

Industrial Product Overview

Sensors & Switches for Fluid Handling Systems



- ▶ Mechanical Pressure Switches
- ▶ Electronic Pressure Switches
- ▶ Electronic Temperature Switch
- ▶ Pressure Transducers
- ▶ Level Switches

Control
every move

Barksdale

CONTROL PRODUCTS

CRANE

Barksdale, Inc./Barksdale GmbH
A Subsidiary of Crane Co.

Control every move - compact, reliable, easy to use

Customer focused

Since 1949, our core values of being market-focused, technology-driven and customer-intimate have guided our product development and our culture. Today, Barksdale has grown into a leading solutions provider with facilities in North America, Europe and Asia. Our global network of technology centers, Channel Partners and support representatives enable local support all over the world.

Crane Co., our parent company, provides over 150-years of expertise as one of the world's largest manufacturers of highly engineered products. Crane's diverse business units work together in developing synergies that benefit our customers.

Application know-how



Energy

- ▶ Windmills
- ▶ Hydro power
- ▶ Fuel cells
- ▶ Power generation



Factory automation

- ▶ Machine tools
- ▶ Metal working
- ▶ Molding
- ▶ Packaging



Mills

- ▶ Steel mills
- ▶ Aluminium extrusion
- ▶ Pulp & paper
- ▶ Glass



Construction equipment

- ▶ Mobile cranes
- ▶ Mining
- ▶ Excavators
- ▶ Drilling

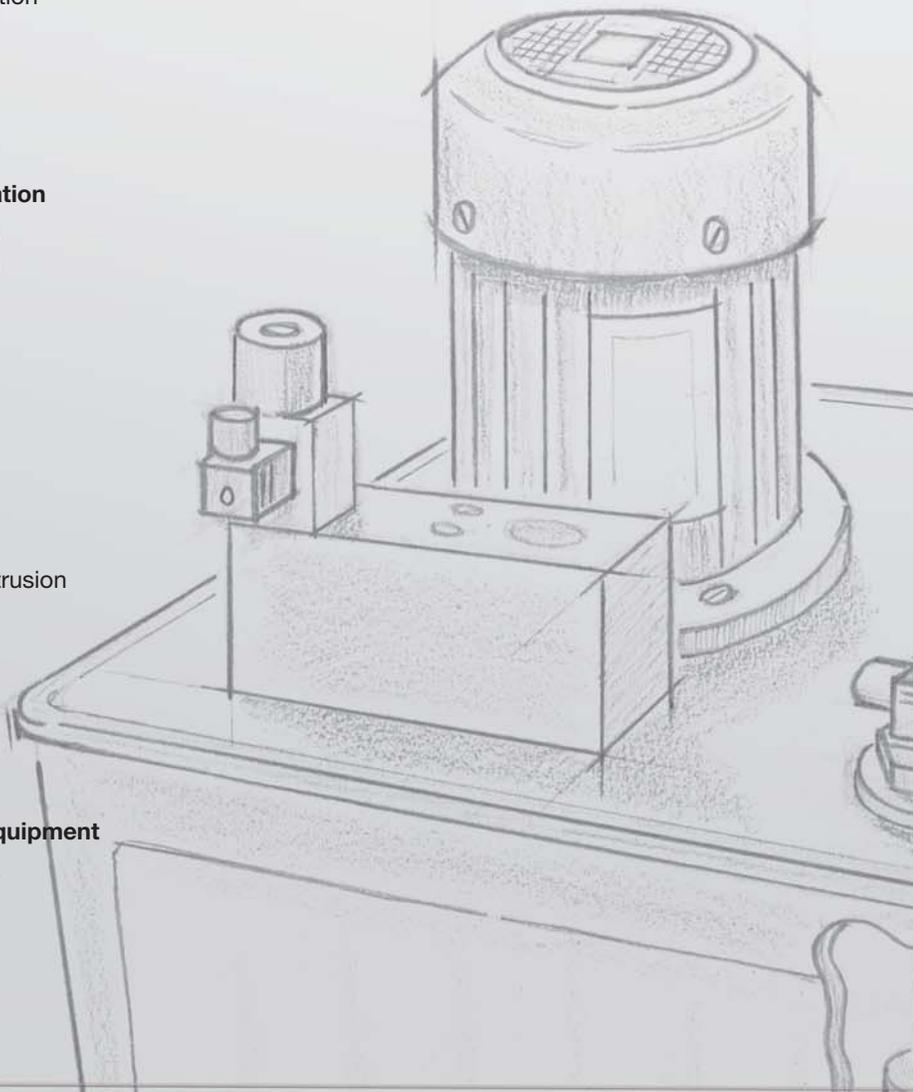
Legacy of reliability

Our products cover a full range of mechanical and electronic control products – from pressure, temperature, and level switches, to transducers and electronic devices. Barksdale consistently provides niche and custom solutions through development of products with the highest standard of quality and reliability for control and monitoring in diverse manufacturing environments.

Barksdale products are found in factory automation, mobile energy, agriculture, chemical processing plants, paper mills, steel mills, medical equipment, emergency rescue equipment, construction equipment, food & beverage dispensing equipment, amusement parks and much, much more.

The solution you need

We offer a wide range of modifications and options on our products, allowing you to customize our standard products to meet your specific application needs. Our team is dedicated to providing solutions to your control and monitoring needs through innovation, quality, and agency compliance, ensuring excellence in customer satisfaction.



Sensors and Switches for Fluid Power Systems

New Generation 3000



Pressure Switches

Electronic Pressure Switches



Electronic Pressure Control

- ▶ Flexibility: multiple process connections
- ▶ Measuring ranges up to 600 bar (9000 psi)
- ▶ Local interface programmable
- ▶ UL approval



Mechanical Pressure Control

- ▶ Manifold (CETOP) or threaded connection
- ▶ Rugged construction
- ▶ Customized hysteresis
- ▶ UL, marine approvals

UNS1000

UNS-MS



Mechanical Level & Temperature Control

- ▶ Rugged construction
- ▶ Integrated temperature control
- ▶ High modification level
- ▶ UL approval

Content

Mechanical Pressure

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Electronic Temperature

BPS3000	8
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Electronic Pressure

BPS3000	10
Switch 2000	12
UDS1V2	14

Electronic Pressure Transducer

Series 623, 625, 626, 627	16
Series 423, 425, 426	18

Level/Temperature

UNS1000 BN18	20
UNS-MS	22
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Pressure

Compact Pressure Switch

Series 8000

Features

- ▶ Proven design in stationary and mobile hydraulic applications
- ▶ Wide setpoint pressure range
- ▶ Available in wide range of configurations
- ▶ Precise setpoint adjustment
- ▶ Factory preset or field adjustable
- ▶ UL Type 4, IP65, IP67, IP68, Ex ia
- ▶ Modular concept
- ▶ Manifold mount
- ▶ Additional process connections

Applications

- ▶ Hydraulic power packs
- ▶ Machine tools
- ▶ Overload controls
- ▶ Railways
- ▶ Factory automation
- ▶ Balers and compactors



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General Specifications*

Repeatability:	±2% typical, diaphragm models ±1% typical, piston models
Microswitch:	SPDT contact
Type:	SPDT contact
Rating:	Silver contacts: 3A @ 250 VAC 5A @ 125 VAC 3A @ 30 VDC Gold contacts: 0.1A @ 125 VAC 0.1A @ 30 VDC
Switching Frequency:	Max. 60 /min piston switch Max. 30/ min diaphragm switch
Wetted Parts:	
Process Fitting:	300 series stainless steel
Housing:	Aluminum die-cast 230
Seals & Diaphragms:	Buna-N (NBR) standard; Viton® (FKM), EPDM (EPR) optional
Adjustment Screw:	300 stainless steel (HEX 5 mm)
Electrical Connection:	See options on next page
Enclosure Ratings*:	NEMA 4; IP65, IP67, IP68

Pressure Connection:	Standard manifold (Additional options available; see product configurator)
Approvals:	
Standard:	UL / cULus (CSA) GOST R
Ex Option:	Intrinsically safe DIN plug version Cable version DIN plug and cable version
<ul style="list-style-type: none"> ⊕ II1G Ex ia IIB T6 ⊕ II1G Ex ia IIC T6 ⊕ II1GD Ex ia D20 T100 	
Ambient Temperature Range:	
Piston Switch:	-40°F to +176°F (-40°C to +80°C)
Diaphragm Switch:	-4°F to +176°F (-20°C to +80°C)
Adjustment Instructions:	
Setpoint Adjustment:	Turn adjustment screw clockwise to increase pressure setpoint; counterclockwise to decrease pressure setpoint.
Shipping Weight:	
Manifold Version:	0.77 lbs. (350 g)
Adaptor Version Straight:	1.36 lbs. (620 g)
Adaptor Version 90° Angle:	1.48 lbs. (675 g)

* See product configurator for additional options.

Wiring Code

(contact status at atmospheric pressure)

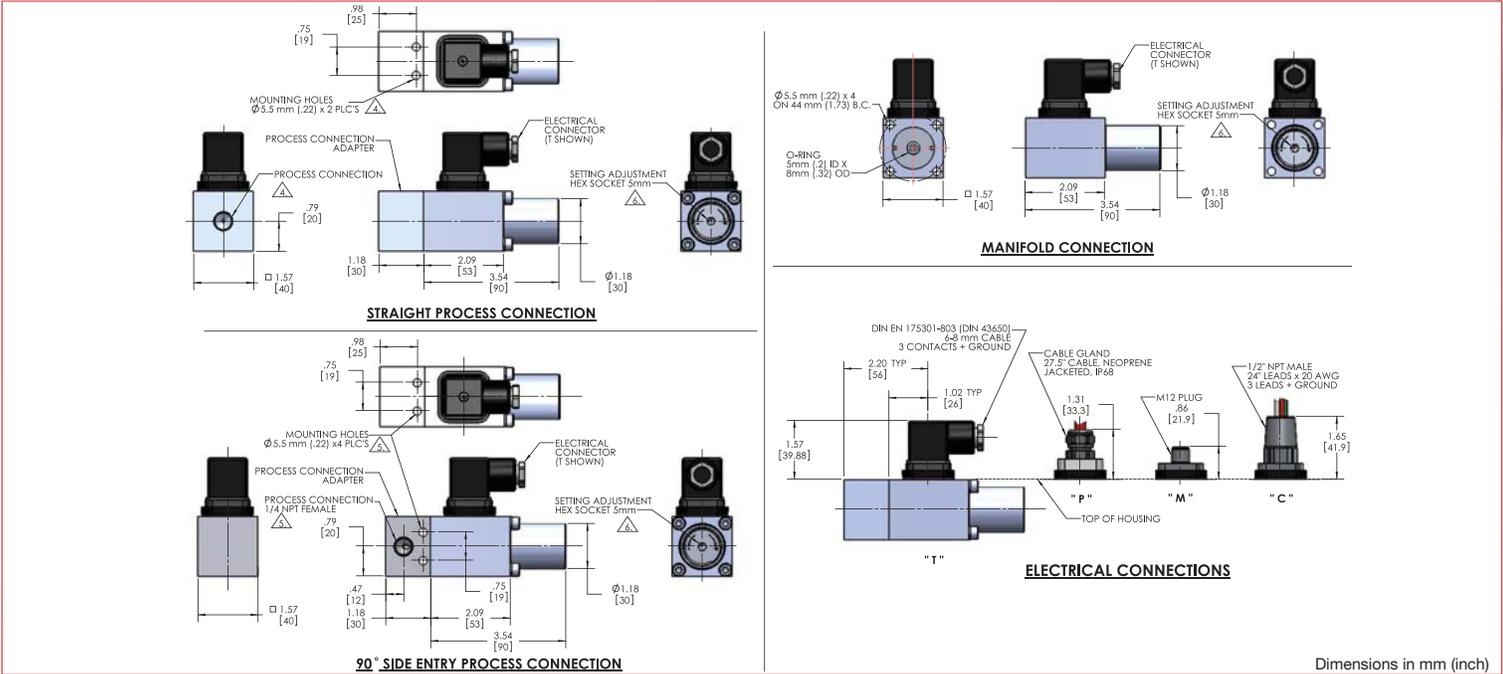


	DIN 43650 Plug (T/B)	M12 Plug (M)	Cable Gland (P)	1/2" NPT Conduit w/ Free Leads (C)
Common	1	1	White	Violet
Normally Closed	2	2	Black	Blue
Normally Open	3	4	Red	Red
Ground	GRD	3	Green	Green

