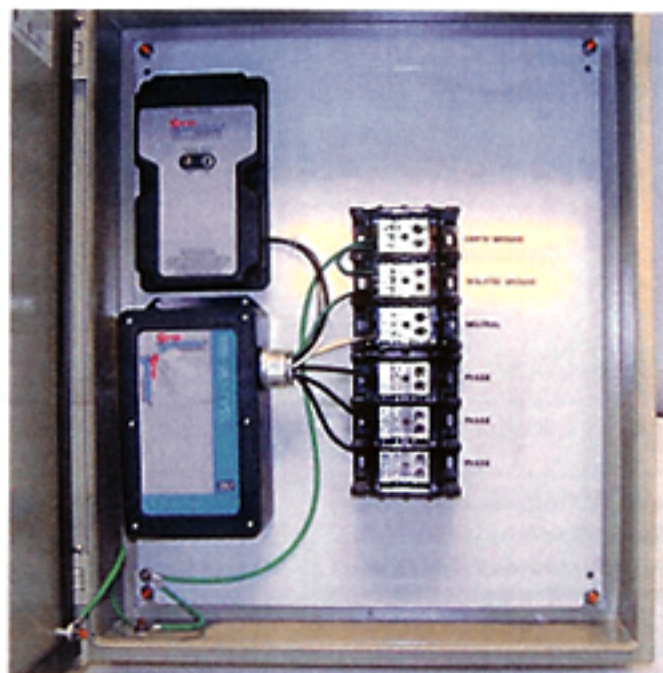


CMLA E8 Series

Critical Systems Power Protection for Highly Sensitive Medical Equipment

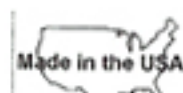
- ▶ Industry Leading Measured Limiting Voltage (let-through) Performance
- ▶ 300 kA Per Phase Peak Surge Current Rating
- ▶ Discrete "All Mode" Circuitry: Directly Connected Protection Elements in "All Modes" (10 modes for 3 phase Wye circuits) as recommended by NEMA LS-1 and IEEE Std. 1100-1999
- ▶ Multi-stage Hybrid Optimal Sinewave Tracking® Circuit
- ▶ Audible Alarm
- ▶ Component-Level, Thermal Fusing as well as Patent Pending Phase-Level, Internal, Circuit Board Mounted, Over-Current Surge Rated Fusing
- ▶ Dry-relay contacts for remote alarm connection
- ▶ UL1449 2nd Edition (Feb. 9, 2007 Rev.), cUL, and CE Compliant
- ▶ Isolated Ground Lug



The CMLA E8 series is robust enough to handle the punishment of service entrance applications while providing protection from transients that are generated inside the facility. The constant bombardment of these combination transients damages valuable equipment and wastes budget dollars. The flexibility of this unit allows for a variety of installation options.

Circuit Topology: Parallel configured combination Optimal Sinewave Tracking® and Optimal Response Circuitry™ design incorporating component-level, thermal fusing and Patent Pending internal, circuit board mounted, over-current fusing; and discrete "All Mode" protection (10 modes for 3 phase Wye units). All protection circuits are encapsulated in a high dielectric compound to promote long component life and protection from the weather and vibration.

Protection Modes: Industry-best practice of true all mode dedicated protection components for all operational modes of the electrical system. Discrete L-N, L-L (Normal Mode) and L-G, N-G (Common Mode) Example: Directly Connected Protection Elements in All 10 modes for a 3 phase, 4 wire, Wye system, (i.e. 3 L-N modes, 3 L-L modes, 3 L-G modes and 1 N-G mode).



