

1. Definitions

WARNING:

- If not observed, user incurs a high risk of severe damage to product and/or fatal injury to personnel.

CAUTION:

- If not observed, user may incur damage to product and/or injury to personnel.

NOTE:

- *Advisory and information comments provided to assist maintenance personnel to carry out maintenance procedures.*

2. Operation principal

009 Series Limit switch box mounts on to a rotary actuator via mounting bracket. The unit shaft directly couples to actuator shaft via NAMUR adaptation.

As actuator rotates the unit shaft, adjustable cam on the shaft actuate mechanical or proximity switches inside the unit enclosure, at the limits of rotary travel set by the customer.

The switches are prewired to PBT in the enclosure, permitting easy connection of switch output to external electrical monitoring system or indication devices.

The visual indicator on the enclosure cover indicates 90 degree rotary travel between OPEN & CLOSED valve position.

009L Series Limit switch box mounts on to a linear actuator via mounting bracket. As actuator rotates the unit shaft, adjustable cam on the shaft actuate mechanical or proximity switches inside the unit enclosure, at the end limits of linear actuator set by the customer.

The switches are prewired to PBT in the enclosure, permitting easy connection of switch output to external electrical monitoring system or indication devices.

3. Identification of Manufacturer/part code/model:

Reference is to be made to the product catalogue (available on our web site) to know the part code/model which is mentioned on the switch box name plate.

Below are the minimum details mentioned on the name plate :

Manufacturer name :KENWOOD VALVE CONTROLS (INDIA) PRIVATE LIMITED.
Manufacturer address:C217,MT Sagar Industrial estate, Gokul road,HUBLI-580030.

Email ID:preorders@kenwoodvalvecontrols.com

Model: Either 009XXXXXX X for switch box with indicator cover or 009LXXXXXXX for switch box with blind cover.

SI No of Switch box:

Cable entry: 1/2" NPT/M20x1.5P.

Certificate No: ERTL(E)/TES/K159/0014/04-23 /NABL dt.08/06/2023

Ex marking: Ex db IIC T6 Gb (-20 ° C ≤ Ta ≤ +60 ° C).

BIS License No.—CM/L-6800106310

PESO Ref No:P573476/1 (when applicable)

IS Standard No with ISI marking---IS/IEC-60079-1

DO NO OPEN WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT

POTENTIAL ELECTROSTATIC CHARGING HAZARD-SEE INSTRUCTIONS

4. Warning, Cautions and Notes:

The equipment must be installed in the accordance with the laws, guide lines and rules applicable within the country.

WARNING: Special Condition for Safe Use

- DO NO OPEN WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT.
- POTENTIAL ELECTROSTATIC CHARGING HAZARD-CLAEN ONLY WITH DAMP CLOTH.
- Ensure that Supply Voltage should not exceed more than 20 % of Rated voltage. (for current and voltage ratings refer catalogue/data sheet).
- The user must refer to manufacturer before carrying out any repair or refurbishment to the equipment. The gaps specified in test report and certification drawing must never be exceeded.
- The fastening screws for body and cover shall be stainless steel socket head cap screw of size M6X1PX16L-6g, property class A2-70 and minimum yield stress of 450Mpa.
- The body/cover joint screws to be tightened to 9NM torque.
- Do not open cover / cable gland when limit switch is under operation or in energized condition.

- For explosion proof installations, the internal ground connection shall be used and the external ground connection, if supplied in addition, is supplemental bonding allowed where local authorities permit or is required. The earthing connection facilities shall have at least one conductor with a cross-sectional area given in below table. The external earthing connection facility shall have 4 sq.mm.as minimum.

