

# THE ATRIUM

## Approval Drawing Package

Factory Order #: 43618433

03/12/2021

Distributor:  
Robertson

Contractor/Installer:  
RIMU Electric

Nirmaljit Parhar  
Sales Representative

Lorne Anderson  
Project Manager  
North American Operating Division  
780-447-6672  
lorne.anderson@se.com

Life Is On

**Schneider**  
Electric

# Submittal Comments

Date: 03/12/2021

Job Name: THE ATRIUM

Factory Order #: 43618433

Contractor Name: RIMU Electric

☐

## Approved

> Release all manufacture  
No re-submittal required

☐

## Rejected

> No release  
Re-submit all

☐

## Approved as Noted

> Release all for manufacture.  
Make necessary changes, show  
Changes on construction Drawings

☐

## Partial Approval Revise and Resubmit

> Release approved sections for manufacture  
Re-submit rejected section

The following information is pertinent with the return of this submittal. Please initial the applicable items that you have reviewed and have determined to be correct.

- \_\_\_\_\_ > Lug sizes
- \_\_\_\_\_ > Top or bottom entry for all equipment
- \_\_\_\_\_ > Shipping splits
- \_\_\_\_\_ > Nameplate information
- \_\_\_\_\_ > Orientation of breakers
- \_\_\_\_\_ > Wire sizes
- \_\_\_\_\_ > Amperages of all bus and breakers
- \_\_\_\_\_ > Surface or flush for panels
- \_\_\_\_\_ > Size of all equipment
- \_\_\_\_\_ > AIC ratings
- \_\_\_\_\_ > Copper or aluminum bus

### Customer Comments/Rejected Items:

Contractors Signature or Stamp:

\_\_\_\_\_



# Approval Drawings

This Approval Drawing Package is submitted as our interpretation of the contract drawings and/or the specifications for this job.

It is the obligation of the electrical contractor and reviewing engineer to determine that the item quantities and accuracy of this submittal is correct as required for the job. Any inaccuracies or deviations must be addressed with Schneider Electric before release to manufacturing. Any releases of material to manufacturing by the above parties constitute an acceptance of the accuracy of the submittal. Any changes after release will be viewed as a change order, subject to pricing changes.

Please take the time to review this package for accuracy to prevent any after-shipment problems. This will allow the job to be shipped correctly and prevent any delay in energization.

Good day,

Schneider Electric is committed to delivering your equipment in good condition.

You are the documented receiver for the shipments on the project contained in this Approval Drawing Package.

Please be sure to receive each shipment correctly.

1: Review that material and check the quantities

2: Check for damage to any of the materials before signing the waybill.

If you see damage, or suspect there might be damage, indicate “Damaged” on the waybill. Take pictures of the damage, and contact your Schneider Electric representative for instructions.

- If you sign the waybill without noting the damage, you are accepting the shipment as complete and undamaged.
- Any damage reported after the waybill is signed will be your responsibility.

If you find concealed damage within 24 hours of receiving the shipment, call the carrier.

- Report the damage, and ask for an inspection by the carrier.

Thank you for working with Schneider Electric to ensure you have completed and undamaged shipments.

Schneider Electric





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NQ Panelboard Handout

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MCFTB6004L / MCFTB6004L

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Meter Centres & Accessories (240V)

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CHOM2448M100GC

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QO Load Centres - Catalog Cuts

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HomeLine Loadcentres - Catalog Cuts

Homeline Circuit Breakers & Accessories

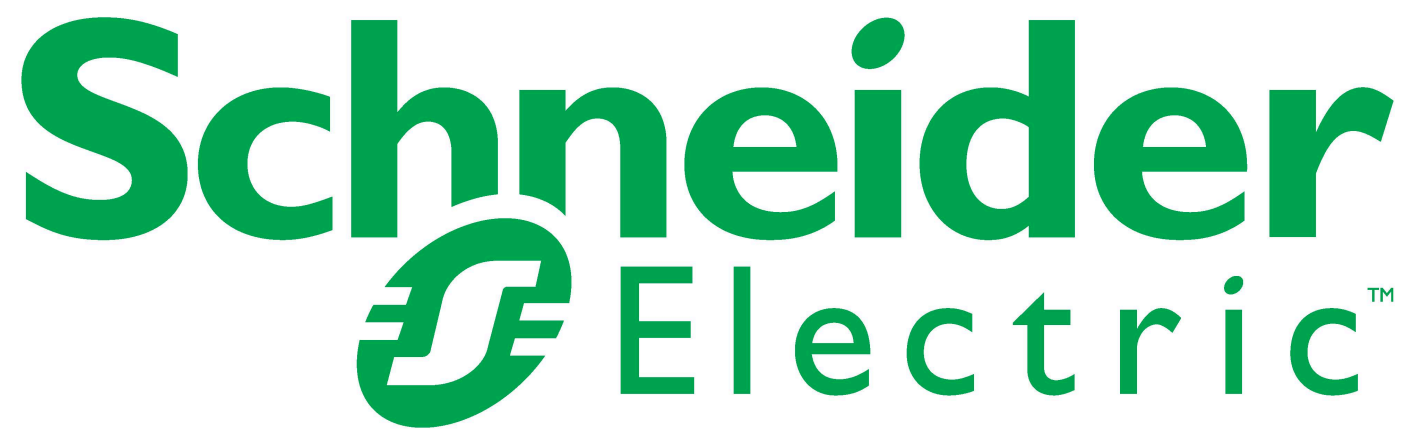
## **SAFETY SWITCH(ES)**

### ***BILL OF MATERIALS AND DRAWINGS***

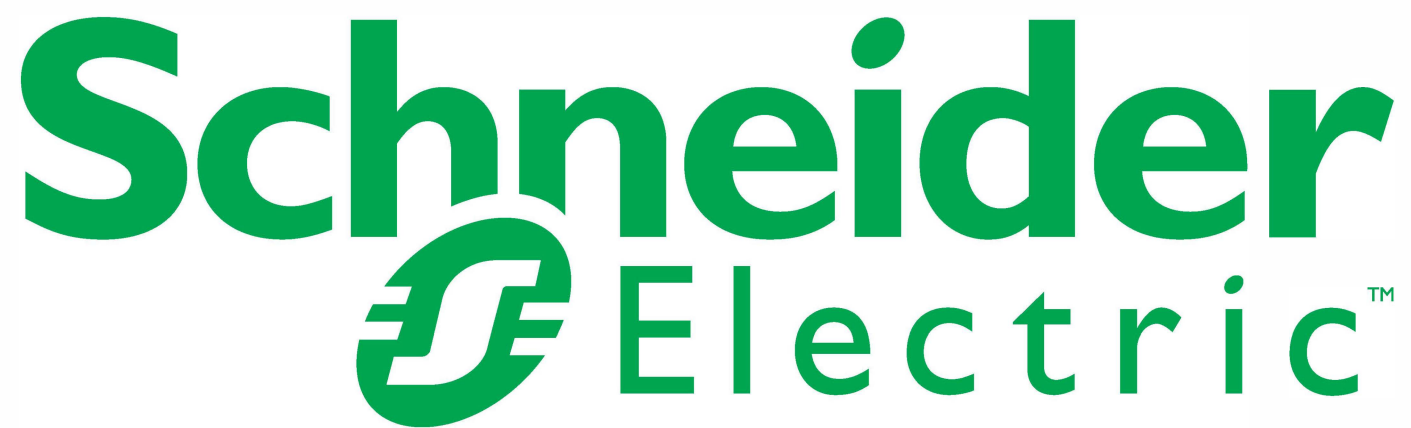
CH362N

### ***LITERATURE***

Safety Switches Heavy Duty Accessories



**SWITCHBOARD(S)**



## **BILL OF MATERIALS AND DRAWINGS**

**Q2C Number:** 43618433**Quote Number:** 1**Revision Number:** 0**Project Name:** THE ATRIUM -19945 BRYDON CRES LANG**Quote Name:**

| Item No. | Qty. | Catalog Number / Details   |
|----------|------|--|
| 001-00   | 1    | <p><b>Designation:</b> MDC<br/>Square D Custom Swbd<br/>QED-2 Switchboard</p> <p>-----</p> <p>Square D Custom Swbd<br/>Designed and Tested in accordance with:<br/>CSA C22.2 NO. 31<br/>System Voltage - 208Y/120V 3Ph 4W 60Hz<br/>System Ampacity - 1600A<br/>Source Description - Single Main<br/>Bussing - Aluminum Plated w/Tin and Copper<br/>Plated w/Silver<br/>Neutral Bus - 100%<br/>Max Available Fault Current (RMS) - 35kA<br/>Enclosure - Type 1<br/>Sprinklered Equipment per CEC Part 1 Rule<br/>26-008<br/>Drip Hood(s)<br/>Accessibility: Front Only<br/>Exterior Paint Color - ANSI 49<br/>Ground Lug provided for each device<br/>Copper Ground Bus<br/>Dimensions</p> <p>-----</p> <p>1 - 30" Wide Section(s)<br/>2 - 36" Wide Section(s)<br/>3 - 24" Deep Enclosure(s)<br/>Dimensions: 102.00" W X 24" Max D X 91.5" H<br/>Approximate Weight: 2175.00 lbs / 986.58 kgs<br/>Incoming Requirements</p> <p>-----</p> <p>Suitable As Service Entrance B.C. Hydro (BC)<br/>Entry Point: Left of Lineup, Through the<br/>Bottom<br/>Connection Type: Cable in Bussed Auxiliary<br/>Provision for B.C. Hydro Cable Clamps<br/>1" Neut. Ground Stud - Incoming Section<br/>1" Ground Stud In Utility Compartment<br/>Utility C/T Comp. per: B.C. Hydro (BC)<br/>Provision for Utility CT's/PT's,<br/>C/T Type - Unknown<br/>Mains</p> <p>-----</p> <p>1 - 1600AS/1600AT 208V 80% Rated 65 kA 3 Pole<br/>UL, Fixed Mounted Electronic Trip<br/>Circuit Breaker: Type RK<br/>Ammeter Trip Unit, Long Time, Short Time,<br/>Instantaneous, Ground Fault<br/>Padlock Attachment<br/>Feeders</p> <p>-----</p> <p>2 - 600AT 208V 80% Rated 65 kA 3 Pole UL,<br/>Group Mounted Basic Electronic Trip<br/>Circuit Breaker: Type MG<br/>1 - 800AT 208V 80% Rated 65 kA 3 Pole UL,<br/>Group Mounted Basic Electronic Trip<br/>Circuit Breaker: Type MG<br/>Common Feeder Features:<br/>Padlock Attachment for M-frame</p> |

**LEFT SIDE VIEW**

91.50 [2324]  
90.00 [2286]  
.50 [13]  
24.00 [610]  
5.50 [140]

**TOP VIEW - FRONT**

24.00 [610]  
2.50 [64]  
31.00 [787]  
2.50 [64]  
14.75 [375]

**FLOOR PLAN - FRONT**

24.00 [610]  
21.00 [533]  
1.50 [38]  
1.50 [38]  
2.50 [64]  
25.00 [635]  
31.00 [787]  
14.25 [362]  
11.85 [301]  
3.1  
5.4  
2.8  
30.00 [762]  
36.00 [914]  
36.00 [914]  
.75/[19] DIA  
MTG HOLES OFFSET  
3.00/[76] TYP  
FROM SIDE

NOTE: ALL DEVICES REQUIRING DRILLING OR INSERTION IN MOUNTING PAD SUCH AS CONDUIT, ANCHORING STUDS, SLEEVE INSERTS, ETC. SHOULD BE INSTALLED BEFORE SETTING EQUIPMENT IN PLACE.

DUAL DIMENSIONS: INCHES  
MILLIMETERS

|                 |                                    |  |                             |
|-----------------|------------------------------------|--|-----------------------------|
| JOB NAME:       | THE ATRIUM -19945 BRYDON CRES LANG | EQUIPMENT DESIGNATION:                   | MDC                         |
| JOB LOCATION:   | 841                                | EQUIPMENT TYPE:                          | QED-2 Switchboard           |
| DRAWN BY:       | (Q2C)                              | DRAWING TYPE:                            | SIDE, TOP VIEW & FLOOR PLAN |
| ENGR:           |                                    | <b>SQUARE D</b><br>by Schneider Electric |                             |
| DATE:           | March 12 2021                      |  |                             |
| DRAWING STATUS: | QUOTE                              | DWG# F43618433-01                        |                             |

**NOT FOR CONSTRUCTION**

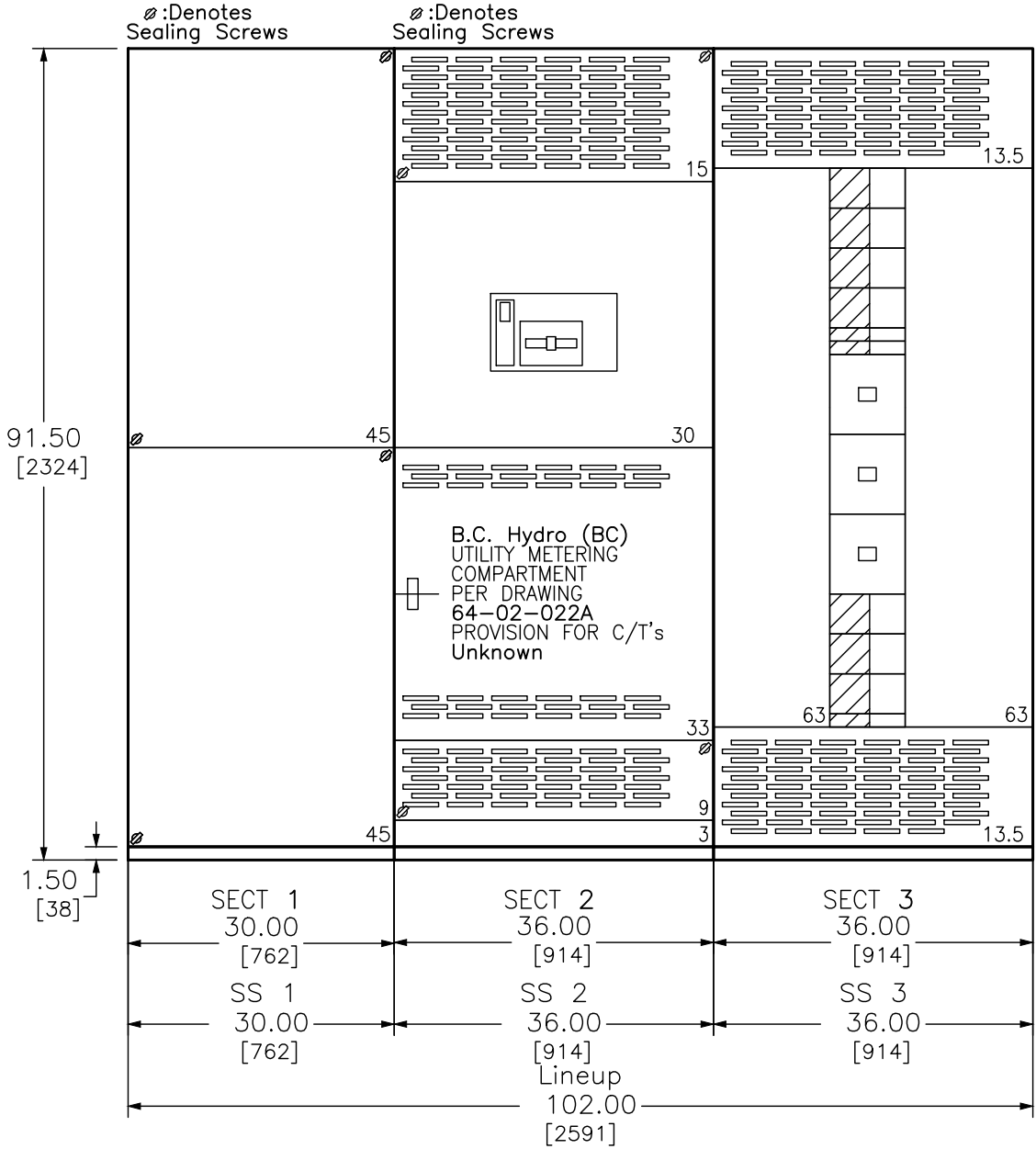
PG 2 OF 2 REV -

| REV | DESCRIPTION | BY | DATE     | - | ---- | -- | --/--/-- | - | ---- | -- | --/--/-- |
|-----|-------------|----|----------|---|------|----|----------|---|------|----|----------|
| -   | ----        | -- | --/--/-- | - | ---- | -- | --/--/-- | - | ---- | -- | --/--/-- |

T-bus  
19.5 in

T-bus  
19.5 in

T-bus  
19.5 in



SWITCHBOARD GENERAL NOTES

PRODUCT DESCRIPTION & RATINGS

Power System Data

208Y/120V 3Ph 4W 60Hz / 3 Phase Wye  
Solidly Grounded  
System Short Circuit Current Rating: 35kA RMS  
Incoming Section 1 Cable Through the Bottom Left of Lineup

Bus System Data

1600A Tin/Aluminum & Silver/Copper Main Bus  
(1) .25x.875 IN/6x22 mm Cu Ground Bus

Enclosure Data

Type 1 Free Standing  
Driphoods  
Sprinklered Equipment per CEC Part 1 Rule 26-008  
Exterior Paint Color: ANSI 49  
Front Accessibility Only Required  
Handling: Rollers & Lifting Assemblies  
Utility Sealing hardware installed on the line side

Estimated Shipping Weight

Shipping Split 1 485.00 lbs / 220.00 kgs  
Shipping Split 2 835.00 lbs / 378.76 kgs  
Shipping Split 3 855.00 lbs / 387.83 kgs  
Complete Lineup 2175.00 lbs / 986.58 kgs

Code Standards

CSA C22.2 NO. 31  
Suitable for Service Entrance B.C. Hydro (BC)  
Not Suitable for Mounting on Combustible Floor

Rating Nameplates

ST1-Section Bus 1600A  
ST2-Section Bus 1600A  
ST3-Section Bus 1600A

PRODUCT INFORMATION

Wiring

All Gray SIS Wire and Min Size #14 Unless Otherwise Noted, and #12 Ground Wire.  
NOTE: (90 Deg. C) insulated conductors must be sized per the (75 Deg. C) column of the CE Code Tables.  
Except the supply cables entering Section 1, (Incoming Wireway) may be sized per the (90 Deg. C) column of the CE Code Tables.


Instruction Bulletins

Reference 80043-055 For Handling, Installation, Anchoring, Inspection And Maintenance Information

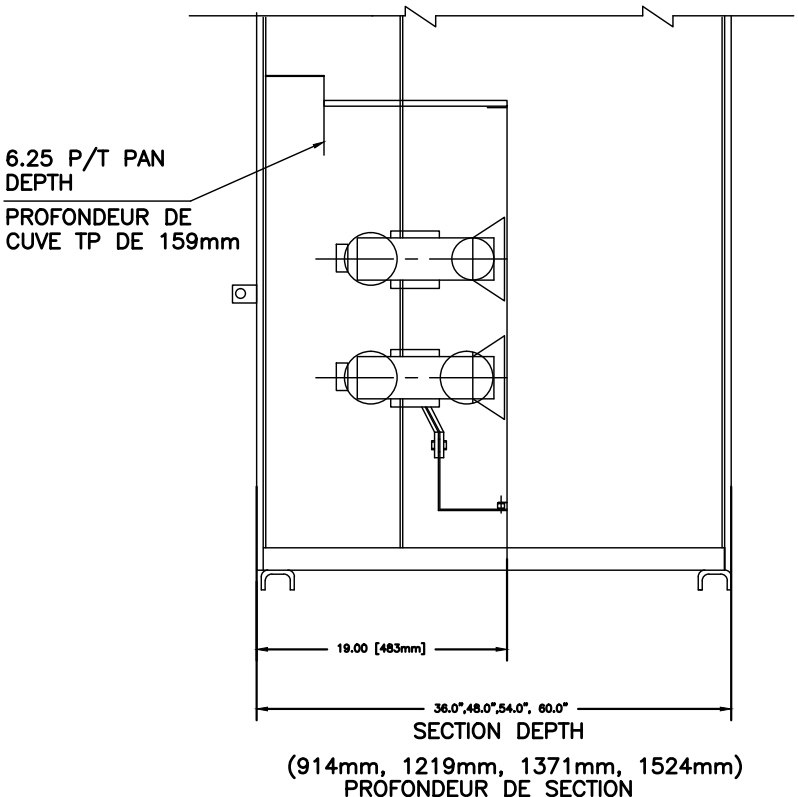
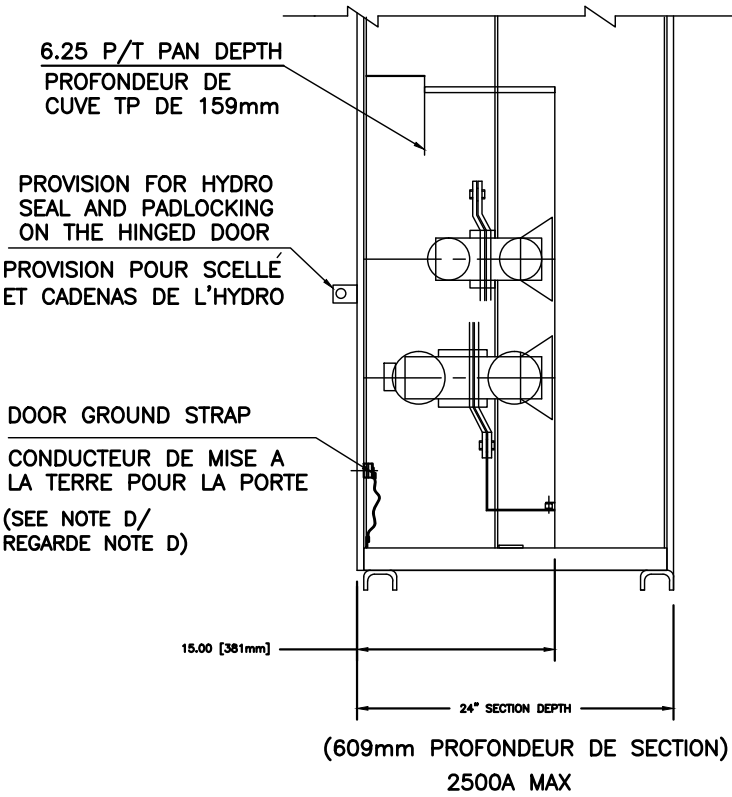
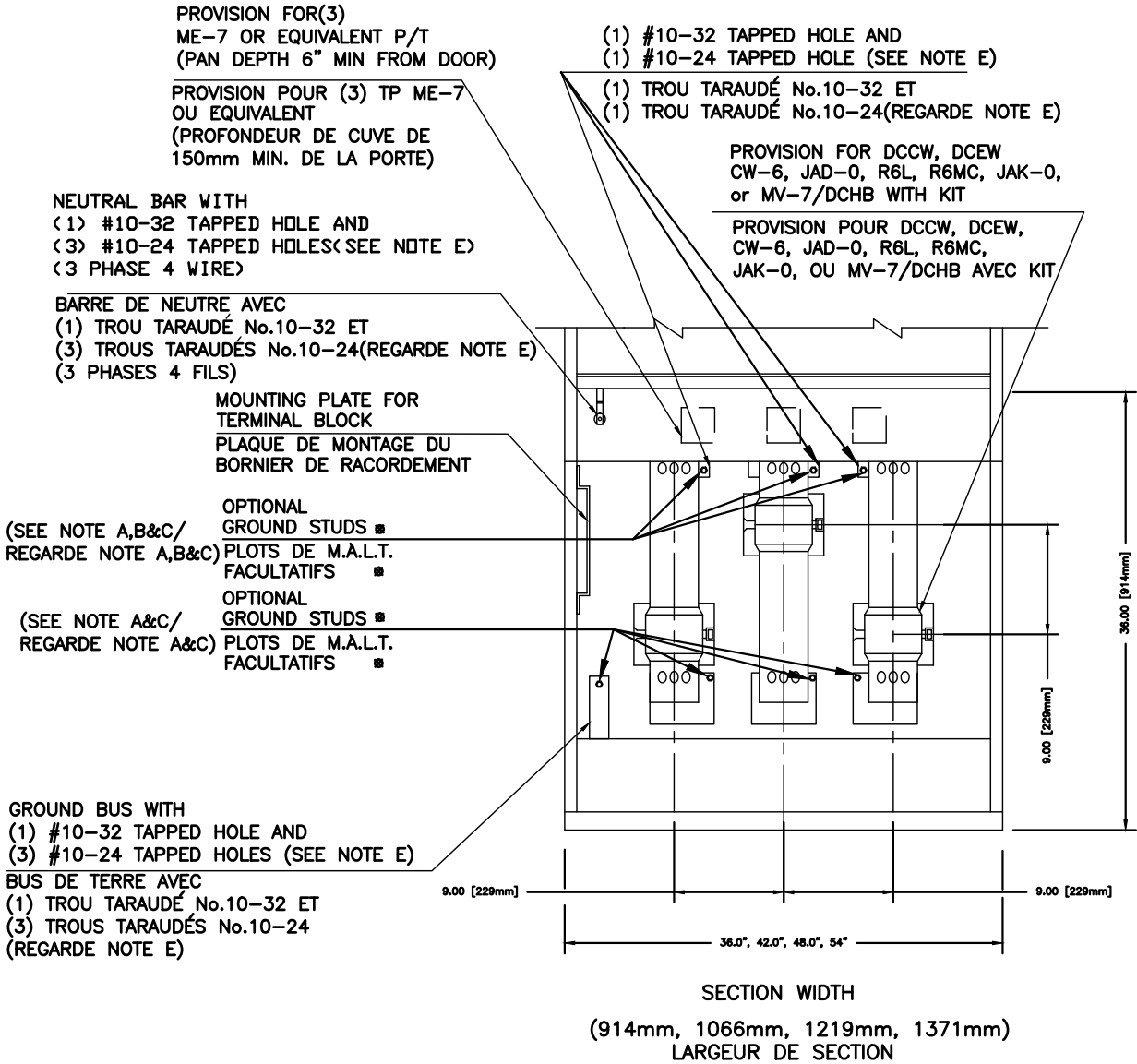
Product Accessories/Options

Provision for B.C. Hydro Cable Clamps  
B.C. Hydro 1" Neurtal Ground Stud in Incoming Aux. Section  
B.C. Hydro 1" Ground Stud in Utility Compartment

DUAL DIMENSIONS: INCHES  
MILLIMETERS

|                 |                                    |  |                   |
|-----------------|------------------------------------|--|-------------------|
| JOB NAME:       | THE ATRIUM -19945 BRYDON CRES LANG | EQUIPMENT DESIGNATION:   | MDC               |
| JOB LOCATION:   | 841                                | EQUIPMENT TYPE:  | QED-2 Switchboard |
| DRAWN BY:       | (Q2C)                              | DRAWING TYPE:  | ELEVATION VIEW    |
| ENGR:           |                                    | <br>by Schneider Electric |                   |
| DATE:           | March 12 2021                      |  |                   |
| DRAWING STATUS: | QUOTE                              | NOT FOR CONSTRUCTION   | DWG# F43618433-01 |
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|                 |                                    |  | REV -             |


| REV | DESCRIPTION | BY | DATE     |   |      |    |          |   |      |    |          |   |      |    |          |   |      |    |          |   |
|-----|-------------|----|----------|---|------|----|----------|---|------|----|----------|---|------|----|----------|---|------|----|----------|---|
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UTILITY C/T COMPARTMENT  
DISPOSITION DU COMPART. SERV. PUBLICS (CSP)

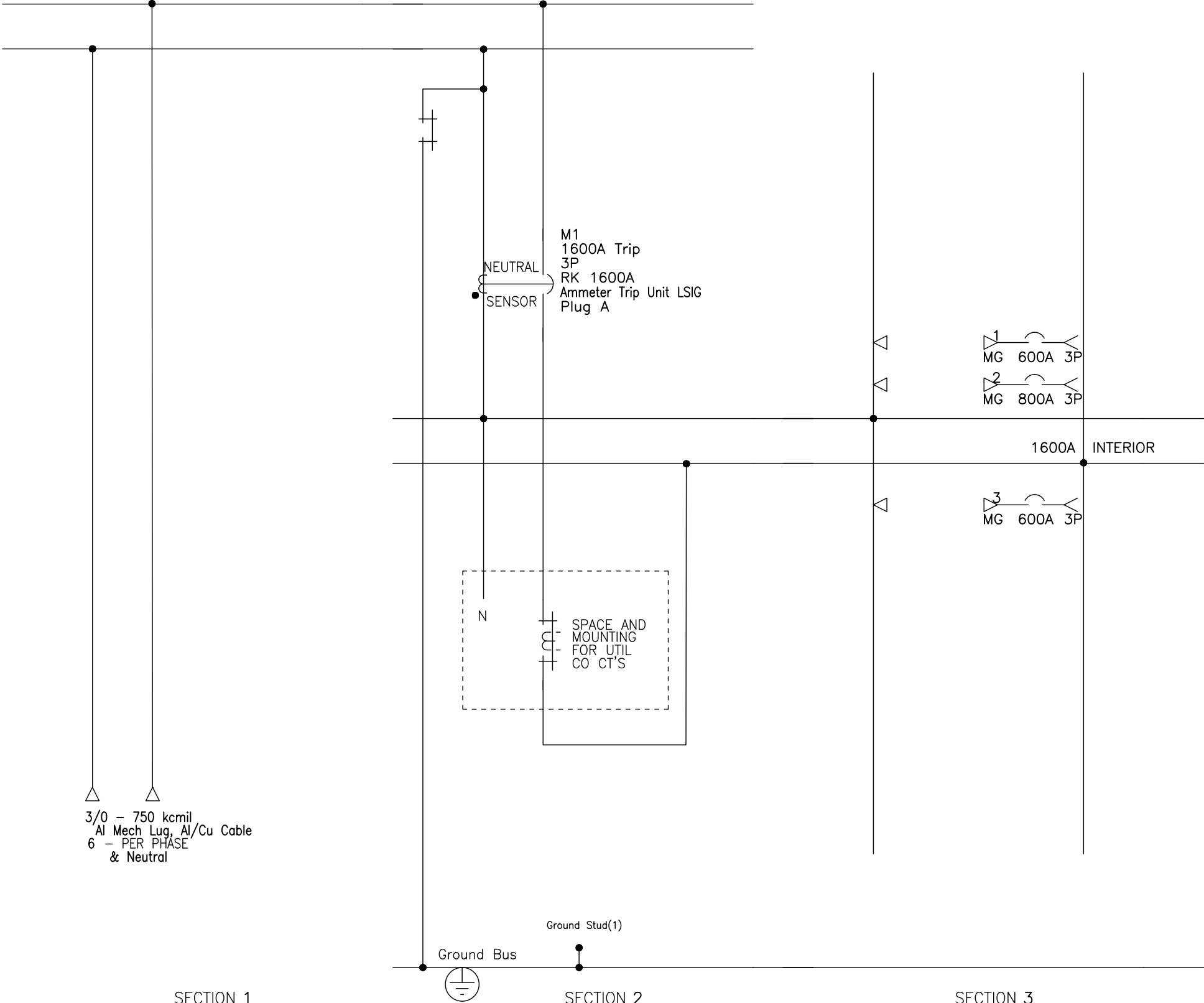
Drawing Ref. 64-02-022A

NOTES:  
A- REQUIRED FOR QUEBEC HYDRO AND HYDRO ONE BRAMPTON/ DEMANDE POUR L'HYDRO QUEBEC ET L'HYDRO ONE BRAMPTON.  
B- REQUIRED FOR HYDRO ONE BRAMPTON/ DEMANDE POUR L'HYDRO ONE BRAMPTON.  
C- BALL TYPE GROUND STUD 3/4" DIA FOR QUEBEC HYDRO AND 1" DIA FOR HYDRO ONE BRAMPTON NEED TO BE PERMANENTLY MOUNTED  
D- REQUIRED FOR QUEBEC HYDRO/ DEMANDE POUR L'HYDRO QUEBEC.  
E- REQUIRED FOR TORONTO HYDRO/ DEMANDE POUR L'HYDRO TORONTO

|                 |                                    |  |                   |
|-----------------|------------------------------------|--|-------------------|
| JOB NAME:       | THE ATRIUM -19945 BRYDON CRES LANG | EQUIPMENT DESIGNATION:   | MDC               |
| JOB LOCATION:   | 841                                | EQUIPMENT TYPE:  | QED-2 Switchboard |
| DRAWN BY:       | (Q2C)                              | DRAWING TYPE:  | UTILITY DRAWING   |
| ENGR:           |                                    | <br>by Schneider Electric |                   |
| DATE:           | March 12 2021                      |  |                   |
| DRAWING STATUS: | QUOTE                              | DWG# F43618433-UT  | PG 1 OF 1 REV -   |



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|-----|-------------|----|----------|---|------|----|----------|---|------|----|----------|
| REV | DESCRIPTION | BY | DATE     | - | ---- | -- | --/--/-- | - | ---- | -- | --/--/-- |
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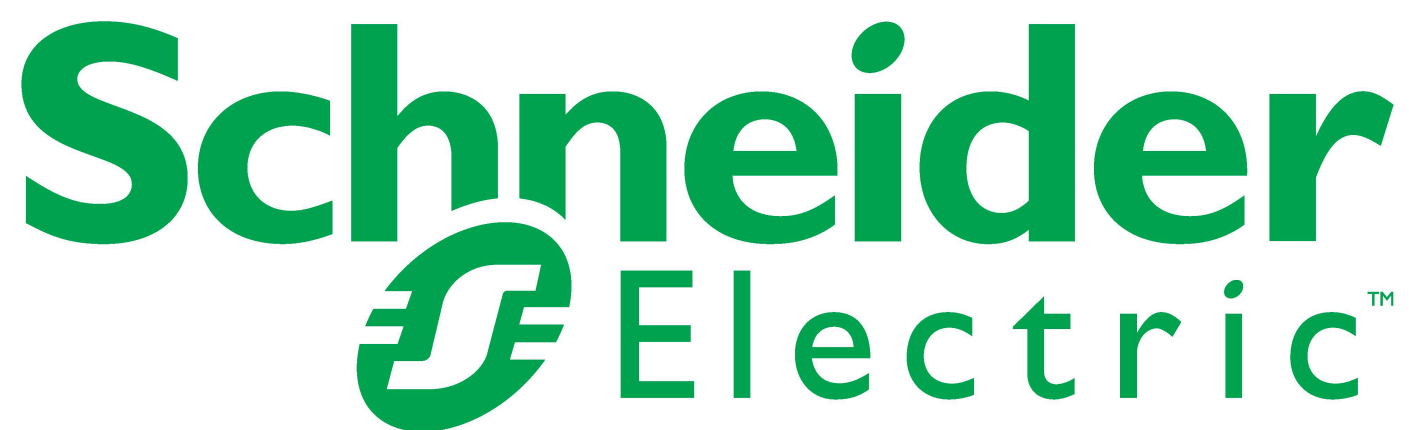
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|-----------------|------------------------------------|---|-------------------|
| JOB NAME:       | THE ATRIUM -19945 BRYDON CRES LANG | EQUIPMENT DESIGNATION:                                    | MDC               |
| JOB LOCATION:   | 841                                | EQUIPMENT TYPE:   | QED-2 Switchboard |
| DRAWN BY:       | (Q2C)                              | DRAWING TYPE:   | ONE LINE          |
| ENGR:           |                                    | <div>SQUARE D<sup>™</sup><br/>by Schneider Electric</div> |                   |
| DATE:           | March 12 2021                      |   |                   |
| DRAWING STATUS: | QUOTE                              | DWG#  | 043618433-01      |
|                 |                                    | PG  | 1 OF 2            |
|                 |                                    | REV   | -                 |

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| REV | DESCRIPTION | BY | DATE       |   | ---   | --- | ---/---/--- |   | ---   | --- | ---         | --- |
| -   | -----       | -- | --/---/--- | - | ----- | --  | ---/---/--- | - | ----- | --  | ---/---/--- | --- |

| POWER STYLE QED-2 SWITCHBOARD |        |                 |                     |          |            |    |                 |     |                      |                  |     |                 |                     |
|-------------------------------|--------|-----------------|---------------------|----------|------------|----|-----------------|-----|----------------------|------------------|-----|-----------------|---------------------|
| SECT NO                       | CKT NO | IMD /GMD CONFIG | DEVICE/FRAME RATING | TRIP AMP | FUSE/ TRIP | #P | DESIGNATION     | N/P | LUG/WIRE INFORMATION |                  |     |                 | ACCESSORIES / NOTES |
|                               |        |                 |                     |          |            |    |                 |     | QTY                  | PHASE WIRE RANGE | QTY | NEUT WIRE RANGE |                     |
| 1                             | -      | -               | Incoming Connection | -        | -          | -  | -               | -   | 6                    | 3/0 - 750 kcmil  | 6   | 3/0 - 750 kcmil |                     |
| 2                             | M1     | FIX             | RK 1600A Plug A     | 1600A    | A-LSIG     | 3P |                 | No  | -                    | -                | -   | -               | GF PLA              |
| 2                             | UCT    | -               | 1600A               | -        | -          | -  | B.C. Hydro (BC) | No  | -                    | -                | -   | -               |                     |
| 3                             | 1      | 9 in            | MG                  | 600A     | -          | 3P |                 | No  | 2                    | 4/0 - 500kcmil   | 2   | 4/0 - 500kcmil  | PLA                 |
| 3                             | 2      | 9 in            | MG                  | 800A     | -          | 3P |                 | No  | 3                    | 3/0 - 500 kcmil  | 3   | 3/0 - 500kcmil  | PLA                 |
| 3                             | 3      | 9 in            | MG                  | 600A     | -          | 3P |                 | No  | 2                    | 4/0 - 500kcmil   | 2   | 4/0 - 500kcmil  | PLA                 |

| LEGEND |                          |
|--------|--------------------------|
| GF     | Ground Fault             |
| PLA    | Padlock Attachment-Fixed |

|                 |                                    |  |                   |
|-----------------|------------------------------------|--|-------------------|
| JOB NAME:       | THE ATRIUM -19945 BRYDON CRES LANG | EQUIPMENT DESIGNATION:                         | MDC               |
| JOB LOCATION:   | 841                                | EQUIPMENT TYPE:                                | QED-2 Switchboard |
| DRAWN BY:       | (Q2C)                              | DRAWING TYPE:                                  | SCHEDULE          |
| ENGR:           |                                    | <div>SQUARE D™<br/>by Schneider Electric</div> |                   |
| DATE:           | March 12 2021                      |  |                   |
| DRAWING STATUS: | QUOTE                              | DWG# 043618433-01                              | PG 2 OF 2 REV -   |



**LITERATURE**



A tradition of distinction, with  
a mission to innovate solutions  
for tomorrow

Square D Low Voltage Family of Switchboards



# QED Family of Switchboards

Square D brand QED switchboards from Schneider Electric set the standard for switchboard reliability.



