Installation and Maintenance Instructions for N Series Electronic Pressure Switch

ASHCROFT®

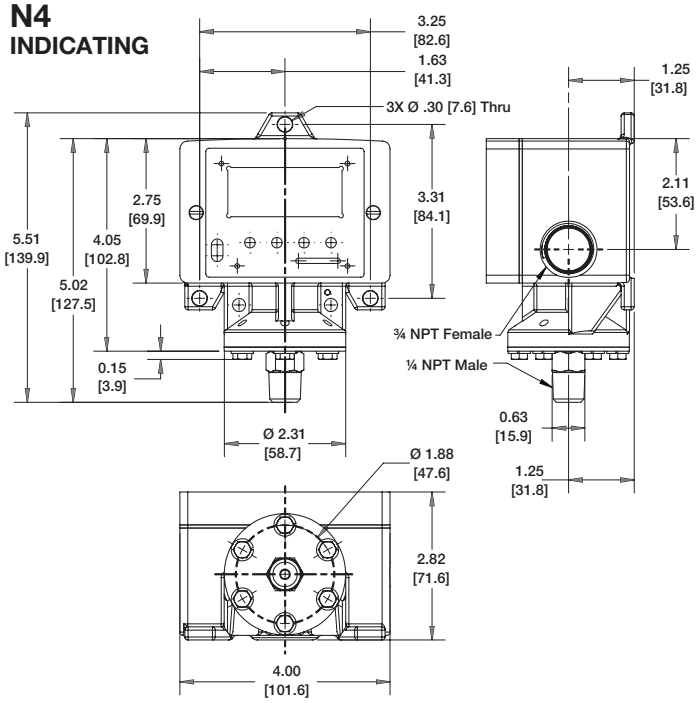
WARNING!

This instrument is susceptible to damage when exposed to static electrical charges. To avoid damage observe the following:

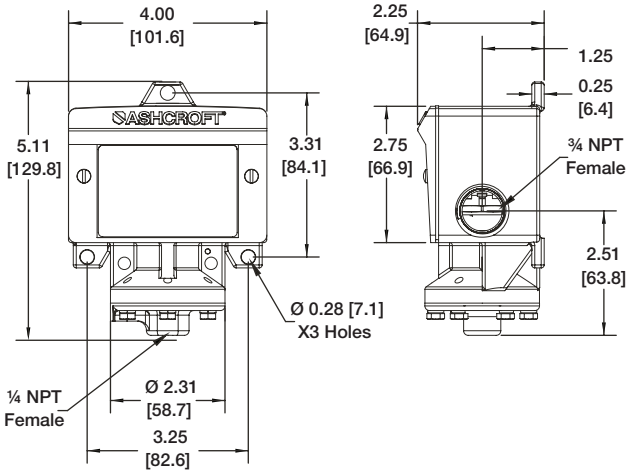
- Ground the body of the instrument BEFORE making any electrical connections
- When disconnecting, remove the ground LAST.

CAUTION: Pressure spikes in excess of the rated overpressure capability of the instrument may cause irreversible electrical and/or mechanical damage to the pressure measuring and containing element(s).

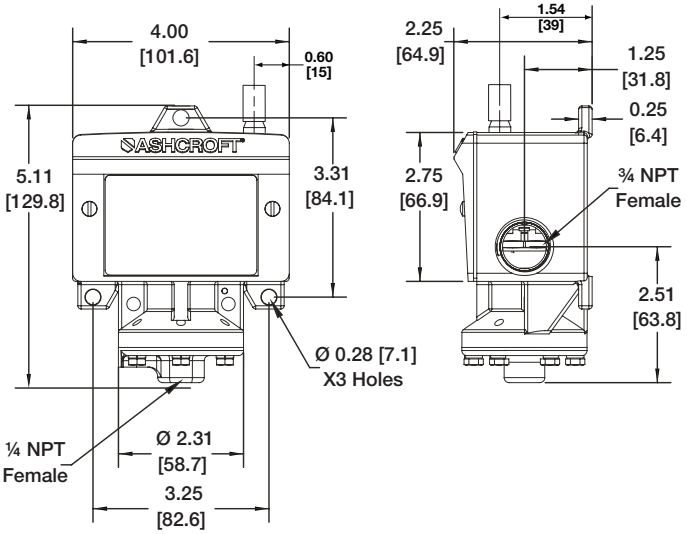
N4
INDICATING



N4
NON-INDICATING



N4
NON-INDICATING XEA (External Adjustment)



