

IMPORTANT : READ THIS MANUAL THOROUGHLY BEFORE INSTALLATION OR SERVICING

CONTENTS :

- | | | |
|------------------|-----------------------------|-----------------------------|
| 1. DESCRIPTION | 3. INSTALLATION | 5. ELECTRIC CIRCUIT DIAGRAM |
| 2. SPECIFICATION | 4. GENERAL ASSEMBLY DRAWING | |

1. DESCRIPTION :

This unit comprises of an aluminium cast housing, an aluminium cover and two switches mounted on the switch mounting plate and in turn on the mounting pads of the body with screws. The switches are activated by cam to indicate the ON/OFF position of the Actuator. The electrical connections to the switches are terminated on the terminal strip. Electrical connections are duly numbered and shown in sketch pasted on the cover. The cable can be taken out from the double compression glands provided on either end of the box.

The enclosure is weatherproof to IP67.

All terminals at the switches are prewired to a terminal strip which is easily accessible when the top cover is removed.

The switch box is mounted on top of the actuator with an ancillary bracket and adaptor.

2. SPECIFICATIONS :

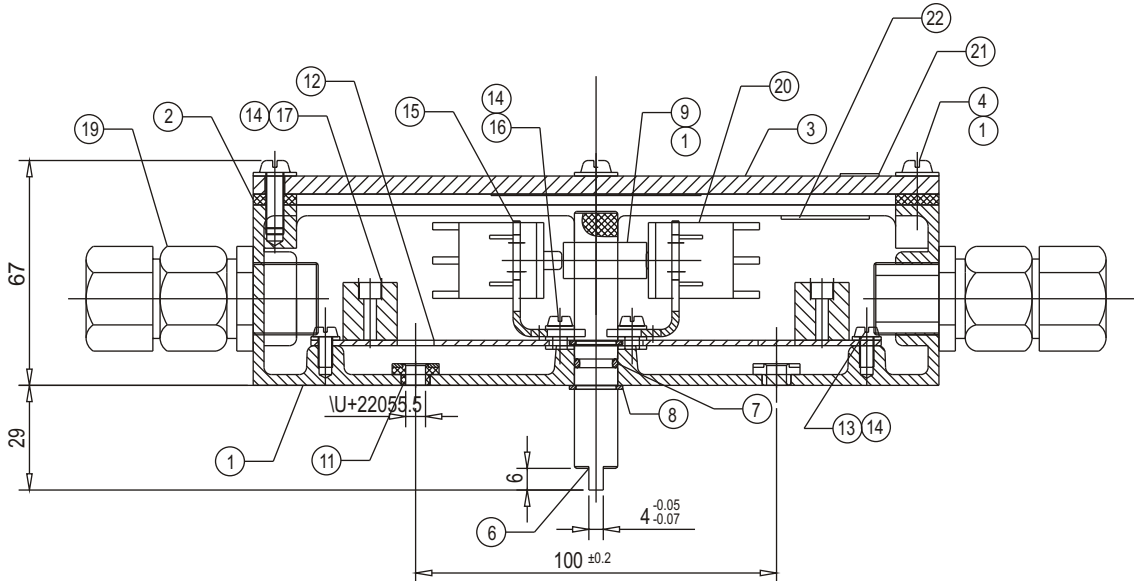
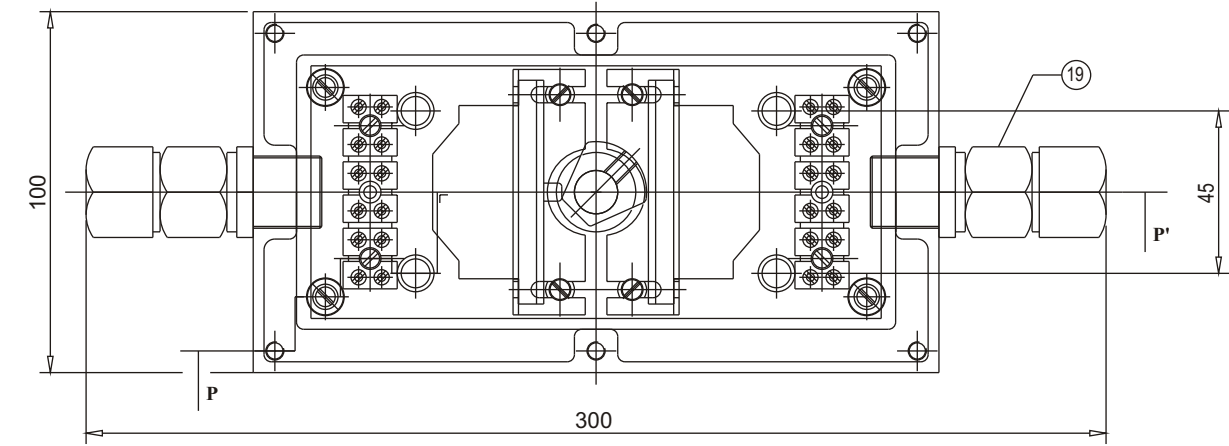
- | | | | |
|----------------|-------------------------|-----------------|-----------------------------|
| 1. Make | : EL-O-MATIC | 7. Switch Type | : Limit Switches |
| 2. Model | : LDW | 8. Make (SW) | : BCH or as agreed mutually |
| 3. Type | : Low Duty | 9. Contact | : 1NO + 1NC / 2NO + 2NC |
| 4. Material | : AL. Alloy | 10. Voltage | : 110 - 230 AC / DC |
| 5. Protection | : Weatherproof to IP-67 | 11. Current | : 4A - 0.1 Amps |
| 6. Cable Entry | : ½" NPT (2 Nos.) | 12. Temperature | : -20° TO 70°C |

