AC Power Source

多功能變頻電源
使用手册

目 錄

注意事項

⚠ 感謝您購買本公司產品，在使用前請務必詳閱此手冊，并請妥善保存 。

⚠ 機器搬運時請小心輕放，避免碰撞。

⚠ 電源請依照電工法規及安裝說明施工。

⚠ 請依照操作說明指示步驟，依序操作。

⚠ 請勿打開機蓋，以避免觸電及機器損壞。

⚠ 請保持機器之乾净與清潔。

⚠ 請勿將機器置於潮濕、悶熱讓陽光直射之處。

⚠ 若有异常現象，請參閱”*狀況處理*”程序。

使用場所介紹:

1 、 外銷品測試:

A. 產品行銷目的地使用電源模擬化。
B. 規格之認定統一化
C. 無干擾促使產品功能進級化。
D. 研發好幫手，各國電力測試隨心所得電源國際化 。
E. 制程上無缺點的產品規格化。

2 、 品質認證:

A. 產品規格一致化，促進產業升級。
B. 各國標準之認證標準電源 。
C. 純淨正弦波， 電源建立標準之利器。
D. EMI/EMC安規測試標準電源 。

3 、 精密度儀器設備的專用電源:

A. 高精密度之儀器使用電源 ，能使各種功能完完整整的表現出來。
B. 整廠設備輸出， 事前模擬， 促進設備之全功能化。
C. 制造無障礙設備的專屬電源 。

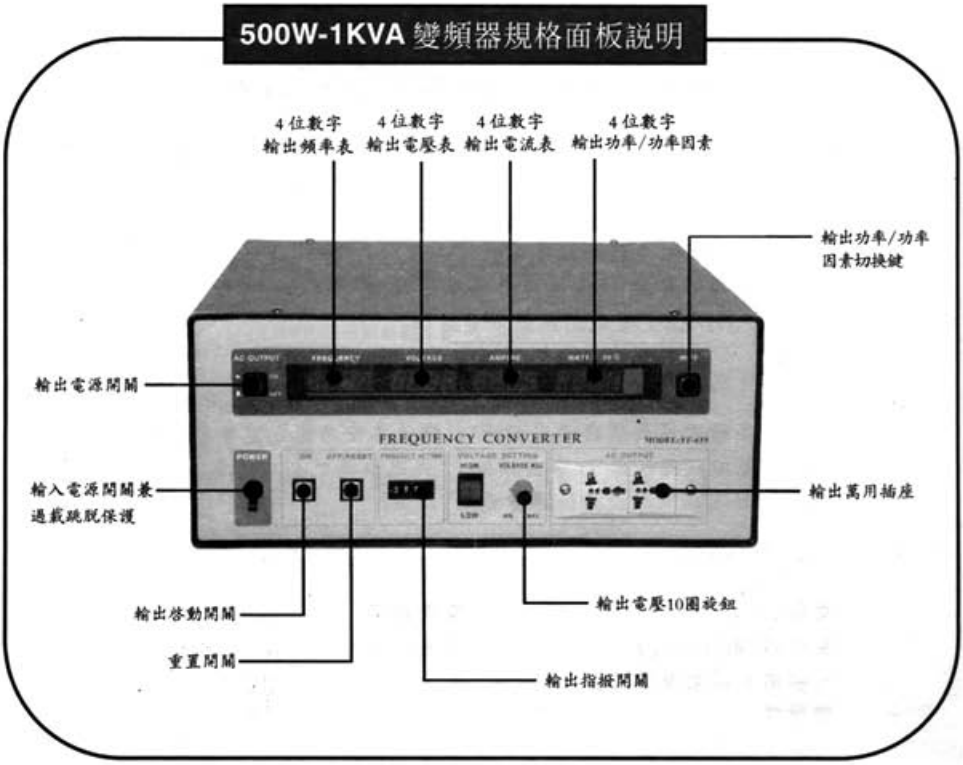
使用產品介紹

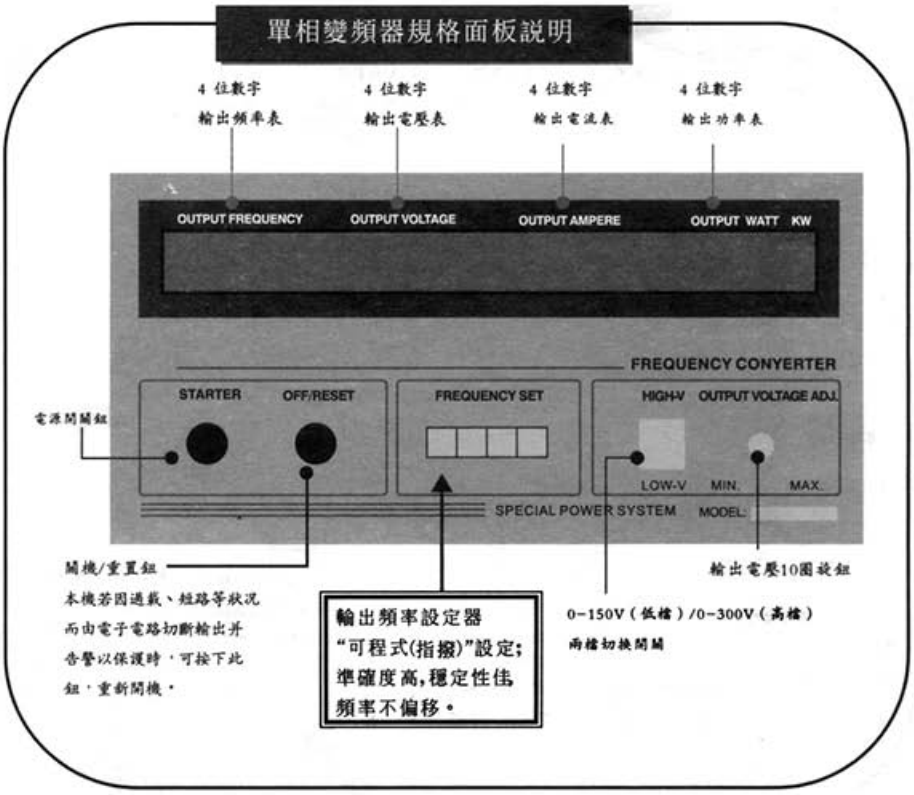
電腦(PC)	空調設備
監視器(Monitor)	日光燈安定器測試
電腦用直流電源供用器(SPS)	各種電器用品
變壓器	音響設備
馬達電器設備測試	家用設備產品(冷氣、 冰箱、電視)
冷氣壓縮機制造	

