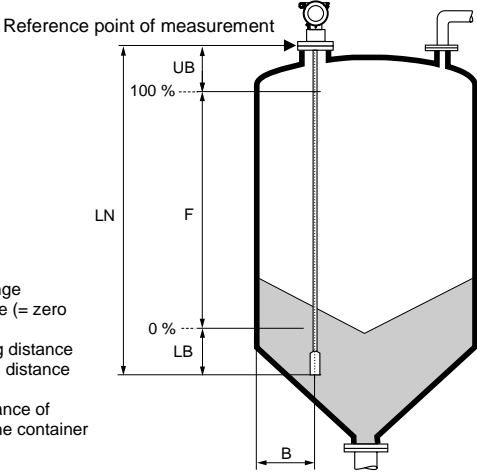
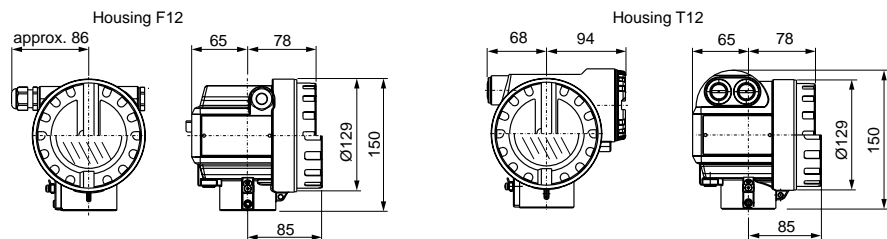


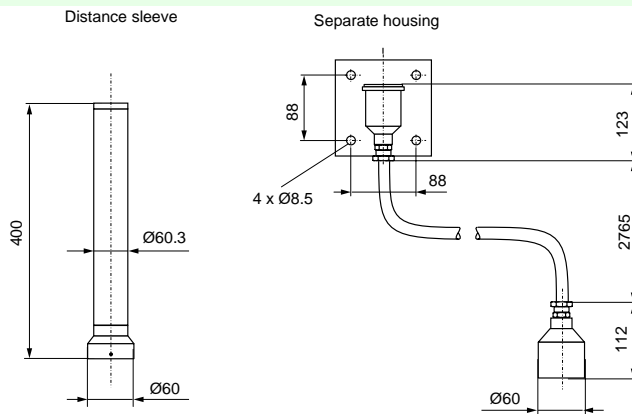
	Pulscon LTC
Application	
Function principle	The Pulscon LTC is a transmitter for continuous level measurement in powdery to granular bulk solids and liquids. The distance from the reference point (process connection of the measuring device) to the product surface is measured. High-frequency pulses are injected to a probe and led along the probe. The pulses are reflected by the product surface, received by the electronic evaluation unit and converted into level information.
Function and system design	
Measuring principle	The Pulscon LTC is a measuring system that functions according to the time-of-flight method. The distance from the reference point (process connection of the measuring device) to the product surface is measured.
Equipment architecture	The Pulscon LTC is usable as single measuring cell or integrated in PROFIBUS PA or Foundation-Fieldbus systems.
Input characteristics	
Measured variable	The measured variable is the distance between a reference point and a reflective surface (e. g. medium surface).
Measuring range	max. 20 m, dependent of the medium, the probe type and the probe length Rod probe 6 mm with process connection ¾": 0.3 ... 2 m Rod probe 16 mm/coax probe: 0.3 ... 4 m Rope probe: 1 ... 20 m
Blocking distance	at $DK \geq 1.8$: top min. 0.2 m, below min. 0.25 m, depends of the probe type at $DK > 10$: top min 0.1m, below min. 0.25 m, depends of the probe type
	 <p>F = measuring range E = empty distance (= zero point) UB = upper blocking distance LB = lower blocking distance LN = probe length B = minimum distance of the probe to the container wall</p> <p>The upper blocking distance (= UB) is the minimum distance from the reference point of the measurement (mounting flange) to the maximum level. The lower blocking distance (= LB) is the range of the probe from the lower edge calculated upwards, in which exact measurement is not possible. The utilisable measuring range amount between lower blocking distance and upper blocking distance. The empty distance value and the measuring range value can tuned independent from it.</p>
Measuring conditions	used frequency spectrum: 0.1 ... 1.5 GHz
Output characteristics	
Output signal	4 ... 20 mA with HART protocol PROFIBUS PA Foundation Fieldbus (FF)
Signal on alarm	Error information can be accessed via the following interfaces: Local display with error symbol, plain text display Current output Digital interface
Load	Connection IH, AH, DH: 250 Ω
Auxiliary energy	
Electrical connection	Terminal assignment: Connection IH: 4 ... 20 mA with HART, 2-wire Connection AH: 4 ... 20 mA with HART, 4-wire active, AC version Connection DH: 4 ... 20 mA with HART, 4-wire active, DC version Connection PA: PROFIBUS PA Connection FF: Foundation Fieldbus
Supply voltage	Connection IH: 10 ... 36 V DC Connection AH: 85 ... 250 V AC Connection DH: 10.5 ... 32 V DC
Cable connection	Connection AH, DH, IH: Cable gland: M20 x 1.5 Cable entry: G½ or ½ NPT Connection PA: M12 plug Connection FF: 7/8" plug

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Pulscon LTC	
Power consumption	60 ... 900 mW
Current consumption	Connection IH, AH, DH: 3.6 ... 22 mA Connection PA: max. 11 mA Connection FF: max. 15 mA
Performance characteristics	
Maximum measured error	Reference operating conditions contain linearity, repeatability and hysteresis: up to 4 m: ± 5 mm, from 4 m: ± 10 mm
Linearity	up to 4 m: ± 3 mm, from 4 m: ± 5 mm
Hysteresis	≤ 1 mm
Resolution	digital: 1 mm, analogue: 5 µA
Reaction time	The reaction time depends on the configuration (min. 1 s). The reaction time is the time the device needs to display a new value after a rapid modification of the level indication.
Operating conditions	
Mounting conditions	
Mounting position	vertical from above
Ambient conditions	
Ambient temperature	F12 housing: -40 ... +80 °C (233 ... 353 K) T12 housing: -40 ... +80 °C (233 ... 353 K) The functionality of the LCD display may be limited for temperatures $T_U < -20$ °C (253 K) and $T_U > +60$ °C (333 K). A weather protection cover should be used for outdoor operation if the instrument is exposed to direct sunlight.
Storage temperature	-40 ... +80 °C (233 ... 353 K)
Climatic class	DIN EN 60068-2-38 (test Z/AD)
Protection class	Housing: IP65, NEMA 4X (open housing: IP20, NEMA 1) Probe: IP68 (NEMA 6P)
Vibration resistance	DIN EN 60068-2-64/IEC 68-2-64: 20 ... 2000 Hz, 1 (m/s ²)/Hz
Electromagnetic compatibility	Emitted interference to EN 61326, CLASS B equipment Interference immunity to EN 61326, annex A (industrial sector) and NAMUR EMC recommendation (NE 21) If the analogue signal is to be used exclusively a conventional cable is sufficient. If the superimposed communication signal (HART/Intensor) is to be used, use a screened cable. When mounting in metal containers and coax probes always NAMUR NE 21, otherwise EN 61326.
Process conditions	
Process temperature	-40 ... +150 °C (233 ... 423 K)
Process pressure limit	-1 ... +40 bar
Dielectric constant	with coax probe: $\epsilon_r \geq 1.4$ Rod and rope probe: $\epsilon_r \geq 1.6$
Mechanical construction	
Design	LTC1 with rope probe LTC3 with rod probe LTC4 with coax probe
Dimensions	Housing: max. 162mm x 162 mm x 150 mm

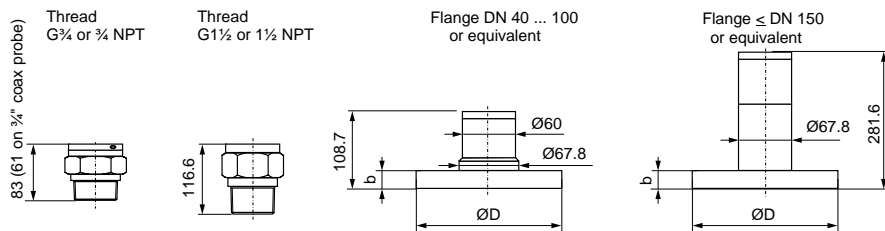


Distance sleeve: diameter 60 mm, height 400 mm
Remote electronic: length 3000 mm

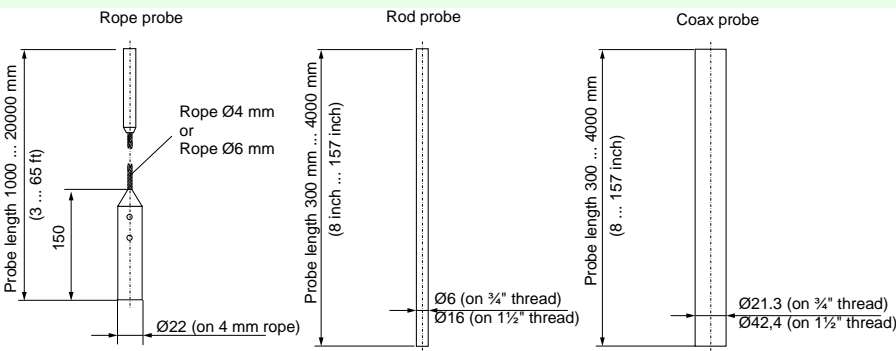


Pulscon LTC

Process connections: length 61 ... 281.6 mm



Rope probe: Ø30 mm, length 1000 ... 20000 mm (3 ... 65 ft)
 Rod probe: Ø6 mm, length 2000 mm (78.5 inch)
 Rod probe: Ø16 mm, length 300 ... 4000 mm (8 ... 157 inch)
 Coax probe: Ø42.4 mm, length 300 ... 4000 mm (8 ... 157 inch)



Weight

Basic weight: approx. 6000 g
 Rope probe Ø4 mm: approx. 200g/m
 Rod probe Ø6 mm: approx. 300 g/m
 Rod probe Ø16 mm: approx. 300 g/m
 Coax probe: approx. 1200 g/m
 Process connections: depending on the design

Material

Housing: aluminium, seawater repellent, chromated, powder-coated
 Sight windows: glass (optional)
 Seal: silicone (solid application), VITON, EPDM, Kalrez (liquid application)
 Rope probe: 1.4401 (304)
 Rod probe, coax probe: 1.4435 (316L)
 Process connections: 1.4435 (316L)

Housing

Housing F12: with sealed terminal compartment for standard or EEx ia
 Housing T12: separate terminal compartment for increased safety or pressurised enclosure

Process connection

see type code

Connection

Cable entry: M20 x 1.5 (cable entry delivered), 1/2 NPT-, G 1/2 internal thread
 PROFIBUS PA: M12 plug
 Fieldbus Foundation: 7/8" plug

Indication and operation

Overview indication and operation

The display of the process value and the configuration of the Pulscon LTC occur locally by means of a large 4-line alphanumeric display with plain text information. The guided menu system with integrated help texts ensures a quick and safe commissioning. Remote commissioning, including documentation of the measuring point and in-depth analysis functions, is supported via the graphical operating program PACTware.

Display elements

Liquid crystal display (LCD), four lines with 20 characters each, display contrast adjustable across key combination

Operating elements

- Operation on the device after opening the housing cover
- On-site operation with LC-Display
- On-site operation with handheld terminal
- Remote operation with PACTware® connections:
 - HART or HART Multiplexer
 - PROFIBUS PA
- Remote operation mit NI-FBUS configurator (only Foundation Fieldbus)

Certificates and approvals

Ex approval

see type code

Type of protection

see type code

Overspill protection

WHG approval in preparation

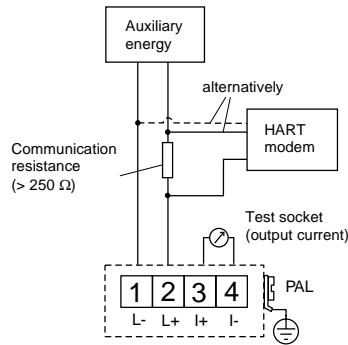
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<p>Other standards and guidelines</p>	<p>Pulscon LTC EN 60529: Protection provided by housings (IP-Code) EN 61010: Sicherheitsbestimmungen für elektrische Mess-, Steuer-, Regel- und Laborgeräte EN 61326: Störaussendung (Betriebsmittel der Klasse B), Störfestigkeit (Anhang A - Industriebereich) NAMUR: Normenarbeitsgemeinschaft für Mess- und Regeltechnik in der Chemischen Industrie</p>	
<p>General information</p>		
<p>Conformity of standards</p>	<p>KEMA XX ATEX XXXX Not yet available. EN 61326-1 EN 50081 EN 50082-2 EN 61010-1 EN 50014 EN 50281-1-1</p>	<p>KEMA XX ATEX XXXX Not yet available. EN 61326 EN 61010-1 EN 50014 EN 50020 EN 50281-1-1</p>
<p>Supplementary information</p>	<p>www.pepperl-fuchs.com</p>	

Electrical connection

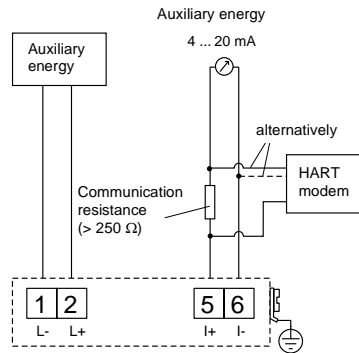
- 2-wire connection with HART (DC)

4 ... 20 mA with HART, 2-wire

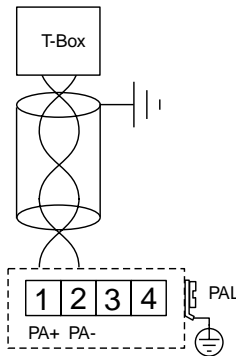


- 4-wire connection with HART (AC),
4-wire connection with HART (DC)

4 ... 20 mA with HART, 4-wire active



- PROFIBUS PA connection



- Foundation-Fieldbus connection

