

PSB Series

Instruction Guide

Thank you for purchasing a CCS product. To ensure proper use of the product, please read this instruction guide before use and keep it for your future reference.

1 Features

The product is a analog power supply for controlling CCS LED lights. It controls LED lights principally used for machine vision and industrial inspections. Do not use the product for other applications.

Description of Model Names

PSB - V B -

1

2

3

4

Omitted for a 5W model and worldwide model.

1 Output power

2 Output voltage

3 Lock

4 Worldwide model

5

 — 5W

1

0

 — 10W

3

0

 — 30W

1

2

 — 12V

2

4

 — 24V
 — No

L

 — Lock

W

W

 — The power supply can be used worldwide.

*1) The power supply can be used for a lighting power consumption of 5, 10, or 30 W.

*2) The power supply can be used for a lighting input voltage of 12 or 24 V.

*3) This function locks the intensity control knob.

*4) Models with this functionality can be used worldwide.

2 Important Information for Equipment Safety

- Read Before Use -

Incorrect usage of the product may result in fire, electric shock, or other serious damages. Please ensure to follow the conditions below.

■ The following symbols are used in this instruction guide to indicate and classify the relative importance of warnings and cautions.

Warning

Indicates that incorrect usage may result in serious injury or death.

Caution

Indicates that incorrect usage may result in injury or property damage.

■ The following symbols in the instruction guide indicate and classify the precautions.

PROHIBITED

DISASSEMBLY PROHIBITED

DO NOT TOUCH WITH WET HANDS

DO NOT SUBJECT TO MOISTURE

These symbols mean the prohibited action.

INSTRUCTED

UNPLUG

These symbols mean the necessary action must obey.

Warning

Do not disassemble or modify the product. Doing so may result in fire or electric shock.

DISASSEMBLY PROHIBITED

Do not touch the product with wet hands. Doing so may result in electric shock.

DO NOT TOUCH WITH WET HANDS

Make sure that the product is free of moisture or any liquid. Exposure to water may result in fire, electric shock, or product failure.

DO NOT SUBJECT TO MOISTURE

Turn off the power switch when connecting or disconnecting the product and peripherals. Otherwise it may cause fire and/or electric shock.

INSTRUCTED

Do not touch the power cords during lightning. This may result in electric shock.

PROHIBITED

If abnormal condition occurs such as fuming, heat, smell, noise, or so on, stop using the product immediately, and turn off the power switch. A fire or electric shock may result if the product is kept used.

UNPLUG

Caution

Before use the power cord, make sure it satisfies the specification of the region where you are going to use. 100 to 120V range: SVT or SJT type, AWG18, length: 3m max., dielectric strength: 125V min. 200 to 240V range: H05VV-F type, AWG18, length: 3m max., dielectric strength: 250V min.

INSTRUCTED

Make sure that the length of the extension cable is less than 5m. If the extension cable is longer than 5m, the voltage applied to both ends of the LED light will drop due to the DC resistance of the cable. The rated voltage will not be attained for 100% radiant ability, and the radiant quantity will drop as a result.

INSTRUCTED

When mount the unit in a system rack or case, the portion of the screws penetrating the case must be less than 5mm long. If this portion is longer, internal components may be short-circuited.

INSTRUCTED

Do not use lighting that is not manufactured by CCS. Doing so may cause product failure. Use of non-CCS lighting voids the warranty on the product.

PROHIBITED

Plug the power cord directly into the wall socket. Please use the product within electricity voltage/ current specifications. Otherwise it may cause fire and/or electric shock.

INSTRUCTED

Do not use user-made cables. Doing so may cause product failure.

PROHIBITED

Be sure to ground the product before using it. Not doing so may cause the product to malfunction due to static change.

INSTRUCTED

Do not place product under direct sunlight or in a high humidity environment. Doing so may result in fire due to internal temperature rise.

PROHIBITED

Make sure that connected lighting is within the power rating of the product. Not doing so may cause product failure.

INSTRUCTED

Do not bundle product cables with high-voltage lines or power lines. Doing so may cause the product to malfunction. Keep the product cables as far away from such lines as possible.

PROHIBITED

Always place product on a stable and flat location. Not doing so may result in the product falling or toppling, which may cause bodily injury and the product to malfunction.

INSTRUCTED

Do not drop or subject the product to impact. Doing so may cause the product to malfunction.

PROHIBITED

Make sure to hold and pull from the plugs when disconnecting the cables. Not pulling from the plugs may damage the cable and result in fire or electric shock.

INSTRUCTED

Do not bend or jam cables when wiring product. Doing so may cause product failure.

