

**tissin**

**Limit Switch Box**

**TS410/TS415**Series

**Instruction Manual**



**Tissin Co.,Ltd.**

Ver. PM-TS410EN\_07/2025

## Table of contents

<b>1</b>	<b>Introduction</b>	3
1.1	General information for the user	3
1.2	Limited warranty and disclaimer	3
1.3	Requirements for safety	4
1.4	Basic safety instructions for use in Ex area	5
1.5	Certifications	5
<b>2</b>	<b>Product description</b>	6
2.1	Function	6
2.2	Features	6
2.3	Label	6
2.4	Product code	7
2.5	Specification	8
2.6	Structure	9
2.7	Product dimension	10
2.8	Bracket dimension	11
<b>3</b>	<b>Installation</b>	12
3.1	Before installation	12
3.2	How to install	12
<b>4</b>	<b>Electrical connection</b>	13
4.1	Mechanical type (2 x SPDT)	13
4.2	Proximity type (Autonics)	13
4.3	Proximity type (P&F)	14
4.4	Mechanical type (2 x DPDT)	14
<b>5</b>	<b>How to adjust cam</b>	15
5.1	Upper switch	15
5.2	Lower switch	15

## 1 Introduction

### 1.1 General information for the user

This instruction includes installation, operation, maintenance, and parts information for TS410/TS415 series. Keep these instructions in a location which is easily accessible to every user and make these instructions available to every new owner of the device.

- Installation, commissioning and maintenance of the product can only be performed by trained specialist personnel who have been authorized by the plant operator to do so.
- To avoid possible injury to the personnel or damage to valve parts, WARNING, CAUTION and NOTICE must be strictly followed.
- Before installing or commissioning, be sure to read and thoroughly understand the product manual and operate the product properly.
- Operators must strictly observe the applicable national regulations with regards to installation, function tests, repairs, and maintenance of electrical products.
- For additional information or if specific problems occur that are not explained in these instructions, contact the manufacturer.

### 1.2 Limited warranty and disclaimer

- This product has been fully inspected and shipped through a thorough quality inspection procedure. The manufacturer warranty period of the product is 18 months after the product is shipped from Tissin in Korea.
- For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided. This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.
- Using the device in a manner that does not fall within the scope of its intended use, disregarding this manual, using under unqualified personnel, or making unauthorized alterations releases the manufacturer from liability for any resulting damage. This renders the manufacturer's warranty null and void.

### 1.3 Requirements for safety

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. These safety instructions are intended to prevent hazardous situations and/or equipment damage. For the safety, it is important to follow the instructions in the manual.

---

 **WARNING**

Failure to observe the warning may result in serious injuries or death.

 **CAUTION**

Failure to observe this warning may result in damage to the device or personal injury.

 **NOTICE**

Failure to observe the warning may result in damage to the device or may degrade performance.

---

#### Safety notes

 **CAUTION**

- Only trained and authorized person should operate the machinery and the equipment.
- If it is out of the specification range, it may cause a malfunction, so please use it in compliance with the product specification.
- Never handle mechanical equipment or disassemble the device until safety is confirmed.
- Before reaching into the device or the equipment, please switch off the power supply and secure to prevent reactivation.
- Observe applicable accident prevention and the safety regulations for electrical equipment.

---

## 1.4 Basic safety instructions for use in Ex area

To prevent the risk of explosion, observe not only the basic safety instructions in the respective operating instructions for operation in the Ex area, but also the following.

---

 **WARNING**

---

- Observe applicable safety regulations (National Safety Regulations) and general rules for construction and operating technology.
- Check if the device is suitable for the area of use.
- Check if the range of certified and permitted explosion-proof specifications for the product.
- Close all unnecessary cable glands with lock screws approved for the explosions area.
- TS410/TS415 series have the explosion proof markings for Flame proof(Ex d IIC T5/T6 Gb, Ex tb IIIC T100°C/T85°C Db). Available in Zone 1 and Zone 2.

---

## 1.5 Certifications

This product has obtained a variety of explosion-proof certification and safety level certification. For details, please visit our website and download the corresponding explosion-proof certificate for confirmation.

