P.O. Box 330607
Ft. Worth, TX 76163
Phone: 817.483.8497
Fax: 817.572.2242
www.sinetamer.com

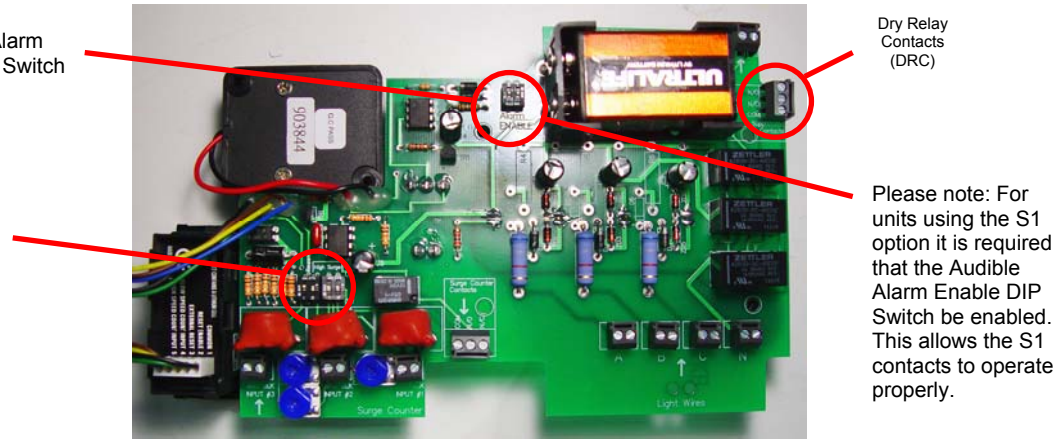
Installation Instructions for Optional Features

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

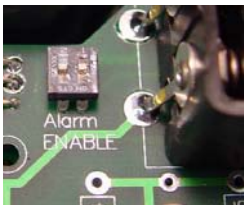
Failure of unit and/or consequential equipment damage due to improper installation or misapplication is not covered by the product warranty.

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 MAKING ANY MODIFICATIONS ASSOCIATED WITH OPTIONAL FEATURES OR INSTALLING THE UNIT.



Internal Audible Alarm Option (-AC suffix)



Units shipped with "AC" Option are equipped with an Audible Alarm and include a three position Dry Relay contact. The Audible Alarm must be ***enabled*** prior to installation of the unit. If this task is not accomplished, the Audible Alarm feature will not function.

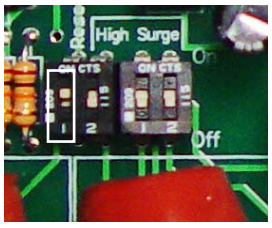
To enable the alarm:

- Carefully remove lid
- Locate 2 position "ALARM ENABLE" DIP switch and move both switches to the "On" position – If alarm sounds, change the position of the mute switch to disable the alarm. The Red LED should light until power is restored to the unit. (Note: If LED does not light, remove and replace 9-Volt battery.). Once installation is complete and power is applied, move the mute switch to the final desired position.
- Replace and secure lid; (Power should still be 'Off'→ restore power and LED should extinguish. Set mute switch as above.).
- Push Test button to verify alarm operation. [Note: Battery is a 10-yr./ "Li-Ion" type capable of operating the alarm annunciator and LED for a period of 72^{+} hrs. or just the LED for 144^{+} hrs. (i.e.: annunciator switch is in 'mute' position.). If replacing battery, use identical type cell.].
- Proceed with installation steps as outlined in the full installation instruction supplied with suppressor.

DRC:

- The three position Dry Relay Contact (DRC) can be used for external or system "sensing" of this device. The N/O (Normally Open with Power Applied) and COM or N/C (Normally Closed with Power Applied) and COM can be utilized. The contacts are rated at 60 W (from 30VDC @ 2A to 150VDC @ 0.4A) or 100 VA (from 50VAC @ 2A to 220VAC @ 0.45A). The contacts accept 26 AWG to 16 AWG wire. Wire size must be in compliance with NEC, State or Local codes for power on circuit.