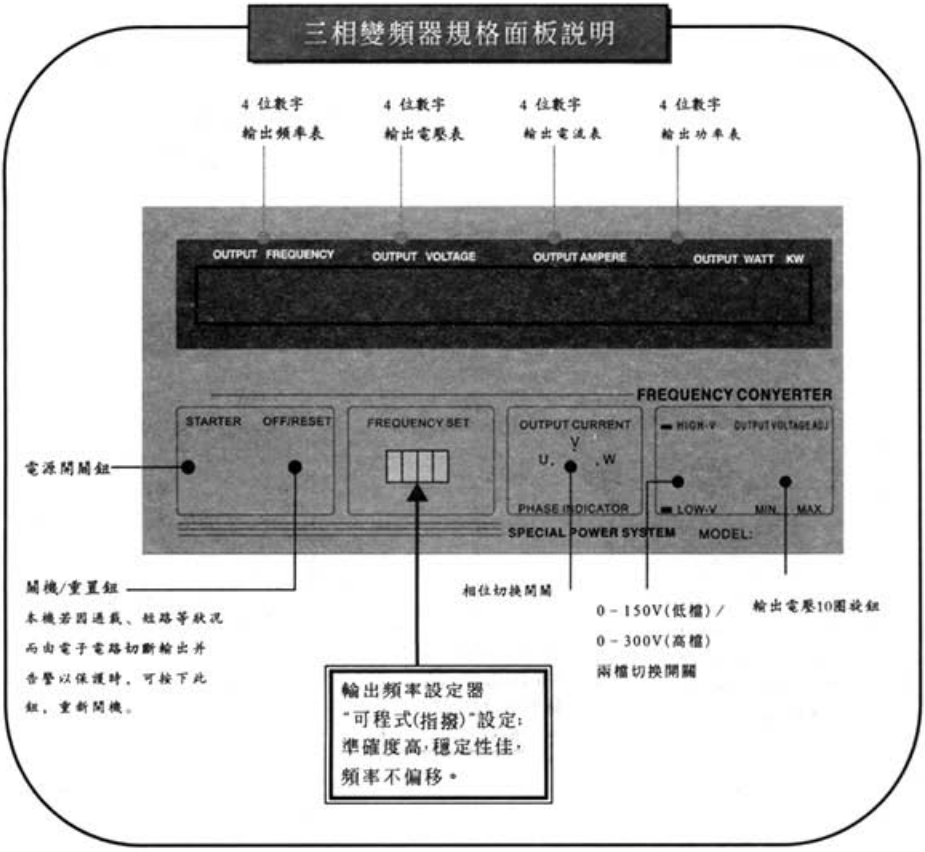
400HZ:

軍用設備	機場設備
通訊設備	航太工業 船舶及導彈設備專用電源

500W-1KVA 變頻器規格面板說明




單相變頻器規格面板說明
4 位數字
輸出頻率表
4 位數字
輸出電壓表
4 位數字
輸出電流表
4 位數字
輸出功率表
OUTPUT FREQUENCY
OUTPUT VOLTAGE
OUTPUT AMPERE
OUTPUT WATT KW
FREQUENCY CONYERTER
STARTER
OFF/RESET
FREQUENCY SET
HIGH-V
OUTPUT VOLTAGE ADJ.
LOW-V
MIN.
MAX.
SPECIAL POWER SYSTEM
MODEL:
電源開關鈕
開機/重置鈕
本機若因過載、短路等狀況
而由電子電路切斷輸出并
告警以保護時，可按下此
鈕，重新開機。
輸出頻率設定器
"可程式(指撥)"設定;
準確度高,穩定性佳,
頻率不偏移。
0-150V（低檔）/0-300V（高檔）
兩檔切換開關
輸出電壓10圈旋鈕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相位切換開關
0－150V(低檔)／
0－300V(高檔)
兩檔切換開關
輸出電壓10圈旋鈕
輸出頻率設定器
"可程式(指撥)"設定:
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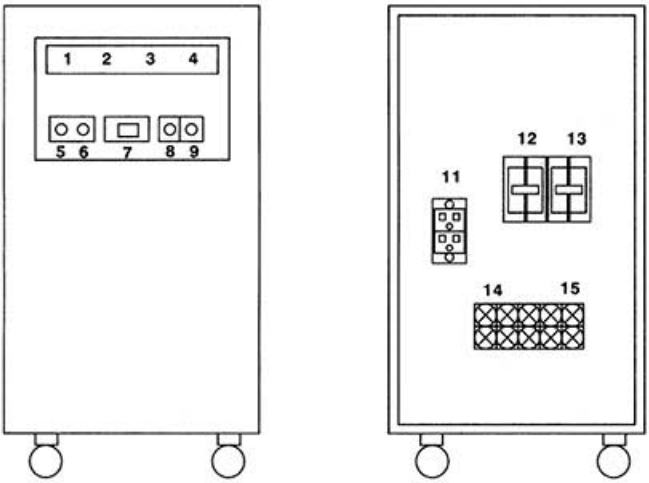
(單相機型)



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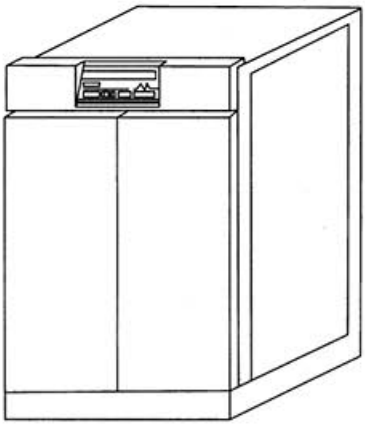


說明順序由左至右，由上而下，逐步敘述之：

1.輸出頻率指示表：數位式顯示輸出頻率至小數點下一位。

2.輸出電壓指示表：數位式顯示輸出電壓值。

3.負載電流指示表：數位式顯示輸出電流值。

4.負載瓦特指示表：數位式顯示輸出功率值。

5.電源開關鈕：開關啓動之按鈕。

6.開機重置開關：因過載或斷路造成變頻器跳脫，警報器響時，可按此按鈕重新啓動。

7.頻率指撥開關：固定頻率40-499.9HZ可程式（指撥）設定。

8.輸出電壓切換開關：二檔0-150V或0-300V。

9.標準電壓輸出微調鈕：十轉式微調開關，可由微調得到您所需要的標準電壓。

10.三相輸出電流顯示切換開關：可切換顯示各相之輸出電流值。(僅用於三相輸出機種)。

11.輸出萬用插座：10A以下負載。(僅限于單相500W~5KVA變頻器)

12.POWER：电源总开关。

13.O/P：输出负载开关。

14.輸入端子盤。

15.輸出端子盤。

- 變頻器的幾種型號是否符合您訂購之型號與容量。
- 變頻器是否因運送不慎造成損壞，若有損壞請勿接上電源。
- 確認入電電壓是否和機器規格相符合。
- 勿將機器裝置於靠近水源、高溫、潮濕場所。
- 防止油霧、鹽分侵蝕。
- 防止粉塵、棉絮級金屬細物侵入。
- 讓機器遠離塵埃、悶熱及換氣不良的場所，并保持環境清潔。
- 安裝機器時請注意機器背面散熱空間距離，以避免散熱不良。
- 機器請放置於堅固及沒有振動的水平面上。
- 安裝前請先參考背面之規格。
- 使用前確定輸入電壓。
- 接上電源之前須注意L-N-G（單相）規格是否正確R-S-T（三相）之相序裝接，切勿接反。
- 在接電源之前先將所有開關置於OFF以確保設備無損害之虞。
- 配綫時注意所有接綫端之插頭、插座，有無鬆動以避免導電不良產生危險。
- 裝機完畢後，確實設備規格與電源系統規格完全匹配後，才將電源接上，并檢查綫路沒問題後即可開機使用。

配綫綫徑參考表

1. 輸入220V單相系統

規格及容量	輸入			輸出	
	最大電流	保護開關	使用綫徑	最大電流	使用綫徑
500W	4A	5A	1.4mm²	110V:4.5A 220V:2.3A	1.25mm²
1KVA	8A	10A	3.5mm²	110V:9A 220V:4.5A	2mm²
2KVA	10A	15A	3.5mm²	110V:18.1A 220V:9A	3.5mm²
3KVA	20A	30A	5.5mm²	110V:27.2A 220V:13.6A	5.5mm²
5KVA	35A	40A	8mm²	110V:45A 220V:22A	8mm²
10KVA	65A	70A	14mm²	110V:90A 220V:45A	14mm²
15KVA	100A	125A	30mm²	110V:136.4A 220V:68.2A	22mm²
20KVA	150A	175A	35mm²	110V:181.7A 220V:90.9A	30mm²
30KVA	200A	225A	45mm²	110V:272.7A 220V:136.3A	60mm²

