



THOR MANUFACTURING
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1-866-955-THOR



THTC Series

Automatic Transfer Switch

TRANSFER SWITCHES



THTS-30



THTS-50

SAVE THIS INSTRUCTION MANUAL FOR FUTURE REFERENCE.

Instruction Manual
and Warranty Information

In NO event shall THOR MANUFACTURING be liable for indirect, special or consequential damages

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INTRODUCTION

THOR MANUFACTURING's Automatic Transfer Switch system is used to automatically switch between two separate 120/240 volt AC power sources, these power sources can be from a Generator, shore power cord or inverter. The function of the THOR Automatic Transfer Switch is to provide a safe and smooth switch over from an inverter or shore power cord automatically when a generator is started and brought online. The electrical contacts in the transfer switch are normally in the open position, once AC voltage is applied to input 1 this will automatically close the contacts in contactor 1 and feeds the output line from the shore power cord or inverter. Once AC power from the Generator is sensed by the transfer switch at Input 2 terminals, this will start a timer and automatically switch over to generator power supply after a 20-30 second delay which ensures the generator has sufficient time to run up to speed before electrical load is applied.

FUNCTION OF A TRANSFER SWITCH

In case of failure of the main AC power source like the electric utility power, it is desirable to switch the critical AC loads to a standby / back up AC power source like a generator or an inverter. The switching action should ensure that only one AC power source is connected to the AC loads at any one time and that the electric utility power and the generator / inverter output power are never connected in parallel but remain isolated. The electrical loads cannot be connected in parallel with the generator/ inverter and electric utility power at the same time. This will cause the following damage and safety hazards:

FOR MOUNTING AND INSTALLING THE TRANSFER SWITCH YOU WILL REQUIRE:

- 3 x 1" Cable strain relief's
- 4 x Self tapping screws with a minimum length of 30mm to mount THOR TRANSFER SWITCH box
- 1 x Torque screw driver with square head #2
- 1 x Philips screw driver #2

MOUNTING YOUR THTS AUTOMATIC TRANSFER SWITCH

The THOR MANUFACTURING Automatic Transfer Switch is best mounted indoors or in a location sheltered from outdoor elements. The selected area must be free from the possibility of contaminants and away from water. The THOR THTS is best mounted indoors or in a location sheltered from outdoor elements. The selected area must be free from the possibility of contaminants and away from water pipes, pumps, battery compartments and storage areas for flammable liquids. Do not mount the THTS in a engine compartment. The THTS mounting location must be accessible after installation is complete to facilitate future servicing, if possible mount the THTS close to power cord Point of entry or generator output. Typical examples of mounting.

DO NOT MOUNT IN A ENGINE COMPARTMENT.

The Mounting location must be accessible after installation is complete to facilitate future servicing, if possible mount the Automatic Transfer Switch close to power cord Point of entry or generator output.

Typical examples of mounting locations include: Inside seat or bed compartments Above or behind cabinets

1. To mount the THOR THTS, the 4 screw lugs on the outside of the box can be used to secure, the automatic transfer switch.

2. Punch out 3 of the large diameter cable strain holes on the side of the box in the directions which the cables will be fed from using a blunt object. Ensure to remove all plastic pieces of the punch out cable strain holes by rotating the THOR TRANSFER SWITCH box upside down.
3. Hold the transfer switch to the desired position and using 4 self-tapping screws secure the transfer switch box. Ensure the switch is securely mounted so it cannot move or vibrate.
4. Once the THOR TRANSFER SWITCH is securely mounted then screw in the 3 cable strains into the punch out holes.

⚠ WARNING: MORE THAN ONE LIVE CIRCUIT -SEE DIAGRAM - The THTS-30 and THTS-50 must be installed by a qualified electrician.