Compact Pressure Switch

Series 8000

Technical Drawings



Product Configurator

Example: **8 A A 1 T B**

Series

8 Series 8000

Process Connections¹

1 ²	Manifold connection flange 40 x 40
2	G1/4" female
A	1/4" NPT female
C	1/8" NPT female
D	1/4" NPT female, 90° side entry
E	7/16-20 UNF SAE-4 female
F	9/16-18 UNF SAE-6 female

SPDT Contacts

1	Silver
2	Gold-plated

*Electrical Connectors

T	Plug DIN 43650 A, IP65 (UR only)
B	DIN 43650, without mating plug, IP65
M	Plug M12, 4-pol. without female plug, IP67 (UR only)
P	Cable gland, 27.5" (0.7 m) cable, neoprene jacketed, IP68
C	1/2" NPTM AWG 20 with 24" (60 cm) leads (3 leads + ground)

*Electrical connectors listed meet NEMA 4 rating

Pressure Range

	Adjustable Ranges				Max. Hysteresis ³ (Dead-band)	Max. Operating Pressure		Proof Pressure					
	(decreasing pressure) psi	(decreasing pressure) bar	(increasing pressure) psi	(increasing pressure) bar		psi	bar	psi	bar				
Diaphragm					≤15% of max adjustable range	725	50	1200	80 ⁽¹⁾				
A	5.8 - 82	0.4 - 5.7	8.7 - 87	0.6 - 6									
B	29 - 246	2.0 - 17	45 - 290	3.1 - 20									
C	43 - 600	3.0 - 41	60 - 650	4.1 - 45	725	50	1200	80 ⁽¹⁾					
Piston					≤15% of max adjustable range	3600	250	8700	600				
D	43 - 2320	3.0 - 160	75 - 2610	5.0 - 180									
E	430 - 4300	30 - 300	750 - 5000	50 - 350						6500	450	8700	600
F	800 - 7550	55 - 520	1200 - 8700	80 - 600						8700	600	13050	900

⁽¹⁾ Proof pressure 2900 psi (200 bar) on request (May shorten the lifetime of the switch).

Accessories

/A	4 pin M12 female right angle plug molded cable, 3.28 feet (1 meter)
/C	4 pin M12 female right angle plug molded cable, 9.84 feet (3 meter)
/E	4 pin M12 female right angle plug molded cable, 16.40 feet (5 meters)
/G	4 pin M12 female straight plug molded cable, 3.28 feet (1 meter)
/I	4 pin M12 female straight plug molded cable, 9.84 feet (3 meter)
/K	4 pin M12 female straight plug molded cable, 16.40 feet (5 meters)
/M	4 pin M12 female straight connector
/N	DIN 43650 type A connector with molded cable 6.56 feet (2 meters)
/O	DIN 43650 type A connector with molded cable, 16.40 feet (5 meters)
/P	4 pin M12 female right angle connector
/Q	DIN 43650 type A connector

Options

E ⁴	Intrinsically safe EX ia (not UL)
L ^{4,5}	Small hysteresis (not UL)
S	300 series stainless steel housing
XXXXR ⁶	Factory set rising
XXXXF ⁶	Factory set falling

Seals

B	Buna -N (NBR)
V	Viton® (FKM)
E	EPDM (EPR)

Notes:

- Consult factory for other process connections, minimum quantities may apply.
- Model 81XX- at pressure ranges is (A to E) delivered with 2 spring washers and 2 mounting screws 5 x 60 mm, steel 10.9, galvanized (hex 4). Pressure range (F) is delivered with 4 mounting screws.
- Consult sales drawing for dead-band chart.
- UL not available for E & L options.
- Only for piston version.
- Factory set examples: If set point is 2500 psi rising, order 2500R, if set point is 500 psi rising, order 0500R.

Compact Pressure Switch

Series 9000

Features

- ▶ Compact design as compared to Series 8000
- ▶ Long pressure spring (enhanced adjustment)
- ▶ Captive set screw
- ▶ Standard DIN 43650 electrical connector
- ▶ NEMA 4 / IP65

Applications

- ▶ OEM applications
- ▶ Hydraulic power units
- ▶ Test equipment
- ▶ Heavy industry
- ▶ Mobile and stationary hydraulics
- ▶ Press Equipment



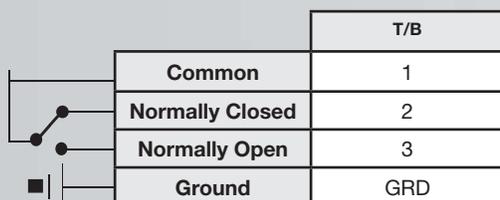
General Specifications*

Repeatability:	±2% (typical)
Microswitch: Type: Rating:	SPDT contact Silver contacts: 10A @ 250 VAC 6A @ 24 VDC
Switching Frequency:	Max. 60/min.
Wetted Parts: Dynamic Seal:	Buna-N (NBR) Viton® (FKM) EPDM (EPR)
Fitting: Piston:	Aluminum Steel
Electrical Connection:	DIN 43650 (EN 175301-8013-A plug)
Adjustment Ranges:	90 to 5800 psi (6 to 400 bar)
Ambient Temperature Range: Storage: Ambient/Media:	-40 °F to +176 °F (-40 °C to +80 °C) -4 °F to +176 °F (-20 °C to +80 °C)

Enclosure Rating:	IP65 / NEMA 4
Material: Housing: Electrical plug: Adjustment screw:	Aluminum Polyamide Stainless steel
Process Connection (female):	1/4" NPT; G1/4 7/16 - 20 UNF SAE 4
Adjustment Instructions: Setpoint Adjustment:	Turn adjustment screw clockwise to increase pressure; counterclockwise to decrease pressure.
Weight:	0.39 lbs (175 g)

* See Product Configurator for additional options.

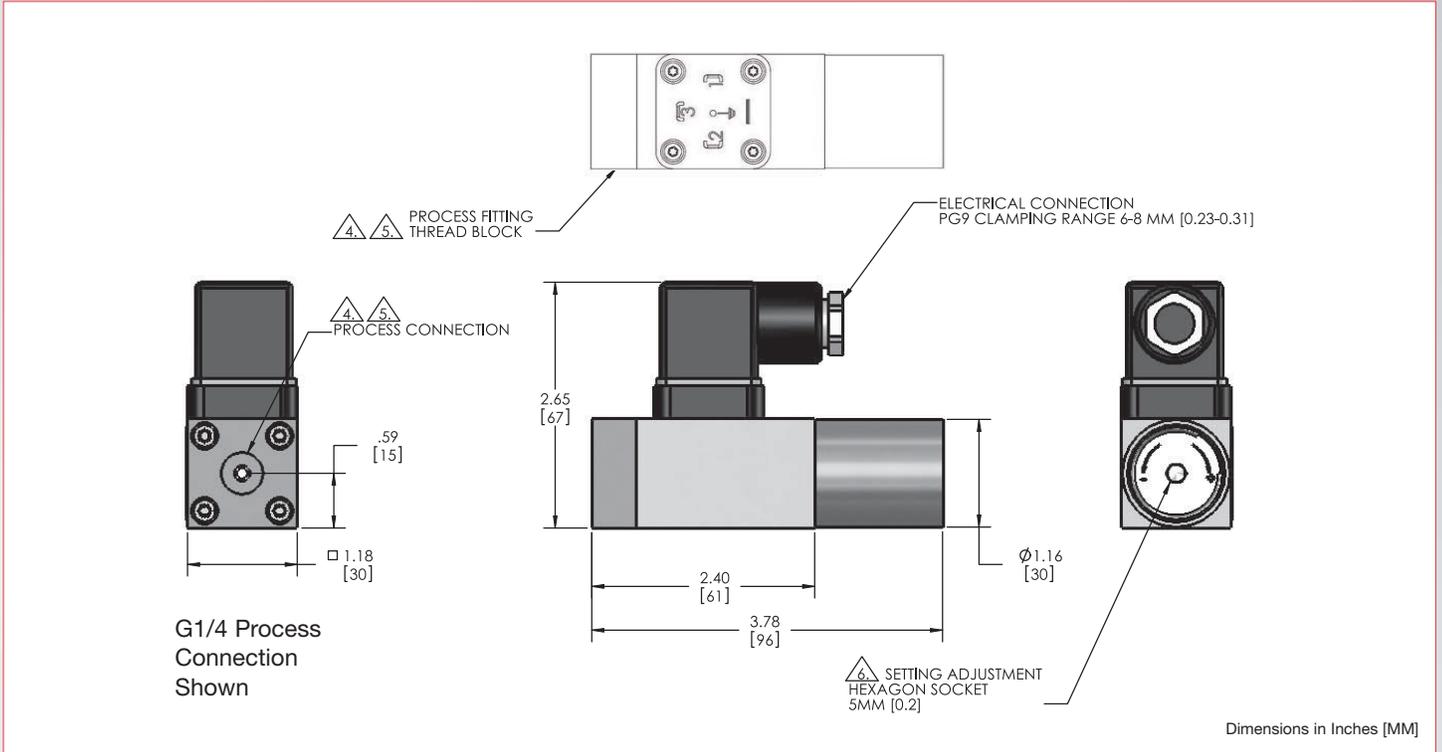
Wiring and Connection Diagram



Compact Pressure Switch

Series 9000

Technical Drawing



Product Configurator

Example **9 A A 1 T V**

Series

9 Series 9000

Process Connection

2	G1/4" female
A	1/4" NPT female
E	7/16-20 UNF (SAE-4) female

Pressure Range

Range	Adjustable Range		Max. Hysteresis at full range max %	Max. Operating Pressure psi (bar)	Proof Pressure psi (bar)
	Decreasing Press. psi (bar)	Increasing Press. psi (bar)			
A	90 - 630 (6 - 44)	145 - 725 (10 - 50)	10%	3620 (250)	4350 (300)
B	220 - 2680 (15-185)	290 - 2900 (20 - 200)		3620 (250)	4350 (300)
C	510 - 5220 (35 - 360)	580 - 5800 (40 - 400)		7250 (500)	8700 (600)

SPDT Contact

1 Silver

Electrical Connection

T	DIN 43650, IP65 (formerly PL1)
B	DIN 43650 without mating plug, IP65

Accessories

/N	DIN 43650 type A connector with molded cable, 6.56 feet (2 meters)
/O	DIN 43650 type A connector with molded cable, 16.40 feet (5 meters)

Options

XXXXR*	Factory setpoint rising (standard)
XXXXF*	Factory setpoint falling

*Example: if setpoint is 2000 rising, order 2000R
If setpoint is 500 falling, order 0500F

Seals

B	BUNA-N (NBR)
V	Viton® (FKM)
E	EPDM (EPR)

