LynTec MRTS-12 and MRTS-24 Modular Rain Tight Sequencers

Sound system AC Power Sequencer for Square D QO Load Centers & Panelboards

Using the new flexible MS-12 Modular Sequencer control boards

The MRTS sequencer provides a solution for contractors needing sound system sequencing using any Square D cabinet that accepts **QO** circuit breakers.

Consists of a lockable, rain tight, Hoffman UL & CSA listed cabinet with the proven LynTec MS-12 Modular sequencer boards and power transformer mounted on an iridited aluminum subchassis.

The subchassis allows the interior to be easily removed for rough-in. Just loosen 4 nuts and lift the subchassis to clear the keyhole slots.

The smooth walled cabinet provides full flexibility of field mounting and piping options.

AVAILABLE MODELS

MRTS-12 Drives up to 12 motorized breakers

MRTS-24 Drives up to 24 motorized breakers

What is included

The **MRTS-12** or **-24** includes the UL/CSA listed cabinet, a 10 amp unmotorized breaker (UMB-10) to feed SEQUENCER POWER to the 24v transformer powering the sequencer board/s. A SEQUENCER POWER label is supplied.

One 27 position isolated ground bar is supplied for the audio technical ground system. (Typically located in the Square D panel supplied by others).

One **SS-2 S**witch **S**et.
The **SS-2PL** Locking Switch Plate is optional.

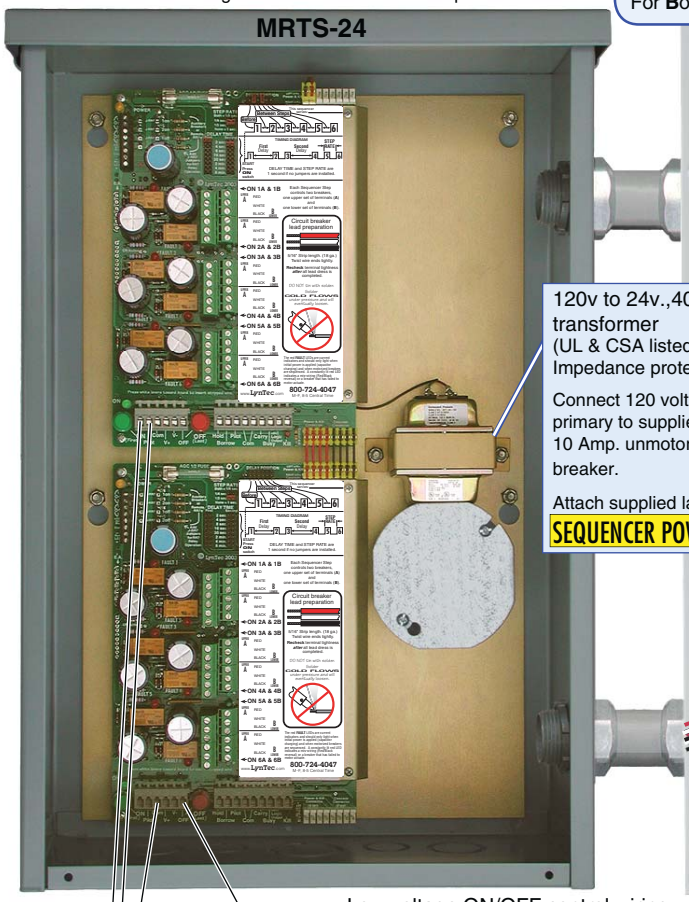
Additional LynTec components required

MB-15, **MB-20** or **MB-30** Branch **M**otorized circuit **B**reakers — one per sequenced circuit. (Square D QOPL1xx-5393)

For **B**olt-on breakers order **BMB-15**, **BMB-20** or **BMB-30**.

18.25" High — 12.5" Wide — 6.5" Deep

MRTS-24



120v to 24v.,40 VA transformer
(UL & CSA listed. Impedance protected)

Connect 120 volt primary to supplied 10 Amp. unmotorized breaker.

Attach supplied label
SEQUENCER POWER

SQUARE D
QO series load center or panelboard
supplied by others

Motorized Circuit Breaker

60" low voltage control wires connect to screw terminal strips on sequencer boards.

