Lighting panelboards
EXD and D2D series - Sizes B, C & D

Installation & maintenance information

SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE

APPLICATION

EXD and D2D panelboards provide a centrally controlled switching system and short circuit protection for feeder or branch circuits to control lighting, heating, appliances, heat tracing, motor and similar circuits.

EXD panelboards are designed for use in Class I, Division 1 & 2, Groups B (with Group B kit, or suffix -GB), C, D; Class II, Groups E, F, G; Class III hazardous areas as defined by the National Electrical Code® (NEC) and Canadian Electrical Code (CEC), as well as in damp, wet locations - indoors or outdoors - with UL Type 3, 4, 4X (with S752 or S753), 12.

D2D panelboards are designed for use in Class I, Division 2, Groups B (with Group B kit, or suffix -GB), C, D; Class II, Division 2, Groups F & G; Class III.

FIGURE 1 - MOUNTING DIMENSIONS AND WEIGHTS

Both stainless steel and cast terminal housings are equal for all panel sizes (highlighted in the above dotted line boxes).

WARNING

To avoid electrical shock or explosion, panelboards should be installed, inspected, maintained and operated by qualified and competent personnel. Read entire instructions before starting installation of this product. Contact your local Eaton’s Crouse-Hinds Division sales representative, customer service or distributor if you have any questions.

CAUTION

To prevent external fire or explosion of Group B atmospheres, do not connect to a supply circuit having a capability of delivering more than 10,000 RMS symmetrical amperes.

For Groups C and D atmospheres, do not connect to a supply circuit having a capability of delivering more than 65,000 RMS symmetrical amperes at 240/480 VAC.

WEIGHTS

<table>
<thead>
<tr>
<th>Cat. #</th>
<th>Product weight</th>
<th>Shipping weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>lbs.</td>
<td>kg.</td>
</tr>
<tr>
<td>D2DBS</td>
<td>325</td>
<td>147.4</td>
</tr>
<tr>
<td>D2DBA</td>
<td>375</td>
<td>170.1</td>
</tr>
<tr>
<td>D2DCS</td>
<td>400</td>
<td>181.4</td>
</tr>
<tr>
<td>D2DDA</td>
<td>450</td>
<td>204.1</td>
</tr>
<tr>
<td>EXDBA</td>
<td>385</td>
<td>174.6</td>
</tr>
<tr>
<td>EXDCN</td>
<td>350</td>
<td>159.8</td>
</tr>
</tbody>
</table>

Enclosure only ratings

-25°C to 60°C

Groups B, C, D 10kAIC
Groups C, D 65kAIC

UL max. ambient +40°C

Cat. #  Product weight  Shipping weight
D2DBS  325  147.4  400  181.4
D2DBA  375  170.1  450  204.1
D2DCS  400  181.4  500  226.8
D2DDA  450  204.1  550  249.5
EXDBA  385  174.6  460  208.7
EXDCN  350  159.8  425  192.8
GENERAL INSTALLATION, MOUNTING & LIFTING

1. Select a mounting location that will provide suitable strength and rigidity for supporting the panelboard and all components. **Note:** only suitable for Sizes B, C and D.

   Refer to Figure 1 for mounting dimensions and approximate weights. **Note:** Refer to field installable kits - section D if you are using an EXDA MTG KIT or D2DS MTG KIT installation.

2. Install detachable mounting feet while enclosure is on the floor or workbench.
   - Insert wedge shaped mounting feet into dovetail on all cast enclosures.
   - Use dedicated lifting eye to mount enclosure on suitable mounting surface. Refer to lifting diagrams (Figure 2) for appropriate lifting procedure.

3. Align enclosure with the two (2) left side mounting feet on selected mounting surface. While continuing to support the enclosure in position, install the right two (2) bolts of breaker enclosure. Securely tighten all bolts around breaker enclosure. If a terminal housing has been supplied, securely fasten four (4) remaining bolts for that enclosure after breaker housing is fastened.

4. With panelboard securely fastened to the mounting surface, remove plastic plugs from desired entries.

   **Note:** GHB breakers are suitable for 480Y/277 volts (3-phase, 4-wire systems), and are not suitable for 480A applications.