Their durable construction and flexible design continue to make them a favorite switchboard among consulting engineers, builders, facility managers and electrical personnel. And with Future Ready™ components, such as Masterpact™ MTZ power circuit breakers, PowerPact™ circuit breakers, and advanced metering, QED switchboards are ready to fit into any EcoStruxure™ Power application.

Square D™ low voltage switchboards are available in both standard and custom versions. Standard versions use preconfigured designs and offer optimized lead times as short as four weeks.

Custom versions of switchboards are also available to accommodate project-specific design criteria.

## Connectivity Is the Key to Reliability, Up-time, and Sustainability

To meet today's challenges, your electrical equipment has to be reliable, provide maximum uptime, and communicate in ways building managers have only dreamed of. Well ... welcome to the new world of Square D brand QED switchboards from Schneider Electric. Now featuring the Masterpact MTZ air circuit breaker, you can avoid surprises with direct access and control of your operations in a variety of ways that best suit your needs and application.

With secure wireless connectivity at the local level, you can connect to, upgrade, exercise, and maintain individual circuit breakers. With networked solutions, you can collect data, receive alerts for maintenance and make use of enterprise-wide connectivity to manage your operation more efficiently and securely.

EcoStruxure Power offers advanced power system communication at every level of your operation. Connected products such as Masterpact MTZ circuit breakers are a key component of EcoStruxure Power, providing real-time operations data, smart analytics, and improved safety and security to your facility and processes. Welcome to the future of power.

EcoStruxure enables Schneider Electric, our partners, and end-user customers to develop scalable and converged IT/OT solutions that:

- Maximize energy efficiency and sustainability through smarter systems and real-time, data-driven decisions.
- Optimize asset availability and performance through predictive analytics and proactive maintenance.
- Enable smart, productive, and profitable operations through reduction of waste and downtime.
- Provide mobile insight and proactive risk-mitigation through simulation, situational awareness, and digitization.
- Foster open innovation and interoperability through development and partnerships with leading standards organizations and best-in-class technology leaders.

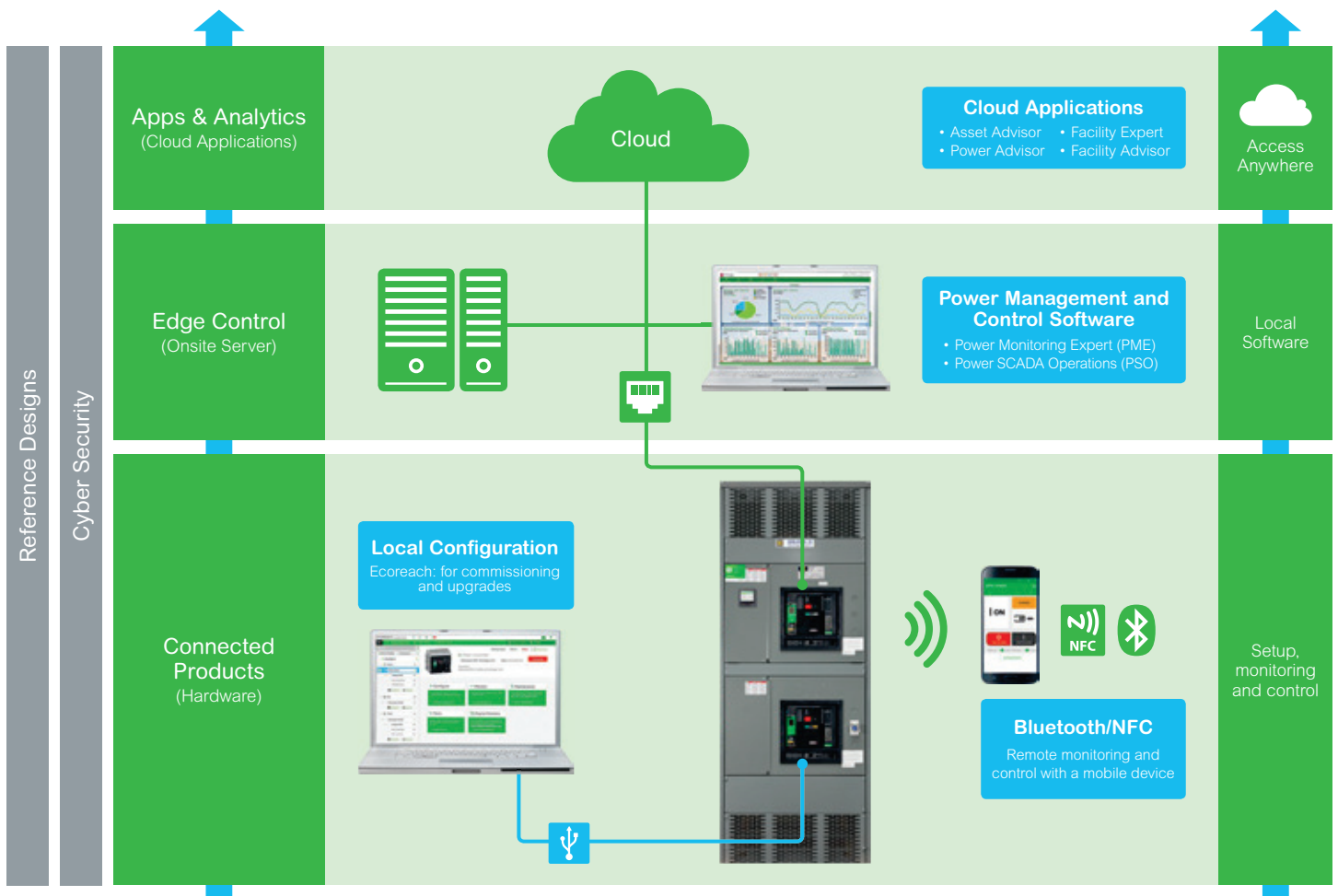
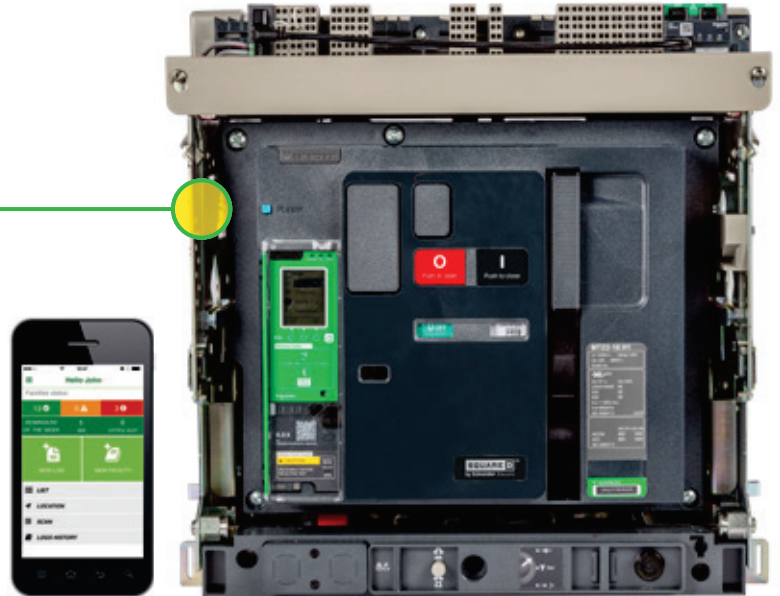


## Masterpact™ MTZ

**FUTURE READY**

### Wireless Connections

- Connect via wireless, or locally with Bluetooth® and NFC connections
- Review status via smartphone: self-diagnosis, load levels, alarms, protection settings
- Review energy consumption, power quality, phase balance, and health status
- Review locally in the electrical room on the Micrologic™ X display, on your smartphone, or on an installed display monitor





# Get It Faster

As project schedules get tighter and tighter, use the RapidSource™ service to save time and money on your next project. Our high quality, pre-engineered solutions provide shorter lead times and reliable, on-time delivery of equipment when and where you need it.

## Faster project turn around



### Save Time

Shorter Equipment Lead Times



### Speed Construction

Projects move quicker with expedited delivery schedule



### Fast and easy quotation and ordering

On-line product configuration tools



### Reduce project downtime

On-demand factory-approved drawings allow earlier starts on installation set-up



# Standard QED-2 Switchboards

We are able to provide a more responsive, faster and more flexible switchboard solution by focusing on the most frequently requested ratings and options of our standard Square D QED-2 Switchboards. We are constantly expanding the offer and can ship most options in four weeks.



## Ratings

- Up to 4000A and 100kAIC
- Bus Bar Plating – Alum/ Tin and Copper/Silver

## Enclosure Options

- NEMA Type 1
- Outdoor NEMA Type 3R



## Group Mounted Devices With Metering down to 15 Amps

PowerPact with Micrologic trip units offer capability to meter energy down to 15A. Standard trip units provide convenient, local data access through a high visibility front display.



## Metering Options

- Powerlogic™ Power Meters
- ION Meters

## Surge Protection

- Surgelogic™ surge protection in main section or I-Line™ interior



## Unrestricted Branch Mounting

The unique design of the I-Line single or double row distribution section allows branch circuit breakers the flexibility to mount a 15A circuit breaker next to a 1200A circuit breaker. This presents the opportunity for more effective use of space.



## Individually Mounted Devices

- PowerPact R, P, and M
- Masterpact NW Fixed
- Bolted Pressure Switch
- Main Lugs
- Utility Compartments



## Energy Reduction Maintenance Switch

Individually and group mounted devices



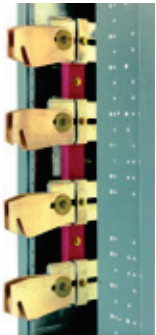
# A Tradition of Distinction

## Square D QED-2 Low Voltage Switchboards

Square D QED-2 switchboards set the standard for system solutions of today and those of tomorrow by delivering on higher expectations and standards! Square D Switchboards have been setting the standards for electrical distribution systems due to their trusted durable construction and continuous innovative progression that keeps Square D one step ahead of all others. This progression includes integrating power metering and communications capabilities providing direct access to energy management at main and feeder level. This allows for flexibility in developing simple or complex monitoring solutions, as well as future expansion. Square D low voltage custom switchboards are designed to distribute electrical power and provide a reduced footprint without compromising performance or versatility.

### A Solid Foundation

Square D switchboard ratings offer a robust solution through 5,000 A and 200 kA. Higher feeder ampacities are available with individually mounted branch devices up to 4,000 A.



### Innovative but Familiar

The Quick Connect capability allows for a simple and seamless connection when installing. Even though Square D switchboards continue to become more innovative, the quality and familiarity of the equipment leads the industry.

### Energy Reduction Maintenance

An ERMS switch meets the NEC 240.87 code for arc flash energy reduction, improving worker safety by modifying the trip curve. A "Maintenance Mode" switch is mounted on the switchboard.

### Industry Leading Compact Footprint

Square D switchboard were designed with the customer in mind. They provide front accessibility that aids in reducing footprint as well as provides convenient access for maintenance.





### EcoStruxure Power Communications

EcoStruxure Power provides networked metering and status data from Square D switchboards and other electrical equipment. Masterpact and PowerPact circuit breakers with Micrologic control units offer energy and power quality metering capabilities integrated into the control units. Combined with the EcoStruxure Power, circuit breakers can be networked, monitored and controlled remotely, revealing opportunities to reduce downtime and monitor energy use for savings in electric system operating costs.



### Designed with the Customer in Mind

Square D Switchboards allow for custom engineering for each line-up such as Main-Tie-Mains, Automatic Transfers, Commercial Multi-Metering, and reduced height configurations.



### Efficient Distribution

The I-Line distribution section is enhanced for safety and ease of installation.

The I-Line offers jaw-type connections which provide a firmer, more secure grip on the bus bar under high-level fault conditions for improved uptime. Distribution sections are available in single or double row construction allowing an increased power density in a compact footprint.





## Other Special Switchboards Include:

- Quick Connect Generator Switchboard
- Corner Grounded Delta Systems
- Fire Pump Connections
- Utility Metering
- Power-Style QED Switchboards with Connection to MCCs
- Commercial Multi-Metering Switchboards



# Maintain Quality in Your Electrical Room

## 1 Comply with requirements as follows:

| Standards       |   |
|-----------------|---|
| UL 50           | Enclosures for Electrical Equipment                   |
| UL 98           | Enclosed and Deadfront Switches                       |
| UL 489          | Molded Case Circuit Breakers                          |
| UL 891          | Deadfront Switchboards                                |
| UL 977          | Fused Power Circuit Devices                           |
| UL 943          | Ground Fault Circuit Interrupters                     |
| UL 1053         | Ground Fault Sensing and Relaying Equipment           |
| NEC Article 834 | Switchboards  |
| NFPA 70         | National Electrical Code® (NEC®)                      |
| ANSI/IEEE C12.1 | Code for Electricity Metering                         |
| ANSI C39.1      | Electrical Analog Indicating Instruments              |
| ANSI C57.13     | Instrument Transformers                               |
| NEMA AB 1       | Molded Case Circuit Breakers and Molded Case Switches |
| NEMA PB 2       | Switchboards  |

## 2 Switchboard Electrical Ratings:

- a Nominal AC System Voltage: [600 Vac] [480 Vac] [240 Vac] [208 Vac]
- b Maximum Design Voltage: 600 Vac
- c Maximum Short-Circuit Current: 100 kAIR (@ 635 Vac)

## 3 Switchboard General Construction:

- a Indoor NEMA 1 Enclosure or Outdoor NEMA 3R Enclosure
- b Fixed or Drawout Circuit Breakers
- c Removable Rear Cover Panels Secured with Captive Screws [Hinged Doors]

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January 2019

Document Number 2740BR1801

## **Section 1—General Information**

### **Introduction**

PowerPact® M-frame, P-frame and R-frame and Compact® NS630b–NS3200 electronic trip molded case circuit breakers are designed to protect electrical systems from damage caused by overloads, short circuits, and ground faults. All circuit breakers are designed to open and close a circuit by nonautomatic means and to open the circuit automatically on a predetermined overcurrent. Electronic trip molded case circuit breakers use an electronic trip system to signal the circuit breaker to open automatically.

The PowerPact M-frame (800 A frame size), P-frame (1200 A frame size) and R-frame (2500 A frame size) circuit breakers are dual rated to UL489 and IEC 60947-2. The Compact NS630b–NS1600 (1600 A frame size) and NS1600b–NS3200 (3200 A frame) circuit breakers are rated to IEC 60947-2 only.

M-frame molded case circuit breakers are equipped with a basic ET1.0I electronic trip system, which has a fixed long-time (overload) setting and an adjustable instantaneous (short-circuit) trip setting. P-frame, R-frame and NS630b–NS3200 molded case circuit breakers are available with a basic ET 1.0I electronic trip system and with a more advanced Micrologic® trip system. Electronic trip motor circuit protectors (trip system ET 1.0M), which trip on short circuit only, and automatic molded case switches, which trip at a predetermined self-protection level only, are also available for special applications. All of these circuit breakers are available brand labeled as Square D, Merlin Gerin or Federal Pacific.

For information on other molded case circuit breakers manufactured by Square D, see the data bulletins *Thermal-Magnetic and Magnetic-Only Molded Case Circuit Breaker, Class 601* and *Electronic Trip Molded Case Circuit Breakers, Class 602*.

### **Features and Benefits**

M-frame, P-frame, R-frame and NS630b–NS3200 electronic trip circuit breakers:

- Provide overload and short-circuit protection
- Are true RMS sensing devices
- Provide means to manually disconnect power to the circuit
- Provide enhanced coordination by their adjustability
- Provide high interrupting ratings and withstand ratings

Circuit breakers with Micrologic trip units can also:

- Provide integral equipment ground-fault protection or alarm
- Provide communications
- Provide power monitoring
- Provide protective relaying functions
- Provide zone-selective interlocking (ZSI), which can reduce damage in the event of a fault

### **Specifications**

Electronic trip molded case circuit breakers have a molded case made of a glass-reinforced insulating material (thermal set composite resin) that provides high dielectric strength. These circuit breakers:

- Are available in either dual-rated UL/IEC or IEC-only constructions
- Dual-rated UL/IEC circuit breakers are also CSA and ANCE certified
- Are manufactured in unit-mount, I-Line® and drawout (P-frame and NS630b–NS1600) constructions
- Are available with either type ET or Micrologic electronic tripping systems
- Provide optional power monitoring, communications, protective relaying, integral ground-fault protection for equipment and zone-selective interlocking functions

## M-frame, P-frame, R-frame and NS630b–NS3200 Electronic Trip Circuit Breakers General Information

- Share common tripping of all poles
- Can be mounted and operated in any position
- Are equipped with an externally-accessible test port for use with hand-held and full-function test sets
- Are available in motor circuit protector and automatic molded case switch constructions
- Can be reverse connected, without restrictive LINE and LOAD markings
- Meet the requirements of NEC® Sections 240.6 by providing a means to seal the rating plug and trip unit adjustments

### Codes and Standards

M-frame, P-frame, R-frame and NS630b–NS3200 electronic trip circuit breakers and switches are manufactured and tested in accordance with the following standards:

**Table 1: Standards**

| M-Frame, P-Frame and R-Frame Circuit Breakers   | P-Frame and R-Frame Switches  | NS630b–NS3200 Circuit Breakers  | NS630b–NS3200 Switches  |
|---|---|---|---|
| UL 489 <sup>1</sup><br>IEC Standard 60947-2<br>CSA 22.2 No 5-02<br>Federal Specification<br>W-C-375B/GEN<br>NEMA AB1<br>NMX J-266<br>UTE, VDE, BS, CEI, UNE | UL 489 <sup>2</sup><br>IEC Standard 60947-3<br>CSA 22.2 No 5-02<br>Federal Specification<br>W-C-375B/GEN<br>NEMA AB1<br>NMX J-266<br>UTE, VDE, BS, CEI, UNE | IEC Standard 60947-2<br>Federal Specification<br>W-C-375B/GEN<br>NEMA AB1<br>UTE, VDE, BS, CEI, UNE | IEC Standard 60947-3<br>Federal Specification<br>W-C-375B/GEN<br>NEMA AB1<br>UTE, VDE, BS, CEI, UNE |

<sup>1</sup> PowerPact® M-frame circuit breaker is in UL File E10027.  
PowerPact P-frame circuit breaker is in UL File E63335.  
PowerPact R-frame circuit breaker is in UL File E10027.

<sup>2</sup> PowerPact P-frame switch is in UL File E103740.  
PowerPact R-frame switch is in UL File E33117.

Circuit breakers should be applied according to guidelines detailed in the National Electrical Code® (NEC®) and other local wiring codes.

### Circuit Breaker Ratings

#### Interrupting Rating

The interrupting rating is the highest current at rated voltage the circuit breaker is designed to safely interrupt under standard test conditions. Circuit breakers must be selected with interrupting ratings equal to or greater than the available short-circuit current at the point where the circuit breaker is applied to the system (unless it is a branch device in a series rated combination). Interrupting ratings are shown on the front of the circuit breaker.

**Table 2: UL/IEC Circuit Breaker Interrupting Ratings**

| Circuit Breaker | UL/CSA Rating (60 Hz) |              |              |                  |              |              | IEC 60947-2 Rating (50/60 Hz) |              |              |              |
|-----------------|-----------------------|--------------|--------------|------------------|--------------|--------------|-------------------------------|--------------|--------------|--------------|
|                 | 3 Phase               |              |              | Grounded B Phase |              |              | 240 Vac                       |              | 380/415 Vac  |              |
|                 | 240 Vac               | 480 Vac      | 600 Vac      | 240 Vac 2P       | 240 Vac 3P   | 480 Vac 3P   | Icu                           | Ics          | Icu          | Ics          |
| MG              | 65 kA                 | 35 kA        | 18 kA        | 65 kA            | 65 kA        | 35 kA        | 50 kA                         | 25 kA        | 35 kA        | 20 kA        |
| MJ              | 100 kA                | 65 kA        | 25 kA        | 65 kA            | 65 kA        | 35 kA        | 65 kA                         | 35 kA        | 50 kA        | 25 kA        |
| PG              | 65 kA                 | 35 kA        | 18 kA        | 65 kA            | 65 kA        | 35 kA        | 50 kA                         | 25 kA        | 35 kA        | 20 kA        |
| PJ              | 100 kA                | 65 kA        | 25 kA        | 65 kA            | 100 kA       | 14 kA        | 65 kA                         | 35 kA        | 50 kA        | 25 kA        |
| PK              | 65 kA                 | 50 kA        | 50 kA        | 65 kA            | 65 kA        | 35 kA        | 50 kA                         | 25 kA        | 50 kA        | 25 kA        |
| PL              | 125 kA                | 100 kA       | —            | 65 kA            | 100 kA       | 14 kA        | 125 kA                        | 65 kA        | 85 kA        | 45 kA        |
| RG              | 65 kA                 | 35 kA        | 18 kA        | —                | 65 kA        | 35 kA        | 50 kA                         | 25 kA        | 35 kA        | 20 kA        |
| RJ              | 100 kA                | 65 kA        | 25 kA        | 100 kA           | 100 kA       | 35 kA        | 65 kA                         | 35 kA        | 50 kA        | 25 kA        |
| <b>RK</b>       | <b>65 kA</b>          | <b>65 kA</b> | <b>65 kA</b> | <b>—</b>         | <b>65 kA</b> | <b>35 kA</b> | <b>85 kA</b>                  | <b>65 kA</b> | <b>70 kA</b> | <b>55 kA</b> |
| RL              | 125 kA                | 100 kA       | 50 kA        | 125 kA           | 125 kA       | 35 kA        | 125 kA                        | 65 kA        | 85 kA        | 45 kA        |



# M-frame, P-frame, R-frame and NS630b–NS3200 Electronic Trip Circuit Breakers

## General Information

**Table 3: IEC Only Circuit Breaker Interrupting Ratings (50/60 Hz)**

| Circuit Breaker                      | 220/240 Vac |          | 380/415 Vac |          | 440 Vac |          | 500/525 Vac |          | 660/690 Vac |          |
|--------------------------------------|-------------|----------|-------------|----------|---------|----------|-------------|----------|-------------|----------|
|                                      | Icu         | Ics      | Icu         | Ics      | Icu     | Ics      | Icu         | Ics      | Icu         | Ics      |
| NS630b–NS1600 N Interrupting Rating  | 50 kA       | 75% Icu  | 50 kA       | 75% Icu  | 50 kA   | 75% Icu  | 40 kA       | 75% Icu  | 30 kA       | 75% Icu  |
| NS630b–NS1600 H Interrupting Rating  | 70 kA       | 50% Icu  | 70 kA       | 50% Icu  | 65 kA   | 50% Icu  | 50 kA       | 50% Icu  | 42 kA       | 50% Icu  |
| NS630b–NS1000 L Interrupting Rating  | 150 kA      | 100% Icu | 150 kA      | 100% Icu | 130 kA  | 100% Icu | 100 kA      | 100% Icu | 25 kA       | 100% Icu |
| NS1600b–NS3200 N Interrupting Rating | 85 kA       | 75% Icu  | 70 kA       | 75% Icu  | 65 kA   | 100% Icu | 65 kA       | 100% Icu | 65 kA       | 100% Icu |
| NS1600b–NS3200 H Interrupting Rating | 125 kA      | 75% Icu  | 85 kA       | 75% Icu  | 85 kA   | 75% Icu  | —           | —        | —           | —        |

### Application Ratings

The voltage rating is the highest voltage for the electrical system on which the circuit breaker can be applied. The frequency rating indicates the system frequency for which the circuit breaker is intended. The withstand rating is used to improve system coordination by maximizing the current level at which the circuit breaker trips with no intentional delay. The withstand rating is the level of RMS symmetrical current that a circuit breaker can carry in a closed position for a stated period of time.

**Table 4: Voltage, Frequency and Withstand Ratings**

| Circuit Breaker                      | Voltage Rating | Frequency Rating <sup>1</sup> | Withstand Rating at 480 Vac <sup>2</sup> |
|--------------------------------------|----------------|-------------------------------|--|
| MG, MJ                               | 600 Vac        | 60 Hz (UL), 50/60 Hz (IEC)    | 10 kA (0.5 sec)                          |
| PG, PK                               | 600 Vac        | 60 Hz (UL), 50/60 Hz (IEC)    | 25 kA (0.5 sec)                          |
| PJ                                   | 600 Vac        | 60 Hz (UL), 50/60 Hz (IEC)    | 10 kA (0.5 sec)                          |
| PL                                   | 480 Vac        | 60 Hz (UL), 50/60 Hz (IEC)    | 10 kA (0.5 sec)                          |
| R-frame (RG, RJ, <b>RK, RL</b> )     | 600 Vac        | 60 Hz (UL), 50/60 Hz (IEC)    | 32 kA (3 sec)                            |
| NS630b–NS1600 N interrupting rating  | 690 Vac        | 50/60 Hz (IEC)                | 25 kA (0.5 sec)                          |
| NS630b–NS1600 H interrupting rating  | 690 Vac        | 50/60 Hz (IEC)                | 25 kA (0.5 sec)                          |
| NS630b–NS1000 L interrupting rating  | 690 Vac        | 50/60 Hz (IEC)                | 10 kA (0.5 sec)                          |
| NS1600b–NS3200 N interrupting rating | 690 Vac        | 50/60 Hz (IEC)                | 32 kA (3 sec)                            |
| NS1600b–NS3200 H interrupting rating | 440 Vac        | 50/60 Hz (IEC)                | 32 kA (3 sec)                            |

<sup>1</sup> May also be used at 400 Hz with derating, see data bulletin *Determining Current-Carrying Capacity in Special Applications*.

<sup>2</sup> A system coordination study should be done for optimum circuit breaker coordination.

### Ampere Rating (Continuous Current Rating)

The ampere rating (or continuous current rating) (I<sub>r</sub>) is the maximum current that a circuit breaker can carry. The sensor size (I<sub>n</sub>) is the maximum ampere rating for a specific circuit breaker and is based on the size of the sensor plug inside the circuit breaker (sensor plugs are an integral part of the circuit breaker and cannot be removed or replaced). This value is printed below the trip unit on the sensor plug.

**NOTE:** The maximum ampere rating a circuit breaker family can carry is called the frame size. Sensor size is less than or equal to frame size.

The ampere rating of a type ET electronic trip circuit breaker is equal to the current sensor size (I<sub>n</sub>).

The ampere rating of a Micrologic® electronic trip circuit breaker is determined by the mathematical equation:

$$\text{Ampere Rating} = \text{Sensor Size} \times \text{Rating Plug Setting} \quad (I_r = I_n \times \text{Rating Plug Setting})$$

The rating plug varies the circuit breaker ampere rating as a function of its sensor size. Rating plugs have nine dial settings; the multiplier values corresponding with each setting are printed on the rating plug. The maximum setting range is 0.4–1.0 x I<sub>n</sub>.



# M-frame, P-frame, R-frame and NS630b–NS3200 Electronic Trip Circuit Breakers

## General Information

### Enclosure Sizes

All ET electronic trip UL/IEC M-frame, P-frame and R-frame circuit breakers are available as standard rated circuit breakers. Micrologic electronic trip UL/IEC circuit breakers are also available in 100% rated constructions. Because the additional heat generated when applying circuit breakers at 100% of continuous current rating, the use of specially designed enclosures and 90°C (194° F) rated wire sized per the 75°C (167° F) NEC chart is required

Circuit breakers with 100% rating can also be used in applications requiring only 80% continuous loading.

**Table 5: Minimum Enclosure Sizes for Fixed-Mounted Circuit Breakers**

| Circuit Breaker Rating  | Enclosure Dimensions (h x w x d) in/[mm]        |   | Ventilation Area       |                        |                        |                        |
|---|---|---|------------------------|------------------------|------------------------|------------------------|
|   | 3P Circuit Breaker                              | 4P Circuit Breaker                                | Top                    |                        | Bottom                 |                        |
| M-Frame, ≤ 800 A, Standard Rated                                  | 51.9 x 20.25 x 7.75<br>[1318.3 x 514.4 x 196.9] | 51.9 x 23.01 x 7.75<br>[1318.3 x 584.4 x 196.9]   | —                      | —                      | —                      | —                      |
| P-Frame, ≤ 800 A, 100% Rated<br>P-Frame, ≤ 1200 A, Standard Rated | 51.9 x 20.25 x 7.75<br>[1318.3 x 514.4 x 196.9] | 51.9 x 23.01 x 7.75<br>[1318.3 x 584.4 x 196.9]   | —                      | —                      | —                      | —                      |
| P-Frame, > 1200 A, 100% Rated                                     | 62.25 x 23 x 14.75<br>[1581.2 x 584.2 x 374.7]  | 62.25 x 25.76 x 14.75<br>[1581.2 x 654.2 x 374.7] | 16.5 in. <sup>2</sup>  | 10,645 mm <sup>2</sup> | 16.5 in. <sup>2</sup>  | 10,645 mm <sup>2</sup> |
| R-Frame, Standard Rated <sup>1</sup>                              | 30 x 21 x 7<br>[762 x 533 x 178]                | 30 x 25.5 x 7<br>[762 x 648 x 178]                | —                      | —                      | —                      | —                      |
| R-Frame, 100% Rated <sup>1</sup>                                  | 30 x 21 x 7<br>[762 x 533 x 178]                | 30 x 25.5 x 7<br>[762 x 648 x 178]                | 40.25 in. <sup>2</sup> | 26,000 mm <sup>2</sup> | 40.25 in. <sup>2</sup> | 26,000 mm <sup>2</sup> |

<sup>1</sup> RLTB or RL3TB kits may extend beyond end of enclosure when using minimum enclosure size.

### Operating Conditions

#### Temperature

To meet the requirements of the UL489 Standard, molded case circuit breakers are designed, built and calibrated for use on 50/60 Hz ac systems in a 40°C (104°F) ambient environment. Electronic trip circuit breakers, however, are designed to react only to the magnitude of the current flowing through the circuit breaker and are inherently ambient insensitive. Both UL/IEC and IEC-only circuit breakers may be operated at temperatures between -25°C and +70°C (-13°F and 158°F). For temperatures other than 40°C (104°F), the circuit breakers must be re-rated as shown.

**Table 6: Temperature Derating Values per ANSI C37.20.1**

| Maximum Ambient Temperature |      |      |      |      |      |      |      |      |      |      |      |
|-----------------------------|------|------|------|------|------|------|------|------|------|------|------|
| °F                          | 140  | 122  | 104  | 86   | 77   | 68   | 50   | 32   | 14   | -4   | -22  |
| °C                          | 60   | 50   | 40   | 30   | 25   | 20   | 10   | 0    | -10  | -20  | -30  |
| Current                     | 0.83 | 0.92 | 1.00 | 1.07 | 1.11 | 1.14 | 1.21 | 1.27 | 1.33 | 1.39 | 1.44 |

#### Altitude

Circuit breakers are suitable for use at altitudes up to 13,100 ft. (4000 m). For altitudes higher than 6560 ft. (2000 m), circuit breakers must be derated as shown.

**Table 7: Altitude Derating Values Per ANSI C37.20.1 Table 10**

| Altitude | ≤ 6,600 ft.<br>(≤ 2,000 m) | 8,500 ft.<br>(2,600 m) | 13,000 ft.<br>(3,900 m) |
|----------|----------------------------|------------------------|-------------------------|
| Voltage  | 1.00                       | 0.95                   | 0.80                    |
| Current  | 1.00                       | 0.99                   | 0.96                    |

# M-frame, P-frame, R-frame and NS630b–NS3200 Electronic Trip Circuit Breakers

## General Information

### Extreme Atmospheric Conditions

PowerPact® circuit breakers have successfully passed the tests defined below for extreme atmospheric conditions.

Dry cold and dry heat:

- IEC 68-2-1—Dry cold at -55°C
- IEC 68-2-2—Dry heat at +85°C

Damp heat (tropicalization)

- IEC 68-2-30—Damp heat (temperature 55°C and relative humidity of 95%)
- IEC 68-2-52 level 2—Salt mist

The materials used in the PowerPact circuit breakers will not support the growth of fungus and mold.

### Vibration

PowerPact circuit breakers meet IEC 60068-2-6 Standards for vibration.

- 2 to 13.2 Hz and amplitude 0.039 in. (1 mm)
- 13.2 to 100 Hz constant acceleration

### Storage Temperature

Circuit breakers with trip units without LCD displays may be stored in the original packaging at temperatures between -58°F (-50°C) and 185°F (85°C). For circuit breakers with trip units with LCD displays, this range is -40°F (-40°C) to 185°F (85°C).

### Trip System

The trip system causes the circuit breaker to open automatically under overload, short-circuit or equipment ground-fault conditions. Electronic trip circuit breakers give the customer more versatility to achieve coordination with features such as adjustable instantaneous pickup and high withstand ratings.

The ET and Micrologic trip systems consist of current sensors, a microprocessor-based trip unit, and a tripping coil. The tripping coil is a flux transfer solenoid that requires no external power source. All ET and Micrologic protective functions are completely fault powered.

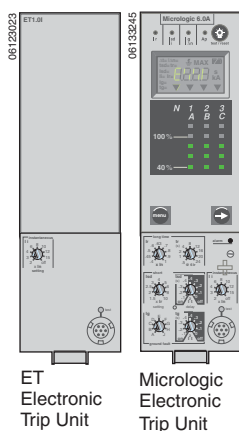
#### Micrologic Trip System

Features found in Micrologic® electronic trip circuit breakers, such as universally interchangeable rating plugs, adjustable long-time pickups and 100% ratings also provide capacity for future growth.

The integral equipment ground-fault sensing capabilities available with Micrologic trip systems mean that there are fewer parts and pieces to purchase, mount and wire. These capabilities include integral ground-fault protection for equipment, which causes the circuit breaker to trip when a ground fault is detected, as well as integral ground-fault alarm, which does not trip the circuit breaker but sends an alarm when a ground fault is detected.

Certain Micrologic trip systems also offer the customer true power management system solutions through communication. These trip units can communicate with other circuit breakers in the system and also with a power monitoring system. Communication is by Modbus® and does not require proprietary software.

Communication between trip units allows zone-selective interlocking (ZSI) between circuit breakers at different levels in the system. ZSI reduces fault stress by allowing the upstream circuit breaker closest to the fault to ignore its preset delay time and trip without any intentional delay on a short circuit or ground fault. For more information on ZSI, see data bulletin *Reducing Fault Stress with Zone-Selective Interlocking*.



## M-frame, P-frame, R-frame and NS630b–NS3200 Electronic Trip Circuit Breakers

### General Information

Communication with a power monitoring system through a communications network allows a ground fault to be reported without interrupting power to the system. It also allows the power monitoring system to remotely report power usage, current flow, and trip history.

#### Instantaneous OFF Feature

Micrologic® 5.0 and 6.0 Standard, A, P and H electronic trip units provide the unique ability to turn the instantaneous tripping function OFF. Turning off the instantaneous trip function increases the current level at which the circuit breaker will trip with no intentional delay to the level of the short-time withstand rating. This current level is typically much higher than any of the pickup levels provided by the adjustable instantaneous feature. Therefore, using the instantaneous OFF feature improves coordination by allowing the user to take advantage of the circuit breaker withstand rating.