Certificate	Certificate number	Explosion proof grade
 <b>IECEx</b>	IECEx EPS 23.0105X	Ex db IIC T5/T6 Gb Ex tb IIIC T100°C/T85°C Db IP67
 <b>ATEX</b>	EPS 23 ATEX 1 376 X	II 2G Ex db IIC T5/T6 Gb II 2D Ex tb IIIC T100°C/T85°C Db IP67
 <b>KCS</b>	2024-KA2BO-0682X	Ex db IIC T5/T6 Gb
	2024-KA2BO-0683X	Ex tb IIIC T100°C/T85°C Db
 <b>CCC</b>	2024322304006320	Ex db IIC T5/T6 Gb Ex tb IIIC T100°C/T85°C Db
 <b>NEPSI</b>	GYJ24.1334X	Ex db IIC T5/T6 Gb Ex tb IIIC T100°C/T85°C Db
 <b>EAC</b>	In progress	1Ex d IIC T5/T6 Gb Ex tb IIIC T100°C/T85°C Db
 <b>CSA</b>	In progress	

## 2 Product Description

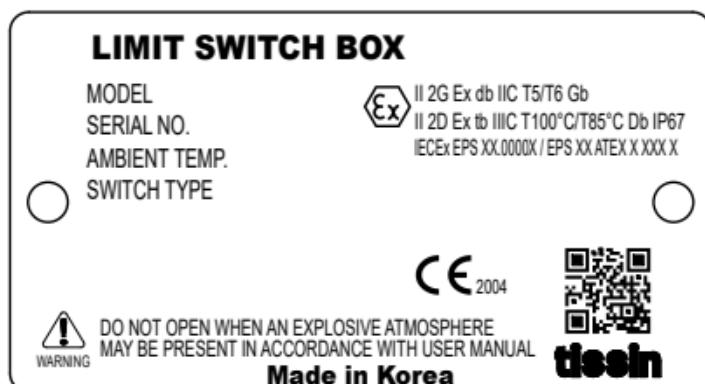
### 2.1 Function

Limit switch box is a device that notifies the open/closed state of the valve to the central control room or controller through ON/OFF electrical signals.

### 2.2 Features

- Flame proof type
- Compact design and External Indicator with good visibility
- Easy switch operation position setting with Spring-fixed cam
- Can select various switches
- IP67 enclosure
- NAMUR VDI/VDE 3845, ISO 5211 Bracket standards

### 2.3 Label



Item	Description
MODEL	Model number
SERIAL No	Serial number
AMBIENT TEMP.	Operating temperature
SWITCH TYPE	Specifications of built-in switch

