

PRESSURE SWITCH



FEATURES

- Tamper-Resistant Field Adjustment
- Adjustable Ranges from 4 to 7500 PSI (0,3 to 517,1 Bar)
- Choice of 7 Electrical Terminations
- 1-1/4" Diameter
- Height as Small as 3"

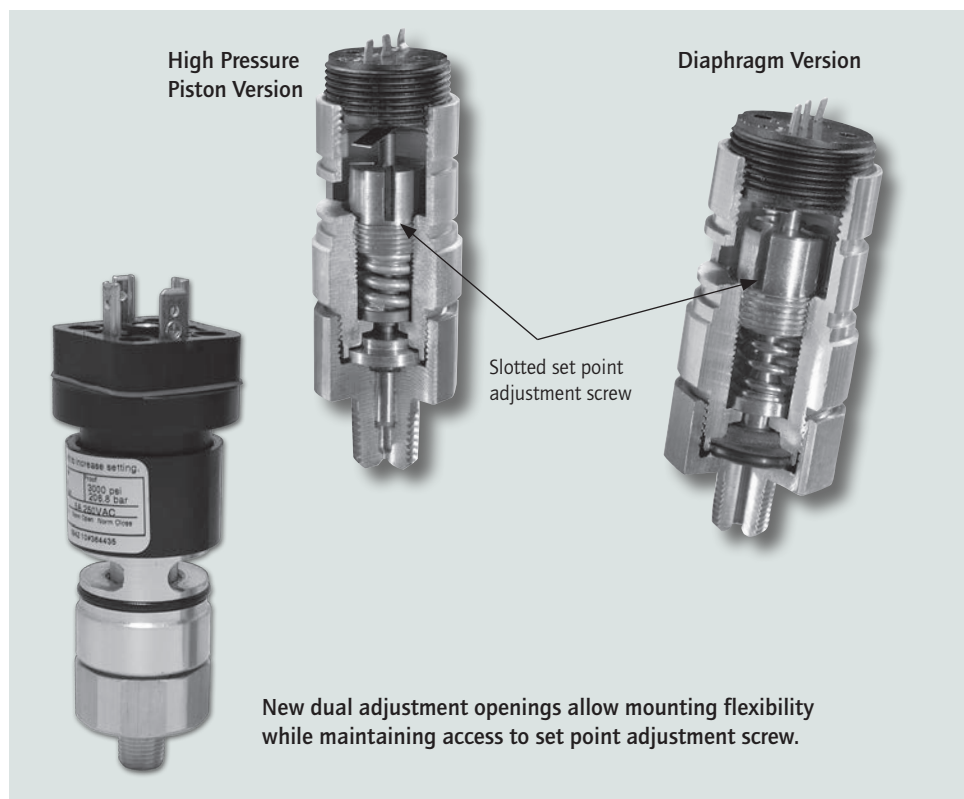
OVERVIEW

Available with seven electrical termination varieties, a choice of sensors, and several pressure connections, the 10 Series is designed to meet most requirements for a variety of OEM and industrial applications. Just 1-1/4 inches in diameter and as small as 3 inches high, this compact, cylindrical switch mounts wherever space is at a premium. A reliable and cost-effective switch, the 10 Series is ideal for applications with high settings and surges. Among the tough applications in which the product has proven itself are: mobile hydraulic units, compactors, balers and lube oil systems.

In addition to standard capabilities, modified designs or options are available to help you meet specific application requirements. Design flexibility allows for customized pressure connections, electrical terminations and pressure ranges. Consult UE for all product capabilities, order restrictions and special conditions.

