



JF5033-20

Standard Specification DC Control Panel

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

3. Construction

- 3.1. The standard DCP assembly enclosure is designed to meet National Electrical Manufacturers Association (NEMA) Type-1 (for indoor use).
 - 3.1.1. The DCP can be supplied with an optional drip shield to meet NEMA Type-2.
 - 3.1.2. The DCP can be installed into a larger NEMA Type-3R or Type-4 cabinet.
- 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
- 3.4. The DCP Style-5013 (Square-D type MH38 / MH50) enclosure dimensions are:
 - 3.4.1. width: 20.00in / 507.8mm
 - 3.4.2. depth: 6.00in / 152.4mm
 - 3.4.3. height: 38.00in / 965.2mm (1-12 2-pole branch breakers, type MH38)
or
 - 3.4.4. height: 50.00in / 1270.0mm (13-24 2-pole branch breakers, type MH50)



JF5033-20

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- 3.5. The DCP 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 enclosure features pre-punched knockouts, on one side (bottom 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* top 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 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 400A.
 - 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 / 400A
- 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 a motor load on any branch circuit is 100A.
- 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 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 - 350MCM wire (per pos[+] or neg[-] pole)
- 4.7. If single-pole branch breakers are used, a common return bus bar is provided.
 - 4.7.1. common return bus bar rating: 250 Vdc / 400A



5. Circuit Breakers

- 5.1. The DCP utilizes Square-D "Standard" 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 *right*
 - third (optional) feeder breaker will be mounted to *left*
 - 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 (standard)
 - optional 50 kAIC main breaker available
 - 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: MH50 type enclosure (50.00in 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
 - "BJ" series: 50 kAIC
 - 5.3.4. Branch breaker(s) feature side-loaded compression lugs, accepting:
 - #6-2/0 fine-stranded copper wire
 - #14-3/0 rigid or stranded copper wire
 - 5.3.5. Optional single-pole branch breakers can be supplied (in lieu of standard 2-pole) as requested:
 - 1-24 single-pole branch breakers: type MH38
 - 25-48 single-pole branch breakers: type MH50
 - 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