Pressure

Electronic Dual Pressure Switch

BPS3000

Features

- ▶ Measuring range: gauge: 0 - 9000 psig, absolute: 0 - 150 psia
- ▶ Enclosure Rating: Type 4X (IP65) / Type 6 (IP67)
- ▶ Suitable for indoor and outdoor usage*
- ▶ One or two switch points
- ▶ 0.50% accuracy
- ▶ Analog output 4 - 20 mA or 0 - 10 V
- ▶ Superior EMI protection
- ▶ Display & electronic connection: rotatable by 320°
- ▶ Simple navigation menu
- ▶ Suitable for rapid cycling applications
- ▶ Hydraulic and pneumatic compatible

Applications

- ▶ Machine tool industry
- ▶ Factory Automation
- ▶ Injection molding machines
- ▶ Lubrication monitoring
- ▶ Pumps and compressors

General Specifications**



Sensor element:	Ceramic sensor (standard) Optional: piezoresistive sensor (For proper sensor selection see product configurator for more details.)
Materials:	
Wetted parts:	304 Stainless steel
Enclosure:	304 Stainless steel/polycarbonate/elastomer/ polyamide
Seals:	FKM fluorelastomer (standard) EPDM (optional)
Operating elements:	3 easy-response push-buttons
Enclosure rating:	Type 4X (IP65) / Type 6 (IP67)
Protection class:	III
Electrical connection:	Plug M12 x 1, 4-pin / 5-pin
Process connection:	1/4" NPT, 1/2" NPT flush diaphragm, 7/16-20 (SAE), 7/16-20 (JIC 37°), G1/4" M, G1/2" flush diaphragm (only piezoresistive)
Dimensions:	1.6 Ø x 4.4 inches (without plug connector)
Weight:	Approx. 0.4 lb (200 g)
Proof pressure:	1.5X rated pressure
A/D-Converter:	
Resolution:	12 bit (4,096 steps per measure span)
Scanning rate:	1000/s
Linearity error:	< ±0.5 % f. s. at +25 °C
Temperature influence:	TC zero < ±0.2 % FSO / 10K TC span < ±0.3 % FSO / 10K
Compensation range:	14°F to 158°F (-10°C to +70°C)
Repeatability:	±0.1% f. s.
Temperature range:	
Media:	-13°F to 212°F (-25°C to +100°C)
Electronics:	14°F to 158°F (-10°C to +70°C)
Storage:	-22°F to 176°F (-30°C to +80°C)
Power supply:	15 to 32 V DC, reversed polarity protected (SELV, PELV) Class 2
Power consumption:	Approx. 50 mA (without load)

Digital display:	4-digit 14-segment LED red display, digit height .35 inches (9 mm)	
Display rate:	20/s	
Error display:	LED RED and alphanumeric display	
Analog output:		
Current output:	4-20 mA	
Scanning rate:	2 ms	
Voltage output:	0 to 10 V DC	
Rating:	max. 10 mA	
Adjustment range:	25% to 100% f. s.	
Transistor switching outputs:		
Switching function	Normally open / normally closed, standard /window mode and diagnosis function adjustable	
Switching output:	PNP	
Adjustment range for switching point and hysteresis:	0% to 125% f. s.	
Switching frequency:	Max. 100 Hz	
Load:	Max. 500 mA, short-circuit-proof	
Delay:	0.0 s to 9.9 s adjustable	
Status display(s):	LED(s) red	
Approvals:	cULus	
EMI	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
	Shock resistance	DIN EN 60028-2-27
Vibration resistance	DIN EN 60028-2-26	20 g (10 to 2000 Hz)

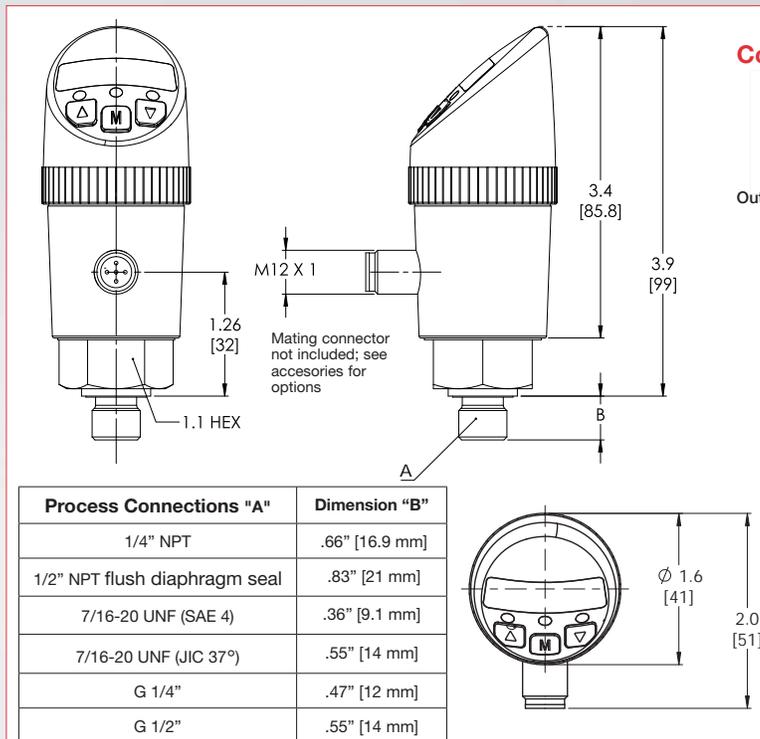
* Unit is made from UV rated materials and UL approved at an IP67 class of ingress protection. LED display may not be easily visible in bright direct sunlight.

** See product configurator for additional options.

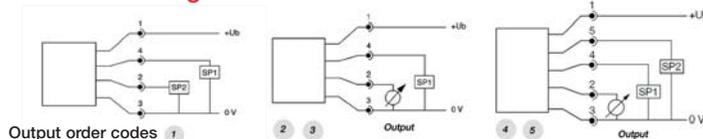
Electronic Dual Pressure Switch

BPS3000

Technical Drawings



Connection diagram



Electrical Connection Chart

M12 Pin Call-Out	Models with 2 switching output	Models with 1 switching output and 1 analog output	Models with 2 switching output and 1 analog output
Color Code of Mating Cable	Plug 4-pin	Plug 4-pin	Plug 5-pin
Pin 1 Brown	15 to 32 VDC	15 to 32 VDC	15 to 32 VDC
Pin 2 White	SP2 (500 mA/100 Hz)	Analog Output (500 mA/100 Hz)	Analog Output (500 mA/100 Hz)
Pin 3 Blue	0 V	0 V	0 V
Pin 4 Black	SP1 (500 mA/100 Hz)	SP1 (500 mA/100 Hz)	SP1 (500 mA/100 Hz)
Pin 5 Gray	Not Applicable	Not Applicable	SP2 (500 mA/100 Hz)

Dimensions [in inches]

Product Configurator

Example **BPS3 4 E V M 6000P P**

Series:

BPS3 Series BPS3000, electronic dual pressure switch

Output:

1	Dual switch point
2	Single switch point plus 4-20mA
3	Single switch point plus 0-10V
4	Dual switch point plus 4-20mA
5	Dual switch plus 0-10V

Process Connections:

N	1/4" NPT male thread
3 ¹	1/2" NPT flush diaphragm seal
E	7/16-20 UNF (SAE 4)
P	7/16-20 UNF male thread (JIC 37°)
G	G1/4" male thread
2 ¹	G1/2" flush diaphragm seal
1	40x40 Cetop/Manifold (contact factory)

Sealing:

V	FKM fluorelastomer (standard)
E	EPDM (EPR) (optional)

Electrical Connection:

M² M12

Sensor:

Blank	Standard ceramic sensor
P	Piezoresistive sensor

Pressure Ranges³

0015PA ^{4, 5}	0 - 15 psia (absolute)
0075PA ^{4, 5}	0 - 75 psia (absolute)
0150PA ^{4, 5}	0 - 150 psia (absolute)
0003P ^{4, 5}	0 - 3 psig
0015P ^{4, 5}	0 - 15 psig
0050P ^{4, 5}	0 - 50 psig
0075P ^{4, 5}	0 - 75 psig
0150P	0 - 150 psig
0750P	0 - 750 psig
1500P	0 - 1500 psig
3000P	0 - 3000 psig
6000P ⁴	0 - 6000 psig
9000P ⁴	0 - 9000 psig

Accessories

Order Number	Description
239535-1M-R-S ⁶	4 Pin M12 Female Right Angle Plug Molded Cable, 3.28 Feet (1 Meter), Shielded
239535-1M-S ⁶	4 Pin M12 Female Straight Plug Molded Cable, 3.28 Feet (1 Meter), Shielded
239537	4 Pin M12 Female Straight Connector
239236	4 Pin M12 Female Right Angle Connector
239546-1M-R-S ⁶	5 Pin M12 Female Right Angle Plug Molded Cable, 3.28 Feet (1 Meter), Shielded
239546-1M-S ⁶	5 Pin M12, Female Straight Plug Molded Cable, 3.28 Feet (1 Meter), Shielded
239548-S	5 Pin M12 Female Straight Connector
239548-R	5 Pin M12 Female Right Angle Connector

Note:

- Only available from 150 to 9000 psig. Piezoresistive sensor only.
- Mating connector not included with unit; mating connectors are available and can be ordered as an accessory.
- Contact factory for ranges not listed including BAR.
- Pressure range requires piezoresistive sensor.
- Units are rated at IP65 only.
- See Cable Connectors & Accessories for more options.

Temperature

Electronic Temperature Switch

BTS3000

Features

- ▶ Measuring range: -22° to +284°F (-30° to +140°C)
- ▶ One or two switch points
- ▶ Analog output 4 - 20 mA or 0 - 10 V
- ▶ Display & electronic connection: rotatable by 320°
- ▶ Simple navigation menu
- ▶ Superior EMI protection
- ▶ 0.50% accuracy
- ▶ Enclosure Rating: Type 4X (IP65) / Type 6 (IP67)

Applications

- ▶ Machine tool industry
- ▶ Hydraulic & pneumatic systems
- ▶ Injection molding machines
- ▶ Cooling monitoring / circuits
- ▶ Lubrication systems
- ▶ Construction machinery
- ▶ Automobile industry



General Specifications*

Sensor element:	PT100 Class A DIN/IEC 60751
Materials:	
Wetted parts:	304 Stainless steel
Enclosure:	304 Stainless steel/polycarbonate/elastomer
Seals:	FKM fluorelastomer (standard) EPDM (optional)
Operating elements:	3 easy-response push-buttons
Enclosure rating:	Type 4X (IP65) / Type 6 (IP67)
Protection class:	III
Electrical connection:	Plug M12 x 1, 4-pin / 5-pin
Process connection:	1/4" NPT Male, 1/2" NPT Male, 7/16-20 UNF (SAE-4) Male, G1/4" Male
Dimensions Enclosure:	1.6 Ø x 4.4 inches (without plug connector and sensor)
Weight:	Approx. 0.4 lb (200 g)
Measuring ranges:	-22°F to +284°F (-30°C to +140°C)
Max. pressure:	2,900 psi (200 bar)
A/D-Converter:	
Resolution:	12 bit (4,096 steps per measure span)
Scanning rate:	1000/s
Time Constant:	Approx. 40 s
Accuracy:	< ±0.5 % f. s. at +25 °C
Repeatability:	±0.1% f. s.
Temperature range:	
Electronics:	14°F to 140°F (-10°C to +60°C)
Storage:	-22°F to 176°F (-30°C to +80°C)
Power supply:	15 to 28 V DC, reversed polarity protected (SELV, PELV) Class 2
Digital display:	4-digit 14-segment LED red display, digit height .35 inches (9 mm)
Display rate:	20/s