FEATURES

- cULus recognized, CE compliant to low voltage directive and pressure equipment directive
- Optional ATEX intrinsic safety compliance
- NPT or SAE threaded pressure connections
- Choice of 7 electrical terminations
- Optional leadwire/cable lengths
- Rugged and vibration resistant
- Proof pressures up to 12,000 psi (827 bar)



SPECIFICATIONS

STORAGE TEMPERATURE	-40 to 180°F (-40 to 82°C)
AMBIENT TEMPERATURE LIMITS	0 to 160°F (-18 to 71 °C) with Buna-N construction; 0 to 180°F (-18 to 82°C) with Viton® construction; set point shifts less than 1% of range for a 50°F (28°C) ambient temperature change. Unit will operate down to -40°F (-40°C) but with reduced repeatability
MAX. MEDIA TEMPERATURE	200°F (93°C) with Buna-N sensor; 250°F (121 °C) with Viton® sensor
SHOCK	Set point repeats after 50 G, 10 millisecond duration
VIBRATION	Set point repeats after 10 G, 5-500 CPS
ENCLOSURE CLASSIFICATION	Types C, D, E, F & G: Designed to meet enclosure type 4 requirements Types A & B: Not applicable
SET POINT REPEATABILITY	Models 10-12: ± 1% of full scale range; Models 13-16: ± 1.5% of full scale range
SWITCH OUTPUT	One SPDT
ELECTRICAL RATING	Rated to 5 A resistive and 5 A inductive (75% power factor), at 125 VAC & 250 VAC, 1/4 HP; 5 A resistive and 3 A inductive at 30 VDC; 0.5 A resistive and 0.25 A inductive at 125 VDC; gold flashing over silver contact for loads down to 5 mA at 6 VDC, 2 mA at 12 VDC and 1 mA at 24 VDC
ENCLOSURE	Aluminum
WEIGHT	Type A: 5 oz.; Type B: 6 oz.; Type C: 6.5 oz.; Type D: 6 oz.; Type E: 12 oz.; Type F: 6.5 oz.; Type G: 12 oz.
ELECTRICAL CONNECTION	7 electrical terminations; Refer to "How to Order"
PRESSURE CONNECTION	Models 10-12: 1/8" NPT (male); Models 13-16: 1/4" NPT (male); optional SAE threads and other connections (see options list)
MOUNTING	Via pressure connection. Surface mounting bracket kit available for field installation. (see Options list)

APPROVALS



UNITED STATES AND CANADA

UL Recognized, cUL Recognized
Pressure: UL 508; CSA C22.2 No. 14, file # E42272

Canadian Registration Number (CRN): Refer to www.ueonline.com/certifications for list of approved models



EUROPE

ATEX Directive (94/9/EC)

II 1 G EEx ia IIC T6 (OPTIONAL – code M405)
Tamb = -50°C to +60°C
UL International DEMKO A/S (N.B.# 0539)
Certificate # DEMKO 03 ATEX 0335063
EN 50014, 50020 & 50284



Low Voltage Directive (LVD) (73/23/EC & 93/68/EEC)

Compliant to LVD
Products rated lower than 50 VAC and 75 VDC are outside of the scope of the LVD
The Low Voltage Directive does not apply to products

for use in hazardous locations

Pressure Equipment Directive (PED) (97/23/EC)

Compliant to PED
Products rated lower than 7.5 psi are outside the scope of the PED



RUSSIA

Gosgortekhnadzor Permit (OPTIONAL – code M406)

0ExiaIIC T6
Tamb = -50°C to +60°C
NANIO CCVE Certification Center
Certificate # ROSS US.GB05.Bo2933
GOST 51330.0, 51330.1, 51330.10 & 51330.14

