



LAKESHORE
ELECTRIC CORPORATION



Connect:

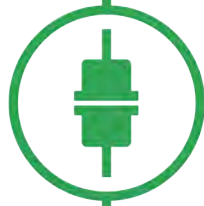
QCM

Quick Connect with Manual Transfer Switch

0–480VAC, 150A–4000A, up to 100kAIC
Specification Sheet & Selection Guide

CONNECT

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QCM Overview

General Description



Lake Shore Electric's QCM (Quick Connect with Manual Transfer Switch) combines the safety and functionality of a Manual Transfer Switch with the convenience of a Quick Connection Cabinet, allowing for compliance with NEC 700.3(F).

NEC 700.3(F) 2017 States:

If the emergency system relies on a single alternate source of power, which will be disabled for maintenance or repair, the emergency system shall include permanent switching means to connect a portable or temporary alternate source of power, which shall be available for the duration of the maintenance or repair.

In short, the QCM is a practical and code-compliant solution for connection of a temporary alternate source to ensure a continuous means of backup power.

Standard Configuration Includes:

- Two Mechanically Interlocked UL 489 Switches
- Color-Coded Camlock Receptacles for Temporary Connections
- NEMA 3R Enclosure
- Grounded Dead Front Covers
- Auxiliary Contact & Indicating Lights for Switch Position (Green – Normal Source, Red – Alternate Source)
- Auxiliary Contact & Indicating Lights for Source Availability (White – Normal Source, White – Alternate Source)
- 2-Wire Start Binding Post
- NEMA 5-20R GFCI Receptacle¹

Optional accessories are also available. See the QCM Selection Guide on page 5 for additional details.

¹ Power by others

Technical Data

Molded Case (150A - 1200A)



Table 1: QCM Switching Device – Molded Case Technical Details, SER

| kAIC @ 480V | Rated Current (A) | Service Entrance | | | | | |
|-------------|-------------------|-------------------------|---------------|----------------|---------------------------|----------------|----------------|
| | | Normal Source (Breaker) | | | Alternate Source (Switch) | | |
| | | 2 Pole † | 3 Pole | 4 Pole | 2 Pole † | 3 Pole | 4 Pole |
| 35 | 150 | PDG22G0150TFF | PDG23G0150TFF | PDG24G0150TFF | PDG22G0150KNSN | PDG23G0150KNSN | PDG24G0150KNSN |
| | 400 | PDG32G0400TFA | PDG33G0400TFA | PDG34G0400TFA | PDG32G0400KNSN | PDG33G0400KNSN | PDG34G0400KNSN |
| 50 | 800 | PDG52K0800E2R | PDG53K0800E2R | PDG54K0800E2 | PDG52K0800KNSN | PDG53K0800KNSN | PDG54K0800KNSN |
| | 1200 | PDG53K1200E4R | PDG53K1200E4R | PDG54K1200E4R | PDG52K1200KNSN | PDG53K1200KNSN | PDG54K1200KNSN |
| 65 | 150 | PDG22M0150TFF | PDG23M0150TFF | PDG24M0150TFF | PDG22M0150KNSN | PDG23M0150KNSN | PDG24M0150KNSN |
| | 400 | PDG32M0400TFA | PDG33M0400TFA | PDG34M0400TFA | PDG32M0400KNSN | PDG33M0400KNSN | PDG34M0400KNSN |
| | 800 | PDG52M0800E2R | PDG53M0800E2R | PDG54M0800E2 | PDG52M0800KNSN | PDG53M0800KNSN | PDG54M0800KNSN |
| | 1200 | PDG52M1200E4R | PDG53M1200E4R | PDG54MK1200E4R | PDG52M1200KNSN | PDG53M1200KNSN | PDG54M1200KNSN |

Table 2: QCM Switching Device – Molded Case Technical Details, Non-SER

| kAIC @ 480V | Rated Current (A) | Non-Service Entrance | | |
|-------------|-------------------|--------------------------------------|----------------|----------------|
| | | Normal & Alternate Source (Switches) | | |
| | | 2 Pole | 3 Pole | 4 Pole |
| 35 | 150 | PDG22G0150KNSN | PDG23G0150KNSN | PDG24G0150KNSN |
| | 400 | PDG32G0400KNSN | PDG33G0400KNSN | PDG34G0400KNSN |
| 50 | 800 | PDG52K0800KNSN | PDG53K0800KNSN | PDG54K0800KNSN |
| | 1200 | PDG52K1200KNSN | PDG53K1200KNSN | PDG54K1200KNSN |
| 65 | 150 | PDG22M0150KNSN | PDG23M0150KNSN | PDG24M0150KNSN |
| | 400 | PDG32M0400KNSN | PDG33M0400KNSN | PDG34M0400KNSN |
| | 800 | PDG52M0800KNSN | PDG53M0800KNSN | PDG54M0800KNSN |
| | 1200 | PDG52M1200KNSN | PDG53M1200KNSN | PDG54M1200KNSN |

- Models stated above are Eaton Power Defense Molded Case Breakers and/or switches
- An electronic trip unit may be used in place of thermal-magnetic trip unit at LSE discretion
- † 3-pole variant with the center phase open may be used in place of a 2-pole at LSE discretion
- Ground Fault Protection is included on all Service Entrance options 1000A and greater with a system voltage of 480Y/277VAC
- Arcflash Reduction Maintenance System™ (ARMS™) is included on all breakers 1000A and greater
- A higher withstand rating and/or frame rating may be used in place of a lesser rating at LSE discretion
- Contact factory for technical information on switching devices or withstand ratings not listed in Table 1 or Table 2
- Data subject to change without notice

Technical Data

Insulated Case (1600A - 4000A)