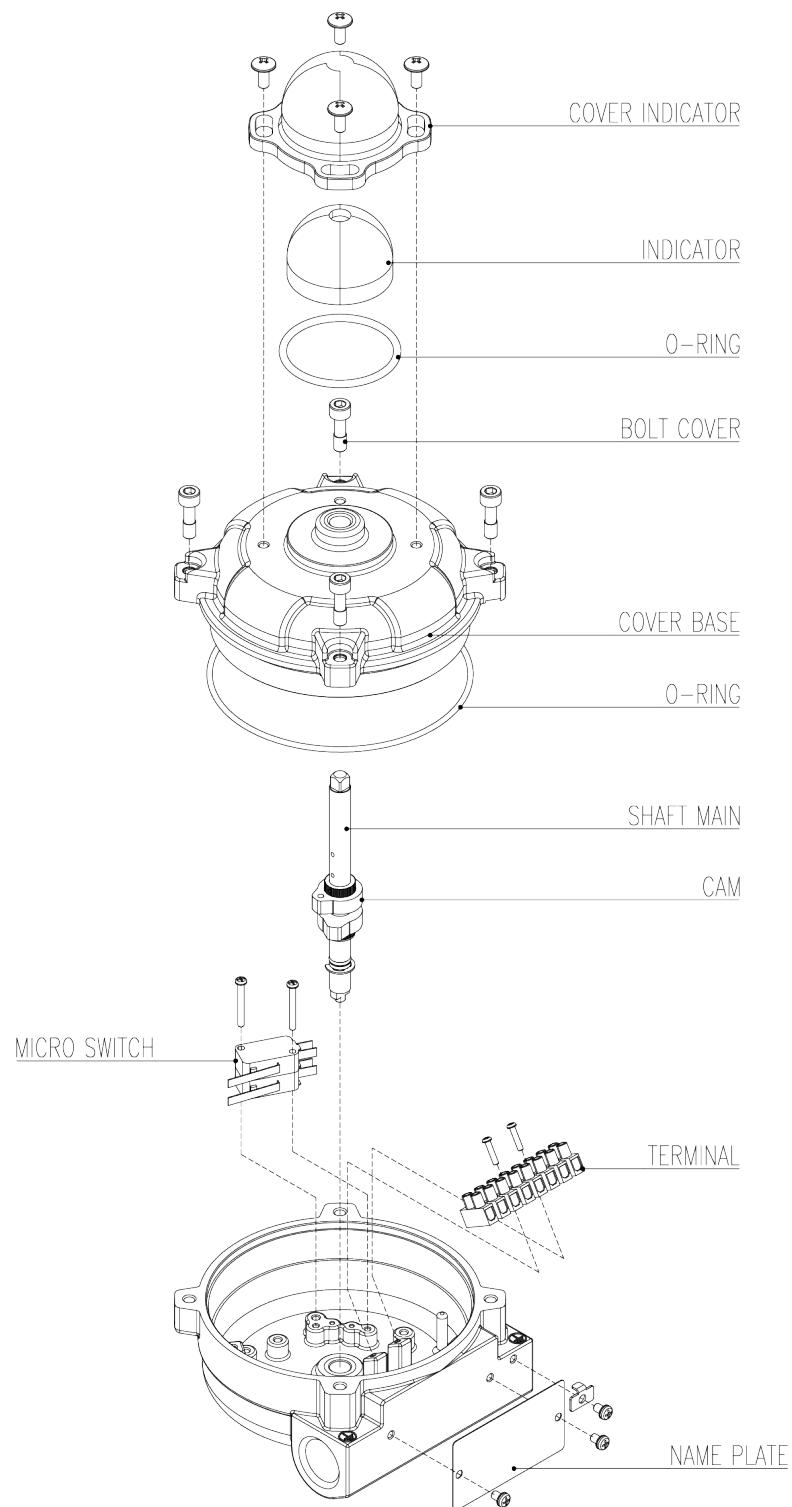
## 2.4 Product Code

<b>Model</b>	TS410					
<b>Material</b>	Aluminum Stainless steel316	TS410 TS415				
<b>Switch type</b>	Mechanical (2xSPDT) Proximity Mechanical (2xDPDT)		M P D			
<b>Explosion proof type</b>	ATEX&IECEx KCS CCC&NEPSI EAC(TR CU)			A K C E		
<b>Conduit entry</b>	NPT1/2 M20x1.5P NPT3/4 M25x1.5P				1 2 3 4	
<b>Ambient temp.</b>	-20 ~ 80°C (T5) / -20 ~ 70°C (T6) -40 ~ 80°C (T5) / -40 ~ 70°C (T6) -60 ~ 80°C (T5) / -60 ~ 70°C (T6)					S L U
<b>Bracket type</b>	None ST-1 (30x80,H20) ST-2 (30x80,H30) ST-3 (30x130,H30) ST-4 (30x130,H50)					0 1 2 3 4

