

# SPB Series

## INSTRUCTION MANUAL

TCD220029AA



Thank you for choosing our Autonics product.

**Read and understand the instruction manual and manual thoroughly before using the product.**

**For your safety, read and follow the below safety considerations before using.**

**For your safety, read and follow the considerations written in the instruction manual, other manuals and Autonics website.**

Keep this instruction manual in a place where you can find easily.

The specifications, dimensions, etc. are subject to change without notice for product improvement. Some models may be discontinued without notice.

Follow Autonics website for the latest information.

### Safety Considerations

- Observe all 'Safety Considerations' for safe and proper operation to avoid hazards.
- ⚠ symbol indicates caution due to special circumstances in which hazards may occur.

**⚠ Warning** Failure to follow instructions may result in serious injury or death.

- Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss. (e.g. nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety equipment, crime/disaster prevention devices, etc.)**  
Failure to follow this instruction may result in personal injury, economic loss or fire.
- Do not use the unit in the place where flammable/explosive/corrosive gas, high humidity, direct sunlight, radiant heat, vibration, impact, or salinity may be present.**  
Failure to follow this instruction may result in explosion or fire.
- Install on the DIN rail, and ground to the F.G. terminal separately.**  
Failure to follow this instruction may result in fire or electric shock.
- Do not connect, repair, or inspect the unit while connected to a power source.**  
Failure to follow this instruction may result in fire or electric shock.
- Check 'Wiring Diagram' before wiring.**  
Failure to follow this instruction may result in fire.
- Do not disassemble or modify the unit.**  
Failure to follow this instruction may result in fire or electric shock.

**⚠ Caution** Failure to follow instructions may result in injury or product damage.

- When connecting the F.G. terminal, use AWG 14 (2.1mm<sup>2</sup>) cable or over and tighten the terminal screw with a tightening torque of 0.7 to 0.9N·m. When connecting the F.G. terminal of SPB-015/030 model, tighten the terminal screw with a tightening torque of 0.3 to 0.5N·m.**  
Failure to follow this instruction may result in fire or malfunction due to contact failure.
- Use the unit within the rated specifications.**  
Failure to follow this instruction may result in fire, product damage or shortening the life cycle of the product.
- Use dry cloth to clean the unit, and do not use water or organic solvent.**  
Failure to follow this instruction may result in fire or electric shock.
- Keep the product away from metal chip, dust, and wire residue which flow into the unit.**  
Failure to follow this instruction may result in fire or product damage.
- Do not touch the product during operation or for a certain period of time after stopping.**  
Failure to follow this instruction may result in burns.
- Upon occurrence of an error, disconnect the power source.**  
Failure to follow this instruction may result in fire or product damage.

### Cautions during Use

- Follow instructions in 'Cautions during Use'. Otherwise, it may cause unexpected accidents.
- Do not connect the output voltage neither in serial nor in parallel.
- Since SPB-015/030/060 models have no harmonic suppression or power factor correction circuit, install the circuit separately if necessary.
- Since SPB-015/030/060 models use the condenser input method, power factor is in the range of 0.4 to 0.6. When using distribution board or transformer, check the capacity of the input voltage.  
Input apparent power[VA] =  $\frac{\text{Output active power[W]}}{\text{Power factor} \times \text{Efficiency}}$

- Even though a noise filter is installed inside the product, the product can be affected by noise depending on the installation location or wiring.
- If the internal fuse is damaged, please contact our A/S center.

- To ensure the reliability of the product, install the product on the panel or metal surface vertically to the ground.
- Install the unit in the well ventilated place.
- Do not use near the equipment which generates strong magnetic force or high frequency noise.
- This unit may be used in the following environments.
  - Indoors (in the environment condition rated in 'Specifications')
  - Altitude max. 2,000m
  - Pollution degree 2
  - Installation category II

### Ordering Information

This is only for reference.

