



# Operation Manual

## PRODUCT NAME

*Pressure Switch*

*Pressure Switch with T-Spacer*

*Pressure Switch with L-Piping Adapter*

*Pressure Switch with Piping Adapter*

## MODEL / Series / Product Number

IS10M-(20,30,40,50,60)(-1,6,L,P,Z)-D  
IS10T-(20,30,40,50,60)-(F,N) \* \* (-6,L,P,Z)-D  
IS10L-(20,30,40,50,60)-(F,N) \* \* (-6,L,P,R,Z)-D  
IS10E-(20,30,40,50,60)-(F,N) \* \* (-6,L,P,R,Z)-D

# SMC Corporation

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# Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of “Caution,” “Warning” or “Danger.” They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC)\*1), and other safety regulations.

\*1) ISO 4414: Pneumatic fluid power -- General rules relating to systems.

ISO 4413: Hydraulic fluid power -- General rules relating to systems.

IEC 60204-1: Safety of machinery -- Electrical equipment of machines .(Part 1: General requirements)

ISO 10218: Manipulating industrial robots -Safety.

etc.



## Caution

**Caution** indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.



## Warning

**Warning** indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.



## Danger

**Danger** indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

## Warning

### **1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.**

Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results.

The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product.

This person should also continuously review all specifications of the product referring to its latest catalog information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

### **2. Only personnel with appropriate training should operate machinery and equipment.**

The product specified here may become unsafe if handled incorrectly.

The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

### **3. Do not service or attempt to remove product and machinery/equipment until safety is confirmed.**

1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.

2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.

3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

### **4. Contact SMC beforehand and take special consideration of safety measures if the product is to be used in any of the following conditions.**

1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.

2. Installation on equipment in conjunction with atomic energy, railways, air navigation, space, shipping, vehicles, military, medical treatment, combustion and recreation, or equipment in contact with food and beverages, emergency stop circuits, clutch and brake circuits in press applications, safety equipment or other applications unsuitable for the standard specifications described in the product catalog.

3. An application which could have negative effects on people, property, or animals requiring special safety analysis.

4. Use in an interlock circuit, which requires the provision of double interlock for possible failure by using a mechanical protective function, and periodical checks to confirm proper operation.



# Safety Instructions

## **Caution**

### **The product is provided for use in manufacturing industries.**

The product herein described is basically provided for peaceful use in manufacturing industries.

If considering using the product in other industries, consult SMC beforehand and exchange specifications or a contract if necessary.

If anything is unclear, contact your nearest sales branch.

## **Limited warranty and Disclaimer/Compliance Requirements**

The product used is subject to the following “Limited warranty and Disclaimer” and “Compliance Requirements”.

Read and accept them before using the product.

### **Limited warranty and Disclaimer**

1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered, whichever is first.\*2)

Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.

2. 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.

3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalog for the particular products.

\*2) Vacuum pads are excluded from this 1 year warranty.

A vacuum pad is a consumable part, so it is warranted for a year after it is delivered.

Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty.

### **Compliance Requirements**

1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction(WMD) or any other weapon is strictly prohibited.

2. The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulation of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

## **Caution**

### **SMC products are not intended for use as instruments for legal metrology.**

Measurement instruments that SMC manufactures or sells have not been qualified by type approval tests relevant to the metrology (measurement) laws of each country.

Therefore, SMC products cannot be used for business or certification ordained by the metrology (measurement) laws of each country.

## Precautions for Design

### Warning

- (1) Keep the load/resistance within the specified range.  
Operation outside of the specification range may cause damage to the product or operation failure.
- (2) Air is the applicable fluid for this product. Please contact us when fluids other than air are used.  
Usage of inapplicable fluids may cause fluid leakage or malfunction.
- (3) Use within the specified voltage and current.  
Use of a voltage or current outside of the specifications can cause malfunction, damage to the switch, electric shock or fire.  
When the load capacity of the motor is large, use a magnet switch as well as relay.
- (4) Not suitable for vacuum pressure area.  
If it is operated with vacuum pressure, it may cause malfunction.
- (5) This product uses a reed switch. If the chattering of the output signal is a problem, choose a solid state type pressure switch or adjust by PLC.

## Installation

### Warning

- (1) Mount the product after carefully reading and understanding the operation manual.
- (2) Do not drop or apply impact during transportation or installation.  
It will cause damage to the product or operation failure.
- (3) Avoid applying vibration to the product.  
If the product is subject to vibration, it can cause a damage or a malfunction.
- (4) Do not use in humid or humid areas.  
It will cause damage to the product or malfunction.
- (5) Shield from ultra violet light and radiation with protective cover.
- (6) Employ suitable protective measures in locations where there is contact with oil or welding spatter, etc.
- (7) Check mounting conditions. The product can be mounted either vertically or horizontally.
- (8) Make sure to hold the product body when handling the product, and do not apply tensile force to the lead wire.  
It will cause damage to the product or malfunction.
- (9) Avoid repeatedly bending or stretching the lead wire.  
Broken lead wires will result if bending stresses or tensile forces are applied to the lead wires.  
If the lead wire is damaged, causing the operation failure, replace the product with a new one.

## Piping

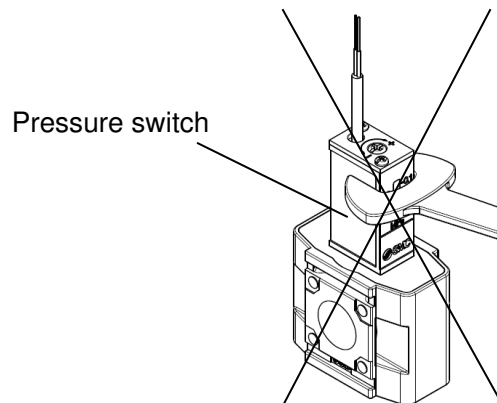
### Warning

- (1) Before piping is connected, it should be thoroughly blown out with air (flushing) or washed to remove chips, cutting oil and solid foreign material from inside the pipe. Contamination of piping may cause damage or malfunction.
- (2) When screwing together pipes and fittings, etc., be certain that chips from the pipe threads and sealant do not get inside the pipe. Contamination of piping may cause damage or malfunction. When a sealant tape is used, leave 1.5 to 2 thread ridges exposed at the end of the threads.
- (3) Connect piping/fittings using the recommended torque while holding the female thread side tightly. Insufficient tightening torque leads to cause of loosening or sealing failure, and excessive tightening torque leads to cause of breakage of screws. Tightening without holding female thread applies an excessive force to the piping bracket directly, leading to breakage.

