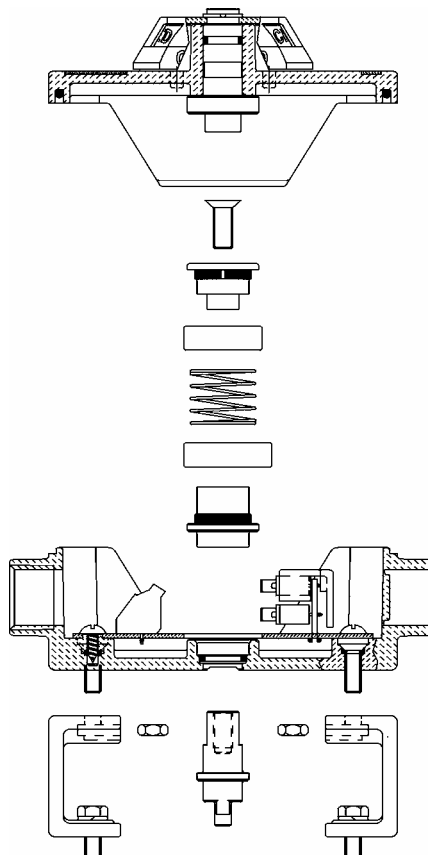




Max-Air TECHNOLOGY

Limit Switch Box



INSTALLATION, OPERATION & MAINTENANCE MANUAL

Max-Air TECHNOLOGY, INC.

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Max-Air Technology series of switchboxes represent a completely new dimension in switchboxes for actuators. Manufactured completely in techno-polymer with stainless steel fasteners and Nema 4, 4x rating, these products are corrosion resistant and suitable for the most corrosive environments.

Max-Air Technology Limit Switch Boxes are equipped in the standard configuration with the following unique features:

- **Quick Set Cams:** the operating position of the switches can be easily changed by manually adjusting the high resolution spline cams. The cams are spring backed and will not be affected by normal vibration.
- **Easy wiring:** MAX-AIR switch boxes are easy to wire up with plenty of room to bring wires into the enclosure. As standard, they have two conduit entries ½" NPT. MAX-AIR switch boxes are equipped with 2 different removable strips as standard, the first one with 8 terminal points and the second one with 2 points; therefore, dual coil solenoid valves can be connected. The terminal strips are angled to allow for ease in attaching external wires.
- **Compact Design:** MAX-AIR Switch Box has a compact construction, minimizing valve package envelope size.
- **Inclusive Mounting Bracket:** a techno-polymer mounting bracket is supplied as standard with MAX-AIR Switch Box and it fits the NAMUR top-mounting hole spacing 80 mm per 30mm. The bracket allows the use of standard NAMUR stem height 30 mm and also 20 mm with a coupling included in the standard kit.
- **High Visibility Indicator:** our Tri-dimensional indicator offers clear location of the current valve position for 90° - 120° - 135° - 150° - 180° angle.

CAUTION – PLEASE READ CAREFULLY

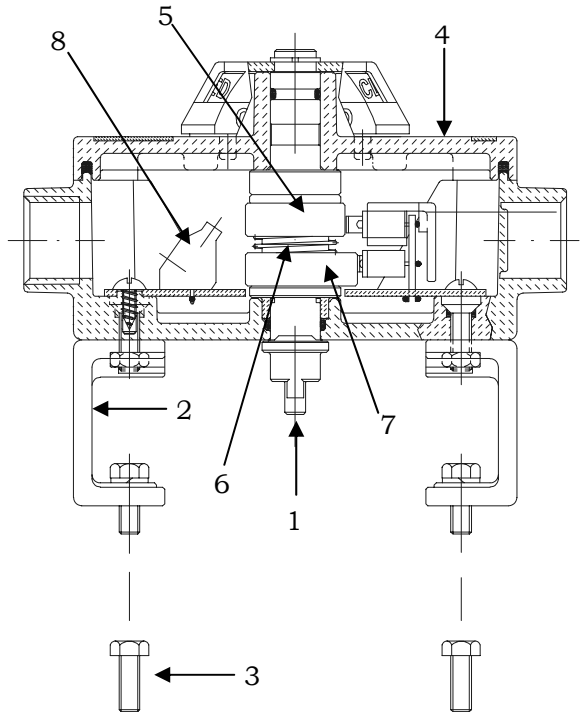
- **BEFORE CARRYING OUT ANY OPERATIONS AND REMOVING THE COVER, IT IS ESSENTIAL THAT THE SWITCH BOX IS NOT ENERGIZED.**
- **THE CONDUIT CAP SUPPLIED WITH THE MAX-AIR SWITCH BOX IS FOR TRANSIT PURPOSE ONLY. IP 65 PROTECTION DEPENDS ON THE PLUG AND WIRING METHODS USED. ANY CONDUIT (USED OR UNUSED) MUST BE CLOSED WITH A PLUG SUITABLE FOR THE REQUIRED PROTECTION.**

INSTALLATION.

