

MA250 SERIES

250VA DC/AC INVERTERS Sine Wave Output



H55×W120×L198 (mm)

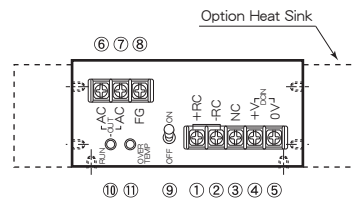
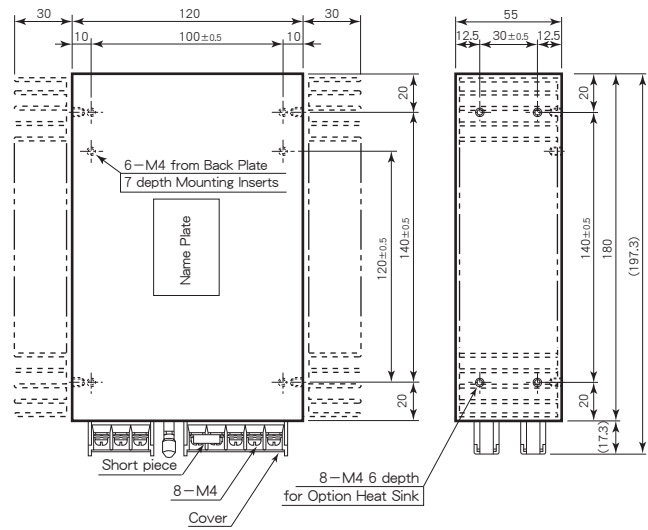
Features

- High Efficiency 85~87% typical
- Vertical, Horizontal Mount
- Remote ON/OFF Control
- Input Low Voltage Protection
- Input Over Voltage Protection
- Input Rush Current Protection (Input DC12V type is not built-in.)
- Thermal Protection +90°C~+110°C
- Output Frequency Temp. Coefficient 0.01%/°C max.
- Input-Output Isolation (AC2000V)
- Operating Ambient Temperature -25°C~+71°C
- Built-in Input and Output Noise Filter
- Conformity to RoHS Directive
- 高効率 85~87% typical
- 縦置き、横置き共用
- リモートON/OFFコントロール
- 入力低電圧保護回路内蔵
- 入力過電圧保護回路内蔵
- 入力突入電流保護回路内蔵 (DC12V入力は除く)
- 過熱保護回路内蔵 +90°C~+110°C
- 出力周波数温度係数 0.01%/°C 以下
- 入出力間絶縁 (AC2000V)
- 動作周囲温度 -25°C~+71°C
- 入出力ノイズフィルタ内蔵
- RoHS指令対応

General Characteristics

- Input Voltage (at Ta:25°C, Full Load, Nominal Vin) DC12V,24V,48V,96V (See Table 1)
- Output Voltage, Accuracy AC100Vrms, ±1%
AC200Vrms, ±1%
AC220Vrms, ±1%
- Output Current See Table 1
- Output Frequency, Accuracy 50Hz, 60Hz, 400Hz, ±0.1%
- Output Wave Sine Wave
- Output Wave Distortion 1.5% max.
3% max. (Vout : 400Hz only)
- Output Voltage Temperature Coefficient 0.02%/°C max.
- Output Frequency Temperature Coefficient 0.01%/°C max.
- Efficiency See Table 1
- Line Regulation 0.5% max. (at Vin Range)
- Load Regulation 1% max. (0~100% Load)
- Short Circuit Protection Built-in, Auto-restart (See Fig 2)
- Remote ON/OFF Control ON : Short or 0~0.8V
OFF : Open or 2~10V
- Operating Ambient Temperature -25°C~+71°C (See Fig 1)
- Storage Temperature -40°C~+85°C
- Isolation Voltage AC2000V one minute (Input-Output-Case)
- Isolation Impedance 100MΩ min. (at DC1000V) (Input-Output-Case)
- Weight Main Body : 3kg max.
Pair Heat Sinks : 700g max.
- Humidity 20~90% RH
- Shock 490m/s² (11msec 3directions)
- Vibration 10~55Hz 98m/s² (30minutes 3directions)
- Surface Structure Aluminum Case
- MTBF 90,000H (Ta:25°C, 80%Load, Nominal Vin)
- Warranty 5 years

Terminal Outs & Dimensions (±1.0mm)



* Option Heat Sink Model : A3-8860

Terminal Outs

- ① +Remote Control (+RC)
- ② -Remote Control (-RC)
- ③ No Connection (NC)
- ④ +Vdc in
- ⑤ 0 Vdc in
- ⑥ AC out
- ⑦ AC out
- ⑧ Frame Ground (FG)
- ⑨ ON/OFF Switch
- ⑩ Operation Indicator
- ⑪ Over Thermal Indicator

