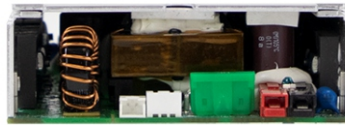




# 250W High Reliable Built-in Type True Sine Wave DC-AC Power Inverter NTS-250P series



(DC input side)



(AC output side)



User's Manual

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Video

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## Features

- Compact size and light weight
- True sine wave output (THD<3%)
- High surge power up to 500W
- Fanless design, cooling by free air convection
- AC output voltage and frequency selectable by DIP S.W
- No load dissipation <1.5W max. at standby saving mode
- -20°C ~+70°C wide operating temperature
- Power ON-OFF remote control
- 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
- Support Tx/Rx for monitoring power inverter status
- Conformal coating
- 3 years warranty

## Applications

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

## GTIN CODE

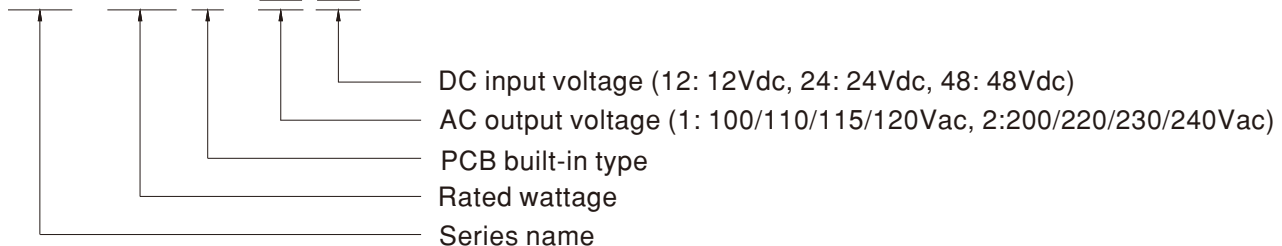
MW Search: <https://www.meanwell.com/serviceGTIN.aspx>

## Description

NTS-250P is a 250W highly reliable built-in type off-grid true sine wave DC-AC power inverter. Its key features include: digital design with MCU control, streamlined control circuitry that quickly responds to environmental changes and improves reliability, compact size, light weight, fanless quiet design, 500W peak power, adjustable AC output voltage and frequency, -20~+70°C wide operating temperature range, built-in remote ON/OFF control, low no-load power consumption (energy saving mode < 1.5W max.), complete protection features, and etc. Combined with batteries, the NTS-250P is suitable for use in residential, commercial, marine, automobile, 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, outdoor camping equipment, marine AC power, and etc.