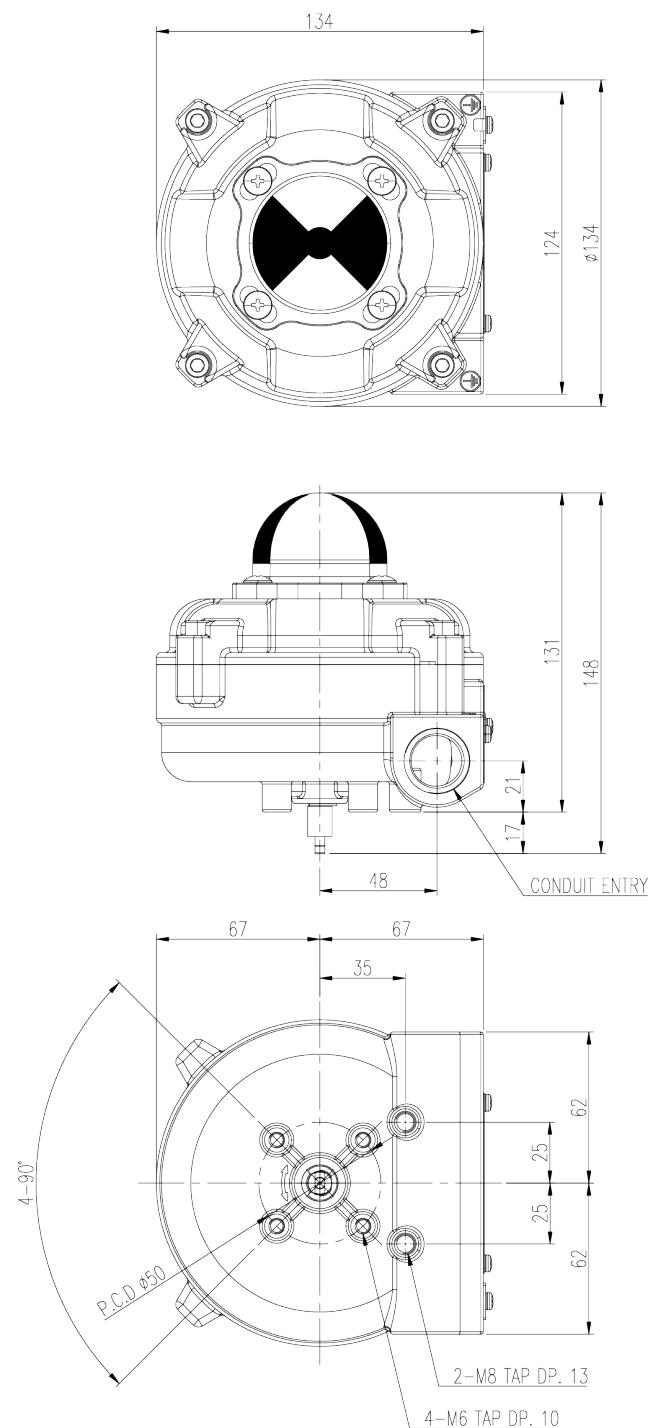
## 2.5 Specification

Model		TS410M	TS415M
Switch type		Mechanical (2xSPDT)	
		KW3A-16Z3B-A200 (Dongnan)	
Switch specification	AC	16A,125/250V	
	DC	30V,10A	
Model		TS410P	TS415P
Switch type		Inductive Proximity Sensor	
		PSN17-5DNU (Autonics)	NJ2-V3-N (P&F)
Switch type	DC	10~30V	8.2V
Model		TS410D	TS415D
Switch type		Mechanical Switch(2*DPDT)	
		DZ-10GV-1B (Omron)	
Switch specification	AC	10A, 125/250V	
	DC	250V 0.25A, 125V 0.5A, 30V 10A	
Explosion proof		Ex db IIC T5/T6 Gb Ex tb IIIC 100°C/T85°C Db	
Enclosure		IP67	
Conduit entry		2xNPT1/2, NPT3/4, M20, M25	
Ambient temp.		Standard type : -20 ~ 80°C (T5) / -20 ~ 70°C (T6) Low temp. type : -40 ~ 80°C (T5) / -40 ~ 70°C (T6)	
Terminals		8 Points	
Painting	Polyester powder coating		
Material	Aluminum die casting	Stainless steel 316	
Weight	1.3kg	3.2kg	

