

## SERIES 300

# Dual Purpose Manual Transfer Switch with Integrated Quick Connects (MTDQ) & (MGDQ)

J design, 150 - 600 Amperes

## Operator's Manual

381333-494

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 **DANGER**

DANGER is used in this manual to warn of a hazard situation which, if not avoided, will result in death or serious injury.

 **WARNING**

WARNING is used in this manual to warn of a hazardous situation which, if not avoided, could result in death or serious injury.

 **CAUTION**

CAUTION is used in this manual to warn of a hazardous situation which, if not avoided, could result in minor or moderate injury.

Refer to the outline and wiring drawings provided with the ASCO SERIES 300 MTDQ and MGDQ for all installation details.

### Rating Label

The transfer switch contains a rating label to define operational limits. Refer to the label for specific values.

 **WARNING**

Do not exceed the values on the rating label. Exceeding the rating can cause person injury or serious equipment damage.

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### Catalog Number Identification

A typical Catalog Number is shown below with its elements explained. The example is for a J–design, solid neutral, 3 poles, 400 amps, in Type 3R enclosure:

<b>J</b>	<b>3MDTQ</b>	<b>A</b>	<b>3</b>	<b>0400</b>	<b>N</b>		<b>00</b>	<b>M</b>
<b>Frame</b>	<b>Product</b>	<b>Neutral Code</b>	<b>Phase Poles</b>	<b>Amperes</b>	<b>Voltage</b>		<b>Group Code</b>	<b>Enclosure</b>
J	3MDTQ 3MGDQ	A-solid B-switched	2 3	150 200 230 260 400 600	A 115 B 120 C 208 D 220 E 230 F 240 H 380 J 400	K 415 L 440 M 460 N 480 P 550 Q 575 R 600	00-No Accessory 0X-Accessory 0Z-Custom Accessory	M- Type 3R secure S- Type 3RX secure (316) SS

## Installation

SERIES 300 Dual Purpose Manual Transfer Switches (MTDQ and MGDQ) are factory assembled and tested. Installation requires mounting, connecting power conductors and auxiliary control circuits (if required).

### Supporting Foundation

The supporting foundation for the enclosure must be level and straight. Refer to the applicable enclosure outline drawing included with the transfer switch for all mounting details including door opening space.

If bottom cable entry is used, the foundation must be prepared so that the conduit stubs are located correctly. Refer to the enclosure outline drawing for specified area and location. Provide clearance between field installed conductors and parts of the transfer switch. When a concrete floor is poured, use interlocking conduit spacer caps or a wood or metal template to maintain proper conduit alignment.

### Mounting

Refer to the outline drawing furnished with this switch and mount the SERIES 300 MTDQ and MGDQ according to details and instructions shown.

**NOTICE**

Protect the transfer switch from construction grit and metal chips to prevent malfunction or shortened life of the transfer switch.

Mount the SERIES 300 MTDQ or MGDQ to a rigid supporting structure. Level all mounting points by using flat washers behind the mounting hole locations to avoid distortion of the switch.

## Line Connections

Refer to the wiring diagram provided with the transfer switch. All wiring must be made in accordance with the National Electrical Code and local codes.



De-energize the conductors before making any line or auxiliary circuitry connections. Be sure that Source 1 and Source 2 line connections are in proper phase rotation. Place engine generator starting control(s) in the OFF position. Make sure all engine generator(s) are not in operation.

### Testing Power Conductors

Do not connect the power conductors to the transfer switch until they are tested. Installing power cables in conduit, cable troughs and ceiling-suspended hangers often requires considerable force. The pulling of cables can damage insulation and stretch or break the conductor's strands. For this reason, after the cables are pulled into position, and before they are connected, they should be tested to verify that they are not defective or have been damaged during installation.

