Installation Instructions for Auxiliary Switch for R-Frame Series C Circuit Breakers and Molded Case Switches

WARNING

CONTACT WITH ENERGIZED EQUIPMENT CAN RESULT IN DEATH, SEVERE PERSONAL INJURY, OR SUBSTANTIAL PROPERTY DAMAGE. DO NOT ATTEMPT TO INSTALL OR PERFORM MAINTENANCE ON EQUIPMENT WHILE IT IS ENERGIZED. ALWAYS VERIFY THAT NO VOLTAGE IS PRESENT BEFORE PROCEEDING WITH THE TASK, AND ALWAYS FOLLOW GENERALLY ACCEPTED SAFETY PROCEDURES.

CUTLER-HAMMER IS NOT LIABLE FOR THE MISAPELICATION OR MISINSTALLATION OF ITS PRODUCTS.

The user is cautioned to observe all recommendations, warnings, and cautions relating to the safety of personnel and equipment as well as all general and local health and safety laws, codes, and procedures.

The recommendations and information contained herein are based on Cutler-Hammer experience and judgement, but should not be considered to be all-inclusive or covering every application or circumstance which may arise. If any questions arise, contact Cutler-Hammer for further information or instructions.

1. INTRODUCTION

General Information

The auxiliary switch (Fig. 1-1) indicates circuit breaker contact status, and is used for remote signaling and system interlocking purposes. The switch consists of two or four single-pole double-throw (SPDT) switches assembled to a plug-in module. The plug-in module is mounted in slots in the accessory mounting deck in the right pole of the circuit breaker. The auxiliary switch is positioned so that the switch actuator is pushed by the right contact arm assembly. Each SPDT switch has one “a” and one “b” contact. When the contact arm assembly is in the contacts-closed position, the “a” contact of each SPDT switch is closed and the “b” contact is open. When the contact arm assembly is in the tripped or contacts-open position, the “a” contact is open and the “b” contact is closed.

![Fig. 1-1 Auxiliary Switch Installed in R-Frame Circuit Breaker](image)

Table 1-1 lists electrical ratings data for the auxiliary switch.

<table>
<thead>
<tr>
<th>Maximum Voltage (V)</th>
<th>Frequency</th>
<th>Maximum Current (A)</th>
<th>Dielectric Withstand Voltage (V)</th>
</tr>
</thead>
<tbody>
<tr>
<td>600</td>
<td>50/60 Hz</td>
<td>6</td>
<td>2500</td>
</tr>
<tr>
<td>125</td>
<td>DC</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td>250</td>
<td>DC</td>
<td>0.25</td>
<td></td>
</tr>
</tbody>
</table>

Notes:

① Endurance - 500 electrical operations plus 2500 mechanical operations
② Pigtail wire size - No. 18 AWG (0.82 mm²)
③ Noninductive load

The standard wiring configuration for the auxiliary switch is pigtail leads exiting the right side of the cover. An optional terminal block (Cat No. TB812) may be mounted to the base on the right side of the circuit breaker to terminate attachment leads. The 18-inch long pigtail leads are color coded for identification; numbered identification labels are provided for pigtail leads.

This instruction leaflet (IL) gives detailed procedures to install the auxiliary switch.
2. INSTALLATION

Note: The auxiliary switch can be field-installed in RD and RDC circuit breakers under UL File E64983.

The auxiliary switch can be field-installed in RW and RWC circuit breakers.

The auxiliary switch is listed for factory installation under UL File E7819.

Before attempting to install the auxiliary switch, check that the catalog number is correct and rating of the accessory satisfies the job requirements.

The auxiliary switch, shown in kit form in Fig. 2-1, is installed in the right pole of a 3-, or 4-pole circuit breaker. To install the auxiliary switch, perform the following procedures:

1. Select position of auxiliary switch on accessory mounting deck (see Fig. 2-2).
2. Place legs of auxiliary switch mounting bracket into slots in accessory mounting deck (see Fig. 2-3).
3. Slide the auxiliary switch toward the line end of the circuit breaker until legs fully engage mounting deck.
4. Slide locking block into mounting deck until it snaps into position and prevents further movement of the auxiliary switch.
5. Attach an “A” wire marking label and a numbered wire marking label to the bundle of three leads for each switch. Numbered labels are used to differentiate one auxiliary switch from another. Labels marked “1” through “8” are provided to permit the installation of the maximum of two 4-switch assemblies. Labels marked “A” are used to show the difference between auxiliary switch leads and those for the alarm (signal)/lockout switch (ASL). ASL switch leads (when used) use the same color code but are labeled “B”.

WARNING

THE VOLTAGES IN ENERGIZED EQUIPMENT CAN CAUSE DEATH OR SEVERE PERSONAL INJURY. SPECIAL ATTENTION SHOULD BE PAID TO REVERSE FEED APPLICATIONS TO ENSURE NO VOLTAGE IS PRESENT BEFORE MOUNTING THE
CAUTION

PIGTAILE LEADS COULD BE DAMAGED IF IN CONTACT WITH MOVING PARTS. PIGTAIL LEADS SHOULD BE FORMED AND ROUTED TO CLEAR ALL MOVING PARTS WHEN ACCESSORY IS PROPERLY INSTALLED.

2-6. Attach cable tie mounting pad to side of circuit breaker (see Fig. 2-4 for location). Route leads to mounting pad. Ensure leads line up with slot in cover and are clear of all moving parts. Secure leads to mounting pad with cable tie. Leads from multiple accessories may be secured by a single cable tie and mounting pad (see Fig. 2-3).

2-7. Remove barrier indicated in Fig. 2-4 from cover accessory lead slot.

CAUTION

WHEN INSTALLING CIRCUIT BREAKER COVER, MAKE SURE THAT ALL INTERNAL PARTS ARE IN PLACE:

- HANDLE MUST BE HELD IN PLACE ON HANDLE ARM AS COVER IS BEING INSTALLED. LOCATE HANDLE SO THAT THE GREEN TABS ARE CLOSEST TO THE LINE-END OF THE CIRCUIT BREAKER.

- PIGTAIL LEADS ARE CLEAR OF THE COVER.

2-8. With circuit breaker handle in tripped position and accessory pigtails routed as required, install circuit breaker cover. Torque cover screws to 24 in-lbs.

2-9. Position accessory labels on circuit breaker as shown in Fig. 2-4.

Note: Accessory labels show connection diagram for auxiliary switch. Pigtails are color coded red, black, and blue.

2-10. Test auxiliary switch(es). Connect continuity tester or ohmmeter across pigtails or terminal block connections. Check continuity as follows:

a. Circuit breaker handle OFF -
   "a" contact(s) - open
   "b" contact(s) - closed.

b. Circuit breaker handle ON -
   "a" contact(s) - closed
   "b" contact(s) - open.
c. Press PUSH-TO-TRIP button - 
"a" contact(s) - open
"b" contact(s) - closed.

d. If auxiliary switch(es) fails test, make sure that auxiliary switch(es) module is properly seated in accessory mounting deck slots. If auxiliary switch(es) appears to be correctly installed and the problem persists, contact Cutler-Hammer.

2-11. Install circuit breaker.

2-12. Connect auxiliary switch as required. (See Fig. 2-5.)

Cutler-Hammer assumes no responsibility for malfunctioning accessories installed improperly by the customer.

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Fig. 2-4 Preferred Mounting Locations for Accessory Nameplate Labels

Fig. 2-5 Auxiliary Switch Connection Diagram