**25 Year Unlimited Free
Replacement Warranty**

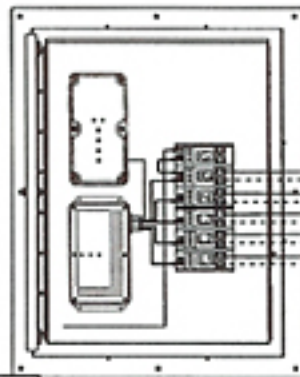
**Surge
Suppression[®]**
Incorporated
Manufacturer and Supplier of Quality TVSS Systems

Kelvin / Series

Application Examples

- ▶ Digital X-Ray
- ▶ CT Scan
- ▶ MRI
- ▶ Linear Accelerator
- ▶ PET Scan
- ▶ Angiography
- ▶ CATH Lab
- ▶ Fluoroscopy
- ▶ Cystoscopy

Note:
Neutral wire must be
pulled to suppressor,
except in 480 V Delta
configuration.

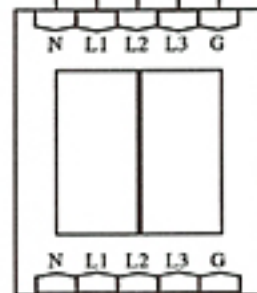


TVSS
Kelvin Connected
3Ø 3P 4W+G (wye) or
3Ø 3P 3W+G (delta)
2/0 or less AWG
conductor 175 A or less
Double lugs for input
and output conductors

For isolated ground,
connect isolated ground
conductor to IG lug and
safety ground to G lug,
then disconnect jumper
between G and IG lugs



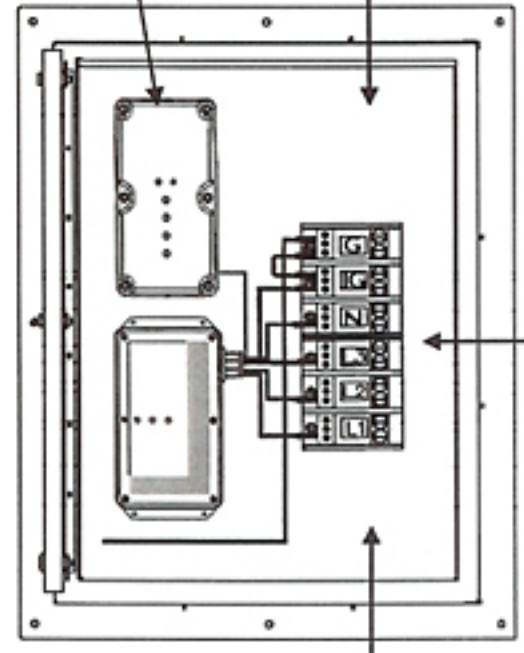
Branch Panel
3Ø 3P 4W+G
208/120 VAC or
480/277 VAC



