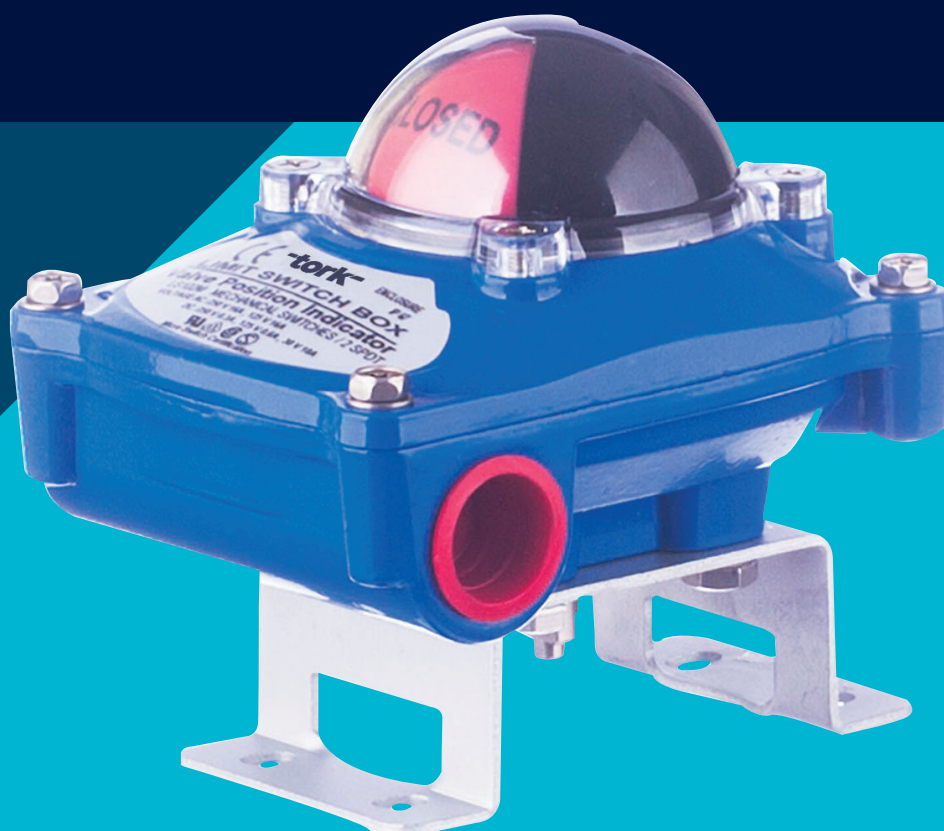




SWITCH BOX

USER MANUAL



PLEASE READ THE INSTRUCTIONS BEFORE USE

NOVEMBER 2018



SIL 3

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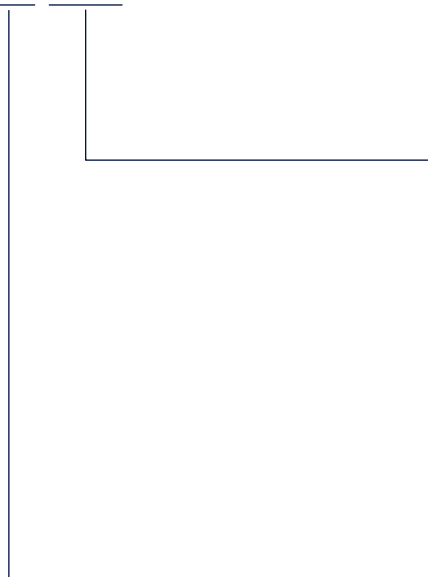
1. GENERAL DESCRIPTION OF THE EQUIPMENT

a. Intended Use Of The Equipment

A switch box is a device used for on the pneumatic rotary actuators for showing the position of the valve visually and giving output signal according to the position of the valve. An ex proof switch box used on the potentially explosive and hazardous areas.

b. Product Coding System

LS XX.2XX

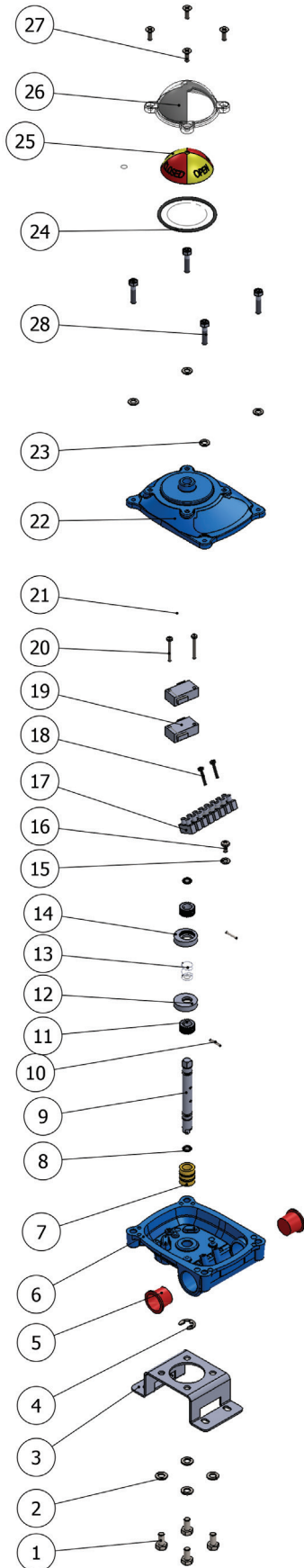


2M	2 Mechanic Switch
2PN	2 Proximity Switch NPN Type
2PP	2 Proximity Switch PNP Type
2PX	2 Proximity Switch NAMUR Type
16N	2xSPDT + (4-20 mA)

