Variable ISI Channel

CLE1500

Operation Manual for CLE1500-T1

Rev 1.0 | May 2025

ARTEK INC.

Introduction

Thank you very much for purchasing our product. This manual contains the procedures to be followed to operate the product, the checkpoints and precautions to be observed, and so on. Improper handling may result in malfunction. Before using this product, please read through these instructions to ensure that you will operate this product correctly. After reading through the manual, keep it in a safe place for future reference.

Safety Instruction

Warning

In order to avoid improper handling that may result in a safety hazard, please be sure to read this manual thoroughly before using this product to learn the proper method of operation.

Do not use this product where there is a danger of ignition or explosions.

This product is for indoor use ONLY.

Static electricity can cause critical damage to the product. Do not short static electricity to the signal line and ground line.

Do not connect GND to the voltage supply.

Do not remove the cover.

In the unlikely event that trouble or malfunction occurs, disconnect this product's power cable and contact your dealer or an ARTEK sales representative.

This product contains some high-voltage parts. If you touch them, you may receive an electric shock and burn yourself, so do not attempt to disassemble, repair, or remodel this product.

Do not spill liquid or drop flammable objects or metal parts into it. Usage under such conditions may result in fire, electrical shock, or malfunction.

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This manual may not be copied in whole or in part without written permission.

The contents of this manual are subject to change without prior notice due to improvements.

The manufacturer will not be liable for any damage or trouble caused by the faulty connection or operation of this product.

Accessories

AC power cord (1)

USB control cord (1)

Ethernet Cable (1)

Fuse (1) – stored in the inlet holder at the AC inlet

1. General

The CLE1500 is a variable ISI channel, consisting of passive differential lines engineered for PHY testing on serial data interfaces. The patented technology allows for linear adjustment from 0% to 100%.

Features

- Linearly Variable: Variable Insertion Loss from 0% to 100%
- Fully Passive: Passive Differential Transmission Line
- DC Coupled: No Low Frequency Limit
- Remote Control via USB and/or Ethernet: enables automated calibration

2. Setup

Use appropriate data cables to hook up your devices.

1.85mm (V) connector cables for CLE1500-T1

3. Control

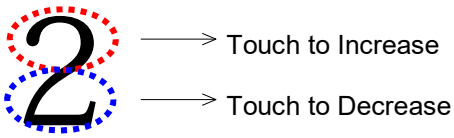
There are three (3) ways to control and operate the CLE1500.

- Front Panel - Standalone
- PC Browser – via Ethernet
- Remote Commands – via USB or Ethernet

This section explains the front panel operation as well as PC browser operations. Please refer to the "Remote Command Manual" for command operations.

3-1 Front Panel – Standalone

- ❖ Press "SET" for entering to change the value.
- ❖ Change the value
  - Front Panel – Use the Jog dial or Touch the number



- Browser and/or GUI – Enter numbers or Up arrow or Down arrow key

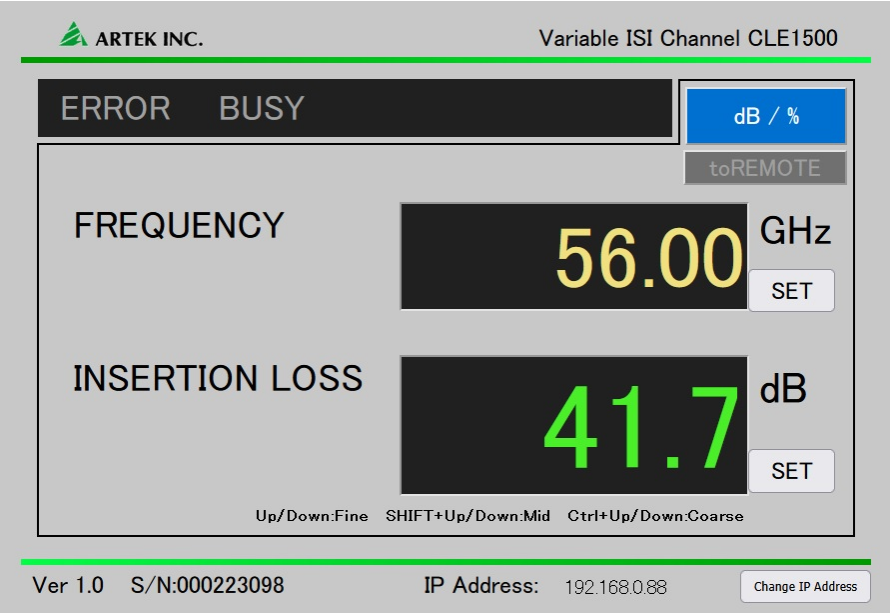
❖ Press "SET" to exit

3-2 PC Browser - Ethernet

- Connect CLE1500 via Ethernet cable
  - You can connect directly to your PC or via a router.
  - For direct connection with your PC, you must set dedicated IP address for your PC.
  - It is recommended to use a "cross" cable (provided as an accessory) for direct PC connection.

- IP address
  - Default IP address is 192.168.0.88
  - IP address can be changed from the browser.

- Connecting to CLE1500
  - Start your Browser
  - Enter **http://192.168.0.88** (as the default IP address) in the Brower address bar
  - A dialog will start as below.