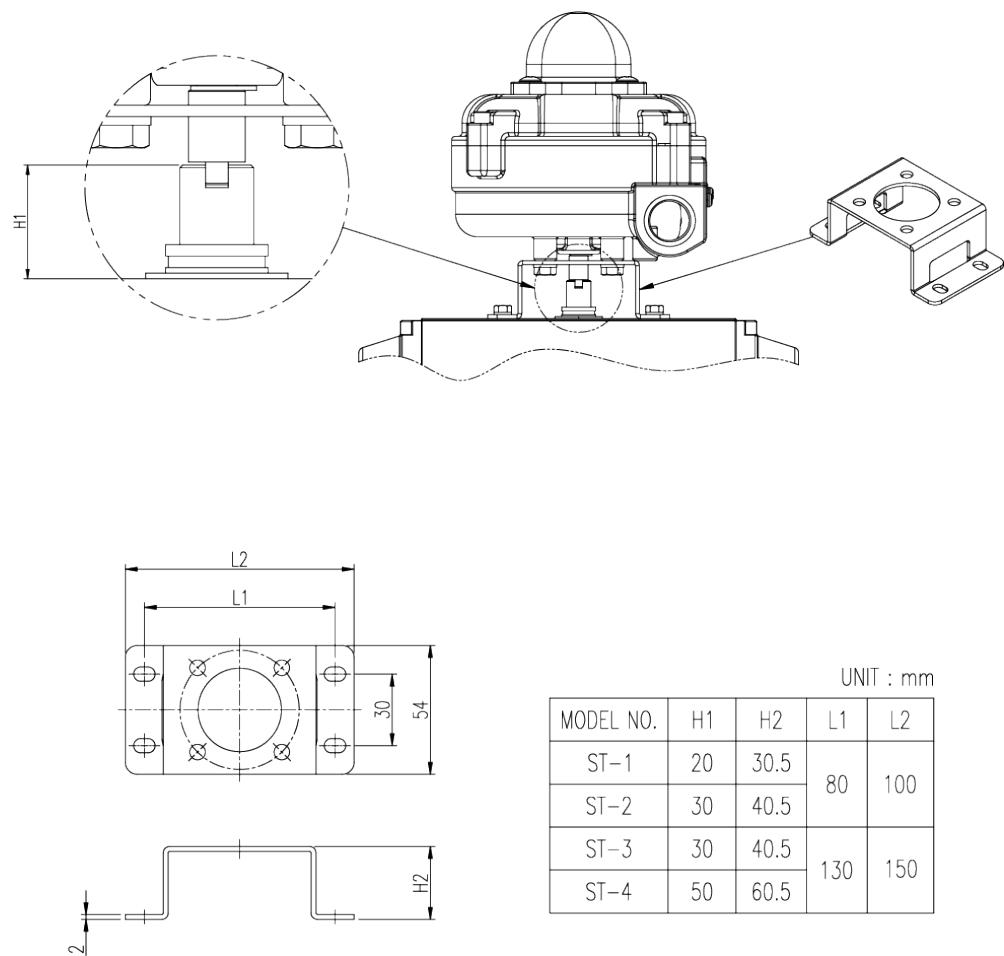
## 2.6 Structure



## 2.7 Product Dimension



## 2.8 Bracket Dimension



## 3 Installation

### 3.1 Before installation

---

 **WARNING**

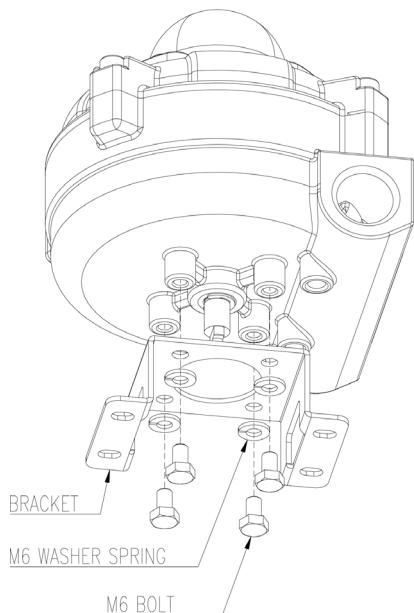
---

- Before installation, shut off the air pressure and make sure that no air pressure remains inside the actuator.
- When using in explosion-proof area, observe the explosion-proof regulations.

