



**APPLICATIONS**

The ETDR 10 has been designed for quick and accurate fault location and qualification of balanced telecommunication cables.

The various measuring modes provide accurate location of discontinuities and errors like open circuit, wet section, loose contact etc.

ETDR 10 employs optimized pulsing and sampling methods, supported with advanced filtering and signal processing techniques, to reach the maximum measurement range and clean waveform for easier fault interpretation.

ETDR 10 is designed for ease-of-use. If you select the cable type from the on board cable library and set the measurement range covering the length of the cable to be tested, V/2, gain, pulse width, and the distance dependent compensation of cable attenuation are automatically set as default.

3 to 10 ns pulse widths for close-in resolution. Faults as near as 0.5 m from the pedestal can be easily located.

30 ns to 6 μs pulse widths for the test of non-loaded cables.

330 μs pulse width for the test of loaded cables Help facility with sample traces and useful topic related information.

PC program is provided for post processing and transfer of test results via USB port.

**FEATURES**

- TDR for balanced cables
- Easy to operate
- Small size, suitable for using in the field
- Widest range in a hand-held cable fault locator up to 32 km
- Language selectable: English, German, Russian
- Dual balanced input enables
  - Examination of live lines
  - Comparison of two live lines
  - Difference between two live lines
  - Comparison of live line to memory
  - Difference between live line and memory
  - Location of crosstalk points
  - Location of intermittent faults
- 100 memories for waveform and setting storage
- Clear waveform display of full trace for accurate diagnosis, 320 x 240 LCD color display with backlight
- Zoom for detailed examination
- Cable library for standard and user defined cable types
- Results can be transferred to PC via USB
- Internal rechargeable NiMH battery pack
- Unit adjustment between V/2 and VOP
- Special program for performing the yearly calibration

**SPECIFICATIONS**

**Ranges (V/2=100 or V/2=10 for loaded cable)**

- |                               |         |
|-------------------------------|---------|
| 1. For non loaded cable ..... | 16 m    |
| 2. For non loaded cable.....  | 32 m    |
| 3. For non loaded cable ..... | 64 m    |
| 4. For non loaded cable.....  | 160 m   |
| 5. For non loaded cable.....  | 320 m   |
| 6. For non loaded cable.....  | 640 m   |
| 7. For non loaded cable.....  | 1600 m  |
| 8. For non loaded cable.....  | 3200 m  |
| 9. For all cables.....        | 6400 m  |
| 10. For all cables.....       | 16000 m |
| 11. For all cables.....       | 32000 m |
- (Maximum range depends on cable features)

**Evaluation of results**

with cursor and marker in meters

**Zoom**

Selectable .....OFF, 2.5, 5

**Resolution**

with zoom.....0.06% of range  
without zoom.....0.3% of range

**Accuracy**

Sampling .....0.01 m  
Fault location.....0.2% of range

**Propagation velocity**

For non loaded cables  
 V/2 ..... 45 to 150 m/μs  
 VOP ..... 30 to 99 %  
 For non loaded cables  
 V/2 ..... 1.2 to 30 m/μs  
 VOP ..... 0.8 to 20 %

**Measuring modes**

L1 L2	Test of a single pair
L1 LONG TIME L2 LONG TIME	Location of intermittent faults
XTALK	Transmit on L2, receive on L1
L1 & L2 L1 - L2	Comparison of two pairs
L1 & MEMORY L1 - MEMORY	Comparison with memory

**Pulse characteristics**

Amplitude: . max 12V peak to peak into 120 Ohm  
 Widths for non loaded cables:  
 3, 6, 10, 30, 60, 100, 300, 600 ns 1, 3, 6 μs  
 Width for loaded cables: 330 μs,  
 The provided pulse width changed with range.  
 Amplitude: ..peak to peak 3 to 12V into 120 Ohm  
 The pulse amplitude changed with gain and width.

**Gain control**

Range ..... 0 to 90 dB  
 Steps ..... 6 dB/step

**Line connection**

Impedance ..... 120 Ohm balanced  
 Input protection ..... 350V RMS 50 Hz 500 V DC  
 Balance control ..... 50 to 270 Ohm

**Memory locations**

For waveforms ..... 50  
 For setups ..... 10  
 For user stored PVF values ..... 10  
 For standard cable parameters ..... 30

**General specifications**

Power supply  
 Internal rechargeable NIMH battery pack  
 Operation time ..... approx. 8 hours  
 (60 % duty time)  
 Charging (without taking the battery pack out)  
 From 230 V mains ..... with mains adapter  
 From 12 V car battery ..... with car adapter  
 Charging time ..... approx. 3 hours  
 (Fast charging mode)  
 Display ..... 320x240 Color LCD  
 Connectors  
 For mains or 12V car adapter 2.1/5.5 mm coaxial  
 L1 and L2 line connectors ..4 mm banana sockets  
 USB B ..... USB 1.1 device port to connect PC  
 Ambient temperature range  
 Operating ..... -10 to +50°C  
 Storage and transport ..... -20 to +70°C  
 Dimensions ..... 200 x 100 x 40 mm  
 Weight ..... 0.8 kg

**Ordering information**

**TIME DOMAIN REFLECTOMETER**

**ETDR 10** 418-000-000

Including:  
 Operating Manual ..... OM 418-000-000E  
 Short form op. instructions ..... ML 418-000-000E  
 Calibration Certificate ..... CC 418-000-000 E  
 CD (xxx version) ..... CD 418-000-000 E  
 Containing  
 Operating Manual  
 Upgrade program  
 Demo program  
 PC program (option)  
 Operating manual for PC program (option)  
 Measuring Cable Set ..... 365-500-000  
 USB cable ..... Y 107-389  
 Mains adapter ..... Y 107-146  
 Battery (built-in) ..... 326-210-000  
 Carrying case ..... Y 147-007  
 Shoulder bag ..... Y 147-024  
 Option:  
 PC software for data transfer ..... SW 418-510-000