1200W High Reliable True Sine Wave with UPS DC-AC Power Inverter NTU-1200 series



DC input side



AC output side



User's Manual

Video

IEC62368-1 BS EN/EN62368-1 (for 112/124 type GFCI only) UL458 TPTC004 AS/NZS 62368.1

Please refer to page3 for more details.

Household Railway Car Use Marine Network Telecom

Features

- Built-in UPS function (AC by-pass)
- True sine wave output (THD<3%)
- High surge power up to 2000W
- Temperature controlled cooling fan
- AC output voltage and frequency selectable by DIP S.W
- -25℃~+70℃ wide operating temperature
- Power ON-OFF remote control
- Front panel indicator for operation status
- Protections :

  Input : Reverse polarity / DC low alarm / DC low shutdown / Over voltage

  Output : Short circuit / Overload / Over temp.
- Battery over discharge protection (low voltage disconnect)
- Suitable for lead-acid or li-ion batteries
- Remote controller

  (IRC1, IRC2, IRC3 accessory sold separately, please refer to: https://www.meanwell.com/webapp/product/search.aspx?prod=IRC1)
- Support RS-232 communication(Communication cable order No.: RJ11-RS232, sold sperately)
- Carry handle accessory available(Order NO.: Carry handle, sold separately)
- Conformal coating
- 3 years warranty

Applications

- Home and office appliance
- Power tools
- Portable equipment
- Vehicle
- Yacht
- Off-grid solar power system
- Wireless network
- Telecom or datacom system

GTIN CODE

MW Search: https://www.meanwell.com/serviceGTIN.aspx

Description

NTU-1200 is a 1200W highly reliable off-grid true sine wave DC-AC power inverter with built-in UPS function(AC by-pass). Its key features include: digital design with MCU control, streamlined control circuitry that quickly responds to environmental changes and improves reliability, high quality fan with low acoustic noise, 2000W peak power, adjustable AC output voltage and frequency, -25~+70℃ wide operating temperature range, complete protection features, and etc. Combined with batteries, the NTU-1200 is suitable for use in residential, commercial, marine, automobile, mine, construction site, and remote areas with no access to utility power, and the output can be used to power fans, TV, radio, phone charger, PC/laptop, lighting, induction stove, air conditioner, electromechanical tool, communication equipment, power distribution cabinet, outdoor camping equipment, marine AC power, factory equipment, and etc.

Model Encoding

NTU - 1200 - 1 12 US

- US: AC output socket (Type US, EU, CN, AU, UK, UN, GFCI outlet)
- 12: DC input voltage (12: 12Vdc, 24: 24Vdc, 48: 48Vdc)
- 1: AC output voltage (1: 100/110/115/120Vac, 2:200/220/230/240Vac)
- 1200: Rated wattage
- NTU: Series name

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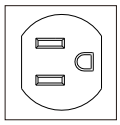
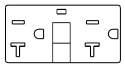
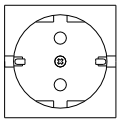
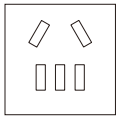
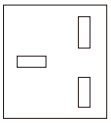
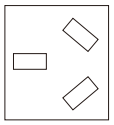
1200W High Reliable True Sine Wave with UPS DC-AC Power Inverter NTU-1200 series

