



**"Results You Can Count On"**

## **Model 458-LM-E8-36 Local Loop Simulator**

0315-0361 Rev. B  
Date of Publication: 07/30/2011





## Customer Support

Thank you for your purchase of the Telebyte Model 458-LM-E8-36 Local Loop Simulator, featuring 36 MHz bandwidth and 8 channels for simulation of 0.4mm PE as specified in ANSI ETSI TS 101 388.

### Contact Information:

#### Telephone

General: 631-423-3232  
Technical support: 800-835-3298  
Fax: 631-385-8184

#### E-mail/Internet

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sales@telebytebroadband.com  
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#### Mail

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Hauppauge, NY 11788



## Warranty

### Included With Your Purchase

#### **One-year Warranty**

- Telebyte will furnish parts and labor for the repair or replacement of products found by Telebyte to be defective in material or workmanship during the warranty period.<sup>1</sup>

#### **One-year Calibration (where applicable)**

- One N.I.S.T. traceable calibration on the first-year anniversary of the product ship date.<sup>2</sup>
- Calibration report to ensure traceability.

### Extended Customer Care

There are two options available. Our three-year extended warranty extends the original warranty by an additional 36 months and the three-year calibration contract provides 36 additional months of calibration.

#### **Three-Year Extended Warranty**

You can extend the original one-year warranty that comes with your product by purchasing the **Three-Year Extended Warranty**.<sup>3</sup>

Features:

- Telebyte will furnish parts and labor for the repair or replacement of products found by Telebyte to be defective in material or workmanship during the warranty period.<sup>1</sup>

#### **Three-Year Calibration Contract (where applicable)**

Extended calibration is available through the **Three-Year Calibration Contract**.<sup>4</sup>

Features:

- Yearly N.I.S.T. traceable calibrations, each on the second, third and fourth anniversary of the ship date.<sup>2</sup>
- Report to ensure traceability.

### Disclaimer of Warranties and Other Terms and Conditions

<sup>1</sup> TELEBYTE, INC. warrants its broadband simulation equipment to be free from defects in material and workmanship, under normal and proper use and in its unmodified condition, for 12-months, starting on the date it is delivered for use. TELEBYTE'S sole obligation under this warranty shall be to furnish parts and labor for the repair or replacement of products found by TELEBYTE to be defective in material or workmanship during the warranty period. Warranty repairs will be performed at the point of manufacture. Equipment approved for return for warranty service shall be returned F.O.B. TELEBYTE factory and will be redelivered by TELEBYTE freight prepaid, except for non-continental U.S.A. locations. These deliveries will be sent COD freight and import/export charges.

<sup>2</sup> The customer is responsible for freight and customs charges when shipping products to and from Telebyte for calibration services.

<sup>3</sup> You must purchase the extended warranty at the time of purchase or during the initial warranty period.

<sup>4</sup> You must purchase the calibration contract at the time of purchase or during the initial warranty period. The above warranty is in lieu of all other warranties, expressed or implied, statutory or otherwise, including any implied warranty of merchantability or fitness for a particular purpose. TELEBYTE shall not be liable for any damages sustained by reseller or any other party arising from or relating to any equipment failure, including but not limited to consequential damages, nor shall TELEBYTE have any liability for delays in replacement or repair of equipment.



## **Equipment Returns**

Out of warranty equipment may be returned, prepaid, to the Hauppauge, N.Y. customer service facility. Return shipping charges will be billed to the customer. The repaired unit will have a 90-day warranty. In those cases where "no trouble" is found, a reduced charge will be billed to cover handling, testing, and packaging. Whether in or out of warranty, a Return Material Authorization number (RMA) is required and may be obtained by going to [www.telebytebroadband.com](http://www.telebytebroadband.com) and opening a technical support case.

Please be sure to reference the RMA number on the outside container.



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## 1.0 Introduction

The Model 458-LM-E8-36 Local Loop Simulator accurately simulates 0.4mm PE as specified in ETSI TS 101 388. This plug and play line module provides bandwidth up to 36 MHz and 8 channels with loop lengths from 0 to 2,250 m, in 150-m increments.

Features:

- Simulates 0.4 mm PE as specified in ETSI TS 101 388
- Bandwidth DC to 36 MHz
- Ideal for testing ADSL, ADSL2, ADSL2+, VDSL, VDSL2 modems/DSLAMs
- 8 channels per line module
- Loop lengths programmable from 0 to 2,250 m in 150-m increments
- Plugs into our 458-CC-16 (16-slot Chassis) or 458-3SLB (3-Slot Chassis)



*Figure 1: Front View of Model 458-LM-E8-36. Both the front and rear of the line module have 8 RJ-45 connectors.*



## 2.0 Specifications

### 2.1 458-LM-E8-36

Product Specifications 458-LM-E8-36	
<b>Simulation</b>	<ul style="list-style-type: none"> <li>• Accurately simulates attenuation and impedance</li> <li>• Full bi-directional operation at all specified frequencies</li> <li>• 0.4 mm PE as specified in ETSI TS 101 388</li> </ul>
<b>Bandwidth</b>	DC to 36 MHz
<b>Attenuation Accuracy (when source and load impedances are 100 ohms)</b>	MAE < 1 dB (25 kHz to 36 MHz)
<b>Maximum Attenuation</b>	> 90 dB
<b>Impedance Accuracy</b>	Typically +/- 10% 25 kHz to 36 MHz
<b>Maximum Voltage Tip – Ring</b>	200 V
<b>Maximum Current</b>	130 mA
<b>Connectors</b>	8 RJ-45's on front, 8 RJ-45's on back

