



ORIGINAL INSTRUCTIONS

Instruction Manual
5 Port Solenoid Valve
Series JSY1000/3000/5000



The intended use of this valve is to control the movement of an actuator.

1 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^{*)}, and other safety regulations.

- ^{*)} 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 10218-1: Robots and robotic devices - Safety requirements for industrial robots - Part 1: Robots.

- Refer to product catalogue, Operation Manual and Handling Precautions for SMC Products for additional information.
- Keep this manual in a safe place for future reference.

| | |
|----------------|--|
| 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

- Always ensure compliance with relevant safety laws and standards.
- All work must be carried out in a safe manner by a qualified person in compliance with applicable national regulations.

Caution

- The product is provided for use in manufacturing industries only. This product must not be used in residential areas.

2 Specifications

2.1 Valve specifications

| Valve Type | Rubber seal | |
|---|--------------------------|--|
| Fluid | Air | |
| Internal pilot operating pressure range [MPa] <small>Note 1)</small> | 2-position single | 0.15 to 0.7 (0.6) ^{Note 1)} |
| | 2-position double | 0.1 to 0.7 (0.6) ^{Note 1)} |
| | 3-position | 0.2 to 0.7 (0.6) ^{Note 1)} |
| | 4-position dual 3-port | 0.15 to 0.7 |
| | 4-position 5-port | 0.2 to 0.6 ^{Note 2)} |
| External pilot operating pressure range [MPa] <small>Note 3)</small> (Made to order) | Operating pressure range | -100kPa to 0.7 (0.1 to 0.6) ^{Note 4)} |
| | Pilot pressure range | 0.25 to 0.7 |

2 Specifications - continued

| | | | |
|--|--|--------------------------|---|
| Ambient and fluid temperature [°C] | JSY1000/3000/5000 | -10 to 50 (No freezing) | |
| | JSY1000 with ejector | -5 to 50 (No freezing) | |
| Flow rate | Refer to catalogue | | |
| Response time | Refer to catalogue | | |
| Duty cycle | Continuous (JSY1000: 0.2W & JSY3000/5000: 0.1W power saving type). For other types contact SMC | | |
| Minimum operating frequency | 1 cycle / 30 days | | |
| Maximum operating frequency [Hz] | JSY1000 | 2-position 3-port | 5 |
| | | 4-position 5-port | 3 |
| | JSY1000 JSY3000 | 2-position single/double | 5 |
| | | 4-position dual 3-port | |
| | | 3-position | |
| | JSY5000 | 2-position single/double | 5 |
| 4-position dual 3-port | | | |
| | 3-position | 3 | |
| Manual override | Non-locking push type Push turn-locking slotted type Push turn-locking lever type ^{Note 5)} | | |
| Lubrication | Not required | | |
| Impact/Vibration resistance [m/s ²] ^{Note 6)} | 150/30 | | |

| | | |
|-------------------------------|--------------------------------|--|
| Enclosure (based on IEC60529) | Plug-in type | JSY1000: IP40 JSY3000/5000: IP67 |
| | Non-plug-in type | IP40 (Plug connector) IP65 (DIN connector, M8 connector, M12 connector) |
| Mounting orientation | Unrestricted | |
| Weight | Refer to catalogue | |
| Pilot exhaust type | Internal pilot | Individual exhaust |
| | External pilot (Made to order) | |

Table 1.

Note 1) The values in the parentheses indicate the maximum operating pressures when the space type ejector is mounted.

Note 2) The 4-position 5-port valve is dedicated for mounting on the spacer type ejector.

Note 3) External pilot specification is not applicable for 4-position dual 3-port and 2-position 3-port valves. See section 3.24 Reverse flow.

Note 4) The value in the parentheses indicate the operating pressure range when the spacer type ejector is mounted.

Note 5) Not available for the JSY1000 series plug-in type.

Note 6) Impact resistance: No malfunction occurred when it was tested with a drop tester in the axial direction and at right angles to the main valve and armature; in both energized and de-energized states and for every time in each condition. (Values quoted are for a new valve).

Vibration resistance: No malfunction occurred in a one-sweep test between 45 and 2000 Hz. Tests are performed at both energized and de-energized states in the axial direction and at right angles to the main valve and armature. (Values quoted are for a new valve).

2 Specifications - continued

2.2 Solenoid specifications

| | | |
|-------------------------------------|--|--|
| Coil rated voltage | DC [VDC] | 24 |
| Electrical entry (Non-plug-in type) | | L plug connector (L), M plug connector (M), DIN terminal (D) (Y), M8 connector (W) (WA), M12 connector (K) |
| | Allowable voltage fluctuation <small>Note 1)</small> [V] | JSY1000: Non-plug-in type JSY3000/5000: Plug-in type |
| Power consumption [W] | Standard | JSY3000/5000: 0.4 [DIN terminal: 0.35 (without light), 0.45 (with light)] JSY1000: 0.2 ^{Note 2)} [Inrush: 0.5, Holding: 0.2] JSY3000/5000 (Made to order): 0.1 ^{Note 3)} [Inrush: 0.4, Holding: 0.1] |
| | With power saving circuit <small>Note 4)</small> | |
| Surge voltage suppressor | JSY1000/3000/5000 | Diode (Varistor for DIN terminal type) |
| Indicator light | | LED |

Table 2.

Note 1) Valve state is not defined if electrical input is outside of specified operating ranges.

