



# 10 Series

## 10 Series

### 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

With seven electric termination varieties and a choice of sensors and pressure connections, the Spectra 10 is designed to meet the 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. Ideal for applications with high settings and surges, the Spectra 10 is a rugged, reliable and cost-effective switch.



### TECHNOLOGY

The Spectra 10's technology has been proven in the toughest applications, such as mobile hydraulic units, compactors, balers and lube oil systems. The Spectra 10 uses either a diaphragm or a piston sensor (depending on pressure requirements) to sense changes in pressure, which are transmitted through a plunger mechanism to the snap-action electrical switch. Changes to set point are accomplished easily while the unit is under pressure through the slotted adjusting screw under a tamper-resistant cover. This adjustment "pre-loads" the actuation mechanism, which results in excellent vibration-resistance. The Spectra 10 was designed to allow for easy modification to the process connection and to the electrical terminations, resulting in fast delivery of products specifically meeting the user's requirements.

### FEATURES

- UL & CSA recognized, CE compliant to low voltage directive and pressure equipment directive
- Proof pressures up to 12,000 psi (827 bar)
- Height as small as 3"
- Choice of 7 electrical terminations
- Optional leadwire/cable lengths
- NPT or SAE threaded pressure connections

Along with standard capabilities, modified designs or options are available to help you meet specific application requirements. The flexibility of the design allows for customized pressure connections, electrical terminations, ranges and other modifications. Consult your UE Representative for other product capabilities, order restrictions and special conditions.

## SPECIFICATIONS

<b>STORAGE TEMPERATURE</b>	-40 to 180°F (-40 to 82°C)
<b>AMBIENT TEMPERATURE LIMITS</b>	0 to 160°F (-17 to 71°C) with Buna-N construction; 0 to 180°F (-17 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
<b>MAX. MEDIA TEMPERATURE</b>	200°F (93°C) with Buna-N sensor; 250°F (121°C) with Viton® sensor
<b>SHOCK</b>	Set point repeats after 50 G, 10 millisecond duration
<b>VIBRATION</b>	Set point repeats after 10 G, 5-500 CPS
<b>ENCLOSURE CLASSIFICATION</b>	Types C, D, E, F & G: Complies with enclosure type 4 requirements Types A & B: Not applicable
<b>SET POINT REPEATABILITY</b>	Models 10-12: ± 1% of span; Models 13-16: ± 1.5% of span
<b>SWITCH OUTPUT</b>	One SPDT
<b>ELECTRICAL RATING</b>	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 clad silver contact for loads down to 5 mA at 6 VDC, 2 mA at 12 VDC and 1 mA at 24 VDC
<b>ENCLOSURE</b>	Aluminum with irridite finish
<b>WEIGHT</b>	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.
<b>ELECTRICAL CONNECTION</b>	7 electrical terminations; Refer to "How to Order"
<b>PRESSURE CONNECTION</b>	Models 10-12: 1/8" NPT (male); Models 13-16: 1/4" NPT (male); optional SAE threads and other connections (see options list)
<b>MOUNTING</b>	NPT (male) pressure connection. Surface mounting bracket kit available for field installation



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## APPROVALS



UL 508 recognized  
CSA C22.2 No. 14-M95 recognized  
File # E42272



EEx ia IIC T6 (intrinsically safe), EN 50 014, EN 50 020, Demko# 01E.0113749  
(must select option code M405)



CE Compliance with Low Voltage Directive (LVD)  
CE Compliance to Pressure Equipment Directive (PED/97/23/EC)

## MODEL CHART

Range Code	Adjustable Set Point Range		Deadband		Over Range Pressure*		Proof Pressure**	
	psi	bar	psi	bar	psi	bar	psi	bar
Low end of range on fall High end of range on rise								
Narrower deadbands may be expected at bottom of range								
Buna-N diaphragm and O-ring and 1/8" NPT (male) brass pressure connection								
10	4 to 50	0,3 to 3,4	1 to 6	0,07 to 0,41	1000	68,9	3000	206,8
11	10 to 150	0,7 to 10,3	2 to 10	0,14 to 0,69	1500	103,4	3000	206,8
12	30 to 600	2,1 to 41,4	8 to 60	0,55 to 4,14	2500	172,4	3000	206,8
Stainless steel piston, Buna-N O-ring and 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	690
14	180 to 3000	12,4 to 206,8	50 to 400	3,45 to 27,5	8000	551,6	10,000	690
15	400 to 4700	27,6 to 324,1	100 to 600	7,0 to 41,5	8000	551,6	10,000	690
16	4000 to 7500	275,8 to 517,1	400 to 950	27,6 to 65,5	10,000	690	12,000	827

\* **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

<b>10</b>	<b>B</b>	<b>11</b>	<b>M201</b>
Series Designation	Electrical Termination Type	Range	Misc. Options