SPECIFICATION

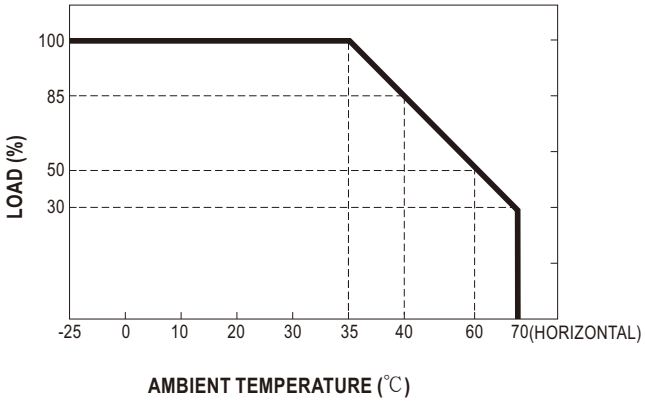
MODEL NO.			NTU-1200-112☐	NTU-1200-124☐	NTU-1200-148☐	NTU-1200-212☐	NTU-1200-224☐	NTU-1200-248☐
			☐ = US, GFCI, UN			☐ = EU, CN, AU, UK, UN		
AC OUTPUT	RATED POWER(Continuous)		1200W					
	OVER RATED POWER(3 Min.)		1380W					
	PEAK POWER(10 Sec.)		1800W					
	SURGE POWER(30 Cycles)		2000W					
	AC VOLTAGE		Default setting set at 110VAC			Default setting set at 230VAC		
			100 / 110 / 115 / 120Vac selectable by DIP S.W			200 / 220 / 230 / 240Vac selectable by DIP S.W		
	FREQUENCY		Default setting set at 60±0.1Hz			Default setting set at 50±0.1Hz		
			50/60Hz selectable by DIP S.W			50/60Hz selectable by DIP S.W		
	WAVEFORM Note.1		True sine wave (THD<3%)					
	AC REGULATION		±3.0% at rated output voltage					
	FRONT PANEL LED		Please see page 5					
DC INPUT	DC VOLTAGE		12Vdc	24Vdc	48Vdc	12Vdc	24Vdc	48Vdc
	VOLTAGE RANGE (Typ.)		10 ~ 16.5Vdc	20 ~ 33Vdc	40 ~ 66Vdc	10 ~ 16.5Vdc	20 ~ 33Vdc	40 ~ 66Vdc
	DC CURRENT (Typ.)		120A	60A	30A	120A	60A	30A
	NO LOAD DISSIPATION (Typ.)	NON-SAVING MODE	15W			25W		
		SAVING MODE	Default disable, auto detect AC output load≦10W will be changed to saving mode					
			<8W					
	OFF MODE CURRENT DRAW		≦1mA					
	EFFICIENCY (Typ.) Note.1		89%	90%	91%	90%	92%	93%
	BATTERY TYPES		Lead Acid or li-ion					
PROTECTION DC INPUT	FUSE (INTERNAL)		40A*4	40A*2	25A*2	40A*4	40A*2	25A*2
	LOW	ALARM	11±0.3Vdc	22±0.5Vdc	44±1Vdc	11±0.3Vdc	22±0.5Vdc	44±1Vdc
		SHUTDOWN	10±0.3Vdc	20±0.5Vdc	40±1Vdc	10±0.3Vdc	20±0.5Vdc	40±1Vdc
		RESTART	12.5±0.3Vdc	25±0.5Vdc	50±1Vdc	12.5±0.3Vdc	25±0.5Vdc	50±1Vdc
	HIGH	ALARM	15.5±0.3Vdc	31±0.5Vdc	62±1Vdc	15.5±0.3Vdc	31±0.5Vdc	62±1Vdc
		SHUTDOWN	16.5±0.3Vdc	33±0.5Vdc	66±1Vdc	16.5±0.3Vdc	33±0.5Vdc	66±1Vdc
		RESTART	15±0.3Vdc	30±0.5Vdc	60±1Vdc	15±0.3Vdc	30±0.5Vdc	60±1Vdc
	BAT. POLARITY		By internal fuse open					
PROTECTION AC OUTPUT	OVER TEMPERATURE		Protection type : Shut down o/p voltage, re-power on to recover					
	OUTPUT SHORT		Protection type : Shut down o/p voltage, re-power on to recover					
	OVER LOAD (Typ.)		105 ~ 115% load for 180 sec., 115% ~ 150% load for 10 sec.					
			Protection type : Shut down o/p voltage, re-power on to recover					
	CIRCUIT BREAKER		15A			10A		
	GFCI PROCTECTION		UL458 (Only for "GFCI" AC socket, by request)		None			
FUNCTION	REMOTE CONTROL	CONNECTOR	Power ON-OFF remote control by front panel dry contact connector(by RELAY), Open : Normal work ; Short : Remote off					
		ACCESSORY	Remote controller sold separately, Order No.: IRC1,IRC2,IRC3					
