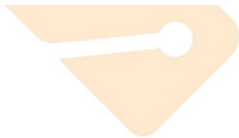




2016

Dimming Actuator Manual



SATION Technology Co.,Ltd.

2016-1-1

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Notice

1. Please carefully read this manual before using the product
2. This product is used in indoor environment and installed in electrical control box
3. Please install this product in a dry and ventilated place
4. Before power on, please confirm the input voltage according to the manual; after power on, please confirm the normal output voltage before connecting to the control bus
5. Please make sure the secure shell is in good condition, if the shell is damaged, please stop using to avoid accident
6. The power lead and ground lead must meet the requirement of Electrical Installation Standard
7. Only used indoor, model number need to be changed for outdoor use
8. This product is NOT a toy, please make sure it is out of childrens' touch
9. Only be suitable for EIB/KNX system bus

10. Others:

The below sign indicates this product can't be dealt as ordinary family rubbish, In order to avoid the possible environment and human health harm caused by the electrical waste, this product must follow recovery processing. Please contact the local recycling department after this product is scrapped, to make sure it can go as the right waste processing procedure.



1 Dimming Actuator

1.1 Technical data

| | | |
|---------------------------------|--|---|
| Power supply Characteristics | KNX-Bus feed | DC 21V...31V |
| | Supply current | < 12mA |
| | Consumption | <500mW |
| Rated output characteristics | Current range | 0.5A...12A; |
| | Control channel | 1channel/2channel/3channel |
| | Rated operational voltage | 85~265V AC(50/60Hz) |
| | Rated operational current | 6 A max (110v AC) |
| | Power loss of every input | 2W |
| Load characteristics | $\mu=0.45$ | 3A/230V AC; |
| | Resistive load | 3A/230V AC; 6A/110V AC |
| | Capacitive load | 5A/250V AC 140uf |
| | Breaking current drain | 50mA/MAX |
| | Cold boot peak point current | 20A/220V AC、200ms |
| Lifetime | MTBF 100000 hour | |
| External connection | KNX-TP1 | twin cable comply with KNX standard are required |
| | Load-end terminal | minimum 0.6Nm torque are required for terminating |
| Operation and display interface | Programming button and corresponding indicator | LED |
| | Status indication of switch position | LED |
| Shell protection grade | IP20\ hidden cooling channel | EN60529 |
| Safety level | II | EN61140 |
| Insulation isolation | Overvoltage | EN60664-1 III |
| | Electric network pollution | EN60664-1 2 |
| KNX Safety voltage | SELV | 24V DC |

| | | |
|---------------------------|-------------------------------|-------------------------------------|
| Temperature range | Operating temperature | -5°C...+45°C (3K5 class) |
| | Long-term storage temperature | -25°C...+55°C |
| | Transportation temperature | -30°C...+70°C |
| Environmental requirement | Maximum humidity | 95% |
| Mechanical parameter | Bulk | 4TE/8TE/12TE |
| | Weight | 0.3/0.6/0.9 kg |
| | Installation | 35mm U-Shape rail (EN60715 EN50022) |
| Appearance | Gray-White, PC panel | Color number: |
| Certification | KNX EN50090-1-2 | |
| CE approved | EMC index see appendix | |

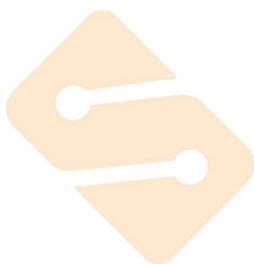
1.2 Product appearance



Switch Actuator 1-fold DM0101.0610



Switch Actuator 2-fold DM0102.0610



Switch Actuator 3-fold DM0103.0610

2 Overview functions

This Manual provides all the details for the SATION Dimming actuators products, including the installation

and programming details And how to use switch actuators. For ease installation, the product of this series comply with EN60715 standard, installed on a 35mm railway,.

Dimming actuators Use for control lighting load, eg.

Connect the KNX bus and other equipment to form the building electrical equipment control system.

Apply the engineering debugging tool ETS, can easily complete the debugging

2.1 Product Function

SATION dimming actuator, the modular equipment are designed according to Prom design requirements, is convenient to install on 35mm U-shaped rails of the distribution box. Optional for 1 way, 2 ways and 3 ways, using KNX bus terminals to connect the network system, no additional power supply required therefore can control the AC load.