⚠ WARNING: Avoid personal Injury or product damage

DO NOT mount/install unit in compartments designed for storage of batteries or flammable liquids. The THTS-30 and THTS-50 are not ignition protected. They employ components that tend to produce arcs or sparks. To prevent fire or explosion, NEVER install electrical devices in compartments where batteries or flammable materials (such as gasoline or LP gas) are stored or used.

The THTS-30 and THTS-50 are for a 30 and 50 Amp AC service respectively. It can be mounted in any position, leaving enough room for the shoreline and generator wire connections. To minimize voltage drop across the wire, install the THTS-30 or THTS-50 as close to the generator and shore power cord entrance as possible.

⚠ ENSURE THAT THE GENERATOR IS SHUT OFF AND AUTO START FEATURE (IF APPLICABLE) IS ISOLATED. CONFIRM THAT THE EXTERNAL POWER CORD IS DISCONNECTED AND STORED IN AN AREA WHERE CANNOT MISTAKENLY BE PLUGGED IN.

⚠ CONFIRM THAT THE INVERTER, IF USED HAS BEEN DISCONNECTED.

⚠ CONFIRM WITH AN AC/DC ELECTRICAL TESTER THAT NO VOLTAGE IS PRESENT AT ANY OF THE CONNECTIONS BEFORE BEGINNING INSTALLATION OR MAINTENANCE.

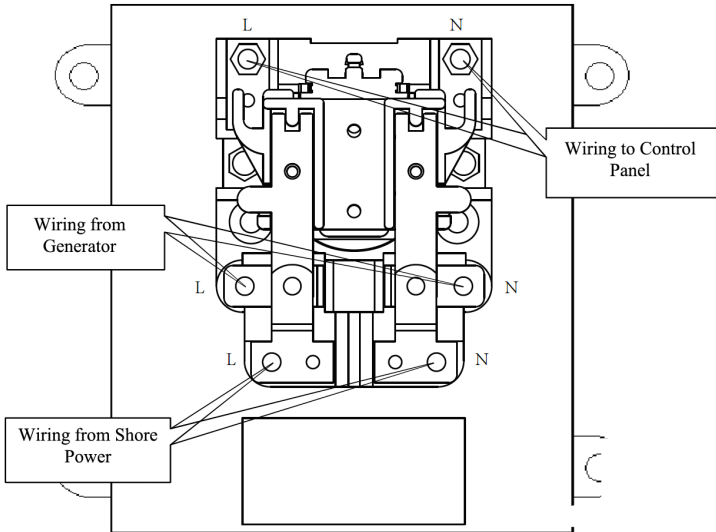
⚠ LABEL ALL PARTS WITH A WARNING TAG TO SHOW THAT WORK IS IN PROGRESS BEFORE BEGINNING WORK

⚠ MEDICAL APPLIANCES: THOR MANUFACTURING will not knowingly sell a THOR MANUFACTURING Automatic Transfer Switch for any life-support application. It is strongly recommended that you do not operate any life support equipment from a transfer switch. If the switch should malfunction, or fail to operate due to other external conditions, it is possible that all connected appliances, including any life support equipment, will also shut down, resulting in a risk of medical complications and potential loss of life.

OPERATION THTS-30

When shore power is available, it is automatically connected to the Control Panel. To operate from an onboard generator, start the generator and after 20 to 30 seconds power will automatically transfer from shore power to generator. The time delay of 20 to 30 seconds allows the generator voltage to stabilize. When the Generator stops, power automatically and immediately transfers back to shore power.

All field wires used have to be rated for at least 105° C. For 6 to 14 AWG wires, use 13 inch-pound torque. Ground terminal bar is suitable for 6-14 AWG conductors using 35 inch-pounds torque.



The THTS-30 is rated for use on circuits capable of delivering 105-130Vac 60 Hz 30Aac. All field wires used have to be rated to at least 105C.

