MNTransition
Instruction Manual

MNTRANSITION

Applications:

- Transition from USE-2 (PV Wire) wire to regular THHN or similar household wiring.

Features:

- All aluminum powder coated housing that won't rust
- Flip up cover that can stay in the open position during installation
- Chassis ground bus bar (#14-6 and #1/0-14)
- Tin plated copper bus bar to combine breaker outputs
- Dead front cover snaps into place after wiring is complete for safety
- Knockouts on bottom and sides
- Top surface is available to bring conduit in from directly above the enclosure

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IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS - THESE INSTRUCTIONS CONTAIN IMPORTANT SAFETY AND OPERATING INSTRUCTIONS FOR MIDNITE SOLAR COMBINER MODEL MNTRANSITION-1000V

If you do not fully understand any of the concepts, terminology, or hazards outlined in these instructions, please refer installation to a qualified dealer, electrician or installer. These instructions are not meant to be a complete explanation of a renewable energy system. All installations must comply with national and local electrical codes. Professional installation is recommended.

GENERAL PRECAUTIONS:

WORKING WITH OR IN THE VICINITY OF A LEAD ACID BATTERY, SEALED OR VENTED IS DANGEROUS. VENTED BATTERIES GENERATE EXPLOSIVE GASES DURING NORMAL OPERATION. FOR THIS REASON, IT IS VERY IMPORTANT THAT BEFORE SERVICING EQUIPMENT IN THE VICINITY OF LEAD-ACID BATTERIES YOU REVIEW AND FOLLOW THESE INSTRUCTIONS CAREFULLY.

If service or repair should become necessary, contact MidNite Solar Inc. Improper servicing may result in a risk of shock, fire or explosion. To reduce these risks, disconnect all wiring before attempting any maintenance or cleaning. Turning off the inverter will not reduce these risks. Solar modules produce power when exposed to light. When it is not possible to disconnect the power coming from the Photovoltaics by an external means such as a combiner, cover the modules with an opaque material before servicing any connected equipment.

Do Not expose to rain or snow. NEVER attempt to charge a frozen battery. Do not smoke around batteries.

When it is necessary to remove a battery, make sure that the battery bank disconnect breaker is in the off position and that the PV breakers, grid breakers and any other sources of power to the inverter are in the off position. Then **remove the negative terminal from the battery first**.

To reduce risk of battery explosion follow these instructions and those published by the battery manufacturer as well as the manufacturer of any additional equipment used in the vicinity of the batteries.
Avoid producing sparks in the vicinity of the batteries when using vented batteries. Provide ventilation to clear the area of explosive gases. Sealed AGM and Gel batteries do not under normal conditions create explosive gases. Refer to the battery manufacturer's documentation. Be especially cautious when using metal tools. Dropping a metal tool onto batteries can short circuit them. The resulting spark can lead to personal injury or damage to the equipment. Provide ventilation to outdoors from the battery compartment when installing vented batteries such as golf cart T-105 batteries. The addition of a spill tray is also a good idea.

Clean all battery terminals. Very high currents are drawn from the batteries; even a small amount of electrical resistance can result in overheating, poor performance, premature failure or even fire.
Have plenty of fresh water and soap nearby in case battery acid contacts skin, clothing or eyes. Wear complete eye and clothing protection. Always avoid touching eyes while working near batteries. If battery acid or battery terminal corrosion contacts skin or clothing, wash immediately with soap and water. If acid enters the eyes, immediately flood with cool running water for at least 15 minutes and get medical attention immediately. Baking soda neutralizes battery acid electrolyte. Keep a supply near the batteries

Do not work alone. Someone should be in the range of your voice or close enough to come to your aid when you work with or near electrical equipment. Remove rings, bracelets, necklaces, watches etc. when working with batteries, photovoltaic modules or other electrical equipment. Power from an illuminated photovoltaic array makes a very effective arc welder with dire consequences if one of the welded pieces is on your person.

To reduce the risk of injury, connect only deep cycle lead acid type rechargeable batteries. Other types of batteries may leak or burst, causing personal injury or damage.

Wiring methods used shall be in accordance with the Canadian Electrical Code, Part I.
Wiring must be done in accordance with the National Electrical Code Article 690 ANSI/NFPA 70. Use Class 1 wiring methods for field wiring connections to terminals of a Class 2 circuit. Use only 14-10 gauge AWM wire. Select the wire gauge used based on the protection provided by the circuit breakers/fuses. Overcurrent protection must be installed as part of the system installation. Refer to the wiring diagrams provided in this manual for breaker/fuse/GFDI sizes and model numbers.

