



Model KCS with Decision-Maker® MPAC 1200 Controller

Decision-Maker® MPAC 1200 Controller Standard Features

- Microprocessor-based controller
- Environmentally sealed user interface
- LCD display, 4 lines x 20 characters, backlit
- Dynamic function keypad with tactile feedback pushbuttons allows complete programming and viewing capability at the door
- LED indicators: Source available, transfer switch position, service required (fault), and not in auto
- Broadrange voltage sensing (208–600 VAC) on all phases
- Phase-to-phase sensing and monitoring with 0.5% accuracy on both sources
- Frequency sensing with 0.5% accuracy on both sources
- Anti-single phasing protection
- Phase rotation sensing for three-phase systems
- Real-time clock with automatic adjust for daylight saving time and leap year
- Run time clock and operation counter
- Time-stamped event log
- Fail-safe transfer for loaded test and exercise functions
- DIP switches: password disable and maintenance
- Isolated RS-485 ports for Modbus connections (9.6, 19.2, and 57.6 kbps)
- Modbus® RTU protocol (Modbus register map available)
- USB port. Connect a personal computer and use Kohler® SiteTech™ software to view events and adjust settings. *
- Available in automatic and non-automatic versions; see supervised transfer control switch on page 5

Programmable Features

- Programming and monitoring methods:
 - Monitoring and password-protected programming at the door using the keypad and display
 - Program using a PC with Kohler® SiteTech™ software (available to Kohler-authorized distributors and dealers)
- Over/undervoltage for all phases of the normal and emergency sources
- Over/underfrequency for the emergency source
- Adjustable time delays
- Load/no load/auto-load test and load/no-load exercise functions
- Programmable inputs and outputs
- Load bank control for exercise or test
- Time-based load control, nine individual time delays for selected loads
- In-phase monitor (3-phase only)
- Password protection, three security levels
- See pages 2 and 3 for additional programmable features

* SiteTech software is available to Kohler-authorized distributors and dealers.

Modbus is a registered trademark of Schneider Electric.

Applicable Models

| Model | Description |
|--|--|
| KCS | Standard-Transition Any Breaker ATS ‡ |
| KCP | Programmed-Transition Any Breaker ATS ‡ |
| KCC | Closed-Transition Any Breaker ATS § |
| KSS | Standard-Transition Specific Breaker ATS ‡ |
| KSP | Programmed-Transition Specific Breaker ATS ‡ |
| ‡ Available with automatic or non-automatic controller | |
| § Available with automatic controller only | |

Decision-Maker® MPAC 1200 Controller Features

User Interface LED Indicators

- Contactor position: source N and source E
- Source available: source N and source E
- Service required (fault indication)
- Not in automatic mode

LCD Display

- System status
- Line-to-line voltage
- Line-to-neutral voltage
- Active time delays
- Source frequency
- Preferred source selection
- System settings
- Common alarms
- Load current, each phase (current sensing kit required)
- 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

Event History

- View time and date-stamped events on the display or on a personal computer equipped with Kohler® SiteTech™ software. *
- Download complete event history files using Kohler SiteTech software and a PC connected to the USB port. *

Main Logic Board Inputs and Outputs

- Two (2) programmable inputs
- Two (2) programmable outputs

Communications

- Optional Ethernet communications with RJ45 connector for 10/100 Ethernet connection
- Isolated RS-485 ports for Modbus communications
- Modbus® RTU and Modbus® TCP/IP protocols (Modbus® register map available)
- USB Port. Use SiteTech software to upload or download files and adjust transfer switch settings *
 - Application software
 - Event history files
 - Language files
 - Parameter settings
 - Usage reports
 - Feature configuration

Programmable Features

- System voltage, 208–600 VAC †
- System frequency, 50/60 Hz †
- Single/three-phase operation †
- Standard/programmed/closed-transition operation †
- Preferred source selection allows the normal or emergency source to be used when both sources are available (alarm module required)
- Phase rotation: ABC/BAC/none selection with error detection
- Overvoltage and undervoltage pickup and dropout settings, both sources
- Overfrequency and underfrequency pickup and dropout settings, Emergency source
- Voltage unbalance, enable/disable
- In-phase monitor: enable/disable and phase angle
- Transfer commit/no commit
- Passwords, system and test
- Time, date, automatic daylight saving time enable/disable
- Time delays (see table)
- Exerciser: calendar mode, loaded/unloaded up to 21 events
- Test: loaded/unloaded/auto load (1–60 minutes)
- Remote test: loaded/unloaded
- Automatic override on generator failure (loaded test and exercise)
- Peak shave delay enable/disable
- Current monitoring (current sensing kit required)
- Load control pre/post-transfer delays, 9 individual time delays for selected loads
- Resettable historical data

* SiteTech software is available to Kohler-authorized distributors and dealers.

† System parameters are factory-set per order.

