

## PP20H - D1 IO-Link

Fully welded pressure sensor with hygienic connection

PP20H-2.#####.D115.#####20.000

### Overview

- IO-Link dual channel output
- All market typical hygienic connections available
- Resistant to all common CIP cleaning media
- Condensate-proof measuring cell
- Space-saving installations from DN 25 on
- Absolute pressure, relative pressure and vacuum measurement



### Technical data

#### Performance characteristics

Pressure type	Absolute Relative (gauged)
Compensated temperature range	-20 ... 105 °C
Long term stability	≤ 0.2 % FSR/a
Max. measuring error	± 0.5 % FSR ± 1.0 % FSR, 0 ... 0.4 bar Including zero-point and span error, non-linearity (by terminal base line), hysteresis and non-repeatability (EN 61298-2)
Max. measuring span	40 bar
Measuring range	-1 ... 40 bar
Standard error of measurement (BFSL)	± 0.2 % FSR ± 0.5 % FSR, 0 ... 0.4 bar Including non-linearity, hysteresis and non-repeatability according BFSL
Min. measuring span	0.4 bar
Rise time (10 ... 90 %)	≤ 5 ms
Temperature coefficient	≤ 0.2 % FSR/10 K, measuring span ≤ 0.2 % FSR/10 K, zero point

#### Process conditions

Process temperature	Depending on process connection Refer to section "Operating conditions"
Process pressure	Refer to section "Operating conditions"
SIP/CIP compatibility	< 35 min, in general @ medium temperature up to 150 °C < 60 min, in general @ medium temperature up to 135 °C < 60 min, with process connection G 1/2 A hygienic @ medium temperature up to 135 °C

#### Process connection

Connection variants	Refer to section "Dimensional drawings"
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#### Process connection

Wetted parts material	AISI 316L (1.4404)
Wetted parts material, membrane	AISI 316L (1.4435)

#### Surface roughness (in contact with medium)

Membrane	Ra ≤ 0.4 µm
Process connection	Ra ≤ 0.8 µm Ra ≤ 0.4 µm, optional with ISO 2852 Tri-Clamp DN 25 (BCID: C03)
Weld joint	Ra ≤ 0.8 µm

#### Ambient conditions

Operating temperature range	-20 ... 85 °C
Storage temperature range	-40 ... 85 °C
Degree of protection (EN 60529)	IP 67, without connector M12-A, 5-pin IP 69, with appropriate cable
Insulation resistance	> 100 MΩ, 500 V DC
Bump (EN 60068-2-27)	100 g / 2 ms, 4000 impulses per axis and direction
Cold (EN 60068-2-1)	Ab: -40 °C, 2 h (not in operation)
Damp heat, cyclic (EN 60068-2-30)	Db: 55°C, Variant 1, 2 cycles (2 · 24 h)
Shock (EN 60068-2-27)	50 g / 11 ms, 100 g / 6 ms, 10 impulses per axis and direction
Vibration (sinusoidal) (EN 60068-2-6)	1.5 mm p-p (10 ... 58 Hz), 10 g (58 Hz ... 2 kHz), 10 cycles (2.5 h) per axis
Vibration, broad-band random (EN 60068-2-64)	0.1 g <sup>2</sup> / Hz, >10 gRMS (20 Hz...1 kHz), 300 min. per axis

#### Output signal

Current output	4 ... 20 mA, 3-wire
Load resistance	Rs ≤ (Vs - 11 V)/0.02 A
Short circuit protection	Yes

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## Technical data

### IO-Link interface

IO-Link version	1.1
Device profile	Smart Sensor Profile
IO-Link port type	Class A
Baud rate	38,4 kbaud (COM2)
SIO-mode	Yes
Process data (cyclic)	Pressure or temperature Switch state State of alert Scaling factor
Diagnostic data (acyclic)	Ambient pressure Device temperature CPU temperature Operation time (since power-on) Device Status Power supply
Adjustable data (acyclic)	Offset settings Switch parameters Measuring mode

### IO-Link interface

Dual Channel	IO-Link / Analogue Analogue / SIO Mode
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### Housing