WARNING: This unit is not provided with a GFDI device. This inverter or charge controller must be used with an external GFDI device as required by the Article 690 of the National Electrical Code for the installation location.

Use of attachments or accessories not approved by MidNite Solar could result in damage or injury.
Before making any connections verify that the circuit breakers are in the off position including the inverter breaker. Double check all wiring before applying power.

INSTRUCTIONS DE SÉCURITÉ IMPORTANTES

CONSERVER CES INSTRUCTIONS - CES INSTRUCTIONS CONTIENNENT DES INFORMATIONS IMPORTANTES POUR UTILISER LE MIDNITE SOLAR COMBINER MODELES MNTRANSITION-1000V, EN TOUTE SÉCURITÉ.

PRÉCAUTIONS GÉNÉRALES:
LA TRAVAILLER DANS LES ENVIRONS DES BATTERIES AU PLOMB, OUVERTES OU À RECOMBINAISON EST DANGEREUX. BATTERIES OUVERTES PRODUIRE DES GAZ EXPLOSIFS DANS UTILIZATION NORMAL. POUR CETTE RAISON, IL EST TRÈS IMPORTANT À EXAMINER ET SUIVRE CES INSTRUCTIONS ATTENTIVEMENT.

Avant l'utilisez cet appareil lis et comprends toutes les instructions et avertissements.

Si vous ne comprenez pas l'une des concepts ou des instructions contenu dans cette manuel consulter un agent spécialisé.

Si des réparations sont nécessaires contactez MidNite Solar pour plus des informations. Danger de choc électrique et de risque de brulure. Rien à dépanner à l'intérieure du cette appareil. Ne pas ouvrir le couver. Pour toute réparation ou service d'entretien, consulter un agent spécialisé. Il y'a peut-être plusieurs sources d'alimentation dans cette system. Débrancher toutes les interrupteurs avant toute d'entretien où nettoyage.

Ne travaillez pas seul. Quelqu'un devrait toujours être à proximité pour aider en cas d'une situation d'urgence.

Retirer bagues, bracelets, colliers, montres, et quelles choses comme ça. Il y'a risque des blessures graves s'il y'a un court-circuit. Cela pourrait ruiner votre journée.

Cette appareil n'avoir pas un détecteur des fautes de terre. C'est nécessaire de emploi la protection contre des fautes de terre a l'extérieure de cette appareil en conformité avec le National Electrical Code.

Les méthodes de câblage utilisés doivent être conformes au Code canadien de l'électricité, Partie I.

Le câblage doit être fait en conformité avec le National Electrical Code Article 690 ANSI / NFPA 70. Utiliser des méthodes de câblage de catégorie 1 pour les connexions de câblage sur .des terminaux d'un circuit de classe 2. Utilisez uniquement des fils de AWM de calibre 14-1/0. Sélectionnez le type de câble utilisé sur la base de la protection prévue par les disjoncteurs / fusibles.

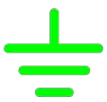
Table of Contents

Tools required:

You will need:
#2 Phillips screwdriver
Torque screwdriver 1/4" slotted set to 20 in-lbs (2.3 Nm) Page 5 wire tightening torque.
Drill and bit if desired for wall mount pilot holes
Wire cutters & strippers
Hammer & slotted screwdriver to remove knockouts

Silicone sealant may be used on outdoor installations to enhance weatherproofing.

Symbols used in this manual



Ground Symbol
Indicates an earth ground connection.

Introduction

The MNTransition is designed to provide a transition from expensive wire from the panels to more economical wire for the rest of the installation.

Important! This unit can not be used as a disconnect. A separate disconnect means is required in the system.

Note: The plastic dead front fits very tight. You must first remove the lid in order to remove the deadfront.

Remove the deadfront:
Pry off the lid as shown using something like a screwdriver as a lever. The dead front will then come out easily.

Torque:

Using a torque screwdriver torque all connections to the values shown below.
After one hour re-torque all connections. Copper can cold flow making for a loose connection.