Table 3: QCM Switching Device – Insulated Case Technical Details, SER

| kAIC @ 480V | Rated Current (A) | Service Entrance Rated | | | |
|-------------|-------------------|-------------------------|---------------|---------------------------|---------------|
| | | Normal Source (Breaker) | | Alternate Source (Switch) | |
| | | 3 Pole | 4 Pole | 3 Pole | 4 Pole |
| 65 | 1600 | MPS6163VEA162 | MPS6164VEA162 | MPS6163VEANN | MPS6164VEANN |
| | 2000 | MPS6203VEA202 | MPS6204VEA202 | MPS6203VEANN | MPS6204VEANN |
| | 3200 | MPS6323VEA322 | MPS6324VEA322 | MPS6323VEANN | MPS6324VEANN |
| 100 | 1600 | MPSC163VEA162 | MPSC164VEA162 | MPSC163VEA162 | MPSC164VEA162 |
| | 2000 | MPSC203VEA202 | MPSC204VEA202 | MPSC203VEA202 | MPSC204VEA202 |
| | 3200 | MPSC323VEA322 | MPSC324VEA322 | MPSC323VEA322 | MPSC324VEA322 |
| | 4000 | MPSC4N3VEA402 | MPSC4N4VEA402 | MPSC4N3VEA | MPSC4N4VEA |

Table 4: QCM Switching Device – Insulated Case Technical Details, Non-SER

| kAIC @ 480V | Rated Current (A) | Non-Service Entrance | |
|-------------|-------------------|--------------------------------------|---------------|
| | | Normal & Alternate Source (Switches) | |
| | | 3 Pole | 4 Pole |
| 65 | 1600 | MPS6163VEANN | MPS6164VEANN |
| | 2000 | MPS6203VEANN | MPS6204VEANN |
| | 3200 | MPS6323VEANN | MPS6324VEANN |
| 100 | 1600 | MPSC163VEA162 | MPSC164VEA162 |
| | 2000 | MPSC203VEA202 | MPSC204VEA202 |
| | 3200 | MPSC323VEA322 | MPSC324VEA322 |
| | 4000 | MPSC4N3VEA | MPSC4N4VEA |

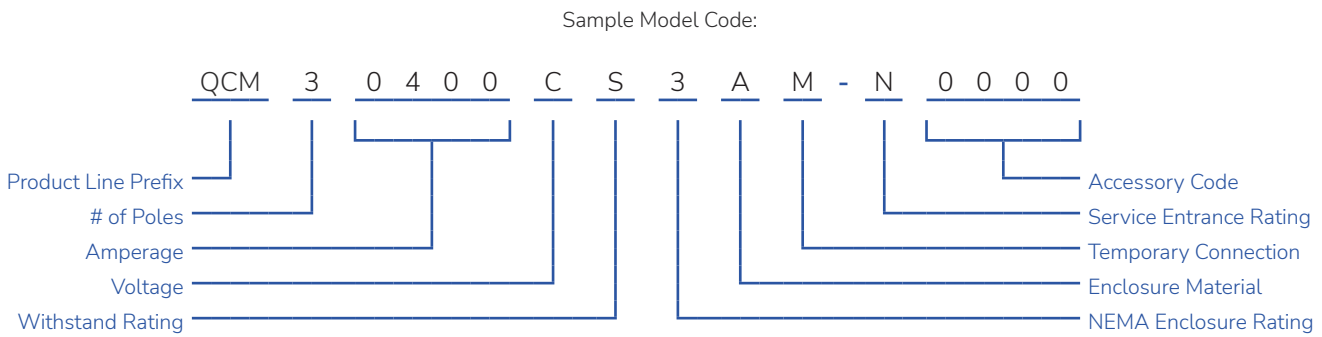
- Models stated above are Eaton® Magnum PXR® Low Voltage Power Circuit Breakers and/or switches
- Ground Fault Protection is included on all Service Entrance options with a system voltage of 480Y/277VAC
- Arcflash Reduction Maintenance System™ (ARMS™) is included on all breakers
- A higher withstand rating and/or frame rating may be used in place of a lesser rating at LSE discretion
- Contact factory for technical information on switching devices or withstand ratings not listed in Table 1 or Table 2
- Data subject to change without notice

QCM Selection Guide

Characters & Designations



The QCM product line has a structured, smart-style model code ordering system. The complete model code is composed of 18 customer-selected characters. Each character identifies a feature or function of the design. The first thirteen characters of the model code define the basic configuration. The five characters that follow identify the service entrance rating as well as accessories.



QCM Selection Guide

Model Code Configuration



Number of Poles

Following the QCM prefix of the model code is the number of poles. Available in configurations of 2-pole, 3-pole, and 4-pole, this selection is dependent on the system voltage.

Table 5: Number of Poles

| Poles | Alpha Numeric |
|-------|---------------|
| 2 | 2 |
| 3 | 3 |
| 4 | 4 |

Amperage

With exception of the 150A model, standard sizes of the QCM are available in 400A increments through 4000A. Contact the factory for alternate amperages.

Table 6: Amperage Codes

| Amps | Alpha Numeric |
|-------|---------------|
| 150A | 0150 |
| 400A | 0400 |
| 800A | 0800 |
| 1200A | 1200 |
| 1600A | 1600 |
| 2000A | 2000 |
| 3200A | 3200 |
| 4000A | 4000 |

Voltage Code

Identification of the voltage determines the color of camlock receptacles (per NEC standard), as well as control voltage circuits and service entrance requirements (when applicable).

Table 7: Voltage Codes

| Voltage | Phase/Wire | Alpha Numeric |
|-------------|------------|---------------|
| 120/240VAC | 1 Ph 3W | A |
| 208Y/120VAC | 3 Ph 4W | B |
| 480Y/277VAC | 3 Ph 4W | C |
| 120/240VAC | 3 Ph 4W | G |
| 480VAC | 3 Ph 3W | K |

Withstand Rating

The below tables are based on UL 489 & 1066 Switching Device Ratings at 480VAC; Lower voltages offer higher kAIC ratings within the same alphanumeric code. Contact the factory for these ratings.