2.輸入380V 三相四綫系統

規格及容量	輸入			輸出	
	最大電流	保護開關	使用綫徑	最大電流	使用綫徑
15KVA	25A	30A	5.5mm²	110V:45A 220V:22.5.A	14mm²
20KVA	30A	40A	8mm²	110V:60A 220V:30A	14mm²
30KVA	50A	60A	14mm²	110V:90A 220V:45A	22mm²
45KVA	70A	100A	22mm²	110V:136A 220V:68A	30mm²
60KVA	90A	125A	30mm²	110V:182A 220V:91A	38mm²
90KVA	136A	150A	38mm²	110V:272A 220V:136A	60mm²
100KVA	150A	200A	60mm²	110V:300A 220V:150A	60mm²

配綫注意事項

1. 變頻器因容量大小不同而有不同的安裝標準，請依照您的變頻器的規格，選擇適當的方式配綫，尤應注意其綫徑須符合規定。

2. 請注意變頻器之輸入端，應避免與其他設備共用一開關，并接近市電源頭。

3. 確認輸入電源電壓符合變頻器之輸入額定電壓。

4. 接綫時請關閉電源，嚴禁火綫作業以策安全。

5. 配綫綫徑大小請依電工法規規定選用，并注意螺絲旋緊。

6. 接綫端子請選用O型端子施工。

7. 變頻器的接地綫請務必確實實施。

8. 輸入電源不可與輸出電源接錯位置。

9. 內部控制板上半導體元件易受靜電影響及破壞，請勿觸摸控制板。

10. 變頻器的使用環境及配綫作業對變頻器正常功能發揮及使用壽命，甚至安全性均有直接影響，故所以務必遵照以上要求指示進行安裝與配綫。

1.先將電源開關切至OFF之位置。

2. 使用前請先視察設備之完整性開關，旋轉各種功能之按鍵顯示器是否齊全均無鬆動之現象。

3. 確認輸入電源是否在規格內，再將電源總開關切至ON之位置。

4. 設定輸出頻率指拔檔上指示頻率即是輸出頻率，設定百位數頻率時需先按OFF/RESET 鍵後進行。

5. 按啓動開關：按此開關前請先關閉輸出開關。

6. 調整輸出電壓：將輸出電壓切換開關切至所需檔位。

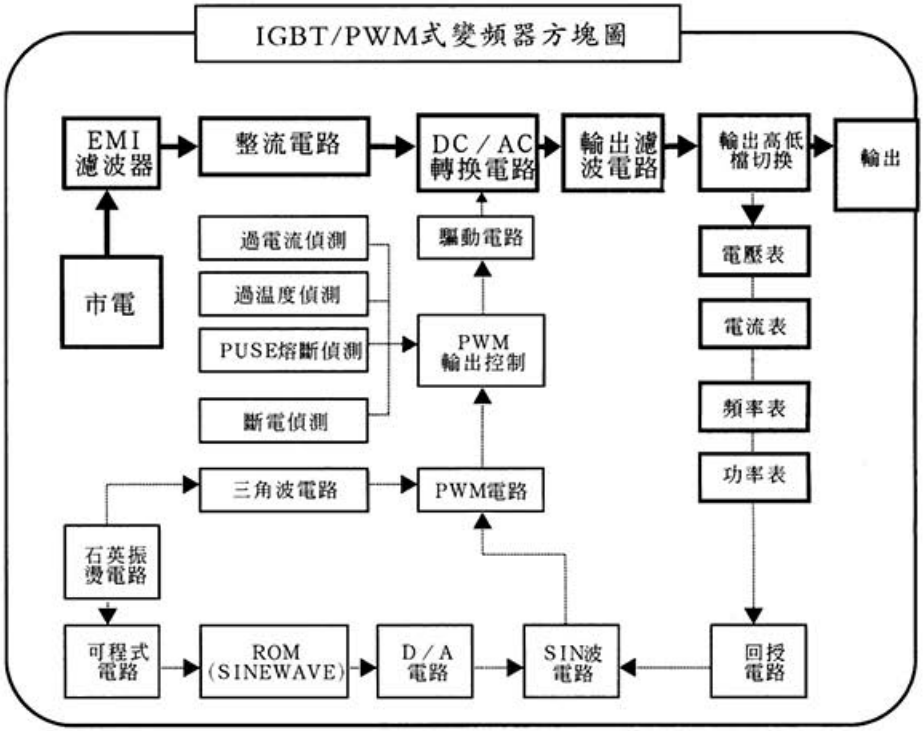
（a）Lo-V 檔位 0-150V　PS:150V以下請用此檔。

（b）Hi-V 檔位 0-300V　PS：150V以上請用此檔。

7. 將負載輸入綫接上，打開輸出開關即可順得獲得各功能顯示器上所顯示值之標準電源。

8. 本機負有過載或短路裝置，在過載或短路時保護電路立即切斷輸出電源，蜂鳴器報警，此時請先將負載關閉，再按重置開關（OFF/RESET）警聲停止後，再按啓動開關即開始供電。檢查負載狀況，確認無异常，再重新開啓負載開關。

9. 工作中按OFF/RESET鍵即可切斷輸出電壓。



二、規格

1. 輸入電源:1φ2W 220V±10% 3φ4W 380±10% 頻率50Hz Or 60Hz。
2. 輸出電壓:0-150V/0-300V兩檔10轉調整。
3. 輸出頻率:FIXED 40.0Hz~449.9Hz。
4. 功率因素:>85%,在滿載下測量,諧波失真度:<1%(在阻性負載下測量)
5. 電壓穩定度:±1%。
6. 頻率穩定度:FIXED ±0.01Hz。
7. 諧波失真度:<1%。
8. 保護裝置:過載、短路、過温度、過電流、及告警裝置。
9. 工作環境:0~40°C,相對濕度:0~90%(非凝結狀態)。

异常狀況	處理程序
無法開機	1. 是否停電
	2. 將 "NFB" 切至 "ON"
	3. 檢查電源綫、插頭、插座
	4. 檢查保險絲
輸出頻率顯示正常，但電壓表與電流表顯示爲 "O"	1. 將電源開關切至 "OFF"
	2. 將輸出電壓調至開關歸零
	3. 將電源開關切至 "ON"
輸出頻率顯示正常，但電壓表與電流表顯示爲 "O", 同時警告聲響起	1. 檢查并降低負載電流
	2. 壓 "RESET" 開關
	3. 等待機器延遲啓動
	4. 重新操作

