SECTION 266500 - SURGE PROTECTIVE DEVICE - SERVICE ENTRANCE

PART 1 - GENERAL

1.1 DESCRIPTION

A. All work in this Section shall comply with the provisions of Section 260100.

1.2 CODES AND REGULATIONS

- A. The following codes and regulations shall govern the design of the transient suppression system:
 - 1. Underwriters Laboratories, Inc. Standard No. 1449 Second Edition
 - 2. Underwriters Laboratories, Inc. Standard No. 1283
 - 3. National Electrical Manufacturers Association (NEMA LS1- 1992 Guidelines)
 - 4. IEEE 587 A&B Waveforms, IEEE C62.41
 - 5. National Electrical Code Article 240-21 (Equipment complying with tap conductor rules) and Article 110-9 (Interrupting Capacity)

1.3 SUBMITTAL

A. Submit dimensional drawings and installation instructions for the specified parallel connected unit.

1.4 MANUFACTURER'S

A. The transient suppression system shall be manufactured by Current Technology SL3150 Series unless noted otherwise.

PART 2 - PRODUCTS

- 2.1 GENERAL
 - A. Unit shall consist of parallel connections only. Series elements shall not be used.
 - B. Unit shall not require disconnection of power to customer equipment for testing and/or maintenance.
 - C. The power conditioning and transient suppression device must be UL Listed under the NEW UL 1449 Second Edition as a complete entity. Listed UL suppression level of 330, 400, 500, 600, 700, 800, 1000, must be clearly stated. Other numbers are not acceptable.
 - D. The primary suppression path shall not be to ground.
 - E. Plug-in or printed circuit board components shall not be used in the primary power path.
 - F. The unit shall not short or crowbar the power flow resulting in an interruption to the load.
 - G. Scheduled parts replacement or preventive maintenance shall not be required.

2.2 PHYSICAL REQUIREMENTS

- A. Enclosure: NEMA 4 metallic enclosure. Dimensions: 27" H x 22" W x 12" D Weight: 100 lbs.
- B. Unit shall have an optional built-in safety interlock system to enable testing and maintenance without interruption of the main power flow. Option will be indicated with the letter D in the model number on the one-line diagram.
- C. Unit shall have optional Mastermind Monitoring. Option will be indicated with L3 listed in the model number on the one-line diagram.
- D. Pilot lights indicating only internal component failure while continuing to allow the main power flow are NOT acceptable.

2.3 ENVIRONMENT REQUIREMENTS

- A. The unit shall not add appreciably to air conditioning load. Heat load shall not exceed 0.2kVA (0.682 BTU/hr.).
- B. Average power consumption shall be less than 0.2kVA. Average power factor inefficiencies or harmonic distortion shall not result from use (THD 0%).
- C. No audible noise shall be generated.
- D. No appreciable magnetic fields shall be generated. All units shall be capable of use in any location (in a computer room) without danger to disc units, disc packs or tapes.
- E. Operating Conditions:
 -40 185 degrees F.
 5 95 percent humidity non-condensing

2.4 ELECTRICAL REQUIREMENTS

- A. The power conditioning and transient suppression capability shall be bi-directional and treat both positive and negative surge transients, yielding line control and short flicker ride-through. Unit shall be parallel connected and not limited by load current. Unit shall be unlimited in kVA capability.
- B. The power handling capacity of the unit shall exceed 150,000 transient amps single pulse surge current capacity per mode as outlined in NEMA LS1-1992. Independent 3rd party test results must be provided to substantiate published values.
- C. The minimum repetitive surge current capacity of the unit per ANSI/IEEE C62,41-1991 and ANSI/IEEE C62.45-1992 guidelines shall be at least 12,000 inpulses of 20KV and 10KA.

SOLID STATE	
PHASE-TO-PHASE VOLTAGE	SUPPRESSION AREA
120/240 (1 Phase)	> 250 sq.in.
208	> 250 sq.in.
380	> 490 sq.in.
480	> 778 sq.in.

D. Joule ratings shall not be accepted in lieu of the UL 1449 test results.

- E. The unit shall be capable of passing the entire UL duty/cycle and life test for a minimum of ten (10) times with less than 1% degradation. The system shall not be limited to a low finite number of impulses.
- F. The UL 1449 certified suppression level after all duty/cycle and life tests shall have peak voltage phase to neutral ratings of 400 volts or less for units protecting 240 or 208 volt equipment and 800 volts or less for units protecting 380 or 480 volt equipment.
- G. In addition to transient voltage suppression, the unit shall provide high frequency noise filtering of up to 50 db attenuation (per MIL-STD-E220) at frequencies of 100 Khz to 100 Mhz. The unit must actively track the entire sine wave to further remove low level surges, remove sharp waveforms and eliminate error producing high frequency noise bursts.
- H. The effective speed and/or response time shall be instantaneous with no discernible overshoot for the applied UL test voltage and simultaneous current waveforms. Units which require "turn on" time are not acceptable.
- I. All main internal and external wiring, including terminals on suppressor elements, shall be of #2 wire or larger, or bus bar of 3/4 inch width or larger. Small conductors, printed circuit boards, 1/4 inch 3AG, MDL or similar instrument fuses shall not be used in main or suppression current carrying paths.
- J. All interconnection wiring to source shall be capable of # 2 AWG. Smaller wiring shall not be used or permitted for connection. Units not using an integral disconnect should be connected to a 100 amp circuit breaker.
- K. The unit shall incorporate 200,000 AIC time-delay fuses for the Selenium System to satisfy both NEC 240-21 and 110-9. Each suppression element of the ISB Filter System shall contain individually fused MOVs to ensure that the failure of a single component or the operation of a single fuse element remains isolated and does not render the entire mode or product deficient by more than 20%. A failure in excess of 20% during the ten year warranty period will require free replacement of the ISB Filter System by the manufacturer.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. The unit must be installed in accordance with the manufacturer's printed instruction to maintain warranty. All local and national codes must be observed.
- B. Units shall be installed of the same voltage rating as the intended protected equipment, at no more than 6 feet from the panel to which it is connected with as few wire bends as possible.

3.2 WARRANTY

A. The transient suppression system warranty shall be no less than ten years and shall include all costs including repair, labor, parts, travel and living expenses for the manufacturer's service personnel.

END OF SECTION 266500