Recommended tightening torque Unit: N m

Thread size	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2
Torque	7 to 9	12 to 14	22 to 24	28 to 30	28 to 30	36 to 38	40 to 42	48 to 50

- (4) Do not apply a spanner to the pressure switch body during piping. Otherwise, the product may be damaged.



- (5) Do not apply torsion or bending moment other than the weight of the product itself. External piping needs to be supported separately as it may cause breakage. Non-flexible piping like steel tube is susceptible to excessive moment load or vibration. Insert flexible tubes to prevent this.

## Air Source

### Warning

- (1) Use clean air. Do not use compressed air containing chemicals, organic solvent, synthetic oil or corrosive gas as it may be cause of breakage of components or operation failure.
- (2) Air containing too much moisture may cause malfunction. Install an air drier or aftercooler before the product.

## Operating Environment

### Warning

- (1) This product uses a reed switch. Therefore, the product may malfunction in a magnetic field. Do not use the product where it is affected by magnetism.
- (2) This product is not hermetic. Therefore, avoid installation in a place where it is exposed to water and oil entering into the product, causing malfunction and damage due to corrosion of the electrical circuit. Do not use the product in a place where the product could be splashed by water or oil.

## Wiring

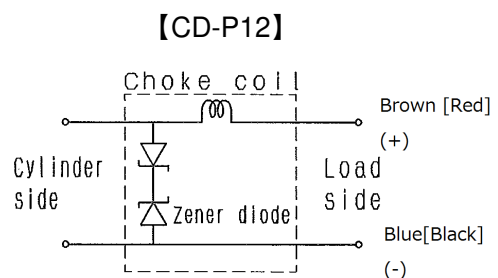
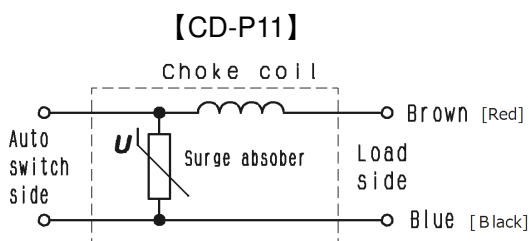
### ⚠ Warning

- (1) Make sure to connect a load to the product before turning the power supply on. The switch will be damaged if no load is connected.
- (2) Wiring should be kept as short as possible.

When the load which is operated by this product is an inductive load such as solenoid or relay, or the lead wire is 5m or longer, use the contact protection box shown in the table below. Using the switch without the contact protection box may cause breakage of the switch.

Contact protection box part	Operating voltage	Lead wire length
CD-P11	100 VAC	Switch side: 0.5m
CD-P12	24 VDC	Detection of unconnected load: 0.5m

Internal circuit of the contact protection box



#### • Connection to the contact protection box

For connection of the switch to the contact protection box, connect the lead wire indicating SWITCH on the contact protection box and the lead wire from the switch. The lead length between the switch body and the contact protection box should be less than 1 m, and set it as close as possible.

Applicable lead wire dimensions are as follows.

Outer sheath:     $\varnothing 3.4$   
 Insulator:        $\varnothing 1.1$   
 Conductor:       $\varnothing 0.64$

- (3) Check the insulation of the wiring.

Avoid defective insulation (crossed lines with other circuit, ground fault, defective insulation between terminals, etc.) with the wiring. If the insulation is defective, excessive current can flow through the switch, which may cause damage to the switch.

## Pressure Setting

### **Warning**

- (1) Set within the display pressure range of the scale plate. If it is set outside of the pressure display range, it may cause operation failure or setting deviation.

### **Caution**

- (1) Use a screwdriver of a size suitable for the groove of the adjustment screw.
- (2) The switch setting display indicator shows the pressure when the switch is turned off.
- (3) Pressure when the switch is ON is the pressure in when hysteresis is added to the indicated pressure.
- (4) The pressure displayed by the indicator is a guideline. Measure the pressure correctly using a pressure gauge.

## Maintenance

### **Warning**

- (1) Maintenance should be performed according to the procedure indicated in the Operation Manual. If handled improperly, malfunction and damage of machinery or equipment may occur.
- (2) Perform regular inspections and confirm normal operation.  
Otherwise it may be impossible to guarantee safety due to unexpected malfunction or erroneous operation.
- (3) Do not touch the internal wiring during energizing.  
There is a risk of electric shock by contact with the product that is energized.  
Turn OFF the power supply before wiring.
- (4) Make sure to wear safety goggles for regular maintenance.
- (5) Make sure to confirm that no pressure is applied to this product and that electrical cables are disconnected before performing maintenance.
- (6) After maintenance, confirm that the product satisfies specific functions and no external leakage occurs before operating it.
- (7) Maintenance work  
If handled improperly, compressed air can be dangerous. Maintenance should be performed by a knowledgeable and experienced person.
- (8) Drain flushing  
Compressed air containing too much condensate leads to malfunction. Air filters installed on airlines, etc., requires periodic discharge of the drain to make sure that the drain does not flow downstream. Check the filter element periodically and replace it with a new one if necessary.
- (9) Removal of equipment, and supply/exhaust of compressed air.  
When components are removed, first confirm that measures are in place to prevent workpieces from dropping, run-away equipment, etc. Then, cut off the supply pressure and electric power, and exhaust all compressed air from the system using the residual pressure release function. When re-starting the product, make sure that the liquid sudden blow prevention is applied.
- (10) Caution for use in an interlock system  
If using in an interlock circuit, provide a double interlock in vessel of failure, and perform regular checks to confirm proper operation.
- (11) When installing the products, allow access for maintenance. It may not be possible to perform maintenance checks if there is not enough space.