共同規格

◆共同規格

相數		單相	三相
容量		500VA～45KVA	3KVA～150KVA
製作方式		IGBT / PWM 脈波寬度調變方式	
輸入	電壓 (任選一種)	1相2線+G: 110V (2- 5KVA), 220V/230V/240V±10%	
		3相 4線+G: Y接法 190/110, 200/115, 208/120, 220/128, 230/132, 240/139V ±10%	
		3相4線+G: Y接法 380/220, 400/230, 415/240, 440/254, 460/265, 480/277V ±10%	
		3相3線+G: Delta 接法 220, 230, 240, 380, 400, 415, 440V ±10%	
	頻率(任選一種)	47—63Hz 或 400Hz ±5%	
輸出	電壓	110V 系統: 0 - 150V (Low Range)	選項: 1) 0 - 600V, 2) 標稱設定電壓:
		220V 系統: 0 - 300V (High Range)	+10%～+25%, -10%～-30% 預先設定
	負載穩壓率	≦± 1%	
	頻率	40Hz to 499.9Hz (可程式設定)	
	頻率穩定度	≦± 0.01%	
	諧波失真	正弦波，≦2%	
	頻率表	4位數，數位頻率表，解析度 0.1Hz / Step	
	電壓表	4位數，數位電壓表, 解析度0.1V	
	電流表	4位數，數位電流表, 解析度0.1A	
	瓦特表	4位數，數位瓦特表, 解析度0.1W	
保護裝置		俱過載、過高溫、短路、瞬間斷電保護，告警裝置	
工作環境	周溫	0 — 40 deg. C	
	濕度	0 — 90% (非凝結狀態)	

◆ 實體規範 (單相)

規格及容量		500VA	1KVA	2KVA	3KVA	5KVA	8KVA	10KVA	15KVA	20KVA	30KVA	45KVA
製作方式		IGBT / PWM 脈波寬度調變方式										
輸出	限電流低檔(L-N)	L:4.2A	L:8.4A	L:16.8A	L:25.0A	L:41.6A	L:63.0A	L:83.2A	L:125.0A	L:166.4A	L:250A	L:375A
	高檔(L-N)	H:2.1A	H:4.2A	H:8.4A	H:12.5A	H:20.8A	H:31.5A	H:41.6A	H:62.5A	H:83.2A	H:125A	H:188A
重量	(Kgs)	43	48	45	60	70	130	150	180	230	350	460
尺寸 (HxDxW)	(mm)	180×460×430		600×500×350			800×620×420				1040×950×610	

◆實體規範(二進單出)

容量		10KVA	15KVA	20KVA	25KVA	30KVA	45KVA	50KVA	60KVA	75KVA	90KVA	100KVA
制作方式		IGBT/PWM脉波寬度調變方式										
輸出	限電流低檔(L-N)	L:83.3A	L:125.0A	L:166.6A	L:208.3A	L250A	L:375A	L:416.6A	L:500A	L:625A	L:750A	L:833.3A
	高檔(L-N)	H:41.6A	H:62.5A	H:83.3A	H:104.1A	H:125A	H:187.5A	H:208.3A	H:250A	H:312.5A	H:375A	H:416.6A
重量	(Kgs)	155	180	230	300	330	450	510	600	660	850	1050
尺寸 (HxDxW)	(mm)	800×620×420			1040×950×610				1600×1000×800		1800×1200×900	

◆ 實體規範 (三相)

規格及容量		3KVA	6KVA	10KVA	15KVA	20KVA	30KVA	45KVA	60KVA	75KVA	100KVA	120KVA	150KVA
輸出	限電流低檔(L-N)	L:8.4A	L:16.8A	L:27.6A	L:41.6A	L:55.6A	L:83.2A	L:125.0A	L:166.4A	L:208.4A	L:277.6A	L:333.4A	L:418A
	高檔(L-N)	H:4.2A	H:8.4A	H:13.8A	H:20.8A	H:27.8A	H:41.6A	H:62.5A	H:83.2A	H:104.2A	H:138.8A	H:166.7A	H:209A
重量	(Kgs)	100	160	200	260	320	450	550	660	750	1050	1300	1460
尺寸 (HxDxW)	(mm)	800×620×420				1040×950×610			1800×1200×800			2000×1400×900	

※ 本公司保有規格變更權力，規格變更時，恕不另行通知。
※ 本公司接受特殊規格訂製。

TABLE OF CONTENTS

A. Important Safety Instructions

Save These Instructions.

Thank you for selecting this AC Power Source / Frequency Converter. This manual explains how to correctly install,operate,maintain,serve and get the best performance from the unit,please read this manual carefully before installing,the keep it near the unit for reference.

1. Please read all of these in structions before installation and operation of this unit.

2. Save these instructions in a convenient place for later reference.

3. Use only attachment methods (electrical plugs,etc.) that are approved by the manufacturer or recognized body (UL,CE,CSA). Use of unapproved attachments may cause hazards to personnel and equipment.

4. Use only one AC power cord per AC receptacle. Do not overload any AC receptacle or extension cords. This may result in a shock or fire hazard.

5. Do not overload wall outlets and extension cords as this can result in fire or electrical shock.

6. Do not place this unit on an unstable cart, stand or table. Keep the unit on a flat, stable surface with adequate space around it for proper ventilation.

7. Slots, grilles and openings of the unit are provided for ventilation, to protect it from overheating, and to ensure reliable operation. These openings must not be covered, and the rear panel of the unit must be at least 5 inches (13cm) from any wall.

8. This unit should be operated only from power sources for which it is rated. Do not attempt to operate the unit beyond its ratings. In the event of an electrical storm, unplug the unit to prevent damage.

9. The power cord is used as a main disconnect device. Disconnect the power cord before servicing.

10. Do not allow anything to rest on the power cord since inadvertent damage or hazards may occur. Avoid locating the power cord in high traffic areas.

11. Do not place the unit near a heat register, and avoid placing the unit in direct sunlight. Do not place the unit near water or excessive moisture.

12. Service to this unit should be done by factory-trained personnel only. Opening or removing covers may expose dangerous voltage points or other hazards.

13. Adjust only those controls that are listed by the Adjustment Section.If the unit does not operate normally by following the operating instructions,contact the tactory for assistance.

B. Introduction

GENERAL PRODUCT FEATURES:

- This unit is sultable for use with Resistive, Capacitive, Inductive and Non-linear loads.
- 50Hz, 60Hz or 400Hz Input Frequency.
- 0 to 300VAC Output Voltage Selector.
- 40.0 to 499.9Hz Output Frequency Selector.
- PROGRAMMABLE Output Frequency
- Precise 4 LED Digital display Output Frequency, Voltage, Ampere & Wattage.
- Full Galvanically Isolated. No Harmonic Distortion (EMI,EMC).
- Full Galvanically Isolated. No Harmonic Distortion (EMI,EMC).
- Pure and Stable Sinewave Output.
- Fast Response Time.
- Sustained 300% Overload Capability.
- IGBT/PWM technology enhances Compact Size; Low Noise; High Reliability.
- Capable to Simulate Global Voltage, Frequency for Export Electrical Products test.
- ***Units are equipped with Electronic Circuit / Instant Trip Breaker / Buzzer Alarm for Over Voltage, Over Current, Over Temperature, Output Short Protection.***

