °F)
Storage temperature range and humidity	-20 °C to 70 °C (-4 °F to 158 °F)

ORDERING INFORMATION

Description	Cat. No.
TDR2050	1005-023
Included accessories	
Download kit	1003-353
Fused test lead set	1002-136
Carry case	1003-217
User guide CD	2003-074
AC-DC charger	1003-352

Optional accessories	
Miniature clip test lead set (1 pair)	6231-652
Fused test lead set (1 pair)	1002-015
Replacement battery	1002-552
Terminal adaptor kit	1003-218
AC power lead - US	25970-002

UK
Archcliffe Road Dover
CT17 9EN England
T +44 (0) 1304 502101
F +44 (0) 1304 207342
UKsales@megger.com

UNITED STATES
2621 Van Buren Avenue
Valley Forge PA 19403 USA
T 866-254-0962 (USA only)
T +1 610-676-8500
F +1 610-676-8625
VFCustomerSupport@megger.com

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