Error display:	LED RED and alphanumeric display	
Power consumption:	Approx. 50 mA (without load)	
Analog output:		
Current output:	4-20 mA	
Scanning rate:	2 ms	
Voltage output:	0 to 10 V DC	
Rating:	max. 10 mA	
Adjustment range:	25% to 100% f. s.	
Transistor switching outputs:		
Switching function	Normally open / normally closed, standard /window mode and diagnosis function adjustable	
Switching output:	PNP	
Adjustment range for switching point and hysteresis:	0% to 125% f. s.	
Switching frequency:	Max. 100 Hz	
Load:	Max. 500 mA, short-circuit-proof	
Delay:	0.0 s to 50 s adjustable	
Status display(s):	LED(s) red	
Approvals:	cULus	
EMI	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
	Shock resistance**	DIN EN 60028-2-27
Vibration resistance**	DIN EN 60028-2-26	20 g (10 to 2000 Hz)

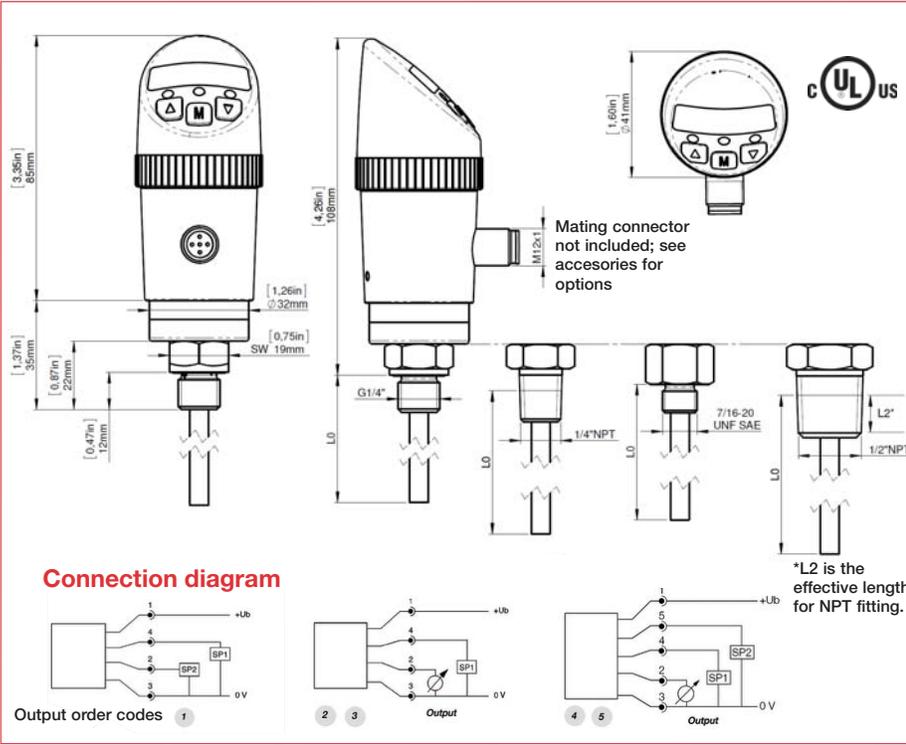
* See product configurator for additional options.

** At probe length over 100mm shock & vibration resistance can be influenced by the application

Electronic Temperature Switch

BTS3000

Technical Drawings



Electrical Connection Chart

M12 Pin Call-Out	Models with 2 switching output	Models with 1 switching output and 1 analog output	Models with 2 switching output and 1 analog output
Color Code of Mating Cable	Plug 4-pin	Plug 4-pin	Plug 5-pin
Pin 1 Brown	15 to 28 VDC	15 to 28 VDC	15 to 28 VDC
Pin 2 White	SP2 (500 mA/100 Hz)	Analog Output (500 mA/100 Hz)	Analog Output (500 mA/100 Hz)
Pin 3 Blue	0 V	0 V	0 V
Pin 4 Black	SP1 (500 mA/100 Hz)	SP1 (500 mA/100 Hz)	SP1 (500 mA/100 Hz)
Pin 5 Gray	Not Applicable	Not Applicable	SP2 (500 mA/100 Hz)

Length	1/4" NPT / 1/2" NPT / 7/16-20 UNF (SAE-4)	G1/4"
L0	.7" [17.78 mm]	0.67" [17 mm]
	2" [50.8 mm]	0.98" [25 mm]
	4" [101.6 mm]	1.97" [50 mm]
	6" [152.4 mm]	3.94" [100 mm]
	12" [304.8 mm]	11.80" [300 mm]
		25.59" [650 mm]

Dimensions inches [mm]

Product Configurator

Example **BTS3 4 E V M 2.00Z 1**

Series: **BTS3** Series BTS3000, electronic dual temperature switch

Output:

1	Dual switch point
2	Single switch point plus 4-20mA
3	Single switch point plus 0-10V
4	Dual switch point plus 4-20mA
5	Dual switch plus 0-10V

Temperature Ranges:

1	0 to 100°C
2	-30 to 140°C
3	32 to 212°F
4	-22 to 284°F

Process Connections:

N	1/4" NPT male thread
3 ¹	1/2" NPT male thread*
E	7/16-20 UNF (SAE 4)
G	G1/4" male thread

* Consult factory

Sealing:

v ²	FKM fluorelastomer (standard)
E ²	EPDM (EPR) (optional)
X	No seal (Required for units with NPT thread)

Electrical Connection:

M³ M12

Sensor Length⁴:

0017M ⁵	17 mm probe
0025M ⁵	25 mm probe
0050M ⁵	50 mm probe
0100M ⁵	100 mm probe
0300M ⁵	300 mm probe
0650M ^{5,6}	650 mm probe
0.70Z ^{1,7}	0.7" probe
2.00Z ^{1,7}	2" probe
4.00Z ^{1,7}	4" probe
6.00Z ^{1,7}	6" probe
12.0Z ^{1,6,7}	12" probe

Accessories

Order Number	Description
239535-1M-R-S ⁸	4 Pin M12 Female Right Angle Plug Molded Cable, 3.28 Feet (1 Meter), Shielded
239535-1M-S ⁸	4 Pin M12 Female Straight Plug Molded Cable, 3.28 Feet (1 Meter), Shielded
239537	4 Pin M12 Female Straight Connector
239236	4 Pin M12 Female Right Angle Connector
239546-1M-R-S ⁸	5 Pin M12 Female Right Angle Molded Cable, 3.28 Feet (1 Meter), Shielded
239546-1M-S ⁸	5 Pin M12, Female Straight Plug Molded Cable, 3.28 Feet (1 Meter), Shielded
239548-S	5 Pin M12 Female Straight Connector
239548-R	5 Pin M12 Female Right Angle Connector

Note:

1. Thermowell option available, consult factory for details.
2. Available only for G and UNF thread.
3. Mating connector not included with unit; mating connectors are available and can be ordered as an accessory.
4. Custom probe length available; minimum quantities may apply.
5. Available only for G thread.
6. At probe length over 11.8" (300 mm), the probe must be kept out of the direct path of the flowing media.
7. Available only for NPT and UNF thread.
8. See Cable Connectors & Accessories for more options.

Solid State

Electronic Pressure Switch

SW2000

Features

- ▶ Pressure control with internal stainless steel diaphragm
- ▶ High accuracy (0.5%) with fully adjustable deadband
- ▶ 2 solid state PNP contacts or 1 solid state PNP contact plus analog output
- ▶ Digital display readout
- ▶ Fully configurable via keypad
- ▶ Suitable for rapid cycling (100 times per second)
- ▶ Rotatable 320° housing (7/16-20 process connection only)
- ▶ cULus approved

Applications

- ▶ OEM-applications in hydraulics and pneumatics
- ▶ Lubrication monitoring
- ▶ Machine tool industry
- ▶ Injection molding machines
- ▶ Compressors and pumps
- ▶ Hydraulic power units



#S0101-H • 10/13

General Specifications*

Linearity Error:	±0.5% f. s. at 77°F(25°C)						
Repeatability:	±0.1% f. s.						
Sensor Element:	Piezoresistive silicone measuring sensor						
Material:	304 stainless steel						
Wetted Parts:	304 stainless steel						
Seals:	Viton® (FKM fluorelastomer)						
Housing:	Aluminum die-cast						
Measuring Ranges (psi):	150	750	1500	3000	6000	9000	
Proof Pressure (psi):	220	1100	2175	4400	9000	11,600	
Process Connection (male):	1/4-18 NPT, 7/16-20 37° JIC, G1/4, 7/16-20 UNF SAE-4						
Electrical Connection:	Plug M 12 x 1; 4-pin						
Power Supply:	15 to 32 VDC reverse polarity protected						
Power Consumption:	approx. 50 mA (without load)						
A/D-Converter:	10 bit (1,024 steps per measure span)						
Resolution:	10 bit (1,024 steps per measure span)						
Scanning Rate:	200/s (for peak value memory)						
Analog Output:	4-20 mA						
Current Output:	max. RI = (Ub-12 V) / 20 mA						
Load:	RI = 600 ohm at 24 VDC						
Load Influence:	0.3% / 100 ohm						
Scanning Rate:	5 ms						
Voltage Output:	0 to 10 VDC (optional)						
Rating:	max. 10 mA, short circuit-proof						
Adjustment Range	25% to 100% f. s.						
Transistor Switching Output(s) PNP:	Normally open / normally closed, standard-/window-mode						
Switching Function	Normally open / normally closed, standard-/window-mode						

Transistor Switching Output(s) PNP Cont.:	Adjustment Range and Hysteresis:	0% to 125% f. s.
	Switching Frequency:	Max. 100 Hz
	Contact Rating:	Switching current 400 mA, short-circuit-proof
	Delay:	0.0 to 9.9 s adjustable
	Status Display(s):	Green LED(s)
Digital Display:	3-digit 7-segment LED display, height 10 mm, (0.39 inches), red	
Display Range:	-1 to 999	
Display Rate:	20/s	
Error Display:	Orange LED (alarm)	
Local Operating Interface:	3 push buttons	
Temperature Range:	Media:	-13°F to 212°F (-25°C to +100°C)
	Ambient:	14°F to 158°F (-10°C to +70°C)
	Storage:	-22°F to 176°F (-30°C to +80°C)
Temperature Influence:	±0.2% f.s. /10K	
Compensation Range:	14°F to 158°F (-10°C to +70°C)	
Enclosure Rating:	Type 4, for indoor use only, (NEMA 4 / IP65)	
Dimensions (Housing):	1-7/16" X 5-1/8" (36 mm x 130 mm) (without electrical plug)	
Additional Features:	Microprocessor, self-monitoring with error code display; all parameters are configured by keypad. Keypad lock, rugged construction, vibration- and shockproof, long term stability	
Weight:	Approx. 0.4 lb (200 g)	
Approvals:	cULus: file No. E42816	

* See product configurator for additional options.

