



JF5033-20

Standard Specification DC Control Panel (DCP)

a dc control panel shall be furnished in accordance with the following specification

1. General

- 1.1. The DC Control Panel (DCP) is a HindlePower product design, useful for coordinating dc loads with dc sources. It has the unique ability to provide up to three (3) main circuit breakers. This feature can be useful in connecting multiple dc sources, such as chargers and batteries, or systems using Best Battery Selectors.
- 1.2. Site Installation Configurations:
 - 1.2.1. The main circuit breaker(s) can serve as a disconnect for all branched dc loads.
 - 1.2.2. The main circuit breaker can be used as disconnect for any primary dc source(s).
 - 1.2.3. The DCP can be supplied **without** a main breaker, replaced with direct feed CU-AL compression lugs. In this configuration, one (1) branch breaker can be utilized as a battery charger input.

2. Applicable Codes

- 2.1. The DCP assembly is listed to Canadian Standards Association (CSA), via CSA Group Special Industrial Control Panel (SICP) Shop Program, and labeled as such.



- 2.2. The DCP assembly is NRTL designed, manufactured, tested, and labeled, via SICP to standards:
 - 2.2.1. **CSA C22.2 No. 286-17**
 - 2.2.2. **UL 508A**
- 2.3. All molded case circuit breakers (main feeder & distribution) supplied with the DCP are listed to standard **UL 489** for **branch** protection.

3. Construction

- 3.1. The standard DCP assembly enclosure is designed for indoor use.
 - 3.1.1. standard enclosures meet National Electrical Manufacturers Association (NEMA) Type-1
 - 3.1.2. DCP can be supplied with an optional enclosure to meet NEMA Type-3R specifications
- 3.2. The DCP is temperature rated to operate between 0-40 °C.
- 3.3. The DCP is designed for standard rear surface (wall) mounting.
 - 3.3.1. A bracket accessory is available for optional 23in / 594mm EIA rack mounting
 - accessory can be factory-installed as ordered, or supplied as a field kit
 - rack-mounting accessory incompatible with optional NEMA Type-3R enclosure



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- 3.4. The DCP NEMA-1 Style-5013 (Square-D type MH38 / MH56) enclosure dimensions are:
- 3.4.1. width: 20.00in / 508mm
 - 3.4.2. depth: 6.00in / 152mm
 - 3.4.3. height: 38.00in / 965mm (type MH38 for: 1-12 2-pole branch breakers)
 - or**
 - 3.4.4. height: 56.00in / 1422mm (type MH56 for: 13-24 2-pole branch breakers)
- 3.5. The standard DCP NEMA-1 enclosure is constructed using 16 GA sheet steel.
- 3.6. The DCP enclosure external front finish is ANSI 61 gray epoxy powder coat paint.
- 3.6.1. Rear shroud finish is galvanized steel.
- 3.7. The DCP NEMA-1 enclosure features pre-punched knockouts, on **one** side (top as standard).
- 3.7.1. one (1) 1.25in / 32mm through 3.50in / 89mm knockout
 - 3.7.2. one (1) 0.75in / 19mm through 3.00in / 76mm knockout
 - 3.7.3. (24) 0.5in / 13mm through 0.75in / 19mm knockouts
 - 3.7.4. Enclosure can be arranged with **optional** bottom conduit knockouts, if requested.
- 3.8. Branch breakers are mounted for ease of replacement, and/or future expansion.
- 3.8.1. Two-pole branch breakers are bolt-on, mounted to back panel.
 - 3.8.2. Single-pole (optional) branch breakers are DIN-rail mounted.
 - 3.8.3. Future branch breaker expansion utilizes break-away tabs on dead front panel.