## 2. Application

This product is intended to check the supply pressure of a pneumatic line, and control each pneumatic line with electric signals.

## 3. Standard specifications

### 3-1. 【PRESSURE SWITCH】IS10M-20-D to IS10M-60-D

Model		IS10M-20-D	IS10M-30-D	IS10M-40-D	IS10M-50-D	IS10M-60-D
Fluid		Air				
Ambient and fluid temperature		-5 to 60 °C (with no freezing)				
Proof pressure		1.0MPa				
Max. operating pressure		0.7MPa				
Set pressure range (OFF)		0.1MPa to 0.4MPa				
Error of scale		±0.05 MPa or less				
Hysteresis		Fixed 0.08 MPa or less				
Repeatability		±0.05 MPa or less				
Wiring specifications		Grommet				
Lead wire length		0.5m				
Switch Characteristics	Contact	1a				
	Max.contact capacity	AC2VA · DC2W				
	Voltage AC、DC	100V or less				
	Max. operating current	24VAC,DC or less:50mA				
48VAC,DC or less:40mA						
100VAC,DC or less:20mA						
Enclosure		Equivalent to IP40				
Weight(kg)		0.12kg	0.15kg	0.20kg	0.26kg	0.40kg

### 3-2. 【PRESSURE SWITCH WITH T-SPACER】 IS10T-20-D to IS10T-60-D

Model		IS10T-20-D	IS10T-30-D	IS10T-40-D	IS10T-50-D	IS10T-60-D
Port size		1/8, 1/4	1/8, 1/4, 3/8	1/4, 3/8, 1/2	1/4, 3/8, 1/2, 3/4	3/8, 1/2, 3/4
Fluid		Air				
Ambient and fluid temperature		-5 to 60 °C (with no freezing)				
Proof pressure		1.0MPa				
Max. operating pressure		0.7MPa				
Set pressure range (OFF)		0.1MPa to 0.4MPa				
Error of scale		±0.05 MPa or less				
Hysteresis		Fixed 0.08 MPa or less				
Repeatability		±0.05 MPa or less				
Wiring specifications		Grommet				
Lead wire length		0.5m				
Switch Characteristics	Contact	1a				
	Max.contact capacity	AC2VA · DC2W				
	Voltage AC、DC	100V or less				
	Max. operating current	24VAC,DC or less:50mA				
48VAC,DC or less:40mA						
100VAC,DC or less:20mA						
Enclosure		Equivalent to IP40				
Weight		0.12kg	0.15kg	0.21kg	0.26kg	0.38kg

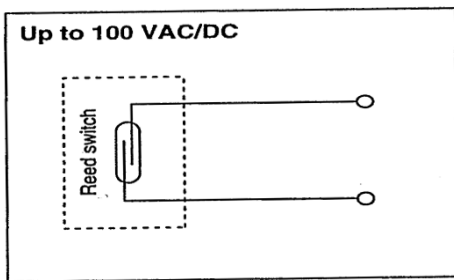
### 3-3. 【PRESSURE SWITCH WITH L-PIPING ADAPTER】IS10L-20-D to IS10L-60-D

Model	IS10L-20-D	IS10L-30-D	IS10L-40-D	IS10L-50-D	IS10L-60-D
Port size	1/8, 1/4	1/8, 1/4, 3/8	1/4, 3/8, 1/2	1/2, 3/4	1/2, 3/4, 1
Fluid	Air				
Ambient and fluid temperature	-5 to 60 °C (with no freezing)				
Proof pressure	1.0MPa				
Max. operating pressure	0.7MPa				
Set pressure range (OFF)	0.1MPa to 0.4MPa				
Error of scale	±0.05 MPa or less				
Hysteresis	Fixed 0.08 MPa or less				
Repeatability	±0.05 MPa or less				
Wiring specifications	Grommet				
Lead wire length	0.5m				
Switch Characteristics	Contact	1a			
	Max.contact capacity	AC2VA · DC2W			
	Voltage AC、DC	100V or less			
	Max. operating current	24VAC,DC or less:50mA			
48VAC,DC or less:40mA					
100VAC,DC or less:20mA					
Enclosure	Equivalent to IP40				
Weight	0.12kg	0.15kg	0.21kg	0.26kg	0.41kg

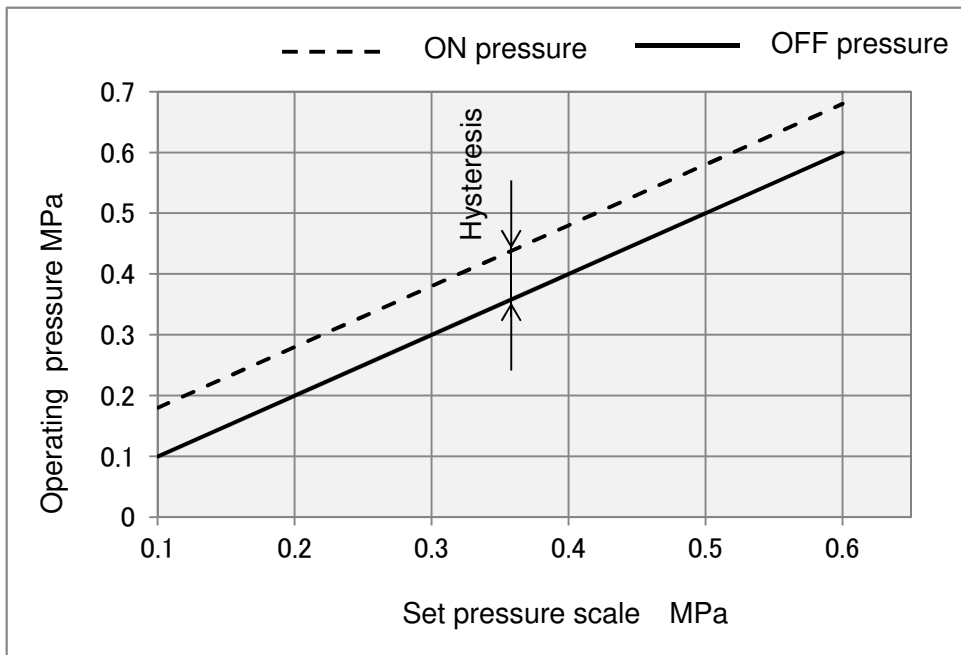
### 3-4. 【PRESSURE SWITCH WITH PIPING ADAPTER】IS10E-20-D to IS10E-60-D