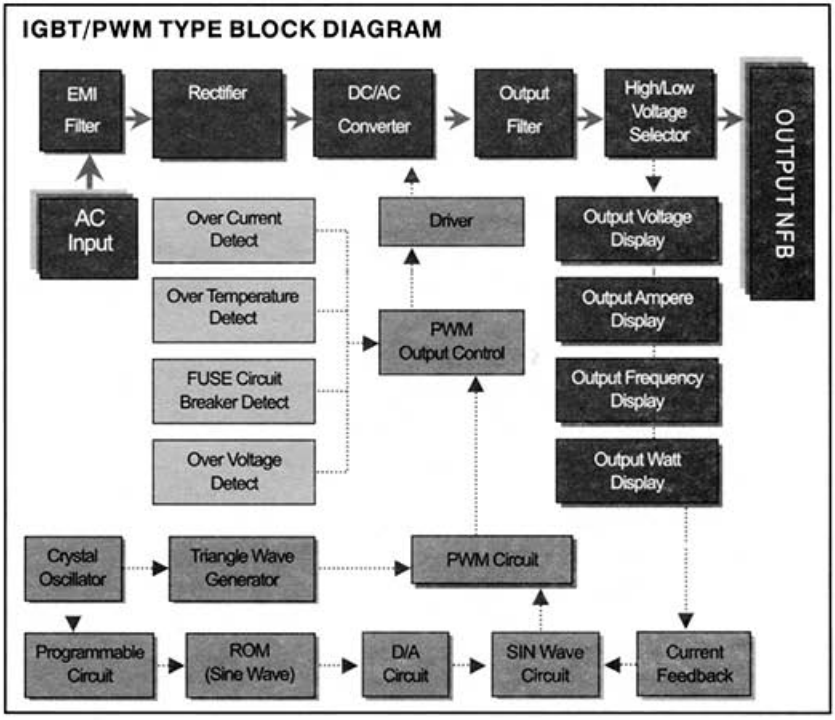
APPLICATIONS

- Standard Power Source for EMI/EMC/Safety testing.
- QA/QC/Life & Safety testing
- Electric Machinery Product test.
- Excellent AC Power Source for R&D or Lab.
- Switching Power Supply testing.
- AC Fan test.
- Compressor test.
- Motor test.
- Air Conditioner.
- Copier/OA Equipment.
- Computer/Monitor/Scanner.
- Transformer/Triac/SCR test.
- Electronic Ballast Testing.

400HZ Power System:

- **Military**
- **Telecommunication Facilities.**
- **Airport Grounding Facilities.**
- **Avionics,Marine,Missile, Projectile Facilities.**
- **Any Facilities / Instruments have 400Hz Power System.**

C. Circuit Theory

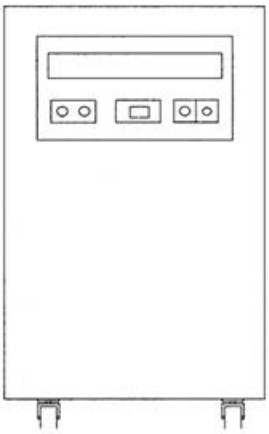


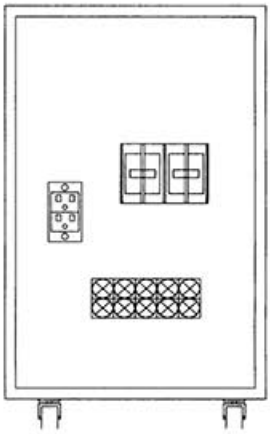
IGBT/PWM PRINCIPLE:

It is a machine that takes electrical input power at one frequency and voltage and provides variable output voltage and frequency for testing loads over their full voltage and frequency. Solid State units convert in coming AC Power into DC power,and then convert the DC into the required Output Power. Its design is based on advanced DSP and High Frequency PWM(Pulse Width Modulation) technology. By employing IGBT module to reduce circuit complexity,and Crystal Oscillation to enhance frequency stability. Full galvanically isolated provides pure sinewave output and no harmonic distortion. Totally makes the unit with accurate regulations and no minimum distortion which are very suitable to be a standard AC power source for EMI/EMC/Life and Safety test.

D. Outer Construction

(Number refer to locations on accompanying diagram)



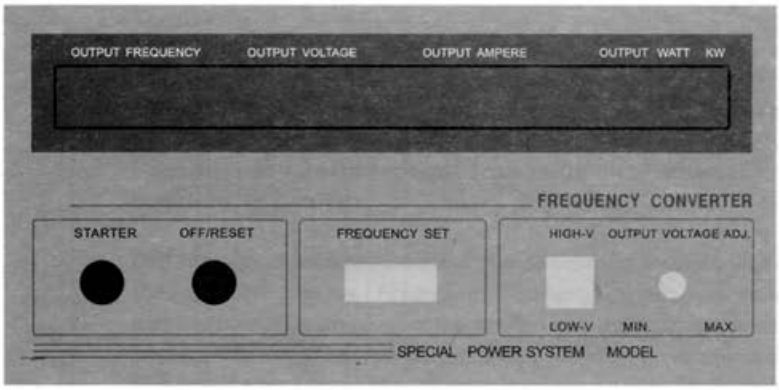


1. **Frequency Meter:** 4 Digital LED display for out put frequency.(Hz)
2. **Voltrneter:** 4Digital LED Display for output voltage.(V)
3. **Ammeter:** 4 Digital LED display for output current.(A)
4. **Wattmeter:** 4 Digital LED aisplay for output power.(W)
5. **Input Power ON Button:** To put on utility power.
6. **OFF/Reset Switch:** When load is abnormal,warning buzzer will sound. and power will be cut off; press to reset the unit when the load returns to normal conditions.
7. **Output Frequency Setting Counter:** programmable setting output frequency value.
8. **Output High / Low Voltage Range Setting Switch.** Switch to select output voltage range of **0~300v(High: Orange LED light) / 0~150V (Low: LED not lits on; Button raised).**
9. **Ten-turn Output Voltage Adjustment:** Adjusts output voltage value.
10. **Phase Indicator:** Selects output phase to monitor (3phase models only).
11. **Outpt Uniuersal Outlet:** Max.10A load.
12. **Input Powet Switch**
13. **Output Circuit Breaker**
14. **Input Terminal Block**
15. **Output Terminal Block**

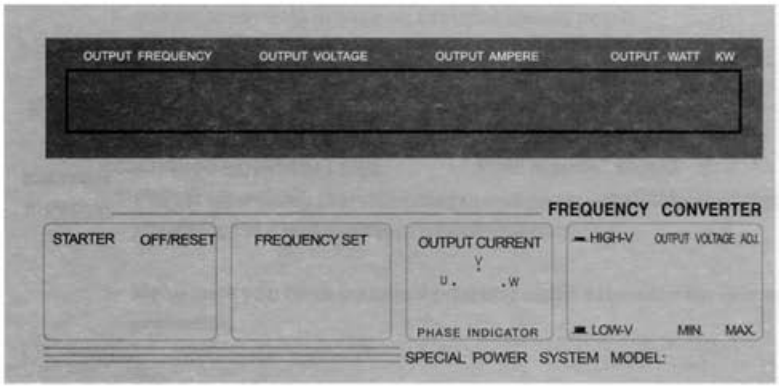
E. Front Panel LAYOUT

(Number refer to locations on accimpanying diagram)

SINGLE PHASE UNITS

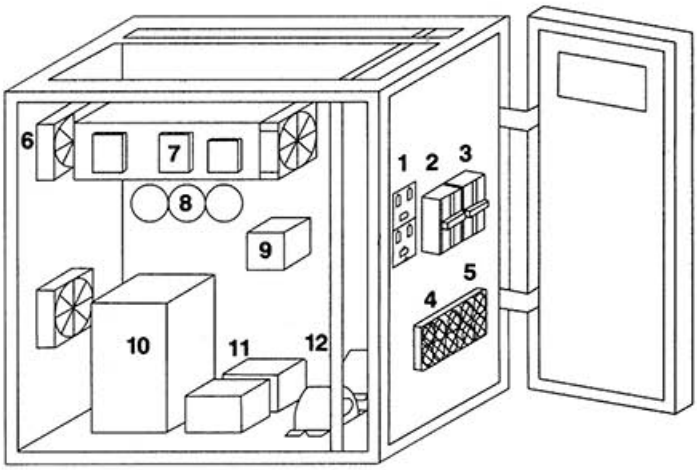


THREE PHASE UNITS



F. Internal Construction

(Number refer to locations on accimpanying diagram)



1. Universal Outlet
2. Input Power Switch
3. Output Circuit Breaker
4. Input Terminal Block
5. Output Terminal Block
6. AC Fan
7. IGBT
8. Capacitor
9. Magnetic Contactor
10. Transformer
11. Magnetic Contactor
12. Current Transformer

G. Installation

SAFETY PRECAUTIONS

Read this manual thoroughly,paying special attention to the sections that apply to you before working with the AC Power Source / Frequency Converter.

