

# Intelligent Component Series ACTIVAL™ Motorized Two-Way Valve with Flanged-End Connection (JIS 20K / SCPH2)

## General

Intelligent Component Series ACTIVAL™ Model FVY516EJ is a series of motorized two-way valves with flanged-end connection. Rotary valve and actuator are integrated in a single unit.

Valve size ranges from DN15 (1/2") to DN80 (3"), and valve body rating corresponds to JIS 20K.

Actuator has a reversible synchronous motor, which operates at a low voltage of 24 V AC.

Model VY516EJ communicates with a controller via SAnet (Our communication protocol).

JIS: Japanese Industrial Standards



## Features

- Compact and lightweight:  
Rotary motor actualizes small body and light weight.
- Valve and actuator integrated in a single unit:  
Pre-assembled body requires no adjustment.
- SAnet communication:  
Intelligent Component Series ACTIVAL communicates with a controller via SAnet, and thus position control signal/position feedback signal is input/output from/to the controller.
- Valve applicable to high differential pressure, with large Cv value, wide rangeability, and low leakage.
- Durable actuator with low power consumption.
- Equal percentage flow characteristic.
- Sub-DI and sub-DO for wire saving:  
Sub-DI (digital input) and sub-DO (digital output) provided take signals, including humidifying output and differential pressure switch of neighboring devices, leading to wire saving.
- CE Marking certified:  
ACTIVAL Model VY516EJ conforms to all the applicable standards of CE Marking.



**Safety Instructions**

Please read instructions carefully and use the product as specified in this manual. Be sure to keep this manual near by for ready reference.




**Restrictions**






This product is targeted for general air conditioning. Do not use this product in a situation where human life may be affected. If this product is used in a clean room or a place where reliability or control accuracy is particularly required, please contact our sales representative. Azbil Corporation will not bear any responsibility for the results produced by the operators.









**Warnings and Cautions**

















	<b>WARNING</b>	Alerts users that improper handling may cause death or serious injury.
	<b>CAUTION</b>	Alerts users that improper handling may cause minor injury or material loss.

**Signs**

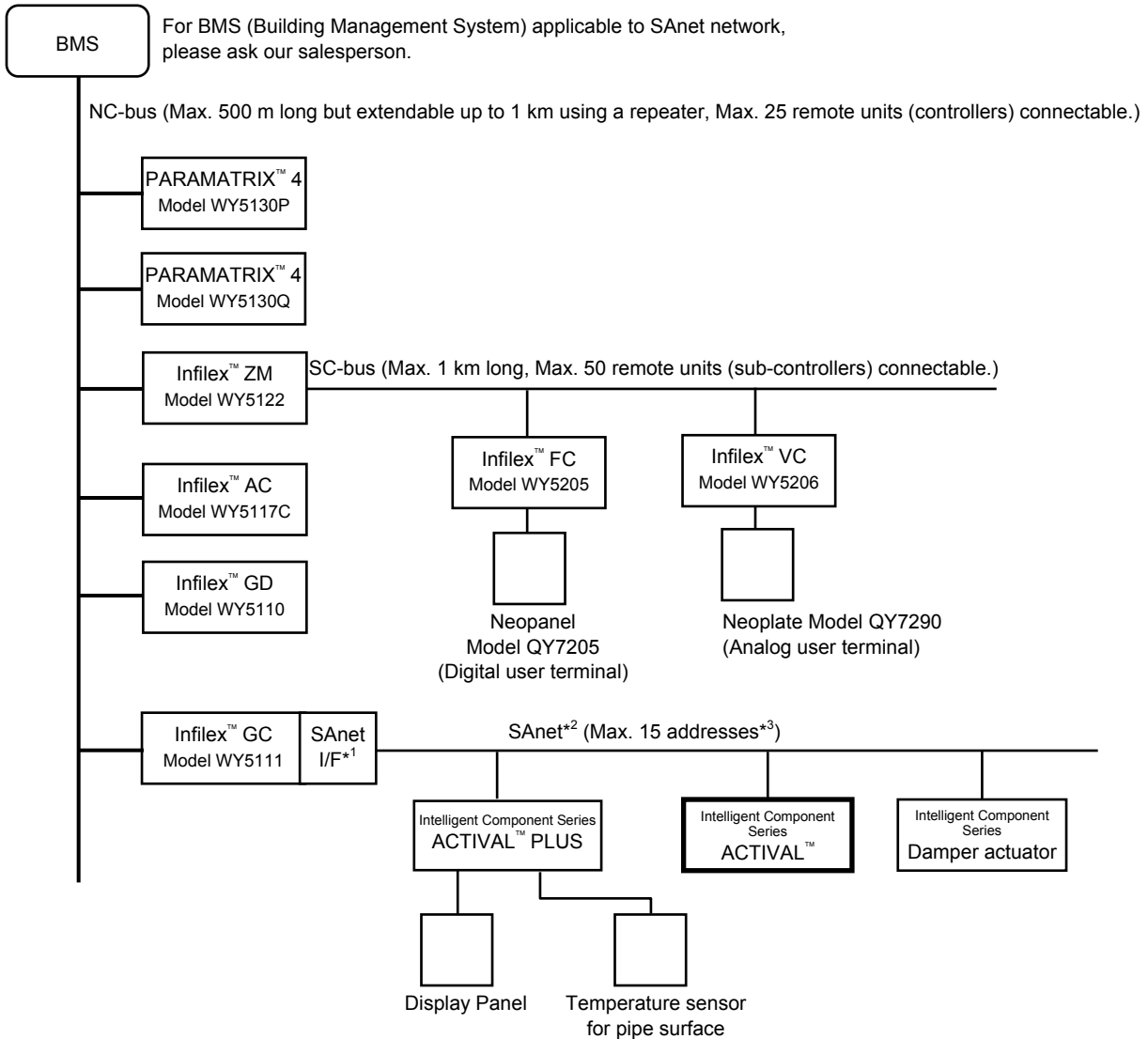
	Alerts users possible hazardous conditions caused by erroneous operation or erroneous use. The symbol inside $\triangle$ indicates the specific type of danger. (For example, the sign on the left warns of the risk of electric shock.)
	Notifies users that specific actions are prohibited to prevent possible danger. The symbol inside $\odot$ graphically indicates the prohibited action. (For example, the sign on the left notifies that disassembly is prohibited.)
	Instructs users to carry out a specific obligatory action to prevent possible danger. The symbol inside $\bullet$ graphically indicates the actual action to be carried out. (For example, the sign on the left indicates general instructions.)

 <b>WARNING</b>	
	Some of the product models weigh more than 18 kg. Carefully move the product with a vehicle or enough manpower in an appropriate manner. Careless lift or accidental drop of the product might cause injury or product damage.
	Be sure to ground the product with ground resistance of less than 100 $\Omega$ . Improper grounding might cause electric shock or malfunction.
	Detach the terminal cover only when wiring and setting the product and reattach the terminal cover after wiring and setting the product. Failure to do so might cause electric shock.
	Before wiring or maintenance, be sure to turn off the power to the product. Failure to do so might cause electric shock or device failure.