3. INSTALLATION :

The following procedure shall be adopted for mounting of the Limit Switch Box LDW, on the mounting bracket provided on the top mounting pad of the Actuator.

- Lock the Hex Adaptor on the Actuator shaft ensuring that Limit Switch Box body is resting on the bracket. In case of Namur shaft, adaptor is not required.
- Tighten screws to fix the box on the bracket.
- Adjust the cams to the correct position for actuation of switches
- Make connections of the supply cables to the terminal strip as per the diagram pasted on the inside of top cover.
- Place top cover in position, fix it using screws.

TOP VIEW SHOWN
WITHOUT COVER



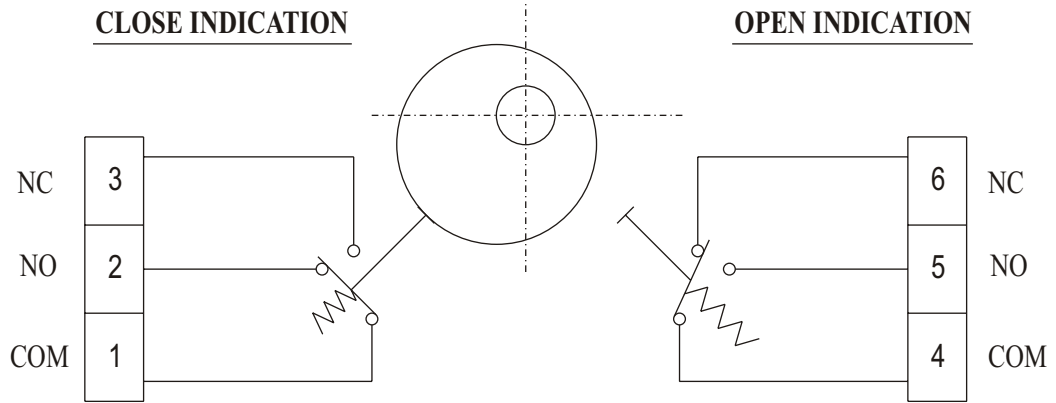
SECTION-PP'