For selecting the specific model, follow the Autonics web site.

|     |   |   |   |   |
|-----|---|---|---|---|
| SPB | - | ① | - | ② |
|-----|---|---|---|---|

#### ① Output power

Number: Output power (unit: W)

#### ② Output voltage

Number: Output voltage (unit: VDC≐)

### Specifications

| Output range                                  | 15 to 31.2 W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                  |                  |                  |                  |                  |
|-----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------|------------------|------------------|------------------|
| Model                                         | SPB-015-05                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | SPB-015-12       | SPB-015-24       | SPB-030-05       | SPB-030-12       | SPB-030-24       |
| Output power                                  | 15 W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 15.6 W           | 15.6 W           | 25 W             | 30 W             | 31.2 W           |
| Input condition                               | 100 - 240 VAC~ (permissible voltage: 85 - 264 VAC~ / 120 - 370 VDC≐)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                  |                  |                  |                  |                  |
| Voltage <sup>(01)</sup>                       | 50 / 60 Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                  |                  |                  |                  |                  |
| Frequency                                     | 50 / 60 Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                  |                  |                  |                  |                  |
| Efficiency <sup>(02)</sup> (Typical)          | 100 VAC~<br>240 VAC~                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 77%<br>76%       | 80%<br>79%       | 83%<br>82%       | 77%<br>78%       | 82%<br>83%       |
| Power factor <sup>(02)</sup>                  | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                  |                  |                  |                  |                  |
| Max. current consumption <sup>(02)</sup>      | 0.4 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                  |                  |                  |                  |                  |
| Current consumption <sup>(02)</sup> (Typical) | 100 VAC~<br>240 VAC~                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 0.35 A<br>0.19 A | 0.35 A<br>0.19 A | 0.34 A<br>0.19 A | 0.56 A<br>0.30 A | 0.63 A<br>0.35 A |
| Output characteristics                        | 24 VDC≐                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                  |                  |                  |                  |                  |
| Voltage                                       | 5 VDC≐                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 12 VDC≐          | 24 VDC≐          | 5 VDC≐           | 12 VDC≐          | 24 VDC≐          |
| Current                                       | 3 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1.3 A            | 0.65 A           | 5 A              | 2.5 A            | 1.3 A            |
| Voltage adjustment range                      | ≤ ±10%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                  |                  |                  |                  |                  |
