



100 Series

UE UNITED ELECTRIC
CONTROLS

Type H100 (Pressure Switch)

Type H100K (Differential Pressure Switch)

Installation and Operation Instructions

Please read all instructional literature carefully and thoroughly before starting.

Refer to the final page for the Warranty.

GENERAL



MISUSE OF THIS PRODUCT MAY CAUSE DAMAGE TO EQUIPMENT OR PERSONAL INJURY. THESE INSTRUCTIONS MUST BE THOROUGHLY READ AND UNDERSTOOD BEFORE DEVICE IS INSTALLED.



PRIOR TO INSTALLATION, CHECK THE WETTED PARTS MATERIAL FOR COMPATIBILITY TO THE PROCESS MEDIA.

Cert number	20181026-E42272
Applicable Area	North America
Markings	UL Listed
Applicable Standards	UL 508; C22.2 No. 14

Cert number	DEMKO 11 ATEX 1105261X
Applicable Area	Europe (EU)
Markings	II 1 G Ex ia IIC T6 Ga -50 °C ≤ Ta ≤ +60 °C
Applicable Standards	EN IEC 60079-0; EN 60079-11

Cert number	IECEx UL 14.0075X
Applicable Area	International
Markings	Ex ia IIC T6 Ga -50 °C ≤ Ta ≤ +60 °C
Applicable Standards	IEC 60079-0; IEC 60079-11



ATEX AND IEC SPECIFIC CONDITIONS OF USE: ENCLOSURE CONTAINS ALUMINUM. CARE MUST BE TAKEN TO AVOID IGNITION HAZARD DUE TO IMPACT OR FRICTION.



PROOF PRESSURE * LIMITS LISTED ON NAMEPLATE MUST NEVER BE EXCEEDED, EVEN BY SURGES IN THE SYSTEM. OCCASIONAL OPERATION OF UNIT UP TO PROOF PRESSURE IS ACCEPTABLE, E.G., START-UP AND TESTING. CONTINUOUS OPERATION SHOULD NOT EXCEED THE DESIGNATED OVER RANGE ** OR MAXIMUM WORKING PRESSURE * RANGE.**

* Proof Pressure - the maximum pressure to which a pressure sensor may be occasionally subjected, which causes no permanent damage (e.g., start-up, testing). The unit may require re-gapping (consult factory for re-gapping procedure).

** Over Range Pressure - the maximum pressure to which a pressure sensor may be continuously subjected without causing damage and maintaining set point repeatability.

*** Working Pressure Range - the pressure range in which two opposing sensors can be safely operated and still maintain set point provided the difference in pressure between the low and high sides does not exceed the designated adjustable range.



THIS PRODUCT DOES NOT HAVE ANY FIELD REPLACEABLE PARTS. ANY SUBSTITUTION OF COMPONENTS SHALL INVALIDATE AGENCY CERTIFICATION(S).



DEVICE MUST NOT BE ALTERED OR MODIFIED AFTER SHIPMENT. CONSULT UE IF MODIFICATION IS NECESSARY.

The 100 Series pressure and differential pressure switches are activated when a bellows, diaphragm or piston sensor responds to a pressure change. This response, at a pre-determined set point, actuates a single snap-acting switch, converting the pressure signal into an electrical signal. Control set point may be varied by turning the internal adjustment hex. (See PART II - Set Point Adjustment). Please refer to the datasheet at www.ueonline.com for product specifications. Date code format on nameplate is "YYWW" for year and week.

Part I - Installation



- Adjustable wrench
- Screwdriver
- Hammer (for alternate wire knockouts)

Mounting



INSTALL DEVICE WHERE SHOCK, VIBRATION AND TEMPERATURE FLUCTUATIONS ARE MINIMAL. DO NOT INSTALL DEVICE IN AMBIENT TEMPERATURES THAT EXCEED PUBLISHED LIMITS ON THE NAMEPLATE.



DEVICE SHOULD BE MOUNTED TO PREVENT MOISTURE FROM ENTERING THE ENCLOSURE. VERTICAL MOUNTING IS RECOMMENDED.



CONSIDER THE USE OF A PRESSURE SNUBBER IF SEVERE PRESSURE SURGES ARE EXPECTED.