	RS-232 COMMUNICATION		RS-232 ~ RJ11 Type connector (Please refer to page 4 for more details)					
AC UPS MODE	AC INPUT RANGE		100/110/115/120Vac±16%, recover±13%			200/220/230/240Vac±16%, recover±13%		
	FREQUENCY RANGE		45 ~ 65Hz					
	TRASFER TIME(Typ.)		10ms inverter ⟷ AC by pass					
ENVIRONMENT	WORKING TEMP.		-25 ~ +70℃(Refer to "Derating curve")					
	WORKING HUMIDITY		20% ~ 90% RH non-condensing					
	STORAGE TEMP., HUMIDITY		-30 ~ +70℃ / -22 ~ +158°F, 10 ~ 95% RH non-condensing					
	VIBRATION		10 ~ 500Hz, 3G 10min./1cycle, 60min. each along X, Y, Z axes					
SAFETY & EMC (Note.4)	SAFETY STANDARDS		CB IEC62368-1,Dekra BS EN/EN62368-1,UL458, E13,EAC TP TC 004 approved; Design refer to AS/NZS 62368.1 (Please refer to next page"AC output socket" table for more details)					
	WITHSTAND VOLTAGE		DC I/P - AC I/P:3.0KVac DC I/P - AC O/P:3.0KVac AC O/P - FG:1.5KVac					
	EMC EMISSION		Parameter	Standard		Test Level / Note		
			Radiated	FCC for 112,124,148 only(expect for Type-UN)		Class A		
				BS EN/EN55032(CISPR32) for 212,224,248 only(expect for Type-UN)		Class A		
			Conducted	FCC for 112,124,148 only(expect for Type-UN)		Class A		
				BS EN/EN55032(CISPR32) for 212,224,248 only(expect for Type-UN)		Class A		
			Harmonic Current	BS EN/EN61000-3-2		Class A		
			Voltage Flicker	BS EN/EN61000-3-3		-----		
	EMC IMMUNITY		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		
			EFT / Burst	BS EN/EN61000-4-4		Level 2, 1KV		
			Surge	BS EN/EN61000-4-5		Level 3, 1KV/Line-Line 2KV/Line-Earth		
			Conducted	BS EN/EN61000-4-6		Level 2		
			Magnetic Field	BS EN/EN61000-4-8		Level 1		
			Voltage Dips and Interruptions	BS EN/EN61000-4-11		>95% dip 0.5 periods, 30% dip 25 periods, >95% interruptions 250 periods		
OTHERS	MTBF		460.5K hrs min. Telcordia TR/SR-332 (Bellcore) ; 58.3K hrs min. MIL-HDBK-217F (25℃)					
	DIMENSION		333*184*70mm (L*W*H)					
	PACKING		3.3Kg; 2pcs/ 7.6Kg/ 1.25CUFT					
NOTE	1.Efficiency, AC regulation and THD are tested by 900W load, linear load at 12.5Vdc/25Vdc/50Vdc input voltage. 2.All parameters not specified above are measured at rated load, 25℃ of ambient temperature and set to factory setting. 3.Internal pre-start circuit, the setup time is 8s. 4.The power supply is considered as an independent unit, but the final equipment still need to re-confirm that the whole system complies with the EMC directives. For guidance on how to perform these EMC tests, please refer to "EMI testing of component power supplies." (as available on https://www.meanwell.com//Upload/PDF/EMI_statement_en.pdf) ※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx							