Torque – Terminal Bus Bar	
10AWG	20 in-lbs (2.3Nm)
8AWG	25 in-lbs (2.8Nm)
6AWG	35 in-lbs (4.0Nm)
4AWG	45 in-lbs (5.1Nm)
2AWG – 1/0	50 in-lbs (5.6Nm)

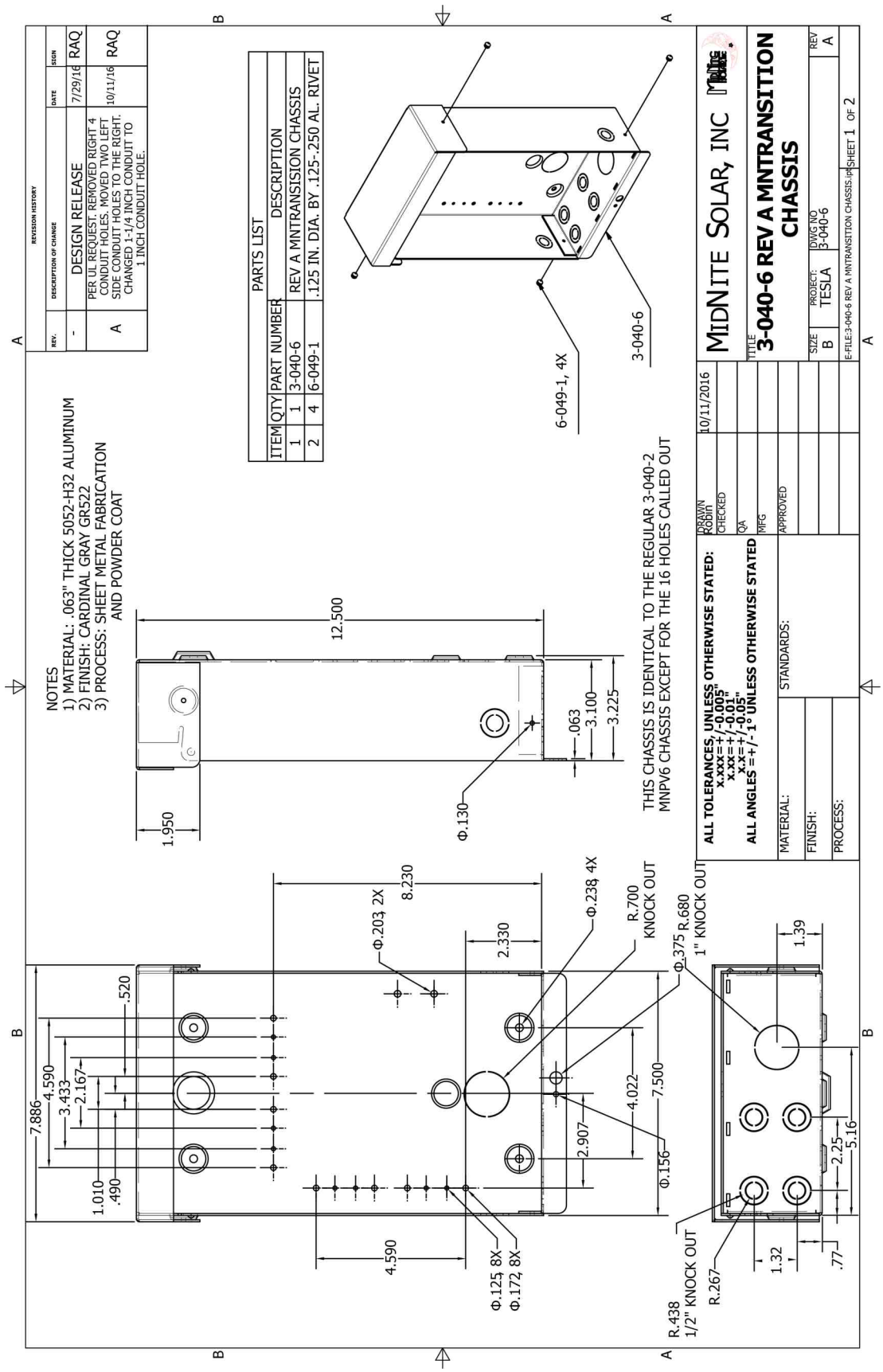
Installation:

Select a convenient accesible location near the power wall(s) and secure to the mounting surface with #10 screws.

A typical wiring diagram is supplied at the end of this manual. Refer to the documentation that came with your panels and contact the manufacturer if needed to ensure a safe troble free installation.

