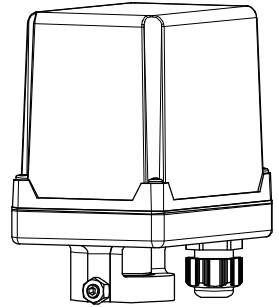


Please read this document before using these valves.

GENERAL

It is case of power failure, electric discharge from built-in capacitor lets valve operate.

ACR : For AC power



PRODUCT CODE

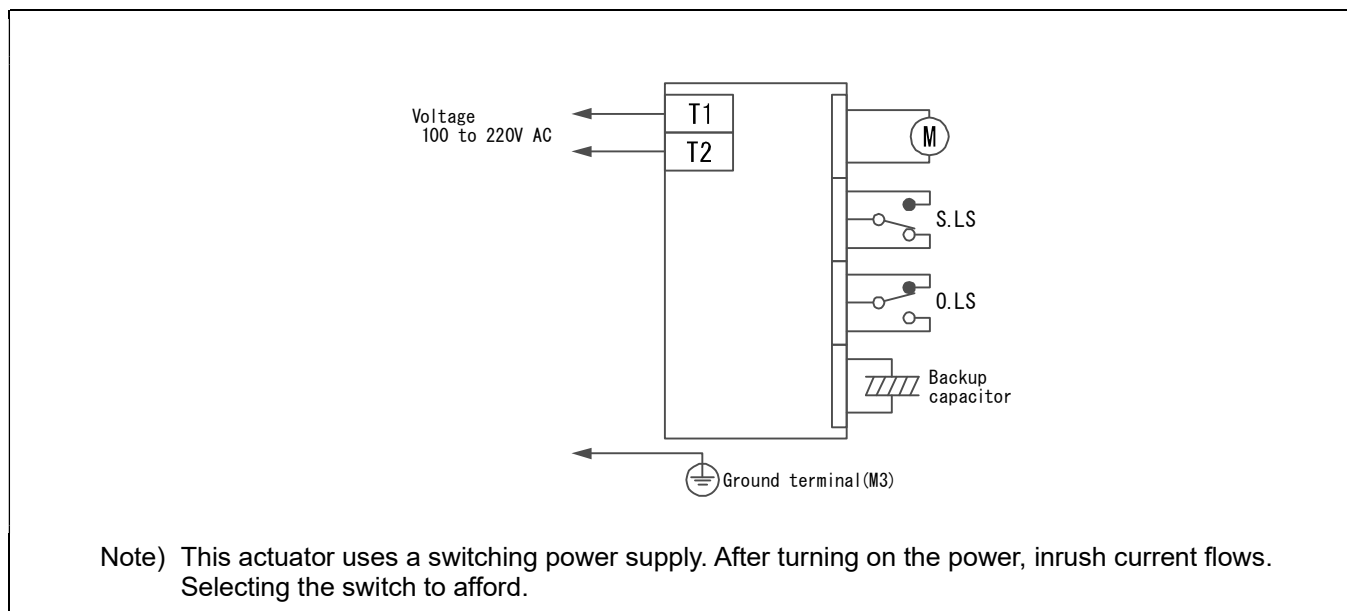
<p>A C R - 0 3 0 - 2 - <input type="text"/> - <input type="text"/></p>				
(1)	(2)	(3)	(4)	(5)
(1) Actuator ACR	(2) Torque 030	(3) Voltage 2 : 100 to 220 V AC	(4) Option AK : Aluminum alloy motor cover	(5) Option Nil : Power OFF : SHUT ↔ Power ON : OPEN 45 : Power ON : SHUT ↔ Power OFF : OPEN

ELECTRIC ACTUATOR SPECIFICATIONS

3 way valve: SHUT / Position①, OPEN / Position②

Actuator type	ACR-030-2
Voltage	100 to 220 V AC ±10 % 50/60 Hz
Rated torque [N·m]	3
Operation time [s]	When power supply on → less than 12 When power supply shut off → less than 6
Power consumption (Max) [VA]	30
Motor	DC motor
Overload protection	Thermistor
Method of operation	Operation by power ON / OFF
Operation	Power OFF : SHUT ↔ Power ON : OPEN (Standard) Power ON : SHUT ↔ Power OFF : OPEN (Option: 45)
Built-in power supply	Electric double layer capacitor
Duty cycle	20 % 15 min.
Ambient temperature	-20 to 50 °C
Manual operation	Direct operation of output shaft
Enclosure	Equivalent to IP65 (IEC 60529)
Housing material	Aluminum alloy die cast + Polycarbonate resin cover
Terminal block	For bare wire 0.14 to 1.5 mm ² (AWG 26 to 16) Ground terminal: M3
Conduct port	G3/8 Cable gland (for Φ5 to 10.5 mm cable)

WIRING



INSTALLATION, OPERATION & MAINTENANCE INSTRUCTIONS**HANDLING & STORAGE****①HANDLING**

Proper care in handling the actuator should be taken to prevent damage. Do not drop or throw it.

②STORAGE

Store the actuator in the protected area from dust, moisture, and direct sunlight. If possible, actuator should be kept in the original packaging.

③CHECKING

Check the product code, power supply, and voltage before installation.