MODEL CHART

Range Code	Adjustable Set Point Range		Deadband		Over Range Pressure*		Proof Pressure**	
	Low end of range on fall High end of range on rise		Narrower deadbands may be expected at bottom of range					
	psi	bar	psi	bar (unless noted)	psi	bar	psi	bar
Buna-N diaphragm and O-ring with 1/8" NPT (male) brass pressure connection								
10	4 to 50	0,3 to 3,4	1 to 6	68,9 mbar to 0,4 bar	1000	68,9	3000	206,8
11	10 to 150	0,7 to 10,3	2 to 10	0,1 to 0,7	1500	103,4	3000	206,8
12	30 to 600	2,1 to 41,4	8 to 60	0,6 to 4,1	2500	172,4	3000	206,8
Stainless steel piston and Buna-N O-ring with 1/4" NPT (male) brass pressure connection								
13	100 to 1500	6,9 to 103,4	20 to 220	1,4 to 15,2	8000	551,6	10,000	689,5
14	180 to 3000	12,4 to 206,8	50 to 400	3,4 to 27,6	8000	551,6	10,000	689,5
15	400 to 4700	27,6 to 324,1	100 to 600	6,9 to 41,4	8000	551,6	10,000	689,5
16	4000 to 7500	275,8 to 517,1	400 to 950	27,6 to 65,5	10,000	689,5	12,000	827,4

* **Over Range Pressure:** The maximum pressure that may be applied continuously without causing damage and maintaining set point repeatability.

** **Proof Pressure:** The maximum pressure to which a pressure sensor may be occasionally subjected, which causes no permanent damage. The unit may require calibration (e.g., start-up, testing).

HOW TO ORDER

Build a part number by selecting appropriate code for each feature category. Example: 10-B11*M201

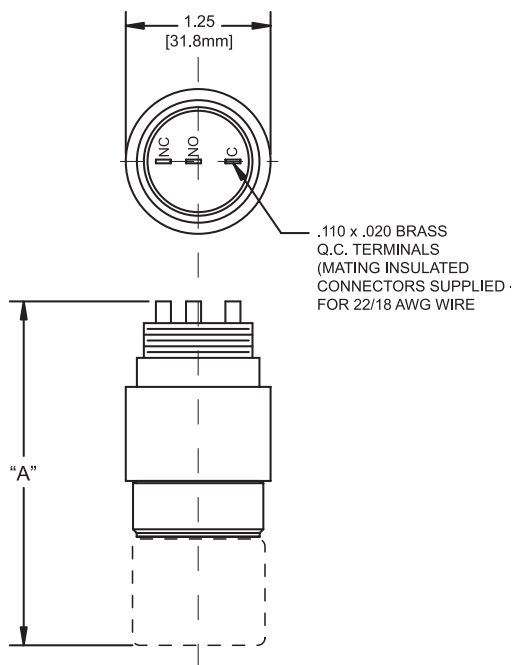
	10	B	11	M201		
	Series Designation	Electrical Termination Type	Range	Misc. Options		
ORDERING CODE	DESCRIPTION		10	B	11	M201
SERIES DESIGNATION						
10	Designation for 10 Series product line					
ELECTRICAL TERMINATION TYPE						
A	0.11" push-on terminals. Mating terminals supplied					
B	0.25" push-on terminals					
C	NEMA 4; 1/2" NPT (male) conduit connection; 20" leads					
D	NEMA 4; 20" leads					
E	NEMA 4; 1/2" NPT (female) conduit connection; 5' cable					
F	NEMA 4; 4 terminal DIN connector. Mating part not supplied					
G	NEMA 4; 5' cable					
RANGE						
10, 11, 12, 13 14, 15, 16	See model chart on page 4					
MISCELLANEOUS OPTIONS						
M201	Factory set one switch; specify increasing or decreasing pressure and set point					
M277	Range indicated on nameplate in kPa or MPa, factory selected					
M278	Range indicated on nameplate in kg/cm ²					
M405	Intrinsic safety compliance for European Union per ATEX standards					
M406	Intrinsic safety compliance for Russia per Gosgortekhnadzor standards					
M430	Cover lock					
M444	Paper ID Tag					
M446	Stainless steel ID tag & wire attachment					
M449	Surface mounting bracket kit					
M511	1/4" NPT (male) 316 stainless steel pressure connection					
M512	1/4" NPT (male) brass pressure connection. NOT AVAILABLE ON MODELS 13, 14, 15, OR 16					
M540	Viton® construction. Deadbands and low end of range may increase (consult factory). Wetted parts include Viton® diaphragm and/or O-ring plus standard pressure connection material					
M541	Ethylene propylene (EPDM) construction. Deadbands may increase (consult factory). Wetted parts include EPDM diaphragm and/or O-ring plus standard pressure connection material					
M550	Oxygen service cleaning (alcohol cleaning to remove residue from the process connection); Buna-N diaphragm and/or O-ring changes to Viton®					
M925	7/16-20 UNF-2A, SAE male brass pressure connection					
M929	G1/2 straight pipe thread pressure connection					
62169-26	Surface mounting bracket kit					
L040	4' leadwire/cable. NOT AVAILABLE ON TYPES A, B, E, F, G					
L060	6' leadwire/cable. NOT AVAILABLE ON TYPES A, B, F					
L080	8' leadwire/cable. NOT AVAILABLE ON TYPES A, B, F					
L100	10' leadwire/cable. NOT AVAILABLE ON TYPES A, B, F					
L120	12' leadwire/cable. NOT AVAILABLE ON TYPES A,B, F					