Note 2) JSY1000 series available as power saving type only. Standard type (without power saving circuit) cannot be selected.

Note 3) The type with a power-saving circuit is not available for the DIN terminal, M8 connector, and M12 connector types.

Note 4) Refer to section 3.12 for details.

2.3 Manifold specifications

2.3.1 Non-plug-in metal base

| | | |
|-------------------------------|------------------|--------|
| Model | Piping direction | |
| | Side | Bottom |
| Enclosure (Based on IEC60529) | IP40 | |

Table 3.

2.3.2 Plug-in connector connection base

| | | | | | | | |
|-------------------------------|---------|--------|---------|-------------------|----------------|--------------------|-----------|
| Model | D-Sub | | | Flat ribbon cable | | Terminal black box | Lead wire |
| | FC type | F type | FW type | PC, PGC, PHC type | P, PG, PH type | T, TC type | L type |
| Enclosure (Based on IEC60529) | JSY1000 | IP20 | IP40 | - | IP20 | IP40 | IP67 |
| | JSY3000 | - | | - | IP40 | | |
| JSY5000 | - | - | - | - | - | - | - |

Table 4.

| | | | | |
|-------------------------------|----------------------------|---|------------------|------|
| Model | Serial wiring | | | |
| | S6# type (EX600) | S# type (EX250/EX260) | S3# type (EX120) | |
| Enclosure (Based on IEC60529) | JSY1000 | IP40 | IP67 | IP20 |
| | JSY3000 | IP67 | IP67 | |
| JSY5000 | (I/O unit: partially IP40) | (EX260 D-Sub communication connector: IP40) | | |

Table 5.

2.4 Pneumatic symbol

Refer to catalogue for pneumatic symbols.

2 Specifications - continued

2.5 Indicator light

2.5.1 Plug-in

When equipped with indicator light and surge voltage suppressor, the light window turns orange when solenoid 'A' is energized, and it turns green when solenoid 'B' is energized.

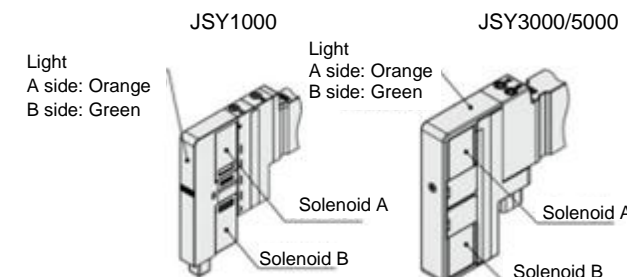


Figure 1. Light indication for Plug-in type

2.5.2 Non-plug-in

The non-plug-in type has an indicator light and surge voltage suppressor. The light turns orange when the solenoid is energized.

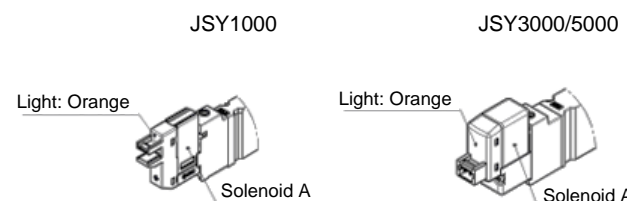


Figure 2. Light indication for non-plug-in type

2.6 Special products

Warning

Special products (-X) might have specifications different from those shown in this section. Contact SMC for specific drawings.

3 Installation

3.1 Installation

Warning

- Do not install the product unless the safety instructions have been read and understood.
- When using double solenoid type for the first time, actuators may travel in an unexpected direction depending on the switching position of the valve. Implement countermeasures to avoid any danger that may occur due to the actuator's operation.

3.2 Environment

Warning

- Do not use in an environment where corrosive gases, chemicals, salt water or steam are present.
- Do not use in an explosive atmosphere.
- Do not expose to direct sunlight. Use a suitable protective cover.
- Do not install in a location subject to vibration or impact in excess of the product's specifications.
- Do not mount in a location exposed to radiant heat that would result in temperatures in excess of the product's specifications.
- Products compliant with IP67 enclosures are protected against dust and water, however, these products cannot be used in water.
- Products compliant with IP67 enclosures satisfy the specifications by mounting each product properly. Be sure to read the Specific Product Precautions for each product.
- When using built-in silencer type manifold with an IP67 enclosure, keep the exhaust port of the silencer from coming in direct contact with water or other liquids.
- If using in an atmosphere where there is possible contact with water drop-lets, oil, weld spatter, etc., take suitable preventive measures.
- When the solenoid valve is mounted in a control panel or it is energized for a long time, make sure that the ambient temperature is within the specification of the valve.
- Do not use in high humidity environment where condensation can occur.
- Contact SMC for altitude limitations.

3 Installation - continued

3.3 Piping

Caution

- Before connecting piping make sure to clean up chips, cutting oil, dust etc.
- When installing piping or fittings, ensure sealant material does not enter inside the port. When using seal tape, leave 1 thread exposed on the end of the pipe/fitting.
- Tighten fittings to the specified tightening torque.

| Thread (R, NPT) | Tightening torque [N·m] |
|-----------------|-------------------------|
| M3 | 0.4 to 0.5 |
| M5 | 1 to 1.5 |
| 1/16 | 2 to 3 |
| 1/8 | 3 to 5 |
| 1/4 | 8 to 12 |

Table 6.