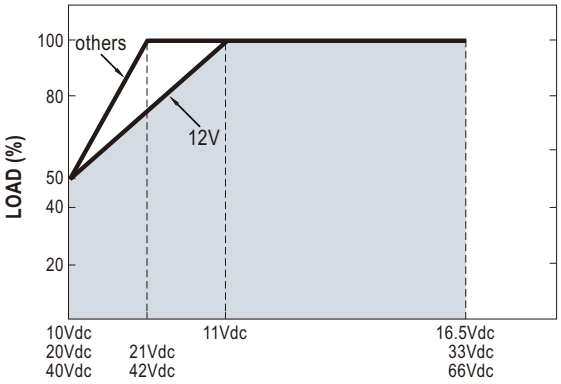
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■ AC Output Socket

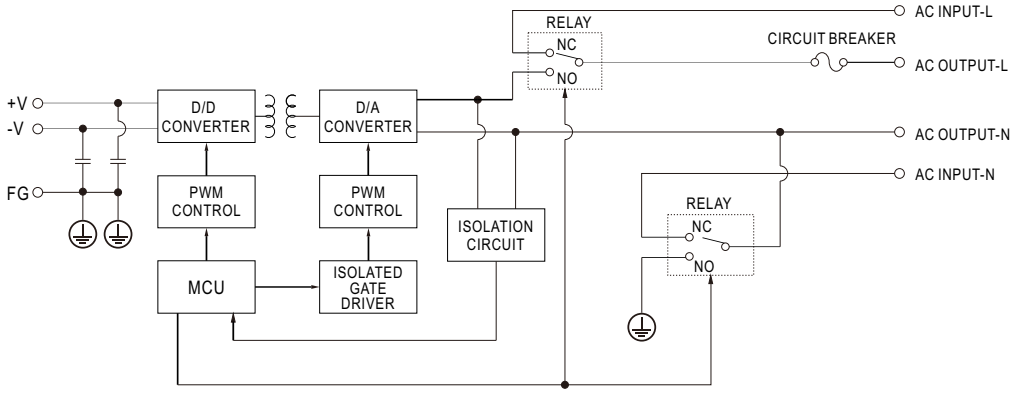
MODEL NO.	NTU-1200-112☐	NTU-1200-124☐	NTU-1200-148☐	NTU-1200-212☐		NTU-1200-224☐		NTU-1200-248☐	
Socket type									
	TYPE-US	TYPE-GFCI	TYPE-UN	TYPE-EU	TYPE-CN	TYPE-UK	TYPE-AU	TYPE-UN	
	In Stock	By request	In Stock	In Stock	In Stock	By request	By request	In Stock	
Country	USA	USA	UNIVERSAL	EUROPE		CHINA	U.K	AUSTRALIA	UNIVERSAL
Certificate	CB FC DEKRA	CB FC cULus (Except for 48V input)	None	CB E13 DEKRA EAC CE UKCA				CB E13 DEKRA EAC CE UKCA	E13 EAC

■ DERATING CURVE





■ Block Diagram



Note:

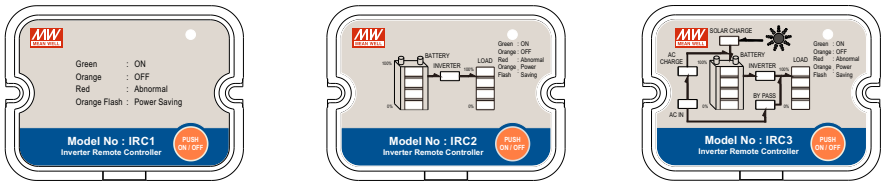
1. The inverter operates in AC bypass mode when the AC input is connected and remains within ±16% of the AC output setting. During this mode, energy from the AC input is directly supplied to the loads. Conversely, the inverter switches to inverter mode when there is no AC input available or the AC input exceeds ±16% of the AC output setting.
2. The relationship between the AC receptacle Earth and AC output-N is shown in the table below.
3. The AC receptacle earth and FG are electrically identical in the hardware and are shorted together.
4. The bypass relays remain in NC position when the inverter is turned off. As a result, energy from the AC input can still pass through the inverter to the loads, operating as in the AC bypass mode.

Operating Mode	Connection Status Between AC Output and AC Receptacle Earth
Inverter Mode (Battery input)	The AC Output-N pin, AC Receptacle Earth and FG are shorted internally
Bypass Mode (AC mains input)	The AC Receptacle Earth and FG are shorted internally. AC Output-L/N depends on AC mains input

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■ IRC1/2/3 Remote Controller (Accessory sold seperately)

