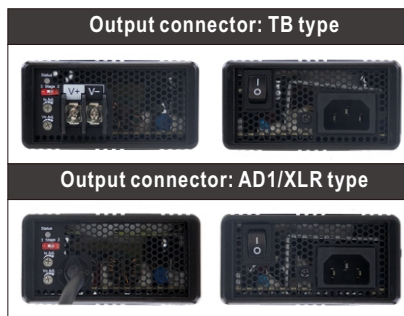




120W Compact Size and Wide Output Range Charger

**NPB-120 series**



**Features**

- 90~264Vac universal AC input, built-in PFC
- Charger for compatible with lead-acid and li-ion batteries
- Fanless design
- Wide adjustable output range by VR:
  - ▶ Charging voltage adjustable(10.5~15.2V, 21~30.4V, 42~60.8V)
  - ▶ Charging current adjustable(50~100% rated current)
- 2 or 3 stage selectable by DIP S.W
- No load power consumption< 0.15W(AC S.W off)
- -30°C~+70°C wide operating temperature
- Protections: Short circuit / Over voltage /Over temperature / Battery reverse polarity protection
- Comply with UL/EN62368-1 and EN60335-1/2-29 dual certification
- Front panel LED indicator for charging status
- 3 years warranty

**Applications**

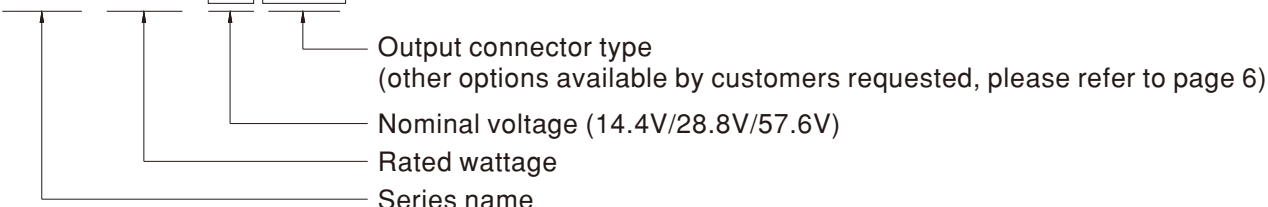
- Radio system backup solution
- Electric scooter charger
- Camping car · Buses · Heavy duty truck · Specialty vehicles
- Surveillance system
- Portable power tools

**Description**

NPB-120 series is a 120W charger for compatible with lead-acid (Flooded, Gel, AGM) and li-ion(Lithium iron, lithium manganese) batteries. This product is a class I power unit (with FG), equipped with a standard IEC320-C14 AC inlet and two or three-stage charging control. The entire series supplies different models with output voltages ranging between 10.5VDC and 60.8VDC that can satisfy the demands for various types of batteries devices.