#### Motor Circuit Protectors

An instantaneous trip version of the electronic trip circuit breaker is also available for motor circuit protection. These motor circuit protectors comply with NEC requirements for providing short-circuit protection when installed as part of a Listed combination controller having motor overload protection.

Electronic trip motor circuit protectors are similar in construction to ET electronic trip circuit breakers. They are designed as disconnect devices for use in combination with motor starters. These motor circuit protectors provide short-circuit protection only and have an adjustable amperage pickup so they can be set to open instantaneously at current values slightly above the motor starting inrush current. This setting coordinates the pickup time-current response of the motor circuit protector with the overload relay of the motor starter to give the best possible protection.

Current interrupting ratings for these UL Recognized components are established in combination with motor starters and properly-sized overload relays and contactors.

#### Automatic Molded Case Switches

P-frame, R-frame and NS630b–NS3200 circuit breakers are also available in automatic molded case switch construction. Automatic switches are similar in construction to electronic trip circuit breakers, except that the switches open instantaneously at a factory-set non-adjustable trip point calibrated to protect only the molded case switch itself. Because of their molded case construction, they are more compact than conventional disconnect switches and accept electrical accessories for added flexibility.

Molded case switches are intended for use as disconnect devices only. UL489 requires molded case switches to be protected by a circuit breaker or fuse of equivalent rating. Molded case switches are labeled with their appropriate withstand ratings. The withstand rating of a switch is defined as the maximum current at rated voltage that the molded case switch will withstand without damage when protected by a circuit breaker with an equal continuous current rating.

**Table 8: P-, and R-Frame Withstand Ratings<sup>1</sup>**

| Voltage | Interrupting Rating |        |       |        |
|---------|---------------------|--------|-------|--------|
|         | G                   | J      | K     | L      |
| 240 Vac | 65 kA               | 100 kA | 65 kA | 125 kA |
| 480 Vac | 35 kA               | 65 kA  | 50 kA | 100 kA |
| 600 Vac | 18 kA               | 25 kA  | 50 kA | 50 kA  |

<sup>1</sup> The withstand rating is the fault current at rated voltage that the molded case switch will withstand without damage when protected by a circuit breaker with an equal continuous current rating.

# M-frame, P-frame, R-frame and NS630b–NS3200 Electronic Trip Circuit Breakers

## General Information

### Internal Operating Mechanism

#### Manually-Operated Circuit Breakers

M-frame, P-frame, R-frame and NS630b–NS3200 manually-operated circuit breakers have a single operating handle that acts directly through the operating mechanism against the contact blades. Multi-pole circuit breakers have a common trip bar for positive action of all poles on manual and automatic operation. These circuit breakers have a trip-free mechanism that allows them to trip even though the operating handle may be restricted (by a handle operating mechanism or padlock attachment) in the I/ON position. If not restricted, the operating handle moves to a position between I/ON and O/OFF when the circuit breaker is tripped.

The face of the manually-operated circuit breakers is marked with standard ON/OFF and international I/O markings to indicate handle position. In addition, the I/OFF portion of the circuit breaker handle is color coded green.

#### Electrically-Operated Circuit Breakers

P-frame and NS630b–NS1600 circuit breakers are also available with a two-step stored-energy mechanism which can be charged manually or using a motor. The closing time is less than five cycles. Closing and opening operations can be initiated by remote control or by push buttons on the front cover. An O-C-O (open-close-open) cycle is possible without recharging.

The face of electrically-operated circuit breakers is also marked ON/OFF and I/O, and equipped with a position indicator to show contact position.

### Push-to-Trip Button

The push-to-trip button located on the face of each manually-operated circuit breaker is a standard feature on these circuit breakers. This allows the user to manually trip the circuit breaker without risking exposure to live parts. During normal on-off operation, the handle opens and closes the circuit breaker contact but does not exercise the tripping mechanism.

Use the push-to-trip button to:

- Exercise the circuit breaker mechanism
- Check the auxiliary and alarm switch circuits

### Circuit Breaker Mounting and Connections

#### Unit-Mount Circuit Breakers

**Table 9: Circuit Breaker Mounting and Connections**

| Circuit Breaker | Unit-mount Construction |                | I-Line® Construction | Drawout Construction |
|-----------------|-------------------------|----------------|----------------------|----------------------|
|                 | Cable Connection        | Bus Connection |                      |                      |
| M-Frame         | X                       | X              | X                    | —                    |
| P-Frame         | X                       | X              | X                    | X                    |
| R-Frame         | X <sup>1</sup>          | X              | X <sup>2</sup>       | —                    |
| NS630b–NS1250   | X                       | X              | —                    | —                    |
| NS1600–NS3200   | —                       | X              | —                    | —                    |

<sup>1</sup> Must use RLTB terminal pad kit

<sup>2</sup> Through 1200 A, 100% rated only

Fixed-mounted M-frame, P-frame, R-frame and NS630b–NS3200 individually-mounted circuit breakers are supplied with four mounting screws. These mounting screws are inserted through mounting holes molded into the circuit breaker case and threaded into the circuit breaker mounting enclosure. To properly support the circuit breaker, all four mounting screws must be used.

## M-frame, P-frame, R-frame and NS630b–NS3200 Electronic Trip Circuit Breakers

### General Information

Unit-mount M-frame, P-frame and NS630b–NS1250 circuit breakers can be ordered with mechanical line and load side lugs. The standard lugs can be removed for the installation of compression-type lugs or bus connections. All lugs are UL Listed for their proper application and marked for use with aluminum and copper (Al/Cu) or copper only (Cu) conductors. Lugs suitable for copper and aluminum conductors are made of tin-plated aluminum. Lugs suitable for use with copper conductors only are made of copper.

See individual frame sections for frame-specific connection information.

### I-Line® Circuit Breakers

M-frame circuit breakers through 800 A and P-frame and R-frame circuit breakers through 1200 A are available in I-Line construction for easy installation and removal in I-Line panelboards and switchboards. I-Line circuit breakers use “blow-on” type line side connectors. In case of a short circuit, increased magnetic flux causes the plug-on connectors of the circuit breaker to tighten their grasp on the panelboard or switchboard bus bars. The I-Line connectors and circuit breaker mounting bracket are integral parts of I-Line circuit breakers and cannot be removed or replaced. I-Line circuit breakers come with mechanical load side lugs.

### Drawout Circuit Breakers

P-frame manually-operated circuit breakers and switches are also available in drawout construction. The drawout assembly mechanism allows the circuit breaker to be racked in four positions (connected, test, disconnect or withdrawn).

P-frame cradles are ordered separately and are available with factory and field-installed accessories. See Section 8—Accessories for details.

## Catalog Numbering System

The M-frame, P-frame, R-frame and NS630b–NS3200 circuit breakers and cradles follow a “smart” catalog numbering system. The following tables are intended as a tool to decipher existing catalog numbers. **They are not intended for use in building catalog numbers, as some combinations may not be available.** To build a catalog number, please see the *Digest*, the product selector or contact the local field office.

### M-Frame, P-Frame and R-Frame Circuit Breaker Catalog Numbers

**Table 10: Catalog Number for M-Frame, P-Frame and R-Frame (UL/IEC Dual-rated) Circuit Breakers**

| Field Position | Field Description     | Options        | Description  |
|----------------|-----------------------|----------------|--|
| 1              | Brand Name            | (blank)        | Square D®  |
|                |                       | N              | Merlin Gerin®  |
|                |                       | F              | Federal Pioneer®                                     |
|                |                       | P              | Federal Pacific®                                     |
| 2              | Circuit Breaker Frame | M              | 800 A Max.   |
|                |                       | P              | 1200 A Max.  |
|                |                       | R              | 3000 A Max.  |
| 3              | Interrupting Rating   | G              | 35 kA @ 480 Vac                                      |
|                |                       | J              | 65 kA @ 480 Vac                                      |
|                |                       | K <sup>1</sup> | P-Frame: 50 kA @ 600 Vac<br>R-Frame: 65 kA @ 600 Vac |
|                |                       | L <sup>1</sup> | 100 kA @ 480 Vac                                     |

*Continued on next page*

# M-frame, P-frame, R-frame and NS630b–NS3200 Electronic Trip Circuit Breakers General Information

**Table 10: Catalog Number for M-Frame, P-Frame and R-Frame (UL/IEC Dual-rated) Circuit Breakers** *(continued)*

| Field Position | Field Description                   | Options                                     | Description                           |
|----------------|-------------------------------------|---|---------------------------------------|
| 4              | Connection                          | F   | No Lugs                               |
|                |                                     | L   | Lugs on Both Ends                     |
|                |                                     | M   | Lugs on I/ON End                      |
|                |                                     | P   | Lugs on O/OFF End                     |
|                |                                     | A   | I-Line                                |
|                |                                     | D <sup>1</sup>                              | Drawout                               |
| 5              | Poles                               | 2   | 2P                                    |
|                |                                     | 3   | 3P                                    |
|                |                                     | 4 <sup>1</sup>                              | 4P                                    |
| 6              | Voltage Rating                      | 4   | 480 V                                 |
|                |                                     | 6   | 600 V                                 |
| 7–9            | Ampere Rating                       | ###   | Circuit Breaker Rating                |
|                |                                     | 000 <sup>1</sup>                            | Automatic Switch Value                |
| 10             | Standard or 100% Rated              | (none)                                      | Standard Rated                        |
|                |                                     | C <sup>1</sup>                              | 100% rated                            |
| 11–14          | Circuit Breaker Trip System         | (none)                                      | ET1.0 (M-Frame)                       |
|                |                                     | (none)                                      | ET1.0I (P-Frame, R-Frame)             |
|                |                                     | U31 <sup>1</sup>                            | Micrologic <sup>®</sup> 3.0 Trip Unit |
|                |                                     | U33 <sup>1</sup>                            | Micrologic 5.0 Trip Unit              |
|                |                                     | U41 <sup>1</sup>                            | Micrologic 3.0A Trip Unit             |
|                |                                     | U43 <sup>1</sup>                            | Micrologic 5.0A Trip Unit             |
|                |                                     | U44 <sup>1</sup>                            | Micrologic 6.0A Trip Unit             |
|                |                                     | U63 <sup>1</sup>                            | Micrologic 5.0P Trip Unit             |
|                |                                     | U64 <sup>1</sup>                            | Micrologic 6.0P Trip Unit             |
|                |                                     | U73 <sup>1</sup>                            | Micrologic 5.0H Trip Unit             |
|                |                                     | U74 <sup>1</sup>                            | Micrologic 6.0H Trip Unit             |
|                | Automatic Switch Trip System        | S60 <sup>1</sup>                            | 600 A                                 |
|                |                                     | S80 <sup>1</sup>                            | 800 A                                 |
|                |                                     | S10 <sup>1</sup>                            | 1000 A                                |
|                |                                     | S12 <sup>1</sup>                            | 1200 A                                |
|                |                                     | S16 <sup>1</sup>                            | 1600 A                                |
|                |                                     | S20 <sup>1</sup>                            | 2000 A                                |
|                |                                     | S25 <sup>1</sup>                            | 2500 A                                |
|                | Motor Circuit Protector Trip System | M68 <sup>1</sup>                            | 1200–9600 A                           |
|                |                                     | M69 <sup>1</sup>                            | 1500–9600 A                           |
|                |                                     | M70 <sup>1</sup>                            | 1800–9600 A                           |
| 15             | Rating Plug                         | A–H <sup>1</sup>                            | See Table 66                          |
| 16-17          | Modbus <sup>®</sup> Communication   | E1 <sup>1</sup>                             | Modbus BCM                            |
| 18             | I-Line <sup>®</sup> Phasing         | See <i>Digest</i> , <i>Product Selector</i> |                                       |

For Factory-Installed Accessories, See *Product Selector*

<sup>1</sup> Not available on M-frame circuit breakers.

## M-frame, P-frame, R-frame and NS630b–NS3200 Electronic Trip Circuit Breakers

### General Information

- *Dielectric Withstand*—the circuit breaker is subjected to twice the voltage rating at which the interrupting test was conducted, but not less than 900 V.

Between line and load terminals with the circuit breaker in the tripped and in the OFF positions.

Between terminals of opposite polarity with the circuit breaker closed.

Between live parts and the overall enclosure with the circuit breaker both open and closed.

When the sample circuit breakers pass these tests, circuit breakers of the same construction can be marked or labeled with the current interrupting rating for the higher fault currents.

### IEC Requirements

The IEC markings on a circuit breaker indicates that the circuit breaker meets the requirements of IEC Standard 60947-2 for circuit breakers and 60947-3 for automatic switches. These requirements include the following tests:

**Table 14: IEC Test Sequence**

| Sequence  | Category of Devices  | Tests   |
|---|--|---|
| General Performance Characteristics (Sequence 1)                  | All Circuit Breakers   | <ul style="list-style-type: none"> <li>• Tripping Limits and Characteristics</li> <li>• Dielectric Properties</li> <li>• Mechanical and Electrical Endurance</li> <li>• Overload</li> <li>• Dielectric Voltage Withstand</li> <li>• Temperature Rise</li> <li>• 145% Calibration (3 Poles in Series or 3-Phase Test)</li> </ul>   |
| Rated Service Short-circuit Breaking Capacity (Ics) (Sequence 2)  | All Circuit Breakers   | <ul style="list-style-type: none"> <li>• Rated service short circuit breaking capacity (O-t-CO-t-CO)</li> <li>• Electrical Endurance (5% of with Current Operations of Sequence 1)</li> <li>• Dielectric Voltage Withstand</li> <li>• Temperature Rise</li> <li>• 145% Calibration (3 poles in series or 3-phase test)</li> </ul>   |
| Rated Ultimate Short-circuit Breaking Capacity (Icu) (Sequence 3) | Circuit Breakers of Utilization Category A<br>Circuit Breakers of Utilization Category B   | <ul style="list-style-type: none"> <li>• 200% Calibration (Each Pole Separately)</li> <li>• Rated Ultimate Short Circuit Breaking Capacity (O-t-CO)</li> <li>• Dielectric Voltage Withstand</li> <li>• 250% Calibration (Each Pole Separately)</li> </ul>   |
| Rated Short-time Withstand Current (Icw) (Sequence 4)             | Circuit Breakers of Utilization Category B   | <ul style="list-style-type: none"> <li>• 200% Calibration (Each Pole Separately)</li> <li>• Rated Short-Time Withstand Current</li> <li>• Temperature Rise</li> <li>• Short-Circuit Breaking Capacity at Maximum Short-Time Withstand Current (O-t-CO)</li> <li>• Dielectric Voltage Withstand</li> <li>• 200% Calibration (Each Pole Separately)</li> </ul>  |
| Combined Sequence   | Circuit Breakers of Utilization Category B:<br>When Icw = Ics Replaces Sequences 2 and 4<br>When Icw = Ics = Icu Replaces Sequences 2, 3 and 4 | <ul style="list-style-type: none"> <li>• 200% Calibration (Each Pole Separately)</li> <li>• Rated Short-Time Withstand Current Icw</li> <li>• Rated Service Short-Circuit Breaking Capacity at Ics (O-CO-CO) at Maximum Relay Temp.</li> <li>• 145% Calibration (3 Poles in Series or 3-Phase Test)</li> <li>• Dielectric Voltage Withstand</li> <li>• Temperature Rise</li> <li>• 200% Calibration (Each Pole Separately)</li> </ul> |
| Individual Pole Short-Circuit Test Sequence (Annex H)             | Circuit Breakers for Use in IT Systems   | <ul style="list-style-type: none"> <li>• Individual Pole Short-Circuit Breaking Capacity</li> <li>• Dielectric Voltage Withstand</li> <li>• 250% Calibration (Each Pole Separately)</li> </ul>  |

## M-frame, P-frame, R-frame and NS630b–NS3200 Electronic Trip Circuit Breakers

### R-Frame Circuit Breakers

#### Interrupting Ratings

Table 49: Interrupting Ratings

| Mounting             | Circuit Breaker | Ampere Rating (A)           |  | Interrupting Ratings |         |         |             |       |             |       |  |
|----------------------|-----------------|-----------------------------|--|----------------------|---------|---------|-------------|-------|-------------|-------|--|
|                      |                 | Basic Electronic Trip Units | Micrologic® Trip Units                       | UL/CSA/NMX           |         |         | IEC 60947-2 |       |             |       |  |
|                      |                 |                             |  |                      |         |         | 240 Vac     |       | 380/415 Vac |       |  |
|                      |                 |                             |  | 240 Vac              | 480 Vac | 600 Vac | Icu         | Ics   | Icu         | Ics   |  |
| Individually-Mounted | RG              | 1200, 1600, 2000, 2500      | 600, 800, 1000, 1200, 1600, 2000, 2500, 3000 | 65 kA                | 35 kA   | 18 kA   | 50 kA       | 25 kA | 35 kA       | 20 kA |  |
|                      | RJ              |                             |  | 100 kA               | 65 kA   | 25 kA   | 65 kA       | 35 kA | 50 kA       | 25 kA |  |
|                      | RK              |                             |  | 65 kA                | 65 kA   | 65 kA   | 85 kA       | 65 kA | 70 kA       | 55 kA |  |
|                      | RL              |                             |  | 125 kA               | 100 kA  | 50 kA   | 125 kA      | 65 kA | 85 kA       | 45 kA |  |
| I-Line®              | RG              | NA                          | 1000, 1200                                   | 65 kA                | 35 kA   | 18 kA   | 50 kA       | 25 kA | 35 kA       | 20 kA |  |
|                      | RJ              |                             |  | 100 kA               | 65 kA   | 25 kA   | 65 kA       | 35 kA | 50 kA       | 25 kA |  |
|                      | RK              |                             |  | 65 kA                | 65 kA   | 65 kA   | 85 kA       | 65 kA | 70 kA       | 55 kA |  |
|                      | RL              |                             |  | 125 kA               | 100 kA  | 50 kA   | 125 kA      | 65 kA | 85 kA       | 45 kA |  |

#### Automatic Molded Case Switches

Automatic molded case switches are available in unit-mount construction from 1200–2500 A. Automatic switches are similar in construction to electronic trip circuit breakers except that long-time protection is not present. The switches open instantaneously at a non-adjustable magnetic trip point calibrated to protect only the molded case switch itself. They must be used in conjunction with a circuit breaker or fuse of equivalent rating.

Table 50: Automatic Switch Information

| Circuit Breaker            | Ampere Rating | Catalog Number | Withstand Rating |         |         | Trip Point |
|----------------------------|---------------|----------------|------------------|---------|---------|------------|
|                            |               |                | 240 Vac          | 480 Vac | 600 Vac |            |
| RK<br>2P <sup>1</sup> , 3P | 1200          | RKF36000S12    | 65 kA            | 65 kA   | 65 kA   | 57 kA      |
|                            | 1600          | RKF36000S16    | 65 kA            | 65 kA   | 65 kA   | 57 kA      |
|                            | 2000          | RKF36000S20    | 65 kA            | 65 kA   | 65 kA   | 57 kA      |
|                            | 2500          | RKF36000S25    | 65 kA            | 65 kA   | 65 kA   | 57 kA      |
| RL<br>2P, 3P               | 1200          | RLF36000S12    | 125 kA           | 100 kA  | 50 kA   | 48 kA      |
|                            | 1600          | RLF36000S16    | 125 kA           | 100 kA  | 50 kA   | 48 kA      |
|                            | 2000          | RLF36000S20    | 125 kA           | 100 kA  | 50 kA   | 48 kA      |
|                            | 2500          | RLF36000S25    | 125 kA           | 100 kA  | 50 kA   | 48 kA      |

<sup>1</sup> For 2P, replace the leading 3 in the catalog number following the prefix with a 2 (RKP36000S12 becomes RKP<sup>2</sup>36000S12).

#### Continuous Current Rating

All circuit breakers marked as 100% rated can be continuously loaded to 100% of their rating. 100%-rated circuit breakers are available in unit-mount construction up to 2500 A and in I-Line construction up to 1200 A.

Because of the additional heat generated when applying circuit breakers at 100% of continuous current rating, the use of specially-designed enclosures and 90°C (194°F) wire is required. The 90°C (194°F) wire must be sized according the ampacity of the 75°C (167°F) wire column in the NEC. Minimum enclosure size and ventilation specifications are indicated on a label on the circuit breaker, in the circuit breaker instruction bulletin and in Section 1.

Circuit breakers with 100% rating can also be used in applications requiring only 80% continuous loading.



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# Micrologic trip units

The full range of PowerPact circuit breakers now feature Micrologic electronic trip units (energy model). Micrologic trip units are the intelligence behind a coordinated electrical distribution system that delivers improved operating efficiency and extended equipment life. All Micrologic trip units provide impeccable, electronic circuit protection with adjustable protection settings for maximum system coordination and flexibility. Sophisticated functionality, such as energy and power quality metering capabilities, is integrated in the more advanced trip units. Combined with quality PowerPact accessories, Micrologic trip units also enable circuit breakers to be networked and remotely controlled leading to substantial savings in electrical system operating costs. These interchangeable, microprocessor controlled devices provide the new generation of protection, measurement and control functions, delivering not only greater electrical system safety but also improved system integration and coordination.



**Micrologic P trip unit  
for PowerPact P and R**



**Micrologic H trip unit  
for PowerPact P and R**



**Micrologic E trip unit  
for PowerPact P and R**



**Standard Micrologic trip unit for  
PowerPact H, J, and L**











**Ammeter or Energy trip unit  
for PowerPact H, J and L**

## >> Simple: an easy installation and use

### Choose the model that meets your needs

The Micrologic trip unit family includes five models with varying levels of functionality. The simplest units provide basic overcurrent protection including long-time, instantaneous, and optional short-time adjustments for overloads and short circuits. Advanced units offer sophisticated functions such as ground fault protection and zone selective interlocking. They also incorporate a variety of communications options and energy metering capabilities – right inside the circuit breaker. With advanced trip units, use a network to communicate breaker information, gather power information and energy usage patterns, monitor events, and remotely control breakers for increased efficiency and savings. The breakers become part of an integrated, coordinated electrical system. For maximum flexibility in product selection, Micrologic trip units consist of five models with progressively increasing levels of functionality.

### Choose the right model for each application

| PowerPact H-, J- and L-Frame | Standard (S)   | Ammeter (A)  | Energy (E)  |  |  |
|------------------------------|--|--|---|--|--|
| 15 – 600 A                   |   |   |  |  |  |
| PowerPact P- and R-Frame     | Standard (S)   | Ammeter (A)  | Energy (E)  | Power (P)  | Harmonic (H)   |
| up to 3000 A                 |  |  |  |  |  |

Adj. protections  
True RMS  
Thermal imaging

Current meter  
LED trip ind.  
ZSI

Power and  
energy meter

Frequency  
Power factor

Total harmonic  
distortion

### Motor protection trip units

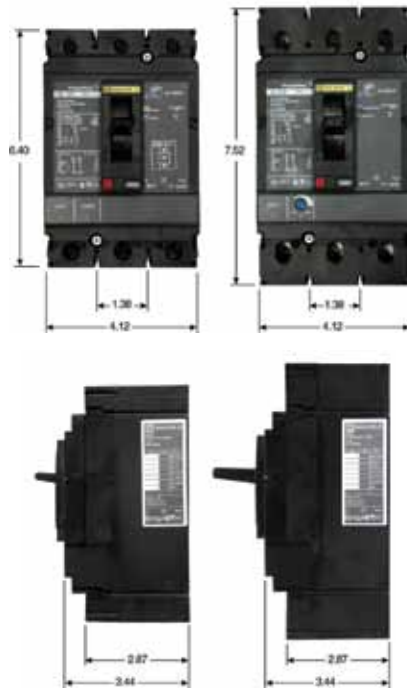
Also available are Micrologic trip units dedicated to managing motor applications at 600 A or below. Three levels of functionality are available with the motor trip unit offer.

- **1.3M:** Provides cable protection for short-circuits, and must be combined with an external thermal protection relay. This trip unit features an adjustable short-circuit protection threshold and fixed instantaneous protection.
- **2 M:** Provides thermal relay type protection in addition to short-circuit protection. Adjustable settings are included for the thermal protection threshold, the tripping class, and the short-circuit protection. Additional protections include phase unbalance and phase loss protection.
- **6 E-M:** Provides the same protection functions as the Micrologic 2-M units with the addition of ground fault, locked rotor protection, under-load protection and long start protection. They also incorporate energy metering and maintenance indicators similar to the Micrologic Energy trip unit.



### Mounting dimensions

Common mounting dimensions across the entire range means that the mounting pattern never has to change even when panel designs change.



*H-Frame and a J-Frame PowerPact circuit breaker.*

### Choice of terminal options

Terminal options include unique snap-in lugs that make converting between bus bar and lug options easy. If the application calls for lugs on the line side, load side or both, conversions are simple, making the PowerPact H- and J-Frame circuit breakers ideal for applications that require configuring products at the point of use.

The terminal nut or mechanical lug is set on a plastic retainer that slides and snaps into place. Making it possible to easily convert to a distribution lug that provides multiple cable outputs for downstream components.



*Bus bar option*



*Lug option*

## PowerPact H- and J-Frame with Micrologic circuit breakers – 15 A to 250 A

Well-suited to a wide range of applications, the Powerpact H- and J-Frame molded case circuit breakers feature a full complement of field installable accessories, field installable trip units, and improved interrupting ratings. These molded case circuit breakers deliver unmatched design flexibility and share identical mounting holes, handle locations, trim dimensions, and accessories, allowing customers to standardize equipment designs for 15 A to 250 A applications.

PowerPact H- and J-Frame circuit breakers come in many interruption ratings and are designed to limit let-through currents to provide better protection for downstream components. Interrupting ratings (AIR) include D-18 kA, G-35 kA, J-65 kA and L-100 kA at 480 Vac. Available as standard or 100% rated circuit breakers, the H-Frame ranges from 15 A to 150 A and the J-Frame from 70 A to 250 A.

Available trip units:

- **Thermal magnetic:** Circuit protection provided by individual thermal (overload) and magnetic (short circuit) sensing elements in each pole.
- **Standard electronic:** Adjustable overcurrent protection including long-time, instantaneous, and optional short-time.
- **Ammeter:** Adjustable long-time, short-time, instantaneous and optional ground fault protection is coupled with integrated current metering and maintenance indicators.
- **Energy:** Power and energy metering is integrated with exceptional long-time, short-time, instantaneous, and optional ground fault protections. Beyond energy metering, this trip unit delivers many advanced functions including power quality (harmonics) measurement.

## PowerPact L-Frame with Micrologic circuit breaker – 70 A to 600 A

Designed to accept common accessories and the full range of electronic trip options available for PowerPact H- and J-Frame, the newest addition to the PowerPact family of molded case circuit breakers delivers the same impeccable protection and flexibility. PowerPact L-Frame is also available as standard or 100% rated, and has a choice of many interruption ratings to support different application needs. Interrupting ratings (AIR) include D-18 kA, G-35 kA, J-65 kA and L-100 kA at 480 Vac.

Available trip units:

- **Standard electronic:** Adjustable overcurrent protection including long-time, instantaneous, and optional short-time.
- **Ammeter:** Adjustable long-time, short-time, instantaneous, and optional ground fault protection is coupled with integrated current metering and maintenance indicators.
- **Energy:** Power and energy metering is integrated with exceptional long-time, short-time, instantaneous, and optional ground fault protections. Beyond energy metering, this trip unit delivers many advanced functions including power quality (harmonics) measurement.

## PowerPact P- and R-Frame with Micrologic circuit breakers – 100 A to 3000 A

The compact P- and R-Frame circuit breakers permit smaller footprint and higher density installations. These circuit breakers are available in standard and 100% rated construction up to 3000 A to meet a broad range of commercial and industrial application needs. Common accessories make stocking and installation easy.

Built-in Modbus™ protocol provides an open communications platform and can be combined with a selection of four interchangeable Micrologic trip units.

- **Standard:** Adjustable overcurrent protection including long-time, instantaneous, and optional short-time.
- **Ammeter:** Adjustable long-time, short-time, instantaneous, and optional ground fault protection is coupled with integrated current metering and an optional Modbus communication interface.
- **Power:** Combines power monitoring and metering functions, with long-time, short-time, instantaneous/optional ground fault adjustments, and advanced relay functions, and has a standard Modbus communication interface.
- **Harmonics:** All of the functionality of the Power trip unit, plus enhanced monitoring and metering capabilities, basic power quality (harmonics) measurement, and waveform capture.



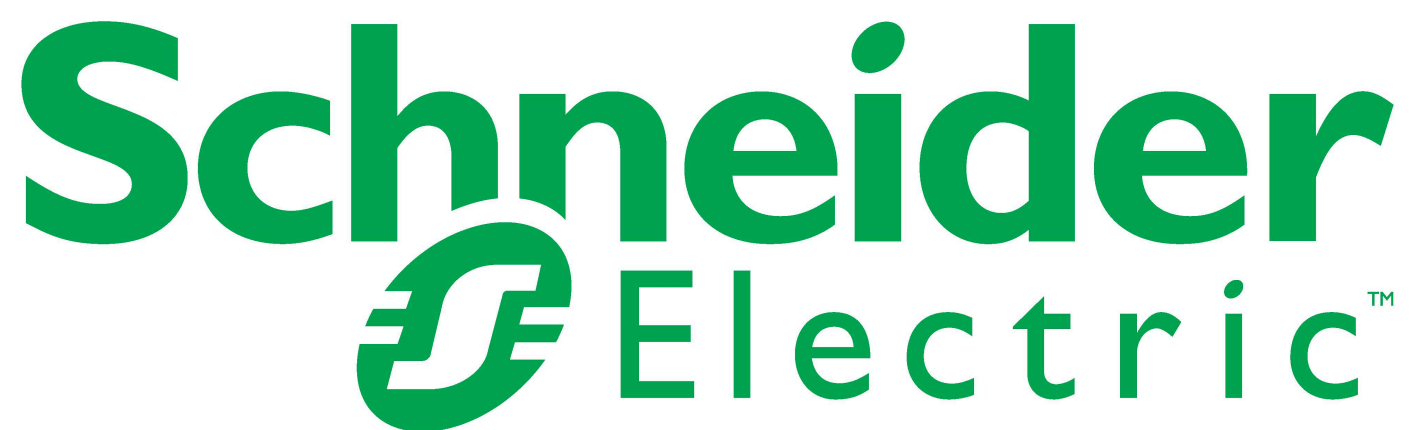
PowerPact L-Frame  
with Micrologic



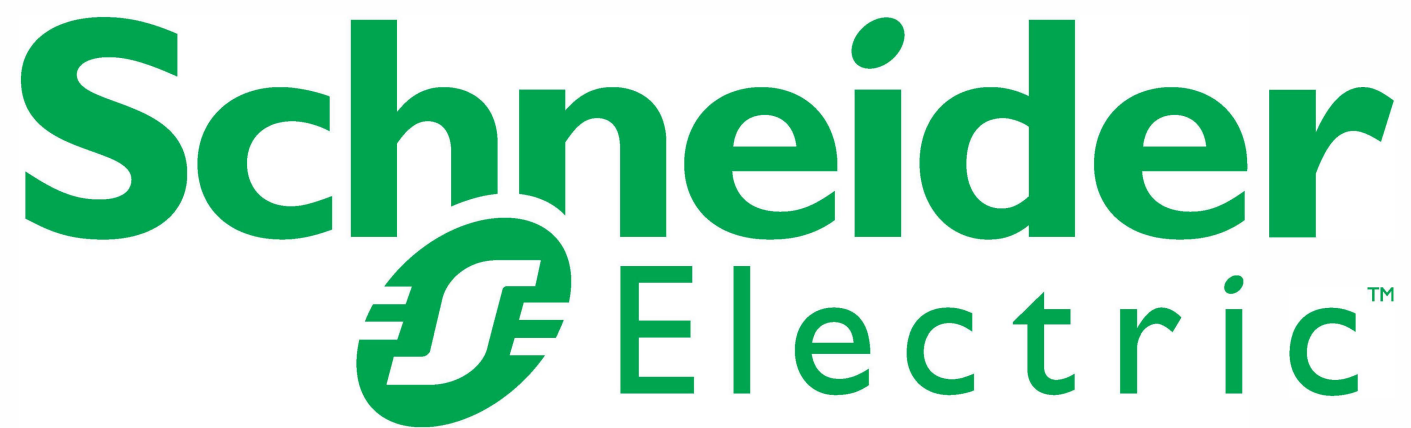
PowerPact P-Frame  
with Micrologic



PowerPact R-Frame  
with Micrologic



**PANELBOARD(S)**



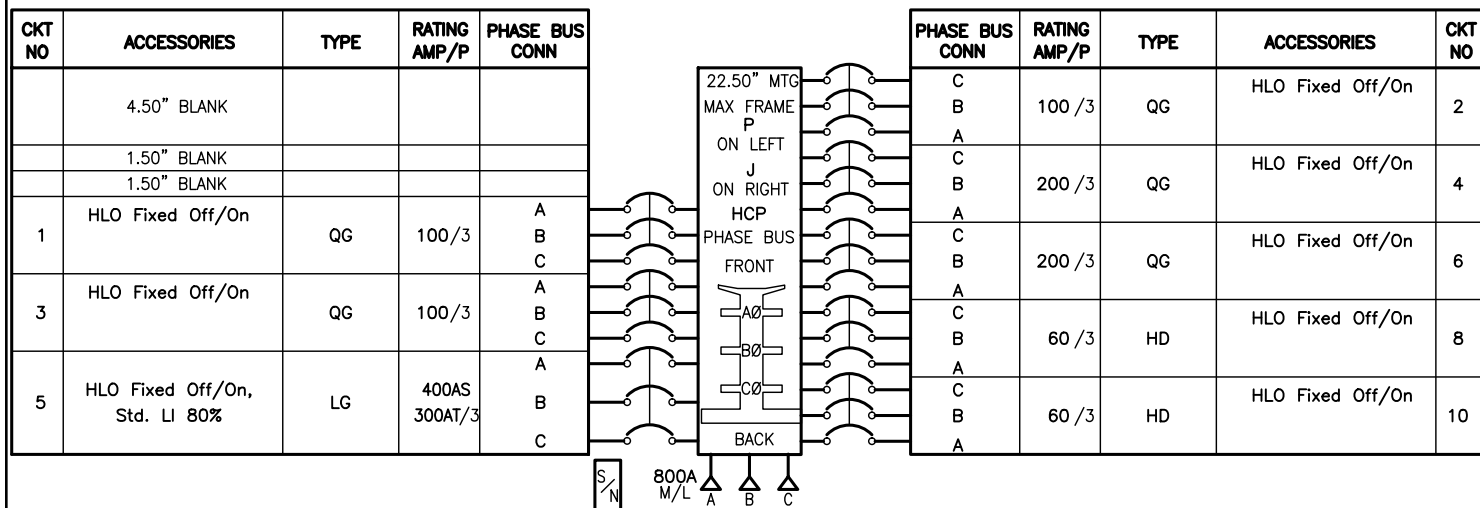
## **BILL OF MATERIALS AND DRAWINGS**

**Q2C Number:** 43618433**Quote Number:** 1**Revision Number:** 0**Project Name:** THE ATRIUM -19945 BRYDON CRES LANG**Quote Name:**

| <b>Item No.</b> | <b>Qty.</b> | <b>Catalog Number / Details</b>  |
|-----------------|-------------|--|
| 002-00          | 1           | <p><b>Designation:</b> PNL "D-H"<br/>ILINE ML PNLB (INT BOX TRIM)<br/>I-Line Panelboard<br/>Consisting of<br/>208Y/120V 3Ph 4W 60Hz SCCR: 35kA<br/>Feeders Series Rated w/ MG Circuit Breaker<br/>Main Lug Only: 800A<br/>Incoming Conductors: 1 - (3) 3/0 - 500 kcmil<br/>AL Ground Bar<br/>Bus: 800A Rated Copper: Tin Plated<br/>45" of Mounting Inches<br/>Type 2 (Driphood)Box: 59H x 42W x 9.5D<br/>Incoming: Bottom Trim: Surface with Door<br/>Box Cat No: HC4259DBH Front Cat No: HCW59TSD<br/>Ref. Drawing: PBA418 Type: HCP<br/>Feeders:<br/>3 - 100A/3P QG HPL<br/>1 - 400AS/300AT/3P LG HPL,STD LI 80%<br/>2 - 200A/3P QG HPL<br/>2 - 60A/3P HD HPL<br/>Optional Features:<br/>Ship Completely Assembled,Drip<br/>Hood,Standard Solid Neutral,Standard<br/>Ground Bar<br/>Branch User Placement</p> |
| 003-00          | 1           | <p><b>Designation:</b> PNL "EV"<br/>NQ ML PNLB (INT BOX TRIM)<br/>NQ Panelboard<br/>Consisting of<br/>208Y/120V 3Ph 4W 60Hz SCCR: 22kA<br/>Feeders Series Rated w/ LG Circuit Breaker<br/>Main Lug Only: 400A<br/>Incoming Conductors: 1 - 1/0 - 750, (2) 1/0 - 350 kcmil<br/>AL Ground Bar<br/>Bus: 400A Rated Aluminum: Tin Plated<br/>42 Circuit Interior<br/>Type 2 (Driphood)Box: 50H x 20W x 5.75D<br/>Incoming: Bottom Trim: Surface with Door<br/>Box Cat No: MH50H Front Cat No: NC50VS<br/>Ref. Drawing: PBA709A<br/>Feeders:<br/>10 - 40A/2P QOB<br/>Optional Features:<br/>Ship Completely Assembled,Drip<br/>Hood,Standard Solid Neutral,Standard<br/>Ground Bar</p>  |



| REV | DESCRIPTION | BY | DATE        | -- | ---- | -- | -- | -- | -- |
|-----|-------------|----|-------------|----|------|----|----|----|----|
| --  | ----        | -- | ---/---/--- | -- | ---- | -- | -- | -- | -- |