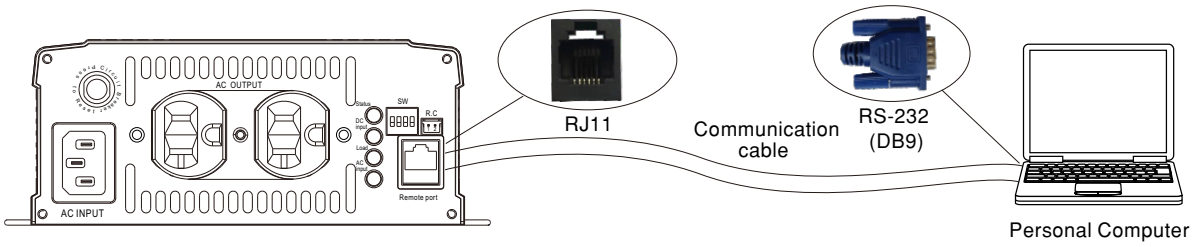
- IRC1/IRC2/IRC3 is the monitoring and control unit.
- IRC1/IRC2/IRC3 can decode the RS-232 signals sent by the inverter series and display through digital meters.
  Note: Part of the control signals will not function properly due to different compliance of each model.



※ Please refer to for more detail: https://www.meanwell.com/webapp/product/search.aspx?prod=IRC1

■ Support RS-232 Communication

- The internal data of single NTU-1200 can be read through RS-232.



※ Please refer to for more detail: http://www.meanwell.com/manual.html

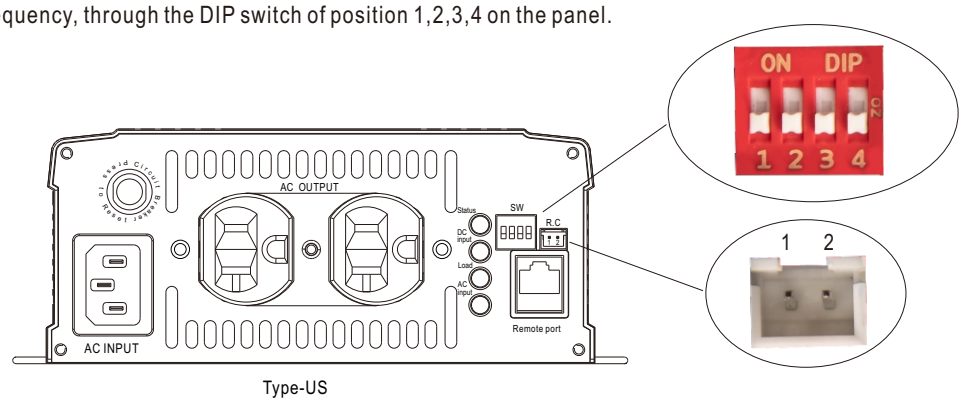
※ RJ11-RS232 Communication cable should be ordered seperately, Order No.: RJ11-RS232

■ Remote ON-OFF Control (Built-in)

Remote ON-OFF	AC Output Status
Open	power inverter ON
Short	power inverter OFF

■ AC Output Voltage、Frequency、Power saving mode selectable by DIP SW

Output voltage and frequency setting factory settings are either 110Vac/60Hz or 230Vac/50Hz, users are able to adjust the voltage and frequency, through the DIP switch of position 1,2,3,4 on the panel.



Type-US

AC Output Voltage、 Frequency、Power saving mode selectable by DIP SW			
SW1 SW2		SW3	SW4
OFF OFF : 100Vac or 200Vac		ON : 50Hz	ON : Saving mode
OFF ON : 110Vac or 220Vac			
ON OFF : 115Vac or 230Vac		OFF: 60Hz	OFF: Non-Saving mode
ON ON : 120Vac or 240Vac			

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■ LED STATUS

Normal work:

Status	Green	Orange	Red
	System check Inverter OK	Remote off Saving mode	Abnormal Status (See below table)

DC Iput	Green	Orange	Red
	12.5~15.5Vdc 25~31Vdc 50~62Vdc	11~12.5Vdc 22~25Vdc 44~50Vdc	<11Vdc or >15.5Vdc <22Vdc or >31Vdc <44Vdc or >62Vdc

Mains Priority status:

Load	Green	Orange	Red
	<40% load	40~80% load	>80% load

Battery Priority status:

Load	Green	Orange	Red
	<40% load	40~80% load	>80% load

AC Input	Green	-----	-----
	Mains OK Mains error Mains disconnected	-----	-----

Abnormal status :