Model	IS10E-20-D	IS10E-30-D	IS10E-40-D	IS10E-50-D	IS10E-60-D
Port size	1/8, 1/4, 3/8	1/8, 1/4, 3/8, 1/2	1/4, 3/8, 1/2, 3/4	3/4, 1	3/4, 1, 1 1/4, 1 1/2
Fluid	Air				
Ambient and fluid temperature	-5 to 60 °C (with no freezing)				
Proof pressure	1.0MPa				
Max. operating pressure	0.7MPa				
Set pressure range (OFF)	0.1MPa to 0.4MPa				
Error of scale	±0.05 MPa or less				
Hysteresis	Fixed 0.08 MPa or less				
Repeatability	±0.05 MPa or less				
Wiring specifications	Grommet				
Lead wire length	0.5m				
Switch Characteristics	Contact	1a			
	Max.contact capacity	AC2VA · DC2W			
	Voltage AC、DC	100V or less			
	Max. operating current	24VAC,DC or less:50mA			
48VAC,DC or less:40mA					
100VAC,DC or less:20mA					
Enclosure	Equivalent to IP40				
Weight	0.09kg	0.12kg	0.16kg	0.17kg	0.25kg

#### 4. Electric circuit



#### 5. Relation between Pressure setting and operating pressure



## 6. How to Order

### 6-1. [PRESSURE SWITCH]IS10M-20-D to IS10M-60-D

IS10 M - **30** - **□** - D

1      2

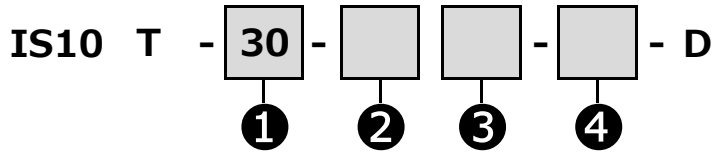
		Symbol	Description	1								
				Body size								
				20	30	40	50	60				
2	Semi-standard	a	Set pressure range	Nil	0.1 to 0.4MPa	●	●	●	●	●		
				6 <sup>Note2)</sup>	0.1 to 0.6MPa	●	●	●	●	●		
		+										
		b	Lead wire length	Nil	0.5m	●	●	●	●	●		
				L	3m	●	●	●	●	●		
				Z	5m	●	●	●	●	●		
		+										
		c	Pressure unit of the scale plate	Nil	MPa	●	●	●	●	●		
				P	MPa/psi dual scale	●	●	●	●	●		
		+										
		d	Body type	Nil	Standard	●	●	●	●	●		
				1 <sup>Note3)</sup>	Slim	●	●	●	●	●		

Note 1) ② A semi-standard product can be selected alphabetically (a to d).

Note 2) Set pressure range of 6 psi 0.2 to 0.6 MPa (30 to 90 psi).

Note 3) Smaller face-to-face type cannot be mounted on the spacer with the bracket at both ends. Mount a spacer on at least one end.  
Select the Standard body type (d) when mounting the spacer with bracket on both ends.

6-2. [PRESSURE SWITCH WITH T-SPACER] IS10T-20-D to IS10T-60-D

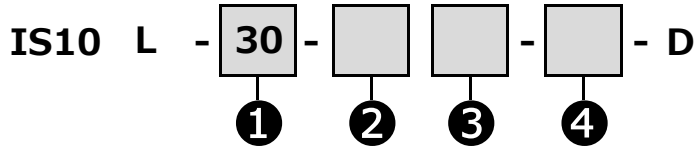


	Symbol	Description	1							
			Body size							
			20	30	40	50	60			
2	Pipe thread type	Nil	Rc	●	●	●	●	●		
		N	NPT	●	●	●	●	●		
		F	G	●	●	●	●	●		
+										
3	Port size	01	1/8	●	●	-	-	-		
		02	1/4	●	●	●	●	-		
		03	3/8	-	●	●	●	●		
		04	1/2	-	-	●	●	●		
		06	3/4	-	-	-	●	●		
+										
4	Semi-standard	a	Set pressure range	Nil	0.1 to 0.4MPa	●	●	●	●	●
				6 <sup>Note2)</sup>	0.1 to 0.6MPa	●	●	●	●	●
		+								
		b	Lead wire length	Nil	0.5m	●	●	●	●	●
				L	3m	●	●	●	●	●
				Z	5m	●	●	●	●	●
+										
c	Pressure unit of the scale plate	Nil	MPa	●	●	●	●	●		
		P	MPa/psi dual scale	●	●	●	●	●		

Note 1) 4 A semi-standard product can be selected alphabetically (a to c).

Note 2) Set pressure range of 6P is 0.2 to 0.6MPa (30 to 90psi).

