



TECHNICAL SPECIFICATION FOR GAS DETECTION COMPONENTS

Owner : M/s Indian Oil Corporation Limited (IOCL) – Paradip Refinery

Consultant/PMC : M/s TECHNIP ENERGIES LIMITED

Purchaser / LSTK Contractor : M/s Bharat Heavy Electricals Limited (BHEL)

Engineering Sub-Contractor : M/s Engineers India Limited (EIL)

Site : Paradip Refinery, Paradip, Odisha, India

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Revisions:
Refer to record of
revisions

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Date :

07.04.2022



PRODUCT STANDARD
PROJECT ENGINEERING & SYSTEMS DIVISION
HYDERABAD

Std. / Doc. Number	
PY 51818	
Rev. No.	00
Sheet 2 of 8	

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1.0 SCOPE

This technical specification covers the Design, Engineering, Manufacturing, Assembly, testing at vendor works, inspection by purchaser, packing and transportation to site with necessary documentation like data sheets, statutory approvals, O&M manuals etc., as required and supervision of Erection, commissioning of Gas Detection System Components.

2.0 PROVEN TRACK RECORD

The items being offered as per specification should be operating satisfactorily in captive power plant applications / hydrocarbon industries like Refinery, Petrochemical and gas processing plants under similar process conditions for at least 8000 Hours within duration of 5 years. The above criteria shall be applicable to main equipment, sub-components as well as bought out items if any.

Items with prototype designs or items not meeting provenness criteria specified above shall not be considered by bidder.

Fire & Gas detectors, portable gas detectors and its accessories not having proven references in similar applications shall not be acceptable.

Vendor shall submit necessary supporting documents / past users confirmation supporting to above PTR requirements along with technical offer / during order execution.

3.0 INSTRUCTIONS TO BIDDERS

- 3.1 Bidders are advised to contact BHEL for essential technical queries in writing within one week of issue of Enquiry. Offers with incomplete information will not be considered for evaluation, and are likely to be rejected outright without any further interaction with the Bidder.
- 3.2 Unsolicited requests from bidders for alterations to their already submitted offer will not be entertained. These would not be taken cognizance, and offers will be evaluated without taking into account such requests/correspondence.
- 3.3 Any technical features over & above BHEL enquiry specification requirements proposed by Bidder will not be given preference for the purpose of evaluation.
- 3.4 Bidders are advised to comply to specifications in total, unless the requirement is not feasible. **In case feasible deviations are proposed by the bidder and subsequently withdrawn, no commercial implications can be claimed by the bidder.**
- 3.5 In the event of any conflict between these specifications, data sheets, related standards, codes etc. the vendor shall refer the matter to the purchaser for clarifications and only after obtaining the same shall proceed with the manufacture of the items in question.
- 3.6 Bidder shall submit duly filled deviation format given in elsewhere in this specification.

4.0 List of Annexures (To followed along with this specification)

Document No.	Document Name
Annexure – [A]	Price bid format
Annexure – [B]	B366-999-YD-MR-2650 Rev.A – Specification for Gas Detection Systems
Annexure – [C]	Vendor list
Annexure – [D]	Quality Requirements
Annexure – [E]	Installation drawing for Gas Detection System Components

