Motorized Breakers Make Control Easy!

All relay based systems **MUST** be electrically protected by a circuit breaker. Motorized breakers eliminate the need for wall or rack mounted relay based systems...

- Saves Space
- Saves redundant installation and hardware costs!
- UL listed circuit breaker with built-in internal switching capability manufactured by [Square D](https://www.squared.com)
- Time tested, in service over 20 years
- Available in 15A, 20A and 30A - 1, 2 or 3 poles for remote control of all electrical loads
- Robust - rated for 60k on, off, on cycles
- Energy efficient - NO holding current or heat sinks required to maintain state - Runs cool, lasts long!
- Automatic load shedding and brownout protection in every panel.
- Emergency override function standard on every panel.

**Specifying in 5 easy steps**

1. Choose the control method: **SC**=RS-232
2. Choose the cabinet style: **LC** for load center and **P** for panelboard
3. Choose three phase (**3**) or single phase (**1**)
4. Choose the number of circuits: **26** or **41** Panelboards are only available in 41 circuits.
5. Choose the maximum number of controlled circuits: **10,20, 30, 40**, or **50**.

EX: **SCLC 326-20** = a 3 phase load center with 26 circuits (24 max controlled)

**SCP 341-30** = a 3 phase panel board with 41 circuits (30 max controlled)

**All panels and load centers**
SC-10 RS232 PROTOCOL

Commands set

<table>
<thead>
<tr>
<th>Command</th>
<th>Decimal</th>
<th>Hexadecimal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start byte</td>
<td>176</td>
<td>0xB0</td>
</tr>
<tr>
<td>Stop byte</td>
<td>240</td>
<td>0xF0</td>
</tr>
<tr>
<td>Board address</td>
<td>1 - 99</td>
<td>0x01 - 0x63</td>
</tr>
<tr>
<td>Output address</td>
<td>1 - 10</td>
<td>0x01 - 0x0A</td>
</tr>
<tr>
<td>Output ON</td>
<td>180</td>
<td>0xB4</td>
</tr>
<tr>
<td>Output OFF</td>
<td>181</td>
<td>0xB5</td>
</tr>
<tr>
<td>Output status</td>
<td>182</td>
<td>0xB6</td>
</tr>
<tr>
<td>Status of all outputs</td>
<td>189</td>
<td>0xBD</td>
</tr>
<tr>
<td>All ON</td>
<td>186</td>
<td>0xBA</td>
</tr>
<tr>
<td>All OFF</td>
<td>187</td>
<td>0xBB</td>
</tr>
<tr>
<td>Set/clear output verification status*</td>
<td>190</td>
<td>0xBE</td>
</tr>
</tbody>
</table>

*Not be implemented - autoscan can distinguish between RR7 and RR9

2. Commands description

2.1 Outputs ON command

0xB0, board_address, 0xB4, output_address_1, ..., output_address_m, 0xF0

m<=10 (0x0A)

Example: B0 01 B4 04 0A F0, turns on outputs at 4 and 10, on 1st card

2.2 Outputs OFF command

0xB0, board_address, 0xB5, output_address_1, ..., output_address_n, 0xF0

n<=10 (0x0A)

Example: B0 02 B5 09 F0, turns off output at 9, on 2nd card

2.3 Outputs ON/OFF command

0xB0, board_address, 0xB4, output_address_1, ..., output_address_m, 0xB5, output_address_1, ..., output_address_n, 0xF0

m and n<=10 (0x0A)

Example: B0 01 B4 04 0A B5 09 F0, turns on output at 4 and 10, and turns off output at 9, on 1st card

2.4 Outputs status

0xB0, board_address, 0xB6, output_address_1, ..., output_address_m, 0xF0

m<=10 (0x0A)

Example: B0 03 B6 04 0A F0, status of outputs at 4 and 10, on 3rd card

2.5 Status of all outputs

0xB0, board_address, 0xBD, 0xF0

2.6 All ON - turn on all available outputs

0xB0, board_address, 0xBA, 0xF0
2.7 All OFF - turn off all available outputs
0xB0, board_address, 0xBB, 0xF0

