

Planning and Layout Worksheet — As-built door label

LCP 341-xx-M400 Lighting Control Panelboard

Breaker types, sizes, positions and connections

Job _____

Panel _____

Comments _____

by _____ Date _____

Transfer as-built information to the door label upon completion.

Keep this sheet for as-built documentation

Available as PDF download
www.lyntec.com/139-0386_LCP341-M400Plnr.pdf

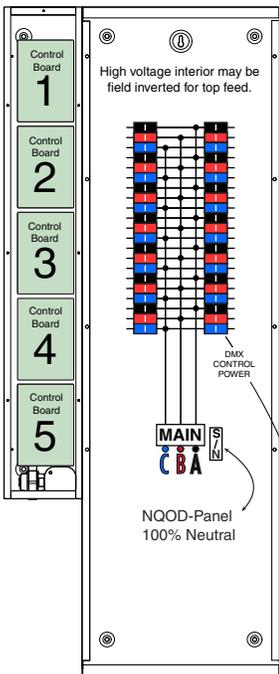
Each motorized breaker is actuated by a command from a DMX control device.
 As-built door label example:
 The DMX # _____ is the DMX address of this breaker.
 The board jumpers set the DMX address of the #1 position of the board.
 Positions 2 to 10 are subsequent addresses. Example: #1= 201, #2 to #10 = 202 to 210.
 Bold line around box = **suggested** control board: #1 (Top), #2, #3 or #4.
 Fill in box to indicate which control board this breaker is connected to.

LC-10M Master & LC-10S Slave circuit boards in left-hand, low-voltage cabinet.

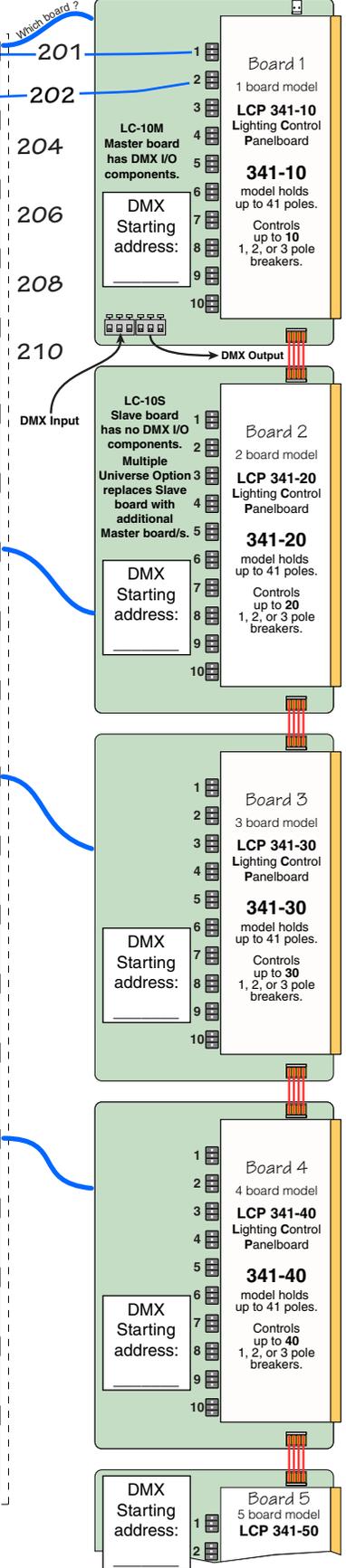
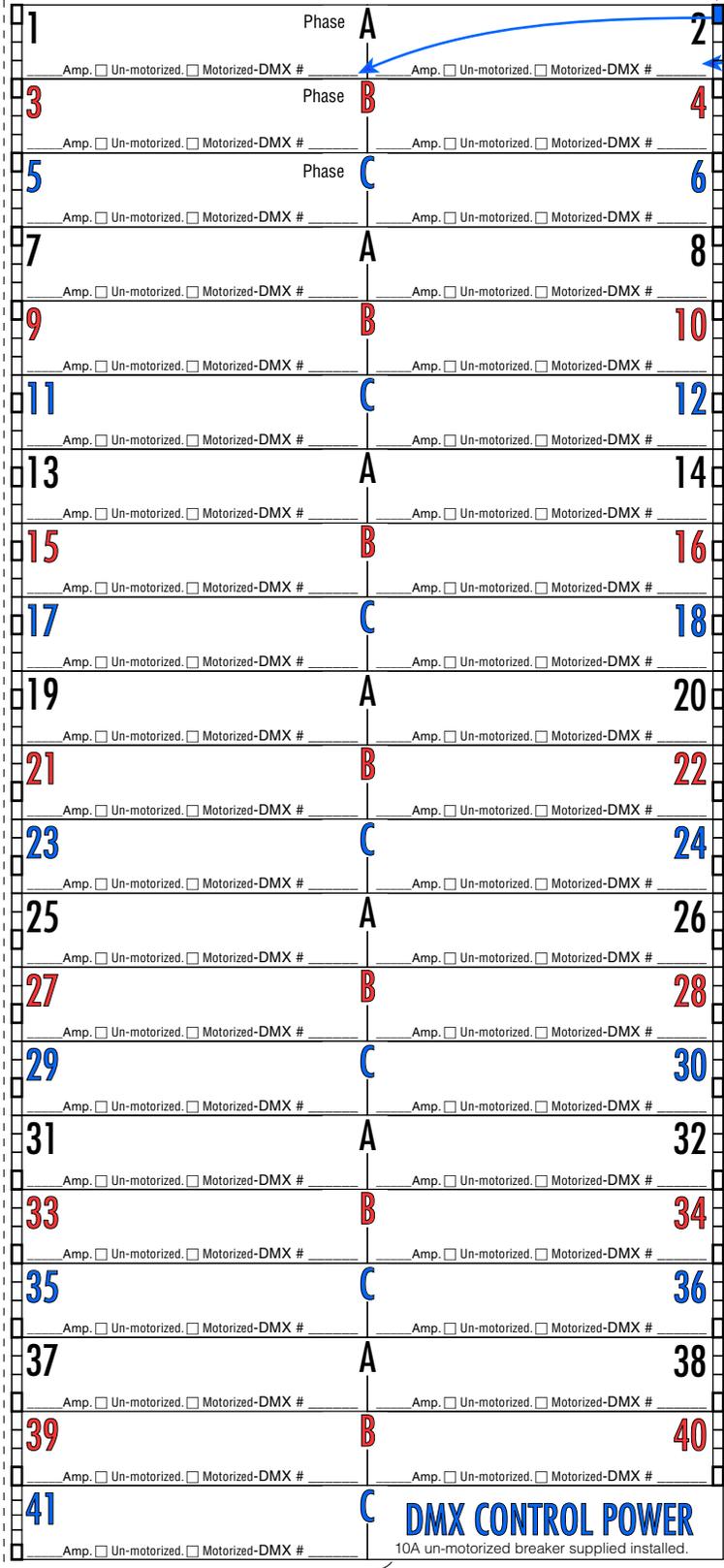
| DMX PROTOCOL for LynTec LC series | | |
|-----------------------------------|--------|--|
| Code Range (8 bit) | % | Circuit Function |
| 0-63 | 0-24 | Turns breaker off. When applied to all breakers simultaneously, they turn OFF at a .25 second step rate. |
| 64-191 | 25-74 | No change |
| 192-255 | 75-100 | Turns breaker on. When applied to all breakers simultaneously, they turn ON at a .25 second step rate. |

LCP 341-xx-M400
 (10k AIR main) - 400A bus
 xx = Number of controller circuits
10, 20, 30, 40 or 50.

