READ AND SAVE THIS MANUAL. This manual contains important safety precautions which should be read and understood before operating the product. Failure to do so could result in serious injury. This manual should remain with the product.

Specifications, descriptions and illustrations in this manual are as accurate as known at the time of publication, but are subject to change without notice.
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**INTRODUCTION**

Congratulations on your purchase of a Champion Power Equipment (CPE) product.

When contacting CPE about parts and/or service, you will need to supply the complete model and serial numbers of your product. Transcribe the information found on your product’s nameplate label to the table below.

<table>
<thead>
<tr>
<th><strong>CPE TECHNICAL SUPPORT TEAM</strong></th>
<th>1-877-338-0999</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MODEL NUMBER</strong></td>
<td>101380</td>
</tr>
<tr>
<td><strong>SERIAL NUMBER</strong></td>
<td></td>
</tr>
<tr>
<td><strong>DATE OF PURCHASE</strong></td>
<td></td>
</tr>
<tr>
<td><strong>PURCHASE LOCATION</strong></td>
<td></td>
</tr>
</tbody>
</table>

**SAFETY DEFINITIONS**

The purpose of safety symbols is to attract your attention to possible dangers. The safety symbols, and their explanations, deserve your careful attention and understanding. The safety warnings do not by themselves eliminate any danger. The instructions or warnings they give are not substitutes for proper accident prevention measures.

- **DANGER**
  - DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

- **WARNING**
  - WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

- **CAUTION**
  - CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

- **NOTICE**
  - NOTICE is used to address practices not related to physical injury.

**IMPORTANT SAFETY INSTRUCTIONS**

- **WARNING**
  - California Proposition 65: This product contains chemicals and produces exhaust known to the State of California to cause cancer, birth defects and other reproductive harm.
Safety Symbols

Some of the following symbols may be used on this product. Please study them and learn their meaning. Proper interpretation of these symbols will allow you to more safely operate the product.

<table>
<thead>
<tr>
<th>SYMBOL</th>
<th>MEANING</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Read Installation Manual" /></td>
<td><strong>Read Installation Manual.</strong> To reduce the risk of injury, user must read and understand installation manual before using this product.</td>
</tr>
<tr>
<td><img src="image" alt="Ground" /></td>
<td><strong>Ground.</strong> Consult with local electrician to determine grounding requirements before operation.</td>
</tr>
<tr>
<td><img src="image" alt="Electric Shock" /></td>
<td><strong>Electric Shock.</strong> Improper connections can create an electrocution hazard.</td>
</tr>
</tbody>
</table>
Instructions for the Reliance Controls ARM Series Automatic Transfer Switch

THE RELIANCE CONTROLS ARM SERIES AUTOMATIC TRANSFER SWITCH (ATS) IS NOT FOR “DO-IT-YOURSELF” INSTALLATION. It must be installed by a qualified electrician thoroughly familiar with all applicable electrical and building codes.

The Reliance Controls ARM Series is an automatic transfer switch purpose-designed to provide a safe and simple method of powering a dwelling from a permanently installed backup AC power source. The electrical-over-mechanical transfer switching and interlocking system prevents accidental feedback of backup power onto utility lines.

This manual has been prepared for the purpose of familiarizing servicing dealer/installer with the design, application, installation and servicing of the equipment. Read the manual carefully and comply with all instructions. This manual or a copy of this manual should remain with the switch.

Every effort has been taken to make sure that the contents of this manual are accurate and current. The manufacturer reserves the right to change, alter or otherwise improve this literature and the product at any time without prior notice and without any obligation or liability whatsoever. The manufacturer cannot anticipate every possible circumstance that might involve a hazard. The warnings in this manual, tags and decals affixed to the unit are, therefore, not all-inclusive. If using a procedure, work method or operating technique the manufacturer does not specifically recommend follow all codes to ensure safety for personnel. Many accidents are caused by failing to follow simple and fundamental rules, codes and precautions. Before installing, operating or servicing this equipment, read the SAFETY RULES carefully. The publications that cover the safe use of ATS and installation are the following NFPA 70, NFPA 70E, UL 1008 and UL 67. It is important to refer to the latest version of any standard/code to ensure correct and current information.

All installations must comply with national, state and local codes. It is responsibility of the installer to perform an installation that will pass the final electrical inspection.

Before Installation

⚠️ WARNING

Be certain that the power from the utility is turned off and all backup sources are locked out before starting this procedure. Failure to do so could result in serious injury or death. Remember, automatic start generators will start upon loss of utility mains power unless locked in the “off” position. Consult the generator instruction manual for positive “lock-out tag-out” procedures.

⚠️ CAUTION

Consult all local and National electrical codes for proper wiring methods for all wiring.

