INFORMATION FOR BIDDERS

1. Introduction of the RFP

Bids are invited from original equipment manufacturer (OEM) /authorized dealer for Supply and installation of FPI/FPS for Medium Voltage Overhead Electric Networks (7–69 kV) to help detect faults, monitor voltage presence, and communicate with control centers via GSM/GPRS/MPLS-4G under the Shillong Distribution Circle.

2. Name of work: Supply and installation of FPI/FPS for Medium Voltage Overhead Electric Networks (7–69 kV) to help detect faults, monitor voltage presence, and communicate with control centers via GSM/GPRS/MPLS-4G under the Shillong Distribution Circle.

3. Scope of Work:

(i)Bidder shall design, engineering, manufacturing, testing at manufacturer's works, supply, delivery, erection, testing and installed FPI/FPS for Medium Voltage Overhead Electric Networks (7–69 kV) to help detect faults, monitor voltage presence, and communicate with control centers via GSM/GPRS/MPLS-4G and in strict adherence to the terms and conditions of this bid.

(ii) The successful bidders shall confirm that the FPI/FPS for Medium Voltage Overhead Electric Networks (7–69 kV) must be as per Technical Specifications and GTP of this bid document.

(iii) Submission of technical specification (BIS, GTP/Test Certificate/Drawings etc of FPIs/FSIs).

iv. Video Conference inspection & witnessing of testing at manufacturer's factory by officer(s) deputed from MePDCL for this purpose. The inspection call shall be intimated at least 7 days in advance. The supplier shall ensure that pre-dispatch inspection for FPI/FPS for Medium Voltage Overhead Electric Networks (7–69 kV) only when the same are completely ready for inspection. On due date of inspection, if it is found that FPI/FPS for Medium Voltage Overhead Electric Networks (7–69 kV) are not ready in required quantities, all expenditures incurred on deployment of various inspecting officials along with a fine @ 1% shall be recovered from bills of the supplier.

v. Site delivery, loading, unloading, and handling of the FPI/FPS for Medium Voltage Overhead Electric Networks (7–69 kV)and all its related accessories supplied up to the delivery location along with arrangement of verification by MePDCL field officials shall be the sole responsibility of supplier.

vi. Arrange demonstration of the FPI/FPS for Medium Voltage Overhead Electric Networks (7–69 kV) at venues mutually agreed with the owner.

vii.Site delivery, unloading, loading, and handling of the FPI/FPS for Medium Voltage Overhead Electric Networks (7–69 kV) up to the delivery location shall be the sole responsibility of supplier.

4. Submission of bid:

The bid shall be in two parts, i.e. (i) Techno commercial bid, (ii) Price bid

(i) Techno-commercial bid

In the techno commercial bid, the bidders are required to submit PAN, GST registration, Annual Turn Over certified by C.A for last 3 years, Order executing details of similar work, vendor's company credentials, registration details, type test reports etc. as per requirement.

A set of the above documents must be sequentially submitted for techno-commercial evaluation failing which shall be treated as non-responsive.

(ii) Price Bid

The Price Bid shall be the offer price for supply of FPI/FPS for Medium Voltage Overhead Electric Networks (7–69 kV) as per BOQ and inclusive of all costs. Submission of Price Bid Schedule with all quantities and prices shall be filled up as per annexure provided in the detail bid document. **All quoted rates shall be inclusive of GST and all taxes as applicable as per the prevailing rate.**

Note:

a) In case of any difference found between the rates in figures and in words, a minimum of the two shall be considered. If the bidder does not accept the correction of the errors as above, his bid shall be rejected, and the amount of bid guarantee/security shall be forfeited.

b) The rates quoted shall be inclusive of all taxes, carriage, supply, insurance, loading, unloading etc.

c) No separate declaration offering a discount on price shall be allowed. Offered price in the price schedule shall be considered final for evaluation.

d) Bidders shall upload their most competitive rates. It may please be noted that incomplete tenders shall not be accepted.