 <b>CAUTION</b> <span style="float: right;">(1/2)</span>	
	Install and use the product under the operating conditions requirement (temperature, humidity, power, vibration, shock, mounting direction, atmospheric condition, etc.) as listed in the specifications. Failure to do so might cause fire or device failure.
	Do not allow the fluid to freeze. Doing so might damage the valve body and cause fluid leakage.
	Use the product within its lifespan and avoid instrumentations that keep the product to operate excessively. Continued use beyond the lifespan might cause fire or device failure.
	Do not install the product nearby a steam coil or a hot-water coil. High temperature radiation might cause malfunction of its actuator.
	Install the product in the proper position as specified in this manual. Excessively tight connection to a pipe or improper installation position might damage the product.
	Install the product with flange gasket so that the flange gasket will not go inside the pipe.
	After installation, make sure no fluid leaks from the valve-pipe connections. Incorrect installation might cause fluid leakage.

 CAUTION		(2/2)
	Install the product so that no foreign objects remains inside the pipes. Be sure to provide a strainer (with 40 or more meshes) on the inflow side of the piping. Flush the piping to remove the foreign objects after installation. Foreign objects inside the piping might damage the product.	
	Keep the products in package for storage. Failure to do so might damage or stain the products.	
	Installation and wiring must be performed by qualified personnel in accordance with all applicable safety standards.	
	Do not allow any shock on the product. Doing so might damage the product.	
	Do not put load or weight on the actuator of the product. Doing so might damage the product.	
	All wiring must comply with applicable codes and ordinances.	
	Provide a circuit protector (e.g., a fuse, cut-off device) for the control panel to ensure your safety.	
	Use crimp terminals with insulation for connections to the product terminals. Failure to do so might cause short circuit leading to fire or device failure.	
	Firmly tighten the terminal screws. Insufficient tightening of the terminal screws might cause fire or overheating.	
	Provide a cutoff device such as a circuit breaker for the power to the product.	
	Do not use the product in an atmosphere corrosive to the actuator, valve, and their components. Doing so might damage the product.	
	Do not carelessly touch the product when being used to control hot water. The product temperature goes high, and you might get burned.	
	Do not touch the moving parts of the product. Doing so might cause injury.	
	Do not disassemble the product. Doing so might cause device failure.	
	Dispose of the product as industrial waste in accordance with your local regulations. Do not reuse all or part of this product.	

**System Configurations**



**Notes:**

- \*1 Up to two SAnet I/F (interface) module can be connected to one Infilex GC/Infilex GD.
- \*2 For detailed specifications of SAnet, refer to **Installation Manual of Intelligent Component Series for SAnet Communication (AB-6713)**.
- \*3 One ACTIVAL or damper actuator requires one SAnet address. One ACTIVAL PLUS requires two SAnet addresses.

Figure 1. System configuration example: SAnet connection in our BMS

## Model Numbers

Model VY516EJ00XX is the model for the valve and actuator integrated into a single unit.

The model number label is attached to the yoke.

Base model number	Actuator/valve		Actuator		Valve	—	Description
	Control signal	Rating/material	Type	—	Nominal size/Cv		
VY51							Motorized two-way valve with flanged-end connection
	6						SAnet
		E					JIS 20K / SCPH2
			J				IEC IP54 protected and standard torque type actuator with terminal block (Mountable valve sizes: DN15 to DN80)
				00			Fixed
					11		DN15 (1/2") / 1.0 in Cv value
					12		DN15 (1/2") / 2.5 in Cv value
					13		DN15 (1/2") / 6.0 in Cv value
					21		DN25 (1") / 10 in Cv value
					22		DN25 (1") / 16 in Cv value
					41		DN40 (1 1/2") / 25 in Cv value
					42		DN40 (1 1/2") / 40 in Cv value
					51		DN50 (2") / 65 in Cv value
					61		DN65 (2 1/2") / 95 in Cv value
					81		DN80 (3") / 125 in Cv value
						-B	Fixed

## Specifications

For weight, refer to the table shown in the section **Dimensions**.

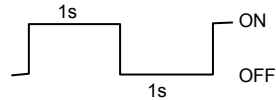

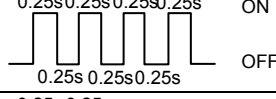
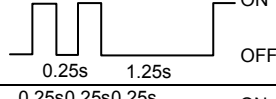
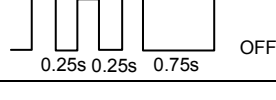
### Valve and actuator (as a single unit) specifications

Item		Specification	
Environmental conditions	Rated operating conditions	Ambient temperature	-20 °C to 50 °C (Applicable fluid temperature: 0 °C to 150 °C Do not allow the process fluid to freeze.)
		Ambient humidity	5 %RH to 95 %RH
		Vibration	4.9 m/s <sup>2</sup> (10 Hz to 150 Hz)
	Transport/storage conditions (in package)	Ambient temperature	-20 °C to 70 °C
		Ambient humidity	5 %RH to 95 %RH
		Vibration	19.6 m/s <sup>2</sup> (10 Hz to 150 Hz)
Installation locations		Indoor / outdoor (Optional outdoor cover must be used, and salt air and corrosive gas must be avoided.)	
Installation orientation		Installable in any position ranging from upright to sideways (90° tilted.) * Always install in upright position outdoors.	
Manual operation		Available. Refer to the section <b>Manually opening/closing the ACTIVAL</b> .	
Position for shipment		100 % (fully open) preset at factory.	

### Valve specifications

Item		Specification			
Model		Two-way valve with flanged-end connection			
Body pressure rating		JIS 20K (Max. working pressure: 2.0 MPa)			
End connection		JIS 20K flanged-end, raised flange			
Size, Cv, Close-off rating		Model number	Nominal size	Cv	Close-off ratings
		VY516EJ0011	DN15 (1/2")	1.0	1.0 MPa
		VY516EJ0012	DN15 (1/2")	2.5	1.0 MPa
		VY516EJ0013	DN15 (1/2")	6.0	1.0 MPa
		VY516EJ0021	DN25 (1")	10	1.0 MPa
		VY516EJ0022	DN25 (1")	16	1.0 MPa
		VY516EJ0041	DN40 (1 1/2")	25	1.0 MPa
		VY516EJ0042	DN40 (1 1/2")	40	1.0 MPa
		VY516EJ0051	DN50 (2")	65	1.0 MPa
		VY516EJ0061	DN65 (2 1/2")	95	1.0 MPa
VY516EJ0081	DN80 (3")	125	0.7 MPa		
Applicable fluid		Chilled/hot water, high temperature water, brine (ethylene glycol solutions, 50 % max.)			
Allowable fluid temperature		0 °C to 150 °C			
Flow characteristic		Equal percentage			
Rangeability		100 : 1			
Seat leakage		0.01 % of rated Cv value (0.0006 Cv or less for DN15 model)			
Materials	Body	Cast carbon steel (equivalent to JIS SCPH2)			
	Plug, stem	Stainless steel			
	Seat ring, gland packing	Heat-resistant PTFE			
	Gasket	Expandable graphite sheet			
Paint		Gray (equivalent to M5B 4/1)			
Actuator to be combined		Integrated with the valve			