## PHYSICAL DATA

ENCLOSURE Type 2

Surface with Door

FRONT CAT#: HCW59TSD

BOX CAT#: HC4259DBH

DIMENSIONS:

59"(1499mm)Hx42"(1067mm)Wx9.5"(286mm)D

PBA: 418

BUSSING: 800A RATED COPPER BUS

Tin Plated

OPTIONAL FEATURES:

SHIP COMPLETELY ASSEMBLED

DRIP HOOD

BRANCH USER PLACEMENT

ALUMINUM SOLID NEUTRAL

ALUMINUM GROUND BAR

## ELECTRICAL DATA

SYSTEM: 208Y/120V 3Ph 4W 60Hz

System Ampacity: 800A

35kA SYMS. SCCR

Series Rated w/ MG

MAIN: MAIN LUGS : 800A

Bottom FEED

INCOMING CONDUCTORS(S) PER NEC, CEC, NOM:

Wire Bending Space:

Phase Lugs:1 - (3) 3/0 - 500 kcmil

-----BRANCH SUMMATION-----

3 - 100A/3P QG HPL

2 - 200A/3P QG HPL

1 - 300A/3P LG HPL,STD LI 80%

2 - 60A/3P HD HPL

JOB NAME: THE ATRIUM -19945 BRYDON CRES LANG

JOB LOCATION: 841

DRAWN BY: (Q2C)

ENGR:

DATE: March 12 2021

DRAWING STATUS: QUOTE

EQUIPMENT DESIGNATION: PNL "D-H"

EQUIPMENT TYPE: I-Line (Circuit Breaker Type) PANEL 1 OF 1

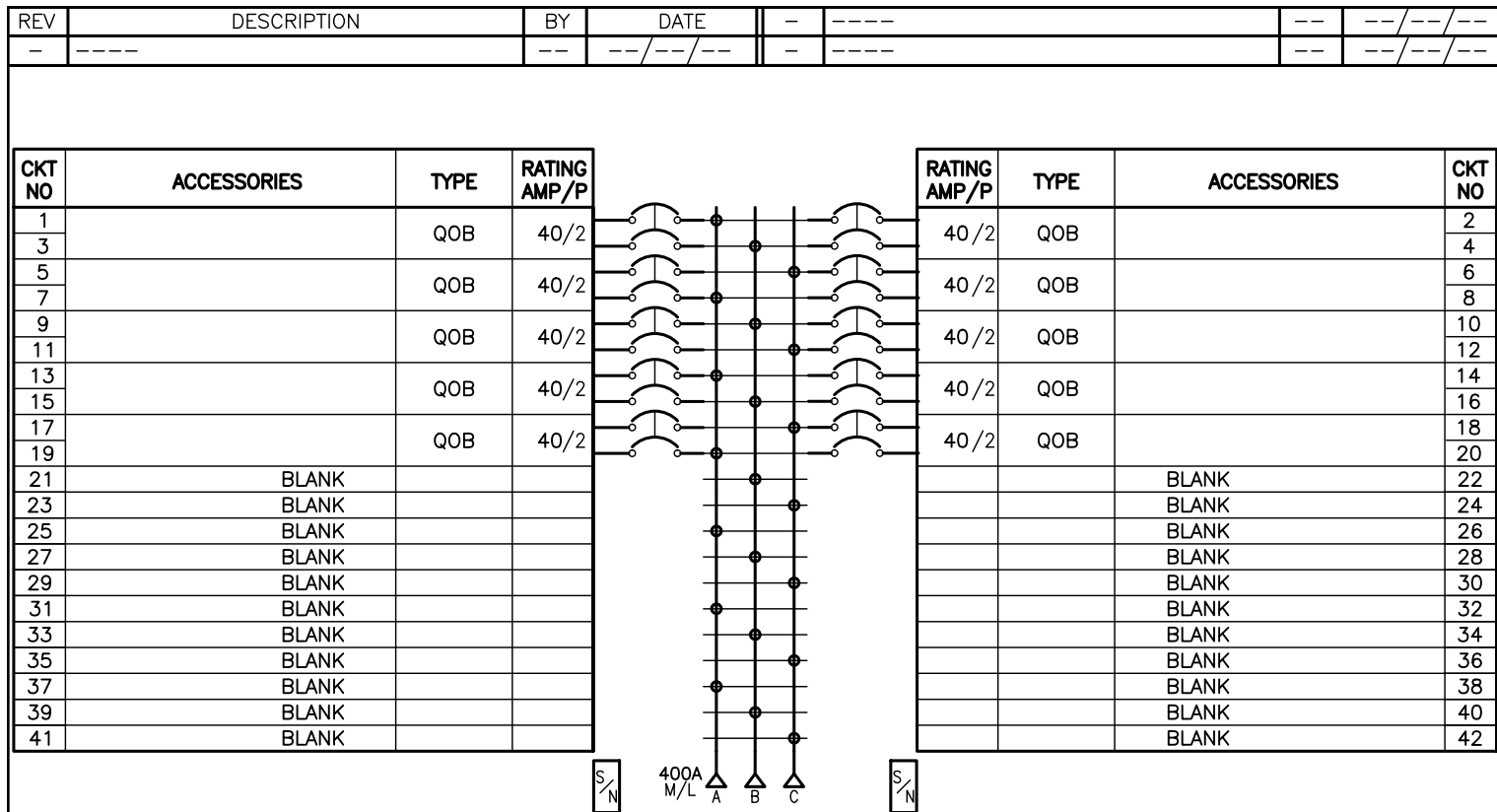
DRAWING TYPE: ONE LINE DIAGRAM



DWG# 043618433-01

PG 1 OF 1

REV -



### PHYSICAL DATA

ENCLOSURE Type 2

Surface with Door  
FRONT CAT#: NC50VS  
BOX CAT#: MH50H

#### DIMENSIONS:

50''(1270mm)Hx20''(508mm)Wx5.75''(146mm)D  
PBA: 709A

BUSSING: 400A RATED ALUMINUM BUS  
Tin Plated

#### OPTIONAL FEATURES:

SHIP COMPLETELY ASSEMBLED  
DRIP HOOD  
ALUMINUM SOLID NEUTRAL  
ALUMINUM GROUND BAR

### ELECTRICAL DATA

SYSTEM: 208Y/120V 3Ph 4W 60Hz

System Ampacity: 400A

22kA SYMS. SCCR

Series Rated w/ LG

MAIN: MAIN LUGS : 400A


Bottom FEED

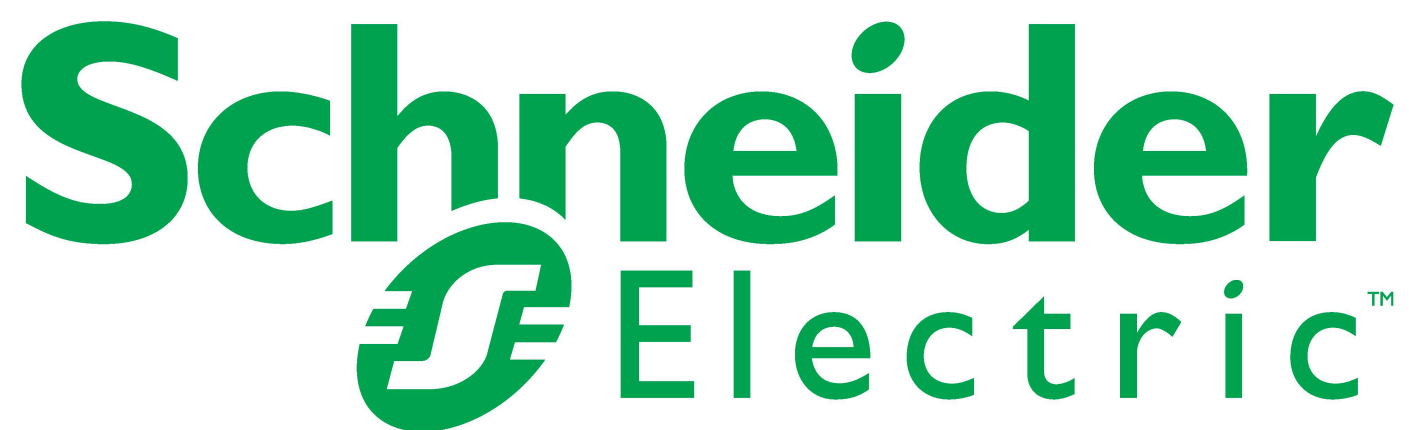
INCOMING CONDUCTORS(S) PER NEC, CEC, NOM:

Wire Bending Space:

Phase Lugs:1 - 1/0 - 750, (2) 1/0 - 350 kcmil

-----BRANCH SUMMATION-----  
10 - 40A/2P QOB

|                 |                                    |   |  |
|-----------------|------------------------------------|---|--|
| JOB NAME:       | THE ATRIUM -19945 BRYDON CRES LANG | EQUIPMENT DESIGNATION:  | PNL "EV"                               |
| JOB LOCATION:   | 841                                | EQUIPMENT TYPE:   | NQ (Circuit Breaker Type) PANEL 1 OF 1 |
| DRAWN BY:       | (Q2C)                              | DRAWING TYPE:   | ONE LINE DIAGRAM                       |
| ENGR:           |                                    |  |  |
| DATE:           | March 12 2021                      |   |  |
| DRAWING STATUS: | QUOTE                              | DWG#  | 043618433-01                           |
|                 |                                    | PG 1  | OF 1                                   |
|                 |                                    | REV   | ---                                    |



**LITERATURE**

# I-Line Power Panelboards



***Our I-Line® power distribution panel is the most versatile on the market. It's used to feed NQ and NF lighting and appliance panelboards. I-Line panelboards can also feed large motors and HVAC systems.***

## **Features**

- 600Vac, 250Vdc maximum
- 1200A main circuit breaker or main lugs
- 1200A maximum branch circuit breaker
- 200,000A SCCR when using current limiting main or branch circuit breakers
- Fully rated and series rated systems available
- Interiors available in plated copper or aluminum bus
- Suitable for use as service entrance equipment
- Complete line of UL/cUL listed interiors with 200% rated neutrals for non-linear loads
- Sub-feed or through-feed lugs through 1200A
- Interiors accept plug-on thermal magnetic or solid state branch circuit breakers
- Interior, front and most circuit breakers only require a screwdriver for installation
- Branch circuit breaker mounting not restricted by location on bus stack
- Capable of mounting 15A branch circuit breaker across from or next to a 1200A branch circuit breaker
- Branch circuit breakers have no loose mounting hardware and install in as little as 20 seconds with only a screw driver
- Branch circuit breakers are simple to rearrange in the field, limited restrictions on mounting locations
- 100,000A – 240,000A field installable plug-in TVSS units
- Available with or without door, or with hinged trim
- Broad range of field installable kits available from stock

## **Factory Options**

- Split bus bar
- Sub-feed/thru-feed lugs through 1200A
- Optional 200% rated neutrals through 1200A
- Thermal-mag or solid state circuit breakers
- Plated copper or aluminum bus
- Optional customer metering with PowerLogic® power meters or circuit monitors
- Plug-in TVSS modules
- 100,000A – 240,000A plug-in TVSS
- Door in door or hinged trim
- Six circuit QO 240V plug-in distribution module
- Ground fault protection available on main or branch circuit breakers
- Current density-rated panelboard bus



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# NQ Lighting Panelboards



*Developed with electrical contractor input, the NQ family of lighting and appliance panelboards sets new standards for ease of installation and durability. Plus, new design innovations increase the availability of these panelboards by offering complete ready to install products.*

## Features

- 240Vac, 48Vdc maximum
- 600A maximum main circuit breakers or main lugs
- 150A maximum branch circuit breakers
- 10,000A through 200,000A SCCR
- Both fully rated and series rated systems are available
- Interiors are field convertible to top or bottom feed
- Interiors are available in plated copper or aluminum bus
- Interiors accept both bolt-on and plug-on branch circuit breakers
- Complete line of UL/cUL listed interiors with 200% rated neutrals for non-linear loads
- Suitable for use as service entrance equipment
- 20" wide trims and boxes common for NQ and NF panelboards
- Mono-flat® or hinged trims

## Factory Options

- 1P3W or 3P4W – 600A main lugs and main breaker panelboards
- Sub-feed and thru-feed lugs
- Sub-feed circuit breakers
- Optional 200% rated neutrals up to 400A
- Split bus bars
- TVSS
  - 100,000A – 240,000A surge current rating
  - All voltage systems
- Lighting contactors
- Customer equipment space

## “Ready-to-Install” Panels and Kits Available from Stock

- 100A – 600A MLO 1P3W and 3P4W Interiors
- NEMA 1 and 3R/12 enclosures
- 100A – 400A main circuit breaker kits
- TVSS interiors
  - 120,000A or 160,000A surge current ratings
- 100A – 400A sub-feed and thru-feed lugs
- Sub-feed circuit breaker kits
  - 1 – 225A sub-feed circuit breaker per 225A panelboard
  - 2 – 225A sub-feed circuit breakers per 400A panelboard
- 200% neutral kits up to 400A
- Copper neutrals and equipment ground bars



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# Micrologic trip units

The full range of PowerPact circuit breakers now feature Micrologic electronic trip units (energy model). Micrologic trip units are the intelligence behind a coordinated electrical distribution system that delivers improved operating efficiency and extended equipment life. All Micrologic trip units provide impeccable, electronic circuit protection with adjustable protection settings for maximum system coordination and flexibility. Sophisticated functionality, such as energy and power quality metering capabilities, is integrated in the more advanced trip units. Combined with quality PowerPact accessories, Micrologic trip units also enable circuit breakers to be networked and remotely controlled leading to substantial savings in electrical system operating costs. These interchangeable, microprocessor controlled devices provide the new generation of protection, measurement and control functions, delivering not only greater electrical system safety but also improved system integration and coordination.



**Micrologic P trip unit  
for PowerPact P and R**



**Micrologic H trip unit  
for PowerPact P and R**



**Micrologic E trip unit  
for PowerPact P and R**



**Standard Micrologic trip unit for  
PowerPact H, J, and L**



**Ammeter or Energy trip unit  
for PowerPact H, J and L**




## >> Simple: an easy installation and use

### Choose the model that meets your needs

The Micrologic trip unit family includes five models with varying levels of functionality. The simplest units provide basic overcurrent protection including long-time, instantaneous, and optional short-time adjustments for overloads and short circuits. Advanced units offer sophisticated functions such as ground fault protection and zone selective interlocking. They also incorporate a variety of communications options and energy metering capabilities – right inside the circuit breaker. With advanced trip units, use a network to communicate breaker information, gather power information and energy usage patterns, monitor events, and remotely control breakers for increased efficiency and savings. The breakers become part of an integrated, coordinated electrical system. For maximum flexibility in product selection, Micrologic trip units consist of five models with progressively increasing levels of functionality.

### Choose the right model for each application

| PowerPact H-, J- and L-Frame | Standard (S)   | Ammeter (A)  | Energy (E)  |  |  |
|------------------------------|--|--|---|--|--|
| 15 – 600 A                   |   |   |  |  |  |
| PowerPact P- and R-Frame     | Standard (S)   | Ammeter (A)  | Energy (E)  | Power (P)  | Harmonic (H)   |
| up to 3000 A                 |  |  |  |  |  |

Adj. protections  
True RMS  
Thermal imaging

Current meter  
LED trip ind.  
ZSI

Power and  
energy meter

Frequency  
Power factor

Total harmonic  
distortion

### Motor protection trip units

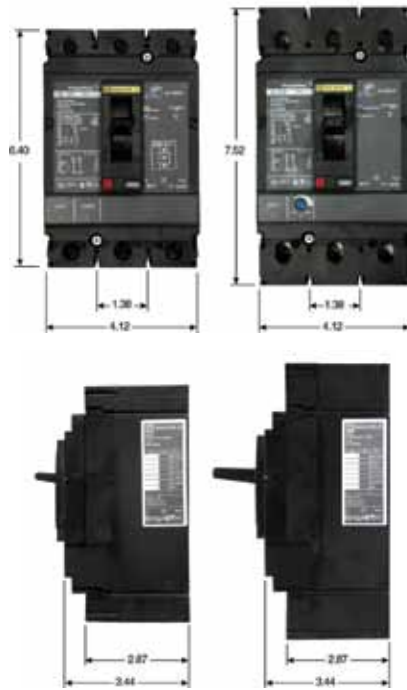
Also available are Micrologic trip units dedicated to managing motor applications at 600 A or below. Three levels of functionality are available with the motor trip unit offer.

- **1.3M:** Provides cable protection for short-circuits, and must be combined with an external thermal protection relay. This trip unit features an adjustable short-circuit protection threshold and fixed instantaneous protection.
- **2 M:** Provides thermal relay type protection in addition to short-circuit protection. Adjustable settings are included for the thermal protection threshold, the tripping class, and the short-circuit protection. Additional protections include phase unbalance and phase loss protection.
- **6 E-M:** Provides the same protection functions as the Micrologic 2-M units with the addition of ground fault, locked rotor protection, under-load protection and long start protection. They also incorporate energy metering and maintenance indicators similar to the Micrologic Energy trip unit.



### Mounting dimensions

Common mounting dimensions across the entire range means that the mounting pattern never has to change even when panel designs change.



*H-Frame and a J-Frame PowerPact circuit breaker.*

### Choice of terminal options

Terminal options include unique snap-in lugs that make converting between bus bar and lug options easy. If the application calls for lugs on the line side, load side or both, conversions are simple, making the PowerPact H- and J-Frame circuit breakers ideal for applications that require configuring products at the point of use.

The terminal nut or mechanical lug is set on a plastic retainer that slides and snaps into place. Making it possible to easily convert to a distribution lug that provides multiple cable outputs for downstream components.



*Bus bar option*



*Lug option*

## PowerPact H- and J-Frame with Micrologic circuit breakers – 15 A to 250 A

Well-suited to a wide range of applications, the Powerpact H- and J-Frame molded case circuit breakers feature a full complement of field installable accessories, field installable trip units, and improved interrupting ratings. These molded case circuit breakers deliver unmatched design flexibility and share identical mounting holes, handle locations, trim dimensions, and accessories, allowing customers to standardize equipment designs for 15 A to 250 A applications.

PowerPact H- and J-Frame circuit breakers come in many interruption ratings and are designed to limit let-through currents to provide better protection for downstream components. Interrupting ratings (AIR) include D-18 kA, G-35 kA, J-65 kA and L-100 kA at 480 Vac. Available as standard or 100% rated circuit breakers, the H-Frame ranges from 15 A to 150 A and the J-Frame from 70 A to 250 A.

Available trip units:

- **Thermal magnetic:** Circuit protection provided by individual thermal (overload) and magnetic (short circuit) sensing elements in each pole.
- **Standard electronic:** Adjustable overcurrent protection including long-time, instantaneous, and optional short-time.
- **Ammeter:** Adjustable long-time, short-time, instantaneous and optional ground fault protection is coupled with integrated current metering and maintenance indicators.
- **Energy:** Power and energy metering is integrated with exceptional long-time, short-time, instantaneous, and optional ground fault protections. Beyond energy metering, this trip unit delivers many advanced functions including power quality (harmonics) measurement.

## PowerPact L-Frame with Micrologic circuit breaker – 70 A to 600 A

Designed to accept common accessories and the full range of electronic trip options available for PowerPact H- and J-Frame, the newest addition to the PowerPact family of molded case circuit breakers delivers the same impeccable protection and flexibility. PowerPact L-Frame is also available as standard or 100% rated, and has a choice of many interruption ratings to support different application needs. Interrupting ratings (AIR) include D-18 kA, G-35 kA, J-65 kA and L-100 kA at 480 Vac.

Available trip units:

- **Standard electronic:** Adjustable overcurrent protection including long-time, instantaneous, and optional short-time.
- **Ammeter:** Adjustable long-time, short-time, instantaneous, and optional ground fault protection is coupled with integrated current metering and maintenance indicators.
- **Energy:** Power and energy metering is integrated with exceptional long-time, short-time, instantaneous, and optional ground fault protections. Beyond energy metering, this trip unit delivers many advanced functions including power quality (harmonics) measurement.

## PowerPact P- and R-Frame with Micrologic circuit breakers – 100 A to 3000 A

The compact P- and R-Frame circuit breakers permit smaller footprint and higher density installations. These circuit breakers are available in standard and 100% rated construction up to 3000 A to meet a broad range of commercial and industrial application needs. Common accessories make stocking and installation easy.

Built-in Modbus™ protocol provides an open communications platform and can be combined with a selection of four interchangeable Micrologic trip units.

- **Standard:** Adjustable overcurrent protection including long-time, instantaneous, and optional short-time.
- **Ammeter:** Adjustable long-time, short-time, instantaneous, and optional ground fault protection is coupled with integrated current metering and an optional Modbus communication interface.
- **Power:** Combines power monitoring and metering functions, with long-time, short-time, instantaneous/optional ground fault adjustments, and advanced relay functions, and has a standard Modbus communication interface.
- **Harmonics:** All of the functionality of the Power trip unit, plus enhanced monitoring and metering capabilities, basic power quality (harmonics) measurement, and waveform capture.



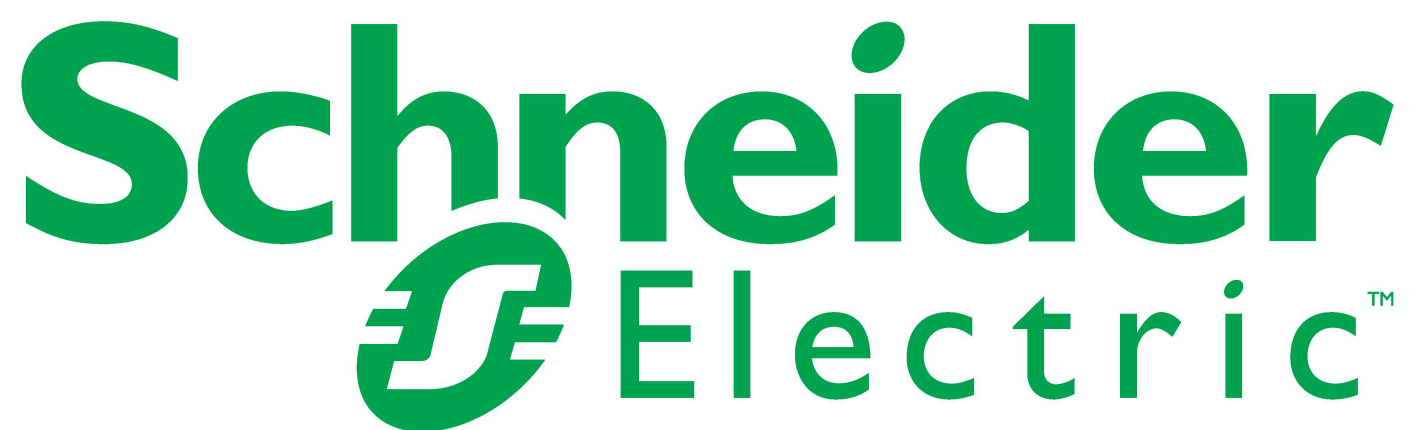
PowerPact L-Frame  
with Micrologic



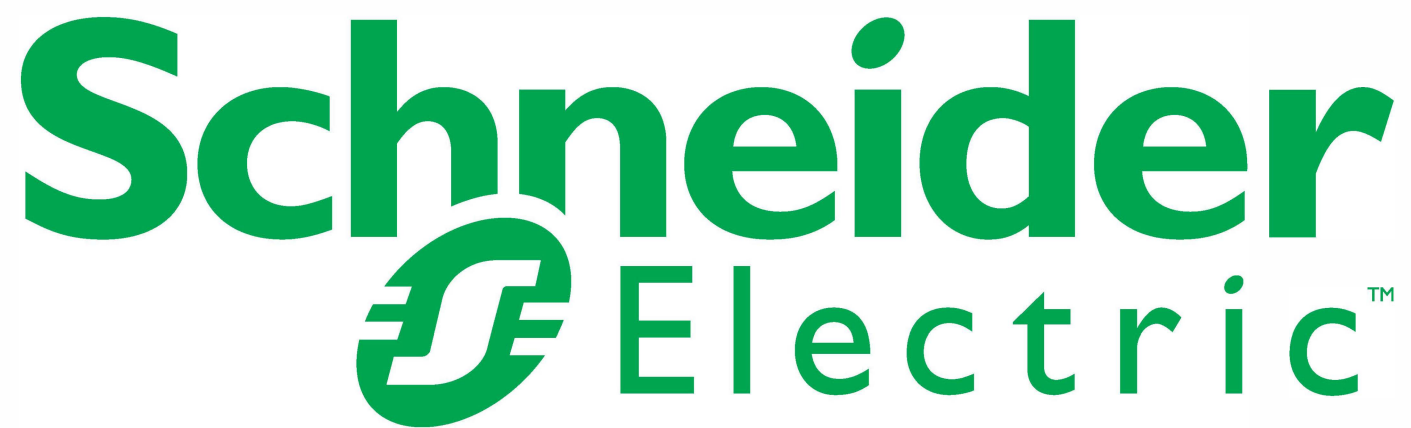
PowerPact P-Frame  
with Micrologic



PowerPact R-Frame  
with Micrologic



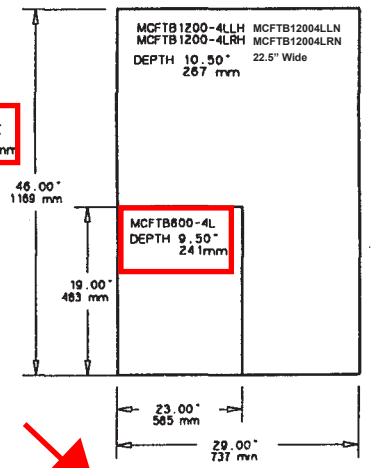
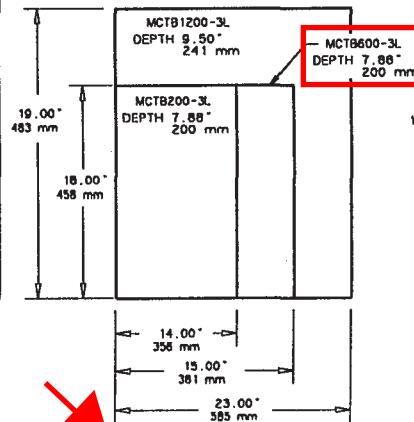
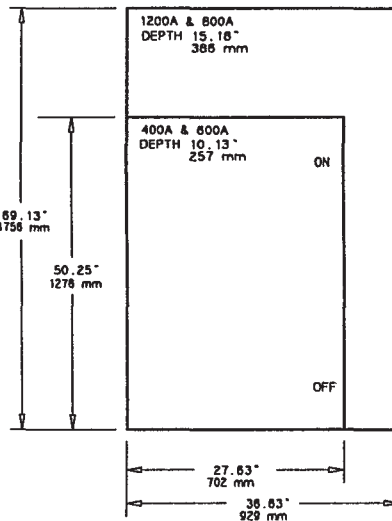
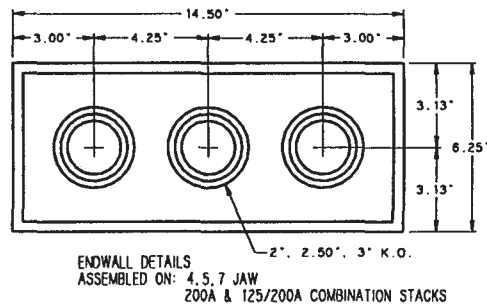
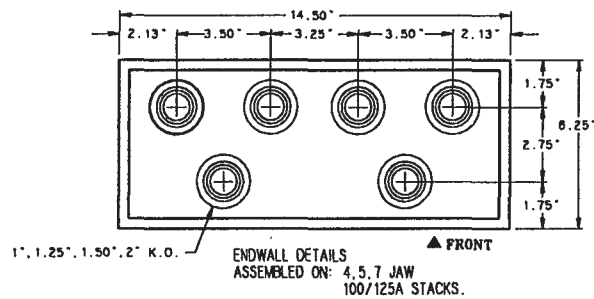
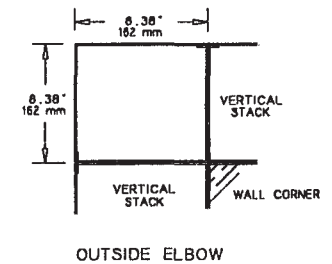
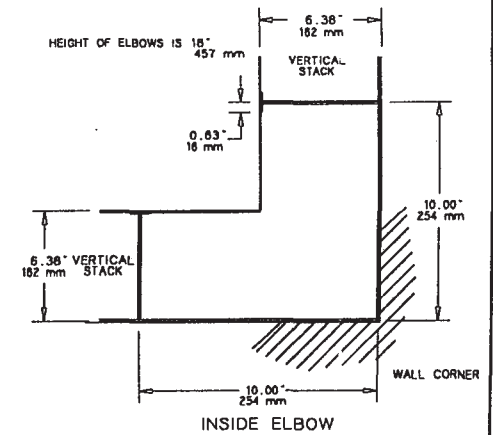
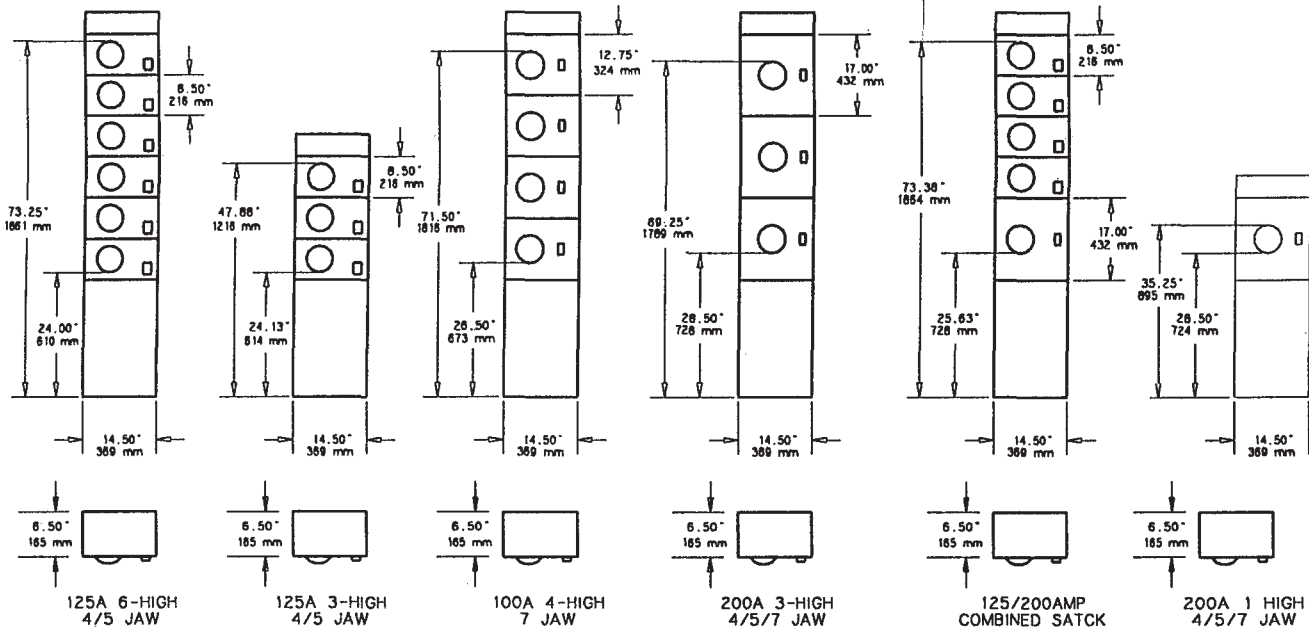
**METERING**



## **BILL OF MATERIALS AND DRAWINGS**

**Q2C Number:** 43618433**Quote Number:** 1**Revision Number:** 0**Project Name:** THE ATRIUM -19945 BRYDON CRES LANG**Quote Name:**

| <b>Item No.</b> | <b>Qty.</b> | <b>Catalog Number / Details</b>  |
|-----------------|-------------|--|
| 007-00          | 13          | MC54L<br>125A 5-JAW 6 GANG METER STACK<br>MC54L-CANADIAN PRODUCT - CONTACT CARAVELLE |
| 008-00          | 2           | MCFTB6004L<br>600A 1/3 FEED-THRU TAP BOX<br>MCFTB6004L-600A 1/3 FEED-THRU TAP BOX    |
| 009-00          | 2           | MCTB6003L<br>600A 1 PH TAP BOX<br>MCTB6003L-600A 1 PH TAP BOX                        |
| 010-00          | 2           | MCTBK600<br>600A 4TH WIRE TAP BOX KIT<br>MCTBK600-600A 4TH WIRE TAP BOX KIT          |
| 011-00          | 36          | MCMBK400<br>400A MC MAIN BUS BAR<br>MCMBK400-400A MC MAIN BUS BAR                    |
| 012-00          | 13          | MCBBK<br>GROUND BONDING BAR KIT<br>MCBBK-GROUND BONDING BAR KIT                      |
| 013-00          | 77          | QOB2100VH<br>BREAKER<br>QOB2100VH-MINIATURE CIRCUIT BREAKER 240V 100A                |

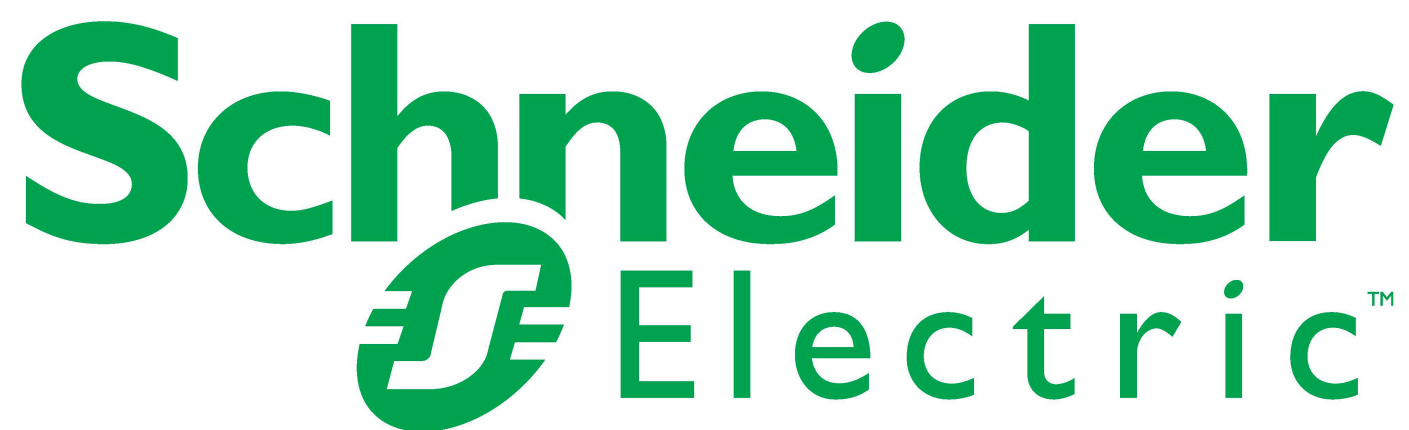


DIMENSIONS ARE APPROXIMATE. DO NOT USE FOR CONSTRUCTION.

SWITCH DIMENSIONS

MAIN CABLE TAP BOXES

FEED-THRU CABLE TAP BOXES



**LITERATURE**



# Meter Centres

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## Product Illustration/Features

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**Pages:** • DE4-3 to DE4-9

**Features:**

- 400A to 1200A main bus capacity
- 100/125A, and 200A meter sockets with 4, 5, or 7 Jaws
- Meter stacks rated at 240 V Max., single or three phase
- Up to 200A sub-service capacity
- 2 or 3-pole sub-service circuit breakers
- Left-hand or right-hand entry available on all meter stacks
- Provision for top and/or bottom exiting of sub-service load wiring from all meter stacks
- CSA Type A “cold metering”
- Combined 125/200A meter stacks
- “Hook and Hang” provision/mounting rail
- Painted to an ASA49 grey finish

Square D Meter Centres are designed to provide a compact and versatile metering and distribution centre to suit today's residential, commercial, and industrial markets. Meter Centres now feature new combined 125/200A stacks in one sub-service as well as 3-high 125A 4 and 5 Jaw stacks. No other metering system provides the same advantages of installation convenience and subsequent time-saving economy.

