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SIEMENS

Installation Instructions
Document No. 586-146
July 30, 2008

Modular Equipment Controller (MEC)

Product Description

The Modular Equipment Controller (MEC) is a field panel that mounts to a stable vertical surface or inside an MEC enclosure. All MECs provide an MMI port and contain a PowerPC® processor and 40 or 72 MB of memory. The MEC may either operate stand-alone or communicate with other field panels on the Automation Level Network (ALN). Digital and analog Point Expansion Modules (PXMs) are also available for point expansion.

Port Options

The following ports are available on the MEC, depending on the model number:

- One ALN port for RS-485 connection with other field panels or Insight workstations.
- One Ethernet (10/100) port for IP connection with other field panels or Insight workstations.
- One EXP port (PB) for point expansion capability.
- One MODEM/AEM port for remote ALN connection with the Insight workstation.
- Three P1 Field Level Network (FLN) ports (FLN1, 2, and 3) or one MS/TP FLN port (FLN1).
- One LONWORKS® FLN communication port.

Point Control Options

Models 1101 and 1201 provide 16 DIs, 8 AIs, 4 DOs, and 4 AOs, and HOA switches are not available.

All other models provide 8 DIs, 8 AIs, 8 DOs, and 8 AOs, and HOA switches are either included or optional.

HAND-OFF-AUTO (HOA) Options

Models with HOA switches enable digital outputs to be manually placed into HAND (ON), OFF, or AUTO control. Analog outputs can be placed into AUTO control and nine manual control positions.

For more information on MEC hardware and applications, see the *Modular Equipment Controller Owner's Manual* (125-2183).

Product Numbers

MEC Models with RS-485 ALN (Direct Connect and Auto-Dial)

549-610 MEC Model 1100 (HOA Ready)

549-611 MEC Model 1101 (HOA Not available)

549-612 MEC Model 1110 (HOA Included)

549-613 MEC Model 1200 (EXP, HOA Ready)

549-614 MEC Model 1201 (EXP, HOA Not available)

549-615 MEC Model 1210 (EXP, HOA Included)

549-616 MEC Model 1300 (EXP, MODEM, HOA Ready)

549-617 MEC Model 1310 (EXP, MODEM, HOA Included)

The following models also provide P1 FLN ports:
549-620 MEC Model 1200F (EXP, HOA Ready)

549-621 MEC Model 1210F (EXP, HOA Included)

549-622 MEC Model 1300F (EXP, MODEM, HOA Ready)

549-623 MEC Model 1310F (EXP, MODEM, HOA Included)

The following models also provide a LonWorks® FLN port:
549-640 MEC Model 1200L (EXP, HOA Ready)

549-641 MEC Model 1210L (EXP, HOA Included)

549-642 MEC Model 1300L (EXP, MODEM, HOA Ready)

549-643 MEC Model 1310L (EXP, MODEM, HOA Included)

MEC Models with Ethernet ALN

549-624 MEC Model 1100E (HOA Ready)

549-625 MEC Model 1110E (HOA Included)

549-626 MEC Model 1200E (EXP, HOA Ready)

549-627 MEC Model 1210E (EXP, HOA Included)

The following Ethernet ALN models also provide P1 FLN ports and 72 MB of memory:
549-628 MEC Model 1200EF (EXP, HOA Ready)

549-629 MEC Model 1210EF (EXP, HOA Included)

The following Ethernet ALN models also provide a LONWORKS® FLN port and 72 MB of memory:
549-644 MEC Model 1200EL (EXP, HOA Ready)

549-645 MEC Model 1210EL (EXP, HOA Included)

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BACnet MEC Models

549-630 PWR MEC Model 1100EB I/O (HOA Ready)

549-631 PWR MEC Model 1110EB I/O HOA

549-632 PWR MEC Model 1200EB I/O PB (HOA Ready)

549-633 PWR MEC Model 1210EB I/O PB HOA

The following BACnet models also provide P1 FLN ports or an MS/TP FLN port and 72 MB of memory:
549-634 PWR MEC Model 1200EFB I/O PB FLN (HOA Ready)

549-635 PWR MEC Model 1210EFB I/O PB FLN HOA

The following BACnet models also provide a LONWORKS® FLN port and 72 MB of memory:
549-636 PWR MEC Model 1200ELB I/O PB LON (HOA Ready)

549-637 PWR MEC Model 1210ELB I/O PB LON HOA

Warning/Caution Notations

WARNING:		Personal injury or property damage may occur if you do not perform the procedure as specified.
CAUTION:		Equipment damage or loss of data may occur if you do not follow the procedure as specified.

Required Tools and Materials

- Wire stripper/side cutters
- Phillips screwdriver
- Level
- Tape measure
- Digital multimeter (DMM)

To mount on a surface

- Electric drill
- Black marker
- Four No. 8 × 3/8 self-tapping Phillips screws

To mount on concrete or masonry

- Masonry drill bit
- Four lead wall anchors

If using HOAs for equipment control before the MEC start-up

- Analog point type information has been obtained from the wiring diagram.
- Electro-static discharge (ESD) wrist strap.