5. Make sure all screws and bolts are tightened to the appropriate torque found in Chart 1 below.

   **Chart 1 - torque requirements**

<table>
<thead>
<tr>
<th>Item description</th>
<th>Wire range</th>
<th>Torque req.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power terminals (A, B, C)</td>
<td>4-4/0</td>
<td>74-83 in.-lbs.</td>
</tr>
<tr>
<td>100 amp branch terminals (1, 3, 5)</td>
<td>6-0</td>
<td>21.8-26.1 in.-lbs.</td>
</tr>
<tr>
<td>50 amp branch terminals</td>
<td>24-8</td>
<td>7.1-8.9 in.-lbs.</td>
</tr>
<tr>
<td>Ground/neutral strip</td>
<td>14-10</td>
<td>35 in.-lbs.</td>
</tr>
<tr>
<td>8</td>
<td>40 in.-lbs.</td>
<td></td>
</tr>
<tr>
<td>6-4</td>
<td>45 in.-lbs.</td>
<td></td>
</tr>
<tr>
<td>2-1/0</td>
<td>50 in.-lbs.</td>
<td></td>
</tr>
<tr>
<td>Ground/neutral and chassis lugs (3/8&quot;)</td>
<td>6-350 MCM</td>
<td>375 in.-lbs.</td>
</tr>
<tr>
<td>Quicklag breaker wire terminals</td>
<td>14-10</td>
<td>20 in.-lbs.</td>
</tr>
<tr>
<td>(used on D2L/EPL models)</td>
<td>8</td>
<td>25 in.-lbs.</td>
</tr>
<tr>
<td>6-4</td>
<td>27 in.-lbs.</td>
<td></td>
</tr>
<tr>
<td>3-1/0</td>
<td>45 in.-lbs.</td>
<td></td>
</tr>
<tr>
<td>Type GHB breaker wire terminals</td>
<td>14-10</td>
<td>20 in.-lbs.</td>
</tr>
<tr>
<td>(used on D2D/EXD models)</td>
<td>8</td>
<td>40 in.-lbs.</td>
</tr>
<tr>
<td>6-4</td>
<td>45 in.-lbs.</td>
<td></td>
</tr>
<tr>
<td>3-1/0</td>
<td>45 in.-lbs.</td>
<td></td>
</tr>
<tr>
<td>&quot;F&quot; frame breaker wire terminals</td>
<td>3-4/0</td>
<td>50 in.-lbs.</td>
</tr>
<tr>
<td>Breaker to bus screws (10)</td>
<td>N/A</td>
<td>28-32 in.-lbs.</td>
</tr>
<tr>
<td>Circuit breaker body ground lug</td>
<td>4</td>
<td>120 in.-lbs.</td>
</tr>
<tr>
<td>D2L-S or D2D-S terminal cover screws</td>
<td>N/A</td>
<td>35 in.-lbs.</td>
</tr>
<tr>
<td>D2L-S or D2D-S gland plate screws</td>
<td>N/A</td>
<td>18 in.-lbs.</td>
</tr>
<tr>
<td>D2L-S or D2D-S ground stud</td>
<td>N/A</td>
<td>35 in.-lbs.</td>
</tr>
<tr>
<td>1/2&quot; enclosure cover bolts</td>
<td>N/A</td>
<td>40-45 ft.-lbs.</td>
</tr>
<tr>
<td>5/16&quot; hinge screws</td>
<td>N/A</td>
<td>25-30 ft.-lbs.</td>
</tr>
</tbody>
</table>

All inverted panels with terminal housings or non-factory sealed panels without terminal housing

**WARNING**

To avoid personal injury or damage to the panelboard assembly, always securely fasten the cast aluminum breaker housing before securing the terminal housing.

**WARNING**

To avoid risk of explosion or equipment damage, do not scratch or damage flat joint flame path on either cover or body. Always clean both body and cover of dust and foreign particles prior to closing. Dirt or foreign material must not accumulate on flat joint surfaces.

**WARNING**

To avoid the risk of explosion, do not add or enlarge conduit entries in cast enclosures.

**Note:** There is a distance between terminal and breaker enclosure mounting surfaces. Do not bend or distort union assemblies. Provide adequate mounting or use available mounting kit.

**WARNING**

Personnel injury or damage to equipment could result if sealing fittings are not installed properly.

- All conduit entries must be plugged. Any plastic plug must be replaced with a PLG type plug prior to use.
- Division 1 panels with conduit runs 2" and higher need sealing fittings installed within 18" of enclosure
- 3-1/2" or greater entries for Division 1 EXD*A panels require external seal.
- All alternate feed panels require external seals to breaker housing. Failure to comply could result in death to personnel or damage to equipment.