Viton® is a registered trademark of E.I. DuPont Company

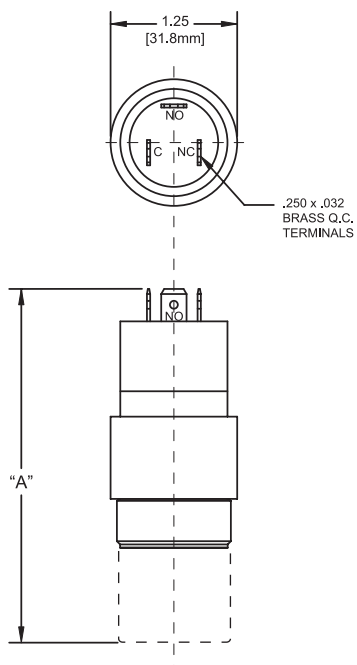
DIMENSIONAL DRAWINGS

Dimensional drawings for all models may be found at www.ueonline.com

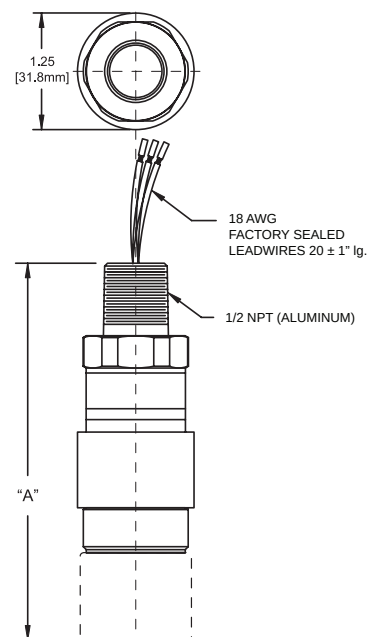
Type 10-A



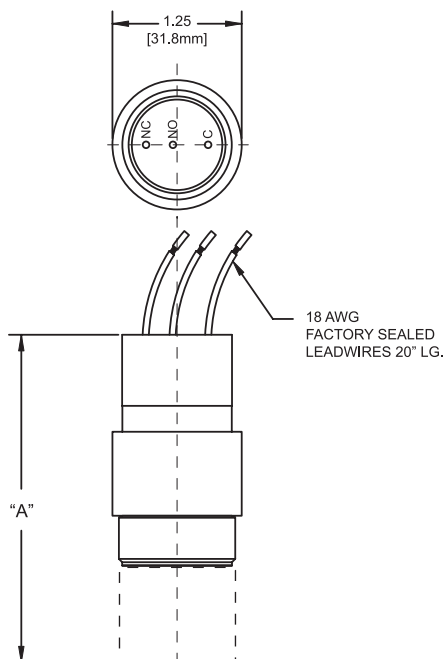
Type 10-B



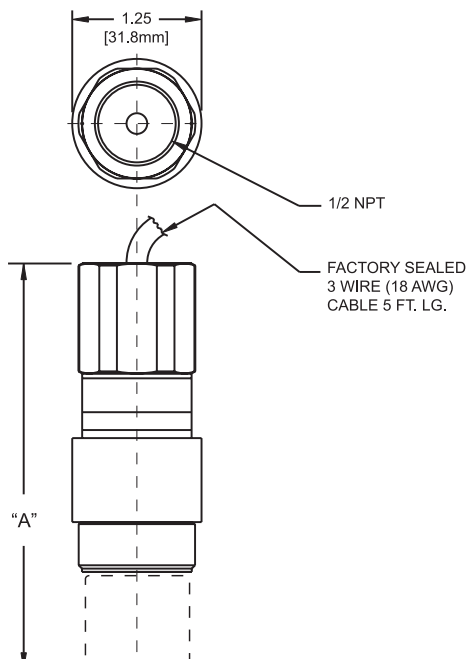
Type 10-C



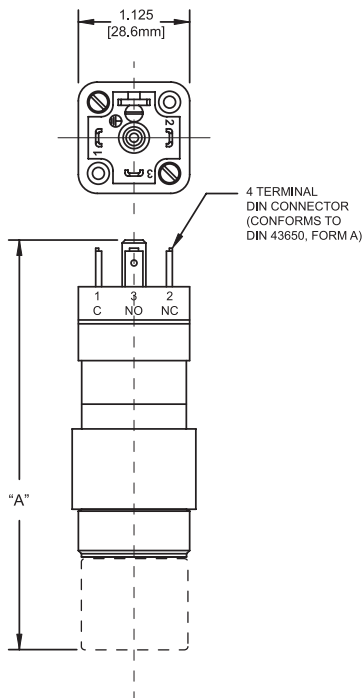
Type 10-D



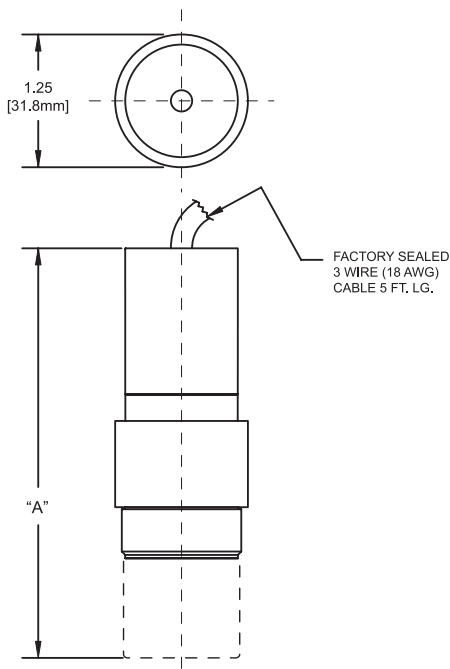
Type 10-E



Type 10-F



Type 10-G



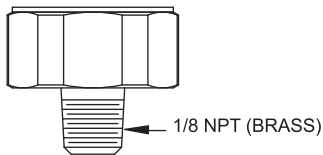
"A" Dimension Chart

Models	Inches	mm	NPT
A10-12	3.00	76.2	1/8"
A13-16	3.31	84.1	1/4"
B10-12	3.50	88.9	1/8"
B13-16	3.81	96.8	1/4"
C10-12	4.06	103.2	1/8"
C13-16	4.38	111.1	1/4"
D10-12	3.19	81.0	1/8"
D13-16	3.50	88.9	1/4"
E10-12	3.94	100.0	1/8"
E13-16	4.25	108.0	1/4"
F10-12	4.13	104.8	1/8"
F13-16	4.44	112.7	1/4"
G10-12	3.88	98.4	1/8"
G13-16	4.19	106.4	1/4"

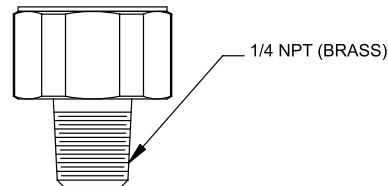
NOTE: For full size drawings, please visit our web site @www.ueonline.com