Table 8: Molded Case Withstand Codes

| Amperage | kAIC | Alpha Numeric |
|--------------|---------------|---------------|
| 150A – 400A | 35kAIC @ 480V | S |
| 800A – 1200A | 50kAIC @ 480V | S |
| 150A – 1200A | 65kAIC @480V | H |

Table 9: Insulated Case Withstand Codes

| Amperage | kAIC | Alpha Numeric |
|---------------|----------------|---------------|
| 1600A – 3200A | 65kAIC @ 480V | S |
| 4000A | 100kAIC @ 480V | S |
| 1600A – 3200A | 100kAIC @480V | H |

NEMA Enclosure Rating

The QCM is built with a minimum enclosure rating of NEMA 3R. Additional ratings are listed below.

Table 10: NEMA Code

| Environmental Rating | Alpha Numeric |
|----------------------|---------------|
| NEMA 3R | 3 |

Enclosure Material

The standard enclosure material of the QCM is hot rolled steel with a textured ANSI 61 gray powder coat finish. Additional materials are listed below.

Table 11: Enclosure Code

| Material | Alpha Numeric |
|---|---------------|
| Hot Rolled Steel – ANSI 61 Gray Powder Coat | A |
| Stainless Steel – 304 | C |
| Stainless Steel – 316 | D |

Camlock Connection Style

Because the QCM can only be configured with male, 400A, single pole, UL 1691 Listed receptacles, this character is fixed within the model code.

Table 12: Camlock Style Code

| Connection Type | Ampacity | Alpha Numeric |
|-----------------|----------|---------------|
| Male | 400A | M |

QCM Selection Guide

Accessory Code Configuration



Service Entrance Rating Code

The service entrance option provides over-current protection along with neutral ground links. Service entrance rated QCM's that are 1200A and greater come standard with arc flash reduction features.

Table 13: Service Entrance Rating Code

| Rating | Alpha Numeric |
|----------------------------|---------------|
| Non-Service Entrance Rated | N |
| Service Entrance Rated | S |

Accessory Code Position 1

The first position of the four-digit accessory code is reserved for future expansion to the QCM product line with 0 being the only available character at this time.

Table 14: Accessory Code 1

| Description | Alpha Numeric |
|----------------------------|---------------|
| No Option (For Future Use) | 0 |

Accessory Code Position 2

The second position of the four-digit accessory code offers a Phase Rotation Monitor.

- Phase Rotation Monitor uses a blue indicator light for confirmation of proper phasing when connecting a portable power source (Alternate Source).

Table 15: Accessory Code 2

| Description | Alpha Numeric |
|------------------------|---------------|
| No Option | 0 |
| Phase Rotation Monitor | 2 |

Accessory Code Position 3

The third position of the four-digit accessory code provides the options for Space Heaters and Alternate Source Over Current Protection.

- Space Heaters operate on 120VAC and may include a control power transformer when necessary. Over current protection and an adjustable thermostat are also provided.
- Alternate Source (Source 2) Over Current Protection is available on Service Entrance Rated QCM's and will mirror the overcurrent protection utilized on the Normal Source (Source 1). Reference Table 1, Table 2, Table 3, & Table 4.

Table 16: Accessory Code 3

| Description | Alpha Numeric |
|--|---------------|
| No Option | 0 |
| Space Heater | 1 |
| Alternate Source Over Current Protection | 2 |
| Space Heater, Alternate Source Over Current Protection | 3 |

Accessory Code Position 4

The fourth position of the four-digit accessory code indicates whether the model falls within the parameters of a standard configuration. If a product or combination of accessories cannot be fully configured using the provided tables, the model would be considered custom. Please consult the factory when a custom configuration is required.

Table 17: Accessory Code 4

| Description | Alpha Numeric |
|------------------------|---------------|
| Standard Configuration | 0 |
| Custom Configuration | 1 |

Weights & Dimensions

Molded Case (150A - 1200A)

