

## GENERAL DESCRIPTION

The AnaCONT instruments are designed to measure pH and redox potential values of liquids and aqueous solutions.

**pH measurement:** Continuous measurement of acidity ( $\text{pH} < 7$ ) and of basicity ( $\text{pH} > 7$ ) liquids can be performed by the help of AnaCONT transmitters. The necessary feeding of chemicals and other technological functions can be controlled by the processed measured values. The potential difference between the submerged measuring and reference probe generates a voltage proportional to the concentration of the hydrogen ion in the measured fluid. This voltage is evaluated by the signal processing electronic module of the instrument. Based on the signals of the submerged probe and the temperature sensor the smart signal processing electronic module calculates a pH value normalized to  $+25^\circ\text{C}$  and generates a proportional output signal. The long term stability and accuracy of the measurement requires a periodic calibration of the sensors using the standard buffer solutions.

**Redox potential (ORP) measurement:** Similarly to the pH measurement, the measurement of the redox potential is based on the potential difference between measuring and reference probes. Oxidation or reduction occurs on the platinum surface of the measuring probe. Redox potential is a parameter that indicates the sum of oxidants and reducers in the measured medium. The output signals of the probes are processed by the electronic unit and it converts them into a proportional output signal. In order to get the desired medium parameters the reduction of liquids or feeding of suitable oxidant is executed based on the formerly processed values.

## MAIN FEATURES

- Compact and integrated types
- Remote mount versions up to 10 m
- Measuring range: pH: 0 – 14;  
ORP:  $\pm 1000$  mV
- Wide probe selection according to the application
- User friendly software, graphic display
- 4 – 20 mA, HART®, relay output
- Measurement simulation
- Wide range of accessories
- IP67 / IP68 protection

## APPLICATIONS

- Checking of water quality
- Water production, wastewater treatment
- Pharmaceutical industry
- Food and beverage industry



LPP-100 / LPR-100  
with PVDF housing



LEP-200 / LER-200  
with PVDF  
probe housing



Compact  
LEP-100 / LER-100

## CERTIFICATIONS

- ATEX (Ex ia)



pH, ORP electrodes



SAP-300 display



Cleaning solution



Calibration solution



MultiCONT

## TECHNICAL DATA

General data		LQP – pH transmitter	LQR – ORP transmitter
Measuring values		Range: 0 – 14 pH Reserve: $\pm 2$ pH Resolution: 0.01 pH (internal resolution 0.004 pH) Linearity: $\pm 0.004$ pH	Range: $\pm 1000$ mV Reserve: $\pm 200$ mV Resolution: 0.1 mV (internal resolution 0.8 mV) Linearity: $\pm 0.001\%$
		Accuracy <sup>(1)</sup> : 0.1% of the measured value $\pm 1$ digit $\pm 0.01\%$ / °C, Measuring rate: 300 msec, on the display (refreshing rate): 1 sec	
Temperature measurement (semiconductive sensor)		Range: -50 °C ... +130 °C, Accuracy: $\pm 0.5$ °C, Resolution: 0.1 °C	
Liquid-potential (complementary) electrode		Stainless steel housing of the temperature sensor (1.4571), connection: SN6	
Probe input		Combined probe, galvanic isolation, input impedance: $>10^{12}$ Ohm, connection: SN6	
Power supply / Power consumption		12 – 36 V DC / 48 – 720 mW, galvanic isolated, protection against surge transients	
Output	Analogue	4 – 20 mA, (3.9 – 20.5 mA), $R_{\text{max}} = 1200$ Ohm galvanic isolated, protection against surge transients	
	Relay	SPDT: 30 V DC, 1 A DC	
	Display	SAP-300 LCD graphic display, units of measure and bar graph (only for compact type)	
	Digital communication	HART®	
Medium temperature (pressure dependent) <sup>(1)</sup>		PP probe housing: -10 °C ... +90 °C, PVDF probe housing: -15 °C ... +100 °C	
Pressure (absolute) <sup>(1)</sup>		0.05 – 1 MPa (0.5 – 10 bar) at +25 °C	
Ambient temperature		With metal housing: -30 °C ... +70 °C, with plastic housing: -25 °C ... +70 °C, both with display: -20 °C ... +70 °C	
Sealing		PP probe housing: EPDM, All other probe housing: FPM (Viton®)	
Ingress protection		Probe housing: IP68, Electronic housing: IP67; Integrated type: IP68	
Housing material		Compact type: Paint coated aluminium or plastic PBT, Integrated type: Same as the probe housing	
Probe housing material		Polypropylene (PP), PVDF	
Electrical connection		Compact type: 2x M20x1.5 metal cable gland for cable: $\varnothing 7 - 13$ mm, or 2x M20x1.5 plastic cable gland for cable: $\varnothing 6 - 12$ mm connecting cable cross section: 0.5 – 1.5 mm <sup>2</sup> (shielded cable is recommended) + internal thread 2x NPT 1/2" cable protective pipe, Integrated type: 6 x 0.5 mm <sup>2</sup> shielded cable $\varnothing 6$ mm x 5 m (up to max. 30 m cable length, Ex version up to max. 5 m)	
Electrical protection		Class III electric shock protection	