## Actuator specifications

Item		Specification
Power supply		24 V AC $\pm$ 15 %, 50 Hz/60 Hz
Applicable valve type		DN15 to DN80, standard torque
Power consumption		10 VA
Timing		63 $\pm$ 5 sec (50 Hz) / 53 $\pm$ 5 sec (60 Hz)
Control signal		SAnet
Sub-DI (contact input)	Input type	Potential free (dry) contact input
	Voltage, current	20 V DC, 5 mA (* Unlike Models VY516XK, VY516XH, this product does not have forced shutoff DI.)
Sub-DO (contact output)	Output type	Potential free (dry) contact output
	Contact rating	200 V AC/24 V DC, Max. 0.5 A (2 A at startup)
	Min. applicable load	24 V DC, 5 mA
LED indication		Description
Initializing		Continuous ON $\rightarrow$ LED indication corresponding to the operating status (after initializing is complete.)
Normal		Repetition of 1-second ON $\rightarrow$ 1-second OFF. 
Major alarm		Continuous ON.
Minor alarm		Repetition of 1-second ON $\rightarrow$ 0.25-second OFF $\rightarrow$ 0.25-second ON $\rightarrow$ 0.25-second OFF. 
Communication error (and minor alarm)		Repetition of 0.25-second ON $\rightarrow$ 0.25-second OFF. 
Manual operation		Repetition of 0.25-second ON $\rightarrow$ 0.25-second OFF $\rightarrow$ 0.25-second ON $\rightarrow$ 1.25-second OFF. 
Error during manual operation		Repetition of 0.25-second ON $\rightarrow$ 0.25-second OFF $\rightarrow$ 0.25-second ON $\rightarrow$ 0.25-second OFF $\rightarrow$ 0.25-second ON $\rightarrow$ 0.75-second OFF. 
Communication (SAnet)	Transmission system	Voltage transmission
	Transmission speed	1200 bps
	Transmission distance	Transmission distance varies depending on the number of devices and the type of devices to be connected to. For details regarding the transmission distance, refer to <b>Installation Manual of Intelligent Component Series for SAnet Communication (AB-6713)</b> .
Materials	Case	Die cast aluminum
	Top cover, terminal cover	Polycarbonate resin (Color: gray)
	Yoke	Steel plate
Surface finishing	Case	None
	Yoke	Electro-galvanized (Bright chromate finish)
Valve position indication		Pointer located at the bottom of the actuator shows the position by pointing at the value of the scale (0: close to 100: open) on front, rear, and bottom sides.
Terminals connection		M3.5 screw terminals
Enclosure rating		IEC IP54 (dust-proof and splash-proof)
Insulation resistance		Between terminal and case: 5 M $\Omega$ or higher at 500 V DC
Dielectric strength		Between terminal and case: 500 V AC/min with 5 mA or less leakage current

## Function

Function	Specification
Data monitoring	Following items can be monitored/operated from our BMS and Inflex GC/ Inflex GD. Valve position setting, actual valve position, sub-DO, sub-DI

Note:

Above function is available in combination with Inflex GC/Inflex GD and our BMS.

## Wire Specifications

For details regarding specifications of SAnet communication line (24 V (~), GND (⊥), SAnet), refer to the **Installation Manual of SAnet for Intelligent Component Series (AB-6713)**.

Item	Specification	Length
Contact input (sub-DI)	JIS CVV, JIS VCT, JIS IV, KPEV for low power 0.75 mm <sup>2</sup> , 0.9 mm <sup>2</sup> , 1.25 mm <sup>2</sup> , 2.0 mm <sup>2</sup>	30 m
Contact output (sub-DO)	JIS CVV, JIS VCT, JIS IV, KPEV for low power 0.75 mm <sup>2</sup> , 0.9 mm <sup>2</sup> , 1.25 mm <sup>2</sup> , 2.0 mm <sup>2</sup>	30 m

KPEV: Wire standard provided by Furukawa Electric Co., Ltd.

## Options

Separately order the following optional parts if needed.

Item	Specification	Note
Seal connector	Part No. 83104346-003	Seal connector is necessary for IEC IP54 protection.
	Part No. 83104346-004	
	Part No. 83104346-005	
Seal connector for cable gland with three ports	Part No. 83104346-012	Seal connector for the cable gland with three ports is necessary for IEC IP54 protection.
	Part No. 83104346-013	
	Part No. 83104346-014	
Cable gland with three ports Part No. DY7000A1000	Do not use the cable gland with three ports outdoors.	For the specifications of the cable gland with three ports, refer to the <b>Specifications (AS-923E)</b> . For the installation of the cable gland with three ports, refer to the <b>Installation Manual of Intelligent Component Series for SAnet Communication (AB-6713)</b> .
Outdoor cover Part No. DY3001A1017	Required when the product is installed outdoors.	