| Input variation <sup>(05)</sup>               | ≤ ±0.5%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                  |                  |                  |                  |                  |
| Load variation                                | ≤ ±1%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                  |                  |                  |                  |                  |
| Ripple noise <sup>(03),(04)</sup>             | ≤ ±1.5%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                  |                  |                  |                  |                  |
| Start-up time <sup>(02)</sup> (Typical)       | 100 VAC~<br>240 VAC~                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 500 ms<br>550 ms | 550 ms<br>550 ms | 650 ms<br>650 ms | 600 ms<br>600 ms | 550 ms<br>550 ms |
| Hold time <sup>(02)</sup> (Typical)           | 100 VAC~<br>240 VAC~                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 24 ms<br>190 ms  | 25 ms<br>190 ms  | 25 ms<br>190 ms  | 20 ms<br>130 ms  | 15 ms<br>110 ms  |
| Protection                                    | Inrush current protection (Typical) 100 VAC~ 240 VAC~                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                  |                  |                  |                  |                  |
| Inrush current protection (Typical)           | 7 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 7 A              | 7 A              | 7 A              | 7 A              | 6 A              |
| Over-current protection <sup>(04),(05)</sup>  | 105 to 160%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                  |                  |                  |                  |
| Over-voltage protection <sup>(05)</sup>       | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                  |                  |                  |                  |                  |
| Output low-voltage indicate                   | 4.2V ±10%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 9.6V ±10%        | 20.0V ±10%       | 4.2V ±10%        | 9.6V ±10%        | 20.0V ±10%       |
| Power factor correction circuit               | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                  |                  |                  |                  |                  |
| Approval <sup>(06)</sup>                      | CE, RoHS, ENEC, FCC, UL, VDE, TUV, PSE, CCC, CB, KC, BSMI, SAA, BSMI, NEMKO, TSE, UKCA, UKCA2, UKCA3, UKCA4, UKCA5, UKCA6, UKCA7, UKCA8, UKCA9, UKCA10, UKCA11, UKCA12, UKCA13, UKCA14, UKCA15, UKCA16, UKCA17, UKCA18, UKCA19, UKCA20, UKCA21, UKCA22, UKCA23, UKCA24, UKCA25, UKCA26, UKCA27, UKCA28, UKCA29, UKCA30, UKCA31, UKCA32, UKCA33, UKCA34, UKCA35, UKCA36, UKCA37, UKCA38, UKCA39, UKCA40, UKCA41, UKCA42, UKCA43, UKCA44, UKCA45, UKCA46, UKCA47, UKCA48, UKCA49, UKCA50, UKCA51, UKCA52, UKCA53, UKCA54, UKCA55, UKCA56, UKCA57, UKCA58, UKCA59, UKCA60, UKCA61, UKCA62, UKCA63, UKCA64, UKCA65, UKCA66, UKCA67, UKCA68, UKCA69, UKCA70, UKCA71, UKCA72, UKCA73, UKCA74, UKCA75, UKCA76, UKCA77, UKCA78, UKCA79, UKCA80, UKCA81, UKCA82, UKCA83, UKCA84, UKCA85, UKCA86, UKCA87, UKCA88, UKCA89, UKCA90, UKCA91, UKCA92, UKCA93, UKCA94, UKCA95, UKCA96, UKCA97, UKCA98, UKCA99, UKCA100 |                  |                  |                  |                  |                  |
| Unit weight (Package)                         | ≈ 129 g (≈ 202 g)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                  |                  |                  |                  |                  |