| SRL | DESCRIPTION | QTY. | MATERIAL |
|-----|----------------|------|---------------|
| 1 | HOUSING | 1 | ALUMINIUM-LM6 |
| 2 | GASKET | 1 | NITRILE |
| 3 | COVER | 1 | ALUMINIUM-LM6 |
| 4 | CHE. HD. SCREW | 6 | SS-304 |
| 5 | WASHER | 6 | SS-304 |
| 6 | MAIN SHAFT | 1 | SS 410 |
| 7 | O-RING (HSG.) | 1 | NITRILE |
| 8 | CIRCLIP | 2 | SPRING STEEL |
| 9 | ECCENTRIC CAM | 1 | ALUMINIUM |
| 10 | GRUB SCREW | 1 | SS-304 |
| 11 | BUSH+WASHER | 4 | STEEL+NITRILE |

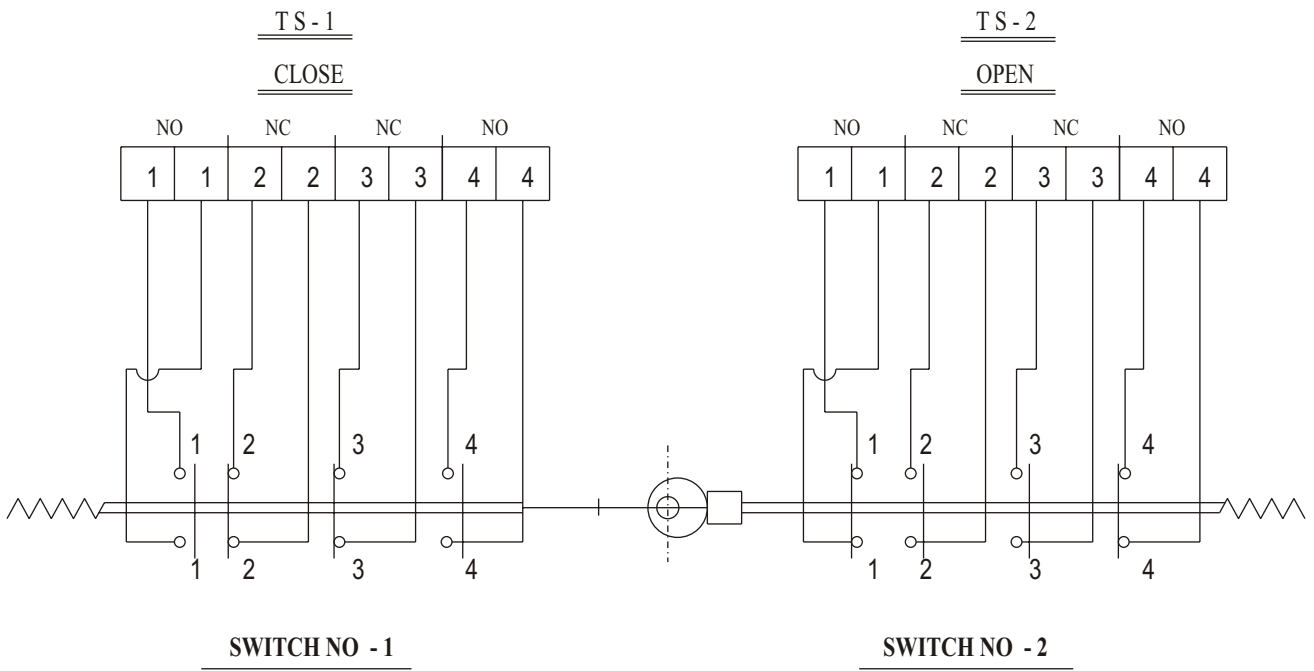
| SRL | DESCRIPTION | QTY. | MATERIAL |
|-----|------------------------|------|----------------|
| 12 | BASE PLATE | 1 | M.S. (PLATED) |
| 13 | CHS. HEADED SCREW | 4 | SS-304 |
| 14 | PLAIN WASHER | 8 | SS-304 |
| 15 | SWITCH MKTG. PLATE | 2 | M.S. (PLATED) |
| 16 | CHS. HEADED SCREW | 4 | SS-304 |
| 17 | TERMINAL STRIP-6 WAY. | 2 | STD./PLASTIC |
| 18 | CHS. HEADED SCREW | 4 | SS-304 |
| 19 | DOUBLE COMPRN. GLAND | 2 | BRASS/SS |
| 20 | SWITCHES | 2 | STD. |
| 21 | NAME PLATE | 1 | ALUMINIUM FOIL |
| 22 | ELE. DIAGRAM - STICKER | 1 | PVC STICKER |