5. **Important Timeline**

Description	Date & Time
RFP document publishing date	30.04.2026
Bid Submission start date and time	01.05.2026 - 00:00 Hrs
Bid submission end date and time	18.05.2026 – 13:00 Hrs
RFP document Opening Date & time	18.05.2026 – 15:00 Hrs

The date of opening of Price Bids shall be intimated subsequently to the Techno-Commercially qualified Bidders.

6. All queries may be submitted to ced.ez.mepdcl@meghalaya.gov.in

7. Guarantee/Warranty.

Warranty from the manufacturer shall be produced along with manufacturer's test certificate for all equipment/ materials covered under Manufacturer's warranty.

The Supplied items should comply with the standard guarantee and warranty is One Year. Upon the expiry of guarantee and warranty, the Annual Maintenance Contract (AMC) may be executed for 12 months and may be extended subjected to satisfactory performance. Guarantee and warranty will commence from the date of commissioning of supplied system/ items.

8. Eligibility Criteria and Basic Qualifying Requirements:

Experience Requirement

1. The OEM/OES must have manufacturing facility in India for the offered product with ISO 9001 & ISO14001 certificate. Documentary evidence in this regard shall have to be submitted with the bid.
2. Cobranding or brand labelling of product from other manufacturers will not be considered.
3. The OEM must have service centre in India for the offered product.
4. The bidder must have prior experience in the supply of Fault Passage Indicators (FPI)/Fault Passage Sensor (FPS) to Power Utilities / Electricity Distribution Companies.
5. The bidder shall have successfully supplied FPI/FPS during the last five (5) years to at least one Power Utility.
6. Documentary evidence shall be submitted in the form of: Copy of Supply Order / Purchase Order, Proof of supply completion, Performance certificate issued by the utility Bids without documentary proof shall be liable for rejection.

9. Performance & Service Record

1. The FPIs supplied against the submitted reference orders must have been in satisfactory operation for a minimum period of three (3) years.

2. The bidder shall submit: Performance certificate from the concerned utility confirming satisfactory operation, Contact details of the utility for verification. The Employer reserves the right to verify the performance claims.

10. Warranty Requirement

1. The offered FPIs/FPSs shall carry a minimum warranty of five (5) years from the date of supply or commissioning (whichever is later).
2. During the warranty period: Any defective unit shall be repaired/replaced free of cost, Response time for complaints shall not exceed [7/10] days.
3. All logistics and replacement costs shall be borne by the supplier, A written warranty certificate shall be submitted along with the bid., Undertaking for Product Support

11. The bidder shall furnish an undertaking confirming:

1. Availability of spare parts for minimum 10 years, Availability of after-sales service support, technical support for installation and commissioning.
2. OEM Authorization (if applicable).
3. If the bidder is not the Original Equipment Manufacturer (OEM), an OEM authorization certificate shall be enclosed.
4. Mandatory type test certificates from NABL/IEC accredited labs.
5. Blacklisting declaration clause.

Technical Specification for Communicable Fault Passage Detection System for 33KV and 11KV Overhead Networks.

1. General

Introduction: Fault Passage Indicators (FPIs)/Fault Passage Sensor (FPSs) shall be installed directly on overhead lines, with one unit per phase to monitor current and voltage presence. One of these FPIs will function as the Master Unit, with a built-in Gateway/Data Concentrator Unit (DCU) and GPRS/MPLS-4G modem for communication. This Master FPI will interface with the control center using any standard protocol (Like IEC 60870-5-104/MQTT-JSON). There should not be a need of external Pole mounted DCU, Modem, Potential. Transformer (Dry type) along with Charger and Batteries (SMF VRLA)

2. Scope of work: Bidder shall design, engineering, manufacturing, testing at manufacturer's works, supply, delivery, erection, testing and installed FPI/FPS for Medium Voltage Overhead Electric Networks (7–69 kV) to help detect faults, monitor voltage presence, and communicate with control centers via GSM/GPRS/MPLS-4G.

