INTER PLANT STANDARD – STEEL INDUSTRY		
IPSS	**SPECIFICATION FOR ELECTRONIC DIFFERENTIAL PRESSURE & PRESSURE TRANSMITTER**	**IPSS:2-07-005-13** *(Third Revision)*
	Corresponding IS does not exist	Formerly: IPSS:2-07-005-95

0. FOREWORD

0.1 This Interplant Standard (second revision) was prepared by the Standards Committee on Computerization and Automation, IPSS 2:7 with the active participation of the representatives of the steel plants and reputed consulting organizations and established manufacturers in this field and was adopted with third Revision on August, 2013.

0.2 Inter Plant Standards on design parameters primarily aim at achieving rationalization and unification of parts and assemblies of process and auxiliary equipment used in steel plants and these are intended to provide guidance to the steel plant engineers, consultants and manufacturers in their design activities.

0.3 This standard was first published in 1988. The first revision was carried out in1993. The second revision has been done in 1995 and third Revision has been done to update the standard in general.

1. SCOPE

1.1 This Interplant Standard covers the requirements of both electronic pressure and differential pressure transmitters.

2. PRINCIPLE OF OPERATION

2.1 Electronic – Variable capacitance type or ceramic type.

3. RANGES

3.1 The ranges selected, shall be adjustable throughout the range and shall conform to the following series in the engineering units:

a) Differential Pressure Ranges

i) Low Range : 0 to 0.0001 MPa (0 to 10 mmWC)

		:	0 to 0.00025 MPa (0 to 25 mmWC)
ii)	Medium Range	:	0 to 0.013 MPa (0 to 130 mmWC)
		:	0 to 0.064 MPa (0 to 640 mmWC)
iii)	High Range	:	0 to 0.32 MPa (0 to 3200 mmWC)
		:	0 to 3 MPa (0 to 30,000 mmWC)

b) Pressure Range

i) 0 to 0.001 MPa (0 to 0.01 kg/cm^2)
ii) 0 to 0.04 MPa (0 to 0.4 kg/cm^2)
iii) 0 to 0.2 MPa (0 to 2 kg/cm^2)
iv) 0 to 1 MPa (0 to 10 kg/cm^2)
v) 0 to 5 MPa (0 to 50 kg/cm^2)

c) Turndown Ratio – 1:5 (minimum)

4. OUTPUT

4.1 Output Electronic - (1) 4 to 20 mA dc with HART Protocol/ FA Protocol/ Profibus.protocol

5. POWER SUPPLY VOLTAGE – 24 V dc or as applicable .

6. SUPPLY VARIATION EFFECT – *Electronic:* Maximum zero shift 0.005% of span / volt change in power supply.

7. LOAD LIMIT – 600 ohm at 24 V dc.

8. ZERO ADJUSTMENT – Continuously adjustable.

9. SPAN ADJUSTMENT – Span adjustment continuously adjustable (end of measurement from 100% to 10% measuring range).

10. TEMPERATURE LIMITS MEDIUM - -40°C to 120°C

11. AMBIENT

a) Temperature - -40°C to +85°C
b) Humidity - 0 to 100% RH

NOTE: Both the maximum temperature and maximum R.H. shall not occur simultaneously.

12. HUMIDITY LIMIT – 0 to 100% R.H.

13. OVER PRESSURE LIMIT – 200% of upper range limit.

14. ACCURACY - ±0.1% for smart type transmitters, ±0.25% for otherwise.

15. LINEARITY - ±0.1% of span.

16. REPEATABILITY - ±0.05% of span.

17. SENSITIVITY - ±0.05% of span.

18. DEAD BAND - ±0.05% of span.

19. ELEVATION SUPPRESSION - -50% of upper range limit to +100% of upper range limit.

20. STATIC PRESSURE LIMIT - Minimum15% of working pressure.

21. INTRINSICALLY SAFE / EXPLOSION PROOF (FOR HAZARDOUS AREA ONLY) - See IS 2148:2004 `Specification for flame proof enclosures for electrical apparatus (second revision)' and IS 8945:1987 `Specification for electrical measuring instruments for explosive gas atmosphere (first revision).

22. REVERSE POLARITY - For reverse polarity connection of the power supply, there should be no damage to the transmitters. The reverse current should be limited to 1 mA.

23. TRANSIENT PROTECTION - Up to 2500V pulse (8micro-sec rise time and 20 micro-sec delay to half valve)

24. DAMPING - Damping shall be step or continuously adjustable, so that time constant varies from 0 to 3s or 0 to 6s.

25. R.F.I. EMI EFFECT - R.F.I. filter built-in. The output error due to this less than 0.1% of span for frequency up to 500 MHz and field intensity 20 V/m/60 to 120 dB.

26. TEMPERATURE EFFECT - Maximum zero shift: ±0.5% for temperature up to 55°C.

27. OVER PRESSURE EFFECT - Maximum zero shift: ±0.5% by 100% maximum static pressure.

28. VIBRATION EFFECT - Total effect: ±0.5% of URL/g for frequency 15 to 150 Hz, ±0.10% of URL/g for frequency 151 to 2000 Hz.

29. MOUNTING POSITION – Rotation in plane of diaphragm should have no effect. Maximum zero shift 1.0% for 90° tilt which can be adjusted with no effect on span.

30. **STATIC PRESSURE EFFECT** – Zero shift less than 0.5% of span for pressure change up to static pressure limit.

31. **RESPONSE TIME** – Less than 0.1 s.

32. **BODY MATERIAL** – To be specified by the user depending upon application.

33. **HOUSING** – IP 65/67, see IEC 60529 `

34. **MOUNTING** – Suitable mounting on 50 mm pipe support.

35. **MTBF/MTTR** – 300,000 h/1 h.

36. **OUTPUT INDICATOR (LOCAL)** – Optional.

37. **SQUARE ROOT EXTRACTOR** – Digital Indication in Engineering units.

38. **ACCESSORY** – a) Three/two way valve manifold (1/2" NPT) for DPT/PT.
b) Suitable drain/vent value

39. Signal test point to be provided.

40. **SPECIAL REQUIREMENT** – Code for Oxygen service transmitter should be identified with punch mark after model number / blue print.. The Transmiter shall be in inert filled.

41. Surge Protection – As per IS/IEC/IPSS Standard

_____