5.0 STANDARDS: As per annexure-[B] of this specification.



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- 6.0 TECHNICAL REQUIREMENTS: As per annexure-[B] of this specification.
- 7.0 Gas Detection System Components BOM and Price format: As per Annexure-[A] of this specification.
- 8.0 SUPERVISION OF ERECTION & COMMISSIONING:
 - 8.1 Vendor shall provide supervision of Erection & commissioning services as per "[Annexure-\[A\] of this specification](#)".
 - 8.2 If it is in vendor scope, following shall be the scope of work:
 - a) Services charges shall include the travel to & fro travel from vendors work to site, lodging, boarding & local travel. Vendors shall arrange their own lodging, boarding & traveling.
 - b) Vendors shall arrange their own Test equipment's, commissioning tools, manpower etc as required.
 - 8.3 Number of man days and number of visits as specified in the "[Annexure-\[A\] of this specification](#)" shall be considered. However, either or both of the number of man days or no of visits may increase / decrease based on the actual site requirement.
 - 8.4 Bidder to mobilize concerned competent person for supervision of Erection & commissioning activities within a period of 7 working days of receipt of intimation in this regard from BHEL.
 - 8.5 **Above services shall be ordered by BHEL Site at the time of commissioning.** However, vendor shall submit the price offer for services as per "[Annexure-\[A\] of this specification](#)" and same shall be considered for L1 evaluation.
- 9.0 Mandatary spares: As per enquiry & Annexure-[A] of this specification.
- 10.0 Training: As per Annexure-[A] & Annexure-[B] of this specification.
- 11.0 DOCUMENTATION
 - Note: All drawings/documents shall be prepared on computer and prints taken on laser printer. Drawing / document size shall be preferably limited to 'A4' size.**
 - 10.1 Information to be included with Offer:
 - Vendor shall make the offer in detail, with respect to every item of the Purchaser's specifications. Any offer not conforming to this shall be summarily rejected.
 - a) Bill of material
 - b) Copy of BHEL specification duly stamped & signed by vendor as a total compliance
 - c) Technical catalogue.
 - d) Proven Track record and reference list
 - e) Unpriced price schedule (To be submitted compulsorily without fail)
 - f) Deviation list, if any (to mention nil – if not applicable).
 - g) Duly filled & signed copy of checklist
 - 10.2 Documentation submission within 2 weeks of placement of LOI (for approval by BHEL and / or BHEL's customer in 4 sets)
 - a) Consolidated BOM sheet along with accessories of instruments, finalized make /models of instruments, etc for approval.
 - b) Detail GA drawings
 - c) Type tests, statutory certificates
 - d) Comprehensive Quality Assurance plan (QAP).
 - e) Filled – up technical data sheets for each instrument along with applicable tag list.



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Notes:

- a) BHEL Shall provide the following inputs to vendor immediately (within 7 days) after placement P.O. / LOI:
1. Typical cover page along with document title, document numbers, Logos, etc. This is to be used for all instruments with necessary modification for each variety of instrument.
- b) Following points to be noted while submitting drgs & data sheets for approval:
1. Each instrument data sheet to be submitted along with cover page & tag list.
 2. All extra quantities to be marked as "C.spare (commissioning spares)".
 3. All data sheets & drgs to be submitted in soft copy first and once it is cleared for manufacturing, then same shall be submitted in spiral hard copies for formal approval. Do not submit drgs/data sheets in loose papers as well as in bits & pieces for approval.
 4. All vendor documents of instruments covered in this specification and its sub-items shall be submitted to Engg consultant / Customer / Consultant for approval during order execution (if applicable). Any comment furnished by Engg consultant / Customer / Consultant / BHEL shall be taken care by vendor during ordering execution.
 5. Further BHEL will provide comments on vendor submitted document within 14 working days for revision & resubmission. Vendor shall follow up with BHEL for non-receipt of comments/approvals.
 6. Revised drawings / Documents shall be submitted by Bidder in 07 days of receipt of comments / observations from BHEL. BHEL shall revert within 14 days on receipt of these revised documents / drawings from vendor for approvals.
 7. **All the approvals required for manufacturing shall be completed within 2 months from P.O to meet the P.O delivery schedule.** Accordingly, vendor shall ensure the submission of approval category documents (which are required for manufacturing) and obtain their approvals.
 8. Vendor shall obtain final approvals on all technical + quality aspect documents before inspection dates.
 9. It is vendor's responsibility to obtain approvals from BHEL as earliest as possible to meet PO delivery schedules. Accordingly, vendor to plan and execute the supplies in time.

10.3 Documents to be submitted during final shop testing & before equipment dispatch. (16 sets)

(Note: 2 sets to be included with item dispatch and balance to BHEL purchase department and **submission of these documents is commercially linked**)

- a) All documents approved by BHEL.
- b) Complete O&M manual - 2 sets to be included with item dispatch and balance to BHEL purchase department).
- c) Material test certificates. In case of pipes made from plates, Test certificates as per pipe standard ANSI B36.10 shall be submitted with plate material
- d) Inspection report
- e) Guarantee and all test certificates for review and acceptance by BHEL and/or BHEL's customer.
- f) As shipped documents.
- g) As built documents.

3 sets of CD-ROM – containing **O&M manual and Engineering documents** (1 set to be included with item dispatch and balance to BHEL purchase department).

All documents shall be addressed to BHEL- Purchase section.