10	Standard Switch Box 90°
11	Standard Switch Box 180°
12	Standard Switch Box 180°
20	Ex Proof Switch Box 90°
21	Ex Proof Switch Box 120°
22	Ex Proof Switch Box 180°
23	Ex Proof Switch Box 3 Position
40	Economic Plastic Switch Box 90°
41	Economic Plastic Switch Box 120°
42	Economic Plastic Switch Box 180°
80	Magnetic Limit Switch Box 90°
82	Magnetic Limit Switch Box 180°

- On request Standard Switch Box and Ex Proof Switch Box can be fitted mechanical switch or proximity switch.

c. Exploded Drawings and Part Lists



28	BOLT	Piece	4
27	INDICATOR COVER	Piece	1
26	INDICATOR	Piece	1
25	O-RING	Piece	1
24	BOLT	Piece	4
23	WASHER	Piece	4
22	COVER-PAINTED	Piece	1
21	O-RING	Piece	1
20	BOLT	Piece	2
19	SWITCH MIKRO	Piece	2
18	BOLT	Piece	2
17	SWITCH MIKRO	Piece	1
16	BOLT	Piece	1
15	WASHER	Piece	1
14	CAM RED	Piece	1
13	SPRING WASHER	Piece	1
12	CAM YELLOW	Piece	1
11	CAM LOCK	Piece	2
10	SPLIT PIN	Piece	2
9	SHAFT	Piece	1
8	O-RING	Piece	2
7	BUSHING	Piece	1
6	BODY-PAINTED	Piece	1
5	STOP	Piece	2
4	SEGMENT	Piece	1
3	BRACET	Piece	1
2	SPRING WASHER	Piece	4
1	BOLT	Piece	4
NO	PART NAME	UNIT	QUANTITY

Figure 1: Exploded Picture of Standard Switch Box

Table 1: List of Part for Standard Switch Box

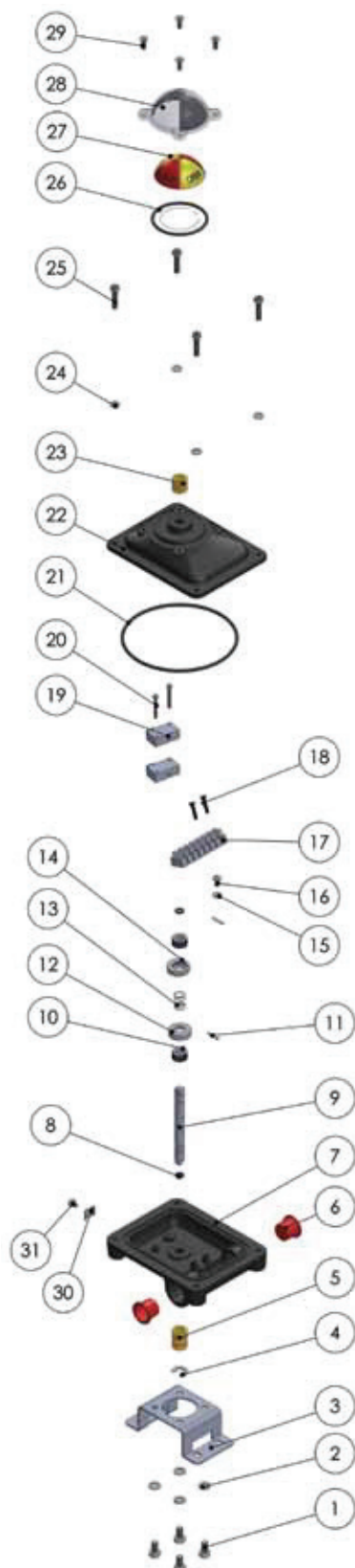


Figure 2: Exploded Picture of Ex Proof Switch Box

31	BOLT	Piece	1
30	PLATE	Piece	1
29	BOLT	Piece	4
28	INDICATOR COVER	Piece	4
27	INDICATOR	Piece	1
26	O-RING	Piece	1
25	BOLT	Piece	1
24	WASHER	Piece	4
23	BUSHING	Piece	4
22	COVER-PAINTED	Piece	1
21	O-RING	Piece	1
20	BOLT	Piece	2
19	SWITCH MIKRO	Piece	2
18	BOLT	Piece	2
17	SWITCH MIKRO	Piece	1
16	BOLT	Piece	1
15	WASHER	Piece	1
14	CAM RED	Piece	1
13	SPRING WASHER	Piece	1
12	CAM YELLOW	Piece	1
11	CAM LOCK	Piece	2
10	SPLIT PIN	Piece	2
9	SHAFT	Piece	1
8	O-RING	Piece	2
7	BODY-PAINTED	Piece	1
6	STOP	Piece	1
5	BUSHING	Piece	2
4	SEGMENT	Piece	1
3	BRACET	Piece	1
2	SPRING WASHER	Piece	4
1	BOLT	Piece	4
NO	PART NAME	UNIT	QUANTITY

