

APC[®]

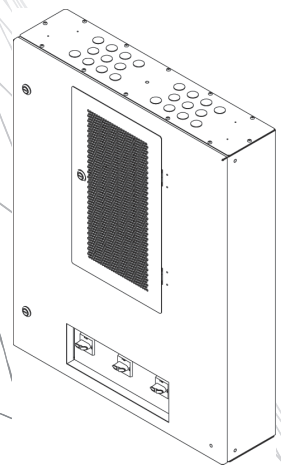
by Schneider Electric

Installation

**Smart-UPS[®] VT and
MGE[™] Galaxy[™] 3500**

**Maintenance Bypass Panel
with Power Distribution
(wall-mount)**

**10-30 kVA
208 V**





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Safety

SAVE THESE INSTRUCTIONS

This manual contains important instructions for the Smart-UPS® VT and MGE™ Galaxy™ 3500 series that should be followed when handling the Maintenance Bypass Panel with Power Distribution (wall-mount).

This UL-listed unit was designed to operate in conjunction with the Smart-UPS VT and MGE Galaxy 3500 10-30kVA, 208 V UPS.

Safety warnings



Warning: Only APC by Schneider -trained personnel who are familiar with the construction and operation of this equipment, as well as the mechanical and electrical hazards involved, may perform this installation.



Warning: This installation must comply with the requirements of ANSI/NFPA 75 and NEC/NFPA 79 Art. 645.



Warning: All safety codes, safety standards, and other regulations must be strictly observed during installation and ongoing maintenance of this equipment.



Warning: Prior to installing the Smart-UPS VT or MGE Galaxy 3500 Maintenance Bypass Panel, de-energize all external power being supplied to the UPS!



Warning: Ensure that no electrical power is connected to the Maintenance Bypass Panel, and that all switches are in the OFF position before installing or servicing this unit!



Warning: All wiring instructions must be followed precisely. Failure to comply could result in permanent damage to the equipment!



Warning: When installing this unit to a wall, avoid contact with previously installed electrical wires and other potential hazards that might be embedded in the wall!

Live maintenance precautions

APC does NOT recommend performing live maintenance to the MBP with Power Distribution. However, APC is aware that due to the critical nature of data center loads, live maintenance may occur. If providing live maintenance, observe the following precautions to reduce the risk of electrical shock.



Caution:

1. Never work alone.
2. Only a certified electrician who is trained in the hazards of live electrical installation should perform the maintenance.
3. Know the procedure for disconnecting electricity to the MBP in the event of an emergency.
4. Wear appropriate protective clothing and other body equipment. Be sure to use rubber-insulated gloves and rubber-insulated boots.
5. Use double-insulated tools. If double-insulated tools are not available, insulate all tools with electrical tape.
6. Use electrical tape to insulate any non-insulated conductive parts.
7. Always follow local codes and site regulations when working on the MBP.