PROHIBITED

Before moving product, disconnect cables. Damaging the cables may result in fire or electric shock.

INSTRUCTED

To avoid product surface discoloration or deterioration, do not wipe product with volatiles such as paint thinner or benzene.

PROHIBITED

Use a dry cloth to remove dust or other foreign matter from the plug electrodes. Failure to do so may result in fire.

INSTRUCTED

3 Wire Connection

Warning

Before connection, make sure that the power is turned OFF. Making connections with the power ON may result in a fire or electric shock.

Caution

Do not bundle product cables with high-voltage lines or power lines. Doing so may cause the product to malfunction. Keep the product cables as far away from such lines as possible.

Caution

Please install the product to locations with following conditions. Incorrect installation location may cause product failure.

● In a flat and stable location with minimal vibration.

● Well-ventilated places with minimal dust.

● Places that are not subject to sudden temperature changes.

● Places free from any water, oil, liquid, chemical, or steam.

● Places free from corrosive or combustible gas.

● Places away from water faucets, boilers, humidifiers, air conditioners, heaters, or stoves.

- To secure the product, remove the rubber feet and insert M3 installation screws* into the installation screw holes on the bottom and tighten them.
*Insert depth of 5 mm max., Tightening torque: 0.3 N·M max.
- Connect the LED Lights to the output connector.
- Ground the FG terminal.
Use a wire of approximately 0.5 to 1.25 mm² (AWG20 to AWG16) for the FG terminal.
- Connect power cord to wall socket.
*For the worldwide model, connect power cord to the AC inlet and wall socket.

Front

Power switch

Intensity control knob

Rubber foot

Installation screw hole

Installation screw (M3)

Rear

Output connector

Rubber plug

FG terminal

FG cable

LED light connector

Power cord

Output Connector Configuration

1 2 3

30W model: Two output connectors

| Pin No. | 12V output | 24V output |
|-----------|----------------|----------------|
| 1 | Output+ (+12V) | Output+ (+24V) |
| 2 | Output - | NC |
| 3 | | Output - |
| Connector | SMP-02V-BC | SMP-03V-BC |

4 Operating Instructions

1 Power On

Flip the power switch up to turn ON the power supply.

2 Light Control

Turn the intensity control knob clockwise to make the light brighter, and turn it counterclockwise to make the light dimmer.

Note: Because the light intensity is controlled using a variable voltage, the unlit area made widen depending on the Light Unit. Also, Light Units with a low forward voltage (e.g., the HLV2/HLV Series) will still be lit at the minimum light intensity.

● Models with Locking Intensity Control Knob

Intensity control knob

Flat-blade screwdriver

Side Cross-sectional View

Lock

Hexagon wrench

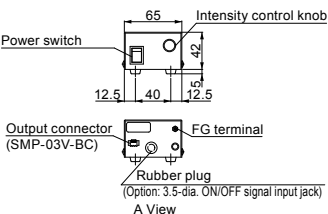
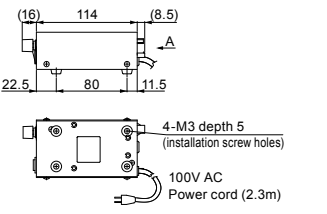
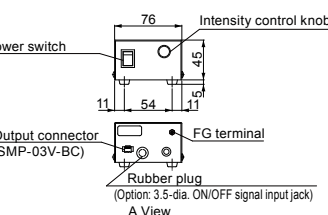
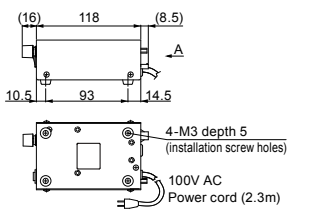
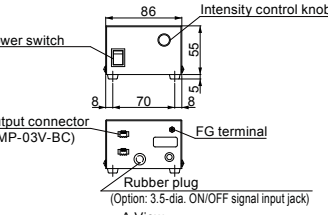
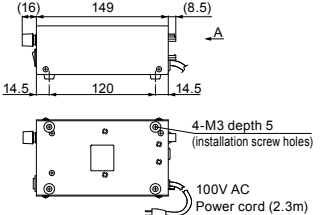
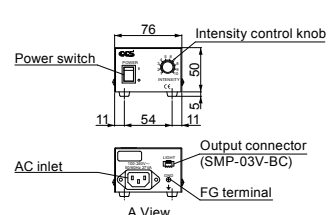
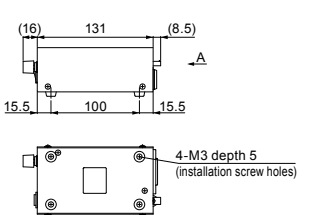
Use a flat-blade screwdriver to change the light intensity.