### ORDERING CODE

#### Series Designation

10

#### Electrical Termination Type

A

B

C

D

E

F

G

#### Range

10

11

12

13

14

15

16

#### Miscellaneous Options

M201

M277

M278

M405

M407

M430

M444

M446

M511

M512

M540

M541

M550

M925

62169-26

L040

L060

L080

L100

### DESCRIPTION

Designation for Spectra 10 product line

0.11" push-on terminals

0.25" push-on terminals

NEMA 4; 1/2" NPT (male) conduit connection; 20" leads

NEMA 4; 20" leads

NEMA 4; 1/2" NPT (female) conduit connection; 5' cable

NEMA 4; 4 terminal DIN connector

NEMA 4; 5' cable

See model chart on page 4

Factory set one switch; specify increasing or decreasing pressure and set point

Range indicated on nameplate in Kpa or MPa

Range indicated on nameplate in kg/cm2

Intrinsic safety compliance per EN50014, EN50020, EEx ia II T6

CE compliance to Pressure Equipment Directive (Category IV)

Cover lock

Paper ID Tag

Stainless Steel Tag

1/4" NPT (male) 316 stainless steel pressure connection

1/4" NPT (male) brass pressure connection. NOT AVAILABLE ON MODELS 13, 14, 15, OR 16

Viton® construction. Deadbands and low end of range may increase slightly. Consult factory. Wetted parts include Viton® diaphragm and/or O-ring plus standard pressure connection material

Ethylene propylene (EPDM) construction. Deadbands may increase slightly (consult factory). Wetted parts include EPDM diaphragm and/or O-ring plus standard pressure connection material

Oxygen service cleaning; Buna-N diaphragm and/or O-ring changes to Viton®

7/16-20 UNF-2A, SAE brass pressure connection, male

Surface mounting bracket kit

4' leadwire/cable. NOT AVAILABLE ON TYPES A, B, F

6' leadwire/cable. NOT AVAILABLE ON TYPES A, B, F

8' leadwire/cable. NOT AVAILABLE ON TYPES A, B, F

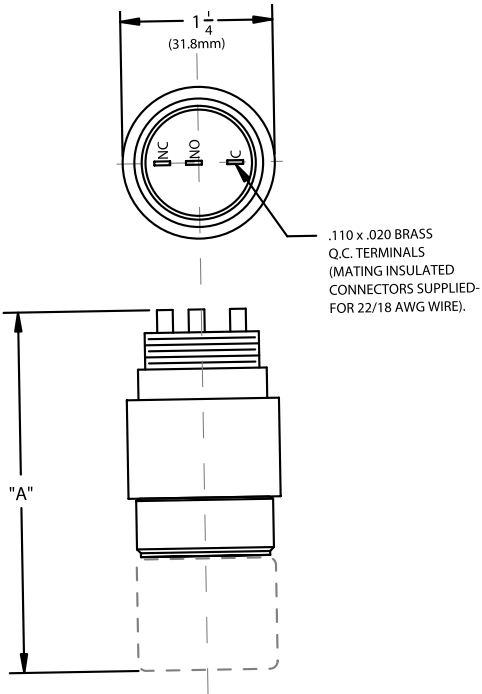
10' leadwire/cable. NOT AVAILABLE ON TYPES A, B, F