Carefully unpack the ATS. Inspect closely for any damage that might have occurred during shipment. Check that all packing material is completely removed from the ATS prior to installation. Handle ATS carefully when installing. Do not drop. Protect the ATS against impacts at all times and against construction grit and metal chips. Never install an ATS that is damaged.

Tools Required:
- 5/16 in. Hex Wrench
- 1/4 in. Hex Wrench
- 5/32 in. Flat Screwdriver
- Wire strippers
- Twist on wire connectors

Not Included:
- Mounting Hardware
- Communication Wire
- Line Voltage Wire
- Conduit
- Fittings

ATS SELECT SWITCH

This unit may be wired to several models of ATS (automatic transfer switch). The selector switch is located onboard the generator near the ATS signal wire connector. Select position “1” if you are connecting to an ATS50 or ATS100 and select position “2” if you are connecting to a service entry demand control ATS (up to 200A).

⚠️ CAUTION

Failure to set this switch to the matching ATS installed can result in damage to both ATS and HSB.
CONTROLS AND FEATURES

Read this installation manual before installing your transfer switch. Familiarize yourself with the location and function of the controls and features. Save this manual for future reference.

ARM Series Automatic Transfer Switch

1. 12-position Terminal Block
2. Neutral bar
3. Utility L1 terminal
4. Drive Plate
5. Utility L2 terminal
6. Ground bar
7. Load L1 terminal
8. Load L2 terminal
9. Generator L1 terminal
10. Generator L2 terminal
11. Outer row of relays
12. Inner row of relays
13. Load Management module (LMM)
14. Mounting holes (1 top, 2 bottom)
15. Dead Front
As of January 1, 2017, enhanced UL 67 safety requirements took effect, applying to all panelboards and loadcenters with service equipment applications. To comply, any single service disconnect panelboard or loadcenter must have provisions such that, when the service disconnect is opened, no person in the field servicing the equipment load side can make accidental contact to live circuit parts. Barriers to protect against unintended contact shall be constructed in such a way that they are easily installable and removable without contacting or damaging bare or insulated live parts. The barrier could be installed on the ARM, panelboard or loadcenter.

We elect to use different style mounting cabinets at times. Below gives you dimensions for mounting either style you may receive. Style 1 may require hub covers for top openings, use Siemens type HS hub cover or similar and hub hardware ECHSXXX or similar.

**NOTICE**

Do not route wires below or above the drive plate, as this will impede movement of the drive plate.

Do not route wires in the shaded zones.
Installing the ARM Series Automatic Transfer Switch (ATS)

1. The ARM is a service-entrance rated device. It is not acceptable for use as a non-service entrance device (e.g. subpanel). Mount the ARM in a convenient spot. The enclosure is NEMA 3R rated, so it can be installed either indoors or outdoors.

2. Open the door and remove the deadfront by removing the four screws, tilting the bottom of the deadfront outward, and sliding the deadfront outward and downward from under the door latch protrusions.

Communication Wiring

3. Route a multi-conductor cable (min AWG 18 max AWG 12) from the generator to the 12-position Terminal Block in the ARM through a smaller knockout near the middle or another smaller knockout, depending on your installation setup. Strip wires 1/4 inch and connect each wire to the appropriately-numbered terminal. Torque to 28-32 in-oz.

NOTICE

- Note that some of the 12-position terminal block positions are deliberately unused.
- Wire color and number should match on both ends between 10-position and 12-position connectors.
## Controls and Features

<table>
<thead>
<tr>
<th>Position</th>
<th>Function</th>
<th>Voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Switch to generator drive power</td>
<td>120 VAC</td>
</tr>
<tr>
<td>2</td>
<td>Switch to utility drive power</td>
<td>120 VAC</td>
</tr>
<tr>
<td>3</td>
<td>Switch to – common return</td>
<td>Neutral</td>
</tr>
<tr>
<td>4</td>
<td>Unused</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Generator position micro-switch</td>
<td>Switch closure</td>
</tr>
<tr>
<td>6</td>
<td>Utility position micro-switch</td>
<td>Switch closure</td>
</tr>
<tr>
<td>7</td>
<td>Position micro-switch common</td>
<td>Switch closure</td>
</tr>
<tr>
<td>8</td>
<td>Unused</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Load bus line 1 out</td>
<td>120 VAC</td>
</tr>
<tr>
<td>10</td>
<td>Load bus line 2 out</td>
<td>120 VAC</td>
</tr>
<tr>
<td>11</td>
<td>Utility line 1 out</td>
<td>120 VAC</td>
</tr>
<tr>
<td>12</td>
<td>Utility line 2 out</td>
<td>120 VAC</td>
</tr>
</tbody>
</table>

### Notice

The 10-position connector will connect to your Home Standby. This connector is provided with the Home Standby Generator. Cable is not provided.

