

# PL20H - Adaptive trigger

PL20H-1#####.11#012.A0302#0#000#

## Overview

- Adaptive trigger
- Problem solver for adhesions
- Two adjustable switching outputs
- Possibility for analog output
- Applicable for use in open tanks
- 360° visible multicolor LED
- IO-Link interface



## Technical data

### Performance characteristics

Trigger modes	Adaptive trigger Window trigger Analog output
Measuring principle	CleverLevel level switches (Frequency Sweep)
Hysteresis	± 1 mm
Repeatability	± 1 mm
Media characteristics	DC > 1.5
Response time	< 150 ms
Damping	0 ... 10 s , adjustable

### Process conditions

Process temperature	Refer to section "Operating conditions"
Process pressure	Refer to section "Operating conditions"

### Process connection

Connection variants	Refer to section "Dimensional drawings"
Mounting position	Any, top, bottom, side
Wetted parts material	PEEK Natura AISI 316L (1.4404)
Surface roughness wetted parts	Ra ≤ 0.8 µm

### Ambient conditions

Operating temperature range	-40 ... 85 °C -40 ... 60 °C , with 4 ... 20 mA output signal
Storage temperature range	-40 ... 85 °C
Degree of protection (EN 60529)	IP 67 IP 69K , with appropriate cable
Humidity	< 98 % RH , condensing

### Ambient conditions

Vibration (EN 61373:2010)	Category 2 (bogie-mounted) Functional test: 5.4 m/s <sup>2</sup> , 5...250 Hz, 10 min. per axis Life-time: 30.6 m/s <sup>2</sup> , 5...250 Hz, 5 h per axis
Shock (EN 61373:2010)	Category 2 (bogie-mounted) 300 m/s <sup>2</sup> , 18 ms, 3 impulses per axis and direction

### Output signal

Output type	PNP NPN Digital (push-pull) 4...20 mA
Switching logic	Normally open (NO) Normally closed (NC) Active high Active low
Voltage drop	PNP: (+Vs -1.4 V) ± 0.5 V, Rload ≥ 10 kΩ NPN: (-Vs +0.6 V) ± 0.3 V, Rload ≥ 10 kΩ
Current rating	100 mA , max.
Off leak current	< 100 µA , max.
Short circuit protection	Yes
Interface	IO-Link 1.1

### IO-Link interface

Version	1.1
Port type	Class A
Transmission rate	38,4 kbaud (COM2)
Min. cycle time	6.4 ms
SIO-mode	Yes

### Housing

Style	Compact transmitter
Overall size	Refer to section "Dimensional drawings"

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## Technical data

### Housing

Material Stainless steel

### Electrical connection

 Connector M12-A, 4-pin, polycarbonate  
 M12-A, 4-pin, stainless steel

### Power supply

Voltage supply range 8 ... 35 V DC

 Current consumption (no load) 25 mA , typ.  
 53 mA , max.

Power-up time &lt; 1.5 s

Reverse polarity protection Yes

### Factory settings – Adaptive trigger

Switching logic Normally open (NO)

Advanced setup Disabled

Set point low 0 %

Set point high 100 %

Damping 0 ms

### Factory settings – Adaptive trigger

Steady detection Active

### Factory settings – Window trigger

Switching logic Normally open (NO)

Switch window, min. 0 %

Switch window, max. 75.3 %

Switch window, hysteresis 2.4 %

Damping 0.1 s

### Compliance and approvals

 EMC Emission EN 61326-1:2013  
 EN 50121-3-2:2016

 EMC Immunity EN 61326-1:2013  
 EN 50121-3-2:2016

 Hygiene 3-A (pending)  
 EHEDG (pending)  
 FDA (21 CFR 177.2415)