5. CIRCUIT DIAGRAM :

1. CIRCUIT DIAGRAM WITH 2 NOS. LIMIT SWITCHES (1NO + 1NC)



2. CIRCUIT DIAGRAM WITH 2 NOS. LIMIT SWITCHES (2NO + 2NC)





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CONTENTS:

- | | | |
|-------------------------|---|-----------------------------------|
| 1. DESCRIPTION | 4. GENERAL ASSEMBLY DRAWING | 7. CIRCUIT DIAGRAM FOR V3/ |
| 2. SPECIFICATION | 5. CIRCUIT DIAGRAM FOR V3 MICRO SW | CYL. PROXY SWITCHES |
| 3. INSTALLATION | 6. IVLSE WITH PROXY SWITCHES | 8. TROUBLE SHOOTING |

1. DESCRIPTION :

This heavy duty switch box encloses two single pole change over switches for indicating fully open and closed or any intermediate positions of the actuator.

The switches are operated by two cams mounted on the switch box shaft. Thus, all mechanical parts are contained within the enclosure. Both switches are independently adjustable throughout the operating stroke, but are normally set to indicate at a few degrees before each end position.

The enclosure is flame and weatherproof and as such suitable for explosion-proof installation.

All six terminals of the two switches are prewired to a terminal strip which is easily accessible when the top cover is removed.

The switch box is mounted on top of the actuator with an ancillary bracket and adaptor.

2. SPECIFICATIONS :

- | | | |
|-----------------|---|--|
| 1. Make | : | INTERVALVE |
| 2. Model | : | IVLSE |
| 3. Type | : | Heavy Duty (explosion Proof) |
| 4. Material | : | Aluminium Alloy |
| 5. Protection | : | Flameproof Group IICT6 (CIMFR)IS:2148-2004 (IEC 60079-1/2001) Weatherproof Class IP-67 IS: 12063- 1987 (IEC 60529-1989) |
| 6. Cable Entry | : | 1/2" NPT -2 Nos. or 3/4" ET (optional) |
| 7. Switch Type | : | V3 Configuration |
| 8. Make | : | Honeywell (proximity Switches Optional) |
| 9. Contacts | : | 1 NO + 1 NC |
| 10. Voltage | : | 12-220 AC/DC |
| 11. Current | : | 10A - 0.25 AMPS |
| 12. Temperature | : | -20o TO 70o C |

3. INSTALLATION:

The following procedure should be adopted for mounting of the Limit Switch Box on the mounting bracket provided on the top mounting pad of the actuator.

1. Place Hex adaptor on the switch box shaft and tighten the grub screw in case of non Namur shaft and for Namur shaft adaptor is not required.

2. Place the bracket on the top mounting pad of the actuator with the help of 4 alien screws.

3. Mount the Limit switch box housing on top of the bracket with the help of 4 alien screws. Ensure the alignment of the spindle of the limit switch box with the actuator shaft.