- For internal pilot valves, even though the inlet pressure is within the operating pressure range, when the pipe diameter is restricted due to size reduction of supply port (P), the flow will be insufficient. In this case, the valve does not switch completely, and the cylinder may malfunction.

3.4 Lubrication

Caution

- SMC products have been lubricated for life at manufacture, and do not require lubrication in service.
- If a lubricant is used in the system, refer to catalogue for details.

3.5 One-touch fittings

Caution

When fittings are used, they may interfere with one another depending on their types and sizes. Therefore, the dimensions of the fittings to be used should first be confirmed in their respective catalogues.

3.5.1 Tube attachment and detachment

Caution

Refer to the Specific Precautions in the catalogue.

3.6 Precautions on other tube brands

Caution

When using non-SMC brand tubes, refer to the Specific Precautions in the catalogue.

3.7 Air supply

Warning

- Use clean air. If the compressed air supply includes chemicals, synthetic materials (including organic solvents), salinity, corrosive gas etc., it can lead to damage or malfunction.

Caution

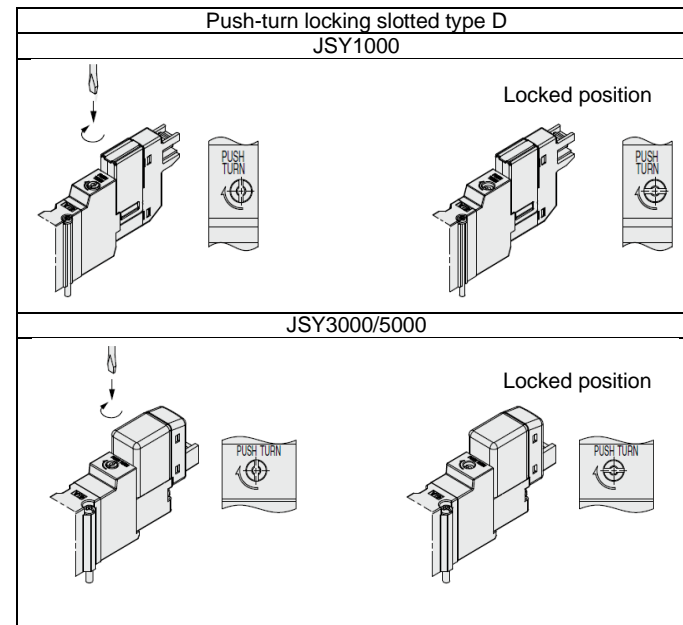
- Install an air filter upstream of the valve. Select an air filter with a filtration size of 5µm or smaller.

3.8 Manual override

Warning

- Manual override is used to switch the main valve without inputting an electrical signal for the valve. When manual operation is performed, the connected actuator will start operating, so be sure to confirm that it is safe to operate beforehand.
- Locked manual overrides might prevent the valve responding to being electrically de-energised or cause unexpected movement in the equipment.
- Refer to the catalogue for additional details of manual override operation.

3 Installation - continued



3 Installation - continued

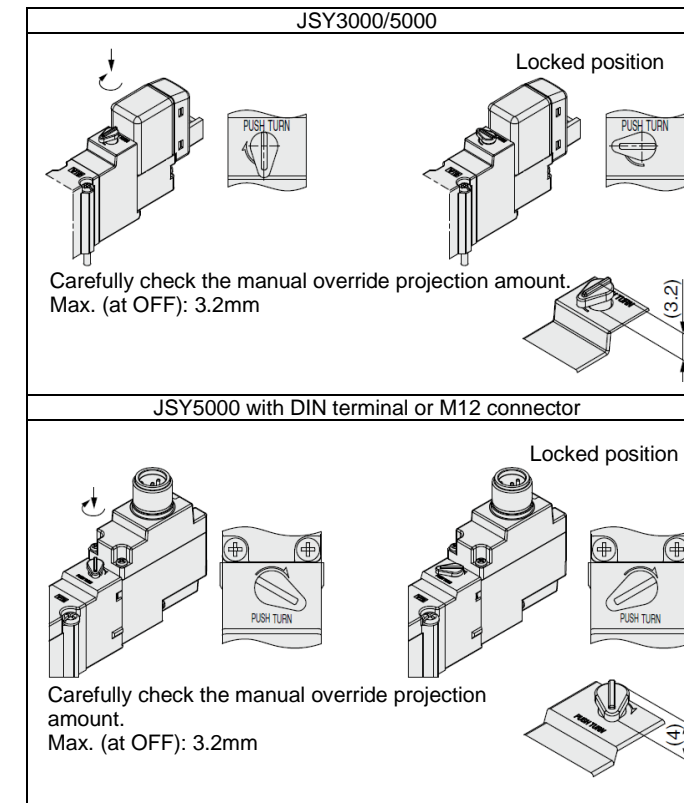
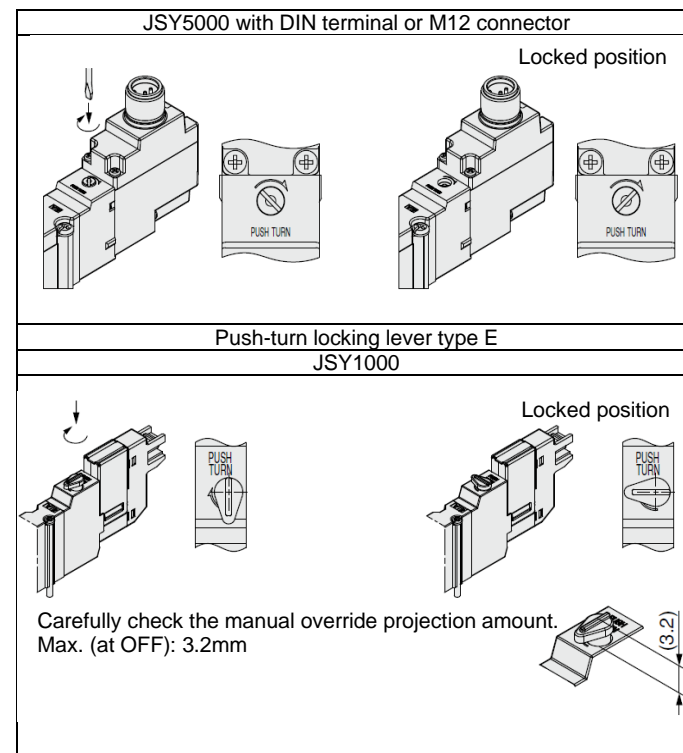