**Model Encoding**

NPB - 120 - 24 XLR



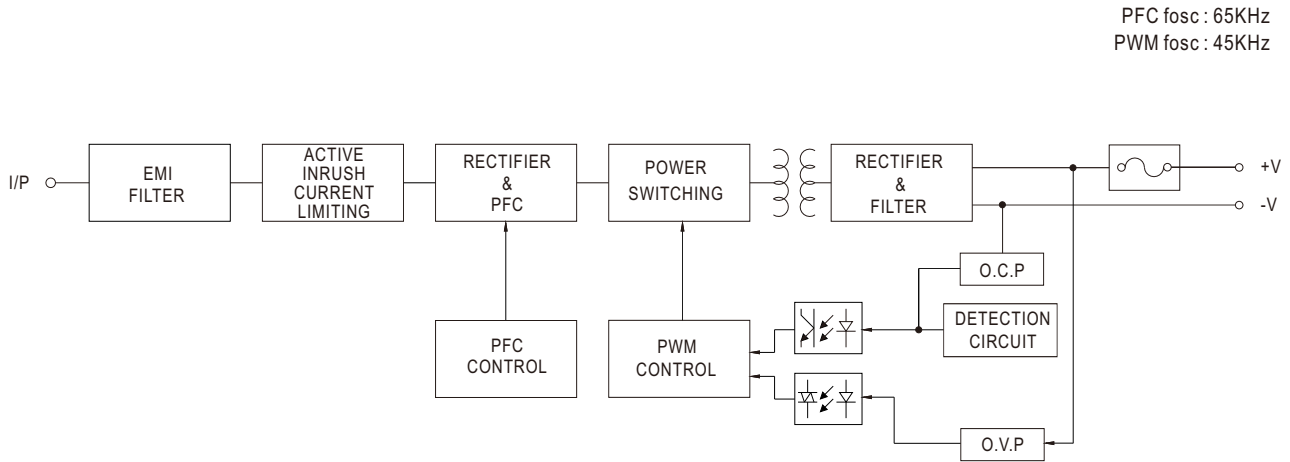
| Type | Output Connector   | Safety                                    | Note     |
|------|--------------------|---|----------|
| XLR  | 3 pin power pin    | <br>(48V UL certificated same as TB Type) | In Stock |
| AD1  | Anderson connector |   | In Stock |
| TB   | Terminal Block     |   | In Stock |