Electronic Pressure Switch

SW2000

Technical Drawings

WIRE COLOR CODE / PIN ASSIGNMENTS

PLUG M 12 x 1 4PIN	MODEL WITH 2 SWITCHING OUTPUTS	MODEL WITH 1 SWITCHING OUTPUT AND 1 ANALOG OUTPUT
PIN 1	+UB (15-32 V DC)	+UB (15-32 V DC)
PIN 2	SP2 0.4 A	ANALOG
PIN 3	0V	0V
PIN 4	SP1 0.4 A	SP1 0.4 A

DIMENSIONS (IN INCHES)

PROCESS CONNECTIONS "A"	"B"
1/4-18 NPT	.67" [17 MM]
G 1/4	.55" [14 MM]
7/16 37° JIC (STRAIGHT)	.63" [16 MM]
7/16 SAE-4-20 UNF	.365" [9 mm]

Dimensions in inches (mm)

Product Configurator

Example **SW2000** **-11** **-N** **-1**

Series

SW2000 Series SW2000, electronic pressure switch

Pressure Ranges

-01-A	0 - 15 PSIA (0 - 1.03 BAR) [absolute]
-30-A	0 - 75 PSIA (0 - 5.17 BAR) [absolute]
-05-A	0 - 150 PSIA (0 - 10.34 BAR) [absolute]
-05	0 - 150 PSIG (0 - 10.34 BAR) [gauge]
-31	0 - 750 PSIG (0 - 51.71 BAR) [gauge]
-11	0 - 1500 PSIG (0 - 103.45 BAR) [gauge]
-13	0 - 3000 PSIG (0 - 206.9 BAR) [gauge]
-16	0 - 6000 PSIG (0 - 413.79 BAR) [gauge]
-32	0 - 9000 PSIG (0 - 620.69 BAR) [gauge]

Process Connection

-N	1/4" NPT male
-P3	7/16-20 (37° JIC) male with Viton® o-ring (rotatable)
-G	G 1/4 male with Viton® gasket
-P2	7/16-20 UNF SAE-4 male with Viton® o-ring (rotatable)

Accessories

/A	4 pin M12 female right angle plug molded cable, 3.28 feet (1 meter)
/C	4 pin M12 female right angle plug molded cable, 9.84 feet (3 meter)
/E	4 pin M12 female right angle plug molded cable, 16.40 feet (5 meters)
/G	4 pin M12 female straight plug molded cable, 3.28 feet (1 meter)
/I	4 pin M12 female straight plug molded cable, 9.84 feet (3 meter)
/K	4 pin M12 female straight plug molded cable, 16.40 feet (5 meters)
/M	4 pin M12 female straight connector
/P	4 pin M12 female right angle connector

Output:

-1	Single switch plus 4-20 mA output
-2	Dual switch capability (No analog output)
-6	Single switch plus 0-10 volt output

Electronic Pressure Switch

UDS1V2

Features

- ▶ Ease of setting: teach & go
- ▶ Ultra compact construction
- ▶ Rotatable 320° housing
- ▶ 1 or 2 switchpoints
- ▶ Programmable Adjustable hysteresis¹
- ▶ Excellent for high cycling DC applications

Applications

- ▶ OEM applications in hydraulic and pneumatic systems
- ▶ Press machines
- ▶ Lubricant monitoring systems
- ▶ Machine tool industry
- ▶ Automotive test equipment
- ▶ Injection molding machines



#S0038-J • 10/13

General Specifications*

Sensor Element:	Piezoresistive silicon (only for 9000 psi range) or ceramic measuring cell
Materials: Wetted Parts: Electronics Housing: Seals:	Stainless steel, pass., Al2O3 PA 6.6 Viton® (FKM)
Operating Elements:	2 easy response push buttons
Enclosure Rating:	IP65 (indoor only)
Process Connection (male):	¼" NPT, G1/4, 7/16-20 (37° JIC), 7/16-20 UNF (SAE)
Dimensions:	Approx. Ø 1.0" x 3.9" (without mating connector)
Measuring Ranges:	0 to 9000 PSI (0 to 600 bar)
Proof Pressure:	1.5 times rated pressure
Electrical Connection:	M12x1, 4-pin

Thermal Effect:	± 0.2 % f.s./10K
Compensated Range:	14°F to 158°F (-10 °C to +70 °C)
Repeatability:	+/- 1 % f.s.
Temperature Range: Media: Ambient: Storage:	-13°F to 212°F (-25 °C to +100 °C) -13°F to 176°F (-25 °C to +80 °C) -22°F to 176°F (-30 °C to +80 °C)
Power Supply:	15 to 32 V DC, reversed polarity protected (SELV, PELV)
Transistor Switching Outputs PNP: Adjustment Range for Switching Point & Hysteresis ¹ : Frequency Response: Current Rating:	0 % to 100 % f.s. Max. 100 Hz Max. 200 mA
Vibration:	10 g/20 to 2000 Hz
Shock:	100 g/11 ms

* See Product Configurator for additional options.

Note 1: For 1SP version, adjustable hysteresis (2SP version has built-in 15% hysteresis)

Technical Drawing

Technical drawing of the UDS1V2 electronic pressure switch. The drawing shows a side view of the device with various dimensions and labels. Key dimensions include a total height of 3.89 [99], a top section height of 1.65 [42], and a bottom section height of .47 [12]. The top section has a diameter of .43 [11] and a thread of M12 X 1. The main body has a diameter of $\phi .94$ [24] and a thread of A/F 0.94 [24]. The bottom section has a diameter of $\phi .75$ [19] and a thread of G CONNECTION SHOWN. The drawing also shows a PROCESS FITTING THREAD BLOCK and a SEALING RING DIN 3869 (ONLY FOR G1/4).

Two wiring diagrams are shown. The top diagram shows a 4-pin plug with pins 1, 2, 3, and 4. Pin 1 is connected to +Ub, pin 2 to SP2, pin 3 to 0 V, and pin 4 to SP1. The bottom diagram shows a 4-pin plug with pins 1, 2, 3, and 4. Pin 1 is connected to +Ub, pin 2 to SP1, pin 3 to 0 V, and pin 4 to SP1.

A table titled "Process Connections" provides the following information:

	"A"	"B"
G	G 1/4"	0.55 [14 MM]
N	1/4" NPT	0.67 [17MM]
P	7/16" 37° JIC	0.55 [14 MM]
E	7/16-20 UNF (SAE 4)	0.55 [14 MM]

Dimensions in Inches [MM]

Product Configurator

Example **U** **05** **N** **2**

Series

U UDS1V2 series

Pressure Ranges

05	0-150 psi (0-10.34 BAR) (recommend N or G process connection)
11	0-1500 psi (0-103.45 BAR) (recommend N or G process connection)
16	0-6000 psi (0-413.79 BAR) (recommend P or E process connection)
32	0-9000 psi (0-620 BAR) (recommend P or E process connection)

Process Connection

N	1/4" NPT male
G	G1/4 male (gasket seal)
P	7/16-20 37° JIC male with o-ring seal
E	7/16-20 UNF SAE 4 male with o-ring seal

Accessories

/A	4 pin M12 female right angle plug molded cable, 3.28 feet (1 meter)
/C	4 pin M12 female right angle plug molded cable, 9.84 feet (3 meter)
/E	4 pin M12 female right angle plug molded cable, 16.40 feet (5 meters)
/G	4 pin M12 female straight plug molded cable, 3.28 feet (1 meter)
/I	4 pin M12 female straight plug molded cable, 9.84 feet (3 meter)
/K	4 pin M12 female straight plug molded cable, 16.40 feet (5 meters)
/M	4 pin M12 female straight connector
/P	4 pin M12 female right angle connector

Output

1	Single switch w/ adjustable hysteresis
2	Dual switch w/ ~15% hysteresis
1xxxxRyyyyF	Single switch w/ field adjustable hysteresis and factory preset
2xxxxRyyyyR	Dual switch w/ ~15% hysteresis and factory preset

* Example: **13000R2000F** is one (1) switch point with 3000 psi rising (increase) and 2000 psi falling (decrease)
23000R1000R is two (2) switch points with first switch set at 3000 psi rising and second switch set at 1000 psi rising.

Single and dual switch can be set at 1xxxxR(or F)yyyyF(or R) and 2xxxxR(or F)yyyyR(or F), where F denotes falling and R denotes rising.

Transducer

OEM Transducer

Series 623, 625, 626, 627

Features

- ▶ cULus approved
- ▶ Compact size
- ▶ Stainless steel construction
- ▶ Ceramic sensor technology
- ▶ Current and voltage outputs
- ▶ 0.5% accuracy

Applications

- ▶ Water irrigation systems
- ▶ Medical gas systems
- ▶ HVAC systems
- ▶ Pumps and compressors
- ▶ Machine tools
- ▶ Hydraulic and pneumatic applications
- ▶ Mobile hydraulics
- ▶ General industrial applications

General Specifications*

Accuracy (LH & R):	±0.5% FSO Typical
Typical Life Cycle:	100 million cycles
Proof Pressure:	2 times rated pressure, or 9000 psi max, whichever is less.
Input/Excitation Voltage:	
625 (2-wire):	9 to 28 VDC
623 (3-wire):	9 to 30 VDC
626 (3-wire):	14 to 30 VDC
627 (3-wire):	14 to 30 VDC
Output:	
625 (2-wire):	4-20 mA
623 (3-wire):	0.5-5.5 VDC
626 (3-wire):	1-11 VDC
627 (3-wire):	0-10 VDC
Supply Current:	15 mA maximum (no load)
Wetted Parts:	316 stainless steel, ceramic and Viton® O-ring (standard)
Enclosure**:	NEMA 4X (IP 65)
Pressure Connection:	1/4" NPT standard. Other options available.
Electrical Connection:	PVC jacketed cable standard. Other options available.



#R0046-F • 10/13

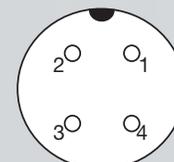
Temperature Ranges:	
Operating:	-40°F to +185°F (-40°C to +85°C)
Compensated:	30°F to +130°F (-1°C to +54°C)
Storage:	-40°F to +185°F (-40°C to +85°C)
Temperature Shift:	±0.06% FS/K over operating temperature range
Zero and Span:	
Vibration:	15 g's, 10-2000 Hz, MIL-STD 202
Approval¹:	cULus UL File E302981, to UL 508, as Industrial Control Equipment (NMTR, NMTR7), and to UL 61010-1, as Process Control Equipment (QUYX, QUYX7).
Shock:	50 g's, 11 ms, MIL-STD 202 Method 213, Cond. G.
Weight:	5.1 oz (145 grams) (typical)
Warranty:	1 year

1. Conditions of Use: Class 2 power source, Type 4X indoor, 122°F (50°C) max. ambient.

Wiring Code

Electrical Termination		Voltage Output	Current Output
H3	H4 / T4	Series 623/626/627	Series 625
Red	1	+ Excitation	+ Excitation
Black	2	Common	- Excitation
White	3	+ Output	Not used
Drain	4	Case Ground	Case Ground

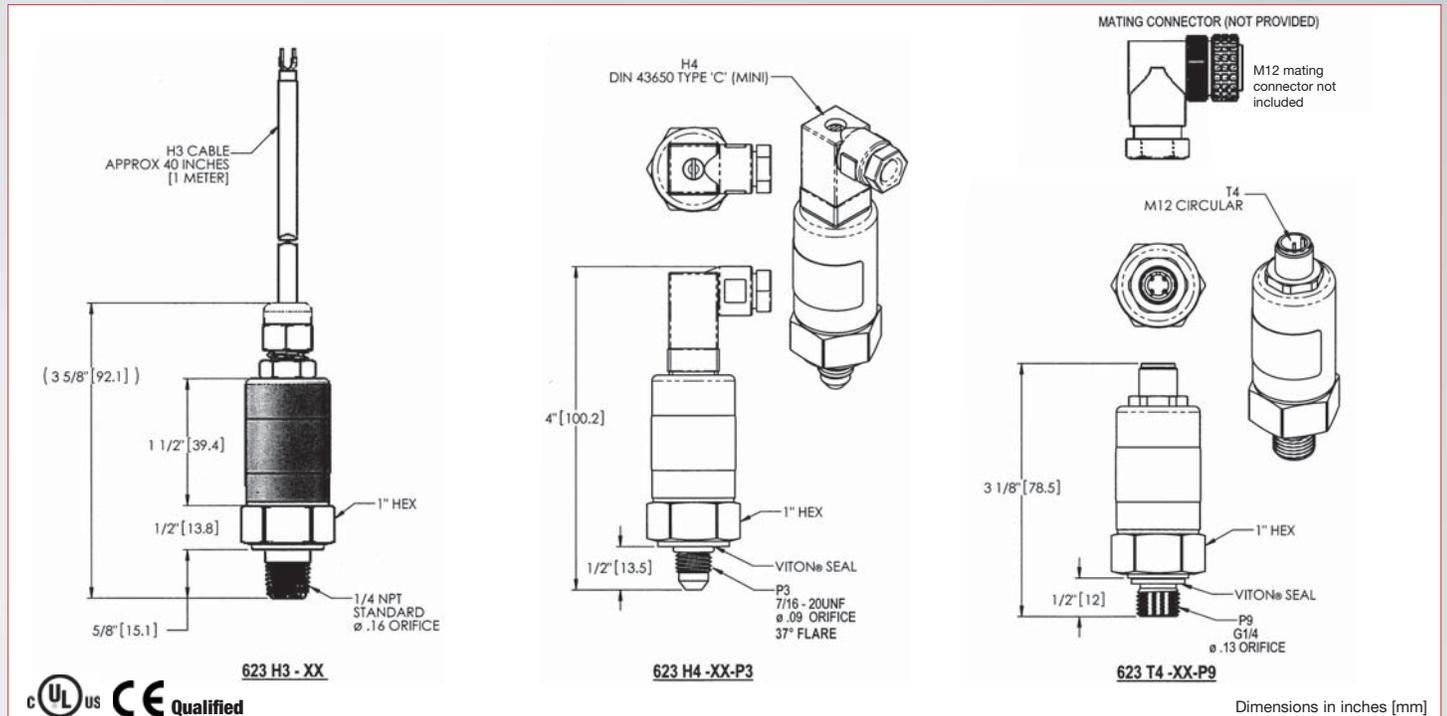
T4 Pin Out Diagram



* See product configurator for additional options.