Product Overview

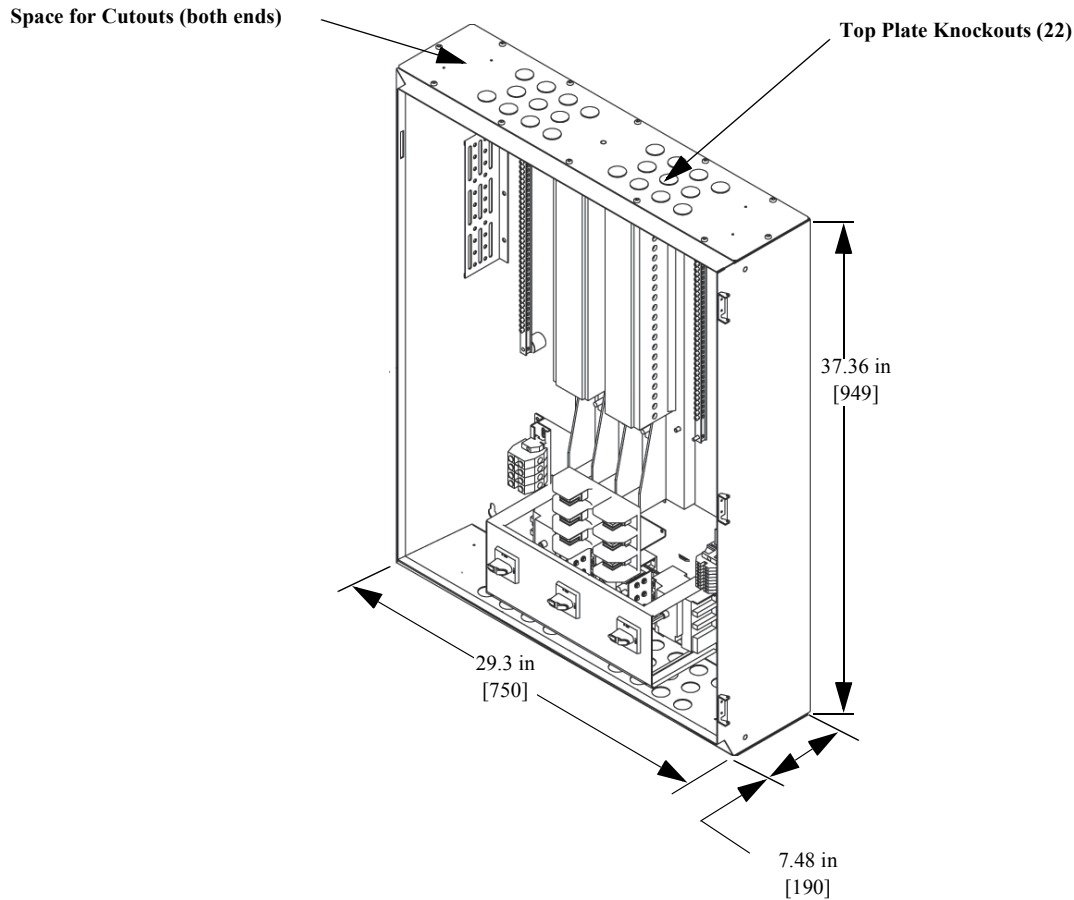
Features

The wall-mount version of the Smart-UPS VT and MGE Galaxy 3500 MBP combines bypass functionality with power distribution capability in a common enclosure. The lower section of the MBP contains switches that facilitate the transfer of power from the UPS to bypass operation to allow maintenance to be performed on the UPS. The upper section houses a 42-position panel board for distributing power to load.

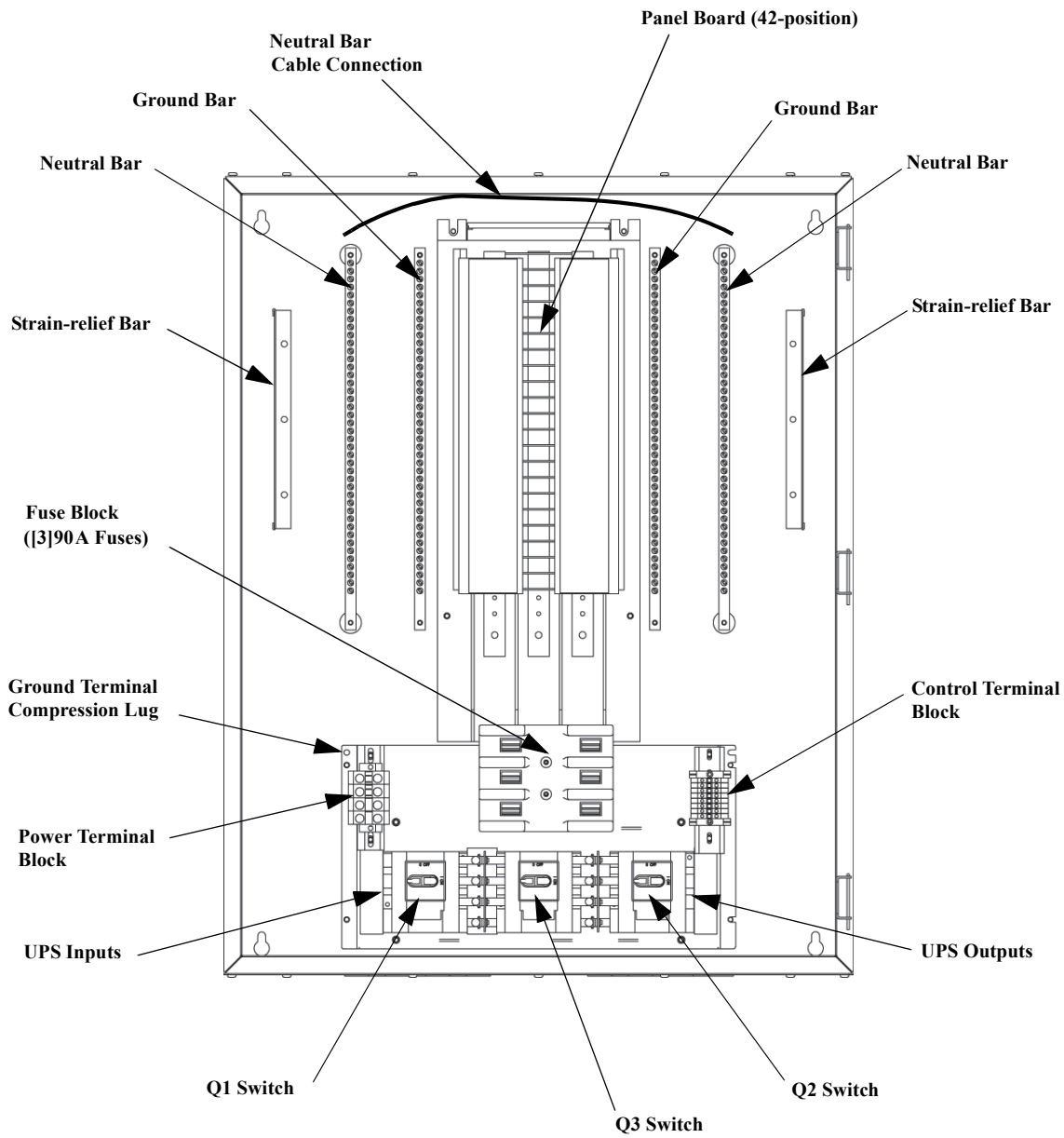
The unit weighs approximately 120 lbs [54.5 kg]. The MBP can be installed quickly and easily to almost any type of sturdy wall structure (refer to “Mounting the MBP” on page 9).