| Output range                                  | 60 to 120 W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                  |                   |                   |                   |
|-----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------|-------------------|-------------------|-------------------|
| Model                                         | SPB-060-12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | SPB-060-24       | SPB-060-48       | SPB-120-12        | SPB-120-24        | SPB-120-48        |
| Output power                                  | 60 W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 60 W             | 62.4 W           | 96 W              | 120 W             | 120 W             |
| Input condition                               | 100 - 240 VAC~ (permissible voltage: 85 - 264 VAC~ / 120 - 370 VDC≐)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                  |                  |                   |                   |                   |
| Voltage <sup>(01)</sup>                       | 50 / 60 Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                  |                  |                   |                   |                   |
| Frequency                                     | 50 / 60 Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                  |                  |                   |                   |                   |
| Efficiency <sup>(02)</sup> (Typical)          | 100 VAC~<br>240 VAC~                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 81%<br>83%       | 84%<br>86%       | 85%<br>87%        | 82%<br>85%        | 85%<br>88%        |
| Power factor <sup>(02)</sup>                  | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                  |                  |                   |                   |                   |
| Max. current consumption <sup>(02)</sup>      | 1.6 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                  |                  |                   |                   |                   |
| Current consumption <sup>(02)</sup> (Typical) | 100 VAC~<br>240 VAC~                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 1.24 A<br>0.66 A | 1.21 A<br>0.65 A | 1.19 A<br>0.64 A  | 1.19 A<br>0.52 A  | 1.49 A<br>0.61 A  |
| Output characteristics                        | 24 VDC≐                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                  |                  |                   |                   |                   |
| Voltage                                       | 12 VDC≐                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 24 VDC≐          | 48 VDC≐          | 12 VDC≐           | 24 VDC≐           | 48 VDC≐           |
| Current                                       | 5 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 2.5 A            | 1.3 A            | 8 A               | 5 A               | 2.5 A             |
| Voltage adjustment range                      | ≤ ±5%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                  |                  |                   |                   |                   |
| Input variation <sup>(05)</sup>               | ≤ ±0.5%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                  |                  |                   |                   |                   |
| Load variation                                | ≤ ±1%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                  |                  |                   |                   |                   |
| Ripple noise <sup>(03),(04)</sup>             | ≤ ±1%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                  |                  |                   |                   |                   |
| Start-up time <sup>(02)</sup> (Typical)       | 100 VAC~<br>240 VAC~                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 520 ms<br>530 ms | 550 ms<br>550 ms | 1200 ms<br>400 ms | 1200 ms<br>400 ms | 1200 ms<br>400 ms |
| Hold time <sup>(02)</sup> (Typical)           | 100 VAC~<br>240 VAC~                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 15 ms<br>100 ms  | 14 ms<br>110 ms  | 15 ms<br>108 ms   | 98 ms<br>97 ms    | 75 ms<br>43 ms    |
| Protection                                    | Inrush current protection (Typical) 100 VAC~ 240 VAC~                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                  |                  |                   |                   |                   |
| Inrush current protection (Typical)           | 13 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 14 A             | 10 A             | 9 A               | 11 A              | 10 A              |
| Over-current protection <sup>(04),(05)</sup>  | 105 to 160%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                  |                   |                   |                   |
| Over-voltage protection <sup>(05)</sup>       | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                  |                  |                   |                   |                   |
| Output low-voltage indicate                   | 9.6V ±10%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 20.0V ±10%       | 43.0V ±10%       | 9.6V ±10%         | 20.0V ±10%        | 43.0V ±10%        |
| Power factor correction circuit               | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                  |                  |                   |                   |                   |
| Approval <sup>(06)</sup>                      | CE, RoHS, ENEC, FCC, UL, VDE, TUV, PSE, CCC, CB, KC, BSMI, SAA, BSMI, NEMKO, TSE, UKCA, UKCA2, UKCA3, UKCA4, UKCA5, UKCA6, UKCA7, UKCA8, UKCA9, UKCA10, UKCA11, UKCA12, UKCA13, UKCA14, UKCA15, UKCA16, UKCA17, UKCA18, UKCA19, UKCA20, UKCA21, UKCA22, UKCA23, UKCA24, UKCA25, UKCA26, UKCA27, UKCA28, UKCA29, UKCA30, UKCA31, UKCA32, UKCA33, UKCA34, UKCA35, UKCA36, UKCA37, UKCA38, UKCA39, UKCA40, UKCA41, UKCA42, UKCA43, UKCA44, UKCA45, UKCA46, UKCA47, UKCA48, UKCA49, UKCA50, UKCA51, UKCA52, UKCA53, UKCA54, UKCA55, UKCA56, UKCA57, UKCA58, UKCA59, UKCA60, UKCA61, UKCA62, UKCA63, UKCA64, UKCA65, UKCA66, UKCA67, UKCA68, UKCA69, UKCA70, UKCA71, UKCA72, UKCA73, UKCA74, UKCA75, UKCA76, UKCA77, UKCA78, UKCA79, UKCA80, UKCA81, UKCA82, UKCA83, UKCA84, UKCA85, UKCA86, UKCA87, UKCA88, UKCA89, UKCA90, UKCA91, UKCA92, UKCA93, UKCA94, UKCA95, UKCA96, UKCA97, UKCA98, UKCA99, UKCA100 |                  |                  |                   |                   |                   |
| Unit weight (Package)                         | ≈ 274 g (≈ 347 g)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                  |                  |                   |                   |                   |