LED Indicator	Abnormal Indication
Status ● DC Input ○ Load ☀	Output overload or AC output short circuit
Status ● DC Input ☀ Load ○	Abnormal DC voltage
Status ● DC Input ☀ Load ☀	Over temperature or Fan lock
Status ☀ DC Input ○ Load ○	Inverter fail

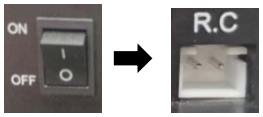
● Light
○ Light off
☀ Flash

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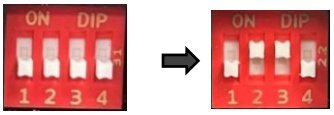
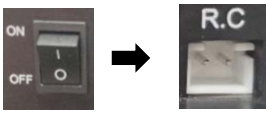
■ FUNCTION MANUAL

Battery /Mains Priority Setting (factory setting mains priority)

1. DIP S.W setting battery priority mode

Step	Action	Note
A1	When the power is not being sent, turn the 2 and 3 DIP switches of the selected DIP_SW to the "OFF" state	
A2	BAT power supply in remote off mode	
A3	Within 15 seconds of power transmission, switch 2 and 3 of the DIP_SW to full "ON", and then switch back to full "OFF"	
A4	All LEDs (except AC input) flash green 3 times, indicating that the setting is successful	
A5	Turn off NTU and turn on the external Remote switch	
A6	Turn on NTU to load battery priority mode	

2. DIP S.W setting mains priority mode

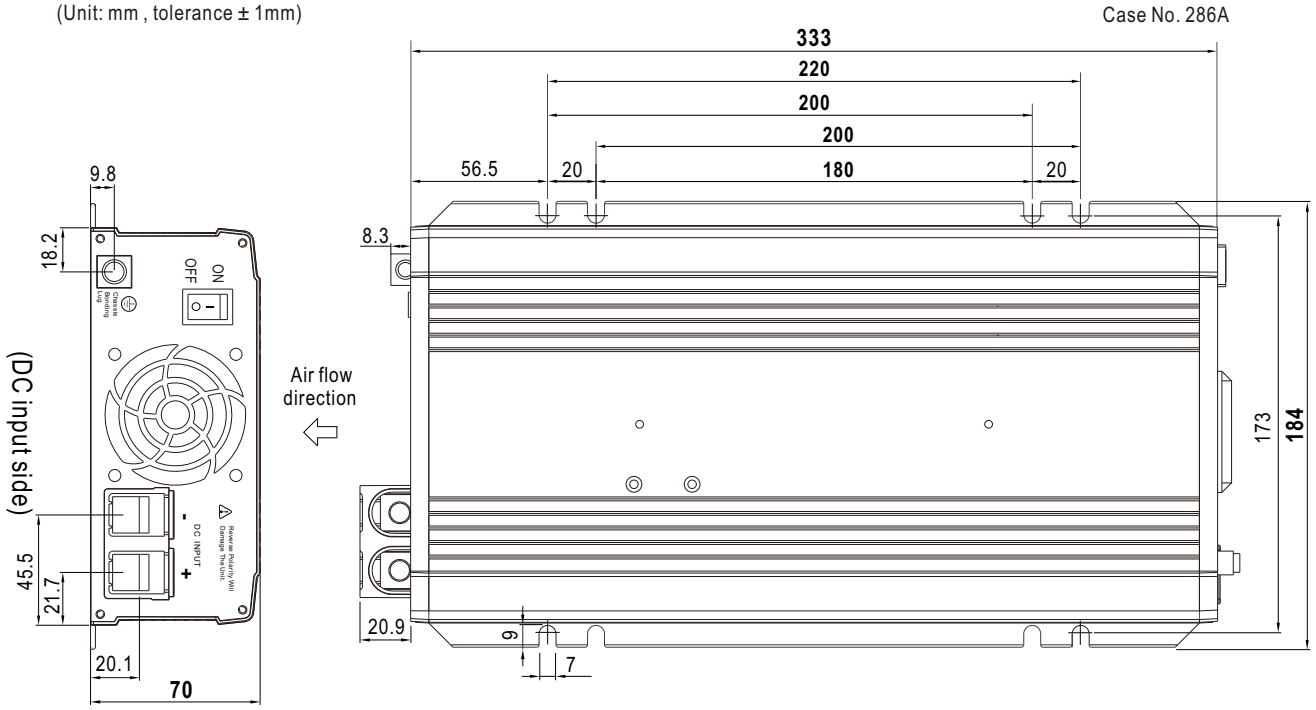
Step	Action	Note
A1	When the power is not being sent, turn the 2 and 3 DIP switches of the selected DIP_SW to the "ON" state	
A2	BAT power supply in remote off mode	
A3	Within 15 seconds of power transmission, switch 2 and 3 of the DIP_SW to full "OFF", and then switch back to full "ON"	
A4	All LEDs (except AC input) flash green 3 times, indicating that the setting is successful (Only clear battery priority mode, don't restore factory setting)	
A5	Turn off NTU and turn on the external Remote switch	
A6	Turn on NTU to load mains priority mode	