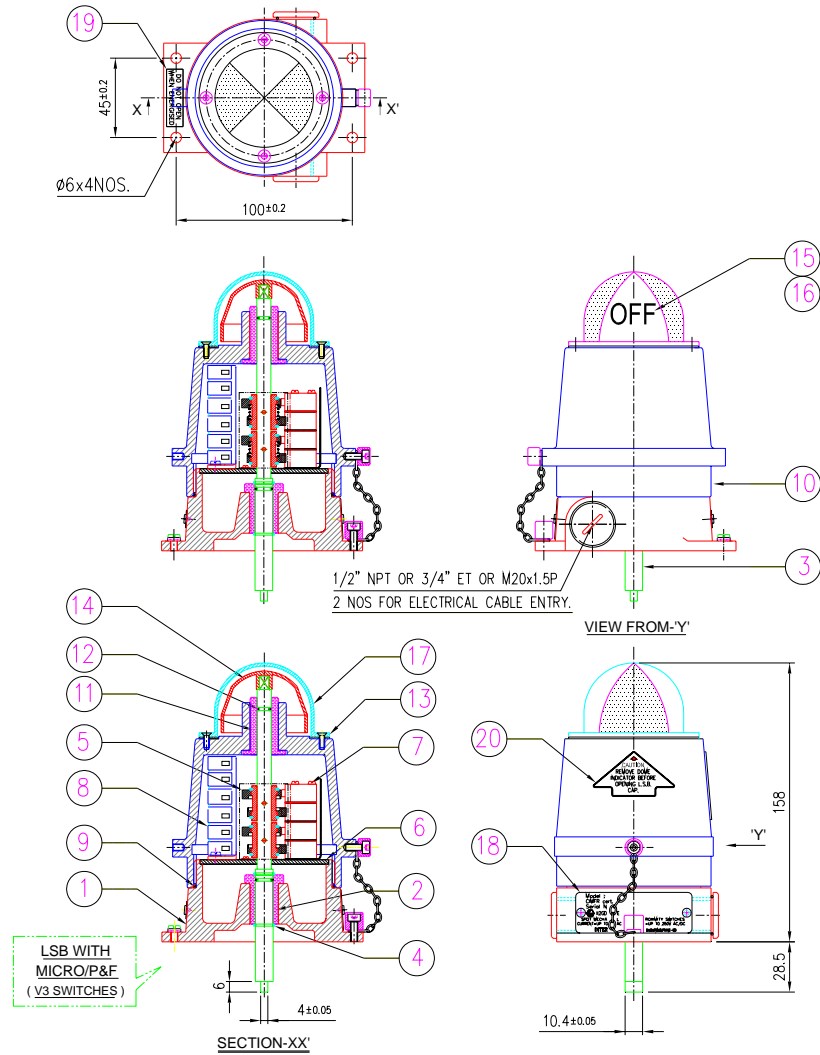
4. Place the micro switch/es on the base plate of the box and fasten it with the screw provided for the purpose. Electrical connections of the Limit switch are terminated on the terminal strip. Connections shall be made as shown in electrical circuit diagram.

5. The eccentric cams for the actuation of limit switches should be adjusted to the correct position by loosening the grub screw provided in the cam.

6. To fix the cover assembly, first fix the cover, then place the indicator disc firmly on the shaft and then the indicator cover. The indicator cover is fixed on to the box cover with four screws.



4. GENERAL ASSY. DRAWING :



| SRL | DESCRIPTION | QTY. | MATERIAL |
|-----|----------------|------|----------------|
| 1 | HOUSING | 1 | ALUMINIUM-LM6 |
| 2 | BOTTOM BUSH | 1 | BRASS |
| 3 | MAIN SHAFT | 1 | SS 410 |
| 4 | CIRCLIP | 2 | SPRING STEEL |
| 5 | ECCENTRIC CAM | 2/4 | POLYACETAL |
| 6 | BASE PLATE | 1 | STEEL (PLATED) |
| 7 | SWITCHES | 2/4 | STD |
| 8 | TERMINAL STRIP | 1 | STD |
| 9 | O-RING (HSG.) | 1 | NITRILE |
| 10 | COVER | 1 | ALUMINIUM-LM6 |
| 11 | TOP BUSH | 1 | BRASS |

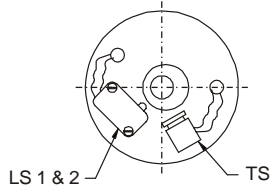
| SRL | DESCRIPTION | QTY. | MATERIAL |
|-----|--------------------|------|---------------------|
| 12 | O-RING (SHAFT TOP) | 1 | NITRILE |
| 13 | GASKET FOR WINDOW | 1 | NITRILE |
| 14 | WINDOW INDICATOR | 1 | TRANSPARENT PLASTIC |
| 15 | STICKER-'OFF' | 1 | PVC STICKER. |
| 16 | STICKER-'ON' | 1 | PVC STICKER. |
| 17 | WINDOW INDICATOR | 1 | TRANSPARENT PLASTIC |
| 18 | NAME PLATE | 1 | SS 316 |
| 19 | INSTRUCTION PLATE | 1 | SS 316 |
| 20 | CAUTION STICKER | 1 | PVC STICKER. |
| | | | |

* For STD V3 switches (2 nos.) spring loaded cam is supplied.