To lock the intensity knob, turn and secure the M3 push screw on the body of the knob with a hexagonal wrench.

5 Main Specifications

| Product name | Analog Power Supply for LED lights | | | | | | | | | | | | | | | |
|---------------------------------------|---|--|--------------------------------|--|---------------------------------|--|--------------------------------|--|---------------------------------|--|--------------------------------|--|--|--|--------------------------------|--|
| Model | PSB-512V PSB-512VL | | PSB-524V PSB-524VL | | PSB-1012VB PSB-1012VBL | | PSB-1024VB PSB-1024VBL | | PSB-3012VB PSB-3012VBL | | PSB-3024VB PSB-3024VBL | | PSB-1012V- WW | | PSB-1024V- WW | |
| Lighting method | Constant lighting | | | | | | | | | | | | | | | |
| Drive method | Constant-voltage system | | | | | | | | | | | | | | | |
| Light control method | Variable voltage control | | | | | | | | | | | | | | | |
| Number of channels | 1 channel | | | | | | | | | | | | | | | |
| Applicable illuminators (rating) | 12V 5W | | 24V 5W | | 12V 10W | | 24V 10W | | 12V 30W | | 24V 30W | | 12V 10W | | 24V 10W | |
| Light control | Front panel intensity control knob | | | | | | | | | | | | | | | |
| Over current protection | Operates at 125% of the rated current. Reset automatically. | | | | | | | | | | | | Operates at 105% of the rated current. Reset automatically. | | | |
| Input voltage (rating) | 100 to 120V AC | | | | | | | | | | | | 100 to 240V AC | | | |
| Input voltage (range) | 85 to 132V AC | | | | | | | | | | | | 85 to 264V AC | | | |
| Power consumption (typ.) | 15VA | | | | 27VA | | | | 78VA | | | | 27VA | | | |
| Frequency | 50/60Hz | | | | | | | | | | | | | | | |
| Inrush current (typ.) | 15A (at 100V AC) Note: From a cold start | | | | | | | | | | | | 15A (at 100V AC), 20A (at 200V AC) Note: From a cold start | | | |
| Ground leakage current | 3.5mA max. | | | | | | | | | | | | 3.5mA max. (264V AC, 60Hz, with no load) | | | |
| Output voltage (rating) | 8.3(±1)V DC to 12.05(±0.15)V DC | | 15(±1)V DC to 24.05(±0.25)V DC | | 8.3(±1)V DC to 12.05(±0.15)V DC | | 12(±1)V DC to 24.05(±0.25)V DC | | 8.3(±1)V DC to 12.05(±0.15)V DC | | 12(±1)V DC to 24.05(±0.25)V DC | | 8.3(±1)V DC to 12.05(±0.15)V DC | | 12(±1)V DC to 24.05(±0.25)V DC | |
| Output current (rating) | 0.41A | | 0.21A | | 0.83A | | 0.41A | | 2.5A | | 1.25A | | 0.83A | | 0.41A | |
| Dielectric strength (input-output) | 1000V AC for one minute 10mA cutoff current 500V DC, 20MΩ min. | | | | | | | | | | | | 1500V AC for one minute 10mA cutoff current 500V DC, 20MΩ min. | | | |
| Dielectric strength (input-FG) | 1000V AC for one minute 10mA cutoff current 500V DC, 20MΩ min. | | | | | | | | | | | | 1500V AC for one minute 10mA cutoff current 500V DC, 20MΩ min. | | | |
| Operating temperature and humidity | Temperature: 0 to 40°C, Humidity: 20 to 85%RH (No condensation) | | | | | | | | | | | | | | | |
| Storage temperature and humidity | Temperature: -20 to 60°C, Humidity: 20 to 85%RH (No condensation) | | | | | | | | | | | | | | | |
| Cooling method | Natural air cooling | | | | | | | | | | | | | | | |
| Altitude | 2000m max. | | | | | | | | | | | | | | | |
| Protective ground | Class 0 | | | | | | | | | | | | Class I | | | |
| Pollution level | Pollution level II | | | | | | | | | | | | | | | |
| Overvoltage category | Category II | | | | | | | | | | | | | | | |
| CE marking | | | | | | | | | | | | | Safety standard conform to EN 61010-1 | | | |
| | | | | | | | | | | | | | EMC standard conform to EN 61326 | | | |
| PSE | Specified Electrical Appliance and Material (DC power supply units) Conformity with METI Ordinance Article 1 | | | | | | | | | | | | | | | |
| Environmental Regulation | RoHS compliant | | | | | | | | | | | | | | | |
| Dimensions (mm) (W x D x H) | 65 x 114 x 42 | | | | 76 x 118 x 45 | | | | 86 x 149 x 55 | | | | 76 x 131 x 50 | | | |
| Material, coating, surface processing | Steel plate t1.0, paint color N3, Matt finish | | | | | | | | | | | | | | | |
| Weight (typ.) | 420g | | | | 470g | | | | 700g | | | | 470g | | | |
| Accessories | Instruction guide x1 | | | | | | | | | | | | Instruction guide x1, Power cord x1 | | | |