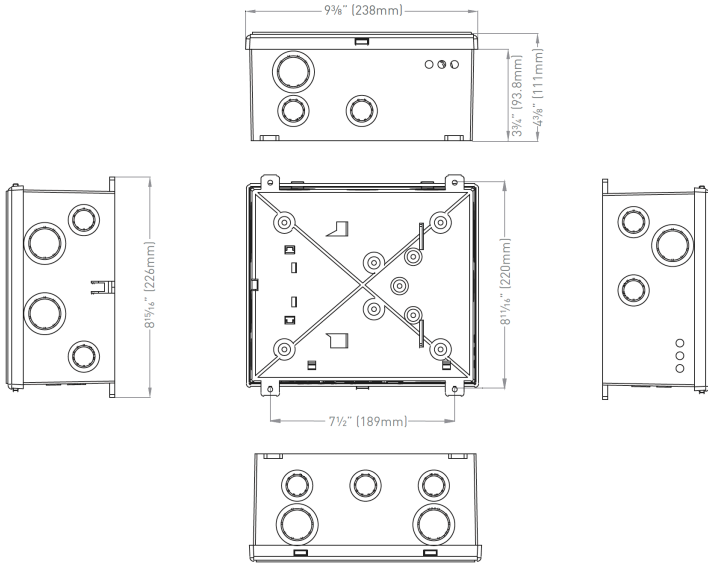
All grounds are connected inside of the THTS-30. THTS-30 is for a 30 Amp AC service. It is installed onto a Power Center. To minimize voltage drop across the wire, install the power center with the THTS-30 as close to the generator and shore power cord entrance as possible.

Do not install close to appliances that are a source of heat or water (such as water heaters, furnaces, and under refrigerators). It is not designed for mounting in wet locations.

GENERATOR NOTE: It is never advisable to start or stop a generator under load. To prolong the life of this transfer switch, and the life of the air conditioner, microwave oven, and other appliances, always turn those appliances off before starting or stopping the generator.

WARNING: The THOR MANUFACTURING TRANSFER SWITCH is not suitable to be used with Medical life support equipment.

Unit Diagram:

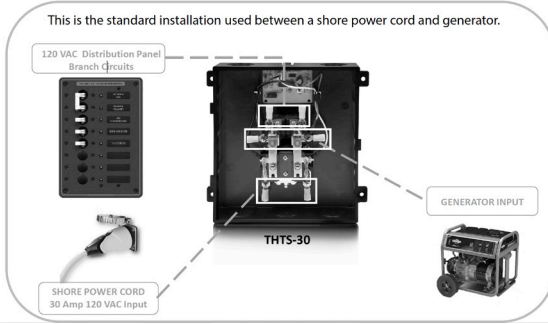


Model	THTS-30	FEATURES
Input Voltage	120 VAC, 60 Hz	Screw Terminals
Input Current	30A	Grounding Terminal
Voltage Output	120 VAC, 60 Hz	Low Arch Silver Terminals
Output Current	30A	30sec Gen Time Delay
Shore Power Input	Yes	Timer By Pass Switch
Outside Dimensions	8 x 8 x 8	Mechanical Interlock
Weight (Lbs.)	4.25 Lbs	10 Cable Entry Positions
Knockout Holes	3	10AWG x 3 Cable Size
Knockout Sizes	2 x 7/8"	UL1008 Certification
Complies with FCC	Yes	
Timer Delay	Yes	
Timer Bypass Switch	Yes	

3 COMMON EXAMPLES OF THOR THTS 30 TRANSFER SWITCH

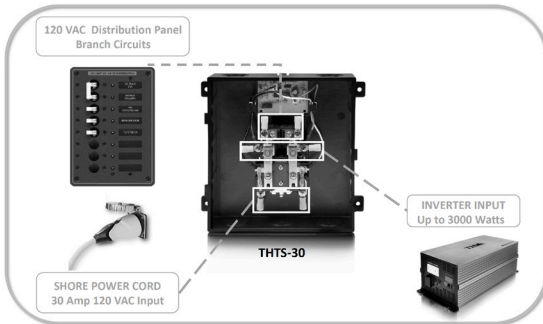
CONFIGURATION 1: DOUBLE POWER FEED

This is the standard installation used between a shore power cord and Inverter.



