MEPNN Supplier Scouting Opportunity Synopsis

Section 1: General Information

Scouting Number	2025-237
Item to be Scouted	222 Traffic Signal Loop Detector
Days to be scouted	30
Response Due By	08/22/2025
Description	A 222 Traffic Signal Loop Detector is a type of inductive loop detector that is used in traffic signal systems to detect the presence of vehicles at intersections or along roadways.

Section 2: Technical Information

Type of supplier being sought	Manufacturer
Reason	BEBA
Describe the manufacturing processes (elaborate to provide as much detail as possible)	The manufacturing process for a typical 222 Traffic Signal Loop Detector includes component sourcing to final assembly and testing. 1) The components are sourced from global suppliers, ensuring they meet quality and safety standards. Electronic Components includes Microcontrollers or logic ICs for processing signals; Inductor-capacitor (LC) tank circuits for oscillation; Operational amplifiers, comparators; Resistors, capacitors, diodes, and transistors; and Output relays (mechanical or solid-state). Connectors & Housing includes Edge connectors for loop and power connections, and Plastic or metal enclosures for environmental protection. 2) PCB Assembly: Surface Mount components are placed using automated pick-and-place machines. Through-hole components (like relays, large capacitors) are manually inserted or robotically placed. 3) Soldering: Surface Mount parts are soldered via reflow soldering (oven heating to melt solder paste). Through-hole components often use wave soldering (board passes over molten solder). 4) If microcontrollers are used, firmware is loaded using in-circuit programming (ISP) tools. The LC oscillator's frequency range is calibrated for the loop's inductance values. Software or hardware adjustments set detection thresholds and operational modes. 5) Final Assembly: The completed PCB is placed into a robust enclosure, designed to resist environmental conditions (temperature, humidity). Input/output terminals (screw terminals or plug-in connectors) are securely fitted. Product labels, serial numbers, and compliance markings (UL, CE) are printed/applied. 6) Testing & Quality Assurance: Functional Testing, Environmental & Reliability Tests.
Provide dimensions / size / tolerances / performance specifications for the item	Dimensions: 1.06" W (±0.06 in), 4.5" H (±0.06 in), 7.0" D (±0.06 in) Operating Temperature (-40?°C to +85?°C); Operating Voltage (10.8 – 16.5 VDC from detector rack); Power Consumption (Typically 1.0 – 1.5 W); Loop Frequency Range (Adjustable from 20 kHz to 130 kHz to tune for various loop sizes and avoid crosstalk); Sensitivity Levels (At least 10 discrete sensitivity levels); Response Time (Maximum of 75ms time to detect presence of vehicle); Recovery Time (Maximum of 250ms release after vehicle leaves loop); Detection Modes (Presence detection, Pulse on entry, Pulse on exit); Fail-Safe Operation (Required. Defaults to presence if a loop or detector failure occurs, ensuring safety in the event of hardware failure); Field Programmability (Onboard DIP switches or jumpers to select frequency, sensitivity, output mode); Diagnostic Indicators (LEDs for Power, Detect vehicle presence, Fail loop/connection issues). Ship Weight ~0.5 to 0.7 pounds per 222 Loop Detector.

