INSTALLATION INSTRUCTIONS

Retrofit of Spectra E-frame (125 Amp max) breaker with ABB Tmax XT1 breaker Dual Mount (Bolt-On kits)

WARNING
Danger of electrical shock or injury. Turn OFF power ahead of the panel board or switchboard before working inside the equipment or removing any component. Equipment is to be installed and maintained by properly trained and qualified personnel only.

General
These instructions are applicable to retrofit of Spectra E-frame (125 Amp max) breaker with ABB Tmax XT1 breaker. Table 1 lists the parts included in the bolt-on circuit breaker kits for double branch configurations.

Installation
Numbers in brackets in the following instructions and figures refer to the item numbers in table below.

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### Retrofit Kit

<table>
<thead>
<tr>
<th>Item</th>
<th>Part</th>
<th>Description</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>Antiturn clip</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>1/4 - 20 x 1.50L carriage bolt</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>1/4 - Belleville Washer</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>1/4 - 20 Nut</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>Breaker mounting bracket</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>Thread-forming screw</td>
<td>8</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>SOCKET HEAD SCREW #8-36 UNF x 3.25IN</td>
<td>4</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>Hex Terminal Screw</td>
<td>6</td>
</tr>
<tr>
<td>9</td>
<td></td>
<td>Strap spacer</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>Busbar Link - 1</td>
<td>2</td>
</tr>
</tbody>
</table>

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### Required Tools

Below listed tools are required for installation

<table>
<thead>
<tr>
<th>Item</th>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>Torque wrench</td>
</tr>
</tbody>
</table>

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by ABB
STEP 1
Prepare the breaker, refer to document 1SDH000722R0003 for more information. Install the appropriate lugs as in load side as shown in figure 1a. Insulating plate to be used while breaker mounting on panel. Phase barriers (4x) to be used as shown in figure 1a.

STEP 2
Find the side of the panel interior at which the dimension from the face of nearest vertical bus to the inner face of the bus support rail is 2.75 inches, as illustrated in figure 2.

STEP 3

STEP 4

STEP 5

STEP 1 Continued
Note: Additional phase barrier usage
Use additional phase barrier when XT1 breakers are installed in adjacent rows in panel and when the gap between breakers is less than 1 inch.
Refer breaker instruction sheet Doc. N.° 1SDH000722R0003 – Section 7 for more details.
**STEP 6**
Install the breaker mounting bracket [5] on the bus support rail with the thread forming screw [6], torque the screw to 30 lb-in. Refer figure 6.

**STEP 7**
Install the insulating plate, pre-assembled breaker with mounting screw [7], torque the mounting screw [7] to 9 lb-in. Refer figure 7a.

**STEP 7 continued**
Install the hex terminal socket head screw [8], torque screw to specification in document 1SDH000719R0003. Refer figure 7b.

**STEP 7 continued**
Install the cover and screw, refer to document 1SDH000719R0003 for more information.

**STEP 8**
Tighten all the three bolted strap connections (carriage bolt assembly) at the vertical bus to 65 lb-in. It may be necessary to remove adjacent circuit breaker modules to allow access to the bolted connections at the vertical bus.

**STEP 9**
**STEP 10: Tape unused contacts**  
Apply multiple wrappings of insulation to unused strap contact surfaces, as illustrated in figure 10. A UL-recognized 105 ° C thermoplastic tape (OANZ2, Permacel P-30-105, or 3M66R) is required. Overlap greater than one-half of each preceding turn, as shown to achieve a minimum tape thickness of 0.028 inch. This insulation thickness requires two complete layers of overlapping turns.

![Figure 10: Applying insulating tape to unused strap contact surfaces](image)

**STEP 11**  

![Figure 11a: Install the filler plate](image)  
![Figure 11b: Single breaker and other side with blank out plate](image)

**STEP 12: Optional - Kirk lock mounting kit assembly**  
Pre-assemble Kirk lock mounting kit assembly as shown in figure 12a.  
Note: Kirk-lock is not included in the kit. Re-use Kirk lock from panel.

![Figure 12a: XT1 Kirk lock mounting kit assembly](image)

**STEP 12 Continued**  
Choose the appropriate panel width 1x space plate from the kirk lock kit and fit 1x space plate on the panel with thread forming screw (2x) as shown in figure 12b. On the 1x space plate install the kirk lock assy with 2x screws fastened on 1x space plate and 2 screw on filler plate. Verify the lock function after complete installation.

![Figure 12b: XT1 Kirk lock set mounted on panel](image)

**Disclaimer:** These instructions do not cover all details or variations in equipment nor do they provide for every possible contingency that may be met in connection with installation, operation or maintenance. Should further information be desired or should particular problems arise that are not covered sufficiently for the purchaser's purposes, the matter should be referred to the ABB Company.