



AC input side



DC output side



BS EN/EN62368-1  
BS EN/EN60335-1/2-29



IEC62368-1  
IEC60335-1/2-29



TPTC004



## Features

- Mult-function single unit battery charger or power supply operation modes selectable
- Output voltage and current adjustable via potentiometer
- 3-stage charging curve for charging mode
- -30~+70°C wide operating temperature
- Multiple protections: Short circuit / Over load / Over voltage / Over temperature
- Thermal controlled DC fan for noise reduction
- Remote ON-OFF control
- Comply with 62368-1+60335-1/-2-29 dual certification
- Suitable for lead-acid (Pb) batteries
- Carry handle accessory available (Order NO.:DS-Carry handle, sold separately)
- 3 years warranty

## Applications

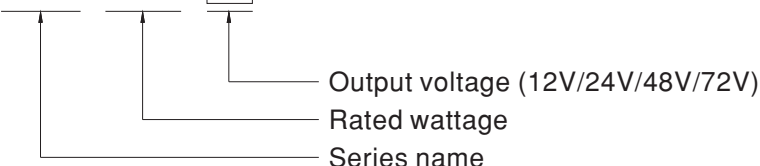
- Radio system backup solution
- Electric scooter charger
- Camping car \ Buses \ Heavy duty truck \ Specialty vehicles
- Surveillance system
- Industrial automation machinery
- Industrial control system
- Mechanical and electrical equipment

## Description

NPP-450 is a miniaturized dual-purpose charger and power supply. In addition to being used as a three-stage charger for lead-acid batteries, it can also be used as a constant voltage output power supply to drive general load. The operating mode can be quickly switched by plugging or unplugging a connector on the front panel. Other features include: ultra-wide voltage output, adjustable voltage via VR on the panel (10.5~21V, 21~42V, 42~80V, 54~100V), adjustable charging current (50~100%), built-in intelligent fan with variable speed based on temperature to reduce noise and extend fan lifetime, -30~+70°C wide operating temperature, suitability for use in different environments, built-in remote ON/OFF control, compliance to IEC/EN/UL62368-1 and household EN60335-1/-2-29 dual safety, multiple built-in protections, and 3-year warranty. The NPP-450 is truly an intelligent, safe, and reliable universal dual-purpose charger and power supply with outstanding cost performance.

## Model Encoding

NPP - 450 - 24





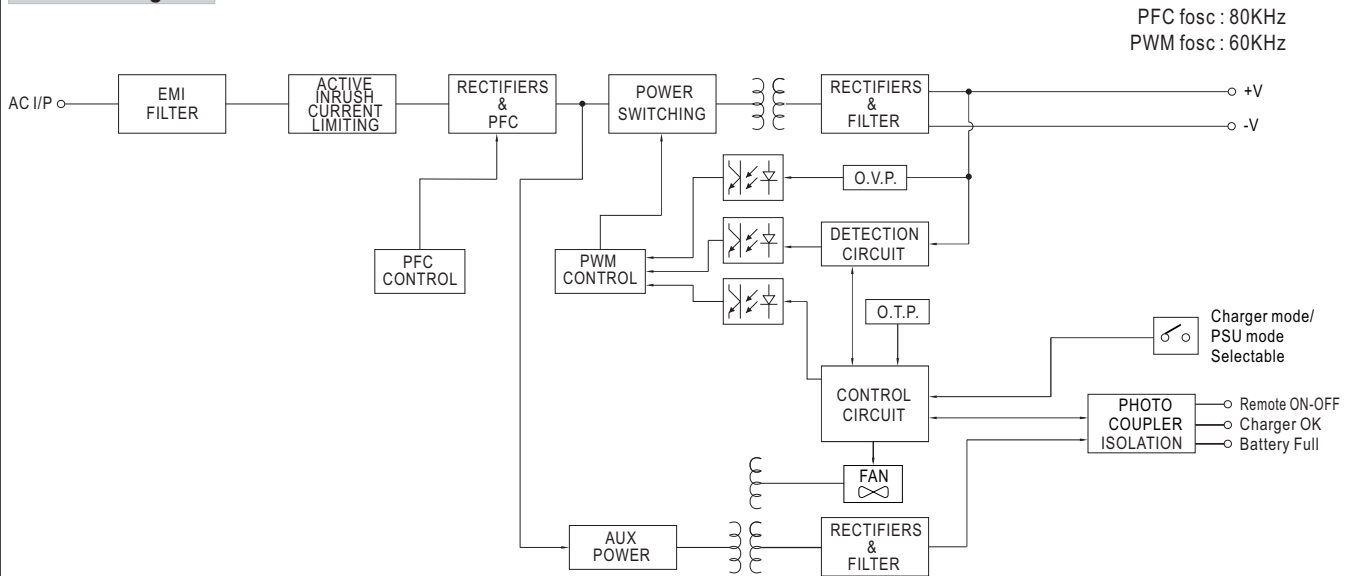
**SPECIFICATION for Battery Charger mode (Default)**