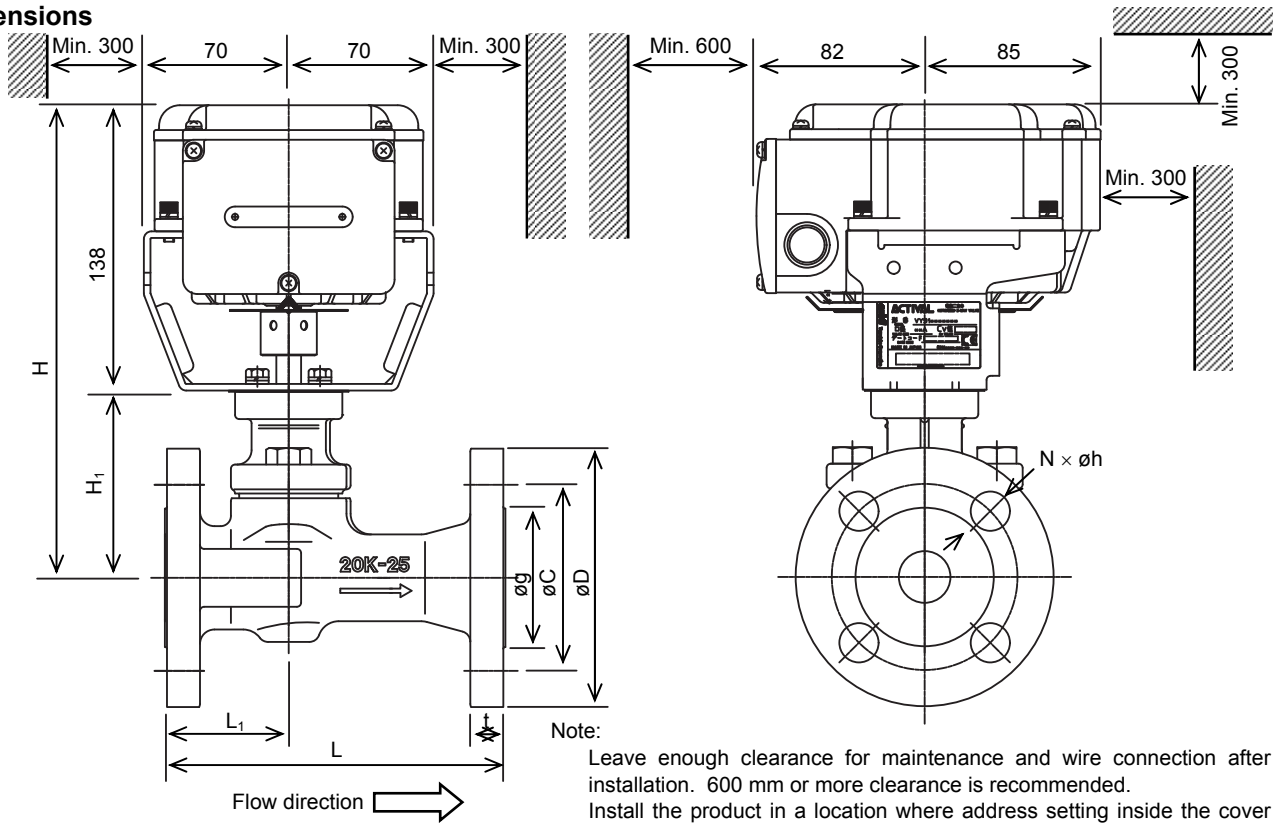
## CE Marking Conformity

This product complies with the following Electromagnetic Compatibility (EMC).

EMC : EN61000-6-2, EN55011 Class A



**Dimensions**



Model number	Valve size (DN)	H (mm)	H <sub>1</sub> (mm)	L (mm)	L <sub>1</sub> (mm)	t (mm)	øC (mm)	øD (mm)	øg (mm)	øh (mm)	N	Weight (kg)
VY516EJ001X	15	213	75	140	50	14	70	95	51	15	4	5.2
VY516EJ002X	25	228	90	165	60	16	90	125	67	19	4	7.4
VY516EJ004X	40	241	103	190	82.5	18	105	140	81	19	4	10.5
VY516EJ0051	50	245	107	216	115	18	120	155	96	19	8	12
VY516EJ0061	65	262	124	241	120.5	20	140	175	116	19	8	17
VY516EJ0081	80	263	125	283	123	22	160	200	132	23	8	22

Figure 2. Dimensions (mm)

**Parts Identifications**

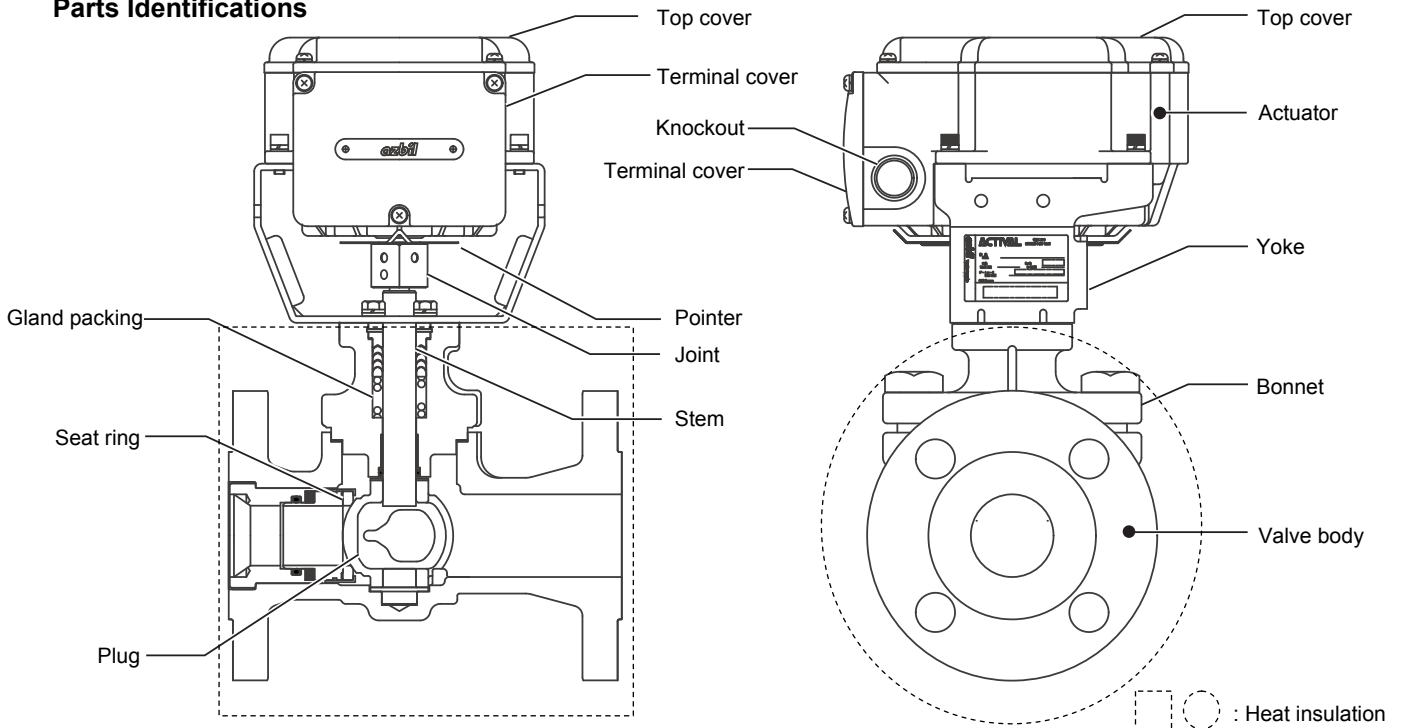











Figure 3. Parts identification

**Installation**




**Precautions for installation**

 <b>WARNING</b>	
	Some of the product models weigh more than 18 kg. Carefully move the product with a vehicle or enough manpower in an appropriate manner. Careless lift or accidental drop of the product might cause injury or product damage.