Cross-Section area of phase conductors, S mm ²	Minimum Cross-Section area of the corresponding PE conductor, phase conductors, S _p , mm ²
$S \leq 16$	S
$16 < S \leq 35$	16
$S > 35$	0.5 S

- For explosion proof installations, the internal ground connection shall be used and the external ground connection, if supplied in addition, is supplemental bonding allowed where local authorities permit or is required.
- For details of BIS certificate please visit www.bis.gov.in

CAUTION:

- The current and voltage limitation has to be observed as per the data sheet/catalogue/TC.
- The wiring and connection should be carried out with proper gland and care should be taken to avoid water seepage inside the box.
- Confirm the area is non-hazardous before opening the cover of the enclosure for making electrical connections.
- The plugs given along with box are to be removed and Ex db IIC certified metallic plug/cable glands to be used.
- Ensure Ex db IIC certified cable gland is properly fitted using sound engineering practice ensuring that rain water / other fluids do not enter in the limit switch box.
- The person who operates the limit switch should have enough knowledge of electrical engineering.

CAUTION IP67 :

- Ensure cable gland is to be properly fitted using sound engineering practice ensuring that rain water / other fluids do not enter in the limit switch box.
- The plugs given along with box are to be removed and Ex db IIC certified metallic plug/cable glands to be used.
- Tighten the cover bolts fully to avoid water seepage inside the limit switch box.

→NOTE:

- The box should be left in the original packing until it is required for the use.
- It should be stored in the enclosed area with temperature limit 4° to 40° C.
Operating temperature range -20°C to +60°C.

5.Installation :

009 series Switch box is mounted onto the Rotary actuator using a bracket fixed to the box with 4no of M5x12mm Phillip pan head screws/hexagonal head bolts to the actuator with 4no of M5 x12mm Phillip pan head screws/hexagonal head bolts provided with the mounting kit.

009L series Switch box is mounted onto the Linear actuator using a suitable bracket, tripping rod and lifting plate onto the switch box by using 4no of M6 screws/hex bolts and the bracket is mounted onto the actuator as per customer design.

6. Opening/closing the switch box cover and Wiring:

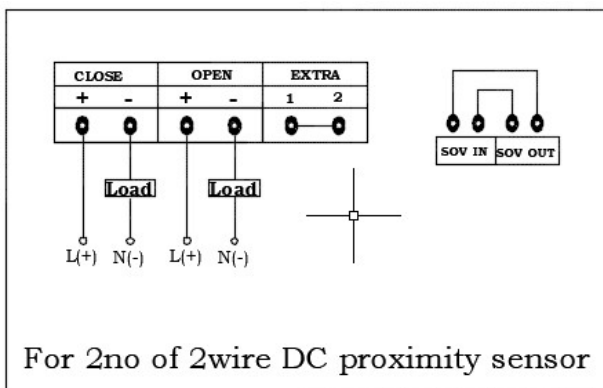
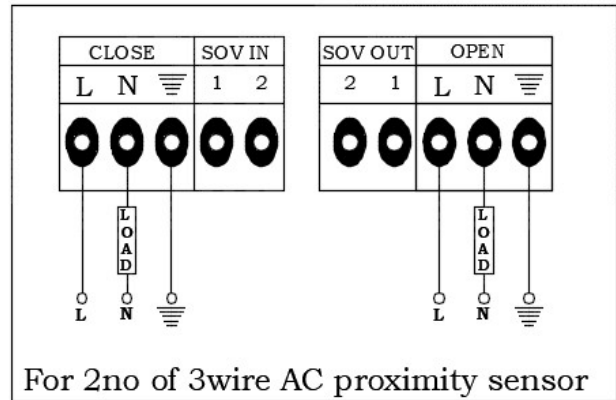
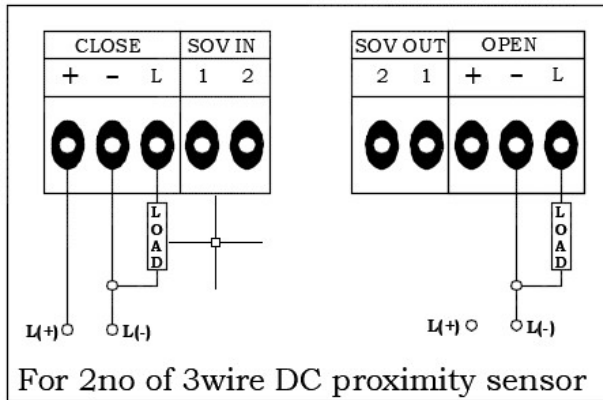
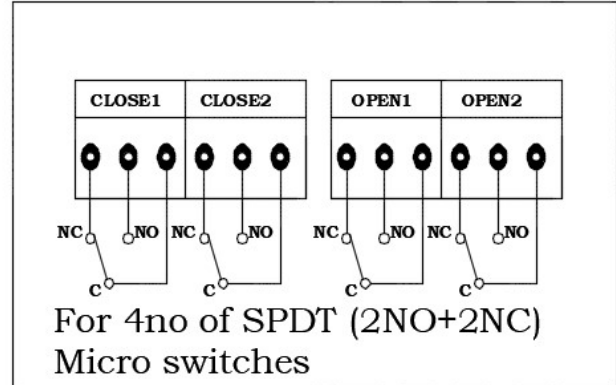
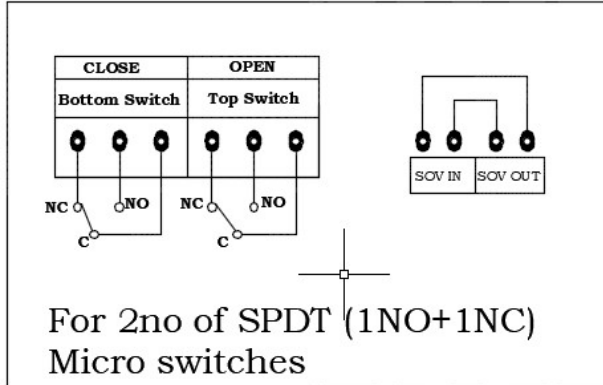
Remove the cover after unscrewing 6no of stainless steel socket head cap screw of size M6X1PX16L which are fitted to body/cover joint, by using Allen key size of 5mm. Remove the dust caps from cable entries and substitute them with adequate Ex db IIC certified cable glands equivalent to switch box certificate. Do the wiring of switch / sensor as per the below wiring diagram which is also provided on the product and/or wiring diagram provided separately and connect the control cable. Unused cable entries shall be plugged with compatible metal plugs to ensure watertight seal. If wiring diaphragm is not legible on the product; refer the wiring diagram provided with final documents or ask for the same from factory. Solenoids may also be terminated to control room through Switch box when optional solenoid valve terminals are provided

