INTRA-AUTOMATION

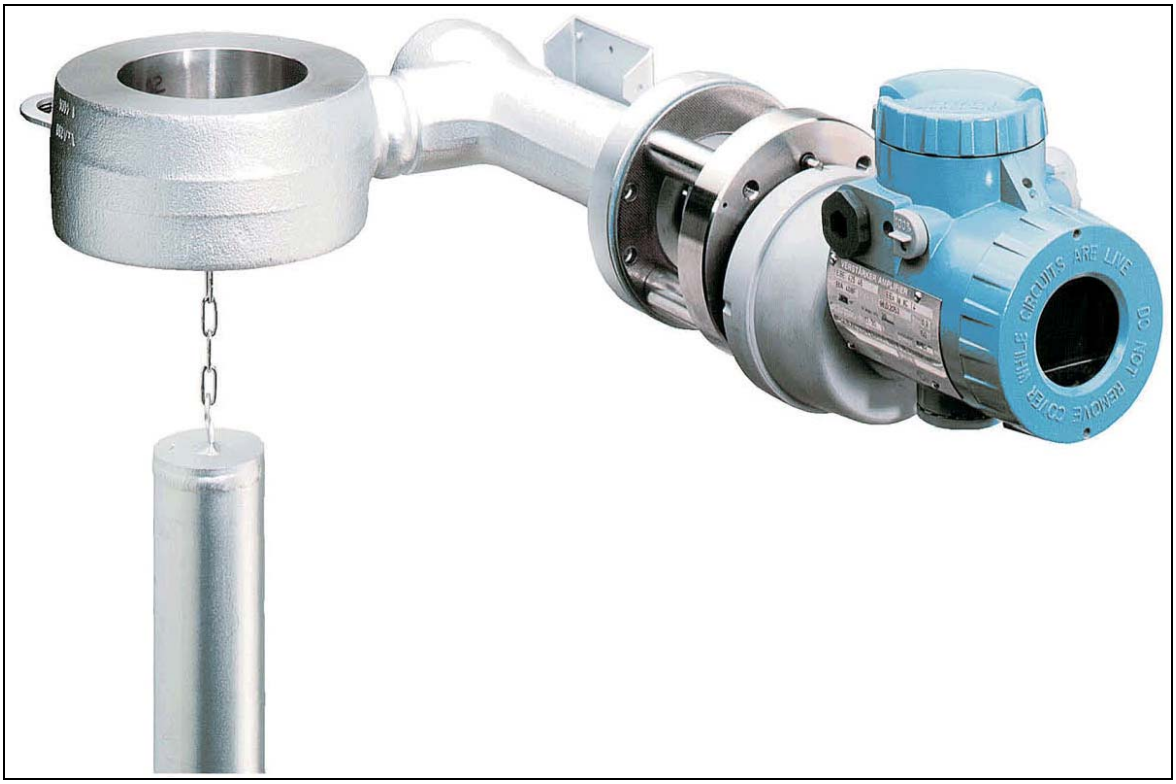
MESS- UND REGELINSTRUMENTE / MEASUREMENT AND CONTROL

TÜVRheinland® CERT ISO 9001

Transmitters for Liquid Level, Interface and Density

Intelligent Buoyancy Transmitter with Torque Tube

Type: 244 LD



Technical Information

01/2010

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Technical Information 244LD
Rev. 0
01/2010
Subject to technical alteration.

Description

The intelligent transmitter is designed to perform measurements for liquid level, interface or density of liquids. The measurement is based on the Archimedes buoyancy principle and thus extremely robust and durable. Measuring values can be transferred analogue and digital. Digital communication facilities complete operation and configuration via PC or control system. Despite extreme temperatures, high process pressure and corrosive liquids, the 244LD measures with consistent reliability and precision. For installations in contact with explosive atmospheres up to Zone 0, certificates are available.

Features

♦	Communication HART, PROFIBUS PA or FOUNDATION Fieldbus
♦	Conventional operation with local keys
♦	Easy adaption to the measuring point without calibration at the workshop
♦	Backdocumentation ort he measuring point
♦	Continuous self-diagnostics
♦	Configurable safety value
♦	Software lock for local keys and reconfiguration
♦	Simulation of analogue output for loop-check
♦	Local display in %, mA or physical Units
♦	Signal noise surpression by Smart Smoothing
♦	Linear or customized characteristic
♦	Process temperatures from -196 °C to +400 °C
♦	Materials for use with aggressive media
♦	Micro sintermetall sensor technology
♦	Separate mounting of sensor and amplifier with remote amplifier mounting kit

Technical data

Input:

Measuring span	2…20 N stufenlos einstellbar
Density range	100 < ρ < 2000 kg/dm³
Displacer 104DE	
Length	350…3000 mm 14..120 inch
Weight of displacer	max. 25 N
Characteristic	linear or customized with up to 32 setpoints

Output:

HART:

Lower range value	Continuously adjustable within the measuring limits
Turn-down	1:1…1:20
Signal range	4…20 mA / 20…4 mA
Operating range	3,8…20 mA
Admissible load	$R_{Bmax} = \frac{U_S - 12V}{0{,}02A}$ (U_S = supply voltage)
Accuracy	±0,2 %
Transfer function	linear

Communication HART

Connection	Two-wire-system
Supply voltage U_S	12...42 V DC, V_{SS} < 1 %
Current sink	max. 23 mA
Signal range	4..20 mA
Operating range	3,8…21 mA
Digital Communication	HART-Protocol, 1200 Baud

Communication PROFIBUS PA / Foundation Fieldbus

Connection	Twisted and shielded two wire cable acc. to recommendation based on IEC 1158-2
Supply voltage U_S	9…32 V DC, V_{SS} < 1 %
Current sink	10,5 mA ± 0,5 mA (base current)
Digital communication	PROFIBUS PA Protocol acc. class B profile, EN 50170 and DIN 19245 part 4
Signal amplitude	± 8 mA
Fault current	< 13 mA
Operating values	acc. IEC 1158-2
Bus connection	Fieldbus-Interface acc. IEC 1158-2

Operating Conditions

Process temperature	-196 °C…+400 °C
Pressure rating	
- acc. DIN	PN16, 40, 63, 100, 160, 250
- acc. ANSI	class 150, 300, 600, 900, 1500
- with heating jacket	wafer body max PN160/Cl. 900; heating jacket PN25, heating with saturated steam or thermal oils
Ambient temperature	
- without indicator	-40 °C…+85 °C
- with indicator	-40 °C…+70 °C
Relative humidity	up to 100 %
Condensation	Permitted
Transportation- / storage temp.	-50 °C…+85 °C
Protection class	IP66 (acc. DIN 40 050)

Ordering informationen

Model code

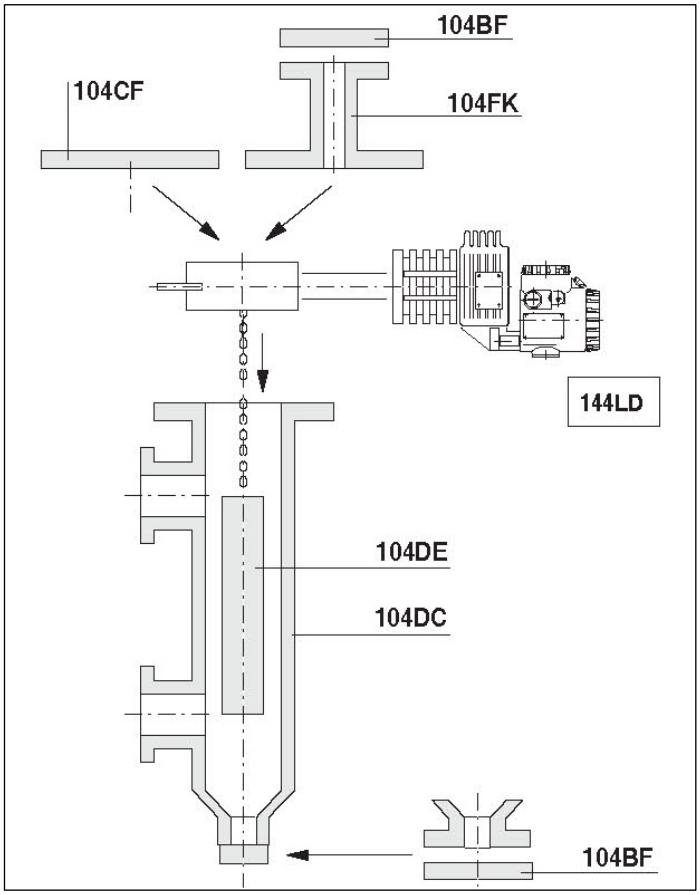
Code	Description		
244LD	**Intelligent buoyancy transmitter with torque tube for liquid level, interface and density measurement**		
	Wafer body material (process wetted)		
	K	Carbon steel 1.0460 / A105	
	S	1.4404 / 316L	
	C	Hastelloy C	
		Torque tube material (process wetted)	
		S	1.4435 / 1.4404 (316L)
		C	Hastelloy C
		I	Inconel 600
			Wafer body (Flange size)
			1 DN80
			2 DN100
			3 3“
			4 4“
			Wafer body (pressure rating and contact face)
			C1 PN40 (PN16 bis PN40) C/C (a)
			E1 PN250 (PN16 bis PN250) E/E (a)
			F1 PN160 (PN16 bis PN160) N/F (a)
			N1 PN160 (PN16 bis PN160) N/N (a)
			L1 PN250 (PN16 bis PN250) L/L (a)
			R1 ANSI Cl. 150 RF/RF (b)
			R2 ANSI Cl. 900 (300/600/900) RF/RF (b)
			R3 ANSI Cl. 1500 RF/RF (b)
			S1 ANSI Cl. 150 SF/SF (b)
			S2 ANSI Cl. 900 (300/600/900) SF/SF (b)
			S3 ANSI Cl. 1500 SF/SF (b)
			J1 ANSI Cl. 150 RJF/RJF (b)
			J2 ANSI Cl. 900 (300/600/900) RJF/RJF (b)
			J3 ANSI Cl. 1500 RJF/RJF (b)
			Wafer body mounting direction (Amplifier to body)
			R Right hand mounted
			L Left hand mounted
			Version
			B Base
			Cable entry
			M M20x1,5 without cable gland
			N ½-14 NPT without cable gland
			Communication
			H HART
			P PROFIBUS PA
			B FOUNDATION Fieldbus H1
			Electrical Classification
			0C4 ATEX instrinsic safe: Zone 0 – IIC T4 (mit HART) (d)
			0C6 ATEX instrinsic safe: Zone 0 – IIC T6 (HART, PROFIBUS or FOUNDATION Fieldbus) (d)
			1C4 ATEX instrinsic safe: Zone 1 – IIC T4 (HART)
			1C6 ATEX instrinsic safe: Zone 1 – IIC T6 (HART, PROFIBUS oder FOUNDATION Fieldbus)
			2C4 ATEX instrinsic safe: Zone 2 – IIC T4 (HART) (c)
			2C6 ATEX instrinsic safe: Zone 2 – IIC T6 (HART, PROFIBUS or FOUNDATION Fieldbus) (c)
			D0C ATEX explosion proof, Zone 0; IIC T6 (d)
			D1C ATEX explosion proof, Zone 1; IIC T6
			NFM FM Nonincendive
			FDZ FM Explosion-proof
			CDZ CSA Explosion-proof
			FAA FM Intrinsically safe
			CAA CSA Intrinsically safe
			ZZZ without

(Fortsetzung auf nächster Seite)

Optionen	
T	Customized configuration
H	Housing compelte stainless steel without external pushbuttons (f)
R	Remote amplifier mounting kit (3 m), mounted (e)
B	Remote amplifier mounting kit (10 m), mounted (e)
Messstellenbeschriftung	
S	Stamped with weather resistant colour
L	Stainless steel label fixed with wire
F	Stainless steel label fixed on amplifier
Nationale Zulassungen	
V	Overfill protection acc. to WHG Environmental Pollution
Zertifikate	
1	EN 10204-2.1 (DIN 50 049-2.1) Certificate of Compliance
2	EN 10204-2.3 (DIN 50 049-2.3) Specific Test Report (Calibration)
3	EN 10204-3.1.B (DIN 50 049-3.1.B) Inspection certificate of process wetted material
4	PED 97/23/EC additional unit verification, acc. to module F/G
6	Comply with NACE Standard MR-01-75 (with wafer body mateial S and torque tube material I or C)
Q	Certificate for SIL2 applications
9	Wasserstand 100
Materialtest	
7	X-Ray and isotope test for weldings
8	Dye penetration test

(a) with wafer body flange size 1 oder 2
(b) with wafer body flange size 3 oder 4
(c)) pending
(d) not with wafer body (pressure rating and contact face) L1, J1, J2, J3
(e)) not with electrical classification FDZ, CDZ, D0C, D1C, 0C6, 1C6
(f) with electrical classification ZZZ, 0C4, 1C4, 2C4, 0C6, 1C6, 2C6, D0C, D1C, FAA, NFM

Zubehör



For displacer element 104DE, displacer chamber 104DC, flange combination 104FK, cover flange kit 104CF and blind flange kit 104BF see 104XX.

Besides the products covered by this brochure, Intra-Automation GmbH also manufactures other high-quality and high precision instruments for industrial measurement tasks. For more information, please contact us (contact details on the backside of this brochure).

Flow measurement

Itabar®-Flow Sensor

IntraSonic IS210 Ultrasonic Flow Meter

Level measurement

ITA-mag. Level Gauge

MAGLINK Level Indicator

Other Measurement Tasks:

DigiFlow Flow and Level Computers

IntraCon Digital Controllers

IntraDigit Digital Indicators / Meters

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