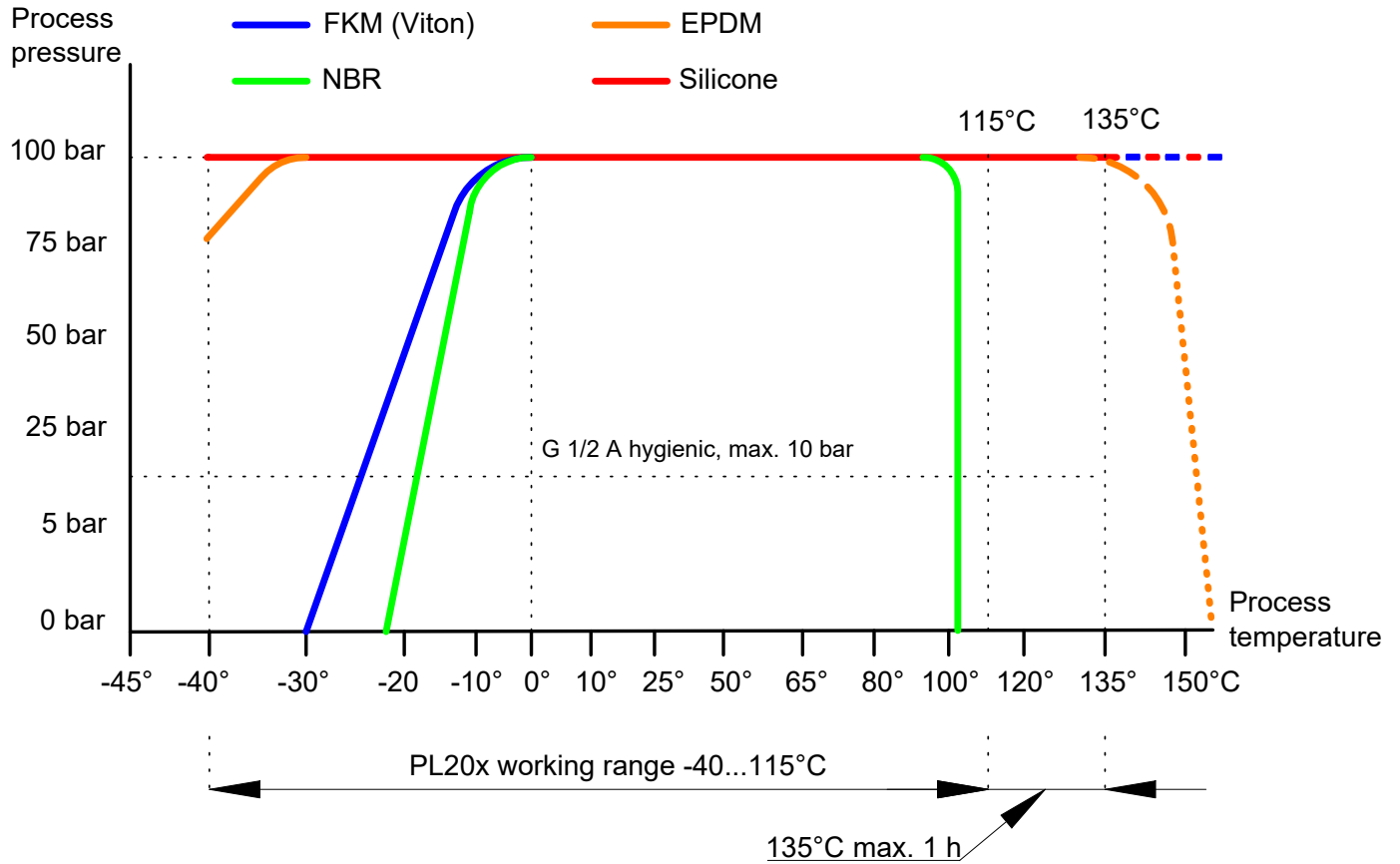
## Operating conditions

Ordering key	Process connection	BCID	Continuous		Temporary (t < 1 h)	
			Process temperature @ Tamb < 50 °C	Process pressure	Process temperature max. @ Tamb < 50 °C	Process pressure @ Process temperature max.
			(° C)	(bar)	(° C)	(bar)
A030	G 1/2 A hygienic	A03	-40 ... 115	-1 ... 10	135	-1 ... 5

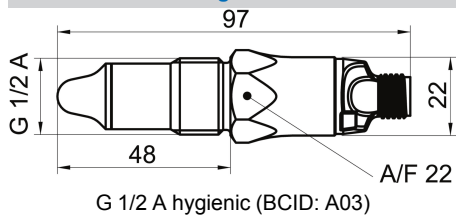
For further information regarding operating conditions please see the graph of the different types of internal O-rings.