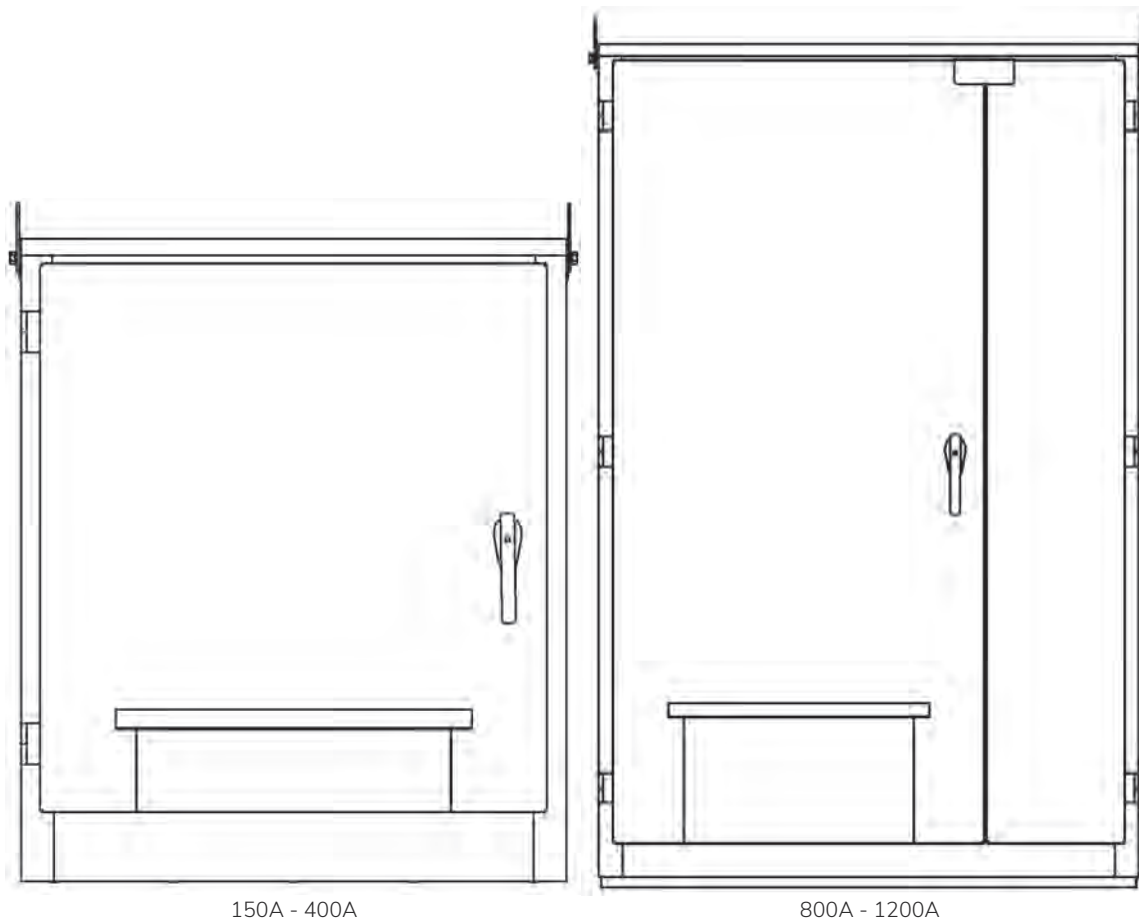


Table 18: Weights & Dimensions - Molded Case¹

| Ampacity | 150 – 400 (Wall Mount Only) | 800 – 1200 (Free Standing) |
|--------------------|-----------------------------|----------------------------|
| Height | 47" | 84" |
| Width | 40" | 54" |
| Depth | 25" | 25" |
| Approximate Weight | 520 lbs | 1250 lbs. |
| Drawing Number | QCM0204-M001 | QCM0812-M001 |

¹ Weights and dimensions are not for construction. Please refer to drawings listed above for complete information

Weights & Dimensions

Insulated Case (1600A - 4000A)

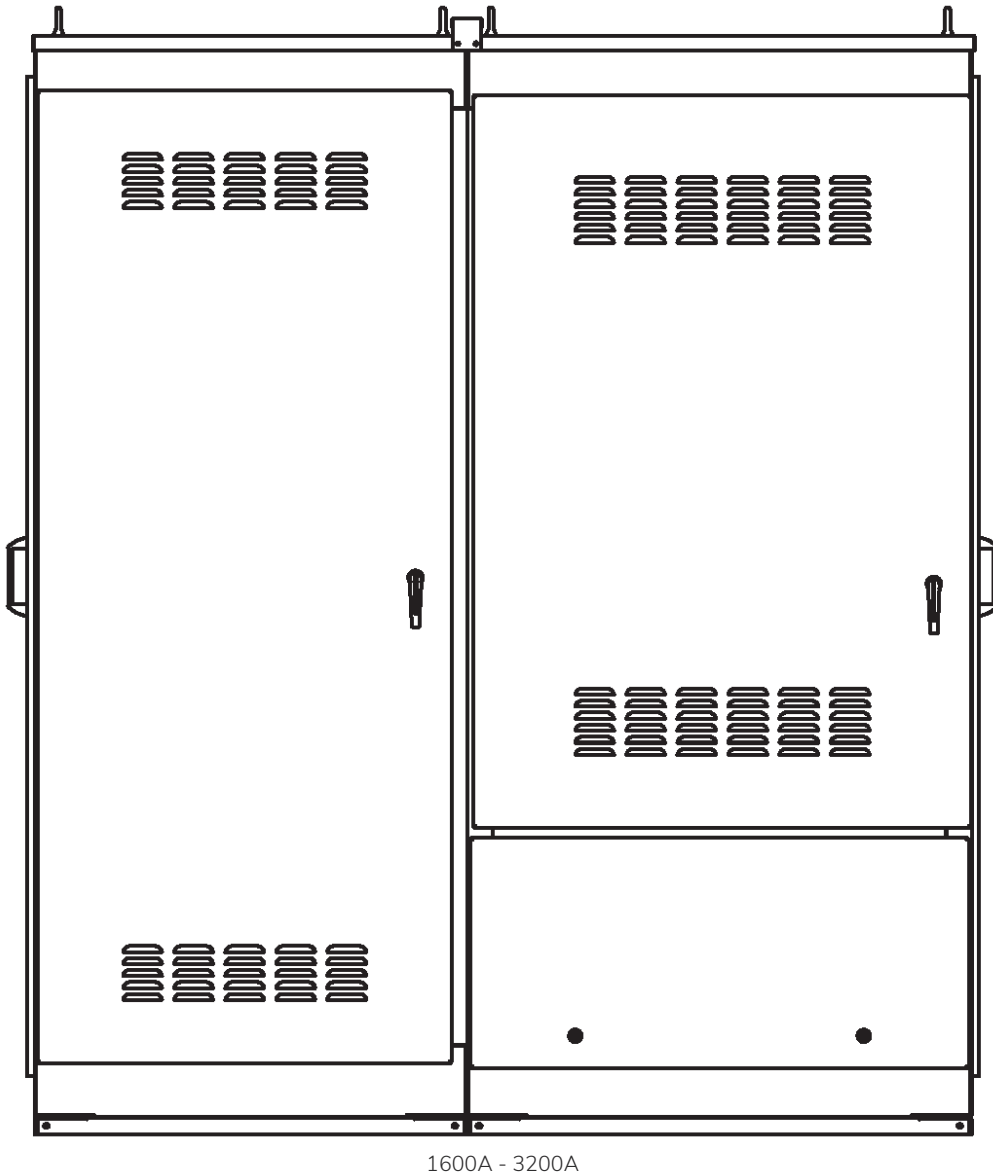


Table 19: Weights & Dimensions - Insulated Case¹

| Ampacity | 1600 - 3200 | 4000 |
|--------------------|-----------------|-----------------|
| Height | Contact Factory | Contact Factory |
| Width | | |
| Depth | | |
| Approximate Weight | | |
| Drawing Number | | |

¹ Weights and dimensions are not for construction. Please refer to drawings listed above for complete information

