

MEPNN Supplier Scouting Opportunity Synopsis

Section 1: General Information

Scouting Number	2025-269
Item to be Scouted	Surge Protective Device for Traffic Signal Systems
Days to be scouted	30
Response Due By	09/13/2025
Description	Surge Protective Devices (SPDs) are used on all power, data, video, and any other conductive circuit. They are used to provide primary and secondary surge protection on AC power at traffic control device field sites.

Section 2: Technical Information

Type of supplier being sought	Manufacturer
Reason	BABA
Describe the manufacturing processes (elaborate to provide as much detail as possible)	Product must meet FDOT Standard Specification requirements; see attached file. 996-4.2.5 Mechanical Specifications: All parts shall be made of corrosion-resistant materials, such as plastic, stainless steel, anodized aluminum, brass, or gold-plated metal. 996-4.2.6 Environmental Specifications: The SPDs shall operate properly during and after being subjected to the environmental testing procedures described in NEMA TS 2, Sections 2.2.7, 2.2.8, and 2.2.9.
Provide dimensions / size / tolerances / performance specifications for the item	Surge Protective Devices (SPDs) protect electronics from lightning, transient voltage surges, and induced current. Three specific types of SPDs are requested: SPD for 120 Volt or 120/240 Volt Power SPD at Point of Use SPDs for Low-Voltage Power, Control, Data and Signal Systems See the FDOT Standard Specification for specific performance requirements of each type.
List required materials needed to make the product, including materials of product components	Per the FDOT Standard Specification: 996-4.2.5 Mechanical Specifications: All parts shall be made of corrosion-resistant materials, such as plastic, stainless steel, anodized aluminum, brass, or gold-plated metal. See the attached file.
Are there applicable certification requirements?	Yes
Certification(s) required	UL
Are there applicable regulations?	Yes
Details	Needs to be compliant with BABA domestic rules.
Are there any other standards, requirements, etc.?	Yes
Details	Must meet FDOT specification requirements; see attached file.
Additional Technical Comments	

Section 4: Business Information

Estimated potential business volume	600 products annually
Estimated target price / unit cost information (if unavailable explain)	Approximately \$100. per each

When is it needed by?	5 months
Describe packaging requirements	No packaging requirements. Best available. Delivered undamaged. Specifics discussed in negotiation.
Where will this item be shipped?	Florida

Additional Comments

Is there other information you would like to include?	<p>Florida, State of/ Transportation, Florida Department of /State Materials-Product Evaluation Office</p> <p>Agency providing funds: Florida Department of Transportation Name/POC for BABA related questions: Melissa Hollis or Karen Byram Email address of contact: Melissa.Hollis@dot.state.fl.us or Karen.Byram@dot.state.fl.us</p>
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SECTION 620 GROUNDING AND LIGHTNING PROTECTION

620-1 Description.

Furnish and install grounding and lightning protection to provide personnel and equipment protection against faults, surge currents and lightning transients. Provide a grounding and lightning protection system in accordance with the details shown in the Standard Plans unless otherwise shown in the Plans.

620-2 Materials.

620-2.1 Ground Rods: Use ground rods meeting the requirements of UL 467 that are listed by an OSHA Nationally Recognized Testing Laboratory (NRTL). Ground rods must be made of copper-clad steel with a nominal diameter of 5/8 inches. Ground rod sections must be a minimum of eight feet in length and manufactured for the sole purpose of providing electrical grounding.

620-2.2 Ground Rod Assembly: Provide a ground rod assembly consisting of one or more ground rods coupled together, such that the total length of the assembly is a minimum of 20 feet, driven into the earth at a single point, without disrupting the electrical continuity of the assembly.

620-2.3 Ground Rod Array: Provide ground rod arrays, as required, consisting of two or more ground rod assemblies, bonded together and spaced a minimum of 40 feet apart.

620-2.4 Grounding Conductors: For installing grounding conductor in conduit, provide an insulated conductor that is stranded in accordance with ASTM B8 and color code the grounding conductor green. For installing grounding conductor without conduit, provide bare solid copper wire meeting the requirements of ASTM B3 for grounding conductors. Connect the grounding conductor from the system ground bus or barrier plates to the ground rod assembly. Size equipment grounding conductors according to NEC Section 250.122. Size grounding electrode conductors according to NEC Section 250.66.

620-2.5 Exothermic Grounding Bond: Make all connections to the ground rod assemblies using exothermic welds.

620-2.6 Air Terminals: Use air terminals that comply with UL 96A and NFPA 780 standards and are listed by a NRTL.