WARNING

Under typical operation, only normal safety precautions are necessary. The area around the AC Power Source / Frequency Converter should be kept free from puddles of water,excess moisture, or debris.

ONLY qualified service personnel should perform maintenance on the AC Power Source / Frequency Converter. When performing maintenance with any part of the equipment under power,service personnel and test equipment should be standing on rubber mats. The service personnel should wear insulating shoes for isolation from direct contact with the floor(earth ground).

Unless power is removed from the equipment, one person should never work alone. A second person should be sanding by to assist and summon help in case an accident should occur.

INSTALLERS

ATTENTION INSTALLERS

Proper wire sizing (service ratings) and phase rotation are critical to the successful installation of this products.

Make sure you have installed properly sized external over-current protection.

G. Installation

Proper planning will speed AC Power Source / Frequency Converter unloading, location and connection. Make sure there is adequate clearance for the AC Power Source / Frequency Converter to open full swing. Check for a minimum of 5 inches (13cm) from the rear panel of the unit to from any wall for exhaust air to flow without restriction. Make sure room has adequate ventilation and cooling. Install the AC Power Source / Frequency Converter in a clean and dry location.

WARNING
READ THIS MANUAL THOROUGHLY BEFORE ATTEMPTING TO WIRE OR OPERATE THE UNIT. IMPROPER INSTALLATION IS THE MOST SIGNIFICANT CAUSE OF AC POWER SOURCE / FREQUENCY CONVERTER START-UP PROBLEMS.

DO NOT INSTALL THE EQUIPMENT NEAR ANY GAS OR ELECTRKC HEATERS OR UNDER WATER LINES OR AIR COMDITKONING EQUIPMENT. INSTALL THE EQUIPMENT IN A RESTEICTED LOCATION TO PREVENT ACCESS BY UNAUTHORIZED PERSONNEK.

G. Installation

INSTALLA TION CONSIDERATION

1. Utilize the shortesr output distribution cable runs possible at the installation site, comsistent with logical equipment arrangement and in compliance with NEC and local electrcal codes. Allow apace for future equipment additions.

2. Recommended ambient temprtature for operatiom is 0to 40°C (3.4 to 136°F). Relative humidity must be less than 90% non-condensing.In altitudes above 2,000 meters (6,565feet0),the AC Power Souece Frequency Converter rating will be reduced.

3. The route and foumdation to the installation site must be capable of supporting the weight cabinets and moving equipment.

4. Plan the route to ensure unit will pass through all elevators, comers, and doorways to prevent damage.

G. Installation

UNLOADING AND EXTERNAL INSPECTION

1. Inspect equipment and shipping container(s) for any signs of damage or mishandling. Do not attempt to install the system if damage is apparent. If any damage is noted, file a damage claim with the shipping agency within 24hours, and contact your dealer to inform them of the damage claim and the condition of the equipment.

2. Compare contents of shipment with the bill of lading. Report any missing items to the carrier and to your dealer immediately.

3. Check nameplate on the inside of cabinet front door to verify model number, KVA rating, and input voltage corresponds with the one specified. Redord model and serial number in the inside of this unit. A record of this information is necessary should servicing become required.

INTERNAL INSPECTION

1. Verify that all items have been received.

2. If spare parts were ordered, verify arrival.

3. Check for shipping damage internally.

4. Check for any loose connections or unsecured components in the AC Power Source / Frequency Converter.

5. Check for installation of safety shields on the AC Power Source/ Frequency Converter. There should not be any exposed terminals when the cabinet doors are opened.

6. Check for any unsafe feature that may be a potential safety hazard.

G. Installation

WARNING

EACH AC POWER SOURCE / FREQUENCY CONVERTER WEIGHTS BETWEEN 45KGS (AROUND 100POUNDS) AND 1,230KGS (AROUND 2,700POUNDS), DEPENDING ON MODEL. EXERCISE EXTREME CARE WHEN HANDLING TO AVOID EQUIPMENT DAMAGE OR INUYRY TO PERSONNEL. A FORKLIFT OR OTHER ADEQUATE MATERIAL HANDLING DEVICE SHOULD BE USED FOR UNLOADING, MOVING AND POSITIONING THE CABINETS.

INSTALLATION TIP

Install the leveling feet while the unit is on the forklift or other material handling equipment. Leveling feet cannot be installed with the unit sitting on its caster wheels.

1. Use a forklift or other material handling device to move the cabinets as close as possible to the final installation site.

2. Casters are provided on the unit to aid in final positioning.

3. As with all electrical equipment, installation and serviceability will be easier if access is provided on all sides of the equipment. Minimum access requirements are 3 feet front, 1 foot top.

4. Verity adequate clearance for cabinet doors to open.

5. Verify openings must not be covered and the rear panel of the unit must be at least 5 inches (13cm) from any wall.

6. Verify AC Power Source / Frequency Converter is installed in a clean, cool and dry location.

WIRE SIZE GUIDELINES

Proper wire sizing must be based on numerous site-specific conditions. Refer to notes 1 through 6 below, the present edition of the NEC, and all applicable local codes for your particular site requirements.

1. Refer to the recommended wiring charts that show the Ampacity for your AC Power Source / Frequency Converter.

2. Input Ampacity must be based on 125% of input current at full rated load.

3. Be sure to refer to all requirenments within Article 310 of NEC.

4. Minimumsized grounding conductors are to be per NEC 250-95.

5. Neutral conductors are to be sized per NEC 310-16, note 10.

6. The AC Power Source / Frequency Converter system must be installed in accordance with the present6 edition of the NEC and all local codes, including the codes of foreign countries where applicable.

TABLE 1: POWER LINE REFERENCE DATA

600PVC ISOLATED POWER LINE

PROTECTION BREAKER	POWER LINE (SAFETY CURRENT)	PROTECTION BREAKER	POWER LINE (SAFETY CURRENT)
19A	1.25mm^2	162A	38.0mm^2
27A	2.0mm^2	190A	50.0mm^2
37A	3.5mm^2	217A	60.0mm^2
49A	5.5mm^2	257A	80.0mm^2
61A	8.0mm^2	298A	100.0mm^2
88A	14.0mm^2	344A	125.0mm^2
115A	22.0mm^2	395A	150.0mm^2
139A	30.0mm^2	469A	200.0mm^2

AWG	Area(mm^2)	Dia(mils)	Dia(mm)
18	0.823	40.3	1.024
16	1.309	50.80	1.291
14	2.081	64.10	1.628
12	3.309	80.80	2.053
10	5.261	101.9	2.588
8	8.366	128.5	3.264
6	13.302	162.0	4.115
5	16.773	181.9	4.621
4	21.151	204.3	5.189
3	26.67	229.4	5.827
2	33.631	257.6	6.544
1	42.408	289.3	7.348
0	53.457	324.9	8.251
2/0	67.431	364.8	9.266
3/0	85.029	409.6	10.405
4/0	107.21	460.0	11.684
5/0	135.20	516.5	13.120
6/0	170.48	580.0	14.733

