

**SPECIFICATION** 



#### Features:

- True sine wave output (THD<3%)
- High surge power up to 3000W
- U.P.S. mode and energy saving mode (selectable)
- High efficiency up to 91%
- Power ON-OFF switch
- Standby saving mode can be selectable
- Front panel indicator for operation status
- Thermostatically controlled cooling fan
- Protections: Bat. low alarm / Bat. low shutdown / Over voltage / Over temp. / Output short / Input polarity reverse / Overload / AC circuit breaker
- Application: Home appliance, power tools, office and portable equipment, vehicle and yacht...etc.
- Built-in solar / AC charger
- · Optional monitoring software
- 3 years warranty



OUTPUT  OUTPUT  AC VOLTA  FREQUEN WAVEFOR AC REGUL TRANSFEI SAVING MI FRONT PA BAT. VOLT VOLTAGE DC CURRE NO LOAD I OFF MODE EFFICIENC BATTERY INPUT PROTECTION OVER LOA CIRCUIT B GFCI PROI WORKING STORAGE VIBRATION SAFETY & EMC EMIS EMC CHARGE C C C C C C C C C C C C C C C C C C C			TN-1500-112	TN-1500-124	TN-1500-148	TN-1500-212	TN-1500-224	TN-1500-248
AC VOLTA  FREQUEN WAVEFOR AC REGUL TRANSFEI SAVING M FRONT PA BAT. VOLTA VOLTAGE DC CURRE NPUT NO LOAD I OFF MODE EFFICIENC BATTERY PROTECTION REVERSE OVER TEM OUTPUT PROTECTION CIRCUIT B GFCI PROD WORKING WORKING STORAGE VIBRATION SAFETY & EMC EMIS EMC CHARGE C C C C C C C C C C C C C C C C C C C	RATED POWER (Typ.)		1500W			'		
AC VOLTA FREQUEN WAVEFOR AC REGUL TRANSFEI SAVING M FRONT PA BAT. VOLTA VOLTAGE DC CURRE NPUT NO LOAD I OFF MODE EFFICIENC BATTERY PUT PROTECTION REVERSE OVER TEM OUTPUT S OVER LOA CIRCUIT B GFCI PROD WORKING WORKING STORAGE VIBRATION SAFETY S EMC EMIS EMC EMIS EMC CHARGE C C C C C C C C C C C C C C C C C C C	( ) (		.) 1725W for 180 sec. / 2250W for 10 sec. / surge power 3000W for 30 cycles					
PREQUENT WAVEFOR AC REGUL TRANSFEI SAVING MI FRONT PA BAT. VOLTA VOLTAGE DC CURRE NO LOAD I OFF MODE EFFICIENC BATTERY NPUT PROTECTION REVERSE OVER TEM OUTPUT CIRCUIT B GFCI PROD WORKING WORKING STORAGE VIBRATION SAFETY & EMC EMIS EMC CHARGE C C C C C C C C C C C C C C C C C C C		, ,,,	Factory setting set at 110VAC Factory setting set at 230VAC					
DUTPUT  BATTERY NPUT PROTECTION  CIRCUIT B  GFCI PROD  WORKING  WORKING  STORAGE  VIBRATIOI  SAFETY &  EMC EMIS  EMC CHARGE C  C	AGE		100 / 110 / 115 / 120VAC selectable by setting button S.W			200 / 220 / 230 / 240VAC selectable by setting button S.W		