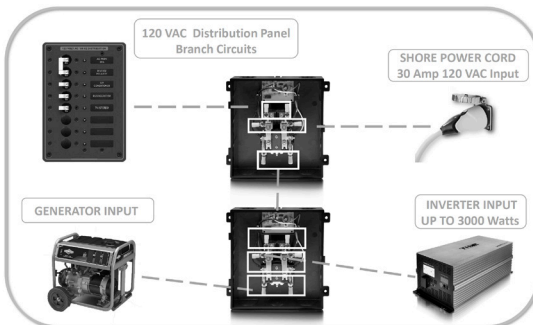
CONFIGURATION 2: DOUBLE POWER FEED INVERTER SHORE POWER

This configuration is used when the inverter is added to the system and requires automatic switchover. See diagram 2 which illustrates this configuration.



CONFIGURATION 3: TRIPLE POWER FEED INVERTER SHORE POWER

This configuration is used when the inverter is added to the system and requires automatic switchover. See diagram 2 which illustrates this configuration.



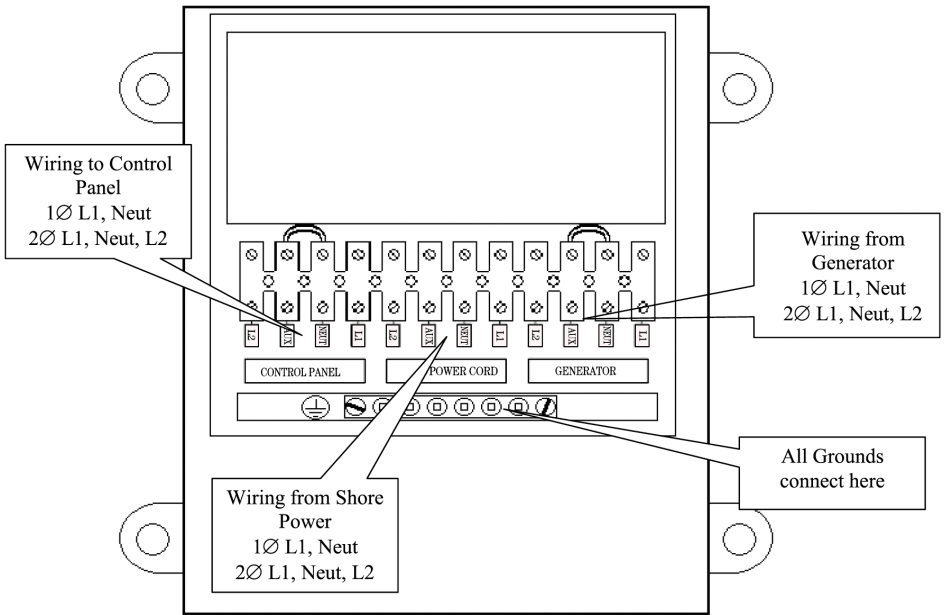
OPERATION THTS-50

When shore power is available, it is automatically connected to the Control Panel. To operate from an onboard generator, start the generator and after 20 to 30 seconds power will automatically transfer from shore power to generator. The time delay of 20 to 30 seconds allows the generator voltage to stabilize. When the Generator stops, power automatically and immediately transfers back to shore power.

Wiring instructions: When L1 and L2 (rated for 35 A each) are connected in phase, generator-neutral capability will increase up to 70 A

All field wires used have to be rated for at least 105° C. For 6 to 14 AWG wires, use 13 inch-pound torque. Ground terminal bar is suitable for 6-14 AWG conductors using 35 inch-pounds torque.