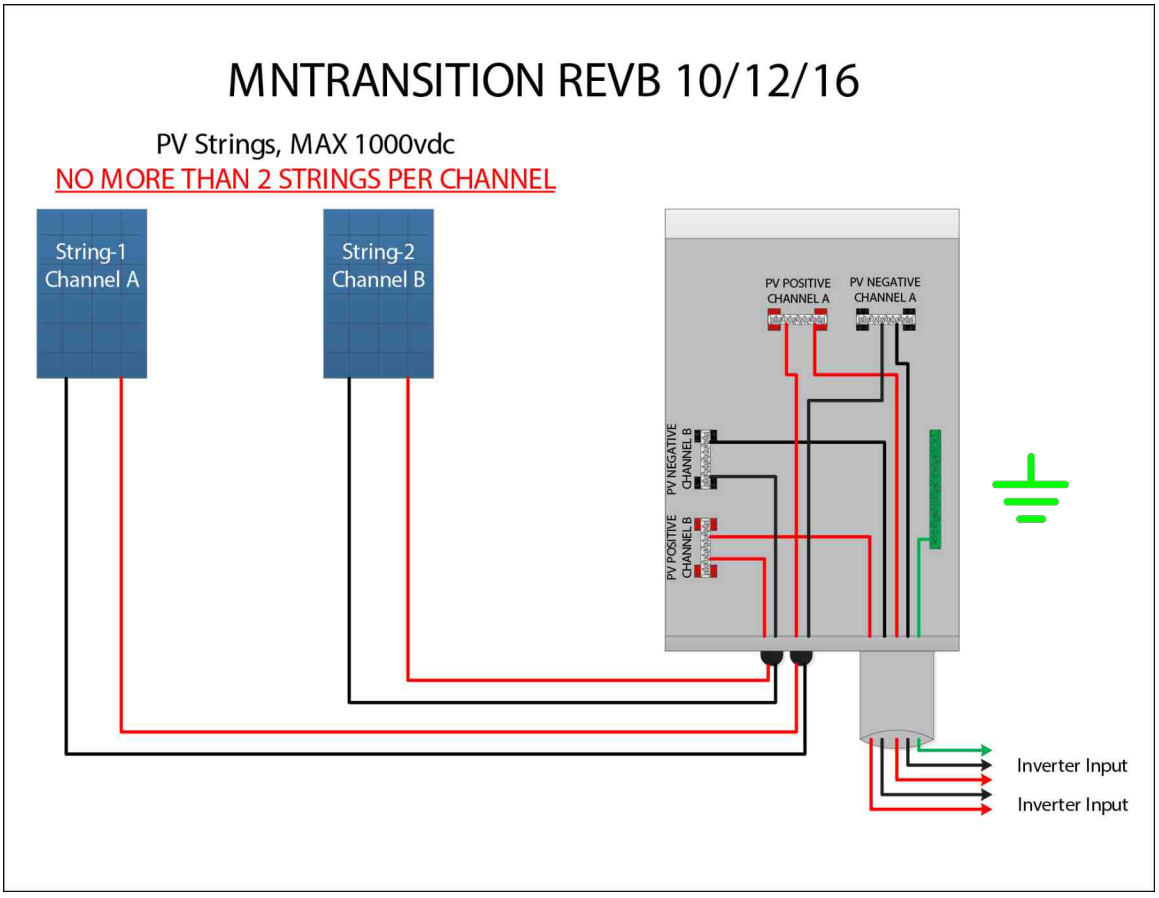
This unit can not be used as a disconnect. A separate disconnect must be provided in the system.

Use only rainproof or wet location hubs that comply with UL 514B when required.



This dimensioned drawing shows the location and size of knockouts available on the MNTPW. Note that the center bottom knock out is sized for a 1 1/4" conduit adapter. The left and right side each have a ½" knock out for either wire entry or for lightning arrestors. Lightning arrestors may require a locknut on the outside in order to clear the lid.

The MNTPW is a type 3R rainproof enclosure.



Typical wiring diagram

It is the responsibility of the installer to verify compliance with all local and national codes.

Be certain to use UL approved wire with a voltage rating appropriate for your installation. 600 Volt wire for 600 Volt systems and 1000 Volt wire for 1000 volt systems.

Do not exceed 1000 Volts.

This enclosure is not a disconnect. The disconnect must be rated for the voltage and current applied to this transition box. The disconnect must break both PV+ and PV- on ungrounded PV arrays. The disconnect should be located next to the inverter.

CAUTION:

On any installation that exceeds 750 Volts the installer is required to mark adjacent to each wiring compartment "**DANGER - HIGH VOLTAGE**".