

# JA0102-05

<http://www.ATSeries.net/PDFs/JA0102-05.pdf>



## Operating Instructions

# AT-DC SERIES BATTERY / LOAD DISTRIBUTION CENTER

## 1.0 GENERAL BACKGROUND

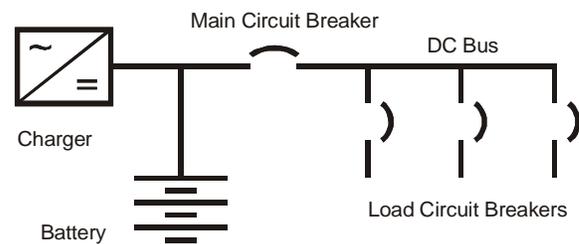
1.1 Stationary installations of dc systems often consist of a battery, battery charger, battery disconnect, and load distribution center. Most dc installations have the battery charger, disconnect, and distribution center as separate components. The AT-DC Battery/Load Distribution Center is designed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

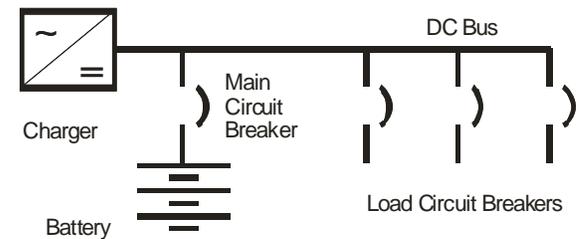
### 2.1 Main / Load Circuit Breakers

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.



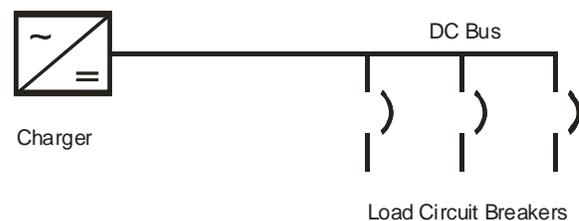
### 2.2 Battery Disconnect Circuit Breaker

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.

Enclosure 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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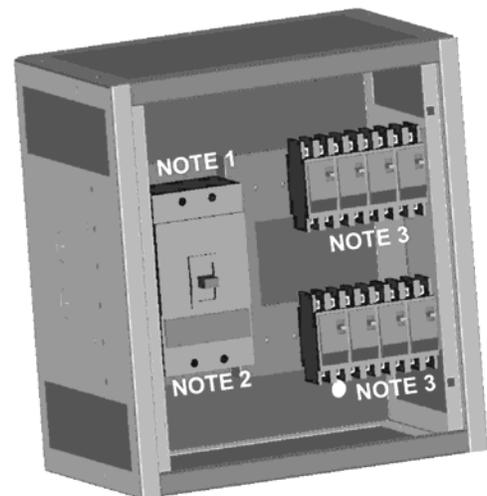


## 4.0 INTERNAL WIRING

- 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 wall-mounted or attached and wired to a previously-installed AT Series charger. The assembly can also be wired to other types of chargers.
- 4.2 The AT-DC Distribution Panel is normally equipped with one (1) 2-pole main circuit breaker (CB4), mounted in the upper-left corner, with a trip rating of either 100 or 200 Amperes. The panel has a capacity for up to twelve (12) 2-pole branch breakers (CB5x), with trip ratings ranging 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, the main breaker (CB4) is rated for 20 kAIC at 125 Vdc. Branch breakers (CB5x) are 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 (TB1+/-) to the AT-DC main circuit breaker (CB4) is sized to the output current rating of the charger. 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(+) and negative(-) copper bus bars, which are interconnection points for dc load breaker wiring. No more than three (3) wires are made to one (1) contact point.
- 4.6 Refer to internal component drawings for the 100A ([JE5141-10](#)) and 200A ([JE5141-20](#)) AT-DC 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 1/4-20 ZPS ground stud, mounted to the bottom panel of the enclosure. An optional copper ground bus bar w/compression lug 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 #14 - 3/0 AWG.
  - 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 AWG.
- 5.4 Check the polarity of cabling connections from the dc loads.



**AT-DC Distribution Panel**  
(internal view)

### 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.

- 5.5 An optional "dc tie point" (TB10) is available, featuring 3/8-16 ZPS stud terminals, for further battery cabling.