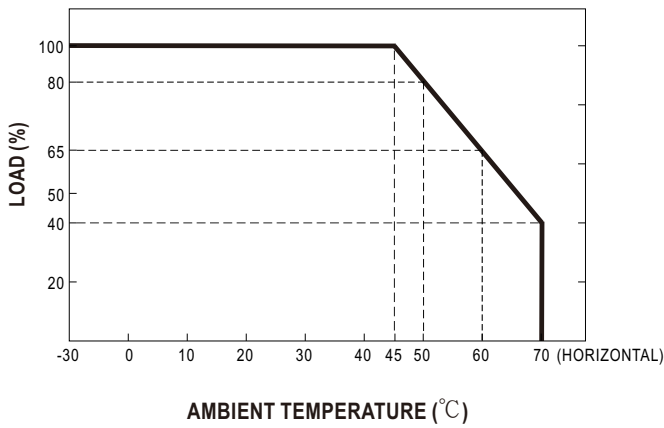
**SPECIFICATION**

| MODEL                          |   | NPB-120-12□  | NPB-120-24□                             | NPB-120-48□                                    |       |
|--------------------------------|---|--|---|--|-------|
|                                |   | □ =XLR, AD1, TB  |   |  |       |
| OUTPUT                         | BOOST CHARGE VOLTAGE(Vboost)(default)   | 14.4V  | 28.8V                                   | 57.6V  |       |
|                                | FLOAT CHARGE VOLTAGE(Vfloat)(default)   | 13.8V  | 27.6V                                   | 55.2V  |       |
|                                | VOLTAGE ADJUSTABLE RANGE  | 10.5 ~ 15.2V   | 21 ~ 30.4V                              | 42 ~ 60.8V                                     |       |
|                                | OUTPUT CURRENT(Typ.) Note.5   | 6.8A   | 4A                                      | 2A   |       |
|                                | CURRENT ADJUSTABLE RANGE  | 50% ~ 100%   |   |  |       |
|                                | MAX. POWER Note.3   | 103.4W   | 121.6W                                  | 121.6W   |       |
|                                | RECOMMENDED BATTERY CAPACITY (AMP HOURS) Note.4   | 20 ~ 90AH  | 15 ~ 50AH                               | 7 ~ 25AH                                       |       |
| INPUT                          | VOLTAGE RANGE Note.5  | 90 ~ 264VAC 127 ~ 370VDC   |   |  |       |
|                                | FREQUENCY RANGE   | 47 ~ 63Hz  |   |  |       |
|                                | POWER FACTOR (Typ.)   | PF>0.98/115VAC, PF>0.92/230VAC@12V,PF>0.93/230VAC@24/48V at full load  |   |  |       |
|                                | EFFICIENCY (Typ.)   | XLR  | 86.5%                                   | 89%  | 90.5% |
|                                |   | AD1  | 86.5%                                   | 89%  | 90.5% |
|                                |   | TB   | 87%                                     | 89.5%  | 90.5% |
|                                | AC CURRENT (Typ.)   | 1.5A/115VAC 0.8A/230VAC  |   |  |       |
| INRUSH CURRENT (Typ.)          | COLD START 55A at 230VAC  |  |   |  |       |
| PROTECTION                     | SHORT CIRCUIT Note.6  | Protection type : Constant current limiting, charger will shutdown after 5 sec, re-power on to recover       |   |  |       |
|                                | OVER VOLTAGE  | 16 ~ 20V   | 32 ~ 40V                                | 64 ~ 75V                                       |       |
|                                |   | Protection type : Shut down and latch off o/p voltage, re-power on to recover                                |   |  |       |
|                                | REVERSE POLARITY  | By internal fuse open  |   |  |       |
| OVER TEMPERATURE               | Hiccup mode, recovers automatically after temperature goes down   |  |   |  |       |
| FUNCTION                       | CHARGING CURVE  | 2 or 3 stage adjustable by DIP S.W   |   |  |       |
| ENVIRONMENT                    | WORKING TEMP.   | -30 ~ +70°C (Refer to "Derating Curve")  |   |  |       |
|                                | WORKING HUMIDITY  | 20 ~ 95% RH non-condensing   |   |  |       |
|                                | STORAGE TEMP., HUMIDITY   | -40 ~ +85°C, 10 ~ 95% RH non-condensing  |   |  |       |
|                                | TEMP. COEFFICIENT   | ±0.05%/°C (0 ~ 45°C)   |   |  |       |
|                                | VIBRATION   | 10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes   |   |  |       |
| SAFETY & EMC (Note 7)          | SAFETY STANDARDS  | CB IEC62368-1,IEC60335-1/2-29, Dekra BS EN/EN62368-1,BS EN/EN60335-1/2-29, UL62368-1, EAC TP TC 004 approved |   |  |       |
|                                | WITHSTAND VOLTAGE   | I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC  |   |  |       |
|                                | ISOLATION RESISTANCE  | I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25°C / 70% RH   |   |  |       |
|                                | EMC EMISSION  | Parameter  | Standard                                | Test Level / Note                              |       |
|                                |   | Conducted  | BS EN/EN55032 (CISPR32),BS EN/EN55014-1 | Class B  |       |
|                                |   | Radiated   | BS EN/EN55032 (CISPR32),BS EN/EN55014-1 | Class B  |       |
|                                |   | Harmonic Current   | BS EN/EN61000-3-2                       | Class A  |       |
|                                |   | Voltage Flicker  | BS EN/EN61000-3-3                       | -----  |       |
|                                | EMC IMMUNITY  | BS EN/EN55014-2,BS EN/EN55024,BS EN/EN55035  |   |  |       |
|                                |   | Parameter  | Standard                                | Test Level / Note                              |       |
|                                |   | ESD  | BS EN/EN61000-4-2                       | Level 3, 8KV air ; Level 2, 4KV contact        |       |
|                                |   | Radiated   | BS EN/EN61000-4-3                       | Level 2, 3V/m                                  |       |
|                                |   | EFT / Burst  | BS EN/EN61000-4-4                       | Level 2, 1KV                                   |       |
|                                |   | Surge  | BS EN/EN61000-4-5                       | Level 2, 1KV/Line-Line,Level 3, 2KV/Line-Earth |       |
|                                |   | Conducted  | BS EN/EN61000-4-6                       | Level 2, 3Vrms                                 |       |
| Magnetic Field                 |   | BS EN/EN61000-4-8  | Level 1, 1A/m                           |  |       |
| Voltage Dips and Interruptions | BS EN/EN61000-4-11  | >95% dip 0.5 periods, 30% dip 25 periods, >95% interruptions 250 periods                                     |   |  |       |
| OTHERS                         | MTBF  | 631.8K hrs min. Telcordia TR/SR-332 (Bellcore) ; 225.8K hrs min. MIL-HDBK-217F (25°C)                        |   |  |       |
|                                | DIMENSION   | 180*96*49mm (L*W*H)  |   |  |       |
|                                | PACKING   | 1.3Kg; 10pcs/ 14Kg / 1.13CUFT  |   |  |       |
| NOTE                           | <p>1. Modification for charger specification may be required for different battery specification. Please contact battery vendor and MEAN WELL for details.</p> <p>2. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.</p> <p>3. Refer to derating curve.</p> <p>4. This is MEAN WELL's suggested range. Please consult your battery manufacturer for their suggestions about maximum charging current limitation.</p> <p>5. Derating may be needed under low input voltages. Please check the derating curve for more details.</p> <p>6. This protection mechanism is specified for the case the short circuit occurs after the charger is turned on.</p> <p>7. The charger is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives. For guidance on how to perform these EMC tests, please refer to "EMI testing of component power supplies."<br/>(as available on <a href="http://www.meanwell.com">http://www.meanwell.com</a>)</p> <p>※ Product Liability Disclaimer : For detailed information, please refer to <a href="https://www.meanwell.com/serviceDisclaimer.aspx">https://www.meanwell.com/serviceDisclaimer.aspx</a></p> |  |   |  |       |

