

CFL510F

Hand-held Time Domain Reflectometer



- Six ranges for testing power, cellular, CATV, and telephone cables
- Large high resolution backlit LCD
- 25 Ω , 50 Ω , 75 Ω , and 100 Ω output impedance
- Gain, balance, and contrast controls front-panel accessible
- FastFind automatic event locator

DESCRIPTION

The Megger CFL510F is an advanced instrument capable of identifying a wide range of cable faults using Time Domain Reflectometry. It offers exceptional features and a range capability normally associated with larger, more expensive instruments. The measurement range spans from 30 feet to 9,000 feet, with a minimum resolution of four inches.

The Model CFL510F can be used on any cable consisting of at least two insulated metallic elements, one of which may be the sheath or shield of the cable. The CFL510F has internal matching networks to allow testing of 25-, 50-, 75-, and 100- Ω cables. (These correspond to power, cellular, CATV, and telephone cable). The FastFind key simplifies waveform interpretation by automatically adjusting the instrument's range and gain and places the measurement cursor at the major event on the cable.

The instrument can be closely matched to the cable using the balance control allowing long lengths of cable to be easily tested and faults close to the instrument accurately measured. The propagation velocity value can be similarly adjusted to match the cable; thus ensuring an accurate distance measurement. To enable a wider range of faults to be detected, the gain of the instrument is also adjustable which helps the user identify minor faults over the entire cable length.

Other user adjustable settings include changing the distance measurement units between meters and feet and adjusting the propagation velocity units between a ratio and meters per microsecond. Display contrast can be set to compensate for all viewing conditions and a back lit LCD assists in low ambient light conditions.

The CFL510F is housed in a rugged ABS enclosure which is dust and weatherproof to IP54. The unit also comes complete with a carrying case containing lead storage, belt clip, and shoulder straps. It is powered by manganese-alkali, nickel-cadmium or nickel-metal-hydride batteries. The batteries are stored in a compartment on the back of the TDR, secured by two screws, and held in a carrier. This not only contains them securely but also allows for a quick change of rechargeable battery packs.

APPLICATIONS

This CFL510F is primarily designed for linemen in both the communication and power industries. Specific capabilities include:

Telephony

Provides fast and accurate results when uncovering transmission related problems. Designed to be carried on a linesman's belt and used in the first line of defense when diagnosing and locating cable faults.

Specific line activities identified by this unit include:

- Bridge taps and splices
- Presence of water in the cable
- Opens in tip, ring, or sheath
- Shorts between tip, ring, and/or sheath
- Capacitive networks
- Load coils
- Wet splices and high-resistance splices

CATV/Cellular

Ideal for testing the physical integrity of cables within a network. The unit is also capable of locating illegal cable taps.

Specific cable conditions identified include:

- Bends or crimps in the cable
- Cuts or shorts in the cable
- Taps and splits
- Water saturation

Power

An ideal tool for identifying faults on secondary power cables. This unit identifies:

- Burnouts in aluminum conductors
- Good splices, wet splices, and high-resistance splices
- Shorts between phases

FEATURES AND BENEFITS

- Large backlit display and ability to operate in temperatures as low as -4^o F (-20^o C) allow use in a vast range of locations and conditions.
- Accurate to 4 in. on shortest range.
- Six selectable ranges (from 30 to 9000 ft.) allow for effective fault locating on long- and short-range fault conditions.
- Contrast control compensates for ambient lighting.
- Balance control nulls the initial transmitted pulse to allow the user to see faults close to the instrument.
- Four gain settings for each range allow the user to adjust the amplification of the trace to detect a wider range of faults.
- FastFind key simplifies operation by automatically adjusting the instrument's range and gain and places the measurement cursor at the major event on the cable.
- Internal voltage blocking filter provides input protection up to 300 volts.

SPECIFICATIONS

Except where otherwise stated, this specification applies at an ambient temperature of -4^o F (20^o C).

General**Ranges** (at 0.67 VF)

30 ft, 90 ft, 300 ft, 900 ft, 3000 ft, 9,000 ft
(10 m, 30 m, 100 m, 300 m, 1000 m, 3000 m)

Accuracy

±1% of range ± pixel at 0.67 VF for 30 ft and 90 ft
(10 m and 30 m) range

Resolution

1% of range

Gain

Set for each range with four user selectable steps

Velocity Factor

Variable from 0.01 to 0.99 in steps of 0.01

Output Pulse

5 V peak to peak into open circuit

Output Impedance

User selectable between 25 Ω, 50 Ω, 75 Ω, and 100 Ω switchable

Balance Adjustment

0 to 120 Ω

Update Rate

Once per second for 5 minutes after last key press

Power Down

Automatic after 5 minutes with no key press

Display

Liquid crystal, 128 x 64 pixels with backlight. Backlight stays on for 1 minute when activated.

Power

Six LR6 (AA) type batteries, Manganese-alkali or nickel-cadmium cells

Nominal voltage - 9 V for alkali or 7.2 V for NiCad.

Low battery warning occurs at 6.5 V

Battery consumption 100 mA nominal 140 mA with back lit LCD.
(20/30 hours continuous use depending on backlight dependency)

Safety

Complies with IEC61010-1 for connections to live systems up to 300 V CAT III

EMC

Complies with Electromagnetic Compatibility Specifications (Light industrial)
BS/EN50081-1-1992
BS/EN50082-1-1992

Mechanical

The instrument is designed for use indoors or outdoors and is rated to IP54

Dimensions

9.05 H x 4.5 W x 1.88 D in.
(230 H x 115 W x 48 D mm)

Weight

1.32 lb (0.6 kg)

Material

ABS

Connectors

Two 4 mm-safety terminals

Lead

6.56 ft (2 m)

Environmental

Operational Temperature: 5^o F to 122^o F (-15^o C to +50^o C)

Storage Temperature: -4^o F to +158^o F (-20^o C to +70^o C)

Operational Humidity: 95% at 104^o F (40^o C)

ORDERING INFORMATION

Item (Qty)	Cat. No.
MEGGER Hand-held Time Domain Reflectometer	655510F
Included Accessories	
Test and carry pouch	EV6420-125
Bed of nails test lead set	EV6231-653
Instruction manual	EV6172-443
Optional Accessories:	
Miniature clip test lead set	EV6231-652

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ISO STATEMENT

RRegistered to ISO 9001:1994 Reg no. Q 09250
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