Transfer Switch Ratings
- Voltage: 240/120 VAC Single-Phase 60 Hz
- Current: 200 Amps

Transfer Switch Enclosure
- NEMA 3R for indoor or outdoor installation
- Handle can be secured with a padlock
- Wall mounted

Codes and Standards
- UL1008
- UL508
- NEC 700
- NEC 701

Transfer Switch Features
- Service entrance rated transfer switch with generator selection interlock
- Kohler® MPAC® 1500 controller
- Service entrance rated to 42 kAIC
- Standard-transition transfer time less than 100 milliseconds (6 cycles @ 60 Hz)
- Silver alloy main contacts
- Front-accessible contacts for easy inspection
- Electrically operated, mechanically held mechanism
- Reliable, field-proven solenoid mechanism
- Switching mechanisms lubricated for life
- Internal manual operating handle
- Gold-flashed engine start contacts rated 2 amps @ 30 VDC/250 VAC
- Main shaft auxiliary position-indicating contacts (rated 10 amps @ 32 VDC/250 VAC)
- Optional cam lock box for connection and disconnection of mobile generator sets without tools is available. See page 2 for more information.

Generator Selector Interlock
- Select between the onsite generator and emergency backup generator
- Manual mechanical interlock allows selection of one source at a time
- Accessible through the panel when the door is open

Surge Protection
- Surge protection reduces transient voltages to harmless levels
- Connected to load terminals of transfer switch
- Replaceable without disconnecting power
- 160kA max surge current, I_{max}
- 5kA lightning current, I_{imp} (per IEC 61643-11)
- 500V voltage protection rating
- High-performance EMI/RFI filtering: -75dB maximum 100 kHz to 100 MHz
- Protection modes: L-L, L-N, L-G, N-G
- Thermal and short circuit protected
- 200kA short circuit current rating
- LED status indicators
- Remote contacts for customer-supplied status indicators: Form C (NO, NC, C) 60 W DC, 120 VAC, 3A max.
- Audible alarm, 90 dB
- Listed to UL 1449, Edition 3
Optional Cam Lock Box

Features
- Shipped loose for choice of wall mounting or ATS mounting
- Hinged door can be secured with a padlock
- UL1008 listed (Transfer Switch Accessory)
- 5kA short circuit rating
- 180° twist on/off single-pole receptacles
- NEMA 3R enclosure for outdoor installation
- Dead front covers load wiring
- Hinged lower door swings open for mobile generator cable entry, secures closed when not in use

Cam Lock Connectors
- Four color-coded receptacles: black (phase), red (phase), white (neutral), green (ground)
- UL listed twist and lock receptacle
- Single phase, 200A/240V application
- Male receptacles installed in box
- For use with Crouse-Hinds E1016 series female connectors (customer supplied)
- Deutsch connector
- 15.2 m (50 ft.) alarm cable

MPAC® 1500 Controller Features

User Interface LED Indicators
- Contactor position: source N and source E
- Source available: source N and source E
- Service required (fault indication)

LCD Display
- System status
- Line-to-line voltage
- Active time delays
- Source frequency
- System settings
- Common alarms
- Inputs and outputs
- Faults
- Time/date
- Address
- Event history
- Maintenance records
- Exerciser schedule
- Exerciser mode
- Time remaining on active exercise

Dynamic Function Tactile Keypad Operations
- Scroll up/down/forward/back
- Increase/decrease/save settings
- End time delay
- Start/end test or exercise
- Reset fault
- Lamp test

DIP Switches
- Maintenance mode
- Password disable

Main Logic Board Inputs and Outputs
- Two (2) programmable inputs
- Two (2) programmable outputs, isolated form C (SPDT) contacts rated 1 amp @ 30 VDC, 500 mA @120 VAC

Communications
- Modbus communication with isolated RS-485 port
- RJ-45 connector for 10/100 ethernet connection
- Modbus® RTU and Modbus® TCP/IP protocols (Modbus® register map available)
- USB port with read/write capability for file transfer

Event History
- View up to 99 time and date-stamped events on the display

Modbus® is a registered trademark of Schneider Electric.
MPAC® 1500 Programmable Features

Programmable Settings
- Automatic override on generator failure (loaded test and exercise)
- Exerciser: calendar mode, loaded/unloaded up to 21 events
- Overvoltage and undervoltage pickup and dropout settings, both sources
- Overfrequency and underfrequency pickup and dropout settings, Emergency source
- In-phase monitor: enable/disable and phase angle
- Passwords, system and test
- Peak shave delay enable/disable
- Remote test: loaded/unloaded
- Resettable historical data
- Time, date, automatic daylight saving time enable/disable
- Time delays (see table)
- Test: loaded/unloaded/auto load (1-60 minutes)
- Transfer commit/no commit