Cabinet outline - Surface mount only
 Outside dimensions: 28.06" w, 68.2" h, 6.13" d.
 Knockout panels supplied in both ends.



Square D NQOD MB Panel with LynTec sidecar.
 Main Breaker: 400A (10k AIR) (Amps Interrupt Rating)
 Square D # LA36400
 Main Breaker wire: #1-600 kcmil Cu or two #1-250 kcmil Cu (per NEC)
 100% Neutral has one feed lug that accepts one #1-750 kcmil or two #1-300 kcmil Cu wires.



Program Card — As-built record
LynTec LCLC or LCP 341 series DMX controlled circuit breaker panel.
 see reverse side for DMX PROTOCOL

As-built EDO field programming record.
 Indicate if a stored on condition was programmed for each breaker by filling corresponding circle.

EDO Programming
Emergency DMX Override

For egress or emergency lighting triggered by an external contact.

Connecting **EDO** to **Common** with an external contact overrides the incoming DMX signal and forces all breakers to the pre-programmed **EDO** state.

How to program EDO

- A. Turn the **DMX CONTROL POWER** off.
- B. Note the DMX Starting Address _____.
- C. Move jumpers to reset the **DMX STARTING** Address to 555.
- D. Turn the **DMX CONTROL POWER** on. The board will scan through the breakers 1 thru 10 and display the previous EDO settings if there are any stored in memory. All numbered LEDs that were on when the EDO setting was stored will light.
- E. Press the green **EDO ON-OFF Toggle** button once. The #1 breaker LED will flash; Fast for ON — Slow for OFF. **Toggle** the same green button to the desired state of the #1 breaker.
- F. Advance to breaker #2 with the red **EDO Advance** button. (#1 now indicates the condition you left it in. Lit = ON)
- G. Set the rest of the positions, having breakers connected, to your desired EDO condition. Finish your settings with one more **EDO Advance** keystroke. All breaker LEDs will indicate their EDO state. If you change your mind, you can loop back to 1 with another **Advance** keystroke. #1 will begin flashing again to indicate it's ready to edit.
- H. To store your EDO settings, turn **DMX CONTROL POWER** off and wait until the large red LED extinguishes.
- I. Reset the DMX Starting Address jumpers to the one remembered in step B.
- J. Turn on DMX CONTROL POWER. Now whenever you connect the EDO terminal to common, the red EDO LED will light and your stored EDO settings will *override* any DMX commands until the emergency contact is opened. If you have programmed Post EDO, all circuits will go to that scenario when the emergency contact is opened. With no Post EDO program all breakers default to off and will require another DMX command to actuate.

You have the option to program the Post EDO condition to reset the breakers to a different condition when the EDO contacts are reopened.

How to program Post EDO

- K. With power off, move jumpers to reset the DMX Starting Address to 599. Return to step D. to program **Post EDO**.

Panel _____ Location _____

Revision _____ Date _____ By _____

Bold line around box is suggested control board: #1 (Top), #2, #3 or #4. Fill in box to indicate which control board this breaker is connected to.

| Breaker # | Phase | Amp. <input type="checkbox"/> Un-motorized. <input type="checkbox"/> Motorized-DMX # _____ universe _____ |
|-----------|-------|---|
| 1 | A | |
| 3 | B | |
| 5 | C | |
| 7 | A | |
| 9 | B | |
| 11 | C | |
| 13 | A | |
| 15 | B | |
| 17 | C | |
| 19 | A | |
| 21 | B | |
| 23 | C | |
| 25 | A | |
| 27 | B | |
| 29 | C | |
| 31 | A | |
| 33 | B | |
| 35 | C | |
| 37 | A | |
| 39 | B | |
| 41 | C | |

DMX CONTROL POWER
 10A un-motorized breaker supplied installed.

How it works

The **DMX CONTROL POWER** circuit breaker powers the control circuit boards via a 24 volt transformer.

Motorized circuit breakers (face-marked **REMOTEY OPERATED**) are individually actuated by a low-voltage command from a remote DMX control device. (light board)

Each of the **numbered** LEDs, 1 thru 10, indicate the status of the **attached** breaker.

Lit = ON — Unlit = OFF

Flashing = A command execution is in progress.

Each circuit board controls up to ten 1, 2 or 3 pole motorized circuit breakers.

Each motorized breaker acts as a circuit protection device as well as a remotely operated switch. The breaker handle

moves **only** when over-current-tripped or manually turned off.

Master and Slave control boards are used depending upon the number of DMX universes served. (Slaves have no DMX input or output components).

DMX signals are fed to the Master board/s from the appropriate DMX universe.

Power, DMX and EDO data are daisy-chain fed board-to-board by the yellow jumper connectors. (**EDO = Emergency DMX Override**)

The **STARTING DMX** address is set for each board by jumpers. Depending on the results of a power-up-scan, consecutive DMX addresses are only used for the headers with breakers attached.

The DMX Output is an optoisolated, buffered, loop-thru for driving other DMX devices.

Output data availability is indicated by a small-green flickering **DMX Output** LED.

MANUAL TEST CONTROL

The circuit breakers may be manually controlled by the **TEST** switches on each board.

The test switches work in the absence of a DMX signal. A valid DMX signal, indicated by a flashing large-green **Receiving DMX** LED, overrides the test switches.

Emergency DMX Override
 see above right

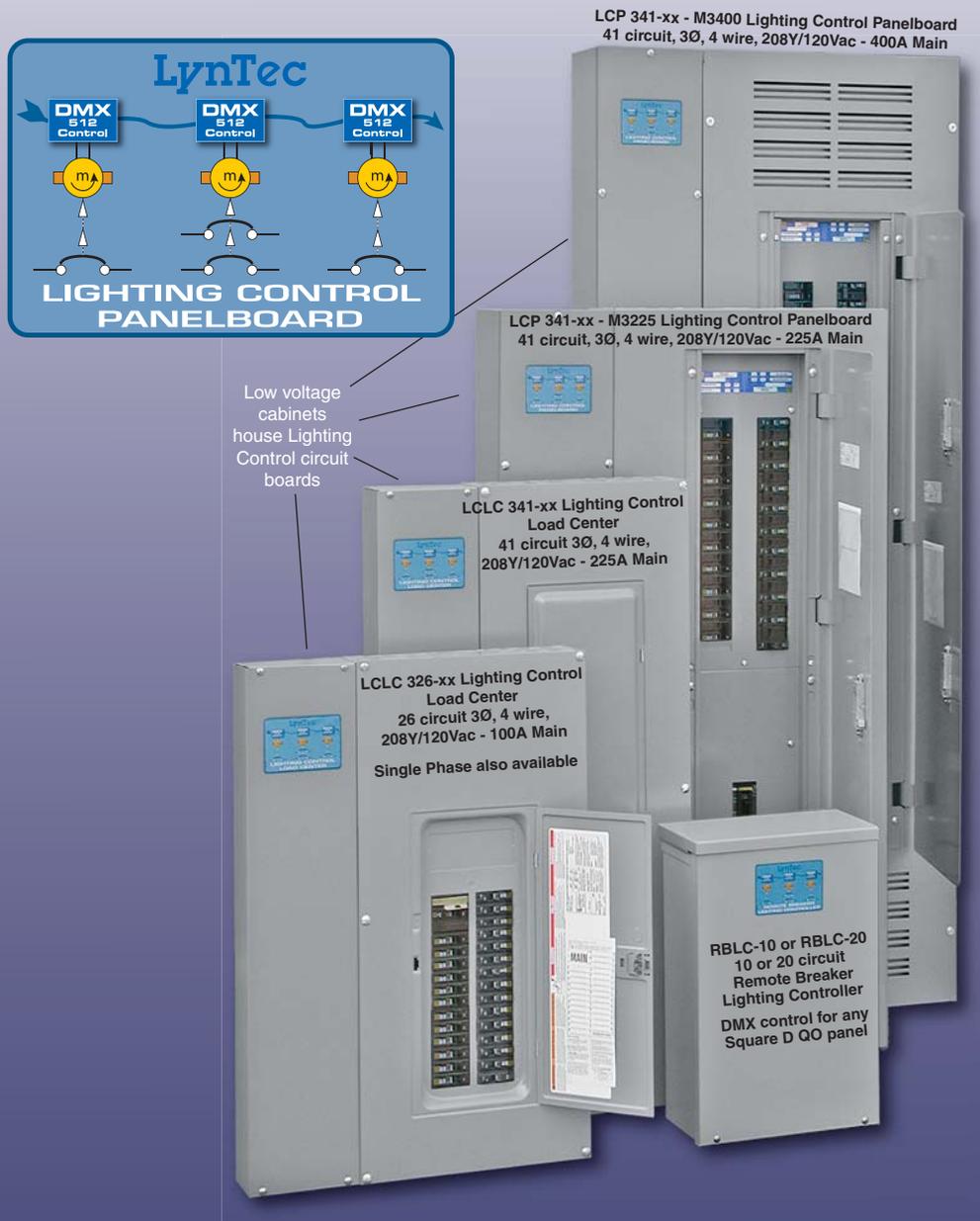
www.**LynTec**.com
800-724-4047
 8-5 Central Time