⚠ WARNING: The THOR MANUFACTURING TRANSFER SWITCH is not suitable to be used with Medical life support equipment.



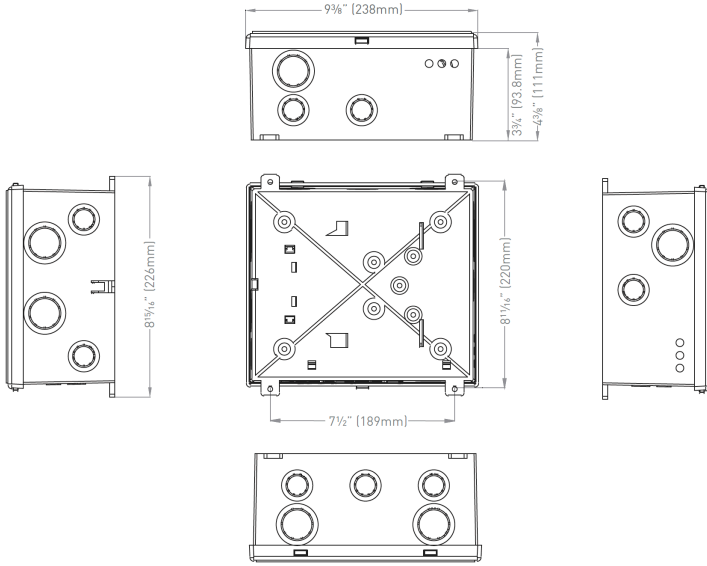
THTS-50

The THTS-50 is rated for use on circuits capable of delivering 105-130Vac 60 Hz 50Aac. All field wires used have to be rated to at least 105C.

All grounds are connected inside of the THTS-50. THTS-50 is for a 50 Amp AC service. It is installed onto a Power Center. To minimize voltage drop across the wire, install the power center with the THTS-50 as close to the generator and shore power cord entrance as possible.

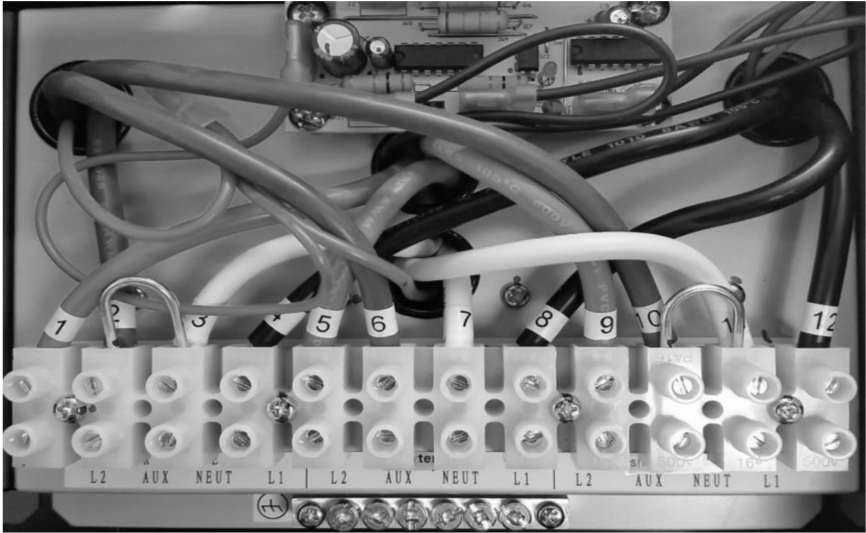
Do not install close to appliances that are a source of heat or water (such as water heaters, furnaces, and under refrigerators). It is not designed for mounting in wet locations.