All metering stacks are shipped from the factory with meter sockets and vertical bus bars pre-installed, and require a minimum of on site labour time to install the circuit breakers and main bus links. At the site, the contractor has only to bolt the individual enclosures together, install the required circuit breakers, connect the main bus links together, and connect the individual distribution cables to their respective sub-service locations.

Screw-on, sealable covers over the meter sockets and circuit breakers are finished with a grey epoxy powder coating. Provision to lock and seal the circuit breaker handles in the "off" position has been made for the convenience of utilities and electrical inspectors.

Circuit breakers required for 125A, 4/5 Jaw sub-service sections are of the 2-pole QWIK-OPEN® QOB Type. QOB breakers are available from 10-125A. Circuit breakers required for 100A 7 Jaw stacks are the 3-pole QD/QG circuit breakers and are available at 70A and 100A.

Square D QD/QG Type moulded case circuit breakers are required for 200A sub-service sections. Type QD circuit breakers are available in ratings from 100A to 200A in both the 2- and 3-pole styles and have a 25,000A IC at 240 VAC. Type QG circuit breakers are available in ratings from 100A to 200A in both 2- and 3-pole styles and have a 65,000A IC at 240 VAC.

All meter stacks are designed for CSA Type A "cold metering" in which the individual sub-service breakers are connected on the line side of the meter sockets thereby protecting the meter and all electrical equipment installed subsequent to it.

These features, along with the modular design, produce a top quality Meter Centre that will provide dependable service well into the future.

### Meter Stacks Available with 100/125 and 200A Sub-Service Capacity

| 100/125A Meter Stacks▲●          |                        |                                     |                     |                  |                       |                               |                             |           |          |  |  |
|----------------------------------|------------------------|-------------------------------------|---------------------|------------------|-----------------------|-------------------------------|-----------------------------|-----------|----------|--|--|
| Main Service Voltage             | Sub-Service Voltage    | Meter Socket Rating and No. of Jaws | No. of Sub-Services | Catalogue Number | Circuit Breaker Type  | Vertical Bus Bar Rating (Amp) | Overall Dimensions (in./mm) |           |          |  |  |
|                                  |                        |                                     |                     |                  |                       |                               | H                           | W         | D        |  |  |
| 120/240 V<br>1Ø3W                | 120/240 V<br>1Ø3W      | 125A 4-Jaw                          | 6                   | MC43L●           | QOB/QOB-VH            | 750                           | 79.75/2027                  | 14.50/369 | 6.50/165 |  |  |
|                                  |                        |                                     | 3                   | MC43L3●          |                       | 375                           | 54.25/1379                  |           |          |  |  |
| 120/208 V<br>3Ø4W                | 120/208 V<br>1Ø3W      | 125A 5-Jaw                          | 6                   | MC54L●           |                       | 750                           | 79.75/2027                  |           |          |  |  |
|                                  |                        |                                     | 3                   | MC54L3●          |                       | 375                           | 54.25/1379                  |           |          |  |  |
| 120/208 V<br>3Ø4W                | 120/208 V<br>3Ø4W      | 100A 7-Jaw                          | 4                   | MC74LB           | QDM/QBM<br>(100A)     | 400                           | 79.75/2027                  |           |          |  |  |
| 200A Meter Stacks▲               |                        |                                     |                     |                  |                       |                               |                             |           |          |  |  |
| Main Service Voltage             | Sub-Service Voltage    | Meter Socket Rating and No. of Jaws | No. of Sub-Services | Catalogue Number | Circuit Breaker Type  | Vertical Bus Bar Rating (Amp) | Overall Dimensions (in./mm) |           |          |  |  |
|                                  |                        |                                     |                     |                  |                       |                               | H                           | W         | D        |  |  |
| 120/240 V<br>1Ø3W                | 120/240 V<br>1Ø3W      | 200A 4-Jaw                          | 3                   | MC43L200B        | QDM/QGM<br>(200A)     | 600                           | 79.75/2027                  | 14.50/369 | 6.50/165 |  |  |
| 120/208 V<br>3Ø4W                | 120/208 V<br>1Ø3W      | 200A 5-Jaw                          |                     | MC54L200B        |                       |                               |                             |           |          |  |  |
|                                  | 120/208 V<br>3Ø4W      | 200A 7-Jaw                          |                     | MC74L200B        |                       |                               |                             |           |          |  |  |
| 120/240V<br>1Ø3W                 | 120/240 V<br>1Ø3W      | 200A 4-Jaw                          | 1                   | MC4200B          |                       | 200                           | 54.25/1379                  |           |          |  |  |
| 120/208 V<br>3Ø4W                | 120/208 V<br>1Ø3W      | 200A 5-Jaw                          |                     | MC5200B          |                       |                               |                             |           |          |  |  |
|                                  | 120/208 V<br>3Ø4W      | 200A 7-Jaw                          |                     | MC7200B          |                       |                               |                             |           |          |  |  |
| 125/200A Combined Meter Stacks▲● |                        |                                     |                     |                  |                       |                               |                             |           |          |  |  |
| Main Service Voltage             | Sub-Service Voltage    | Meter Socket Rating and No. of Jaws | No. of Sub-Services | Catalogue Number | Circuit Breaker Type  | Vertical Bus Bar Rating (Amp) | Overall Dimensions (in./mm) |           |          |  |  |
|                                  |                        |                                     |                     |                  |                       |                               | H                           | W         | D        |  |  |
| 120/240V<br>1Ø3W                 | 120/240 V<br>1Ø3W      | (4) 125A 4-Jaw<br>(1) 200A 4-Jaw    | 5                   | MC443LB●         | QOB/QOB-VH<br>QDM/QGM | 700                           | 79.75/2027                  | 14.50/369 | 6.50/165 |  |  |
| 120/208 V<br>3Ø4W                | 120/208 V<br>1Ø3W/3Ø4W | (4) 125A 5-Jaw<br>(1) 200A 7-Jaw    | 5                   | MC574LB●         | QOB/QOB-VH<br>QDM/QGM | 700                           |                             |           |          |  |  |

▲Sub-service breakers are not to exceed meter socket rating.

●Must use 22kA breaker for applications 70A or less.

- 100/200 and combined stacks can be mounted side by side. 4/5 Jaw and 7 Jaw sockets require 2 and 3 pole sub-service breakers respectively. See Breaker Selection Table (Page DE4-4).
- All 100A 5-Jaw stacks have the fifth Jaw in the 9 o'clock position. Provision is made for conversion to the 6 o'clock position.
- 200A 5-Jaw stacks have provision to accept both 6 and 9 o'clock 5-Jaw meters.
- Short circuit calculations should be completed prior to ordering to ensure that the equipment is not applied on systems with capacity greater than the equipment's interrupting capabilities.
- Dimensions are approximate. Do not use for construction.

# Meter Centres

## Sub-Service Breakers and Tap Boxes

### Sub-Service Circuit Breaker Selection Chart for 4- and 5-Jaw Meter Stacks

| Ampere Ratings | 125A Meter Stacks               |                                 | 200A Meter Stacks              |                                |
|----------------|---------------------------------|---------------------------------|--------------------------------|--------------------------------|
|                | QOB Circuit Breakers 10,000 AIC | QOB Circuit Breakers 22,000 AIC | QD Circuit Breakers 25,000 AIC | QG Circuit Breakers 65,000 AIC |
|                | 2-pole 120/240 VAC              | 2-pole 120/240 VAC              | 2-pole 240 VAC                 | 2-pole 240 VAC                 |
|                | Catalogue Number                | Catalogue Number                | Catalogue Number               | Catalogue Number               |
| 50             | X                               | QOB250VH                        | X                              | X                              |
| 60             | X                               | QOB260VH                        | X                              | X                              |
| 70             | X                               | QOB270VH                        | X                              | X                              |
| 80             | QOB280                          | QOB280VH                        | X                              | X                              |
| 90             | QOB290                          | QOB290VH                        | X                              | X                              |
| 100            | QOB2100                         | QOB2100VH                       | QDM22100TN                     | QGM22100TN                     |
| 125            | QOB2125                         | QOB2125VH                       | QDM22125TN                     | QGM22125TN                     |
| 150            | X                               | X                               | QDM22150TN                     | QGM22150TN                     |
| 175            | X                               | X                               | QDM22175TN                     | QGM22175TN                     |
| 200            | X                               | X                               | QDM22200TN                     | QGM22200TN                     |

### Sub-Service Circuit Breaker Selection Chart for 7-Jaw Meter Stacks

| Ampere Ratings | 100A Meter Stacks               |                                 | 200A Meter Stacks              |                                |
|----------------|---------------------------------|---------------------------------|--------------------------------|--------------------------------|
|                | QBM Circuit Breakers 10,000 AIC | QDM Circuit Breakers 25,000 AIC | QD Circuit Breakers 25,000 AIC | QG Circuit Breakers 65,000 AIC |
|                | 3-pole 120/240 VAC              | 3-pole 120/240 VAC              | 3-pole 240 VAC                 | 3-pole 240 VAC                 |
|                | Catalogue Number                | Catalogue Number                | Catalogue Number               | Catalogue Number               |
| -              | X                               | X                               | X                              | X                              |
| -              | X                               | X                               | X                              | X                              |
| 70             | QBM32070TN                      | QDM32070TN                      | X                              | X                              |
| -              | X                               | X                               | X                              | X                              |
| -              | X                               | X                               | X                              | X                              |
| 100            | QBM32100TN                      | QDM32100TN                      | QDM32100TN                     | QGM32100TN                     |
| 125            | X                               | X                               | QDM32125TN                     | QGM32125TN                     |
| 150            | X                               | X                               | QDM32150TN                     | QGM32150TN                     |
| 175            | X                               | X                               | QDM32175TN                     | QGM32175TN                     |
| 200            | X                               | X                               | QDM32200TN                     | QGM32200TN                     |

### Main Tap Boxes▲

| Main Bus Rating (Amp.) | Main Service | Catalogue Number | Lug Size and Quantity Per Phase and Neutral (Cu/Al)          | Overall Dimensions (in./mm) |           |          |
|------------------------|--------------|------------------|--|-----------------------------|-----------|----------|
|                        |              |                  |  | H                           | W         | D        |
| 200                    | 1Ø3W▲        | MCTB2003L        | (1) #6 - 300 MCM   | 18.00/458                   | 14.00/356 | 7.90/200 |
| 600                    |              | MCTB6003L        | (1) 1/0 - 750 MCM and (1) 1/0 - 600 MCM or (4) 1/0 - 250 MCM |                             | 15.00/381 |          |
| 1200                   |              | MCTB12003L       | (3) #4 - 750 MCM or (4) #4 - 600 MCM                         | 19.00/483                   | 23.00/585 | 9.50/241 |

▲Order (1) 4th Wire Connector Kit below per tap box for 3 Phase applications.

- Suitable for use as a sub-feed device or branch top box provided that the total loading on the system does not exceed 80% of the main circuit breaker or fusible disconnect.
- Suitable for top and bottom entry only.

### Main Tap Box 4th Wire Connector Kits◆

| Main Bus Rating (Amp.) | Main Service | Catalogue Number |
|------------------------|--------------|------------------|
| 200                    | 3Ø4W         | MCTBK200         |
| 600                    |              | MCTBK600         |
| 1200                   |              | MCTBK1200        |

◆4th Wire Kit contains (1) Bus Link and Lug for 3 Phase applications.

- Dimensions are approximate only. Do not use for construction.

## Tap Boxes and Connector Kits

## Feed-Thru Tap Boxes

| Main Bus Rating (Amp.) | Main Service | Catalogue Number▲ | Lug Size and Quantity Per Phase and Neutral (Cu/Al)      | Overall Dimensions (in./mm) |           |           |
|------------------------|--------------|-------------------|--|-----------------------------|-----------|-----------|
|                        |              |                   |  | H                           | W         | D         |
| 600                    | 1Ø3W or 3Ø4W | MCFTB6004L        | (3) #4 - 750 MCM or (4) #4 - 600 MCM or (8) #4 - 250 MCM | 19.00/483                   | 23.00/585 | 9.50/241  |
| 1200                   | 1Ø3W or 3Ø4W | MCFTB12004LLH     | (4) #4 - 750 MCM or (8) #4 - 600 MCM                     | 46.00/1169                  | 29.00/737 | 10.50/267 |
|                        |              | MCFTB12004LLN*    |  |                             | 22.5      |           |
|                        |              | MCFTB12004LRH     | (4) #4 - 750 MCM or (8) #4 - 600 MCM                     |                             | 29.00/737 |           |
|                        |              | MCFTB12004LRN*    |  |                             | 22.5      |           |

▲ Last two letters of Catalogue Number denote left-hand (LH) or right-hand (RH) connection to meter stack assembly. Feed-Thru Tap Boxes are required in place of Main Tap Boxes when the main service cables must enter and branch off at the same end of the meter centre assembly.

\* Last two letters of catalogue number denote left-hand narrow (LN) or right-hand narrow (RN).

- Suitable for top and bottom entry only.

## Right Angle Main Tap Boxes

| Main Bus Rating (Amp.) | Main Service | Catalogue Number | Lug Size and Quantity Per Phase and Neutral (Cu/Al)         | Overall Dimensions (in./mm) |           |          |
|------------------------|--------------|------------------|---|-----------------------------|-----------|----------|
|                        |              |                  |   | H                           | W         | D        |
| 600                    | 1Ø3W or 3Ø4W | MCTB600RA        | (1) 1/0 - 750 MCM or (2) 1/0 - 500 MCM or (4) 1/0 - 250 MCM | 18.00/457                   | 18.00/457 | 7.90/200 |

## Main Bus Link Connector Kits

| Main Bus Rating (Amp.) | Main Service | Catalogue Number◆ | Standard Packaging Quantity |
|------------------------|--------------|-------------------|-----------------------------|
| 400                    | 1Ø3W or 3Ø4W | MCMBK400          | 60                          |
| 600                    | 1Ø3W or 3Ø4W | MCMBK600          | 30                          |

- ◆ Main Bus Link Connectors are required for each additional stack when joining two or more meter stacks. The first stack or single stack installation does not require bus links since the tap box is supplied with main service lugs and bus bar link connectors. Order (1) MCMBK400 per phase for 400A applications, (2) MCMBK400 or (1) MCMBK600 per phase for 600A applications, (2) MCMBK400 for 800A applications and (2) MCMBK600 per phase for 1200 A applications.

Formula: No. of bars required = (No. of stacks - 1) x system wiring\* x No. of bars per phase (\*system wiring = 3 for 1Ø3W applications or 4 for 3Ø4W applications)

Examples: 2 Meter Stacks in a 1Ø3W 400A application will require (3) MCMBK400.

4 Meter Stacks in a 3Ø4W 600A application will require (24) MCMBK400 or (12) MCMBK600.

7 Meter Stacks in a 3Ø4W 1200A application will require (48) MCMBK600.

## Inside Elbow Sections

| Main Bus Rating (Amp.) | Number of Phases | Catalogue Number | Overall Dimensions (in./mm) |                       |          |
|------------------------|------------------|------------------|-----------------------------|-----------------------|----------|
|                        |                  |                  | H                           | W+W                   | D        |
| 400-600A               | 1Ø and 3Ø        | MCIE6004L        | 18.00/457                   | 10.00/254 + 10.00/254 | 6.40/162 |
| 800-1200A              | 1Ø and 3Ø        | MCIE12004L       |                             |                       |          |

## Outside Elbow Sections

| Main Bus Rating (Amp.) | Number of Phases | Catalogue Number | Overall Dimensions (in./mm) |                     |          |
|------------------------|------------------|------------------|-----------------------------|---------------------|----------|
|                        |                  |                  | H                           | W+W                 | D        |
| 400-600A               | 1Ø and 3Ø        | MCOE6004L        | 18.00/457                   | 6.40/162 + 6.40/162 | 6.40/162 |
| 800-1200A              | 1Ø and 3Ø        | MCOE12004L       |                             |                     |          |

Note: Inside and outside sections permit customized installation of meter stack assemblies around wall corners to suit individual requirements. For installation between adjacent meter stacks only. Cannot be installed between tapbox and a meter stack.

## Bonding Bar Kit

## Catalogue Number MCBBK

Bonding Bar kit is required when connecting 5 or more individual enclosures together. Order 1 kit for each meter stack and Branch Tap Box.

Example: 1 Main Tap Box joined to 4 meter stacks require 4 Bonding Bar Kits.

- Dimensions are approximate only. Do not use for construction.

# Meter Centres

## Accessories

### Mounting Rail

#### Catalogue Number MCMR

Mounting Rail (MCMR) features “hook and hang” positioning on a separate mounting channel when installing multiple meter stacks. The mounting channel is secured to the wall to suit local Utility meter height requirements, then the devices are hung on the channel. This provides a positive means of support during installation. Each mounting rail is 50 3/4 inches in length and can accommodate up to 3 meter stacks. Order quantity as required based on total width of meterstack line up.

### Cover Plates▲

| Description  | Used On  | Catalogue Number (Series A) | Catalogue Number (Series B) |
|--|--|-----------------------------|-----------------------------|
| 125 Amp 4-5 Jaw meter socket and breaker cover used to cover meter and breaker section.  | MC43L<br>MC43L3<br>MC54L3<br>MC54L                                   | MCBC1004 (QOB)              |                             |
| 100 Amp 7 Jaw meter socket and breaker cover used to cover meter and breaker section.  | MC74LB   | MCBC1007 (QOB)              |                             |
| 200 Amp 4-5-7 Jaw meter socket and breaker cover used to cover meter and breaker section 1 piece construction. Breaker is mounted in vertical position | MC43L200<br>MC54L200<br>MC74L200<br>MC4200<br>MC5200<br>MC7200       | MCBC200 (KD)                |                             |
| 200 Amp 4-5-7 Jaw Series B meter socket and breaker cover used to cover meter and breaker section  | MC43L200B<br>MC54L200B<br>MC74L200B<br>MC4200B<br>MC5200B<br>MC7200B |                             | MCBC200B (QD)               |

▲ Replacement meter/breaker cover for Series A 125/200A combined stacks will depend on the particular sub-service. Order covers based on amperage and number of jaws from table.

### Blanking Plates

| Description  | Used On  | Catalogue Number (Series A) | Catalogue Number (Series B) |
|--|--|-----------------------------|-----------------------------|
| 125 Amp 4-5 Jaw Blanking plate for meter and breaker section 1 piece construction.   | MC43L<br>MC43L3<br>MC54L<br>MC54L3                                   | MCBC1                       | MCBC1                       |
| 100 Amp 7 Jaw Blanking plate for meter and breaker section 1 piece construction.     | MC74LB   | MCBC2                       | MCBC2                       |
| 200 Amp 4-5-7 Jaw Blanking plate for meter and breaker section 1 piece construction. | MC43L200B<br>MC54L200B<br>MC74L200B<br>MC4200B<br>MC5200B<br>MC7200B | MCBC3                       | MCBC3                       |

### Accessories

| Description  | Catalogue Number |
|--|------------------|
| Blank Cover Plate Plastic (meter socket opening cover) | MCSOC            |
| Sealing Ring   | MCSR             |

### Jumper Bar Kit◆

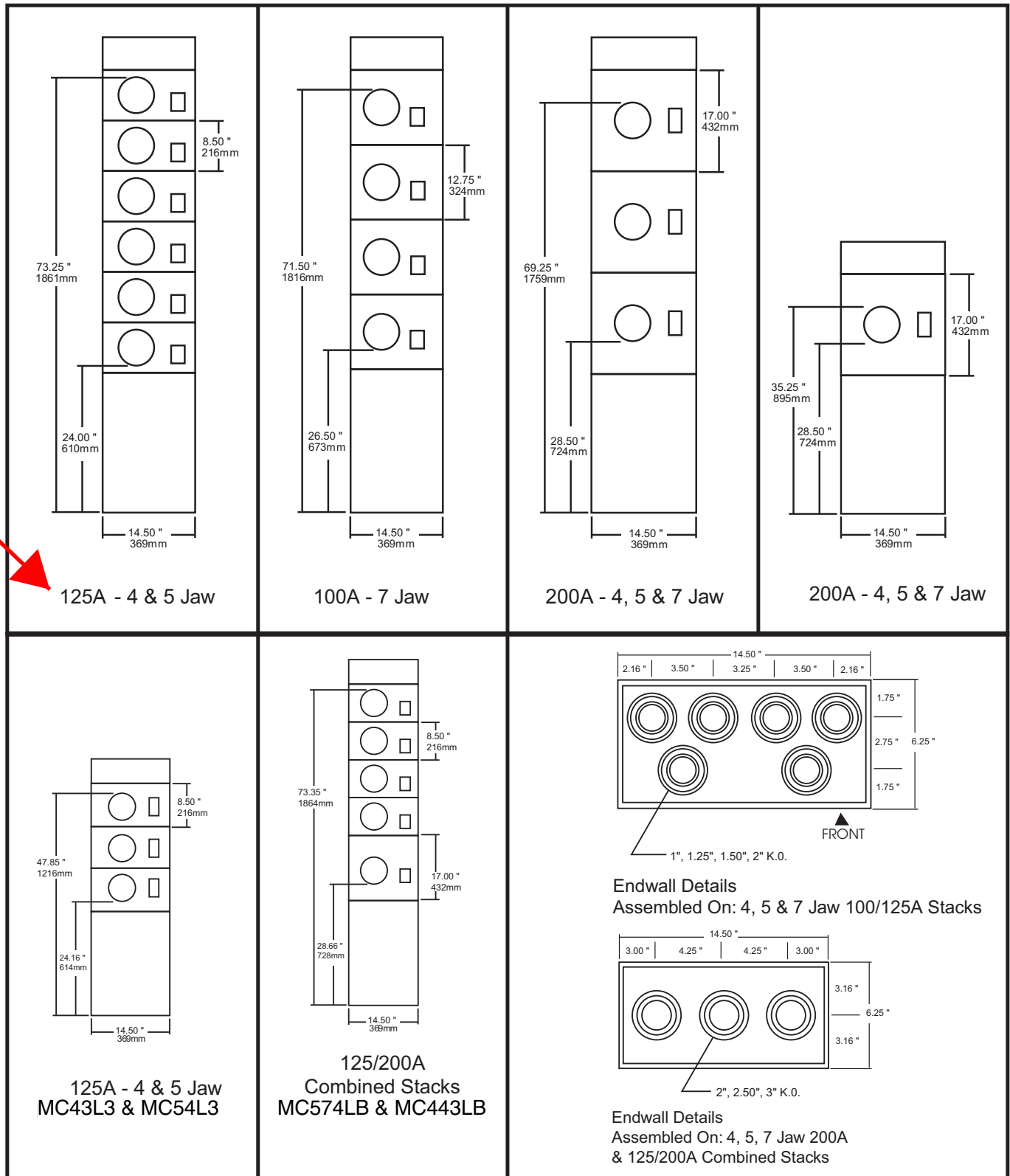
| Description        | Catalogue Number |
|--------------------|------------------|
| 4 Jaw 200A Maximum | MCJB4            |
| 5 Jaw 200A Maximum | MCJB5            |
| 7 Jaw 200A Maximum | MCJB7            |

◆ Jumper Bar Kit is used to jumper a metering position when a meter has been removed and power is required. Order one kit per sub-service.

### Replacement Meter Sockets

| Description       | Catalogue Number |
|-------------------|------------------|
| 4-Jaw 125A Socket | 100MC4           |
| 5-Jaw 125A Socket | 100MC5           |
| 7-Jaw 100A Socket | 100MC7           |
| 4-Jaw 200A Socket | 200MC4           |
| 5-Jaw 200A Socket | 200MC5           |
| 7-Jaw 200A Socket | 200MC7           |

## Meter Stack Dimensions and Knockout Schedule



- Dimensions are approximate only. Do not use for construction.

# Meter Centres

## Wiring Diagrams

DE4 METER CENTRES

**MC43L**

|   |
|---|
| 1Ø3 Wire 240 VAC Maximum  |
| Sub-Service Circuit Breaker<br>Type QOB 120/240 VAC               |
| Suitable For<br>CU-AL Conductors                                  |
| Load Terminals<br>#12 — 2/0 AWG                                   |
| NMSC Ground Terminals<br>#14 — 4 AWG                              |
| Ground Terminal May Be<br>Moved to Bottom of Stack<br>If Required |

VERTICAL  
BUS BARS  
750 AMP  
MAXIMUM

**MC54L**

|   |
|---|
| 3Ø4 Wire 240 VAC Maximum  |
| Sub-Service Circuit Breaker<br>Type QOB 120/240 VAC               |
| Suitable For<br>CU-AL Conductors                                  |
| Load Terminals<br>#12 — 2/0 AWG                                   |
| NMSC Ground Terminals<br>#14 — 4 AWG                              |
| Ground Terminal May Be<br>Moved to Bottom of Stack<br>If Required |

VERTICAL  
BUS BARS  
750 AMP  
MAXIMUM

**MC74LB**

|   |
|---|
| 3Ø4 Wire 240 VAC Maximum  |
| Sub-Service Circuit Breaker<br>100 Amp Maximum<br>Type QD/QB 3P 240 VAC |
| Suitable For<br>CU-AL Conductors  |
| Load Terminals<br>#12 — 1/0 AWG   |
| NMSC Ground Terminals<br>#14 — 4 AWG                                    |
| Ground Terminal May Be<br>Moved to Bottom of Stack<br>If Required       |

VERTICAL  
BUS BARS  
400 AMP  
MAXIMUM

**MC574LB**

|   |
|---|
| Sub-Service Circuit Breaker<br>(4) Type QOB 125A Max.<br>120/208 VAC<br>(1) Type QD/QG 200A Max.<br>120/208 VAC |
| Suitable For<br>CU-AL Conductors  |
| Load Terminals<br>(125A) #12 — 1/0 AWG<br>(200A) #2 — 250 MCM   |
| NMSC GROUND Terminals<br>#14 — 4 AWG  |
| Ground Terminal May Be<br>Moved to Bottom of Stack<br>If Required   |

VERTICAL  
BUS BARS  
700 AMP  
MAXIMUM

**MC43L3**

|  |
|--|
| Sub-Service Circuit<br>Breaker<br>125A Max.<br>Type QOB 120/240<br>VAC |
| Suitable For<br>CU-AL Conductors                                       |
| Load Terminals<br>#12 — 2/0 AWG  |
| NMSC Ground<br>Terminals<br>#14 — 4 AWG                                |
| Ground Terminal<br>May Be Moved to<br>Bottom of Stack<br>If Required   |

VERTICAL  
BUS BARS  
375 AMP  
MAXIMUM

**MC54L3**

|  |
|--|
| Sub-Service Circuit<br>Breaker<br>125A Max.<br>Type QOB 120/240<br>VAC |
| Suitable For<br>CU-AL Conductors                                       |
| Load Terminals<br>#12 — 2/0 AWG  |
| NMSC Ground<br>Terminals<br>#14 — 4 AWG                                |
| Ground Terminal May<br>Be Moved to Bottom<br>of Stack<br>If Required   |

VERTICAL  
BUS BARS  
375 AMP  
MAXIMUM

**MC443LB**

|  |
|--|
| Sub-Service Circuit<br>Breaker<br>(4) Type QOB 125A<br>Max. 120/240 VAC<br>(1) Type QD/QG 200A<br>Max. 120/240 VAC |
| Suitable For<br>CU-AL Conductors   |
| Load Terminals<br>(125A)<br>#12 — 2/0 AWG<br>(200A)<br>#2 — 250 MCM  |
| NMSC Ground<br>Terminals<br>#14 — 4 AWG  |
| Ground Terminal May<br>Be Moved to Bottom<br>of Stack<br>If Required   |

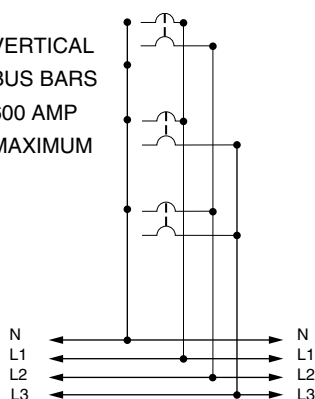
VERTICAL  
BUS BARS  
700 AMP  
MAXIMUM



### MC54L200B

|   |
|---|
| 3Ø4 Wire 240 VAC Maximum  |
| Sub-Service Circuit Breaker<br>200 Amp Maximum<br>Type QD/QG 2P 240 VAC |
| Suitable For<br>CU-AL Conductors  |
| Load Terminals<br>#2 AWG — 250 MCM                                      |
| NMSC Ground Terminals<br>#14 — 4 AWG                                    |
| Ground Terminal May Be<br>Moved to Bottom of Stack<br>If Required       |

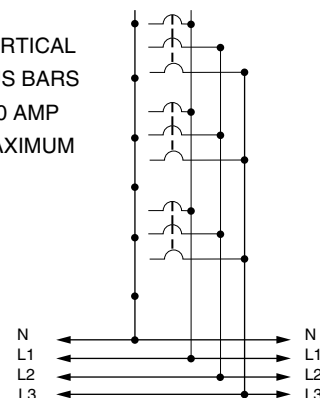
VERTICAL  
BUS BARS  
600 AMP  
MAXIMUM



### MC74L200B

|   |
|---|
| 3Ø4 Wire 240 VAC Maximum  |
| Sub-Service Circuit Breaker<br>200 Amp Maximum<br>Type QD/QG 3P 240 VAC |
| Suitable For<br>CU-AL Conductors  |
| Load Terminals<br>#2 AWG — 250 MCM                                      |
| NMSC Ground Terminals<br>#14 — 4 AWG                                    |
| Ground Terminal May Be<br>Moved to Bottom of Stack<br>If Required       |

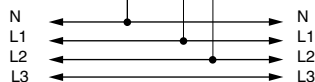
VERTICAL  
BUS BARS  
600 AMP  
MAXIMUM



### MC5200B

|   |
|---|
| 3Ø4 Wire 240 VAC Maximum  |
| Sub-Service Circuit Breaker<br>200 Amp Maximum<br>Type QD/QG 2P 240 VAC |
| Suitable For<br>CU-AL Conductors  |
| Load Terminals<br>#2 AWG — 250 MCM                                      |
| NMSC GROUND Terminals<br>#14 — 4 AWG                                    |
| Ground Terminal May Be<br>Moved to Bottom of Stack<br>If Required       |

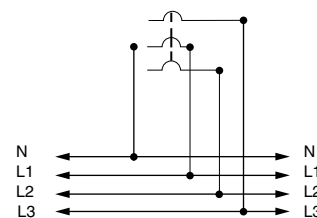
VERTICAL  
BUS BARS  
200 AMP  
MAXIMUM



### MC7200B

|   |
|---|
| 3Ø4 Wire 240 VAC Maximum  |
| Sub-Service Circuit Breaker<br>200 Amp Maximum<br>Type QD/QG 3P 240 VAC |
| Suitable For<br>CU-AL Conductors  |
| Load Terminals<br>#2 AWG — 250 MCM                                      |
| NMSC Ground Terminals<br>#14 — 4 AWG                                    |
| Ground Terminal May Be<br>Moved to Bottom of Stack<br>If Required       |

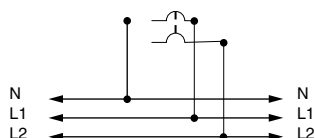
VERTICAL  
BUS BARS  
200 AMP  
MAXIMUM



### MC4200B

|   |
|---|
| 1Ø3 Wire 240 VAC Maximum  |
| Sub-Service Circuit Breaker<br>200 Amp Maximum<br>Type QD/QG 2P 240 VAC |
| Suitable For<br>CU-AL Conductors  |
| Load Terminals<br>#2 AWG — 250 MCM                                      |
| NMSC GROUND Terminals<br>#14 — 4 AWG                                    |
| Ground Terminal May Be<br>Moved to Bottom of Stack<br>If Required       |

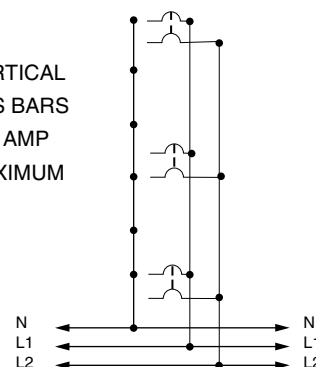
VERTICAL  
BUS BARS  
200 AMP  
MAXIMUM

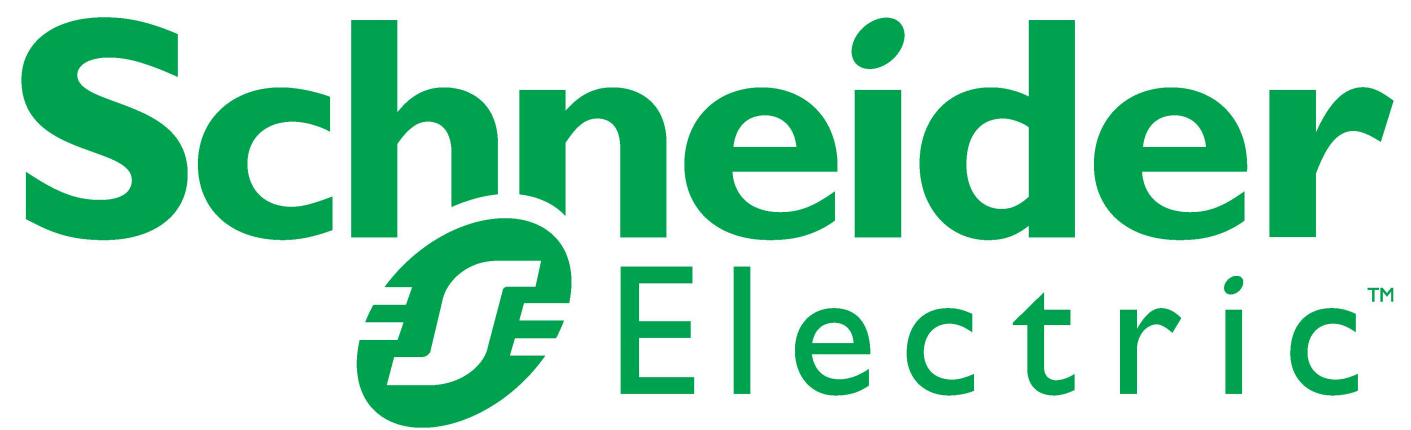


### MC43L200B

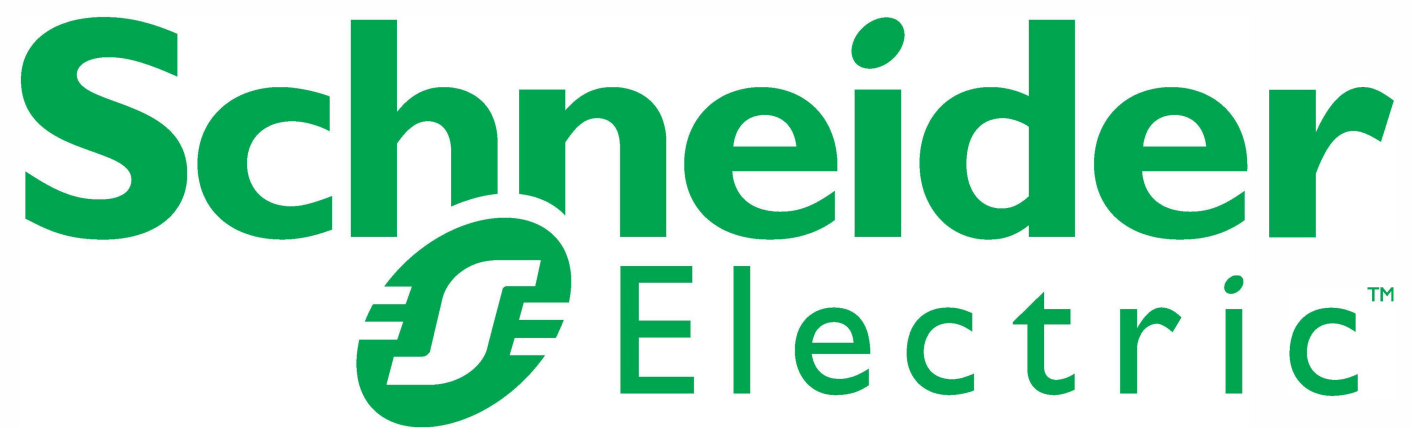
|   |
|---|
| 1Ø3 Wire 240 VAC Maximum  |
| Sub-Service Circuit Breaker<br>200 Amp Maximum<br>Type QD/QG 2P 240 VAC |
| Suitable For<br>CU-AL Conductors  |
| Load Terminals<br>#2 AWG — 250 MCM                                      |
| NMSC Ground Terminals<br>#14 — 4 AWG                                    |
| Ground Terminal May Be<br>Moved to Bottom of Stack<br>If Required       |

VERTICAL  
BUS BARS  
600 AMP  
MAXIMUM





**LOAD CENTER(S)**



## **BILL OF MATERIALS AND DRAWINGS**

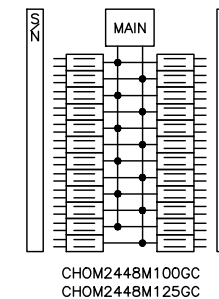
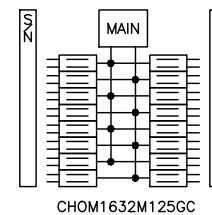
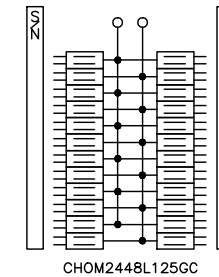
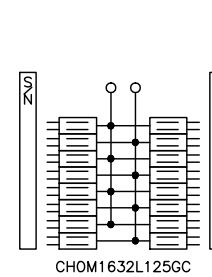
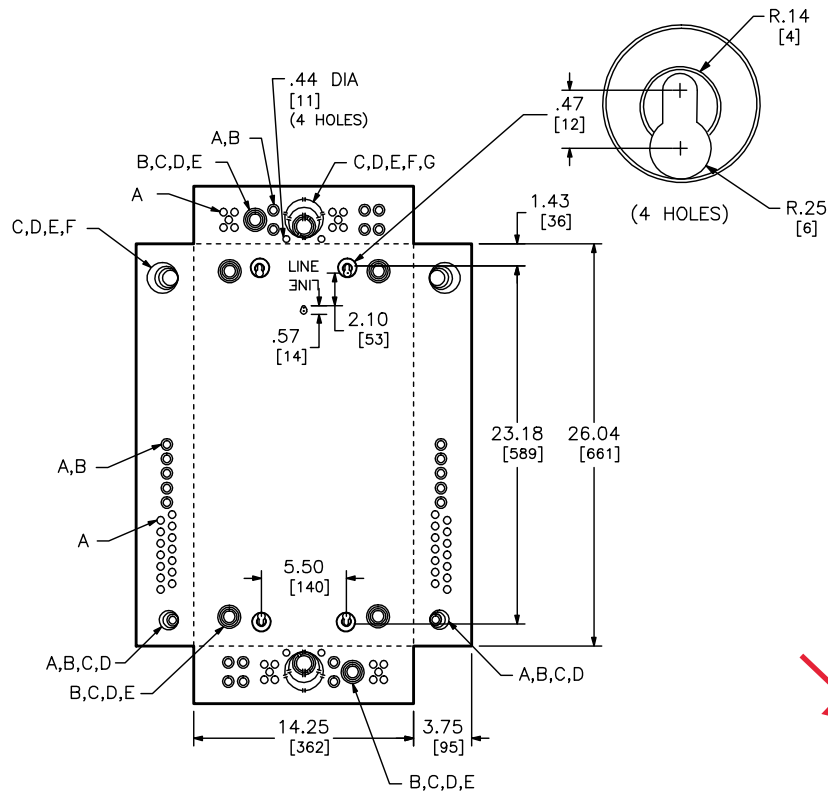
**Q2C Number:** 43618433**Quote Number:** 1**Revision Number:** 0**Project Name:** THE ATRIUM -19945 BRYDON CRES LANG**Quote Name:**

| Item No. | Qty. | Catalog Number / Details   |
|----------|------|--|
| 004-00   | 5    | QO342ML2<br>QO MLO LC 240V 225A 3PH 42SP CSA LIST<br>QO342ML2-QO LDCTR MLO 240V 225A 3PH 42SP CSA L<br>IST |
| 005-00   | 5    | QOC42UC<br>COVER FOR LOAD CENTER<br>QOC42UC-COVER FOR LOAD CENTER  |
| 006-00   | 80   | CHOM2448M100GC<br>1PH 100A 48CCT SE MB LOADCENTRE<br>CHOM2448M100GC-1ph 100A 48cct SE MB Loadcentre        |
| 014-00   | 100  | QO115<br>15A 1P QO BREAKER<br>QO115-15A 1P QO BREAKER  |
| 015-00   | 100  | QO1515<br>15-15A 1P QO TANDEM BREAKER<br>QO1515-15-15A 1P QO TANDEM BREAKER                                |
| 016-00   | 6    | QO220EPD<br>20A 2P QO BREAKER<br>QO220EPD-MINIATURE CIRCUIT BREAKER 120/240V 20<br>A                       |
| 017-00   | 6    | QOB230EPD<br>BREAKER<br>QOB230EPD-MINIATURE CIRCUIT BREAKER 120/240V 3<br>0A                               |
| 018-00   | 10   | QO315<br>15A 3P QO BREAKER<br>QO315-15A 3P QO BREAKER  |
| 019-00   | 10   | QO320<br>20A 3P QO BREAKER<br>QO320-20A 3P QO BREAKER  |
| 020-00   | 20   | QO1LO<br>1P QO BREAKER HANDLE LOCK-OFF<br>QO1LO-LOAD CENTER CLAMP QO                                       |
| 021-00   | 480  | CHOM115<br>1P 120V 15A CIRCUIT BREAKER<br>CHOM115-MINIATURE CIRCUIT BREAKER 120V 15A                       |
| 022-00   | 480  | CHOM115PCAFI<br>MINIATURE CB 120V 15A PON CAFI<br>CHOM115PCAFI-MINIATURE CIRCUIT BREAKER 120V 15<br>A      |
| 023-00   | 80   | CHOM120PCAFI<br>MINIATURE CB 120V 20A PON CAFI<br>CHOM120PCAFI-MINIATURE CIRCUIT BREAKER 120V 20<br>A      |
| 024-00   | 160  | CHOM215<br>2P 120/240V 15A CIRCUIT BREAKER<br>CHOM215-MINIATURE CIRCUIT BREAKER 120/240V 15A               |

**Q2C Number:** 43618433**Quote Number:** 1**Revision Number:** 0**Project Name:** THE ATRIUM -19945 BRYDON CRES LANG**Quote Name:**

| <b>Item<br/>No.</b> | <b>Qty.</b> | <b>Catalog Number / Details</b>  |
|---------------------|-------------|--|
| 025-00              | 160         | CHOM220<br>2P 120/240V 20A CIRCUIT BREAKER<br>CHOM220-MINIATURE CIRCUIT BREAKER 120/240V 20A |
| 026-00              | 80          | CHOM230<br>2P 120/240V 30A CIRCUIT BREAKER<br>CHOM230-MINIATURE CIRCUIT BREAKER 120/240V 30A |
| 027-00              | 80          | CHOM240<br>2P 120/240V 40A CIRCUIT BREAKER<br>CHOM240-MINIATURE CIRCUIT BREAKER 120/240V 40A |

| KNOCKOUTS<br>DÉBOUCHURES |     |     |      |      |      |      |      |
|--------------------------|-----|-----|------|------|------|------|------|
| SYMBOL<br>SYMBOLE        | A   | B   | C    | D    | E    | F    | G    |
| IN                       | .50 | .75 | 1.00 | 1.25 | 1.50 | 2.00 | 2.50 |
| MM                       | 13  | 19  | 25   | 32   | 38   | 51   | 64   |



DUAL DIMENSIONS: INCHES  
MILLIMETERS

DIMENSIONS DOUBLES: POUCES  
MILLIMÈTRES

NOTES:  
FINISH - SKY WHITE II - TCI POWDERCOAT PAINT.  
CSA CERTIFIED - FILE LL89328 & LL89066  
EQUIPMENT GROUNDING TERMINALS INCLUDED.

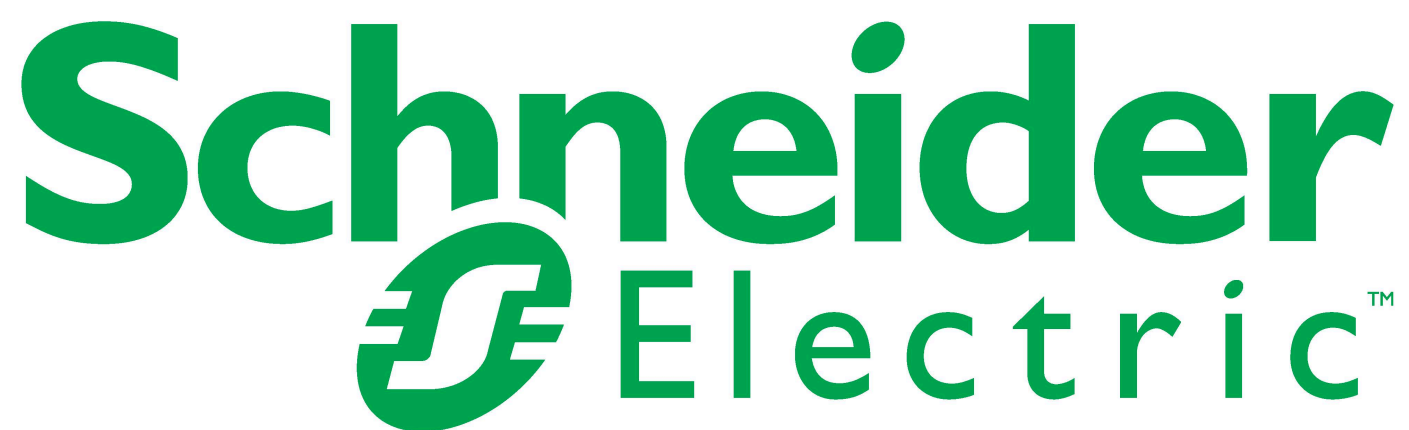
REMARQUES:  
FINITION - CIEL BLANC II - TCI PEINTURE DE REVÊTEMENT EN POUDRE.  
HOMOLOGUÉ PAR CSA - FICHIER LL89328 ET LL89066  
BORNES DE MISE À LA TERRE DE L'APPAREIL.

| CATALOG NUMBER      | MAXIMUM SYSTEM VOLTAGE      | MAINS AMPERE RATING   | SPACES  | MAXIMUM NUMBER OF SINGLE POLE CIRCUITS | MAIN WIRE SIZE AWG AL/CU               | NUMBER OF BRANCH NEUTRAL TERMINALS  |
|---------------------|-----------------------------|-----------------------|---------|--|--|-------------------------------------|
| NUMÉRO DE CATALOGUE | TENSION MAXIMALE DU SYSTÈME | COURANT AMPERE RATING | ESPACES | NOMBRE MAXIMUM DE CIRCUITS UNIPOLAIRES | CALIBRE DU FIL PRINCIPAL AWG/MCM AL/CU | NOMBRE DE BORNES DU NEUTRE D'ARTÈRE |
| CHOM1632L125GC      | 120/240V~<br>1Ø             | 125                   | 16      | 32                                     | #4-2/0                                 | 48                                  |
| CHOM2448L125GC      |                             | 125                   | 24      | 48                                     |  | 52                                  |
| CHOM1632M125GC      |                             | 125                   | 16      | 32                                     |  | 48                                  |
| CHOM2448M125GC      |                             | 125                   | 24      | 48                                     | #6-1                                   | 52                                  |
| CHOM2448M100GC      |                             | 100                   | 24      | 48                                     |  | 52                                  |

CANADIAN HOMELINE LOADCENTER  
GENERAL PURPOSE NEMA TYPE 1 ENCLOSURE  
INDOOR  
USAGE GÉNÉRAL NEMA COFFRET TYPE 1  
POUR USAGE À L'INTÉRIEUR

Schneider  
Electric

DWG# PWFDS-SYRS-0013  
NO.



**LITERATURE**



# QO® Loadcentres and Circuit Breakers

## General Information

### QO® Loadcentres

- Application:**
- Residential, commercial, and industrial
  - 30 through 225 Amperes
- Standards:**
- CSA Certified under File #LL-89066
- Enclosures:**
- Type 1 and 3R
- Features:**
- One piece, plated, shielded copper bus (S-Series)
  - Split branch neutral with 3-1/0 "built in" branch neutral lugs
  - Combination Slot/Robertson neutral, ground and trim screws
  - Additional ground bar provisions
  - Trims have automatic flush adjustment
- Accessories:**
- Secondary Surge Arresters
  - Sub-Feed Lugs
  - Filler Plates (for branch and main breakers)
  - Door Lock Kits
  - Neutral Lugs
  - QO single phase neutral extension kits

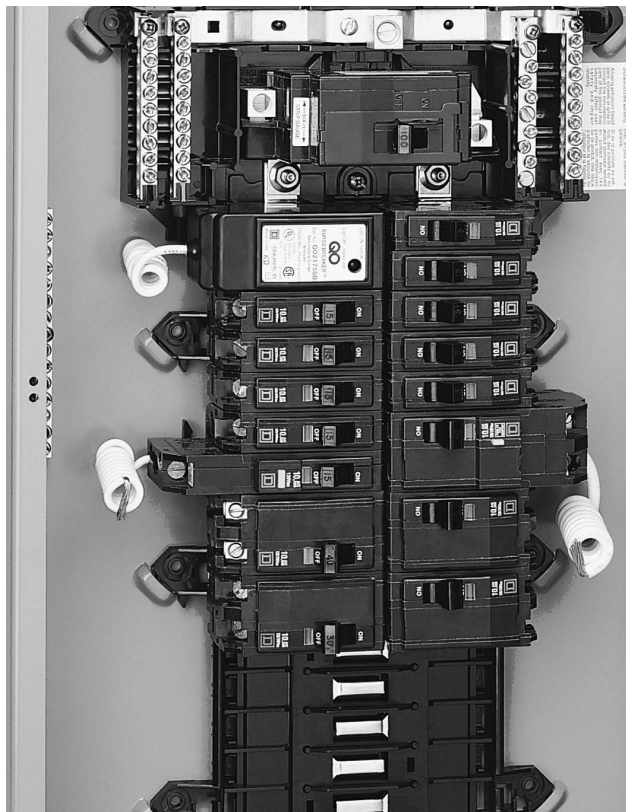


# QO® Loadcentres and Circuit Breakers

## General Information

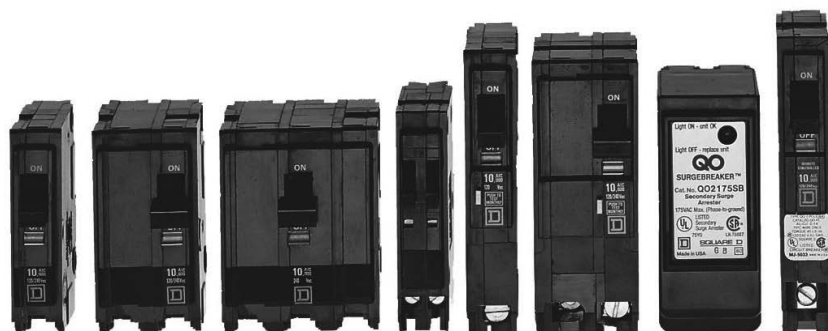
### QO® Circuit Breaker

DE1 LOAD CENTRES



- Branches:**
- QO-CAFI - Combination Arc Fault Circuit Interrupter
  - QO-DF - Dual Function - CAFI+GFI (5mA)
  - QO - Plug-On Circuit Breakers
  - QO-GFI - Ground Fault Indication
  - QOT - Tandem Breakers
  - QO-EPD - Equipment Ground Fault Protection
  - QO-HID - High Intensity Discharge Lighting Systems
  - QO-K - Key Operated Breakers
  - QO-AFI - ARC Fault Circuit Interrupters
  - QO-HM - High Magnetics

- Features:**
- QWIK-OPEN® Circuit Breakers
  - VISI-TRIP® Indicator
  - Tandem Circuit Breakers feature two 1-Pole breakers in the space of a 1-Pole QO breaker
  - QO2175SB SURGEBREAKER® Secondary Surge suppressor
  - Shunt Trips, Auxiliary Switches, and Alarm Switches are all available factory installed



For additional information,

- QO & QOB Miniature Circuit Breakers Catalogue 0730CT9801R1/08.
- QO-EPD Catalogue 0950CT9601
- Square D Series Ratings Guide Catalogue D0110AB9801EP R0
- Secondary Surge Arresters Catalogue 6671CT9701R9/06

# QO® Loadcentres and Circuit Breakers

## QO® Main Lugs Loadcentres - Type 1 Indoor

DE1 LOAD CENTRES

### QO® Main Lugs Loadcentres (1Ø - 3W)

| Mains Ampere Rating | Number of Circuits |           | Loadcentre Catalogue Number | Trim Catalogue Number | Main Wire Size Al or Cu (AWG/MCM) | Box Size (see page 16) |
|---------------------|--------------------|-----------|-----------------------------|-----------------------|-----------------------------------|------------------------|
|                     | Standard QO        | Tandem QO |                             |                       |                                   |                        |
| 30                  | 1                  | 2         | QO1L30S●                    | Included              | 12-10 Al or 14-10 Cu              | 1                      |
|                     | 2                  | 4         | QO2L30SC●                   | Included              | 12-10 Al or 14-10 Cu              | 2                      |
| 70                  | 2                  | 4         | QO2L70S+ Δ                  | Included              | 12-3 Al or 14-4 Cu                | 3                      |
|                     | 4                  | 8         | QO4L100S▲                   | Included              | 8-1                               | 4                      |
| 100                 | 6                  | 12        | QO6L100S/F▲                 | Included              | 8-1                               | 4                      |
|                     | 8                  | 15        | QO8L100S/F▲                 | Included              | 8-1                               | 4                      |
|                     | 12                 | 24        | CQO112L100GC                | Included              | 4-1                               | 6                      |
|                     | 16                 | 32        | CQO116L100GC                | Included              | 4-1                               | 7                      |
| 125                 | 24                 | 48        | CQO124L125GC                | Included              | 4 - 2/0                           | 8                      |
|                     | 32                 | 48        | CQO132L125GC                | Included              | 4 - 2/0                           | 9                      |
|                     | 40                 | 48        | CQO140L125GC                | Included              | 4 - 250                           | 11                     |
| 200                 | 32                 | 64        | CQO132L200GC                | Included              | 4 - 250                           | 11                     |
|                     | 40                 | 80        | CQO140L200GC                | Included              | 4 - 250                           | 11                     |
| 225                 | 42                 | 80        | CQO142L225GC                | Included              | 4 - 300                           | 12                     |
|                     | 60                 | 80        | CQO160L225GC                | Included◆             | 4 - 300                           | 14                     |

### QO® Main Lugs Loadcentres (3Ø - 4W)

| Mains Ampere Rating | Number of Circuits |           | Loadcentre Catalogue Number | Trim Catalogue Number | Main Wire Size Al or Cu (AWG/MCM) | Box Size (see page 16) |
|---------------------|--------------------|-----------|-----------------------------|-----------------------|-----------------------------------|------------------------|
|                     | Standard QO        | Tandem QO |                             |                       |                                   |                        |
| 100                 | 3▼                 |           | QO403L100S Δ                | Included              | 12-1 Al or 14-1 Cu                | 5                      |
| 125                 | 12▼                | 24        | QO312ML1                    | QOC16UC               | 4 - 2/0                           | 7                      |
| 125                 | 20▼                | 40        | QO320ML1                    | QOC24UC               | 4 - 2/0                           | 8                      |
| 200                 | 24▼                | 48        | QO324ML2                    | QOC30UC               | 4 - 250                           | 10                     |
|                     | 30▼                | 60        | QO330ML2                    | QOC30UC               | 4 - 250                           | 10                     |
| 225                 | 42▼                | 60        | QO342ML2                    | QOC42UC               | 4 - 300                           | 12                     |

### QO® Generator Panel (1Ø - 3W)

| Mains Ampere Rating | Total Number of Circuits |           | Number of circuits available for (generator) critical loads |           | Loadcentre Catalogue Number | Main Wire Size Al or Cu (AWG/MCM) | Box Size (see page 16) |
|---------------------|--------------------------|-----------|---|-----------|-----------------------------|-----------------------------------|------------------------|
|                     | Standard QO              | Tandem QO | Standard QO   | Tandem QO |                             |                                   |                        |
| 30                  |                          |           | 4   | 8         | CQO48M30DSGP                | #14-8                             | 4                      |
| 60                  |                          |           | 4   | 8         | CQO48M60DSGP                | #8-2                              | 4                      |
| 30                  |                          |           | 18  | 36        | QOGP3P3036                  | #14-8                             | 6                      |
| 60                  |                          |           | 18  | 36        | QOGP3P6036                  | #8-2                              | 6                      |

### QO® 'all-in-one' SE Generator Panels

|     |    |    |    |    |                 |        |    |
|-----|----|----|----|----|-----------------|--------|----|
| 200 | 40 | 80 | 18 | 36 | QOGP3P604436200 | #4-250 | 12 |
| 150 | 40 | 80 | 18 | 36 | QOGP3P604436150 | #4-250 | 12 |
| 125 | 40 | 80 | 18 | 36 | QOGP3P604436125 | #4-250 | 12 |
| 100 | 40 | 80 | 18 | 36 | QOGP3P604436100 | #4-250 | 12 |

- Δ Service entrance approved.
- Will not accept QO-GFI or QO-EPD breakers.
- + Maximum 20A QO-GFI breaker or AFI breaker.
- ▲ Maximum 70A branch breaker.
- ◆ Does not include a door. Order kit # QODK60-2.
- ▼ Shunt trip feature not available on any 3Ø loadcentres. Feed-thru lugs cannot be added in filed-use QO3125SL to feed-thru to another loadcentre.

- Bus on 2-8 cct loadcentres is one piece, solid aluminum.
- Bus on 12-60 cct loadcentres is one piece, tin plated copper
- Neutral terminals, main and ground lugs on all devices are Aluminum.

## Application Information

- All loadcentres are suitable for both flush or surface mounting, unless suffixed:
  - F - flush mounting only.
  - S - surface mounting only.
- All Type 1 loadcentres are approved for vertical, horizontal, or inverted mounting.
- All 100A loadcentres are approved for 100A max. QO branch circuit breakers.
- All 125A loadcentres are approved for 125A max. QO branch circuit breakers.
- The maximum QO branch circuit breaker is 70 ampere (single pole), 200 ampere (two pole) and 100 ampere (three pole). Two pole QO breakers rated 150 - 200 ampere are restricted to Square D QO Single Phase load center, Series G1.
- Main lugs loadcentres cannot be field converted to service entrance approved, main breaker loadcentres.
- QO is a registered trademark of Square D.
- For more information, consult Schneider Electric.
- GC includes ground bar combination surface/flush cover.

# QO® Loadcentres and Circuit Breakers

## QO® Main Breaker Loadcentres - Type 1 Indoor

DE1 LOAD CENTRES

### Main Breaker Loadcentres (1PH - 3W)

| Bus<br>Ampere Rating           | Main Breaker<br>Amps | Number of Circuits |              | Loadcentre<br>Catalogue Number | Trim<br>Catalogue Number | Main Wire Size<br>Al/Cu (AWG/MCM) | Box Size<br>(see page 16) |
|--------------------------------|----------------------|--------------------|--------------|--------------------------------|--------------------------|-----------------------------------|---------------------------|
|                                |                      | Standard<br>QO     | Tandem<br>QO |                                |                          |                                   |                           |
| Main Breaker Factory Installed |                      |                    |              |                                |                          |                                   |                           |
| 100                            | 60                   | 12                 | 24           | CQO112M100C60                  | Included                 | 4 - 1                             | 6                         |
| 100                            | 100                  | 12                 | 24           | CQO112M100C100                 | Included                 | 4 - 1                             | 6                         |
| 100                            | 60                   | 16                 | 32           | CQO116M100C60                  | Included                 | 4 - 1                             | 7                         |
| 100                            | 100                  | 16                 | 32           | CQO116M100C100                 | Included                 | 4 - 1                             | 7                         |
| 125                            | 60                   | 24                 | 48           | CQO124M125C60                  | Included                 | 4 - 2/0                           | 8                         |
| 125                            | 100                  | 24                 | 48           | CQO124M125C100                 | Included                 | 4 - 2/0                           | 8                         |
| 125                            | 100                  | 32                 | 54           | CQO132M125C100                 | Included                 | 4 - 2/0                           | 9                         |
| 125                            | 125                  | 32                 | 54           | CQO132M125C125                 | Included                 | 4 - 2/0                           | 9                         |
| 125                            | 100                  | 40                 | 54           | CQO140M125C100                 | Included                 | 4 - 2/0                           | 11                        |
| 125                            | 125                  | 40                 | 54           | CQO140M125C125                 | Included                 | 4 - 2/0                           | 11                        |

### Main Breaker Factory Installed

|     |     |    |    |              |           |         |    |
|-----|-----|----|----|--------------|-----------|---------|----|
| 200 | 200 | 32 | 64 | CQO132M200C  | Included  | 4 - 250 | 11 |
|     |     | 40 | 80 | CQO140M200C  | Included  | 4 - 250 | 11 |
| 225 | 200 | 60 | 80 | CQO160M200C● | Included◆ | 4 - 250 | 14 |

### Main Breaker Loadcentres (3Ø - 4W)

| Bus<br>Ampere Rating                                 | Main Breaker<br>Amps | Number of Circuits |              | Loadcentre<br>Catalogue Number | Trim<br>Catalogue Number | Main Wire Size<br>Al or Cu (AWG/MCM) | Box Size<br>(see page 16) |
|--|----------------------|--------------------|--------------|--------------------------------|--------------------------|--------------------------------------|---------------------------|
|  |                      | Standard<br>QO     | Tandem<br>QO |                                |                          |                                      |                           |
| Main Breaker Factory Installed (QO3100VH & QDL32200) |                      |                    |              |                                |                          |                                      |                           |
| 100  | 100                  | 24                 | 30           | QO324MB100                     | QOC30UC                  | 4 - 250                              | 10                        |
| 200  | 200                  | 42                 | 60           | QO342MQB200                    | QOC342UQC                | 4 - 250                              | 13                        |

◆ Does not include a door. Order kit # QODK60-2.

● Rated 200A maximum with Aluminum conductors and 225A maximum with Copper conductors.

• Bus on all devices is one-piece, solid copper, standard.  
• Neutral terminals, main and ground lugs on all devices are Aluminum, standard.

### NQ Service Entrance Main Breaker Panelboards

| Main Rating | Catalogue Number | 1 or 3 Phase | Space       |           | Main Breaker      | Enclosure Width | Trim Type |
|-------------|------------------|--------------|-------------|-----------|-------------------|-----------------|-----------|
|             |                  |              | Standard QO | Tandem QO |                   |                 |           |
| 300A        | NQSE142300F      | 1 phase      | 42          | 84        | Factory Installed | 20"             | Flush     |
|             | NQSE184300F      | 1 phase      | 84          | 120       |                   | 20"             | Flush     |
|             | NQSE142300S      | 1 phase      | 42          | 84        |                   | 20"             | Surface   |
|             | NQSE184300S      | 1 phase      | 84          | 120       |                   | 20"             | Surface   |
| 400A        | NQSE142400F      | 1 phase      | 42          | —         |                   | 20"             | Flush     |
|             | NQSE342400S      | 3 phase      | 42          | —         |                   | 20"             | Surface   |
|             | NQSE184400F      | 1 phase      | 84          | —         |                   | 20"             | Flush     |
|             | NQSE372400S      | 3 phase      | 72          | —         |                   | 20"             | Surface   |

## Application Information

- All loadcentres are suitable for both flush or surface mounting.
- All Type 1 loadcentres are approved for vertical, horizontal, or inverted mounting.
- All 100A loadcentres are approved for 100A max. QO branch circuit breakers.

- All 125A loadcentres are approved for 125A max. QO branch circuit breakers.
- The maximum QO branch circuit breaker is 70 ampere (single pole), 200 ampere (two pole) and 100 ampere (three pole). Two pole QO breakers rated 150 - 200 ampere are restricted to Square D QO Single Phase load center, Series G1.

- Main Breaker loadcentres are approved for service entrance use. The main breaker compartment can be sealed and the main breaker can be locked.
- QO-L main breakers are 10 kAIC rated, QO-VHL main breakers are 22 kAIC rated.
- QO is a registered trademark of Square D.
- For more information, consult Schneider Electric.

# QO® Loadcentres and Circuit Breakers

## QO® Main Lugs/Main Breaker Loadcentres - Type 3R Weatherproof

### Main Lugs Loadcentres (1Ø - 3W)

| Bus<br>Ampere<br>Rating | Number of Circuits |              | Loadcentre<br>Catalogue Number | Trim<br>Catalogue Number | Main Wire Size<br>Al or Cu<br>(AWG/MCM) | Box Size<br>(see page 16) |
|-------------------------|--------------------|--------------|--------------------------------|--------------------------|---|---------------------------|
|                         | Standard<br>QO     | Tandem<br>QO |                                |                          |   |                           |
| 70                      | 2                  | 4            | QO2L70RB + Δ X                 | Included                 | 12-3 Al or 14-4Cu                       | 1RB                       |
| 100                     | 6                  | 12           | QO6L100RB                      | Included                 | 8-1                                     | 2RB                       |
|                         | 8                  | 15           | QO8L100RB                      | Included                 | 8-1                                     | 2RB                       |
|                         | 16                 | 32           | CQO116L100GRB                  | Included                 | 4-1                                     | 6RB                       |
| 125                     | 24                 | 48           | CQO124L125GRB                  | Included                 | 4-2/0                                   | 6RB                       |
| 200                     | 40                 | 80           | CQO140L200GRB                  | Included                 | 4-250                                   | 8RB                       |

### Main Lugs Loadcentres (3Ø - 4W)

| Bus<br>Ampere<br>Rating | Number of Circuits |              | Loadcentre<br>Catalogue Number | Trim<br>Catalogue Number | Main Wire Size<br>Al or Cu<br>(AWG/MCM) | Box Size<br>(see page 16) |
|-------------------------|--------------------|--------------|--------------------------------|--------------------------|---|---------------------------|
|                         | Standard<br>QO     | Tandem<br>QO |                                |                          |   |                           |
| 100                     | 3                  |              | QO403L100RB Δ                  | Included                 | 12-1 Al or 14-1 Cu                      | 3RB                       |
| 125                     | 12                 | 24           | QO312ML1RB                     | Included                 | 4-2/0                                   | 4RB                       |
| 125                     | 20                 | 40           | QO320ML1RB                     | Included                 | 4-2/0                                   | 5RB                       |
| 200                     | 30                 | 60           | QO330ML2RB                     | Included                 | 4-250                                   | 7RB                       |
| 225                     | 42                 | 60           | QO342ML2RB                     | Included                 | 4-300                                   | 9RB                       |

### Main Breaker Loadcentres (1Ø - 3W)

| Bus<br>Ampere Rating | Main<br>Breaker<br>Amps | Number of Circuits |              | Loadcentre<br>Catalogue Number | Trim<br>Catalogue Number | Main Wire Size<br>Al/Cu<br>(AWG/MCM) | Box Size<br>(see page 16) |
|----------------------|-------------------------|--------------------|--------------|--------------------------------|--------------------------|--------------------------------------|---------------------------|
|                      |                         | Standard<br>QO     | Tandem<br>QO |                                |                          |                                      |                           |

#### Main Breaker Factory Installed

|     |     |    |    |                 |          |         |     |
|-----|-----|----|----|-----------------|----------|---------|-----|
| 100 | 60  | 8  | 16 | CQO18M100RB60   | Included | 4 - 1   | 4RB |
| 100 | 100 | 16 | 32 | CQO116M100RB100 | Included | 4 - 1   | 6RB |
| 125 | 100 | 24 | 48 | CQO124M125RB100 | Included | 4 - 2/0 | 6RB |

#### Main Breaker Factory Installed

|     |     |    |    |              |          |       |     |
|-----|-----|----|----|--------------|----------|-------|-----|
| 200 | 200 | 40 | 80 | CQO140M200RB | Included | 4-250 | 8RB |
|-----|-----|----|----|--------------|----------|-------|-----|

### Non-Metallic Enclosure (1Ø - 3W) Type 3R

| Bus<br>Ampere Rating | Number of Circuits |              | Loadcentre<br>Catalogue<br>Number | Trim<br>Catalogue Number | Main Wire Size<br>Al/Cu<br>(AWG/MCM) | Box Size<br>(see page 15) |
|----------------------|--------------------|--------------|-----------------------------------|--------------------------|--------------------------------------|---------------------------|
|                      | Standard<br>QO     | Tandem<br>QO |                                   |                          |                                      |                           |
| 60                   | 2                  | 4            | CQO24L60NRNM                      | Included                 | #14-4 / #14-4                        | 1NM                       |

### QO Hot Tub / Pool / Spa Pack

|                           |   |               |
|---------------------------|---|---------------|
| 20 to 60 amp non-metallic | 2 pole QOGFI factory installed into a type 3R enclosure | CQOE220GFINM  |
|                           |   | CQOE230GFINM  |
|                           |   | CQOE240GFINM  |
|                           |   | CQOE250GFINM  |
|                           |   | CQOE260GFINM▼ |

- + Maximum 20 A QO-GFI breaker.
- ▼ 60 amp, 2 wire 240V only. **Not for hot tubs with neutral connection.**
- Δ Service Entrance approved.
- X Not rated for 22k AIC.

- Bus on 2-8 cct loadcentres is one-piece, solid aluminum. (Excluding CQO18M100RB.)
- Bus on 8-42 cct, S-Series loadcentres is one-piece, solid copper.
- Neutral terminals, main and ground lugs on all devices are Aluminum.



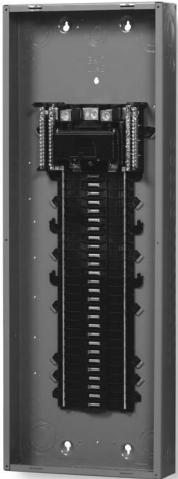
## Application Information

- All 100A loadcentres are approved for 100A max. QO branch circuit breakers.
- All 125A loadcentres are approved for 125A max. QO branch circuit breakers.
- The maximum QO branch circuit breaker is 70 ampere (single pole), 200 ampere (two pole) and 100 ampere (three pole). Two pole QO breakers rated 150 - 200 ampere are restricted to Square D QO Single Phase load center, Series G1.
- Main Breaker loadcentres are approved for service entrance use. The main breaker compartment can be sealed and the main breaker can be locked.
- Main lugs loadcentres cannot be field converted to service entrance approved, mainbreaker loadcentres.
- Weatherproof Loadcentres are supplied with main entry hole cut in top endwall and closing cap (BCAP) installed. Hole accepts 3/4 in. to 2 in. hubs. Gasket not required.
- QO is a registered trademark of Square D.

QO Plug-on Neutral Loadcentres

|         | Mains Rating<br>Amps               | Number of Circuits |              | Loadcentre<br>Catalogue Number | Trim     | Main Wire Size<br>Al/Cu<br>(AWG/MCM) | Box Size<br>(see page 16) |
|---------|------------------------------------|--------------------|--------------|--------------------------------|----------|--------------------------------------|---------------------------|
|         |                                    | Standard<br>QO     | Tandem<br>QO |                                |          |                                      |                           |
| Indoor  | Main Lugs Loadcentres (1Ø - 3W)    |                    |              |                                |          |                                      |                           |
|         | 125                                | 24                 | 47           | CQO124L125GCPON                | Included | 4 - 2/0                              | 8                         |
|         | Main Breaker Loadcentres (1Ø - 3W) |                    |              |                                |          |                                      |                           |
|         | 100                                | 24                 | 47           | CQO124M125C100PON              | Included | 4 - 2/0                              | 8                         |
|         | 100                                | 30                 | 60           | CQO130M225C100PON              | Included | 4 - 2/0                              | 10                        |
|         | 100                                | 42                 | 80           | CQO142M225C100PON              | Included | 4 - 2/0                              | 12                        |
|         | 200                                | 42                 | 80           | CQO142M200CPON                 | Included | 4 - 250                              | 12                        |
|         | 200                                | 60                 | 80           | CQO160M200CPON*                | Included | 4 - 250                              | 14                        |
| Outdoor | 100                                | 24                 | 47           | CQO124M125RB100PON             | Included | 4 - 2/0                              | 6RB                       |

\* Does not include a door. Order kit # QODK60-2.  
△ Plug-on Neutral loadcentres accept both pig-tail and Plug-on Neutral breakers



# QO® Loadcentres and Circuit Breakers

## Enclosure Dimensions

### Type 1 QO Loadcentre Enclosures

| Type 1 Box Size | Height (in./mm) | Width (in./mm) | Depth (in./mm) |
|-----------------|-----------------|----------------|----------------|
| 1               | 5.50/140        | 3.00/76        | 3.50/89        |
| 2               | 6.75/171        | 3.75/95        | 3.00/76        |
| 3               | 9.25/235        | 4.75/121       | 3.25/83        |
| 4               | 12.75/324       | 9.00/229       | 3.75/95        |
| 5               | 13.25/377       | 6.00/152       | 3.50/89        |
| 6               | 15.00/381       | 14.25/362      | 3.75/95        |
| 7               | 18.00/457       | 14.25/362      | 3.75/95        |
| 8               | 21.00/533       | 14.25/362      | 3.75/95        |
| 9               | 26.25/667       | 14.25/362      | 3.75/95        |
| 10              | 30.00/762       | 14.25/362      | 3.75/95        |
| 11              | 34.00/864       | 14.25/362      | 3.75/95        |
| 12              | 38.00/965       | 14.25/362      | 3.75/95        |
| 13              | 40.00/1016      | 14.25/362      | 3.75/95        |
| 14              | 41.25/1048      | 14.25/362      | 3.75/95        |

### Type 3R QO Loadcentre Enclosures

| Type 3R Box Size | Height (in./mm) | Width (in./mm) | Depth (in./mm) |
|------------------|-----------------|----------------|----------------|
| 1NM              | 9.80/245        | 6.5/162.5      | 3.9/97.5       |
| 1RB              | 9.50/241        | 5.00/127       | 4.00/102       |
| 2RB              | 12.75/324       | 9.00/229       | 4.25/108       |
| 3RB              | 13.00/330       | 6.75/171       | 4.00/102       |
| 4RB              | 19.00/483       | 14.25/362      | 4.50/114       |
| 5RB              | 22.00/559       | 14.25/362      | 4.50/114       |
| 6RB              | 22.25/565       | 14.25/362      | 4.50/114       |
| 7RB              | 30.00/762       | 14.25/362      | 4.50/114       |
| 8RB              | 34.00/864       | 14.25/362      | 4.50/114       |
| 9RB              | 38.00/965       | 14.25/362      | 4.50/114       |

## Application Information

- Dimensions for approximate only.  
Do not use for construction.