Table 7. Manual override control



3.9 Valve mounting

Caution

- Ensure gaskets are in good condition, not deformed and are dust and debris free.
- When mounting valves ensure gaskets are present, aligned and securely in place and tighten screws to a torque as per table below.

| Model | Mounting screw size | Tightening torque [N·m] |
|---------|---------------------|-------------------------|
| JSY1000 | M1.4 | 0.06 |
| JSY3000 | M2 | 0.16 |
| JSY5000 | M3 | 0.8 |

Table 8.

3 Installation - continued

3.9.1 Plug-in type

3.9.1.1 Polar type

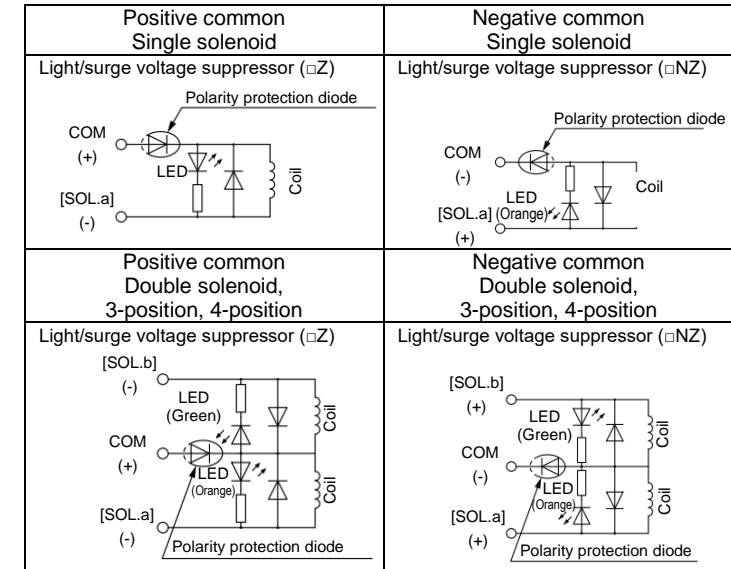


Figure 3.

3.9.1.2 Non polar type

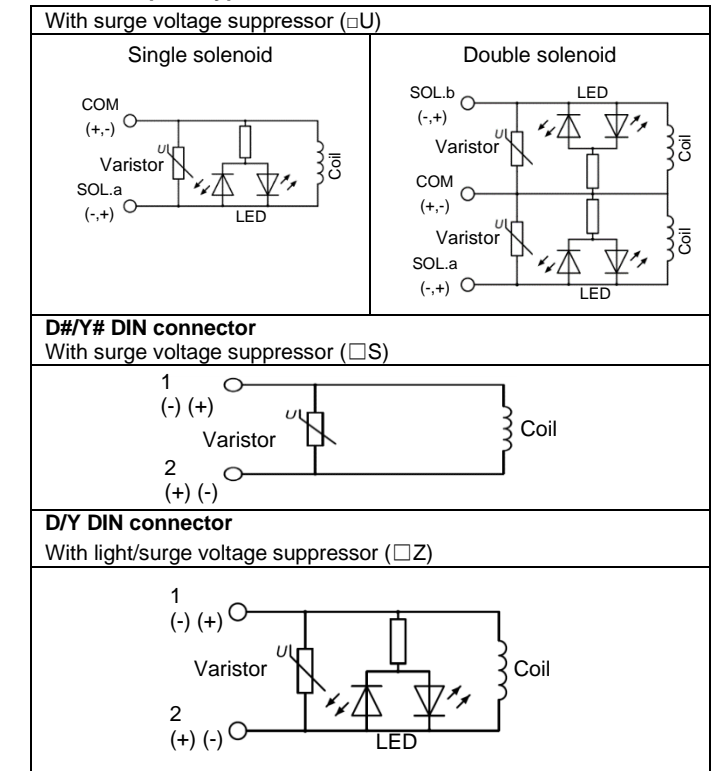


Figure 4.