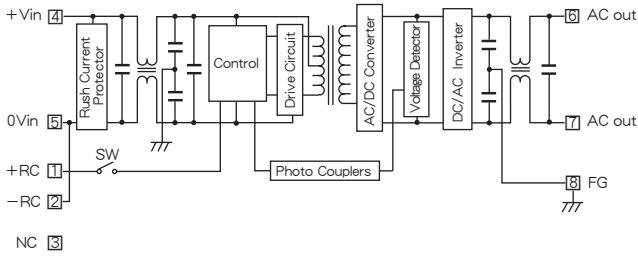
Selection Guide

Table 1

Model Number	Input Volt. (Range) (V. DC)	Output Voltage (V. AC)	Output Current (A rms)	Output Frequency (Hz)	Efficiency (typ.) (%)		
					20% Load	80% Load	
MA250-12-100S2.5A50	12 (9~18)	100	2.5	50	84	85	
MA250-12-100S2.5A60		100	2.5	60	84	85	
MA250-12-100S2.5A400		100	2.5	400	84	85	
MA250-12-200S1.25A50		200	1.25	50	84	85	
MA250-12-200S1.25A60		200	1.25	60	84	85	
MA250-12-220S1.1A50		220	1.1	50	84	85	
MA250-12-220S1.1A60		220	1.1	60	84	85	
MA250-24-100S2.5A50		24 (18~36)	100	2.5	50	86	87
MA250-24-100S2.5A60			100	2.5	60	86	87
MA250-24-100S2.5A400			100	2.5	400	86	87
MA250-24-200S1.25A50	200		1.25	50	86	87	
MA250-24-200S1.25A60	200		1.25	60	86	87	
MA250-24-220S1.1A50	220		1.1	50	86	87	
MA250-24-220S1.1A60	220		1.1	60	86	87	
MA250-48-100S2.5A50	48 (36~76)		100	2.5	50	86	87
MA250-48-100S2.5A60			100	2.5	60	86	87
MA250-48-100S2.5A400			100	2.5	400	86	87
MA250-48-200S1.25A50		200	1.25	50	86	87	
MA250-48-200S1.25A60		200	1.25	60	86	87	
MA250-48-220S1.1A50		220	1.1	50	86	87	
MA250-48-220S1.1A60		220	1.1	60	86	87	
MA250-96-100S2.5A50		96 (72~144)	100	2.5	50	86	87
MA250-96-100S2.5A60			100	2.5	60	86	87
MA250-96-100S2.5A400			100	2.5	400	86	87
MA250-96-200S1.25A50	200		1.25	50	86	87	
MA250-96-200S1.25A60	200		1.25	60	86	87	
MA250-96-220S1.1A50	220		1.1	50	86	87	
MA250-96-220S1.1A60	220		1.1	60	86	87	

* 上記仕様以外にも対応可能ですので お問い合わせ下さい。
Please consult with us about other specification.