| DMX PROTOCOL for LynTec LCRP series | | |
|--|--------|--|
| Code Range (8 bit) | % | Circuit Function |
| 0-63 | 0-24 | Turns breaker off. When applied to all relays simultaneously, they turn OFF at a .25 second step rate. |
| 64-191 | 25-74 | No change |
| 192-255 | 75-100 | Turns breaker on. When applied to all relays simultaneously, they turn ON at a .25 second step rate. |

NOTES

All non-dimmed lights need a power panel.

Now have as many DMX512 controlled circuits as you need in the same panel. You can mix DMX controlled, motorized branch breakers with standard QO breakers for a one-panel solution. LynTec DMX panels are modular and field expandable.



LynTec

LC series Lighting Control panels add DMX addressable branch circuit control to the functions normally found in a Load Center or Panelboard.

New!! Simplified Control Protocol

A simple jumper system allows the user to select the address of the first breaker and additional breakers are addressed consecutively.

The system uses only as many addresses as there are breakers.

Once addressed, individual breakers may be turned **ON**, **OFF**, or set to a **NO CHANGE** status.

All

SQUARE D

Panels

BENEFITS of LynTec LC Lighting Control series Power Panels

- ✓ **Reduced installation labor — electrician friendly**
 - One wall-mounted, DMX controlled power panel feeds AC power to all un-dimmed circuits.
- ✓ **Low power consumption**
 - **BMB** (Bolt-on) and **MB** (Clip-on) series motorized circuit breakers require no holding current (like DC relays) or heat sinks (like solid state relays).
Runs cool — lasts long.
 - Motorized breakers available in 15, 20 or 30 Amp — 1, 2 or 3 poles.
- ✓ **Multiple universe control**
 - Optional control of up to 5 universes depending on model.

Who is LynTec?

Ask any sound contractor. Chances are, they'll tell you that LynTec pretty much wrote the book on remote controlled, sequencing power systems for the installed sound industry.

LynTec sequencing can be found in high-profile venues where reliable power control is mission critical. Stadiums, arenas and performing arts centers hosting national exposure events have been sequenced on and off by LynTec power panels for over 15 years.

Now, LynTec brings that same expertise to non-dimmed DMX power control.

Using the same proven panels and motorized circuit breakers, LynTec now offers a broad product line with a new DMX512 control system for lighting.

LynTec — AVAILABLE MODELS — LynTec

Panel electrical specifications and configurations — Outline dimensions

See  at LynTec.com for *model specific* Design or Submittal PDFs.

LOAD CENTERS

LCLC 326-xx-Mxxx Lighting Control Load Center

3Ø, 208Y/120 Vac, 4 wire. — 100 Amp Main Breaker Standard

LynTec Lighting Control Load Center

MODEL NUMBERS

- LCLC 326-10-Mxxx**
(Up to 10 DMX controlled circuits)
- LCLC 326-20-Mxxx**
(Up to 20 DMX controlled circuits)
- LCLC 326-30-Mxxx**
(Up to 26 DMX controlled circuits)

Square D QO327M100 Load Center with LynTec low-voltage sidecar.

Standard back-fed Main Breaker:
Squared D# QO3100VH. 100A,
(VH = 22k AIR)
[Amps Interrupt Rating]

Back-fed Main Breaker options
Part# suffix — **Bold face**=Amps
-M3030, -M3035: (10kAIR)
Square D# QO30xx

-M3050, -M3060, -M3070 or -M3090

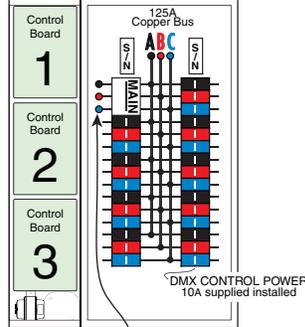
Squared D# QO3xxVH
(all VH = 22k AIR)

Wire Sizes
#4 - 2/0 Cu

Outside dimensions
20.9" w., 29.8" h., 3.9" d.



Cabinet Outline — Surface mount only



Main Lug Only -MLO option
Remove Back fed main and top feed as a MLO to gain 3 circuits. Feed from a protected disconnect.

Provides access to branch breaker positions 1, 3, & 5.

Model number becomes a

- LCLC 329-10-MLO**
(10 DMX controlled circuits)
 - LCLC 329-20-MLO**
(20 DMX controlled circuits)
 - LCLC 329-30-MLO**
(Up to 29 DMX controlled circuits)
(Holds up to 29 one pole breakers)
- 125 Amp. Panel Bus Rating
Wire size: #6 - 2/0 Cu

LCLC 341-xx-Mxxx Lighting Control Load Center

3Ø, 208Y/120 Vac, 4 wire. — 225 Amp Main Breaker Standard

LynTec Lighting Control Load Center

MODEL NUMBERS

- LCLC 341-10-Mxxx**
(Up to 10 DMX controlled circuits)
- LCLC 341-20-Mxxx**
(Up to 20 DMX controlled circuits)
- LCLC 341-30-Mxxx**
(Up to 30 DMX controlled circuits)
- LCLC 341-40-Mxxx**
(Up to 40 DMX controlled circuits)

Square D QO342MQ225 Load Center with LynTec low-voltage sidecar.