### Connecting Power Conductors

After the power conductors have been tested, connect them to the appropriate terminals on the transfer switch as shown on the wiring diagram provided. Make sure the conductors being installed are suitable for use with the terminals provided on the transfer switch. Standard terminals are solderless, screw type and will accept the wire sizes and types listed on the drawings provided with the transfer switch. Be careful when stripping insulation from the cables; avoid nicking or ringing the conductor. Remove surface oxides from conductors by cleaning with a wire brush. When aluminum conductors are used, apply joint compound to them. Tighten terminals to the torque specified on the rating label.

**Dual Purpose Manual Transfer Switch with Integrated Quick Connects contains 16 Series quick connects which provides a connecting means for connecting a portable generator.**

Figure 1



Quick connects for Portable Generator connection are located on the Source 2 (emergency) side of this MTDQ or MGDQ. (See Figure 1)

### Making Quick Connect Connections

#### NOTICE

MGDQ variants provide a protection breaker between the portable generator 16 Series connectors and switch.

1. Open MTDQ or MGDQ chamber door.
2. Feed ground (green) cable through trap door located on the bottom of the unit.
3. Complete the Connection Proper connection (See Figure 2):
  - A. Grasp connector jacket and firmly insert cam connector into cam plug.
  - B. Push on cam connector jacket until connector fully seats in cam plug.
  - C. Rotate cam connector jacket counterclockwise until it stops.

Figure 2



4. Complete the Neutral (white) connection Proper connection (See Figure 2):
  - A. Grasp connector jacket and firmly Insert cam connector into cam plug.
  - B. Push on cam connector jacket until connector fully seats in cam plug.
  - C. Rotate cam connector jacket counterclockwise until it stops.
5. Complete the Phase (hot) connections:
  - A. Should the phase rotation of the generator and utility power match, connect the Hots as follows:

#### Generator Hot ASCO SERIES 300 MTDQ or MGDQ

A	A
B	B
C	C

#### NOTICE

Should the phase rotation of the generator and utility power NOT match, connect the Hots as follows:

#### Generator Hot ASCO SERIES 300 MTDQ or MGDQ

A	B
B	A
C	C

6. Proper connection (See Figure 1):
  - A. Grasp connector jacket and firmly insert cam connector into cam plug.
  - B. Push on cam connector jacket until connector fully seats in cam plug.
  - C. Rotate cam connector jacket counterclockwise until it stops.
7. Make sure all connections are right and secure:
 

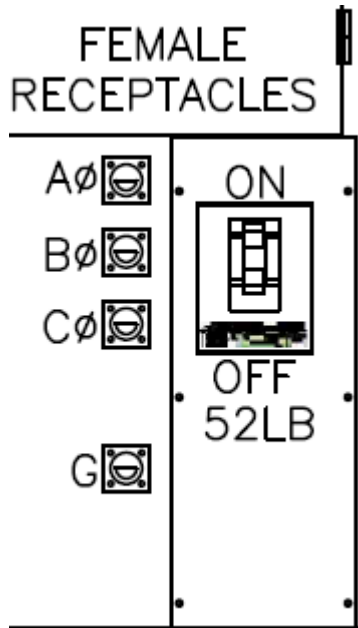
**Close MTDQ or MGDQ chamber door, and secure allowing cables to exit cable trap door at the bottom of the unit.**

#### Disconnection of Quick Connects

1. Verify that the MTDQ or MGDQ is in the OFF or Source 1 position.
2. Disconnect the Phase (hot) connections, beginning with the furthest to the left.
3. Disconnect the Neutral (white) connection.
4. Disconnect the Ground (green) connections.

**Dual Purpose Manual Transfer Switch with Integrated Quick Connects contains a disconnect breaker and 16 Series quick connects which provides a connecting means for connecting a Load Bank.**

Figure 3



**Quick connects for Load Bank are located on the Source 1 side of this MTDQ or MGDQ.**

(See Figure 3)

**⚠ DANGER**

Ensure circuit breaker is OFF and the connectors are locked out from Source power prior to connection.

