# Section 7. Technical Specifications

**Supply, Installation, Testing and Commissioning of Gas Detection System for Gas Station**

**of Unit-3, 4 & 5 of APSCL.**

The Goods and Related Services shall comply with following Technical Specifications:

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| **Item No** | **Name of Item or Related Service** | **Technical Specification and Standards** |
| **1** | **2** | **3** |
| GOODS: | | |
| 01. | **Gas Detector**  Model: SENSEPOINT XCD or equivalent  **Detection Range:** 0 – 100% LEL (User Programmable with a step of 10% LEL); MOC - SS; Calibrated by Methane. **Measuring type:** IR type. **Display:** LCD alphanumeric display with traffic like signal, green for normal, Yellow for fault and red for alarm indication. **Signal Check:** Transmitter should have the feature of Checking the mA & Relays operation without applying gas through force current function to check the Controller inputs & hooter functioning. **Transmitter type:** 3 Wire 4-20 mA output, Alpha Numeric LCD display with Status indication for normal, fault and alarm condition. **Pressure Normal kPa:** 90-110kPa, **Temp. Normal:** 0 to +65●C  **Detectable gas:** Combustible gas. **Measuring range:** Combustible Gas : 0~10,000ppm / 0~100% LEL / 0~100% VOL , CO2 : 1.0% ~ 100% VOL , CO : 5% ~ 100% VOL,  **Response Time :** T 90 <40 sec (For CH4) **Accuracy** : ° 1.5% LEL,  **Zero Drift** : Less than 2% full scale. **Operating Humidity :** Continuous 20-90%RH (non-condensing), Intermittent 0-99%RH (non-condensing) HART ¬Interface, **Relay contact**: 3 x 5A@250V AC. energised/de-energised (programmable) Alarm relays default normally open/de-energised. Fault relay default normally open/energized. **Area classification & Approval:** Hazardous Zone 1 Group II C, T6 , ATEX Approved : EEX d IIC T6, IP 66. **Calibration Work:** Calibration with gas. **Conduit Connection**: 2 x 20MM conduit entries, includes nylon weather Protection. **Output:** 4 - 20 mA and Modbus output. **Power:** 16 to 32VDC (24VDC nominal), 3.7 W  Manufacturer: Honeywell or equivalent. Country of origin: G7/EU/Korea. | |
| 02. | **Fittings for Mounting**  Model: XCD  Material: SS 316.  Manufacturer: Honeywell or equivalent  Country of origin: G7/EU/Korea. | |