Product SKU	Input	Output
SBPSU10K30FC1M1-WP	81.3 A, 208/120V, 3-Phase, 50/60Hz	83.3 A, 208/120V, 3-Phase, 50/60Hz

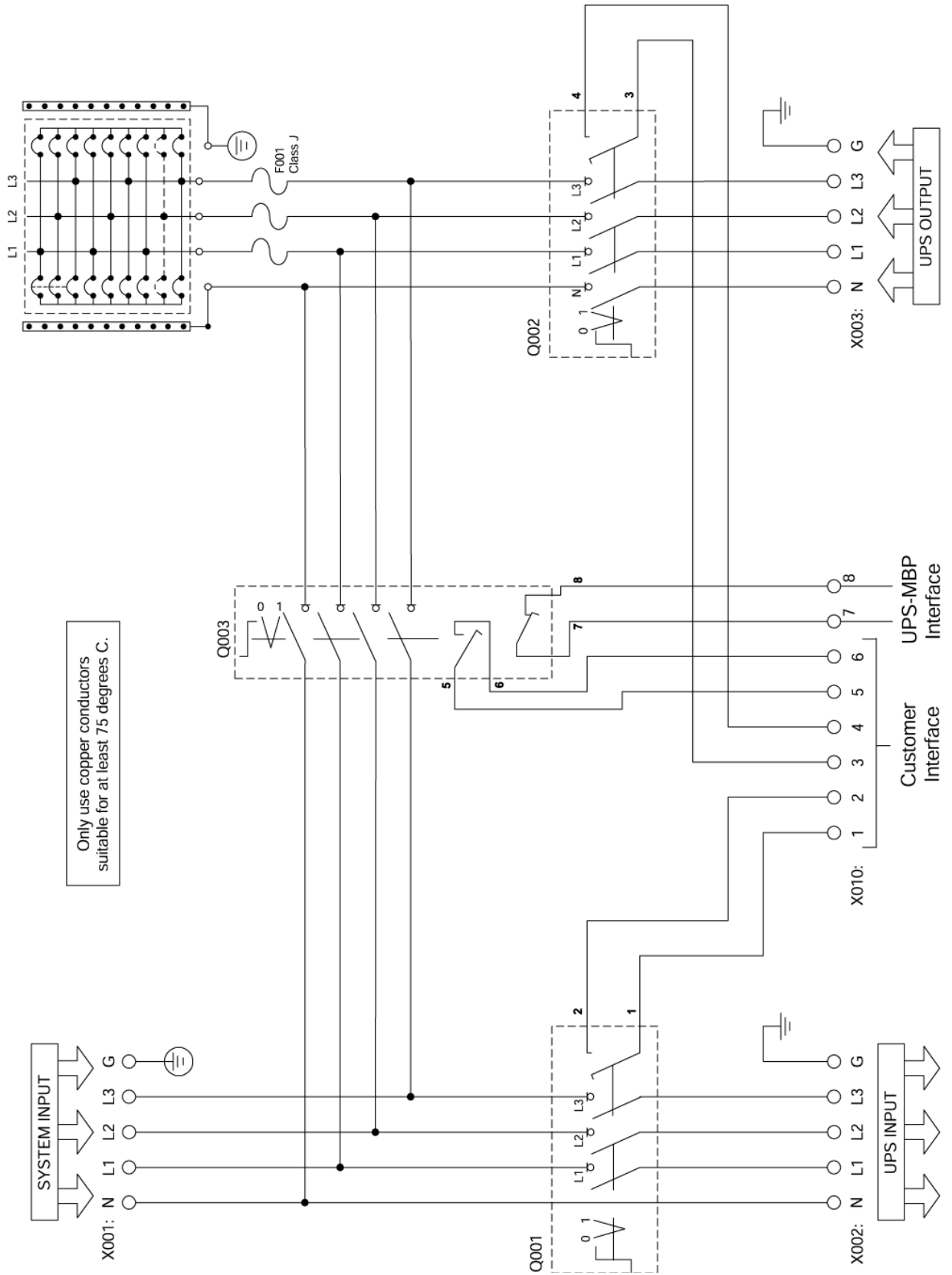
The MBP enclosure supports both top and bottom cable entry. The unit contains three 90 A fuses that provide over-current and short-circuit protection.