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Decision-Maker® MPAC 1200 Controller Features, Continued

Programmable Inputs

- Forced transfer to OFF (programmed-transition models only; requires load shed accessory)
- Inhibit transfer
- Low battery voltage (external battery supply module required)
- Peak shave/area protection input
- Remote common fault
- Remote test
- Remote end time delay
- Remotely monitored inputs, four (4) available

Programmable Outputs

- Alarm silenced
- Audible alarm
- Chicago alarm control
- Common alarm events
- Contactor position
- Exercise active
- Failure to acquire standby source
- Failure to transfer
- Generator engine start, source E
- I/O module faults
- In-phase monitor synch
- Load bank control
- Load control active (pre/post transfer delay, up to 9 outputs)
- Loss of phase fault, source N and E
- Low battery fault (external battery supply module required)
- Maintenance mode
- Non-emergency transfer
- Not in automatic mode
- Over/undervoltage faults, source N and E
- Peak shave/area protection active
- Phase rotation error, source N and E
- Preferred source supplying load
- Software-controlled relay outputs (four maximum)
- Source available, preferred and standby
- Standby source supplying load
- Test active
- Transfer switch auxiliary contact fault
- Transfer switch auxiliary contact open
- Voltage unbalance, source N and E

| Voltage and Frequency Sensing | | |
|---|------------------|------------------|
| Parameter | Default | Adjustment Range |
| Undervoltage dropout | 90% of pickup | 75%-98% |
| Undervoltage pickup | 90% of nominal | 85%-100% |
| Overvoltage dropout * | 115% of nominal* | 106%-135% |
| Overvoltage pickup | 95% of dropout | 95%-100% |
| Unbalance enable | Disable | Enable/Disable |
| Unbalance dropout | 20% | 5%-20% |
| Unbalance pickup | 10% | 3%-18% |
| Voltage dropout time | 0.5 sec. | 0.1-9.9 sec. |
| Underfrequency dropout † | 99% of pickup | 95%-99% |
| Underfrequency pickup † | 90% of nominal | 80%-95% |
| Overfrequency dropout † | 101% of pickup | 101%-115% |
| Overfrequency pickup † | 110% of nominal | 105%-120% |
| Frequency dropout time † | 3 sec. | 0.1-15 sec. |
| * 690 volts, maximum. Default = 110% for 600 volt applications. | | |
| † Emergency source only | | |

| Adjustable Time Delays | | |
|---|---------|------------------|
| Time Delay | Default | Adjustment Range |
| Engine start | 3 sec. | 0-6 sec. † |
| Engine cooldown | 5 min. | 0-60 min. |
| Fail to acquire standby source | 1 min. | |
| Transfer, preferred to standby | 3 sec. | |
| Transfer, standby to preferred | 15 min. | |
| Transfer, off to standby | 1 sec. | 1 sec. - 60 min. |
| Transfer, off to preferred | 1 sec. | |
| Fail to synchronize | 60 sec. | 10 sec - 15 min. |
| Auto load test termination after transfer | 1 sec. | 1 sec.-60 min. |
| Load Control Time Delays: | | |
| Pretransfer to preferred | 0 sec. | 0-60 min. |
| 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. | | |
| † Engine start time delay can be extended to 60 minutes with an External Battery Supply Module Kit. | | |

Accessory Modules

The mounting kit holds up to five optional modules.

| Module Current Draw Specifications, mA | |
|--|-----|
| Alarm Module | 75 |
| Standard I/O Module | 75 |
| High Power I/O Module | 100 |
| Maximum Total Current * | 300 |

* If an External Battery Module is installed, there is no current restriction.

Standard Input/Output Module

| Inputs | |
|------------------------|----------------------------------|
| Available Inputs | 2 |
| Input Definition | Contact closure |
| Current | 5 mA Max |
| Connection Type | Terminal Strip |
| Wire Size | #14-24 AWG |
| Max Distance | 700 feet |
| Outputs | |
| Outputs Available | 6 |
| Contact Type | Form C (SPDT) |
| Contact Voltage Rating | 2 A @ 30 VDC 500 mA @ 125 VAC |
| Connection Type | Terminal Strip |
| Wire Size | #14-24 AWG |

High-Power Input/Output Module

| Inputs | |
|------------------------------|--|
| Available Inputs | 2 |
| Input Definition | Contact closure |
| Current | 5 mA Max |
| Connection Type | Terminal Strip |
| Wire Size | #14-24 AWG |
| Max Distance | 700 feet |
| Outputs | |
| Outputs Available | 3 |
| Contact Type | Form C (SPDT) |
| Contact Voltage Rating | 12 A @ 24 VDC 12 A @ 250 VAC 10 A @ 277 VAC 2 A @ 480 VAC |
| Connection Type | Terminal Strip |
| Wire Size | #14-24 AWG |
| Environmental Specifications | |
| Temperature | -40°C to 85°C (-40°F to 185°F) |
| Humidity | 35% to 85% noncondensing |