**WARNING**

Failure to comply could result in death to personnel or damage to equipment. All alternate feed panels require external seals to breaker housing. Failure to comply could result in death to personnel or damage to equipment.

5. With panelboard securely fastened to the mounting surface, remove plastic plugs from desired entries.

6. After enclosure is positioned and secured in its permanent location, pull wires into panelboard terminal enclosure, making sure that they are long enough to make the required connections.

**FIGURE 2 - LIFTING DIAGRAMS**

- Standard D2D with stainless terminal housing
- Standard D2D with cast aluminum terminal housing

**NOTE**

If your product was supplied with a sheet metal terminal housing, be sure to read the D2D installation with sheet metal terminal enclosure instructions completely before beginning installation. If your product was specified with alternate feed or no terminal housing, be sure to read the alternate feed (suffix A) or no terminal enclosure installation instructions completely before beginning installation.

**NOTE**

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D2D INSTALLATION WITH STAINLESS STEEL TERMINAL ENCLOSURE

Refer to the General Installation instructions before proceeding.

**CAUTION**

To avoid the risk of water ingress, when removing the gland plates, do not damage or compromise the gasket. Contact Crouse-Hinds for replacement gland plates if damaged.

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**Note:** Terminal cover is removable to assist in the installation process.

1. Remove gland plates and drill desired conduit entries in accordance with the spacing chart for Myers hubs (Chart 2) and the gland plate dimensional drawing (Figure 3).

**NOTE**

Drill conduit entries in “designated area” found in the gland plate dimensional drawing (Figure 3). Be sure to consider wiring and bending when planning entries.

**CAUTION**

Drill conduit entries in “designated area” found in the gland plate dimensional drawing (Figure 3). Be sure to consider wiring and bending when planning entries.

2. Install appropriate Myers hubs per desired entries selected.

3. Reinstall gland plate to stainless steel terminal housing and be sure to tighten screws to the torque values provided in the torque requirement chart (Chart 1).
4. Install conduit using Myers hub connections.
5. Make sure all screws and bolts are tightened to the appropriate torque values found in Chart 1.

**ALTERNATE FEED (SUFFIX A) OR NO TERMINAL ENCLOSURE INSTALLATION**

Refer to the General Installation instructions before proceeding.

1. Unthread cover bolts from breaker enclosure and swing open on its hinges.
2. Attach sealing fittings and pull wires through desired entrance(s).
   
   **Note:** Ensure all terminals are torqued to appropriate values. Please refer to Chart 1.

3. Connect main power directly to main lugs (with main lug only panels) or to main circuit breaker. Ensure proper insulation is installed for Size D panels when installing and wiring to main breaker. Refer to Step 5 on page 7 in “Adding a circuit breaker.”

4. Bring in branch power through desired entries and connect directly to breaker. Please ensure terminals are tightened to torque values found in Chart 2. For factory sealed panels with terminal housing, please skip Steps 5 and 6, and refer to Step 7.

5. For no terminal housing panels, remove four (4) actuator plate screws and actuator plate (see picture below). Bring in branch power through desired entries and connect directly to breaker. Be sure to tighten terminals to the appropriate torque values found in Chart 1.

6. Once branch connections have been completed, reattach actuator plate. Ensure that actuator plate marking “TOP” is installed in the upward position. Make sure actuator plate properly fits onto breakers and is securely connected to brackets with four (4) actuator plate screws.

7. Close enclosure cover, making sure that bolts are retracted to prevent scratches or damage to the flange surface. Using only the bolts provided with the enclosure, tighten all bolts to 40-45 lbs.-ft. (191.5-215.4 N-m).
Notes:
1. Shown with optional main circuit breaker (24 and 42 circuit panels only).
2. Not used if back fed main breaker installed unless needed for branch breakers rated over 50 amps.
3. Wired from main terminal block in terminal enclosure if back fed main breaker installed.
Notes:
1. Shown with optional main circuit breaker (24 and 36 circuit panels only).
2. Not used if back fed main breaker installed unless needed for branch breakers rated over 50 amps.
3. Wired from main terminal block in terminal enclosure if back fed main breaker installed.
4. Customer connection if supplied with back feed main breaker.
FIELD INSTALLABLE KITS

A. Adding a circuit breaker (EXD HDL 123) Sizes B, C and D

WARNING
To avoid the risk of explosion or equipment damage, do not scratch or damage flat joint flame path on either cover or body. Always clean both body and cover of dust and foreign particles prior to closing. Dirt or foreign material must not accumulate on flat joint surfaces.