Internal Surge Counter Option (-S suffix) - Operation and Modification



The Surge Counter can be manually reset (set to zero count) via the front panel mounted "Reset" switch by simply pushing the button once.

If desired, the reset function can be permanently disabled in the following way:

- Carefully remove lid
- Locate the 1st position "Reset" DIP switch (as shown to the right) and move it to the "Off" position.

Replace and secure lid, restore power. (Counter will now completely 'roll over'.)

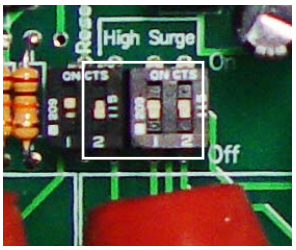
Rev. Date: 08/02/2011

Surge Counter Dry Relay Contact (S1) Option

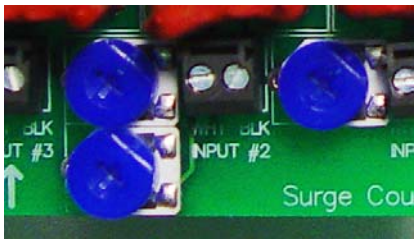
A Form C type contact header (3 position) will relay an output impulse with the incrementation of the onboard counters' display. (≥ 1/3 sec. actuation 'hold time' after initial contact change subject subsequent to impulse.) Contact Limits are: 125 VAC rms at 0.5 Amps or 30 VDC at 1.0 Amp. Contacts are labeled: NC, NO, and COM. Loops may use normally closed (NC) logic, normally open (NO) logic or both using the same circuit common (COM). Limits on loop lengths are synonymous with any limits for communications or signaling protocols used.

"High Level" Surge Counter Operation

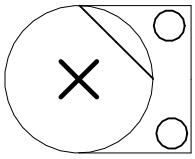
Set switches 2, 1, and 2 (High Surge) to the On position (as shown to the right). This will enable the "High Surge" variable level counting.



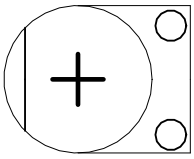
By rotating the three potentiometers counter clockwise to the same settings, you can adjust the sensitivity of the surge counter to count higher voltage surges only. **Note: All 3 must be set at the same level for proper counter operation.**



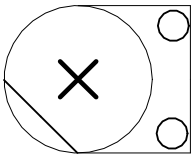
Potentiometer Settings



Counts at:
≥ 2kV/1kA



Counts at:
≥ 4kV/2kA



Counts at:
≥ 6kV / 3kA

Remote Light Assembly (-Rx suffix; x = 1 or 2)

The units are provided with a separate remote light assembly and two, three, or four 7-ft. wires (orange, yellow, blue, and white). Female flag terminals are provided for connection of the wires to the remote light assembly circuit board. Remote light wires exit the suppressor enclosure at the hub.

R1 Type: [Note- assemblies are provided as "open-frame" circuit boards (without enclosures) for back-mounting on panels, adjust your installation accordingly.].

- Determine optimum location (up to 6 ft. from suppressor) for Remote Light Assembly and securely mount with the provided assembly hardware.
- Route the remote light wires from suppressor to remote light assembly. **Do not cut wires yet!** (Continue- on bullet 4, below.).

R2 Types:

- Carefully drill an entry hole in the remote light enclosure in a location that provides the best possible path for the remote light wires.
- Bring remote light wires through the entry hole and cut, leaving enough slack to allow for terminal connection errors and possible re-crimping.
- Crimp the provided female, flag terminals onto the remote wires using a standard crimping tool.
- Connect the female terminals on the light wires of the suppressor to the remote light circuit board via the colored wires. The colored wires are connected, one each; to the quick connect terminals on the top of the board (one, two, or three in a row labeled J1, J2, & J3.). The white (Neutral) conductor is connected to the remaining terminal (offset to the middle of the board) labeled J4.
- Once all connections are completed, mount the remote light assembly/enclosure & replace the suppressor (&/or R2) lids.

Disconnect Optioned Models Dx (x = 1, 2 ,3, 5, 6, 7, 9, 10, 11 or 17), X1

Five separate types of disconnect means are available for suppressors optioned with these features. Wire range: [# 10 AWG – # 4 AWG].