AC REGUL TRANSFEI SAVING MI FRONT PA BAT. VOLTA VOLTAGE DC CURRE NO LOAD OFF MODE EFFICIENC BATTERY NPUT PROTECTION REVERSE  OVER TEM OUTPUT PROTECTION CIRCUIT B GFCI PROC WORKING WORKING WORKING STORAGE VIBRATIOI SAFETY & EMC EMIS EMC CHARGE C CONTROL	FREQUENCY		60±0.1Hz 50/60Hz selectable by setting button S.W 50±0.1%Hz 50/60Hz selectable by setting button S.W					ting button S.W
TRANSFEI SAVING MI FRONT PA BAT. VOLTA VOLTAGE DC CURRE INPUT NO LOAD I OFF MODE EFFICIENC BATTERY INPUT PROTECTION CIRCUIT B GFCI PROI CIRCUIT B GFCI PROI WORKING STORAGE VIBRATIOI SAFETY S EMC EMC EMIS EMC CHARGE C C C C C C C C C C C C C C C C C C C			True sine wave (THD<3%) at rated input voltage					
TRANSFEI SAVING MI FRONT PA BAT. VOLTA VOLTAGE DC CURRE INPUT NO LOAD I OFF MODE EFFICIENC BATTERY INPUT PROTECTION OVER TEM OUTPUT PROTECTION CIRCUIT B GFCI PROI WORKING STORAGE VIBRATIOI SAFETY & EMC EMIS EMC CHARGE C CONTROL	AC REGULATION (Typ.)		±3.0%					
BATTERY INPUT PROTECTION PROTECTI	TRANSFER TIME (Typ.)		10ms inverter by pass					
BATTERY INPUT PROTECTION  OFF MODE EFFICIENCE BATTERY INPUT PROTECTION  OVER TEM OUTPUT PROTECTION  ENVIRONMENT  SAFETY & EMC	SAVING MODE (Typ.)		Default disabled. Load ≤5W will be changed to standby mode					
INPUT  INPUT  INPUT  INPUT  BATTERY INPUT  PROTECTION  OVER TEM  OUTPUT  PROTECTION  CIRCUIT B  GFCI PROF  WORKING  WORKING  STORAGE  VIBRATION  SAFETY &  EMC  EMC EMIS  EMC CHARGE C  C  C  C	NT PANEL INDICATOR		Battery voltage level, output load level, saving mode, fault and operation status					
INPUT  INPUT  INPUT  INPUT  BATTERY INPUT  PROTECTION  OVER LOA  CIRCUIT B  GFCI PRO WORKING WORKING STORAGE VIBRATION  SAFETY & EMC  EMC EMIS  EMC CHARGE C C C C C C C C C C C C C C C C C C C	LTAGE		12V	24V	48V	12V	24V	48V
INPUT  INPUT  INPUT  INPUT  INPUT  BATTERY  BATTERY  BATLOW  CIRCUIT B  GFCI PROC  WORKING  WORKING  WORKING  STORAGE  VIBRATION  SAFETY S'  LVD  WITHSTAN  EMC EMIS  EMC IMMU  AC  CHARGE C  CHARGE C	E RANGE (Typ	.)Note.1		21 ~ 30VDC	42 ~ 60VDC	10.5 ~ 15VDC	21 ~ 30VDC	42 ~ 60VDC
INPUT OFF MODE EFFICIENC BATTERY INPUT PROTECTION OVER LOAD CIRCUIT B GFCI PROD WORKING WORKING STORAGE VIBRATION SAFETY S EMC EMC EMIS EMC CHARGE C C C C C C C C C C C C C C C C C C C		Note.5		75A	37.5A	150A	75A	37.5A
OFF MODE EFFICIENC BATTERY INPUT PROTECTION OVER LOA CIRCUIT B GFCI PROD WORKING WORKING STORAGE VIBRATION SAFETY & EMC EMC EMIS EMC CHARGE C CHARGER CHARGER CHARGER CHARGER CHARGER CCHARGER CCHARGE C CCHARGE C CCHARGE C CCHARGE C CCHARGE C CCHARGE C CCCONTROL	D DISSIPATION		≤18W @ standby s		1	100/1	10/1	01.671
BATTERY INPUT PROTECTION  OUTPUT PROTECTION  OUTPUT PROTECTION  OUTPUT CIRCUIT B GFCI PROO WORKING STORAGE VIBRATIOI SAFETY & EMC EMC EMIS EMC CHARGE C CONTROL	OFF MODE CURRENT DRAW							