This dimming actuator adopts advanced cold MOS power tube and controls load power by lagging corner cut, it has the characteristics of little battery pollution, high efficiency and low load temperature, which is suit for independent electrical AC resistive and capacitive load. Self-adaptive to 50/60 Hz grid frequency, the maximum load currenncy of every control circuit is 3A/6A. Every output of dimming actuator can be switched and adjusted manually, and all the channels are with the function of short-circuit protection, over-load detection, temperature detection and overheating alarm.

Connect the actuator to load by screw terminals, and every output can be controlled independently. The channels and load in a module can achieve dilatation, and can be configurable with soft start function.

The following functions can be set by single way:

- Dimming function: dimming, relative dimming, absolute dimming
- Time function: switch-on delay, switch-off delay, on-off
- Dimming speed: set the dimming time from 0% to 100%
- Start behavior: set illumination value, switch on and switch off speed
- Current detection: check whether current exceed limitation
- Temperature detection: check whether temperature exceed limitation
- Area limitation: set dimming area
- Scene function: up to 8 scene set

3 Device Technology

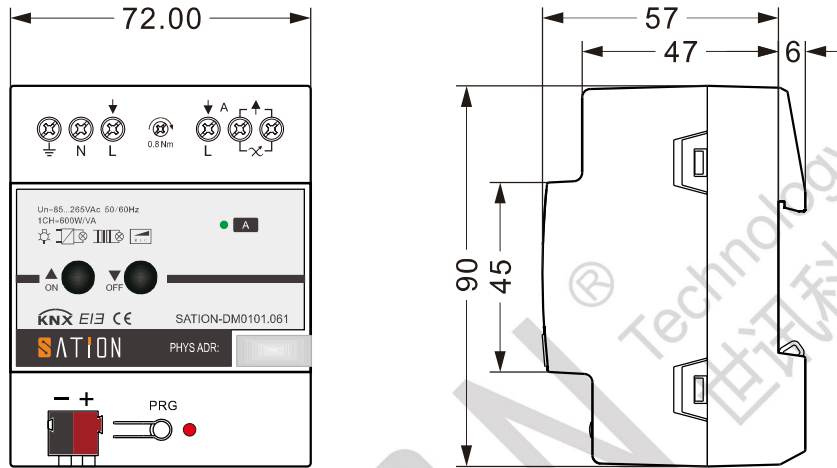
SATION switch actuator, the modular equipment are designed according to proM design requirements, is convenient to install on 35mm U-shape rails of the distribution box. Connected to the EIB/KNX system by the bus terminals. Actuators connect to the load, using a group of pressure type high voltage terminal blocks with two joints, and each output can be individually controlled. The equipment is suitable for switch resistance, resistance and capacitance type load



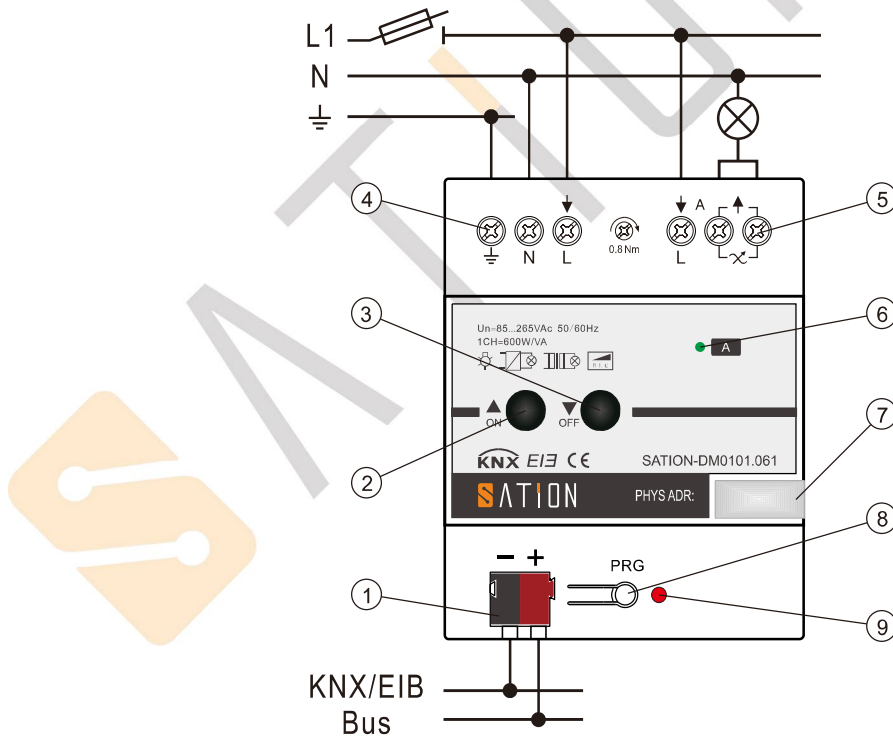
3.2 Dimension drawing and circuit diagram