Table 2: List of Part for Ex Proof Switch Box

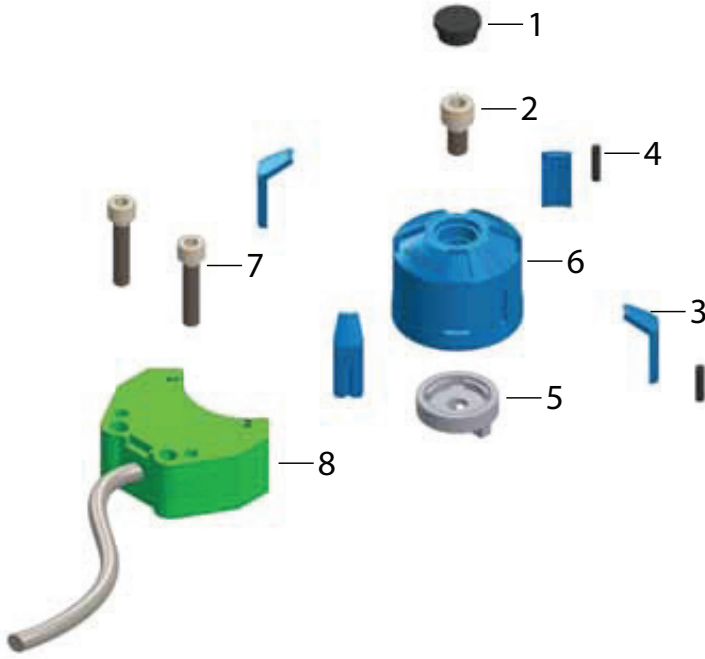


Figure 3: Exploded Picture of Magnetic Limit Switch Box

8	PROXIMITY SENSOR	Piece	1
7	BOLT	Piece	2
6	SMALL INDICATOR BODY	Piece	1
5	BODY ADAPTER	Piece	1
4	STAINLESS STEEL PIN	Piece	2
3	BLUE INDICATOR PART	Piece	4
2	BOLT	Piece	1
1	BOLT STOPPER	Piece	1
NO	PART NAME	UNIT	QUANTITY

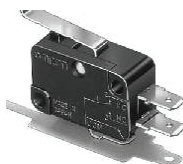
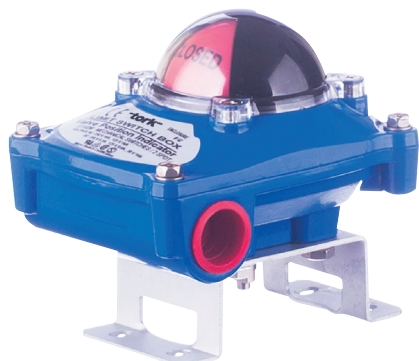
Tab 3. List of Part for Magnetic Limit Switch Box

d. Technical Specifications

- On-Off valve position indicator
- Compact small body
- Ex Proof, II 2G Ex d IIC T4 Gb, II 2D Ex tb IIIC TMax 95°C Db
- IP67, IP66 (For Exproof Models)
- Body is composed of Aluminium die cast and powder coating
- Bolts on visual position indicator
- Dual cable entries, NPT 1/2", M20 (Optional)
- Easy mounting with NAMUR standard, stainless steel shaft and bracket.
- Mechanical switches are used. Proximity switches can be used on request.
- Operating temperature range -20 °C to +60 °C

e. Switches

LS 10 - LS 20



Model	Hosense , KW7
Switch Function	Mechanical, Single Pole, Double Throw
Certification	VDE,RU, IP65
Nominal Values	16 A, 250 V
Operating Temp.	-25 °C +125° C



Model	Pepper & Fuchs NBB2-V3-E0
Switch Function	Proximity, NPN, NO, 3 Cables
Certification	UL, CSA, CCC, IP67
Nominal Values	10-30 VDC, 0-100 mA
Operating Temp.	-25 °C +70° C



Model	Pepper & Fuchs NJ2-V3-N
Switch Function	Proximity, NAMUR, NC, 2 Cables
Certification	FM, UL, CSA, CCC, Ex IIIG
Nominal Values	8.2 VDC, 3 mA
Operating Temp.	-25 °C +100° C



Model	Pepper & Fuchs NBB2-V3-E2
Switch Function	Proximity, PNP, NO, 3 Cables
Certification	EAC,UL, CSA, CCC, IP67
Nominal Values	10-30 VDC, 0 - 100 mA
Operating Temp.	-25 °C +70° C



Model	Pepper & Fuchs NBB2-V3-US
Switch Function	Proximity, DC, NO, 2 Cables
Certification	UL, CSA, IP67
Nominal Values	10-140 VDC, 0-200 mA
Operating Temp.	-25 °C +70° C

