

Format for Technical Pre-Bid Queries

Tender No TPSODL/OT/2023-24/46-Supply of Portable Cable Fault Locator mounting in VAN with route tracer & accessories

Package Name: Supply of Portable Cable Fault Locator with route tracer & accessories mounting in VAN

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1	2	3	4	5
	TECHNICAL SPECIFICATION CLAUSE 4.0 Page No. 03	The most essential requirement is that the unit should be easily portable and must not weight higher than 125kg.	Weight will be around 300KG. As it will be mounted in van. Being a Make in INDIA, Designed in INDIA, Easier Site Maintenance suitability, we considered all Environmental Conditions, roads of our country.	Specification should be followed
1	TECHNICAL SPECIFICATION CLAUSE(4.2 HV Testing (a) a. Integrated D.C. Testing Unit Page No. 04)	Dedicated Fault Burning mode upto 0-40kV with high frequency burner, 850 mA max current	800 mA Max Current Available at minimum voltage . 800mA Current is good enough requirement for all types of major Fault Locating up to 33KV Cable	Accepted
2	TECHNICAL SPECIFICATION CLAUSE(4.2 HV Testing (a) b . Integrated Insulation resistance testing Unit Page No. 04)	It shall have facility to perform insulation test with up to 20kV with same set of cables.	Standard is 5 KV which is sufficient for IR testing of 33 KV Cables, Pleasd to inform that 20KV Voltage range is available in foreign make fault locator only, not in Indian Manufacturer	Specification should be followed
3	TECHNICAL SPECIFICATION CLAUSE 4.4. Page No. 04	Control and operation: Unit shall be controlled and operated via a single control knob and touch screen menu. User should be able to select mode and apply high voltage via control knob itself. Manual control of voltage via variac shall not be accepted.	Main Control operation shall be through touch Screen or Serial Mouse	Accepted
4	TECHNICAL SPECIFICATION CLAUSE 4.6. Dimemnsion Page No. 05	Cable fault locator unit should be portable and should weight up to a maximum of 125 Kg.	860(D) x 1200(W) x 1535(H) mm app. Weight will be around 300KG, Robust design, Easier Site Maintenance suitability, as it will be mounted in van, considered all Environmental Conditions, roads of our country.	Specification should be followed
5	TECHNICAL SPECIFICATION CLAUSE 4.7 Accessories . Page No. 05	Unit should also indicate the cable orientation on the display (left or right). It should also show orientation of cable angle in visual form.	Cable Direction is available, Unit also have indicate the cable orientation on the display	Accepted
6	TECHNICAL SPECIFICATION CLAUSE 4.7 Accessories . Page No. 05	Unit should be supplied with rugged industrial head phones with external noise filtering which shall have wired connection to display unit. Optionally Bluetooth headphone facility shall also be available. Unit should have optional facility for simultaneous pinpointing by both wired as well as Bluetooth headphones so that two operators can perform pinpointing on same fault.	Blue tooth Headphone Not Available , there is dis-advantages in Blue Tooth head phone, Unit will be supplied with rugged industrial head phones with external noise filtering which shall have wired connection to display unit	Specification should be followed
7		7 2. HV TESTING: a. Integrated D.C. Testing Unit This facility will be used to pressure test the power cables and should be operational through control unit provided with auto ranging voltmeter and ammeter having digital/analogue display with possible graphical representation. This shall be generated by surge unit itself and separate DC hipot unit shall not be required. ☑ Range: 0-40 kV, Continuously Variable. ☑ Dedicated Fault Burning mode upto 0-40kV with high frequency burner, 850 mA max current ☑ Sheath Fault testing: 0-20KV, 160 mA ☑ Unit should be able to measure the leakage current on the unit itself. ☑ It should have automatic breakdown detection and display the breakdown voltage after test	7 2. HV TESTING: a. Integrated D.C. Testing Unit This facility will be used to pressure test the power cables and should be operational through control unit provided with auto ranging voltmeter and ammeter having digital/analogue display with possible graphical representation. This shall be generated by surge unit itself and separate DC hipot unit shall not be required. ☑ Range: 0-32 kV , Continuously Variable. ☑ Dedicated Fault Burning mode upto 0-40kV with high frequency burner, 600 mA max current ☑ Sheath Fault testing: 0-20KV, 160 mA ☑ Unit should be able to measure the leakage current on the unit itself. ☑ It should have automatic breakdown detection and display the breakdown voltage after test	Specification to be followed
8		Pre-Locator TDR pulse width: Minimum 20 ns – 10 microsec or more Measuring pulse: 30 – 100 V or more Sampling rate: 400 MHz or higher SIM/MIM/ARM: Minimum 15 TDR multi-shot measurements Display range: 20 m – 100km or more Resolution (@ v/2 = 80 m/μs): 0.1 m or better Accuracy: 0.1% of measuring result or better Propagation velocity factor v/2 range: 10 – 149.9 m/μs or more Size of screen: Min. 9” Ambient temperature (operational): 0 to +50 °C or more Storage temperature: -20 to +60 °C or more Power supply: 100 – 240 V, 50 Hz IR test: Test voltage: up to 20000 V or more Measuring range: up to 100 M-Ohm(Inbuilt) or more	Pre-Locator TDR pulse width: Minimum 40ns~20.5us Measuring pulse: 30 V or more Sampling rate: 400 MHz or higher SIM/MIM/ARM: Minimum 15 TDR multi-shot measurements Display range: 2m – 100km Propagation velocity factor range: 100 – 300 m/μs or more Size of screen: Min. 9” Ambient temperature (operational): 0 to +50 °C or more Storage temperature: -20 to +60 °C or more Power supply: 100 – 240 V, 50 Hz IR test: Test voltage: up to 20000 V or more Measuring range: up to 100 M-Ohm(Inbuilt) or more	Specification to be followed