MODEL	NPP-450-12	NPP-450-24	NPP-450-48	NPP-450-72		
OUTPUT	BOOST CHARGE VOLTAGE(Vboost)(default)	14.4V	28.8V	57.6V	72V	
	FLOAT CHARGE VOLTAGE(Vfloat)(default)	13.8V	27.6V	55.2V	69V	
	VOLTAGE ADJUSTABLE RANGE	10.5 ~ 21V	21 ~ 42V	42 ~ 80V	54 ~ 100V	
		By built-in potentiometer				
	MAX. OUTPUT CURRENT(CC)	25A	13.5A	6.8A	5.5A	
	CURRENT ADJUSTABLE RANGE	12.5 ~ 25A	6.75 ~ 13.5A	3.4 ~ 6.8A	2.75 ~ 5.5A	
		Note.3 By built-in potentiometer				
	MAX. POWER	420W	453.6W	456.96W	462W	
	RECOMMENDED BATTERY CAPACITY (AMP HOURS) Note.4	90 ~ 300AH	45 ~ 155AH	24 ~ 80AH	19 ~ 64AH	
INPUT	VOLTAGE RANGE Note.5	90 ~ 264VAC 127 ~ 370VDC				
	FREQUENCY RANGE	47 ~ 63Hz				
	POWER FACTOR (Typ.)	PF>0.98/115VAC, PF>0.95/230VAC at full load				
	EFFICIENCY (Typ.) Note.6	92%	93%	93%	93%	
	AC CURRENT (Typ.)	4.5A/115VAC 2.2A/230VAC				
	INRUSH CURRENT (Typ.)	COLD START 50A at 230VAC				
PROTECTION	SHORT CIRCUIT Note.7	Protection type : Constant current limiting, charger will shutdown after 5 sec, re-power on to recover				
	OVER VOLTAGE	21.5 ~ 26V	43 ~ 52V	82 ~ 100V	102 ~ 120V	
		Protection type : Shut down and latch off o/p voltage, re-power on to recover				
	OVER TEMPERATURE	Shut down O/P voltage, recovers automatically after temperature goes down				
FUNCTION	CHARGING STAGE	3 stage only				
	CHARGER OK SIGNAL	The TTL signal out, Charger OK = H(4.5 ~ 5.5V) ; Charger failure or protection status = L(-0.5 ~ +0.5V)				
	BATTERY FULL SIGNAL	The TTL signal out, Battery full = H(4.5 ~ 5.5V) ; Charging = L(-0.5 ~ +0.5V)				
	REMOTE CONTROL	Open : Charger stop charging Short : Charger normal work				
	FAN SPEED CONTROL	Depends on internal temperature				
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 ~ 50°C)				
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes				
	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				
SAFETY & EMC (Note 8)	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/EN61000-6-2				
		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	352.3K hrs min. Telcordia SR-332 (Bellcore) ; 118.5K hrs min. MIL-HDBK-217F (25°C)				
	DIMENSION	205*135*55mm (L*W*H)				
	PACKING	1.02Kg; 8pcs/ 10Kg / 1.71CUFT				
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. Float charge voltage(Vfloat) adjustable via potentiometer in battery charger mode.</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. The efficiency is measured at 16.8V charge voltage(12V model), 33.6V charge voltage(24V model), 67.2V charge voltage(48V model), 84V charge voltage(72V model).</p> <p>7. This protection mechanism is specified for the case the short circuit occurs after the charger is turned on.</p> <p>8. The charger is considered a component which will be installed into a final equipment. All the EMC tests are been executed by mounting the unit on a 600mm*900mm metal plate with 1mm of thickness. 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." (as available on <a href="http://www.meanwell.com">http://www.meanwell.com</a>)</p> <p>9. The ambient temperature derating of 3.5°C/1000m with fanless models and of 5°C/1000m with fan models for operating altitude higher than 2000m(6500ft).</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>					