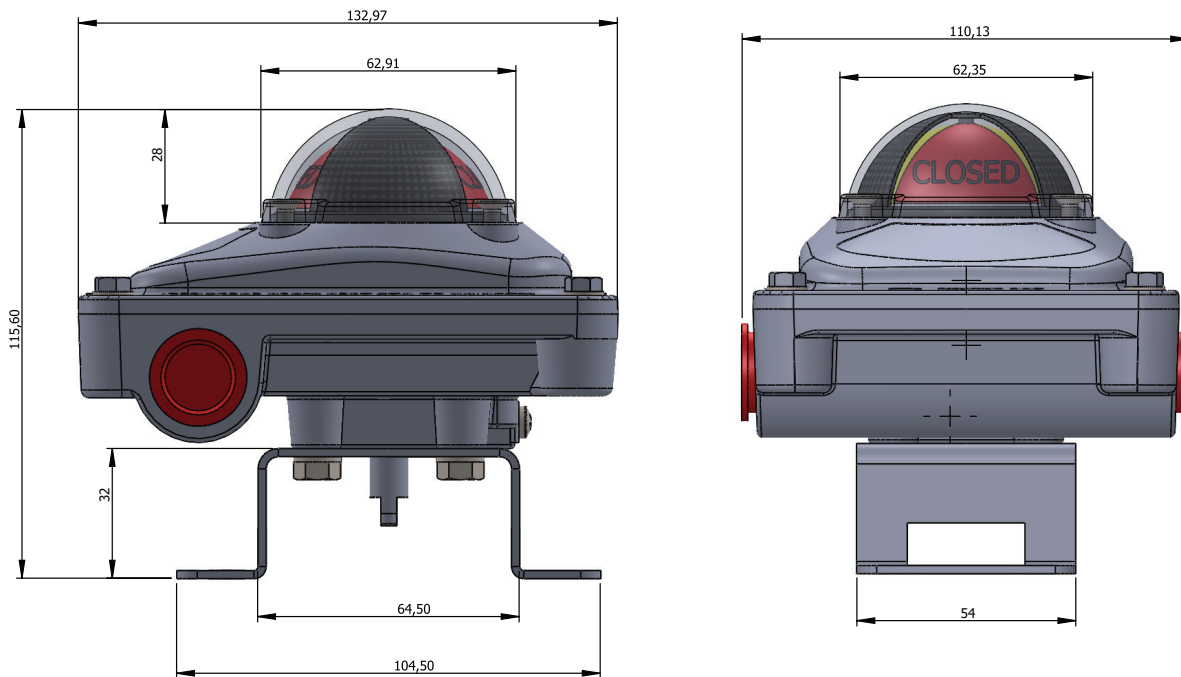
LS 80



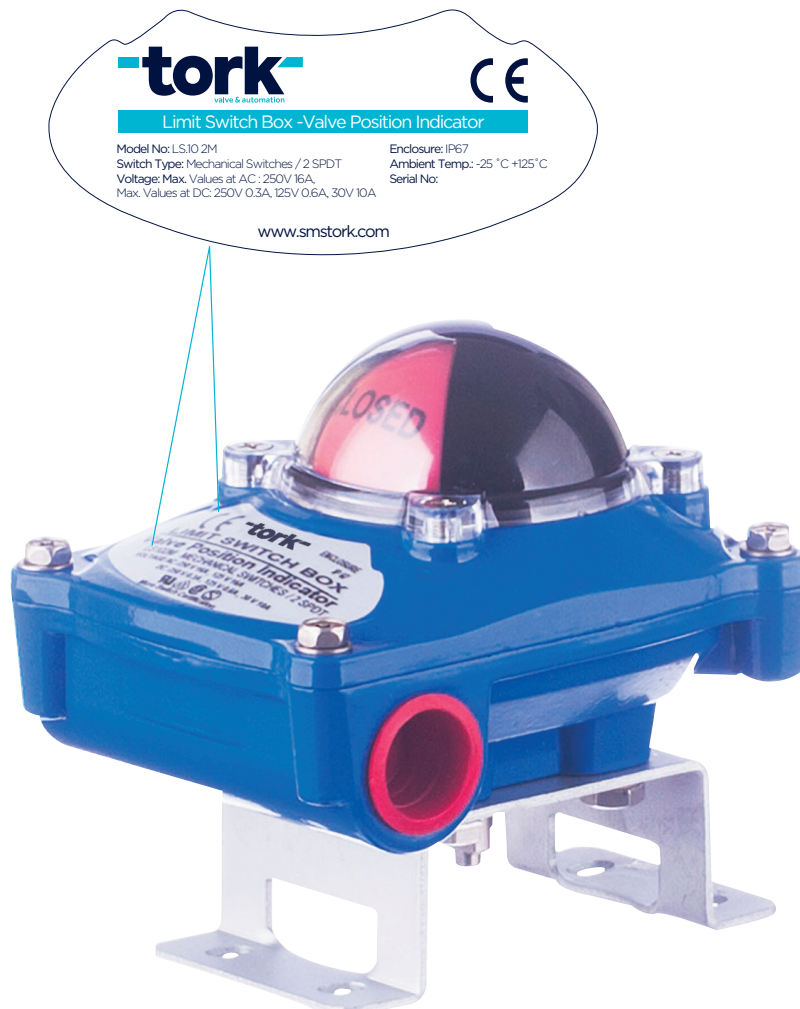
- IP67 protection class
- Easy mounting
- Compact body

Model	Pepper & Fuchs NBN3-F25-E8
Switch Function	Proximity, PNP, 2xNO,4 Cables
Certification	UL, CSA, CCC
Nominal Values	10-30 VDC, 0-200 mA
Operating Temp.	-25 °C +70° C

