



**A. SMALL MAIN SERVICE and SUBPANEL**

1. SPD(s) for this location shall be as indicated on project drawings. SPD shall be separate from panel board. Integral SPD shall not be acceptable. SPD's shall be certified to UL1283 and UL1449 Fourth Ed. Type 1, 20kA I-n for use in Type 1 and Type 2 locations.
2. Subpanels and lighting panels shall be protected by a Total Protection Solutions panel mounted SPD, TK-ST160-600NN-L for 600 (3W+G) volt panels, TK-ST160-3Y600-L for 600 (4W+G) volt panels, TK-ST160-3Y208-L for 120/208 (4W+G) volt panels and TK-ST160-1S240-L for 120/240 (3W+G) volt split phase panels:
3. The manufacturer shall provide written specifications showing let-through voltage of the unit with six inches of lead length (at the module or at the lug data is not acceptable as it does not represent true "as installed" performance) pursuant to ANSI/IEEE C62.41 and C62.45, 2002, category B3 Impulse Wave, and UL 4<sup>th</sup> Edition suppressed voltage ratings, 90 degree phase angle, positive polarity, measurements in peak voltage from the zero reference, all dynamic tests except N-G, which shall be no higher than:

B3 Impulse Wave (6kV, 3kA)	Tested at 90 degree phase angle			
Voltage (Voltage Code)	L-N	L-G	L-L	N-G
120/240 (1S240)	651V	640V	1041V	646V
120/208 (3Y208)	651V	640V	1041V	646V
347/600 (3Y600)	1295V	1295V	2130V	1292V
600NN (600NN)		2205V	2217V	

UL Voltage Protection Ratings per	UL 1449 4 <sup>th</sup> edition			
Voltage (Voltage Code)	L-N	L-G	L-L	N-G
120/240 (1S240)	700V	700V	1200V	700V
120/208 (3Y208)	700V	700V	1200V	700V
347/600 (3Y600)	1500V	1500V	2500V	1500V
600NN (600NN)		2500V	2500V	

4. The unit shall have a peak surge current of no less than 160kA/phase, 80kA/mode, 8 X 20 us waveform, single impulse, verified by third party test reports.
5. The unit shall be installed on a 60 amp breaker or disconnect (option'- DF'). Wiring instructions on the installation manual shall be strictly adhered to.
6. Balanced array MOV based SPD with individual Component Level Fusing (CLF) are required for all components.
7. The enclosure shall not exceed 520 cubic inches to allow close-to-the load installation.
8. The suppressor shall include Form C dry contacts (N.O. or N.C.) for remote monitoring capability, and shall have a Nema 1 steel enclosure.
9. The SPD shall come standard with no less than a Thirty Year Warranty, and the warranty shall include unlimited free replacements of the unit if destroyed by lightning or other transients during the warranty period. Warranties limited to defects in workmanship and materials are not sufficient. Special or optional warranties in excess of the unit's standard warranty for purposes of this bid are not acceptable.
10. The SPD shall have an internal audible alarm with mute on front cover and one green LED light per phase (normally on).
11. For further information phone 800-853-8265.