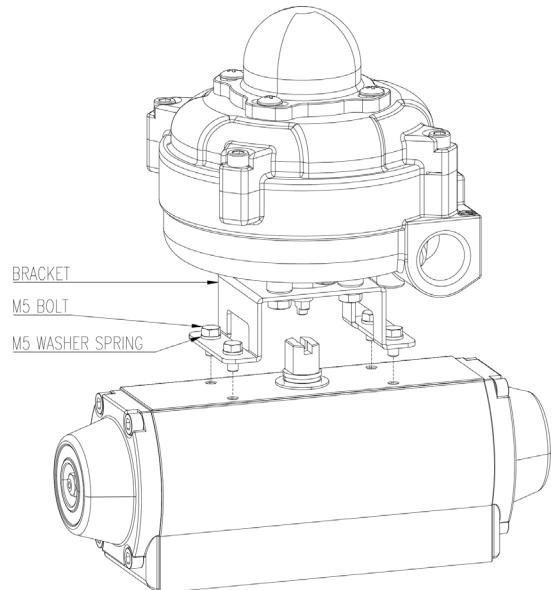
---

### 3.2 How to install

- ① As shown in Figure 01, fasten Bracket to the product with 4pcs-bolts included in the box.
- ② As shown in Figure 02, mount Limit switch box's shaft on actuator stem and fasten Bracket to actuator with bolts.