f. Dimensions



g. Warning Signs and Labeling



2. OPERATION OF THE EQUIPMENT

a. Operation of Switch Box In Open Position

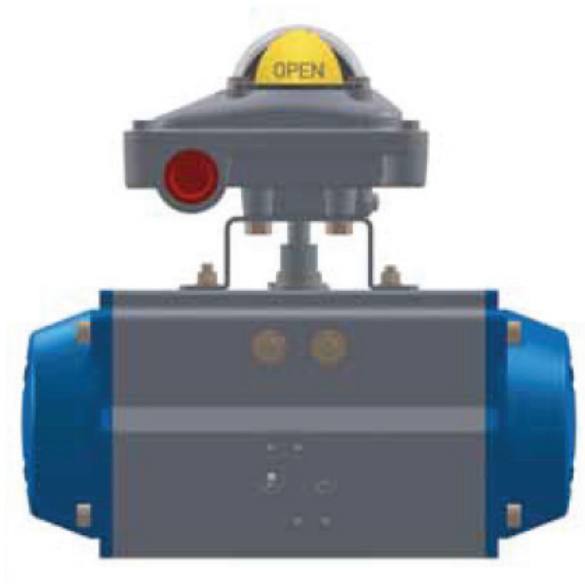


Figure 4: Standard and Ex Proof Switch Box

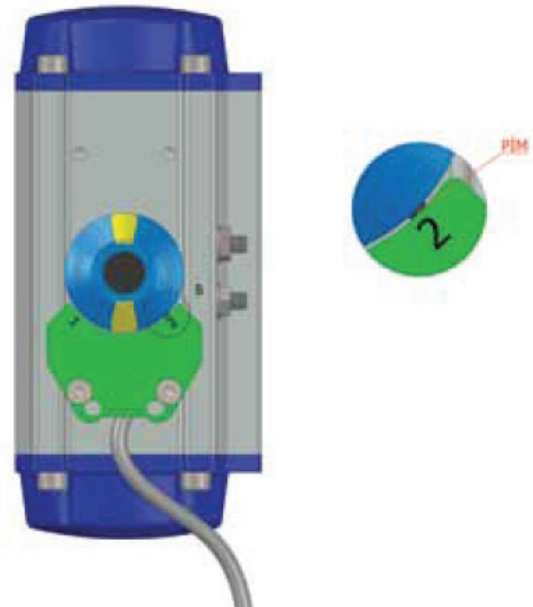


Figure 5: Magnetic Limit Switch Box

b. Operation of Switch Box In Close Position

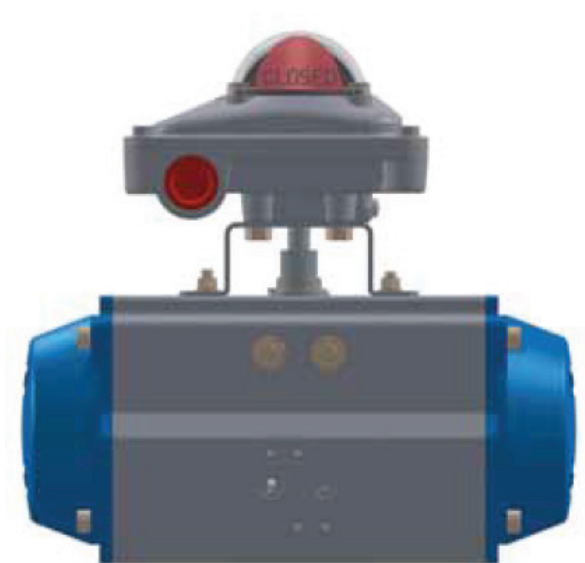


Figure 6: Standard and Ex Proof Switch Box

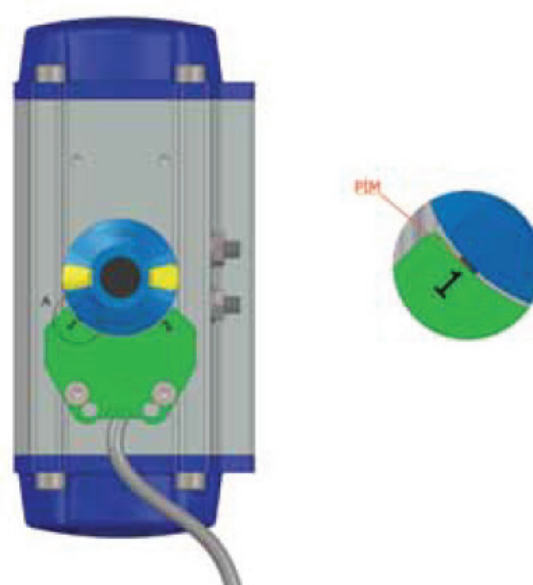


Figure 7: Magnetic Limit Switch Box

3. INSTALLATION OF THE EQUIPMENT

a. Mounting the Switch Box to Actuator Assembly

- I. Mount the switch box to the actuator with set screw and nut by suitable tools.
- II. Before connect the actuator and switch box, check the position of the switch box and the actuator pinion