Style	Compact transmitter
Overall size	Refer to section "Dimensional drawings"
Material	AISI 316L (1.4404)

### Electrical connection

Connector	M12-A, 5-pin, stainless steel, IO-Link output
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### Power supply

Voltage supply range	18 ... 30 V DC , with IO-Link 11 ... 30 V DC , with 4 ... 20 mA output signal
Reverse polarity protection	Yes

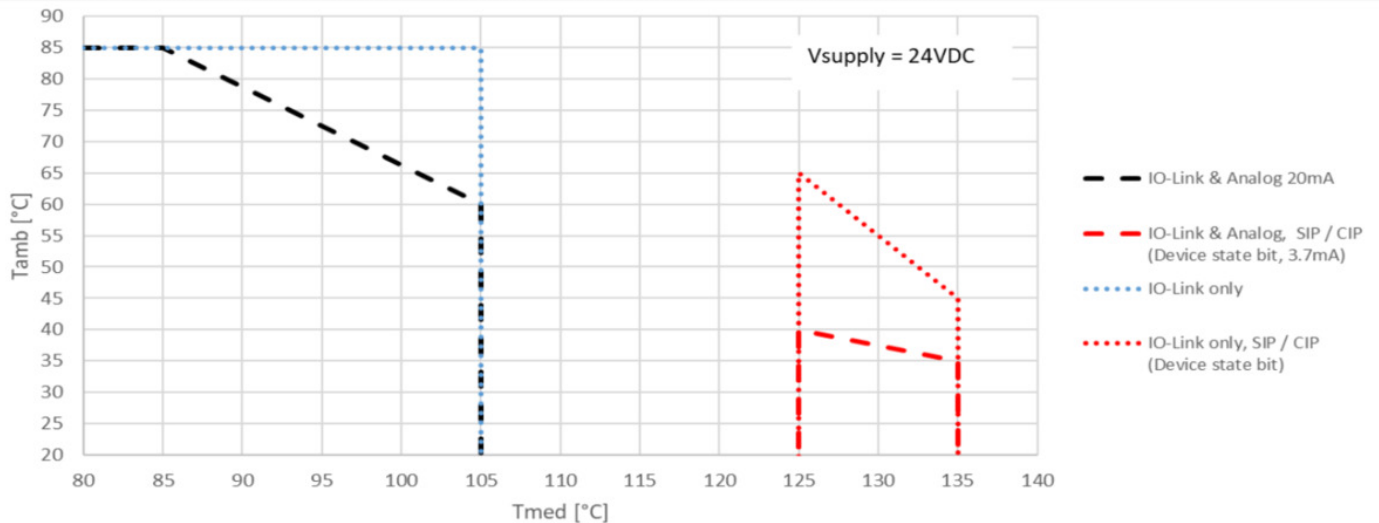
### Compliance and approvals

EMC	EN 61000-6-2 EN 61000-6-3 EN 61326-2-3
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## Operating conditions

Measuring range (bar)			Proof pressure (bar)	Burst pressure (bar)	
-1 ... 0	-1 ... 1	0 ... 0.4	0 ... 1	5	10
-1 ... 3	-1 ... 5	0 ... 2.5		10	20
0 ... 4	0 ... 5			20	40
-1 ... 9	0 ... 6	0 ... 10		50	100
0 ... 16	0 ... 25			80	160
0 ... 40					