3. Quality Assurance:

The Bidder shall supply documentary proof that the manufacturer possesses ISO 9001 and ISO 14001 Quality insurance certification, from an independent internationally recognized body, for the design, manufacture and testing of Fault Indicators and remote monitoring and control equipment for medium voltage lines.

4. System parameters

The Fault detection systems shall be designed to operate on a 33KV & 11KV overhead network with the following characteristics:

Nominal Operation Voltage: 7 to 69kV

System Maximum Voltage: 69 kV

Frequency: 50 Hz

Type of MV neutral Earthing through a resistor or solidly grounded.

Conductor Diameter 5 to 40mm (non-insulated) and 15 to 40mm (Insulated ACSR conductor with XLPE insulation)

A single product shall cover the entire range from 7 to 69 kV, regardless of line voltage or conductor diameter, multiple product references will not be accepted.

a) Symmetrical Fault Current :12.5 kA/1s (maximum phase current that the system shall withstand)
b) Vibration response test as per IEC60068-2-6 & IEC 62689-1 standard
c) Lightning surge- As per relevant IS standard
d)Maximum Ambient Temperature: 75° C
e) Maximum annual average temperature: 30° C
f) At least 95% temperature up to +55°C according to IEC 68-2-30

5. Climatic Conditions:

The Fault detection system shall be designed to operate in the following environmental conditions:

i) Temp. Variation : +1 deg C to +30 deg. C

ii) Max. Daily average temperature : + 30deg C

iii) Max. relative humidity : 85 %

iv) Average rainfall : -750mm

v) Max. Height above sea level: 5000 meters

vi) Max. Wind Pressure & wind speed : 200km/hour

vii) Average no. of thunderstorm days per year : 200.

6. Purpose of equipment

The main functions of the equipment are:

-To detect phase-to-phase and phase-to-earth fault currents on the MV network.

-To detect voltage presence interruptions.

-To time stamp faults and Voltage dips and store them in memory

-To transmit information to the Control Centre spontaneously via the GSM/GPRS network.

-To provide a local light indication of fault.

-To measure load current on the line (for communicable FPI/FPS)

-To provide operators with all useful information for fault finding and preventive maintenance.

-To be self-supplied at all times, including during outages.

7. Components :

Fault Passage Indicator/Fault Passage Sensor (FPIs/FPSs)

a) Clipped on overhead lines — one per phase.

b) Detect current and voltage presence/absence.

c) Compute fault detection algorithm

Communication Module:

a. One of the FPI/FPS sensor acting as gateway (Short range radio between FSI Master and sensors) with inbuild GPRS/MPLS-4G modem in it.

b. Communication Protocol: MQTT (JSON); IEC60870-5-104

c. System Voltage Level: 6.6kV to 69KV

d. IP rating of the housing: IP68

e. Number of FPI/FPS shall be communicated: Max 9 with a combination of 8 FPI indicator/Sensor and 1FPI Indicator acting as both Sensor and Master

Self-Supplied Lithium Battery (in FPI):

a.10 years of battery life

Supports:

a. At least 1 radio communication/hour
b. 1500 hours of fault indication flashing

8. GSM/GPRS communication interface

The GSM/GPRS communication interface shall be fitted in a compact enclosure suitable for mounting on a pole (PCC/Rail/Tubular/H-beam etc). This box shall include the following functions:

- Short range radio Interface to up to 9 Fault Passage Indicators/ Fault Passage Sensors in a 100 m range. It shall be able to interface up to 9 Fault Passage indicators/Fault Passage Sensor installed within a range of 100 m maximum, corresponding to up to 3 overhead lines.
- GSM/GPRS communication to SCADA Control Centre
- Configuration of the communication interface (GSM/GPRS communication, definition of alarms…) and Fault Passage Indicators/ Fault Passage Sensor (Fault detection thresholds…) by connection of a laptop using the configuration software to an RS232/RS 485/RJ 45 port on the communication interface. A software shall be available for remote management of the devices. The following functions shall be available using the software,
- Support for Easy Onboarding.
- Asset list with data on the corresponding asset.
- Hierarchy based classification of Asset based on customer organization hierarchy.
- Firmware and patch management
- Remote mass update of firmware.
- Remote update of configurations.