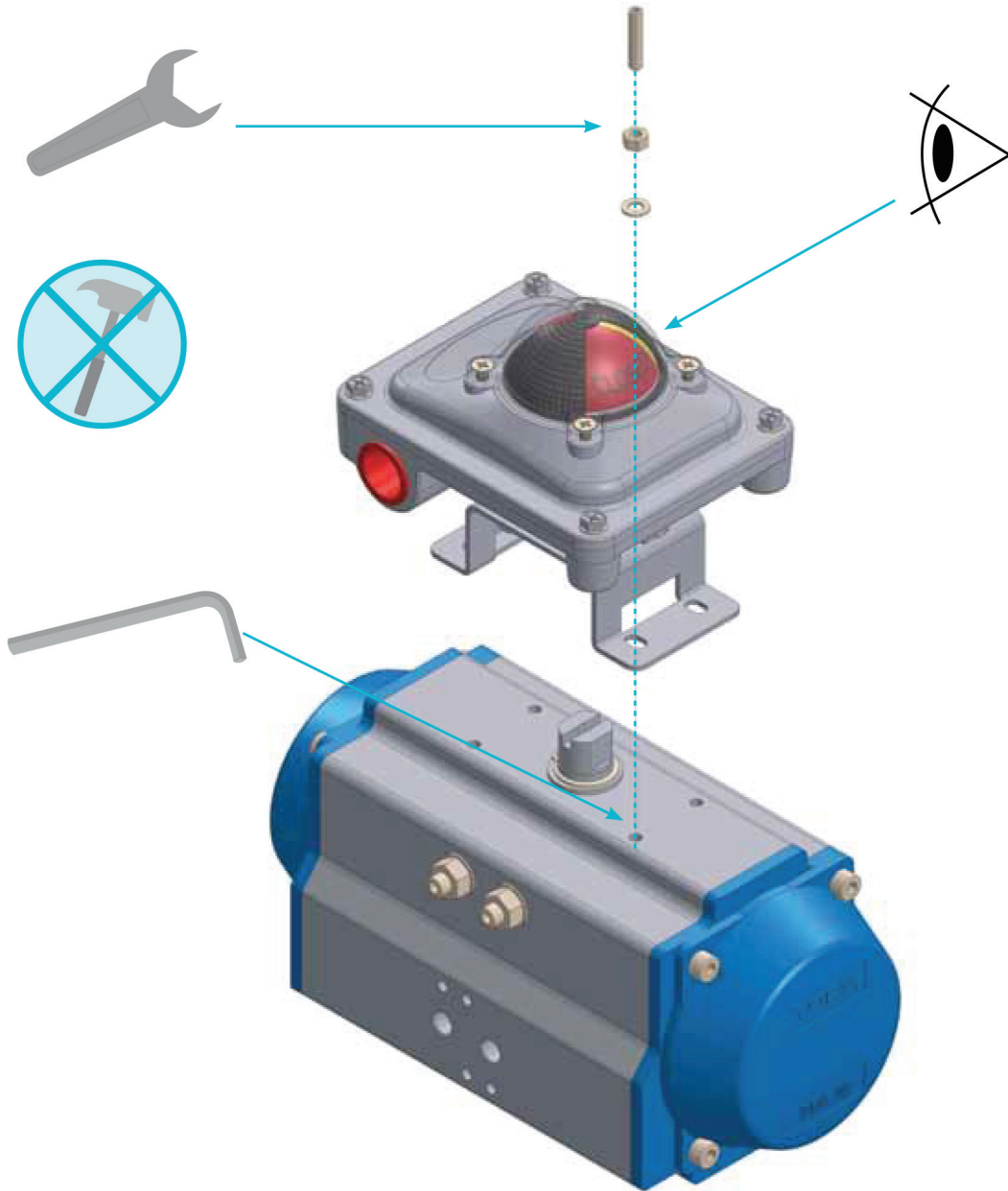


Figure 8: Standard and Exproof Switch Box

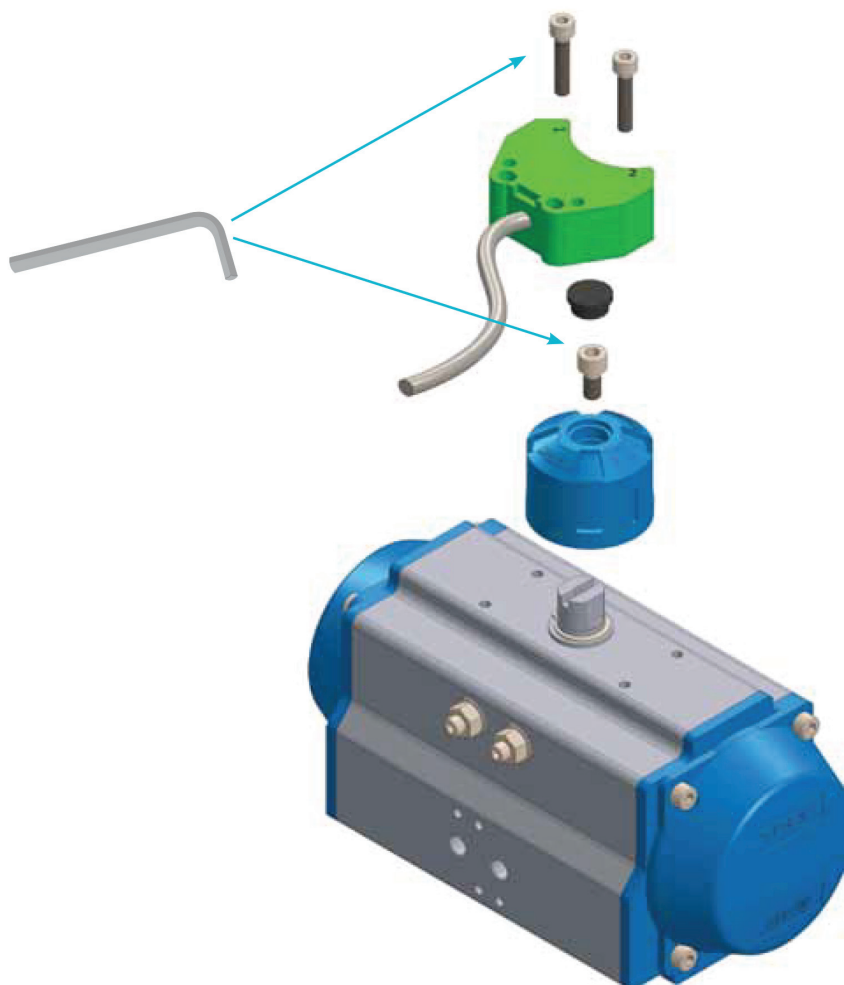


Figure 9. Magnetic Limit Switch Box

- ❗ Pneumatic connections should be disconnected before any intervention.
- ❗ For protection against potentially explosive atmospheres use certified ex proof switch box and “RX” code ex proof pneumatic actuators.

