

ANNEXURE- A

TECHNICAL SPECIFICATION FOR METERING PANEL

The following specification for the metering panel shall be minimum, vendor to design, engineering as per the project requirement:

The panel shall be self-standing supplied in dust & vermin proof, floor mounted, sheet steel enclosure. Minimum degree of protection for panel shall be IP 54 or better.

Enclosure shall be fabricated with cold rolled cold annealed (CRCA) sheet steel of minimum thickness 1.5 mm and gland plate thickness shall be 3 mm.

Mounting height of equipment/components inside the floor mounted panel requiring operation and observation shall not be less than 300 mm and higher than 1600 mm. Tentative Size of the panel cabinet shall be 2100 (including 100 mm base frame) (H) x 800 (W) x 800 (D) mm.

Panel shall be liberally designed. All components shall be so mounted that they are easily accessible for inspection & maintenance.

Colour of panel: RAL 7032 for the panel exterior, semi glassy white for interior and black for the base frame.

The entire surface of panels and accessories, comprising front, rear, sides etc. shall be treated and painted as follows:

- All surfaces including structures shall be sand blasted and grinding done until they are smooth and free of scale, rust etc.
- Chemical treatment shall be done to remove rust, oil, entrapped impurities and other foreign materials.
- If necessary, suitable filler shall be applied to all pits and blemishes on the surface.
- The front surface of the panels shall be painted with three coats of sealing primer and surface. The entire surface shall be sanded between coats. Two coats of finish paint of high-grade lacquer enamel shall be given at shop.
- All other surfaces including those of accessories shall be painted with two coats of sealing primer and surface and two coats of lacquer enamel finish paint.
- A final coat of finish paint of high-grade lacquer enamel shall be given at site after assembly and filling of front panel but joints with suitable filler, to present and continuous panel surface.



- The finish of final coat shall be of semi-gloss texture to minimize light reflection.

Panel shall have the following minimum accessories (as applicable):

1. Door switch
2. Cable glands
3. M.C.B.
4. 5A Power supply socket
5. Panel light
6. Lugs
7. Cooling Fan
8. Panel Heater with Thermostat
9. Isolators, barriers, signal multipliers.
10. Flow Computer
11. Relays
12. GC controller (Wherever Applicable) etc.

All the signals from hazardous area shall be routed through suitable isolator/barriers. The isolator/barriers shall be capable of powering the two wire transmitters in the field.

Minimum Specification/Data Sheet of Panel mounted Instruments/Items

ITEM	LED
Function	Status display
Mounting	Flush mounted



ITEM	SIGNAL MULTIPLIER & BARRIER
Function	To repeat signal (if required)
Type	Galvanically isolated
Power Supply	24V DC
Signal	Analogue
Input	4-20 mA
Output	4-20 mA
Output drive capability	0-600 ohm
No. of channels	One/Two isolated output (as required)
Accuracy	0.25% of full scale
Isolation Voltage	500 V DC or higher

ITEM	POWER SUPPLY 24 VDC
Type	Solid state redundant
Input	230 VAC, 50 Hz, UPS Power
Output	24 VDC
Current rating	As required
Line regulation	0.05%
Load regulation	0.05%
Stability	0.2% under constant load
Transient recovery period	< 100 micro seconds
Auto tracking of the output	< 1% error
Indication	LED for SUPPLY ON
Fuse	To be provided on AC & DC lines
Output monitoring	Socket to be provided with adjustment facility
Protection	Short circuit and over load
Ripple and noise	1 mV (rms) or less

GENERAL INSTRUCTION OF PANEL WIRING

All wiring shall confirm to API-RP-550 Part I section 7 &12. Different signal level cables shall be routed under false flooring with separation distances as recommended by API-RP-550 section 7.



All wiring inside racks, cabinets and back of the panels shall be housed in covered, non-flammable plastic raceways arranged to permit easy accessibility to various instruments for maintenance, adjustments, repair and removal.

All wiring in the raceways shall be properly clamped. Total wiring cross-sectional area shall not exceed 50% of the raceway cross-sectional area. Rubber / plastic grommets shall be used for wire entry into individual instrument and entry / exit of wires through raceways.

Separate wiring raceways shall be used for power supply wiring, DC and low level signal wiring and intrinsically safe wiring. Parallel runs of AC and DC wiring closer than 300 mm shall be avoided.

No more than two wires shall be terminated on one side of single terminal. Such a practice shall be avoided as far as possible. The use of short-links for looping shall be avoided.

Terminal housing shall be strictly sized with considerations for accessibility and maintenance. Following points shall be considered:

Description	Distance
Distance between terminal strip and side of the panel/cabinet parallel to the strip up to 50 terminals	Min 50 mm
Distance between terminal strip and top & bottom of the panel/cabinet	Min 75 mm
Distance between two adjacent terminal strips	Min 100 mm
Addition distance for each additional 25 terminals	Min 25 mm
Distance between cable gland plate and the bottom of the strip	Min 300 mm

All terminal strips shall be mounted on suitable anodized metallic or plastic standoff.

No splicing is allowed in between wire / cable straight run.

Terminal strips shall be arranged group wise for incoming and outgoing cables separately.

Cabinet and rack layout shall be made considering proper accessibility and maintenance.

Entire panel/Cabinet wiring including internal wiring shall be cross-ferruled.

All the instruments, switches, relays, timer etc., as required shall be in the bidder's scope to complete operational requirement.