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# QO® Loadcentres Circuit Breakers

## QO® Standard and Tandem Circuit Breakers

### Plug-On Circuit Breakers - Amperes Interrupting Rating (AIR) in Amperes RMS Symmetrical

| Ampere Rating $\Delta$ | One Pole - 120/240Vac                               | Two Pole - 120/240Vac Common Trip                       | Three Pole - 240Vac Common Trip |
|------------------------|---|---|---------------------------------|
| <b>10,000 AIR</b>      |   |   |                                 |
| 10                     | QO110   | QO210   | QO310                           |
| 15                     | QO115 $\blacklozenge$ $\blacktriangle$              | QO215 $\blacklozenge$                                   | QO315 $\blacklozenge$           |
| 15                     | QO115HM $\blacklozenge$ $\blacktriangle$ $\ddagger$ | —   | —                               |
| 20                     | QO120 $\blacklozenge$ $\blacktriangle$              | QO220 $\blacklozenge$                                   | QO320 $\blacklozenge$           |
| 20                     | QO120HM $\blacklozenge$ $\blacktriangle$ $\ddagger$ | —   | —                               |
| 25                     | QO125   | QO225 $\blacklozenge$                                   | QO325 $\blacklozenge$           |
| 30                     | QO130 $\blacklozenge$                               | QO230 $\blacklozenge$                                   | QO330 $\blacklozenge$           |
| 35                     | QO135 $\blacklozenge$                               | QO235 $\blacklozenge$                                   | QO335 $\blacklozenge$           |
| 40                     | QO140 $\blacklozenge$                               | QO240 $\blacklozenge$                                   | QO340 $\blacklozenge$           |
| 45                     | QO145 $\blacklozenge$                               | QO245 $\blacklozenge$                                   | QO345 $\blacklozenge$           |
| 50                     | QO150 $\blacklozenge$                               | QO250 $\blacklozenge$                                   | QO350 $\blacklozenge$           |
| 60                     | QO160 $\blacklozenge$                               | QO260 $\blacklozenge$                                   | QO360 $\blacklozenge$           |
| 70                     | QO170 $\blacklozenge$                               | QO270 $\blacklozenge$                                   | QO370                           |
| 80                     | —   | QO280   | QO380                           |
| 90                     | —   | QO290   | QO390                           |
| 100                    | —   | QO2100  | QO3100                          |
| 110                    | —   | QO2110  | —                               |
| 125                    | —   | QO2125 No DC rating                                     | —                               |
| 150                    | —   | QO2150 $\blacklozenge$ $\blacktriangledown$             | —                               |
| 175                    | —   | QO2175 $\blacklozenge$ $\blacktriangledown$             | —                               |
| 200                    | —   | QO2200 $\blacklozenge$ $\blacktriangledown$             | —                               |
| <b>22,000 AIR</b>      |   |   |                                 |
| 15                     | QO115VH $\blacktriangle$                            | QO215VH   | QO315VH                         |
| 20                     | QO120VH $\blacktriangle$                            | QO220VH   | QO320VH                         |
| 25                     | QO125VH   | QO225VH   | QO325VH                         |
| 30                     | QO130VH   | QO230VH   | QO330VH                         |
| 40                     | —   | QO240VH   | QO340VH                         |
| 50                     | —   | QO250VH   | QO350VH                         |
| 60                     | —   | QO260VH   | QO360VH                         |
| 70                     | —   | QO270VH   | QO370VH                         |
| 80                     | —   | QO280VH   | QO380VH                         |
| 90                     | —   | QO290VH   | QO390VH                         |
| 100                    | —   | QO2100VH  | QO3100VH                        |
| 110                    | —   | QO2110VH  | —                               |
| 125                    | —   | QO2125VH  | —                               |
| 150                    | —   | QO2150VH $\square$ $\blacklozenge$ $\blacktriangledown$ | —                               |
| 175                    | —   | QO2175VH $\square$ $\blacklozenge$ $\blacktriangledown$ | —                               |
| 200                    | —   | QO2200VH $\square$ $\blacklozenge$ $\blacktriangledown$ | —                               |
| <b>42,000 AIR</b>      |   |   |                                 |
| 40                     | —   | QOH240  | —                               |
| 45                     | —   | QOH245  | —                               |
| 50                     | —   | QOH250  | —                               |
| 60                     | —   | QOH260  | —                               |
| 70                     | —   | QOH270  | —                               |
| 80                     | —   | QOH280  | —                               |
| 90                     | —   | QOH290  | —                               |
| 100                    | —   | QOH2100   | —                               |
| 110                    | —   | QOH2110   | —                               |
| 125                    | —   | QOH2125   | —                               |
| <b>65,000 AIR</b>      |   |   |                                 |
| 15                     | QH115 $\blacktriangle$                              | QH215   | QH315                           |
| 20                     | QH120 $\blacktriangle$                              | QH220   | QH320                           |
| 25                     | QH125   | QH225   | QH325                           |
| 30                     | QH130   | QH230   | QH330                           |

QO One Pole



1 Space Required

QO One Pole Tandem



1 Space Required

QO Two Pole



2 Spaces Required

QO Three Pole



3 Spaces Required

### Tandem (Dual) Circuit Breakers 10,000 AIR

| Ampere Rating $\Delta$ | One Pole - 120/240Vac  | Two Single Pole Individual Trip - 120/240Vac |
|------------------------|------------------------|--|
|                        | 1 Space Required       | 2 Spaces Required                            |
| 15 & 15                | QO1515 $\blacklozenge$ |  |
| 15 & 20                | QO1520 $\blacklozenge$ |  |
| 15 & 30                | QO1530 $\blacklozenge$ |  |
| 20 & 15                | QO2015 $\blacklozenge$ |  |
| 20 & 20                | QO2020 $\blacklozenge$ |  |
| 20 & 30                | QO2030 $\blacklozenge$ |  |
| 30 & 15                | QO3015 $\blacklozenge$ |  |
| 30 & 20                | QO3020 $\blacklozenge$ |  |
| 30 & 30                | QO3030 $\blacklozenge$ |  |

Order Two QO1515 or QO2020 Circuit Breakers and Handle Tie Catalogue # QOTH.T.

- $\Delta$  10-30 ampere breakers are suitable for use with 60°C or 75°C conductors. 35-125 ampere breakers are suitable for use with 75°C conductors.
- $\blacktriangle$  High magnetic trip breakers are recommended for applications where high initial inrush current may occur.
- $\ddagger$  SWD (switching duty) rated. Suitable for switching 120Vac fluorescent lighting loads.
- $\blacklozenge$  HACR type for use with air conditioning, heating and refrigeration equipment having motor group combinations and marked for use with HACR type circuit breakers. HACR labelled one pole QO breakers not stocked. Order Only. Add suffix -5385.
- $\blacktriangledown$  Requires four spaces (#1-300 kcmil Al/Cu). Not suitable for use in 3-phase panel. Use only in single phase panel rated 150A or greater.
- $\square$  CSA Listed for use ahead of QO, QO-GFI, QO-EPD, QOT and QO-PL 10,000 AIR circuit breakers to permit their application at 22,000A fault level.

### Application Information

- VISI-TRIP indication on all QO breakers.
- QO, VISI-TRIP and QWIK-GARD are registered trademarks of Square D.
- For more information consult Schneider Electric.
- Accessories page DE1-11.
- Add suffix 35 for 50°C calibration - 20% price adder.

# QO® Loadcentres and Circuit Breakers

## QO® Special Breakers

### Plug-On Circuit Breakers - Amperes Interrupting Rating (AIR) in Amperes RMS Symmetrical



One Pole  
QO-CAFI(PON)

One Pole  
QO-DF(PON)

One Pole  
QO-GFI

Two Pole  
QO-GFI

#### QO-GFI

QWIK-GARD® circuit breakers provide overload and short circuit protection, combined with Class A ground fault protection. Class A denotes a ground fault circuit interrupter that will trip when a fault current to ground is 6 milliamperes or more, for people protection. Do not connect to more than 250 feet of load conductor for the total one-way run to prevent nuisance tripping.

| Ampere Rating Δ | One Pole 120Vac |            | Two Pole-Common Trip 120/240Vac | Three Pole-Common Trip 120/240Vac |
|-----------------|-----------------|------------|---------------------------------|-----------------------------------|
|                 | 10,000 AIR      | 22,000 AIR | 10,000 AIR                      | 10,000 AIR                        |
| 15              | QO115GFI        | QO115VHGF  | QO215GFI                        | QO315GFI                          |
| 20              | QO120GFI        | QO120VHGF  | QO220GFI                        | QO320GFI                          |
| 25              | QO125GFI        | QO125VHGF  | QO225GFI                        | —                                 |
| 30              | QO130GFI        | QO130VHGF  | QO230GFI                        | QO330GFI                          |
| 40              | —               | —          | QO240GFI                        | QO340GFI                          |
| 50              | —               | —          | QO250GFI                        | QO350GFI                          |
| 60              | —               | —          | QO260GFI❖                       | —                                 |

❖ Suitable only for feeding 240Vac and 208Vac 2 wire loads.  
Does not contain load neutral connection.

#### QO-EPD QO Circuit Breakers With 30 mA Equipment Ground Fault Protection

| Ampere Rating Δ | One Pole 120Vac | Two Pole-Common Trip 120/240Vac |
|-----------------|-----------------|---------------------------------|
|                 | 10,000 AIR      | 10,000 AIR                      |
| 15              | QO115EPD        | QO215EPD                        |
| 20              | QO120EPD        | QO220EPD                        |
| 25              | QO125EPD        | QO225EPD                        |
| 30              | QO130EPD        | QO230EPD                        |
| 40              | —               | QO240EPD                        |
| 50              | —               | QO250EPD                        |
| 60              | —               | QO260EPD                        |

#### QO-K

Key operated QO circuit breakers are available in single pole construction and can be mounted in any single pole space which will accept a standard QO. These circuit breakers can be turned ON or OFF or to RESET with a special key (Catalogue Number **QOK10**) included with the circuit breaker.

| Ampere Rating Δ | One Pole 120Vac 10,000 AIR |
|-----------------|----------------------------|
| 10              | QO110K                     |
| 15              | QO115K                     |
| 20              | QO120K                     |
| 30              | QO130K                     |

#### QO-HM

QO circuit breaker with high magnetics to withstand higher inrush currents than standard QO breaker.

| Ampere Rating | One Pole 120Vac 10,000 AIR |
|---------------|----------------------------|
| 15            | QO115HM                    |
| 20            | QO120HM                    |

Note:

QO GFI, EPD, AFI, CAFI, and DF cannot be backfed.

#### QO Combination Arc-Fault Interrupter (CAFI)

QO Combination Arc-Fault Interrupter (CAFI) provides overload and short circuit protection, plus both series and parallel type arc protection as required in 2015 CEC. Integrated with Time Saver diagnostics, QO CAFI breaker improves circuit troubleshooting at the touch of a button.

| Circuit Breaker Type    | Ampere Rating | 1P 120 Vac 10K AIR 1 Space Required | 1P 120 Vac 22K AIR 1 Space Required | 2P 120/240 Vac 10K AIR 2 Space Required | 2P 120/240 Vac 22K AIR 2 Space Required |
|-------------------------|---------------|-------------------------------------|-------------------------------------|---|---|
| QO Pigtail Neutral CAFI | 15            | QO115CAFI                           | QO115VHCAFI                         | QO215CAFI*                              | QO215VHCAFI*                            |
|                         | 20            | QO120CAFI                           | QO120VHCAFI                         | QO220CAFI*                              | QO220VHCAFI*                            |
| QO Plug-on Neutral CAFI | 15            | QO115PCAFI                          | QO115VHPCAFI                        |   |   |
|                         | 20            | QO120PCAFI                          | QO120VHPCAFI                        |   |   |

\* Rated for 120/240 ~60Hz, not for 208Y/120V

#### QO Dual Function Circuit Breaker

QO Dual Function (DF) breaker provides both combination arc-fault and ground-fault (5mA classA) protection in a single compact device. Integrated with Plug-on Neutral and Time Saver Diagnostics features, QO DF breaker offers maximum circuit protection and installation flexibility.

| Circuit Breaker Type                                  | Ampere Rating | 1P 120 Vac 10k AIR 1 Space Required | 1P 120 Vac 22k AIR 1 Space Required |
|---|---------------|-------------------------------------|-------------------------------------|
| QO Dual Function Circuit Breaker with Pigtail Neutral | 15            | QO115DF                             | QO115VHDF                           |
|   | 20            | QO120DF                             | QO120VHDF                           |
| QO Plug-on Neutral Dual Function Circuit Breaker      | 15            | QO115PDF                            | QO115VHPDF                          |
|   | 20            | QO120PDF                            | QO120VHPDF                          |

#### QO-HID QO-HID Circuit Breakers -

##### For Use on High Intensity Discharge Lighting Systems

HID circuit breakers are for use on circuits feeding fluorescent and High Intensity Discharge (HID) lighting systems such as mercury vapour, metal halide, or high pressure sodium. These circuit breakers are physically interchangeable with QO circuit breakers.

| Ampere Rating Δ | One Pole 120/240Vac 10,000 AIR | Two Pole-Common Trip 120/240Vac 10,000 AIR | Three Pole-Common Trip 240Vac 10,000 AIR |
|-----------------|--------------------------------|--|--|
|                 | 10,000 AIR                     | 10,000 AIR                                 | 10,000 AIR                               |
| 15              | QO115HID▲                      | QO215HID                                   | QO315HID                                 |
| 20              | QO120HID▲                      | QO220HID                                   | QO320HID                                 |
| 25              | QO125HID                       | QO225HID                                   | QO325HID                                 |
| 30              | QO130HID                       | QO230HID                                   | QO330HID                                 |
| 40              | QO140HID                       | QO240HID                                   | —  |
| 50              | QO150HID                       | QO250HID                                   | —  |

## Application Information

- VISI-TRIP indication on all QO breakers.
- QO, VISI-TRIP and QWIK-GARD are registered trademarks of Square D.
- For more information consult Schneider Electric.

### Circuit Breaker Wire Sizes

| Breaker Type     | Ampere Rating $\Delta$ | Wire Size (AWG) |            |
|------------------|------------------------|-----------------|------------|
|                  |                        | Aluminum        | Copper     |
| QO<br>1 Pole     | 10-30                  | #14-8           | #14-8      |
|                  | 10-30                  | —               | (2) #14-10 |
|                  | 35-70                  | #8-2            | #8-2       |
| QO<br>2 & 3 Pole | 10-30                  | #14-8           | #14-8      |
|                  | 35-70                  | #8-2            | #8-2       |
|                  | 80-125                 | #12-2/0         | #12-2/0    |
| QOT              | 15-20                  | #12-8           | #14-8      |
| QO-GFI           | 15-30                  | #12-8           | #14-8      |
| & QO-EPD         | 40-60                  | #12-4           | #14-6      |

### Main Breakers

| Main Breaker Frame Size | Amperage $\oplus$ | kAIC | Catalogue Number | Lug Wire Size AWG/KCMIL Al or Cu |
|-------------------------|-------------------|------|------------------|----------------------------------|
| QOM1 $\Delta$           | 30                | 10   | QOM30L           | #12-2/0                          |
|                         | 40                |      | QOM40L           |                                  |
|                         | 50                |      | QOM50L           |                                  |
|                         | 60                |      | QOM60L           |                                  |
|                         | 50                | 22   | QOM50VHL         |                                  |
|                         | 60                |      | QOM60VHL         |                                  |
|                         | 70                |      | QOM70VHL         |                                  |
|                         | 80                |      | QOM80VHL         |                                  |
|                         | 100               |      | QOM100VHL        |                                  |
|                         | 125               |      | QOM125VHL        |                                  |
| QOM2 $\Delta$           | 100               | 22   | QOM2100VHL       | #4-250                           |
|                         | 125               |      | QOM2125VHL       |                                  |
|                         | 150               |      | QOM2150VHL       |                                  |
|                         | 175               |      | QOM2175VHL       |                                  |
|                         | 200               |      | QOM2200VHL       |                                  |
|                         | 225               |      | QOM2225VHL       |                                  |

- $\Delta$  Add suffix - 1021 for 240Vac shunt trip. Factory Installed Accessory
- $\oplus$  Do not exceed the load centre mains rating.
- $\Delta$  Main Breakers include factory installed handle padlock attachment (padlock QOM main circuit breaker in the 'off' position).

### Circuit Breaker Factory Installed Accessories

**Requires Additional Pole Space.** Only one accessory per breaker. QO accessory terminals for (2) #14-12 Cu. Accessories are not available for Q2, QOM1, or QOB-VH (110-150 A) circuit breakers or QO molded case switches.

| Factory Installed Accessories | Available On Breaker | Description                      | Add Suffix To Breaker Catalogue No. |
|-------------------------------|----------------------|----------------------------------|-------------------------------------|
| Shunt Trip                    | QO                   | 120Vac<br>208Vac<br>240Vac       | 1021                                |
|                               |                      | 12Vac<br>24Vdc<br>12Vdc<br>24Vac | 1042                                |
| Auxiliary Switch              | QO,-GFI,-EPD,        | "A" Contact                      | 1200                                |
|                               |                      | "B" Contact                      | 1201                                |
| Alarm Switch                  | QO,-GFI,-EPD,        | 120Vac                           | 2100                                |

- $\Delta$  10-30 ampere breakers are suitable for use with 60°C or 75°C conductors, 35-60 ampere breakers are suitable for use with 75°C conductors.
- $\blacktriangle$  SWD (switching duty) rated. Suitable for switching 120Vac fluorescent lighting loads.
- $*$  Combination AFI devices provide protection against both high-energy parallel arcing (same as existing branch/feeder AFCI's) and low energy (5A) series arcing.



QO One Pole  
with Shunt Trip



QOK Key  
Operated

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# Canadian HomeLine™ Loadcentres

## Product Description



HomeLine™ Main Breaker Loadcentre



Flush Cover

### The Residential Solution for Canadian Electrical Contractors

HomeLine™ circuit breaker loadcentres from Schneider Electric are CSA certified panelboards. They are designed to meet residential requirements to protect electrical systems, equipment, and people.

#### Features

##### Indoor (NEMA Type 1), Main Breaker, 12 to 60 spaces

- Single phase, 120/240V
- 200A maximum tin plated aluminum bus
- 60 spaces, 120 circuits max
- Short circuit rating
  - standard 22kAIC – main breaker (50A thru 200A)
  - series ratings up to 100kAIC
- Distributed neutral bar design
- Robertson/Slot neutral, ground and trim screws
- Shielded bus bar
- Appliance white combination flush/surface mount trim
- Automatic flush trim adjustment with shutter type twistouts
- Top or bottom feed
- Multiple horizontal and vertical ground bar mounting positions
- Straight in wiring for main and branch wiring
- Removable interiors
- Tangential main knockouts
- Provision for optional door lock
- Welded box construction

##### Indoor (NEMA Type 1), Main Lug, 2 to 42 spaces

- Single phase, 120/240V
- 225A maximum tin plated aluminum bus
- 42 spaces, 84 circuits max
- Short circuit rating
  - standard 10kAIC – main lug
  - series ratings up to 100kAIC
- Robertson/Slot neutral, ground and trim screws
- 2 to 6 space single row loadcentres, ASA49 grey
- Top or bottom feed
- Welded box construction

##### HomeLine Fusible Loadcentre Inserts (HFLCI)

##### Indoor (NEMA Type 1), Main Lug, 12 spaces

- Single phase, 120/240V
- 125A maximum tin plated aluminum bus
- 12 spaces, 24 circuits max
- Short circuit rating
  - standard 10kAIC
  - series ratings up to 100kAIC
- Robertson/Slot neutral, ground and trim screws
- Architectural white surface mount trim with door



RB Device



Bolt-On Hubs

### Outdoor (NEMA Type 3R), Main Breaker, 8 to 20 spaces

- Single phase, 120/240V
- 200A maximum tin plated aluminum bus
- 20 spaces, 40 circuits max
- Short circuit rating
  - standard 22kAIC – main breaker
  - series ratings up to 100kAIC
- Distributed neutral bar design
- Robertson/Slot neutral, ground and trim screws
- Shielded bus bar
- Side hinged door
- Welded, galvanealed steel, painted ASA49 grey enclosure
- Gasketless rain hubs – 0.75" to 2.5"
- Stainless steel locking hasp

### Outdoor (NEMA Type 3R), Main Lug, 2 to 12 spaces

- Single phase, 120/240V
- 125A maximum tin plated aluminum bus
- 12 spaces, 24 circuits max
- Short circuit rating
  - standard 10kAIC – main lug
  - series ratings up to 100kAIC
- Robertson/Slot neutral, ground and trim screws
- Welded, galvanealed steel, painted ASA49 grey enclosure
- Gasketless rain hubs – 0.75" to 2.5"
- Stainless steel locking hasp

# Canadian HomeLine™ Loadcentres

## Type 1 Main Lug and Main Circuit Breaker Loadcentres

### Single-Phase, Three-Wire, 120/240 Vac Main Lugs – Indoor

| Mains Rating in Amps | Loadcentre Catalogue Number | Maximum Number of Circuits |                | Loadcentre Cover Catalogue Number | Service Entrance Approved | Maximum Short Circuit Rating | Main Wire Size AWG/kcmil Al/Cu | Enclosure No. (Pages 34-35) | Top or Bottom Mains Position |
|----------------------|-----------------------------|----------------------------|----------------|-----------------------------------|---------------------------|------------------------------|--------------------------------|-----------------------------|------------------------------|
|                      |                             | Standard 1"                | Tandem or Quad |                                   |                           |                              |                                |                             |                              |

#### Factory-Installed Main Lugs

|     |                |   |    |          |   |          |                |    |     |
|-----|----------------|---|----|----------|---|----------|----------------|----|-----|
| 70  | CHOM24L70F/S   | 2 | 4  | Included | N | 10,000 A | #12-3<br>#14-4 | 2  | Top |
| 100 | CHOM612L100F/S | 6 | 12 | Included | N | 10,000 A | #8-1           | 4  | Top |
| 125 | CHOM48L125GC   | 4 | 8  | Included | N | 10,000 A | #4-2/0         | 21 | Top |

#### Factory-Installed Main Lugs

|     |                |    |    |          |   |          |        |    |      |
|-----|----------------|----|----|----------|---|----------|--------|----|------|
| 125 | CHOM816L125GC  | 8  | 16 | Included | N | 10,000 A | #6-2/0 | 6  | Both |
|     | CHOM1224L125GC | 12 | 24 | Included | N | 10,000 A | #6-2/0 | 6  | Both |
|     | CHOM1632L125GC | 16 | 32 | Included | N | 10,000 A | #6-2/0 | 8  | Both |
|     | CHOM2448L125GC | 24 | 48 | Included | N | 10,000 A | #6-2/0 | 8  | Both |
|     | CHOM3060L125GC | 30 | 60 | Included | N | 10,000 A | #6-2/0 | 10 | Both |

#### Factory-Installed Main Lugs

|     |                |    |    |          |   |          |        |    |      |
|-----|----------------|----|----|----------|---|----------|--------|----|------|
| 225 | CHOM3060L225GC | 30 | 60 | Included | N | 10,000 A | #6-250 | 10 | Both |
|     | CHOM4284L225GC | 42 | 84 | Included | N | 10,000 A | #6-250 | 12 | Both |

### Single-Phase, Three-Wire, 120/240 Vac Main Circuit Breaker – Indoor

| Mains Rating in Amps | Loadcentre Catalogue Number | Maximum Number of Circuits |                | Loadcentre Cover Catalogue Number | Service Entrance Approved | Maximum Short Circuit Rating | Main Wire Size AWG/kcmil Al/Cu | Enclosure No. (Pages 34-35) | Top or Bottom Mains Position |
|----------------------|-----------------------------|----------------------------|----------------|-----------------------------------|---------------------------|------------------------------|--------------------------------|-----------------------------|------------------------------|
|                      |                             | Standard 1"                | Tandem or Quad |                                   |                           |                              |                                |                             |                              |

#### Factory-Installed Main Circuit Breaker

|     |                |    |    |          |   |          |        |    |      |
|-----|----------------|----|----|----------|---|----------|--------|----|------|
| 30  | CHOM1224M30GC  | 12 | 24 | Included | Y | 10,000 A | #6-2/0 | 6  | Both |
| 50  | CHOM1224M50GC  | 12 | 24 | Included | Y | 22,000 A | #6-2/0 | 6  | Both |
| 60  | CHOM1224M60GC  | 12 | 24 | Included | Y | 22,000 A | #6-2/0 | 6  | Both |
|     | CHOM1632M60GC  | 16 | 32 | Included | Y | 22,000 A | #6-2/0 | 7  | Both |
| 70  | CHOM1224M70GC  | 12 | 24 | Included | Y | 22,000 A | #6-2/0 | 6  | Both |
|     | CHOM1632M70GC  | 16 | 32 | Included | Y | 22,000 A | #6-2/0 | 7  | Both |
| 100 | CHOM1224M100GC | 12 | 24 | Included | Y | 22,000 A | #6-2/0 | 6  | Both |
|     | CHOM1632M100GC | 16 | 32 | Included | Y | 22,000 A | #6-2/0 | 7  | Both |
|     | CHOM2448M100GC | 24 | 48 | Included | Y | 22,000 A | #6-2/0 | 8  | Both |
| 125 | CHOM3060M100GC | 30 | 60 | Included | Y | 22,000 A | #6-2/0 | 10 | Both |
|     | CHOM1224M125GC | 12 | 24 | Included | Y | 22,000 A | #6-2/0 | 6  | Both |
|     | CHOM1632M125GC | 16 | 32 | Included | Y | 22,000 A | #6-2/0 | 8  | Both |
|     | CHOM2448M125GC | 24 | 48 | Included | Y | 22,000 A | #6-2/0 | 8  | Both |
|     | CHOM3060M125GC | 30 | 60 | Included | Y | 22,000 A | #6-2/0 | 10 | Both |

#### Factory-Installed Main Circuit Breaker

|     |                  |    |     |            |   |          |        |    |      |
|-----|------------------|----|-----|------------|---|----------|--------|----|------|
| 100 | CHOM3060M2100GC  | 30 | 60  | Included   | Y | 22,000 A | #4-250 | 10 | Both |
|     | CHOM4284M2100GC  | 42 | 84  | Included   | Y | 22,000 A | #4-250 | 12 | Both |
|     | CHOM60120M2100GC | 60 | 120 | Included ● | Y | 22,000 A | #4-250 | 24 | Both |
| 150 | CHOM2040M150GC   | 20 | 40  | Included   | Y | 22,000 A | #4-250 | 9  | Both |
|     | CHOM3060M150GC   | 30 | 60  | Included   | Y | 22,000 A | #4-250 | 10 | Both |
|     | CHOM60120M150GC  | 60 | 120 | Included ● | Y | 22,000 A | #4-250 | 24 | Both |
| 200 | CHOM2040M200GC   | 20 | 40  | Included   | Y | 22,000 A | #4-250 | 9  | Both |
|     | CHOM3060M200GC   | 30 | 60  | Included   | Y | 22,000 A | #4-250 | 10 | Both |
|     | CHOM4284M200GC   | 42 | 84  | Included   | Y | 22,000 A | #4-250 | 12 | Both |
|     | CHOM60120M200GC  | 60 | 120 | Included ● | Y | 22,000 A | #4-250 | 24 | Both |

● Does not include a door. Order kit # CHOMDK602.

- Main Breaker loadcentres are approved for service entrance use. The main breaker compartment can be sealed and the main breaker can be locked.
- All type 1 loadcentres are approved for vertical, horizontal, or inverted mounting.
- Canadian HomeLine loadcentres 8/16-space and above (double-row construction) come with Plug-on Neutral capability as standard.



# Canadian HomeLine™ Loadcentres

## Type 3R Main Lug and Main Circuit Breaker Loadcentres

### Single-Phase, Three-Wire, 120/240 Vac Main Lugs – Rainproof

| Mains Rating in Amps | Loadcentre Catalogue Number | Maximum Number of Circuits |                | Loadcentre Cover Catalogue Number | Service Entrance Approved | Maximum Short Circuit Rating | Main Wire Size AWG/kcmil Al/Cu | Enclosure No. (Pages 34-35) | Top or Bottom Mains Position |
|----------------------|-----------------------------|----------------------------|----------------|-----------------------------------|---------------------------|------------------------------|--------------------------------|-----------------------------|------------------------------|
|                      |                             | Standard 1"                | Tandem or Quad |                                   |                           |                              |                                |                             |                              |

#### Factory-Installed Main Lugs

|     |               |   |    |          |   |          |                          |     |     |
|-----|---------------|---|----|----------|---|----------|--------------------------|-----|-----|
| 70  | CHOM24L70RB   | 2 | 4  | Included | N | 10,000 A | #12-3 Al<br>#14-4 Cu     | 1R  | Top |
| 100 | CHOM612L100RB | 6 | 12 | Included | N | 10,000 A | #8-1                     | 2R  | Top |
| 125 | CHOM48L125GRB | 4 | 8  | Included | N | 10,000 A | #12-2/0 Al<br>#14-2/0 Cu | 15R | Top |

#### Factory-Installed Main Lugs

|     |                 |    |    |          |   |          |        |    |     |
|-----|-----------------|----|----|----------|---|----------|--------|----|-----|
| 125 | CHOM816L125GRB  | 8  | 16 | Included | N | 10,000 A | #6-2/0 | 3R | Top |
|     | CHOM1224L125GRB | 12 | 24 | Included | N | 10,000 A | #6-2/0 | 3R | Top |

### Single-Phase Three Wire 120/240 Vac Main Breaker – Rainproof

#### Factory-Installed Main Circuit Breaker

|     |                 |    |    |          |   |          |        |    |     |
|-----|-----------------|----|----|----------|---|----------|--------|----|-----|
| 100 | CHOM816M100GRB  | 8  | 16 | Included | Y | 22,000 A | #6-1   | 3R | Top |
|     | CHOM1224M100GRB | 12 | 24 | Included | Y | 22,000 A | #6-2/0 | 3R | Top |

#### Factory-Installed Main Circuit Breaker

|     |                 |    |    |          |   |          |        |    |     |
|-----|-----------------|----|----|----------|---|----------|--------|----|-----|
| 200 | CHOM2040M200GRB | 20 | 40 | Included | Y | 22,000 A | #4-250 | 6R | Top |
|-----|-----------------|----|----|----------|---|----------|--------|----|-----|

- Canadian HomeLine loadcentres 8/16-space and above (double-row construction) come with Plug-on Neutral capability as standard.

# Canadian HomeLine™ Loadcentres

## HomeLine Loadcentre Accessories

### Replacement Covers, 1 Phase, Type 1 Enclosures ONLY

| Reference Loadcentre Catalogue Number    | Replacement Cover Catalogue Number |
|--|------------------------------------|
| CHOM24L70S *                             | 4055800801                         |
| CHOM24L70RB                              | 4056314401                         |
| CHOM24L70F *                             | 4055800701                         |
| CHOM48L125GC                             | 4055844801                         |
| CHOM48L125GRB                            | 4056318650                         |
| CHOM612L100S *                           | 4055801702                         |
| CHOM612L100F *                           | 4055801801                         |
| CHOM612L100RB                            | 4056318550                         |
| CHOM816M100GRB                           | 4056319050                         |
| CHOM1224M100GRB                          | 4056319050                         |
| CHOM2040M200GRB                          | 4056319150                         |
| CHOM 8-16, 12-24 ML-MB loadcentres       | CHOMC12UC                          |
| CHOM 16-32 60-100A MB loadcentres        | CHOMC21UC                          |
| CHOM 16-32 125A, 24-48 ML-MB loadcentres | CHOMC24UC                          |
| CHOM 30-60 100-125A MB loadcentres       | CHOMC30U125C                       |
| CHOM 30-60 150-225A ML-MB loadcentres    | CHOMC30UC                          |
| CHOM 42-84 ML-MB loadcentres             | CHOMC42UC                          |
| CHOM 20-40 MB loadcentres                | CHOMC20UC                          |

\* No door on cover.

### Door Lock Kits, 1 Phase, Type 1 Enclosures ONLY

| Catalogue Number | Description  |
|------------------|--|
| PK6FL            | For use with type 1 Canadian HomeLine Loadcentres. |

### Surge Protective Device

| Description   | Catalogue Number |
|---|------------------|
| Surge arrester for 1PH3W system<br>150Vac maximum phase-to-ground | CHOM2175SB       |

### Interchangeable Hubs

| Conduit Size  | Type B Hubs |
|---------------|-------------|
| Closing Plate | BCAP        |
| 3/4"          | B075        |
| 1"            | B100        |
| 1 1/4"        | B125        |
| 1 1/2"        | B150        |
| 2"            | B200        |
| 2 1/2"        | B250        |



B-150

### Coupling Trough

| Catalogue Number | Description                               |
|------------------|---|
| BC200            | BC200 - enclosure coupling for RB devices |

### Filler Plates

| Description       | Catalogue Number |
|-------------------|------------------|
| Branch Breaker    | HOMFP            |
| QOM1 Main Breaker | QOM1FP           |
| QOM2 Main Breaker | QOM2FP           |

### Optional Neutral Lugs

| Wire Size            | Catalogue Number |
|----------------------|------------------|
| #12-2 AL<br>#14-4 Cu | LK70AN           |
| #6-2/0 AL/Cu         | LK100AN          |
| #14-2/0 AL/Cu        | LK125AN          |
| #2-3/0 AL/Cu         | LK150AN          |

### Main Lug Kits

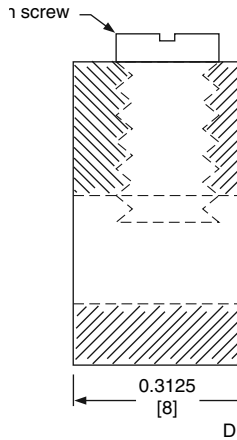
| Catalogue Number | Description |
|------------------|-------------|
| QOL125           | 125A Kit    |
| QOL225           | 225A Kit    |

### TECHNICAL INFORMATION

#### Grounding Bar Kits

All PK equipment grounding bar kits are supplied with mounting screws, necessary installation

instructions and an "Equipment Grounding Terminal" self-adhesive label.