12.0 INSPECTION AND TESTING: As per annexure-[B] of this specification.

13.0 PACKING & DISPATCH

12.1 All items shall be marked (stamped/etched) in accordance with the applicable code/standard/specification. In addition, the item code, if available, shall also be marked.

12.2 For ease of identification, the color of painted strip (wherever required) shall be as per the applicable standard.



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- 12.3 Part number/Dispatch link-up of all the equipment's/items supplied and also their co-relation with system/drawing/approved BOQ.
- 12.4 Paint or ink for marking shall not contain any harmful metal or metal salts which can cause corrosive attack either ordinarily or in service. Special items/smaller items shall have attached corrosion resistant tag providing salient features.
- 12.5 The equipment shall be transported to site by the vendor in fully assembled condition. However, in case some components are liable to be damaged during transit, the same shall be dismantled and supplied separately, to be reassembled at site by the vendor. Assembly of the item supplied loose at site and repairing of any item damaged during transport shall be in the vendor's scope. The vendor shall send each consignment to site with a detailed packing list.
- 12.6 All the equipment shall be divided into several sections for protection and ease of handling during transportation. The equipment shall be properly packed for transportation by ship/rail or trailer. The equipment shall be wrapped in polythene sheets before being placed in wooden crates/cases to prevent damage to the finish. Wooden Crates/cases shall have skid bottom for handling.
- 12.7 Special notations such as 'Fragile', 'This side up', 'Center of gravity', 'Weight', 'Owner's particulars', 'PO Nos.' etc. shall be clearly marked on the package together with other details as per purchaser order.
- 12.8 The equipment/items may be stored outdoors for long periods before installation. The packing shall be completely suitable for outdoor storage in areas with heavy rains/high ambient temperature, unless otherwise agreed.
- 12.9 The following minimum packing procedures shall be followed: -
- a) All items shall be dry, clean and free from moisture, dirt and loose foreign material of all kinds.
 - b) All items shall be protected from rust, corrosion, and mechanical damage during transportation and handling.
 - c) Each variety and size of item shall be supplied in separate packaging marked with the purchase order no., item code (if available), and the salient specifications.
 - d) All electrical, instrumentation etc., shall be properly packed to prevent damage during transport, storage, handling at site.
 - e) All the items which the Bidders considered liable to be damaged during shipment or storage, shall be packaged for separate shipment. If instruments are removed from the panel, they and their connection shall be suitably tagged to ensure simple re installation at the job site. Each instrument shall be sealed in plastic bags containing moisture absorbing desiccants
 - f) It shall be bidder's sole responsibility to protect all the material during period of dispatch, storage and erection against corrosion, incidental damage due to vermin, sunlight, rain, high temperature, humid atmosphere, rough handling in transit and including delays in transit.
 - g) Mandatory Spare parts shall be packaged separately and clearly marked as 'Mandatory Spares'.
 - h) Commissioning spares, Tools & tackles to be packed separately & suitably tagged.
- 12.10 If mandatory spare items are ordered, same shall be sent in pre-decided lots in wooden containers /secure boxes distinctly marked in GREEN color with boldly written "S" mark on each face of the wooden containers /secure boxes
- 12.11 Loose vendor items sent by vendor to sites shall be quantified/numbered/tagged and not merely mentioned as ONE lot of loose items.
- 12.12 A packing list covering items having shelf life are to be intimated to site. Also, shelf life items shall be packed separately in black color painted box for easy identification at site.
- 12.13 In case of imported/exported items, seaworthy packing shall be done as per specification no: **AA0490004** (latest revision) and the type of packing applicable for wedge flow element is "CQ". This specification shall be obtained by vendor on request.

14.0 DEFECT LIABILITY PERIOD/WARRANTY:

The Defect Liability Period / warranty shall be as per commercial terms & conditions of the NIT.



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CHECK LIST

(To be filled by BIDDER and submitted along with Technical offer is compulsorily)

Vendor shall submit the following documents mandatorily as part of COMPLETE technical offer.