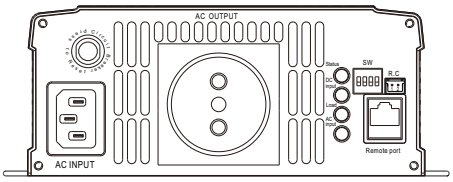
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■ MECHANICAL SPECIFICATION

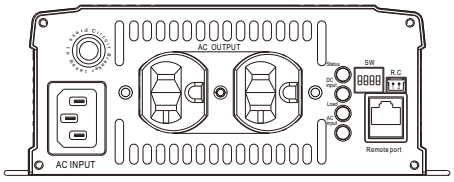
(Unit: mm , tolerance ± 1mm)

Case No. 286A

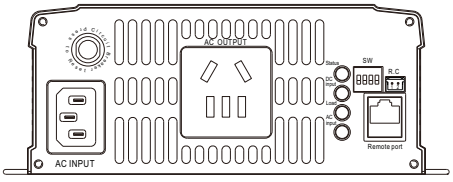




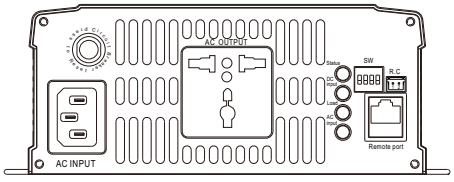
Type-EU



Type-US



Type-CN



Type-UN

(AC output side)

R.C Connector : JST B-XH or equivalent

Remote Control	Mating Housing	Terminal
Pin 1,2 Open: Normal work	JST XHP or equivalent	JST SXH-001T or equivalent
Pin 1,2 Short: Remote off		

Remote port connector (RJ11)



Remote port

Assignment	Rx	GND	Tx
Remote port	2	3	4
DB9	3	5	2

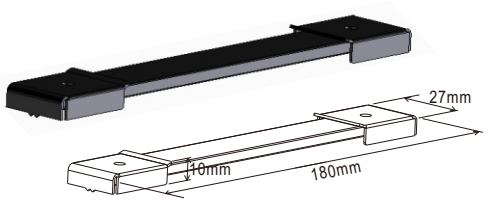
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■ Accessory List

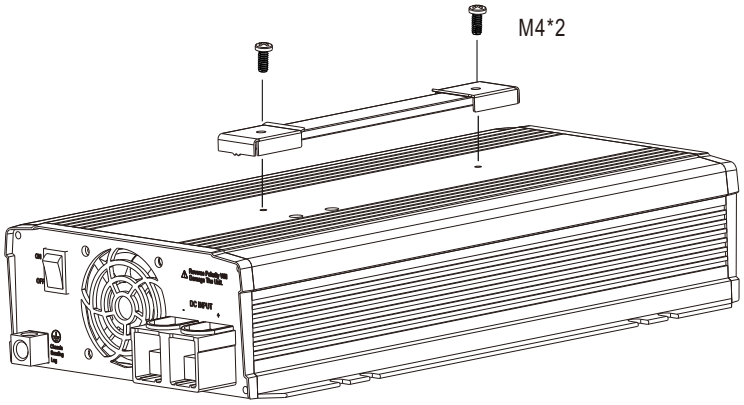
※ Communication cable (Optional accessory, Power inverter and Communication cable should ordered seperately)

