

# Electr. Dual Level Switch

# BHS3000

## Features

- ▶ Measuring ranges: 0 ... 1000 mm
- ▶ Max. 2 switch points
- ▶ Analog output 4 - 20 mA or 0 - 10 V
- ▶ Rotatable 320° display & electrical connection
- ▶ Menu navigation refers to VDMA standard
- ▶ IO-Link communication interface

## Applications

- ▶ Chip conveyor
- ▶ Black water tanks



## Technical Data

<b>Sensor element:</b>	Piezoresistive sensor
<b>Materials:</b>	
Wetted parts:	Stainless steel, mat. no. 1.4301
Electronics housing:	Stainless steel, mat. no. V2A, PA / PC
Seals:	FKM, EPDM
<b>Operating elements:</b>	3 easy-response pushbuttons
<b>System of protection:</b>	IP65
<b>Protection class:</b>	III
<b>Electrical connection:</b>	Plug M12 x 1, 4-pin / 5-pin (depending on output code)
<b>Process connection:</b>	see order code
<b>Dimensions:</b>	110 x 41 mm (without plug connector)
<b>Weight:</b>	approx. 200 g
<b>A/D converter:</b>	
Resolution:	12 bit (4096 steps per measuring span)
Scanning rate:	1000 / s
<b>Linearity error:</b>	< ± 0.5 % v. f. s. at +25 °C
<b>Temperature influence:</b>	TC zero < ±0.2 % FSO / 10K TC span < ±0.3 % FSO / 10K
<b>Compensation range:</b>	-10 °C... +70 °C
<b>Repeatability:</b>	±0.1 % FSO
<b>Temperature range:</b>	
Medium:	-25 °C... +100 °C
Electronics:	-10 °C... +70 °C
Storage:	-30 °C... +80 °C
<b>Power supply:</b>	15... 32 V DC, output code 6: 20... 32 V DC reversed polarity protected (SELV, PELV)
<b>Digital display:</b>	4-digit 14-segment LED display, red, digit height 9 mm
<b>Error display:</b>	LED red and alphanumeric display
<b>Power consumption:</b>	approx. 50 mA (without load) output code 6: approx. 80 mA
<b>Analog output:</b>	
Current output:	4...20 mA
Load:	max. RI = (Ub-12V) / 20 mA RI = 600 Ohm at Ub = 24 V DC
Scanning rate:	2 ms
Voltage output:	0...10 V DC
Rating:	max. 10 mA
Adjustment range:	25 %... 100 % f. s.

<b>Transistor switching outputs PNP / IO-Link:</b>		
<b>Switching function:</b>	Normally open/normally closed, standard / window mode and diagnosis function adjustable	
<b>Adjustment range for switching point and hysteresis:</b>	0 %... 125 % f. s.	
<b>Switching frequency:</b>	max. 100 Hz	
<b>Load</b>	max. 500 mA, short-circuit proof, IO-Link: max 250 mA	
<b>Delay</b>	0.0 s ... 50 s adjustable	
<b>Status display(s):</b>	LED(s) red	
<b>Interfaces</b>		
<b>Communication interface</b>	IO-Link	
<b>Transmission type</b>	COM2 (38,4 kBaud)	
<b>IO-Link revision</b>	1.1	
<b>SDCI standard</b>	IEC 61131-9	
<b>Profiles</b>	Smart Sensor	
<b>SIO modules</b>	yes	
<b>Device type</b>	Class A	
<b>Process data variable</b>	1	
<b>Binary data channel</b>	2	
<b>Min. process cycle time [ms]</b>	2.5	
<b>Device ID:</b>		
<b>EMV /ESD</b>	EN 61000-4-2 ESD	4 kV CD / 8 kV AD
	EN 61000-4-3 HF radiated	10 V/m
	EN 61000-4-4 Burst	2 kV
	EN 61000-4-5-Surge	1/2 kV
	EN 61000-4-6 HF conducted	10 V
<b>Shock resistance</b>	DIN EN 60028-2-27	50 g (11 ms)
<b>Vibrations resistance</b>	DIN EN 60028-2-26	20 g (10...2000 Hz)
<b>Approvals:</b>	---	