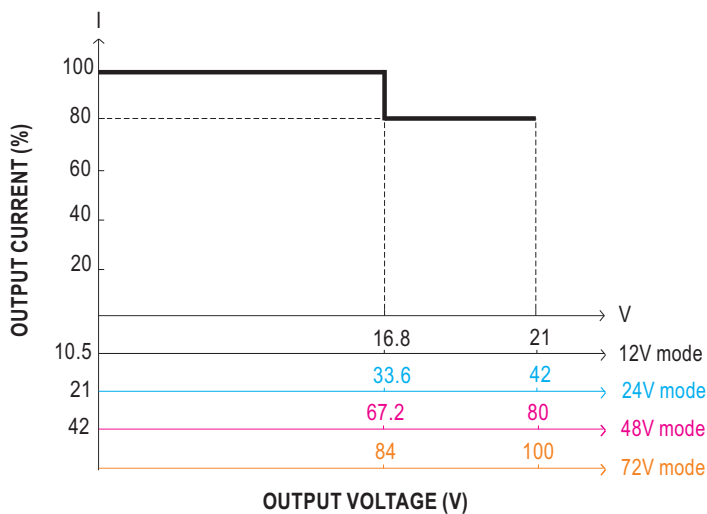
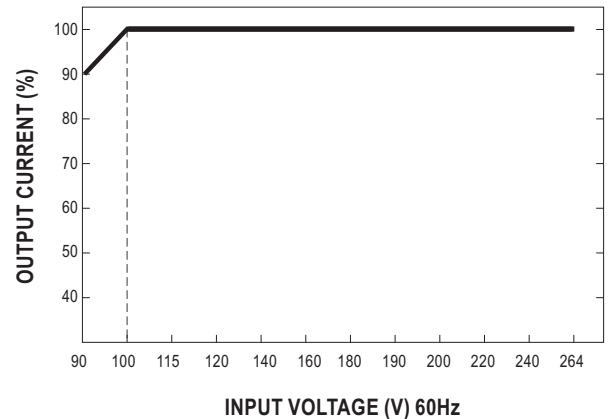
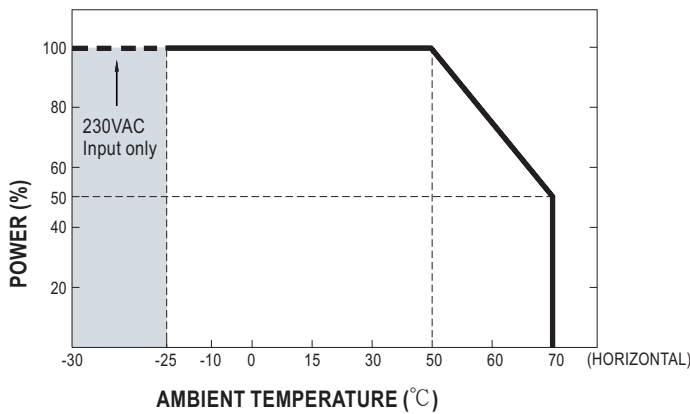
**SPECIFICATION for Power Supply mode (Selectable via pin3 & 4 jumper of 14pins connector on panel)**