### Line Voltage Wiring

4. Install minimum 60°C copper or aluminum wires of the appropriate size (min AWG 1 – max AWG 000) from the serving utility electrical meter through a larger knockout on the bottom left or other larger knockout, depending on your installation setup in the ARM. Route and connect L1 and L2 wires to the utility circuit breaker (left side) inside the cabinet. Route and connect the neutral wire to the upper terminal block. Route and connect the ground wire from the grounding rod to the lower terminal block. Torque all line voltage connections to 250 in-lbs.
5. Install minimum 60°C copper or aluminum wires of the appropriate size (see your generator installation manual), from the power output terminals of the generator through a larger knockout in the center or other larger knockout depending on your installation setup in the ARM.

6. If using power management, route and connect L1 and L2 wires through a current transformer (CT) and to the circuit breaker on the generator (right side) inside the cabinet. Make certain that both L1 and L2 each pass through a single CT.

7. Route and connect the neutral wire to the upper terminal block (neutral bar). Route and connect the ground wire to the lower terminal block (ground bar). Torque all line voltage connections to 250 in-lbs.

8. Install minimum 60°C copper or aluminum wires of the appropriate size (AWG 1 - AWG 000) from the power output terminals L1 and L2 of the transfer switch through another knockout on the bottom the ARM to the input to the loadcenter (home distribution panel). Torque all line voltage connections to 250 in-lbs.

**NOTICE**
Proper wire termination is required as this breaker is intentionally mounted upside down under the drive plate.
9. Route and connect L1 and L2 wires to Load L1 and L2 Terminal set screws underneath the drive plate. Access to the set screws is through two holes in the drive plate. Torque all line voltage connections to 250 in-lbs.

10. If for some reason the holes do not line up properly with the set screw on the power lug, the drive plate can be driven to an acceptable position by connecting a 120 VAC extension cord temporarily to the 12-position Terminal Block on the upper left side of the transfer switch (terminal 1 hot - to - terminal 3 neutral; or terminal 2 hot - to - terminal 3 neutral) (Fig C). The drive plate will automatically stop when it reaches the stopping point.

11. Route and connect a neutral wire to the upper terminal block (neutral bar) from the loadcenter. Route and connect a ground wire to the lower terminal block (ground bar) from the loadcenter. Torque all line voltage connections to 250 in-lbs.
Connecting the Load Management Systems

12. Set the jumper in the upper left corner of the Load Management Module (LMM) to the output of the home standby generator, according to the chart below.

<table>
<thead>
<tr>
<th>Jumper Setting</th>
<th>Wattage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8500 watts</td>
</tr>
<tr>
<td></td>
<td>9500 watts</td>
</tr>
<tr>
<td></td>
<td>11000 watts</td>
</tr>
<tr>
<td></td>
<td>12500 watts (example shown)</td>
</tr>
<tr>
<td></td>
<td>14000 watts</td>
</tr>
<tr>
<td></td>
<td>15500 watts</td>
</tr>
<tr>
<td></td>
<td>17000 watts</td>
</tr>
<tr>
<td></td>
<td>18500 watts</td>
</tr>
<tr>
<td></td>
<td>20000 watts</td>
</tr>
</tbody>
</table>

If the installed generator is not one of these wattages shown, set the jumper for the setting closest to, but not larger than, the actual generator watt rating.

 большое

NOTICE

Select up to eight circuits in the loadcenter for load management. It is the responsibility of the installer to assure that the correct types of circuits are selected for load management, and that the chosen circuits are of sufficient power draw to assure the proper operation of the home standby generator should an overload condition occur. Choose 240V loads like air conditioning or heat pump, etc.

The LMM contains circuitry that monitors the current draw on generator feeder L1 and L2. If at any time, the current draw exceeds that preset by the jumper, the unit will de-energize all eight circuits. Within 5 minutes, the circuitry will re-energize four circuits in the inner row of the LMM. After an additional 4 minutes, the circuitry will re-energize the four circuits in the outer row.

13. **For 240V 50A through LCM**: Install LCM (sold separately Item A) in a convenient location between loadcenter (Item B) and the managed load. Disconnect existing wires from Loadcenter circuit breaker of managed load. Route and connect load wire L1 and L2 from the Loadcenter circuit breaker to the LCM using the same gauge wire. Connect outgoing L1 and L2 load line voltage wires to the managed load. Torque all line voltage connections to 250 in-lbs.

14. Route and connect LCM contactor coil (L1 signal) wire to the Normally Closed (NC) port on the LMM then route from the COM port back to the contactor coil (L1 signal return) relay on the LCM, using low voltage wire and a ¼” push-on terminal.
15. **For 240V 20A or smaller** - For each circuit, disconnect the load wire from its circuit breaker in the Loadcenter (Item E), and connect it to a wire of the same AWG using twist-on wire connectors. (Item F)

16. Route this new wire to the ARM through a smaller knockout depending on your installation setup and connect it to common terminals with L1 to relay 1 and L2 to relay 2 of two adjacent relays on the LMM (Item D) using a ¼” push-on terminal.