Expected Installation Time

20 minutes

NOTE: Additional tasks (for example, running power wiring) may add to your installation time. Refer to the estimating tool for more information.

Prerequisites

- All necessary wiring is pulled.
- If mounting in an MEC or PX series enclosure
  - MEC or PX series enclosure installed.
  - Either the 115V or 230V service box kit or the 192 VA or 384 VA service box assemblies are installed, as applicable.

For more information on the MEC service box, see the *MEC Service Box Installation Instructions* (586-135).

For more information on the PX series enclosures, see the *19" and 34" PX Series Enclosure Assemblies Installation Instructions* (553-130) or the *18" PX Series Enclosure Assembly Installation Instructions* (553-620).

For more information on the PX series service boxes, see the *PX Series Service Box Assemblies Installation Instructions* (553-131).

Installation

There are three options for installation:

- For energy management only, you may mount the MEC on a surface.
- For smoke control applications, mount the MEC inside an MEC enclosure.
- For any application requiring a secure enclosure, mount the MEC inside a listed enclosure along with the matching Service Box and Sidewall Kit, if needed.

CE Compliance Requirements

For installations requiring CE compliance, the MEC must be installed inside a metal enclosure rated at IP20 minimum.

See *APOGEE Wiring Guidelines for Field Panels and Equipment Controllers* (125-3002) for CE compliance wiring requirements.

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CAUTION:
UL Listings require NEC Class I and Class II wiring be kept separate from each other. Use separate conduit and cable tie bars inside the enclosure (see Figure 1) to separate Class I DO wires from all other Class II wiring.

Mounting on a Surface

For energy management applications only

CAUTION:
Do not install the MEC on a vibrating surface (for example, an air handler or ductwork).

1. Align the MEC on the mounting surface.

   NOTE: The MEC must be positioned to provide a 3-inch minimum clearance on both the left and right sides for wires to ports and connectors.

2. Using the mounting ears on the back of the controller as a template, mark the position of the four mounting holes on the surface.
3. Drill the four mounting holes, or start the screws into the marked template holes.
4. Secure the controller using the appropriate mounting hardware for the surface.
5. Terminate wires to both the power connector and the appropriate point connectors.

   For more information, see the *APOGEE Wiring Guidelines for Field Panels and Equipment Controllers* (125-3002).

The installation is now complete.

NOTE: If the optional HOAs are immediately required for equipment control, continue with the section *Using the HOAs Before Start-up*.

Mounting in an MEC Enclosure

Required for smoke control applications

WARNING:
Turn off AC power to the MEC enclosure at the circuit breaker panel.

CAUTION:
Do not install the MEC on a vibrating surface (for example, an air handler or ductwork).

NOTE: **For smoke control applications over Ethernet,** Ethernet capable MECs must be connected to the Ethernet ALN or BACnet/IP ALN through an Ethernet switch UL Listed for Fire Signaling. The panel and the switch must be installed in the same room.

1. Carefully align the MEC on the perforated backplane of the enclosure (Figure 1).

   NOTE: Mount L model MECs in the upper left-hand corner of the enclosure. This allows better access to the ports.

2. Using the rear of the controller as a template, mark the position of the four mounting holes.
3. Start the screws (provided with the enclosure) in the perforated backplane.
4. Place the MEC on the backplane of the enclosure so that the mounting ears rest on the screws and tighten the four screws.
5. Terminate wires to both the power connector and the appropriate point connectors.

   For more information, see the *APOGEE Wiring Guidelines for Field Panels and Equipment Controllers* (125-3002).

The installation is now complete.

NOTE: If the optional HOAs are immediately required for equipment control, continue with the section *Using the HOAs Before Start-up*.

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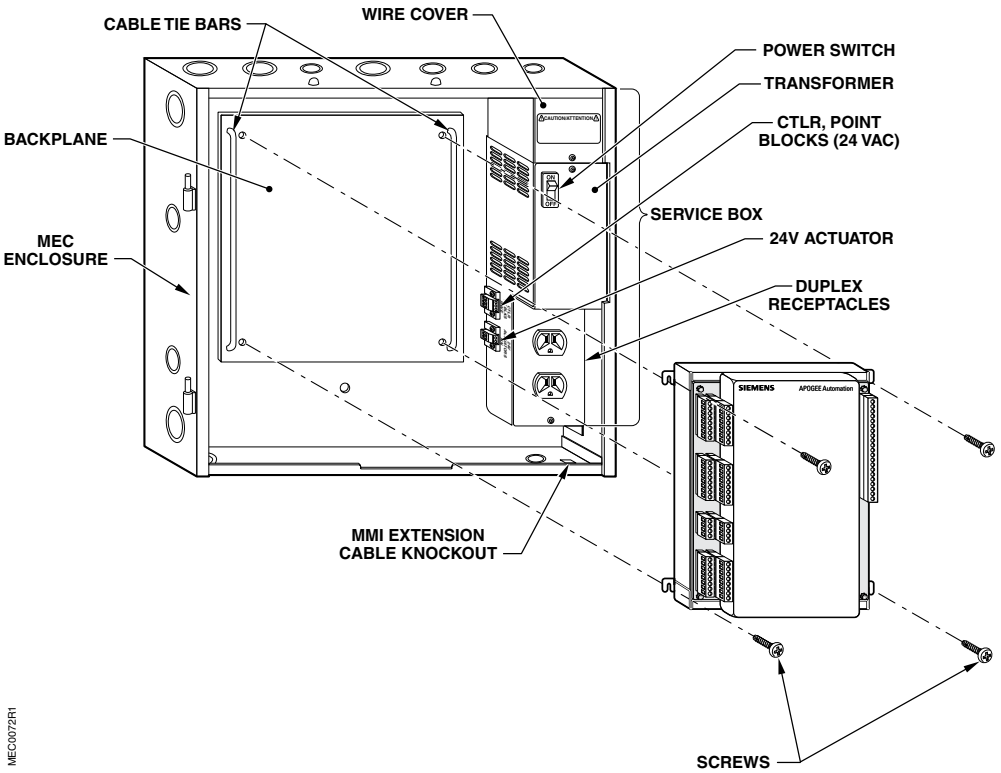