Connection Information

Lug Size & Quantity



Table 20: Permanent Cable Termination Data

| Ampacity | Location | Standard Lugs: Qty. & Range | Ground |
|----------|---------------|--------------------------------|-----------------|
| 150A | Normal Source | (1) #6 – 350MCM | (1) #14 – 1/0 |
| | Load | (1) #6 – 350MCM | |
| | Neutral | (1) #6 – 350MCM | |
| 400A | Normal Source | (2) #2 – 600MCM | (1) #14 – 1/0 |
| | Load | (2) #2 – 600MCM | |
| | Neutral | (2) #2 – 600MCM | |
| 800A | Normal Source | (4) 300 – 750MCM | (1) #6 – 250MCM |
| | Load | (4) 300 – 750MCM | |
| | Neutral | (4) 300 – 750MCM | |
| 1200A | Normal Source | (4) 300 – 750MCM | (1) #6 – 250MCM |
| | Load | (4) 300 – 750MCM | |
| | Neutral | (4) 300 – 750MCM | |
| 1600A | Normal Source | (5) 300-750MCM | (4) #6 – 350MCM |
| | Load | (5) 300-750MCM | |
| | Neutral | (5) 300-750MCM | |
| 2000A | Normal Source | (6) 300-750MCM | (4) #6 – 350MCM |
| | Load | (6) 300-750MCM | |
| | Neutral | (6) 300-750MCM | |
| 3200A | Normal Source | (8) 300 – 750MCM | (4) #6 – 350MCM |
| | Load | (8) 300 – 750MCM | |
| | Neutral | (8) 300 – 750MCM | |
| 4000A | Normal Source | (12) 300 – 750MCM | (4) #6 – 350MCM |
| | Load | (12) 300 – 750MCM | |
| | Neutral | (12) 300 – 750MCM | |

Contact Us

Lake Shore Electric, LLC.
205 Willis Street
Bedford, OH 44146

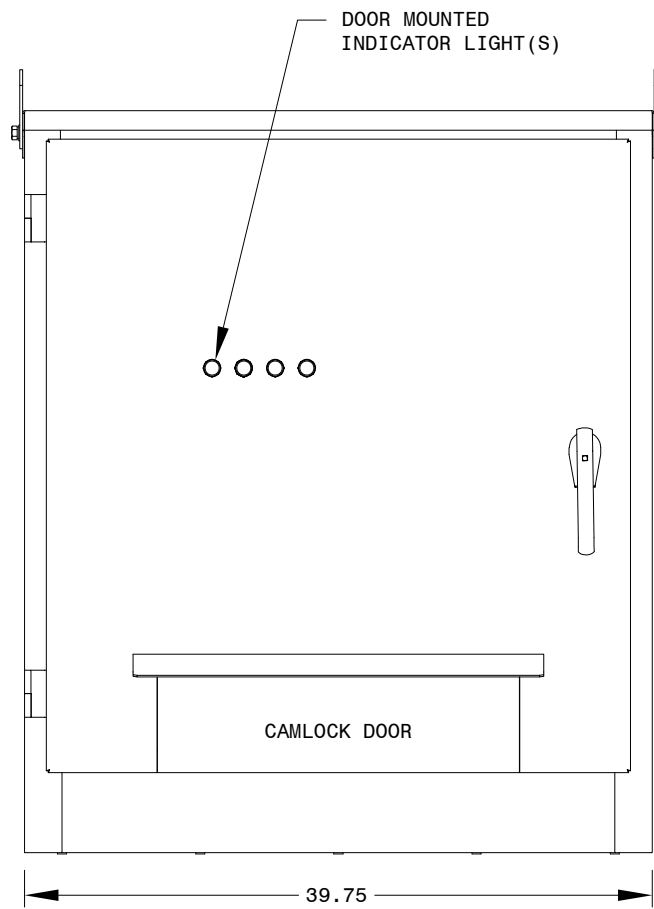
Phone: 440.232.0200
E-Mail: Sales@lake-shore-electric.com