## Model Encoding

NTS - 250 P - 1 12





## 250W High Reliable Built-in Type True Sine Wave DC-AC Power Inverter NTS-250P series

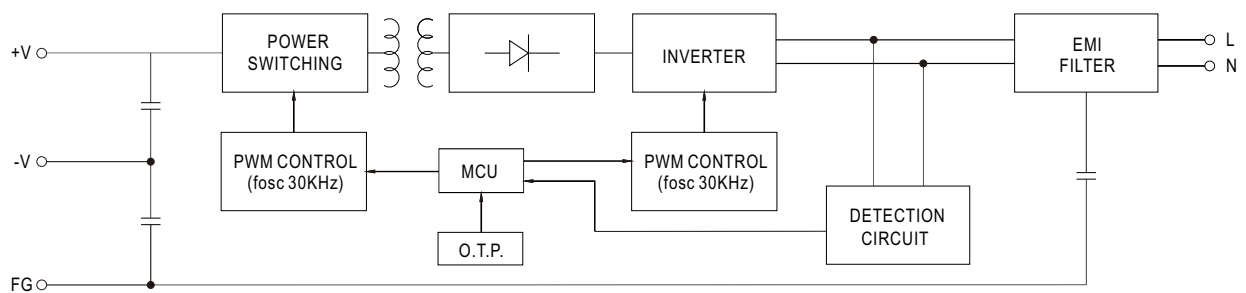
### SPECIFICATION

MODEL NO.		NTS-250P-112	NTS-250P-124	NTS-250P-148	NTS-250P-212	NTS-250P-224	NTS-250P-248		
AC OUTPUT	RATED POWER(Continuous)	250W							
	OVER RATED POWER(3 Min.)	287.5W							
	PEAK POWER(10 Sec.)	375W							
	SURGE POWER(30 Cycles)	500W							
	AC VOLTAGE	Default setting set at 110VAC 100 / 110 / 115 / 120Vac selectable by DIP S.W			Default setting set at 230VAC 200 / 220 / 230 / 240Vac selectable by DIP S.W				
	FREQUENCY	Default setting set at 60Hz±0.1Hz 50/60Hz selectable by DIP S.W			Default setting set at 50Hz±0.1Hz 50/60Hz selectable by DIP S.W				
	WAVEFORM	Note.1 True sine wave (THD<3%)							
	AC REGULATION	±3.0% at rated output voltage							
	LED STATUS	Please refer to page3							
DC INPUT	DC VOLTAGE	12V	24V	48V	12V	24V	48V		
	VOLTAGE RANGE (Typ.)	10 ~ 16.5Vdc	20 ~ 33Vdc	40 ~ 66Vdc	10 ~ 16.5Vdc	20 ~ 33Vdc	40 ~ 66Vdc		
	DC CURRENT (Typ.)	25A	13A	7A	25A	13A	7A		
	NO LOAD DISSIPATION (Typ.)	Non-Saving mode	10W	10W	12W	10W	10W	12W	
		Saving mode	Default disable, ≤1.2W ~ 1.5W by models @ auto detec AC output load ≤10W will be changed to saving mode						
	OFF MODE CURRENT DRAW	<1mA at battery -DC input must be disconnected							
	EFFICIENCY (Typ.)	Note.1 91%	91%	92%	92%	93%	93%		
	BATTERY TYPES	Lead Acid or Li-ion							
PROTECTION	DC INPUT	FUSE(Internal)	30A*2	30A*1	10A*2	30A*2	30A*1	10A*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						
	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							
FUNCTION	REMOTE CONTROL	Power ON-OFF remote control by front panel dry contact connector (by RELAY), Open : Normal work ; Short : Remote off							
	Tx/Rx	Support Tx/Rx for monitoring power inverter status							
ENVIRONMENT	WORKING TEMP.	-20 ~ +70°C (Refer to "Derating curve")							
	WORKING HUMIDITY	20% ~ 90% RH non-condensing							
	STORAGE TEMP., HUMIDITY	-30 ~ +70°C / -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 2ed, CSA/UL 62368-1 3ed for all models; E13, EAC TPTC004, AS/NZS 62368.1 for NTS-250P-212/224/248 approved (Please refer to next page "Safety overview" table for more details)								
	WITHSTAND VOLTAGE								
	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		Class A			
				BS EN/EN55032(CISPR32) for 212,224,248 only		Class A			
		Harmonic Current		BS EN/EN61000-3-2		-----			
	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 4, 15kV air ; Level 4, 8kV contact					
Radiated		BS EN/EN61000-4-3		Level 3, 10V/m					
Magnetic Field		BS EN/EN61000-4-8		Level 4, 30A/m					
OTHERS	MTBF	836.9K hrs min. Telcordia TR/SR-332 (Bellcore) ; 84K hrs min. MIL-HDBK-217F (25°C)							
	DIMENSION	186*100.5*34mm (L*W*H)							
	PACKING	0.87Kg; 18pcs/ 16.6Kg/ 1.01CUFT							
NOTE	<p>1.Efficiency, AC regulation and THD are tested by 250W, linear load at 12.5Vdc/25Vdc/50Vdc input voltage.</p> <p>2.All parameters not specified above are measured at rated load, 25°C of ambient temperature and set to factory setting.</p> <p>3.Internal pre-start circuit, the setup time is 8s.</p> <p>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 <a href="https://www.meanwell.com/Upload/PDF/EMI_statement_en.pdf">https://www.meanwell.com/Upload/PDF/EMI_statement_en.pdf</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>								

