



Operating Instructions

AT-DC SERIES BATTERY / LOAD DISTRIBUTION CENTER

1.0 GENERAL BACKGROUND

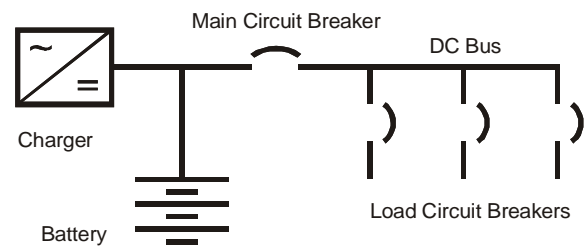
1.1 Stationary installations of dc systems often consist of a battery, battery charger, battery disconnect, and load distribution center. Most dc installations have the battery charger, disconnect and distribution center as separate components. The AT-DC Battery/Load Distribution Center is designed to combine these three (3) components. One (1) enclosure houses a larger (main) 2-pole circuit breaker and multiple branch circuit breakers that can be mounted and wired to a standard battery charger.

1.2 Depending on the system configuration, the main circuit breaker can serve as a battery disconnect, or can be wired as a main disconnect for load branching.

2.0 CONFIGURATION / APPLICATION

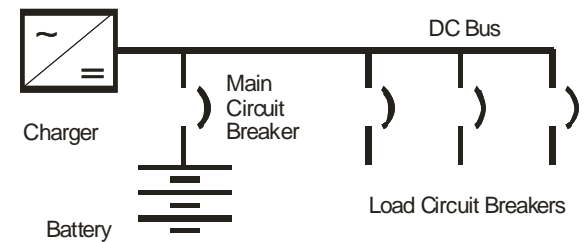
2.1 Main / Load Circuit Breakers

This configuration provides a main load circuit breaker to isolate the dc loads from the charger and battery, and is used to shed all loads from the battery for service. This most mimics standard panel boards with a main and load breakers mounted together.



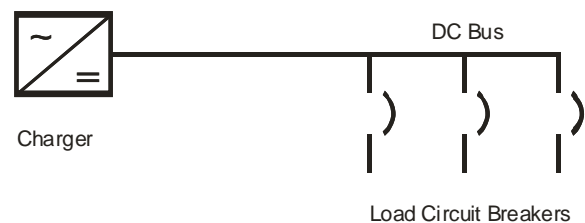
2.2 Battery Disconnect Circuit Breaker

This configuration provides a battery circuit breaker to isolate the battery from the charger and dc loads. This connection continues to provide power to the loads from the charger during service to the battery.



2.3 Load Circuit Breakers

This configuration connects the loads to the dc bus without a local disconnect. The battery is wired directly to the battery charger or has an external battery disconnect. In certain installations, users wish this battery disconnect to be located close to the actual battery bank.



3.0 MECHANICAL ASSEMBLY / INSTALLATION

3.1 The AT-DC Distribution Panel is designed for wall or rack mounting. The NEMA-1 Style-5035 enclosure is constructed of 14 GA steel, powder-coated with ANSI-61 gray epoxy paint.

Cabinet Dimensions: **18.58in / 472mm H x 17.75in / 451mm W x 13.21in / 336mm D**
 Outline Drawing: <http://www.ATSeries.net/PDFs/JE5161-00.pdf>

3.2 The enclosure features keyhole knockouts for external wiring on both sides. External wiring can be brought into the AT-DC Panel through the top or bottom of the enclosure, depending on charger mount. However, no top or bottom knockouts are provided.

3.3 If the AT-DC Panel is to be surface-mounted (and pre-wired) to the battery charger, see the charger instructions for installation location and mounting of the entire charger/distribution assembly.

3.3 If the AT-DC Panel is to be mounted as a separate stand-alone distribution center, find a dry, solid structure near the battery or dc loads. Mount the panel using the rear mounting flanges or optional rack-mounting brackets.

