

1. Specification for Smart differential Pressure/Level Transmitter

Sl. No.	Parameters	:	Specifications
1.	Type	:	Smart differential Pressure Transmitter
2.	Measurement Range	:	As per Table –A1
3.	Service medium	:	As per Table –A1
4.	Turndown Ratio	:	100:1
5.	Output	:	Two wire 4–20 mA with superimposed Digital communication HART protocol
6.	Power Supply	:	12 to 30 V DC
7.	Local Indication	:	4 ½ digit LCD- Local Alpha Numeric Digital display in Engineering unit.
8.	Hazardous Area Certification for all Transmitters	:	(CENELEC / CSA / FM / ATEX or any equivalent approval).
9.	Safety Integrity Level Standard (SIL)	:	Safety Instrumented System Certification as per IEC 61508 standard , SIL 2 and above.
10.	Zero & Span Adjustments	:	Zero and Span are to be adjusted from the Handheld HART Communicator (HHC) and provision for local adjustment to be set anywhere within the range limits
11.	Failure mode alarms	:	High alarm ≥ 21.0 mA Low Alarm ≤ 3.6 mA
12.	Reference Accuracy @ TD 5:1 (including the effect of Terminal base linearity, hysteresis and repeatability)	:	$\leq \pm 0.075\%$ Span for URL above 100mbar $\leq \pm 0.1\%$ Span for URL below 100mbar
13.	Ambient Temperature effect for 280 C variation @ TD 5:1	:	$\leq \pm 0.4\%$ Span for URL above 100mbar $\leq \pm 0.75\%$ Span for URL below 100mbar
14.	Stability	:	$\leq \pm 0.2\%$ URL for 5 years, for URL above 100 mBar. $\leq \pm 0.2\%$ URL for 1 years , for URL below 100 mBar
15.	Power Supply Effect	:	$\leq \pm 0.005\%$ of Calibrated Span per volt.
16.	Mounting Position Effect	:	Zero shifts can be calibrated out.
17.	Static Pressure effect	:	Span error: $\leq \pm 0.2\%$ of span /70 bar for URL above 100 mbar. Span error: $\leq \pm 0.45\%$ of span /70 bar for URL below 100 mbar.
18.	Maximum Static pressure	:	As per Table –A1
19.	Over pressure limit	:	Over pressure limit of selected transmitters should be 1.25 times of URL (Upper range Limit) .
20.	Nominal Operating	:	70 K to 353 K
21.	Response time	:	≤ 300 msec
22.	Wetted Material	:	SS 316L for Diaphragm, flange and adaptor material, PTFE for O-ring material, Oxygen cleaning for transmitter in Oxygen service as per relevant oxygen service standard, Electrical housing certified for EExia IIC,T6 and calibration fluid shall be GN2.
23.	Fill Fluid	:	Liquid Nitrogen
24.	Transient Protection	:	3KA crest (8/20 micro-sec) as per IEEE C62.41.2, IEC610004-4 and IEC61000-4-5

Annexure-3

25.	Drain vent port	:	Not required
26.	Electrical Connection	:	½ " – 14 NPT (F) with SS plug for dust proof.
27.	Transmitter Process	:	½ " – 14 NPT (F) or suitable for the quoted manifold
28.	Housing Material	:	Polyurethane covered aluminium with 1/2-14NPT Conduit entry.
29.	External Grounding screw assembly on transmitter body	:	Required
30.	Mounting Bracket	:	Stainless Steel Bracket with SS fasteners, bolts, nuts, washers and U-clamps suitable for 2 inch pipe mounting
31.	Calibration	:	Calibration shall be carried out at room temperature in 5 steps ascending and 5 steps descending. Calibration certificate is to be provided. Calibration shall be traceable to national standards
32.	Manifold	:	5 Valve manifold to be provided as per Specification given in Table-A2; Make: Same Transmitter manufacturer's manifold or Swagelok.
33.	Make	:	Rosemount : 3051CD ; SMAR : LD400; YOKOCOWA : EJX110A; HONEYWELL: STD 800

Note:

1. Vendor shall quote with detailed technical specification and printed product catalog, manufacturer datasheet containing product matrix and Part No de-codification details.
2. Vendor shall provide model matrix against each TAG.
3. Compliance statement to our indented specification shall be provided.
4. Operation Manual in English to be supplied.
5. The cost of valve manifold shall be quoted along with pressure transmitter.

Table A1

Sl. No.	Tag No.	Measurement Range (MPa)	MEOP/ Static Pressure (MPa)	MAWP (MPa)	Process Connection	Service
1	ILI-S 3703	To be finalised during DER	0.4	0.5	As per vendor recommendation & prior approval by IPRC.	LN ₂
2	ILI-S-3704		0.4	0.5		LN ₂

Table A2 : 5-Valve Manifold Specifications

1	Type	5 valve manifold
2	Material	316SS
3	Packing material	PTFE
4	Seat type	Integral
5	Instrument Connection	Suitable for quoted transmitter interface
6	Process connection	½ inch-14 NPTF
7	Maximum Operating Pressure	400 bar manifold for transmitter static pressure range upto 250 bar 680 bar manifold for transmitter static pressure range between 250 to 500 bar
8	Operating Temperature	0 to 100 Deg C
9	Hydro Testing	To be carried out at 1.5 times the maximum operating pressure for all the manifolds and certificate to be provided
10	Material Test certificate	To be provided
11	Mounting Bolts	To be supplied with SS material.
12	Oxygen cleaning	Oxygen cleaning to be carried out for transmitters operating medium is oxygen
13	Catalogue	Detailed technical datasheet and dimensional drawing to be provided along with offer