www.lseconnect.com/qcm

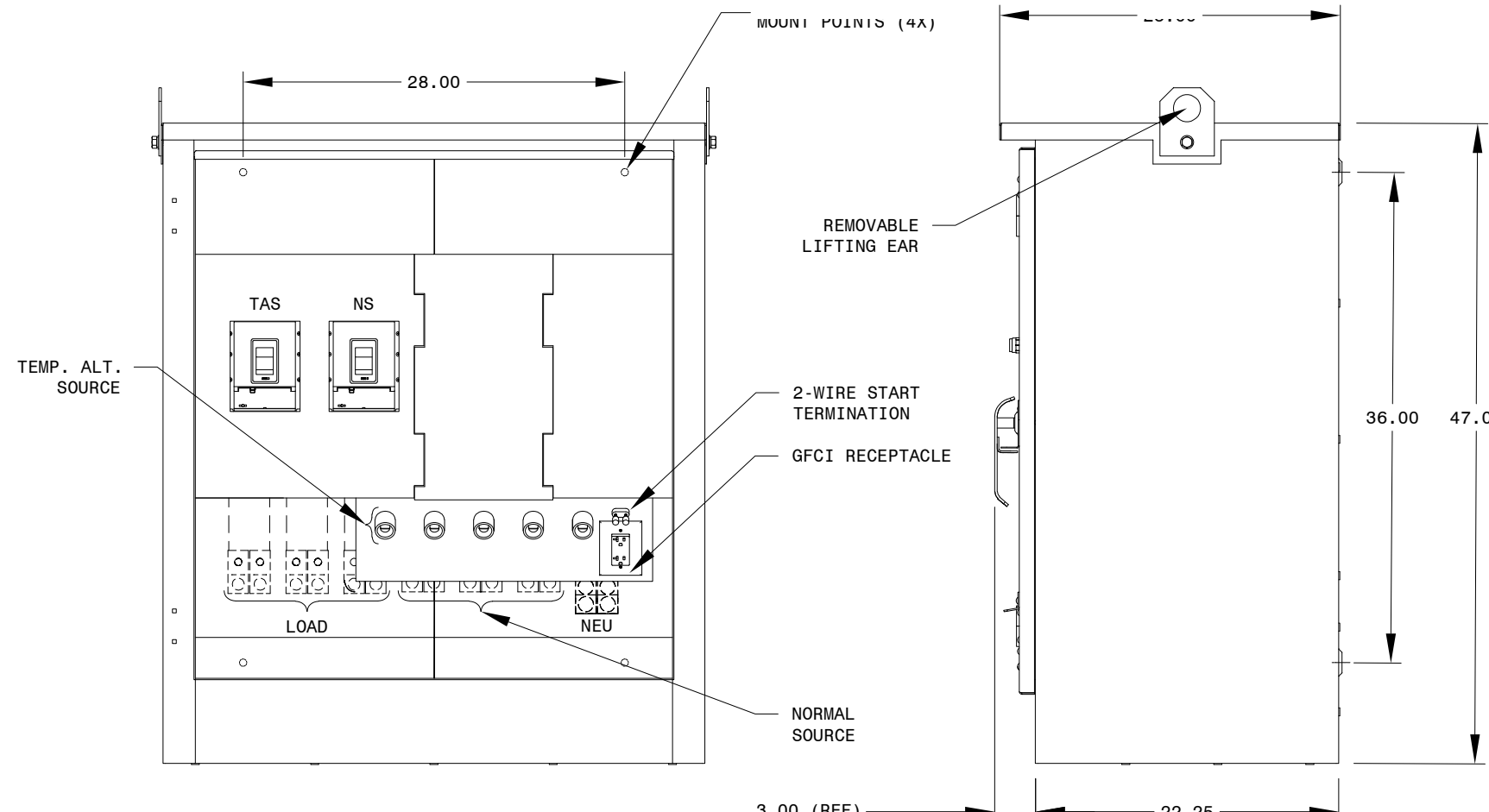
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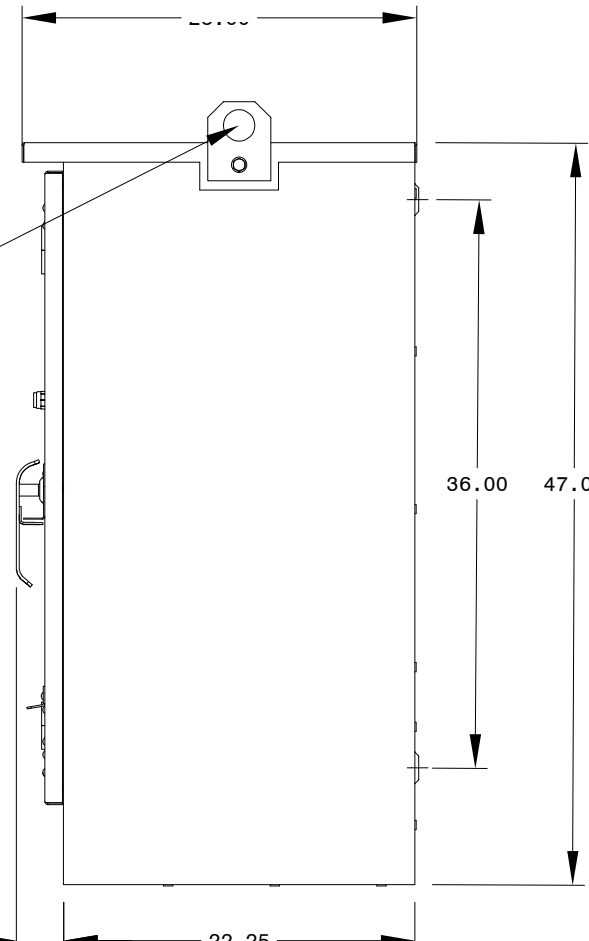
CONNECT



FRONT ELEVATION

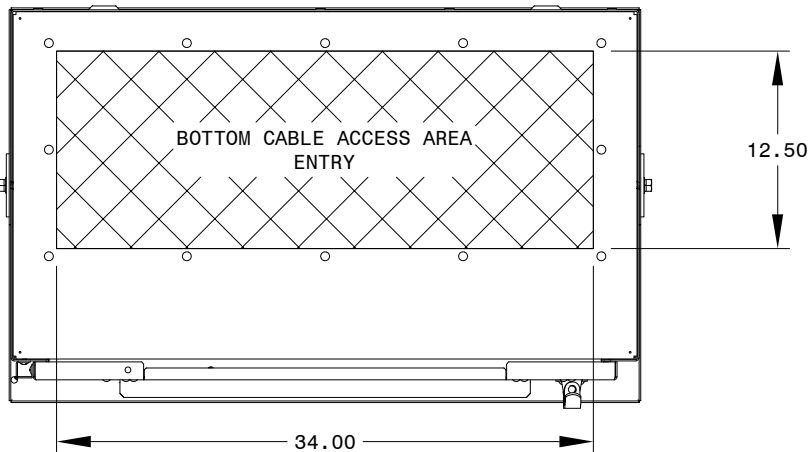
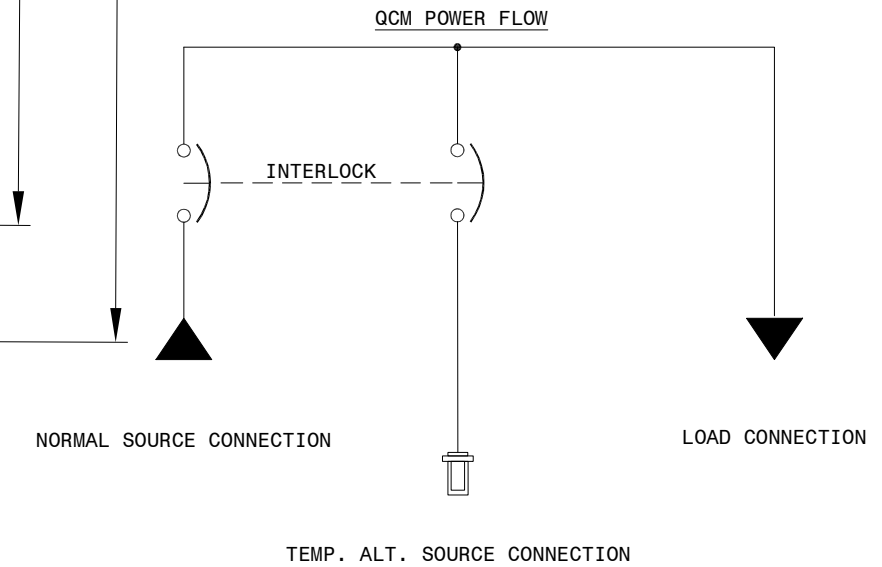