■ Block Diagram



■ Characteristic Curves

Fig 1 Derating Curve

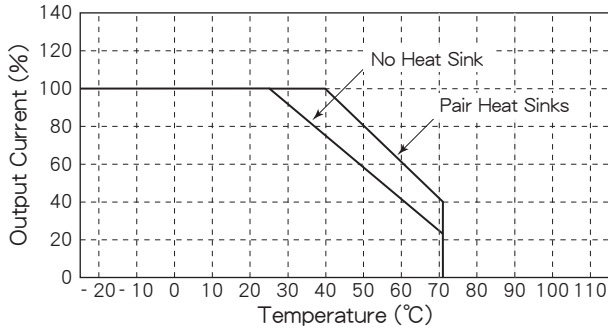


Fig 2 Short Circuit Operating Area

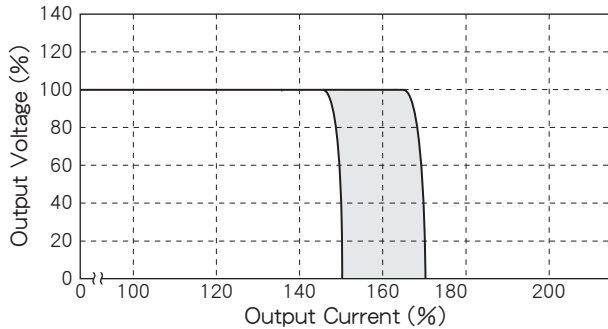


Fig 3 Temperature Characteristic on Case Surface

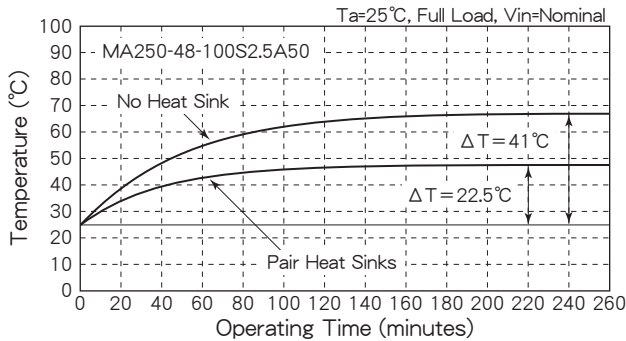
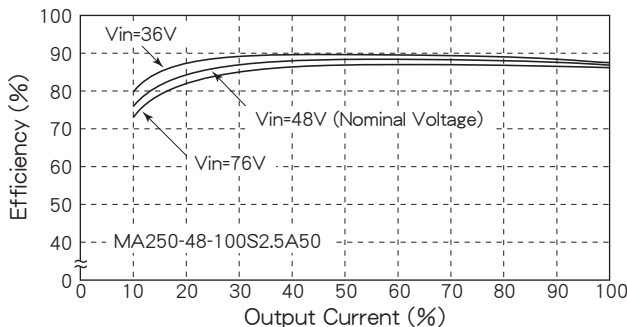


Fig 4 Efficiency vs. Output Current



■ 主な機能及び注意事項 Function and direction in application

1. 入力低電圧保護、入力過電圧保護 Input low/over voltage protection
 下記入力電圧にて出力電圧がOFFとなります。入力電圧を規定値内に戻すと自動復帰します。
 Output will be shut down in the input voltages on the following table. Output will automatically be reset when the input voltage comes to within the specified value.

定格入力電圧 Rated input voltage	低電圧保護動作点 Low voltage protection	過電圧保護動作点 Over voltage protection
12V (9~18V)	6~8V	20~22V
24V (18~36V)	12~16V	40~44V
48V (36~76V)	24~32V	80~88V
96V (72~144V)	48~64V	150~165V

2. 出力過電流保護 Output over current protection
 負荷が短絡した場合など、過大な負荷電流が流れるときに負荷と本体を保護する機能です。定格出力電流の約150%~170%にて検出し作動します (Fig 2 参照)。出力は定電流電圧垂下特性、入力電流はフの字特性となっています。また自動復帰特性を有しています。

This function is to protect a power supply and a load when excessive current flows in case of short-circuited load or such possible conditions. It will operate in 150 - 170% of rated output current (see Fig. 2). Output has constant current voltage limiting characteristic and input current has combined current limiting with fold-back protection. It also has automatic reset function.

3. 過熱保護 Thermal protection

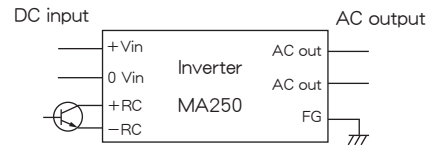
本体内部に過熱保護回路が内蔵されています。内部温度が+90°C~+110°Cにて出力が停止します。+90°C以下で自動復帰します。
 Thermal protection is built-in. Output will be shut down in +90 - 110°C at the plate inside and will automatically be reset below +90°C.

4. リモートON/OFFコントロール Remote ON/OFF control

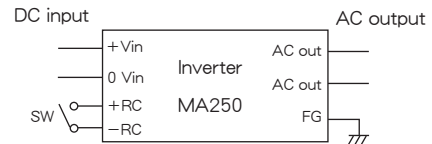
リモートON/OFFコントロールを使用して、電源の出力をON/OFFすることができます。RC端子間をショートする事で出力電圧がON、RC端子間をオープンにする事で出力電圧がOFFになります。RC端子間にTTLレベルの電気信号を加える事により出力をON/OFFすることができます。またRC端子間をショートしたままスイッチを手動でON/OFFする事により、出力電圧をON/OFFできます。RC端子は入力側にあり、入力電源回路とは絶縁されていません。

Using remote ON/OFF control, ON/OFF of the power supply output is possible. The output voltage operates by a short between RC terminals, and the output voltage stops by open between RC terminals. ON/OFF of the output voltage is possible by adding the electrical signal of the TTL level between RC terminals. In addition, ON/OFF of the output voltage is possible by performing ON/OFF of the switch on front panel by manual operation with short between RC terminals. RC terminals are located on the input side and the circuit is not isolated from input power source circuit.

- TRIによる例 Example by transistor



- SWによる例 Example by switch



5. 出力側突入電流保護 Output rush current protection
 出力側の負荷としてダイオードで整流されたC負荷の突入電流に対して、問題なくインバータは動作します。
 Inverter operates unconditionally against rush current of capacitor load rectified by diodes.