3.2.1 DM0101-0610

2.2.1.1 Dimension drawing (mm) :



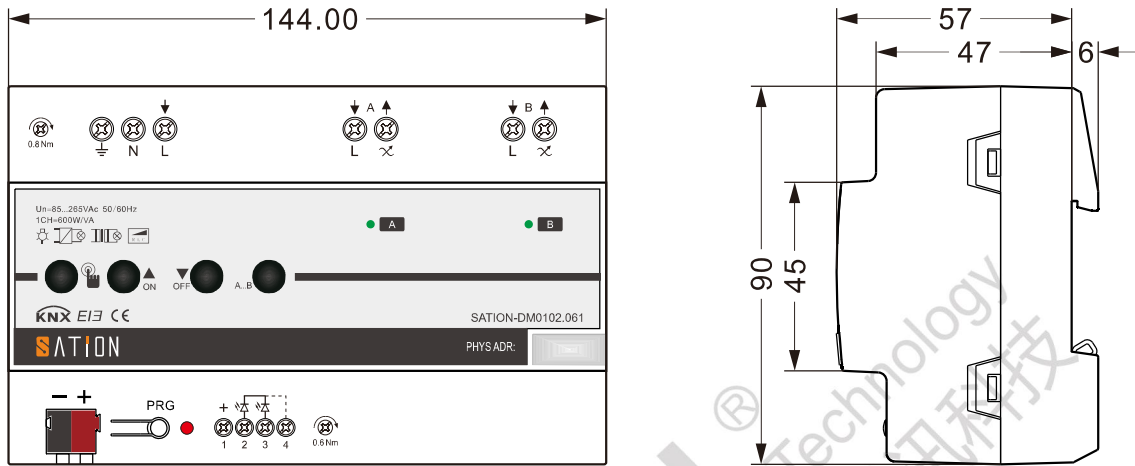
3.2.1.2 Circuit Diagram



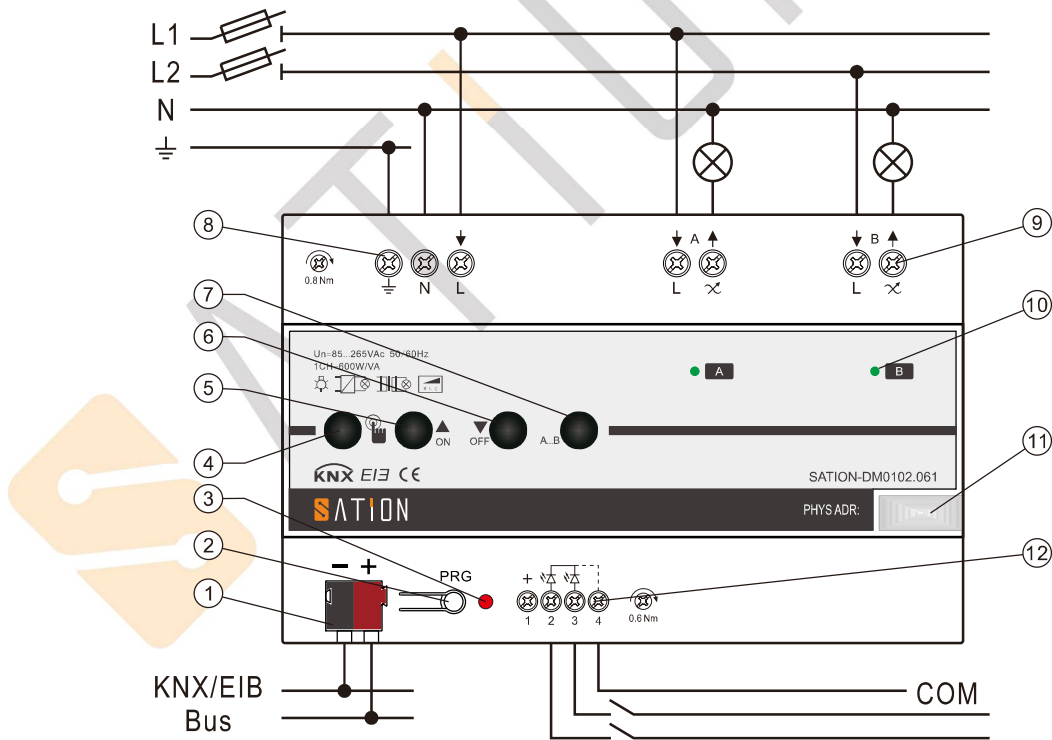
- 1 KNX bus-connect
- 2 Keys for the selection of the channel for the manual control
- 3 Keys for the selection of the channel for the manual control
- 4 Input communication terminal
- 5 Output dimming terminal
- 6 Channel-LEDs
- 7 Address tag
- 8 Programming button
- 9 Programming LED;