TABLE 1: POWER LINE REFERENCE DATA

MODEL & CAPACITY	Input 1 Ø 2W 220V			Output 1 Ø	
	INPUT			OUTPUT	
	MAX.I/P Current	Protection Breaker	Power Line	MAX.O/P Current	Power Line
2KVA	12.8A	30.0A	3.5mm²	110V:16.6A 220V:8.3A	3.5mm²
3KVA	19.2A	30.0A	3.5mm²	110V:25.0A 220V:12.5A	3.5mm²
5KVA	32.1A	50.0A	8.0mm²	110V:41.6A 220V:20.8A	8.0mm²
10KVA	64.1A	100.0A	22.0mm²	110V:83.2A 220V:41.6A	14.0mm²
15KVA	96.2A	100.0A	38.0mm²	110V:125.0A 220V:62.5A	22.0mm²

MODEL & CAPACITY	Input 3Ø4W 380V			Output 3Ø	
	INPUT			OUTPUT	
	MAX.I/P Current	Protection Breaker	Power Line	MAX.O/P Current	Power Line
6KVA	25.4A	30.0A	3.3mm²	110V:16.6A 220V:8.3A	3.3mm²
10KVA	24.0A	30.0A	5.5mm²	110V:27.6A 220V:13.8A	5.5mm²
15KVA	36.0A	40.0A	8.0mm²	110V:41.6A 220V:20.8A	8.0mm²
20KVA	48.0A	50.0A	14.0mm²	110V:55.6A 220V:27.8A	14.0mm²
30KVA	72.0A	75.0A	22.0mm²	110V:83.2A 220V:41.6A	22.0mm²
45KVA	108..0A	125.0A	38.0mm²	110V:125.0A 220V62.5A	38.0mm²
60KVA	144.0A	150.0A	60.0mm²	110V:166.4A 220V83.2A	60.0mm²
75KVA	180.0A	187.5A	150.0mm²	110V:208.4A 220V104.2	150.0mm²
90KVA	216.0A	225.0A	150.0mm²	110V:250.0A 220V125.0A	150.0mm²
100KVA	240.0A	255.0A	150.0mm²	110V:277.6A 220V138.8A	150.0mm²

POWER WIRING

WARNING
ALL POWER SHOULD BE TURNED OFF BEFORE ANY CABLES OR WIRES ARE INSTALLED OR CONNECTED. A QUALIFIED PERSON SHOULD CHECK TO INSURE THE POWER IS IN FACT "OFF".

1. Verify that power wiring is run in individual, separate conduit or cabletray.
2. All Input wiring must be run in its own conduit.
3. All Output wiring must be run in its own conduit.

CAUTION
Power wiring must be separated!

INSTALLATION TIP
For 3 phase units, make sure that wiring is installed with a clockwise phase rotation of all power wiring, Phase R leads Phase S leads Phase T.

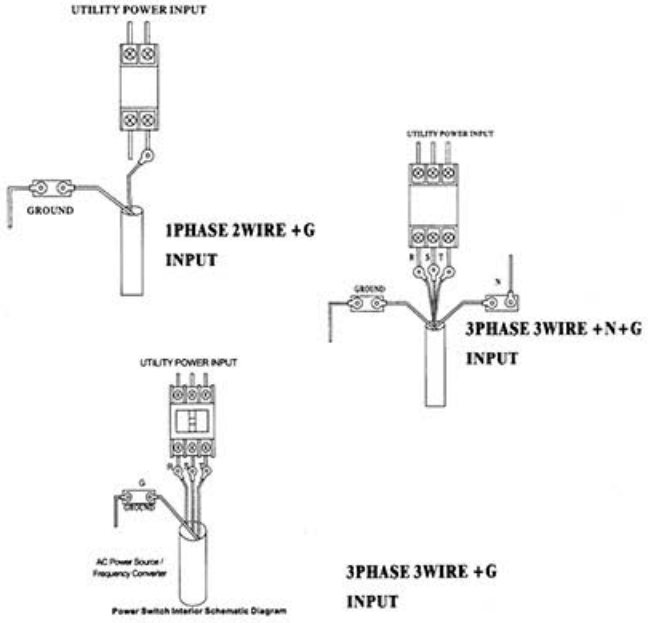
4. Observe local, state and national electrical codes. Verify utility power and its over-current protection rating will accommodate the AC Power Source / Frequency Converter INPUT rating.
5. A safety ground wire must be run from building ground to ground point in the AC Power Source / Frequency Converter Cabinet. The grounding conductor shall comply with the following conditions of installation:
   a. An insulated grounding conductor that is identical in size, insulation material, and thickness to the grounded and ungrounded branch-circuit supply conductors except that it is green with or without one or more yellow stripes is to be installed as part of the branch circuit that supplies the unit or system.
   b. The grounding conductor described in Item a is to be grounded to earth at the service equipment or, if supplied by a separately derived system, at the supply transformer or motor-generator set.
   c. The attachment-plug receptacles in the vicinity of the unit or system are all to be of a grounding type, and the grounding conductors serving these receptacles are to be connected to earth ground at the service equipment.
6. Observe clockwise phase rotation of all power rating, Phase R leads Phase S leads Phase T. A qualified electrician should check the phase rotation.

POWER SOURCE POLARITY IDENTIFICATION:

1. Line: The voltage of L-G or L-N should be nominal voltage.
2. Neutral: The voltage of L-N should be nominal voltage; N-G is around 0.5V~2V. (Neutral line has loading current conduit.)
3. Ground: Please find out the exact Grounding point.

WARNING

Incase the voltage between Neutral and Ground is greater than 5V or computer specified tolerance, please check and re-install the AC Power Source / Frequency Converter by a qualified electrical contractor



H. Operation Procedure

PRELIMINARY INSPECTION

Inspect for damage that may have occurred during shipment. If any damage is noted, please contact your dealer without any hesitation. To have the unit runs smoothly, please confirm the following requirements prior to operation:

1. Assure Breaker is at "OFF" status.
2. Verify all power connections are tight.
3. Verify all power wires and connections have proper spacing between exposed surfaces, phase-to-phase and phase-to-ground.
4. Measure with Digital Voltmeter all input and output voltage Phase to Phase; Phase to line and line to line which voltages should be within the nominal range.

INITIAL SYSTEM OPERATION

When the above requirements have been approved, follow the start-up procedure listed below:

1. Put ON the input Circuit Breaker. Use Digital Voltmeter to measure the input voltage is consistent with the requirements of the unit.
2. Put Off the Input Circuit Breaker. Connect the load into the output end.
3. Tune the Ten-turn Output Voltage Adjustment Knob counter -clockwise to ZERO.
4. Set Output Voltage Select swithch to the Low or High voltage position. (Low range:0V-150V per phase; High range:0V-300V per phase).
5. Set Output Frequency Counter to the required output frequency. NOTE: When setting 1xx.x frequency, be sure to press OFF/RESET button first; after that, power it on.
6. Put on the Input Circuit Breaker. Press Power ON button at the front panel. All LED Meters will display digital figures.
7. Put the Output Power Switch to the ON position.
8. When overload / short circuit, the unit will auto shutdown and buzzer alarm to protect the load. After troubleshoot the problems, press Power OFF/RESET button to restart.
9. Press OFF/RESET button to cut off output voltage.

I. How to ask end users describe faulty status?

1. Model No. & Serial No.

2. Does the Input Power Switch power ON?

3. Does the Mains Power normal? What's the Input Voltage?

4. How many Output Panel Meters are lighted?

5. What's the Readings on Front Panel Meter?
   - Output Frequency
   - Output Voltage?
   - Output Ampere?
   - Output Wattage?