6 Dimensional Diagrams (mm)

| PSB-512V / PSB-512VL / PSB-524V / PSB-524VL | |
|--|---|
|  |  |
| PSB-1012VB / PSB-1012VBL / PSB-1024VB / PSB-1024VBL | |
|  |  |
| PSB-3012VB / PSB-3012VBL / PSB-3024VB / PSB-3024VBL | |
|  |  |
| PSB-1012V-WW / PSB-1024V-WW | |
|  |  |

7 Environmental Regulation

EU RoHS Directive

The RoHS Directive is short for the "restriction of use of certain hazardous substances in electrical and electronic equipment." As a directive, it restricts the use of specific hazardous substances for new electrical and electronic equipment marketed in the EU on or after July 1, 2006, and restricts the use of six substances, which are (1) lead, (2) mercury, (3) cadmium, (4) hexavalent chromium, (5) polybrominated biphenyl (PBB), and (6) polybrominated diphenyl ether (PBDE).


*Standards for "RoHS Directive-Compliant Products"


| Lead | Mercury | Cadmium | Hexavalent chromium | PBB | PBDE |
|--------------|--------------|-------------|---------------------|--------------|--------------|
| 1000ppm max. | 1000ppm max. | 100ppm max. | 1000ppm max. | 1000ppm max. | 1000ppm max. |

(Items that are exempted in the RoHS Directive are excluded from these standards.)

China RoHS Directive

China RoHS Directive is formally known as "Management Methods for Controlling Pollution by Electronic Information Products", which was implemented on March 1, 2007 in China. Same as EU RoHS Directive, this regulation restricts the usage of six substances such as lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyl (PBB), and polybrominated diphenyl ether (PBDE). This regulation requires electronic information products which are manufactured or imported, and sold in China, to clearly disclose contents of the 6 restricted substances listed below.

| Name and amount of toxic and hazardous substances or elements | | | | | | | |
|--|-----------------------------|--|--------------|--------------|------------------------------|-----|------|
| Usage Deadline for Environmental Protection | Product name | Toxic or Hazardous Substances and Elements | | | | | |
| | | Lead (Pb) | Mercury (Hg) | Cadmium (Cd) | Hexavalent chromium (Cr(VI)) | PBB | PBDE |
|  | Power supply for LED Lights | × | ○ | × | ○ | ○ | ○ |
| <p>○: Indicates that this toxic or hazardous substances contained in all the homogeneous materials for this part, according to SJ/T11363-2006 is within the limit requirement.</p> <p>×</p> : Indicates that this toxic or hazardous substance contained in all the homogeneous materials for this part, according to SJ/T11363-2006, is over the limit requirement. <p>*Lead and cadmium are excluded in EU RoHS.</p> | | | | | | | |
| <p>Usage deadline for environmental protection</p> <p>The number used in this logo is based on "Management Methods for Controlling Pollution by Electronic Information Products" and related regulations from People's Republic of China. It shows the product usage duration in years for environmental protection. After finishing a product usage, the product needs to be re-used or discarded appropriately following local law and regulations, complying with safety and usage caution.</p> | | | | | | | |

| 产品中有毒有害物质或元素的名称及含量 | | | | | | | |
|--|----------------|-----------|-----------|-----------|------------------|---------------|-----------------|
| 环保 使用期限 | 产品 | 有毒有害物质或元素 | | | | | |
| | | 铅 (Pb) | 汞 (Hg) | 镉 (Cd) | 六价铬 (Cr (VI)) | 多溴联苯 (PBB) | 多溴二苯醚 (PBDE) |
|  | LED 照明 专用电源 | × | ○ | × | ○ | ○ | ○ |
| <p>○：表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T11363-2006 标准规定的限量要求以下。</p> <p>×：表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T11363-2006 标准规定的限量要求。</p> <p>(注) 铅和镉中的“×”，因欧洲 RoHS 没限定，故用“○”表示。</p> | | | | | | | |
| <p>环保使用期限</p> <p>此标志的数字是根据中华人民共和国电子信息产品污染控制管理办法以及有关标准等，表示该产品的环保使用期限的年数。</p> <p>遵守产品的安全和使用上的注意，在产品使用后采取适当的方法根据各地法律，规定，回收再利用或进行废弃处理。</p> | | | | | | | |