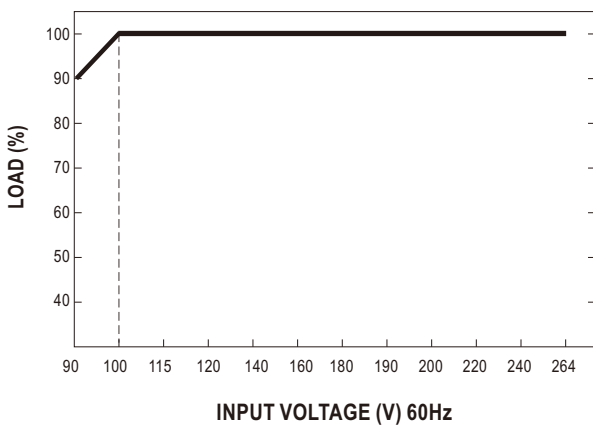
■ Block Diagram



■ Derating Curve



■ Static Characteristics

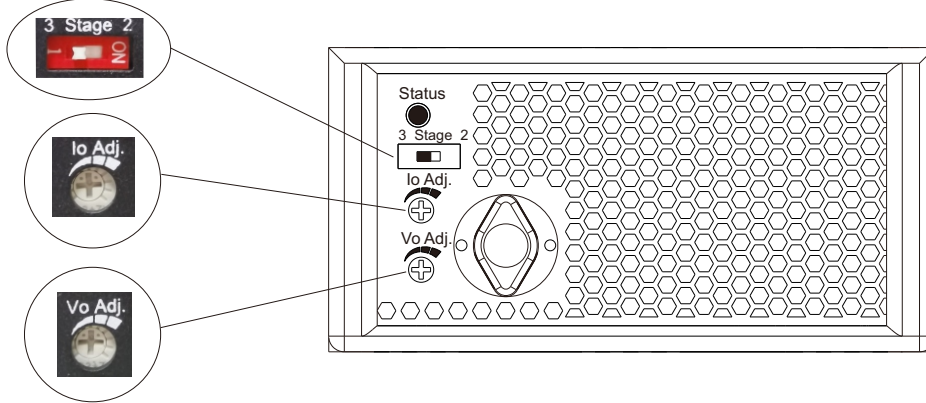


## Function Manual

### 1. Charging Curve

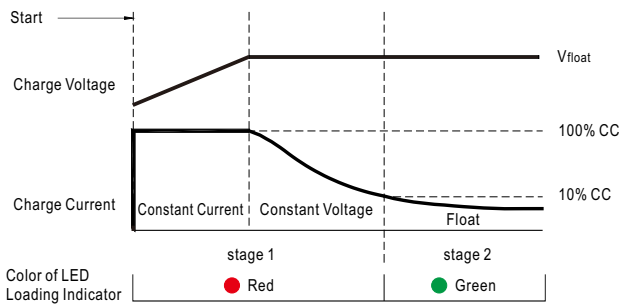
#### 1-1 2 or 3 stage selectable by DIP S.W