Alarm Module

- 90 dB Audible alarm
- Any alarm function can be programmed to trigger the audible alarm
- Chicago alarm function
- Preferred source selection
- Supervised transfer control (supervised transfer control switch required)
- Connection for external alarm

| External Alarm Connection Specifications | |
|--|------------------|
| Wire Size | #12-22 AWG Cu |
| Contact Voltage Rating | 500 mA @ 120 VAC |
| | 250 mA @ 240 VAC |

External Battery Supply Module

- Energizes the ATS controls using an external battery when no source power is available
- Allows extended engine start time delays
- Allows the use of any combination of accessory modules (no current draw restriction, maximum of five modules total)
- Connects to one or two batteries, 12 VDC or 24 VDC system
- Current draw, 140 mA @ 12 VDC, 86 mA @ 24 VDC
- Provides low external battery voltage indication to the transfer switch controller
- Reverse-polarity protected

Other Controller Accessories

Accessories are available either factory-installed or as loose kits, unless otherwise noted.

Controller Disconnect Switch

- Disconnects power to the controller without disconnecting the load
- Mounts inside the enclosure

Current Sensing Kit

- Monitor current on all phases with 1% accuracy

Digital Meter

- Measure and display voltage, current, frequency, and power for both sources
- Programmable visual alarms for high voltage, low voltage, and high current
- Three digital outputs
- Serial port for optional network connections
- Password-protected programming menus
- Joystick operation
- Factory-installed

Ethernet Communications

- RJ-45 connector
- Supports Internet Protocol version 4 (IPv4)
- Supports Modbus TCP/IP protocol

Line-to-Neutral Voltage Monitoring

- Monitors all line-to-neutral voltages

Load Shed Kit

- Forced transfer from Emergency to OFF for programmed-transition models
- Customer-supplied signal (contact closure) is required for the forced transfer to OFF function
- Factory-installed only

Padlockable User Interface Cover

- Provides additional protection against unauthorized access
- Cover standard on NEMA 3R enclosures

RSA III Remote Serial Annunciator

- Monitors the generator set
- Monitors ATS common alarm, Normal source, and Emergency source status and connection
- Allows remote testing of the ATS
- For more information about RSA III features and functions, see specification sheet G6-139

Supervised Transfer Control Switch

- Standard on models with non-automatic controls
- Optional for models with automatic controls
- Auto, manual, and transfer positions
- Automatic and non-automatic modes
- Alarm module required

| Supervised Transfer Control Switch Operation for Automatic and Non-Automatic Transfer Switches | | |
|---|---|---|
| Switch Position | Automatic Switches | Non-Automatic Switches |
| AUTO | <ul style="list-style-type: none"> ● Automatically transfers to the standby source, when available, if the preferred source is lost. ● Transfers back to the preferred source when it becomes available. | |
| MANUAL | <ul style="list-style-type: none"> ● Automatically transfers to an available source if the connected source is lost. ● Test, peak shave, and loaded exercise commands will transfer to the standby source. ● Does not automatically transfer back to preferred when both sources are available. | <ul style="list-style-type: none"> ● Does not automatically transfer to an available source when the connected source is lost. ● Test, peak shave, and loaded exercise commands are ignored. ● Does not automatically transfer back to preferred when both sources are available. ● Transfers only when the switch is manually moved to the TRANSFER position as described below. |
| TRANSFER (momentary switch position) | <ul style="list-style-type: none"> ● Does not initiate an engine start sequence. Generator set engine must be signalled to start by an event such as a loss of utility, loaded test, loaded exercise, etc. ● Allows transfer to the other source, if available. An event such as a loss of utility, loaded exercise, or loaded test must first initiate the transfer sequence. ● Time delays will operate. Wait for time delays to expire, or press the End Time Delay button. ● Operates pre- and post-transfer load control time delays if both sources are available. ● MANUAL TRANSFER is displayed when the ATS is ready to transfer. | |

KOHLER CO., Kohler, Wisconsin 53044 USA
Phone 920-457-4441, Fax 920-459-1646
For the nearest sales and service outlet in the
US and Canada, phone 1-800-544-2444
KOHLERPower.com

Kohler Power Systems
Asia Pacific Headquarters
7 Jurong Pier Road
Singapore 619159
Phone (65) 6264-6422, Fax (65) 6264-6455

| Environmental Specifications | |
|-------------------------------------|--------------------------------|
| Operating Temperature | -20°C to 70°C (-4°F to 158°F) |
| Storage Temperature | -40°C to 85°C (-40°F to 185°F) |
| Humidity | 5% to 95% noncondensing |

| Main Board I/O Specifications | |
|--------------------------------------|---------------------------------|
| Output contact type | Isolated form C (SPDT) |
| Output contact rating | 1 amp @ 30 VDC, 500 mA @120 VAC |
| I/O terminals wire size | #12-24 AWG |

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