3.2.2 DM0102-0610

3.2.2.1 Dimension drawing (mm)



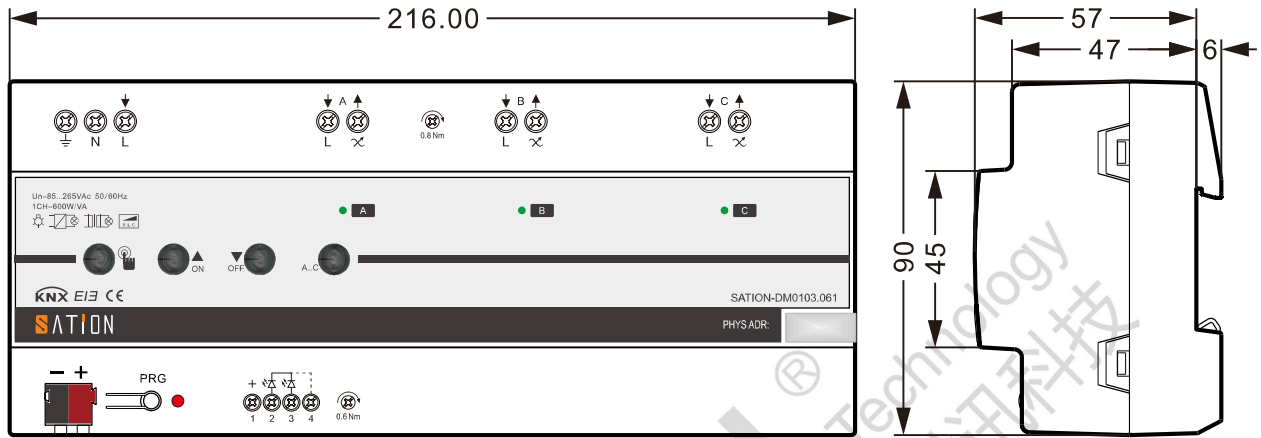
3.2.2.2 Circuit Diagram



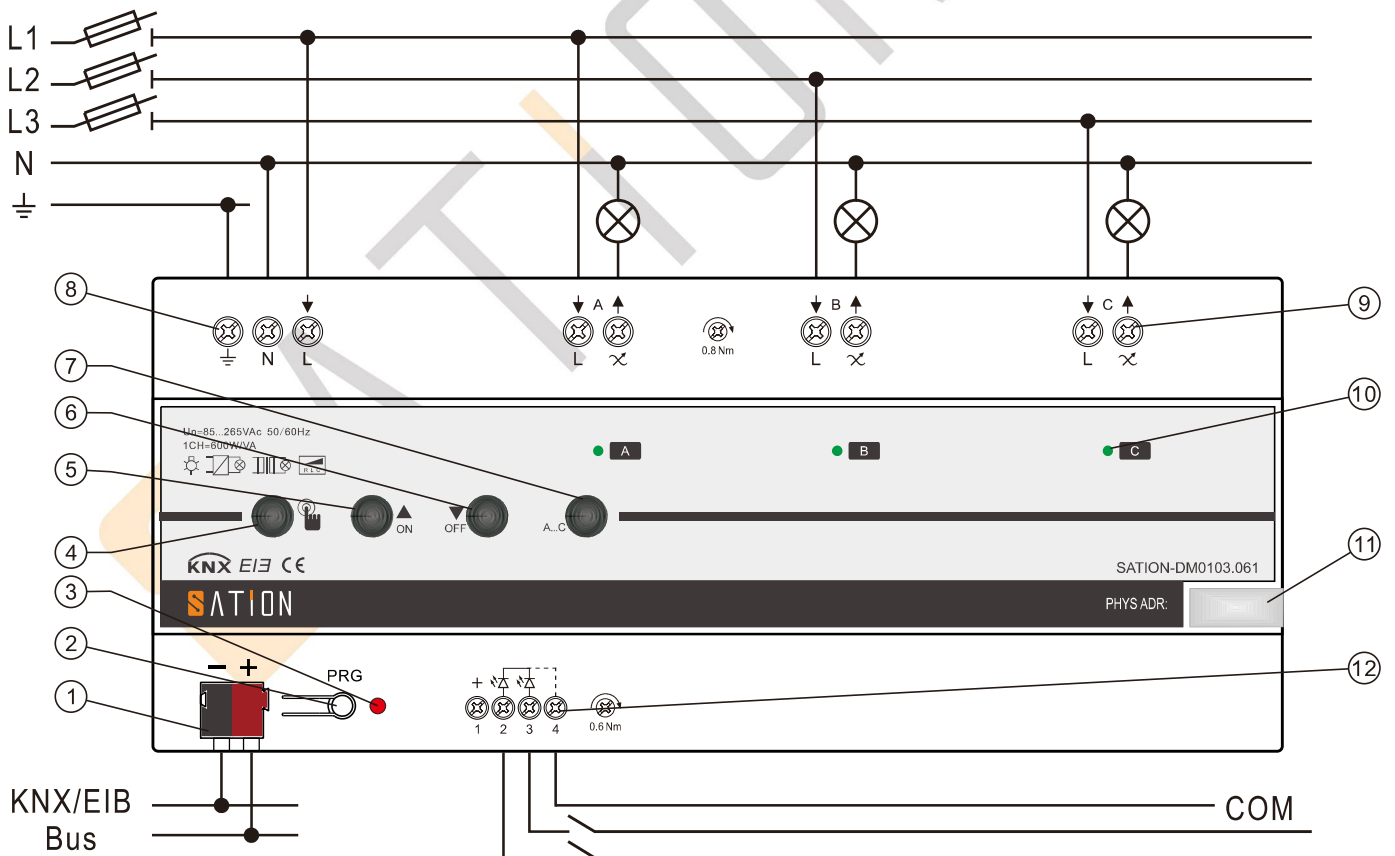
- | | | | |
|------------------------------|----------------------|-------------------------------|-------------------------|
| 1 KNX bus-connection | 2 Programming button | 3 Programming LED | 4 Dimming toggle button |
| 5 Dimming button+ | 6 Dimming button- | 7 Channel toggle button | 8 AC input terminals |
| 9 Dimming output terminalsx2 | | 10 Channel LED | |
| 11 Address tag | | 12 External input terminalsx2 | |

3.2.3 DM0103.0610

3.2.3.1 Dimension drawing



3.2.3.2 Circuit Diagram



- | | | |
|---|----------------------|-------------------------------|
| 1 KNX bus-connection | 2 Programming button | 3 Programming LED |
| 4 Dimming toggle button of the manual control | 5 Dimming button+ | 6 Dimming button- |
| 7 Channel toggle button | 8 AC input terminals | 9 Dimming output terminalsx3 |
| 10 Channel LED | 11 Address tag | 12 External input terminalsx2 |

4 Contact us

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5 Appendix

Dimming Actuators CE standards in the chart below.