## Maximum operating conditions in subject to temperature - process connections codes 41, 44, 48



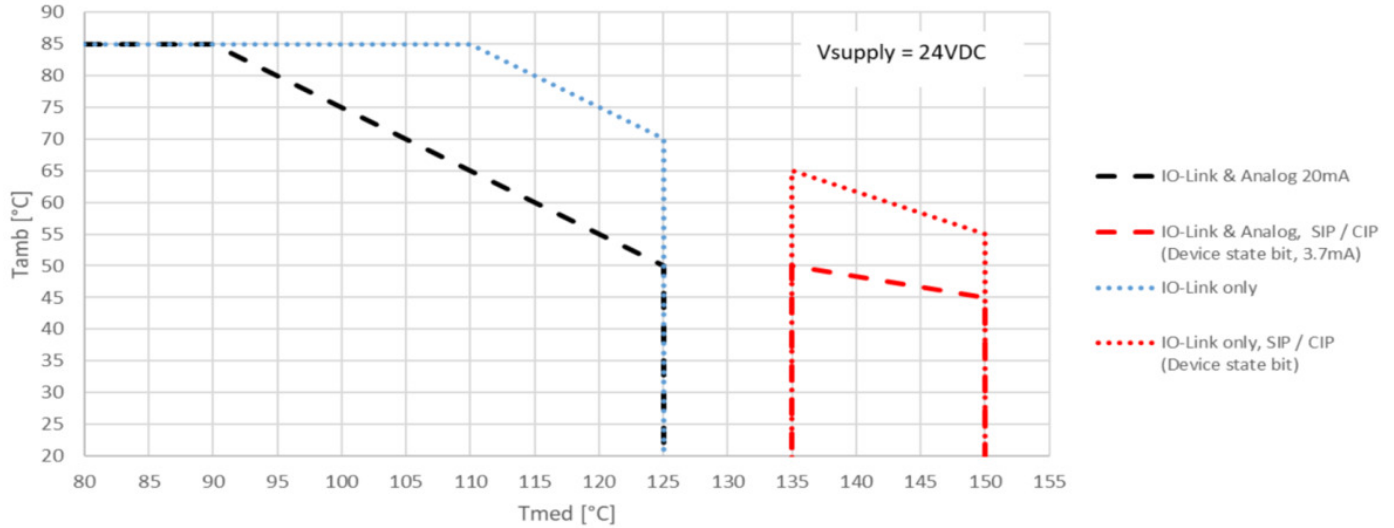
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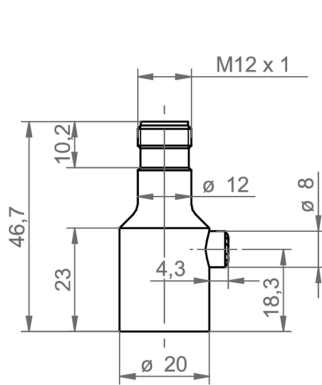
### Operating conditions

Maximum operating conditions in subject to temperature - process connections codes 53, 54, 59, 61, 62, 65, 66, 68

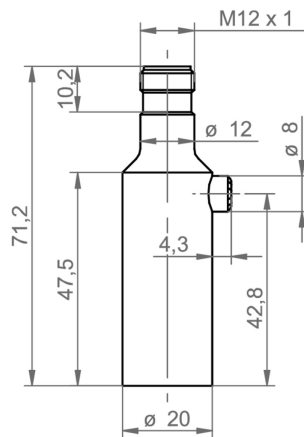


### Dimensional drawings (mm)

#### Housing



Short housing with connector M12-A



Long Housing with connector M12-A

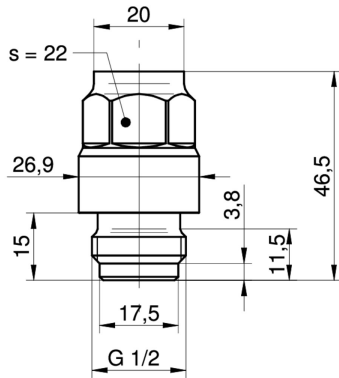
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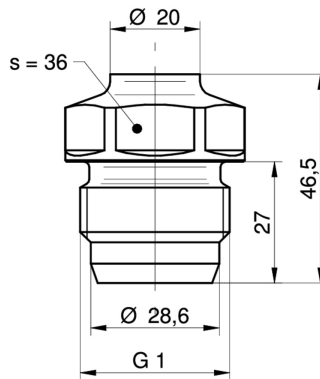
PP20H-2.#####.D115.#####20.000