<sup>(1)</sup> Depends on the applied probe

## SPECIAL DATA FOR Ex CERTIFIED MODELS

Protection type	Intrinsically safe
Ex marking	Ⓔ IIIG Ex ia IIB T6 Ga
Intrinsically safe data	$C_i \leq 15$ nF, $L_i \leq 200$ $\mu$ H, $U_i \leq 30$ V, $I_i \leq 140$ mA, $P_i \leq 1$ W For Ex transmitter only Ex ia power supply should be used
Medium temperature	PP probe housing: -10 °C ... +70 °C, PVDF probe housing: -15 °C ... +80 °C
Ambient temperature	Metal housing: -30 °C ... +70 °C, with display: -20 °C ... +70 °C, Plastic housing: -20 °C ... +70 °C

## PROBE SELECTION

pH Probes							
Order code	Max. temp.	Max. pressure	Min. conductivity	Material / Mounting angle	pH	Application areas	
LQP-010	+80 °C	6 bar	50 µS/cm	Glass / max. 45°	1 – 12	Potable water, swimming pools, public/industrial wastewater, water in chemical industry, suspensions	
LQP-020		8 bar	150 µS/cm			Process water, potable water, slightly contaminated wastewater	
LQP-030	16 bar (<25 °C) / 6 bar (<100 °C)		500 µS/cm		3 – 14	Process water, wastewater, water in chemical industry	
LQP-040	6 bar (<25 °C) / 3 bar (<100 °C)		150 µS/cm			Highly alkaline mediums, chemical industry	
LQP-050	+60 °C	0.5 bar		Polycarbonate / max. +90°	1 – 12	Swimming pools, applications in atmospheric pressure	
LQP-060		3 bar				Potable water, swimming pools, slightly contaminated industrial and wastewater	
LQP-070	+80 °C	6 bar			Potable water, swimming pools, process water, slightly contaminated industrial and wastewater		
LQP-080	+60 °C	3 bar					
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Order code	Max. temp.	Max. pressure	Min. conductivity		Material / Mounting angle	Application areas	
LQR-010	+80 °C	6 bar	50 µS/cm	Glass / max. 45°	Potable water, swimming pools, public / industrial wastewater		
LQR-020	16 bar (<25 °C) / 6 bar (<100 °C)		500 µS/cm		Polluted water emulsions, mediums containing sulphides, high pressure applications		
LQR-040	+60 °C	3 bar	150 µS/cm		Potable water, swimming pools, slightly polluted water		
LQR-050	+80 °C	6 bar			Slightly polluted water, chemical applications		
LQR-060	+60 °C	3 bar	Polycarbonate / max. 90°		Potable water, swimming pools, slightly polluted water		