6-3. [PRESSURE SWITCH WITH L-PIPING ADAPTER] IS10L-20-D to IS10L-60-D

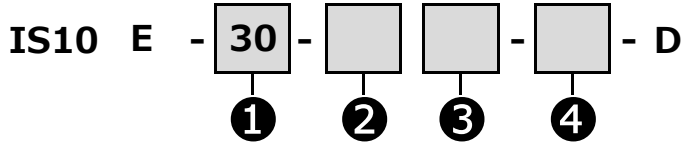


		Symbol	Description	1						
				Body size						
				20	30	40	50	60		
2	Pipe thread type	Nil	Rc	●	●	●	●	●		
		N	NPT	●	●	●	●	●		
		F	G	●	●	●	●	●		
+										
3	Port size	01	1/8	●	●	-	-	-		
		02	1/4	●	●	●	-	-		
		03	3/8	-	●	●	-	-		
		04	1/2	-	-	●	●	●		
		06	3/4	-	-	-	●	●		
		10	1	-	-	-	-	●		
+										
4	Semi-standard	a	Set pressure range	Nil	0.1 to 0.4MPa	●	●	●	●	●
			6 <sup>Note2)</sup>	0.1 to 0.6MPa	●	●	●	●	●	
		+								
		b	Lead wire length	Nil	0.5m	●	●	●	●	●
				L	3m	●	●	●	●	●
				Z	5m	●	●	●	●	●
		+								
		c	Pressure unit of the scale plate	Nil	MPa	●	●	●	●	●
				P	MPa/psi dual scale	●	●	●	●	●
		+								
		d	Mounting position	Nil	Right	●	●	●	●	●
				R	Left	●	●	●	●	●

Note 1) 4 A semi-standard product can be selected alphabetically (a to d).

Note 2) Set pressure range of 6P is 0.2 to 0.6MPa (30 to 90psi).

6-4. [PRESSURE SWITCH WITH PIPING ADAPTER] IS10E-20-D to IS10E-60-D

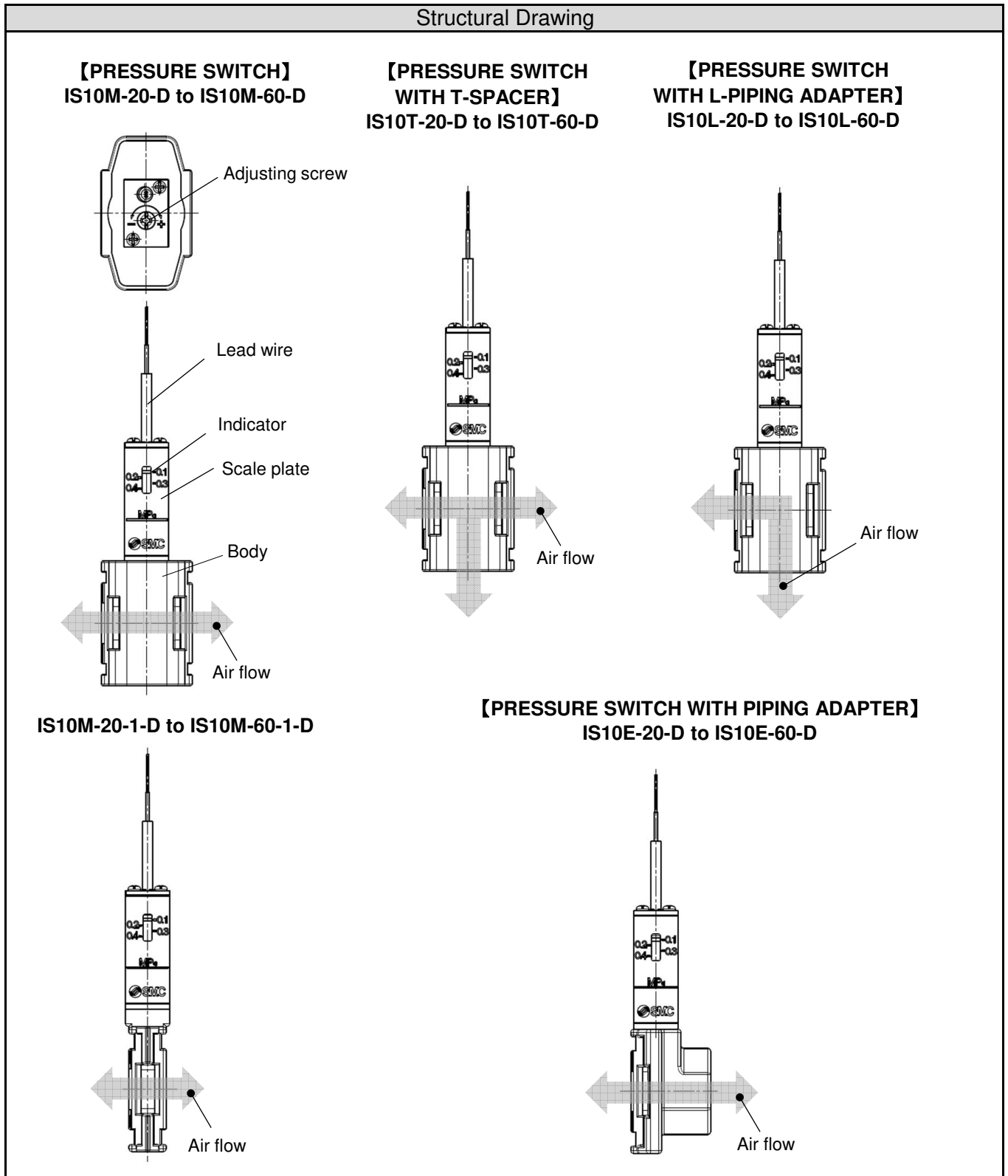


	Symbol	Description	①							
			Body size							
			20	30	40	50	60			
②	Pipe thread type	Nil	Rc	●	●	●	●	●		
		N	NPT	●	●	●	●	●		
		F	G	●	●	●	●	●		
+										
③	Port size	01	1/8	●	-	-	-	-		
		02	1/4	●	●	●	-	-		
		03	3/8	●	●	●	-	-		
		04	1/2	-	●	●	-	-		
		06	3/4	-	-	●	●	●		
		10	1	-	-	-	●	●		
		12	1 1/4	-	-	-	-	●		
		14	1 1/2	-	-	-	-	●		
+										
④	Semi-standard	a	Set pressure range	Nil	0.1 to 0.4MPa	●	●	●	●	●
				6 <sup>Note2)</sup>	0.1 to 0.6MPa	●	●	●	●	●
		+								
		b	Lead wire length	Nil	0.5m	●	●	●	●	●
				L	3m	●	●	●	●	●
				Z	5m	●	●	●	●	●
		+								
		c	Pressure unit of the scale plate	Nil	MPa	●	●	●	●	●
				P	MPa/psi dual scale	●	●	●	●	●
		+								
		d	Mounting position	Nil	Right	●	●	●	●	●
				R	Left	●	●	●	●	●