| Items | No | Requirement Level | Performance | Remarks | | | | | | | | | | | | | | | |
|------------------------|--------------------------|--|-------------|--------------------------|-----|--------------------------|---|--------------------------|---|--------------------------|----|--------------------------|------------------|--------------------------|---|--------------------------|--------------------|--------------------------|-----|
| ESD (EN61000-4-2) | EN61000-6-1 | Contact 4KV/Air 8KV | B | | | | | | | | | | | | | | | | |
| RS (EN61000-4-3) | | 80MHz-2GHz: 3V/m 2G-2.7GHz: 1V/m | A | | | | | | | | | | | | | | | | |
| EFT (EN61000-4-4) | | ±1KV | B | | | | | | | | | | | | | | | | |
| SURGE (EN61000-4-5) | | L-N ±1KV L-PE ±2KV | B | | | | | | | | | | | | | | | | |
| C/S (EN61000-4-6) | | 3V | A | | | | | | | | | | | | | | | | |
| M/F (EN61000-4-8) | | 3V/m | A | | | | | | | | | | | | | | | | |
| DIPS (EN61000-4-11) | | <table border="1" style="font-size: small;"> <tr><td>0</td><td>% residual voltage cycle</td></tr> <tr><td>0.5</td><td>% residual voltage cycle</td></tr> <tr><td>0</td><td>% residual voltage cycle</td></tr> <tr><td>1</td><td>% residual voltage cycle</td></tr> <tr><td>70</td><td>% residual voltage cycle</td></tr> <tr><td>25/30 at 50/60Hz</td><td>% residual voltage cycle</td></tr> <tr><td>0</td><td>% residual voltage cycle</td></tr> <tr><td>250/300 at 50/60Hz</td><td>% residual voltage cycle</td></tr> </table> | 0 | % residual voltage cycle | 0.5 | % residual voltage cycle | 0 | % residual voltage cycle | 1 | % residual voltage cycle | 70 | % residual voltage cycle | 25/30 at 50/60Hz | % residual voltage cycle | 0 | % residual voltage cycle | 250/300 at 50/60Hz | % residual voltage cycle | B&C |
| 0 | % residual voltage cycle | | | | | | | | | | | | | | | | | | |
| 0.5 | % residual voltage cycle | | | | | | | | | | | | | | | | | | |
| 0 | % residual voltage cycle | | | | | | | | | | | | | | | | | | |
| 1 | % residual voltage cycle | | | | | | | | | | | | | | | | | | |
| 70 | % residual voltage cycle | | | | | | | | | | | | | | | | | | |
| 25/30 at 50/60Hz | % residual voltage cycle | | | | | | | | | | | | | | | | | | |
| 0 | % residual voltage cycle | | | | | | | | | | | | | | | | | | |
| 250/300 at 50/60Hz | % residual voltage cycle | | | | | | | | | | | | | | | | | | |
| Conducted interference | EN61000-6-3 | 66dB(μV) - 56 dB(μV) QP 56dB(μV) - 46 dB(μV) AV | A | 0.15MHz-0.5MHz | | | | | | | | | | | | | | | |
| | | 56 dB(μV) QP 46 dB(μV) AV | A | 0.5MHz-5MHz | | | | | | | | | | | | | | | |
| | | 60dB(μV) QP 50dB(μV) AV | A | 5MHz-30MHz | | | | | | | | | | | | | | | |
| Radiated interference | | 40 dB(μV/m) | A | 30MHz-230MHz | | | | | | | | | | | | | | | |
| | | 47 dB(μV/m) | A | 230MHz-1000MHz | | | | | | | | | | | | | | | |
| Harmonic current | EN61000-3-2 | | A | | | | | | | | | | | | | | | | |
| Voltage fluctuation | EN61000-3-3 | | B | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |

Remark 1: The above standard level requirement from KNX standard 4-2 roll.

Remark 2: Performance A: Do not allowed errors ; Performance B: Allowing errors.

Dimming Actuators CE standards in the chart below.

| Items | No | Requirement level | performance | remarks |
|----------------------------|-----------|-------------------|-------------|---------|
| | EN60947-3 | | | |
| Insulation strength test | √ | 2 | -- | |
| Inflaming retarding test | √ | 2 | -- | |
| Temperature rise test | √ | 2 | A | |
| Corrosion resisting test | √ | 2 | A | |
| Electrical life test | √ | 2 | A | |
| On-off volume control test | √ | 2 | A | |
| Normal operation test | √ | 2 | A | |