## Dimensional drawings (mm)

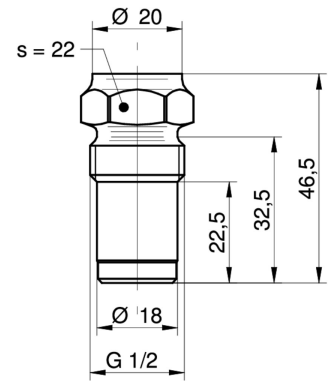
### Process connection



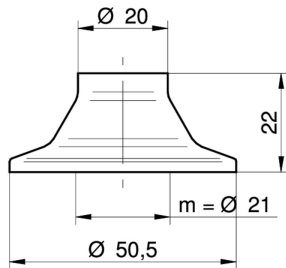
G51-41  
G 1/2 A DIN 3852-E (BCID: G51)



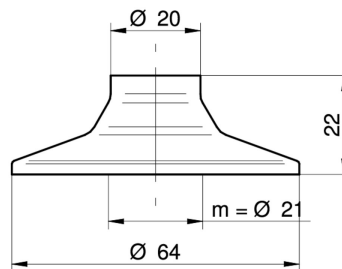
A04-44  
G 1 A hygienic (BCID: A04)



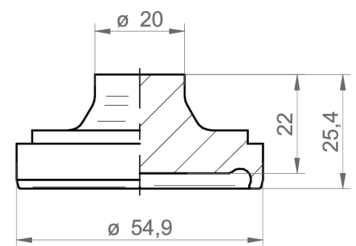
A03-48  
G 1/2 A hygienic (BCID: A03)



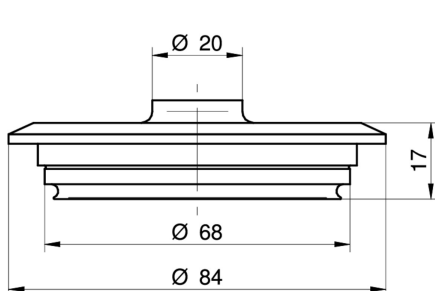
C03-53  
Tri-Clamp Ø 50.5 (BCID: C03)



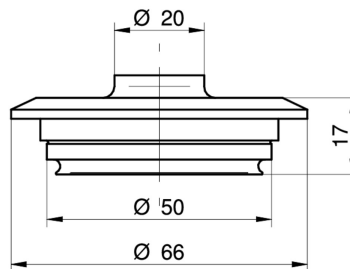
C05-54  
Tri-Clamp Ø 64.0 (BCID: C05)



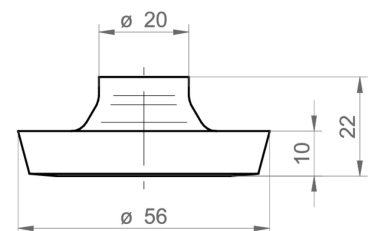
H03-59  
DIN 11864-1-A (aseptic screwed union), DN 40 (BCID: H03)



V02-61  
Varivent® DN 32 ... 125; 1 1/2" ... 6" (Type N), Ø 68 (BCID: V02)



V01-62  
Varivent® DN 25; 1" (Type F), Ø 50 (BCID: V01)



D03-65  
DIN 11851 (dairy pipe connection), DN 40 (BCID: D03)

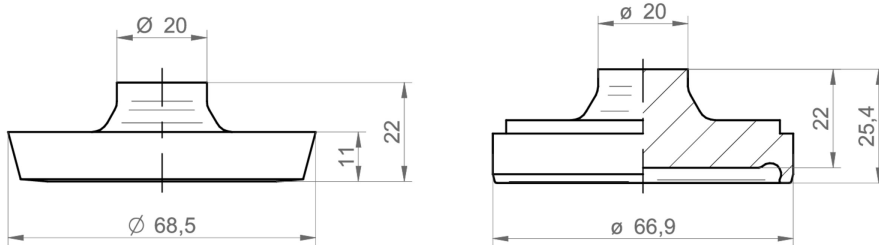
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## Dimensional drawings (mm)

### Process connection



D04-66

DIN 11851 (dairy pipe connection), DN 50  
(BCID: D04)

H04-68

DIN 11864-1-A (aseptic screwed union), DN 50  
(BCID: H04)