Room Disconnect
3Ø 3P 4W+G
2/0 AWG or less
175 A or less

**Audible
Alarm
Module**

**Input / Output
Options**

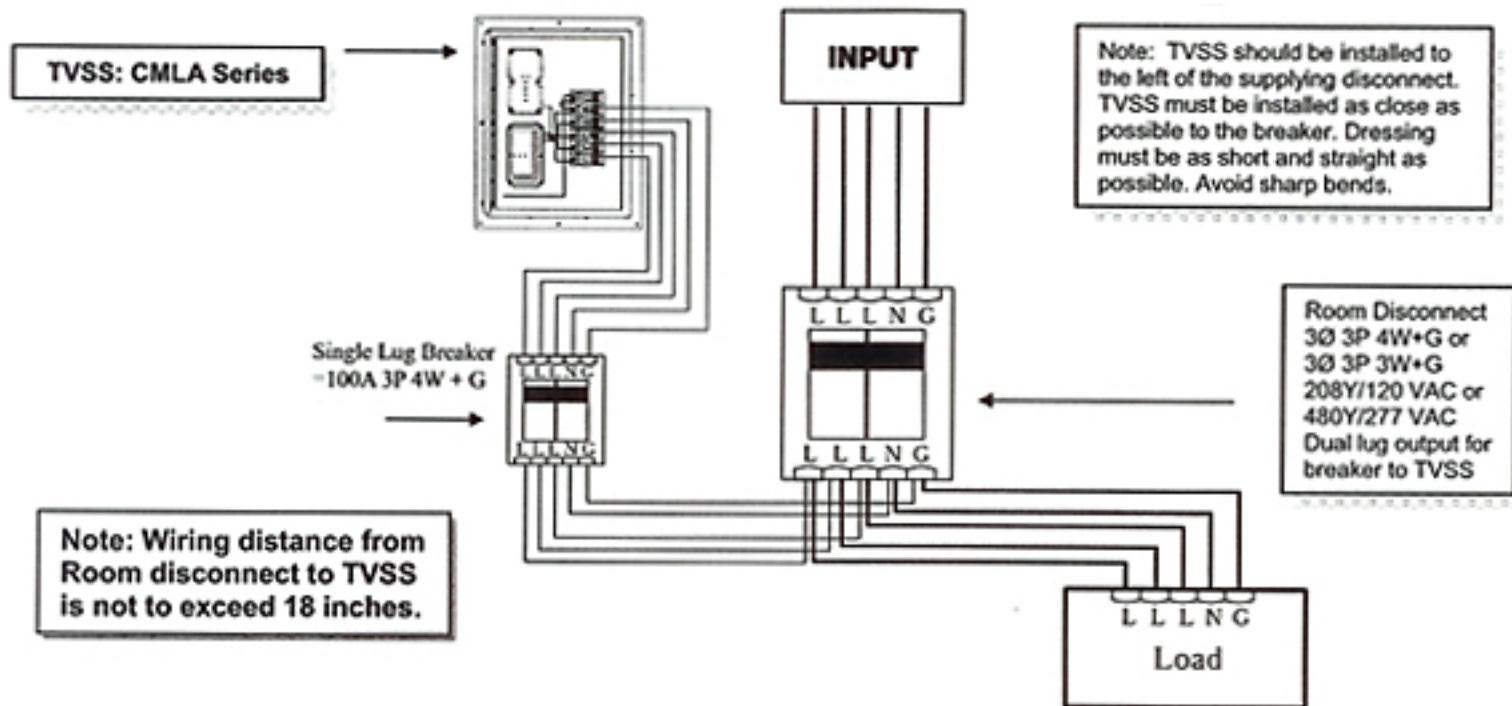


N L1 L2 L3 G

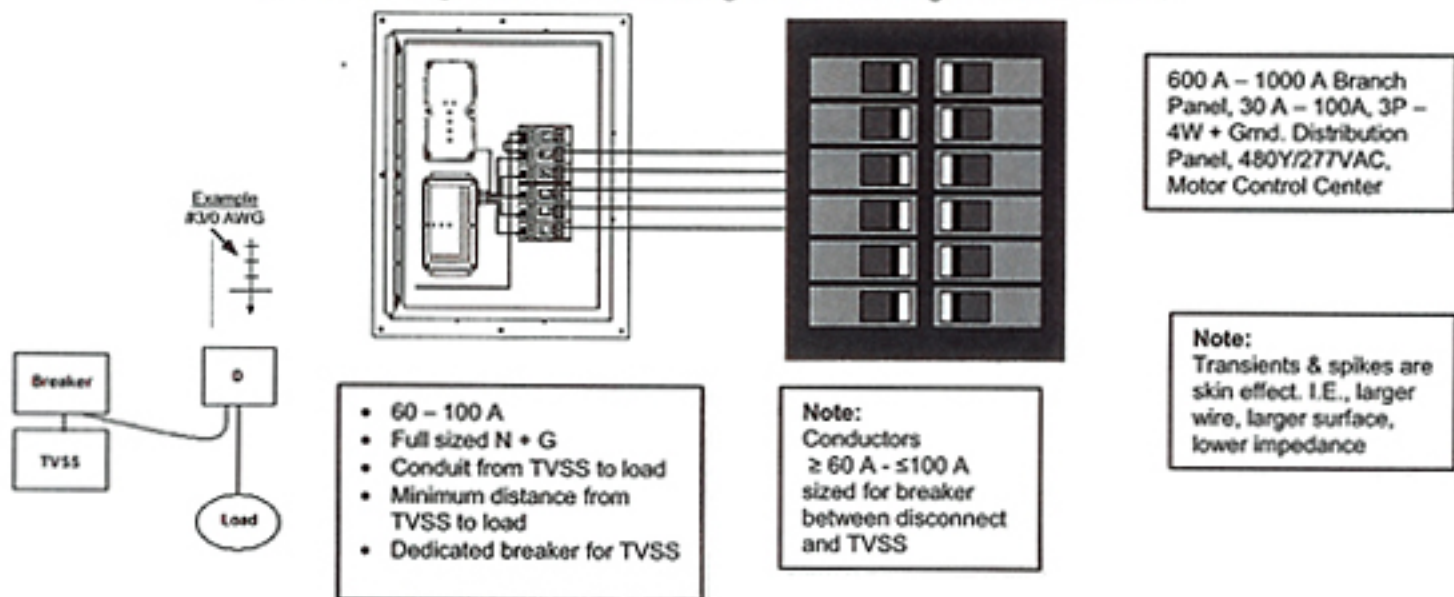
**System Back Plane
Main Input**

Note:
Pulling neutral
conductor to system
backplane is optional

Parallel

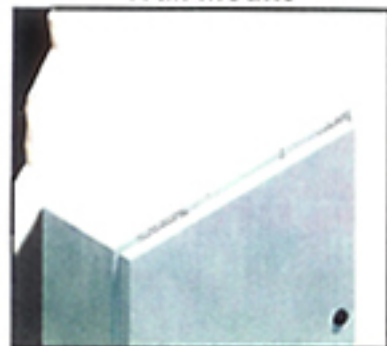


Parallel Installation of CMLA Series on a Service Entrance Panel, MCC, or Distribution Panel, single service disconnect larger than 175 A or using conductors larger than #2/0 AWG

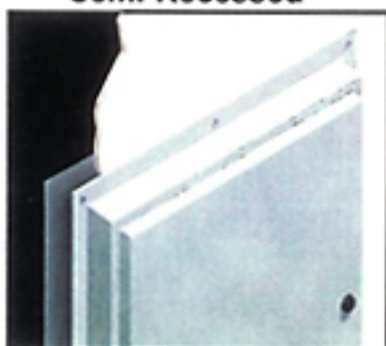