| Output range                                  | 180 to 240 W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                  |                  |                  |                  |
|-----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------|------------------|------------------|
| Model                                         | SPB-180-24                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | SPB-180-48       | SPB-240-12       | SPB-240-24       | SPB-240-48       |
| Output power                                  | 180 W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 182.4 W          | 240 W            |                  |                  |
| Input condition                               | 100 - 240 VAC~ (permissible voltage: 85 - 264 VAC~ / 120 - 370 VDC≐)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                  |                  |                  |                  |
| Voltage <sup>(01)</sup>                       | 50 / 60 Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                  |                  |                  |                  |
| Frequency                                     | 50 / 60 Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                  |                  |                  |                  |
| Efficiency <sup>(02)</sup> (Typical)          | 100 VAC~<br>240 VAC~                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 89%<br>92%       | 89%<br>92%       | 87%<br>90%       | 89%<br>92%       |
| Power factor <sup>(02)</sup>                  | ≥ 0.9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                  |                  |                  |                  |
| Max. current consumption <sup>(02)</sup>      | 3.0 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                  |                  |                  |                  |
| Current consumption <sup>(02)</sup> (Typical) | 100 VAC~<br>240 VAC~                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2.03 A<br>0.83 A | 2.04 A<br>0.84 A | 2.76 A<br>1.14 A | 2.71 A<br>1.12 A |
| Output characteristics                        | 24 VDC≐                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                  |                  |                  |                  |
| Voltage                                       | 24 VDC≐                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 48 VDC≐          | 12 VDC≐          | 24 VDC≐          | 48 VDC≐          |
| Current                                       | 7.5 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 3.8 A            | 20 A             | 10 A             | 5 A              |
| Voltage adjustment range                      | ≤ ±5%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                  |                  |                  |                  |
| Input variation <sup>(05)</sup>               | ≤ ±0.5%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                  |                  |                  |                  |
| Load variation                                | ≤ ±1%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                  |                  |                  |                  |
| Ripple noise <sup>(03),(04)</sup>             | ≤ ±1%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                  |                  |                  |                  |
| Start-up time <sup>(02)</sup> (Typical)       | 100 VAC~<br>240 VAC~                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 87 ms<br>56 ms   | 75 ms<br>45 ms   | 75 ms<br>45 ms   | 87 ms<br>56 ms   |
| Hold time <sup>(02)</sup> (Typical)           | 100 VAC~<br>240 VAC~                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 36 ms<br>36 ms   | 25 ms<br>25 ms   | 33 ms<br>33 ms   | 36 ms<br>25 ms   |
| Protection                                    | Inrush current protection (Typical) 100 VAC~ 240 VAC~                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                  |                  |                  |                  |
| Inrush current protection (Typical)           | 8 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 8 A              | 8 A              | 8 A              | 8 A              |
| Over-current protection <sup>(04),(05)</sup>  | 105 to 160%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                  |                  |                  |
| Over-voltage protection <sup>(05)</sup>       | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                  |                  |                  |                  |
| Output low-voltage indicate                   | 30.0V ±10%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 58.0V ±10%       | 16.0V ±10%       | 30.0V ±10%       | 58.0V ±10%       |
| Power factor correction circuit               | Built-in                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                  |                  |                  |                  |
| Approval <sup>(06)</sup>                      | CE, RoHS, ENEC, FCC, UL, VDE, TUV, PSE, CCC, CB, KC, BSMI, SAA, BSMI, NEMKO, TSE, UKCA, UKCA2, UKCA3, UKCA4, UKCA5, UKCA6, UKCA7, UKCA8, UKCA9, UKCA10, UKCA11, UKCA12, UKCA13, UKCA14, UKCA15, UKCA16, UKCA17, UKCA18, UKCA19, UKCA20, UKCA21, UKCA22, UKCA23, UKCA24, UKCA25, UKCA26, UKCA27, UKCA28, UKCA29, UKCA30, UKCA31, UKCA32, UKCA33, UKCA34, UKCA35, UKCA36, UKCA37, UKCA38, UKCA39, UKCA40, UKCA41, UKCA42, UKCA43, UKCA44, UKCA45, UKCA46, UKCA47, UKCA48, UKCA49, UKCA50, UKCA51, UKCA52, UKCA53, UKCA54, UKCA55, UKCA56, UKCA57, UKCA58, UKCA59, UKCA60, UKCA61, UKCA62, UKCA63, UKCA64, UKCA65, UKCA66, UKCA67, UKCA68, UKCA69, UKCA70, UKCA71, UKCA72, UKCA73, UKCA74, UKCA75, UKCA76, UKCA77, UKCA78, UKCA79, UKCA80, UKCA81, UKCA82, UKCA83, UKCA84, UKCA85, UKCA86, UKCA87, UKCA88, UKCA89, UKCA90, UKCA91, UKCA92, UKCA93, UKCA94, UKCA95, UKCA96, UKCA97, UKCA98, UKCA99, UKCA100 |                  |                  |                  |                  |
| Unit weight (Package)                         | ≈ 505 g (≈ 609 g)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                  |                  |                  |                  |