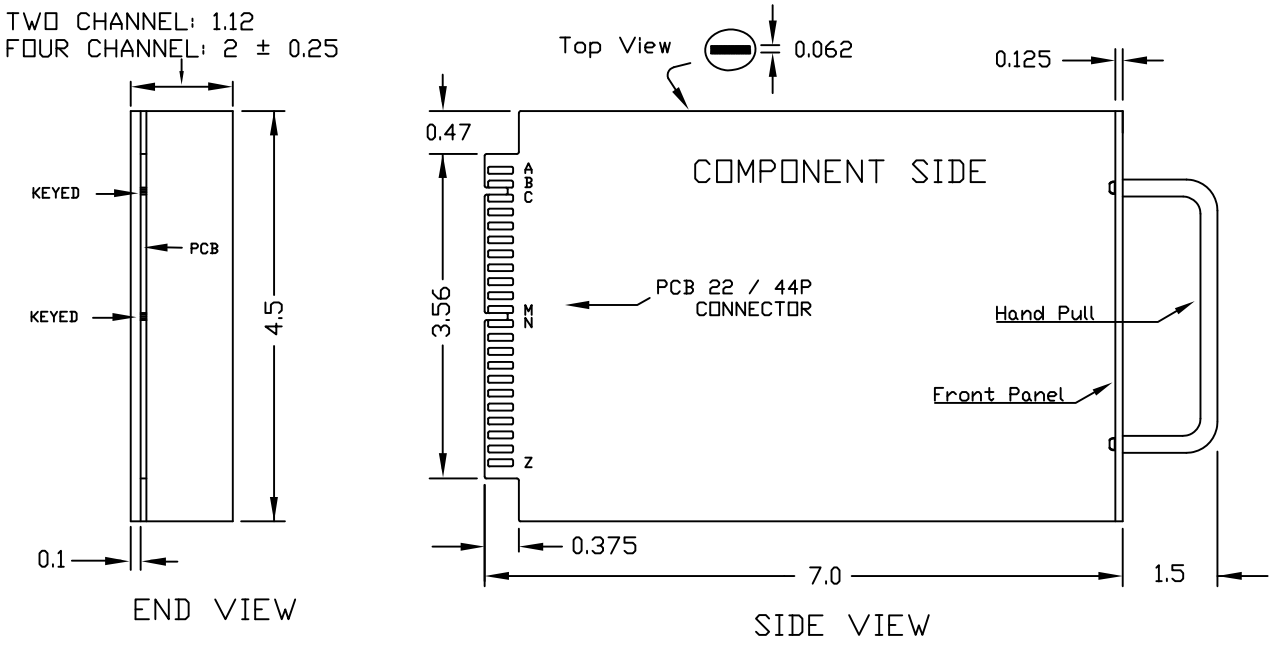
List required materials needed to make the product, including materials of product components	The 222 loop detector is typically built from: PCB (FR4 fiberglass, copper clad), Edge Connector (Copper alloy pins, plastic insulator), Microcontroller/ICs (Plastic encapsulated semiconductor packages), Resistors, Capacitors, Inductors, Diodes/Transistors, Relay (Silver alloy contacts, copper coil, plastic housing), LEDs, Conformal Coating (Silicone or acrylic-based liquid film), Housing (ABS or polycarbonate plastic), Labels (Polyester or polycarbonate adhesive-backed film) and Screws/Standoffs.
Are there applicable certification requirements?	No
Are there applicable regulations?	No
Are there any other stndards, requirements, etc.?	Yes
Details	Caltrans TEES 2020
Additional Technical Comments	

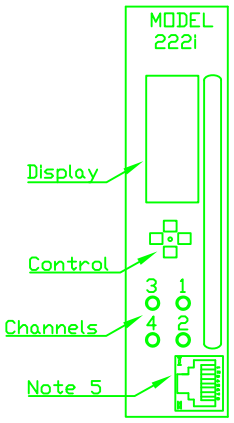
Section 4: Business Information

Estimated potential business volume	2-5 year contract. 5000-7000/year
Estimated target price / unit cost information (if unavailable explain)	$72 each
When is it needed by?	4/29/2026
Describe packaging requirements	Individually boxed, Palletized (for bilk 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





FRONT VIEW

MODEL 222, 222i, 224, 224i & 232 CONNECTOR ASSIGNMENTS

PIN	FUNCTION (SENSORS)
A	DC GROUND
B	+24 VDC
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*C	DETECTOR RESET
D	INPUT #1
E	INPUT #1
F	OUTPUT #1 (C)
H	OUTPUT #1 (E)
J	INPUT #2
K	INPUT #2
L	EQUIPMENT GROUND
M	NA

N	NA
P	INPUT #3
R	INPUT #3
S	OUTPUT #3 (C)
T	OUTPUT #3 (E)
U	INPUT #4
V	INPUT #4
W	OUTPUT #2 (C)
X	OUTPUT #2 (E)
Y	OUTPUT #4 (C)
Z	OUTPUT #4 (E)

NOTES:
1. Tolerance dimensions are ±0.02 in except as noted
2. Sheet definitions:
   ---= Slotted for keying
   (C) = Collector
   (E) = Emitter
   * = NA for Model 232.
3. i=Intelligent
4. "U" shape rod handle shall be fabricate of 0.18 in to 0.26 in diameter, Aluminum stock.
5. RJ45 Ethernet port
6. All detectors shall be of the scanning type.
7. Front panel shall be Aluminum stock or Stainless Steel.
8. All dimensions shown are in inches.

TITLE: DETECTOR SENSOR UNIT DETAILS	
	NO SCALE
TEES 2020	A5-1