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

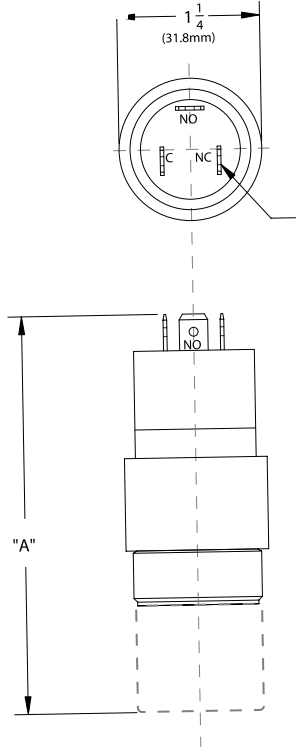


## DIMENSIONAL DRAWINGS

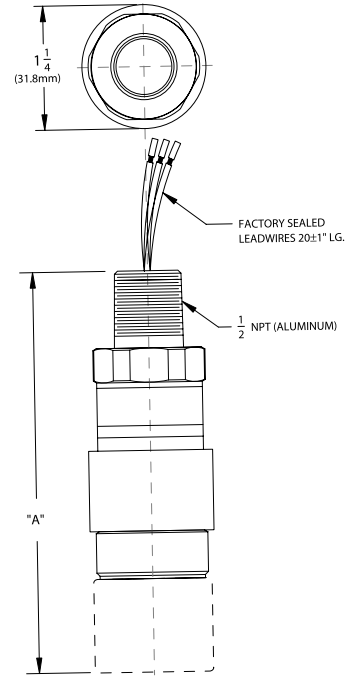
### Type 10-A



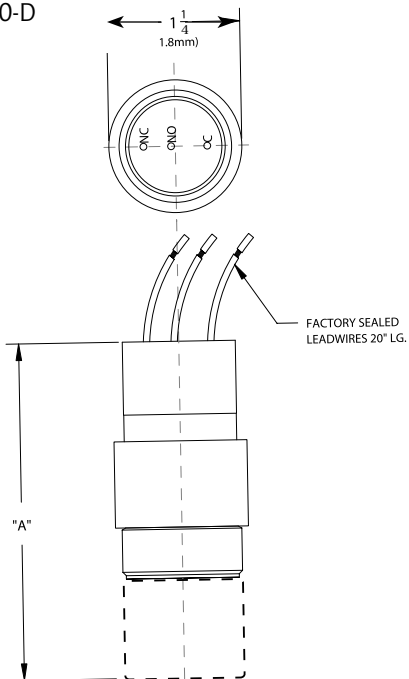
### Type 10-B



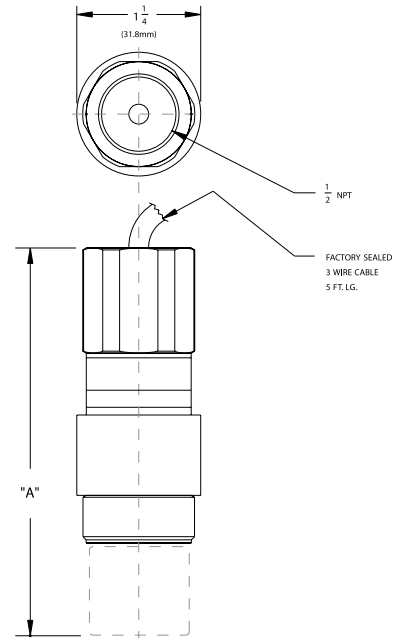
### Type 10-C



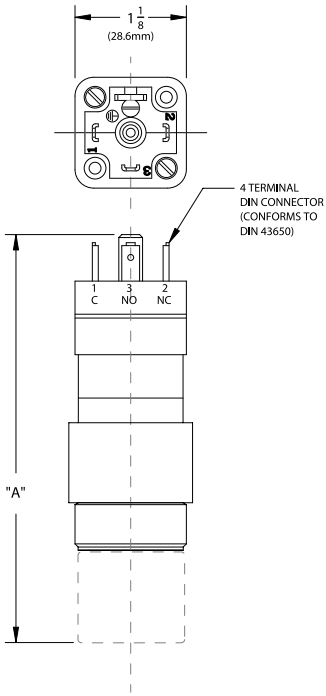
### Type 10-D



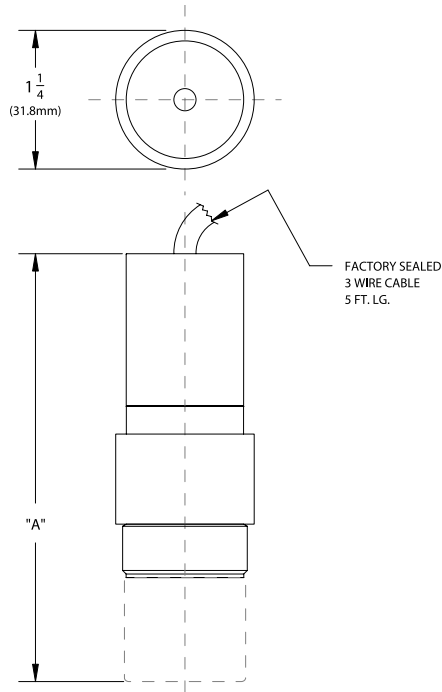
### Type 10-E



Type 10-F



Type 10-G

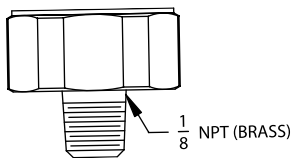


**"A" Dimension Chart**

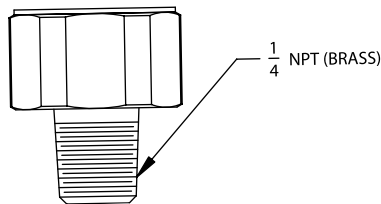
Models	Inches	mm	NPT
A10-12	3"	76.2	1/8
A13-16	3 5/16"	84.1	1/4
B10-12	3 1/2"	88.9	1/8
B13-16	3 13/16"	96.8	1/4
C10-12	4 1/16"	103.2	1/8
C13-16	4 3/8"	111.1	1/4
D10-12	3 3/16"	81	1/8
D13-16	3 1/2"	88.9	1/4
E10-12	3 15/16"	100	1/8
E13-16	4 1/4"	108	1/4
F10-12	4 1/8"	104.8	1/8
F13-16	4 7/16"	112.7	1/4
G10-12	3 7/8"	98.4	1/8
G13-16	4 3/16"	106.4	1/4

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

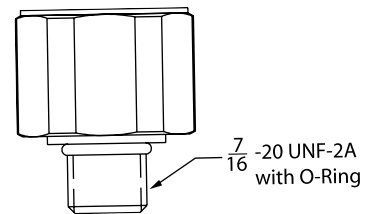
**PRESSURE CONNECTION DETAILS**



Model 10-12



Model 13-16



Option M925

## 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 temperature is acceptable on a limited basis (i.e., start-up, testing) but continuous operation must be restricted to the designated adjustable range. Excessive cycling at maximum 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. 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.
- For all applications, a factory set unit should be tested before use.
- 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.

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*UE specifications subject to change without notice.*

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