** Mating connector must be properly installed to preserve enclosure rating

Technical Drawings



Product Configurator

Example: **625 H3 -05**

Base Model

625	4-20 mA analog output
623	0.5-5.5 VDC analog output
626	1-11 VDC analog output
627	0-10 VDC analog output

Electrical Connection

H3	PVC Shielded & jacketed #22 AWG cable (1 meter)
H4	Mini-DIN 43650 Type "C" - mating connector included (Industry std-9.4mm)
T4 ¹	M12 connector (mating connector NOT included)

Pressure Range^{2,4}

-21	0-30 PSI (0-2.07 BAR)
-26	0-75 PSI (0-5.17 BAR)
-05	0-150 PSI (0-10.34 BAR)
-07	0-300 PSI (0-20.69 BAR)
-27	0-750 PSI (0-51.72 BAR)
-11	0-1500 PSI (0-103.45 BAR)
-13	0-3000 PSI (0-206.9 BAR)
-16	0-6000 PSI (0-413.8 BAR)

Process Connection

Blank	1/4" NPT male
-P3	7/16-20 UNF male (JIC 37°)
-P9	G1/4 male (gasket seal)

Options

Blank	Standard
-Z1	Cleaned for oxygen service
-Z15	Calibrated in BAR
-Z10	1 to 5 V output (only available on 623)
-Z11	1 to 6 V output (only available on 623)
-Z12	0.5 to 4.5 V output (only available on 623)
-Z19	Built in pressure surge suppressor (0.031" orifice)
-Z21	Built in pressure surge suppressor (0.011" orifice)
-Z22	Combination options: P9 + Z15 + Z19
-Z23	Combination options: P9 + Z15 + Z21
-ZXXY ³	Special pressure ranges
-Wxxx	Specify cable length in inches (H3 option)
-Q21	Use with 625H4 only. Same electrical pinout as previous UPA21 series

Accessories

/A	4 pin M12 female right angle plug molded cable, 3.28 ft. (1 m)
/B	4 pin M12 female right angle plug molded cable, 6.56 ft. (2 m)
/C	4 pin M12 female right angle plug molded cable, 9.84 ft. (3 m)
/E	4 pin M12 female right angle plug molded cable, 16.40 ft. (5 m)
/F	4 pin M12 female right angle plug molded cable, 32.81 ft. (10 m)
/G	4 pin M12 female straight plug molded cable, 3.28 ft. (1 m)
/H	4 pin M12 female straight plug molded cable, 6.56 ft. (2 m)
/I	4 pin M12 female straight plug molded cable, 9.84 ft. (3 m)
/K	4 pin M12 female straight plug molded cable, 16.40 ft. (5 m)
/L	4 pin M12 female straight plug molded cable, 32.81 ft. (10 m)
/M	4 pin M12 female straight connector
/P	4 pin M12 female right angle connector

Note: 1. Mating connector not included

2. Other ranges available with the use of -ZXXY Option. Consult factory.

3. Add suffix ZXXY for special pressure range calibration. XX = significant digits. Y = number of trailing zeros. Example: 130 psi calibration: add -Z131.

4. To calibrate unit in 'BAR', select the closest pressure range then add suffix '-Z15' and 'ZXXY'. Example: 15 bar = 625H3-07-Z15-Z150

Transducers

General Industrial Transducer (Amplified)

Series 423, 425, 426

Features

- ▶ General purpose, industrial grade transducer
- ▶ Diffused silicon sensor for high accuracy and reliability
- ▶ Rugged stainless steel enclosure
- ▶ Superior surge voltage protection and EMI/RFI immunity
- ▶ Built-in high pressure snubber (2000 psi and above)
- ▶ Current and voltage signals
- ▶ UL and cUL approved (UL508)

Applications

- ▶ Industrial hydraulic equipment
- ▶ Cranes
- ▶ Compressors
- ▶ Gas metering
- ▶ Vacuum machinery packaging



General Specifications*

Accuracy (LH & R):	±0.25% BSL (±0.5% for vacuum only [-23])
Long Term Stability:	±0.5% FSO of calibration curve
Typical Life Cycle:	100 million cycles
Proof Pressure:	2 times rated pressure or 13,000 psi max. (884 bar), whichever is less
Input:	
423:	Excitation voltage: 9 to 30 VDC
426:	Excitation voltage: 14 to 30 VDC
425:	Excitation voltage: 12 to 32 VDC
Supply Current:	16 mA maximum (no load)
Min. Load Resistance:	2K ohms (voltage series only)
Output:	
423:	Output: 0.5 to 5.5 VDC Full scale output: 5.0 VDC ± 1% Zero output: 0.5 VDC ± 2%
426:	Output: 1 to 11 VDC Full scale output: 10 VDC ± 1% Zero output: 1.0 VDC ± 2%
425:	Output: 4 to 20 mA Full scale output: 16 mA ± 1% Zero output: 4 mA ± 2% Span: 16mA

* See product configurator for additional options.

Wiring Code

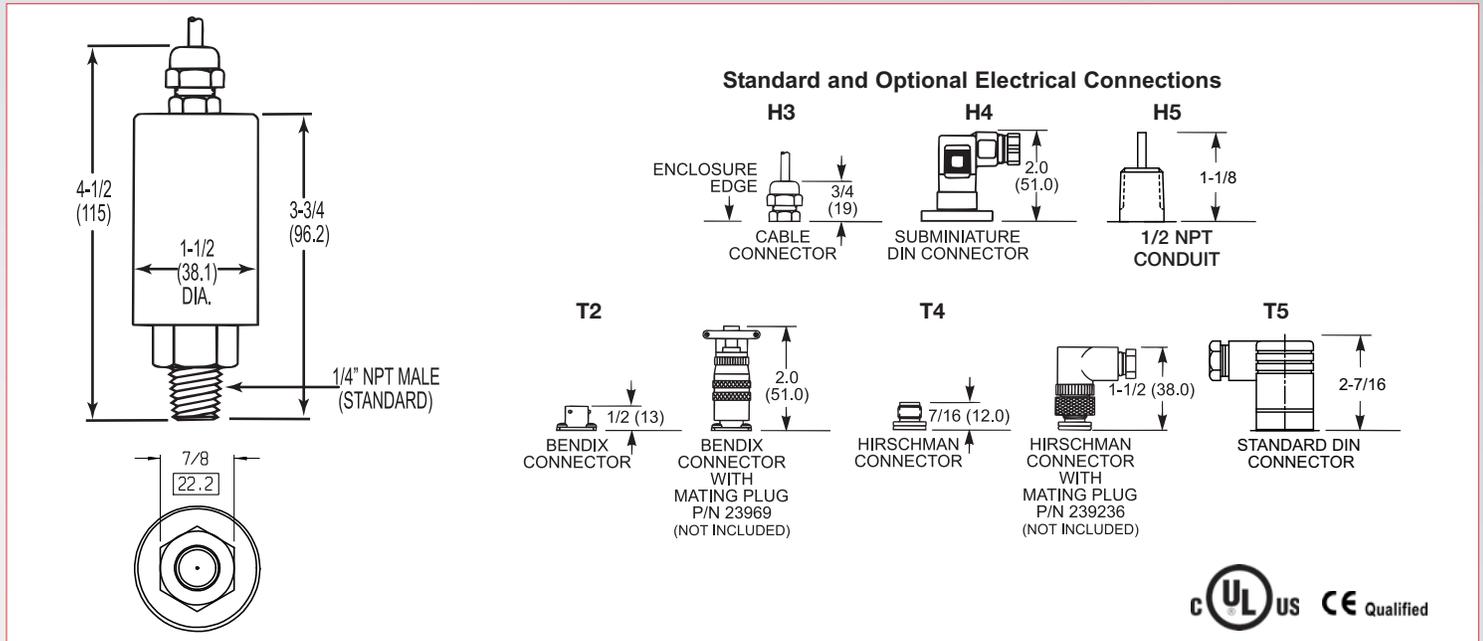
Voltage - Series 423, 426			
T2		H3	
A	1	Red	+ Excitation
B	3	White	+ Output
C	2	Black	Common
D	4	Bare	Case Drain
Milliamp - Series 425			
A	1	Red	+ Excitation
B	2	Black	- Excitation
D	4	Bare	Case Drain

Wetted Parts:	17-4 PH (fitting) & 316 stainless steel (sensor)
Enclosure:	NEMA 4, 300 series stainless steel
Pressure Connection:	1/4"-18 NPT male (STD)
Response Time:	2 kHz
Electrical Connection:	3 conductor for voltage series and 2 conductor for current series, 24 awg, PVC jacketed, shielded cable, 3 ft. (1 m) long with integral strain relief and case ground.
Temperature Ranges:	
Operating:	-40° to 185°F (-40° to 85°C)
Compensated:	30° to 160°F (-1° to 71°C)
Storage:	-40° to 185°F (-40° to 85°C)
Temperature Shift:	
Zero & Span:	0.0125% per °F over compensated range, 75°F reference (±1% of FSO over temp. range)
Vibration:	15 g's, 10-2000 Hz, MIL-STD 202
Shock:	50 g's, 11 ms, MIL-STD 202 Method 213, Cond. G.
Built-in Electrical Protection:	Conducted & radiated RF emissions/interference to EN 55011 IEC 801-2, -3, -4, -5, and -6 EN/IEC 6100-4-2, -3, -4, -5, -6 Refer to engineering sales drawing for details.
Weight:	
423 & 426:	7.4 oz. (221 grams) to 1000 psi 9.9 oz. (281 grams) 2,000 psi and higher
425:	7.4 oz. (210 grams) to 1000 psi 9.4 oz. (266 grams) 2,000 psi and higher
Warranty:	1 year warranty

General Industrial Transducer (Amplified)

Series 423, 425, 426

Technical Drawings



Product Configurator

Example **425 H3 -19 -P1**

Base Model

423	0.5 - 5.5 VDC analog output
425	4 - 20 mA analog output
426	1 - 11 VDC analog output