BATTERY BATTLOW REVERSE  OVER TEM OUTPUT PROTECTION  OUTPUT PROTECTION  OVER LOA CIRCUIT B GFCI PROI WORKING STORAGE VIBRATIOI SAFETY & EMC EMIS EMC EMIS EMC CHARGE C C C C C C C C C C C C C C C C C C C		Note.2		89%	90%	88%	90%	91%
BATTERY INPUT PROTECTION  OVER TEM OUTPUT PROTECTION  CIRCUIT B GFCI PROTECTION  WORKING STORAGE VIBRATIOI SAFETY & EMC EMIS EMC EMIS EMC CHARGE C C CHARGE C C CHARGE C C C C C C C C C C C C C C C C C C C		Note.Z	Open & sealed Lead		30 /0	00 /0	JU 70	0170
BATTERY BAT. LOW REVERSE  OVER TEM OUTPUT OVER LOA CIRCUIT B GFCI PROF WORKING WORKING STORAGE VIBRATION SAFETY & EMC EMIS EMC EMIS EMC CHARGE C C CHARGE C C CHARGE C C CHARGE C C C C C C C C C C C C C C C C C C C			40A*5	30A*3	30A*2	40A*5	30A*3	30A*2
INPUT PROTECTION REVERSE  OVER TEM OUTPUT SOLAR ENVIRONMENT  SAFETY & WORKING WORKING STORAGE VIBRATIOI SAFETY S: EMC EMIS EMC EMIS EMC CHARGE C CONTROL	ΜΔΙΔΡΜ		11.3+4%	22.5±4%	45±4%	11.3±4%	22.5±4%	45±4%
REVERSE  OVER TEM  OUTPUT S  OUTPUT S  CIRCUIT B  GFCI PROI  WORKING  WORKING  STORAGE  VIBRATIOI  SAFETY &  EMC EMIS  EMC EMIS  EMC CHARGE C  CHA		1	10.5±4%	21±4%	43±4% 42±4%	10.5±4%	21±4%	43 <u>+</u> 4%
OVER TEM OUTPUT S OUTPUT S OUTPUT S CIRCUIT B GFCI PROD WORKING WORKING STORAGE VIBRATION SAFETY S LVD WITHSTAN EMC EMIS EMC IMMU AC CHARGE C C C C C C C C C C C C C C C C C C C			By internal fuse ope		<b>→∠∴→</b> /0	10.0=4/0	Z 1≟ <del>4</del> /0	4Z±4 /0
OUTPUT S OUTPUT S OVER LOA CIRCUIT B GFCI PROI WORKING STORAGE VIBRATIOI SAFETY & EMC EMIS EMC EMIS EMC CHARGE C CONTROL	OVER TEMPERATURE				00°C + 5°C	60°C + 5°C	60°C+5°C	60°C + 5°C
OUTPUT PROTECTION  CIRCUIT B GFCI PROF WORKING WORKING STORAGE VIBRATION SAFETY S LVD WITHSTAN EMC EMIS EMC IMMU AC CHARGE C CONTROL			82°C±5°C   82°C±5°C   96°C±5°C   68°C±5°C   68°C±5°C   68°C±5°C   68°C±5°C					
OUTPUT PROTECTION  CIRCUIT B GFCI PROF WORKING WORKING STORAGE VIBRATION SAFETY & EMC EMIS EMC IMMU AC CHARGE C CHARGER CHARGER CHARGER CHARGER CHARGER CHARGER CCONTROL	CUART		Protection type: Shut down o/p voltage, re-power on to recover; by internal RTH3 detect on heatsink of power transistor					
PROTECTION OVER LOAD CIRCUIT B GFCI PROTECTION WORKING WORKING STORAGE VIBRATION SAFETY S' LVD WITHSTAN EMC EMC EMIS EMC IMMU AC CHARGE CHARGER CHARGER CHARGER CHARGER CHARGER CHARGER CONTROL	OUTPUT SHORT		Protection type: Shut down o/p voltage, re-power on to recover					
ENVIRONMENT  SAFETY & EMC EMIS  EMC CHARGER  CHARGER  SOLAR CHARGER			105 ~ 115% load for 180 sec., 115% ~ 150% load for 10 sec.					