620-2.7 Surge Protective Devices (SPDs): Install SPDs on all power, data, video, and any other conductive circuit. SPD requirements for lighting must meet the minimum requirements of Section 992 and the Standard Plans. Use SPDs that meet the requirements of Section 996 and are listed on the Department's Approved Product List (APL).

Provide primary and secondary surge protection on AC power at traffic control device field sites.

620-2.7.1 SPD for 120 Volt or 120/240 Volt Power: Install a SPD at the utility disconnect to the cabinet.

Ensure an SPD is provided where the supply circuit enters the cabinet. Locate the SPD on the load side of the main disconnect, ahead of electronic devices, and connected in parallel with the AC supply.

620-2.7.2 SPD at Point of Use: Install an SPD at the point the ITS devices receive 120 volt power and connected in series with the circuits.

620-2.7.3 SPDs for Low-Voltage Power, Control, Data and Signal Systems:

Install a specialized SPD on all conductive circuits including, but not limited to, data communication cables, coaxial video cables, and low-voltage power cables.

620-2.7.4 Manufacturer's Warranty: Ensure that the SPD has a manufacturer's warranty covering failures for a minimum of 2 years from the date of final acceptance.

The term "failure" for warranty replacement is defined as follows:

Parallel-connected, power-rated SPD units are considered in failure mode when any of the visual indicators shows failure mode when power is applied to the terminals at the unit's rated voltage, or the properly functioning over-current protective device will not reset after tripping.

Series-connected, low-voltage power, data, or signal units are considered in the failure mode when an open circuit condition is created and no data/signal will pass through the SPD device or a signal lead is permanently connected to ground.

If the SPD, including any component of the unit, should fail during the warranty period, the entire SPD must be replaced by the manufacturer at no cost to the Department or maintaining agency.

620-3 Installation.

620-3.1 General: Construct a single-point grounding system. Install the primary ground rod assembly in an electrical pull box so that the top four inches are accessible for inspection, resistance testing, and maintenance. The primary ground rod assembly and electrical pull box shall be installed between 12 inches to 36 inches from the element being grounded. The top of all other ground rod assemblies connected to the primary ground rod assembly in an array must be buried a minimum of 18 inches below grade. Direct bury grounding conductors used to connect ground rod assemblies a minimum of 18 inches below finished grade.

Bond all ground rod assemblies and ground rod arrays together with solid bare tinned copper wire unless otherwise shown in the Plans. Install grounding conductors in a straight path.

Make all bonds between ground wires and ground rod assemblies and ground rod arrays with an exothermic bond with the following exception: do not exothermically bond sections of ground rods to create the ground rod assembly and do not exothermically bond connections within a cabinet. Apply an anti-oxidant compound to all mechanical connections.

Connect primary surge protection for power at the service entrance or main disconnect. Connect secondary surge protection at point of use, unless otherwise shown in the Plans.

Ensure that lightning protection systems conform to the requirements of the National Fire Protection Association (NFPA) Code NFPA 780, Standard for the Installation of Lightning Protection Systems. Install SPDs that have an operating voltage appropriate for the characteristics of the circuits they protect. The NFPA requirements do not apply to lighting systems.

620-3.2 Grounding Resistance:

620-3.2.1 Minimum Resistance Required: Obtain a resistance to ground of not more than 5 ohms for the following grounding applications. Install multiple ground rod assemblies totaling a maximum length of up to 80 feet, as required to achieve minimum grounding resistance.

1. Power service for traffic control devices
2. Signal and ITS cabinets

3. ITS Poles/Structures with electronic equipment
4. DMS and DMS structures

Install a minimum of one primary ground rod assembly. If a grounding and lightning protection system using a single ground rod assembly does not achieve the required resistance to ground, extend the length of the ground rod assembly an additional 20 feet or install an additional ground rod assembly 40 feet away and connect it to the main ground rod assembly to create a ground rod array. Continue installing ground rod assemblies connected in an array until the required resistance is obtained or until the maximum required total length of ground rod is installed.

Grounding systems formed from horizontally constructed conductive radials are permitted if site conditions prohibit the use of vertically driven rods as permitted by the NEC Article 250.53(G). A grounding system consisting of the maximum total length of ground rod required is acceptable in cases where soil conditions prevent the grounding system from achieving the required resistance to ground. Submit the site resistance measurement to the Engineer.

620-3.2.2 Minimum Resistance Not Required: Install a single ground rod assembly for the following applications.

1. Conventional lighting
2. External lighting for signs
3. Signal cable and span wire
4. Aerial interconnect messenger wire
5. Pedestals for pedestrian signals
6. Pull boxes with metal covers when 120 volts (or greater) AC power is present
7. Splice boxes with wire grounding units.

No resistance to ground measurements are required.

620-3.3 Grounding Traffic Control Systems at Signalized Intersections: Ensure that all separately grounded elements at an intersection (signal cabinet, power service, mast arms or strain poles, etc.) are bonded together to form an intersection grounding network array.

For traffic signal poles, including pedestals for pedestrian signals, accommodate the ground connection from signal heads and electrically powered signs through span wires to the ground rod assembly or array located at the pole base in accordance with the details in the Standard Plans.

For span wire assemblies, use the span wire to connect the ground rod assemblies or arrays of the poles. Do not use guy wires for grounding purposes, however bond any guy wire to the span wire as part of the intersection grounding network.

620-3.4 Grounding Traffic Control Systems on Highways: Install the primary ground rod assembly at the base of the traffic control device supporting structure. Bond all metal components of the system (such as cabinets, steel poles, and concrete pole grounding wire) to the grounding system using a mechanical connection on the equipment side and an exothermically welded connection at the down cable. Do not use split bolts for grounding system connections.

Connect all ground rod assemblies and any associated grounded electrical system within a 100 foot radius (but not beyond the edge of the roadway) of the primary ground rod assembly. Connect the primary ground rod assembly to a single point main grounding bar inside the equipment cabinet or mount it to the base of the traffic control device supporting structure unless otherwise shown in the Plans.

Place multiple ground rod assemblies, as required, in a ground rod array as depicted in the Standard Plans unless otherwise shown in the Plans. If a required array cannot be placed in the right of way, submit an alternate placement detail for approval.

620-3.5 Grounding Highway Lighting Systems: Ground each metal light pole.

For poles on bridge structures, bring the grounding conductors out to a pull box at each end of the structure and connect them to driven ground rods 20 feet in length.

Ground all high mast poles in accordance with the details for grounding in Standard Plans, Index 715-010.

620-3.6 Grounding Equipment Shelters: Install all grounds for the equipment shelter on the side of the building that utilities, communication cables, and fiber enter. Connect all earth grounds to this point, including the grounding system for SPDs. Make all connections to SPDs according to the manufacturer's recommendations.

Ensure that communication cables, AC power, emergency generator, and equipment frames are connected by the shortest practical route to the grounding system. Protect the lead lengths from each device to the SPD.

Use compression type connection for all interior connections to bond grounding conductors to equipment in the shelter. For connections to bus bars, use mechanical connections having two bolts on a double-lug connector. Install star washers, or another means that accommodates the fasteners used and achieves reliable electrical connections that will not deteriorate. Crimp and solder all wires connected to lugs or clamps. Verify electrical continuity of all connections. Remove all non-conducting surface coatings before each connection is made.

Ensure that ground conductors are downward coursing, vertical, and as short and straight as possible. Ensure that the minimum bending radius for interior equipment shelter grounds is eight inches. Avoid sharp bends and multiple bends in grounding conductors.

620-3.6.1 Interior Grounding: Install a No. 2 AWG solid bare copper wire approximately one foot below the ceiling on each wall and mount it using insulated standoffs. Ensure that the wire encircles the equipment room, forming a ring or continuous loop. Mechanically connect the cable trays to the interior perimeter ground using stranded copper wires with green insulation and bolted terminal connectors at the cable tray ends. Make all points where cable tray sections meet electrically continuous by use of a short jumper wire with terminals attached at each end.

Directly bond all other metallic objects, such as door frames and doors, air conditioners, alarm systems, wall-mounted communication equipment, etc., to the closest interior perimeter ground with the shortest possible stranded copper wire with green insulation. Bond the door to the doorframe using flexible welding cable.

620-3.6.2 Exterior Grounding: Install an exterior grounding system consisting of multiple ground rod assemblies around the exterior perimeter of the equipment shelter. Place the ground rod assemblies a minimum of two feet from the building foundation in a suitable access point. Bond the following items to the shelter's grounding system:

1. Metal building parts such as downspouts and siding.
2. Ground rods provided by power or telephone utilities for grounding of AC power or surge protection devices, as permitted by local codes.
3. Shelter support skids, bases, or foundations, if applicable.
4. Any metal object larger than four square feet.
5. External metal fencing.

620-3.6.3 Punch Block SPD Grounding: Ground Type 66 punchdown blocks in accordance with the manufacturer's recommendations and mechanically connect them to the shelter's interior perimeter ground.

