GENERAL DESCRIPTION

The dissolved oxygen (DO) measurement gives the quantity of dissolved oxygen gas in the liquid, in ppm or mg/l values. The sensor with oxygen-permeable membrane immersed in the liquid provides an electronic signal proportional to the oxygen concentration.

The intelligent electronics calculates and transmits the DO value normalized to +25 °C on the basis of the output current of the DO sensor and the potential of the temperature sensor immersed in the medium.

MAIN FEATURES

- Compact DO transmitter
- Remote mount versions up to 10 m
- Measurement range: 0 – 20 ppm
- Replaceable probes
- Temperature compensation
- Graphic display
- 4 – 20 mA, HART®, relay output
- Wide range of accessories
- IP67 protection
- Ex version

APPLICATIONS

- Checking of water quality
- Wastewater treatment
- Pharmaceutical industry
- Food and beverage industry
- Effluent treatment
- Checking of aeration in potable water
- Pools

CERTIFICATIONS

- ATEX (Ex ia)

Compact
LED-100

SAT-504
HART® modem

SAP-300
graphic display

PROBE SELECTION

DO sensors			
Type		4x085g0023ydo	4x085g0022ydo
DO sensor	Application area	Fish- and crawfish farms, water conditioning of large aquariums. Controlling of oxygen concentration in water plants, determination of biological condition in surface water.	Potable water production, river monitoring, water treatment sites, controlling of dissolved oxygen level in wastewater plants, determination of biological condition in surface water.
	DO range	0 – 20 ppm	0 – 10 ppm
	Process temperature	Maximum +50 °C	
	Process pressure	Maximum 1 bar	
	Speed of medium-flow	Minimum 0.05 m/s	
	Material / thickness of membrane	PTFE / 125 µm	PTFE / 50 µm

TECHNICAL DATA

General data		L☐D – DO transmitter
Measurement data	Range	0 – 20 ppm or 0 – 10 ppm
	Reserve	20%
	Resolution	0.01 ppm (internal resolution: 0.005 ppm)
	Linearity	±0.05 ppm
	Accuracy [1]	0.5% of the measured value ±1 digit ±0.01% / °C
	Measuring cycle	300 msec, on display: 1 sec
Temperature measuring (semiconductive sensor)		Range: -50 °C … +130 °C, Accuracy: ±0.5 °C, Resolution: 0.1 °C
Liquid potential (complementary) electrode		Housing of the temperature sensor: stainless steel (1.4571), connection: SN6
Electrode input		DO sensor input: Galvanic isolated current input, 0.725 V polarisation voltage, connection: SN6
Power supply / Power consumption		12 – 36 V DC / 48 mW – 720 mW, galvanic isolated, protection against surge transients
Output	Analogue	4 – 20 mA, (3.9 – 20.5 mA), Rtmax = 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
	Digital communication	HART®
Medium temperature (pressure dependent) [1]		PP probe housing: -10 °C … +90 °C, PVDF probe housing: -15 °C … +100 °C
Pressure (absolute) [1]		Max. 0.1 MPa (1 bar) at +25 °C
Ambient temperature		Aluminium housing: -30 °C … +70 °C, Plastic housing: -25 °C … +70 °C, 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
Housing material		Plastic (PBT) or paint coated aluminium
Material of probe housing		Polypropylene (PP), PVDF
Electrical connection		2x M20x1.5 plastic cable glands for cable: Ø6 – 12 mm, or 2x M20x1.5 metal cable glands for cable: Ø7 – 13 mm wire cross section: 0.5 – 1.5 mm² (shielded cable is recommended), + 2x NPT ½" internal thread for cable protective pipe
Electrical protection		Class III electric shock protection

[1] Depends on the applied probe

SPECIAL DATA FOR Ex CERTIFIED MODELS

Protection type	Intrinsically safe
Ex marking	⟨Ex⟩ II1G Ex ia IIB T6 Ga
Intrinsically safe data	Ci ≤ 15 nF, Li ≤ 200 µH, Ui ≤ 30 V, Ii ≤ 140 mA, Pi ≤ 1 W For Ex transmitter only Ex ia power supply should be used
Medium temperature	0 °C … +50 °C
Ambient temperature	Aluminium housing: -30 °C … +70 °C, Plastic housing: -20 °C … +70 °C, With display: -20 °C … +70 °C

AnaCONT IN SYSTEM WITH MultiCONT

The **MultiCONT** can handle digital data from up to 15 HART® transmitters for the measuring of different values (e.g. DO temperature, level, pressure). The digital (HART®) information is processed, displayed and if needed it can be transmitted via RS485 communication line to a PC. Remote programming of the transmitter is also possible. Visualisation on a PC can be accomplished with **NIVISION** process visualisation software.