3 Installation - continued

3.9.2 Non-plug-in type

3.9.2.1 Polar type (for JSY3000/5000)

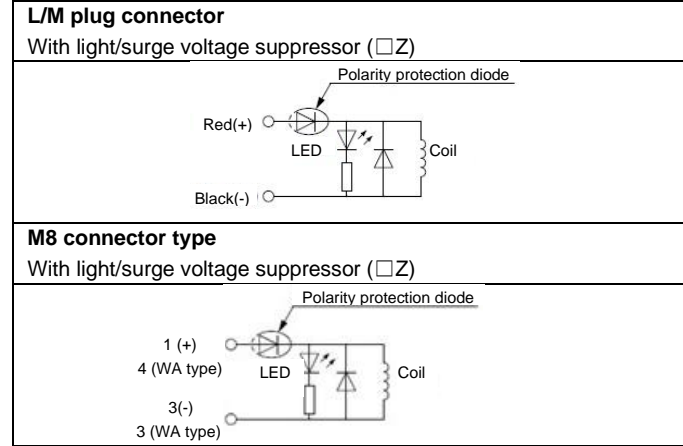


Figure 5.

3.9.2.2 Polar type (for JSY5000)

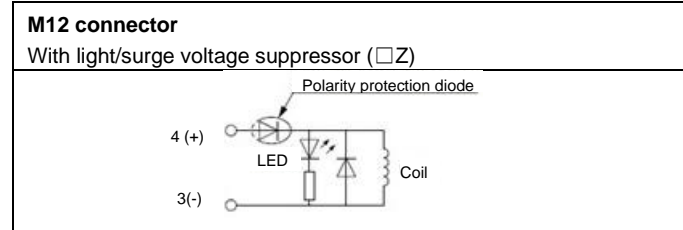


Figure 6.

3.10 Solenoid valve side pin wiring diagram

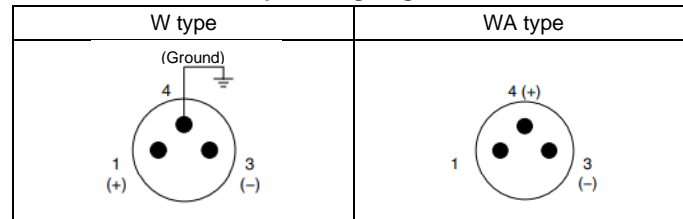


Figure 7.

- For the standard type, connect (+) to 1 and (-) to 3 for Type W according to polarity, while (+) to 4 and (-) to 3 for Type WA.
- The WA-type valve cannot be grounded.

3.11 Solenoid valve side pin arrangement diagram

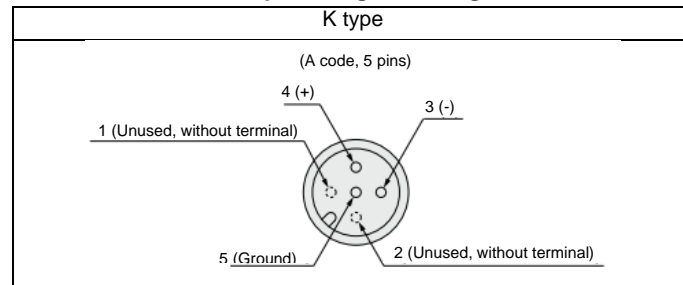


Figure 8.

3 Installation - continued

3.12 With power saving circuit (L/M plug connector type only)

- Power consumption is decreased by approximately 1/2.5 to 1/4 of the amount required at start up by reducing the wattage required to hold the valve in an energized state.

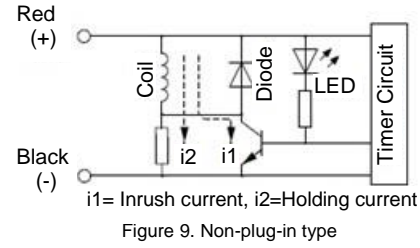


Figure 9. Non-plug-in type

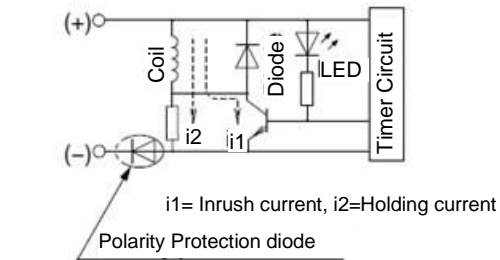


Figure 10. Plug-in type

- Effective energizing time is over 67ms at 24 VDC for plug-in type and 62ms at 24VDC for non-plug-in type.
- The above circuit reduces the power consumption for holding in order to save energy. Refer to the catalogue for details.
- Since the voltage will drop by approx. 0.5 V due to the transistor, pay attention to the allowable voltage fluctuation. (For details, refer to the solenoid specifications of each type of valve.)

3.13 How to use plug connector (non-plug-in type only)

Caution

3.13.1 Attaching and detaching connectors

Refer to catalogue for additional details.

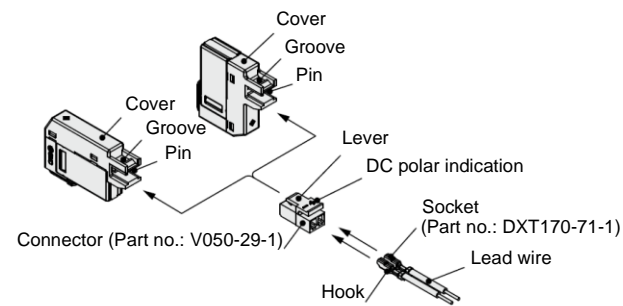


Figure 11. For JSY1000

Note) In order not to damage the connector and cover, do not pull the lead wire excessively (with a force of 10N or more).