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| 03. | **Gas Detector(Hydro carbon Analyser)**  Model: XNX-AMSV-MNIV1 or equivalent  XNX transmitter with HART¬ over 4-20mA output, ATEX/IEC approved 5 x M25 entries, painted 316 stainless steel, mV version, Modbus options, no local HART, Including MPD sensor. IR sensor 0-100%LEL. With sampling unit, Aspiration system complete with filters, pump, regulator, tubing and cooling arrangement. Remote Type for Condenser Pipe Line; **Sensor type:** IR CH4, **Measuring range:** IR 0 -100% LEL or 0-5% Methane. **Measuring resolution:** 10% LEL. **Accuracy:** +/- 1% Full Scale, MOC – SS; **Response Time:** T 90 < 30 sec (For CH4) **Over range indication:** Continuously display gas concentration up to 110 % LEL.Above 110 % LEL, display “OVER” with flickering. **Calibration level**: User selectable 20 % LEL ~70 % LEL in 10 % LEL increments, **Operating Temperature:** -40●C to +65●C (-40●F to +149●F). **Material:** Housing: 5-coat marine finish painted aluminium alloy or 316 stainless steel. **Operating Pressure:** 90-110kPa  **Operating Humidity:** 0-99%RH (non condensing) Power: 18-32V DC, Max- 9.7 Watt. Output: 4-20 mA. **Approvals:** **Hazardous Area Standards**: EN 50014, EN50019, EN50028, or EN50270:2006, EN61000-6-4:2007  **Code of protection:** Ex d IIC T6 (-20 to 600C), **IP Rating**: IP66 in accordance with EN60529:1992. NEMA 4X. **Application**: Analytics local or remote gas detectors for the detection of flammable, toxic and Oxygen gas hazards.  Manufacturer: Honeywell or equivalent. Country of origin: G7/EU/Korea. |
| 04. | **HMI with Remote I/O Panel.** Model: DP156N or equivalent. 15.6 inch panel computer for panel mounting consists of a touch screen monitor with an integrated PC. The PC comes pre-installed with Windows 10. Includes Controller, IP switch, Encloser with all necessary accessories. **Screen size**: 15.6”,  **Resolution:** 1366 x 768 **Brightness:** 400 cd/m2 , **Picture contrast ratio**: 400:1, **Number of colours**: 262 K, **Backlight**: LED **CPU type**: Intel¬ Atom№ E3845 (2M Cache, 1.91 GHz), **SSD storage space**: 64 GB, **RAM**: 4 GB, DDR3L on-board, **Ports**: 4 x COM ports (RS232), 4 x USB ports, 2 x LAN ports (Intel GbE) **VGA port:** Yes, **Audio**: Line in/Mic **out Operating. temperature:** -20...600C **Relative operating humidity:** 5...90 % at 390C, non-condensing, **Protection class:** IP65, **Material:** Front panel in plastics and aluminum, **Mounting:** Cabinet mounting (screws included), VESA 75 / 100 (ordered separately), **Supply voltage**: Power supply unit for 24 V DC (2.5 A) included upon delivery. **Measurement accuracy:** ° 0.3% FS, °1 digit, **Temperature fluctuation:**  ° 0.3% FS/100C. **Input sampling cycle:** 200 ms. **Input impedance:** 250™. **Output:** SPST contact per channel (4 nos. per module)  **Contact capacity:** 230V AC/ 30V DC, 3 A (Resistive load) & 1 A (Inductive load)  **Communication distance** :1 Km (38.4 KBPS or less), 250 Mtrs. (115 KBPS)  **Recommended cable:** KPEV-SB 0.52 or equivalent. **Vibration**: 10 to 70 Hz, 9.8 m/s2 (1G) or less, **Input type**: 4-20 mA DC. **Enclosure:** Ex-proof enclosure (PESO approved). **Mounting:** Wall mounted. **No. of Cable entry:** 20 Nos. \* 1/2” NPT  **Input:** 230V AC @ 50Hz. **Output:** 24V DC @ 10 ampere. **Mounting:** DIN/Plate mounted **Terminals:** 2.5mm2 suitable terminals  Manufacturer: Regin or equivalent. Country of origin: G7/EU/Taiwan |
| 05. | **Field Hooter Cum Beacon** (Flameproof Type). Model: HAHAVAIR or equivalent  Type: LED lens/ Rotating Reflection 24Vdc hazardous area ATEX Ex ia indoor/ outdoor use audible alarm with red housing. Nominal output 105dB(A) @ 1m (adjustable), 49 alarm tones and 1xM20 gland entry and 24Vdc hazardous area ATEX Ex ia indoor/outdoor use LED visual alarm with red housing and red lens. 2xM20 gland entries. With canopy for weather protection, Protection case-SS316L. Manufacturer: Honeywell or equivalent  Country of origin: G7/EU/Korea. |
| 06. | **Calibration CAP for Sensor Calibration.** Model: S3KCAL or equivalent.  (50% LEL, 2.5% Methane with Suitable Regulator) Calibration Gas Cylinder with Regulator. Manufacturer: – Honeywell Or equivalent.  Origin: USA/ EU/Korea. |
| 07. | **Signal cable/ Power cable**  (2 core \* 1.5 mm2, Double insulated fire rated stranded cable, shielded, armor, FRLS cable) - Quantity is approximate. Brand: BRB or equivalent. |
| 08. | **Manual Call point**  Model: NBG-12LX or equivalent. Should be match with the system.  Manufacturer: Honeywell Or equivalent. Origin: USA/ EU/Korea. |
| 09. | **Conduit EMT** Flexible conduit Size one inch. |
| 10. | **Mounting accessories** like stand, pole, civil works etc. For hazard area. |
| 11. | **Canopy** Material: Stainless steel. |
| RELATED SERVICES: | |
| 01. | **Installation, Testing and Local Service Collaborations.** |
| 02. | **Commissioning Work** at site by Foreign/Local Expert/ Engineer |

**N.B.**

1. Installation, testing and commission of the whole procedure is in Supplier scope.
2. Supplied software license should be of unlimited time duration.
3. The Suppliers should supply O&M manual, system architecture & interconnection drawing (03 copies) with products.
4. Two (02) days training at site for O&M personnel & provide training certificate.
5. At site if any modification of instrument (Including extra accessories) is required that should be borne by the Supplier.