Internal components



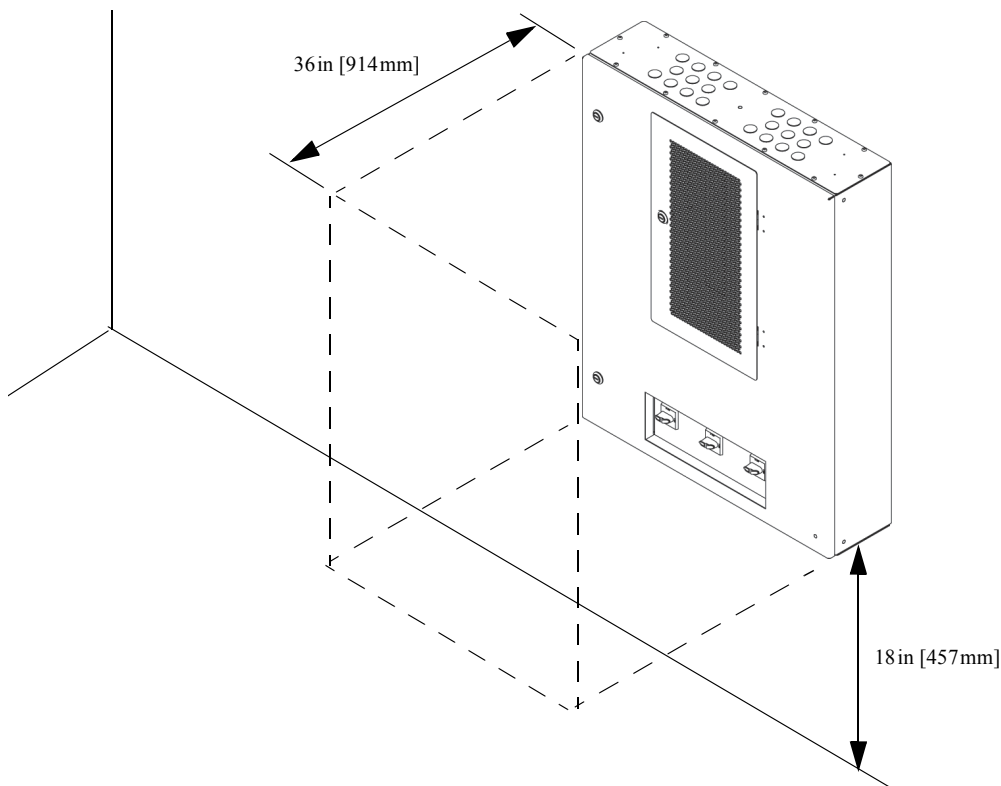
Schematic



Considerations

Environmental

- The wall area selected for the MBP installation must be structurally sound and able to accommodate the size and weight of the unit. Refer to “Mounting the MBP” on page 9.
- The MBP should be kept in a climate-controlled environment having a temperature range of 0° to 40° C [32° to 104° F] and a relative humidity of 0% to 95%, non-condensing.
- The MBP must be protected at all times from excessive moisture, construction dirt, corrosive elements, and other contaminants.



Installation

Overview



Warning: Review “Safety” on page 1 before starting this installation. Pay strict attention to all safety warnings and caution notices!