MODEL		NPP-450-12	NPP-450-24	NPP-450-48	NPP-450-72	
OUTPUT	DC VOLTAGE	14.4V	28.8V	57.6V	72V	
	VOLTAGE ADJUSTABLE RANGE	10.5 ~ 21V	21 ~ 42V	42 ~ 80V	54 ~ 100V	
		By built-in potentiometer				
	CURRENT ADJUSTABLE RANGE	12.5 ~ 25A	6.75 ~ 13.5A	3.4 ~ 6.8A	2.75 ~ 5.5A	
	RATED CURRENT	25A	13.5A	6.8A	5.5A	
	RATED POWER	420W	453.6W	457W	462W	
	RIPPLE & NOISE(max.)	180mVp-p	300mVp-p	480mVp-p	600mVp-p	
	VOLTAGE TOLERANCE	±1.0%	±1.0%	±1.0%	±1.0%	
	LINE REGULATION	±0.5%	±0.5%	±0.5%	±0.5%	
	LOAD REGULATION	±1.0%	±1.0%	±0.5%	±0.5%	
SETUP, RISE TIME	1800ms, 60ms/230VAC at full load					
HOLD UP TIME (Typ.)	16ms/230VAC at 75% load 10ms/230VAC at full load					
INPUT	VOLTAGE RANGE <small>Note.3</small>	90 ~ 264VAC 127 ~ 370VDC				
	FREQUENCY RANGE	47 ~ 63Hz				
	POWER FACTOR (Typ.)	PF>0.98/115VAC, PF>0.95/230VAC at full load				
	EFFICIENCY (Typ.)	92%	93%	93%	93%	
	AC CURRENT (Typ.)	4.5A/115VAC 2.2A/230VAC				
	INRUSH CURRENT (Typ.)	COLD START 50A at 230VAC				
PROTECTION	OVERLOAD	105 ~ 115% rated output power Protection type : Constant current limiting, unit will shutdown after 5 sec, re-power on to recover				
	SHORT CURRENT	Protection type : Constant current limiting, unit will shutdown after 5 sec, re-power on to recover				
	OVER VOLTAGE	21.5 ~ 26V	43 ~ 52V	82 ~ 100V	102 ~ 120V	
	OVER TEMPERATURE	Shut down O/P voltage, recovers automatically after temperature goes down				
FUNCTION	REMOTE CONTROL	Open : Power OFF Short : Power ON				
	DC OK	The TTL signal out, DC OK = H(4.5 ~ 5.5V) ; Power supply failure or protection = L(-0.5 ~ +0.5V)				
	FAN SPEED CONTROL	Depends on internal temperature				
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 ~ 50°C)				
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes				
SAFETY & EMC (Note 4)	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/EN61000-6-2				
		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	352.3K hrs min. Telcordia SR-332 (Bellcore) ; 118.5K hrs min. MIL-HDBK-217F (25°C)				
	DIMENSION	205*135*55mm (L*W*H)				
	PACKING	1.02Kg; 8pcs/ 10Kg / 1.71CUFT				
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. Derating may be needed under low input voltages. Please check the derating curve for more details.</p> <p>4. The PSU is considered a component which will be installed into a final equipment. All the EMC tests are been executed by mounting the unit on a 600mm*900mm metal plate with 1mm of thickness. 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." (as available on <a href="http://www.meanwell.com">http://www.meanwell.com</a>)</p> <p>5. The ambient temperature derating of 3.5°C/1000m with fanless models and of 5°C/1000m with fan models for operating altitude higher than 2000m(6500ft).</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

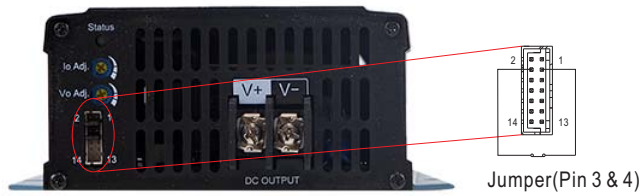


© The rated current should change with the output voltage programming accordingly.

