

## DEH40324 INSTALLATION INSTRUCTION

# Record Plus™ Molded Case Circuit Breaker Accessories Auxiliary and Bell Alarm Switches

**Congratulations** and thank you for choosing the Record Plus™ family of current-limiting circuit breakers. These UL-listed auxiliary and bell alarm switches are suitable for use with the FB100, FC100, FE250, and FG600 circuit breaker series.

Record Plus™ circuit breakers are designed with a full line of integrated accessories. All units use the latest in integrated modular circuit breaker technology for flexibility in application and maximizing the product's utilization and capabilities.

Record Plus™ circuit breakers are all listed by Underwriters Laboratories to the UL489 standard and may be listed to CSA Standard C22.2, No.5 and IEC60947-2.

They can also be used with our molded case switches, which are listed per Underwriters Laboratories to the UL489 standard.

Record Plus™ circuit breakers and their accessories are designed and manufactured to exceed our global customers' high standards for reliability and quality.



**WARNING:** DANGER of electrical shock or injury. Ensure that ALL electrical power supplies are OFF before installing or removing any devices. The breaker, trip unit, or accessories **MUST ONLY** be installed and serviced by **QUALIFIED** personnel. See NEMA publication AB4.

**AVERTISSEMENT:** Danger contre les risques d'électrocutions. S'assurer avant TOUTES manipulations du disjoncteur que les différentes sources d'alimentation sont en position OFF. Les disjoncteurs, unités de protection, ou accessoires doivent être installés par des personnes qualifiées et habilitées. Lire NEMA publication AB4.

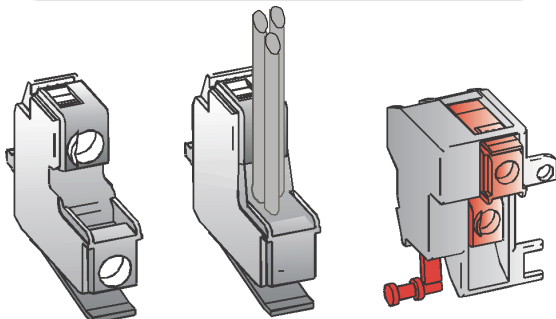


Figure 1. Bell alarm and auxiliary switches.



**CAUTION:** This product is NOT suitable for use in equipment not specifically design to accept it. Contact the equipment manufacturer for possible equipment modifications.

**ATTENTION:** Cet appareil nedoit pas etre employe dans un equipement non specialement adapte a cet effet. Contactez le constructeur concernant les possibles modifications a apporter a l'equipement.

## Product Description

The auxiliary and bell alarm switches covered by these instructions are illustrated in Figure 1. A key for the different symbols used in these instructions is found in Table 1. Catalog numbers for the various switch configurations are listed in Table2.

Note that contact position for the auxiliary switch is shown with the breaker in the open position. Bell alarm contact position is shown with the breaker in the untripped position.

Mechanical-trip bell alarms are activated by the trip unit (over current or short circuit), under voltage release, shunt trip, or push-to-trip button. Over current/short-circuit trip bell alarms are activated by the trip unit only and are not available for FB and FC breakers.

Symbol	Description
	Right-hand pocket auxiliary switch
	Left-hand pocket auxiliary switch
	Mechanical-trip bell alarm (all tripping functions)
	Overcurrent / short-circuit trip bell alarm (not available on FC breakers)

Table 1. Key to symbols.









Bell Alarm Switches		Auxiliary Switches		Switch Symbols	
				IEC	UL/CSA
FABAM10	FABAT10	FAS10L	FAS10R		 Form A
FABAM01	FABAT01	FAS01L	FAS01R		 Form B

Table 2. Catalog numbers for Record Plus™ auxiliary and bell alarm switches.

## Step 1 – Unpack and Inspect

Unpack the bell alarm or auxiliary switch kit and inspect it for shipping damage. Read the circuit breaker installation instructions carefully. Insure that the circuit breaker and the accessory have the proper ratings for current, voltage, interruption, and contact duty; wire routing; installation; and operation for the application.

All other switches with the catalog number suffix W are factory installed with #16 AWG wire, 36 inches long.

Wire colors for each switch catalog number are listed in Table 3. Contact ratings for Form A and B switches are listed in Table 4.

Cat. No.	Common 1	NC 2	4	NO 4
FAS01L	White	Brown/White		
FAS10L			White	Red
FAS11L	White	Brown/White		Red
FAS01R	White	Brown/White		
FAS10R			White	Red
FAS11R	White	Brown/White		Red
FABAT01	Orange	Pink		
FABAT10			Orange	Grey
FABAT11	Orange	Pink		Grey
FABAM01	Yellow	Purple		
FABAM10			Yellow	Brown
FABAM11	Yellow	Purple		Brown

Table 3. Wire colors for auxiliary and bell alarm switches.

## Step 2 – Breaker Status

Either trip the circuit breaker by activating the red trip button on the front of the breaker or move the breaker handle to the OFF position, both shown in Figure 2.

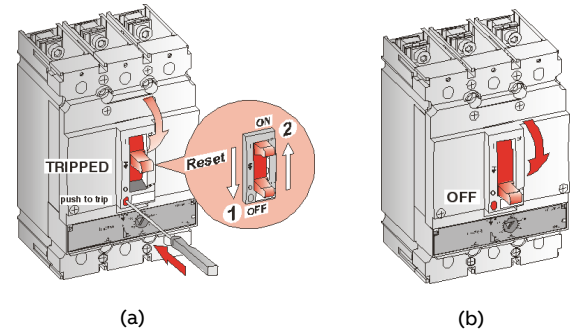


Figure 2. (a) Tripping the breaker or (b) turning it OFF.

Vac	A	Vdc	A
A600/AC15		Q300/DC13	
12	10*	12	2.5
24	10*	24	2.5
48	10*	48	1.1
60	10*	60	1
110	6*	110	0.55
120	6*	125	0.55
220	3	220	0.27
240	3	250	0.27
380	1.9 (2.0 for AC15)	300	0.2 for DC13
480	1.5		
500	1.4 (1.5 for AC15)		
600	1.2		
Maximum VA: Making – 7200 VA Breaking – 720 VA		Maximum VA = 69 VA	
Maximum Thermal Current = 10 A * 5 A for screw-type terminals		Maximum Thermal Current = 69 VA	
Minimum low-energy switching: IEC609747-5-4			
12	5 mA	12	5 mA

Table 4. Contact ratings for Form A and B switches; cat.nos. FA/FEBAT10/01, FABAM10/01, FAS10L/01L, FAS10R/01R.

## Step 3 – Installation

1. Loosen, but do not remove, the captive screws holding the accessory cover on the breaker, as shown in Figure 3. Remove the cover.
2. Each switch snaps into place in its designated pocket, as shown in Figure 4(a). It can also be easily removed with the aid of a small screwdriver, as shown. The proper pockets for each device are illustrated in Figure 5 for FB/FC breakers, in Figure 6 for FE breakers and in Figure 7 for FG breakers. Each breaker pocket is clearly marked with the symbol for the device that it accepts.
3. If the accessory was not factory wired, connect the wires to the lugs on the accessory, as shown in Figure 4(b). For screw-type terminals, the recommended wire size is #24–16 AWG (0,4–2,5 mm<sup>2</sup>), with V insulation, and a maximum diameter of 0.100 in. (2.54 mm). Tighten the terminals to 11 lb-in (1.2 Nm).

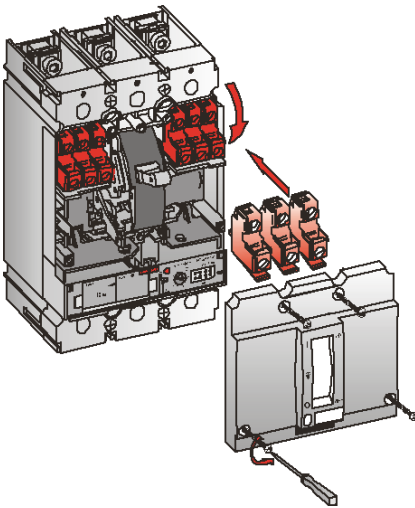


Figure 3. Removing the accessory cover.

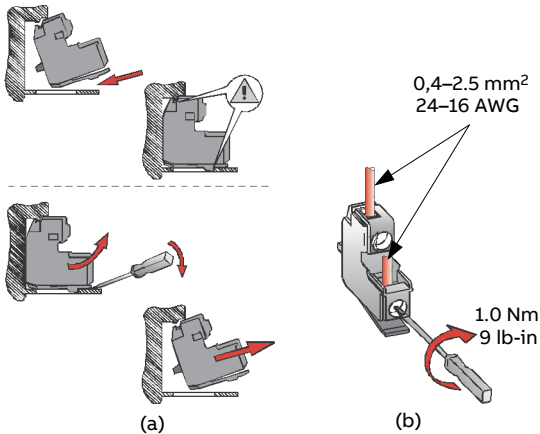


Figure 4. (a) Installing and removing a snap-fit accessory.  
(b) Attaching the wiring to the accessory.

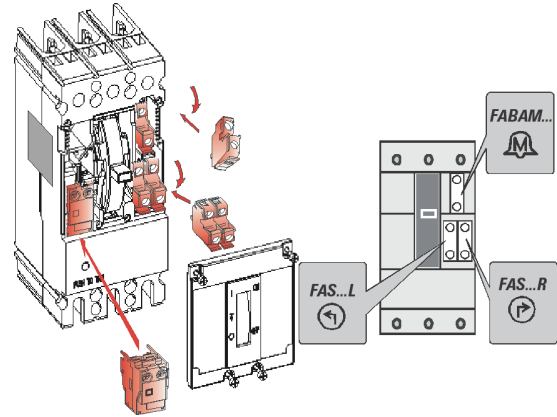


Figure 5. Accessory locations in FB/FC circuit breakers.