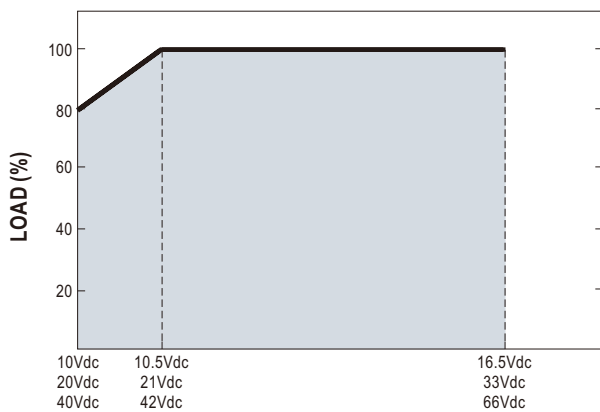
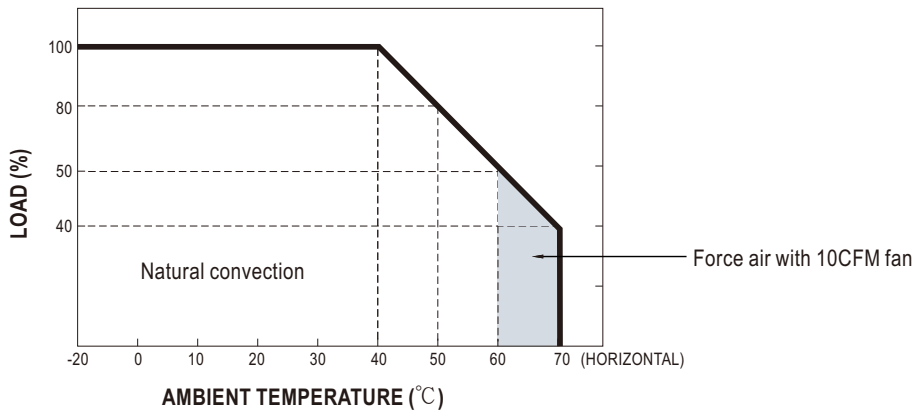
## Safety Overview

MODEL NO.	Certificate
NTS-250P-112/124/148	
NTS-250P-212/224/248	

## Block Diagram

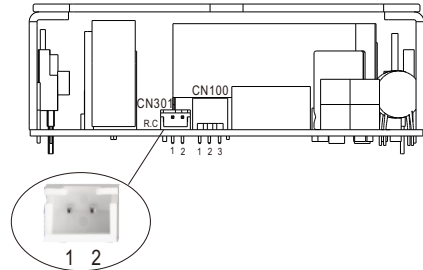


## DERATING CURVE



■ Remote ON-OFF Control

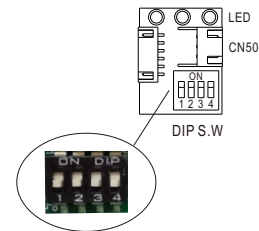
Remote ON-OFF (CN301 PIN1,2)	AC Output Status
Open	power inverter ON
Short	power inverter OFF



■ 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.

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		

















■ Support Tx/Rx for monitoring power inverter status




Users can monitor the status of the power inverter through Tx/Rx, and can modify the input and output parameters set internally.