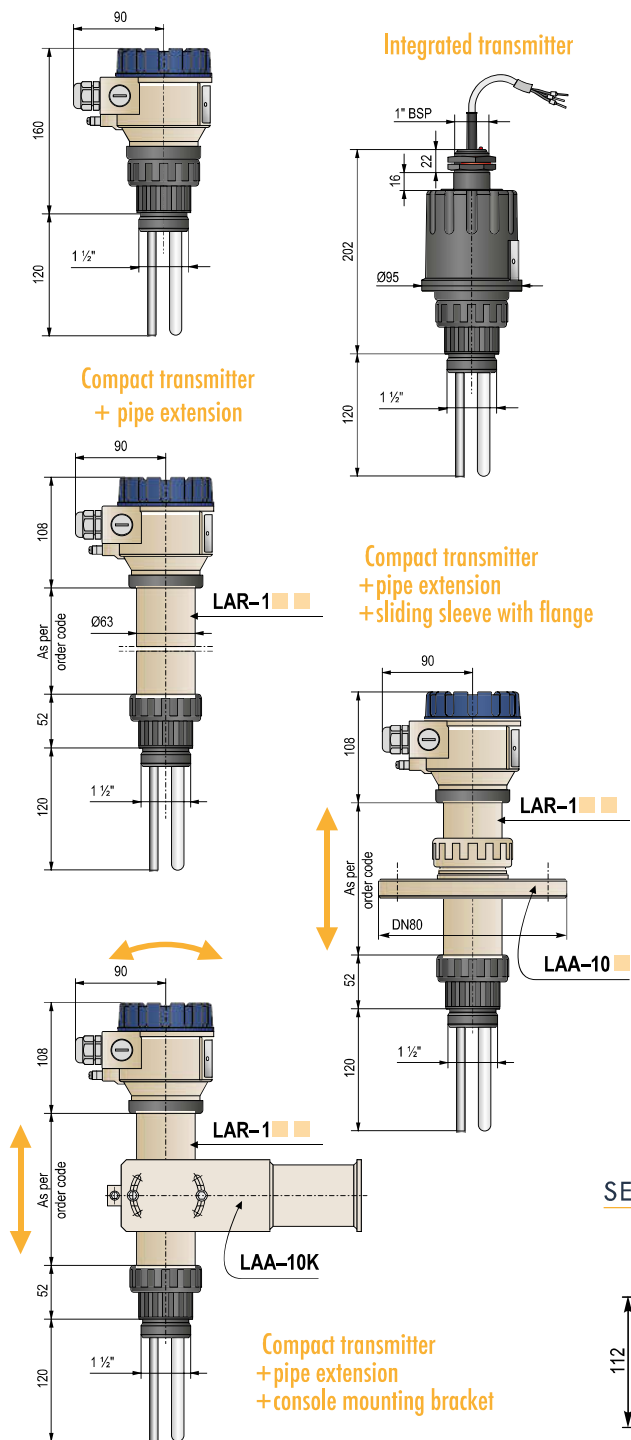
## MOUNTING VERSIONS

The constructions of the sensors on the compact and integrated versions are identical, so all accessories are applicable for both types.

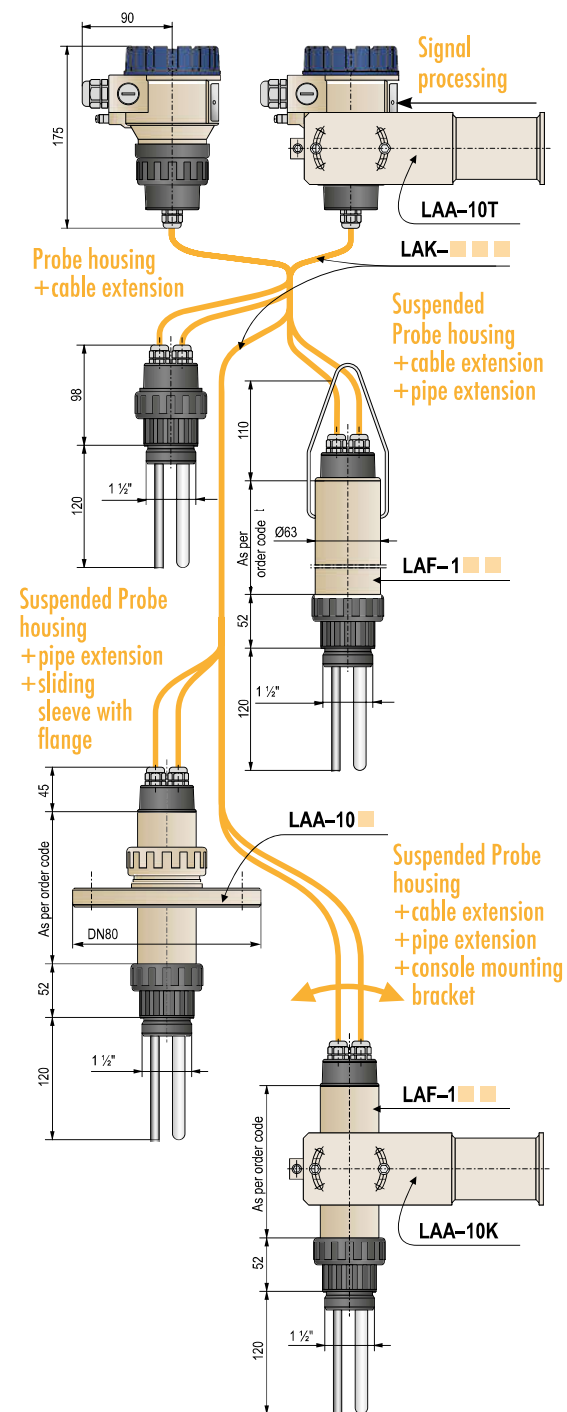
Using the accessories designed specifically for the AnaCONT family help optimizing the installation of the transmitters making the installation process easier.

By using extension pipes or extension cables the remote mount versions allow the mounting of the electronics and the electrode part at any distance from each other.