17. Connect another wire of the same AWG to the Normally Closed (NC) terminal on the same LMM relay as well as the adjacent relay in this case relay 1 and 2, also using a ¼” push-on terminal. Use the adjacent relays in your particular installation if using other relays (Item D)

18. Route that wire back to the loadcenter (Item E) and install it into the circuit breaker from which the original wire was removed. The LMM contains circuitry that monitors the current draw on generator feeder L1 and L2.

**For Low Voltage**

For air conditioning or other low voltage controls, route a wire to the ARM through a smaller knockout depending on your installation setup. Connect the wiring to relay terminals one COM and one Normally Closed (NC) wire terminal on the LMM (Item C) using a ¼” push-on terminal. Run the wire out of ARM and connect to low voltage managed device.

**Commissioning the ARM Series**

19. Make certain that the utility breaker (left side) is in the “on” position (handle up), and the generator breaker (right side) is in the “off” position (also handle up).

20. Replace the deadfront by sliding it from the bottom into the cabinet underneath the door latch protrusions. Secure it to the deadfront brackets with the four (4) screws removed earlier.

**DANGER**

Do not make LMM connection to line voltage greater than 120V 20A for each relay.

---

**NOTICE**

The generator breaker is upside down, so the off position is with the handle up.
21. Close and latch the door. If the ARM is mounted outdoors, padlock the door closed. Reinstall two (2) thumbscrews in door.

22. Re-enable the utility power.

23. Remove the generator lock-out apparatus and arm the generator.

Your ARM Series automatic transfer switch is now fully functional. To test its performance, follow the instructions provided by the generator manufacturer. Test the unit monthly. Service yearly per maintenance instructions.

CHECKS

Engine Controller Module 100666 green light ON for power.

Engine Controller Module 100666 selector switch set to ATS.

ATS Control Module 100667 will indicate Utility or GENSET depending on what power is sourced to the home.

Utility: The 3 LEDS on the left of ATS Module will be luminated when power source is through Utility.

GENSET: The 3 LEDS on the Right of ATS Module will be luminated when power source is through HSB Generator.

Move Selector Switch to TEST on ATS Control Module

Test – This position allows verification that the HSB power delivery circuit is functional. With the switch in TEST position, the engine will start and the ATS will transfer from:

UTILITY to GENSET.

Safety procedures need to be followed.

Allow HSB to run for 1:30 – 5:00 (minutes)

Move the ATS selector switch to AUTO

ATS will cycle to Utility and complete Test.

After transfer to Utility the HSB Generator will cool for one minute and shut off automatically.
ANNUAL MAINTENANCE

The ARM should be maintained yearly.

1. Visually inspect the unit to assure that there are no broken objects or loose wires in the cabinet.
2. Inspect the drive plate. To do so, disable the generator and remove the deadfront. If needed, apply a thin layer of all-purpose lithium stearate automotive grease around all the slotted holes in the drive plate with the exception of the two rectangular holes through which the circuit breaker handles protrude.

SPECIFICATIONS

Reliance Controls ARM Series Automatic Transfer Switch

- Model Number: ARM20208R
- Enclosure Style: NEMA 3R outdoor
- Maximum Amps: 200
- Nominal Volts: 120/240
- Load Management Circuits: 8

Technical Specifications

- 22kAIC, no short-time current rating.
- Suitable for use in accordance with the National Electrical Code, NFPA 70.
- Suitable for control of motors, electrical discharge lamps, tungsten filament lamps, and electrical heating equipment, where the sum of the motor full load ampere ratings and the ampere ratings of the other loads does not exceed the ampere rating of the switch, and the tungsten load does not exceed 30% of the switch rating.
- Continuous load not to exceed 80% of switch rating.
- Line voltage wiring: Cu or AL, min 60°C, min AWG 1 – max AWG 000, torque to 250 in-lb.
- Signal or Com Wiring: Cu only, min AWG 22 – max AWG 12, torque to 28-32 in-oz.

WARRANTY

Each Reliance transfer switch or accessory is guaranteed against mechanical or electrical failure due to manufacturing defects for a period of 24 months following shipment from the factory. The manufacturer’s responsibility during this warranty period is limited to repair or replacement, free of charge, of products proving defective under normal use or service when returned to the factory, transportation charges prepaid. Guarantee is void on products that have been subjected to improper installation, misuse, alteration, abuse or unauthorized repair. The manufacturer makes no warranty with respect to the fitness of any goods for a user’s particular application and assumes no responsibility for proper selection and installation of its products. This warranty is in lieu of all other warranties, expressed or implied, and limits the manufacturer’s liability for damages to the cost of the product. This warranty gives you specific legal rights, and you may have other rights, which vary from state to state.