b. Energy Wiring Scheme

MECHANICAL SWITCH

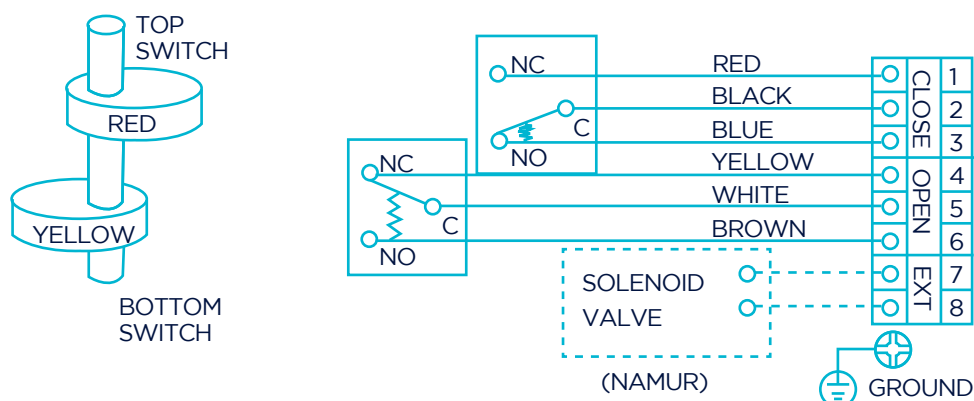


Figure 10: Wiring scheme for mechanical limit switches

PROXIMITY SWITCHES

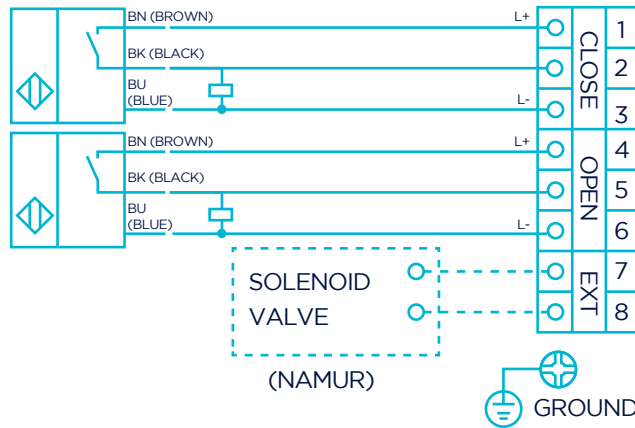
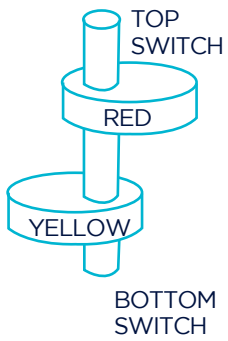


Figure 11: Wiring scheme for PNP proximity limit switches

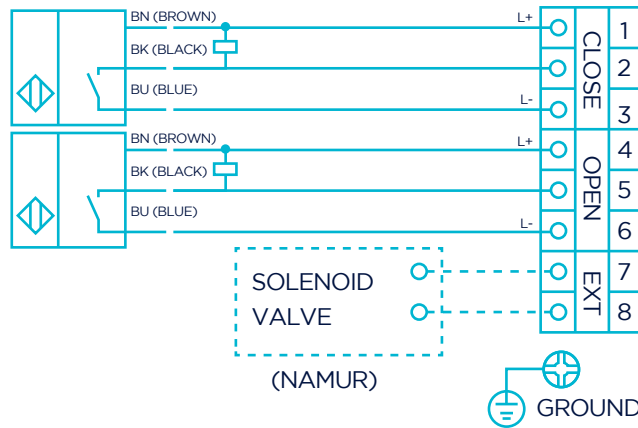


Figure 12: Wiring scheme for NPN proximity limit switches

NAMUR PROXIMITY SWITCHES

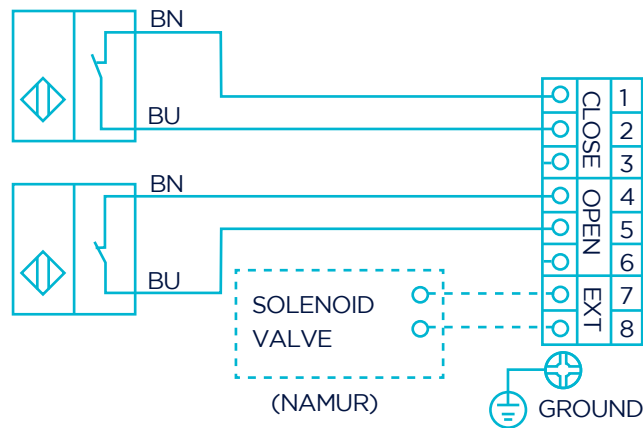
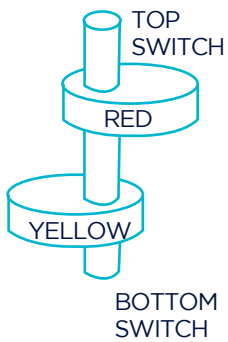