※ This series provides 2 or 3 stage charging curve. (Default 3 stage)



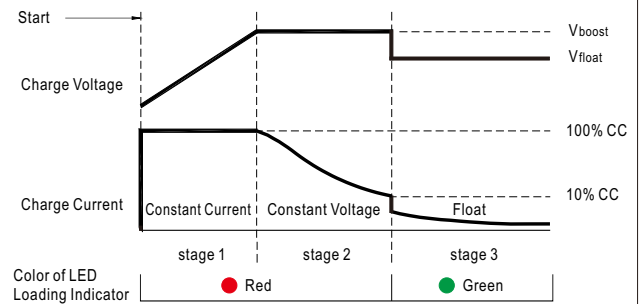
#### 1-2 Charging Curve by DIP S.W

##### Ⓒ 2 stage charging curve



| State              | NPB-120-12 | NPB-120-24 | NPB-120-48 |
|--------------------|------------|------------|------------|
| Constant Current   | 6.8A       | 4A         | 2A         |
| V <sub>float</sub> | 13.8V      | 27.6V      | 55.2V      |

##### Ⓓ 3 stage charging curve



| State              | NPB-120-12 | NPB-120-24 | NPB-120-48 |
|--------------------|------------|------------|------------|
| Constant Current   | 6.8A       | 4A         | 2A         |
| V <sub>boost</sub> | 14.4V      | 28.8V      | 57.6V      |
| V <sub>float</sub> | 13.8V      | 27.6V      | 55.2V      |

Ⓒ 2 stage charging cure is suitable for Li-ion batteries (lithium iron and lithium manganese),

3 stage charging cure is suitable for lead-acid batteries (flooded, Gel and AGM).

### 2. Charging voltage adjustable by VR

| Model                           | NPB-120-12 <input type="checkbox"/> | NPB-120-24 <input type="checkbox"/> | NPB-120-48 <input type="checkbox"/> |
|---------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| Output voltage adjustable range | 10.5~15.2V                          | 21~30.4V                            | 42~60.8V                            |



### 3. Charging current adjustable by VR

| Model                           | NPB-120-12 <input type="checkbox"/> | NPB-120-24 <input type="checkbox"/> | NPB-120-48 <input type="checkbox"/> |
|---------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| Output current adjustable range | 3.4~6.8A                            | 2~4A                                | 1~2A                                |