PRESSURE CONNECTION DETAILS

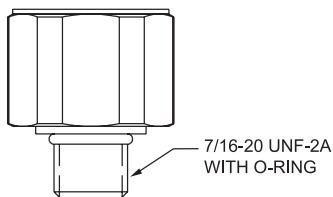
Model 10-12



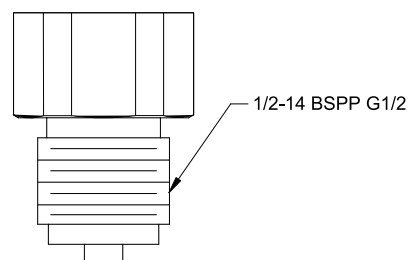
Model 13-16



Option M925



Option M929



RECOMMENDED PRACTICES AND WARNINGS

United Electric Controls Company recommends careful consideration of the following factors when specifying and installing UE pressure and temperature units. Before installing a unit, the Installation and Maintenance instructions provided with unit must be read and understood.

- To avoid damaging unit, proof pressure and maximum temperature limits stated in literature and on nameplates must never be exceeded, even by surges in the system. Operation of the unit up to maximum pressure or temperature is acceptable on a limited basis (e.g., start-up, testing) but continuous operation must be restricted to the designated adjustable range. Excessive cycling at maximum pressure or temperature limits could reduce sensor life.
- A back-up unit is necessary for applications where damage to a primary unit could endanger life, limb or property. A high or low limit switch is necessary for applications where a dangerous runaway condition could result.
- The adjustable range must be selected so that incorrect, inadvertent or malicious setting at any range point cannot result in an unsafe system condition.
- Install unit where shock, vibration and ambient temperature fluctuations will not damage unit or affect operation. When applicable, orient unit so that moisture does not enter the enclosure via the electrical connection. When appropriate, this entry point should be sealed to prevent moisture entry.
- Unit must not be altered or modified after shipment. Consult UE if modification is necessary.
- Monitor operation to observe warning signs of possible damage to unit, such as drift in set point or faulty display. Check unit immediately.
- Preventative maintenance and periodic testing is necessary for critical applications where damage could endanger property or personnel.
- Electrical ratings stated in literature and on nameplate must not be exceeded. Overload on a switch can cause damage, even on the first cycle. Wire unit according to local and national electrical codes, using wire size recommended in installation sheet.
- Do not mount unit in ambient temp. exceeding published limits.

LIMITED WARRANTY

Seller warrants that the product hereby purchased is, upon delivery, free from defects in material and workmanship and that any such product which is found to be defective in such workmanship or material will be repaired or replaced by Seller (Ex-works, Factory, Watertown, Massachusetts. INCOTERMS); provided, however, that this warranty applies only to equipment found to be so defective within a period of 24 months from the date of manufacture by the Seller. Seller shall not be obligated under this warranty for alleged defects which examination discloses are due to tampering, misuse, neglect, improper storage, and in any case where products are disassembled by anyone other than authorized Seller's representatives. EXCEPT FOR THE LIMITED WARRANTY OF REPAIR AND REPLACEMENT STATED ABOVE, SELLER DISCLAIMS ALL WARRANTIES WHATSOEVER WITH RESPECT TO THE PRODUCT, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

LIMITATION OF SELLER'S LIABILITY

Seller's liability to Buyer for any loss or claim, including liability incurred in connection with (i) breach of any warranty whatsoever, expressed or implied, (ii) a breach of contract, (iii) a negligent act or acts (or negligent failure to act) committed by Seller, or (iv) an act for which strict liability will be inputted to seller, is limited to the "limited warranty" of repair and/or replacement as so stated in our warranty of product. In no event shall the Seller be liable for any special, indirect, consequential or other damages of a like general nature, including, without limitation, loss of profits or production, or loss or expenses of any nature incurred by the buyer or any third party.

UE specifications subject to change without notice.

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