## Function Manual

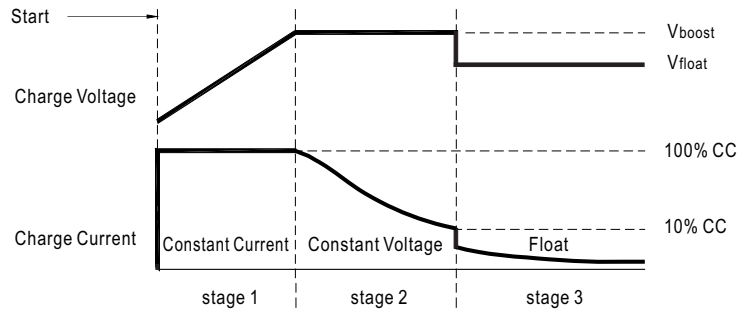
### 1. Battery Charger or Power Supply Operation modes selectable via pin3 and pin4 jumper

Between pin3 and pin4	Operation modes
Jumper connected	Power supply mode
Jumper removed	Battery charger mode (Default)



### 2.Charging Curve (Charging Mode)

© 3 stage charging curve



Color of LED Loading Indicator

● Red

● Green

State	NPP-450-12	NPP-450-24	NPP-450-48	NPP-450-72
Constant Current	25A	13.5A	6.8A	5.5A
Vboost	14.4V	28.8V	57.6V	72V
Vfloat	13.8V	27.6V	55.2V	69V

© Suitable for lead-acid batteries (flooded, Gel and AGM)



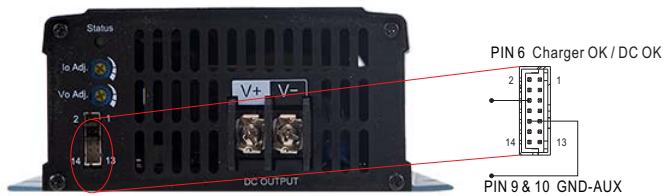
※  $V_o \times I_o$  must be less than or equal to the rated power. Please refer to derating curve (page 4) .

### 3.Charger OK / DC OK Signal

Charger OK / DC OK signal is a TTL level signal.

The maximum sourcing current is 10mA.

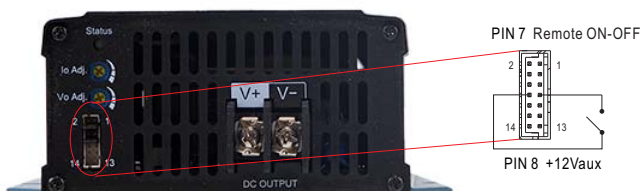
Charger OK / DC OK signal	Charger status
"High" : 4.5 ~ 5.5V	Work normally
"Low" : -0.5 ~ 0.5V	Failure or protection function activated