Note 1) ④ A semi-standard product can be selected alphabetically (a to d).

Note 2) Set pressure range of 6P is 0.2 to 0.6MPa (30 to 90psi).

## 7. Structural Drawing

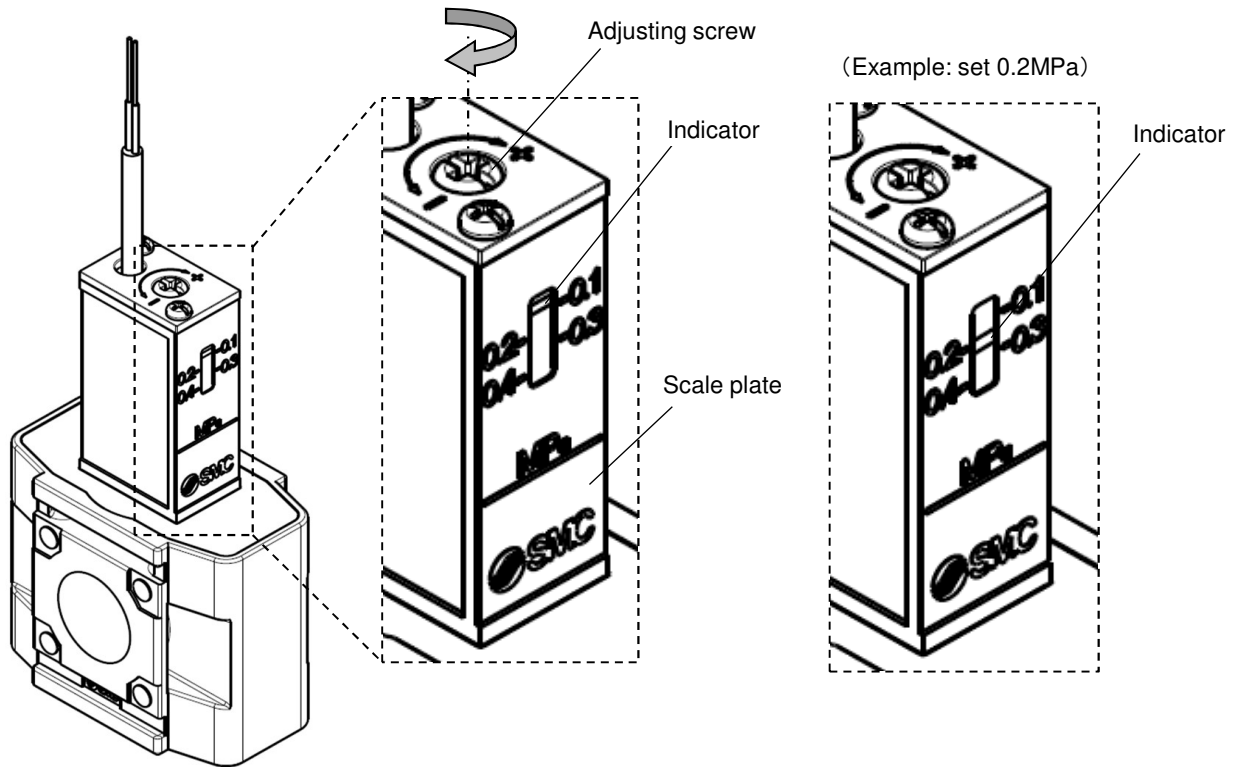


## 8. Type of scale

Standard	-6	-P	-6P
0.2-0.1 0.4-0.3	0.2-0.1 0.4-0.3 0.6-0.5	0.1- (15) 0.2- (30) 0.3- (45) 0.4- (60)	0.2- (30) 0.4- (60) 0.6- (90)
MPa	MPa	MPa (psi)	MPa (psi)



## 9. Pressure Setting Method



Pressure is adjusted by rotating the adjustment screw and setting the indicator to the figure on the scale. Set pressure increases by rotating the adjustment screw clockwise. Use a screwdriver of a size suitable for the groove (+) of the adjustment screw.

## 10.TROUBLE SHOOTING

In order to maintain product quality, the pressure switch's parts can not be replaced. The whole product needs to be replaced with a new one when any failure occurs.