Standard Main Breaker:
Square D# QDL32225. 225 Amp

Main Breaker options
Part# suffix — **Bold face**=Amps
-M3150, -M3175 or -M3200
Square D# QDL32xxx series
(all 25k AIR) [Amps Interrupt Rating]

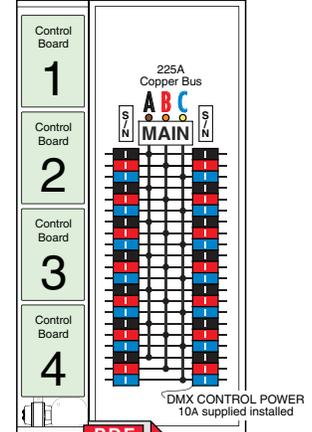
LCLCH option for 65k AIR Main Breaker
Square D# QGL32xxx series

Wire Sizes

Main Breaker :
350 kcmil Al or 250 kcmil Cu.
100% Neutral has one feed lug
1- 350 kcmil Al or 1- 250 kcmil Cu

Outside dimensions
20.9" w., 39.3" h., 3.9" d

Cabinet Outline — Surface mount only



PANELBOARDS

LCP 341-xx-Mxxx Lighting Control Panelboard

3Ø, 208Y/120 Vac, 4 wire. — 225 Amp Main Breaker Standard

LynTec Lighting Control Panelboard

MODEL NUMBERS

- LCP 341-10-Mxxx**
(Up to 10 DMX controlled circuits)
- LCP 341-20-Mxxx**
(Up to 20 DMX controlled circuits)
- LCP 341-30-Mxxx**
(Up to 30 DMX controlled circuits)
- LCP 341-40-Mxxx**
(Up to 40 DMX controlled circuits)
- LCP 341-50-Mxxx**
(Up to 41 DMX controlled circuits - limited by 42 circuit code rule)

Square D NQOD-NL MB Panel with LynTec low-voltage sidecar.

Standard **LCP-225A** Main Breaker:
225 Amp. - 65k AIR - MJG36225

Square D MJG36xxx or MHG36xxx series
(all 65k AIR) [Amps Interrupt Rating]

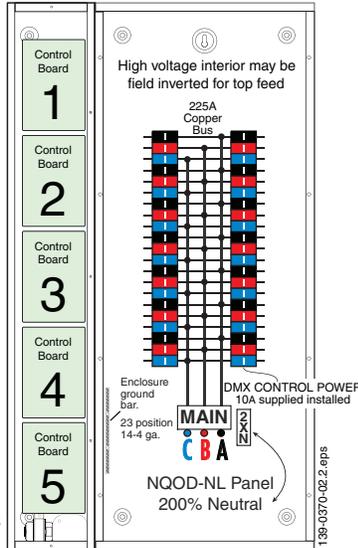
Main Breaker options

Part# suffix — **Bold face** = Amps
-MHG3125, -MJG3150, -MJG3175 or -MJG3200

Wire Sizes

Main Breaker: 3/0 - 350 kcmil Al/Cu
200% Neutral has one feed lug that accepts 2 - 250 kcmil Cu wires

Cabinet Outline — Surface mount only



Outside dimensions
28.06" w., 50" h., 6.13" d.

Knockout panels supplied in both ends



LCP 341-xx-M400 Lighting Control Panelboard

3Ø, 208Y/120 Vac, 4 wire. — 400 Amp Main Breaker Standard

LynTec Lighting Control Panelboard

MODEL NUMBERS

- LCP 341-10-M400**
(Up to 10 DMX controlled circuits)
- LCP 341-20-M400**
(Up to 20 DMX controlled circuits)
- LCP 341-30-M400**
(Up to 30 DMX controlled circuits)
- LCP 341-40-M400**
(Up to 40 DMX controlled circuits)
- LCP 341-50-M400**
(Up to 41 DMX controlled circuits - limited by 42 circuit code rule)

Square D NQOD MB Panel with LynTec low-voltage sidecar.

Standard **LCP 400A** Main Breaker:
400 Amp. - 10k AIR - LA36400
[Amps Interrupt Rating]

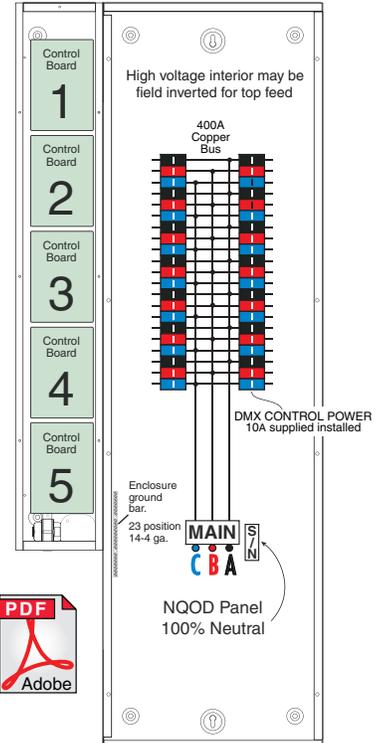
Wire Sizes

Main Breaker: 1 #1- 600 kcmil Cu or
2 - #1-250 kcmil Cu (per NEC)
100% Neutral has one feed lug that accepts one #1-750 kcmil or two #1-300 kcmil Cu wires.

Outside dimensions:
28.06" w., 68.2" h., 6.13" d.

Knockout panels supplied in both ends

Cabinet Outline — Surface mount only



LC-10 DMX LIGHTING CONTROLLER boards

Numbered circuit LED
Indicates status of breaker.
Flashes during timed com-
mand countdown.

Movable circuit jumpers set the
DMX STARTING address.

It may be set to any address
from 1 to 503.

Why 503? See **INVALID
Address** example below.

DMX ADDRESS SAVER

At power-up, each board scans
for connected breakers and
uses only as many addresses
as there are breakers attached.

If the breaker configuration is
changed by adding, deleting or
moving breakers, update the
breaker status with a re-scan.

Cycle the **DMX CONTROL POWER**
breaker off for at least 3 sec.
to re-scan.

120 Ohm
Input Termination
resistor

Receiving DMX LED
Flashes when a valid
DMX signal is received.

MTA .156"
DMX Input
Test plug

Wago Cage-Clamp
Input Terminals
Press white levers toward
board to insert stripped wire.

DMX Input
Terminated

Buffered DMX Output
Flickering LED indicates
data presence.

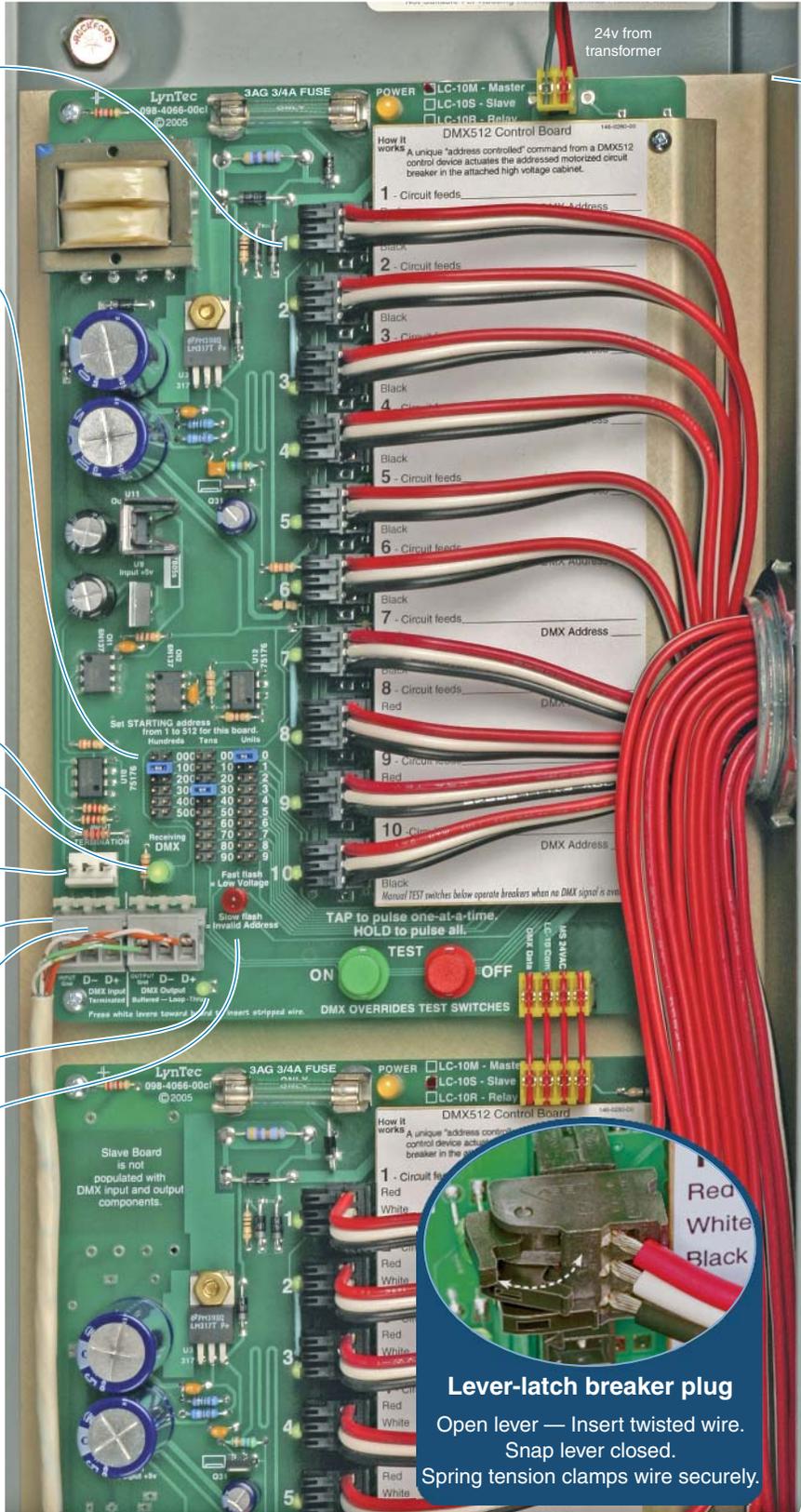
Warning LED
Fast flash = Low line voltage