**Operating conditions**

**Internal O-ring type**



**Dimensional drawings**



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## Electrical connection

### Process connection

Output type	Equivalent circuit	Electrical connection	Function	Pin assignment
Programmable output IO-Link PNP			+Vs	1
			SW1 (IO-Link)	4
			SW2	2
Programmable output IO-Link NPN			+Vs	1
			SW1 (IO-Link)	4
			SW2	2
Programmable output IO-Link Digital (push-pull)			+Vs	1
			SW1 (IO-Link)	4
			SW2	2
			GND (0 V)	3
			+Vs	1
			SW1 (IO-Link)	4
			SW2	2
			GND (0 V)	3
			Frame Ground	Plug thread

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## Electrical connection

### Process connection

Output type	Equivalent circuit	Electrical connection	Function	Pin assignment
Programmable output IO-Link + Analog 4...20 mA PNP			+Vs	1
			SW1 (IO-Link)	4
			Iout	2
Programmable output IO-Link + Analog 4...20 mA NPN			+Vs	1
			SW1 (IO-Link)	4
			Iout	2
Programmable output IO-Link + Analog 4...20 mA Digital (push-pull)			+Vs	1
			SW1 (IO-Link)	4
			Iout	2
			GND (0 V)	3
			Frame Ground	Plug thread

## Ordering information

### Ordering key - Configuration possibilities see website

	PL20H	-	1	#	#	#	#	.	1	1	#	0	1	2	.	A030	2	#	0	#	0	0	0	#
<b>Product</b>	Level switches																							
<b>Version</b>	Adaptive trigger																							
<b>Trigger mode Switch 1</b>	Adaptive trigger																							
	Window trigger																							
<b>Trigger mode Switch 2</b>	Adaptive trigger																							
	Window trigger																							
	Analog (4...20 mA)																							
<b>Output type switch 1</b>	PNP																							
	NPN																							
	Digital (push-pull)																							

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## Ordering information

Ordering key - Configuration possibilities see website

	PL20H	-	1	#	#	#	#	.	1	1	#	0	1	2	.	A030	2	#	0	#	0	0	0	0	#
<b>Output type switch 2</b>																									
PNP												1													
NPN												2													
Digital (push-pull)												3													
Analog (4...20 mA)												4													
<b>Interface</b>																									
I/O-link												1													
<b>Protection class</b>																									
IP 67, IP69K												1													
<b>Electrical connection</b>																									
M12-A, 4-pin, polycarbonate (with LED)												1													
M12-A, 4-pin, stainless steel (without LED)												2													
<b>Cable length</b>																									
Without cable												0													
<b>Process temperature</b>																									
-40...115 °C												1													
<b>Max. process pressure</b>																									
10 bar																									
<b>Process connection</b>																									
G 1/2 A hygienic (A03)																									
<b>Wetted parts material</b>																									
AISI 316L (1.4404)																									
<b>Surface roughness</b>																									
Ra ≤ 0,8 µm																									
Ra ≤ 0,4 µm																									
<b>Gasket material (external)</b>																									
Without																									
<b>Sealing-/ O-ring (internal)</b>																									
NBR																									
FKM /Viton																									
EPDM																									
Silicone																									
<b>Explosion protection</b>																									
Without																									
<b>Industrial approvals</b>																									
Standard																									
<b>Special approvals</b>																									
Standard																									
<b>Configuration</b>																									
Factory settings																									
Customer-specific																									