 <b>CAUTION</b>	
	Install the product in the proper position as specified in this manual. Excessively tight connection to a pipe or improper installation position might damage the product.
	Install the product with flange gasket so that the flange gasket will not go inside the pipe.
	After installation, make sure no fluid leaks from the valve-pipe connections. Incorrect installation might cause fluid leakage
	Install the product so that no foreign objects remains inside the pipes. Be sure to provide a strainer (with 40 or more meshes) on the inflow side of the piping. Flush the piping to remove the foreign objects after installation. Foreign objects inside the piping might damage the product.
	Keep the products in package for storage. Failure to do so might damage or stain the products.
	Installation and wiring must be performed by qualified personnel in accordance with all applicable safety standards.

- ACTIVAL Model VY516EJ is the valve and actuator integrated into a single unit. Do not combine the valve with any other actuator, or do not combine the actuator with any other valve.
- To remove foreign objects inside the pipes, install a strainer with 40 or more meshes on the inflow side of each valve. If the strainers cannot be installed on the inflow side of each valve, install it on the pipe diverting sections (sections diverting from main piping system to sub piping system).
- Install the valve so that the flow direction of process fluid agrees with the arrow indicated on the valve body.

**Installation location**

 <b>CAUTION</b>	
	Do not install the product nearby a steam coil or a hot-water coil. High temperature radiation might cause malfunction of its actuator.
	Do not use the product in an atmosphere corrosive to the actuator, valve, and their components. Doing so might damage the product.

<p><b>IMPORTANT:</b></p> <ul style="list-style-type: none"> <li>• The top and the terminal covers might be corroded by chemicals and organic solvent or their vapor. Do not expose the product to such substances/vapor.</li> <li>• Although the product can be used in high humidity environments (max. 95 %RH), do not immerse the actuator in water.</li> <li>• Although the product can be used outdoors, be sure not to expose the actuator to direct sunlight.</li> </ul>
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- Install the product in a position allowing easy access for maintenance and inspection. Fig. 2 shows the minimum clearance for maintenance and inspection. When installing the product in a ceiling space, provide an access hole within the 50 cm radius of the product. And, place a drain pan under the valve.
- Do not mount the product on a pipe where water hammer occurs, or where solid objects including slug may accumulate.

**Mounting position**

The product can be mounted in any position ranging from upright to sideways (90° tilted). The product should be installed with its actuator vertically positioned above the valve body. (See Fig. 4.) However, the product must be installed always in upright position outdoors.

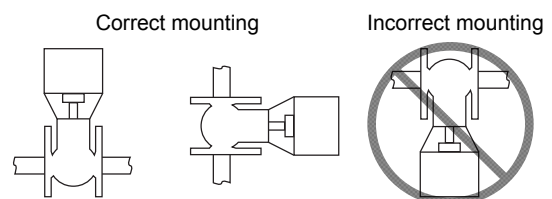


Figure 4. Mounting position

## Piping

- Check that the model number of the product is what you ordered. The model number is shown on the label attached to the yoke.
- Install a bypass pipe and gate valves on the inflow, outflow, and bypass sides. Also, install a strainer with 40 or more meshes on the inflow side.
- When installing the product to the pipes, do not allow any object, such as chips, to get inside a pipe or valve. Valve cannot fully close, or the valve seat may get damaged causing fluid leakage, due to an object jammed inside the valve.
- When piping, do not apply too much sealing material, such as solidifying liquid and tape, to the pipe connection sections so that these materials flow into the valve. Valve cannot fully close, or the valve seat may get damaged causing fluid leakage, due to the sealing material jammed inside the valve.
- Before activating the product, fully open (in 100 % position) the valve and flush the pipes (with the product installed) at the maximum flow rate to remove all the foreign objects. (Factory preset position: 100 %)

## Heat insulation

Do not apply heat insulation to the actuator or to the yoke, as [ ] shows in Fig. 3. If the yoke and the actuator are covered with insulation material, the pointer cannot be checked and may be distorted.

## Factory preset position

The actuator shaft is positioned at 100 % (in fully open position) for shipment. The shaft is thus completely turned clockwise, and the pointer points at '100'. (See Fig.5.)

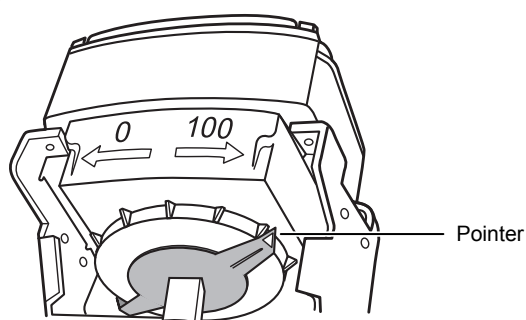


Figure 5. Pointer position for shipment

## Manually opening/closing the ACTIVAL

### IMPORTANT:

- Manually opening/closing the product with the power (24 V AC) applied may damage the actuator.
- To manually open/close the product, do not turn the joint beyond the fully open (100)/closed (0) mark.
- To manually open/close the product, slowly turn the joint. If shock is sent to the actuator, the actuator may get damaged.

Disconnect the power from the product before manually operating the product. As shown in Fig. 6, from the front of the product, hold the joint using a tool such as a wrench, and turn the joint slowly toward the set position.

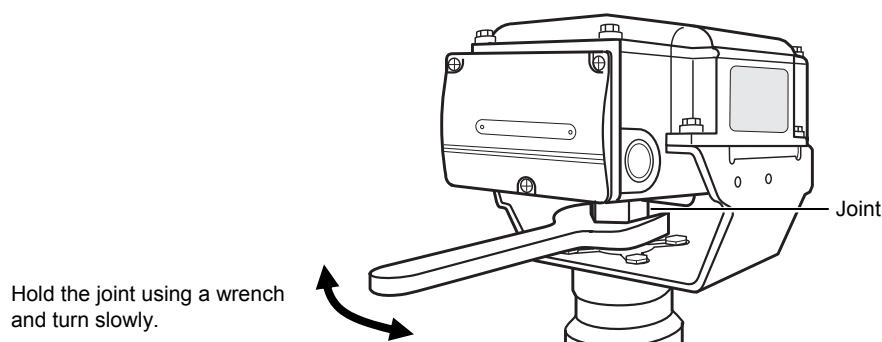


Figure 6. Manual operation

**Procedure to change the actuator mounting position**

**IMPORTANT:**

- Do not change the combination of the valve, yoke, and actuator.
- Set the product (actuator and valve) in 100 % position when changing the mounting position. If the valve in 0 % position is assembled with the actuator in 100 % position, the actuator puts torque on the closed valve, and the gear of the actuator gets damaged.