620-3.6.4. Equipment Shelter Fence Grounding: Ensure that the metal Type B fence is grounded to fence perimeter grounding conductors consisting of No. 2 AWG solid bare tinned copper wires that encircle the entire compound to achieve required resistance to ground required in 620-3.2.

Exothermically bond any splices in the grounding conductors. Bury the fence perimeter grounding conductor a minimum of 2.5 feet below finished grade. Bond all fence posts to the fence perimeter ground wire using No. 2 AWG solid bare tinned copper wire. Bond the gate and gatepost together with a flexible ground, such as welding cable wires. Ground the gatepost to the fence perimeter ground wire using No. 2 AWG solid bare tinned copper wire. Exothermically bond all connections to the fence perimeter ground wire.

Connect the fence's top rail to each corner post and in the middle of each side. Ground the fence fabric with No. 2 AWG solid bare tinned copper wire connected to the fence posts. Connect the fence perimeter wires to the ground rod assemblies of the equipment shelter's ground system with No. 2 AWG solid bare tinned copper wire, as shown in the Plans.

Ensure that all ground leads are No. 2 AWG solid bare tinned copper wires for all above- and underground grounding wire installations. Ensure that all exothermic bonds are appropriate for the application. Do not use welding or other forms of bonding without prior written approval.

620-4 Ground Resistance Testing and Inspection.

620-4.1 Testing: Measure the ground resistance with an instrument designed specifically to measure and document earth/ground resistance, soil resistivity, and current flow. Conduct the test by using the fall-of-potential method as described in the Institute of Electronic and Electrical Engineers (IEEE) Standard 81. The fall-of-potential test is used to verify the minimum resistance required in 620-3.2.1. If fall-of-potential tests cannot be performed, it is acceptable to measure resistance at each accessible ground rod using a clamp-on ground resistance tester. Submit to the Engineer certified test results for each testing location. Submit the following information on the test results:

1. The formal name or ID for the location where the test was performed
2. The GPS latitude and longitude for the location where the test was performed
3. The date on which the test was performed
4. The make and model number, serial number, and last date of calibration (by an independent testing facility within the previous 12 months) for the grounding resistance testing device used
5. Contact information (including name, signature, and employer name) for each person conducting, witnessing, or certifying the test
6. Description of the local environmental and soil conditions at the time of testing
7. A rough sketch of the site grounding system; along with the corresponding measured data points
8. Page numbering showing the current page number and total page count (e.g.,

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Only clamp-on ground resistance testing is required for roadway lighting installations.

620-4.2 Inspection: Do not backfill below-grade grounding installations and grounding connections until inspected and approved. The Engineer will inspect the installation for proper

connection types, tightness, workmanship, and conformance to the Plans. Replace any exothermic bonds that are deemed unsatisfactory with new exothermic bonds. Repair or replace any mechanical connections that are deemed unsatisfactory. Measure the resistance at each accessible ground rod using a clamp-on earth tester. The measurement at any individual rod is the cumulative resistance of all rods in a parallel circuit.

For grounding system inspections, notify the Engineer at least five days prior to completion of the installation. Record all test results in a standardized format approved by the Engineer prior to testing. All recorded test report data shall be dated, witnessed, and signed by at least one representative of the Department and the Contractor. Remedy all deficiencies at no cost to the Department.

SECTION 996

INTELLIGENT TRANSPORTATION SYSTEM DEVICE AND AUXILIARY COMPONENT MATERIALS

996-1 Description.

996-1.1 General: This Section governs the requirements for all permanent intelligent transportation system devices, surge protection devices for traffic control devices, pull boxes, splice boxes, fiber optic splice vaults, camera lowering devices, and traffic control system auxiliaries. All equipment shall be permanently marked with manufacturer name or trademark, part number, and date of manufacture or serial number.

996-1.2 Product Acceptance: All specified products shall be items listed on the Department’s Approved Product List (APL), unless otherwise noted below. Manufacturers seeking evaluation of products for inclusion on the APL shall submit an application in accordance with Section 6 and include the following documentation. A separate application must be submitted for each product to be evaluated, showing that the product meets the applicable requirements.

Table 996-1	
Documentation	Requirements
Assembly and Installation Instructions	Include any surface preparations, assembly/installation instructions, operation manual, troubleshooting guides, and repair procedures.
Independent Laboratory Test Results	Product meets requirements of this Section.
Product Label Photo	Labeling shows the manufacturer’s name, trademark, and product model number/name. Label shows the date of manufacture and/or the manufacturer’s batch number. Additional label requirements, as listed within this Section.
Product Photo	Displays the significant features of the product as required in this section.