### 4.Remote ON-OFF Control

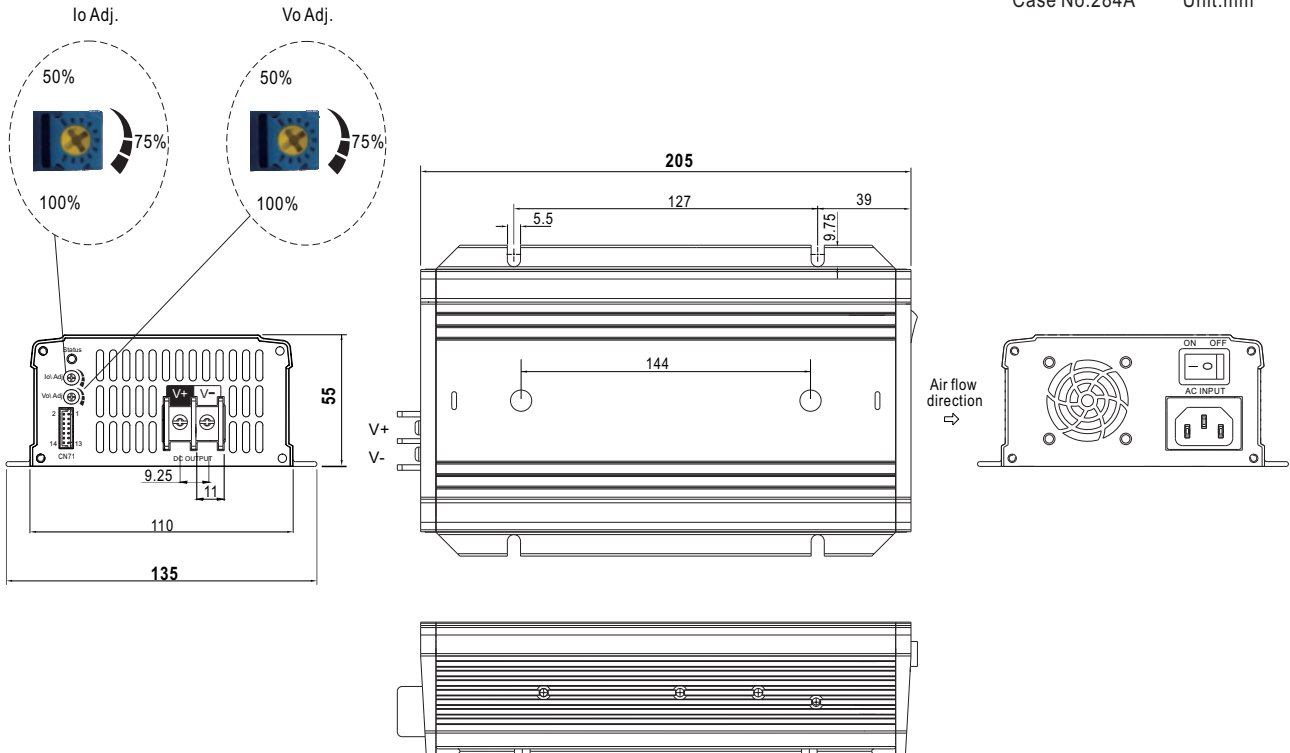
The NPP-450 can be turned ON/OFF by using the "Remote Control" function.

Between pin7 remote ON-OFF and pin8 +12Vaux	Charger status
Short ( Pin 7 = 10.8 ~ 13.2V)	ON (Default)
Open ( Pin 7 = -0.5 ~ 0.5V)	OFF



## Mechanical Specification

Case No.284A Unit:mm



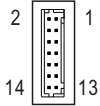
※ Connector Pin No. Assignment : HRS DF11-14DP-2DS or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1,2,11~14	NC	HRS DF11-14DS or equivalent	HRS DF11-**-**SC or equivalent
3,4	Battery Charger or Power Supply mode selectable		
5	Battery Full		
6	Charger OK (Charger mode) or DC OK (Power supply mode)		
7	Remote ON-OFF		
8	+12V-AUX		
9,10	GND-AUX		

※ LED Status Table

Charger (Default)	
LED Indicator	Status
● Green	Float stage (stage 3) or full charged
● Red	Charging (stage 1 or stage 2)
○ No Light	Abnormal
Power supply mode	
LED Indicator	Status
● Green	Normal working
○ No Light	Abnormal