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9		<p>9 b. Integrated Surge Generator: It shall produce single short surge as well as repetitive surge; this frequency can be varied using a timer. The single short surges are meant for breaking down a fault for analysis with the digital fault locator and repetitive surges for pin pointing the faults with surge wave receiver.</p> <ul style="list-style-type: none"> Ⓜ Impulse: 0-32KV in suitable steps 4/8/16/32KV Ⓜ Minimum Surge Energy at 8/16/32KV: 2000 Joules Ⓜ Minimum Surge Energy at 4kV range:1100 Joules Ⓜ DC output 0 to 40kV Ⓜ Surge Rate: 3.....10sec, Single shot Ⓜ Safety Protection: The instrument should be operational through separate control unit and should have protective PCBs for auto discharge, capacitor discharge, earth monitoring etc. 	<p>9 b. Integrated Surge Generator: It shall produce single short surge as well as repetitive surge; this frequency can be varied using a timer. The single short surges are meant for breaking down a fault for analysis with the digital fault locator and repetitive surges for pin pointing the faults with surge wave receiver.</p> <ul style="list-style-type: none"> Ⓜ Impulse: 0-32KV Ⓜ Minimum Surge Energy at 32KV: 1800 Joules Ⓜ DC output 0 to 32kV Ⓜ Surge Rate: 3.....10sec, Single shot Ⓜ Safety Protection: The instrument should be operational through separate control unit and should have protective PCBs for auto discharge, capacitor discharge, earth monitoring etc. 	Specification to be followed
10		<p>CABLE FAULT PRE-LOCATION: The above fault locator will be used to pre-locate the faults in power cables with following features/parameters.</p> <p>1. Modes of operation:</p> <ol style="list-style-type: none"> a) Pulse Reflection Method b) Impulse Current Method, 0- 4/8/16/32kV c) True inductive Arc Reflection Method 0-4/8/16/32kV d) Voltage Decay Method up to 40kV for very high resistive faults. e) Resolution: 0.1m 	<p>CABLE FAULT PRE-LOCATION: The above fault locator will be used to pre-locate the faults in power cables with following features/parameters.</p> <p>1. Modes of operation:</p> <ol style="list-style-type: none"> a) Pulse Reflection Method b) Impulse Current Method, 0- 4/8/16/32kV c) True inductive Arc Reflection Method 0-4/8/16/32kV d) Voltage Decay Method upto 32kV for very high resistive faults. e) Resolution: 0.1m 	Specification to be followed
11		<p>5. CABLE ROUTE TRACER: The Cable Route Locator should be suitable for cable fault location process of underground cables by identifying the cable from the surface, without excavation. The equipment should be capable of tracing the buried cables with the ability to measure the depth of the cable. The unit should have at least the following features:</p> <ol style="list-style-type: none"> a. The set should comprise of a transmitter & receiver. b. The set should be portable. c. The cable tracing should be done with audio & visual signals so as to make it easy to follow & trace the cable route. d. It should be possible to detect the depth of the cable (at least 4 meter) at any point by using sufficient wattage of the generator up to 50watts at least. e. Automatic impedance matching should be required for better operations. f. It should also be possible to detect the AC signals (50 Hz) from a charged cable without transmitter. g. Filters should be provided to optimize the measurements and minimize the ambient noise. h. The transmitter of the tracer should be capable of energizing the cable either by magnetic induction or by direct conductive connection to the cable. i. The receiver should filter out electric noise and static noise. j. The unit should also be able to determine the depth of the cable. k. The unit should be suitable to trace cables in areas with multiple energized / de-energized cables in the same route. <p>a) Audio Frequency Generator: The audio frequency generator should be ideal for locating the route of underground cable as well as for pinpointing of cable faults when used with receiver.</p> <p>Technical Specification: LF output power: 0-50Watt(min.) or more (adjustable manually or automatically) O/P Frequencies: To be indicated by the bidder/contractor. Output Adjustment to be specified by the bidder Permitted load resistance: any short circuit, open circuit, continuous but with reactive load etc. Power Supply: Unit should be capable to work on mains AC supply with built in charging and battery unit.</p> <p>b) The audio frequency receiver: The audio frequency receiver set should be battery operated and suitable to above frequencies. The receiver should be connected directly to the search coil. The coil can be rotated to 0-45 degree or 90 deg spans in position 13 Unit should have protection up to</p>	<p>PL-15 Recommended (wattage of the generator up to 15watts)</p>	Specification to be followed
12		TDR / Pulse Reflection amplitude should be 10-100V User selectable.	30V	Specification to be followed
13		15 TDR / Pulse Reflection width should be 20 ns - 10 μs User selectable.	15 TDR / Pulse Reflection width should be 40 ns - 20.5 μs User selectable.	Specification to be followed
14		Velocity of propagation should be user selectable between 10-149 meter/microsecond.	Velocity of propagation should be user selectable between 100-300 meter/microsecond.	Specification to be followed

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15		<p>COMMISSIONING & DEMONSTRATION:</p> <p>1. The party should depute their engineer at site after receiving cable fault locator at site store for carried out successfully demonstration, start up, testing of cable fault locator, its control system and all type of other supplied accessories before final acceptance.</p> <p>2. Successful testing of components by the supplier shall be considered as part of commissioning, Equipment and all accessories shall from part of the commissioning activity.</p>		