FOR PRESSURE MODELS, MOUNT VIA PRESSURE CONNECTION. ALWAYS USE A WRENCH ON PRESSURE CONNECTION HEX. DO NOT TIGHTEN BY TURNING THE ENCLOSURE AS THIS WILL DAMAGE THE SENSOR AND WEAKEN WELDED JOINTS.



FOR DIFFERENTIAL PRESSURE MODELS, MOUNT USING A WRENCH ON LOW AND HIGH SIDE PRESSURE CONNECTION HEX OR MOUNT AGAINST A RIGID SUPPORT THEN CONNECT LOW AND HIGH PRESSURE PORTS.

Controls may be surface mounted via the two mounting ears on either side of the enclosure, or directly to a rigid pipe by using the pressure connection. Low pressure and differential pressure units, models 520-535, 540-543, 544-548, are also available with an optional surface mounting bracket.



ON MODELS SUPPLIED WITH AN EXTERNAL MANUAL RESET BUTTON, BE SURE TO LEAVE SUFFICIENT FINGER SPACE OVER THE RESET BUTTON FOR THE OPERATOR TO RESET THE CONTROL.

Wiring



DISCONNECT ALL SUPPLY CIRCUITS BEFORE WIRING DEVICE. WIRE DEVICE IN ACCORDANCE WITH LOCAL AND NATIONAL ELECTRICAL CODES. MAXIMUM RECOMMENDED WIRE SIZE IS 14 AWG AND RECOMMENDED TIGHTENING TORQUE FOR FIELD WIRING TERMINALS IS 7 TO 17 IN.-LBS.



DO NOT EXCEED ELECTRICAL RATINGS LISTED ON NAMEPLATE. OVERLOAD ON A SWITCH CAN CAUSE FAILURE, EVEN ON THE FIRST CYCLE.



ENSURE ELECTRICAL CONDUIT ENTRIES ARE PROPERLY SEALED TO PREVENT MOISTURE ENTRY.

1 Remove the two screws retaining the cover and cover gasket.

2 A 1/2" NPT conduit connection is provided on the left hand side of the enclosure. Two cast-in 7/8" diameter knockouts are located on the side and back of the enclosure (See dimensional drawings). These can easily be knocked out by placing the blade of a screwdriver in the groove and tapping sharply with a hammer. The three switch terminals are clearly labeled "common", "normally open" and "normally closed".

If lead wires are supplied, color coding is as follows:

TERMINALS	Manual Reset (Option 1530)	DPDT (Option 1010)	
		Circuit 1	Circuit 2
Common (COM)	Violet	Violet	Yellow
Normally Closed (NC)	Black	Black	Red
Normally Open (NO)	Blue	Blue	Orange

A grounding screw and clamp (cast in symbol) is provided which meets a 35 lb. pull test. Keep the wire as short as possible to prevent interference with the plunger and if applicable, the optional adjustable differential switch wheel (option 1519).

Part II - Set Point Adjustment



- 5/8" Open End Wrench
- 1/4" Wrench
- 3/16" Wrench
- Screwdriver



FOLLOW THE SET POINT PROCEDURE BELOW. DO NOT ADJUST THE FACTORY SET-GAPPING. GAPPING IS FACTORY-SET AND CRITICAL TO THE FUNCTION OF THE SWITCH. IF THE PLUNGER SCREW WAS ACCIDENTALLY ADJUSTED, CONSULT FACTORY.

Types H100 and H100K

1 Remove cover. Loosen Phillips screw adjustment lock.

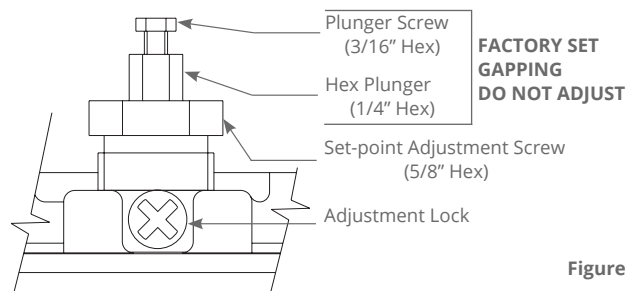


Figure 1

2 Adjust set point by turning 5/8" hex adjustment screw clockwise to raise set point, or counter clockwise to lower set point. Tension on adjustment screw can be increased by tightening adjustment lock onto it. (See Figure 1). Controls include uncalibrated reference scales for high, low or mid range settings. When making adjustments, do not exceed the proof pressure rating on nameplate as this may cause a shift in set point.