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4.0 INTERNAL WIRING

- 4.1 When ordered together, the AT Series battery charger and AT-DC Distribution Panel are both factory pre-wired and fully assembled for installation. If ordered alone, the AT-DC distribution panel can be attached and wired to a previously installed AT Series charger. The assembly can also be mounted on other types of battery chargers.
- 4.2 The AT-DC Distribution Panel is normally equipped with one (1) 2-pole main circuit breaker (CB4) with a trip rating of 100 or 200 Amperes. The 100A system has capacity for up to fourteen (14) 2-pole distribution breakers (CB5x). The 200A system has capacity for up to twelve (12) 2-pole breakers. The distribution breaker trip ratings range from 10A to 50A. Single pole distribution breakers are also available for bus voltages of 12, 24 and 48 Vdc.
- 4.3 Unless otherwise specified, all circuit breakers are electrically rated for 10 kAIC at 125 Vdc. Distribution breakers are DIN rail type, mounted for ease of replacement.
- 4.4 All internal connections for the AT-DC Distribution Panel are Switchboard Insulation System (SIS) type UL VW-1. Factory-installed wiring from the charger's dc output terminal board to the AT-DC's main circuit breaker is sized to the output current rating of the charger. Factory-installed wiring to the AT-DC load circuit breakers (CB5x) is sized to the trip rating(s) of each individual breaker.
- 4.5 Mounted to the back panel of the enclosure are positive(+) [right] and negative(-) [left] copper bus bars, which are interconnection points for dc load breaker wiring. No more than three (3) wires made to one (1) contact point.
- 4.6 Refer to internal component layout drawings for the 100A ([JE5141-10](#)) and 200A ([JE5141-20](#)) AT-DC Distribution Panels.

5.0 EXTERNAL WIRING TO THE DC DISTRIBUTION

- 5.1 **Disconnect all external power** to the AT-DC Distribution Panel before making connections.
- 5.2 The AT-DC Distribution Panel features a standard 1/4-20 ground stud, mounted to the inside shroud of the enclosure. An optional ground bus may also be provided.
- 5.3 User-supplied wiring **from** the AT-DC Distribution Panel to the battery and/or dc loads should be typed and sized per site and equipment specifications. The main and load circuit breakers feature solder-less compression terminals for user-installed output connections.
 - 5.3.1 The 100A main breaker will accept #12 - 1/0 wire.
 - 5.3.2 The 200A main breaker will accept 3/0 - 300 MCM wire.
 - 5.3.2 The 10-50A dc load breakers will accept #14 - 2 wire.
- 5.4 Check the polarity of cabling connections from the dc loads.

5.5 External Wiring Configurations:

5.5.1 Main / Load Circuit Breakers (Configuration 2.1)

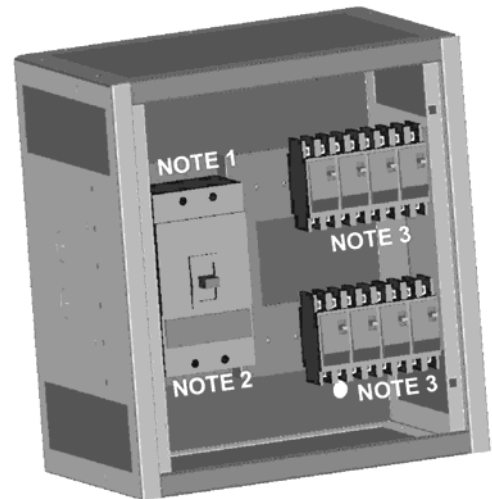
Connect the user-supplied main battery wiring to the **top** (at **NOTE 1**) of the main breaker, along with the factory-installed charger output wiring. The bottom of the main breaker (at **NOTE 2**) will be connected to the top of the dc load breakers through the pos(+)/neg(-) interconnection bus bars. Connect user-supplied load wiring to the **bottom** (at **NOTE 3**) of the dc load breakers.

5.5.2 Battery Disconnect Circuit Breaker (Configuration 2.2)

Connect the user-supplied main battery wiring to the **bottom** (at **NOTE 2**) of the main breaker. The top of the main breaker (at **NOTE 1**) will be connected to the top of the dc load breakers through the pos(+)/neg(-) interconnection bus bars. Connect user-supplied load wiring to the **bottom** (at **NOTE 3**) of the dc load breakers.

5.5.3 Load Circuit Breakers (Configuration 2.3)

No main breaker is supplied. The dc output from the battery charger will be connected directly to the top of the dc load breakers through the pos(+)/neg(-) interconnection bus bars. Connect user-supplied load wiring to the **bottom** (at **NOTE 3**) of the dc load breakers.



AT-DC Distribution Panel
(internal view)