Mounting Options

Wall Mount



Semi-Recessed



Recessed



IEEE –C62.41.1 & C62.41.2-2002 environments: Suitable for Categories: A, B & C (Most Severe Electrical Environments)

IEC Environments: Suitable for use in IEC 61643-11 environments

Input Power: 50-60 Hz (60 Hz nominal)

Temperature Rating: Up to 80°C

UL Short Circuit Current Rating: 200 kAIC (UL's Highest Rating)

Humidity Allowance: 95% (RH) (non-condensing)

Insertion Loss Data: (L-N)

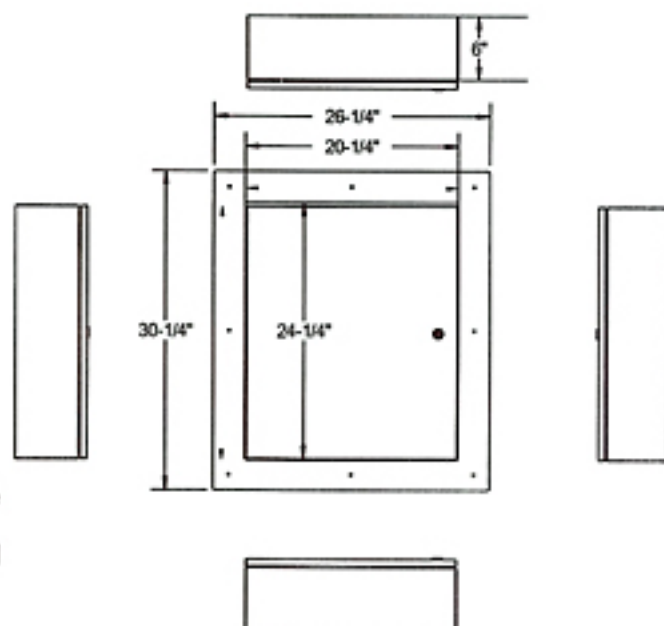
Frequency:	10 kHz	100 kHz	1 MHz	Max Attenuation & Freq.
Attenuation:	20 dB	47 dB	26 dB	65 dB @ 135 kHz