Electrical Connection

H3	Shielded & jacketed #22 AWB cable (1 meter) (standard)
H4	Subminiature DIN connector (43650 type) - mating connector included
H5	Shielded & jacketed cable with 1/2" male conduit
T2 ¹	Bendix connector (PT02A-8-4P) - 4 pin
T3	Bendix connector (PT02E-10-6P)-6 pin
T4 ²	M12 Hirschman connector (ELST 4012 PG7)
T5	Standard DIN connector (43650) - mating connector included

Pressure Range

-23	0 - 29.9" of Hg
-25	0 - 5 psi (0 - 0.35 bar)
-01 ⁴	0 - 15 psi (0 - 1 bar)
-21 ⁴	0 - 30 psi (0 - 2 bar)
-03 ⁴	0 - 50 psi (0 - 3.5 bar)
-22 ⁴	0 - 60 psi (0 - 4 bar)
-04 ⁴	0 - 100 psi (0 - 6.9 bar)
-05 ⁴	0 - 150 psi (0 - 10.3 bar)
-06 ⁴	0 - 200 psi (0 - 12.8 bar)
-07 ⁴	0 - 300 psi (0 - 20.7 bar)
-08	0 - 500 psi (0 - 34.5 bar)
-19	0 - 600 psi (0 - 41 bar)
-10	0 - 1,000 psi (0 - 69 bar)
-11	0 - 1,500 psi (0 - 104 bar)
-12 ⁵	0 - 2,000 psi (0 - 138 bar)
-13 ⁵	0 - 3,000 psi (0 - 207 bar)
-14 ⁵	0 - 4,000 psi (0 - 276 bar)
-15 ⁵	0 - 5,000 psi (0 - 345 bar)
-16 ⁵	0 - 6,000 psi (0 - 414 bar)
-17 ⁵	0 - 7,500 psi (0 - 517 bar)
-18 ⁵	0 - 10,000 psi (0 - 689 bar)

Options

-N4X ⁷	Nema 4X enclosure (H3 Option only) \$200 minimum per order
-E ⁶	External zero span adjustment
-Z15	Calibrated in bars
-Z10	1 to 5V output (available only on 423 models)
-Z11	1 to 6V output (available only on 423 models)
-Z12	0.5 to 4.5V output (available only on 423 models)
-Z16 ⁷	0.2 to 10V output (available only on 426 models) Not UL approved
-WXXX	Additional length of free leads (in inches) (H3/H5 connection)
-ZXXY ³	Special pressure ranges
-Z1 ⁷	Cleaned for oxygen service
-U ⁸	UL & cUL approved

Accessories

Order #	Description
23969	Bendix mating connector (T2 electrical option)
239236	Hirschman mating connector (T4 electrical option)
208360	Pressure snubber (1/4-18 NPT female/male)

Process Connection

Blank	1/4-18 NPT male (standard)
-P1	7/16-20 UNF-2B female
-P3	7/16-20 UNF-2A male (JIC 37°)
-P4	1/2" NPT male
-P5	1/2" NPT female
-P6	1/4" NPT female

Blank	Gauge pressure
-A	Absolute pressure range (<300psi)

¹ Mating connector: Bendix # PT06E-8-4S or equivalent (not included). Order number: 23969

² Mating connector: Hirschman # ELWIKA 4012 PG7 or equivalent (not included). Order number: 239236

³ Add suffix ZXXY for special pressure ranges. XX = significant digits. Y = number of trailing zeros. Example: for 230psi calibration, add Z231

⁴ Available in absolute ranges

⁵ Available with connector options H3 and T4 only

⁶ Built-in surge protector

⁷ Not UL approved

⁸ Ambient: 60° C - 420, 422; 80° C - 423, 425, 426

Level Switch/Temperature Option

UNS1000-BN18

Features

- ▶ For process connection 3/4" NPT and 1" NPT
- ▶ Compact design
- ▶ Monitor level and temperature
- ▶ Various lengths for top mount systems
- ▶ M12, DIN, or cable connection options

Applications

- ▶ OEM applications
- ▶ Accessories for hydraulic reservoirs
- ▶ Hydraulic power units
- ▶ Tank level detection



#L0041-D • 10/13

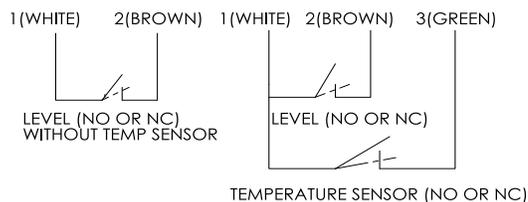
General Specifications*

Materials:	
Construction:	Brass
Float stopper:	Bronze
Float:	Foamed NBR (BUNA)
System of Protection:	IP65
Process Connection:	
Male Thread:	3/4" NPTM
(Top mount only):	1" NPTM
	G1/2"
	M20 x 1.5
Electrical Connection:	M12 x 1, 4-pin
	DIN EN 175301-803-A
	(former DIN 43650), 4-pin
	Cable gland, w/ PVC cable
Electrical Values:	0.7A, 42 VAC; 0.2A, 230 VAC
	Max 24 VDC; max 1 amp; max 16 VA/VV
Operating Temperature:	14 °F to 194 °F (-10 °C to +90 °C)

Operating Pressure:	Max. 4 bar (400 kPa = 58 psi)
Specific Gravity:	Min. 0.64
Depth of Immersion of Float at Density 1:	0.59 ±0.08 inch (15 ±2 mm)
Temperature Switch:	Bimetal
Temperature Range:	10 K-steps
	140 °F to 176 °F (+60 °C to +80 °C)
Indexing Tolerance:	±5 K
Differential:	30 ±15 K
Contact:	NC (Normally Closed and opens at temp)
	or
	NO (Normally Open and closes at temp)
Switching Point:	1 float for 1 switching point
Approvals:	cURus

* See Product Configurator for additional options.

Connection Diagram



Level Switch/Temperature Option

UNS1000-BN18

Technical Drawing

Process Overall Dimensions

PROCESS CODE	PROCESS CONNECTION "A"	"B"
8	G1/2"	.67" [17MM]
9	M20x1.5	.67" [17MM]
H	3/4"NPT	.80" [20.32MM]
L	1"NPT	.98" [25MM]

△ FOR NPT, OVERALL LENGTH "LO" IS MEASURED FROM TIP OF STEM TO BOTTOM OF NPT THREAD. FOR METRIC THREAD, LENGTH IS SPECIFIED AS LO + "B".

CAI US
Dimensions in inches [mm]

Product Configurator

Example	L1	B	8	D	1	1	6	LXXX	
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Basic Configuration

L1 Series

Stem Material

B Brass

Process Connection

8	G1/2 M
9	M20 x 1.5 M
H	3/4 NPTM
L	1" NPTM

Electrical Connection

D	Plug DIN 43650
M	Plug M12x1, 4-PIN
P	Cable gland w/ PVC cable

Float

1 BUNA 18mm

Switch Function¹

1	Level switch, normally open
2	Level switch, normally closed

Temperature Switch

6	60 °C (140 °F) normally closed
7	70 °C (158 °F) normally closed; standard
8	80 °C (176 °F) normally closed
0	Temperature not required
A	60 °C (140 °F) normally open
B	70 °C (158 °F) normally open
C	80 °C (176 °F) normally open

Length

LXXX² Max overall length is 23.6" (600 mm)

Accessories

/A	4 pin M12 female right angle plug molded cable, 3.28 feet (1 meter)
/C	4 pin M12 female right angle plug molded cable, 9.84 feet (3 meters)
/E	4 pin M12 female right angle plug molded cable, 16.40 feet (5 meters)
/G	4 pin M12 female straight plug molded cable, 3.28 feet (1 meters)
/I	4 pin M12 female straight plug molded cable, 9.84 feet (3 meters)
/K	4 pin M12 female straight plug molded cable, 16.40 feet (5 meters)
/M	4 pin M12 female straight connector
/N	DIN 43650 type A connector with molded cable 6.56 feet (2 meters)
/O	DIN 43650 type A connector with molded cable 16.40 feet (5 meters)
/P	4 pin M12 female right angle connector
/Q	DIN 43650 type A connector

NOTE:

- Level switch position as being in a dry tank.
- Ordering code example: L1BHD116L200 is a Level Switch with 3/4 NPT fitting with DIN plug, normally open level with normally closed 60 °C sensor and an LO of 20.0 inches long.

Level/Temperature Switch

UNS-MS

Features

- ▶ Temperature & level sensing in a single unit
- ▶ Compact size for easy installation
- ▶ Ideal for small tanks & vessels
- ▶ Broad media compatibility
- ▶ Ideal to use in oils and water

Applications

- ▶ Sump tanks
- ▶ Hydraulic power units
- ▶ Storage tanks
- ▶ Solvent recovery systems
- ▶ Lube oil console systems
- ▶ Marine applications
- ▶ Food & beverage applications



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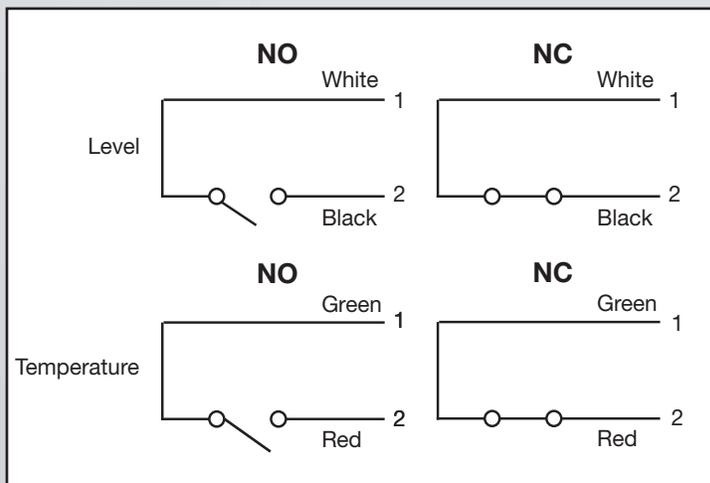
General Specifications*

Stem and Mounting Thread:	MS = Brass construction 1/4" NPT
Float:	BN = Buna N, Ø = 30 mm
Max. Operating Pressure (float):	220 psig (15 bar)
Max. Operating Temperature:	-4° to +212°F (-20° to + 100°C)- oil -4° to +176°F (-20° to + 80°C)- water
Min. Fluid Specific Gravity:	0.60g/cm ³ (0.021 lb/in ³)
Mounting Position:	Vertical, through top or bottom Max. 30° inclination
Protection Class:	IP54
Electrical Connection:	KI = PVC cable, max. 3 x 0.34 mm ² 1 m length