Enquiry No. / Date :

Name of the Bidder :

Project Name :

Item Description :

S. No	Document	Bidder confirmation (Yes/No)	Remarks
1	<ul style="list-style-type: none"> - Technical offer complies with the specifications and its associated annexures, pre-bid clarifications in Toto and there are no technical deviations. - Signed and stamped copy of this specification along with annexures enclosed along with technical offer. 		
2	<ul style="list-style-type: none"> - In case of deviation, vendor to confirm that these are technically not feasible deviations and same are submitted in BHEL format. - In case technically feasible deviations are proposed by the bidder and subsequently withdrawn, <u>no commercial implications can be claimed by the bidder</u> 		
3	<ul style="list-style-type: none"> - All items are manufactured conforming to latest version of material grade standard and manufacturing standard mentioned in this specifications 		
4	<ul style="list-style-type: none"> - Bidder to quote as per BHEL price format only. No other format is acceptable. - Bidder to attach un-priced price bid format by indicating "QUOTED" against each item and submit with technical offer duly signed & stamped. 		
5	<ul style="list-style-type: none"> - For addition/reduction of quantity, unit rate quoted in the present offer (Section-3 of Annexure-[A]) shall be considered during ordering and shall be valid up to execution of the contract to the extent of + 10% and -30% of order Value. 		
6	<ul style="list-style-type: none"> - Bidder to agree that Bill of materials / list of equipment furnished in the offer is only for information; Vendor shall supply all the material to meet the performance, sizing & technical requirement as per specification & its Annexures, scope matrix etc. 		
7	<ul style="list-style-type: none"> - All the equipments / items / etc., supplied by bidder are having valid statutory approval certificates and same will be produced at any stage of contract execution to BHEL. The same were eligible to take local statutory regulatory body approval during commissioning of the system 		
8	<ul style="list-style-type: none"> - Confirm that the quote includes commissioning spares, special tool & tackles, mounting hardware/ accessories, terminations, etc. as required for commissioning activities. 		

(Bidder's Signature and stamp with date)



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DEVIATION FORMAT

Enquiry No.:**Item:****Name of Bidder:****Offer Ref. No.:**

Sl. No.	Clause no. & Spec. no.	Description as per Specification	Deviation taken	Nature of Deviation	Remarks

NOTES:

1. Technical offer of the bidder will be evaluated only on the basis of Deviation Schedule. Deviation Schedule constitutes this sheet (with these Notes) duly signed and stamped.
2. Deviations, if any, shall be clearly brought out only in this format. Deviations mentioned / taken elsewhere or in any other format will be ignored.
3. Additional sheets in the same format can be attached by the vendor, if necessary.
4. Nature of Deviations shall only be of Design / Manufacturing constraints and non-availability of items / components / makes in market.
5. No price implications shall be entertained for deviations withdrawn during the technical scrutiny. If any deviations are accepted by BHEL during technical scrutiny, then also there will be no price implication. Hence, in no case there will be consideration of Price implications.
6. Reasons for the deviations shall be specified in the Remarks column.
7. If there are no deviations from the specifications, bidder still has to submit the Deviation Schedule by writing "NO Deviations" in this format.
8. If the "Deviation Schedule" is not submitted along with the offer, the bidder's offer is likely to be rejected without any further interaction with the bidder.
9. Only the accepted deviations in conjunction with the original tender shall constitute the contract document for the award of job to the bidder.

SIGNATURE
OF BIDDER

NAME

DESIGNATION

COMPANY SEAL

DATE

PROJECT:
STANDBY SRU (525 TPD)

ANNEXURE-[A] TO PY 51818

CUSTOMER:
IOCL, PARADIP

Rev No. 00

BHEL ENQUIRY NO.:

PRICE OFFER NO.:

BIDDER:

DATE:

(SECTION-1) PRICE SCHEDULE for (Gas Detection Components)