1. De-energize panel, open circuit breaker enclosure, and make sure bolts are retracted in cover.
2. Remove operator plug from desired position and install operator bearing until fully threaded into cover. If handles are located in either two (2) operator positions above selected location, removing handles and swinging operator pins out of the way is required. Ensure all operator pins are between 1 to 2 turns when completed and pointing down. When operator shaft installation is complete, securely fasten all handles.
3. Install operator shaft assembly until fully seated. Now turn shaft counterclockwise between 1 to 2 turns. Operator pin must be pointing down. Note: Failure to turn shaft to between 1 to 2 turns will result in improper operation and could cause damage to product.
4. Install handle with screw and washer provided to shaft on the cover exterior.
5. Remove actuator plate and install branch circuit breaker in desired location. Note: All circuit breakers should be attached to chassis with torque of 30 lb.-in. (0.21 N-m).
6. Make sure to attach wire or approved ring terminals with appropriate torque value listed on circuit breaker or provided by manufacturer.
6a. Note: For 15 amp and 20 amp breakers used in factory sealed panel Sizes B, C and D with 3-phase 4-wire (480Y/277 volts) systems, or for 15 amp and 20 amp breakers used in non-factory sealed panels using wire sizes greater than #10 AWG, an approved method of wire splicing must be used to splice down to sized wire. Alternatively, the breakers below can be purchased to accommodate #8 AWG sized wire. For ambient compensated (50ºC), include “V” at end of part number.

<table>
<thead>
<tr>
<th>Part number</th>
<th>Poles</th>
<th>Amperage</th>
</tr>
</thead>
<tbody>
<tr>
<td>GHB1015C</td>
<td>1</td>
<td>15</td>
</tr>
<tr>
<td>GHB2015C</td>
<td>2</td>
<td>15</td>
</tr>
<tr>
<td>GHB3015C</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>GHB1020C</td>
<td>1</td>
<td>20</td>
</tr>
<tr>
<td>GHB2020C</td>
<td>2</td>
<td>20</td>
</tr>
<tr>
<td>GHB3020C</td>
<td>3</td>
<td>20</td>
</tr>
</tbody>
</table>

7. Remove actuator strap from actuator plate assembly.
8. Install and align slider in desired location and securely attach actuator strap.
9. Reattach actuator plate assembly to chassis, close cover and tighten four (4) cover bolts. Test handles in ON, OFF and RESET position. Operator should freely move to ON position. Close cover, making sure the flame path is clean and bolts are tightened to a torque of 40-45 lbs.-ft. (19.2-21.5 N-m). Refer to Step 6 on page 4 for alternate feed product.
10. Following proper installation instructions in prior sections, attach conduit and pull wire to desired terminal block.
11. Make sure all loose wires are secured and will not be pinched between cover and body when closing enclosure.
12. Make sure all screws and bolts are tightened to the appropriate torque values found in Chart 1.

B. Adding Group B kit (EXD GB KIT)

WARNING
To avoid the risk of explosion or equipment damage, do not scratch or damage flat joint flame path on either cover or body. Always clean both body and cover of dust and foreign particles prior to closing. Dirt or foreign material must not accumulate on flat joint surfaces.

CAUTION
To avoid personal injury or damage to the panelboard assembly, any chassis screws removed must be securely reinstalled. These screws are required to properly support the chassis bus bars.

1. De-energize panel, open circuit breaker enclosure and make sure bolts are retracted in cover.
2. Remove actuator plate from housing as shown below.
3. Three (3) insulated plates are provided in the EXD GB kit. Plates marked “end” in image below would be used on top side and bottom side when chassis is full with breakers. When not completely filled, plate marked “between” must be used. Insert insulating plates, one at the top of the chassis, and the second below the bottom-most breaker position per the following picture.

Note: Adjusting actuator plate mounting bracket may be necessary to securely position insulating plate.

Part number Poles Amperage
GHB1015C 1 15
GHB2015C 2 15
GHB3015C 3 15
GHB1020C 1 20
GHB2020C 2 20
GHB3020C 3 20

When removed to install GB insulator on either end of chassis, chassis screws must be reinstalled and securely tightened.

Black insulator facing downward must be reinstalled.
There should not be any empty breaker spaces between upper and lower GB insulator plates.

4. Reinstall actuator plate and be sure the insulating plates protrude through the actuator plate.

5. Close enclosure cover, making sure that bolts are retracted to prevent scratches or damage of the flange surface. Using only the bolts provided with the enclosure, tighten all bolts to 40-45 lbs.-ft. (19.2-21.5 N-m).

