

# XC-850

## Cross Checking Reflectometer



- **Quickly determine the loss of a fiber segment including the fiber, the connectors at each end plus the length of the segment.**
- **Diagnose single fibers (Simplex) or as a pair with the Duplex cable option.**
- **Obtain superior visibility into premise and campus networks with a brilliant color display, less than 1-meter resolution and minimal deadzone.**
- **Boost productivity with quick and easy set up and >10 hours of battery life.**

### DESCRIPTION

The Megger XC-850, Cross Checking Reflectometer, is a bright new concept in the evolution of Optical Time Domain Reflectometer (OTDR) technology. Designed specifically with the needs of the LAN (Local Area Network) installer in mind, the XC-850 quickly determines the loss of a fiber segment including the fiber, the connectors at each end plus the length of the segment. It stores results for use in reports and most importantly establishes the cause and precise location of any impairments; a distinct advantage over a power meter and light source and without the complexity and cost of an OTDR.

The XC-850 obtains superior visibility into premise and campus networks with a brilliant color display, less than 1-meter resolution and minimal deadzone. Automated link analysis, a full keyboard to annotate cable and fiber identities, a barcode reader option, an automatic duplex cable option and a large capacity storage card for test results are only a few features designed to boost productivity and simplify the measurement and documentation of LAN installations.

### Display and Data Handling

The XC-850 is controlled through six “soft” control keys at the side of the screen. Data entry is performed through a built-in keyboard or barcode reader and the measurement cursors are positioned by a 2-axis controller.

Measurement traces and loss analysis results are stored on a Smart Card (storage card) in both Telcordia (Bellcore) GR 196 format and CSV format. They are therefore readable using many proprietary OTDR software packages,

Microsoft Office applications or the PC Configuration Manager software provided, making it easy to introduce XC-850 test results even if you were previously using other software packages.

The XC-850 configuration parameters are stored on the same storage card as the results. These parameters may be specified using the easy-to-use PC software provided. This enables the XC-850 to be configured off-line. It enables the instrument configuration to be stored with the resultant traces. It also enables multiple instruments to be quickly and reliably set to the same configuration.

The configuration software also contains a trace viewing facility to aid report generation.

### Power System

The XC-850 is powered by a rechargeable battery that provides for a 10 hour working shift even with the display backlight on. Recharging is through an external charger/power supply that enables the XC-850 to continue working while charging.

### APPLICATIONS LAN Installation

There are normally many individual fibers in a LAN installation especially where fiber to the desktop is used. The XC-850 has many features to aid the measurement and documentation of these installations: Automated link analysis, a full keyboard to annotate cable and fiber identities, a barcode reader option, an automatic duplex cable option and a large capacity storage card for all the results.

The XC-850 is an ideal troubleshooting and fault finding tool, enabling installers to automatically measure fiber loss over distance, identify poor connectors, fiber bends, and impairments.

**FEATURES**

- Designed specifically for multimode LAN fiber and with a Duplex option available.
- Less than 1 meter resolution, minimal deadzone and >13 dB dynamic range.
- Brilliant color display, full keyboard and barcode reader option.
- Splash proof, dust proof and rugged.
- >10 hour battery life even with backlight on.
- Large capacity storage card for instrument configuration and result storage.
- Readable measurement traces and loss analysis results using many proprietary OTDR software packages, Microsoft Office applications or PC Configuration Manager Software which is supplied.

**SPECIFICATIONS**

<b>Wavelength</b>	850 nm +/-30 nm (Loss calibrated to 850 nm)
<b>Pulse width</b>	4 nanosecond (0.4 meter)
<b>Fiber types</b>	62.5 µm or 50 µm multimode graded index
<b>Maximum Fiber Length</b>	2 km
<b>Resolution</b>	None saturating Fresnel events less than 1m apart (+/-0.5 meter location accuracy)
<b>Dynamic Range</b>	>13 dB of fiber loss (256 k averages where S/N = 1)
<b>Group Index</b>	User-adjustable between 1.2 – 2.5
<b>Event Dead-zone</b>	<2 m
<b>Attenuation Dead-zone</b>	<4 m.

(As with OTDRs, dead zone parameters are very dependent on the event reflectance. The Telcordia definition is used.)

**Connectors**

Connection is made to the XC-850 using an IEC or TIA compliant mode-conditioning patchcord box fitted with an SC connector. Connection from the patchcord box to the fiber being tested is through a (user specified) SC, FC or ST connector.

**Display Options**

The XC-850SST is fitted with a backlit, 100 mm, Color, 1/4 VGA transmissive display perfect for most indoor environments. The XC-850SSR is fitted with a transreflective display for viewing in bright light conditions.

**Duplex Option**

The XC-850DST and XC-850DSR enable duplex fiber links to be measured automatically and the results stored as a single trace with a code that links them as a duplex pair. The traces may be overlaid for comparison.

**Dimensions and Weight**

- Front panel:** 5.5 inch x 8.5 inch (135 x 240 mm)
- Depth:** 9.75 inch (245 mm)
- Weight:** 11.3 lbs. (5.15 kg)

**XC-850 Mode Conditioning Patchcord (Optional Accessory)**

**THE IMPORTANCE OF GOOD PATCHCORDS**

The importance of using the correct patchcord for OTDR measurements on optical fiber links cannot be overstated for the following reasons:



The patchcord connector must be representative of the type and quality of those used to connect the link during its normal operation. This is the only way to accurately assess the quality of the near end link connector.

The fiber used in the patchcord must be of the same core diameter and refractive index profile (Graded or step index.) as that used in the link under test. Different fiber characteristics will have different backscatter coefficients and result in confusing OTDR traces and incorrect link loss estimations.