ARTEK INC.
Variable ISI Channel CLE1500
ERROR BUSY
dB / %
toREMOTE
FREQUENCY
56.00
GHz
SET
INSERTION LOSS
41.7
dB
SET
Up/Down:Fine SHIFT+Up/Down:Mid Ctrl+Up/Down:Coarse
Ver 1.0 S/N:000223098
IP Address: 192.168.0.88
Change IP Address

4. Operation

4-1 Preheating

One (1) hour preheating is required to retain the stable insertion loss. Less preheating may result in the discrepancy from the actual value vs setting value.

4-2 dB Mode and % Mode

There are two operation modes, “dB Mode” and “% Mode.”

Press dB / % to toggle the mode. It stores the last setting in each mode.

dB Mode

You set Nyquist Frequency and Insertion Loss in dB

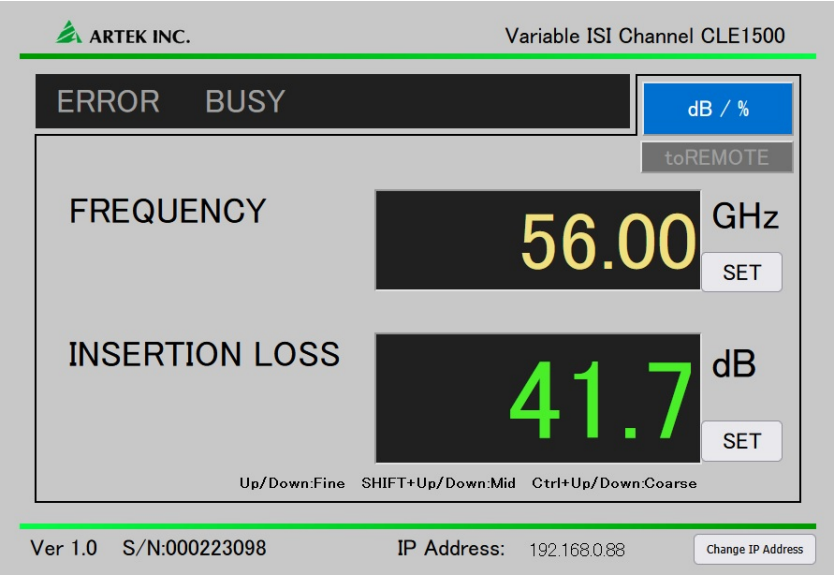
% Mode

You set Percentage (%) against to its Insertion Loss dynamic range

4-3 PC Browser Specific

IP Address

IP address assigned to CLE1500 as default is 192.168.0.88. For changing the address, click the “Change IP Address” button at the right bottom section.



Enter the desired IP address and click “Apply” button.

Restart the CLE1500 by turning it off and on.

5. Specifications

Transmission Line	2X DC-coupled Single End
Impedance	50 Ohm
Connector	4X 1.85mm(V) Female
Input Tolerance	10Vpp max
Insertion Loss	Table-1
Return Loss	Table-2
Control	Manual (LCD with touch panel & Jog Dial) PC via USB (control software) PC via LAN (Web Browser)
Power	AC 85 - 264V 50/60Hz 70VAmax Fuse: T type 1A 250V phy3x20
Dimension	200(body-W) X 120(H) X 410(D) 270(total width)

Table-1

%	IL(S21) dB @40GHz
0	4.5 - 5.5
10	7.0 - 8.0
20	9.5 - 10.5
30	12.0 - 13.0
40	14.5 - 15.5
50	17.0 - 18.0
60	19.5 - 20.5
70	21.5 - 23.5
80	24.0 - 26.0
90	26.5 - 28.5
100	29.0 - 31.0

Table-2

Freq Range (GHz)	Peak Refrection (dB)
0 - 50	< -10
50 - 65	< -5

Table-3

Setting (%)	Skew (+/- psec)
0	< 5
20	< 5
40	< 5
60	< 5
80	< 5
100	< 5

The values are obtained at single-end, after 1 hour preheating at the room temperature of 23C - 25C. The tolerance of dB mode is +/-1.5dB. No definition over 50GHz and more loss than-30dB . All values are subject to change without notice.

6. Warranties

- This product is warranted from date of purchase against defects of materials or in workmanship for a period of 1 year.
- This warranty is extended only to the original purchase. A purchase receipt or other proof of the date of original purchase will be required in order to exercise your rights under this warranty.
- If the product fails to function properly, return the product, prepaid and this warranty only covers failures due to defects in materials or workshop which occur during normal use.
- It does not cover damage which occurs in shipment; applications and used for which this product was not intended; failures or problems which are caused by products or equipment not supplied by ARTEK; accidents, misuse, abuse, neglect, misapplication, fire, water, lightning, or other acts of nature; incorrect electrical line voltage, fluctuations or surges; damage caused by improper or faulty installation; improper connection with any peripheral; product alteration or modification; improper or unauthorized repair; cosmetic damage or exterior finish; product with altered serial numbers; failure to follow operating instructions, customer adjustments, maintenance and environment instructions that are covered and prescribed in the instruction book.

  .

Cautions

- Terminate the other line even when you use one line of the differential signal.
- Avoid all possible shocks and vibrations.
- It may take approximately one second until it becomes stable once you change the setting parameters.
- Retain the power voltage within the acceptance range for precise jitter generation.

Customer Support

Please contact with our customer support center.

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