9. Fault Passage Indicator (FPI)/Fault Passage Sensor (FPS)

The Fault Passage Indicator (FPI)/Fault Passage Sensor (FPS) shall be designed to be clipped on the Overhead line. 3 Fault Passage Indicators/ Fault Passage Sensor shall be clipped on one line, one on each phase. *In case of either vertical or horizontal configuration of line, efficiency of FPI/FPS should not be degraded*. It shall include the following functions:

- Measurement of current running in the phase it is clipped on
- Detection of Voltage absence/presence on the phase it is clipped on
- Detection of phase-to-phase and phase-to-earth faults
- Short-range radio communication with a GSM/GPRS communication interface within a maximum distance of 100m.

It shall be self-supplied from a non-rechargeable (lithium-ion) battery of a minimum lifetime 10 years, in the temperature conditions specified above, including at least 1 short range radio communication with the GSM/GPRS communication interface every hour and minimum 1500 hours flashing for fault indication all over these 10 years. For Non communicable type FPI/FPS, 1500 flashing for fault indication over 10 years shall be provided.

The Fault Passage Indicators/ Fault Passage Sensor shall be suitable for outdoor use in the tropical climate condition stipulated in the relevant paragraph. The components used in the Fault Passage Indicators/Fault Passage Sensor shall be suitably protected from direct sunlight to prevent malfunctioning due to solar radiation. The Fault Passage Indicators shall be suitable for mounting live line conductors and suitable clamps shall have to be designed so that

the Fault Passage Indicator/ Fault Passage Sensor can withstand winds pressure as specified without falling from the line. The Fault Passage Indicator/Fault Passage Sensor shall be fully self-contained type without any external connection, indicator or sensors. The Fault Passage Indicators/ Fault Passage Sensor shall be suitable for use on multiple lines supported by the same pole.

10. Operational specifications

- Fault detection:

Fault detection shall be performed by the Fault Passage Indicator/ Fault Passage Sensor described above. Fault sensing shall be made from current measurement and Voltage presence detection, based on detection of the electromagnetic field and its variations.

The Fault Passage Indicator/ Fault Passage Sensor shall be of the programmable type, suitable for sensing:

- Short-circuit faults
- Low earth leakage faults down to 6A, with configurable thresholds (typically 6A–160A).
- The Fault Passage Indicators/Fault Passage Sensor shall detect faults based on 02(two) simultaneous tripping criteria:
- In order to high fault currents (typically phase-to-phase faults), it shall operate when the phase current exceeds an absolute threshold within a fixed duration (2 cycles). This absolute threshold must be user configurable to different values preferably between 1500A in suitable steps.
- In order to detect low fault currents (typically resistant phase-to-earth faults), it shall operate when it detects the phase current increase within a fixed duration (about 50ms) exceeds a relative threshold. This threshold must be configurable in steps of 5A from 5A-80A, 120A, 160A. It shall be possible to disable this tripping criteria.

It shall be possible to disable this second tripping criterion.

In case of faults, the Fault Passage Indicator/ Fault Passage Sensor which are detecting the variation of the electromagnetic field due to fault current (Fault Passage Indicators/ Fault Passage Sensor installed between the circuit breaker and fault point) shall provide a fault indication, while Fault Passage Indicators downstream the fault or on non-faulty branches shall not provide any indication.

11. The Fault indication reset shall consist in:

Once the fault is cleared, the FPI/FPS shall reset itself upon the power return, it shall also have a facility of resetting with settable time duration and manual reset.

12. Transient fault evolution:

If FPI/FPS is busy in flashing on transient fault and if the permanent fault occurs, the FPI/FPS shall automatically change the priority and shall start flashing differently to show the permanent fault; thus, helping maintenance crew to review the priorities.