Unit Diagram:



Model	THTS-50	FEATURES
Input Voltage	120 VAC, 60 Hz	Screw Terminals
Input Current	50A	Grounding Terminal
Voltage Output	120 VAC, 60 Hz	Low Arch Silver Terminals
Output Current	50A	30sec Gen Time Delay
Shore Power Input	Yes	Timer By Pass Switch
Outside Dimensions	8 x 8 x 8	Mechanical Interlock
Weight (Lbs.)	6 Lbs	10 Cable Entry Positions
Knockout Holes	5	10AWG x 3 Cable Size
Knockout Sizes	4 x 1.0"	UL1008 Certification
Complies with FCC	Yes	
Timer Delay	Yes	
Timer Bypass Switch	Yes	

WIRING YOUR THTS TRANSFER SWITCH



50amp 125/240VAC Wiring	Live/Hot L1 = Black
Ground = Bare copper wire or green	Live/Hot L2 = Red
Neutral = White	
50A	

Ensure to feed the wires through the cable strains when they enter to THOR TRANSFER SWITCH box. Shore power and generator cables should be fed into the THOR TRANSFER SWITCH from the side marked on the box sticker. The line out wires will enter the THOR TRANSFER SWITCH from the opposite side. See below diagram for wiring layout.

Strip 4" of outer jacket from each of the incoming cables. Strip 1/2" of jacket from each of the wire conductors. Connect the colored wires to the THOR TRANSFER SWITCH terminals using the diagram above Using your #2 (Robertson's) square head torque Screwdriver, tighten the terminal screws to 20in-lb minimum and 25in-lb maximum Connect the chassis grounding 8AWG wire to the grounding terminal block on the inside of the transfer switch box. Use the 3/8" through hole to feed the wire through from the outside of the box directly to the terminal block. Using your #2 Square Head Torque Screwdriver, tighten the grounding block terminal screws to 20in-lb minimum and 25in-lb maximum

Using this quick reference wiring guide, arrange the wires to be fed into the THOR TRANSFERSWITCH for connection at the corresponding terminals.

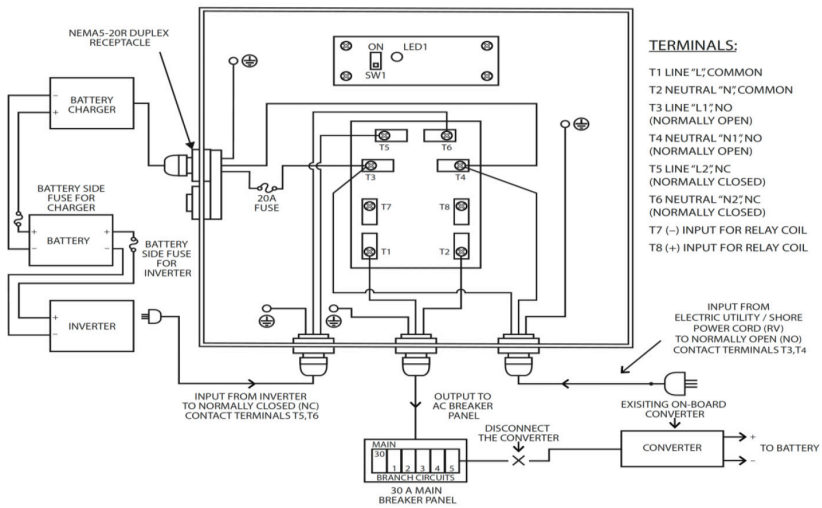
- » Generator in
- » Shore Power in
- » Line/feed out

Ensure to feed the wires through the cable strains when they enter the THOR TRANSFER SWITCH box. Shore power and generator cables should be fed into the THOR TRANSFER SWITCH from the side marked on the box sticker.

The line out wires will enter the THOR TRANSFER SWITCH from the opposite side.

See below diagram for wiring layout.