<Figure 01>



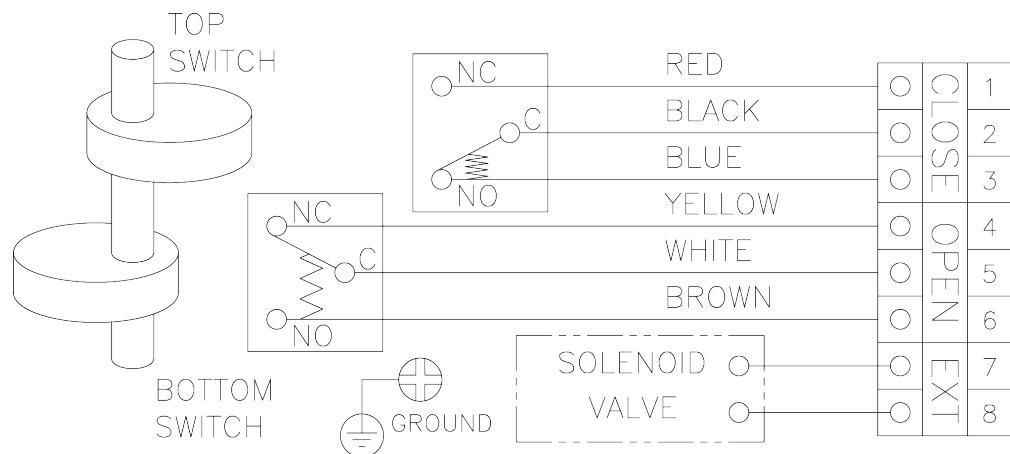
<Figure 02>

## 4 Electrical connection

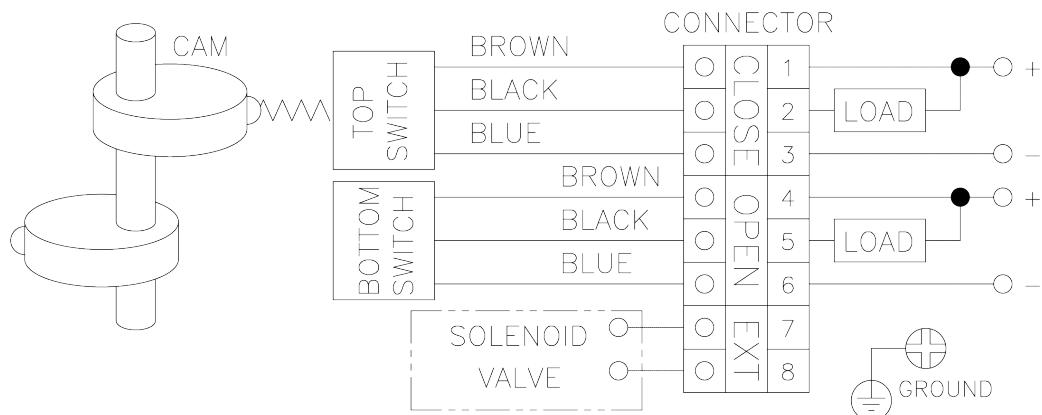
### WARNING

- When connect the power using a Flame proof type packing cable connector, use an Flame proof approved product that is suitable for use at the site.
- When open the terminal cover, be sure to turn off the power first.
- To protect the product, ground it to the ground terminal inside and outside the product.
- There are two conduit entry in the product, and be sure to block the unused conduit entry with an explosion proof blind plug.

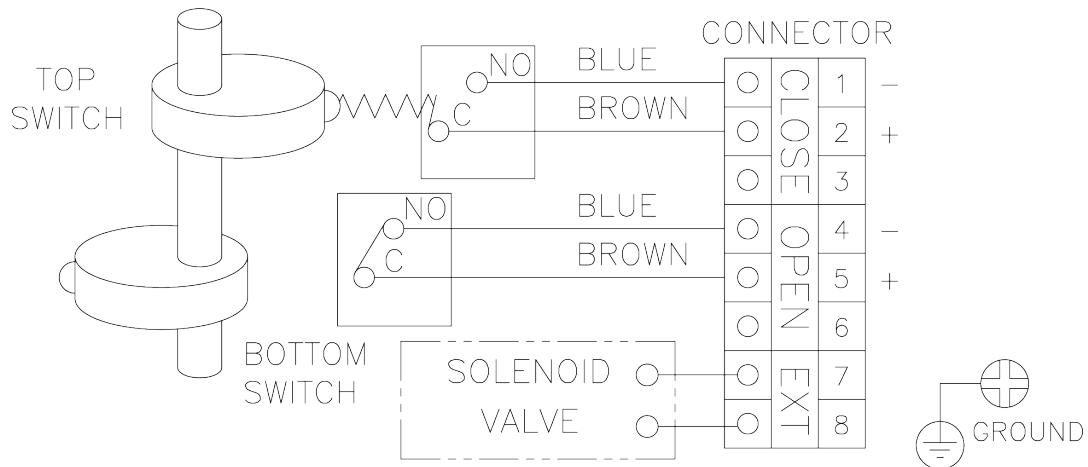
### 4.1 Mechanical type (2 x SPDT)



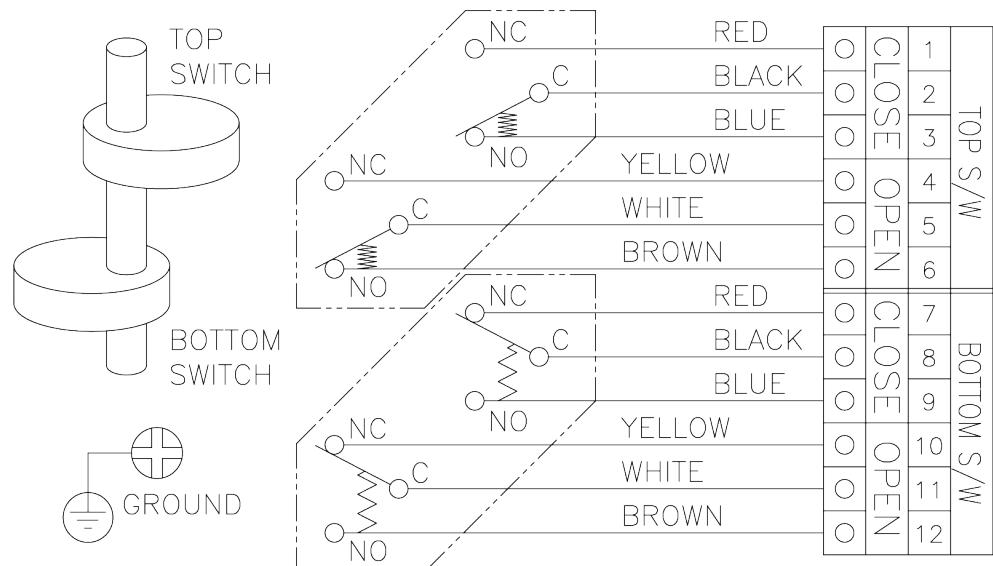
### 4.2 Inductive proximity type (Autonics PSN17-DNU, NPN Type)



