

POWER UNIT INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS

WARNING:

ELECTRICAL POTENTIALS HAZARDOUS TO HUMAN LIFE CAN EXIST WITHIN THIS EQUIPMENT WHEN ENERGIZED. THERE ARE NO USER SERVICEABLE PARTS INSIDE.

UNITS EQUIPPED WITHOUT PLUGS & RECEPTACLES CAN DEVELOP HAZARDOUS VOLTAGES IF THE OUTPUTS ARE NOT CONNECTED ACCORDING TO THESE INSTRUCTIONS

THE INFORMATION CONTAINED HEREIN MAY NOT COVER ALL VARIATIONS IN EQUIPMENT OR PROVIDE FOR ALL CONTINGENCIES WHICH MIGHT BE MET IN INSTALLATION, OPERATION AND MAINTENANCE.

INTRODUCTION

Power Units covered by this manual include single-phase designs with 250 Volt maximum input or output.

The units are rated in terms of maximum load current. Current ratings include 15, 20, 30, 40 and 60 Ampere although other currents within the range 20 to 60 Amperes are available.

The units are also rated in terms of output voltage adjustment. Standard adjustments are ± 12 volts, ± 16 volts, ± 24 volts and ± 32 volts although other voltages in the range between -32 and $+32$ are available.

This is a high quality product, however, it is possible to misapply or unknowingly abuse a Power Unit and thus reduce its life.

These installation, operating and maintenance instructions set out the limiting factors for satisfactory performance of the Power Units. The information contained herein outlines and describes the proper inspection, installation and maintenance of the dry type Power Units covered by this manual.

INSPECTION UPON RECEIVING

Power Units should be carefully inspected upon receipt to ensure that no damage has occurred during shipment. Any damage should be reported at once and a claim placed against the transportation company.

INSPECTION DURING INSTALLATION

The Power Unit should be carefully inspected for any damage due to handling after receipt. The nameplate rating on the unit should be checked against the job specifications to ensure installation of the correct Power Unit.

STORAGE

Power Units should be stored in a dry location of uniform temperature in their original packing. Outdoor storage is to be avoided, but if necessary, the Power Unit must be fully protected against moisture and foreign materials. Condensation and absorption of moisture can be reduced by use of heaters. If Power Unit has been subjected to moisture or condensation, it should be baked out before energizing.

POWER UNIT MOUNTING & SPACING

Air cooled Power Units depend upon the surrounding air for cooling. The free flow of air is important as is the air temperature. A Power Unit must be mounted so that air can freely circulate all around it.

Do not place combustible materials on or near Power Unit or mount Power Unit closer than 3 inches from any adjacent wall.

Power Units must never be mounted next to or above heat generating equipment.

INSTALLATION & OPERATING SAFETY

CAUTION:
ALTHOUGH POWER UNITS ARE STATIC DEVICES, IT IS NECESSARY TO USE FORTHOUGHT COUPLED WITH CARE IN INSTALLATION. THIS WILL RESULT IN SATISFACTORY PERFORMANCE OVER A LONG PERIOD OF TIME. THE MINIMUM REQUIREMENTS FOR INSTALLATION AND MAINTENANCE AND LIMITATIONS OF OPERATION HAVE BEEN SET FORTH IN THIS MANUAL. FOLLOWING THESE PROCEDURES WILL RESULT IN SATISFACTORY PERFORMANCE, WHEREAS DISREGARDING THEM CAN VOID THE WARRANTY.

Power Units are assembled with covers during manufacturing and should never be operated without these access covers securely mounted in place. The covers should never be removed since there are no user serviceable parts inside.

ONLY QUALIFIED PERSONNEL SHOULD INSTALL AND MAINTAIN POWER UNITS SINCE THE NORMAL OPERATING VOLTAGES CAN BE HAZARDOUS.

A safety program must be established, verified and followed.

GROUNDING

All cords and cord sets are solidly grounded to the enclosure at the time of manufacture.

For Power Units equipped with plugs and receptacles, the plugs and receptacles have dedicated grounding terminals and must be mated with plugs and receptacles having matching grounding terminals.

For units with cord sets only, the green lead wire from the cords marked "TO WALL" and "TO BED" shall be grounded during installation.

Grounding must be in accordance with NEC and local electrical codes.

An insulated grounding conductor (green with or without one or more yellow stripes) must be identical in size, insulation rating, and thickness to the grounded and ungrounded branch-circuit supply conductors. The grounding conductor is to be installed as part of the branch circuit that supplies the unit or system. (UL 1012 Section 50.1.47a)

INSTALLATION OF THE POWER UNIT

Mounting to the wall

The Power Unit must be permanently mounted upright on a vertical surface capable of supporting nameplate weight.

The use of ¼" minimum mounting hardware (not included) is required.

A unit must be mounted with the mounting bracket at the top, against the mounting surface.