Types with adjustable deadband switch (select Models & Option 1519)

Models 15623, 15731-15737, 15884, and types with option code 1519 incorporate a snap switch with integral adjustment wheel (See Figure 2). Turning this wheel raises or lowers the pressure rise set point and sets the deadband between rise and fall settings. The fall set point remains constant. Setting adjustable deadband switch:

1 Determine rise or fall set point or set points and deadband.

2 Adjust each **fall** set point by turning the adjustment screw (See Figure 1) clockwise to raise each set point or counterclockwise to lower each set point. The **fall** setting is constant.

3 Adjust each **rise** set point (and deadband) by turning the adjustment wheel on the snap switch counterclockwise to raise each set point (and widen deadband) or clockwise to lower each set point (and narrow deadband).

Consult UE for additional information.

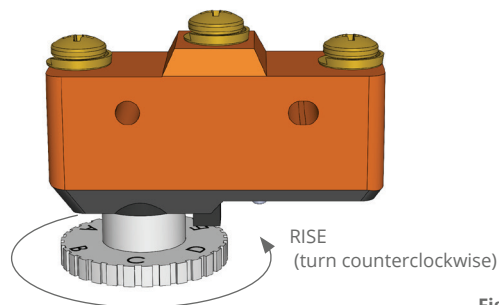


Figure 2

NOTE: Your adjustable deadband switch may be slightly different than shown but operation is the same.

Types with Manual Reset Button (Option 1530)

These models incorporate a snap switch that when actuated, remains actuated until the reset button (located on top of the device) is manually depressed to reset the switch.

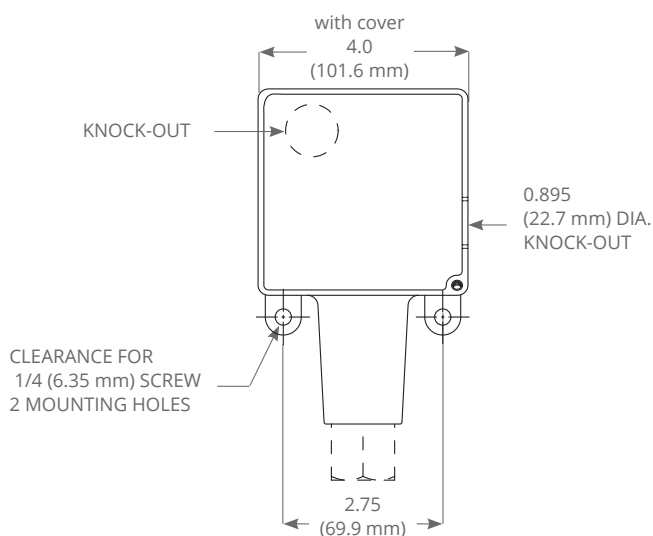
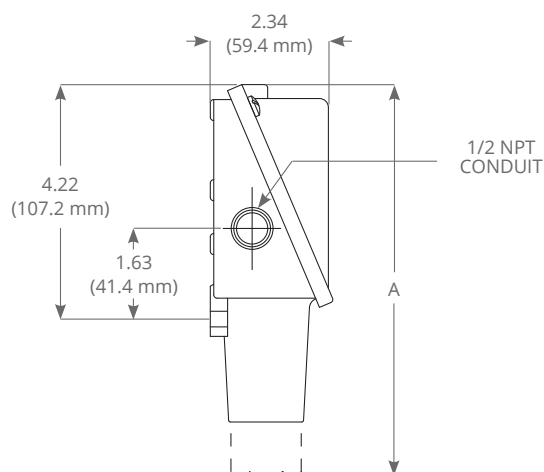


AFTER COMPLETING SETTING ADJUSTMENT, BE SURE TO REINSTALL ENCLOSURE COVER.