Figure 13: Wiring scheme for NAMUR proximity limit switches

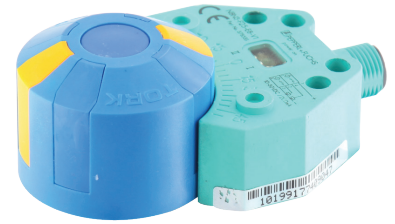
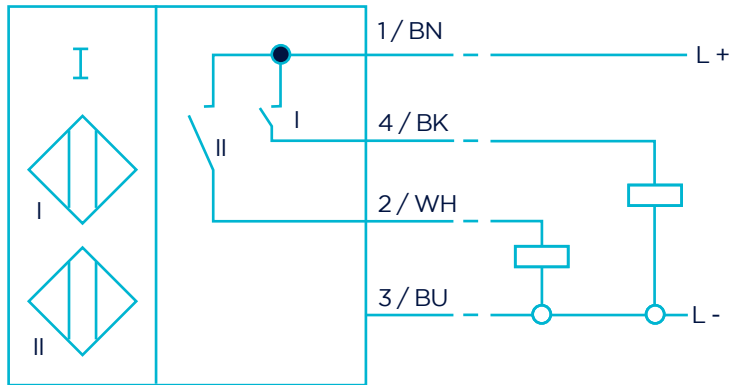
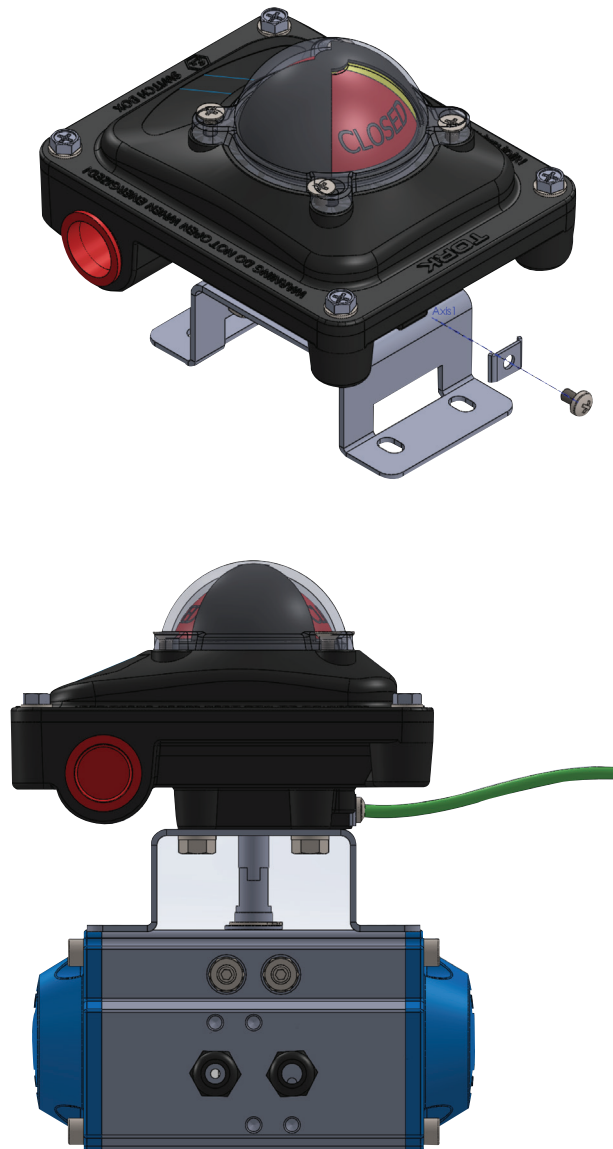


Figure 14: Wiring scheme for magnetic limit switch box

c. Ground Connection



4. WARRANTY PERIOD FOR THE PRODUCT

- 1) The period of warranty shall start from the date of delivery of the product to the customer and shall cover a period of 2 years.
- 2) Every and all parts of the product are under SMS Sanayi Malzemeleri Üretim ve Satış A.Ş. warranty coverage. (against any defect that may occur during production, assembly and/or defective parts)
- 3) In the case that the product fails within warranty period, the time spent on the repair work is added to the warranty period. Repair time of the product is maximum 20 (twenty) working days. This time starts from the date on which the failure concerning the product is notified to the service station and to seller of the product, dealer, agency, representative, importer or producer. It is possible to make the consumer failure notification by telephone, fax, e-mail, registered mail or similar. However, in case of disagreement, the obligation of proof belongs to the consumer.
- 4) Product replacement or refund is mandatory depending on the choice of the consumer in case one of the conditions below:
 - a) If failure occurs in the product at least four times in one year or six times with the condition of being within the warranty period.
 - b) If the maximum time for its repair is exceeded.
 - c) In case a service station is not exist by a report issued by seller, dealer, agency, representative, importer or producer respectively that, repair of the failure is not possible, exchange process will be carried out free of charge.
 - d) The warranty period of the products changed during the warranty condition is limited to the remaining warranty period of the purchased products.
- 5) Free repair and product exchange obligations will be annulled under the following conditions:
 - a) If the product becomes faulty due to use contrary to the terms or conditions stated in the user guide,
 - b) If the product serial number has been altered or removed
 - c) The warranty labels have been destroyed,
 - d) If the product has been opened, used, or previously repaired by unauthorized persons,
 - e) Use of the product by plugging into inappropriate voltages or with faulty electric installation without the prior knowledge of our authorized services,
 - f) If the fault or damage to the product occurred during the transportation outside of the responsibility of SMS Sanayi Malzemeleri Üretim ve Satış A.Ş.,
 - g) When our product is damaged due to use with accessories or devices purchased from other firms or unauthorized services,
 - h) Those damages caused by natural disasters such as fire, lightning, flood, earthquake, etc.
- 6) A report prepared by the SMS Sanayi Malzemeleri Üretim ve Satış A.Ş. will determine whether the damage was caused by improper use.
- 7) The warranty certificate should be kept throughout the warranty period. The customer must provide the warranty certificate during request for repair. Otherwise, the cost of repair will be charged.
- 8) The warranty certificate attached to the product during sale should be fully completed by the retailer and customer, signed and stamped. The customer copy must be immediately provided to the customer, followed by the other piece to be mailed out to SMS Sanayi Malzemeleri Üretim ve Satış A.Ş. by the retailer.
- 9) In the case when you send the product via courier, please remember to add a description your complaint, the photocopy of your warranty certificate, your address and telephone number.
- 10) For possible problems which may arise concerning the warranty certificate, it can be applied to the Ministry of Customs and Trade, Directorate General of Consumer Protection and Market Surveillance.



WARRANTY CERTIFICATE

Manufacturer : SMS Sanayi Malzemeleri Üretim ve Satışı A.Ş.

Address : Head Office: Y.Dudullu Mh. Bostancı Yolu Kuru Sk.
No: 16 Ümraniye - İstanbul / TURKEY

Factory: İMES O.S.B 5. Cd. No: 6 Çerkeşli OSB Mh.
Dilovası - Kocaeli / TURKEY

Product : SWITCH BOX

Trade Mark : TORK

Model :

Serial Number :

Delivery Place & Date :

Warranty Period : 2 Years

Max. Repair Time : 20 working days

Seller / Distributor :

Address :

.....
.....
.....

Manufacturer Representative

Name / Surname :

Title :

Date :

Signature :

Seller / Distributor Representative

Name / Surname :

Title :

Date :

Signature :



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