2.8 Set/clear output verification status (NOT IMPLEMENTED)
0xB0, board_address, 0xBE, output_address_i, output_ver_status_i, output_address_j, output_ver_status_j, ...
output_address_n, output_ver_status_n, 0xF0

output_address_i, output_ver_status_i, output_address_j, output_ver_status_j, ...
output_address_n - addresses and status of outputs, n<=10

Output_ver_status coding

<table>
<thead>
<tr>
<th>Status</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disable</td>
<td>0x01</td>
</tr>
<tr>
<td>Enable</td>
<td>0x02</td>
</tr>
</tbody>
</table>

When verification status of the output is disabled, the board will always respond with “no verification” status for this output. Verification status shall be disabled for all outputs driving RR7 relays.

3. Responses

3.1 Output status codes

<table>
<thead>
<tr>
<th>Status</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off</td>
<td>0x01</td>
</tr>
<tr>
<td>On</td>
<td>0x02</td>
</tr>
<tr>
<td>Fault</td>
<td>0x03</td>
</tr>
<tr>
<td>No verification, expected off</td>
<td>0x04</td>
</tr>
<tr>
<td>No verification, expected on</td>
<td>0x05</td>
</tr>
<tr>
<td>Empty</td>
<td>0x06</td>
</tr>
</tbody>
</table>

3.2 Output status change response

This response is transmitted when output(s) change(s) status for ANY reason (RS232 command, button push, brown out, recover from brown out, emergency override, recover from emergency override).

0xB0, board_address, 0xB6, output_address_i, output_status_i, ..., output_address_n, output_status_n, 0xF0

n<=10 (0x0A)

Example: B0 01 B6 04 01 05 02 0A 06 F0, output at 4 is off, at 5 is on, and at 10 is empty, on 1st card

3.3 Status of all ten outputs (transmitted only in reply to status of all outputs command)

0xB0, board_address, 0xBD, byte_1, ..., byte_10, 0xF0

Example: B0 02 BD 01 01 01 01 01 02 02 02 02 06 F0, outputs 1 thru 5 are off, 6 thru 9 are on, and 10 is empty, on 2nd card

4. AMX Device Discovery

Beacon request: “AMX\r”

Beacon: “AMXB<-SDKClass=Utility><-Make=Lyntec><-Model=SC10><-Revision=1.0.0>\r”
## SCP 141-xx-M125 to -M225 RS-232 Controlled Panelboard

**Breaker types, sizes, positions and connections**

### Transfer as-built information
- **information**
- **to the door label upon completion.**
- **Keep this sheet for as-built documentation.**

### Available as PDF download
- [www.lyntec.com/139-0575_SCP141_Planner.pdf](http://www.lyntec.com/139-0575_SCP141_Planner.pdf)

### SCP 141-xx-M125 to -M225
- **225A bus**
- **xx = Number of controller circuits 10, 20, 30, 40 or 50.**
- **Cabinet outline - Surface mount only**
- **Outside dimensions: 24.86" w., 50" h., 6.13" d.**
- **Knockout panels supplied in both ends.**

### Panelboard
- **Square D NOOD-NL MB Panel with LynTec sidacar.**
- **Standard SCP Main Breaker:**
  - 225 Amp. - 65k AIR - M225
  - Square D MJP36225
- **Main Breaker options — Parti suffix**
  - **Bold = Amps - M125, M150, M175 or M200 (all 65k AIR)**
  - **(Amps Interrupt Rating)**
  - **Main Breaker wire:** 3/0-350 kcmil Al/Cu.
  - **200% Neutral has one feed lug that accepts two 250 kcmil Cu wires.**