FRONT ELEVATION
DOOR REMOVED



SIDE ELEVATION

- 1) ENCLOSURE CONSTRUCTION: NEMA 3R
- 2) WALL MOUNT
- 3) CABLE ENTRY LOCATION: BOTTOM
- 4) DOOR INFORMATION:
MAIN DOOR: LEFT HINGED, PADLOCKABLE, WITH 3-POINT LATCHING
CAMLOCK DOOR: TOP HINGED, INTERNAL LATCH
- 5) DEADFRONTED
- 6) CAMLOCKS
A) COLOR AND ARRANGEMENT PER NATIONAL ELECTRIC CODE (NEC)
B) MANUFACTURER & SERIES: GROUSE-HINDS "J" SERIES E1016, 400A RATING, ALL AMPACITIES, OR EQUIVALENT.
- 7) ALL DIMENSIONS EXPRESSED IN INCHES
- 8) ESTIMATED WEIGHT: 520LBS



PLAN VIEW
FRONT

CABLE TERMINATIONS FOR LOAD AND NORMAL SOURCE

| AMPERAGE | TYPE | PHASE/NEU | GROUND |
|----------|---------------|---------------|-------------|
| 400A | NORMAL SOURCE | (2) #2-600MCM | (1) #14-1/0 |
| | LOAD | | |
| 150A | NORMAL SOURCE | (1) #6-350MCM | |
| | LOAD | | |

TITLE: QUICK CONNECT W/MANUAL TRANSFER SWITCH 150A-400A
PLAN AND ELEVATION VIEWS

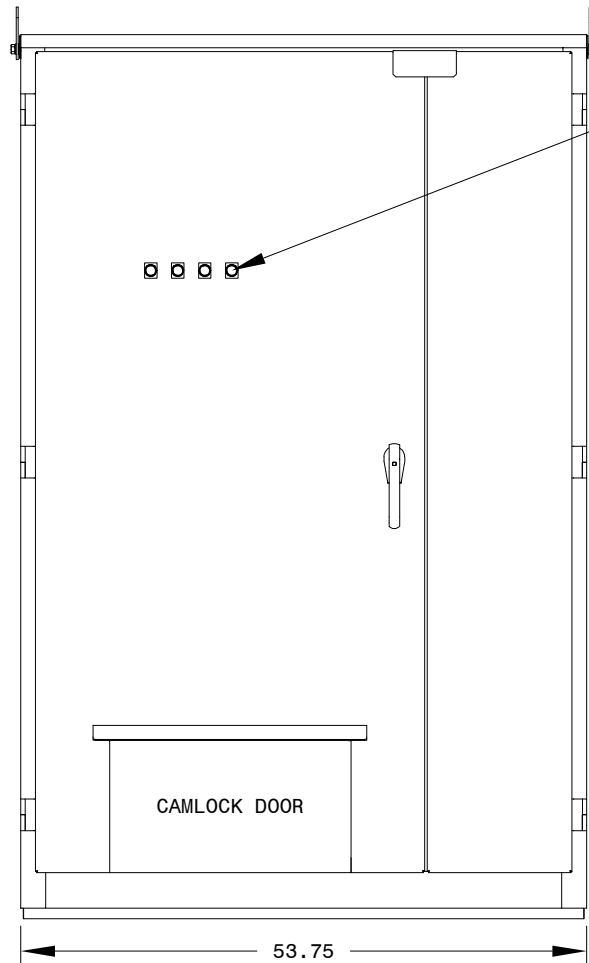
DWG NUMBER QCM0204-M001



SCALE: NTS CREATED BY: DGW APV: - REVISION: B

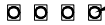
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| REV | DESCRIPTION | BY | APV | DATE |
|-----|--|-----|-----|----------|
| - | ORIGINAL ISSUE | DGW | - | 03/03/22 |
| A | UPDATED DESIGN | DGW | - | 10/25/22 |
| B | UPDATED NOTES, FIXED RECP/2-WIRE CALLOUT | DGW | - | 01/25/23 |
| - | - | - | - | - |
| - | - | - | - | - |
| - | - | - | - | - |
| - | - | - | - | - |



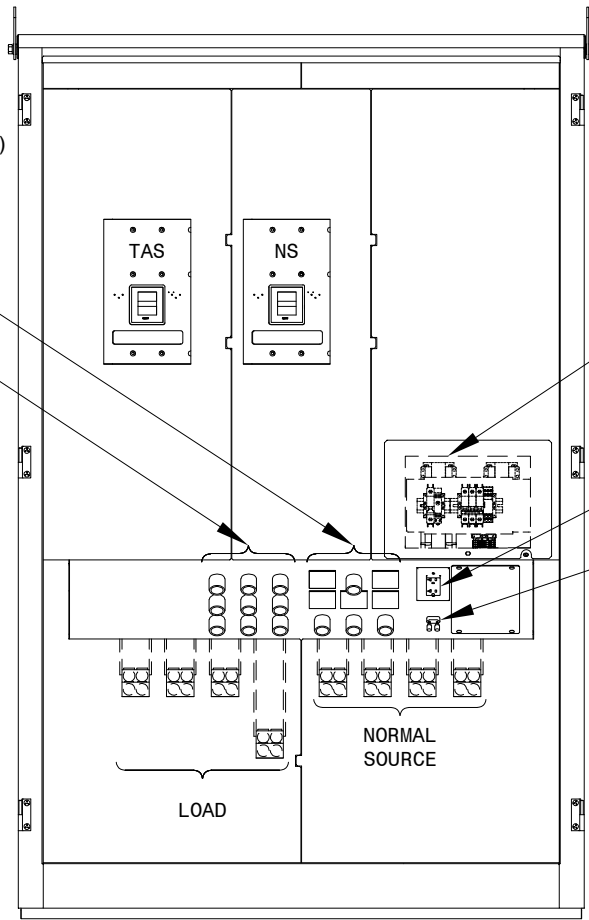
FRONT ELEVATION

DOOR MOUNTED INDICATOR LIGHT(S)