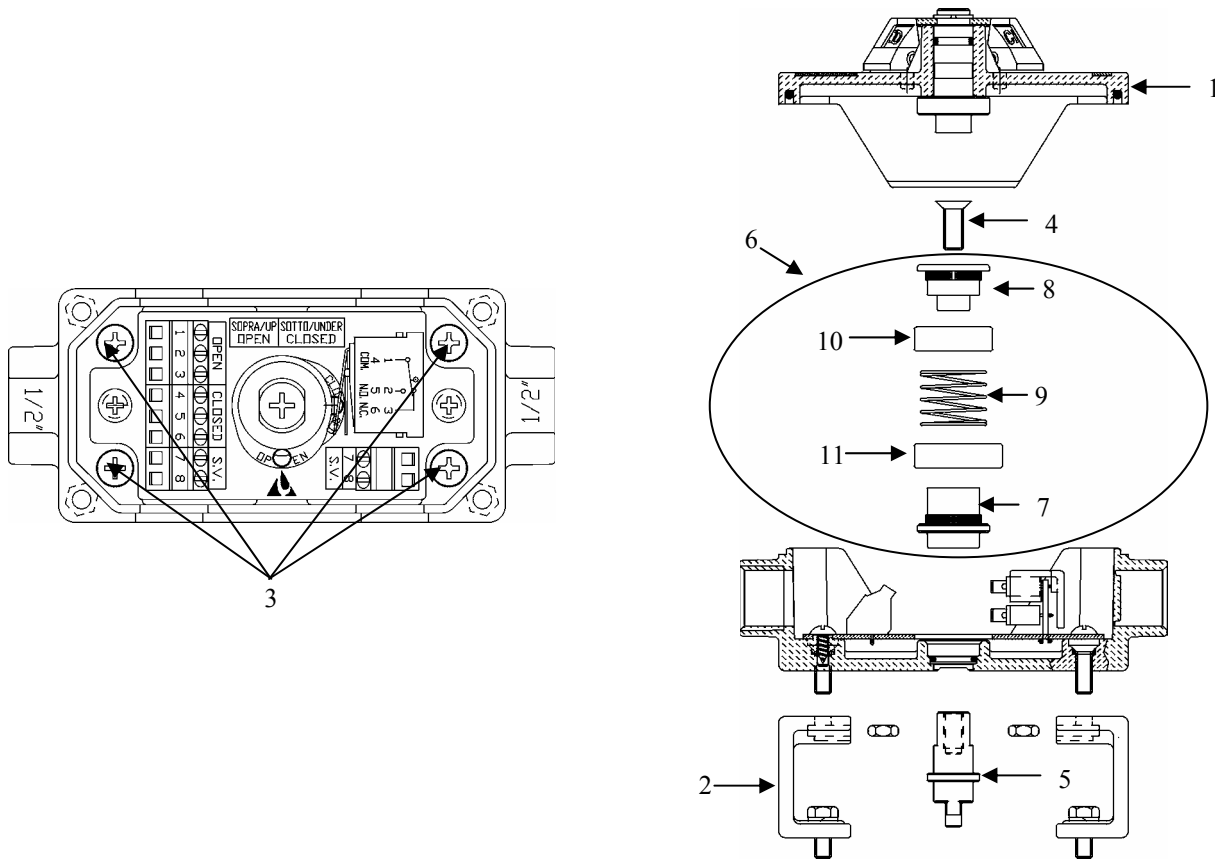
- a. Align the SB shaft (ref. 1) to the actuator pinion and engage it.
- b. Using the provided screws (ref. 3) and washers, tighten the brackets (ref. 2) to the actuator.

2. SWITCH ADJUSTMENT.

- a. Remove the four screws and remove the cover (ref. 4).
- b. Turn the actuator until to the open position.
- c. Push the upper cam down (ref. 5) – cam open – turn until the switch is activated and then release; the spring between the 2 cams (ref. 6) will ensure the cam re-engagement onto the shaft. (**Note:** on the shaft there is a spline and each line adjusts 2°).
- d. Turn the actuator until to the closed position.
- e. Pull the lower cam up (ref. 7) – cam closed – turn until the switch is activated and then release; the spring between the 2 cams (ref. 6) will ensure the cam re-engagement onto the shaft. (**Note:** on the shaft there is a spline and each line adjusts 2°).
- f. Reassemble the cover (ref. 4) and tighten the screws.



1. Remove c-clip and position indicator from techno polymer actuator.
2. Remove top cover (ref. 1) from Max-Air switchbox by removing 4 screws in each corner.
3. Remove Max-Air mounting brackets (ref. 2) from bottom of switchbox by loosening the 4 screws (ref. 3) inside each corner of the switchbox. We strongly advise that the internal screws not be entirely removed, as each screw has an individual o-ring seal.