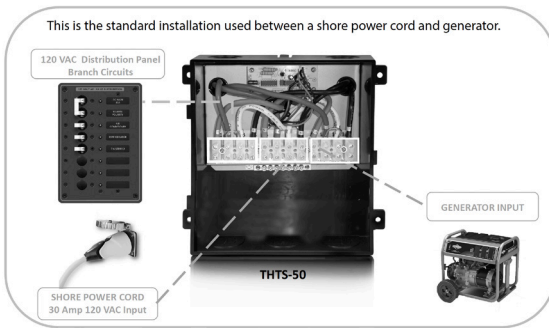
1. Strip 4" of outer jacket from each of the incoming cables.
2. Strip 1/2" of jacket from each of the wire conductors.
3. Connect the colored wires to the THOR TRANSFER SWITCH terminals using the diagram above Using your #2 (Robertson's) square head torque Screwdriver, tighten the terminal screws to 20in-lb minimum and 25in-lb maximum.
4. Connect the chassis grounding 8AWG wire to the grounding terminal block on the inside of the transfer switch box. Use the 3/8" through hole to feed the wire through from the outside of the box directly to the terminal block.
5. Using your #2 Square Head Torque Screwdriver, tighten the grounding block terminal screws to 20in-lb minimum and 25in-lb maximum.



3 COMMON EXAMPLES OF THOR THTS 50 TRANSFER SWITCH

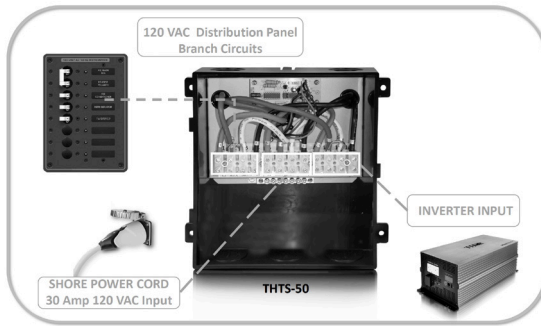
CONFIGURATION 1: DOUBLE POWER FEED

This is the standard installation used between a shore power cord and Inverter.



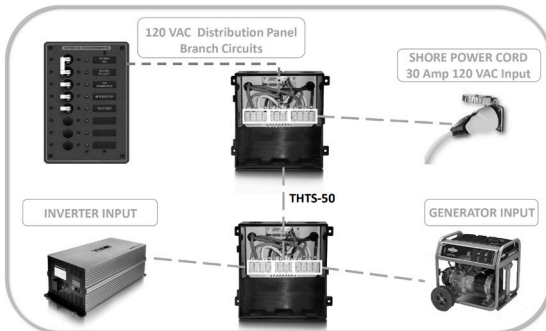
CONFIGURATION 2: DOUBLE POWER FEED INVERTER SHORE POWER

This configuration is used when the inverter is added to the system and requires automatic switchover. See diagram 2 which illustrates this configuration.



CONFIGURATION 3: TRIPLE POWER FEED INVERTER SHORE POWER

This configuration is used when the inverter is added to the system and requires automatic switchover. See diagram 2 which illustrates this configuration.



SAFETY INSTRUCTIONS

⚠ Follow the below steps to test the function of the THOR TRANSFER SWITCH.

THOR TRANSFER SWITCH FUNCTION TESTING:

1. Plug in the shore power cable and turn on the dockside shore power breaker, as soon as the shore side breaker is turned on you will hear a clunk noise immediately as the shore power contactor engages inside the THOR TRANSFER SWITCH, power is then supplied to the RV from the THOR TRANSFER SWITCH line out feed.
2. Turn off the shore side power breaker to shut down power to the RV, you will hear a clunk as the Shore power contactor disconnects (keep the shore power cord connected with no power for further testing).
3. Start the Generator in the RV and wait for it to run up to speed, as soon as power is fed to the THOR TRANSFER SWITCH from the generator the green LED indicator light on the internal THOR TRANSFER SWITCH PCB will illuminate, the THOR TRANSFER SWITCH has a 20-30 second time delay before engaging the internal contactor to allow for the generator to warm up. After 20-30 seconds you will hear a clunk noise as the generator contactor engages inside the THOR TRANSFER SWITCH, power from the generator is now supplied to the RV from the THOR TRANSFER SWITCH line out feed.
4. Shut down the generator