### 4. Front panel LED indicators & Corresponding signal at function pins

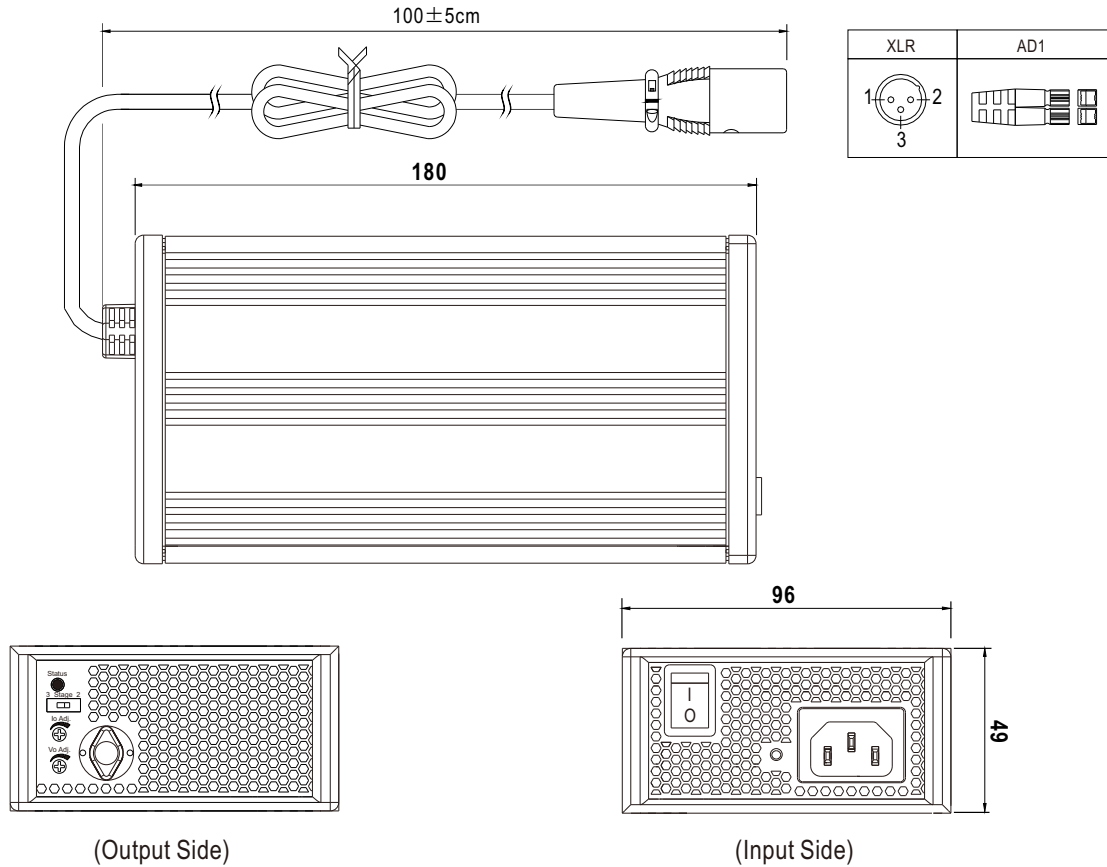
| LED     | Description                     |
|---------|---------------------------------|
| ● Green | Float (stage 3) or Battery full |
| ● Red   | Charging (stage 1 or stage 2)   |