KENWOOD VALVE CONTROLS (INDIA) PVT LTD.

USER INSTRUCTION MANUAL

IOM/009/009L/BIS REV:01

WIRING DIRGRAMS



Note:

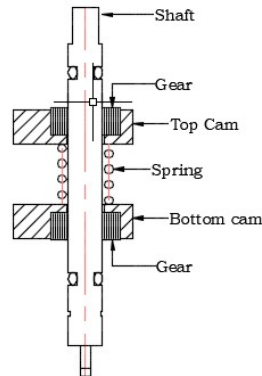
- >>C---Common terminal
- >>NO---Normally Open terminal
- >>NC---Normally Close terminal
- >>SOV IN---From Control room for Solenoid valve connection
- >>SOV OUT---To Solenoid valve connection
- >>L---Line
- >>N---Neutral
- >>Solenoid terminals are provide only when asked

7. Rated voltage/current:

Switch /sensor rated voltage and current depends on the switch / sensor used. Test certificate provided with the product is to be referred for the same.

8. Adjusting limit switches:

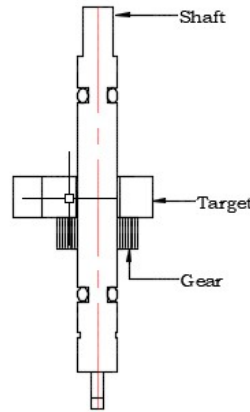
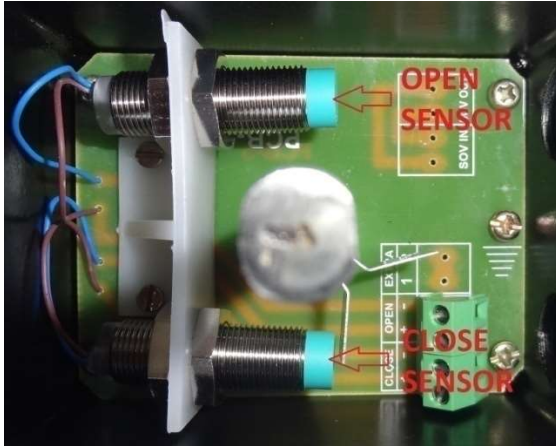
A. For rectangle switches/sensors (009/009L series).