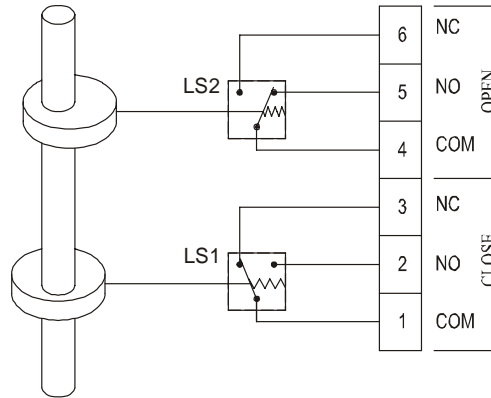


5. CIRCUIT DIAGRAM FOR V3 – MICRO SWITCH:

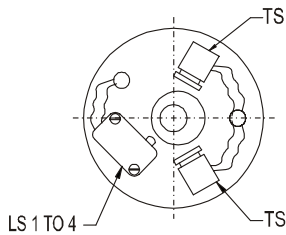
CIRCUIT DIAGRAM FOR LSB
WITH MICRO SWITCHES (2 NOS.)



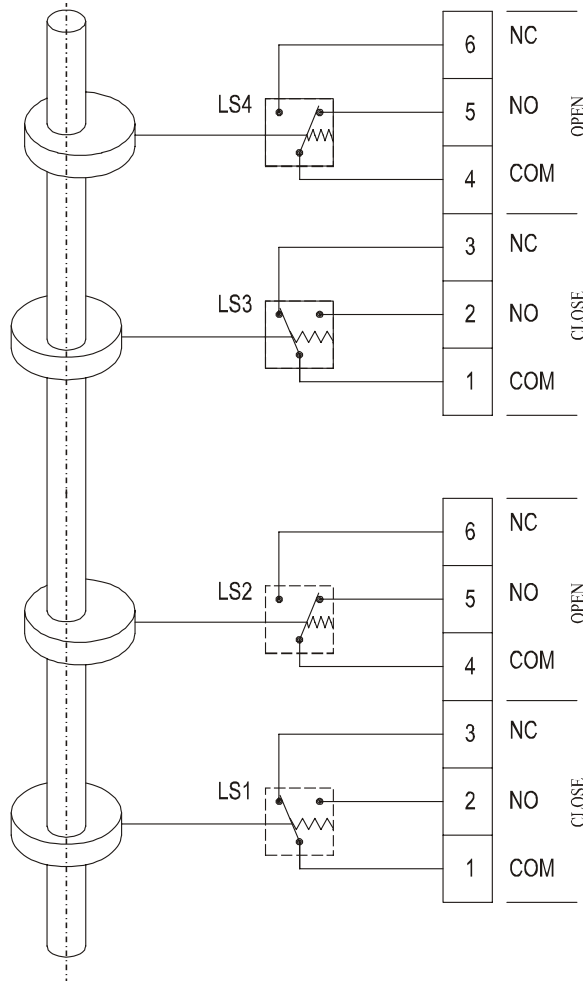
LS 1 TO 2 - MICRO SWITCHES (2 NOS)
TS - TERMINAL STRIP



CIRCUIT DIAGRAM FOR LSB
WITH MICRO SWITCHES (4 NOS.)