Figure 1. Mounting the MEC Inside an Enclosure (MEC Service Box shown).

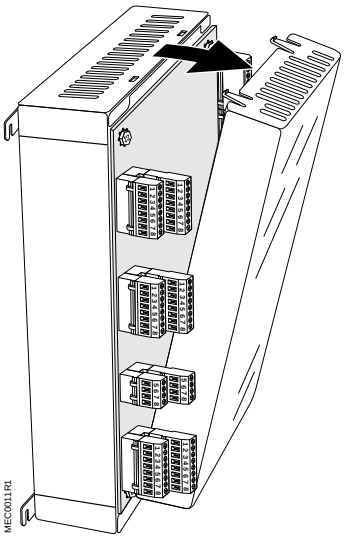


Figure 2. Removing the MEC Front Cover.

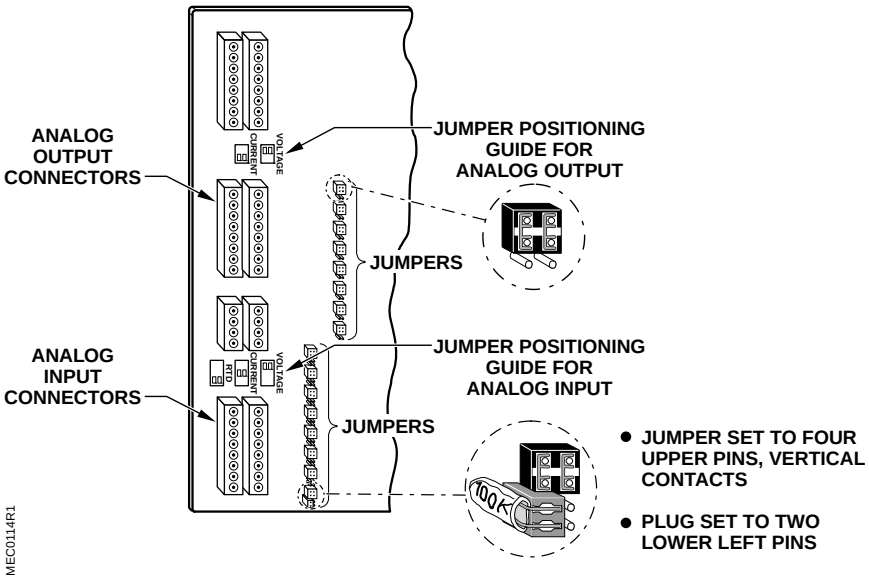


Figure 3. MEC Jumper Locations (Shown with 100K Thermistor Option).

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Using the HOAs Before Start-up

If the HOAs are required for equipment control before the MEC start-up is performed, perform the following procedure to set the analog point jumpers.

CAUTION:
Always wear an electro-static discharge wrist strap and discharge accumulated static before touching field panel components.

NOTE: The jumpers are shipped in the Voltage (V) position. The jumpers must remain in this position when they are not being used.

1. With an ESD wrist strap attached to your wrist and a good earth ground, remove the MEC front cover. See Figure 2.
2. Set the jumpers on the termination board to the desired physical point type for the analog input (AI) and analog output (AO) points. See Figure 3 for the jumper positions.
3. If required, install the MEC 100K Thermistor jumper on the lower left pins of each analog input point that is monitoring a 100K thermistor. See Figure 3 for the jumper positions.

   For more information, see the *MEC 100K Thermistor Option Kit Installation Instructions* (586-679).
4. Connect the HOA switch cable.
5. Replace the MEC front cover.

The HOAs may now be used to control equipment.

HOA Status LEDs

For MECs with HOA switches, a green LED is located below the HOA switches. The LED flashes after start-up, indicating that the switches are in the AUTO position and are functioning correctly.

If any control switch is moved out of AUTO, the light stops flashing and remains on.

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