Slow flash = Invalid Address
(Set to **total** above 512).

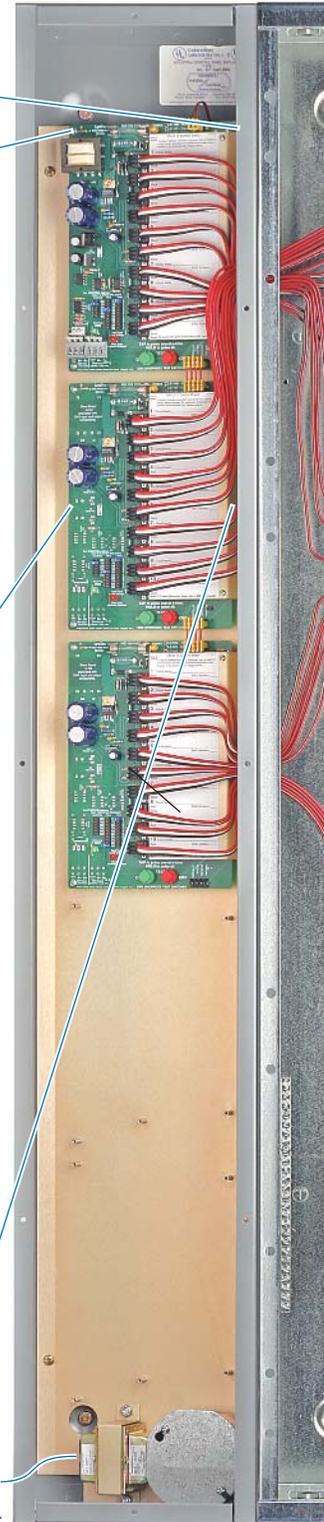
Example: With a **STARTING
address** set at 504 and
10 breakers attached, the
total would be 513, exceeding
DMX512's capacity.

Lit Continuously =
No breakers attached.

24v from
transformer



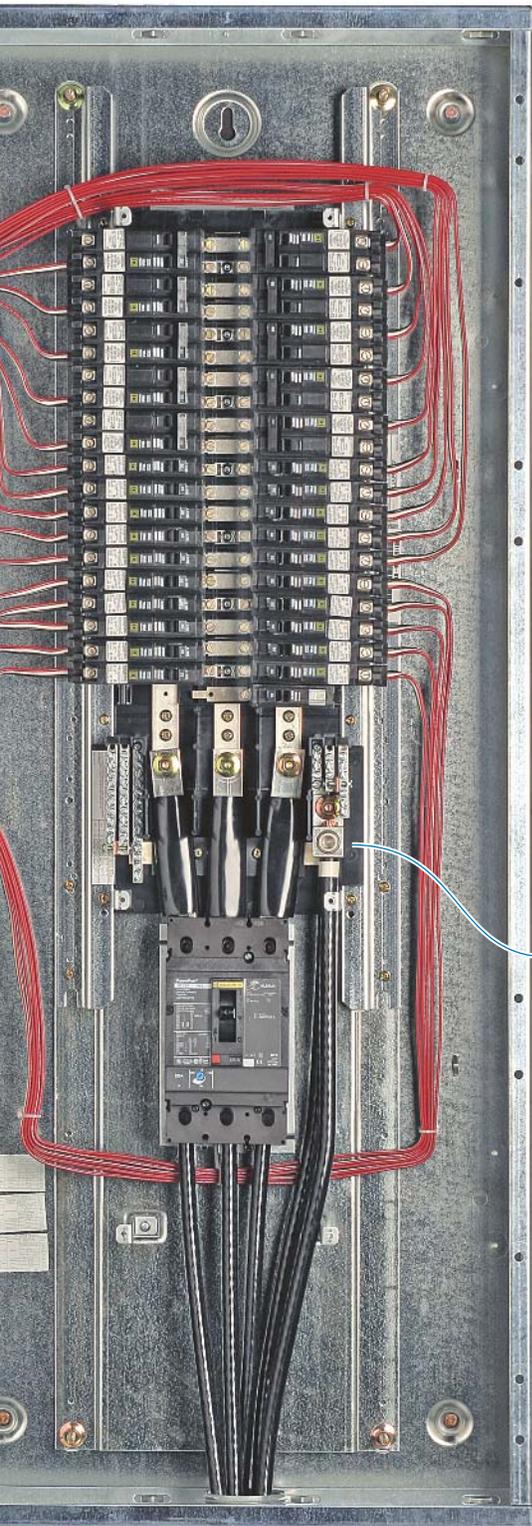
Lever-latch breaker plug
Open lever — Insert twisted wire.
Snap lever closed.
Spring tension clamps wire securely.



24v, 40VA
power
transformer
Supplies
DMX
Control
boards

Low Voltage
DMX control sidecar

Model shown
LCP 341-30-M225
Lighting Control Panelboard



Square D NQOD-NL
Panelboard

For illustration,
photos show branch
breakers installed.