Recommended Practices

- A redundant device is necessary for applications where damage to the primary device could endanger life, limb or property. A high or low limit switch is necessary for applications where a dangerous runaway condition could result.
- Monitor operation to observe warning signs of possible damage to device, such as drift in set point. Check device immediately.
- Preventative maintenance and periodic testing is necessary for critical applications where damage could endanger property or personnel.

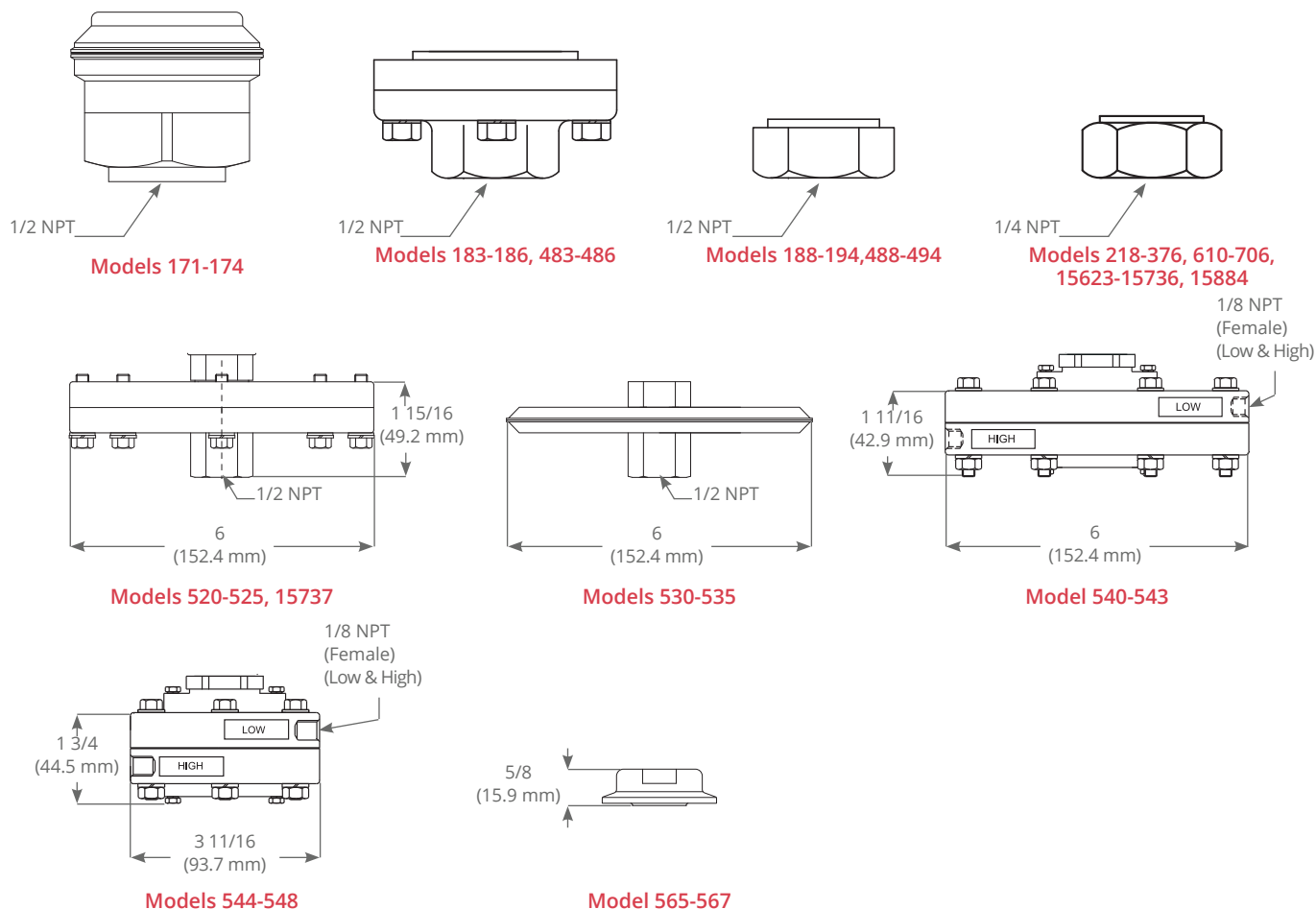
Part III - Dimensions



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

Dimension A			
Models	Inches	mm	Pressure Connection
Pressure			
171-174	7.63	193.8	1/2 NPT
183-186, 483-486	7.56	192.0	1/2 NPT
188-189, 488-489	6.63	168.4	1/2 NPT
190-194, 490-494	6.63	168.4	1/2 NPT
218	6.56	166.6	1/4 NPT
270-274	7.00	177.8	1/4 NPT
358-376	7.00	177.8	1/4 NPT