INSTALLATION**①ENVIRONMENT**

- Do not install in place where corrosive gas is present or where vibration is heavy (0.5 G or more).
- When radiant heat causes the surface temperature of the control unit to exceed 55 °C, provide an appropriate shielding plate.
- If there is a possibility that the fluid and drive part freeze, please take measures to prevent freezing.

②POSITIONING

Should be positioned through 90° upward from horizontal. Provide space around the product to allow manual operation, inspection and replacement work.

Maintenance space for upper part of actuator

ACR	More than 90 mm
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③OTHER NOTES

Until the wiring is completed there must be no condensation or flooding in the interior of the actuator, after piping. Protective caps on the cable gland are not waterproof.

WIRING

- Do not wiring outdoors on a rainy day.
- Check the power supply and voltage.
Connect the signal as shown in the wiring diagram.
Do not connect unnecessarily terminal.
- Use suitable flexible cable (Φ5 to 10.5 mm).
Lock and seal the cable completely to prevent condensation inside the actuator.
- Built-in terminal block can clamp up to 1.5 mm in diameter without using solderless terminal.
- Allow proper cable slack for maintenance.
- Actuator should be electrically grounded.
Use the terminal marked (≡) inside the actuator.

PREVENT DEW CONDENSATION

- When installing the cover after wiring, perform the bolt by the temporary tightening procedure and the permanent tightening procedure to tightly and securely tighten the rubber packing so that water does not enter from the outside.
- Tighten the cable gland nut so that there is no leakage from the wire entrance.

CONTROL

- Inrush current flows when the switching power supply is turned on. Use a fuse, relay or switch with sufficient capacity.
- It may be affected by induced voltage or noise.
Please use countermeasures such as using a shielded wire, separating it from other power cables. (When a power supply is off, the terminal block should make the induced voltage less than 10 V.)

OPERATION**①TESTING**

Make sure that power supply voltage is correct.

②DUTY CYCLE

Confirm that the operation frequency is within the specified duty cycle.

Use beyond the load time rate range will affect product life. Also, it may cause burnout.

Duty cycle is a value that regulates the opening / closing frequency of the actuator. The meaning of 20 % 15 minutes for Duty cycle is that 3 minutes (20 % of 15 minutes) operation is possible. The calculated value obtained by dividing 3 minutes by the operation time is the number of times of operation within 15 minutes.

③ATTENTION

- Should not touch the moving parts of actuator in operation.
- Do not insert a reverse signal during operation.
- Never put anything on the actuator or make it into a foothold.

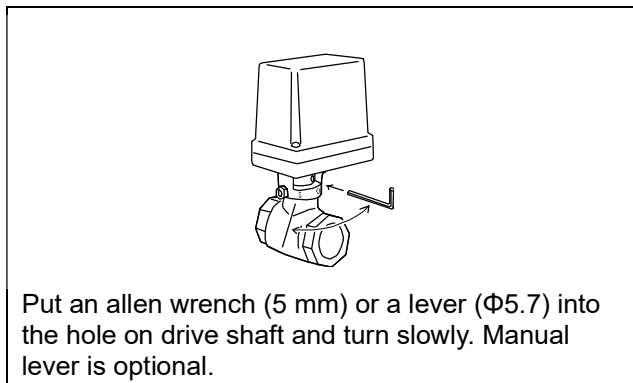
INSTALLATION, OPERATION & MAINTENANCE INSTRUCTIONS**MANUAL OPERATION****① PRECAUTIONS**

- Manual operation should be a temporary operation.
- Be sure to turn off the power before manual operation.
- If it is not left after power supply cut off for 6 hours, it will operate with capacitor charge voltage. Make sure that the following procedure in case of emergency.

- 1) Put an allen wrench into the hold on drive shaft and turn slowly.
- 2) Internal limit switch gets used from a switch setting cam, then the motor of actuator will operate and it hold in the position.
- 3) The capacitor discharge in about 1 minute, perform manual operation.

② NOTE

For manual operation, do not give more than the rated torque and make at a slow rate. Actuator might be damaged if excessive force is added.

**MAINTENANCE**

- To prevent electric shock, be sure to turn off the power when removing the actuator cover.
- Do the routine maintenance at least once in half a year.

Inspection items

- Confirm operation of opening and closing.
- Confirm that an actuator is not hot excessively.
- Confirm existence of abnormal noise and vibration during operation.
- Confirm whether screws are loose or not.
- Confirm that water or condensation no remains in the actuator.
- Turn off the power and check if the valve operates normally with built-in capacitor.

TROUBLE SHOOTING

Problem	Cause	Solution
Actuator does not move.	Faulty wiring.	Correct the wiring.
	No voltage is coming.	Check the voltage.
	Incorrect voltage.	When it's burned out by excess voltage, replace the actuator.
	Short the circuit, contact failure.	Review wires and connection.
Operation is unstable.	Motor is too old.	Replace the actuator.
	Excess surge or voltage was applied.	Replace the actuator.
Rainwater entered the actuator.		
Stop in the mid position.	Overload protector runs because of over-torque.	Turn off the power for about 3 minutes to remove a heat from motor protection circuit.
	Capacitor is too old.	Replace the actuator.

For more information contact
NIPPON VALVE CONTROLS, INC. for consultation.