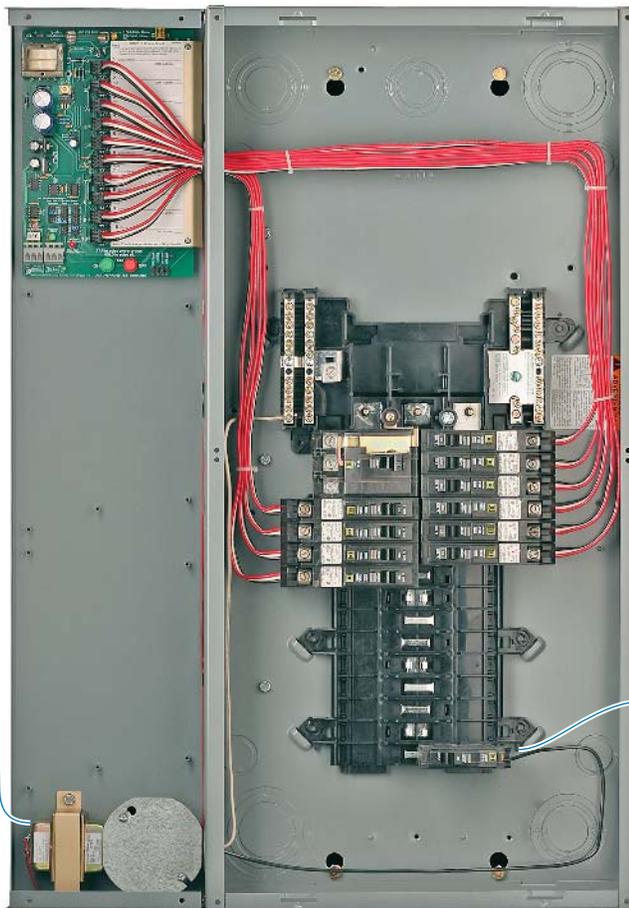
For full field
flexibility, the branch
breakers are
supplied boxed,
uninstalled.

10 - Lever-latch
breaker plugs for
the breaker-to-board
connection are
supplied, installed in
each board.

200%
Neutrals
standard
in 225A
Panelboard.

24v, 40VA
power
transformer
Supplies
DMX
Control
boards

Model shown
LCLC 326-10
Lighting Control Load Center



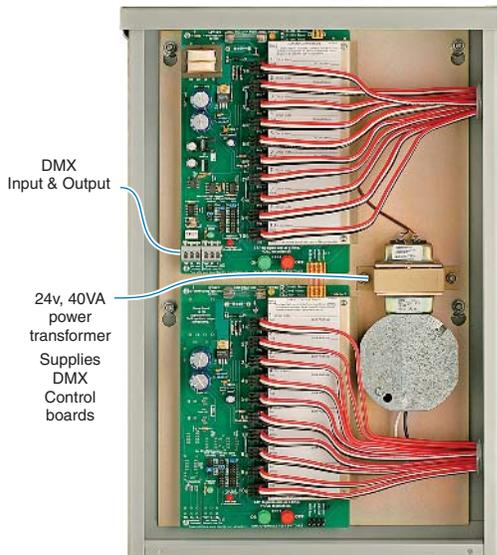
Low Voltage
DMX control sidecar

Squared D QO327M100
Load Center

Furnished 10 Amp
unmotorized
breaker supplies
**DMX
CONTROL
POWER**
to transformer.

RBLC-10 or RBLC-20
Remote Breaker Lighting Controller
DMX controls up to 10 or 20
1, 2 or 3 pole Motorized Circuit Breakers.

Model Shown is **RBLC-20**



DMX
Input & Output

24v, 40VA
power
transformer
Supplies
DMX
Control
boards

Any **QO** series
Square D
Load Center
or Panelboard.

Add **BMB** or **MB**
series
Motorized Breakers
for
Controlled circuits.

Specifier's Guide for LynTec Lighting Control Panels

Load Center and Panelboard part number explanation

Load Center — Panelboard — *What's the difference?*

Panelboards are the electrician's choice because they have 3 times the wiring space. Panelboards are used when bolt-on breakers, 200% neutrals or high circuit counts are required.

Load Centers are typically used where the circuit count isn't high, offering the lowest cost.

Lighting Control Panelboards

LCP 341- 30 -2U -MJG3200

341 — Number of available single pole circuit breaker spaces
41

30 — Control board capacity— will drive up to this number of 1, 2 or 3 pole motorized breakers
10, 20, 30, 40, 50

2U — number of DMX512 Universes
1U, 2U, 3U, 4U, 5U

-MJG3200 — Main breaker & Main Lug Only options
SEE BELOW

3 = 3 phase 208/120v, 4 wire

3 Phase Panelboards

400 A Panelboard

The standard LCP 341-xx-M400 has a LA36400, 3 pole, 400 Amp main breaker (115 kVA). 10kAIR [Amps Interrupt Rating].
 Optional main breakers — call for price and delivery.

-MLO (Main Lug Only) is an option.

225 A Panelboard

The standard LCP 341-xx has a JGP36225, 3 pole, 225 Amp main breaker (65 kVA). 65k AIR [Amps Interrupt Rating].
 Optional main breakers [All 65kAIR]

125A -MHG3125 (36 kVA transformer)
 150A -MJG3150 (45 kVA)
 175A -MJG3175 (50 kVA)
 200A -MJG3200 (60 kVA)

-MLO (Main Lug Only) is an option.

Multiple DMX512 Universe Option

LynTec Lighting Control panels have the option of multiple universe control. All LC-10 boards service up to 10 - one, two or three pole motorized breakers. The first/top control board is always a LC-10M Master board. The Master board has the opto-isolated DMX512 input and opto-isolated, buffered, feed-thru output components.

In a standard one-universe system, the subsequent boards are slaves. The lower-cost, LC-10S Slave boards have their own starting address, but derive their opto-isolated DMX data from the Master board above.

When multiple universes are desired, two or more LC-10M Master boards are supplied.

Each universe requires a Master board. Any Master may have one or more subsequent slaves. See page 3 for possible board counts in each type panel.

Please include Branch Breakers to complete your specification.

Lighting Control Load Centers

LCLCH 341- 30 -2U -MQD3200

LCLCH — **H option 65k AIR Main Breaker.** Amps Interrupt Rating (Available only on 341)

341 — Number of available single pole circuit breaker spaces
326, 341

30 — Control board capacity— will drive up to this number of 1, 2 or 3 pole motorized breakers
10, 20, 30, 40

2U — number of DMX512 Universes
1U, 2U, 3U, 4U

-MQD3200 — Main breaker & Main Lug Only options
>>>>>>

3 = 3 phase 208/120v, 4 wire

Load Center Main Breaker Options

Large 3 Phase Load Center

The standard LCLC 341-xx has a factory installed, 3 pole, 225 Amp main breaker (65 kVA transformer) [25kAIR Amps Interrupt Rating].
 Optional main breakers [All 65kAIR]

150A -MQD3150 (45 kVA)
 175A -MQD3175 (50 kVA)
 200A -MQD3200 (60 kVA)

-MLO (Main Lug Only) option:
 We only stock LCLC panels with main breakers. If your specification requires a **-MLO** we will provide it at the same price as the standard panel.

▲ Higher Interrupt Current Option
 LoadCenter: OGL32xxx series 65k AIR main breaker— 150,175, 200 or 225A
 Add the **H** to the model type. Example: LCLCH 341.

Small 3 Phase Load Center

The standard LCLC 326-xx has a bracket-retained, clip-on, back-fed, 3 pole, 100 Amp main breaker.

Optional main breaker sizes available:

⊗ 30A -M3030 (7.5 kVA transformer)
 ⊗ 35A -M3035 (10 kVA)
 + 50A -M3050 (15 kVA)
 + 70A -M3070 (20 kVA)
 + 90A -M3090 (25 kVA)

⊗ 30A & 35A: 10kAIR
 + 50A up: 22kAIR (Amps Interrupt Rating)



RBLC-10 or RBLC-20
 10 or 20 circuit Remote Breaker Lighting Controller
 Provides DMX control for any Square D QO panel by using **BMB** or **MB** breakers.

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

Handle functions as a normal circuit breaker.

When switched off or tripped due to overload, the remote control will not turn on power.

When in the normal ON position, the motorized remote control will turn it off and on.