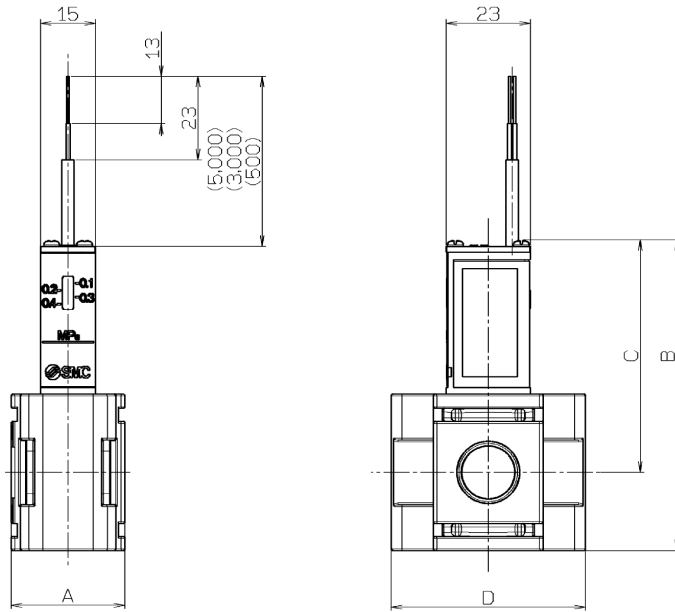
Failure	Possible cause		Countermeasure
Switch does not turn on.	Power supply failure	1. Power supply voltage is out of specification range.	1 Set to the specified voltage.
	Wiring or connection is defective.	1. Contact failure of connection (connector, crimped terminal, terminal).	1. Connect wires correctly. (Check the continuity.)
	Decrease of magnetic force	1. There is a magnetic field source (spot welding machine, cable with high current, motor, strong magnet, etc) close to the pressure switch.	1. If it is impossible to keep distance from the strong magnetic field source, provide a shield plate between the pressure switch and the source.
		2. The pressure switch became abnormally hot.	2. Keep the temperature of the switch below 60 °C.
		3. There is accumulation of iron particles or magnetic substances stuck to the pressure switch.	3-1. Install a protective cover to avoid the accumulation of iron particles.  3-2. Keep the magnetic material away or change the material to a non-magnetic material.
	Lowered sensitivity of auto switch	1. Excessive impact has been applied to the switch.	1. Improve so that impact will not be applied, and then replace the pressure switch with a new one.
	Broken wire in the switch	1. Overcurrent was applied to the switch	1. Check the control circuit for any factors that generate an over current, and then replace the pressure switch.
Lead wire broken	1. The lead wire has repeatedly been subject to bending or tensile force.	1-1. Connect the lead wire avoiding tensile force.  1-2. Keep the bend radius of the lead wire as large as possible.  1-3. Do not use spiral tube.  1-4. Connect it using a robot cable if necessary.	
	2. The lead wire cover has gouges or cracks.	2. If there is a possibility of external damage after wiring the lead wire, protect the lead wire with a tube.	
Pressure supplied	1. Supply pressure to the pressure switch is lower than the set pressure.	1. Decrease the set pressure.	

## 10.TROUBLE SHOOTING

Failure	Possible cause		Countermeasure
Switch does not turn off.	Fused contact of the switch	1. The load conditions are outside of the specification.	1. and 2. Review the control circuit and replace the pressure switch.
		2. Overcurrent was applied to the switch	
		3. A large inrush current has flowed through the switch.	3. Replace the pressure switch and use a contact protection box.
		4. The number of operation cycles has exceeded 5 million cycles.	4. Replace the pressure switch every 5 million operating cycles as a guideline.
		5. The contact protection box has not been used. The operating conditions require it to be used.	5. Replace the pressure switch and use a contact protection box.
External magnetic field keeping the switch on.	1. There is a strong magnetic field source around the pressure switch.	1. If it is impossible to keep distance from the strong magnetic field source, provide a shield plate between the pressure switch and the source.	
Impact	1. Excessive impact has been applied to the pressure switch.	1-1. Decrease the impact or use a solid state auto switch.  1-2. Decrease the response speed of PLC.	
Broken switch	1. Excessive impact has been applied to the switch.	1. Improve so that impact will not be applied, and then replace the pressure switch with a new one.	
	2. The switch is operated in an environment exposed to organic solvent.	2-1. To protect against organic solvents, install the cover and replace the pressure switch.  2-2. Replace with a conforming pressure switch.	
Pressure supplied	1. Pressure is applied to the pressure switch.	1. Check the supply pressure or increase the set pressure.	
Air leaks.	1. Foreign matter got caught in the pressure switch.	1. Remove the foreign matter from inside the piping, and then replace the pressure switch with a new one.	

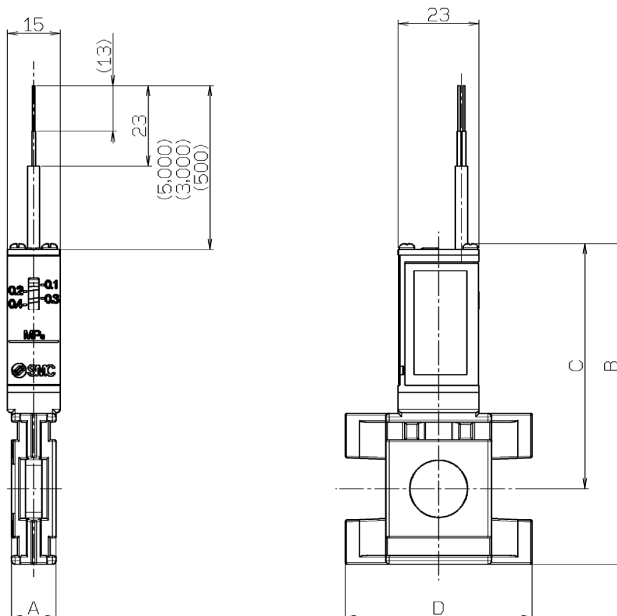
# 11. Dimensions

## 11-1. [PRESSURE SWITCH]IS10M-20-D to IS10M-60-D



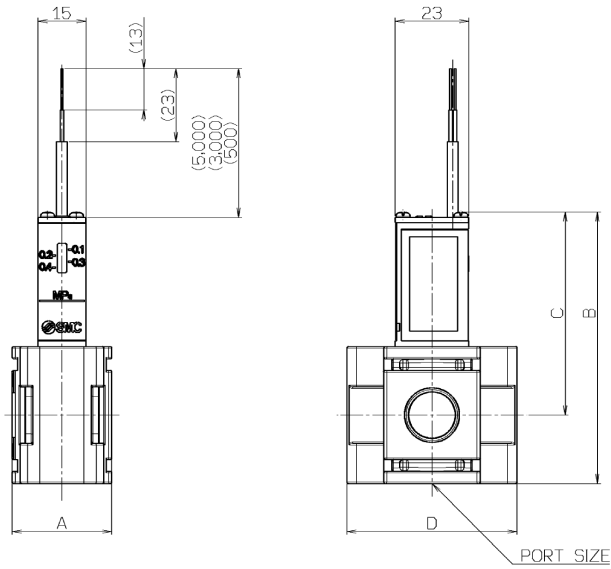
Model	A	B	C	D
IS10M-20-D	28	77.6	60.1	42
IS10M-30-D	31	85.6	64.1	53
IS10M-40-D	39	93.6	68.1	71
IS10M-50-D	47	96.6	69.6	71
IS10M-60-D	62	106.6	74.6	90