RANGES

60, 100, 200, 300, 500, 750, 1000, 2000, 3000, 5000, 7500, 10,000, 15,000, 20,000 psi

INTRODUCTION

The Ashcroft® pressure switch is a precision built control device, which features an Ashcroft® K-Series polysilicon thin film pressure sensor (transducer). Pressure switches are available for operation on pressure with fixed or variable deadband (differential). The standard electrical switch is a SPDT sealed mechanical relay. The wetted materials are 17-4PH® and 316 stainless steel. The Ashcroft® pressure switch is furnished in the standard NEMA 4 enclosure. The enclosure is epoxy coated aluminum.

INSTALLATION

These controls are precision instruments and should never be left with internal components exposed. After installation, ensure that the covers are in place and the conduit openings are closed.

MOUNTING N4 SERIES

There are three holes external to the enclosure for surface mounting. The locations of these holes are shown on the general dimension drawing. The controls may also be mounted directly on the pressure line using the pressure connection. *When tightening the control to the pressure line, always use the wrench flats or the hex on the lower housing.*

CONDUIT CONNECTIONS

Note: It is recommended that Teflon™ tape or other sealant be used on the conduit, bushing or plug threads to ensure the integrity of the enclosure.

N4 Series standard – One ¾ NPT conduit hole right side. permanent plug.

N4 – XJL variation – ¾ NPT conduit holes with ¾ to ½ NPT reducing bushings. **N4 Series – XJL variation –** Two ¾ NPT conduit holes.This option is recommended when ordering 4-20 mA output.

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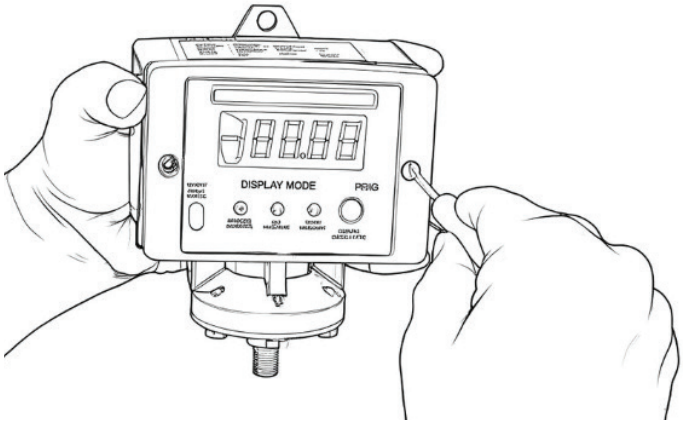
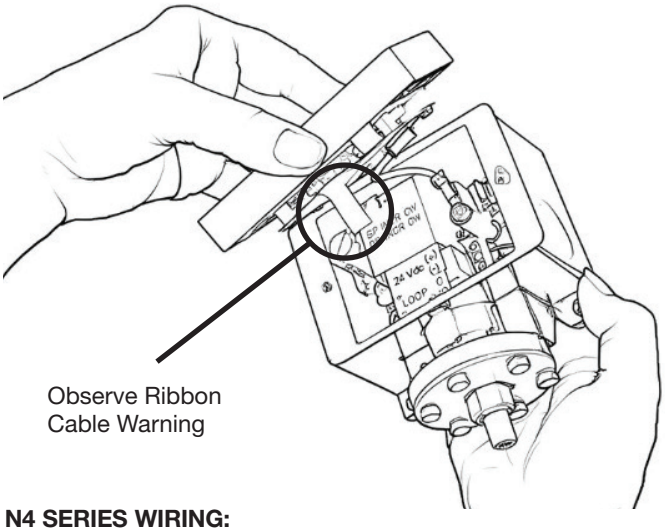
ELECTRICAL CONNECTIONS

WARNING: Cover with display has a ribbon cable connected to the cover that can come loose. Take care when opening.