THOR TRANSFER SWITCH SWITCHING TESTING:

To test the switching function after both function tests have passed:

1. Turn on the shore cord shore side breaker to engage the shower power contactor, power is now being supplied to the RV by the shore power.
2. Start the generator and wait for it to warm up, after 20-30 seconds you will hear a clunk when the unit automatically switches over power sources from shore power to generator.
3. Turn off shore power from the shore side breaker and confirm the generator is feeding the line out, the power supply should not be interrupted by doing this.
4. Turn on the shore power shore side breaker again which will engage the shore power will then disengage the generator contactor and automatically switch to running on shore power feed.

⚠ IMPORTANT: Please follow installation and wiring instructions exactly as outlined to ensure safety. We recommend installation by an RV technician or professional electrician to ensure adherence to relevant electrical codes. We have made every reasonable effort to ensure the accuracy of the instructions in this manual, but THOR MANUFACTURING does not guarantee that the information is error free, nor do we make any other representation, warranty or guarantee that the information is accurate, correct, reliable or current. The specifications in this manual are for reference purposes only and are subject to change without notice. For additional information please refer to users manual.

SERVICE INFORMATION

To locate your nearest service location or for details on replacement parts, contact the manufacturer at **1-866-955-THOR**.

LIMITED ONE-YEAR HOME USE WARRANTY

Limited Product Warranty and Exclusions

The limited warranty program is the only one that applies to this unit, and it sets forth all the responsibilities of THOR. There is no other warranty, other than those described herein. Any implied warranty of merchantability of fitness for a particular purpose on this unit is limited in duration to the duration of this warranty.

This unit is warranted, to the original purchaser only, to be free of defects in materials and workmanship for two years from the date of purchase without additional charge. The warranty does not extend to subsequent purchasers or users.

Manufacturer will not be responsible for any amount of damage in excess of the retail purchase price of the unit under any circumstances. Incidental and consequential damages are specifically excluded from coverage under this warranty.

This unit is not intended for commercial use. This warranty does not apply to damage to units from misuse or incorrect installation/connection. Misuse includes wiring or connecting to improper polarity power sources.

RETURN / REPAIR POLICY

Before contacting THOR MANUFACTURING's customer service department, please read the "frequently asked questions" section of our website to troubleshoot the problem. If trouble persists: 1. Call your THOR MANUFACTURING's Technical Support team (1-866-955-THOR) or 2. Return defective product to place of purchase. Unless approved by THOR MANUFACTURING Management, all product shipped collect to THOR MANUFACTURING will be refused. Test items or items that are not under warranty, or units that are not defective, will be charged a minimum bench charge of (\$50.00 US) plus taxes and shipping. A 15% restocking charge will be applied on goods returned and accepted as "new" stock. An RMA number (Return Materials Authorization number) from THOR MANUFACTURING's Customer Service is required prior to returning any THOR Products. THOR MANUFACTURING reserves the right to refuse any items sent to THOR MANUFACTURING without an associated RMA number.

Out of Warranty THOR Product! electronic products are non-repairable, THOR MANUFACTURING, does not perform repairs on its products nor does it contract out those repairs to a third party. THOR MANUFACTURING does not supply schematics or replacement parts for any of its electronic products.

WARRANTY ACTIVATION

Please complete the Warranty Registration Form on the THOR MANUFACTURING website <http://thorpowerproducts.com/register-product/>. Enter the model number and product type and serial number. All THOR MANUFACTURING products must be registered within 30 days of purchase to activate this warranty.

This warranty does not apply to accessories. This warranty gives you specific legal rights and you may have other rights which vary from state to state or province to province. Should you have any questions, contact the THOR MANUFACTURING at 1-866-955-THOR. This product is not intended for commercial