SECTION - 1: Common Notes

- This document details the price schedule for the enquiry. Bidder shall fill up in this format only. No other format will be entertained.
- 1 No cognizance will be taken of any changes made by vendor with respect to format issued by BHEL in the description of any item in price format.
 - 2a Duly signed & stamped unpriced price schedule format shall be submitted by vendor as a token of their concurrence that the price schedule is submitted in this format. If not submitted in this format or any field is left blank, the offer will be liable for rejection.
- All the blank fields shall be filled irrespective of applicability of any item for this Project. If any item is not in bidder's manufacturing range or not available in market (for bought-outs) then "Not Applicable/ NA" shall be mentioned in the field. If the bidder mentions "Not Applicable/ NA" against any item and if need arises during order execution for such item, then the same shall be supplied free of cost. If any item is left unfilled, it shall be deemed that the price is included in any of the other quoted items/ package and hence, price will be considered as zero for evaluation/ additions. Also, for such items, unit rates for deletions will be at the discretion of BHEL.
- 2b
 - 3 Vendor shall fill up prices of various items and submit to BHEL in separate sealed cover as commercial offer. All prices shall be submitted as ex-works. Applicable taxes and duties shall also be indicated separately.
 - 4 The format contains FOUR sections:
 - 4a Section-1: Common Notes
 - 4b Section-2: Price Schedule for Main Equipment for Gas Detection Components
 - 4c Section-3: Bill of Material (BOM)
 - 4d Section-4: Price Schedule for the Recommended Spares of Gas Detection Components
 - 5 Tender evaluation priority / criteria shall be as per the Landed cost to BHEL based on Grand Total in Section-2. However, in case of any mis-match in values quoted by the bidder, final decision will be at the discretion of BHEL. Price quoted in Section-4 (Price Schedule for the Recommended Spares of Gas Detection Components) shall not be considered for evaluation.
 - 6 For addition/ reduction of quantity, unit rate (Section-3) quoted in the present offer shall be considered during ordering and shall be valid up to execution of the contract to the extent of +10% and -30% of order Value. These would include the cost up to engineering, installation of the item, wiring up in the panel and seamless integration with main system at works/ site without any cost implications. All accessories required for this purpose shall be included in the price quoted.
 - 7 Unit rates of components (Section-3) would be used for effecting required additions/ deletions of main equipment during order execution. These would include the cost up to engineering, installation of the item, wiring up in the panel and seamless integration with main system at works/ site without any cost implications. All accessories required for this purpose shall be included in the price quoted.
 - 8 Components/ Items/ Spares shall be identical to the main equipment.
 - 9 Billing & Payments will be as per final approved BOM.
 - 10 All rates of Section-2 and Section-3 shall be valid up to execution of the contract and handing over to end user.
 - 11 BHEL reserves the right to order part quantity or short close if any item/ main equipment is not needed during execution.
 - 12 Under Price Format Section-4, bidder to provide list of 2-Years Recommended O&M spares for Gas Detection Components along with unit price of each item. BHEL reserves the right to order full/ partial quantity of the Recommended O & M Spares along with the main equipment or separately or not at all. The Price shall be valid until expiry of warranty period.

PROJECT: STANDBY SRU (525 TPD)	ANNEXURE-[A] TO PY 51818
CUSTOMER: IOCL, PARADIP	Rev No. 00
BHEL ENQUIRY NO.:	PRICE OFFER NO.:
BIDDER:	DATE:

(SECTION-2)
PRICE SCHEDULE for
(Gas Detection Components)

S/N	ITEM	Material Code	Total QTY	Units	UNIT PRICE INCLUDING P&F	TOTAL PRICE INCLUDING P&F	REMARKS	% Weightage
1	Supply of Gas Detection Components with Mounting/ Erection material	PY9751818010	1	SET			Refer BOM (Section-3) and Annexure [B] for details	70.51%
2	Mandatory Spares of Gas Detection Components with Mounting/ Erection material	PY9751818028	1	SET			Refer BOM (Section-3) and Annexure [B] for details	26.74%
3	Training at OEM's works	PY9751818052	1	SET			Refer Annexure [B]	0.38%
4	Training at Site	PY9751818060	1	SET			Refer Annexure [B]	0.38%
5	SERVICES for ERECTION SUPERVISION, TESTING & COMMISSIONING BY OEM AT SITE [Unit Rate = Per man day charges]	PY9751818036	14	Days				1.64%
6	SERVICES for ERECTION SUPERVISION, TESTING, CALIBRATION & COMMISSIONING BY OEM AT SITE per visit rate [Unit rate = per visit travel expenses]	PY9751818044	2	Visits				0.36%

GRAND TOTAL (FOR L1 EVALUATION) ::



Note 1 Unit means 1 No. or 1 Set or 1 Visit or 1 Day. Accordingly Unit Prices shall be quoted.

Note 2 The total supervision of Erection & Commissioning charges [Lump-sum] should be maximum 2 % of total supply items [(1) of price format]. If bidder failed to do the same, BHEL will adjust and issue the PO / LOI accordingly. If service charges for the job by bidder going beyond the above limit, then the same shall be absorbed by Bidder and complete the job without commercial & time implications.

