

MEPNN Supplier Scouting Opportunity Synopsis

Section 1: General Information

Scouting Number	2025-229
Item to be Scouted	242 DC Isolator
Days to be scouted	30
Response Due By	08/09/2025
Description	These are manual switches installed in traffic control cabinets. They allow safe isolation (disconnection) of the DC power supply to traffic signal modules (and/or detectors and pedestrian push buttons) for maintenance, repair, or

Section 2: Technical Information

Type of supplier being sought	Manufacturer
Reason	BABA
Describe the manufacturing processes (elaborate to provide as much detail as possible)	<p>The manufacturing process of a 242 DC isolator (as typically used in traffic signal systems). These isolators are electromechanical switching devices designed to safely interrupt DC circuits. Here's an in-depth view of how they're typically made:</p> <ol style="list-style-type: none">1) Material Selection & Procurement: Contacts, made from copper or copper alloys (like brass), often silver-plated for better conductivity and reduced arcing; Springs, stainless steel or phosphor bronze for corrosion resistance and consistent actuation force; Housing, typically thermoplastic (polycarbonate, ABS) for insulation and weatherproof performance. In some cases, die-cast aluminum or zinc alloys are used for extra durability; Terminals, brass or copper with plating (tin or nickel); Gaskets/Seals, EPDM or silicone rubber for environmental sealing (IP66/IP67 rating)2) Component Fabrication: Stamping & Punching, sheet copper or brass is stamped into contact shapes using high-speed presses; CNC Machining, more complex parts (like rotary cams or terminal blocks) are machined from metal bars; Plating, Contacts are electroplated with silver or tin to improve conductivity and reduce wear from arcing; Injection Molding, plastic enclosures and actuator levers are produced by injection molding. Molds are precision-machined to ensure parts meet tight tolerances; Colorant Additives, plastic pellets are colored (e.g., red or yellow for isolators) using masterbatch coloring.3) Assembly: Contact Subassembly, contacts and springs are assembled into the contact carrier (often a molded plastic component). Spot welding or riveting secures the contacts to their carriers; Switch Mechanism Assembly, moving parts like the rotary cam or toggle mechanism are installed. Springs are tensioned to ensure snap action—fast and reliable opening/closing. Housing Assembly, the subassembly is placed in the isolator's housing (plastic or metal). Environmental seals (gaskets, O-rings) are fitted for waterproof performance. Screws or snap-fits secure the housing.4) Electrical & Mechanical Testing: Dielectric Strength Test to ensure the isolator withstands high voltages; Contact Resistance Test, measures resistance across closed contacts; Mechanical Endurance Test, the isolator is cycled thousands of times to check for wear and tear; Thermal Test, checks that the isolator doesn't overheat under rated current.5) Surface Marking & Labeling: Laser Engraving or Pad Printing.6) Final Assembly & Quality Assurance7) Packaging & Shipping: Individual units are packed in boxes with protective padding. Bulk packaging in cartons or crates for shipping.

Provide dimensions / size / tolerances / performance specifications for the item	Dimensions: 6.88" D (±0.01 in), 4.50 H (±0.01in), 1.12" W (±0.25 inch, with or w/o handle) Operating: -40°C to +85°C Ship Weight ~9 oz per 242 DC Isolator. Input Voltage (DC) 0–24 VDC; Output Pulse Width = 100 ms; Isolation Voltage 2,500–3,000 VAC typical; Isolation Resistance = 1,000 MO; Transient Protection ±1,000 V direct, ±2,000 V via 5O
List required materials needed to make the product, including materials of product components	PCB (Printed Circuit Board), Electrical Components (opto-couplers, Transistors/MOSFETs, Voltage regulators, Resistors and capacitors, LED indicators and Test switches), Edge Connector Contacts (Beryllium copper or phosphor bronze, plated with gold or tin-lead for corrosion resistance; Housing is Thermoplastic, typically UL 94V-0 flame-rated); Mechanical Housing / Handle (Handle/Faceplate is Polycarbonate or Lexan; Mounting plate is Aluminum or steel, powder-coated for corrosion resistance; Fasteners are Stainless steel or zinc-plated steel screws); Isolation / Transient Protection (transient voltage suppression diodes, metal oxide varistors, Diodes and rectifiers).
Are there applicable certification requirements?	No
Are there applicable regulations?	No
Are there any other standards, requirements, etc.?	Yes
Details	Caltrans TEES 2020
Additional Technical Comments	

Section 4: Business Information

Estimated potential business volume	2-5 year contract. 1,500-2,000/year
Estimated target price / unit cost information (if unavailable explain)	\$29.50 each
When is it needed by?	4/29/2026
Describe packaging requirements	Individually boxed, Palletized (for bulk shipment), banded with plastic strapping and covered with a stretch film wrap to prevent dust and movement.
Where will this item be shipped?	Sacramento, California

Additional Comments

Is there other information you would like to include?	Agency - Federal Highway Authority (FHWA) Contact - Andrew Bianchi, Project Delivery North Team Leader, Federal Highway Administration, California Division andrew.bianchi@dot.gov
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