BENVIRONMENT  ENVIRONMENT  STORAGE VIBRATION  SAFETY S  LVD WITHSTAN  EMC EMIS  EMC IMMU  AC CHARGER CHARGER CHARGER CHARGER CHARGE CHARGE CHARGE CONTROL			Protection type : Shut down o/p voltage, re-power on to recover					
ENVIRONMENT ENVIRONMENT  SAFETY &  SAFETY &  EMC EMIS  EMC IMMU  AC CHARGE C  C  C  C  C  C  C	CIRCUIT BREAKER		20A			10A		
ENVIRONMENT  STORAGE VIBRATION SAFETY S  LVD WITHSTAN EMC EMIS EMC IMMU  AC CHARGE C CHARGE C CHARGE C CHARGE V CHARGE V CHARGE V CONTROL	GFCI PROCTECTION		Optional (Only type F) None					
STORAGE VIBRATION SAFETY & EMC EMC EMIS EMC IMMU AC CHARGE C CONTROL		Note.3						
SAFETY & SAFETY S' LVD WITHSTAN EMC EMC EMIS EMC IMMU AC CHARGE C CONTROL			20% ~ 90% RH non-condensing					
SAFETY S  LVD WITHSTAN EMC EMIS EMC IMMU  AC CHARGER CHARGER SOLAR CHARGER CHARGER CHARGER CHARGER CONTROL	STORAGE TEMP., HUMIDITY		-30 ~ +70°C / -22 ~ +158°F, 10 ~ 95% RH					
SAFETY & LVD WITHSTAN EMC EMIS EMC IMMU  AC CHARGE C CHARGE C CHARGE V CHARGE V CONTROL	VIBRATION		10 ~ 500Hz, 3G 10min./1cycle, 60min. each along X, Y, Z axes					
SAFETY & WITHSTAN EMC EMIS EMC IMMU  AC CHARGER CHARGE V  SOLAR CHARGE V  CHARGE V  CONTROL	SAFETY STANDARDS		UL458 (only for "GFCI" receptacle-Type F ) None					
EMC WITHSTAN EMC EMIS EMC IMMU AC CHARGE C CHARGE C CHARGE C CHARGE C CHARGE C CHARGE C CONTROL	SAFFTY &		None EN60950-1					
EMC IMMU AC CHARGE C CHARGE V SOLAR CHARGE C CHARGE V CHARGE V CONTROL	WITHSTAND VOLTAGE		Bat I/P - AC I/P:3.0KVAC Bat I/P - AC O/P:3.0KVAC AC O/P - FG:1.5KVAC					
AC CHARGE C CHARGE W SOLAR CHARGER CHARGE C CHARGE V CONTROL	EMC EMISSION		Compliance to FCC class A			Compliance to EN55022 class B, 72/ 245/ CEE, 95/ 54/ CE, E-N		
CHARGER  SOLAR CHARGER  CHARGER  CHARGE V  CONTROL	EMC IMMUNITY		None			Compliance to EN61000-4-2,3,4,5,6,8,11   5.5A   2.7A   1.35A		
SOLAR CHARGE CHARGE CONTROL	E CURRENT (T	yp.)	5.5A	2.7A	1.35A			1.35A
SOLAR CHARGE C CHARGE C CONTROL			14.3V±4%	28.5V±4%	57V±4%	14.3V±4%	28.5V±4%	57V±4%
CHARGER CHARGE CONTROL	EN CIRCUIT VO			45V	75V	25V	45V	75V
CHARGE V	E CURRENT (m	nax.)	30A					
	EVOLTAGE		14.3V±4%	28.5V±4%	57V±4%	14.3V±4%	28.5V±4%	57V±4%
OTHERS DIMENSIO	CONTROL WIRING		RJ11 -RS232 (Option)					
	DIMENSION		420*220*88mm (L*W*H)					
PACKING			6.85Kg; 2pcs/14.7Kg/1.61CUFT					
2.Efficien 3.Output 4.All para	ency is tested I ut derating cap	by 1000 acity re specifie	eferenced by curve DW, linear load at 1: eferenced by curve d above are measu DOW, linear load at	3V, 26V, 52V input <sup>e</sup> 2. red at rated load, 2	5°C of ambient temp	oerature.		