Warranty Information

| | |
|---|--|
| EXCEPT FOR THE EXPRESS WARRANTIES STATED IN THIS DOCUMENT, CCS MAKES NO ADDITIONAL WARRANTIES, EXPRESS, IMPLIED, OR STATUTORY, AS TO ANY MATTER WHATSOEVER. IN PARTICULAR, ANY AND ALL WARRANTIES OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED. EXCEPT AS EXPRESSLY SET FORTH HEREIN, CCS MAKES NO WARRANTIES WITH RESPECT TO THE PRODUCTS. | |
| WARRANTY PERIOD: TWO YEARS, STARTING FROM CCS Inc. SHIPPING DATE. | |
| CCS Inc. WILL REPAIR OR REPLACE THE PRODUCT FREE OF CHARGE IF IT SHOULD FAIL TO FUNCTION WITHIN THE SPECIFIED WARRANTY PERIOD. IF EITHER OF THESE CONDITIONS OCCURS, PLEASE TAKE THE PRODUCT TO YOUR CCS SALES REPRESENTATIVE. | |
| WARRANTY TERMS | |
| 1 CCS Inc. WILL REPAIR OR REPLACE THE PRODUCT FREE OF CHARGE IF IT SHOULD FAIL TO FUNCTION UNDER USE ON OUR SPECIFIED CONDITION IN ACCORDANCE WITH THE INSTRUCTION GUIDE AND OTHER WRITTEN CAUTIONS DURING THE INDICATED WARRANTY PERIOD OF TWO YEARS. | |
| 2 CCS Inc. WILL CHARGE A REPAIR FEE UNDER THE FOLLOWING CONDITIONS: 1) IF THE PRODUCT HAS BEEN SUBJECTED TO MISUSE, UNAUTHORIZED REPAIRS, OR MODIFICATION FROM ITS ORIGINAL DESIGN. 2) IF THE PRODUCT HAS BEEN DAMAGED FROM IMPACTS DUE TO INAPPROPRIATE HANDLING. 3) IF DAMAGE TO THE PRODUCT RESULTS FROM EXTERNAL CAUSES INCLUDING ACCIDENTS, FIRE, POLLUTION, RIOTS, COMMUNICATION FAILURES, EARTHQUAKES, THUNDERSTORMS, WIND AND FLOOD DAMAGE, OR ANY OTHER ACT OF PROVIDENCE, OR FROM ANY EXTRAORDINARY CONDITIONS SUCH AS ELECTRICAL SURGES, WATER LEAKAGE, CONDENSATION, OR THE USE OF CHEMICALS. 4) IF THE DAMAGE RESULTS FROM CONNECTION TO ANY POWER SUPPLY OR TO ANY EQUIPMENT WHICH CCS Inc. DOES NOT MANUFACTURE OR DOES NOT SPECIFY FOR USE. | |
| 3 CCS ASSUMES NO LIABILITY FOR ANY PURCHASER'S SECONDARY DAMAGE (DAMAGE OF EQUIPMENT, LOSS OF OPPORTUNITIES, LOSS OF PROFITS, ETC.) OR ANY OTHER DAMAGE RESULTING FROM A FAILURE OF OUR PRODUCT. | |
| THIS WARRANTY INFORMATION PROVIDES THE SCOPE OF CCS'S PRODUCT WARRANTY WITHIN THE SPECIFIED PERIOD, AND DOES NOT INDICATE OR IMPLY ANY FURTHER GUARANTEE BEYOND THE WARRANTY TERMS. | |
| CONTACT CCS FOR INQUIRIES OR INFORMATION ON REPAIRS TO THE PRODUCT AFTER THE EXPIRATION OF THE WARRANTY. | |

- Do not use the product in the following situations.
 - Under conditions or in an environment not described in this instruction guide.
 - In nuclear energy control systems, railroad systems, aviation systems, vehicles, combustion equipment, medical equipment, amusement machines, or safety equipment.
 - In applications involving serious risk to life or property, particularly applications demanding a high level of safety.

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| <ul style="list-style-type: none">Instruction Guide and Dimensional Diagrams in PDF or CAD can be downloaded from the CCS website. http://www.ccs-grp.com/ |

Ask any product queries to the following address or to your nearest CCS representative.

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