- 1) Remove the screws connecting the actuator and the yoke. Lift the actuator and detach it from the yoke. Make sure that the groove on the top of the valve stem is parallel to the pipes (indicating the valve in 100 % position). <Step 1 in Fig. 7>
- 2) Remove the screws connecting the yoke and the valve. <Step 2 in Fig. 7>
- 3) Change the facing direction of the yoke. The yoke and actuator can be horizontally rotated every 90° (0°/90°/180°/270° from the factory preset position) to mount onto the valve.
- 4) A thermal insulation sheet is inserted between the yoke and the valve. When changing the mounting positions, reinsert the sheet and then fit the yoke into the new mounting position.
- 5) Before fixing the yoke to the valve with the screws, check that the actuator engages correctly with the valve stem (at the new mounting position). Check that the pointer of the actuator indicates 100 % position as well. Then, fix the yoke to the valve. <Step 3 in Fig. 7>
- 6) Mount the actuator. Place the actuator, with its facing direction changed, on the yoke, and fix them with the screws. <Step 4 in Fig. 7>
- 7) Check that the product with the mounting position changed operates smoothly (from 0 % to 100 %).

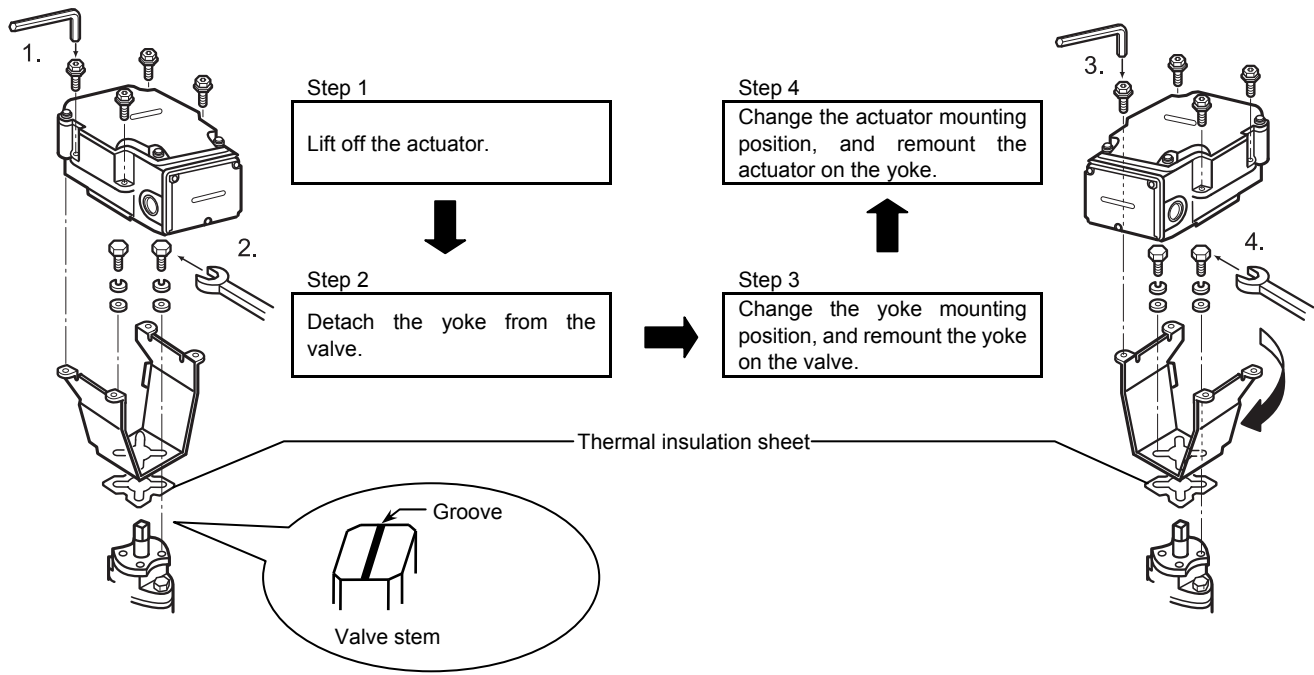


Figure 7. Changing the actuator mounting position

## Wiring

### ⚠ WARNING



Be sure to ground the product with ground resistance of less than 100  $\Omega$ .  
Improper grounding might cause electric shock or malfunction.



Detach the terminal cover only when wiring and setting the product and reattach the terminal cover after wiring and setting the product.  
Failure to do so might cause electric shock.



Before wiring or maintenance, be sure to turn off the power to the product.  
Failure to do so might cause electric shock or device failure.

### ⚠ CAUTION



Firmly tighten the terminal screws.  
Insufficient tightening of the terminal screws might cause fire or overheating.

### IMPORTANT:

- The product is designed for 24 V AC power supply voltage.  
Do not apply any other power voltage (e.g., 100 V AC, 200 V AC) to the product.
- To prevent damage, cover the terminals except when connecting/disconnecting wires.
- Do not leave any refuse including metal chips after opening a knockout and after connecting the wires inside the actuator.

## Wiring procedure

- 1) To lead the wires into the terminals, open a knockout for a wiring port. Two knockouts are provided on the bilateral sides of the actuator terminals. Select a knockout according to the conduit mounting direction, and open the hole by lightly knocking the knockout using a screwdriver.

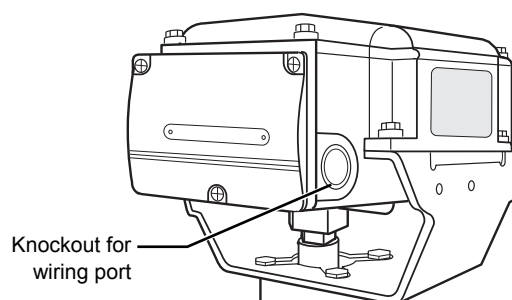


Figure 8. Knockout for wiring port

- 2) Unscrew the 3 setscrews (M4  $\times$  10) of the terminal cover and remove the terminal cover, as shown in Fig. 9.

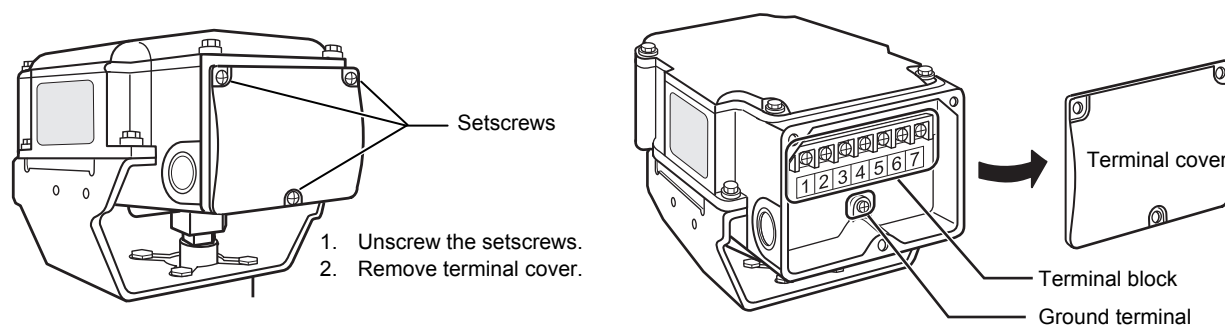


Figure 9. Terminal cover removal

- 3) Correctly connect the wires to the terminals with M3.5 screw terminal lugs, referring to Fig. 10.  
 To connect a device with over 100 V AC to the sub-DO (terminals 6 and 7), be sure to ground the actuator with 100 Ω or lower ground resistance. Refer to Fig. 10 for the location of each terminal.