### RS-232 Control Power
- **50A un-motorized breaker supplied installed.**

### Planning and Layout Worksheet — As-built door label
**SCP 141-xx-M125 to -M225 RS-232 Controlled Panelboard**

**Breaker types, sizes, positions and connections**

<table>
<thead>
<tr>
<th>Board 1</th>
<th>1 board model</th>
<th>SCP 141-10 Lighting Control Panelboard</th>
<th>141-10 model holds up to 41 poles. Controls up to 18, 1, 2, or 3 pole breakers.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Board 2</td>
<td>2 board model</td>
<td>SCP 141-20 Lighting Control Panelboard</td>
<td>141-20 model holds up to 41 poles. Controls up to 18, 1, 2, or 3 pole breakers.</td>
</tr>
<tr>
<td>Board 3</td>
<td>3 board model</td>
<td>SCP 141-30 Lighting Control Panelboard</td>
<td>141-30 model holds up to 41 poles. Controls up to 18, 1, 2, or 3 pole breakers.</td>
</tr>
<tr>
<td>Board 4</td>
<td>4 board model</td>
<td>SCP 141-40 Lighting Control Panelboard</td>
<td>141-40 model holds up to 41 poles. Controls up to 18, 1, 2, or 3 pole breakers.</td>
</tr>
<tr>
<td>Board 5</td>
<td>5 board model</td>
<td>SCP 141-50 Lighting Control Panelboard</td>
<td>141-50 model holds up to 41 poles. Controls up to 18, 1, 2, or 3 pole breakers.</td>
</tr>
</tbody>
</table>

### Each motorized breaker is actuated by a command from a RS-232 control device.
- **As-built door label example:**
  - RS-232 # ______ _____Amp.

### 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.

### 41A un-motorized breaker supplied installed.

### Document # 139-0575-00_SCP141 Planner 09/28/11
High voltage interior may be field inverted for top feed

Square D NQOD MB Panel with LynTec sidecars.

225A Copper Bus
Main Breakers available
QGL22xxx series — All 65k AIR
Part# suffix — **Bold face** = Amps
- MQG2070, -MQG2080,
- MQG2090, -MQG2100,
- MQG2110, -MQG2125,
- MQG2150, -MQG2175,
- MQG2100, -MQG2200,
- MQG2225.

Outside dimensions 28" w., 50" h., 6.13" d.
Outline Drawing with optional ITG sidecar

LynTec
SCP 141-xx (25k AIR main)
[Special order, NCNR]

Square D NQOD MB Panel with LynTec sidecars.
225A Copper Bus
Main Breakers available
QGL22xxx series — All 65k AIR
Part# suffix — **Bold face** = Amps
-MQG2070, -MQG2080,
-MQG2090, -MQG2100,
-MQG2110, -MQG2125,
-MQG2150, -MQG2175,
-MQG2100, -MQG2200,
-MQG2225.

Outside dimensions
36" w., 50" h., 6.13" d.
Thermal-magnetic Molded Case Circuit Breakers
250 Ampere Frame
Class 734

QDL & QGL
2 and 3-pole
70–250 Amperes

POWERPACT Q-frame — 250 A, Thermal-magnetic (240 Vac)

<table>
<thead>
<tr>
<th>Current Rating @ 40°C</th>
<th>AC Magnetic Trip Settings</th>
<th>D Interrupting</th>
<th>G Interrupting</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hold</td>
<td>Trip</td>
<td>Catalog Number</td>
</tr>
<tr>
<td>2-pole, 240 Vac</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>70</td>
<td>1000</td>
<td>1800</td>
<td>QDL22070</td>
</tr>
<tr>
<td>80</td>
<td>1000</td>
<td>1800</td>
<td>QDL22080</td>
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<td>90</td>
<td>1000</td>
<td>1800</td>
<td>QDL22090</td>
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<td>110</td>
<td>1200</td>
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<td>QDL22125</td>
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<tr>
<td>150</td>
<td>1200</td>
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<td>QDL22150</td>
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<td>175</td>
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<td>QDL22175</td>
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<tr>
<td>200</td>
<td>1200</td>
<td>2400</td>
<td>QDL22200</td>
</tr>
<tr>
<td>225</td>
<td>1200</td>
<td>2400</td>
<td>QDL22225</td>
</tr>
<tr>
<td>250</td>
<td>1200</td>
<td>2400</td>
<td></td>
</tr>
</tbody>
</table>