■ LED STATUS













Normal work:




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

DC Input	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

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

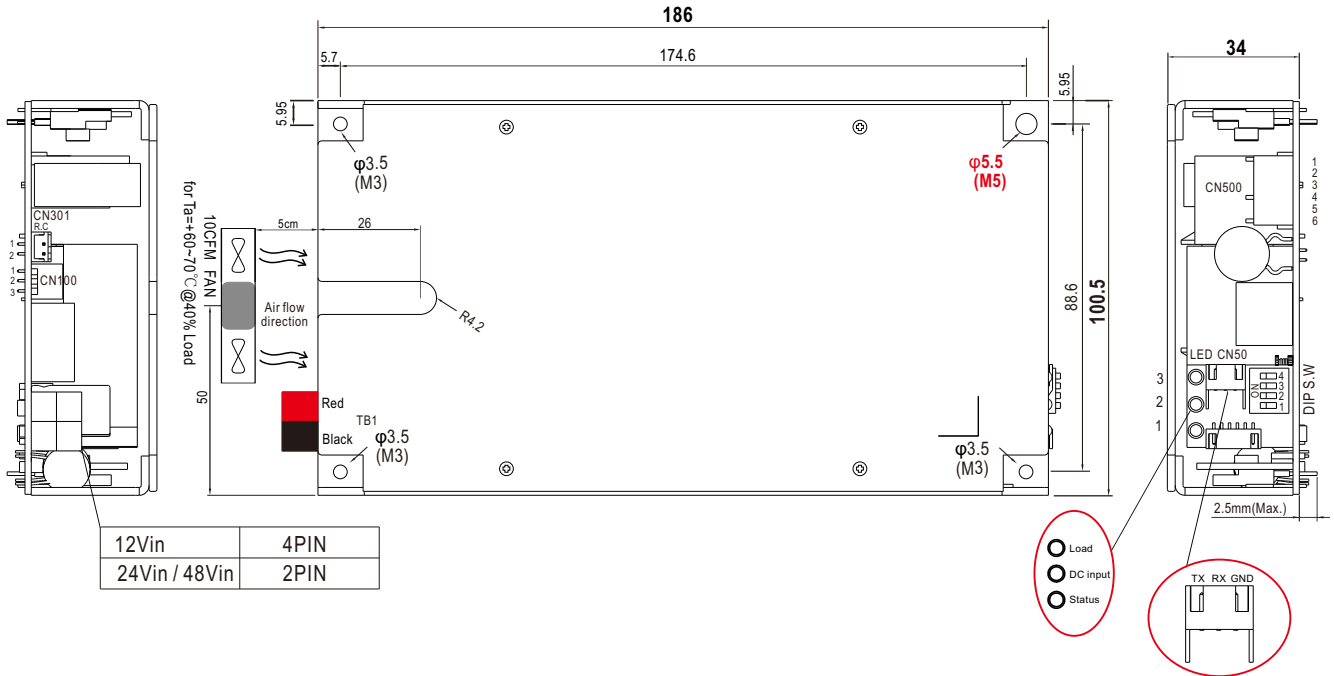
Abnormal status :

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

**MECHANICAL SPECIFICATION**

(Unit: mm , tolerance ± 1mm)



12Vin	4PIN
24Vin / 48Vin	2PIN

DC Input Connector(TB1): Anderson 1327 &1327G6 or equivalent

Pin No.	Description	Mating Housing	Terminal
Red	DC Input +V	1327 or equivalent	261G2-LPBK or equivalent
Black	DC Input -V	1327G6 or equivalent	

AC Output Connector(CN500): JST B6P-VH or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1	FG	JST VHR or equivalent	JST SVH-21T-P1.1 or equivalent
2,3	NC		
4	Output AC/N		
5	NC		
6	Output AC/L		

Remote ON-OFF Control Connector(CN301): JST S2B-XH-A or equivalent

Pin No.	Description	Mating Housing	Terminal
1	Pin 1,2 Open: Inverter Normal work	JST XHP or equivalent	JST SXH-001T or equivalent
2	Pin 1,2 Short: Inverter Remote off		

Communicating Function Connector(CN50): CHYAO SHIUNN JS-100R-03 or equivalent

Pin No.	Description	Mating Housing	Terminal
1	Signal GND	CHYAO SHIUNN JS-2001 or equivalent	CHYAO SHIUNN JS-2001-TX or equivalent
2	UART-RX		
3	UART-TX		

