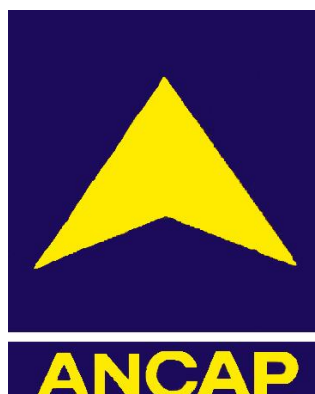




INT ET 036/2006

pH ANALYZERS AND TRANSMITTERS TECHNICAL SPECIFICATION

REV.	FECHA	DESCRIPCION	PREPARADO POR	APROBADO POR

INDICE DE REVISIONES



Fecha : 12/06/2006

ANCAP – División Industrialización



División
Industrialización

Ph Analyzers
and Transmitters
Technical Specification

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Fecha : 12/06/2006

SCOPE

This Technical Specification establishes the minimum requirements for the supply of pH analyzers and transmitters.

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.

GENERAL CHARACTERISTICS

PROBES

- A. Probes based on Clark principle (two electrodes of different metals placed in an electrolytic solution and separated from the medium by a semi-permeable diaphragm) shall be used.
- B. Probes shall be suitable for mounting in a process line 1 ½" NPT connection.
- C. The minimum time between calibrations shall be 1 month.
- D. All Probes shall be housed in a rigid 316SS or equivalent housing and be resistant to the process fluid at the operating conditions.
- E. Probe housing shall be weatherproof and corrosion-resistant to NEMA 4X. All materials shall be suitable for a salt laden marine weather atmosphere.
- F. The sensor assembly shall include a preamplifier module in a NEMA 4X enclosure for integral mounting.
- G. The accuracy of the sensor shall be at least ± 0.02 pH or ± 2 mV.
- H. All threaded connections shall be by ANSI standard B1.20.1 (NPT).



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TRANSMITTERS

- A. Transmitters shall be 24VDC (I.S), 2 wire loop powered, 4-20 mA signal output and a local indicator.
- B. Transmitters shall have temperature compensation.
- C. Transmitter shall be suitable for continuous or intermittent service under the operating conditions detailed in the data sheets.
- D. The transmitters case shall be weatherproof and corrosion-resistant NEMA 4X.
- E. A complete calibration kit for 2 years operation shall be provided with each pH transmitter.
- F. The accuracy of the transmitters shall be at least $\pm 0.1\%$ of span.
- G. All field transmitters shall be supplied with a junction box, with a 1/2" NPT electric connection. All other cable entries shall be plugged.
- H. All threaded connections shall be by ANSI standard B1.20.1 (NPT).
- I. The transmitter shall have local zero and span adjustments.
- J. All pH transmitters shall incorporate the vendors standard design.
- K. The transmitter shall be suitable for mounting on a 2" pipe (brackets to be supplied by the vendor) or alternatively back plate mounted.

VENDOR RESPONSIBILITY

- A. The proposal shall include 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 pH probe and transmitter provided if they meet or exceed the specified requirements. A technical justification for these changes will be presented during the bid stage.

SPARE PARTS

- A. This supply shall include a list with itemized prices of spare parts for a two (2) years operation as required in the attached General Specification I-SP-000001 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.

DATA SHEETS



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G R A L.	1	TAG No.					
	2	SERVICE / LOCATION					
	3	P & I					
	4	PIPE SIZE					
	5	PIPE MATERIAL					
T R A N S / A N A L I Z.	6	FUNCTION		<i>pH sensor / transmitter</i>			
	7	CASE: SIZE	COLOR	BY MANUFACTURER	STD. MANUFACTURER		
	8	MOUNTING					
	9	PROTECTION TYPE					
	10	ENCLOSURE CLASS		<i>NEMA 4X / IP65</i>			
	11	POWER SUPPLY		<i>24/30 V dc (2 wire current loop)</i>			
	12	OUTPUT SIGNAL		<i>4- 20 mA</i>			
	13	RANGE	(pH)	<i>0 – 14</i>			
	14	CALIBRATED RANGE	(pH)				
	15	ACCURACY		<i>0.1 % FULL SCALE</i>			
	16	ELECTRICAL CONNECTION		<i>½" NPT (F)</i>			
P R O B E	18	ELECTRODE TYPE		<i>PH</i>			
	19	RANGE	(pH)	<i>0 – 14</i>			
	20	WETTED MATERIAL					
	21	MOUNTING TYPE					
	22	ASSEMBLY					
	23	POSITION					
	24	PROCESS CONNECTION					
	25	SENSOR CABLE LENGTH					
	26	ACCESSORY		<i>Integral mounting preamplifier, NEMA 4X / IP65 Enclosure</i>			
P R O C E S S	28	FLUID					
	29	OPERATION PRESSURE (Kg/cm²g)					
	30	DESIGN PRESSURE (Kg/cm²g)					
	31	OPERATION TEMPERATURE (°C)					
	32	DESIGN TEMPERATURE (°C)					
	33	DENSITY @ OP. COND. (Kg/cm³)					
	34	VISCOSITY @ OP. COND. (cp.)					
	35	CORROSIVE					
	36	SOLID IN SUSPENSION					
	37						
	38	MANUFACTURER					
	39	MODEL					

NOTES: