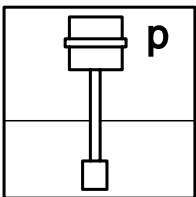


Hydrostatic pressure sensor



LHC-M**

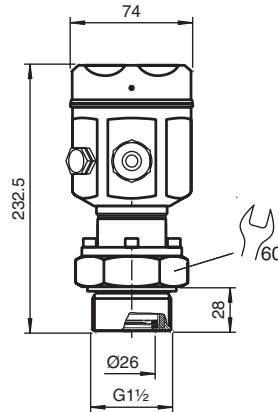


Features

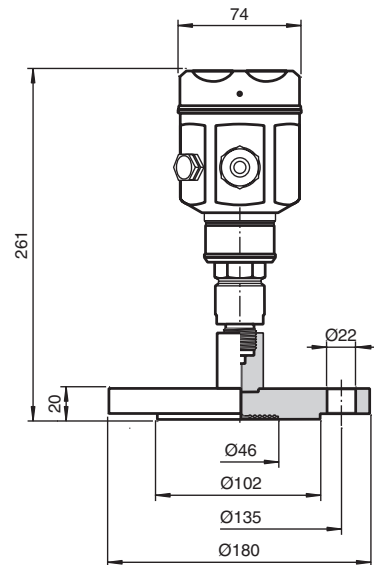
- Hydrostatic pressure sensor for gases, vapors, liquids and dusts
- High accuracy of measurement
- Housing fulfils the special hygienic requirements of the foodstuff and pharmaceutical industries
- Large selection of process connections: universal use
- Dry capacitive ceramic sensor up to 40 bar
- Piezoresistive metal sensor for measuring ranges up to 400 bar
- Wide variety of electronic modules (e. g., relay, thyristor signal output): the right connection for every process control system
- Process connections acc. to EHEDG
- Up to SIL2 acc. to IEC 61508

Dimensions

LHC-M20 with process connection G51



LHC-M40 with process connection F76



Additional dimensions see section dimensions.

Function

The hydrostatic pressure sensor LHC-M** measure absolute and relative pressure in gases, vapours, liquids and dusts.

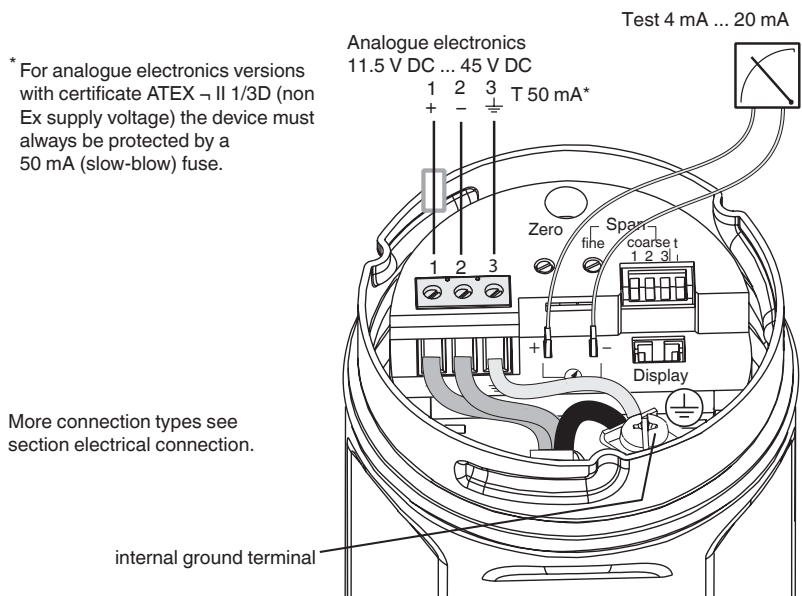
The sensor can be used in all process engineering areas. The modular design of the BARCON pressure transmitter enables it to be used in all industrial environments. All process connections are available as hygienic connections, threaded connections, separators and flanges.

A characteristic material or a special connection method depending on the process have to be used, for example,

- mounting without dead volume for special hygienic applications
- flush mounted installation for solidified or crystallising media
- special material for aggressive media

Electrical connection

Connection I2/IB analogue electronic (example)



* For analogue electronics versions with certificate ATEX - II 1/3D (non Ex supply voltage) the device must always be protected by a 50 mA (slow-blow) fuse.

More connection types see section electrical connection.

Application	
Function principle	<p>sensor for absolute and relative pressure measuring in gases, vapors, liquids and dusts ceramic sensor (LHC-M20) The pressure causes a slight deflection of the ceramic diaphragm of the sensor. The change in the capacitance is proportional to the pressure and is measured by the electrodes of the ceramic sensor, volume of chamber: approx. 2 mm³. metal sensor (LHC-M40) The process pressure acting on the metallic separating diaphragm of the sensor is transmitted via a fill liquid to a resistance bridge. The change in the output voltage of the bridge is proportional to the pressure and is then measured, volume of chamber: smaller than 1 mm³.</p>
Function and system design	
Equipment architecture	<ul style="list-style-type: none"> - with analogue electronics I2/IB 4 ... 20 mA and auxiliary energy, e. g. via transmitter power pack, calibration across potentiometer for lower range value and upper range value, optionally analogue display for measuring value indication - with HART electronics IA/IH with current output 4 ... 20 mA, HART communication signal and auxiliary energy, e. g. via transmitter power pack, calibration via two keys on the device, handheld terminal or PC with operating program, optional digital display for measured variable indication - with PROFIBUS PA electronics PA/PB with digital communication signal PROFIBUS PA and segment coupler for connection to PLC or PC with operating program, optional digital display for measured variable indication
Input characteristics	
Measured variable	absolute or relative pressure
Measurement range	see section measuring range
Output characteristics	
Output signal	<p>analog electronics I2/IB: 4 ... 20 mA HART electronics IA/IH: 4 ... 20 mA with HART protocol PROFIBUS PA electronics PA/PB: digital communication signal</p>
Signal range	analog electronics I2/IB and HART electronics IA/IH: 3.8 ... 20.5 mA
Signal on alarm	<p>analog electronics I2/IB: signal overrun > 20.5 mA or signal underrun < 3.6 mA HART electronics IA/IH: optional 3.6 mA, 22 mA or last current value will be hold PROFIBUS PA electronics PA/PB: can be set in the analog input block, options: last good value (factory setting), FSAFE value, wrong value</p>
Response time	PROFIBUS PA: cyclic: approx. 10 ms per request, acyclic: < 50 ms
Output damping	<p>analog electronics I2/IB: - directly on device using DIP switches, switch position "On" = 2 s, "Off" = 0 s HART electronics IA/IH: - directly on device using DIP switches, switch position "On" = set value, "Off" = 0 s - with handheld terminal or using operating program: 0 ... 40 s - factory setting: 2 s PROFIBUS PA electronics PA/PB: - with handheld terminal or using operating program: 0 ... 40 s - factory setting: 0.0 s</p>
Load	<p>analog electronics I2/IB and HART electronics IA/IH: - max. 1522 Ω at power supply 11.5 ... 45 V DC for devices for non-hazardous areas, 1/3D, EEx d, EEx nA, FM XP, FM DIP, CSA XP and CSA dust-Ex - max. 840 Ω at power supply 11.5 ... 30 V DC for EEx ia, 1D, 1/2D, 1/2G, FM IS and CSA IS</p>
Resolution	<p>analog electronics I2/IB: - current output < 1 μA, onsite display 30 segments HART electronics IA/IH: - current output typ. 1 μA, max. 6 μA, onsite display 28 segments, display value with resolution 1 per thousand PROFIBUS PA electronics PA/PB: - onsite display 28 segments, display value with resolution 1 per thousand</p>
Read cycles	<p>HART commands: on average 3 to 4 per s PROFIBUS PA: cyclic: on average 100/s, acyclic: on average 20/s</p>
Cycle time	<p>PROFIBUS PA: - The cycle time in a bus segment in cyclic data communication depends on the number of devices, the segment coupler used and the internal PLC cycle time. - The minimum cycle time is approx. 20 ms per device.</p>
Auxiliary energy	
Electrical connection	<p>connection cable: - shielded, twisted pair two-wire cable - terminals for wire cross-sections 0.14 ... 2.5 mm² - cable outer diameter: 5 ... 9 mm (0.2 ... 0.35 in) M12 plug Harting plug (Han7D)</p>
Supply voltage	<p>analog electronics I2/IB: 11.5 ... 45 V DC HART electronics IA/IH: 11.5 ... 45 V DC PROFIBUS PA electronics PA/PB: 9 ... 32 V DC Version for hazardous area see safety information.</p>
Current consumption	PROFIBUS PA electronics PA/PB: 11 mA ± 1 mA

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Residual ripple	<p>analog electronics I2/IB and HART electronics IA/IH:</p> <ul style="list-style-type: none"> - without influence on 4 ... 20 mA signal up to $\pm 5\%$ residual ripple within the permitted voltage range (acc. to HART hardware specification HCF_SPEC-54 (DIN IEC 60381-1)) - with HART handheld terminal: max. ripple (measured at 500 Ω) 47 ... 125 Hz: $U_{pp} = 200$ mV, max. noise (measured at 500 Ω) 500 ... 10 kHz: $U_{eff} = 2.2$ mV
Measurement accuracy	
Reference operating conditions	<ul style="list-style-type: none"> - as per IEC 60770 - ambient temperature range $T_{amb} = \text{constant}$, in range: 21 ... 33 °C (294 ... 307 K) - humidity = constant, in range: 20 ... 80 % relative humidity - ambient pressure $p_{amb} = \text{constant}$, in range: 860 ... 1060 mbar - position of measuring cell = constant, in range: horizontal $\pm 1^\circ$ - input of Low Sensor Calibration and High Sensor Calibration for lower range value and upper range value - membrane material ceramic (aluminium oxide ceramic) or stainless steel 1.4435/316L - filling oil: mineral oil - supply voltage: 24 V DC ± 3 V DC - load for HART: 250 Ω - Turn down: 1:1 to 10:1
Maximum measured error	$\pm 0.2\%$ of set span, optional $\pm 0.1\%$ non-linearity of set span
Long-term drift	with reference to the span $\pm 0.1\%$ per year, $\pm 0.25\%$ per 3 years
Influence of vibrations	without any effects up to 5 ... 15 Hz: ± 4 mm (0.16 in) 15 ... 150 Hz: 2 g 150 ... 2000 Hz: 1 g
Rise time	analog electronics I2/IB: 60 ms HART electronics IA/IH: 220 ms PROFIBUS PA electronics PA/PB: 220 ms
Warm-up time	analog electronics I2/IB: 200 ms HART electronics IA/IH: 1 s PROFIBUS PA electronics PA/PB: 1 s
Adjustment time	analog electronics I2/IB: 180 ms HART electronics IA/IH: 600 ms PROFIBUS PA electronics PA/PB: 600 ms
Operating conditions	
Installation conditions	
Installation position	any position, zero point shift due to position can be corrected see Technical Information
Ambient conditions	
Ambient temperature	-40 ... 85 °C (-40 ... 185 °F) onsite display with analogue electronics I2/IB: -30 ... 80 °C (243 ... 353 K) onsite display with HART electronics IA/IH or PROFIBUS PA electronics PA/PB: -25 ... 70 °C (248 ... 343 K) Lower temperatures minimize the display speed.
Storage temperature	-40 ... 100 °C (-40 ... 212 °F) onsite display: -40 ... 80 °C (233 ... 353 K)
Climate class	4K4H, air temperature: -20 ... 55 °C (253 ... 328 K), relative humidity: 4 ... 100 %, condensation possible
Electromagnetic compatibility	<ul style="list-style-type: none"> - maximum deviation: $< 0.5\%$ of span - maximum deviation for 100 mbar sensors: $< 1.25\%$ of span - In the event of surge influence (EN 61000-4-5), deviations greater than the specified measured error can occur briefly. - All measurements were performed with a Turn down = 1:1.
Process conditions	
Medium temperature	LHC-M20: -40 ... 125 °C (233 ... 398 K), up to 150 °C (423 K) for 1 hour LHC-M40: up to 350 °C (623 K)
Medium pressure limits	see section measuring range
Overload resistance	LHC-M20: up to 40 times the nominal pressure (max. 60 bar) LHC-M40: up to 4 times the nominal pressure (max. 600 bar)
Mechanical specifications	
Protection degree	IP66 for devices with cable gland, cable entry IP68 for devices with assembled cable or M12 plug
Mechanical construction	
Construction type	LHC-M20: version with ceramic sensor LHC-M40: version with metal sensor
Dimensions	housings: stainless steel housing 74 x 97 mm (2.9 x 3.8 in), aluminium housing 74 x 117 mm (2.9 x 4.6 in), length depends on process connection and cover process connections see section dimensions
Mass	LHC-M20: stainless steel 1.8 kg, aluminium 2.1 kg LHC-M40: 1.5 ... 16.8 kg, depends from process connection

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Material	<p>housing:</p> <ul style="list-style-type: none"> - stainless steel 1.4404/316L or cast aluminium housing with protective polyester based powder coating <p>nameplates:</p> <ul style="list-style-type: none"> - stainless steel housing: engraved on housing with laser - aluminium housing: 1.4301/304 <p>process connections (in contact with the medium):</p> <ul style="list-style-type: none"> - stainless steel 1.4435/316L <p>process diaphragm (in contact with the medium):</p> <ul style="list-style-type: none"> - LHC-M20: Al₂O₃ aluminium oxide ceramic (FDA listed), 96 %, extremely clean 99.9 % - LHC-M40: stainless steel 1.4435/316L, Hastelloy C276, tantalum, PTFE folio 0.09 mm on 1.4435/316L (not for vacuum), PTFE folio 0.25 mm on 1.4435/316L (not for vacuum) <p>seals:</p> <ul style="list-style-type: none"> - FKM Viton (also in versions grease-free and for oxygen use), NBR, FFKM Kalrez, FFKM Chemraz, EPDM <p>O-ring for cover sealing:</p> <ul style="list-style-type: none"> - stainless steel housing: silicone - aluminium housing: NBR <p>mounting accessories for pipe and wall mounting:</p> <ul style="list-style-type: none"> - stainless steel 1.4301/304 <p>measurement cell:</p> <ul style="list-style-type: none"> - LHC-M20: without oil filling, dry sensor, - LHC-M40: oil filling: optional silicone oil, vegetable oil, glycerine, high temperature oil, fluorolube grease-free for oxygen use <p>capillary:</p> <ul style="list-style-type: none"> - 1.4571/316Ti <p>protective hose for capillary:</p> <ul style="list-style-type: none"> - 1.4301/304
Surface quality	standard surface roughness of parts in contact with the medium $R_a \leq 0.8 \mu\text{m}$, reduces surface roughness on request.
Process connection	<ul style="list-style-type: none"> - cylindrical thread G1A, G1½A, G2A to DIN ISO 228/1 with flat seal to DIN 7603 - conical thread 1 NPT, 1½ NPT, 2 NPT to ANSI B 1.20.1 - Triclamp 2" to ISO 2852 - threaded pipe joint DN40 and DN50 to DIN 1185 - aseptic connection DN40 and DN50 to DIN 11864-1 form A for pipe DIN 11850 - SMS connection 1½" and 2" - Varivent® D = 68 mm (2.7 in) for pipes DN40 ... DN125 to factory standard Tuchenhausen - DRD flange, D = 65 mm (2.6 in) - APV inline PN40 - flanges to EN 1092-1 from DN25, to ANSI B 16.5 from 1", optional with Halar or PVDF coating or tubus <p>For further information see type code.</p>
Electrical connection	<p>housing *1: cable gland M20 x 1.5</p> <p>housing *2: cable gland ½ NPT</p> <p>housing *3: cable gland G½</p> <p>housing *4: Harting plug (Han7D)</p> <p>housing *5: M12 x 1 plug</p> <p>housing *6: assembled cable with pressure compensation, 5 m (197 in)</p>
Indication and operation	
Display elements	<p>analog electronics I2/IB:</p> <ul style="list-style-type: none"> - The analog display gives the current pressure value related to the measuring range in the form of a bar graph (30 segments). <p>HART electronics IA/IH:</p> <ul style="list-style-type: none"> - The digital display gives the pressure in the form of a four-digit number. The appropriate current value from 4 ... 20 mA is shown as a bar graph (28 segments) underneath. <p>PROFIBUS PA electronics PA/PB:</p> <ul style="list-style-type: none"> - The digital display gives the pressure in the form of a four-digit number. The digital display shows the current pressure value in the form of a bar graph (28 segments). <p>display resolution:</p> <ul style="list-style-type: none"> - analog display: bar graph, 1 segment equals 3.33 % of the set span - digital display: 0.1 %, bar graph, 1 segment equals 3.57 % of the set span
Controls	<p>analog electronics I2/IB:</p> <ul style="list-style-type: none"> - operation directly at the measuring point with one potentiometer each for lower range value and upper range value - a three-step range switch - as well as an on/off switch for damping <p>HART electronics IA/IH with HART protocol: operation mode at the measuring point via</p> <ul style="list-style-type: none"> - two push buttons for lower range value and upper range value as well as an on/off switch for damping - the handheld terminal at any point along the 4 ... 20 mA line - a PC with operating program <p>PROFIBUS PA electronics PA/PB: operation mode via</p> <ul style="list-style-type: none"> - two keys for lower-range value and upper-range value - using a PC with operating program
Certificates and approvals	
Ex approval	DMT 02 ATEX E 137, DMT 02 ATEX E 138 , for additional certificates see www.pepperl-fuchs.com

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Type of protection	<p>⊕ II 1G EEx ia IIC T4/T6 (DMT 02 ATEX E 137)</p> <p>⊕ II 1/2G EEx ia IIC T4/T6 (DMT 02 ATEX E 137)</p> <p>⊕ II 2G EEx ia IIC T4/T6 (DMT 02 ATEX E 137)</p> <p>⊕ II 1/2D IP66 T50/82°C (DMT 02 ATEX E 137)</p> <p>⊕ II 1/2D IP66 T85°C (DMT 02 ATEX E 137)</p> <p>⊕ II 1/3D IP66 T110°C (DMT 02 ATEX E 138)</p> <p>⊕ II 3 G EEx nA II T5</p>
SIL classification	up to SIL2 acc. to IEC 61508
General information	
Directive conformity	
Directive 73/23/EEC (Low Voltage Directive)	EN 61010-1
Directive 89/336/EEC (EMC)	emitted interference to EN 61326, class B equipment noise immunity to EN 61326, annex A (industrial sector)
Directive 94/9/EC (ATEX)	EN 50014, EN 50020, EN 50021, EN 50284, EN 50281-1-1
Conformity	
Electromagnetic compatibility	NE 21
Protection degree	EN 60529
Climate class	EN 60721-3-4
Supplementary documentation	<p>technical information LHC-M</p> <p>operating instructions BA200O (version with analogue electronics)</p> <p>operating instructions BA201O (version with HART electronics)</p> <p>operating instructions BA222O (version with PROFIBUS PA electronics)</p> <p>operating instructions KA224O M12 plug with new PIN assignment</p> <p>operating instructions KA525O welded nozzle (LHC-Z21, LHC-Z23, LHC-Z24, LHC-Z25)</p> <p>safety information SI038O (DMT 02 ATEX E 137)</p> <p>safety information SI039O (DMT 02 ATEX E 137)</p> <p>safety information SI040O (DMT 02 ATEX E 138)</p> <p>safety information SI052O (⊕ II3 G EEx nA II T5)</p> <p>safety information SI096O (DMT 02 ATEX E 137), PROFIBUS PA version</p> <p>safety information SI097O (DMT 02 ATEX E 137), PROFIBUS PA version</p> <p>safety information SI098O (DMT 02 ATEX E 138), PROFIBUS PA version</p> <p>FM control drawing ZD039O (version with HART electronics)</p> <p>CSA control drawing ZD040O (version with HART electronics)</p> <p>CSA control drawing ZD051O (version with PROFIBUS PA electronics)</p> <p>FM control drawing ZD052O (version with PROFIBUS PA electronics)</p>
Supplementary information	EC-Type Examination Certificate, Statement of Conformity, Declaration of Conformity, Attestation of Conformity and instructions have to be observed where applicable. For information see www.pepperl-fuchs.com .

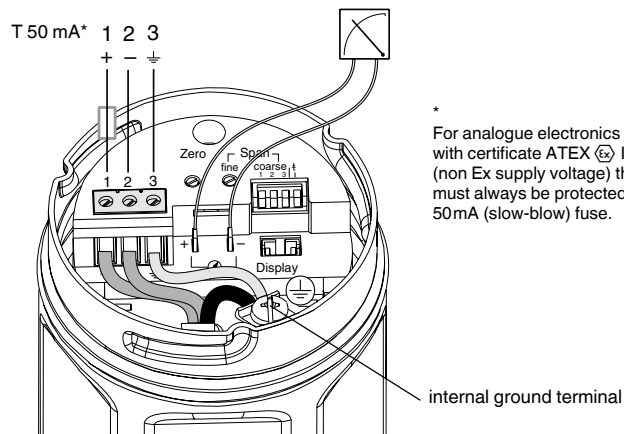
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Electrical connection

Connection I2/IB with analogue electronics

11.5 V DC ... 45 V DC Test 4 mA ... 20 mA

T 50 mA* 1 2 3

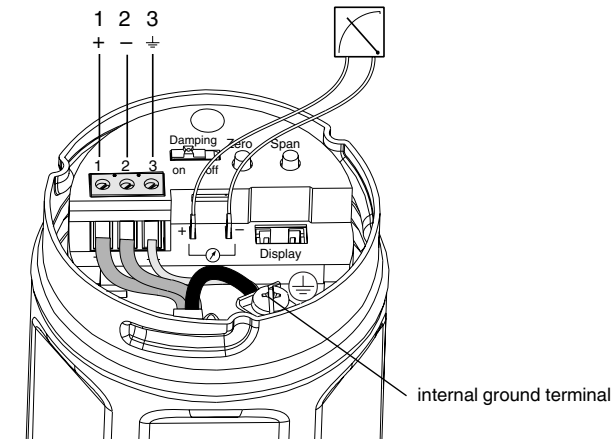


* For analogue electronics versions with certificate ATEX (Ex) II 1/3D (non Ex supply voltage) the device must always be protected by a 50mA (slow-blow) fuse.

Connection IA/IH with HART electronics

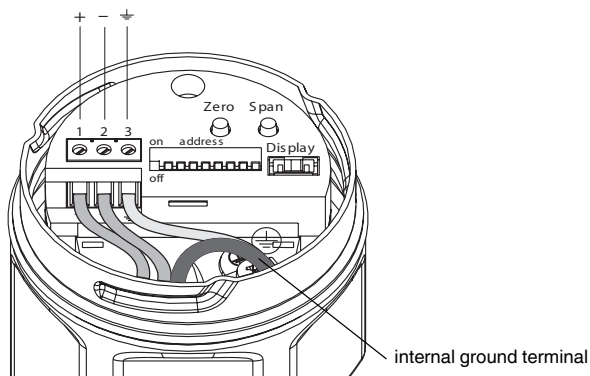
11.5 V DC ... 45 V DC Test 4 mA ... 20 mA

11.5 V DC ... 30 V DC (Ex i)



Connection PA/PB with PROFIBUS PA electronics

9 V DC ... 32 V DC
9 V DC ... 24 V DC (Ex i)

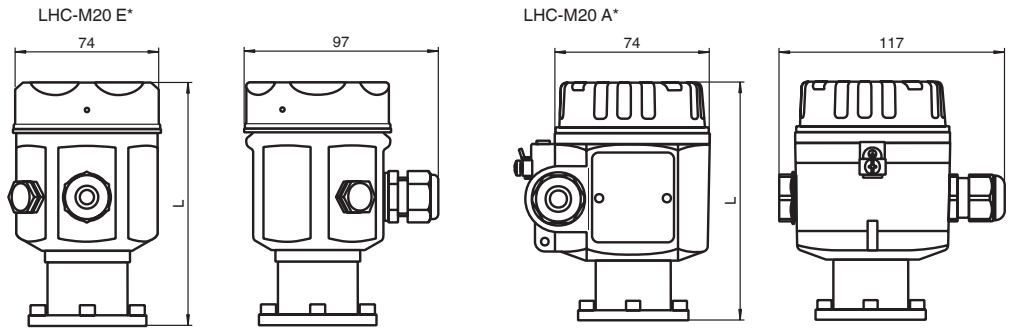


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Dimensions

Housing LHC-M20

Measure L depends on process connection and lid.



Process connections with threads

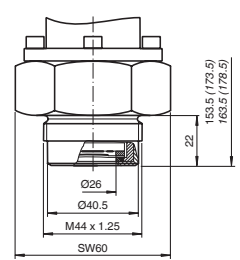
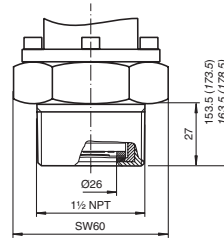
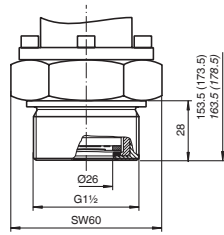
Values in brackets apply for housings with raised cover.

Values in italics apply to devices with an aluminium housing.

G51, G1½

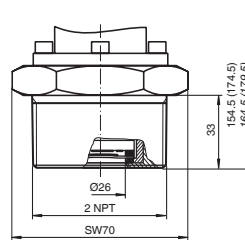
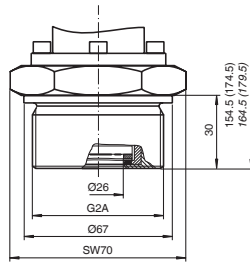
N51, 1½ NPT

MM1, M44 x 1.25



G61, G2

N61, 2 NPT

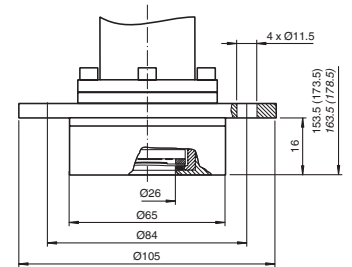
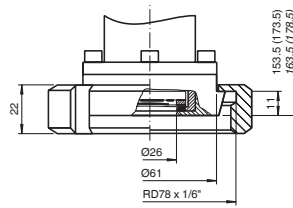
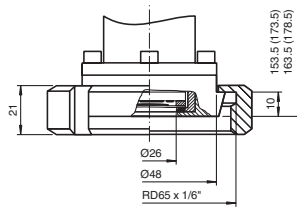


Process connections with sanitary couplings

M65, dairy coupling
DN40, DIN 11851

M75, dairy coupling
DN50, DIN 11851

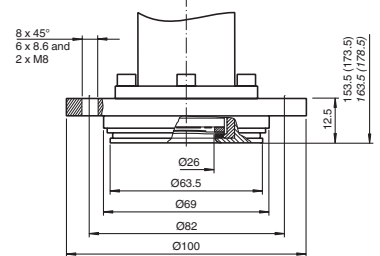
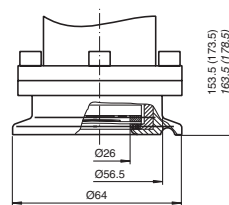
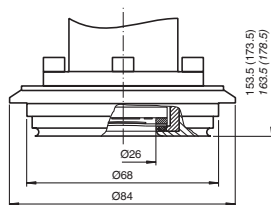
DR1, DRD, D = 65 mm



V11, Varivent for pipes,
D = 65 mm

T65, Triclamp 2*

SP6, APV-Inline



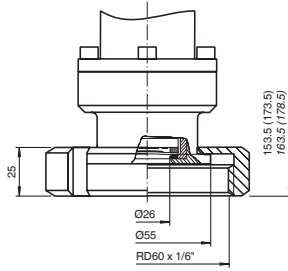
Dimensions

Process connections with sanitary couplings

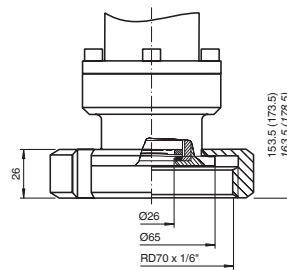
Values in brackets apply for housings with raised cover.

Values in italics apply to devices with an aluminium housing.

