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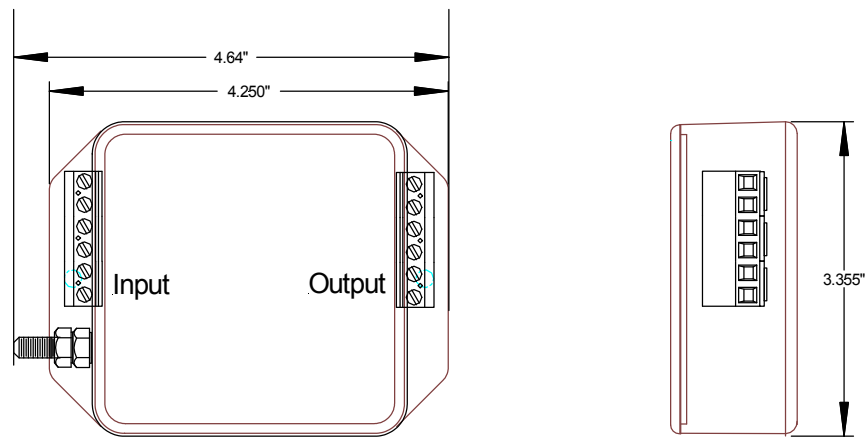
## INSTALLATION INSTRUCTIONS FOR MODULAR SERIES DATA MODEL: ST-CLPxxnx-B

**WARNING - HAZARDOUS VOLTAGES MAY BE PRESENT.** Improper installation may result in serious injury to the installer and/or damage to the electrical system or connected communication equipment. Fully read and understand all instructions before beginning the installation. Safety equipment must be used as prescribed by OSHA, whenever working around hazardous voltages.

**Failure of unit and/or consequential equipment damage due to improper installation or misapplication is not covered by the product warranty.**

Voltage measurements and installation must be completed by a licensed/qualified electrician in accordance with the National and/or Canadian Electric Code, State, and Local codes. These requirements supersede this instruction.

**POWER MUST BE REMOVED FROM THE ELECTRICAL SYSTEM BEFORE INSTALLING THE ST-CLPxxnx-B SERIES DATA UNIT.**



### BEFORE INSTALLATION

Prior to installation of the ST-CLPxxnx-B series unit:

- **1** – Test system to verify that the voltage and current do not exceed the Maximum Continuous Operating Limits listed in the table below.
- **2** – Actual measurement with an oscilloscope, or verification through review of 'as installed' equipment specifications may be sufficient to establish compliance.
- **3** – **If the circuit exceeds Maximum Continuous Operating Limits in voltage, current and/or data rate, do not proceed with the installation!**

Low speed ST-CLPxxnx-B [n = A (2 Mbps.)] series models are designed to protect current loop circuits, signal lines &/or slow-speed data lines feeding transducers, leak detectors, flow meters and a broad variety of similar sensory devices. High-speed data signal lines and equipment may be protected using the ST-CLPxxnx-B [n = B (10 Mbps)] or the ST-CLPxxnx-B [n = C (100 Mbps)]. \*Models may be optioned with 2, 4 or 6 terminal connections as shown above. \*(Refer to the notes section below the table for detail.).

There are no position-oriented components in the ST-CLPxxnx-B series unit; therefore, the device can be mounted upside down or sideways to allow for the most efficient installation.

**Table of Maximum Suggested Operating Limits, Data Rate & Additional Device Resistance**

Nominal System Operating Voltage  (Vnom)	ST-CLPxxnx-B  Operating Voltage Model Number	Maximum Continuous Operating Voltage (MCOV)		Maximum Continuous Operating Current  (MCOC)	Maximum Digital / Analog Data Rates vs. Additional Series Resistance	
		Voltage (L-L)	Voltage (L-G)		2 Mbps/ 20 MHz: (n = A) & 10 Mbps/ 100 MHz: (n = B) models:	100 Mbps/ 1 GHz: (n = C) models:
0 > Vnom ≤ 6	ST-CLP5nx-B	± 7.5 Vpk	± 7.5 Vpk	500 mA	5 Ω per line (10 Ω per pair/loop)	0 Ω per line or loop
6 > Vnom < 24	ST-CLP12nx-B	± 24 Vpk	± 24 Vpk	500 mA	5 Ω per line (10 Ω per pair/loop)	0 Ω per line or loop
24 ≤ Vnom < 36	ST-CLP24nx-B	± 36 Vpk	± 36 Vpk	500 mA	5 Ω per line (10 Ω per pair/loop)	0 Ω per line or loop
36 > Vnom < 62	ST-CLP48nx-B	± 62 Vpk	± 62 Vpk	500 mA	5 Ω per line (10 Ω per pair/loop)	0 Ω per line or loop
62 > Vnom ≤ 140	ST-CLP140nx-B	± 200 Vpk	± 200 Vpk	500 mA	5 Ω per line (10 Ω per pair/loop)	0 Ω per line or loop

\*Notes: The lower case "x" after the model string suffix characters "n" is set to: 2, 4 or 6 to specify the number of terminals to be protected. Odd numbers of conductors require the use of the next higher even numbered model or an additional like model.

## INSTALLATION STEPS

**CAUTION: Do not proceed further until power has been removed from the electrical system.**

### STEP 1: Mounting the Unit

- Mount the unit using the mounting holes provided.
- The device should be mounted for maximum separation between protected and unprotected wiring.
- The device contains no direction-oriented components and can be mounted in any position.
- The device should be the last device placed in the circuit before the protected equipment.
- The device should be mounted directly to, or as close as practical to the equipment to be protected.

### STEP 2: Wiring the Unit

- For cables with grounded shield conductors, connect the cable shield to the device ground lug.
- Connect a ground wire (#6-12 AWG) from ground lug to system ground using a #10 ring terminal.
- Connect the incoming line 1 wire to the L1 INPUT screw terminal.
- Connect the outgoing line 1 wire to the L1 OUTPUT screw terminal.
- For cable pairs, use terminals: 1 & 2 (1<sup>st</sup> pair), 3 & 4 (2<sup>nd</sup> pair), etc..., (per model terminal version).
- Repeat for the remaining terminals as required.

### STEP 3: Restart the system and check for proper operation

- The system may require recalibration due to the additional resistance of the suppressor on the line. If the system does not operate properly, remove the suppressor and contact: Energy Control Systems at 1.800.383.6956.