Normally the switches are factory set for 90 degree (open/close) and does not need any further setting in case of Rotary actuators. In case of linear actuator/ valve it is required to set the cams, since the degree of operation changes with respect to valve size/stroke. Follow the procedure given below for setting the limit switches:

1. Make the actuator/ valve rotate counter clockwise and let it reach the end/open position of valve. Push the YELLOW TOP cam (for open switch) to disengage it from gear, and rotate it until switch trips (hold the switch roller pressed for proper cam alignment while setting the cam, in case of mechanical switches) or is close to sensor. Re-engage the cam with gear. Now the setting is done for OPEN position.
2. Make the actuator/ valve rotate clockwise and let it reach the end/close position of valve. Pull the RED BOTTOM cam (for close switch) to disengage it from gear, and rotate it until switch trips (hold the switch roller pressed for proper cam alignment while setting the cam, in case of mechanical switches) or is close to sensor. Re-engage the cam with gear. Now the setting is done for CLOSE position.
3. Repeat above procedure 1 and 2 if required.

B. For cylindrical sensors for 009 series.

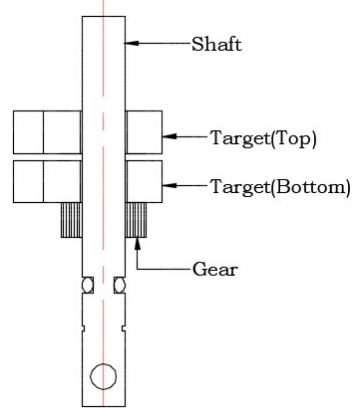
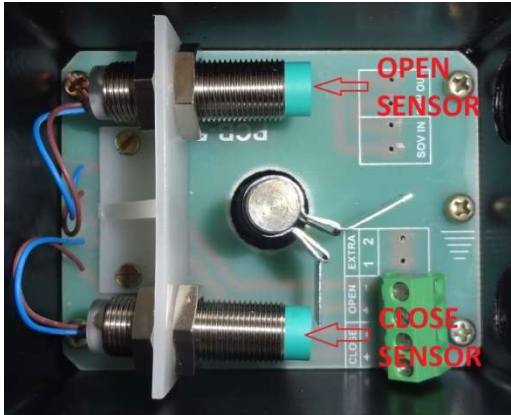


Normally the switches are factory set for 90 degree (open/close) and does not need any further setting in case of Rotary actuators.

To set the cylindrical sensors follow the procedure given below:

1. Make the actuator/ valve rotate counter clockwise and let it reach the end/open position of valve. Rotate the target until it comes close to the open sensor (maintain a very small gap of approximately 1mm between sensor and target). Now the setting is done for OPEN position.
2. Make the actuator/ valve rotate clockwise and let it reach the end/close position of valve. Check whether close side target wing is close to the close sensor with an approximate gap of 1mm between sensor and target, if not, loose the check nut of close sensor & move the sensor in such a way the sensor face should be close to close side target wing with a small gap of 1mm between sensor face and target wing and then tight the check nut of sensors. Now the setting is done for CLOSE position.
3. Repeat above procedure 1 and 2 if required.

C. For cylindrical sensors for 009L series.



To set the cylindrical sensors follow the procedure given below:

1. Make the actuator/ valve rotate counter clockwise and let it reach the end/open position of valve. Rotate the top target until it comes close to the open sensor (maintain a very small gap of approximately 1mm between sensor and target). Now the setting is done for OPEN position.
2. Make the actuator/ valve rotate clockwise and let it reach the end/close position of valve. Rotate the bottom target until it comes close to the close sensor (maintain a very small gap of approximately 1mm between sensor and target). Now the setting is done for CLOSE position.
3. Repeat above procedure 1 and 2 if required.

Contact Details:

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