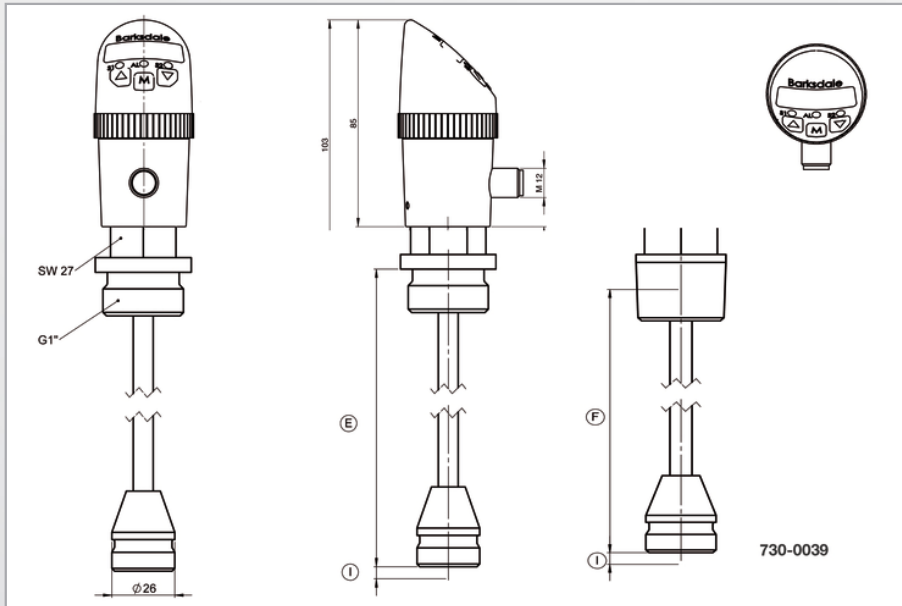
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### Accessories

Order Number	Description
907-0357	Plug connector M12 x 1, 4-pin, with screw terminals, angled (IP65)
907-0185	Plug connector M12 x 1, 5-pin, with screw terminals (IP65)
908-0361	Plug connector M12 x 1, 5-pin, with moulded cable (IP67), 2 m length

### Dimensions (mm / inch)

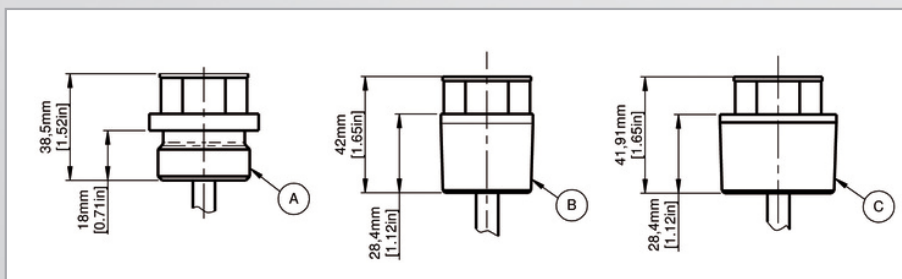


### Legend

E	L0 = total length for G&M threads
F	L0 = total length for NPT threads
I	Tu = dead band bottom

Fitting	Dead band
	Tu (bottom)
G1"	5 ±3
1" NPT	
1¼" NPT	

### Process connection

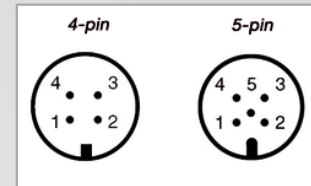


## Electrical Connection

Pin	Signal Order Code 1, 7	Signal Order Code 2, 3	Signal Order Code 4, 5, 8
1	+Ub	+Ub	+Ub
2	SP2	Signal	Signal
3	0V	0V	0V
4	SP1 / IO-Link*	SP1	SP1 IO-Link*
5	-	-	SP2

\* only code 7 and 8

## Plug



## Order Code

### BHS3000

BHS3000	Base Model*
<b>Output</b>	
<b>5-mm resolution</b>	
1	2 switch points
2	4...20 mA and 1 switch point
3	0...10 V DC and 1 switch point
4	4...20 mA and 2 switch points
5	0...10 V DC and 2 switch points
7	IO-Link / 2 switch points (PNP, NPN, PP)
8	IO-Link / 2 switch points (PNP, NPN, PP) / Analog Output
<b>Process Connection</b>	
A	G1" male, without sealing
B	1"NPT male, without sealing
C	1 1/4"NPT male, without sealing
<b>Sealing</b>	
X	without sealing (NPT process connection only)
<b>Electrical Connection</b>	
M	M12 x 1 mm (4, 5 pin)
<b>Total Length L0</b>	
0 2 5 0 M	250 mm (process con. code 2, 5, A and H)
0 3 7 0 M	370 mm (process con. code 2, 5, A and H)
0 4 1 0 M	410 mm (process con. code 2, 5, A and H)
1 0 0 0 M	1000 mm (process con. code 2, 5, A and H)
0 9 . 8 Z	9.8 inch (process con. code 2, 5, A and H)
1 4 . 6 Z	14.6 inch (process con. Code 3, 6, B and C)
1 6 . 1 Z	16.1 inch (process con. Code 3, 6, B and C)
3 9 . 4 Z	39.4 inch (process con. Code 3, 6, B and C)

### Example:

BHS3000 **1** **A** **X** **M** **0 3 7 0 M**

\*Special design on request