## Electrical connection

### Output type

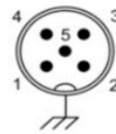
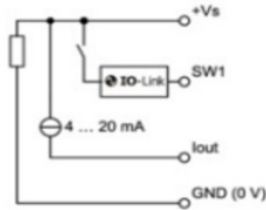
### Equivalent circuit

### Electrical connection

### Function

### Pin assignment

IO-Link & analog 3-wire



+Vs	1
GND (0V)	3
SW1, IO-Link	4
lout	2
Frame ground	plug thread
n.c.	5

### operating mode

### used pins

IO-Link	pin 1, 3, 4
Analog 4 ... 20 mA	pin 1, 2, 3
Dual-channel	pin 1, 2, 3, 4

## Ordering information

Ordering key - Configuration possibilities see website

<b>Product</b>	PP20H	-	2	.	#	###	#	.	D1	15	.	##	#	#	2	0	.	0	0	0
<b>Housing material</b>	PP20H																			
<b>Accuracy</b>	Stainless steel 1.4404 AISI 316L		2																	
	±1.0 % FS						1													
	±0.5 % FS						3													

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### Ordering information

Ordering key - Configuration possibilities see website

	PP20H	-	2	.	#	###	#	.	D1	15	.	##	#	#	2	0	.	0	0	0
<b>Measuring range</b>																				
0 ... 0.4 bar (EN)							B11													
0...1 bar (EN)							B15													
0 ... 2.5 bar (EN)							B18													
0 ... 4 bar (EN)							B19													
0 ... 6 bar (EN)							B20													
0 ... 10 bar (EN)							B22													
0 ... 16 bar (EN)							B24													
0...25 bar (EN)							B26													
0 ... 40 bar (EN)							B27													
-1...0 bar (EN)							B59													
-1...1 bar (EN)							B73													
-1...3 bar (EN)							B76													
-1...5 bar (EN)							B77													
-1...9 bar (EN)							B79													
0...5 bar (EN)							B98													
<b>Kind of pressure</b>																				
Relative (gauged)																				R
Absolute																				A
<b>Output signal</b>																				
IO-Link Dual Ch., 4 ... 20 mA V1																				D1
<b>Output Connection</b>																				
M12-A, 5-pin																				15
<b>Process connection</b>																				
G 1/2 A DIN 3852-E (G51) <sup>(2)</sup>																				41
G 1 A hygienic (A04) <sup>(2)</sup>																				44
G 1/2 A hygienic (A03) <sup>(2)</sup>																				48
ISO 2852 (Tri-Clamp), DN 25, Ø 50.5 (C03) <sup>(1)</sup>																				53
ISO 2852 (Tri-Clamp), DN 40; 51, Ø 64.0 (C05) <sup>(1)</sup>																				54
Varivent® DN 32 ... 125; 1 1/2 ... 6 (Type N), Ø 68 (V02) <sup>(3)</sup>																				61
Varivent® DN 25; 1 (Type F), Ø 50 (V01) <sup>(4)</sup>																				62
DIN 11864-1-A (aseptic screwed union), DN 50 (H04) <sup>(1)</sup>																				68
DIN 11864-1-A (aseptic screwed union), DN 40 (H03) <sup>(3)</sup>																				59
DIN 11851 (dairy pipe connection), DN 40 (D03) <sup>(1)</sup>																				65
DIN 11851 (dairy pipe connection), DN 50 (D04) <sup>(1)</sup>																				66
<b>Process connection material</b>																				
Stainless steel 1.4404 AISI 316L																				2
Stainless steel 1.4404 Ra0.4																				3
<b>Seal</b>																				
None																				0
EPDM																				2
<b>Oil filling</b>																				
NSF H1 listed (FDA approved)																				2
<b>Display</b>																				
Without display																				0
<b>ATEX</b>																				
Standard safety																				0
<b>Approvals</b>																				
Standard approvals																				0

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### Ordering information

Ordering key - Configuration possibilities see website

PP20H - 2 . # ### # . D1 15 . ## # # 2 0 . 0 0 0

### Technology

Silicon

0

- (1) EHEDG only with special gasket
- (2) EHEDG not included
- (3) EHEDG included
- (4) EHEDG not included, only for tank installation