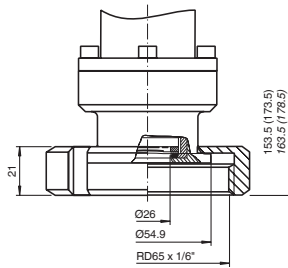
S55, SMS 1 1/2", PN40



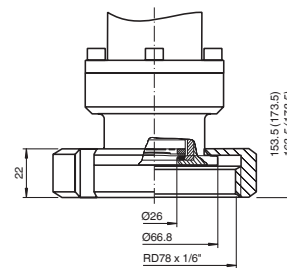
S65, SMS 1 1/2", PN40



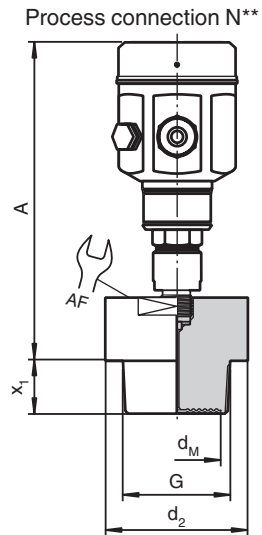
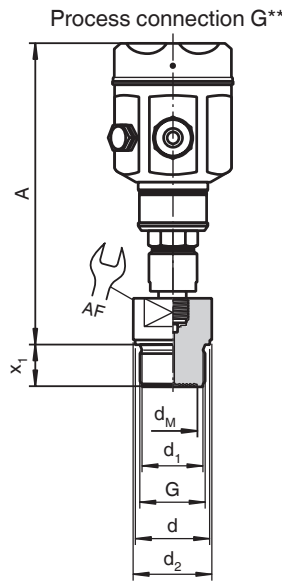
SA6, DN40, aseptic, DIN 11864-1-A



SA7, DN50, aseptic, DIN 11864-1-A



Housing and process connections with threads LHC-M40



Process connection	Threads						Housing		
	threads	diameter	diameter	diameter	thread length	key distance	diaphragm diameter	installation height stainless steel	installation height aluminium
		d ₁	d	d ₂	x ₁	AF	d _M	max. A	max. A
	in	mm	mm	mm	mm	mm	mm	mm	mm
G31	G1	29	39	39	21	41	28	231.5	236.5
G51	G1½	44	55	58	30	41	38	232.5	237.5
G61	G2	56	68	78	30	60	46	237.5	242.5
N31	1 NPT	-	-	-	23	41	23	235.5	240.5
N51	1½ NPT	-	-	52	30	46	32	233.5	238.5
N61	2 NPT	-	-	78	30	65	36	233.5	238.5

Process connections with flange

see type code

Measuring range

LHC-M20				LHC-M40			
pressure type	meas. limits in bar	min. span in bar	overload in bar	pressure type	meas. limits in bar	min. span in bar	overload in bar
gauge pressure	0 ... 0.1	0.01	4	rel. pressure	0 ... 1	0.1	4
gauge pressure	0 ... 0.4	0.04	8	rel. pressure	0 ... 4	0.4	16
gauge pressure	0 ... 1	0.1	10	rel. pressure	0 ... 10	1	40
gauge pressure	0 ... 4	0.4	25	rel. pressure	0 ... 40*	4	160
gauge pressure	0 ... 10	1	40	rel. pressure	0 ... 100*	10	400
gauge pressure	0 ... 40	4	60	rel. pressure	0 ... 400*	40	600
gauge pressure	-0.1 ... 0.1	0.02	4	rel. pressure	-1 ... 1	0.2	4
gauge pressure	-0.4 ... 0.4	0.08	8	rel. pressure	-1 ... 4	0.5	16
gauge pressure	-1 ... 1	0.2	10	rel. pressure	-1 ... 10	1.1	40
gauge pressure	-1 ... 4	0.5	25				
gauge pressure	-1 ... 10	1.1	40				
abs. pressure	0 ... 0.4	0.04	8	abs. pressure	0 ... 1	0.1	4
abs. pressure	0 ... 1	0.1	10	abs. pressure	0 ... 4	0.4	16
abs. pressure	0 ... 4	0.4	25	abs. pressure	0 ... 10	1	40
abs. pressure	0 ... 10	1	40	abs. pressure	0 ... 40	4	160
abs. pressure	0 ... 40	4	60	abs. pressure	0 ... 100	10	400
				abs. pressure	0 ... 400	40	600

*absolute pressure sensors

The given overload will apply for the sensor. Please note the permissible maximum gauge pressure of the diaphragm seals.

Vacuum resistance: up to 10 mbar_{abs}

Accessories

- LHC-Z10, transparent cover with glass for intrinsically safe units
- LHC-Z11, transparent cover with polycarbonate for standard units
- LHC-Z12, transparent cover with glass for intrinsically safe units
- LHC-Z21, dummy for pressure sensors G1A
- LHC-Z23, welded nozzle G1A
- LHC-Z24, welded nozzle G1½A
- LHC-Z25, dummy for pressure sensors G1½A
- LHC-Z30, set for wall and pipe mounting LHC-M20
- LHC-Z31, set for wall and pipe mounting LHC-M40
- LHC-Z40, digital display for electrical outputs IA and PB
- LHC-Z41, analogue display for electrical output IB

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Type code/model number

LHC-M 20

Certificates

- NA for safe areas
EX II 1/2G EEx ia IIC T6
E1 II 2G EEx ia IIC T6
E2 II 3G EEx nA IIC T5
CG CSA General Purpose
C1 CSA IS (suitable for Div. 2), Cl. I, II, III, Div. 1, Group A-G
FM FM IS, Cl. I, II, III, NI, Div. 1, Group A-G

Optional equipment

- N without optional equipment
Z 3.1.B material, wetted parts 1.4435/316L, inspection certificate to EN10204