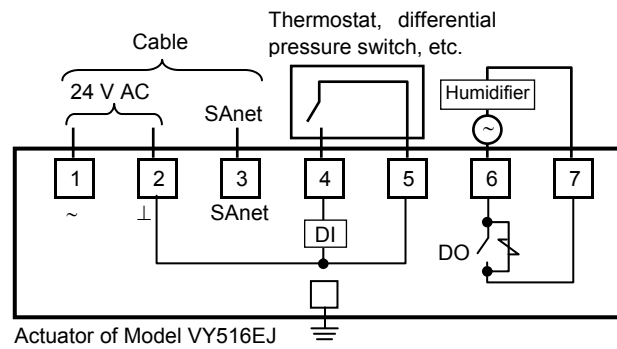


Figure 10. Basic connection example

- 4) Separate sub-DO line from SAnet and sub-DI lines. Do not lead the sub-DO line through the wiring port (knockout) for SAnet and sub-DI lines to protect sub-DO line from noise.

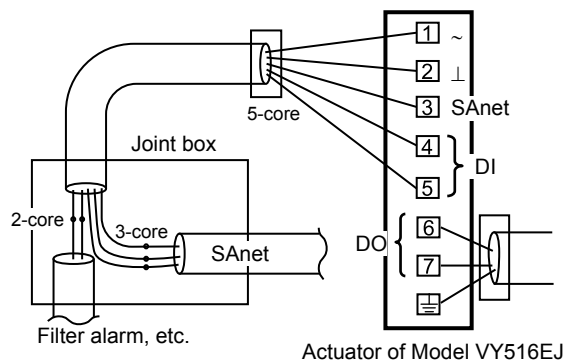


Figure 11. Separation of sub-DO line from other lines

If sub-I/O is used, SAnet line cannot be daisy-chained since the number of the wiring ports is limited. In such a case, use the cable gland with three ports to daisy-chain the SAnet line, or branch the SAnet line ahead of connecting to the terminals.

Note:

For wiring of SAnet line, refer to the **Installation Manual of Intelligent Component Series for SAnet Communication (AB-6713)**.

**To keep IP54 protection (dust-proof and splash-proof),**

Use a water-proof connector for the product in a high-humidity environment or outdoor location. Through wiring port with the seal connector attached to, 1 cable can be lead in. Through wiring port with the cable gland (with three ports) and the seal connectors attached to, 3 cables can be lead in.

- Be sure to completely close the terminal cover and the top cover.
- Waterproof the wiring port.
  - For cable connection, use a water-proof connector. Following is the recommended parts we supply.  
 Seal connector: Part Nos. 83104346-003, 83104346-004, 83104346-005
  - To daisy-chain the SAnet line, use the cable gland with three ports and the seal connector we supply.  
 Cable gland with three ports: Part No. DY7000A1000  
 Seal connector: Part Nos. 83104346-012, 83104346-013, 83104346-014
  - For conduit connection, use a water-proof plica tube or the like.

**Address Setting (Addressing)**

To SAnet interface module, ACTIVAL Model VY516EJ and other Intelligent Component Series devices are connected via SAnet. Set address for the terminal devices (Intelligent Component Series devices) so that the SAnet interface module can recognize all the terminal devices connected. Follow the procedure below to set the address. For details regarding address setting (addressing), ask our salesperson/serviceperson.

- 1) Unscrew the setscrews and remove the terminal cover. See Fig. 9 for removing the terminal cover.
- 2) Set address. (See Table 1.) Address can be set with rotary switch, with service pin switch, or based on SAnet ID. Rotary switch and service pin switch are provided on this product. To set the address with service pin switch or based on SAnet ID, Data Setter or PC-MMI is required. Set the address in either way according to your availability.

Setting with rotary switch:

Turn the rotary switch using a precision Phillips screwdriver and set.

Setting with service pin switch:

1. Set the rotary switch to '0'.
2. Start addressing operation\* of Data Setter or PC-MMI. Then, press the service pin switch. Do not press and hold the switch for longer than 5 seconds.
3. Address is set within 5 seconds after pressing the service pin switch.

\* For the addressing operation of Data Setter or PC-MMI, ask our salesperson/serviceperson.

Setting based on SAnet ID:

1. Set the rotary switch to '0'.
2. With Data Setter or PC-MMI, enter the SAnet ID (on the product code label) and address number to set. The product code label is attached on the back face of the actuator, as shown in Fig. 14.

\* For the addressing operation of Data Setter or PC-MMI, ask our salesperson/serviceperson.

- 3) Attach the terminal cover after setting the address.

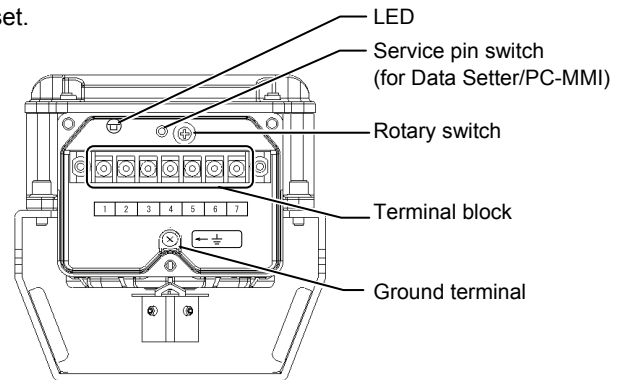


Figure 12. Terminal block, LED, setting switches (without terminal cover)

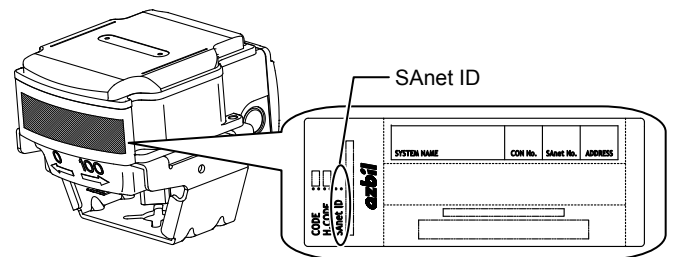


Figure 13. SAnet ID on the product code label

**IMPORTANT:**

- While the terminal cover is removed, do not touch the terminal block or allow anything to touch the terminal block.
- If you press and hold the service pin switch for longer than 5 seconds, the mode will be switched and operation error (data point trouble) will occur. In such a case, press and hold the service pin switch again for longer than 10 seconds to go back to the normal mode.