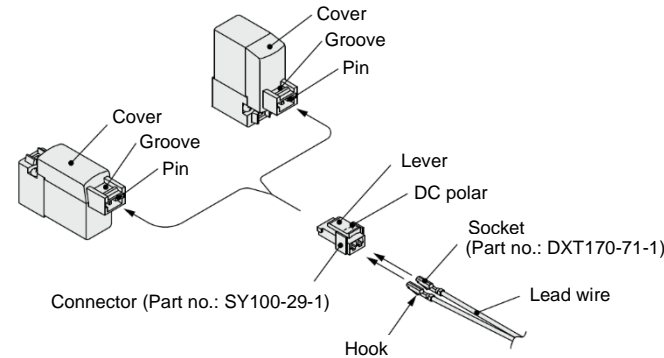


Figure 12. For JSY3000/5000

Note) In order not to damage the connector and cover, do not pull the lead wire excessively (with a force of 30N or more).

3 Installation - continued

3.13.2 Crimping connection of a lead wire and socket

Refer to catalogue for additional details

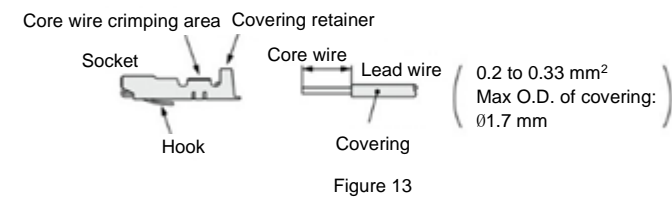


Figure 13

3.13.3 Attaching and detaching lead wires with sockets

Refer to catalogue for additional details.

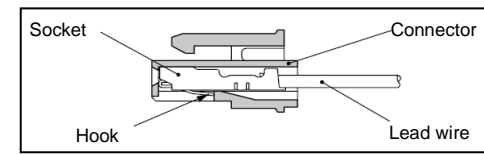


Figure 14

3.14 Changing connector entry direction (plug-in type only)

Caution

Refer to the Specific Product Precautions in the catalogue.

3.15 How to use DIN terminal

- Cord O.D.: $\phi 3.5$ to $\phi 7$ (Reference) 0.5mm², 2-core or 3-core, equivalent to JIS C 3306.
- Refer to catalogue for additional details.

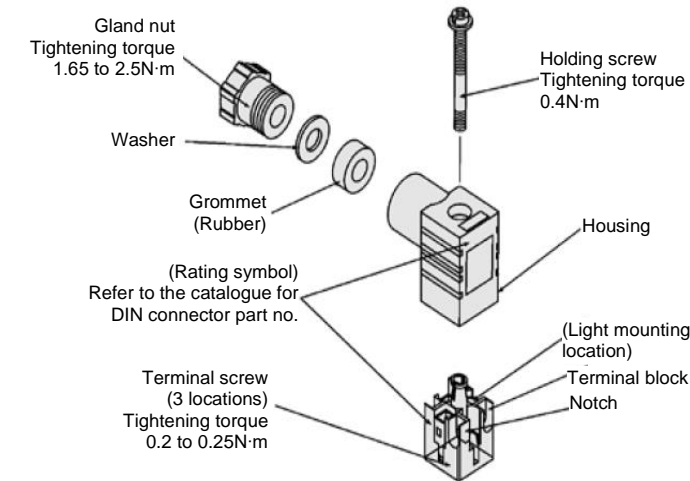


Figure 15.

Type "Y"

DIN connector type Y is a DIN connector that conforming to EN-175301-803C (former DIN43650C) DIN pitch 8-mm standard.

- D type DIN connector with 9.4 mm pitch between terminals is not interchangeable.
- To distinguish from the D type DIN connector, "N" is listed at the end of voltage symbol.
- Dimensions are completely the same as D type DIN connector.
- When replacing only the pilot valve assembly, it is interchangeable with the V115 but be aware that a V111 cannot be replaced by a V115 (and vice versa).

3 Installation - continued

3.15.1 Circuit diagram with light

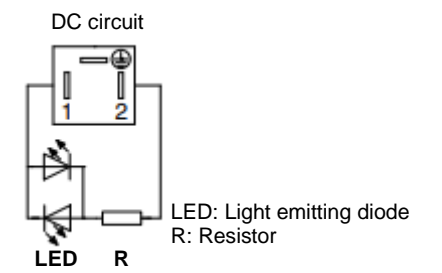


Figure 16. Circuit diagram with light

3.16 M8 connector

Caution

- M8 connector types have an IP65 (enclosure) rating, offering protection from dust and water. However please note: these products are not intended for use in water.
- Select a SMC connector cable (V100-49-1- · ·) or a FA sensor type connector, with M8 threaded 3 pin specifications conforming to Nippon Electric Control Equipment Association Standard, NECA4202 (IEC60947-5-2). Make sure the connector O.D. is 10.5 mm or less when used with the SY3000 series manifold. If more than 10.5 mm, it cannot be mounted due to the size.
- Do not use a tool to mount the connector, as this may cause damage. Only tighten by hand (0.4 to 0.6N·m).
- The excessive stress on the cable connector will not be able to satisfy the IP65 rating. Please use caution and do not apply a stress of 30 N or greater.