Dimension A			
Models	Inches	mm	Pressure Connection
520-525, 15737	8.44	214.4	1/2 NPT
530-535	8.00	203.2	1/2 NPT
565-567	6.63	168.4	1-1/2" Sanitary Fitting
610-616, 680, 15884	7.00	177.8	1/4 NPT
701-706, 15623, 15731-15736	6.63	168.4	1/4 NPT
Differential Pressure			
540-543	8.47	215.1	1/8 NPT
544-548	8.53	216.7	1/8 NPT



French Warnings Translations

Pg	Warning Text	Texte d'Avertissement
1	MISUSE OF THIS PRODUCT MAY CAUSE DAMAGE TO EQUIPMENT OR PERSONAL INJURY. THESE INSTRUCTIONS MUST BE THOROUGHLY READ AND UNDERSTOOD BEFORE UNIT IS INSTALLED.	Une mauvaise utilisation de cet appareil peut endommager l'équipement ou provoquer des blessures corporelles. Ces consignes doivent être lues attentivement et bien comprises avant l'installation de l'appareil.
1	ATEX AND IEC SPECIFIC CONDITIONS OF USE: ENCLOSURE CONTAINS ALUMINUM. CARE MUST BE TAKEN TO AVOID IGNITION HAZARD DUE TO IMPACT OR FRICTION.	Conditions spécifiques d'utilisation ATEX et IEC: Le boîtier contient de l'aluminium. Des précautions doivent être prises pour éviter tout risque d'inflammation dû à un choc ou à un frottement.
1	THIS PRODUCT DOES NOT HAVE ANY FIELD REPLACEABLE PARTS. ANY SUBSTITUTION OF COMPONENTS SHALL INVALIDATE AGENCY CERTIFICATION(S).	Aucun composant ne peut être remplacé sur le terrain. Tout remplacement de composant invalidera toutes les approbations et certifications données par un tiers.
1	INSTALL DEVICE WHERE SHOCK, VIBRATION AND TEMPERATURE FLUCTUATIONS ARE MINIMAL. DO NOT MOUNT DEVICE IN AMBIENT TEMPERATURES THAT EXCEED PUBLISHED LIMITS ON THE NAMEPLATE.	Installer l'appareil dans un endroit où les chocs, les vibrations et les variations de température sont minimales. Ne pas installer l'appareil dans un lieu où les températures ambiantes dépassent les limites indiquées sur la plaque signalétique de l'appareil.
2	DISCONNECT ALL SUPPLY CIRCUITS BEFORE WIRING DEVICE. WIRE DEVICE IN ACCORDANCE WITH LOCAL AND NATIONAL ELECTRICAL CODES. MAXIMUM RECOMMENDED WIRE SIZE IS 14 AWG AND RECOMMENDED TIGHTENING TORQUE FOR FIELD WIRING TERMINALS IS 7 TO 17 IN-LBS.	Avant le branchement de l'appareil, déconnecter l'installation sur laquelle l'appareil doit être monté. Réaliser le branchement électrique selon les codes électriques nationaux et locaux. Le diamètre maximal recommandé pour les fils est de 14 AWG. Le couple de serrage pour la borne de raccordement est de 7 à 17 IN-LBS.
2	DO NOT EXCEED ELECTRICAL RATINGS LISTED ON NAMEPLATE. OVERLOAD ON A SWITCH CAN CAUSE FAILURE, EVEN ON THE FIRST CYCLE.	Les seuils électriques indiqués dans la documentation et sur les plaques signalétiques ne doivent jamais être dépassés. La surtension peut causer une panne de l'appareil dès les premier cycle.

**TERMS AND
CONDITIONS OF
SALE**
UE specifications
subject to change
without notice.



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