#### 4.3 Inductive proximity type (P&F NJ2-V3-N, NC Type)



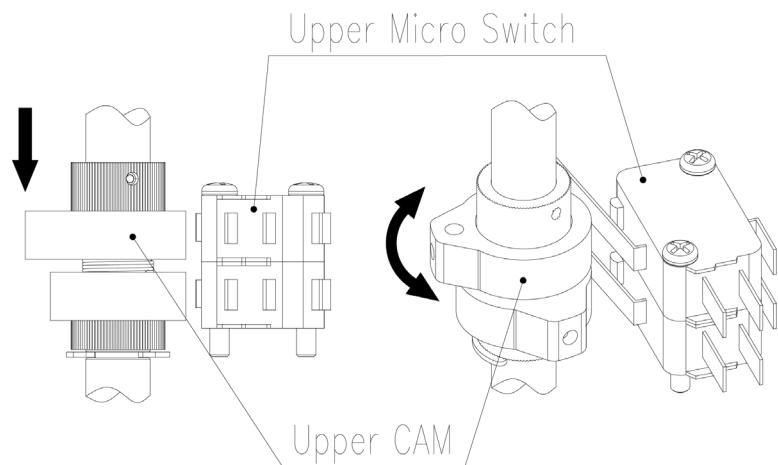
#### 4.4 Mechanical type (2 x DPDT)



## 5 How to adjust cam

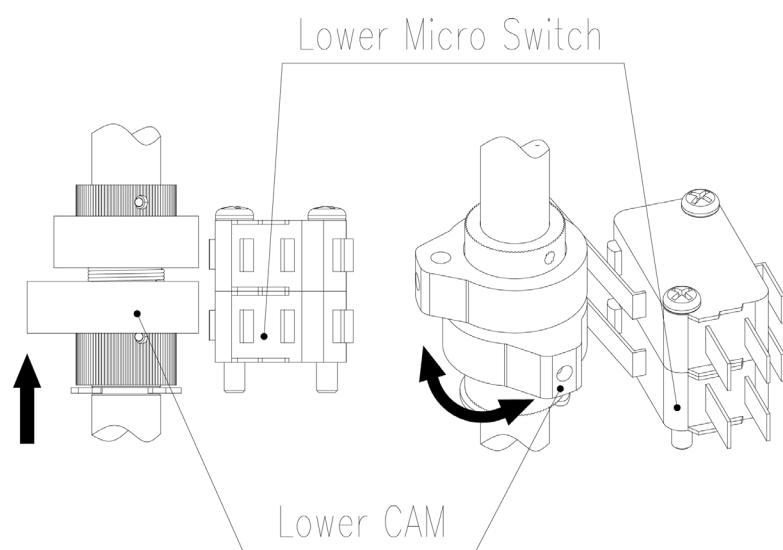
### 5.1 Upper switch

Push the upper cam down, turn left/right to adjust the cam to operate the upper switch in the desired position, release the cam, and It will return to a stable position by itself.



### 5.2 Lower switch

Pull the lower cam up, turn left/right to adjust the cam to operate the lower switch in the desired position, release the cam, and It will return to a stable position by itself.





## **Tissin Co.,Ltd.**

201-1105, No 397, Seokcheon-ro,  
Bucheon-si, Gyeonggi-do, Korea 14449  
Tel : +82-32-624-4573,  
Fax : +82-32-624-4574  
[www.tissin.co.kr](http://www.tissin.co.kr)