Low voltage ON/OFF control wiring
4 conductors, 24 ga., 5,000' max. (1/2 Cat. 5)

SS-2 Switch Set — mount in 5/8" round holes on 1" centers.

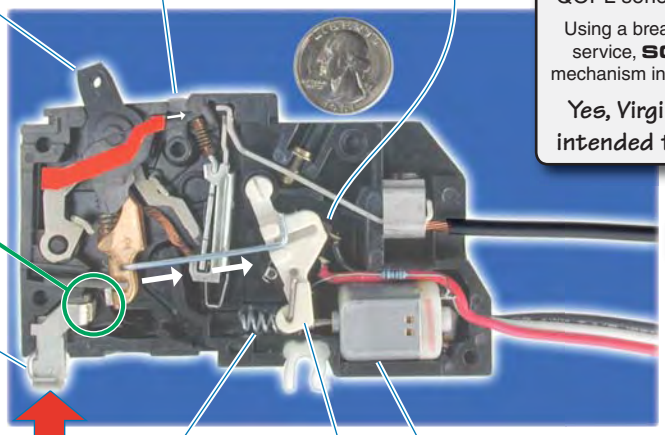
SWITCH OPTIONS

See AllPanel.pdf brochure for sequencer technical specifications.

www.LynTec.com
8401 Melrose Drive, Lenexa, KS 66214
Voice **800-724-4047** • Int'l 913-529-2233
Fax **888-722-4157** • Int'l 913-529-4157

139-0312-04 MRTS Brochure 1/3/13 — *See http://www.lyntec.com/139-0312_MRTS_Brochure.pdf for latest revision.*

The UL listed heart of the LynTec Lighting Control and Sound Sequencing Panels



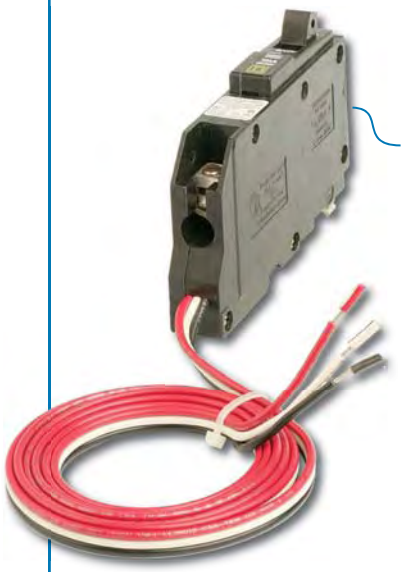
The time-proven **SQUARE D** QOPL series motorized circuit breaker.

Using a breaker proven in over 20 years of service, **SQUARE D** added a motor mechanism in 1986 to provide remote control.

Yes, Virginia, some breakers are intended to be used as switches!

Field installed, UL & CSA listed, motorized circuit breakers are required to complete the Lighting Control Panel or Sequencing Panel package.

BLUE TYPE = Bolt-on breakers for Panelboards ONLY — Clip-on breakers fit Load Centers or Panelboards



BMB-15 ..... **B**olt-on **M**otorized **B**reaker, Square D #QOB115PL-5393
MB-15 ..... Clip-on **M**otorized **B**reaker, Square D #QO115PL-5393
One pole, 15 Amps. Special 60" leads. Square D trip curve: 730-4

BMB-20 ..... **B**olt-on **M**otorized **B**reaker, Square D #QOB120PL-5393
MB-20 ..... Clip-on **M**otorized **B**reaker, Square D #QO120PL-5393
One pole, 20 Amps. Special 60" leads. Square D trip curve: 730-4
15 and 20 Amp breakers have a HM, (High Magnetic) rating.
HM reduces nuisance breaker trips on high inrush loads.

BMB-220 ..... **B**olt-on **M**otorized **B**reaker, Square D #QOB220PL-5393
MB-220 ..... Clip-on **M**otorized **B**reaker, Square D #QO220PL-5393
Two pole, 20 Amps. Special 60" leads. Square D trip curve: 730-4
15 and 20 Amp breakers have a HM, (High Magnetic) rating.
HM reduces nuisance breaker trips on high inrush loads.

BMB-30 ..... **B**olt-on **M**otorized **B**reaker, Square D #QOB130PL-5393
MB-30 ..... Clip-on **M**otorized **B**reaker, Square D #QO130PL-5393
One pole, 30 Amps. Special 60" leads. Square D trip curve: 730-5

BMB-230 ..... **B**olt-on **M**otorized **B**reaker, Square D #QOB230PL-5393
MB-230 ..... Clip-on **M**otorized **B**reaker, Square D #QO230PL-5393
Two pole, 30 Amps. Special 60" leads. Square D trip curve: 730-5

2 pole **30**A, **40**A and **60**A and 3 pole Bolt-on and Clip-on Motorized Breakers are also available on special order. — Call 800-724-4047 for price and delivery.

UnMotorized circuit breakers for un-controlled circuits

BUMB-10, **-15**, **-20** or **-30** are Bolt-on, 10, 15, 20 or 30 amp single pole.
Square D QOB110, QOB115HM, QOB120HM or QOB130. — 15s & 20s are High Magnetic.

UMB-10, **-15**, **-20** or **-30** are Clip-on, 10, 15, 20 or 30 amp single pole.
Square D QO110, QO115HM, QO120HM or QO130. — 15s & 20s are High Magnetic.

LynTec overprint document # 139-0216-08.1 48840-496-04
11/2003
Cedar Rapids, IA, USA

Instruction Bulletin

ECN N353

QO-PL (Plug-on), QOB-PL (Bolt-on) Powerlink® Remotely Operated Circuit Breakers

(Use in Type QO Load Centers and Type NQO, NQOB, and NQOD Panelboards)

Retain for future use.

REQUIREMENTS

Remotely Operated Circuit Requirements

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, BURN, OR EXPLOSION.

When servicing a branch circuit fed by a remotely operated circuit breaker, move handle of remotely operated circuit breaker to OFF position. Do not rely on remote operation to open circuit breaker.

Failure to follow these instructions will result in personal injury or death.

POWERLINK® QO(B)-PL Remotely Operated Circuit Breakers require a power supply capable of delivering at least two amperes at 24 Vdc for a minimum of 50 milliseconds. One-, two-, and three-pole circuit breakers all have one internal motor, and power requirements are the same regardless of the number of poles and ampere ratings.

The required power supply ampacity and control device contact rating are determined by the number of circuit breakers to be switched simultaneously (i.e., four circuit breakers switched simultaneously require a power supply and a control device contact rated 8 amperes minimum). The control device may be either a normally-open (NO)/ normally-closed (NC) contact; a single-pole, double-throw switch (SPDT); or other three-wire control device.

CIRCUIT BREAKER INSTALLATION

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

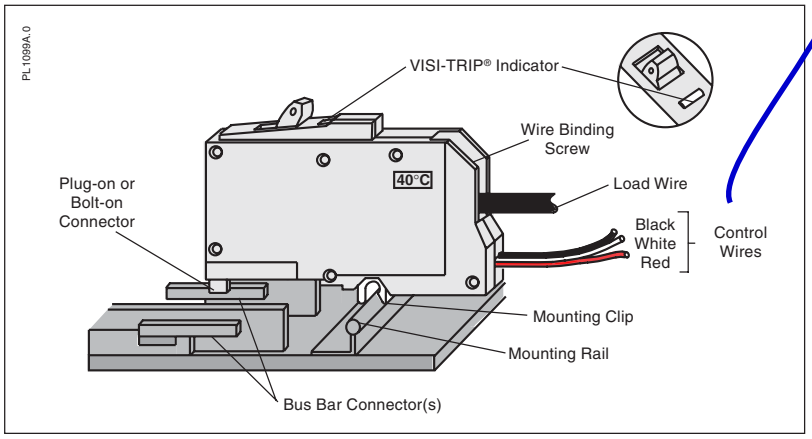
- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E.
- This equipment must be installed and serviced only by qualified electrical personnel.
- Turn off all power supplying this equipment before working on or inside equipment.
- Always use a properly rated voltage sensing device to confirm power is off.
- Replace all devices, doors, and covers before turning on power to this equipment.

Failure to follow these instructions will result in death, or serious injury.

1. Turn off all power supplying this equipment before working on or inside equipment.
2. Before installing circuit breaker turn circuit breaker handle to OFF position.
3. Remove panelboard cover and deadfront. Verify power is off with voltage meter before proceeding.

All LynTec supplied breakers have special 60” control wires. (Square D standards are 18”.)

Installation of circuit breaker into panelboard/load center (refer to figure below)



4. Except for remotely operated connections, QO(B)-PL remotely operated circuit breakers are installed in a panelboard/load center the same as conventional QO(B) circuit breakers.

Connection of remotely operated circuit (refer to the figure on next page)

5. Assure that power supply and control device meet requirements listed under "Remotely Operated Circuit Requirements."

See page 2 for LynTec part number explanation

CIRCUIT BREAKER INSTALLATION

CAUTION

HAZARD OF CIRCUIT BREAKER DAMAGE.

Connect the 24 Vdc remote control wiring as shown on this page.

Failure to follow these instructions can permanently damage the remotely operated circuit breaker.

6. All wiring and splicing must comply with applicable code requirements for Class 1 circuits. Refer to paragraph 373-8 and article 725 of the National Electrical Code.

7. Three #18 AWG control wires are attached to the remotely operated circuit breaker for connection to the power supply and remote control device and should be cut to the required length to reach the splice connections. Use #18 AWG or larger conductors with 600 V insulation and approved wire connectors for splices.

8. Connect the black lead of the remotely operated circuit breaker to the negative (-) terminal of the 24 Vdc power supply. Connect the red lead of the remotely operated circuit breaker to the positive (+) terminal of the 24 Vdc power supply. Connect the white lead of the remote control device. The remote control device provides connections between either positive or negative potential of the power supply and the white wire of the remotely operated circuit breaker, as appropriate.

9. Applying the positive potential of the power supply to the white wire (contact closure between the red wire and white wire) will operate the remote mechanism of the circuit breaker to the OFF position. Applying the negative potential of the power supply to the white wire (contact closure between the black wire and the white wire) will operate the remote mechanism of the circuit breaker to the ON position. A control circuit utilizing a normally open (NO)/normally closed (NC) contact is illustrated below.

NOTE: The remote mechanism will not move the circuit breaker handle. Also, the remote mechanism cannot turn power ON when the circuit breaker is tripped (VISI-TRIP® flag indicator showing) or when the circuit breaker handle is in the OFF position.

Installation of the trim and operational checks

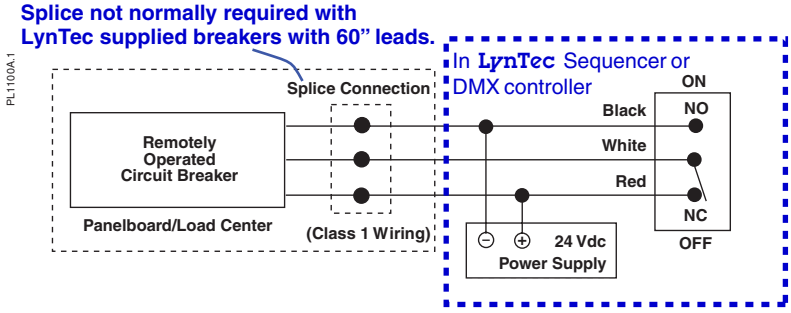
10. Remove corresponding twist-out from panelboard trim and replace trim.

11. Turn power to panelboard on.

12. Turn remotely operated circuit breaker handle to the ON position.

13. Turn power to the remotely operated circuit on and test this circuit, turning remotely operated circuit breaker off remotely, then on remotely. If power to remote controlled circuit breaker load does not switch off and on, turn off power to remotely operated circuit and panelboard and check wiring.

NOTE: A power supply is available from Square D Company, Cat. No. QOPLPS (plug-on) or QOBPLPS (bolt-on).



Square D Company
3700 Sixth Street SW
Cedar Rapids IA 52404 USA
1-888-SquareD (1-888-778-2733)
www.SquareD.com

Series Ratings

For NQOD and NF Panelboards
Class 1630, 1670

SQUARE D
www.SquareD.com
For the most up-to-date information

This page contains UL Tested and Certified series combination ratings for panelboards. These ratings apply to either an integral main located in the same enclosure or a remote main located in a separate enclosure.

NQOD Series Ratings

Maximum System Voltage AC c	Maximum Short Circuit Current Rating (RMS Symmetrical)	Integral or Remote Main Circuit Breakers and Remote Main Fuses	Branch Circuit Breaker Designations and Allowable Ampere Ranges ab — Type	1-pole	2-pole	3-pole
120/240 1Ø	22k	MG	QO (B)	15–30 A	...	...
	42k	HD, JD	QO (B) PL	15–30 A	15–60 A	15–30 A
	65k	HG, JG	QO (B) PL	15–30 A	15–60 A	15–30 A
	100k	HJ, JJ	QO (B) PL	15–30 A	15–60 A	15–30 A
	125k	HL, JL	QO (B) PL	15–30 A	15–60 A	15–30 A
120/240 1Ø	100k	DJ 400 A	QO (B) QO (B) GFI QO (B) VH QO (B) AFI	15–70 A 15–30 A ... 15–20 A	15–125 A 40–60 A 150 A ...	... ... 15–150 A ...
208Y/120		QJ	QO (B) QO (B) AS QO (B) GFI QO (B) PL QO (B) VH QO (B) AFI	15–70 A 15–30 A 15–30 A 15–30 A ... 15–20 A	15–125 A 15–30 A 15–60 A 15–60 A 150 A ...	15–30 A 15–30 A ... 15–30 A 35–150 A ...
208Y/120	18k	LA/LH (L) 34200MC LA/LH (L) 34225MC LA/LH (L) 34250MC LA/LH (L) 34400MC	QO (B)	15–30 A	15–30 A	15–30 A
LynTec models LCLC 326 MSLC 326 MSLC 338 MSP 338 MSP139	22k	UMB-xx QO (B) VH MB-xx	QO (B) QO (B) AS QO (B) GFI QO (B) PL QO (B) AFI	15–70 A 15–30 A 15–30 A 15–30 A 15–20 A	15–125 A 15–30 A 15–60 A 15–30 A ...	15–100 A 15–30 A ... ...
	22k	Q2-Hf	QO (B) QO (B) GFI QO (B) AFI	15–70 A 15–30 A 15–20 A	15–100 A 15–30 A ...	15–30 A ... ...
LynTec models LCLC 341 MSLC 341	25k	UMB-xx QD MB-xx	QO (B) QO (B) AS QO (B) GFI QO (B) PL QO (B) VH QO (B) AFI	15–70 A 15–30 A 15–30 A 15–30 A ... 15–20 A	15–125 A 15–30 A 15–60 A 15–60 A 150 A ...	15–30 A 15–30 A ... 15–30 A 35–150 A ...
LynTec models MSLC 127 MSLC 129 are series rated 22k AIR. see QO130Mxx on pg 1-3 of Digest 173.	25k	ED, FDf	QO (B) QO (B) GFI QO (B) AFI	15–70 A 15–30 A 15–20 A	15–125 A 15–60 A ...	15–100 A ... ...
	25k	KDf	QO (B) QO (B) AS QO (B) GFI QO (B) AFI	15–70 A 15–30 A 15–30 A 15–20 A	15–125 A 15–30 A 15–60 A ...	15–100 A 15–30 A ... ...
	25k	HD, JD	QO (B) QO (B) VH QO (B) GFI QO (B) AFI QO (B) H QOB2150VH	15–70 A ... 15–30 A 15–20 A	15–125 A ... 15–60 A ... 15–100 A 150 A	15–100 A 35–150 A ... ...
240	42k	LA, MA	Q2L-Hf QDL	... ...	110–225 A 70–225 A	110–225 A 70–225 A
		MG	QO (B) VH	15–30 A	15–30 A	15–30 A
		HD, JD	QO (B) PL	15–30 A	15–60 A	15–30 A
	42k	LC 600 A Maximum	QO (B) QO (B) VH QO (B) GFI QO (B) AFI	15–70 Ad 15–30 A 15–30 Ae 15–20 A	... 15–125 A 15–60 A ...	... 15–100 A (3P 208 V Max.) ... ...
	65k		QO (B) VH QO (B) GFI QO (B) AFI	15–30 A 15–30 Ae 15–20 A	15–125 A	15–100 A (3P 208 V Max.) ... ...
	65k	DJ 400 A	QO (B) QO (B) VH QO (B) H	15–70 A	15–125 A 150 A 15–100 A	... 15–150 A ...
	65k	EG, FGf , KGf	QO (B) QO (B) GFI QO (B) AFI	15–70 A 15–30 A 15–20 A	15–125 A 15–60 A ...	15–100 A ... ...
	65k	QG	QO (B) QO (B) AS QO (B) VH	15–70 A 15–30 A ...	15–125 A 15–30 A ...	15–30 A 15–30 A 35–150 A
		BMB-xx QG, HG, JG	QO (B) GFI QO (B) PL QO (B) AFI	15–30 A 15–30 A 15–30 A	15–60 A 15–60 A ...	... 15–30 A ...
LynTec models MSLCH 341 MSP 141 LCP 341 MSP 341	65k	BUMB-xx HG, JG	QO (B) QO (B) VH QO (B) H QOB2150VH	15–70 A	15–125 A ... 15–100 A 150 A	15–100 A 35–150 A ... ...
	65k	FCL22___ KCL22___ FCL32___ KCL32___	QO (B) QO (B) AS QO (B) GFI QO (B) AFI	15–70 A 15–30 A 15–30 A 15–20 A	15–100 A 15–30 A 15–30 A ...	15–100 A 15–30 A ... ...
	65k	400 A Max. Class J or T6 Fuses	QO (B) VH QOB-VH QO (B) AFI	15–30 A ... 15–20 A	15–125 A 150 A ...	15–100 A ... ...
	100k	FCL24___ KCL24___ FCL34___ KCL34___	QO (B) QO (B) AS QO (B) GFI QO (B) AFI	15–70 A 15–30 A 15–30 A 15–20 A	15–100 A 15–30 A 15–30 A ...	15–100 A 15–30 A ... ...
	100k	200 A Max. Class T3 Fuses	QO (B) AFI	15–20 A	...	...
	100k	EJ, FJf	QO (B) QO (B) GFI QO (B) AFI	15–70 A 15–30 A 15–20 A	15–125 A 15–60 A ...	15–100 A ... ...

QOBxxx (B) = BUMB series **B**olt-on, **U**n**M**otorized **B**reaker
-**x**xx = poles. x**xx** = trip current.
[1 pole] **BUMB-15, BUMB-20, BUMB-30**
[2 pole] **BUMB-215, BUMB-220, BUMB-230**
[3 pole] **BUMB-315, BUMB-320, BUMB-330**

QOxxx = UMB series clip-on, **U**n**M**otorized **B**reaker
-**x**xx = poles. x**xx** = trip current.
[1 pole] **UMB-15, UMB-20, UMB-30**
[2 pole] **UMB-215, UMB-220, UMB-230**
[3 pole] **UMB-315, UMB-320, UMB-330**
All 15 & 20 A breakers are **HM** (High Magnetic)

NQOD Series Ratings (Continued)

Maximum System Voltage AC c	Maximum Short Circuit Current Rating (RMS Symmetrical)	Integral or Remote Main Circuit Breakers and Remote Main Fuses	Branch Circuit Breaker Designations and Allowable Ampere Ranges ab — Type	1-pole	2-pole	3-pole
240	100k	HJ, JJ	QO (B) QO (B) VH QO (B) GFI	15–70 A ... 15–30 A	15–125 A ... 15–60 A	15–100 A 35–150 A ...
	125k	HL. JL	QO (B) PL QO (B) AFI QO (B) H QOB2150VH	15–30 A 15–20 A	15–60 A ... 15–100 A 150 A	15–30 A ... ...
	200k	FI, KI	QO (B) QO (B) AS QO (B) GFI QO (B) AFI	15–70 A 15–30 A 15–30 A 15–20 A	15–125 A 15–30 A 15–60 A ...	15–100 A 15–30 A ... ...
	200k	Maximum Fuses 200 A Class J or T6 400 A Class T3	QO (B) QO (B) AS QO (B) GFI	15–70 A 15–30 A 15–30 A	15–125 A 15–30 A 15–60 A	15–100 A 15–30 A ...

▲ Suffixes HID, SWD and SWN may also be applied to the applicable branch circuit breakers shown above, except suffix SWN may **NOT** be applied in combination with LC main circuit breakers.
■ Where QO (B) circuit breakers are shown above, QO (B) H, QO (B) VH, and QH (B) circuit breakers may also be used.
◆ For shown circuit breakers rated less than this maximum voltage, the indicated short circuit current rating also applies, but at the voltage rating of the circuit breaker.
★ Only 15–30 A circuit breakers may be used when the LC circuit breaker is rated 450, 500 or 600 A.
▼ Circuit breakers may not be used when the LC circuit breaker is rated 450, 500 or 600 A.
△ Obsolescent. Contact your nearest Square D/Schneider Electric sales office for replacement circuit breaker. One-pole FJ circuit breakers are still available.
Where QO(B) GFI circuit breakers are shown above, QO(B), EPD circuit breakers may also be used.

NF Series Ratings

Maximum System Voltage AC	Maximum Short Circuit Current Rating (RMS Symmetrical)	Main Type	Branch Type	Poles
240	65,000	EG, FH, FGf , KH, LH, MH, MX, HG, JG	EDB, EDB-EPD	1, 2 & 3
		EG	ECB-G3	
	100,000	EJ, FC, FJf , KC, LC, LX, HJ, JJ	EDB, EDB-EPD, EGB	
		EJ, FC, KC, HJ, JJ	ECB-G3	
	125,000	HL, JL	EDB, EDB-EPD, EGB, ECB-G3	
	200,000	FI, KI, LI, LXI	EDB, EDB-EPD, EGB, EJB	
		FI, KI	ECB-G3	
480Y/277	35,000	EG, FGf , KH, LH, HG, JG	EDB, EDB-EPD	1, 2 & 3
		EG, HG, JG	ECB-G3	
	65,000	EJ, FC, FJf , KC, LC, LX, HJ, JJ	EDB, EDB-EPD, EGB	
		EJ, FC, KC, HJ, JJ	ECB-G3	
	100,000	HL,JL	EDB, EDB-EPD, EGB	
	200,000	FI, KI, LI, LXI	EDB, EDB-EPD, EGB, EJB	
		FI, KI	ECB-G3	
600Y/347	18,000	HG, JG, MG	EDB, EDB-EPD	1, 2, 3
	25,000	EJ, FI, KH, KL, LC,. LE, LX, LI, LXI, HJ, JJ	EDB, EDB-EPD, EGB	
		LH	EDB(15–70 A), EGB	
	35,000	LC, LE	EDB, EDB-EPD, EGB, EJB	
	50,000	HL, JL	EDB, EDB-EPD, EGB	
	65,000	FI, KI	EDB, EDB-EPD, EGB, EJB	
		LI, XI	EJB	
		Remote Main Fuse		
240	200,000	200 Ampere Maximum Class J or T (600V)	ECB-G3	1, 2 & 3
480Y/277	100,000	400 Ampere Maximum Class J or T (600V)	EDB, EDB-EPD, EGB, EJB	1, 2 & 3
	200,000	200 Ampere Maximum Class J or T (600V)	EDB, EDB-EPD, EGB, EJB	
	200,000	200 Ampere Maximum Class J or T (600V)	ECB-G3	
600Y/347	200,000	200 Ampere Maximum Class J or T (600V)	EDB, EDB-EPD, EGB, EJB	1, 2 & 3

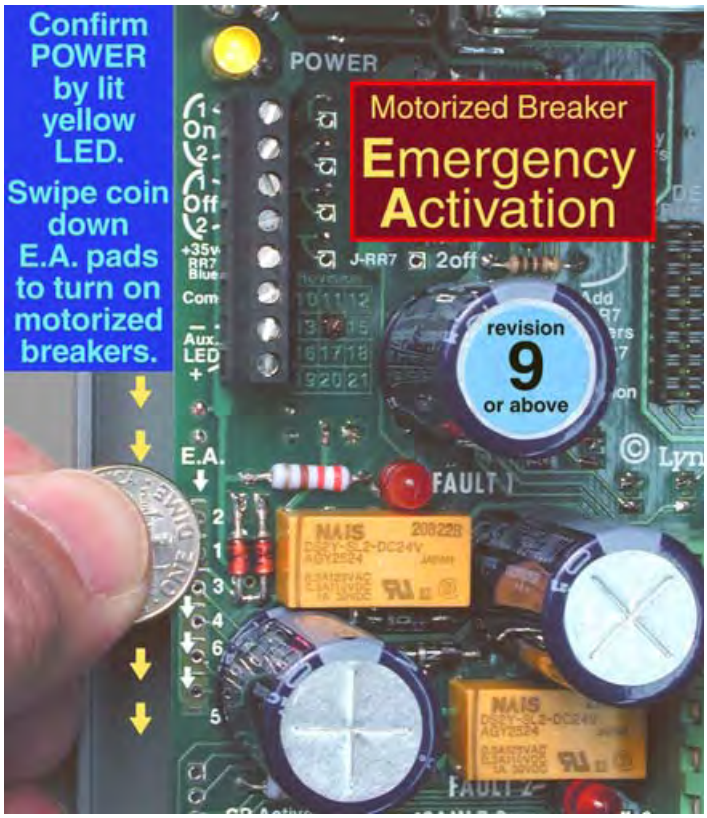
QOBPLxxx-5393 = BMB series **B**olt-on, **M**otorized. (REMOTELY OPERATED)
-**x**xx = poles. x**xx** = trip current. **-5393** suffix denotes special 60" control wires.
[1 pole] **BMB-15, BMB-20, BMB-30**
[2 pole] **BMB-215, BMB-220, BMB-230, BMB-240, BMB-250, BMB-260**
[3 pole] **BMB-315, BMB-320, BMB-330**

QOPLxxx-5393 = MB series clip-on, **M**otorized. (REMOTELY OPERATED)
-**x**xx = poles. x**xx** = trip current. **-5393** suffix denotes special 60" control wires.
[1 pole] **MB-15, MB-20, MB-30**
[2 pole] **MB-215, MB-220, MB-230, MB-240, MB-250, MB-260**
[3 pole] **MB-315, MB-320, MB-330**

LynTec overprint: 139-0407-01 Series Ratings 9/23/06
For most current version see http://www.lyntec.com/139-0407_Series_Ratings.pdf

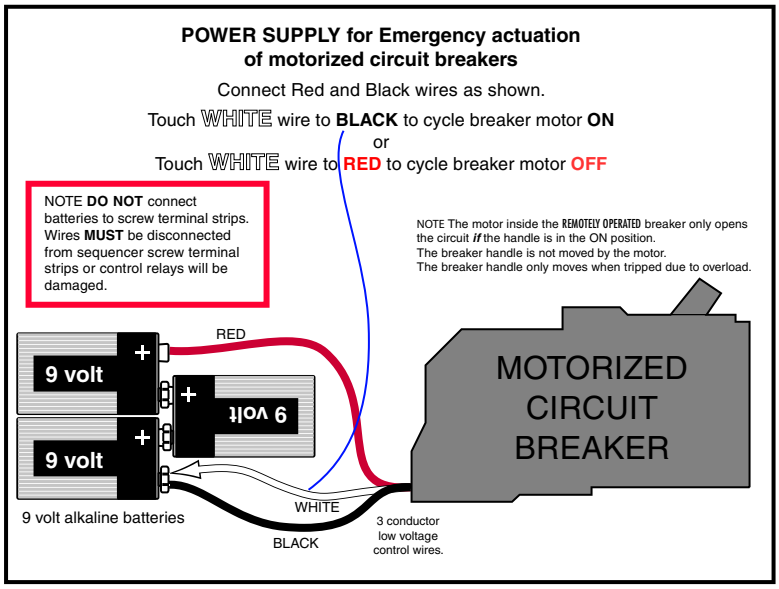
Emergency circuit breaker activation

for
MSLC or MSP systems using motorized circuit breakers.



OR

for all systems using motorized circuit breakers.



LynTec
800-724-4047

Emergency RR7 relay activation for LCRP or PDS-8 series