3-pole, 240 Vac

<table>
<thead>
<tr>
<th>Current Rating @ 40°C</th>
<th>AC Magnetic Trip Settings</th>
<th>D Interrupting</th>
<th>G Interrupting</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hold</td>
<td>Trip</td>
<td>Catalog Number</td>
</tr>
<tr>
<td>LynTec</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MSP 139</td>
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<td></td>
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<tr>
<td>SCP 139</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>LynTec</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MSP 119, MSP 141</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCP 141</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>LynTec</td>
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<tr>
<td>MSP 338</td>
<td></td>
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<td></td>
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<tr>
<td>LynTec</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>LCLC 326</td>
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<tr>
<td>MSLC 326</td>
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<td>MSLC 338</td>
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<td>MSP 338</td>
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<tr>
<td>SCLC 326</td>
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<tr>
<td>SCLC 338</td>
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<td></td>
</tr>
<tr>
<td>SCP338</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Use a 2 pole, back-fed main breaker, rated at 100 AMPS or less.

Use a 3 pole, back-fed main breaker, rated at 100 AMPS or less.

Interrupting Ratings (kA)

<table>
<thead>
<tr>
<th></th>
<th>QD</th>
<th>QG</th>
</tr>
</thead>
<tbody>
<tr>
<td>240 V</td>
<td>25</td>
<td>65</td>
</tr>
</tbody>
</table>

For Branch Breaker Series Ratings
see http://www.lyntec.com/139-0407_Series_Ratings.pdf

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4/1/04

LynTec 139-0343-04 Q Frame Mains 09/27/11
Derived from Digest 173 — page 6-21
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

For NQOD and NF Panelboards

<table>
<thead>
<tr>
<th>Branch Circuit Breaker Designations and Allowable Amperes Ranges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
</tr>
<tr>
<td>------</td>
</tr>
<tr>
<td>MB-15</td>
</tr>
<tr>
<td>MB-20</td>
</tr>
<tr>
<td>MB-30</td>
</tr>
<tr>
<td>MB-315</td>
</tr>
<tr>
<td>MB-320</td>
</tr>
<tr>
<td>MB-330</td>
</tr>
</tbody>
</table>

### NF Series Ratings

For shown circuit breakers rated less than this maximum voltage, the indicated short circuit breakers may also be used.

<table>
<thead>
<tr>
<th>Main Type</th>
<th>Branch Type</th>
<th>Poles</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 G - B</td>
<td>D E B</td>
<td>1, 2 &amp; 3</td>
</tr>
<tr>
<td>1, 2, 3</td>
<td>1, 2 &amp; 3</td>
<td>1, 2 &amp; 3</td>
</tr>
</tbody>
</table>

### Maximum System Voltage AC

- For most current version see [http://www.lyntec.com/139-0407_Series_Ratings.pdf](http://www.lyntec.com/139-0407_Series_Ratings.pdf)

### Main Type Branch Type Poles

- MB-15, MB-20, MB-30
- MB-315, MB-320, MB-330
- MB series clip-on, UnMotorized Breaker...
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.

---

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."

---

See page 2 for LynTec part number explanation

---

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

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, MSP, SLCL, 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
- **MBM-15 = 15 Amp.** Square D QOB-115PL-5393
- **MB-20 = 20 Amp.** Square D QO-120PL-5393
- **MBM-20 = 20 Amp.** Square D QOB-120PL-5393
- **MB-30 = 30 Amp.** Square D QO-130PL-5393
- **MBM-30 = 30 Amp.** Square D QOB-130PL-5393

Two pole motorized - call for pricing & delivery

- **MB-215 = 15 Amp.** Square D QO-215PL-5393
- **MB-215 = 15 Amp.** Square D QOB-215PL-5393
- **MB-220 = 20 Amp.** Square D QO-220PL-5393
- **MBM-220 = 20 Amp.** Square D QOB-220PL-5393
- **MB-230 = 30 Amp.** Square D QO-230PL-5393
- **MBM-230 = 30 Amp.** Square D QOB-230PL-5393

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

---

**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.

---

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

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