The motor does not move the handle... it only opens or closes the high current contacts.

Snap on clip with heavy steel force spring. Contact is held tightly in place on panel bus feeder finger.

Under high current stress, magnetic forces actually increase contact pressure.

Also available in Bolt-on versions for Panelboards only.

Red flag snaps into window when circuit breaker is tripped.

Microswitch, behind Actuator arm, opens motor circuit at end of transition.

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!*



Controlled AC POWER OUT

3 wire, low-voltage, 60" pigtail with 600 volt insulation. Connects to Lighting Controller in low voltage cabinet.

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

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

BMB-15 Bolt-on Motorized Breaker, Square D #QOB115PL-5393

MB-15 Clip-on Motorized Breaker, Square D #QO115PL-5393
One pole, 15 Amps. Special 60" leads. Square D trip curve: 730-4

BMB-20 Bolt-on Motorized Breaker, Square D #QOB120PL-5393

MB-20 Clip-on Motorized Breaker, 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 Bolt-on Motorized Breaker, Square D #QOB220PL-5393

MB-220 Clip-on Motorized Breaker, 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 Bolt-on Motorized Breaker, Square D #QOB130PL-5393

MB-30 Clip-on Motorized Breaker, Square D #QO130PL-5393
One pole, 30 Amps. Special 60" leads. Square D trip curve: 730-5

BMB-230 Bolt-on Motorized Breaker, Square D #QOB230PL-5393

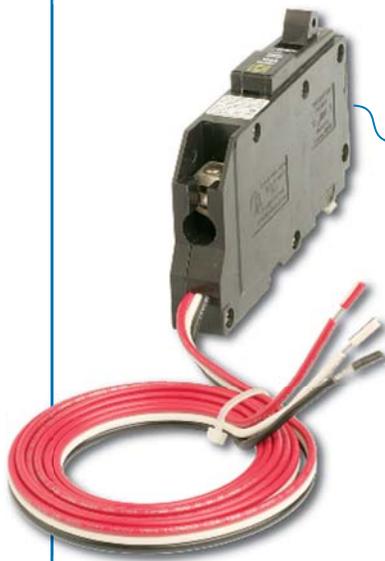
MB-230 Clip-on Motorized Breaker, Square D #QO230PL-5393
Two pole, 30 Amps. Special 60" leads. Square D trip curve: 730-5

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.



Circuits controlled by one or more LC-10 Lighting Control boards

Each LC-10 board has 10 drivers capable of driving one 1, 2 or 3 pole BMB or MB series motorized circuit breakers. Each breaker has its own individual DMX512 address. The motorized breakers may be located in any open slot in the panel.

Bold face type = legends printed on LC-10 boards.

STARTING address

The **STARTING address** is field programmed by installing push-on jumpers.

Each board has a starting DMX address which is typically set between 1 and 503. Subsequent addresses are automatically assigned as needed, determined by how many breakers are attached to the board.

ADDRESS SAVER

To conserve DMX addresses, the LC-10 board only assigns subsequent addresses for breakers it locates at power-up. At power-up, the board scans and pulses all breaker connectors from 1 to 10. Each breaker load found is assigned the next subsequent address regardless of its numerical position.

Empty connectors are skipped to save addresses.

EXAMPLE

If the **STARTING address** were set at 301, the number 1 position would be DMX address 301.

If the second connector had no breaker connected, it wouldn't draw any control current during the power-up scan. It would be skipped and wouldn't be assigned a DMX address.

The third and fourth connectors have breakers and would be assigned DMX addresses 302 and 303.

*To avoid confusion, we would suggest that you not leave spaces except after the last connected breaker. Then your **existing** breaker DMX addresses won't change if you add a breaker. In the above example, if you were to plug a breaker into the empty #2 position and re-scan, those breakers that had addresses 302 and 303, would be **reassigned** new addresses of 303 and 304 for your convenience and amazement.*

NOTE

If a breaker is plugged into a connector **after** power-up it will be ignored until a new power-up scan is run by cycling the DMX CONTROL POWER breaker off for at least 3 seconds.

Indicator LEDs

Amber POWER LED

Power to each LC-10 circuit board is indicated by the amber **POWER** LED.

Numbered Green LEDs, 1 - 10

Green numbered LEDs, adjacent to each breaker connector, light when the circuit breaker motor has been pulsed on. When a "delayed Off command" is executing, the breaker's LED will flash.

Red warning LED

Low Voltage, INVALID address or No Breakers Attached

Low Voltage = A fast red flash indicates AC line voltage is below 105 VAC - No DMX reception or execution.

INVALID address = A slow (1 Hz) red flash indicates an invalid address setting

totaling of more than 512.

Example: With a **STARTING address** set at 504 and 10 breakers attached, the **total** would be 513, exceeding DMX512's capacity.

No Breakers Attached = A continuously lit red LED indicates no breakers were found at the time of the power-up scan.

Green Receiving DMX LED

When the **Receiving DMX** LED is flashing, the system is active and ready to execute DMX commands. The **Receiving DMX** LED *stays* lit during command execution.

Green DMX Output LED

Flickering LED indicates data presence at the Buffered DMX Output.

Brown-out protection

Five seconds after power stabilizes above 105 volts, the board begins receiving DMX signals indicated by a flashing green **Receiving DMX** LED. When the Receiving DMX LED is flashing, the system is ready to execute DMX commands. A **fast** flashing red LED indicates the power hasn't been above 105 volts for the last 5 seconds and the controller is waiting for the power to stabilize before resuming DMX reception.

Motorized Circuit Breaker Low Voltage Connections

Each motorized breaker derives its control power through a 60" - 3 conductor wire. This low voltage, 600 volt insulated, cable is field connected to the Lever-latch 3 pin plugs. The Lever-latch plugs fit into numbered receptacles on the circuit board/s.

DMX CONTROL POWER

The **DMX CONTROL POWER** circuit breaker, mounted in the lower right position in the high voltage section of the panel, is connected to a UL listed 120v to 24v, 40 VA transformer mounted inside the low voltage cabinet.

This 10 amp un-motorized breaker should be left on continuously. This circuit breaker is used as an approved, switchable connection method to the high voltage. The **UL & UL_c** listed transformer is impedance protected with an internal thermal fuse.

Each sequencer board is protected by an on-board 3AG 3/4 amp fuse.

Power required: 50/60 Hz, 6.5 watts per board with 10 breakers in the on condition. 33 watts maximum per panel.

| DMX PROTOCOL for LynTec LC series | | |
|--|--------|--|
| Code Range (8 bit) | % | Circuit Function |
| 0-63 | 0-24 | Turns breaker off. When applied to all breakers simultaneously, they turn OFF at a .25 second step rate. |
| 64-191 | 25-74 | No change |
| 192-255 | 75-100 | Turns breaker on. When applied to all breakers simultaneously, they turn ON at a .25 second step rate. |

ARCHITECTS & ENGINEERS SPECIFICATIONS

for PDF and Word file links

see http://www.lyntec.com/139-0378_LC_Brkr_A&E_Specs.pdf

In the interest of product improvement, specifications are subject to change without notice — see web site for the most current data.

www.**LynTec**.com

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Voice **800-724-4047** • 913-529-2233 • Fax **888-722-4157** • 913-529-4157

Instruction Bulletin

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.

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.