Standard Enclosure: NEMA 4 Steel with adjustable Flush Mount Plate

Diagnostics: Green LED's, one per phase, normally on. Internal Audible Alarm w/ test button, mute switch and red LED

Circuit Interrupt: Internal component-level, thermal fusing and patent pending, circuit board mounted, over-current fusing.

Terminals: Dual lug I/O wire gauge Range: 2/0 - #14 (Copper), 2/0 - #8 (Aluminum)



**ANSI/IEEE C62.41.1 & .2-2002 and C62.45-2002 Let-through Voltage Test Results
(tested w/6" lead length external to the enclosure per UL 1449)**

Config	Circuit Type	MCOV	Test Mode	Cat A, 30 Ω 100 kHz Ring Wave 2 kV / 67 A @ 270° Phase Angle	Cat B, 2 Ω Impulse Wave 6 kV / 3 kA @ 90° Phase Angle	Cat C, 2 Ω Impulse Wave 20 kV / 10 kA @ 90° Phase Angle
3Y1	120/208 V 3Ø Wye (4 wire + ground)	150 V	L-N	34 V	382 V	914 V
		300 V	L-L	38 V	570 V	1,119 V
		150 V	L-G	56 V	397 V	1,025 V
		150 V	N-G	58 V	558 V	1,176 V
3D1	120/240 V 3Ø High-Leg Delta (4 wire + ground)	150 V	L-N	34 V	382 V	914 V
		320 V	Hi-L-N	34 V	558 V	1,050 V
		300 V	L-L	38 V	570 V	1,119 V
		150 V	L-G	56 V	397 V	1,025 V
		320 V	Hi-L-G	56 V	588 V	1,262 V
		150 V	N-G	58 V	558 V	1,176 V
3Y2	277/480 V 3Ø Wye (4 wire + ground)	320 V	L-N	50 V	558 V	1,050 V
		550 V	L-L	111 V	892 V	1,344 V
		320 V	L-G	74 V	588 V	1,262 V
		320 V	N-G	54 V	965 V	1,575 V
3N4	480 V 3Ø Delta (NN) (3 wire + ground)	550 V	L-L	50 V	892 V	1,344 V
		550 V	L-G		777 V	1,344 V

Let-through Voltage Test Parameters: Positive Polarity, Net voltages are peak ($\pm 10\%$). All tests are static except 150 V MCOV modes. Let-through voltages on static tests calculated by subtracting sinewave peak from let-through measured from zero. 150 V MCOV mode let-through voltages measured from the insertion point on the sinewave. Each phase is the average of the 3 modes. In order to duplicate the results, the specified mode must be tested for all three phases (except N-G) and averaged together. (Individual mode or shot results may vary by more than 10%. Scope Settings: Time Base = 20 microseconds, Sampling Rate = 250 Megasamples/sec. These settings assure Let-through voltages test results are accurate). All tests performed with 6" lead length (external to the enclosure), simulating actual installed performance.

Surge Current Testing: Single-pulse surge current testing for all modes at rated currents as recommended by NEMA LS1-1992. Single pulse surge current capacities of 200,000 amps or less are determined by testing all suppression components within each mode as a group. Present industry test equipment limitations require testing of individual suppression components or sub-assemblies within a mode for single-pulse surge capacities over 200,000 amps.