



TECHNICAL SPECIFICATIONS

SUPPLY, COMPREHENSIVE MAINTENANCE, CALIBRATION AND TESTING OF GAS PIPELINE LEAK SURVEYOR

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01	- Inclusion of requirement for Data logging along with GPS coordinates and route tracking - Detailed QAP added - Inclusion of various sensor types to increase	30.09.2026
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1. SCOPE

- 1.1.** Scope of work includes the supply of Gas pipeline leak surveyor (hereinafter referred as leak surveyor).
- 1.2.** The Leak surveyor shall be suitable for leak detection at GI installations, underground natural gas distribution pipelines in societies, main MP line LDT work and pin pointing by bar-holing method. Bidders are advised to visit the site to ascertain actual site application at few GA locations before submitting their Bids.

2. SPECIFICATION OF LEAK SURVEYOR:

	Measurement range	Resolution	Accuracy
Natural gas	0 – 10,000 PPM	10 PPM	± 2% of full scale
	0 – 10% LEL	0.1% LEL	
	10% - 100% LEL	1% LEL	
	0 – 100% Vol Gas	1% Vol Gas	
Mode	The Leak surveyor shall have provision of auto range changing mode as per concentration of natural gas and manual range changing mode as per concentration of natural gas specified above.		
Ambient Temperature range	0 to 50 Deg. C		
Humidity	0 to 95% RH Non-condensing		
Display	Digital display with back light for display of natural gas reading		
Alarms	Audible and visual alarm according to pre-set alarm level		
	The Leak surveyor shall have capability of giving following alarms but not limited to: • Pump failure • Battery low • Calibration error • Sample flow block • Zero fault • Out of range fault		
Keypad	External environmentally sealed		
Flexible hose length	1 to 1.5 m		
Sensor type	Infrared/Electrochemical/Semiconductor/Catalytic/TDLAS		
Pipeline identification	Gas	Device shall be capable to differentiate between pipeline natural gas and other gases	
Response time	Less than 1 minute		
Probe length	0.3 - 0.4 m		
Filter	Sample path shall be protected with provision of replaceable cotton dust/moisture particulate filter and hydrophobic filter to restrict possible entry of any water or dust / solid particles during Gas sampling. The filter must be easily accessible without disassembling the instrument.		
Pump	The Leak surveyor shall have integral pump for sampling. Pump shall have sufficient capacity (0.5 LPM or better) to detect even minor gas concentration / small leakages specially during bar hole leakage testing wherein actual source of leakage may be away from point of gas sampling. The gas leak surveyor shall be able to detect the gas sample from the distance of 3 meters. Another purpose of pump shall be to release accumulated gas after using leak surveyor to clean the gas chamber.		

Shock resistance	Body of the Leak surveyor shall be such that it provides proper shock resistance for day to day rugged use.
Dimensions and Weight	The Leak surveyor shall be light weight and small in size for easy carrying by a person for leak detection. Carrying bag and Shoulder strap shall be provided along with the Leak Surveyor for hands free carrying during sampling of gas.
Battery	The Leak surveyor shall have provision to use rechargeable batteries with minimum 8 hours of continuous operation in pump ON condition in one single charge. Battery shall be charged by simple plug working on 220-240 VAC supply.
Charger	One charger shall be supplied along with each Leak Surveyor. Equipment / charger shall have the facility to indicate whether the equipment is charging or not. Battery strength indicator shall be provided on the equipment.
Calibration	Calibration certificate of standard / calibration gas used with traceability to National / International standards shall be provided along with each supplied Leak Surveyor.
Ingress Protection	IP 54 or better
Certification	The Supplied Leak surveyor shall be intrinsically safe and suitable for use in Zone 1 hazardous location and shall have certification from national / international recognized certification body (Like ATEX/IECx/UL/CSA)
Documentation	One Set of Maintenance, Calibration and Operation manual to be provided with each Leak Surveyor. Additionally, one set of Electronic Copy of the same shall be submitted along with Technical dispatch clearance documents.
Accessories	• Rugged protective housing or carry case with shoulder strap having padded cushion. • Flexible hose and extension probe • One spare set of all required filters • Rechargeable battery along with battery charger • Tool kit for maintenance, instruction manual • Any other accessories (part of OEM's standard accessories set) which is required for basic operation of supplied Leak Surveyor
On site demonstration	On site demonstration of supplied Leak Surveyors by vendor at GEL designated locations shall be in scope of vendor with no extra cost to GEL.
Data logging (GPS coordinates)	Data-logging functionality with in-built GPS coordinate capturing (with +/-10m accuracy) and route tracking Device shall have capability to store leak events with timestamp and GPS co-ordinates. Device shall be able to store minimum 500 logs.
Data transfer	Through cable/Bluetooth/application/software (In case of OEM specific cable/application/software, same shall be provided to GEL at no extra cost)

3. CALIBRATION

- 3.1.** Initially the instrument to be supplied with calibration at the cost of the Bidder.
- 3.2.** Calibration certificate of standard / calibration gas used with traceability to National / International standards shall also be provided along with each supplied Leak Surveyor.