6. Measure Output Socket or Terminal Block to get Output Voltage.

7. Measure Output Peak Current.

8. Under what circumstances the unit is malfunction?
   What Load?
   How long has it been worked since turn on?
   Are there any Abnormally factors (output factors) occurred during operation? For example, transient power brownout or power failure; thundering; or bulb is flashing.
   Operating Environment?

J. Maintenance

The unit does not require any routine naintenance. However, reasonable care of the unit will extend its life. The following preventive and periodic measures are recommended:

PRECAUTIONS

Keep all liquids away from the unit. Accidental spillage of a liquid into the unit can cause severe damage.

Do not block the air flow around the unit. Do not place tools, or other heavy equipment on top of the unit.

Special care should be taken to protect the unit if it is used in an unfriendly environment such as a machine shop, a dusty or sandy area, etc.

PERIODIC MAINTENANCE

Cleaning the unit is the most important action the user can perform. The frequency of cleaning is dependent upon the environment.

Turn the power OFF.

Clean the case, covers and air flow openings with a soft cloth. Use any mild commercial cleaner as needed, insuring that no liquids enter the unit.

Visually inspect all wires/terminals for damage, wear, etc. Repair or replace any defective parts.

NOTE: Do not perform any maintenance on the unit while it is in operation.

K. Troubleshooting

PROBLEMS		POSSIBLE CAUSE & ACTION TO TAKE
No Output Voltage	All (or some) meters can not light on.	1.Power failure or blackout. 2.Input Power Switch is not at ON position. 3.Input Power Cables do not proper connected. 4.Meter is faulty; replace it.
	Output frequency displays normal,but Voltmeter and Ammeter displays "zero"; no buzzing sound is heard.	Adjust the Ten Turn Output Voltage Adjustment knob clockwise to the desired voltage value. (Be sure to power is OFF, unplug the unit, and disconnect output switch for load protection.)
	While operating the unit, Output frequency displays normal, but Voltmeter and Ammeter display "zero"; buzzing sound is heard at the same time.	1.Check and reduce load current. 2.Press "RESET" button to restart. 3.Return unit for service if the unit fails to start.
	Output Voltmeter displays normal, but no voltage out put.	1.Insure that Output switch is in the ON position. 2.Return unit for service if the unit fails to start.
Unable to adjust unit to Hingh or Low Voltage Range or Limit	Output voltage cannot adjust above 150V or below 150V.	Switch Output Select Switch from low to high range, or high to low range.
Please contact the manufacturer for problems that are not listed.		

L. Technical Specifications

◆Characteristics

PHASE		SINGLE	THREE
MODEL		2KVA~45KVA	3KVA~150KVA
TYPE		IGBT / Pulse Width Modulation Type	
INPUT	VOLTAGE (Select One)	1Phase 2Wire: 110V (2 to 5KVA)/220V/230V/240V ±10%	
		3Phase 4Wire: Wye Type 190/110; 200/115; 208/120; 220/128; 230/132; 240/139V ±10%	
		3Phase 4Wire: Wye Type 380/220; 400/230; 415/240; 440/254; 460/265; 480/277V ±10%	
		3Phase 3Wire: Delta Type 220; 230; 240; 380; 400; 415; 440V ± 10%	
	FREQUENCY (Select One)	47 ~ 63Hz or 400Hz ±5%	
OUTPUT	VOLTAGE	110V Setting (Low Range): 0 - 150V	(Option:0~600V)
		220V Setting (High Range): 0 - 300V	
	VOLTAGE REGULATION	≦± 1%	
	FREQUENCY	40.0 Hz to 499.9Hz (Programmable)	
	FREQUENCY STABILITY	≦± 0.01%	
	DISTORTION (THD)	Pure Sine Wave, ±2%	
	FREQUENCY METER	4 LED Digital display. Res. 0.1Hz / Step	
	VOLTMETER	4 LED Digital display. Res. 0.1V	
	AMMETER	4 LED Digital display. Res. 0.1A	
	WATTMETER	4 LED Digital display. Res. 0.1W	
PROTECTION		Electronic Circuit / Circuit Breaker for Overload, Over Temperature, Instant Cut off, Short Circuit	
WORKING ENVIRONMENT	AMB.TEMP.	0 — 40 deg. C	
	HUMIDITY	0 — 90% (Non-condensing)	

◆1-Phase Specifications

MODEL&CAPACITY		500VA	1KVA	2KVA	3KVA	5KVA	8KVA	10KVA	15KVA	20KVA	30KVA	45KVA
TYPE		IGBT/Pluse Width Modulation Type										
CURRENT LIMIT:	L-Nal.	L:4.2A	L:8.4A	L:16.8A	L:25.0A	L:41.6A	L:63.0A	L:83.2A	L:125.0A	L:166.4A	L:250A	L:375A
	L-Nal.	H:2.1A	H: 2A	H:8.4A	H:12.5A	H:20.8A	H:31.5A	H:41.6A	H:62.5A	H:83.2A	H:125A	H:188A
WEIGHT	(Kgs)	43	48	45	60	70	130	150	180	230	350	460
DIMENSION (HxDxW)	(mm)	180×460×430		600×500×350			800×620×420				1040×950×610	

◆ 3-Phase input 1-Phase output Specifications

MODEL&CAPACITY		10KVA	15KVA	20KVA	25KVA	30KVA	45KVA	50KVA	60KVA	75KVA	90KVA	100KVA
TYPE		IGBT/Pluse Width Modulation Type										
CURRENT LIMIT	L-Nat	L:83.3A	L:125.0A	L:166.6A	L:208.3	L:250	L:375	L:416.6A	L:500A	L:625A	L:750A	L:833.3A
	L-Nat	H:41.6A	H:62.5A	H:83.3A	H:104.1A	H:125A	H:187.5A	H:208.3A	H:250A	H:312.5A	H:375A	H:416.6A
WEIGHT	(Kgs)	155	180	230	300	330	450	510	600	660	850	1050
DIMENSION (HxDxW)	(mm)	800×620×420			1040×950×610				1600×1000×800		1800×1200×900	

◆3-Phase Specifications

MODEL&CAPACITY		3KVA	6KVA	10KVA	15KVA	20KVA	30KVA	45KVA	60KVA	75KVA	100KVA	120KVA	150KVA
CURRENT LIMIT:	L-Nal.	L:8.4A	L:16.8A	L:27.6A	L:41.6A	L:55.6A	L:83.2A	L:125.0A	L:166.4A	L:208.4A	L:277.6A	L:333.4A	L:418A
	L-Nal.	H:4.2A	H:8.4A	H:13.8A	H:20.8A	H:27.8A	H:41.6A	H:62.5A	H:83.2A	H:104.2A	H:138.8A	H:166.7A	H:209A
WEIGHT	(Kgs)	100	160	200	260	320	450	550	660	750	1050	1300	1460
DIMENSION (HxDxW)	(mm)	800×620×420				1040×950×610			1800×1200×800			2000×1400×900	

* All specifications are subject to change without prior notice.
* Custom-made specifications are acceptable.

產品合格證

產品名稱	□单相（□三相）變頻電源
型號規格	
出廠序號	
檢驗結果	
檢驗日期	年　　月　　日
檢驗人員	
核定人員	

產品保修卡

客戶名稱	
客戶位址	
產品名稱	□单相（□三相）變頻電源
產品型號	
產品序號	
購買日期	年　月　日
保修期限	年　月　日 至　　年　月　日

保修說明：以上產品於保修期限內，出現的非人為故意損壞、自然災害的故障由本公司負責免費維修。