Prior to mounting the unit, position two ¼" mounting bolts at a distance equal to the distance between the two keyholes on the power unit and level with the floor. **DO NOT FULLY TIGHTEN THE BOLTS**

The top mounting bracket of the power unit is supplied with keyhole slots to allow the unit to slip over the two partially installed ¼" mounting bolts.

Slip the unit over the bolts and tighten the bolts to 66 in/lbs. MAXIMUM

Connection to the power source and to a device

15, 20 AND 30 AMPERE RATED UNITS

15, 20 and 30 Ampere rated units are supplied with power cords terminating in plugs and receptacles for easy, safe connection.

Care must be taken to select and install mating connectors whose voltage, current and locking means match the plugs and receptacles on the power unit.

The male plug of the unit must plug into the power source and the female receptacle supplies power to the mating male of a device.

40, 50 AND 60 AMPERE RATED UNITS (CORD SETS ONLY)

Units rated for 40 through 60 amperes are supplied with cord sets terminating in pigtail leads.

These leads must be hard-wired to the power source and to the device inside a junction box.

The white lead is neutral or return, the black lead is "hot" and the green lead is ground.

NOTE FOR PROPER OPERATION:

THE INSTALLER MUST SELECT THE CORD IDENTIFIED BY THE "TO WALL" LABEL AFFIXED ON THE SIDE OF THE POWER UNIT. THIS LEAD IS HARDWIRED TO THE POWER SOURCE.

THE INSTALLER MUST ALSO SELECT THE CORD IDENTIFIED BY THE "TO BED" LABEL AFFIXED ON THE SIDE OF THE POWER UNIT. THIS LEAD IS HARDWIRED TO THE DEVICE.

POWER UNIT DESIGN FEATURES

DESIGN PARTICULARS

Power Units are designed to operate at 250 Volts maximum.

Power Units are designed for indoor use.

Power Units are available in ranges from 15 Amperes through 60 Amperes single phase.

The voltage differential ranges from ± 12 volts through ± 32 volts so long as a maximum input OR output of 250 volts is maintained.

All units are listed or component recognized to UL Standard 1012 and certified to CSA C22.2 No. 107.1-01 by UL.

INSULATION SYSTEM

Power Units are designed and manufactured with UL Recognized Class 130°C or 180°C insulation systems. These systems are rated for operation in an environment with an average ambient temperature of 30°C with a maximum of 40°C.

Average winding temperature limits are rated at 120°C and 160°C for 130°C and 180°C systems respectively.

The insulation rating is guaranteed for altitudes of less than 3300 feet (1005 m) above sea level. Altitude correction for application of a standard Power Unit in altitudes above 3300 feet, can be made by reducing the load. Refer to Altitude Correction Factor in IEEE C57.96.

Overloading, operating in ambient temperatures greater than 40°C and/or elevation greater than 3300 feet will require derating of the Power Unit.

Units may appear warm to the touch, particularly on the top cover of the unit. The standard permits the cover temperature to reach 90°C. This represents normal heating and should not cause concern.

POWER UNIT LIFE

Power Unit life is dependent upon the thermal stress placed on the insulation system which in turn is dependent upon the

winding temperature and duration of operation at that temperature.

Factors which affect Power Unit life are line voltage, load current, load cycle, ambient temperature, and other environmental conditions such as moisture, corrosive atmosphere, vibration, and maintenance. Normal conditions of operation are covered in this standard operating procedure and various industry standards.

MAINTENANCE

Power Units contain no moving parts and require very little maintenance. Periodic inspection and care are recommended practices especially if the Power Unit is operating in a harsh environment.

Inspect signs of overheating, rust, paint deterioration, and general condition of the unit. Corrective measures should be taken if necessary.

Removal of dust, dirt and debris from the external enclosure surfaces is encouraged and may be performed while the Power Unit is in operation.

There are no user serviceable parts inside the power unit, so at no time should personnel remove any cover

OPTIONAL ACCESSORIES

40 AND 50 AMPERE PLUGS AND RECEPTACLES

A 40 or 50 ampere rated unit can be supplied with optional input plugs and output receptacles installed by the manufacturer. Refer to the 20 and 30 ampere section for connection instructions.

CAUTION:

TO REDUCE THE RISK OF FIRES USE ONLY CIRCUITS PROVIDED WITH BRANCH-CIRCUIT PROTECTION IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, ANSI/NFPA 70 PER THE CHART BELOW:

15 AND 20 AMP POWER UNIT: USE 25 AMP BREAKER
30 AMP POWER UNIT: USE 40 AMP BREAKER
40 AMP POWER UNIT: USE 50 AMP BREAKER
50 AMP POWER UNIT: USE 70 AMP BREAKER
60 AMP POWER UNIT: USE 80 AMP BREAKER

UL 1012 Section 50.1.6

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