# ■ Instructions for TN-1500 monitoring software

### 1. Installation of TN-1500 unit and PC

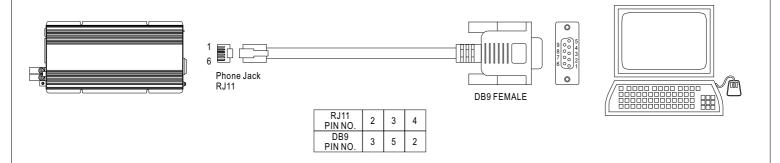


Figure 1

### 2. Explanation of Monitoring Manu

# 2.1 Main Page

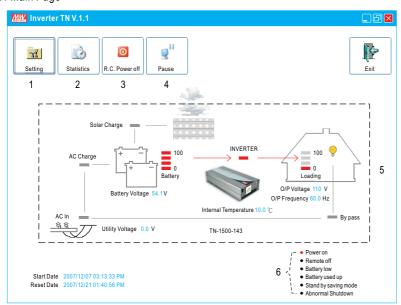


Figure 2

- 1. Setting: Adjustment for output voltage, charging related voltage, frequency, and operation mode. Please refer to Figure 3 for details.
- 2. Statistics: Calculate for the percentage of operating period for each operation mode. Please refer to Figure 4 for details.
- 3. R.C. Power off: Power can be turned ON or OFF at the remote location.
- 4. Pause: Stop refreshing the page of monitoring software.
- 5. Status of unit: Indicating current operating status of TN-1500.
- 6. Signals that display current condition of the unit.



#### 2.2 Setting Page

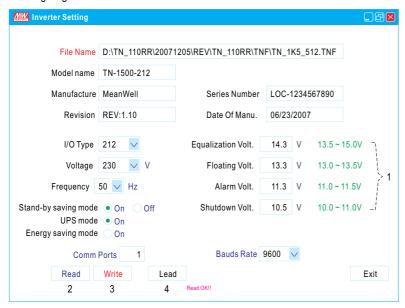


Figure 3

- 1. User can adjust the settings based on the characteristics of batteries been used: Equalization Voltage, Floating Voltage, Alarm Voltage, and Shut-down Voltage. UPS Mode / Energy Saving Mode selection and AC output voltage and frequency can also be set in this page.
- 2. Read: Read current settings of the unit.
- 3. Write: Write the revised setting into the unit.
- 4. Load: Load in factory default settings.

## 2.3 Statistic Page

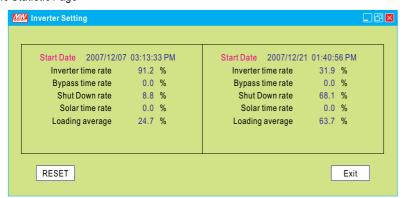


Figure 4

- 1. Start Date: Date that installing the monitoring software.
- 2. Reset Date: Date that resetting the statistics. The Start Date will not be influenced by resetting the statistics or turning off the unit.
- 3. Inverter time rate: Operating period of "Inverter Mode" represents how many percent of the whole operating period.
- 4. Bypass time rate: Operating period of "Bypass Mode" (energy provides directly by the utility) represents how many percent of the whole operating period.
- 5. Shut down rate: Percentage of time period that the unit is under the condition of shut down.
  - \* Inverter time rate + Bypass time rate + Shut down rate = 100%
- 6. Solar time rate: Percentage of time period that the solar charger is functioning after turning on the TN-1500 unit.
- 7. Loading average: Average loading after turning on the TN-1500 unit.