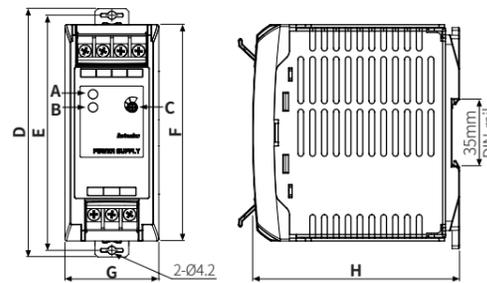
- Since there is no separate input over-voltage protection for the voltage over the rated input voltage range, supplying over-voltage may result in product damage.
- It is for 100% load condition.
- It is in the rated input voltage 100-240VAC~ (85-264VAC~) with 100% load.
- It is for the rated input voltage 100-240VAC~.
- Refer to the catalog to check the related feature data.
- It is for AC power input only.

|                                     |                                                                                                                                                |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| Indicator                           | Output indicator (green), output low-voltage indicator (red)                                                                                   |
| Insulation resistance               | ≥ 100 MΩ (500 VDC≐ megger, between all input and output terminals)                                                                             |
| Dielectric strength                 | 3,000 VAC~ 50/60 Hz for 1 min (between all input and output terminals)<br>1,500 VAC~ 50/60 Hz for 1 min (between all input terminals and F.G.) |
| Vibration                           | 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 2 hours                                                                                  |
| Shock                               | 300 m/s <sup>2</sup> (≈ 30G) in each X, Y, Z direction for 3 times                                                                             |
| EMS                                 | Conforms to EN61000-6-2                                                                                                                        |
| EMI                                 | Conforms to EN61000-6-4                                                                                                                        |
| Ambient temperature <sup>(01)</sup> | -10 to 50 °C, storage: -25 to 65 °C (no freezing or condensation)                                                                              |
| Ambient humidity                    | 25 to 85%RH, storage: 25 to 90%RH (no freezing or condensation)                                                                                |
| Protection structure                | IP20 (IEC standard)                                                                                                                            |

(01) UL approved ambient temperature is 40°C, refer to 'Output De-rating Curve by Ambient Temperature'.

### Dimensions

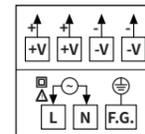
- Unit: mm, refer to the Autonics website for the details of the product.
- This is based on SPB-030 model.



|         | A                              | B                                         | C                                              | D   | E   | F   | G    | H   |
|---------|--------------------------------|-------------------------------------------|------------------------------------------------|-----|-----|-----|------|-----|
| SPB-015 |                                |                                           |                                                | 107 | 100 | 90  | 22.5 | 90  |
| SPB-030 |                                |                                           |                                                | 107 | 100 | 90  | 30   | 90  |
| SPB-060 | Output indicator: DC ON, Green | Output low voltage indicator: DC LOW, Red | Output voltage adjuster: V.ADJ <sup>(01)</sup> | 117 | 110 | 100 | 36   | 110 |
| SPB-120 |                                |                                           |                                                | 132 | 125 | 115 | 50   | 110 |
| SPB-180 |                                |                                           |                                                | 132 | 125 | 115 | 50   | 110 |
| SPB-240 |                                |                                           |                                                | 132 | 125 | 115 | 80   | 110 |

(01) Use within the voltage variable range. If the voltage exceeds the output voltage range, over-voltage protection function is activated and the output is cut off.

### Connection



| Mark | Function         |
|------|------------------|
| +V   | Output power (+) |
| -V   | Output power (-) |
| L, N | Input power      |
| F.G. | Frame ground     |

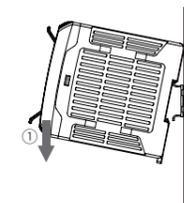
|                         | Wire                        | Terminal  | Torque         |
|-------------------------|-----------------------------|-----------|----------------|
| SPB-015 <sup>(01)</sup> | AWG 24 to 19 (Material: Cu) | Flat-head | 0.3 to 0.5 N·m |
| SPB-030                 |                             |           |                |
| SPB-060 <sup>(01)</sup> | AWG 21 to 19 (Material: Cu) | 5-M3.5    | 0.7 to 0.9 N·m |
| SPB-120                 |                             | 7-M3.5    |                |
| SPB-180                 |                             |           |                |
| SPB-240                 | AWG 18 to 16 (Material: Cu) | 7-M3.5    | 0.7 to 0.9 N·m |

(01) It has one +V/-V terminal each.

### Installation

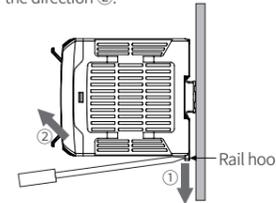
#### ■ Mounting on DIN rail

Put the product on DIN rail and press it to the direction ①.

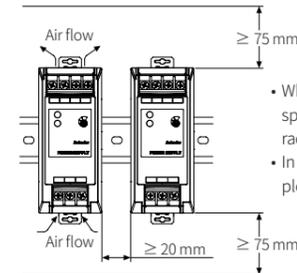


#### ■ Removing from DIN rail

Put a screw driver into the rail hook, push it to the direction ①, and lift the product to the direction ②.



#### ■ Installation interval



- When installing multiple SMPSs, please keep space at least 20 mm between SMPSs for heat radiation.
- In case of the top and bottom of the product, please keep space at least 75 mm.

### Over-heating Protection

The over-heating protection function cuts off the output voltage when the temperature in an element increases due to over-heating.

When the over-heating protection function is activated, the product does not work properly. Please resupply power after cooling the product sufficiently.

### Output De-rating Curve by Ambient Temperature