Compliance Matrix	Include completed compliance matrix at https://www.fdot.gov/traffic/traf-sys/product-specifications.shtm
Manufacturer's Product Specifications	Include product specifications showing electrical requirements, voltages, etc.
Product Drawings or Cut Sheet	Show mounting points, mechanical details, block diagrams, schematics, etc.
Parts List	List major parts and field serviceable components.

996-1.3 Abbreviations: The following abbreviations are used in this Section:

- Alternating Current (AC)
- Closed Circuit Television (CCTV)
- Direct Current (DC)
- Hypertext Transfer Protocol (HTTP)
- International Electrotechnical Commission (IEC)
- Internet Protocol (IP)
- International Organization for Standardization (ISO)
- Local Area Network (LAN)
- Network Time Protocol (NTP)
- Pan, Tilt, Zoom (PTZ)
- Telecommunications Industry Association (TIA)
- Uniform Resource Locator (URL)
- Ultraviolet (UV)

996-4 Grounding and Lightning Protection.

996-4.1 General: Surge Protective Devices for traffic control devices, including intelligent transportation system (ITS), shall be listed on the Department's Approved Product List (APL). Manufacturers seeking evaluation of their product shall submit an application in accordance with Section 6.

996-4.2 Surge Protective Device:

996-4.2.1 Description: Surge Protective Devices (SPDs) protect electronics from lightning, transient voltage surges, and induced current.

996-4.2.2 SPD for 120 Volt or 120/240 Volt Power: The SPD shall include L-N, L-G, and N-G protection and have a maximum surge current rating of 50 kA per phase or greater. The SPD shall meet the requirements of UL 1449, Third Edition and be listed by a NRTL.

The SPD shall have a visual indication system that monitors the weakest link in each mode and shows normal operation or failure status and also provides one set of normally open (NO)/normally closed (NC) Form C contacts for remote alarm monitoring. The enclosure for a SPD shall have a NEMA 4 rating.

996-4.2.3 SPD at Point of Use: The SPD shall comply with the minimum functional requirements shown in Table 996-3. The units shall be rated at 15 or 20 amps load and are configured with receptacles.

The units shall have internal fuse protection and provide common mode (L+N-G) protection.

996-4.2.4 SPD for Low-Voltage Power, Control, Data and Signal Systems:

The SPD devices shall comply with the minimum functional requirements shown in Table 996-3 for all available modes (i.e., power L-N, N-G; L-G, data and signal center pin-to-shield, L-L, L-G, and shield-G where appropriate).

Table 996-3				
SPD Minimum Requirements				
Circuit Description	Clamping Voltage	Data Rate	Surge Capacity	Maximum Let-Through Voltage
12 V _{DC}	15-20 volts	N/A	5kA per mode (8x20 μs)	<150 Vpk
24 V _{AC}	30-55 volts	N/A	5kA per mode (8x20 μs)	<175 Vpk
48 V _{DC}	60-85 volts	N/A	5kA per mode (8x20 μs)	<200 Vpk
120 V _{AC} at POU	150-200 volts	N/A	20kA per mode (8x20 μs)	<550 Vpk
Coaxial Composite Video	4-8 volts	N/A	10kA per mode (8x20 μs)	<65 Vpk (8x20 μs/1.2x50μs; 6kV, 3kA)
RS422/RS485	8-15 volts	10 Mbps	10kA per mode (8x20 μs)	<30 Vpk
T1	13-30 volts	10 Mbps	10kA per mode (8x20 μs)	<30 Vpk
Ethernet Data	7-12 volts	1 Gbps	1kA per mode (10x1000 μs)	<30 Vpk
PoE	60-70 volts	1 Gbps	5kA per mode (8x20 μs)	<200Vpk (100kHz 0.5μs; 6kV, 500A)
PoE+, PoE++	<150	1 Gbps	1kA L-G (8x20 μs)	<350V

SPDs for PoE, PoE+, and PoE++ applications shall meet IEEE 8802-3.

The SPDs shall meet the requirements of UL 497B or UL 497C, as applicable, and are listed by a NRTL.

996-4.2.5 Mechanical Specifications: All parts shall be made of corrosion-resistant materials, such as plastic, stainless steel, anodized aluminum, brass, or gold-plated metal.

996-4.2.6 Environmental Specifications: The SPDs shall operate properly during and after being subjected to the environmental testing procedures described in NEMA TS 2, Sections 2.2.7, 2.2.8, and 2.2.9.