ANALYTICAL TRANSMITTERS

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.
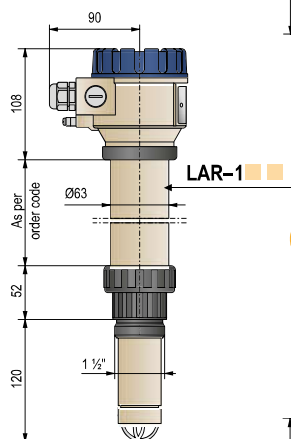
By using extension pipes or extension cables the remote mount versions allow the mounting of the electronics and the sensor part at any distance from each other.
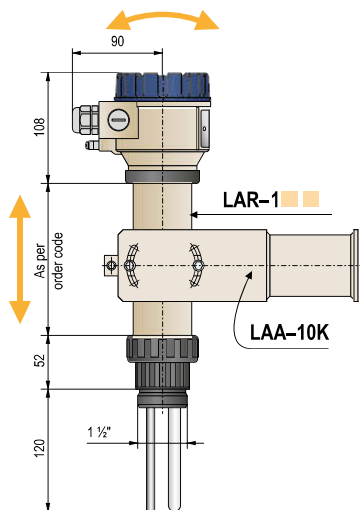
COMPACT TRANSMITTER
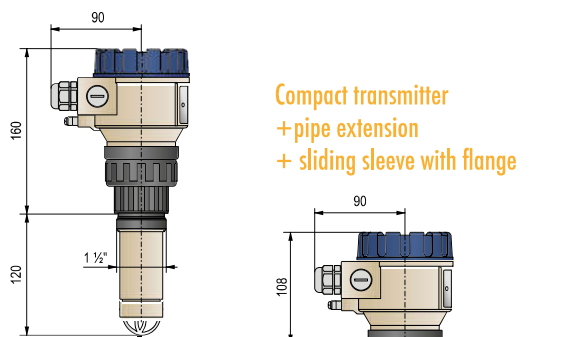
Compact transmitter
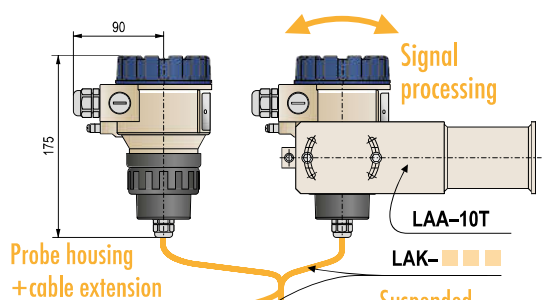+pipe extension
+ sliding sleeve with flange

LAR–1▪▪

LAA–10▪

Compact transmitter
+pipe extension

LAR–1▪▪

Compact transmitter
+pipe extension
+console mounting bracket

LAR–1▪▪

LAA–10K

SEPARATED COMPACT TRANSMITTER

Signal
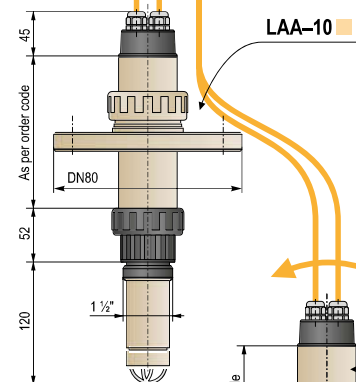processing

LAA–10T

LAK–▪▪▪

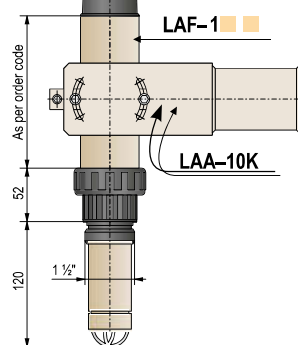Probe housing
+cable extension

Suspended
Probe housing
+cable extension
+pipe extension
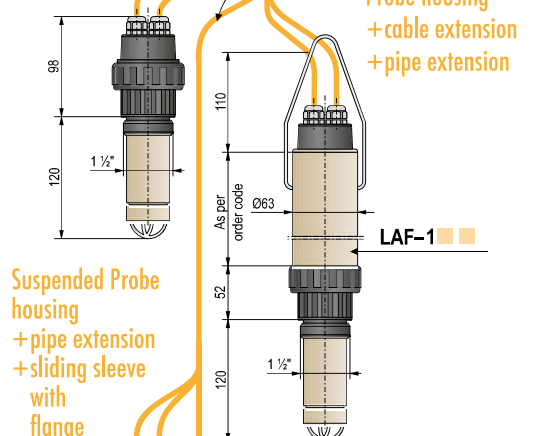
LAF–1▪▪

Suspended Probe
housing
+pipe extension
+sliding sleeve
with
flange

LAA–10▪

Suspended
Probe housing
+cable extension
+pipe extension
+console mounting
bracket

LAF–1▪▪

LAA–10K

AnaCONT LED/LGD-100/-200 | 5 years

2-wire compact liquid analytical DO (dissolved oxygen) transmitter with current / HART and relay output
DO measuring range: depending on the applied sensor: 10 ppm or 20 ppm

Type

L ▮☐ – ▮▮▮ – ▮

D	Compact DO transmitter

Programmer and local indicator (SAP-300)

L ☐ D – ▮▮▮ – ▮

E	Not included
G	Included

Housing

L ▮ D – ☐▮▮ – ▮

1	Plastic, PBT, glass fibre reinforced
2	Aluminium (paint coated)

Probe

L ▮ D – ▮☐▮ – ▮

2	DO1-mA-10 (10 ppm)
1	DO1-mA-20 (20 ppm)

Process connection / Material

L ▮ D – ▮▮☐ – ▮

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 ▮ D – ▮▮▮ – ☐

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)

LED-100

ANALYTICAL TRANSMITTERS