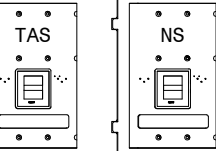
CAMLOCK DOOR

53.75



FRONT ELEVATION DOORS REMOVED

GND/NEU
TEMP. ALT. SOURCE



ELECTRICAL COMPONENTS

GFCI RECEPTACLE

2 WIRE START TERMINATION

LOAD

NORMAL SOURCE

REMOVABLE LIFTING EAR

3.00 (REF)

SIDE ELEVATION

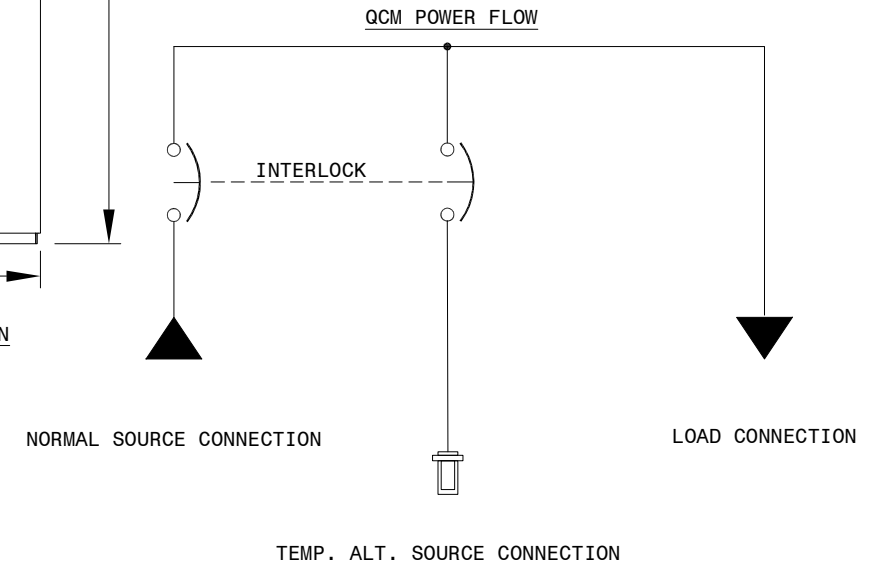
25.00

84.00

22.25

OUTLINE NOTES

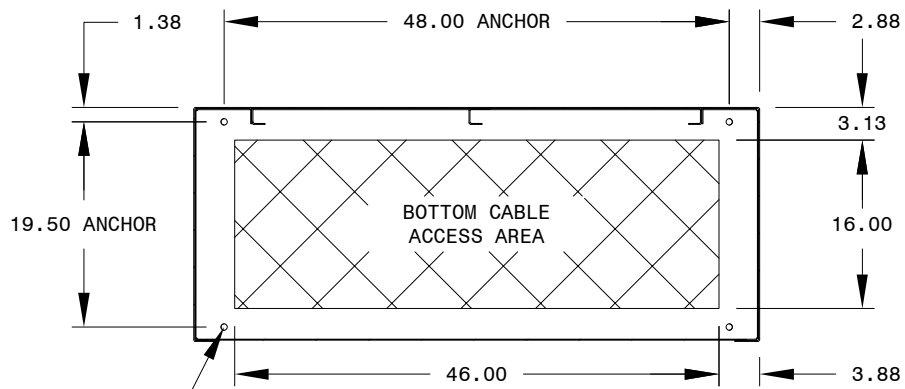
- 1) ENCLOSURE CONSTRUCTION: NEMA 3R
- 2) FREESTANDING
- 3) CABLE ENTRY LOCATION: BOTTOM
- 4) DOOR INFORMATION:
MAIN DOOR: LEFT HAND HINGE, PADLOCKABLE, WITH 3-POINT LATCHING
CAMLOCK DOOR: TOP HINGE, INTERNAL LATCH
- 5) DEADFRONTED
- 6) CAMLOCKS
A) COLOR AND ARRANGEMENT PER NATIONAL ELECTRIC CODE(NEC)
B) MANUFACTURER AND SERIES: GROUSE-HINDS "J" SERIES E1016, 400A RATING, ALL AMPACITIES, OR EQUIVALENT
- 7) ALL DIMENSIONS EXPRESSED IN INCHES
- 8) ESTIMATED WEIGHT: 1250LBS



NORMAL SOURCE CONNECTION

LOAD CONNECTION

TEMP. ALT. SOURCE CONNECTION



PLAN VIEW FRONT

Ø .656 HOLES (x4)

CABLE TERMINATIONS FOR LOAD AND NORMAL SOURCE

| AMPERAGE | TYPE | PHASE/NEU | GROUND |
|------------|---------------|----------------|---------------|
| 800A-1200A | NORMAL SOURCE | (4) 300-750MCM | (1) #6-250MCM |
| | LOAD | (4) 300-750MCM | (1) #6-250MCM |

TITLE: QUICK CONNECT W/MANUAL TRANSFER SWITCH 800A-1200A
PLAN AND ELEVATION VIEW

DWG NUMBER QCM0812-M001

LS LAKE SHORE ELECTRIC LLC
BEDFORD, OHIO U.S.A.

SCALE: NTS CREATED BY: DGW APV: - REVISION: A

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| REV | DESCRIPTION | BY | APV | DATE |
|-----|----------------------|-----|-----|----------|
| - | ORIGINAL ISSUE | DGW | - | 03/03/22 |
| A | NEW DESIGN (RENAMED) | DGW | - | 10/28/22 |
| - | - | - | - | - |
| - | - | - | - | - |
| - | - | - | - | - |
| - | - | - | - | - |
| - | - | - | - | - |