4. DOCUMENTATION

- 4.1.** One Set of Maintenance, Calibration and Operation manual to be provided with each Leak Surveyor. Additionally, one set of Electronic Copy of the same shall be submitted along with Technical dispatch clearance documents.
- 4.2.** On site demonstration of supplied Leak Surveyors by vendor at GEL designated locations shall be in scope

of vendor with no extra cost to GEL.

5. INSPECTION, TESTING AND QUALITY ASSURANCE

- 5.1. Third Party Inspection is in the scope of Gujarat Energy Ltd (GEL).
- 5.2. The Vendor is entirely responsible for the quality of the supplied equipment.
- 5.3. The vendor shall submit the QAP (as enclosed in Technical specifications document) and the data sheet prescribed in this tender to CLIENT's Technical Services department within seven (7) working days of receiving the contract/order (whichever is earlier). No modifications to the tendered technical specifications (data sheet) or the QAP document shall be permitted unless explicitly agreed upon by CLIENT. Queries raised by CLIENT during review of QAP and Data Sheet, if any, shall be resolved by the vendor to complete satisfaction of CLIENT within 7 working days from date of receipt of all queries. No extension in delivery schedule shall be provided in case of delay in QAP and datasheet approval process as stated above for reasons directly attributable to the vendor. Decision taken by CLIENT in the regard shall be final and binding on the Vendor.
- 5.4. Vendor shall perform all tests as specified in CLIENT approved QAP and compliance certificate for the same shall be produced for TPI review.
- 5.5. Prior to dispatch of each lot of material, Vendor shall intimate CLIENT through email at least one (1) week in advance about proposed date and place for carrying out inspection. CLIENT shall depute their TPIA for inspection as per approved Data Sheet and QAP at vendor's premise (in India). Vendor shall extend all required support / provide all supporting documents for review of TPIA as per CLIENT requirement at the time of each inspection.
- 5.6. Technical clearance shall be provided by CLIENT within 7 working days of receipt of all TPI documents post inspection based on which Vendor shall dispatch the materials.
- 5.7. Bidder to ensure adequate planning for completion of above activities while ensuring compliance to the delivery period specified under the contract.

6. MARKING, PACKAGING AND SHIPMENT

- 6.1. Markings must be permanently legible for the product life under standard storage condition, exposure to external weather condition, installation and use.

7. WARRANTY

- 7.1. Warrantee for the equipment shall be 18 months from the date of receipt of goods at GEL's store. Further Warrantee for the Sensors (PPM, LEL and % Vol) shall be 2 Years.
- 7.2. Guarantee/Warrantee Certificate shall be submitted along with Technical dispatch clearance documents

8. FREE AMC PERIOD:

- 8.1. Bidder shall provide free On-site Calibration service as well as repair and comprehensive maintenance services for a period of One year from date of receipt of Leak Surveyors at respective locations
- 8.2. The Leak Surveyor shall be calibrated once every six months for next one year.
- 8.3. Calibration and Testing of Leak Surveyor shall be done using Methane Gas. The traceability of the calibration gas along with the certificate shall be produced for records.
- 8.4. Calibration checks shall be carried out in accordance with relevant national and international standards, whichever is more stringent, and it shall be the responsibility of the OEM / Authorized representative to produce and prove the relevance of the standard to be followed for the calibration.
- 8.5. Calibration and comprehensive maintenance of the Leak Surveyors (Under AMC period) including necessary replacement of spares, consumables free of cost shall be in scope of Bidder. Bidder shall maintain stock of recommended spares at their Office & bring the same to carry out AMC of leak surveyor.
- 8.6. Bidder shall carry out all required checks as part of OEM's routine maintenance, some of the checks are

specifically mentioned here below:

- 8.7.** Check-up of inbuilt battery and replace as necessary.
- 8.8.** Checking of display part of the Leak Surveyor. Checking up of the electronic panel, components and cables for its proper functioning. In case of malfunctioning of the same, it shall be repaired/replaced by the Bidder.
- 8.9.** Checking up of any mechanical components of the Leak Surveyor like flexible tube, dust filter, moisture filter and water trap, flow regulators, pressure regulators etc. shall be checked and if found to have any problem, they shall be repaired / replaced.
- 8.10.** Replacement of any other components / spares, if required.
- 8.11.** The execution of the aforesaid scope of work till completion shall be entirely the Bidder's responsibility and regardless of the number of days spent on site, the execution of the scheduled work in total shall be treated as ONE VISIT ONLY.
- 8.12.** Any other work not mentioned herein, however, required for proper repair, maintenance and smooth functioning of the Leak Surveyor shall be done by Bidder to the satisfaction of GEL with no extra cost to GEL.
- 8.13.** On-call basis/Emergency visit - This shall include any repair service provided on call of breakdown from GEL other than the scheduled maintenance. The spares for the same are to be provided by the Bidders without any extra cost implication to GEL.
- 8.14.** The Bidder shall carry out any modification and up gradation of the Leak Surveyor components (if required) after apprising GEL of the same and with due written permission from GEL to do so. Post modification / up gradation, the Bidder shall demonstrate the proper functioning of Leak Surveyor unit to the satisfaction of GEL personnel.
- 8.15.** Free service period will be one year from the date of supply. All spares consumables required during the AMC period shall be borne by Bidder.
- 8.16.** Bidder shall provide all relevant services at GEL designated locations. If calibration / other maintenance services are undertaken at Bidder's workshop, then to and fro packaging, freight charges, insurance etc. shall be borne by the Bidder. No other cost shall be paid by GEL. Vendor shall arrange the same on their own.

9. AMC PERIOD:

- 9.1.** After Free AMC period (i.e Warranty period), bidder shall provide Annual Maintenance services as per the details provided in the SOR.
- 9.2.** Scope of annual maintenance and calibration shall be exactly same as specified under "Free AMC Period" section.

10. QAP FOR LEAK SURVEYOR

(On issuance of Contract, vendor shall furnish compliance of this QAP)

SN	Parameter	Characteristics	Acceptance Criteria	Manufacturer's Testing		TPIA Scope of Testing – Witness/Review		Scope	
				Extent of Check	Records	Extent of Check	Records	Manufacturer / Supplier	TPIA
1.1	Visual	Display	GEL Approved Data Sheet	100%	CCM*	As Per Annexure-A	Witness report	P	W
1.2		Dimensions	GEL Approved Data Sheet	100%	CCM*	As Per Annexure-A	Witness report	P	W
1.3		Weight	GEL Approved Data Sheet	100%	CCM*	As Per Annexure-A	Witness report	P	W
2.1	Functional test	Gas Sampling through Inbuilt Pump Verify that gas detector is able to detect the gas sample from the distance of 3 meters	Applied concentration is displayed by the detector.	100%	CCM*	As Per Annexure-A	Witness report	P	W
2.2		Data Logging Function with in-built GPS coordinate capturing and route tracking	Able to download the Data log Report from the detector. • Leak events are stored with timestamp and GPS co-ordinates • GPS accuracy - (+/- 10m) • Route is tracked in the downloaded data	100%	CCM*	As Per Annexure-A	Copy of downloaded data	P	W
2.3		Alarms Audio & Visual Alarms	GEL approved datasheet	100%	CCM*	As Per Annexure-A	CCT*	P	W

					(Internal Test Report)				
2.5		Resolution Connect a sample gas mixture to the detector. Gradually release the gas sample and observe the detector's response. Record the displayed readings at regular intervals to monitor how they increment over time.	GEL approved datasheet	100%	CCM*	As Per Annexure -A	CCT*	P	W
2.6		Warm up time Note down the time taken by detector to reach to a stable baseline reading after power is turned ON	GEL approved datasheet	100%	CCM*	As Per Annexure -A	CCT*	P	W
2.7		Response Time Note down the time taken by detector to display reading after the gas sample is applied.	GEL approved datasheet	100%	CCM*	As Per Annexure -A	CCT*	P	W
2.8		Accuracy Apply sample Gas mixture to the detector. Note down the reading shown on the detector display.	GEL approved datasheet	100%	CCM*	As Per Annexure -A	CCT*	P	W
2.9		Capability to differentiate between pipeline natural gas and other gases	GEL approved datasheet	100%	CCM*	As Per Annexure -A	CCT*	P	W

3.1	Certification	ATEX Certificate	Certificate should be valid at the time of TPI inspection	-	-	100%	CCT*	P	R
3.2		Ingress Protection Certificate	Certificate should be valid at the time of TPI inspection	-	-	100%	CCT*	P	R
3.3		Manufacturer's records for internal inspection as per test requirements above	CCM*	-	-	100%	CCT*	-	R

Legends:

1. CCM - Compliance certificate by Manufacturer
2. CCT - Compliance certificate by TPI
3. P - Perform
4. W – Witness
5. R – Review

Single Sampling Plan with 1% AQL Normal Inspection- Level 1 (AS per IS 2500)

Sl. No.	Lot Size	Sample Size	Acceptance Nos.	Rejection Nos.
1	2 to 8	2	0	1
2	9 to 15	2	0	1
3	16 to 25	3	0	1
4	26 to 50	5	0	1
5	51 to 90	5	0	1
6	91 to 150	8	0	1
7	151 to 280	13	0	1