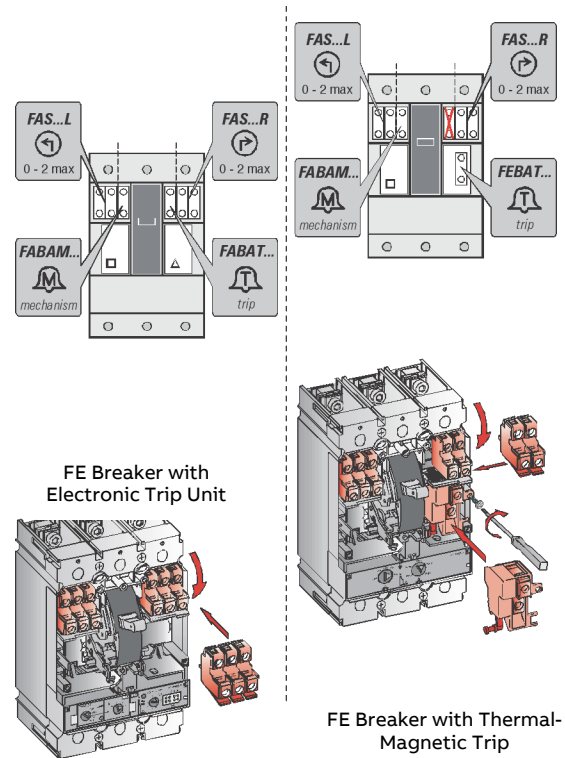


Figure 6. Accessory locations in FE circuit breakers.

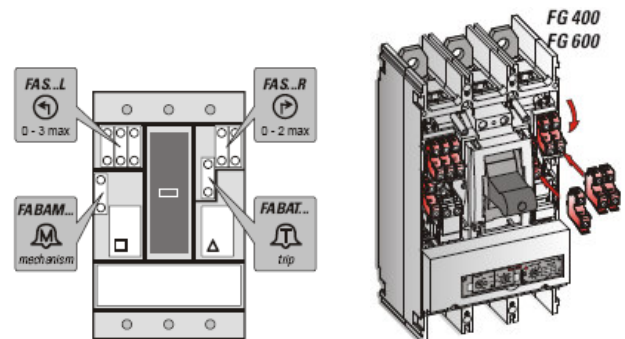


Figure 7. Accessory locations in FG circuit breakers.

## Step 4 – Wire Routing, Cover

### Knockouts, and Port Wiring

Determine the wire routing, as shown in Figure 8, as follows:

- For an FB/FC breaker, use ports B, E, D, and H.
- For an FE/FG breaker, use a sharp knife or wire cutter to remove the knockouts in the breaker accessory cover.

Route the accessory wiring out of the breaker through the exit ports, being careful to dress the wiring from the accessory without pinching the insulation.

Table 5 lists the maximum number of wires allowed per port. The maximum number of wires per port is based on an insulation outside diameter of 0.100 in. (2.54 mm). Scale the given number of wires up or down for wires with a different diameter.

Port	FC Breaker	FE Breaker
A, E	N/A	8
B, F	B: 5; F: 9	5
C, G	N/A	3
D/ H	4	6

Table 5. Maximum number of accessory wires allowed per port.



**WARNING:** It is important that the cover is installed correctly to ensure proper circuit breaker operation.

**AVERTISSEMENT:** Il est important de vérifier que tout couvercle ou cache de protection est correctement installé afin d'assurer le bon fonctionnement de l'appareil.

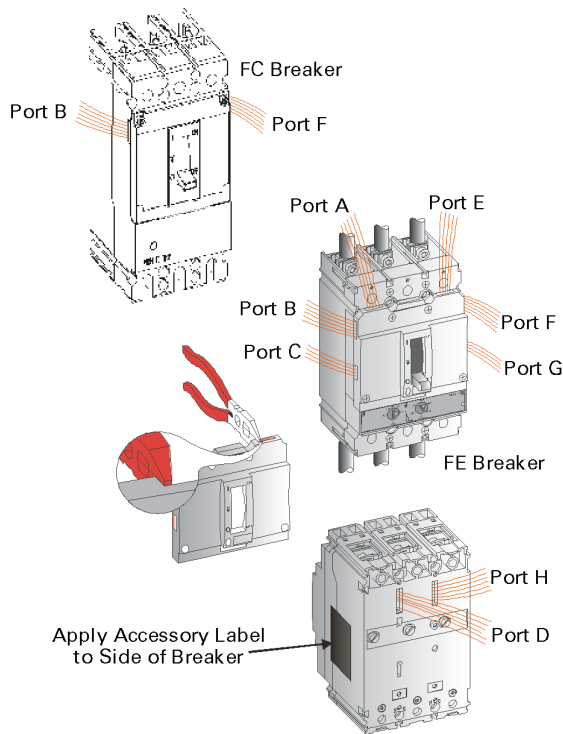


Figure 8. Wire routing and port knockouts.

## Step 5 – Attach the Label and Replace the Breaker Cover

Attach the accessory label to the side of the breaker, as illustrated in Figure 8, for each internal accessory installed.

Replace the breaker cover, as illustrated in Figure 3. Tighten the mounting screws to 11 lb-in (1.2 Nm). Complete the installation by performing an operational check.

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. The circuit breaker is a sealed unit that contains no user-serviceable parts. Tampering with the seal will void the warranty.