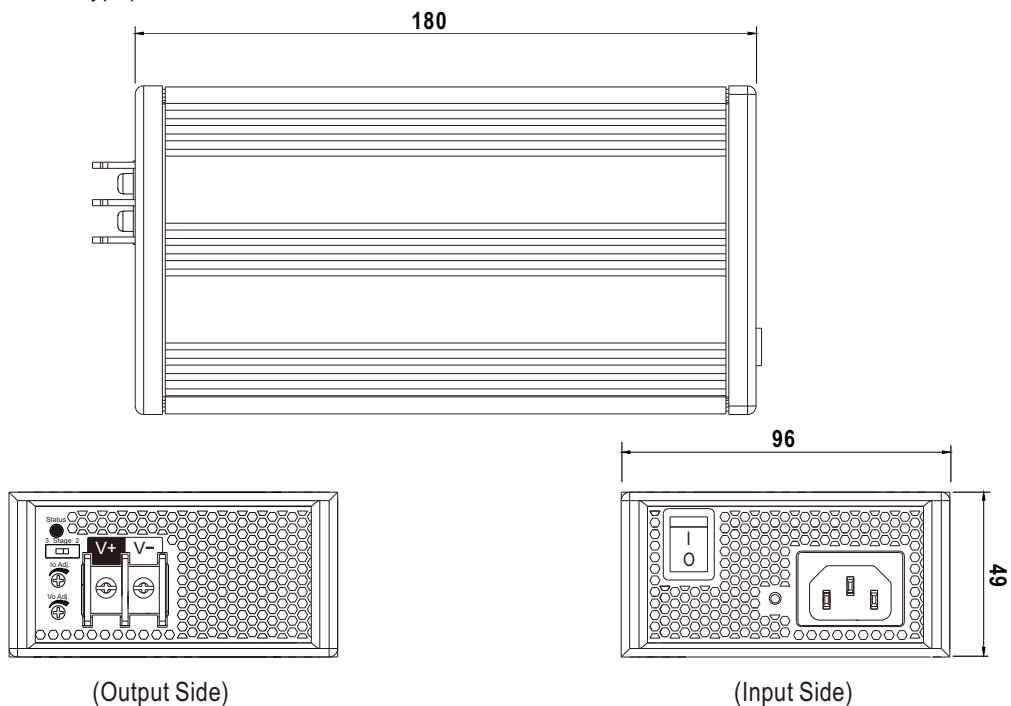
### ■ Mechanical Specification

◎ NPB-120-xx XLR/AD1  
(Cable Type)

Case No.PS-120F Unit:mm



◎ NPB-120-xx TB  
(Terminal Block Type)




**Plug Assignment**



☉ Standard Output Connector


**3pin XLR**  
UNICABLE 89M103-3P or equivalent

|     | PIN NO. | OUTPUT |
|-----|---------|--------|
| 1   | 1       | +V     |
| 2,3 | 2,3     | -V     |






**AD1**  
housing: Anderson 1327FP(red), 1327G6FP(black)  
contacts: Anderson 261G2 (45A) or equivalent

Red(+V)  Black(-V) 


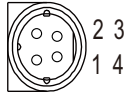
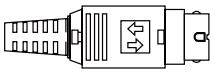

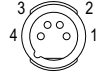
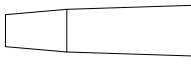

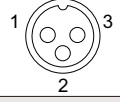
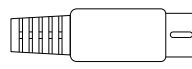

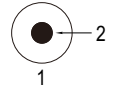
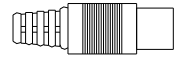

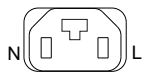
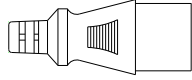


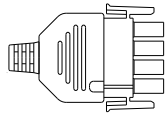


**TB**  
DT-66-B11W-02 or equivalent  
Rating: 300V 40A

+V  -V 



☉ Optional DC plug: (Available in customized)

| Min. DIN 4 Pin with Lock (male)   | Type No. | Pin Assignment |             |
|---|----------|----------------|-------------|
|   |          | PIN No.        | Output(<7A) |
|    <p>KYCON KPPX-4P equivalent</p>                   | R7B      | 1              | +Vo         |
|   |          | 2              | -Vo         |
|   |          | 3              | -Vo         |
|   |          | 4              | +Vo         |
| DIN 4 Pin XLR   | Type No. | Pin Assignment |             |
|     | XLR4     | 1              | +Vo         |
|   |          | 2              | +Vo         |
|   |          | 3              | -Vo         |
|   |          | 4              | -Vo         |
| DIN 3 Pin   | Type No. | Pin Assignment |             |
|      | D3P      | 1              | +Vo         |
|   |          | 2              | -Vo         |
|   |          | 3              | -Vo         |
| DIN 2 Pin   | Type No. | Pin Assignment |             |
|      | D2P      | 1              | -Vo         |
|   |          | 2              | +Vo         |
| DIN 3 Pin   | Type No. | Pin Assignment |             |
|      | INL3     | N              | +Vo         |
|   |          | L              | -Vo         |
| AMP 1-480702-0 (6.35mm) equivalent  | Type No. | Pin Assignment |             |
|    <p>FG not connected to output connector</p> | C4P      | 1              | +Vo         |
|   |          | 2              | +Vo         |
|   |          | 3              | -Vo         |
|   |          | 4              | -Vo         |

**INSTALLATION MANUAL**

Please refer to : <http://www.meanwell.com/manual.html>