13. Wireless Communication:

Communication via GPRS/MPLS-4G modem. Internal LTE with 2G fallback.
Protocol: IEC 104 or MQTT (JSON). In case of MQTT (JSON) FPI data shall be converted to IEC 104 through FPI device manager
Dual-band: 900 MHz ± 1800 MHz.Dual-band: 900 MHz ± 1800 MHz.

14. Fault Detection Capabilities:

Detects: Phase-to-phase and phase-to-earth faults Voltage interruptions Short-circuit faults up to 40 kA/1s Low earth leakage faults down to 5A. Undercurrent detection Auto-threshold function Trip threshold, di/dt fault's Voltage presence & absence Permanent & Transient Fault Short circuit withstand of 40kA / 1sec
Fault detection based on: Trip Threshold 10A to 1500A Di trigger setting 5 - 160 Amps
Fault confirmation via voltage disappearance within 70ms.

15. Indication & Reset :

Flashing light **a)** 70 Lumen, 360° visibility from at least 100m in sunny day conditions, and at least 500m at night. b) MTBF of the light emitting system at least 45 000 Hours (LEDs for instance). c) Fault Indications
Reset options: Time-out (2–16 hours) MV return Manual reset
Inrush restraint to avoid false fault detection.

16. Installation & Configuration :

Hot stick installation on live lines.
Clamp range: 5–40 mm conductor diameter.
Configuration and diagnostics via standard USB C-Type cable and remote interface
Identification and fault threshold settings configurable.

17. Configuration and maintenance:

Configuration and diagnostics via standard USB C-Type cable and remote interface. It shall include:

a. Scanning and assigning IDs to all FPI/FPS within 100 m radio range for identifying the line and phase.

b. Setting fault detection thresholds and related parameters.

configuring communication settings (PIN, control center/mobile numbers, transmission speed, etc.). FPI/FPS Reset stopping the local light indication flashing.

18. Environmental Condition:

Temperature: -40°C to +75°C
Average Temp: 40°C
Relative humidity: 95 %, ± 3 %; according to IEC 60068-2-30
Wind speed: up to 200 km/hr
Altitude: up to 5000m above MSL

19. Mechanical & Electrical Standards:

Vibration: IEC 60068.2.6
Shock: IEC 60068.8.27 (40g / 6 ms)

EMC Compliance: IEC 1000-4 series (Level 3/4) EN 55011 Class A

20. Additional requirements

Marking:

Each Fault Passage Indicator/ Fault Passage Sensor shall carry a weather and corrosion proof QR code or sticker indicating the following particulars.

- Manufacturer's identification.
- Date & Model or type number (as per catalogue)

20. Type Test:

The following are the Type Test Requirement for the offered Fault Passage Indicators/Fault Passage Sensor. Type Test Report (not more than 5 yrs. old from the date of opening of tender) as per following tests to be submitted in bid documents:

Electromagnetic compatibility

Test	Reference Standard	Test Requirement
Electrostatic discharge test	IEC 62689-1 IEC 61000-4-2 IEC 61326-1 ETSI EN 301 489-1 ETSI EN 301489-17 ETSI EN 301489-19 ETSI EN 301 489-52	Severity class 3 6 kV contact discharge, 8 kV air discharge
Power frequency magnetic field immunity 50 Hz/60 Hz	IEC 62689-1 IEC 61000-4-8 IEC 61326-1	Severity class 4 30 A/m continuous, 300 A/m for 1 s to 3 s
Pulse magnetic field immunity	IEC 62689-1 IEC 61000-4-9	Severity class 4 300 A/m peak value
Radiated emission test	CISPR 32 EN 55032 IEC 61326-1 ETSI EN 301 489-1 ETSI EN 301 489-17 ETSI EN 301489-19 ETSI EN 301 489-52	Class A 30 MHz to 6 GHz
Damped oscillatory magnetic field test	IEC 62689-1 IEC 61000-4-10	Severity class 4 30 A/m peak value Oscillation frequency: 0.1 MHz and 1 MHz
Radio frequency, electromagnetic field immunity	IEC 62689-1 IEC 61000-4-3 IEC 61326-1	Severity class 3 0.08 GHz to 1 GHz 10 V/m, 80% AM 1 kHz, 1% step 1 GHz to 6 GHz 3 V/m, 80% AM 1 kHz, 1% step