### 2.2 458-3SLB

Product Specifications (Chassis and Control Module)	
<b>Controls</b>	Keypad for setting loop lengths and IEEE-488 address, RS-232, or Ethernet communication parameters.
<b>Indicators</b>	Backlit LCD display of line length and set up parameters.
<b>Power</b>	88 to 264 VAC, 50 or 60 Hz
<b>Size</b>	[2U] 19 in W x 22 in D x 3.47 in H (482.6 mm W x 558.8 mm D x 88.1 mm H)
<b>Environmental</b>	Operating: +32 F to +122 F (0 to +50 degrees C) Storage: 0 to 95% relative humidity (non-condensing)
<b>Remote Control Connectors</b>	RS-232: DB9 female (DCE); GPIB: IEEE488 24-pin connector. Ethernet: RJ-45
<b>Plug-In Compatibility</b>	Accepts one, two or three 458 Line Modules or one 458-RT



### 2.3 458-CC-16/458-CM

<b>Product Specifications 458-CC-16 (16-Slot Chassis) &amp; 458-CM (sold separately)</b>	
<b>Controls</b>	Keypad for setting loop lengths and IEEE-488 address, RS-232, or Ethernet communication parameters.
<b>Indicators</b>	Backlit LCD display of line length and set up parameters.
<b>Power</b>	100 - 240 VAC, 50 or 60 Hz
<b>Size</b>	[7U] 19 in W x 22 in D x 12.22 in H (482.6 mm W x 558.8 mm D x 310.4 mm H)
<b>Environmental</b>	Operating: +32 F to +122 F (0 to +50 degrees C) Storage: 0 to 95% relative humidity (non-condensing)
<b>Remote Control Connectors</b>	RS-232: DB9 female (DCE); GPIB:IEEE488 24-pin connector. Ethernet: RJ-45
<b>Plug-In Compatibility</b>	Accepts 1-16 458 Line Modules

Specifications are subject to change without notice. Made in USA.

- Detailed information about the operation of the 458-3SLB and 458-CC-16/458-CM can be found in the reference manuals for those products. Only information unique to the 458-LM-E8-36 is provided in this manual.





## 3.0 Control

The Model 458-LM-E8-36 can be controlled three ways: via RS-232 and IEEE488 Remote Commands, our 458 Universal GUI interface or the push buttons and LCD Display on the front panel of our 458-3SLx or 458-CM.

### 3.1 Remote Commands

Please refer to the manuals for the 458-3SLB or 458-CC-16/458-CM for remote commands common to many line modules, including the 458-LM-E8-36.

### 3.2 Graphical User Interface

458 Universal GUI Release 1.4.51

CM Communication Settings

VIEW LINE MODULES INSTALLED Re-initialize

Select ALL slots matching active module

Slot	Module	SN	Activate
1	458-LM-E8-36	TB5074	<input checked="" type="radio"/>
2	EMPTY		<input type="radio"/>
3	EMPTY		<input type="radio"/>
4	EMPTY		<input type="radio"/>
5	EMPTY		<input type="radio"/>
6	EMPTY		<input type="radio"/>
7	EMPTY		<input type="radio"/>
8	EMPTY		<input type="radio"/>
9	EMPTY		<input type="radio"/>
10	EMPTY		<input type="radio"/>
11	EMPTY		<input type="radio"/>
12	EMPTY		<input type="radio"/>
13	EMPTY		<input type="radio"/>
14	EMPTY		<input type="radio"/>
15	EMPTY		<input type="radio"/>
16	EMPTY		<input type="radio"/>

Control Module ID  
Telebyte Inc. M458-CM Rev 082310

SET CHANNELS

Apply CH1 to All CHs

Select CH lengths for active model

Channel	Length
CH1 0.4mm PE	2250 m
CH2 0.4mm PE	1950 m
CH3 0.4mm PE	1650 m
CH4 0.4mm PE	1350 m
CH5 0.4mm PE	1050 m
CH6 0.4mm PE	750 m
CH7 0.4mm PE	450 m
CH8 0.4mm PE	150 m

CHANNEL CONNECTIONS

	CO	CPE
CH1	<input type="checkbox"/> Open	<input type="checkbox"/> Open
CH2	<input type="checkbox"/> Open	<input type="checkbox"/> Open
CH3	<input type="checkbox"/> Open	<input type="checkbox"/> Open
CH4	<input type="checkbox"/> Open	<input type="checkbox"/> Open
CH5	<input type="checkbox"/> Open	<input type="checkbox"/> Open
CH6	<input type="checkbox"/> Open	<input type="checkbox"/> Open
CH7	<input type="checkbox"/> Open	<input type="checkbox"/> Open
CH8	<input type="checkbox"/> Open	<input type="checkbox"/> Open

Program Status  
Ready

Exit

Checked = Open  
Default = Closed

➤ Refer to the 458 Universal Graphical User Interface manual for more information.



### 3.3 LCD Display/Front Panel

#### Basic Operation

Make selections by pushing the UP, DOWN, LEFT and RIGHT arrow buttons on the front panel. The LCD Display shows the choices made. Refer to the chassis manual for additional details.

#### Step One – Select Slot

- Navigate to the desired slot in the 458-3SLx (3-Slot) Chassis or 458-CC16/458-CM (16-Slot) Chassis using the UP or DOWN arrows.

#### Step Two – Select Increment

- Step through the allowable lengths for the current slot using the LEFT or RIGHT arrow buttons. The length will increment in 150-m steps.