4. Remove switchbox shaft screw (ref. 4). After removing the mounting brackets, secure the shaft into the actuator pinion by setting the switchbox on top of the actuator. This will hold the shaft in place while breaking the shaft screw loose for removal.
5. Remove drive shaft (ref. 5) from the bottom of the switchbox by pulling firmly downward.
6. Remove switch apparatus (cams, spring, and supports: ref. 6) by pulling firmly upwards.



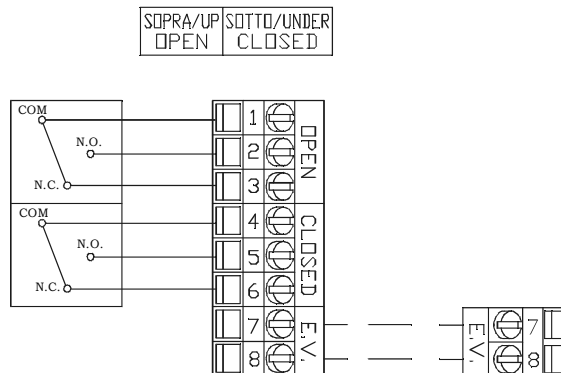
7. Set switchbox on top of actuator aligning the pinion to the switchbox shaft hole. Extra care should be taken to ensure that the o-ring is seated at the base of the shaft opening. This is to be done carefully by using a non-sharp tool to gently push the o-ring over the pinion into the base.
8. Tighten 4 screws inside the switchbox (ref. 3) to actuator body.
9. Insert the lower multi-spline support (ref. 7) for cams onto the pinion and firmly snap into place by pushing downward.
10. Compress spring (ref. 9), cams (ref. 10 and 11) and insert onto the pinion. Lower cam must be marked closed, upper cam must be marked open.
11. Insert upper multi-spline support (ref. 8) for cams on top of spring/cam assembly ensuring proper alignment between the shaft/cam flats and the upper support flats.
12. Tighten shaft screw (ref. 4) to secure cam spring assembly to pinion.
13. With the actuator in the closed position, set the lower cam by gently pulling upward and turning the cam until the closed switch is made (for standard operation when viewing from above, the switches are on the right hand side with the lower cam in the 3 o'clock position).
14. Likewise, set the upper cam by gently pushing downward and moving the cam to 90 degrees clockwise from lower cam position (when viewing from above, the switches are on the right hand side with the upper cam in the 6 o'clock position) or moving the cam to 90 degrees counterclockwise from lower cam position for reverse actuator operation (this is the 12 o'clock position).

3 – 1 WIRING DIAGRAM

- a. Remove the four screws and remove the cover (ref. 4).
- b. Remove the protection cap and substitute it with the plug that ensures the desired protection. Conduits are threaded ½" NPT .

WARNING: NEMA 4, 4x (IP65) protection depends on the wiring connection, so the use of inappropriate components and/or wrong installation leads to a decrease in the protection degree of the SB.

- c. Using a screw driver, wire the eight points terminal strips (ref. 8) according to the diagram:
- d. Reassemble the cover (ref. 4) and tighten the four screws.



Max-Air Technology Limit Switch Box is designed to NEMA 4, 4x standards.

NEMA 4, 4x: Watertight and Dust tight – indoor & outdoor. Protects against windblown dust rain, splashing water and hose directed water. Also corrosion resistant.

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Materials

Box:	Technopolymer
Brackets:	Technopolymer
Position Indicator:	Technopolymer
Fasteners:	Stainless Steel
Seals:	Buna-N
Operating Shafts:	Technopolymer
Cams:	Technopolymer
Microswitches:	Technopolymer
Electrical Board with Clamps:	Polyamide

SPDT Mechanical Switches

with 8 Point Terminal Strip on a
printed circuit board

Technical Data

Operating Force	0.60 N (61 Gram Max)
Release Force	0.06 N (6 Gram Max)
Differential	4.8 mm
Travel	
Overtravel	0.8 mm

Electrical Rating

Contact Arrangement: SPDT (Form C)

Rated Voltage	Resistive Load	Inductive Load
125 VAC	5 Amp	3 Amp
250 VAC	3 Amp	2 Amp
8 VDC	5 Amp	5 Amp
14 VDC	5 Amp	4 Amp
30 VDC	4 Amp	3 Amp
125 VDC	0.4 Amp	0.4 Amp
250 VDC	0.2 Amp	0.2 Amp

Inductive Proximity Sensors

Nominal voltage [V]	8
Current consumption	
Sensing face covered [mA]	1
Sensing face free [mA]	3
Switching frequency [Hz]	1000
Self inductance [mH]	50
Self capacitance [nF]	35
Protection	IP67
Operating Temperature [°C]	-25...100

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