Patchcord lengths must be long enough to enable equilibrium mode distribution (EMD) to be set up prior to the light reaching the fiber link under test. If high order leaky modes are present at the point of launch into this fiber the loss of the link will be nonlinear and overestimated. EMD is best achieved using mandrel wrapping at the near end of the patchcord followed by a long (>20 m) length of fiber.

Ergonomically the patchcord needs to be compact and its connectors well protected. It is a vital part of the test system and needs to be maintained in good condition as part of an overall quality plan.

**FEATURES**

Compact rugged design with a convenient stowage system for the flying fiber cords. The fiber type is clearly marked on the box label.

Every box contains a fiber mandrel wrap at the OTDR end of the patchcord complying with either TIA or IEC recommendations. Although originally derived for Light Source and Power Meter (LSPM) measurements they are equally applicable to OTDR measurements where the creation of EMD launch conditions is important for accurate loss measurements.

The patchcords all use an SC connector to interface to the Cross Checking Reflectometer front panel connector. A range of common connector types are available to interface to the fiber link under test. Megger recognizes the need to match this connector to the link panel connector and will consider requests for any less common connectors or connectors from specific manufacturers.

All the connectors used are hand polished and individually inspected to ensure high quality and maximum lifetime.

The mode conditioning patchcord boxes are designed specifically for multimode premise datacom fiber and with duplex options available.

**SPECIFICATION SUMMARY**

- Fiber length:** Nominal 50 meters
- External fiber:** Nominal 0.5 meter near end
- Cord lengths:** Nominal 3.0 meter test end
- Standard Fiber:** 62.5 µm or 50 µm types multimode graded index
- Standard connectors:** FC, ST, SC
- Mandrel wrap:**

62.5 µm fiber	IEC	5 turns 20 mm
	TIA	5 turns 20 mm
50 µm fiber	IEC	5 turns 18 mm
	TIA	5 turns 25 mm

ORDERING INFORMATION			
Item (Qty)	Order No.	Item (Qty)	Order No.
850nm Single Fiber (Simplex) Transmissive display	XC-850SST	MODE COND BOX	MSGI-5ST/TIA 6380-151
850nm Single Fiber (Simplex) Reflective display	XC-850SSR	MODE COND BOX	MSGI-6FC/EN 6380-156
850nm Duplex Fiber Transmissive display	XC-850DST	MODE COND BOX	MSGI-6FC/ES 6380-158
850nm Duplex Fiber Reflective display	XC-850DSR	MODE COND BOX	MSGI-6FC/FR 6380-159
Add the following code to the end of the <b>Ordering No.</b> for the following language options:		MODE COND BOX	MSGI-6FC/DE 6380-157
/EN = English		MODE COND BOX	MSGI-6SC/EN 6380-160
/ES = Spanish		MODE COND BOX	MSGI-6SC/ES 6380-162
/FR = French		MODE COND BOX	MSGI-6SC/FR 6380-163
/DE = German		MODE COND BOX	MSGI-6SC/DE 6380-161
<b>Included Accessories</b>		MODE COND BOX	MSGI-6ST/EN 6380-164
32MB Smart storage card	20010-007	MODE COND BOX	MSGI-6ST/ES 6380-166
Mains battery charger/power supply	6320-241	MODE COND BOX	MSGI-6ST/FR 6380-167
PC Configuration Manager software	6111-682	These are specified by the following code: MXGI-NYY	
User manual	6172-823	Where: M is for multimode fiber	
Megger Guide to LAN Fiber Measurement	6172-824	X is S for Simplex (single core) or	
Travel bag (Holds XC-850, multiple patchcord boxes, charger, documentation folders and plenty of other tools.)	6420-142	D for Duplex (twin core)	
<b>Optional Accessories</b>		GI is for graded index fiber	
Barcode reader (RS232)	6231-623	N is 5 for 50 micron core or 6 for 62.5 micron core	
<b>Optional Mode Conditioning Patchcord Boxes</b>		YY is the connector type SC, ST or FC	
MODE CON BOX	MSGI-5FC/EN 6380-142	Add the following code to the end of the <b>Ordering No.</b> for the following label language and international standards options:	
MODE CON BOX	MSGI-5FC/TIA 6380-141	/EN = Compliant with international standard IEC. English product label.	
MODE COND BOX	MSGI-5FC/ES 6380-144	/ES = Compliant with international standard IEC. Spanish product label.	
MODE COND BOX	MSGI-5FC/FR 6380-145	/FR = Compliant with international standard IEC. French product label.	
MODE COND BOX	MSGI-5FC/DE 6380-143	/DE = Compliant with international standard IEC. German product label.	
MODE COND BOX	MSGI-5SC/EN 6380-147	/TIA =Compliant with international standard TIA. English product label.	
MODE COND BOX	MSGI-5SC/ES 6380-149	<b>For example:</b> MSGI-5SC/TIA will comprise a single core 50micron Graded index multimode fiber with an SC connector conforming to TIA recommendations and featuring an English product label.	
MODE COND BOX	MSGI-5SC/FR 6380-150	<b>Other variants may be requested.</b>	
MODE COND BOX	MSGI-5SC/DE 6380-148		
MODE COND BOX	MSGI-5SC/TIA 6380-146		
MODE COND BOX	MSGI-5ST/EN 6380-152		
MODE COND BOX	MSGI-5ST/ES 6380-154		
MODE COND BOX	MSGI-5ST/FR 6380-155		
MODE COND BOX	MSGI-5ST/DE 6380-153		