Caution

- Failure to meet IP65 performance, may occur if using alternative connectors than those shown above, or when insufficiently tightened.

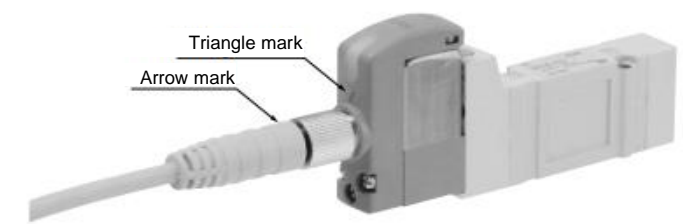


Figure 17

Note) Connector cable should be mounted in the correct direction. Make sure that the arrow symbol on the connector is facing the triangle symbol on the valve when using SMC connector cable (V100-49-1- · ·). Be careful not to squeeze it in the wrong direction, as problems such as pin damage may occur.

3.17 Electrical connectors

Warning

The ground terminal is connected to the coil assembly only and does not provide a protective earth for the body of the valve.

3.18 Residual voltage

Caution

- If a Zener diode or varistor voltage suppressor is used, the suppressor arrests the back EMF voltage from the coil to the level indicated in Table 9.
- Ensure the transient voltage is within the specification of the host controller.
- Valve response time is dependent on surge suppression method selected.

| Surge voltage suppressor | DC24 V |
|--------------------------|--------------|
| Z | Approx. 1 V |
| U | Approx. 47 V |

Table 9.

3 Installation - continued

3.19 Countermeasure for surge voltage

⚠ Caution

- At times of sudden interruption of the power supply, the energy stored in a large inductive device may cause non-polar type valves in a de-energised state to switch.
- When installing a breaker circuit to isolate the power, consider a valve with polarity (with polarity protection diode), or install a surge absorption diode across the output of the breaker.

3.20 Continuous duty

⚠ Warning

- If a valve is energized continuously for a long period of time, the rise in temperature due to heating-up of the coil assembly may cause a decline in solenoid valve performance, reduce service life, or have adverse effects on peripheral equipment.
- If the valve is energized continuously for a long period of time, be sure to use a valve with power saving circuit. In particular, if three or more adjacent stations on the manifold are energized simultaneously for extended periods of time or if the valves on A side and B side are energized simultaneously for a long period of time, take special care as the temperature rise will be greater.
- Additionally, select the product with power saving circuit when it is used at a duty ratio over 50%.

3.21 Effect of back pressure when using a manifold

⚠ Warning

- Use caution when valves are used on a manifold, because an actuator may malfunction due to back-pressure.
- Special caution must be taken when using 3 position exhaust centre valve or when driving a single acting cylinder. To prevent a malfunction, implement counter measures such as using a single EXH spacer assembly or an individual exhaust manifold.

3.22 Energization of a 2-position double solenoid valve

⚠ Caution

To avoid operation failure, do not energize the 4(A) side and 2(B) side of a 2-position double solenoid valve at the same time.

3.23 Use as a 3-port valve

⚠ Caution

- The JSY1000/3000/5000 can be used as normally closed (N.C.) or normally open (N.O.) 3-port valves by closing one of the cylinder ports 4(A) or 2(B) with a plug. However, they should be used with the exhaust ports kept open.
- Refer to the catalogue for additional details.

3.24 Reverse flow

⚠ Caution

Only the external pilot variants are suitable for reverse flow with pressure supplied on ports 3 and 5 provided the pressure is less than 0.7 MPa.

3.25 External pilot exhausts

⚠ Caution

The external pilot variants use the manifold PE connection for pilot exhaust. Ensure that this connection is always vented to atmosphere and not subject to any pressure pulses from other devices.

4 How to Order

Refer to catalogue for 'How to Order'.

5 Outline Dimensions

Refer to catalogue for outline dimensions.

6 Maintenance

6.1 General maintenance

⚠ Caution

- Not following proper maintenance procedures could cause the product to malfunction and lead to equipment damage.
- If handled improperly, compressed air can be dangerous.
- Maintenance of pneumatic systems should be performed only by qualified personnel.

6 Maintenance - continued

- Before performing maintenance, turn off the power supply and be sure to cut off the supply pressure. Confirm that the air is released to atmosphere.
- After installation and maintenance, apply operating pressure and power to the equipment and perform appropriate functional and leakage tests to make sure the equipment is installed correctly.
- If any electrical connections are disturbed during maintenance, ensure they are reconnected correctly and safety checks are carried out as required to ensure continued compliance with applicable national regulations.
- Do not make any modification to the product.
- Do not disassemble the product, unless required by installation or maintenance instructions.
- When the 3-position closed centre type is in its rest position, air can be trapped between the valve and the cylinder. Exhaust this air pressure before removing piping or performing any maintenance.
- When the equipment is operated after remounting or replacement, first confirm that measures are in place to prevent lurching of actuators, etc. Then, confirm that the equipment is operating normally.
- Operate the valve at least once every 30 days.

6.2 Mounting

⚠ Caution

- Ensure gaskets are in good condition, not deformed and are dust and debris free.
- When mounting valves ensure gaskets are present, aligned and securely in place. The recommended tightening torque for the screws is shown below.

| Model | Thread size | Tightening torque [N·m] |
|-------------------|-------------|-------------------------|
| JSY1000 | M2.5 | 0.32 |
| JSY1000/3000/5000 | M3 | 0.8 |
| JSY1000/3000/5000 | M4 | 1.4 |
| JSY5000 | M5 | 2.9 |

Table 10.