※ Control Pin No. Assignment : HRS DF11-14DP-2DS or equivalent



Mating Housing	HRS DF11-14DS or equivalent
Terminal	HRS DF11-**-SC or equivalent

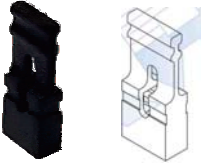
Pin No.	Function	Description
1,2,11~14	NC	-----
3,4	Battery charger / Power supply	Open: Battery charger, Color of LED loading indicator: Reference to battery charger. Short: Power supply, Color of LED loading indicator :Green.
5	Battery Full	Battery Full Signal, referenced to GND-AUX(Pin 9 & 10). The Signal is a TTL level signal. The maximum sourcing current is 10mA and only for output.(Note.2) Low (-0.5 ~ 0.5V) : When the battery is charging. High (4.5 ~ 5.5V) : When the battery is full.
6	Charger OK / DC OK	Charger OK / DC OK Signal, referenced to GND-AUX(Pin 9 & 10). The Signal is a TTL level signal. The maximum sourcing current is 10mA and only for output.(Note.2) Low (-0.5 ~ 0.5V) : When the charger fails or the protect function is activating. High (4.5 ~ 5.5V) : When the charger is working properly.
7	Remote ON-OFF	Remote charger ON/OFF Function. The charger can turn the output ON/OFF by dry contact between Remote ON-OFF and +12V-AUX.(Note.2) Short (10.8 ~ 13.2V) : Charger ON ; Open(-0.5 ~ 0.5V) : Charger OFF ; The maximum input voltage is 13.2V.
8	+12V-AUX	It is controlled by the Remote ON-OFF control.
9,10	GND-AUX	The signal return is isolated from the output terminal. (+V & -V)

Note1: Non-isolated signal, referenced to [GND(signal)].

Note2: Isolated signal, referenced to GND-AUX




### ■ Accessory List

※ Battery Charger or Power Supply mode of pin 3 and pin 4 mating pin along with NPP-450 (Standard accessory)

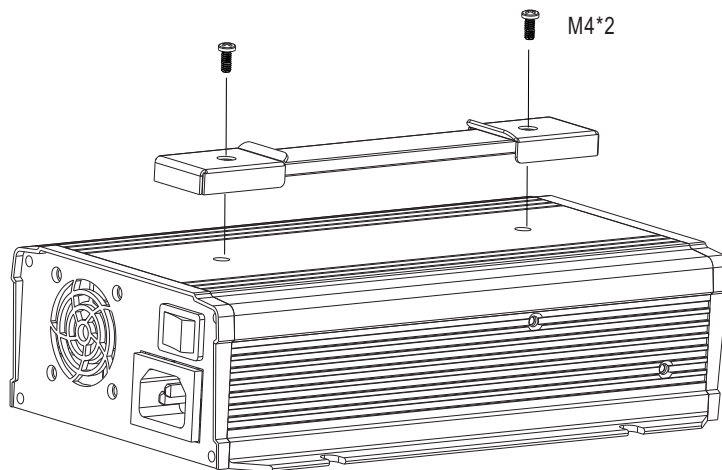
Pin 3 and Pin 4 mating pin	Quantity
 1FF1HMJ20-020-95BS or equivalent	1



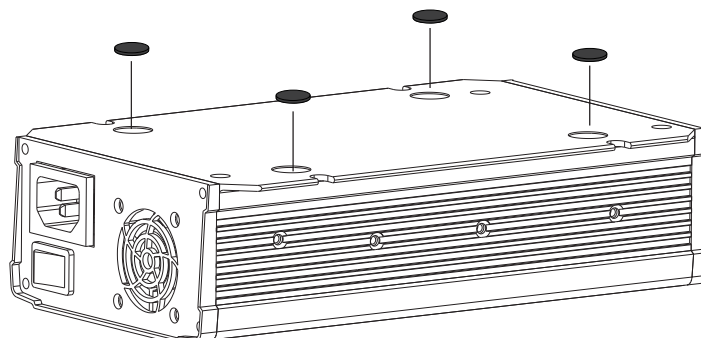
※ Carry handle (Optional accessory, battery charger and pull handle should be ordered seperately)

MW's Order No.	Item		Quantity
DS-Carry Handle	①	Handle 	1
	②	Foot pad 	4
	③	Screw 	2

① Handle



② Foot pad



■ **INSTALLATION MANUAL**

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