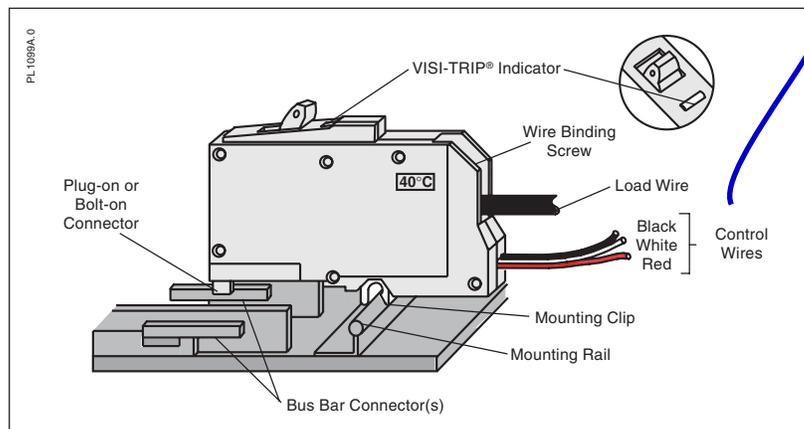
See page 2 for
LynTec
part number explanation

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.

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.

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."

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

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.

LynTec
 part numbers

MB series motorized circuit breakers (Snap-On)
 May be used in LCLC, LCP, MSLC, MSP, SLC or SP series panels.

BMB series motorized circuit breakers (Bolt-On)
 Use only in LCP, MSP or SP Panelboards

All **BMB** & **MB** series breakers have Square D part number suffix of -5393 indicating a special 60 inch lead length for remote control wires required to connect to LynTec control boards in low voltage cabinet.

** = Stocked items

- **MB-15 = 15 Amp. Square D QO-115PL-5393
- **BMB-15 = 15 Amp. Square D QOB-115PL-5393
- **MB-20 = 20 Amp. Square D QO-120PL-5393
- **BMB-20 = 20 Amp. Square D QOB-120PL-5393
- **MB-30 = 30 Amp. Square D QO-130PL-5393
- **BMB-30 = 30 Amp. Square D QOB-130PL-5393
- Two pole motorized - call for pricing & delivery
- MB-215 = 15 Amp.** Square D QO-215PL-5393
- BMB-215 = 15 Amp.** Square D QOB-215PL-5393
- **MB-220 = 20 Amp. Square D QO-220PL-5393
- **BMB-220 = 20 Amp. Square D QOB-220PL-5393
- MB-230 = 30 Amp.** Square D QO-230PL-5393
- BMB-230 = 30 Amp.** Square D QOB-230PL-5393

40A, 50A or 60A, Two pole also available on Special Order

Three pole motorized - call for pricing & delivery

- MB-315 = 15 Amp.** Square D QO-315PL-5393
- BMB-315 = 15 Amp.** Square D QOB-315PL-5393
- MB-320 = 20 Amp.** Square D QO-320PL-5393
- BMB-320 = 20 Amp.** Square D QOB-320PL-5393
- MB-330 = 30 Amp.** Square D QO-330PL-5393
- BMB-330 = 30 Amp.** Square D QOB-330PL-5393

LynTec also stocks **UMB** & **BUMB** (un-motorized) QO series circuit breakers including HM (High Magnetic). Recommended for eliminating nuisance trips in high inrush applications. [All BMB & MB-x15's and BMB & MB-x20's are HM breakers.]

800-724-4047

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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.

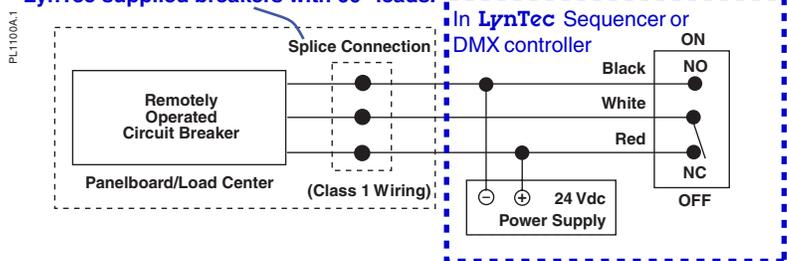
NOTE: The remote mechanism will not move the circuit breaker handle. Also, the remote mechanism cannot turn power ON when the circuit breaker is tripped (VISI-TRIP® flag indicator showing) or when the circuit breaker handle is in the OFF position.

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).

Splice not normally required with LynTec supplied breakers with 60" leads.



Electrical equipment should be installed, operated, serviced and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

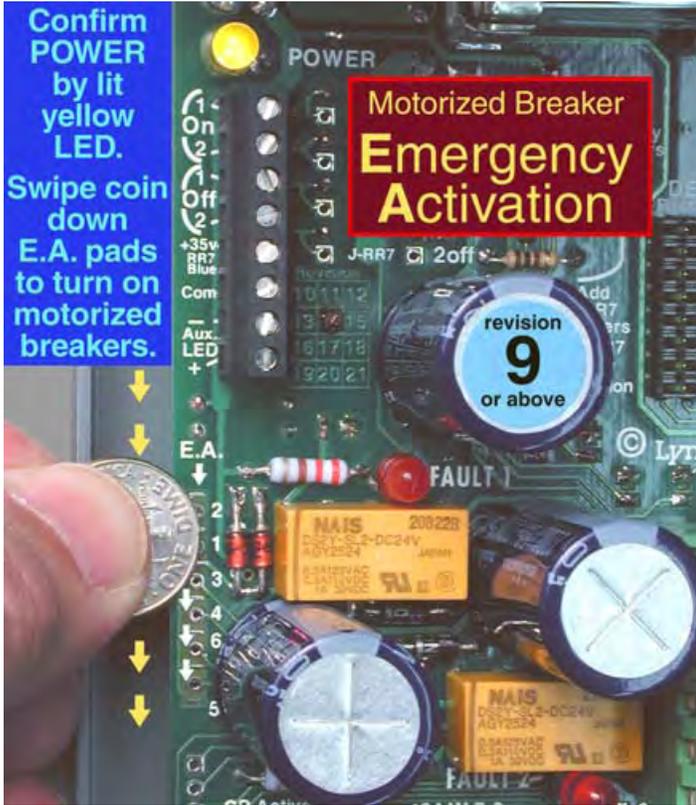
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 3700 Sixth Street SW
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 www.SquareD.com



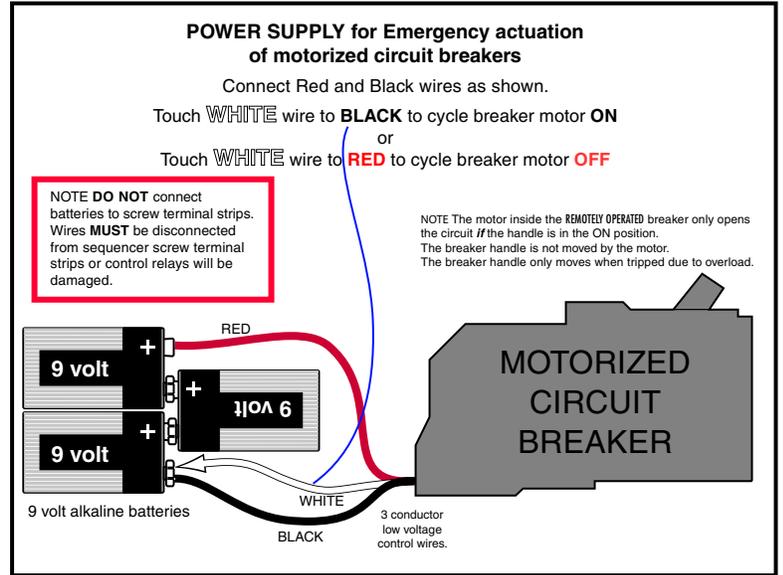
Emergency circuit breaker activation

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