Electrical Tests

Test	Reference Standard	Test Requirement
Dielectric withstand	IEC/EN 61010-1	125 kV with the help of hotstick
Overvoltage	IEC/EN 61010-1	Category IV
Degree of pollution	IEC/EN 61010-1	Category 2
Maximum altitude above sea level	IEC/EN 61010-1	5000 m
Short-circuit current/dynamic test	IEC 62689-1 IEEE495	12.5 kA @ 1 s and 31.25 kA peak 25 kA @ 170 ms and 62.5 kA peak 25 kA RMS for 3 s and 62.5 kA peak 31.25 kA RMS for 2 s and 78.125 kA peak 40 kA RMS for 1 s and 100 kA peak
Switching impulse test	IEC 60060-1	250 kV peak
Lightning impulse test	IEC 60060-1	350 kV peak

Environmental Tests:

Test	Reference Standard	Test Requirement
Dry heat test	IEC 62689-1 IEC 60068-2-2	+75°C Duration: 16 h with device turned OFF 16 h with device turned ON
Dry heat test (storage)	IEC 60068-2-2	(+85 ± 2)°C Duration: 16 h
Cold test	IEC 62689-1 IEC 60068-2-1	-40°C Duration:16h with device turned OFF 16 h with device turned ON
Cold test (storage)	IEC 60068-2-1	(-40 ± 2) °C Duration: 16 h
Damp heat steady state test	IEC 60068-2-78	40 °C, (95 ±3)% Duration: 4 days
Damp heat cyclic test (12 h + 12 h)	IEC 60068-2-30	Lower temperature: 25 °C Upper temperature: 55 °C Relative humidity: 95 %, ± 3 % No of cycles: 6 cycles
Change of temperature test	IEC 62689-1 IEC 60068-2-14	(-40 ±2) °C, (+75 ±2) °C Rate of change: (1 ± 0.2) K/min Dwell at upper and lower temperatures 3 h + 3 h 50h 25min OFF +50h 25 min ON
Salt mist test	ASTM B117 IEC 60068-2-11	Salt solution: 95 parts distilled water by weight and 5 parts sodium chloride by weight Duration of exposure: 168 h
Exposure to solar radiation	IEC 62689-1 IEC 60068-2-5	1000 W/m² Duration: 4 h

Test	Reference Standard	Test Requirement
Exposure to direct sunlight (UV)	ASTM G155-13	Exposure cycle 1 Irradiance for wave lengths: 340 nm ($m^2 \cdot nm$) Duration of light: 102 min Total exposure time: 14 days
Wind pressure test		Withstand wind speed of 200 km/h Wind pressure 195 kg/m^2 at 30 m height
Average rainfall test		Average rainfall per year: 3500 mm

Mechanical resistance to vibration and shocks Tests:

Test	Reference Standard	Test Requirement
Vibration response test (sinusoidal)	IEC 62689-1 IEC 60068-2-6	Frequency: 10 Hz to 500 Hz 1g, 10 m/s^2 amplitude 0.075 mm Sweep rate: 1 oct./min Number of sweep cycles: 2 axis in 3 directions
Bump test	IEC 60068-2-27	10 g Duration of pulse: 16 ms Number of axes: 3 (X, Y, and Z) Number of bumps: 1000 per direction Number of directions: 2 per axis Total number of bumps: 6000 shocks in 3 axes
Ingress protection	IEC 62689-1 IEC 60529	IP68
Mechanical impact test	IEC 62689-1 IEC 62262	IK09, Impact energy: 10 J

Safety tests:

Test	Reference Standard	Test Requirement
Product safety test	IEC/EN 61010-1 IEC/EN 62368-1	Testing in single fault condition as per clause 4.4 Conformity after application of fault conditions as per clause 4.4.4.1-b Durability of Markings as per clause 5.3 Determination of accessible parts as per clause 6.2 Mechanical resistance to shock and impact as per clause 8 Enclosure Rigidity Test - static test as per clause 8.2.1 Enclosure Rigidity Test - impact test as per clause 8.2.2 Temperature Measurements as per clause 10 Non-Metallic Enclosure as per clause 10.5.2
Spurious emission test (transmitter unwanted emissions in the spurious	ETSI EN 300 328 ETSI EN 301 511 ETSI EN 301 908	Radiated spurious emissions – mobile station (MS) allocated channel (30 MHz to 1 GHz),1GHZ to

Test	Reference Standard	Test Requirement
domain and receiver spurious emissions)		12.75GHZ Operating frequency range: 2400 MHz to 2480 MHz
Radio frequency human exposure evaluation	IEC 62311	10 MHz to 400 MHz 2 W/m² 400 MHz to 2000 MHz 200 W/m² Above 2 GHz 10 W/m²

RF Certification

- Conforming to RED, CE and WPC norms (As per region regulatory requirements)

21. TRANSPORT OF EQUIPMENT TO SITE. The bidder shall be responsible for the loading, transport, handling and offloading of all equipment and materials from the place of manufacture to site. The bidder shall be responsible for any type of damage during transportation.

22. Training

Before Commissioning & after completion of Erection of the FPI/FPS, the successful bidder shall deliver installation, Operation & Maintenance Training including RF module settings at different site to the personnel as deputed by the awarding authority. The successful bidder shall submit the training schedule to the site authority for MePDCL. The Training should be comprehensive to the satisfaction of the trainees.

The Trainer should cover both theoretical & practical aspects of the modules, operation & maintenance requirements of the modules etc. The trainer shall also exhibit major components of the modules separately for visual clarity of the trainees with better understanding. The successful bidder shall bear every cost required for the Training.

23. Guarantee/Warrantees: All equipment's/materials shall be guaranteed/warrantees complying policy guideline of MePDCL.

24. Documentation:

Each device shall be supplied with a user manual for installation, maintenance and commissioning at site.

GUARANTEED TECHNICAL PARTICULARS FOR COMMUNICABLE OVERHEAD FAULT PASSAGE INDICATOR/FAULT PASSAGE SENSOR

Sl. No.	Application Requirement	Tender Requirement	The offered FPI/FPS should Comply all the Application requirements (Yes/No)
A	**General**		
1	Type	Over Headline Fault Passage Indicator (FPI)/Fault Passage Sensor (FPS)	
2	Master FPI	One FPI (Master FPI))/Fault Passage Sensor (FPS) at the location acts as a gateway, collecting data from other communicable FPIs and transmitting it to the Control Center SCADA.	
3	Gateway Requirement	Pole-mounted gateways are not permitted. The Master FPI shall integrate a 4G LTE CAT 1 modem with 2G GPRS fallback, operate without	

Sl. No.	Application Requirement	Tender Requirement	The offered FPI/FPS should Comply all the Application requirements (Yes/No)
		external power, and harvest energy from the overhead line	
4	SIM Card Slot in Master FPI	In Master FPI SIM Card Slot should be available.	
5	Distribution Network Voltage	6.6kV to 69KV	
6	Power Frequency	50 Hz or 60Hz	
7	Short – circuit withstand	40kA for 1s	
	Total fault-indication time	1500 hours of LED flashing	
8	Grounding Type	Solidly grounded system or resistive star point grounded system.	
9	Cable overall diameter	5 mm to 40 mm (non-insulated) 15 mm to 40 mm (insulated)	
10	License Free Radio Frequency	short-range radio communication	
11	Current measurement accuracy	±5 A up to 20 A ±5% from 20 A to 800 A	
12	Maximum continuous operating current	600 A 800 A up to 50 °C	
B	**Fault detection parameters**		
13	Current setting Trigger value	Trip Threshold range: Auto-threshold, User Configurable 10A to 1500A Di trigger setting: 5 - 160 Amps (User configurable in steps of 5 A till 80A, 120A, 160A)	
14	Transient faults detection	Yes	
15	Auto recloser time	0 s to 300 s (steps of 1 s)	
16	Fault-indication time	1 h, 2 h, 3 h, 4 h, 8 h, 12 h, 16 h	
17	Inrush transient restraint	3s, 30s & 60s	
C	**Reset (Permanent Fault)**		
18	Automatic Power Return	10 A	
19	Timer Reset	1 h, 2 h, 3 h, 4 h, 8 h, 12 h, 16 h	
20	Manual Reset	Yes, Using magnetic adapter	
D	**Fault indication**		
21	Indication	6 red LEDs and/or 6 green LEDs	
22	Light Power	70 Lumens	
23	Visibility Angle Degree	360 Deg (from ground level)	
24	Flash Period for permanent Faults	User selectable 3s, 30s & 60s	