## 11-2. [PRESSURE SWITCH]IS10M-20-1-D to IS10M-60-1-D



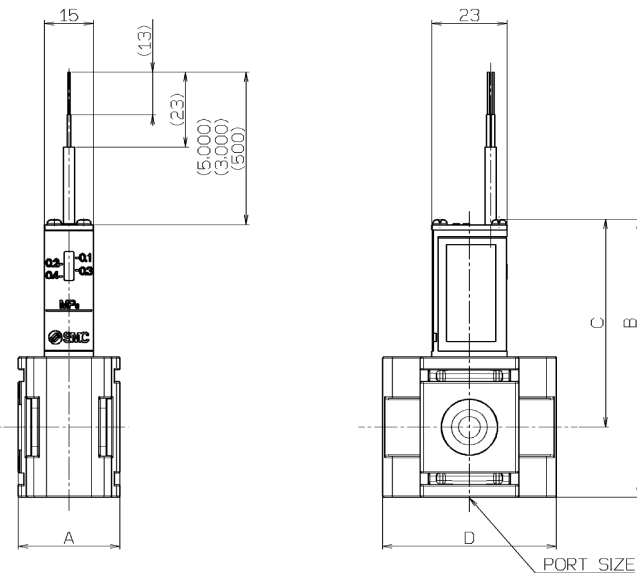
Model	A	B	C	D
IS10M-20-1-D	10.6	83.8	66.3	42
IS10M-30-1-D	12.6	91.8	70.3	53
IS10M-40-1-D	14.6	97.8	72.3	58.6
IS10M-50-1-D	16.6	100.8	73.8	59.3
IS10M-60-1-D	22	110.8	78.8	90

**11-3. [PRESSURE SWITCH WITH T-SPACER] IS10T-20-D to IS10T-60-D**



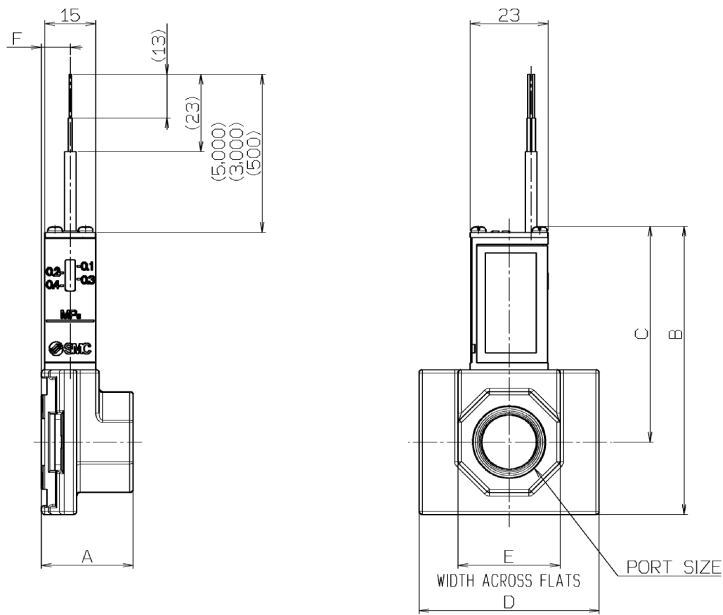
Model	Port size	A	B	C	D
IS10T-20-D	1/8•1/4	28	77.6	60.1	42
IS10T-30-D	1/8•1/4•3/8	31	85.6	64.1	53
IS10T-40-D	1/4•3/8•1/2	39	93.6	68.1	71
IS10T-50-D	1/4•3/8•1/2•3/4	47	96.6	69.6	71
IS10T-60-D	3/8•1/2•3/4	62	106.6	74.6	90

**11-4. [PRESSURE SWITCH WITH L-PIPING ADAPTER] IS10L-20-D to IS10L-60-D**



Model	Port size	A	B	C	D
IS10L-20-D	1/8•1/4	28	77.6	60.1	42
IS10L-30-D	1/8•1/4•3/8	31	85.6	64.1	53
IS10L-40-D	1/4•3/8•1/2	39	93.6	68.1	71
IS10L-50-D	1/2•3/4	47	96.6	69.6	71
IS10L-60-D	1/2•3/4•1	62	106.6	74.6	90

**11-5. [PRESSURE SWITCH WITH PIPING ADAPTER] IS10E-20-D to IS10E-60-D**



Model	Port size	A	B	C	D	E	F
IS10E-20-D	1/8·1/4·3/8	24	77.8	60.3	42	24	8.5
IS10E-30-D	1/4·3/8·1/2	27	85.8	64.3	53	30	
IS10E-40-D	1/4·3/8·1/2·3/4	30	93.8	68.3	71	36	
IS10E-50-D	3/4	31	96.8	69.8	71	36	9.5
	1					46	
IS10E-60-D	3/4·1	39	106.8	74.8	90	46	
	1 1/4·1 1/2	42				63	

#### Revision history

A	50,60 size added,Corrected.	May. 2021.
B	50,60 size added, Corrected to the cover.	Oct. 2021.

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Note: Specifications are subject to change without prior notice and any obligation on the part of the manufacturer.  
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