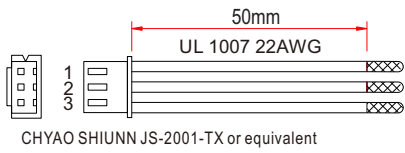
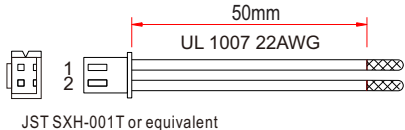
FAN Connector(CN100): JST B3B-XH-A or equivalent

Suggested Fan model: CCHV CHT4012BH-W20D 4020B

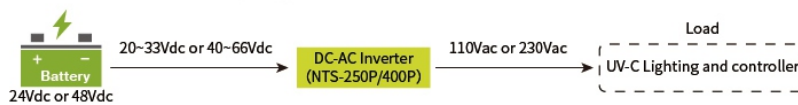
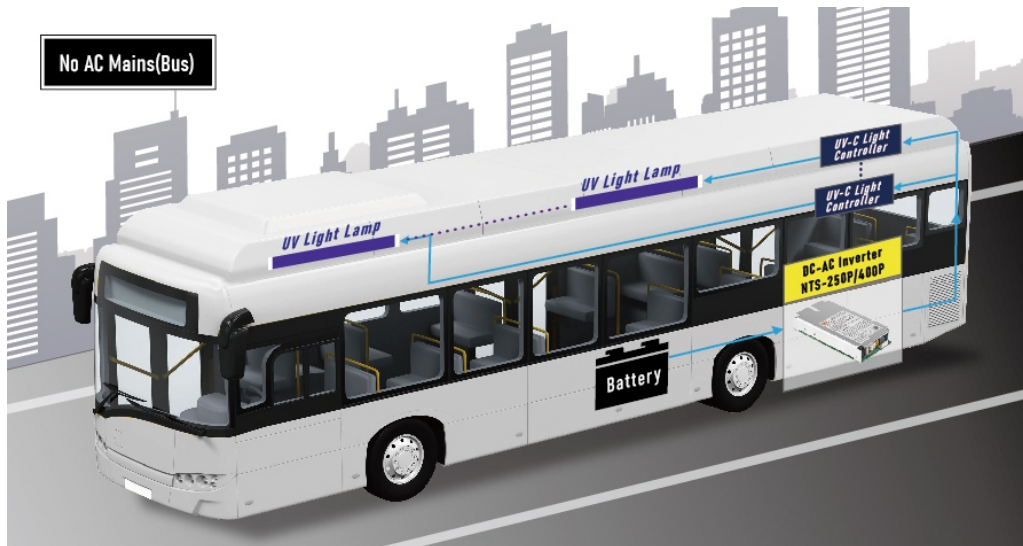
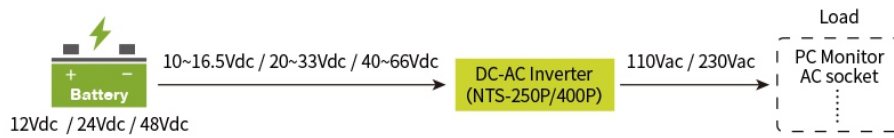
Pin No.	Description	Mating Housing	Terminal
1	Fan supply +V	JST XHP or equivalent	JST SXH-001T or equivalent
2	Fan supply -V		
3	PWM signal for Fan speed control		

DIP SW: Please refer to page4 for more detail

**Accessory List**

No.	Item	Quantity
1	Control function interface(CN50,CN100) mating wire along with NTS-250P (standard accessory) 	2pcs/per model
2	Control function interface(CN301) mating wire along with NTS-250P (standard accessory) 	1pcs/per model

■ TYPICAL APPLICATION



■ INSTALLATION MANUAL

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