Programmable Inputs
- Inhibit transfer
- Peak shave/area protection input
- Remote common fault
- Remote test
- Remote end time delay
- Remotely monitored inputs, two (2) available

Programmable Outputs
- Common alarm events
- Contactor position
- Exercise active
- Failure to acquire standby source
- Failure to transfer
- Generator engine start
- In-phase monitor synch
- Load bank control
- Loss of phase fault, source N and E
- Maintenance mode
- Non-emergency transfer
- Over/underfrequency faults, source N and E (generator)
- Over/undervoltage faults, source N and E
- Peak shave/area protection active
- Preferred source supplying load
- Software-controlled relay outputs (two maximum)
- Source available, preferred and standby
- Standby source supplying load
- Test active
- Transfer switch auxiliary contact fault
- Transfer switch auxiliary contact open

Exerciser
Set up to 21 exercises with the following programmable parameters:
- Loaded or unloaded
- Frequency
- Time of day
- Day of the week
- Exercise duration

<table>
<thead>
<tr>
<th>Voltage and Frequency Sensing</th>
<th>Parameter</th>
<th>Default</th>
<th>Adjustment Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undervoltage dropout</td>
<td>90% of pickup</td>
<td>75% - 98%</td>
<td></td>
</tr>
<tr>
<td>Undervoltage pickup</td>
<td>90% of nominal</td>
<td>85% - 100%</td>
<td></td>
</tr>
<tr>
<td>Overvoltage dropout</td>
<td>115% of nominal</td>
<td>106% - 135%</td>
<td></td>
</tr>
<tr>
<td>Overvoltage pickup</td>
<td>95% of dropout</td>
<td>95% - 100%</td>
<td></td>
</tr>
<tr>
<td>Voltage dropout time</td>
<td>0.5 sec.</td>
<td>0.1 - 9.9 sec.</td>
<td></td>
</tr>
<tr>
<td>Underfrequency dropout</td>
<td>99% of pickup</td>
<td>95% - 99%</td>
<td></td>
</tr>
<tr>
<td>Underfrequency pickup</td>
<td>90% of nominal</td>
<td>80% - 95%</td>
<td></td>
</tr>
<tr>
<td>Overfrequency dropout</td>
<td>101% of pickup</td>
<td>101% - 115%</td>
<td></td>
</tr>
<tr>
<td>Overfrequency pickup</td>
<td>110% of nominal</td>
<td>105% - 120%</td>
<td></td>
</tr>
<tr>
<td>Frequency dropout time</td>
<td>3 sec.</td>
<td>0.1 - 15 sec.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Adjustable Time Delays</th>
<th>Time Delay</th>
<th>Default</th>
<th>Adjustment Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine start</td>
<td></td>
<td>3 sec.</td>
<td>0 - 6 sec.</td>
</tr>
<tr>
<td>Engine cool down</td>
<td></td>
<td>5 min.</td>
<td></td>
</tr>
<tr>
<td>Fail to acquire standby source</td>
<td></td>
<td>1 min.</td>
<td></td>
</tr>
<tr>
<td>Transfer, preferred to standby</td>
<td></td>
<td>3 sec.</td>
<td></td>
</tr>
<tr>
<td>Transfer, standby to preferred</td>
<td></td>
<td>15 min.</td>
<td></td>
</tr>
<tr>
<td>Fail to synchronize</td>
<td></td>
<td>60 sec.</td>
<td>10 sec - 15 min.</td>
</tr>
<tr>
<td>Auto load test duration</td>
<td></td>
<td>30 min.</td>
<td>1 sec - 60 min.</td>
</tr>
</tbody>
</table>

Load Control Time Delays:
- Pretransfer to preferred: 0 sec.
- Post-transfer to preferred: 0 sec.
- Pretransfer to standby: 0 sec.
- Post-transfer to standby: 0 sec.

Note: Time delays are adjustable in 1 second increments, except as noted.
## Transfer Switch Specifications

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating temperature:</td>
<td>−20°C to 70°C (−4°F to 158°F)</td>
</tr>
<tr>
<td>Storage temperature:</td>
<td>−40°C to 85°C (−40°F to 185°F)</td>
</tr>
<tr>
<td>Humidity:</td>
<td>5 to 95% noncondensing</td>
</tr>
</tbody>
</table>

## Transfer Switch Dimensions and Weight

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>1219 mm (48 in.)</td>
</tr>
<tr>
<td>Width</td>
<td>813 mm (32 in.)</td>
</tr>
<tr>
<td>Depth</td>
<td>330 mm (13 in.)</td>
</tr>
<tr>
<td>Weight</td>
<td>114 kg (250lbs.)</td>
</tr>
</tbody>
</table>

* Transfer switch only