Section of Size 1 Ground

| Catalogue Number      | Total Qty. | Terminals  |    |     |    |   |    | Approximate Overall Length |       | Distance Between Mounting Holes |              | Mounting    |
|-----------------------|------------|--|----|-----|----|---|----|----------------------------|-------|---------------------------------|--------------|-------------|
|                       |            | Quantity Each Size See "Wire Range Table" below. |    |     |    |   |    |                            |       |                                 |              |             |
|                       |            | I  | II | III | IV | V | VI | in                         | [mm]  | in                              | [mm]         |             |
| PK0GTA2               | 2          | —  | —  | —   | —  | — | 2  | 1.75                       | [44]  | One hole                        | One hole     | Top         |
| PK0GTA6               | 6          | —  | —  | —   | —  | 6 | —  | 4.61                       | [117] | 1.69                            | [43]         | Top         |
| PK3GTA1               | 3          | 3  | —  | —   | —  | — | —  | 1.38                       | [35]  | One hole                        | One hole     | Top         |
| PK4GTA                | 4          | 4  | —  | —   | —  | — | —  | 1.63                       | [41]  | One hole                        | One hole     | Top         |
| PK5GTA                | 5          | 5  | —  | —   | —  | — | —  | 2.25                       | [57]  | 1.25                            | [32]         | Top         |
| PK7GTA                | 7          | 7  | —  | —   | —  | — | —  | 2.88                       | [73]  | 1.25                            | [32]         | Top or Side |
| PK9GTA1               | 9          | 9  | —  | —   | —  | — | —  | 3.25                       | [83]  | One hole                        | One hole     | Top         |
| PK9GTA                | 9          | 9  | —  | —   | —  | — | —  | 3.78                       | [96]  | 3.13                            | [80]         | Top         |
| PK12GTA               | 12         | 12   | —  | —   | —  | — | —  | 4.70                       | [119] | 3.13                            | [80]         | Top         |
| PK15GTA               | 15         | 15   | —  | —   | —  | — | —  | 5.63                       | [143] | 3.13                            | [80]         | Top         |
| PK15GTAL              | 16         | 15   | 1  | —   | —  | — | —  | 8.13                       | [207] | 3.13                            | [80]         | Top         |
| PK15GTA6 <sup>1</sup> | 21         | 15   | —  | —   | 6  | — | —  | 5.88                       | [149] | <sup>2</sup>                    | <sup>2</sup> | Top         |
| PK18GTA               | 18         | 18   | —  | —   | —  | — | —  | 6.56                       | [167] | 3.13                            | [80]         | Top         |
| PK18GTAL              | 19         | 18   | 1  | —   | —  | — | —  | 8.81                       | [224] | 3.13                            | [80]         | Top         |
| PK23GTA               | 23         | 23   | —  | —   | —  | — | —  | 8.11                       | [206] | 3.13                            | [80]         | Top         |
| PK23GTAL              | 24         | 23   | 1  | —   | —  | — | —  | 9.44                       | [240] | 3.13                            | [80]         | Top         |
| PK27GTA <sup>3</sup>  | 27 or 26   | 27 or 26   | —  | 1   | —  | — | —  | 9.36                       | [238] | 3.13                            | [80]         | Top         |

<sup>1</sup> Mounting screws 21594-14241(two required) and 21594-17121(two required).

<sup>2</sup> 3.13 in. (80 mm) on small terminals; 5.25 in. (133 mm) on large terminals.

<sup>3</sup> PK27GTA includes one main grounding lug that mounts with two terminal screws and requires three terminals for mounting.

#### Wire Range Table

| Size | Cu (AWG)                     | Al (AWG)                     |
|------|------------------------------|------------------------------|
| I    | (1) #14–#4 or (2) #14 or #12 | (1) #12–#4 or (2) #12 or #10 |
| II   | (1) #1–4/0                   | (1) #1–4/0                   |
| III  | (1) #6–2/0                   | (1) #6–2/0                   |
| IV   | (1) #6–3/0                   | (1) #6–3/0                   |
| V    | (1) #14–1/0                  | (1) #14–1/0                  |
| VI   | (1) #10–2/0                  | (1) #6–2/0                   |

# Canadian HomeLine™ Circuit Breakers

## General Information and Application Data



**CHOM 1-Pole**  
1 space required.



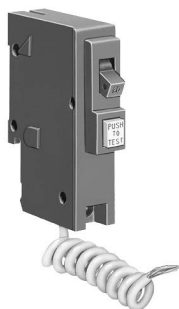
**CHOM 2-Pole**  
2 spaces required.



**CHOMT 1-Pole Tandem**  
1 space required.



**CHOMT Quad Circuit Breaker**  
2 spaces required.



**CHOM 1-Pole GFI**  
1 space required.



**CHOM 2-Pole GFI**  
2 space required.



**CHOM-AFI**  
1 space required.



**QOM2 Frame Size**



**QOM1 Frame Size**

### Main breakers, branch breakers and surge suppressors

- CSA File # LL-89066
- Accepts 60/75C wire up to 40A, 75C wire over 40A
- HACR rated
- SWD rating on 1" 15A and 20A breakers
- 1-pole and 2-pole
- Standard – 1" per pole
- Twin – 1/2" per pole
- Quad – 1/2" per pole
- Main breakers
  - 30A thru 225A
- Branch breakers
- 15A thru 200A
- Optional high magnetic on 1" 15A and 20A breakers
- Subfeed lugs
  - 125A or 225A
- Arc-fault circuit interrupters – 20A max
- Combination arc-fault circuit interrupters – 20A max
  - Senses series and parallel arcing
- Ground fault circuit interrupters – 50A max
  - 5mA Class A
  - 30mA equipment protective devices
  - Spa packs
- Accessories
  - handle lock offs
  - handle ties
  - branch filler plates
- Plug-in surge suppressors
  - Electronic MOV technology
  - Plug-in or knockout mounted

### Branch Circuit Breakers

| 10,000 AIR |                              |
|------------|------------------------------|
| CHOM       | 1-pole, 15–50 A              |
|            | 2-pole, 15–200 A             |
| CHOMT      | 1-pole, 15–30 A              |
|            | 2-pole, 15–50 A              |
| CHOM-GFI   | 1-pole, 15 & 20 A            |
|            | 2-pole, 15, 20, 30, 40, 50 A |
| CHOM-AFI   | 1-pole, 15 & 20 A            |
| CHOM-CAFI  | 1-pole & 2 pole, 15 & 20 A   |
| CHOM-DF    | 1-pole, 15 & 20 A            |

# Canadian HomeLine® Circuit Breakers and Accessories

## Standard and Main Circuit Breakers

DE1 LOAD CENTRES

### Standard Loadcentre Breakers

| Type                    | Amp Rating | 1 Pole Cat. No. | Lug Range | 2 Pole Cat. No. | Lug Range |
|-------------------------|------------|-----------------|-----------|-----------------|-----------|
| CHOM 1, 2 & 4           | 15         | CHOM115         | #14 - #8  | CHOM215         | #14 - #8  |
|                         | 20         | CHOM120         |           | CHOM220         |           |
|                         | 25         | CHOM125         |           | CHOM225         |           |
|                         | 30         | CHOM130         |           | CHOM230         |           |
|                         | 35         | —               | #8-#2     | CHOM235         | #8-#2     |
|                         | 40         | CHOM140         |           | CHOM240         |           |
|                         | 45         | —               |           | —               |           |
|                         | 50         | CHOM150         |           | CHOM250         |           |
| CHOM 5<br>high magnetic | 15         | CHOM115HM       | #14-#8    | —               | #8-#2     |
|                         | 20         | CHOM120HM       |           | —               |           |
| CHOM 1 & 3              | 60         | —               | —         | CHOM260         | #4-2/0    |
|                         | 70         | —               |           | CHOM270         |           |
|                         | 80         | —               |           | CHOM280         |           |
|                         | 90         | —               |           | CHOM290         |           |
|                         | 100        | —               | —         | CHOM2100        | #4-300mcm |
|                         | 125        | —               |           | CHOM2125        |           |
|                         | 150        | —               |           | CHOM2150BB      |           |
|                         | 175        | —               |           | CHOM2175BB      |           |
|                         | 200        | —               |           | CHOM2200BB      |           |
|                         | —          | —               |           | —               |           |

Notes:

1. All CHOM 1 & 2 pole CSA listed as HACR type.
2. CHOM115 & 120 SWD rated.
3. CHOM2P150-2P200 require 4 spaces, use only in single phase loadcentres rated 150A or greater.
4. CHOM 1pole circuit breakers require one space. CHOM 2pole circuit breakers require two spaces.
5. High magnetic trip circuit breakers are recommended for applications where high initial inrush current may occur.

### HomeLine Main Circuit Breakers

| Type | Amp Rating | 2 Pole Cat No. | kAIC      | Lug Range |
|------|------------|----------------|-----------|-----------|
| QOM1 | 30         | QOM30L         | 10        | #12-2/0   |
|      | 40         | QOM40L         | 10        |           |
|      | 50         | QOM50VHL       | 22        |           |
|      | 60         | QOM60VHL       |           |           |
|      | 70         | QOM70VHL       |           |           |
|      | 80         | QOM80VHL       |           |           |
|      | 100        | QOM100VHL      |           |           |
| QOM2 | 125        | QOM125VHL      | #4-300mcm |           |
|      | 100        | QOM2100VHL     |           |           |
|      | 125        | QOM2125VHL     |           |           |
|      | 150        | QOM2150VHL     |           |           |
|      | 175        | QOM175VHL      |           |           |
|      | 200        | QOM2200VHL     |           |           |
|      | 225        | QOM2225VHL     |           |           |



QOM2

# Canadian HomeLine™

## Circuit Breakers and Accessories

### CHOMT Breakers, Combination Arc Fault Circuit Interrupters, Dual Function Circuit Breakers

DE1  
HOMELINE

#### CHOMT Tandem & Quad Tandem Circuit Breakers

| Type                       | Amp Rating |     | CHOMT Tandem Cat. No.      | Lug Range                   |
|----------------------------|------------|-----|----------------------------|-----------------------------|
| CHOMT Tandem 1 & 3         | 15-15      |     | CHOMT1515                  | 15-30A<br>#14-#8            |
|                            | 15-20      |     | CHOMT1520                  |                             |
|                            | 20-20      |     | CHOMT2020                  |                             |
|                            | 30-15      |     | CHOMT3015                  |                             |
|                            | 30-20      |     | CHOMT3020                  |                             |
| CHOMT Quad Tandem 1, 2 & 4 | 1P         | 2P  | Quad CHOMT Tandem Cat. No. |                             |
|                            | (2)15A     | 15A | CHOMT1515215               | 15-30A<br>#14-#8            |
|                            | (2)15A     | 20A | CHOMT1515220               |                             |
|                            | (2)15A     | 25A | CHOMT1515225               |                             |
|                            | (2)15A     | 30A | CHOMT1515230               |                             |
|                            | (2)15A     | 40A | CHOMT1515240               |                             |
|                            | (2)15A     | 50A | CHOMT1515250               | 40-50A<br>#6-12 Al #6-14 Cu |
|                            | (2)20A     | 20A | CHOMT2020220               |                             |
|                            | (2)20A     | 25A | CHOMT2020225               |                             |
|                            | (2)20A     | 30A | CHOMT2020230               |                             |
|                            | (2)20A     | 40A | CHOMT2020240               |                             |
|                            | (2)20A     | 50A | CHOMT2020250               |                             |

#### Notes:

1. CSA certified for use as HACR type circuit breakers.
2. Cat# represents two 1P outer poles and one 2P inner circuit breaker with common trip.
3. CHOMT tandems require 1 space.
4. CHOMT quad tandems require 2 spaces.

#### HomeLine Combination Arc-Fault Interrupter (CAFI)

HomeLine Combination Arc-Fault Interrupter (CAFI) provides overload and short circuit protection, plus both series and parallel type arc protection as required in 2015 CEC. Integrated with Time Saver diagnostics, HomeLine CAFI breaker improves circuit troubleshooting at the touch of a button.

| Circuit Breaker Type          | Ampere Rating | 1P 120 Vac<br>10K AIR<br>1 Space Required | 2P 120/240 Vac<br>10K AIR<br>2 Space Required |
|-------------------------------|---------------|---|---|
| HomeLine Pigtail Neutral CAFI | 15            | CHOM115CAFI                               | CHOM215CAFI*                                  |
|                               | 20            | CHOM120CAFI                               | CHOM220CAFI*                                  |
| HomeLine Plug-on Neutral CAFI | 15            | CHOM115PCAFI                              |   |
|                               | 20            | CHOM120PCAFI                              |   |

\* Rated for 120/240V ~ 60 Hz, not for 208Y/120V

#### HomeLine Dual Function Circuit Breaker

HomeLine Dual Function (DF) breaker provides both combination arc-fault and ground-fault (5mA classA) protection in a single compact device. Integrated with Plug-on Neutral and Time Saver Diagnostics features, HomeLine DF breaker offers maximum circuit protection and installation flexibility.

| Circuit Breaker Type  | Ampere Rating | 1P 120 Vac 10K AIR<br>1 Space Required |
|---|---------------|--|
|   |               | Catalog Number                         |
| HomeLine Dual Function Circuit Breaker with Pigtail Neutral | 15            | CHOM115DF                              |
|   | 20            | CHOM120DF                              |
| HomeLine Plug-on Neutral Dual Function Circuit Breaker      | 15            | CHOM115PDF                             |
|   | 20            | CHOM120PDF                             |

# Canadian HomeLine™ Circuit Breakers and Accessories

## Ground Fault Circuit Interrupters, Arc Fault Circuit Interrupters

### HomeLine GFI with 5 mA Sensitivity (Class A)

| Amp Rating | 1 Pole Cat. No. | 2 Pole Cat. No. |
|------------|-----------------|-----------------|
| 15         | CHOM115GFI      | CHOM215GFI      |
| 20         | CHOM120GFI      | CHOM220GFI      |
| 30         |                 | CHOM230GFI      |
| 40         |                 | CHOM240GFI      |
| 50         |                 | CHOM250GFI      |

### HomeLine EPD with 30 mA Sensitivity

| Type | 1 Pole Cat. No. | 2 Pole Cat. No. |
|------|-----------------|-----------------|
| 15   | CHOM115EPD      | CHOM215EPD      |
| 20   | CHOM120EPD      | CHOM220EPD      |
| 30   |                 | CHOM230EPD      |
| 40   |                 | CHOM240EPD      |
| 50   |                 | CHOM250EPD      |

#### Notes:

- GFI breakers maximum 250 feet (one way) feeder length
- Use solid conductor only when #14 wire is used



CHOM115GFI



CHOM230GFI



CHOM115PCAFI



CHOM215CAFI



CHOM115CAFI

### Ground Fault Devices (GFI)

#### Spa Pack

A complete kit consisting of a Type 3R enclosure, factory installed 2P50A GFCI circuit breaker.

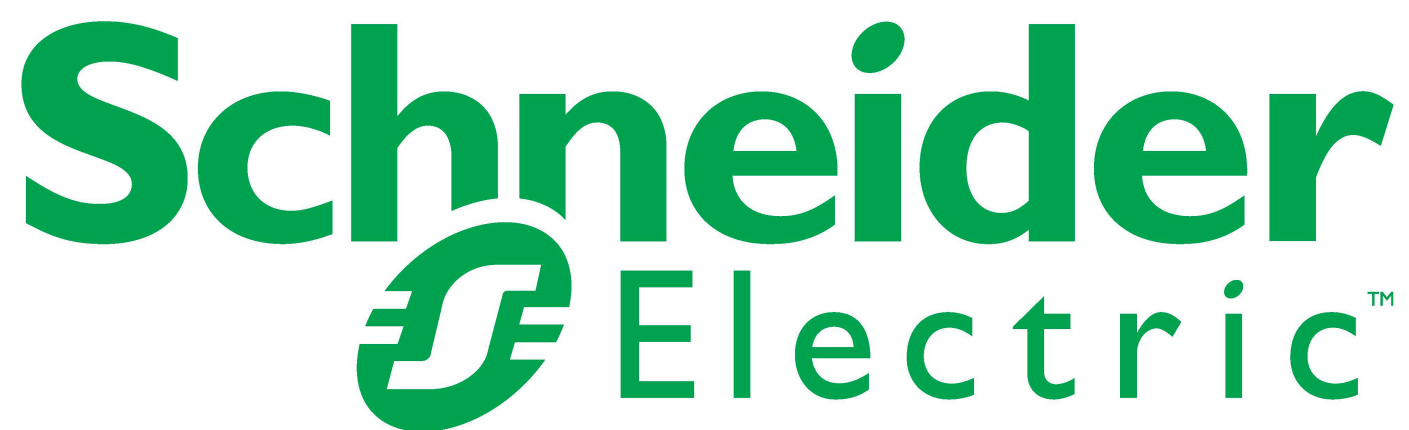
#### Spa Pack

| Amp Rating | Poles | Cat. No.    |
|------------|-------|-------------|
| 50         | 2     | CHOME250SPA |

### Canadian HomeLine Breaker Accessories

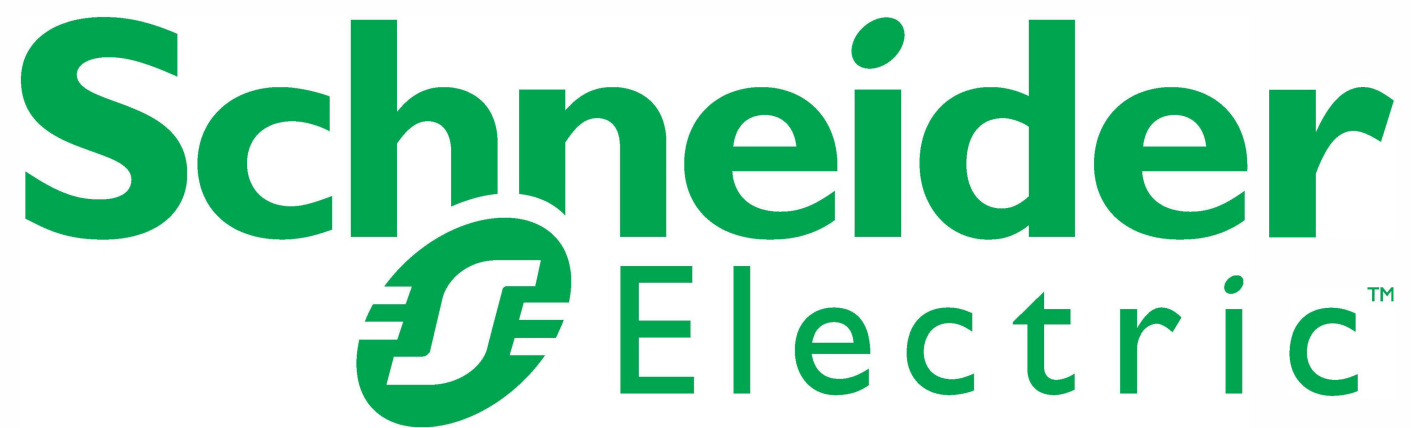
| Description  | Cat. No.     |
|--|--------------|
| <b>Handle attachments</b>  |              |
| Handle tie, converts any 2 adjacent 1P HOM circuit breakers to independent trip 2P                     | HOM1HT       |
| Handle tie, converts any adjacent 1P side by side HOMT CB's to independent 2P                          | HOMTHT       |
| Handle lock, ON or OFF, nonpadlocking HomeLine 1p 15-50A CB  | QO1LO        |
| Handle blocking device, attaches to a HOM 2P CB for holding the handle in the OFF position             | HOM2HBD      |
| Handle lock, ON or OFF, padlocking HomeLine 1p 15-50A CB   | HOM1PA       |
| <b>2 pole standard HomeLine handle lock ON or OFF, Padlocking</b>                                      |              |
| - Handle padlock attachment, for padlocking 2P 15-70A  | HOM2PALA     |
| - Handle padlock attachment, for padlocking 2P 80-125A   | HOM2PAHA     |
| - Handle padlock attachment, for padlocking 2P 150-200A  | HOM2PAVHA    |
| Handle Padlock Attachment, for padlocking 1P CAFI,DF, GFI, and EPD CHOM breakers in ON or OFF position | HOMELEC1PA   |
| Handle Padlock Attachment, for padlocking 2P CAFI, GFI, and EPDC CHOM breakers in ON or OFF position   | HOMELEC2PALA |
| Handle padlock attachment, for padlocking centre poles of HOM quad breakers in the OFF position        | HOMQPA       |
| Handle lock, OFF for QOM1 50-125A Main Circuit Breaker   | QOM1PA       |
| Handle lock, OFF for QOM2 100-225A Main Circuit Breaker  | QOM2PA       |
| <b>Sub-feed Lugs</b>   |              |
| 125A 2P plug-on - 2 spaces required  | HOML2125     |
| 225A 2P plug-on - 4 spaces required  | HOML2225     |

**Note:** Canadian HomeLine and QO loadcentre accessories may



**SAFETY SWITCH(ES)**

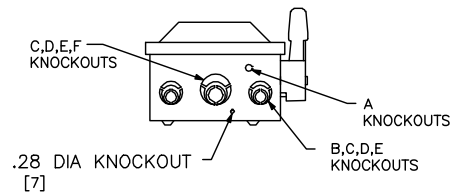
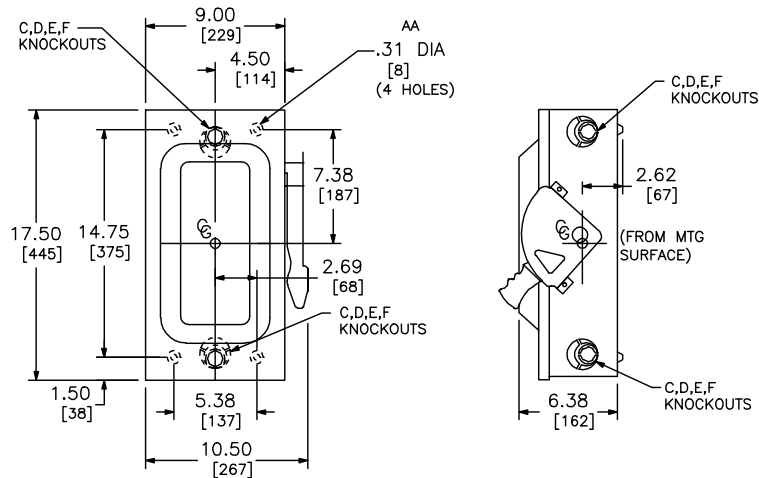




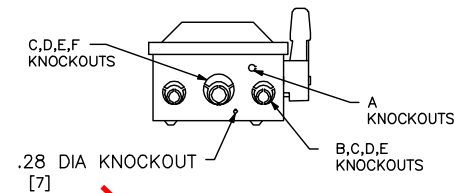
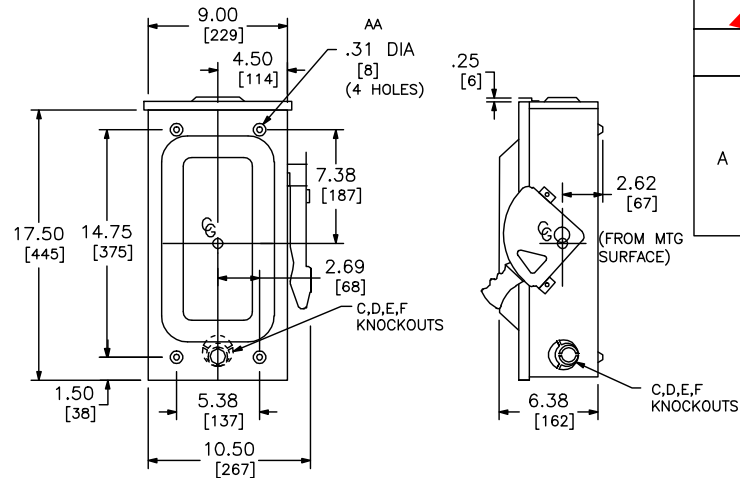
## **BILL OF MATERIALS AND DRAWINGS**

**Q2C Number:** 43618433**Quote Number:** 1**Revision Number:** 0**Project Name:** THE ATRIUM -19945 BRYDON CRES LANG**Quote Name:**

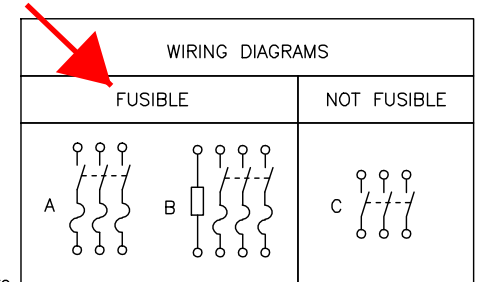
| Item No. | Qty. | Catalog Number / Details  |
|----------|------|---|
| 028-00   | 2    | CH362N<br>CH362 C/W SOLID NEUTRAL<br>CH362N-CH362 C/W SOLID NEUTRAL                                 |
| 029-00   | 2    | EIK06101EV<br>ELEVATOR RATED ELECTRICAL INTERLOCK<br>EIK06101EV-ELEVATOR RATED ELECTRICAL INTERLOCK |



NEMA TYPE 1



NEMA TYPE 3R▲



| TERMINAL LUGS ‡ |           |           |      |
|-----------------|-----------|-----------|------|
| AMPERES         | MAX. WIRE | MIN. WIRE | TYPE |
| 60              | # 2 AWG   | # 12 AWG  | AL   |
|                 | # 2 AWG   | # 14 AWG  | CU   |

| KNOCKOUTS |              |    |          |    |
|-----------|--------------|----|----------|----|
| SYMBOL    | CONDUIT SIZE |    | DIAMETER |    |
|           | IN           | MM | IN       | MM |
| A         | .50          | 13 | .88      | 22 |
| B         | .75          | 19 | 1.13     | 29 |
| C         | 1.00         | 25 | 1.38     | 35 |
| D         | 1.25         | 32 | 1.75     | 45 |
| E         | 1.50         | 38 | 2.00     | 51 |
| F         | 2.00         | 51 | 2.50     | 64 |

SEISMIC NOTES:  
USE (4) 1/4" DIA GRADE 5 STEEL MOUNTING BOLTS @ HOLES AA  
MAX CONFIGURED WEIGHT 20 LB FOR THE PURPOSE OF DETERMINING  
SEISMIC ANCHORAGE REQUIREMENTS. FOR ALL OTHER APPLICATIONS,  
CONTACT SQUARE D COMPANY.

NOTES:  
FINISH - GRAY BAKED ENAMEL.  
CSA CERTIFIED - FILE #LL-89067  
ALL NEUTRALS - INSULATED GROUNDABLE  
SHORT CIRCUIT CURRENT RATINGS:

10,000 AMPERES WITH CLASS H OR K FUSES  
200,000 AMPERES WITH CLASS R FUSES HAVING CLASS R REJECTION KITS OR CLASS J FUSES.  
WHEN MOUNTING THESE SWITCHES, ALLOW 4.00/[102] MIN. CLEARANCE  
BETWEEN ENCLOSURES FOR OPENING OF SIDE HINGED DOOR.

▲ NEMA TYPE 3R SWITCHES HAVE PROVISIONS FOR MAXIMUM 2.50/[64] BOLT-ON B-HUB.  
‡ LUGS SUITABLE FOR 60°C OR 75°C COPPER OR ALUMINUM CONDUCTORS.  
FUSIBLE SWITCHES ARE SUITABLE FOR USE AS SERVICE EQUIPMENT.

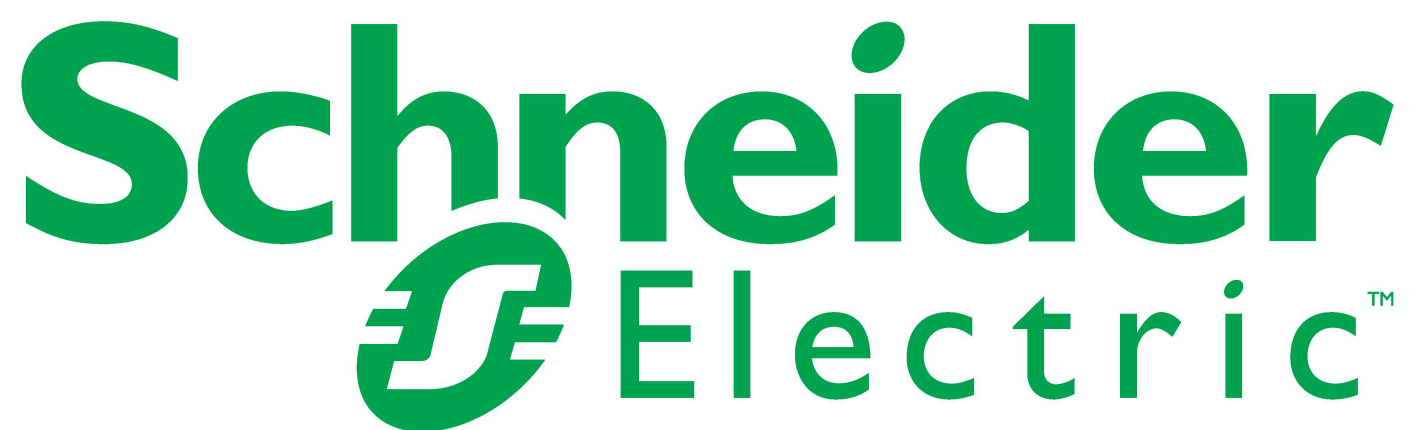
DUAL DIMENSIONS: INCHES  
MILLIMETERS

| CATALOG<br>NUMBER | VOLTAGE RATINGS | WIRING<br>DIAG | HORSEPOWER RATINGS |     |    |        |     |    |        |     |    |            |            |
|-------------------|-----------------|----------------|--------------------|-----|----|--------|-----|----|--------|-----|----|------------|------------|
|                   |                 |                | 250VAC             |     |    | 480VAC |     |    | 600VAC |     |    | 250<br>VDC | 600<br>VDC |
|                   |                 |                | STD                | MAX |    | STD    | MAX |    | STD    | MAX |    |            |            |
|                   |                 |                | 3Ø                 | 1Ø  | 3Ø | 3Ø     | 1Ø  | 3Ø | 3Ø     | 1Ø  | 3Ø |            |            |
| CH362             | 600VAC;600VDC   | A              | —                  | —   | —  | 15     | —   | 30 | 15     | —   | 50 | —          | 30         |
| CH362RB           | 600VAC;600VDC   | A              | —                  | —   | —  | 15     | —   | 30 | 15     | —   | 50 | —          | 30         |
| CH362N            | 600VAC;600VDC   | B              | —                  | —   | —  | 15     | —   | 30 | 15     | —   | 50 | —          | —          |
| CH362NRB          | 600VAC;600VDC   | B              | —                  | —   | —  | 15     | —   | 30 | 15     | —   | 50 | —          | —          |
| CHU362            | 600VAC;600VDC   | C              | —                  | 10  | 20 | —      | 20  | 50 | —      | 25  | 60 | 10         | 30         |
| CHU362RB          | 600VAC;600VDC   | C              | —                  | 10  | 20 | —      | 20  | 50 | —      | 25  | 60 | 10         | 30         |

HEAVY DUTY SAFETY SWITCHES - SEISMIC  
VISIBLE BLADE TYPE  
60 AMPERE  
ENCLOSURE - TYPE 1 GENERAL PURPOSE  
TYPE 3R RAINPROOF

**SCHNEIDER ELECTRIC**  
by Schneider Electric

DWG# 1897SC  
NO.



**LITERATURE**

### Electrical Auxillary Interlock Kits

Electrical interlocks for Heavy Duty 30-1200 Ampere Safety Switches are available factory installed or in kit form for field installation. Each kit contains instructions for proper field mounting. A pivot arm operates from switch mechanism, breaking the control circuit before the main switch blades break. Electrical interlock kits are CSA Certified.

For factory installation add "EI" or "EI2" suffix to standard catalogue number.

**Example:** CH361EI

#### Electrical Interlock Kit ▲

| Ampere Rating                   | Series | Catalogue Number     |
|---------------------------------|--------|----------------------|
| 30                              | F5-F6  | EIK031 or EIK032 *   |
| 60<br>(600 V)                   | F5-F6  | EIK1 or EIK2 ★       |
| 60<br>(240 V)                   | F5-F6  | EIK031 or EIK032 *   |
| 100-200                         | F5-F6  | EIK1 or EIK2         |
| 30-100<br>Receptacle Switches   | F5-F7  | EIK1 or EIK2         |
| 30-200<br>4 and 6 Pole Switches | F5-F6  | EIK1 or EIK2         |
| 400-1200                        | E4-E5  | EIK40601 or EIK40602 |

- Electrical interlock kit catalogue numbers with -1 suffix indicates one normally open and one normally closed contact; -2 indicates two normally open and two normally closed contacts.
- Not suitable for Elevator use.
- ★ HU461AWK uses EK306-1,2; H461, H461 DS, H461AWK, HU461, HU461DS, HU661DS, HU661AWK, H361AWAVW, CH361AWC, CHU361AWA, CHU361AWC use EIK-1,2.
- \* Safety switches complete with voltage monitors use EIK1 or EIK2.

#### ▲ Electrical Interlock Kit

(Type 4X Fiberglass-reinforced Polyester Enclosure)

| Ampere Rating      | Catalogue Number (1NO/1NC) | Catalogue Number (2NO/2NC) |
|--------------------|----------------------------|----------------------------|
| 30A<br>(F-Series)  | 9999TC10                   | 9999TC20                   |
| 60A<br>(F-Series)  | 9999TC10                   | 9999TC20                   |
| 100A<br>(F-Series) | 9999TC10                   | 9999TC20                   |
| 200A               | 9999R8                     | 9999R9                     |

#### Electrical Interlock Contact Ratings ◆

| Interlock Type                    | Volts | AC - 50 or 60 Hz |       |       | Volts | DC           |       |
|-----------------------------------|-------|------------------|-------|-------|-------|--------------|-------|
|                                   |       | Make             | Break | Cont. |       | Make & Break | Cont. |
| 1 NO/1 NC CONTACT<br>(-1 Suffix)  | 120   | 40A              | 15A   | 15A   | 115   | .50A         | 15A   |
|                                   | 240   | 20A              | 10A   | 15A   | 230   | .25A         | 15A   |
|                                   | 480   | 10A              | 6A    | 15A   | -     | -            | -     |
|                                   | 600   | 8A               | 5A    | 15A   | 600   | .05A         | 15A   |
| 2 NO/2 NC CONTACTS<br>(-2 Suffix) | 120   | 30A              | 3.0A  | 10A   | 115   | 1.0A         | 10A   |
|                                   | 240   | 15A              | 1.5A  | 10A   | 230   | .30A         | 10A   |
|                                   | 480   | 7.5A             | .75A  | 10A   | -     | -            | -     |
|                                   | 600   | 6.0A             | .60A  | 10A   | 600   | .10A         | 10A   |

- ◆ Single pole throw interlock kits are rated 1/2 HP @ 110 and 220Vac.
- -1 Suffix utilizes a 9007A01 limit switch.
- -2 Suffix utilizes a 9007C03 limit switch.

### Elevator Rated Electrical Interlocks\*

These interlocks are CSA approved, field installable and can be used in switches with date codes starting with 06454 (year 2006, week 45, day 4 of week) or later.

| Ampere Rating | Type 1, 240VAC | Elevator Interlock | Type 1, 600VAC | Elevator Interlock |
|---------------|----------------|--------------------|----------------|--------------------|
| 30            | CH321N         | EIK031EV           | CH361          | EIK031EV           |
| 60            | CH322N         | EIK031EV           | CH362          | EIK06101EV         |
| 100           | CH323N         | EIK06101EV         | CH363          | EIK06101EV         |
| 200           | CH324N         | EIK201EV           | CH364          | EIK201EV           |

\* CSA approved for Type 1, 3R, 4/4X & 3R/12 applications

### Application Information

- For more information, consult Schneider Electric.



### Key Interlock Systems

Factory installed only on Heavy Duty Safety Switches and Double Throw Safety Switches.

Interlocks are used to prevent the authorized operator from making an unauthorized operation.

Not available on hazardous location devices (Type 7/9) or fiberglass reinforced polyester (Type 4X).

The Key Interlock System is a simple and easy method of applying individual key interlock units and assemblies to the above equipment so as to require operation in a predetermined sequence.

Quoting: Contact Schneider Electric for catalog number, availability, and pricing prior to quoting a job. Detailed information is required before an order can be processed.

Before preparation of construction equipment with key interlocks can begin, the following information must be known:

1. Ultimate user -name and address
2. Key number, 'SO' number and item number from lock assemblies on any existing locks to be interlocked with.
3. Sketch of sequence of operations to be accomplished and name and phone number of specifying engineer. Confirmation from customer is required before an order is released for production.
4. Other Square D equipment interlocked - order point, order numbers, etc. for coordination.
5. Schneider Electric key interlocks will be furnished unless otherwise specified.

To order, add "KI", "KI2" or "KIKI" suffix to standard catalogue number. Contact your local Schneider Electric office for a reference number prior to entering the order.

**Example:** CH364KI

KI = 1 lock per switch

KI2 = 1 lock with 2 cylinders per switch

KIKI = 2 separate locks per switch

### Lock-On Provisions

Provision for one 3/8 inch hasp padlock is available factory installed on Types 1, 3R, 4/4X stainless steel and 3R/12 switches. This modification will allow the switch to be locked in the "ON" position.

To order, add "SPLO" suffix to standard catalogue number.

**Example:** CH361SPLO



### Lock-Off Guard

Designed for use with safety switches in commercial and industrial settings, Lock-Off Guard enhances the reliability of lockout procedures to isolate power in daily activities and provide an effective way to interrupt power in an emergency.

The innovative Lock-Off Guard works by covering the lockout/tag-out opening whenever the switch is in the "ON" position, preventing a padlock from being inadvertently inserted into the switch lockplate.

This device is designed to help prevent accidents caused by an untrained or distracted employee, who could inadvertently attempt to apply a lockout device to a switch without turning the switch to "OFF."

- Installs on Square D 30A to 200A F series Type 1, 3R and 12 switches in less than 30 seconds.

- Bright red colour reminds users of the seriousness of lockout/tag-out procedures.

60A 600V and 100A 240V or 600V switches prior to series F05 require the handle and mechanism be upgraded in order to install the kits.

These kits are marked cURus for field or factory installation.

#### Field Installation Kits

Ampere rating  
30A  
60A 240V  
60A 600V  
100A and 200A

#### Catalogue number

LOGK1  
LOGK1  
LOGK2  
LOGK2

#### Factory Installed option is available

Order using "LOG" suffix on standard switch catalogue numbers.

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