Remove cover.



N4 Series – Two screws hold cover to enclosure

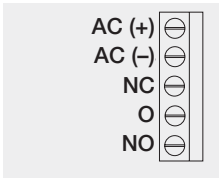


Observe Ribbon Cable Warning

N4 SERIES WIRING:

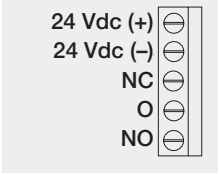
SPDT Wiring – Wire directly to the terminal block according to circuit requirements.

For 120/250 Vac 60 Hz switch wiring:
Wire power lines to terminal marked AC.



N4 TERMINAL BLOCK

For 24 Vdc switch wiring:
Wire positive power line to terminal marked 24 Vdc + and
Wire negative power line to terminal marked 24 Vdc –.



N4 TERMINAL BLOCK

N4 SERIES ADJUSTMENT OF SETPOINT

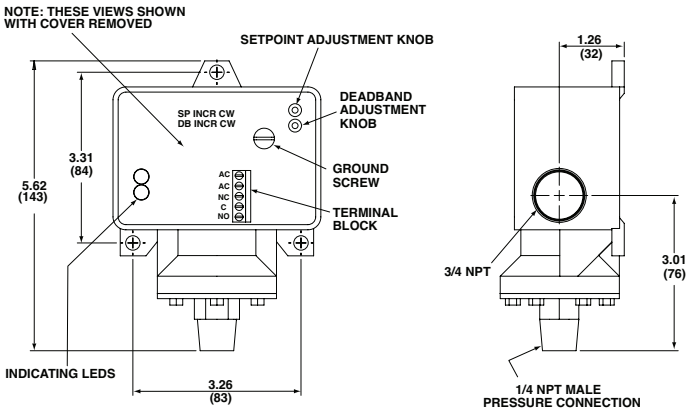
A 25 turn adjustment potentiometer is located at the upper right corner on the inside of the enclosure.

For accurate setpoint calibration, mount the switch on a calibration stand, a pump or or other pressure source. A suitable reference standard such as an Ashcroft Duragauge® or test gauge is necessary to observe changes in pressure.

As received, the pressure switch will normally be set to approximately 90% of the indicated range. Pressurize the system to the required setpoint and turn the adjustment potentiometer until the switch changes mode. Clockwise rotation of the potentiometer will increase the setpoint and counter-clockwise rotation of the potentiometer will decrease the setpoint. When the setpoint has been achieved, raise and lower the pressure to ensure that the setpoint is correct.

The indicating LEDs will show red when the pressure is below the setpoint and green when the pressure is above the setpoint.

N4 Series indicating and non-indicating



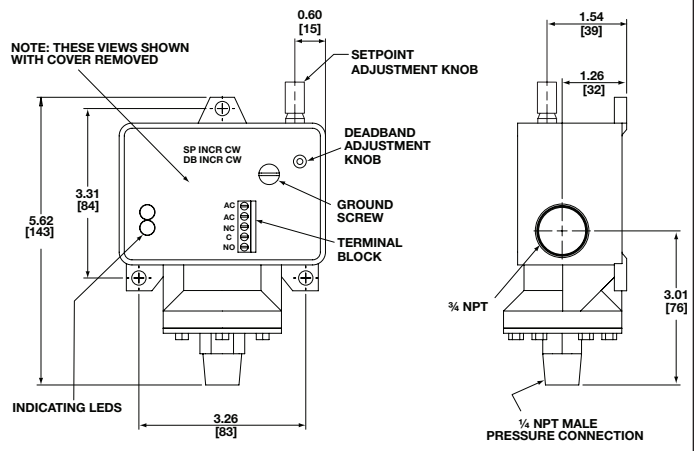
Adjustment of Deadband

A four turn adjustment potentiometer is located at the upper right corner on the inside of the enclosure just below the setpoint potentiometer.