Electrical output, indication

- NA without electronics/without display
I2 4 mA ... 20 mA, analogue electronics
IB 4 mA ... 20 mA, analogue electronics with display 0 % ... 100 % bar
IH 4 mA ... 20 mA, SMART electronics, HART protocol
IA 4 mA ... 20 mA, SMART electronics, HART protocol with display quadruple and 0 % ... 100 % bar
PA PROFIBUS PA electronics P3.0. in the PNO certification process
PB PROFIBUS PA electronics P3.0 with four-character display and 0 % ... 100 % bar, in the PNO certification process

Housing, cable entry

- E1 stainless steel housing 1.4404/316L, M20 x 1.5 thread, IP66
E2 stainless steel housing 1.4404/316L, 1/2 NPT entry, IP66
E3 stainless steel housing 1.4404/316L, G1/2 entry, IP66
E4 stainless steel housing 1.4404/316L, Harting plug, IP65
E5 stainless steel housing 1.4404/316L, M12 x 1 plug, metal, IP68
E6 stainless steel housing 1.4404/316L, cable IP68 with atmospheric pressure compensation
A1 aluminium housing, M20 x 1.5 thread, IP66
A2 aluminium housing, 1/2 NPT entry, IP66
A3 aluminium housing, G1/2 entry, IP66
A4 aluminium housing, Harting plug, IP65
A5 aluminium housing, M12 x 1 plug, metal, IP68
A6 aluminium housing 1.4404/316L, cable IP68 with atmospheric pressure compensation

Seal, diaphragm

- 1 FKM Viton sensor sealing
2 NBR sensor sealing
4 EPDM sensor sealing
7 Kalrez sensor sealing
A FKM Viton sealing, oil and grease free
C Chemraz sensor sealing

Calibration and technical units

- 1 0.2 %, calibration in sensor limits: mbar/bar
2 0.2 %, calibration in sensor limits: kPa/MPa
3 0.2 %, calibration in sensor limits: mm/mH2O
4 0.2 %, calibration in sensor limits: inH2O/ftH2O
5 0.2 %, calibration in sensor limits: kgf/cm2
6 0.2 %, calibration in sensor limits: psi
B 0.2 %, calibrated from ... to ..., technical unit ...
C 0.1 %, calibrated from ... to ..., technical unit ...

Pressure measuring range

- R1A 0 mbar ... 100 mbar gauge pressure sensor, 10 kPa, 1.5 psig/400 in H2O, overload 40-fold
R1D 0 mbar ... 400 mbar gauge pressure sensor, 40 kPa, 6 psig/160 in H2O, overload 15-fold
R2A 0 bar ... 1 bar gauge pressure sensor, 100 kPa, 15 psig/400 in H2O, overload 10-fold
R2D 0 bar ... 4 bar gauge pressure sensor, 400 kPa, 60 psig, overload six-fold
R3A 0 bar ... 10 bar gauge pressure sensor, 1 MPa, 150 psig, overload quadruple
R3D 0 bar ... 40 bar gauge pressure sensor, 4 MPa, 600 psig, overload 1.5-fold
N1A -100 mbar ... 100 mbar sensor, -10 kPa ... 10 kPa, -40 in ... 40 in H2O, overload 40-fold
N1D -400 mbar ... 400 mbar sensor, -40 kPa ... 40 kPa, -6 psig ... 6 psig, overload 15-fold
N2A -1 bar ... 1 bar sensor, -100 kPa ... 100 kPa, -15 psig ... 15 psig, overload 10-fold
N2D -1 bar ... 4 bar sensor, -100 kPa ... 400 kPa, -15 psig ... 60 psig, overload 6-fold
N3A -1 bar ... 10 bar sensor, -0.1 MPa ... 1 MPa, -15 psig ... 150 psig, overload quadruple
A1D 0 mbar ... 400 mbar absolute pressure sensor, 10 kPa, 6 psia, overload 15-fold
A2A 0 bar ... 1 bar absolute pressure sensor, 100 kPa, 15 psia, overload 10-fold
A2D 0 bar ... 4 bar absolute pressure sensor, 400 kPa, 60 psia, overload 6-fold
A3A 0 bar ... 10 bar absolute pressure sensor, 1 MPa, 150 psia, overload quadruple
A3D 0 bar ... 40 bar absolute pressure sensor, 4 MPa, 600 psia, overload 1.5-fold

Transmitter

M20 ceramic sensor

Continued on next page.

Type code/model number

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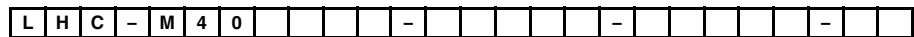
Process connection

- G51** G1½A, DIN ISO 228/1, 1.4435/316L, sealing not changeable
- N51** 1½ NPT, ANSI B 1.20.1, 1.4435/316L, sealing not changeable
- G61** G2A, DIN ISO 228/1, 1.4435/316L
- N61** 2 NPT, ANSI B 1.20.1, 1.4435/316L
- MM1** M44 x 1.25, DIN 13, 1.4435/316L
- T65** 2", DN40-51, Triclamp ISO 2852, 1.4435/316L
- S55** 1½", SMS, PN40, 1.4435/316L
- S65** 2", SMS, PN40, 1.4435/316L
- M65** DN40, PN40, dairy DIN 11851, 1.4435/316L
- M75** DN50, PN40, dairy DIN 11851, 1.4435/316L
- SA6** DN40, aseptic connection DIN11864, 1.4435/316L
- SA7** DN50, aseptic connection DIN11864, 1.4435/316L
- SP6** PN40, APV-Inline, 1.4435/316L
- V11** Varivent D = 68 mm (2.72 in) for pipes DN40 ... DN125, 1.4435/316L
- DR1** DRD flange, D = 65 mm, 1.4435/316L
- F75** DN50, PN25/40, EN 1092-1, 1.4435/316L
- F95** DN80, PN25/40, EN 1092-1, 1.4435/316L
- H75** DN50, PN25/40, EN 1092-1, 1.4435/316L with Halar coating
- H95** DN80, PN25/40, EN 1092-1, 1.4435/316L with Halar coating
- A51** ANSI 1½", ANSI B 16.5, 150 lbs, 1.4435/316L
- A52** ANSI 1½", ANSI B 16.5, 300 lbs, 1.4435/316L
- A61** ANSI 2", ANSI B 16.5, 150 lbs, 1.4435/316L
- A62** ANSI 2", ANSI B 16.5, 300 lbs, 1.4435/316L
- A81** ANSI 3", ANSI B 16.5, 150 lbs, 1.4435/316L
- A82** ANSI 3", ANSI B 16.5, 300 lbs, 1.4435/316L
- A91** ANSI 4", ANSI B 16.5, 150 lbs, 1.4435/316L
- A92** ANSI 4", ANSI B 16.5, 300 lbs, 1.4435/316L
- H21** ANSI 2", ANSI B 16.5, 150 lbs, 1.4435/316L with Halar coating
- H31** ANSI 3", ANSI B 16.5, 150 lbs, 1.4435/316L with Halar coating
- H41** ANSI 4", ANSI B 16.5, 150 lbs, 1.4435/316L with Halar coating
- P21** ANSI 2", ANSI B 16.5, 150 lbs, 1.4435/316L with PVDF coating
- P31** ANSI 3", ANSI B 16.5, 150 lbs, 1.4435/316L with PVDF coating
- S1M** Weld spud 75 mm (3 in), 1.4435/316L
- XXX** special version