LS 1 TO 4 - MICRO SWITCHES (4 NOS)
TS - TERMINAL STRIP





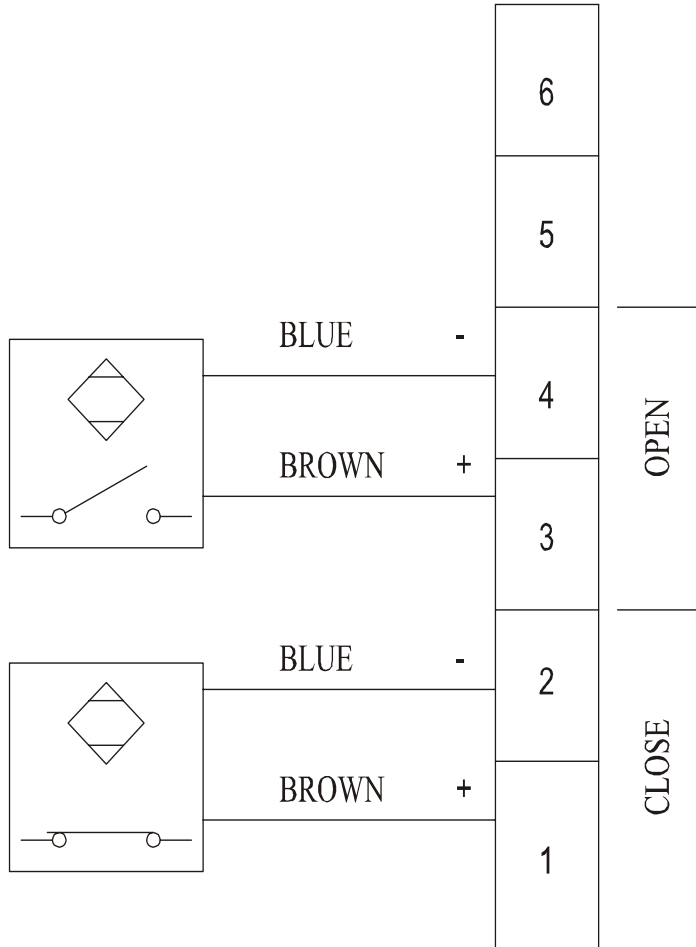
IVLSE SWITCH BOX WITH PROXIMITY SWITCHES

6. DESCRIPTION:

Proximity switches can be accommodated in IVLSE Box in place of Micro Switches. The sensor for the switches will be assembled on to the Limit Switch

Box shaft. The switches shall be V3 configuration or slotted type or threaded type.

7. CIRCUIT DIAGRAM FOR TWO WIRE PROXIMITY SWITCHES:



SECTION : 3.4.1

LSB

PAGE NUMBER 4



6. TROUBLE SHOOTING :

IMPORTANT: READ THESE GUIDELINES BEFORE ATTEMPTING ANY REPAIRS.

For identification of all parts, refer section 3.4 - Page No.2

! LIMIT SWITCH BOX SHOULD NEVER BE REMOVED / OPENED FROM INSTALLATION, WHEN POWER SUPPLY IS ON

Make sure that all electrical connections are proper and supply is available upto terminal strip.

! BEFORE OPENING THE LIMIT SWITCH BOX COVER, REMOVE DOME INDICATOR BY UNSCREWING THE FOUR SCREWS.

| SR. No. | FAULT | PROBABLE CAUSE | REMEDIAL ACTION |
|---------|---|---|---|
| 1. | Switches not Functioning | Cam locking screw loose hence cam slipping. Cam setting not correct hence switches not getting actuated. Open electrical contacts / wires. Linkage between Actuator shaft and switch box shaft loose / disconnected. | Tighten cams at the correct position. Reset cam for correct switching. Check and replace wires / contacts. Check link between Actuator shaft and switch shaft, connect properly. |
| 2. | Switching takes place too early or too much delayed | Incorrect setting of cam. | Loosen cams and reset properly to obtain desired switching position. |
| 3. | Water/moisture inside switch box. | Sealing 'o'-rings damaged and cover Loose Improper / loose cable glands. | Replace damaged 'o'-rings and tighten. Check cable glands and tighten properly. Replace if required |