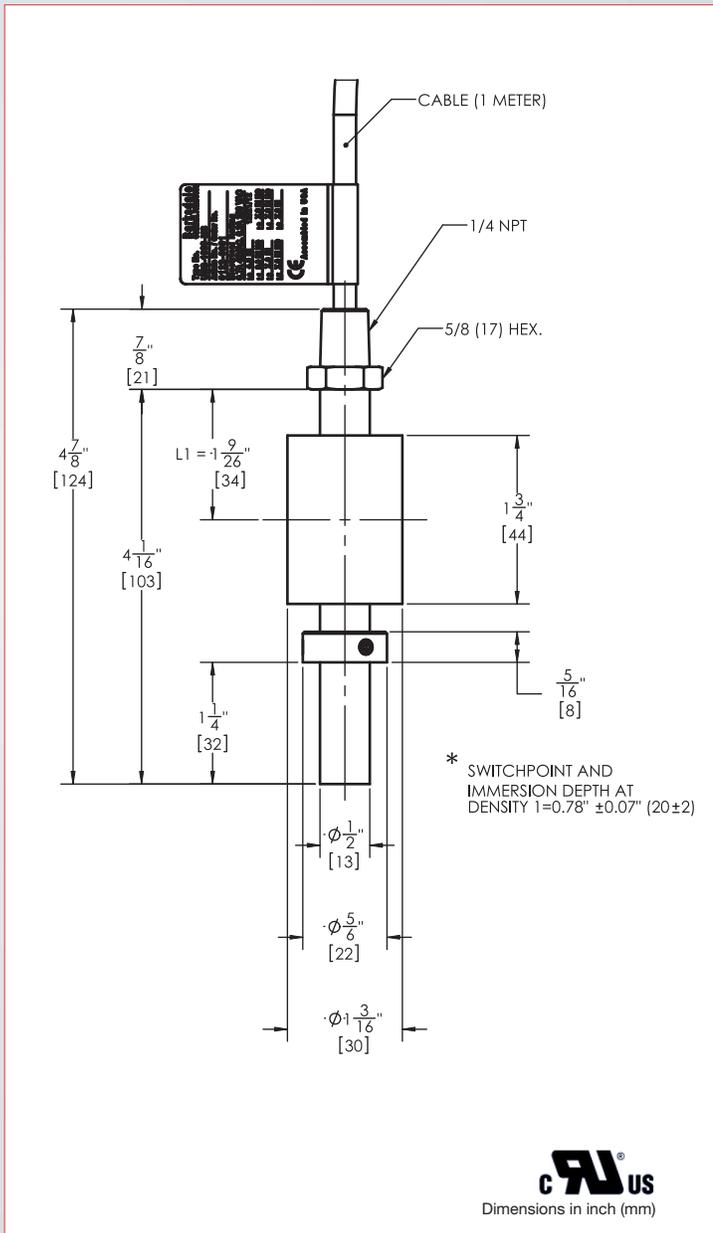
* See product configurator for additional options.

Max. Contact Rating	
Reed switch, SPST:	NO / NC: 250 V AC / DC 3 A, 100 VA / W
Temperature switch, SPST:	12 to 24 VDC, max 3 amps
Weight:	Approx. 150 grams (5.3 oz)
Approvals:	cURus

Wiring Color/Code



Technical Drawing



Order Number Key / Options

ORDERING NUMBER:	DESCRIPTION:
0111-6001	LEVEL : NORMALLY OPEN (NO) TEMPERATURE: NORMALLY CLOSED (NC) 50°C
0111-6002	LEVEL : NORMALLY OPEN (NO) TEMPERATURE: NORMALLY CLOSED (NC) 60°C
0111-6003	LEVEL : NORMALLY OPEN (NO) TEMPERATURE: NORMALLY CLOSED (NC) 70°C
0111-6004	LEVEL : NORMALLY OPEN (NO) TEMPERATURE: NORMALLY CLOSED (NC) 80°C
0111-6006	LEVEL : NORMALLY OPEN (NO) TEMPERATURE: NORMALLY OPEN (NO) 50°C
0111-6007	LEVEL : NORMALLY OPEN (NO) TEMPERATURE: NORMALLY OPEN (NO) 60°C
0111-6008	LEVEL : NORMALLY OPEN (NO) TEMPERATURE: NORMALLY OPEN (NO) 70°C
0111-6009	LEVEL : NORMALLY OPEN (NO) TEMPERATURE: NORMALLY OPEN (NO) 80°C
0111-6010	LEVEL : NORMALLY CLOSED (NC) TEMPERATURE: NORMALLY CLOSED (NC) 50°C
0111-6011	LEVEL : NORMALLY CLOSED (NC) TEMPERATURE: NORMALLY CLOSED (NC) 60°C
0111-6012	LEVEL : NORMALLY CLOSED (NC) TEMPERATURE: NORMALLY CLOSED (NC) 70°C
0111-6013	LEVEL : NORMALLY CLOSED (NC) TEMPERATURE: NORMALLY CLOSED (NC) 80°C
0111-6015	LEVEL : NORMALLY CLOSED (NC) TEMPERATURE: NORMALLY OPEN (NO) 50°C
0111-6016	LEVEL : NORMALLY CLOSED (NC) TEMPERATURE: NORMALLY OPEN (NO) 60°C
0111-6017	LEVEL : NORMALLY CLOSED (NC) TEMPERATURE: NORMALLY OPEN (NO) 70°C
0111-6018	LEVEL : NORMALLY CLOSED (NC) TEMPERATURE: NORMALLY OPEN (NO) 80°C

Note:

1. The contact model (NO & NC) are defined on the basis of an empty tank and for the level switch mounted from the top.

Level & Temperature Switch / Adjustable

UNS1000-BN18-TC

Features

- ▶ Telescopic Design: Expandable to various length in one unit - field adjustable
- ▶ Compact design
- ▶ NEMA 4, IP65
- ▶ Dual function: Level/Temp

Applications

- ▶ OEM applications
- ▶ Accessories for hydraulic reservoirs
- ▶ Hydraulic oil applications
- ▶ HPU systems
- ▶ Power pack
- ▶ Temperature shut-off for safety control



#L0042-A • 10/13

General Specifications*

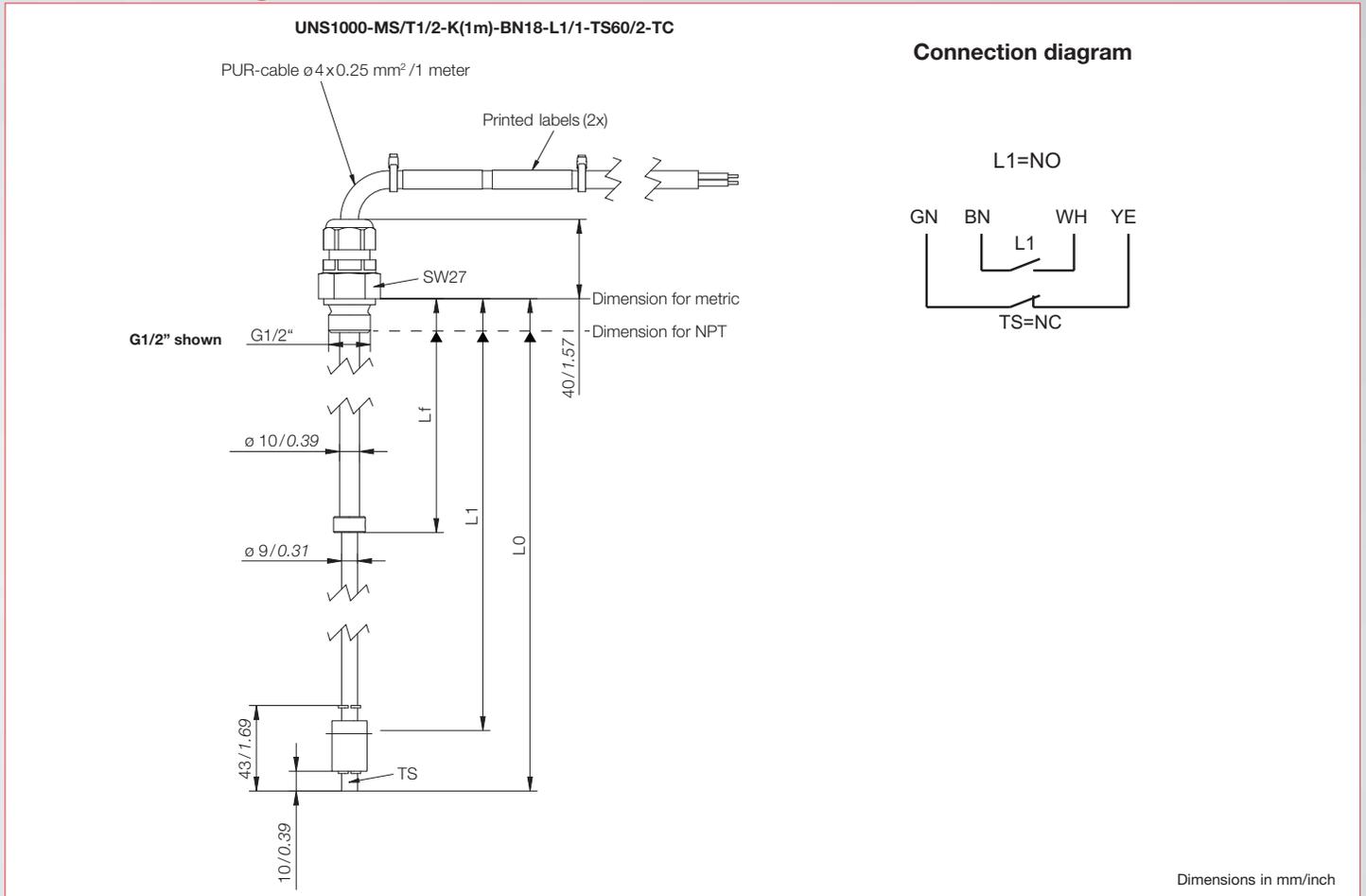
Wetted Materials:	
Process Connection:	Brass
Stem:	Brass
Float Stopper:	Bronze
Float:	Foamed NBR (BUNA)
System of Protection:	IP65
Process Connection:	1" NPT = T1NPT
Male thread (top mount):	G1/2" metric = T1/2
Electrical Connection:	Cable ϕ 4 x 0.25 mm ² Cable gland, PA
Electrical Values:	Max. 24 V AC / DC Max. 1 A Max. 20 VA / W
Operating Temperature:	14 °F to 194 °F (-10 °C to +90 °C)

Operating Pressure:	Atmospheric
Density:	Min. 0.64 g/cm ³
Depth of Immersion at Density 1:	0.59 ±0.08 inch (15 ±2 mm)
Temperature Switch:	Bimetal construction
Temperature Range**:	140°F (+60°C) (Std)
Indexing Tolerance:	±5 K
Differential Gap:	30 ±15 K
Contact:	NC position only (the contact is closed at room temperature)
Switching Points:	1 float for 1 switching point, normally open 1 temperature sensor for 1 switching point, normally closed
Standard:	

** Other temperature ranges available upon request.

* See Product Configurator for additional options.

Technical Drawing



Top Mount Telescopic Level/Temperature Switch

Brass stem, 18mm Buna float, 60°C normally closed temperature SPST switch, normally open level SPST switch, with 1 meter cable.

Order Numbers

UNS1000-MS/T1/2-K1-BN18-L1/1-TS60/2-TC

G1/2 process connection

Order No.	Length L ₀ [inch/mm]	Length L ₁ [inch/mm]	Length L _f [inch/mm]	Tolerance [inch/mm]
0112-987	7.48 to 10.24 (190 to 260)	6.30 to 9.06 (160 to 230)	5.71 (145)	0.12 (±3 mm)
0112-988	9.87 to 14.96 (250 to 380)	8.66 to 13.78 (220 to 350)	8.07 (205)	0.12 (±3 mm)
0112-989	14.76 to 24.80 (375 to 630)	13.58 to 23.62 (345 to 600)	12.99 (330)	0.12 (±3 mm)

UNS1000-MS/T1NPT-K1-BN18-L1/1-TS60/2-TC

1" NPT process connection

Order No.	Length L ₀ [inch/mm]	Length L ₁ [inch/mm]	Length L _f [inch/mm]	Tolerance [inch/mm]
0112-1108	6.69 to 9.45 (170 to 240)	5.51 to 8.27 (140 to 210)	4.70 (120)	0.12 (±3 mm)
0112-1109	9.06 to 14.17 (230 to 360)	7.87 to 12.99 (200 to 330)	7.28 (185)	0.12 (±3 mm)
0112-1110	13.98 to 24.02 (355 to 610)	12.76 to 22.64 (325 to 575)	12.21 (310)	0.12 (±3 mm)

Further lengths and other temperature switching points are available upon request

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