MW's Order No.	Item	Quantity
RJ11-RS232		1

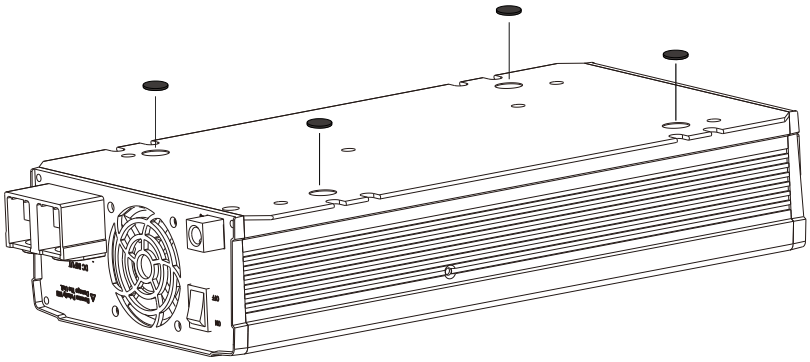
※ Carry handle (Optional accessory, Power inverter and Pull handle should ordered seperately)

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

① Handle



② Foot pad

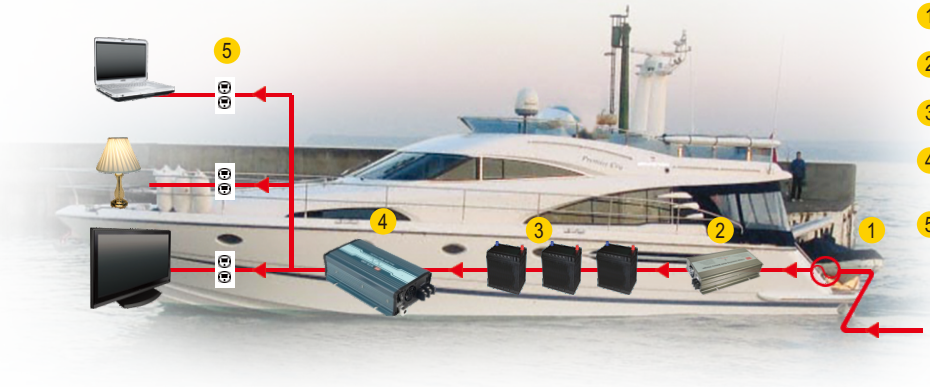


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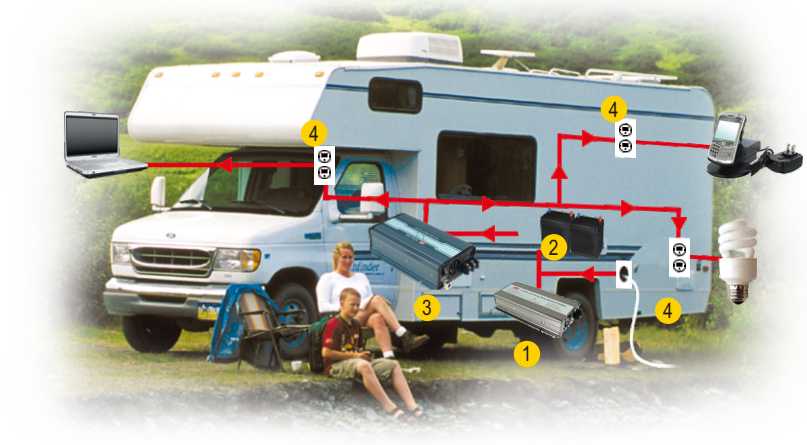
■ TYPICAL APPLICATION



1. Battery Bank
2. Off-Grid DC/AC Solar Inverter (NTU series)
3. AC Outlet



1. Utility Input (Shore)
2. AC/DC Battery Charger (PB/NPB/NPP series)
3. Battery Bank
4. Off-Grid DC/AC Power Inverter (NTU series)
5. AC Outlet



1. AC/DC Battery Charger (PB/NPB/NPP series)
2. Battery Bank
3. Off-Grid DC/AC Inverter (NTU series)
4. AC Outlet

■ INSTALLATION MANUAL

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

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