



INT ET 051/2006

**CONDUCTIVITY ANALYZERS AND TRANSMITTERS
TECHNICAL SPECIFICATION**

REV.	FECHA	DESCRIPCION	PREPARADO POR	APROBADO POR

[illegible]



División
Industrialización

Conductivity Analyzers and transmitters
Technical Specification
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1. SCOPE

This Technical Specification establishes the general requirements for the supply of Conductivity Analyzers and Transmitters to be furnished for the related job.

2. APPLICABLE DOCUMENTATION

Whenever applicable, the last editions of the following codes and standards will be followed:

- API - RP - 550 - Part I - Process Instrumentation and Control.
- API - RP - 550 - Part II - Process Stream Analyzers Section 1 Analyzers.
- ISA - Instrument Society of America.
- NEC - National Electrical Code Art. 500 Process Areas Classification.
- NEMA - National Electrical Manufacturers Association.
- ASTM - American Society for Testing and Materials.
- ANSI - American National Standards Institute
 - ANSI B1.20.1 Threaded Connection (NPT).
 - ANSI B31.3 Piping for Chemical Plants and Petroleum Refineries.
- IEEE - Institute of Electrical and Electronic Engineers.
- FM - Factory Mutual.

3. GENERAL CHARACTERISTICS

TRANSMITTERS

- Transmitters shall be 2 wires, with a 4-20 mA signal output, Loop Powered Type, with FM certified, suitable for Intrinsically Safe for Class 1, Div 2, Groups B, C, D and a local LCD indicator, the range display is indicated in data sheets.
- Transmitters shall have temperature compensation.
- Transmitters might be powered through an intrinsically safe barrier (FMS classification) or directly from the control system input cards (DCS or PLC) with 24/30 VDC power voltage.
- Transmitter shall be suitable for continuous or intermittent service under the operating conditions detailed in data sheets.
- Transmitter shall be suitable for continuous or intermittent service under the weather conditions detailed in data sheets.
- The transmitters case shall be weatherproof and corrosion-resistant NEMA 4X, as required in data sheets.
- Transmitters might be integral or split mounting. For split mounting, all necessary elements for 2" pipe mounting (yoke) shall be included.
- The accuracy of the transmitters shall be at least $\pm 0.5\%$ of full scale.
- All field transmitters shall be supplied with a junction box, with a 1/2" NPT electric connection. In case of a second electric connection, it shall be provided with a bronze plug.
- All threaded connections shall be by ANSI standard B1.20.1 (NPT).
- Local Zero and span adjustments may be done locally.
- Whenever possible, conductivity transmitters will be the manufacturer standard design.



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M. Vendor standard quality materials will be used for other conductivity transmitter parts when not defined in this specification or data sheets, according with the other specified materials and the process conditions.

PROBES

- A. Probes material shall be rugged PVC or 316 stainless steel.
- B. Probes shall be mounted on 316 SS flow chambers with twist lock connection.
- C. Vendor shall provide sample conditioners, these sample conditioners must reduce pressure and temperature for proper probe operation.
- D. Time response shall be 90% in 60 seconds or better.
- E. The minimum time between calibrations shall be 1 month.

4. VENDOR RESPONSABILITY

- A. The proposal shall include a list of exceptions to this specification. Any deviation from this specification shall be clearly indicated. The Purchaser is not responsible for inferring these exceptions from the supplied information in the catalogs.
- B. Different materials can be offered for the provided conductivity analyzer if they meet or exceed the specified requirements. A technical justification for these changes will be presented during the offering stage. This changes may be approved or not.

5. SPARE PARTS

- A. This supply shall include a list with break prices of spare parts for a two (2) years operation unless otherwise indicated in the material requisition.
- B. Also, the supplier shall include a list of recommended spare parts for start up in the offer with itemized prices separates from the others spare parts and instrument prices.



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DATA SHEETS UNIT 2200

G R A L .	1	TAG Nº			
	2	SERVICE / LOCATION			
	3	P & ID Nº			
	4	PIPE SIZE			
	5	PIPE MATERIAL			
T R A N S / A N / A N / A L I Z.	6	FUNCTION		TRANSMITTER / INDICATOR	
	7	CASE: SIZE	COLOR	BY MANUFACTURER	BY MANUFACTURER
	8	MOUNTING		For 2" PIPE MOUNTING (YOKE)	
	9	PROTECTION TYPE		I.S. (FM)	
	10	ENCLOSURE CLASSIFICATION		NEMA 4X	
	11	AREA CLASSIFICATION		Cl. 1, Div. 2, Gr. -----	
	12	POWER SUPPLY		24 / 30 VDC (2 wire current loop)	
	13	OUTPUT SIGNAL		4 - 20 mA	
	14	RANGE	(µS/cm)	BY MANUFACTURER	
	15	CALIBRATED RANGE	(µS/cm)		
	16	ACCURACY		0.5 % FULL SCALE	
	17	ELECTRICAL CONNECTION		½" NPT	
P R O B E	18	TYPE		CONTACTING SENSOR	
	19	RANGE	(µS/cm)	BY MANUFACTURER	
	20	WETTED MATERIAL		316 SS ASSEMBLY	
	21	MOUNTING TYPE		FLOW CHAMBER (SEE NOTE 2)	
	22	ASSEMBLY			
	23	POSITION			
	24	PROCESS CONNECTION		BY MANUFACTURER	
	25	SENSOR CABLE LENGTH			
	26	ACCESSORIES		SAMPLE CONDITIONER (SEE NOTE 2)	
P R O C E S S S	27	FLUID			
	28	FLUID STATE			
	29	OPERATION PRESSURE (Kg/cm²g)			
	30	DESIGN PRESSURE (Kg/cm²g)			
	31	OPERATION TEMPERATURE (°C)			
	32	DESIGN TEMPERATURE (°C)			
	33	DENSITY @ OP. COND. (Kg/m³)			
	34	VISCOSITY @ OP. COND. (cP)			
	35	CORROSIVE			
	36	SOLID IN SUSPENSION			
	37				
	38	MANUFACTURER			
	39	MODEL			



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NOTES:

1. Conductivity < 3 μ S/cm, total solids < 2 ppm.
2. Vendor shall supply sample conditioner. It shall be provided with one 316 SS flow chamber with twist-lock connection, suitable for conductivity probe input. Sample conditioning must reduce pressure and temperature for proper operation of probes, typical: 15 psi @ 50 °C.