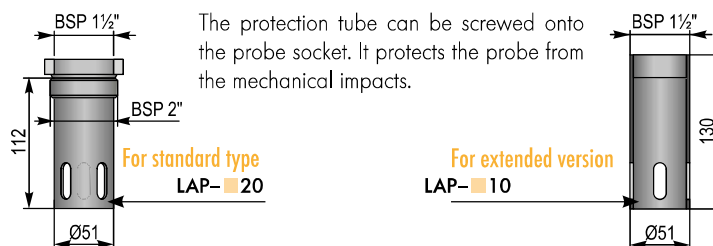
### COMPACT TRANSMITTER



### SEPARATED COMPACT TRANSMITTER



### SENSOR PROTECTION TUBE



## AnaCONT LEP/LGP-100/-200

5 years

2-wire compact liquid analytical pH transmitter with 4-20mA / 4-20mA + HART and relay output  
pH measuring range: 0-14 pH, IP67/IP68 protection

### Type

L ☐ ☐ - ☐ ☐ ☐ - ☐

P Compact pH transmitter

### Programmer and local indicator (SAP-300)

L ☐ P - ☐ ☐ ☐ - ☐

E Not included

G Included

### Housing

L ☐ P - ☐ ☐ ☐ - ☐

1 Plastic, PBT, glass fibre reinforced

2 Aluminium (paint coated)

### Probe: pH range / Max. pressure / Max. temperature / Medium

L ☐ P - ☐ ☐ ☐ - ☐

1 1-12 / 6 bar / 80 °C / with solid particles

2 ☐ 1-12 / 8 bar / 80 °C / clear fluid

3 1-12 / 16 bar@25 °C / 6 bar@100 °C / with solid particles

4 ☐ 3-14 / 6 bar@25 °C / 3 bar@100 °C / clear fluid

6 1-12 / 3 bar / 60 °C / clear fluid

7 1-12 / 6 bar / 80 °C / clear fluid

8 ☐ 1-12 / 3 bar / 60 °C / clear fluid (horizontally mountable)

### Process connection / Material

L ☐ P - ☐ ☐ ☐ - ☐

1 1 1/2" BSP / PP

2 1 1/2" BSP / PVDF

4 1 1/2" NPT / PP

5 1 1/2" NPT / PVDF

### Output / Approval

L ☐ P - ☐ ☐ ☐ - ☐

2 4-20 mA

4 4-20 mA + HART

6 4-20 mA / Ex

8 4-20 mA + HART / Ex

R 4-20 mA + Relay

H 4-20 mA + HART + Relay

### Accessories to order (see relevant page for details)

S A P - 3 0 0 - 0 Graphic plug-in display module

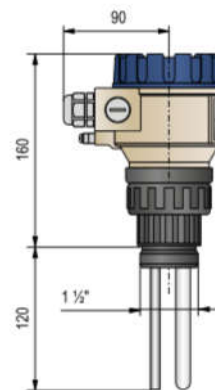
S A T - 3 0 4 - 0 HART-USB modem

S A T - 5 0 4 - ☐ HART-USB/Bluetooth modem

S A K - 3 0 5 - 2 HART-USB/RS485 modem

S A K - 3 0 5 - 6 HART-USB/RS485 modem / Ex ia

Further accessories to order (see AnaCONT accessories pages)



LEP-100

## AnaCONT LPP-100

5 years

2-wire integrated compact liquid analytical pH transmitter with 4-20 mA + HART and relay output  
pH measuring range: 0-14 pH, IP68 protection

### Type

L P ☐ - 1 ☐ ☐ - ☐

P Integrated compact pH transmitter

### Probe: pH range / Max. pressure / Max. temperature / Medium

L P P - 1 ☐ ☐ - ☐

1	1-12 / 6 bar / 80 °C / with solid particles
2	1-12 / 8 bar / 80 °C / clear fluid
3	1-12 / 16 bar@25 °C / 6 bar@100 °C / with solid particles
4	3-14 / 6 bar@25 °C / 3 bar@100 °C / clear fluid
6	1-12 / 3 bar / 60 °C / clear fluid
7	1-12 / 6 bar / 80 °C / clear fluid
8	1-12 / 3 bar / 60 °C / clear fluid (horizontally mountable)

### Process connection / Material

L P P - 1 ☐ ☐ - ☐

1	1 1/2" BSP / PP
2	1 1/2" BSP / PVDF
4	1 1/2" NPT / PP
5	1 1/2" NPT / PVDF

### Output / Approval

L P P - 1 ☐ ☐ - ☐

4	4-20 mA + HART
8	4-20 mA + HART / Ex
H	4-20 mA + HART + Relay

### Cable

Max. length 30 m; each started 1 m over the standard 5 m

LPP-1\_ \_-8 Ex version comes with 5 m cable only

### Accessories to order (see relevant page for details)

S A T - 3 0 4 - 0	HART-USB modem
S A T - 5 0 4 - <input type="checkbox"/>	HART-USB/Bluetooth modem
S A K - 3 0 5 - 2	HART-USB/RS485 modem
S A K - 3 0 5 - 6	HART-USB/RS485 modem / Ex ia

Further accessories to order (see AnaCONT accessories pages)

