

ES631-LAN Ethernet Cable Discharge Evaluation System



1. Description

The ES631-LAN Ethernet Cable Discharge Event (CDE) Evaluation System is a comprehensive solution designed to simulate the effects of charged Ethernet cable discharge to any Ethernet based network system or device.

The system is designed with three CDE test modes (single line discharge mode, differential pair discharge mode, contact sequence discharge mode) and two Failure/Degrade Inspection Modes (Oscilloscope or Link Partner Paths). Therefore, it allows the user to be able to setup, simulate and analyze the cable discharge event in all different discharge combinations. This system also allows network traffic tester to connect through the CDE test system to check the LAN traffic functionality.

LABVIEW control source codes are an option provided for customers for full functions in remote control. The system is also designed with a versatile 5-inch large touchscreen interface.

2. Features

- Ethernet Cable ESD test up to 4.0 kV
- Multiple CDE test modes available (Single Line Discharge, Differential Pair Discharge, Contact Sequence Discharge)
- Dual Failure/Degrade Inspection Modes (Oscilloscope Link Pulse Test or Link Partner Traffic Test)
- Embedded ESD current probes for discharged lines
- 5 Inch Large Touch Screen Control
- USB-Optical RS232 (virtual serial port) remote control
- Firmware upgrade-able
- Powerful LABVIEW ATE Software (automatic test control)

3. Applications

- Ethernet Cable Discharge Event (CDE) and analysis
- PHY ESD protection test and analysis
- Network switch / router ESD robustness test and analysis
- Automatic Test Equipment (ATE) for Ethernet system ESD

4. Specifications

CDE Main Controller Base Unit

Model	ES631-LAN-2.0	ES631-LAN-4.0
Maximum Charge voltage	± 2 kV	± 4 kV
Charge voltage Resolution	10 V Step	10 V Step
Charge voltage stability	± 0.1% per hour (after 30 min warm up)	
Number of charge lines	8 lines (4 differential pairs)	
Number of current probes	4 probes for Rx+ Rx- Tx+ Tx- by default, additional probes are optionally available	
Current Probe Specification	SMA connectors, 1V/A, from 1.2 KHz -200 MHz, Precision ± 3%	
DUT Connection Port	Unshielded RJ45	
Oscilloscope and Link Partner Connection Port	Shielded RJ45	
Charge Cable Unit Connection Port	ESDEMC Designed High Voltage 9 Pin Circular Connector	
Dimension	35 x 28 x 15 cm (17.5 x 13 x 5.9 inch)	
Weight	About 10 kg (22 lb)	

Options for ES631-LAN CDE Main Controller

Option Number	Descriptions
ES631-LAN-CPCT2X4	Install 4 additional Embedded ESD current probes
ES631-LAN-OU	Optical-USB Remote Control Option
ES631-LAN-SW	LABVIEW Software for ATE test control
ES631-LAN-CAL	ES631 CDE System Discharge Waveform Calibration Setup

Charge Cable Module

Model	ES631-LAN-C5EUTP200 200 meter CAT5E UTP Charge Cable Module	ES631-LAN-C5EFTP200 200 meter CAT5E FTP Charge Cable Module
Maximum voltage from line to GND	DC High Voltage Break Down Tested up to ± 4.5 kV	
Maximum voltage Between Lines	DC High Voltage Break Down Tested up to ± 4.5 kV	
Cable Length	200 \pm 2 Meter	
Ethernet Cable Type	CAT 5 Unshielded Twisted Pair	CAT5 Shielded Twisted Pair
Dimension	35 x 28 x 15 cm (17.5 x 13 x 5.9 inch)	35 x 28 x 15 cm (17.5 x 13 x 5.9 inch)
Weight	About 23 kg, (50 lb)	About 19 kg, (40 lb)

5. Ordering Information

Line	Part or Option Number	Description
1	ES631-LAN-2.0	ES631-LAN CDE Main Controller, 2kV Base Unit
2	ES631-LAN-4.0	ES631-LAN CDE Main Controller, 4kV Base Unit
3	ES631-LAN-CPCT2X4	Install 4 Additional Embedded ESD Current Probes for ES631-LAN CDE System
4	ES631-LAN-OU	Optical-USB Remote Control Option for ES631-LAN CDE System
5	ES631-LAN-SW	LABVIEW Software for ATE test control Option for ES631-LAN CDE System
6	ES631-LAN-CAL	Discharge Waveform Calibration Option for ES631-LAN CDE System
7	ES631-LAN-C5EUTP200	200 meter CAT5E UTP Charge Cable Module
8	ES631-LAN-C5EFTP200	200 meter CAT5E FTP Charge Cable Module