[**NOTE:** Employing any of the following types of disconnects ***requires*** the use of an integrally-fused surge suppressor or some other means of external automatic overcurrent interrupt protection!].

- **D1, D5, D7 & D10 Types:** Consisting of an internally mounted disconnect means integral to the suppressor enclosure, only require the proper landing of the Ground, Neutral (if any), on respective (N & G) terminals and Phase conductors on line-side terminal lugs (A, B, C) on the disconnect.
  (Note: Conductors that are smaller than # 10 AWG can either be sleeve-lugged or doubled over for tight compression under each Phase terminal depressor plate; left-to-right: A, B, C.).
- **D2 Types:** Optioned disconnect means feature non-fused disconnects which are external to the suppressor enclosure and therefore require "close, chase, or race nippled" (NEC) type conduit connections promoting short and straight electrical interface to protected equipment(s). Additionally, careful layout visualization and prior planning substantially aid in facilitating actual installation since the disconnect means *must* also be close, chase or race nippled to the electrical equipment, thereby minimizing connected lead-lengths. (Envisioning possible peripheral mounting locations about the immediate exterior of the equipment to be protected is necessary.). Equipment or direct bus-connected feeders (supplying the D2 disconnect) are to be landed on the line-side disconnect terminals (as in D1 Types), whereas; load-side terminations are used to supply the suppressor.
- Qualified installing electricians should check the NEC for relevant guidelines regarding direct, bus-connected suppressor applications captured by the "10-ft. Tap Rule (or 10% Rule)" where bus ampacity vs. Code-legal conductor type/sizing is in question.
- A 'final check' of conductor routing, parity and terminal lug tightness should be made before closing up & energizing the SPD. (Ex.: A High-Leg DELTA application should have the B-Phase/ High-Leg terminated only to all B-Phase terminal lug positions throughout all circuiting.).
- **D3, D6 D9 D11 D17 & X1 Types:** This option places the unfused disconnect and handle inside the TVSS enclosure. It is accessed by opening the front panel door. Once all connections are completed, close and secure the equipment, disconnect and suppressor covers.

Remote LED Indicator (-LP suffix)

These units are provided with a separate remote LED indicator and two 7-ft. wires (Black & Red). In-line crimp connectors are provided for connection of the suppressor wires to the remote LED indicator which has NEMA-4X housing. Remote light wires are routed to exit the suppressor enclosure via the conduit adapter. See LP option drill template and plastic overlay provided.

- **Remove power from the equipment on which the LED(s) will be mounted.** Determine optimum location (up to 6 ft from suppressor) for the remote LED indicator(s) and **visually verify drill clearances behind the intended drill point.**
- Relocate to a new 6-ft. mounting location where insufficient drill clearances exist. Apply peel-off template to surface for the intended mounting hole(s). Isolate equipment drop area beneath and behind intended drill point (to catch drill shavings) using paper or cloth.
- Carefully drill the LED mounting hole(s). Ream hole edges as needed. Remove any caught shavings from beneath & behind drill area.
- Route the remote light wires securely from suppressor to the remote LED location. **Do not cut wires yet!**
- Remove drill template and the number of corresponding LED knock-outs in the overlay label provided. Align and apply plastic overlay.
- Remove threaded mounting hardware from LED housing and insert LED leads through mounting hole(s). Reinstall LED mounting hardware. Bring remote light wires to the LED(s) and cut, leaving enough slack to allow for in-line connection errors and possible re-crimping.
- Wire connections are made: Red to Red and Black to Black. (Other pairing of supply conductors will not work.). Use the two in-line crimp connectors provided and a standard crimping tool. Strip lengths on each end of the wires should be ~1/4". Twist all strands before crimping.
- Two crimps should be applied to each half of the crimp barrel. (i.e.: 4/barrel.). Upon completion, the in-line connectors may be taped together.
- Once all connections are completed, re-close all suppressor/equipment covers and energize the suppressor/equipment.

Apply Power to the Surge Suppressor-

- The LED indicator lights should be illuminated. If they are not, remove power from the surge suppressor and contact: Energy Control Systems at +1.817.483.8497 or info@sinetamer.com