1. Open MTDQ OR MGDQ chamber door.
2. Feed ground(green) cable through trap door located on the bottom of the unit.
3. Complete the Connection Proper connection (See Figure 2):
  - A. Grasp connector jacket and firmly insert cam connector into cam plug.
  - B. Push on cam connector jacket until connector fully seats in cam plug.
  - C. Rotate cam connector jacket counterclockwise until it stops.

Figure 4



4. Complete the hot connections connection Proper connection(See Figure 4):
  - A. Grasp connector jacket and firmly Insert cam connector into cam plug.
  - B. Push on cam connector jacket until connector fully seats in cam plug.
  - C. Rotate cam connector jacket counterclockwise until it stops.
5. Make sure all connections are right and secure.

**Close MTDQ OR MGDQ chamber door, and secure allowing cables to exit cable trap door at the bottom of the unit.**

**Disconnection of Quick Connects**

1. Ensure circuit breaker is OFF and the connectors are locked out from Source power prior to connection.
2. Disconnect the Phase (hot) connections.
3. Disconnect the Ground (green) connections.

# Manual Operation Procedure

The SERIES 300 MTDQ and MGDQ have an external manual operating handle on the front left of the enclosure. Observe the switch position indicators - SOURCE 1, SOURCE 2 and DISCONNECTED. See Figures 5, 6, 7 and 8.



Close the transfer switch enclosure door and tighten the screws before you use the manual operating handle.

1. Operate the manual operating handle to DISCONNECT the load or transfer to SOURCE 1 or SOURCE 2. The selected switch position is indicated with a yellow indicator window. See Figures 5, 6, 7 and 8.
2. Provision for a padlock (not provided) allows the manual operating handle to be locked in the SOURCE 1, SOURCE 2 or DISCONNECTED position.

## Operation of the Transfer Switch



Operate the transfer switch only with the enclosure door closed!

### To Transfer from **SOURCE 1 to DISCONNECTED**:

Pull handle out.  
Turn handle counterclockwise until **DISCONNECTED** position is indicated.



Figure 5. DISCONNECTED (from SOURCE 1) position indicator

### To Transfer from **DISCONNECTED to SOURCE 2**:



Push handle in.  
Turn handle counterclockwise until **SOURCE 2** position is indicated



Figure 6. SOURCE 2 position indicator

### To Transfer from **SOURCE 2 to DISCONNECTED**:



Push handle in.  
Turn handle clockwise until **DISCONNECTED** position is indicated.



Figure 7. DISCONNECTED (from SOURCE 2) position indicator

### To Transfer from **DISCONNECTED to SOURCE 1**:



Pull handle out.  
Turn handle clockwise until **SOURCE 1** position is indicated.



Figure 8. SOURCE 1 position indicator

## Testing & Service

### Transfer Test

Operate the transfer switch monthly to ensure proper operation.

### Preventive Maintenance

Reasonable care in preventive maintenance will insure high reliability and long life for the SERIES 300 MTDQ and MGDQ.

An annual preventive maintenance program is recommended.

ASCO Power Services, Inc. is ASCO Power Technologies service organization for the United States and Canada. Call 1-800-800-2726 (ASCO) to request a service call and information on preventive maintenance agreements.

### Annual Inspection Checklist



Hazardous voltage capable of causing shock, burns, or death is used in this switch!

- **Clean the enclosure.** Brush and vacuum away any excessive dust accumulation. Remove moisture with a clean cloth.
- **Check the transfer switch contacts.** De-energize all sources, then remove the transfer switch barriers and check contact condition. The non-replaceable main contacts are designed to last the life of the transfer switch. Reinstall the barriers carefully.
- **Maintain transfer switch lubrication.** Under normal operating conditions no further lubricating is required. Renew factory lubrication if the switch is subjected to severe dust or abnormal operating conditions.
- **Check all cable connections by either thermal measuring or monitoring, or mechanical check. If any connections are loose & retighten them. See Page 4.**

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