4. Electrical (system)

- 4.1. The DCP main (feeder) supports up to three (3) individual dc sources.
- 4.1.1. Maximum load on feeder (or sum of dc sources) not to **exceed** 600A.
 - rating takes into account 25% de-rating for inductive loads
- 4.2. Copper (CU) only conductors may be used in the DCP.
- 4.3. The DCP main bus (system)
- 4.3.1. main bus material: ETP 110 copper
 - 4.3.2. main bus bar rating: 250 Vdc / 600A
- 4.4. The DCP branch bus bars
- 4.4.1. branch bus bar material: ETP 110 copper
 - 4.4.2. branch bus bar rating: 250 Vdc / 125A
 - 4.4.3. Maximum current for motor load on any single branch circuit is 100A (on 125A breaker).
- 4.5. One (1) copper-aluminum (CU-AL) compression box lug is be supplied for user grounding.
- 4.5.1. ground lug properly labeled per IEC 60417 No. 5019
 - 4.5.2. optional "chassis" ground bus bar also available
- 4.6. If no main circuit breaker is supplied, direct feed connections to main bus are supplied per 1.2.3.
- 4.6.1. two (2) removable CU-AL compression type box lugs
 - 4.6.2. will accept #6 AWG - 350 MCM wire (per pos[+] or neg[-] pole)
- 4.7. If single-pole branch breakers are used, a common return bus is provided.
- 4.7.1. single-pole branch breakers **only** compatible with 24V or 48V dc systems (**not** 130V)
 - 4.7.2. standard configuration "breaks" positive (+) branches, with a common negative (-) return



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5. Circuit Breakers

- 5.1. The DCP utilizes Square-D molded case circuit breakers (main & branch).
- 5.2. The DCP top section supports up to three (3) feeder circuit breakers of user-specified ratings.
 - 5.2.1. One (1) main feeder will be **center**-mounted as standard.
 - second (optional) feeder breaker will be mounted to **left**
 - third (optional) feeder breaker will be mounted to **right**
 - 5.2.2. Main feeder circuit breaker(s) are Square-D *PowerPact* type:
 - "Hx" frame: 50A, 75A, 100A, 125A & 150A trip ratings available
 - "Jx" frame: 150A, 175A, 200A, 225A, and 250A trip ratings available
 - 5.2.3. Main breaker(s) interrupting rating is 20 kAIC
 - 5.2.4. Main breaker(s) feature top-loaded compression lugs, accepting:
 - "Hx" frame: #12 - #2/0 AWG
 - "Jx" frame: #4 AWG - 350 MCM
- 5.3. The DCP distribution section supports multiple branch circuit breakers, of user-specified ratings.
 - 5.3.1. Branch breakers installed in distribution section from top-to-bottom, and left-to-right.
 - 1-12 branch breakers: MH38 type enclosure (38.00in H)
 - 13-24 branch breakers: MH56 type enclosure (56.00in H)
 - 5.3.2. Branch circuit breaker(s) are Square-D *PowerPact* "Bx" type:
 - 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 90, 100, 110, and 125 Adc trip ratings available
 - Maximum current for an inductive load on any branch circuit is 100A.
 - 5.3.3. Branch breakers interrupting rating:
 - "BD" series: 10 kAIC
 - "BG" series: 20 kAIC
 - 5.3.4. Branch breaker(s) feature side-loaded compression lugs, accepting:
 - #6 - 2/0 AWG fine-stranded copper wire
 - #14 - 3/0 AWG rigid or stranded copper wire
 - 5.3.5. Optional single-pole branch breakers can be supplied (in lieu of std. 2-pole) as requested:
 - 1-24 branch breakers: MH38 type enclosure (38.00in H)
 - 25-48 branch breakers: MH56 type enclosure (56.00in H)
 - single-pole branch breakers **only** compatible with 24V or 48V dc systems (**not** 130V)
 - 5.3.6. Electrical auxiliary switches can be added to both main and branch circuit breakers.
 - Square-D auxiliary switches are listed to UL 489 & CSA C22.2 No. 5
 - auxiliary switches have a current rating of 0.3A
 - auxiliary switches are supplied in a bagged kit for field-wiring
 - auxiliary switches **not** compatible with single-pole branch breakers


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6. Documentation & Labeling

6.1. Each DCP will ship with the following industry-standard labeling:

- 6.1.1.  **DANGER** safety label on outside of enclosure
- 6.1.2. silver data nameplate decal (thermal transfer printed) with:
 - model number
 - serial number
 - voltage rating
 - ampere rating (of *panel* assembly / bus bars, not largest main breaker)
 - main (feeder) interrupting rating
 - branch interrupting rating
 - QR code to online operating instructions (p/n JA5117-01)
 - contact information of distributor
- 6.1.3. circuit breaker schedule mounted to inside surface of front panel door

6.2. Each DCP will ship with the following (paper) user documentation:

- 6.2.1. operating instructions (p/n JA5117-01)
- 6.2.2. standard concept drawing (p/n JE5368-00)
- 6.2.3. parts data package report (list of spare / replacement parts)
- 6.2.4. *optional* customized (unit-specific) drawings for record