Transmitter

- M20** ceramic sensor

Type code/model number



Transmitter
M40 metal sensor, piezoresistive

- Process connection**
- G31** G1A, DIN ISO 228/1, 1.4435/316L
 - G51** G1½A, DIN ISO 228/1, 1.4435/316L
 - G61** G2A, DIN ISO 228/1, 1.4435/316L
 - N31** 1 NPT, ANSI B 1.20.1, 1.4435/316L
 - N52** 1½ NPT, ANSI B 1.20.1, 1.4435/316L
 - N61** 2 NPT, ANSI B 1.20.1, 1.4435/316L
 - T1G** G1½A, DIN ISO 228/1, 1.4435/316L, separator
 - T1N** ½ NPT, ANSI B 1.20.1, 1.4435/316L, separator
 - F34** DN25, PN250, EN 1092-1, 1.4435/316L
 - F35** DN25, PN10/40, EN 1092-1, 1.4435/316L
 - F38** DN25, PN64/160, EN 1092-1, 1.4435/316L
 - F3A** DN25, PN400, EN 1092-1, 1.4435/316L
 - F70** DN50, PN400, EN 1092-1, 1.4435/316L
 - F75** DN50, PN10/40, EN 1092-1, 1.4435/316L
 - F76** DN50, PN64, EN 1092-1, 1.4435/316L
 - F78** DN50, PN100/160, EN 1092-1, 1.4435/316L
 - F79** DN50, PN250, EN 1092-1, 1.4435/316L
 - F7A** DN50, PN10/40 with tubus 50 mm (2 in), EN 1092-1, 1.4435/316L
 - F7B** DN50, PN10/40 with tubus 100 mm (4 in), EN 1092-1, 1.4435/316L
 - F7C** DN50, PN10/40 with tubus 200 mm (8 in), EN 1092-1, 1.4435/316L
 - F9A** DN80, PN10/40 with tubus 50 mm (2 in), EN 1092-1, 1.4435/316L
 - F9B** DN80, PN10/40 with tubus 100 mm (4 in), EN 1092-1, 1.4435/316L
 - F9C** DN50, PN10/40 with tubus 200 mm (8 in), EN 1092-1, 1.4435/316L
 - A31** 1", ANSI B 16.5, 150 lbs, 1.4435/316L
 - A32** 1", ANSI B 16.5, 300 lbs, 1.4435/316L
 - A33** 1", ANSI B 16.5, 400 lbs/600 lbs, 1.4435/316L
 - A37** 1", ANSI B 16.5, 900 lbs/1500 lbs, 1.4435/316L
 - A39** 1", ANSI B 16.5, 2500 lbs, 1.4435/316L
 - A61** 2", ANSI B 16.5, 150 lbs, 1.4435/316L
 - A62** 2", ANSI B 16.5, 300 lbs, 1.4435/316L
 - A63** 2", ANSI B 16.5, 400 lbs/600 lbs, 1.4435/316L
 - A67** 2", ANSI B 16.5, 900 lbs/1500 lbs, 1.4435/316L
 - A69** 2", ANSI B 16.5, 2500 lbs, 1.4435/316L
 - A81** 3", ANSI B 16.5, 150 lbs, 1.4435/316L
 - A82** 3", ANSI B 16.5, 300 lbs, 1.4435/316L
 - A91** 4", ANSI B 16.5, 150 lbs, 1.4435/316L
 - A92** 4", ANSI B 16.5, 300 lbs, 1.4435/316L
 - A6A** 2", with tubus 2", ANSI B 16.5, 150 lbs, 1.4435/316L
 - A6B** 2", with tubus 4", ANSI B 16.5, 150 lbs, 1.4435/316L
 - A6C** 2", with tubus 6", ANSI B 16.5, 150 lbs, 1.4435/316L
 - A8A** 3", with tubus 2", ANSI B 16.5, 150 lbs, 1.4435/316L
 - A8B** 3", with tubus 4", ANSI B 16.5, 150 lbs, 1.4435/316L
 - A8C** 3", with tubus 6", ANSI B 16.5, 150 lbs, 1.4435/316L
 - A9A** 4", with tubus 2", ANSI B 16.5, 150 lbs, 1.4435/316L
 - A9B** 4", with tubus 4", ANSI B 16.5, 150 lbs, 1.4435/316L
 - A9C** 4", with tubus 6", ANSI B 16.5, 150 lbs, 1.4435/316L
 - XXX** special version