Note) The tightening torque for screws of the cover and the drip proof plug of the terminal block box are given in Table 11.

| Type | Thread size | Tightening torque [N·m] |
|------------------------------|-------------|-------------------------|
| "TC" Connection | M3 | 0.54 to 0.66 |
| "T" connection | M4 | 0.7 to 1.2 |
| Dip proof plug (SY30M-133-1) | - | 0.8 |

Table 11.

6.3 Replacement parts

- Refer to catalogue for connectors, cables and pilot valves.
- When replacing pilot valve assembly, be aware that the V111 and the V115 are not interchangeable.

| Model | Thread size | Tightening torque [N·m] |
|---------------------|-------------|-------------------------|
| V111 (JSY3000/5000) | M2 | 0.12 |
| V115 (JSY5000) | M2 | 0.16 |

Table 12.

- Tightening torques for JSY3000/5000 plug-in type pilot valve:

| V112 (JSY3000/5000) | Thread size | Tightening torque [N·m] |
|---------------------|-------------|-------------------------|
| Pilot cover | M1.7 | 0.12 |
| Mounting screws | M2 | 0.15 |

Table 13.

6.4 Increase manifold stations (plug-in type)

- Refer to catalogue for details on how to increase connector type manifold stations.

⚠ Caution

- Make sure that power and air supplies are shut off before disassembly. Furthermore, since air may remain inside the actuator, piping and manifold, confirm that the air is completely exhausted before performing any work.
- When disassembly and assembly is performed, if the tightening of the tension bolt is inadequate, it may result in air leakage. The tightening torque for tension bolts is 0.8N·m.

7 Limitations of Use

⚠ Warning

The system designer should determine the effect of the possible failure modes of the product on the system.

7.1 Limited warranty and disclaimer/compliance requirements

Refer to Handling Precautions for SMC Products.

⚠ Warning

7.2 Effect of energy loss on valve switching

| | Single solenoid | Double solenoid | 3-Position | 4-Position dual 3-port |
|---|--|--|---|--|
| Air supply present, electrical supply cut | Spool returns to the OFF position by air force | Spool stops moving after electricity cut (Position cannot be defined) | Spool returns to OFF position by spring force | Spools return to OFF position by air force |
| Electrical supply present, air supply cut | Spool stops moving after air pressure cut (Position cannot be defined) | Spool stops moving after air pressure cut (Position cannot be defined) | Spool returns to OFF position by spring force | Spool stops moving after air pressure cut (Position cannot be defined) |

Table 14.

| | 2-position 3-port | 4-position 5-port |
|---|---|--|
| Air supply present, electrical supply cut | Spool returns to the OFF position by spring force | Spool returns to A OFF position by spring force in case of A ON and returns to B OFF position in case of B ON. |
| Electrical supply present, air supply cut | Spool returns to the OFF position by spring force | Spool returns to A OFF position by spring force in case of A ON and returns to B OFF position in case of B ON. |

Table 15.

7.3 Intermediate stopping

Refer to Handling Precautions for 3/4/5 port Solenoid Valves.

7.4 Holding of pressure

Since valves are subject to air leakage, they cannot be used for applications such as holding pressure (including vacuum) in a system.

7.5 Cannot be used as an emergency shut-off valve

This product is not designed for safety applications such as an emergency shut-off valve. If the valves are used in this type of system, other reliable safety assurance measures should be adopted.

7.6 Safety relays or PLC

If a safe output from a safety relay or PLC is used to operate this valve, ensure that any output test pulse duration is shorter than 1ms to avoid the valve solenoid responding.

⚠ Caution

7.7 Leakage voltage

Ensure that any leakage voltage caused by the leakage current when the switching element is OFF causes $\leq 3\%$ of the rated voltage across the valve.

7.8 Low temperature operation

Unless otherwise indicated in the specifications for each valve, operation is possible to -10°C , but appropriate measures should be taken to avoid solidification or freezing of drainage and moisture, etc.

7.9 Momentary energization

If a double solenoid valve is operated with momentary energization, it should be energized for at least 0.1 second. However, depending on the secondary load conditions, it should be energized until the cylinder reaches the stroke end position, as there is a possibility of malfunction otherwise.

7 Limitations of Use - continued

7.10 Class and Group Description

- This product is group 1, class A equipment according to EN55011.
- Group 1 equipment does not intentionally generate radio-frequency energy in the range 9kHz to 400 GHz.
- Class A equipment is equipment suitable for use in all locations other than those allocated in residential environments and those directly connected to a low voltage power supply network which supplies buildings used for domestic purposes.
- This equipment is not intended for use in residential environments and may not provide adequate protection to radio reception in such environments.

7.11 Cable length to connect

The cable to connect the product shall be less than or equal to 30m.

7.12 Connecting the power supply

This product is not intended to be directly connected to any DC Distribution network.

8 Product Disposal

This product shall not be disposed of as municipal waste. Check your local regulations and guidelines to dispose this product correctly, in order to reduce the impact on human health and the environment.

9 Contacts

Refer to www.smcworld.com or www.smc.eu for your local distributor/importer.

SMC Corporation

URL : <https://www.smcworld.com> (Global) <https://www.smc.eu> (Europe)
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