The deadband is adjusted as above. Clockwise rotation of the potentiometer will increase the deadband and counter-clockwise rotation of the potentiometer will decrease the deadband.

After installation of the control replace cover to protect internal parts from the environment.

N4 Series non-indicating XEA (external adjustment)



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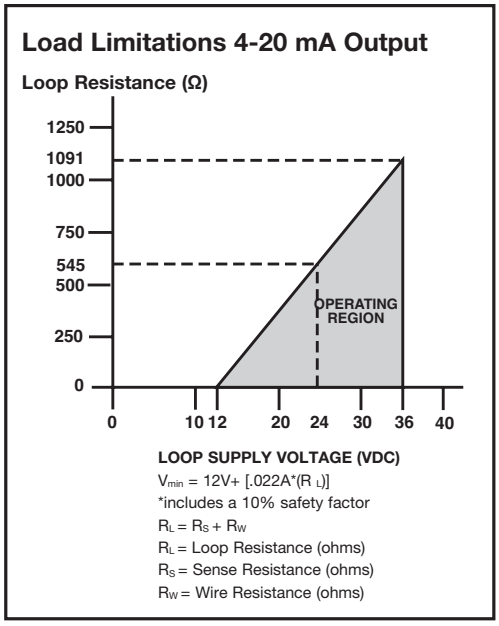
For N4 XEA Switches Only
The setpoint is adjusted by a ten turn potentiometer located externally on the top right of the case. The setpoint is adjusted as above.

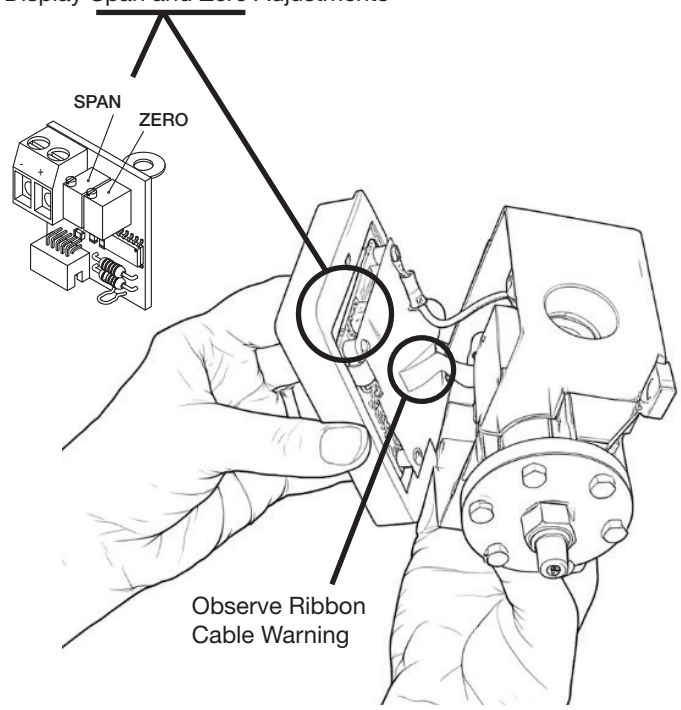
POWER SUPPLY – N4 SERIES 4-20 mA OPTION
The maximum supply voltage for a 4-20 mA current output transducer is 36 Vdc while the minimum supply voltage is dependent upon the loop resistance of the circuit. The load limitation chart shows the minimum supply voltage (V_{min}) required for a given loop resistance (R_{LOOP}).



4-20mA OUTPUT OPTION
(SEPARATE POWER SUPPLY REQUIRED)

ADJUSTMENT POTENTIOMETERS
The span and zero pots are accessible through the front when the cover is off. Remove the cover carefully. The span and zero pots are labeled. For additional conduit hole on N4 Series, order option (XJL).

DISPLAY ZERO AND SPAN ADJUSTMENTS



NOISE
For minimum noise susceptibility, avoid running the transducer's cable in a conduit that contains high current AC power cables. Where possible avoid running the cable near inductive equipment.