Table 1. Basic address setting of this product and other Intelligent Component Series devices

Add.	Device	Sub-DO	Sub-DI
1	Outdoor air damper		
2	Exhaust air damper		
3	Return air damper		
4	Switch damper of total heat exchanger for outdoor air		
5	Switch damper of total heat exchanger for exhaust air		
<b>6</b>	<b>Chilled/hot water valve / Chilled water valve</b>		<b>Filter alarm</b>
<b>7</b>	<b>Hot water valve (Chilled water valve)</b>	<b>Humidifying ON/OFF</b>	
<b>8</b>	<b>Humidifying valve</b>		

Notes:

- \* For 'chilled/hot water valve + chilled water valve' application, set address 6 for chilled/hot water valve and 7 for chilled water valve.
- \* Items in bold characters are the basic address to set for this product.
- \* The above table is a basic setting example. Set address and use sub-I/O in response to system configuration, installation location, and wiring best suitable for your application.
- \* Addresses D (13) to F (15) are reserved.

### System Indication Label

A part of the product code label can be a system indication label. Clip the part, and write down the name of the system, host controller number of the system, SAnet line number, and address. Then attach the part, as the system indication label, to a location where you can easily check.

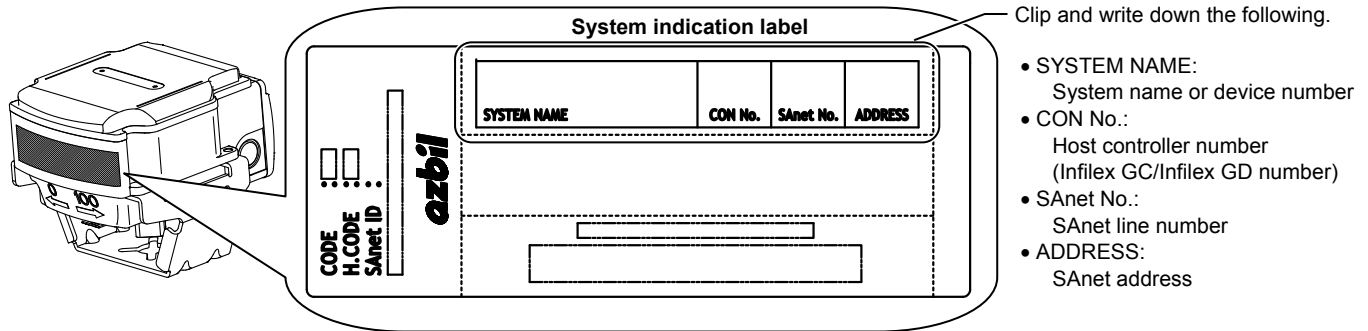


Figure 14. System indication label

**IMPORTANT:**

- Attach the system indication label to a clean location with no dust, oil, or moisture.
- Attach the system indication label by pressing the whole surface of the label to stick on the product surface.

### Manual Operation Mode

In the manual operation mode, even when this product has not been connected via SAnet yet, the operations shown in Table 2 can be performed and checked. Follow the procedure below for the operation check. For the locations of the service pin switch and the rotary switch, see Fig. 13.

- 1) Press and hold the service pin switch for 10 seconds to enter the manual operation mode.
- 2) Turn the rotary switch to the desired position, using a precision slotted screwdriver. (See Table 2.)  
Operation will start in 3 seconds after setting the rotary switch.

Table 2. Operations in the manual operation mode




Rotary switch scale	Operation
0	Restart (to go back to the normal operation mode)
2	Fully close (in 0 % position)
4	Open in 50 % position
6	Fully open (in 100 % position)
E	Automatic adjustment of the potentiometer




Notes:  
 \* Rotary switch scales 1, 3, 5, 7, 8, 9, A to D and F are not available in the manual operation mode.  
 \* Do not set the rotary switch to 'E'.  
 (Operation of the rotary switch 'E' is required only when potentiometer itself is replaced.)

- 3) After the operation, press and hold the service pin switch for 10 seconds to go back to the normal operation mode.
- 4) If the address is set with the rotary switch, be sure to reset the rotary switch at the address after entering the normal operation mode.



## Inspection and Troubleshooting

 WARNING	
	Detach the terminal cover only when wiring and setting the product and reattach the terminal cover after wiring and setting the product. Failure to do so might cause electric shock.
	Before wiring or maintenance, be sure to turn off the power to the product. Failure to do so might cause electric shock or device failure.

 CAUTION	
	Do not carelessly touch the product when being used to control hot water. The product temperature goes high, and you might get burned.
	Do not touch the moving parts of the product. Doing so might cause injury.

- Inspect the product according to Table 3.
- Manually open/close the product at least once a month if it is left in inactive state for a long period.
- Visually inspect the fluid leakage of the valve and the actuator operations every six months. If any of the problems described in Table 4 are found, take corresponding actions shown in the table.  
If your problem is not solved by the corresponding action, please contact our sales/serviceperson.

Table 3. Inspection items and details

Inspection item	Inspection interval	Inspection detail
Visual inspection	Semiannual	<ul style="list-style-type: none"> <li>• Fluid leakage from the gland and the flange face</li> <li>• Loosened bolts</li> <li>• Valve and actuator damages</li> </ul>
Operating status	Semiannual	<ul style="list-style-type: none"> <li>• Unstable open/close operation</li> <li>• Abnormal noise and vibration</li> </ul>
Routine inspection	Any time	<ul style="list-style-type: none"> <li>• Fluid leakage to the outside</li> <li>• Abnormal noise and vibration</li> <li>• Unstable open/close operation</li> <li>• Valve hunting</li> </ul>

Table 4. Troubleshooting

Problem	Part to check	Action
Fluid leaks from the flange face.	Loosened flange bolts Gasket on the flange face Misaligned piping	Tighten the flange bolts. Replace the gasket. Redo piping.
Fluid leaks from the gland.	—	Consult with our sales/serviceperson.
Fluid leaks from the bonnet.	Loosened bolts	Tighten the bolts.
Valve does not operate smoothly / valve stops halfway / valve does not operate at all.	Conditions of the power applied and of the input signal applied Loosened terminals Wiring condition / disconnected wires	Check the power supply and the controller connected to. Tighten the terminals. Check the wiring.
Fluid leaks to the outside of the valve when the product is in fully closed position.	Actuator pointer not pointing to fully closed position	Fully close the product.
The valve vibrates or produces an abnormal noise.	Primary pressure condition Differential pressure condition	Adjust the mounting position and change the installation location.
Valve hunting occurs.	Secondary pressure condition Differential pressure condition Control stability	Adjust the mounting position and change the installation location. Correct the control parameter setting of controller.

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