Sl. No.	Application Requirement	Tender Requirement	The offered FPI/FPS should Comply all the Application requirements (Yes/No)
25	Flash Period for transient Faults	Less than 3s	
26	Standard total flash Duration	1500 hours of flashing	
E	**Power Supply**		
27	Battery	Internal Li-Ion Battery (Replaceable) Each battery: 4.1 V, 330 mAh, Energy Harvesting starting from 5A	
28	Life of the Battery Years	>10 years of expected operational life under standard operating temperature of 25 deg C	
F	**Environment**		
29	Operation Temperature	-40°C to +75 °C	
30	Storage Temperature	-40 °C to +85 °C	
31	Protection Level	Polycarbonate UV stabilized; glass filled enclosure, Suitable for outdoor applications (IP68 IK09), conformally coated.	
G	**Mechanical**		
32	Wind Resistance	Wind speed up to 200km/h	
33	Weight		
34	Dimensions		
H	**DCU/Gateway**	Not Applicable (NA) as offered Fault detection systems (FPI's) with embedded / integrated communication interface / hardware (without separate DCU/Gateway) with short-range radio interface	
35	Event storage capacity	For Master FPI Event & operational log storage – at least 100 events capacity, Event/Measurement buffer reporting to SCADA/Cloud: 400	
36	Dimensions (WxHxD)	NA	
37	Net Weight	NA	
I	**Protocols and Security**		
39	Control center	IEC 60870-5-104, DNP 3.0	
40	Security	End to end security Secure engineering Role-based access Secure pairing	

Sl. No.	Application Requirement	Tender Requirement	The offered FPI/FPS should Comply all the Application requirements (Yes/No)
		Secure storage Secure onboarding Signed firmware Secure roll-out Syslog support	

PRICE BID FORMAT TO BE FILLED UP BY THE BIDDER

Sl No	Name of the item	Qnty	Unit	Rate inclusive of F&I	GST rate per unit	Total Amount for Door delivery inclusive of loading, unloading, forward stacking, Freight & Insurance
		(A)		(B)	(C)	(D=B+C)
1	Master FPI/FPS (11 Kv & 33 Kv)	50	Sets			
2	Slave FPI/FPS (11 Kv & 33 Kv)	100	Sets			
3	FPI/FPS (Function Point License Manager)	LS	LS			
4	Installation Commissioning & Training for 10 Sets	10	Sets			
5	Industrial PC	1	Set			
6	Hot Stick	1	Set			
7	Hot Stick Adapter	1	No			
8	Magnetic Reset	1	No			
9	Standard Type USB Type C cable	1	No			

*Industrial PC Specs – Tech 4 U 510-78819” 4U Rack mountable Industrial System 06

Features : Based on intel i7 -14700 x Single CPU Installed. 1 x 16 GB DDR5 Memory, 1 x 1 TB Nvme, 4 x 10/100/100/ mbps LAN Ethernet onboard , 4 x USB, 1 x serial , 1 x VGA, and DVI-D, 1 x Keyboard and optical mouse, 1 x 500 Watts Single Power Supply.