6. Make sure all screws and bolts are tightened to the appropriate torque values found in Chart 1.

C. Adding an operator handle cover

1. Mount operator cover on lockout plates while securely holding in place.

2. Securely fasten operator cover hinge to lockout plate with hinge screws and nuts provided.

D. Adding a terminal housing mounting bracket

EXDA MTG KIT (D2DS MTG KIT)

1. Locate bracket on existing terminal housing mounting feet.

2. Fasten bracket to mounting feet using hardware provided.

E. Adding a gland plate hub kit

Note: With a D2DS style panel, the following gland plate hub kits are available:

D2D HUB2 KIT (1) 3", (12) 3/4"
D2D HUB3 KIT (1) 3", (12) 1"
D2D HUB5 KIT (1) 3", (12) 1-1/2"
D2D HUB0 KIT No entries for replacement of damaged plates

To avoid personal injury or damage to the panelboard assembly, always securely fasten the cast aluminum breaker housing before securing the terminal housing.

3. Secure bracket to desired mounting position.

E. Adding a gland plate hub kit

Note: With a D2DS style panel, the following gland plate hub kits are available:

D2D HUB2 KIT (1) 3", (12) 3/4"
D2D HUB3 KIT (1) 3", (12) 1"
D2D HUB5 KIT (1) 3", (12) 1-1/2"
D2D HUB0 KIT No entries for replacement of damaged plates

To avoid the risk of water ingress, when removing the gland plates, do not damage or compromise the gasket. Contact Crouse-Hinds for replacement gland plates if damaged.

1. Remove existing gland plates from terminal housing.

2. Install Myers hubs to new gland plate wrench tight.

3. Install gland plate kit and tighten screws to the appropriate torque values found in Chart 1.

NOTE

Eaton’s Crouse-Hinds Division recommends attaching side gland plates with entries adjacent to the center gland plate.

GENERAL MAINTENANCE

WARNING

To avoid risk of explosion or equipment damage, do not scratch or damage flat joint flame path on either cover or body. Always clean both body and cover of dust and foreign particles prior to closing. Dirt or foreign material must not accumulate on flat joint surfaces.

WARNING

To avoid personnel injury or damage to equipment, disconnect all power upstream from panel prior to opening enclosure. Failure to do so could result in personnel injury or damage to equipment.

1. Frequent inspection should be made. A schedule for maintenance checks should be determined by the environment and frequency of use. It is recommended that it should be at least once a year.


3. It is recommended that GFI and EPD breakers be tested monthly.

4. Perform visual, electrical and mechanical checks on all components on a regular basis.

a. Visually check for undue heating evidenced by discoloration of wires or other components, damaged or worn parts, or leakage evidenced by water or corrosion in the interior.

b. Electrically check to make sure that all connections are clean and tight.

c. Mechanically check that all parts are properly assembled and operating mechanisms move freely.

d. When checking torque on main lugs, it may be necessary to remove the actuator plate assembly to get access to the screws on the main lugs or branch circuit breakers.

e. Ensure all appropriate insulation inside panel is properly intact.

5. A factory Waterguard desiccant pack has been provided. The purpose of this desiccant is to absorb and remove water on contact or from the atmosphere and protect the enclosed equipment from damage. The desiccant packet will expand 3 to 4 times its original size. Desiccant should be checked and replaced at regular equipment service intervals or every 3 to 6 months.

For replacement desiccant packets, order Cat. # WG22 (protects 2-3 cubic feet of air space and is recommended for circuit breaker housings); or Cat. # WG33 (protects 4 to 5 feet of air space and is recommended for circuit breaker housings).

Waterguard is non-toxic, emits no fumes, and generates no heat during use. No gloves, masks or special clothing is required to handle this product.

6. Make sure all cover bolts are fully retracted into cover before closing cover on body. Close cover and start cover bolt threads by hand. Torque all cover bolts securely to 40-45 ft. lbs. (19.2-21.5 N-m).

All statements, technical information and recommendations contained herein are based on information and tests we believe to be reliable. The accuracy or completeness thereof are not guaranteed. In accordance with Eaton’s Crouse-Hinds Division’s “Terms and Conditions of Sale,” and since conditions of use are outside our control, the purchaser should determine the suitability of the product for the intended use and assumes all risk and liability whatsoever in connection therewith.