NIPPON VALVE CONTROLS,INC.



# ABR / HBR type Electric Actuator Specifications

FEATURE

The actuator operates at the time of power loss by the built-in high-performance shielded battery.
Built-in battery life is 8 to 9 years at 25 °C.
It's possible to use for a wide range of temperature (ambient temperature: -20 to 50 °C).
The battery composed by dry type structure the maintenance of saving water is not necessary.

SPECIFICATION

| Actuator type (☐: Voltage code) | ABR-300-☐ | ABR-700-☐ | HBR-300-☐ | HBR-700-☐ | HBR-02K-☐ | HBR-06K-☐ |
|---|---|---|---|---|---|---|
| Voltage | 100 / 110 V AC ±10 % 50/60 Hz (Code: 1)<br>200 / 220 V AC ±10 % 50/60 Hz (Code: 2)<br>24 V DC (Code: 0)<br>Note) Cannot use a half or full-wave DC power. | | | | | |
| Rated torque [N·m] | 30 | 70 | 30 | 70 | 200 | 600 |
| Operation time [s] | 3 to 4 | 6 to 10 | 1 to 2 | 3 to 5 | AC: 8 to 15<br>DC: 12 to 17 | AC: 24 to 45<br>DC: 36 to 50 |
| Power consumption (Max) [VA] | AC power 100<br>DC power 80 | | AC power 150<br>DC power 120 | | | |
| Motor | DC motor | | | | | |
| Overload protection | Current limiter | | | | | |
| Control switch | a-contact input type, with built-in relay | | | | | |
| Operation *1 | [Mode A] SW is OFF → SHUT. SW is ON → OPEN. (Standard)<br>[Mode B] SW is ON → SHUT. SW is OFF → OPEN. (Option: Q) | | | | | |
| Power failure *2 | [Response mode] (Standard) Mode A : SHUT.<br>Mode B : OPEN. | | | | | |
| | [Standby mode]<br>After power failure, waiting for an external signal input to the switch in a fixed period.<br>Waiting time of power failure: more than 50 hours<br>(It becomes short due to the influence of use environment.)<br>Shift the valve to OPEN / SHUT (or HOLD) by battery out.<br>Stop waiting for the external input signal.<br>[FINISH] Battery out → [Mode A] SHUT<br>[Mode B] OPEN<br>[HOLD] Battery out → Hold the current valve position. | | | | | |
| Battery | Compact seal lead acid battery: 12 V, 2.5 Ah<br>* It is recommend to exchange a battery for every 5 years (at 25 °C). | | | | | |
| Charge system | Constant voltage charge current | | | | | |
| Input signal current | 2.5 mA 12 V DC (O-terminal) Leakage current in SW: less than 0.5 mA | | | | | |
| Output signal rating | Resistance load : 0.5 A 120 V AC / 0.6 A 24 V DC<br>Micro load : 1 mA 5 V DC | | | | | |
| Alarm signal | Overtorque : It returns by power supply OFF or reverse operating signal.<br>Battery out : The contacts turn on as battery consumption progresses. | | | | | |
| Duty cycle | 20 % 15 min. | | | | | |
| Ambient temperature | -20 to 50 °C | | | | | |
| Space heater | Built in to the control board | | | | | |
| Manual operation | Manual over-ride with clutch. (Direct operation / 06K: Operation by manual shaft.) | | | | | |
| Enclosure | Equivalent to IP65 (IEC 60529) | | | | | |
| Housing material | AC4C Aluminum alloy castings (acrylic resin baking finish) | | | | | |
| Terminal block | For bare wire 0.2 to 2.5 mm² (AWG 24 to 12) , Ground terminal: M3 | | | | | |
| Conduct port | 2-G1/2 Attachments: Cable gland (for Φ6 to 12 mm cable), plug. | | | | | |

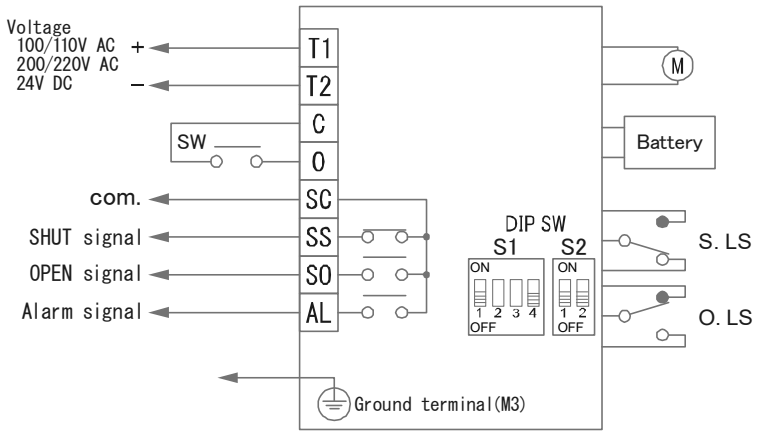
3 way valve: SHUT / Position①, OPEN / Position②.

*1 Change by DIP switch. (Standard → Mode B)
*2 Change by DIP switch. (Standard → Standby mode)

OPERATION MODE / POWER FAILURE

| | Power failure | | | Factory settings |
|---|---|---|---|---|
| Response mode | [Mode A] SHUT. | | | Standard (Nil) |
| | [Mode B] OPEN. | | | Option: Q |
| Standby mode | HOLD | Battery out → [FINISH] | [Mode A] SHUT. | Setting is required |
| | | | [Mode B] OPEN. | |
| | | Battery out → [HOLD] | Hold the current valve position. | |

WIRING



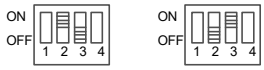

SW : Switch
S. LS : SHUT Limit switch
O. LS : OPEN Limit switch
M : Motor

Output of signal (Common in mode A / B)
Closed the valve → SHUT signal
Open the valve → OPEN signal
Overtorque / Battery out → ALARM signal

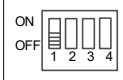
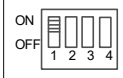
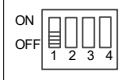
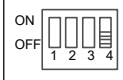
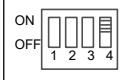
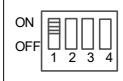
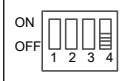
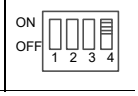
NOTE) Leakage current in SW: less than 0.5 mA.

DIP switches S1-2 and S1-3 are for changing ABR / HBR (factory setting only), so do not change the settings.

ABR HBR



Setting with DIP SW

| | Mode | | | Valve OPEN / SHUT | | | | DIP SW | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | S2 | S1-1 | S1-4 |
| | Power failure | Operation | Battery out | Input signal | | Power failure | Battery out | Power failure | Mode A / B | Battery out |
| | | | | OFF | ON | | | | | |
| Factory setting; Standard (Non) | Response mode | Mode A | | SHUT | OPEN | SHUT | |  |  | |
| Factory setting; Option: Q | | Mode B | | OPEN | SHUT | OPEN | | |  | |
| Setting is required | Standby mode | Mode A | FINISH mode | SHUT | OPEN | HOLD | SHUT |  |  |  |
| | | | HOLD mode | | | | HOLD | | |  |
| | | Mode B | FINISH mode | OPEN | SHUT | | OPEN | |  |  |
| | | | HOLD mode | | | | HOLD | | |  |