Note 3 This includes the price of Commissioning Spares, consumables, O&M Manuals, As-Manufactured Drawings, As-Built Drawings, Lugs and Glands for the entire Manual Call Points

Note 4 Bidder to complete the supervision of Erection and Commissioning activities [Lump-sum] quoted prices for the offered system. Over and above, any new requirement / scope provided by end user / purchaser / consultant then it needs to be executed only after written certification from all the parties prior to work and after completion of work.

Signature & Seal of Bidder:
Date:

PROJECT: STANDBY SRU (525 TPD)	ANNEXURE-[A] TO PY 51818
CUSTOMER: IOCL, PARADIP	Rev No. 00
BHEL ENQUIRY NO.:	PRICE OFFER NO.:
BIDDER:	DATE:

(SECTION-3)
BOM and Unit Price for Gas Detection Components

S/N	ITEM	Material Code	Total QTY	Units	UNIT PRICE Rs)	REMARKS
1	Supply of Gas Detection Components with Mounting/ Erection material	PY9751818010				
a.	Hooter		2	No's		
b.	Stroboscopic Beacon -RED		2	No's		
c.	Stroboscopic Beacon -YELLOW		2	No's		
d.	Stroboscopic Beacon -BLUE		2	No's		
e.	HydroCarbon (HC) Open Path Detector		2	No's		
f.	Alignment Kit for HydroCarbon (HC) Open Path Detector		1	No's		
g.	H2S Gas Detector		18	No's		
h.	SO2 Gas Detector		5	No's		
i.	NH3 Gas Detector		1	No's		
j.	HC Gas Detector		2	No's		
k.	H2S Gas Detector for HVAC duct		1	No's		
l.	HC Gas Detector for HVAC duct		1	No's		
m.	Fire Detector		8	No's		
n.	MultiGas Portable Detector		2	No's		
o.	Calibration Gas Cylinder for H2S Gas Detector		1	SET		
p.	Calibration Gas Cylinder for SO2 Gas Detector		1	SET		
q.	Calibration Gas Cylinder for NH3 Gas Detector		1	SET		
r.	Calibration Gas Cylinder for HC Gas Detector		1	SET		
2	Mandatory Spares of Gas Detection Components with Mounting/ Erection material	PY9751818028				
a.	Hooter		10% (subject to a minimum of 1) for each type	No's		
b.	Stroboscopic Beacon -RED		10% (subject to a minimum of 1) for each type	No's		
c.	Stroboscopic Beacon -YELLOW		10% (subject to a minimum of 1) for each type	No's		
d.	Stroboscopic Beacon -BLUE		10% (subject to a minimum of 1) for each type	No's		
e.	HydroCarbon (HC) Open Path Detector		* Sensors: 20% or minimum 2sets of each type * Electronic cards, modules, display: 10% or minimum 1 set of each type used.	No's		
g.	H2S Gas Detector		* Sensors: 20% or minimum 2sets of each type * Electronic cards, modules, display: 10% or minimum 1 set of each type used.	No's		
h.	SO2 Gas Detector		* Sensors: 20% or minimum 2sets of each type * Electronic cards, modules, display: 10% or minimum 1 set of each type used.	No's		
i.	NH3 Gas Detector		* Sensors: 20% or minimum 2sets of each type * Electronic cards, modules, display: 10% or minimum 1 set of each type used.	No's		
j.	HC Gas Detector		* Sensors: 20% or minimum 2sets of each type * Electronic cards, modules, display: 10% or minimum 1 set of each type used.	No's		

In case sensor or Electronic cards, modules, display is not available as spare, then complete detector shall be considered as spare

S/N	ITEM	Material Code	Quantity	UoM	UNIT PRICE (B-1)	REMARKS
k.	H2S Gas Detector for HVAC duct		* Sensors: 20% or minimum 2sets of each type * Electronic cards, modules, display: 10% or minimum 1 set of each type used.	No's		
l.	HC Gas Detector for HVAC duct		* Sensors: 20% or minimum 2sets of each type * Electronic cards, modules, display: 10% or minimum 1 set of each type used.	No's		
m.	Fire Detector		* Sensors: 20% or minimum 2sets of each type * Electronic cards, modules, display: 10% or minimum 1 set of each type used.	No's		
n.	MultiGas Portable Detector		* Sensors: 20% or minimum 2sets of each type * Electronic cards, modules, display: 10% or minimum 1 set of each type used.	No's		