- ALL INTERNAL cable connections were made prior to shipment.
- EXTERNAL cable connections with the UPS need to be made on-site. EXTERNAL cable connections from the utility also need to be made on-site. EXTERNAL cable is not supplied.
- Control wire connections between the UPS and the MBP additionally need to be made on-site. Control wires are not supplied.
- Panel board breakers must be ordered separately. Tie-wraps are not supplied.

Tools

The following tools are required for this installation:

- Dolly/hand-truck
- Tape measure
- Pliers
- Level
- Marker
- Drill
- M10 nut driver
- Standard (flathead)
- Phillips screwdriver
- T30 Torx screwdriver
- 4mm Allen wrench
- 1/2” socket with ratchet

Panel board breakers

The 42-position panel board supports the following Square D[®] 1-, 2-, and 3-pole bolt-on circuit breakers. All of the circuit breakers listed below have been pre-tested and approved by APC.

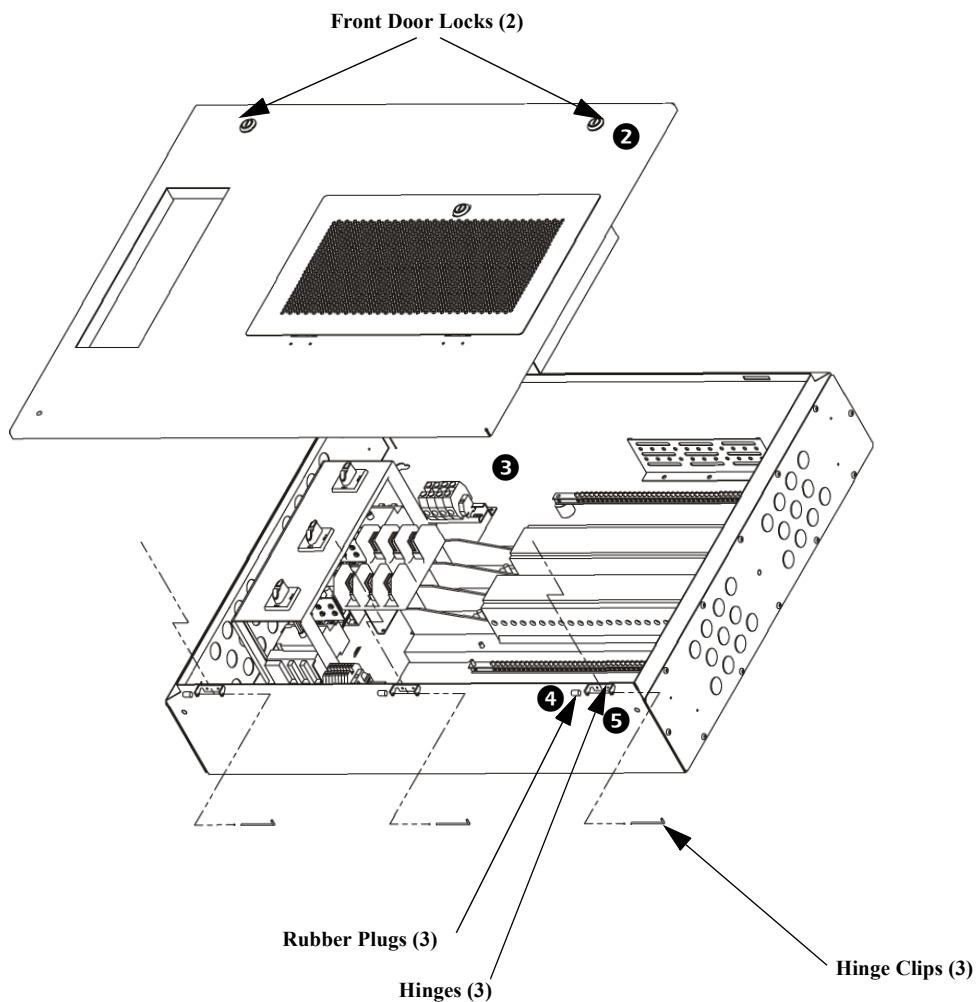
Breaker Type	APC Part#	Breaker Type	APC Part#
1-pole, 20Amp	PD1P20ABBSD	3-pole, 20Amp	PD3P20ABBSD
2-pole, 20Amp	PD2P20ABBSD	3-pole, 80Amp	PD3P80ABBSD
2-pole, 30Amp	PD2P30ABBSD	3-pole, 100Amp	PD3P100ABBSD

Removing the front door (optional)



Note: Front door removal is NOT a requirement for this installation. However, removing the door will allow better access to the internal components.

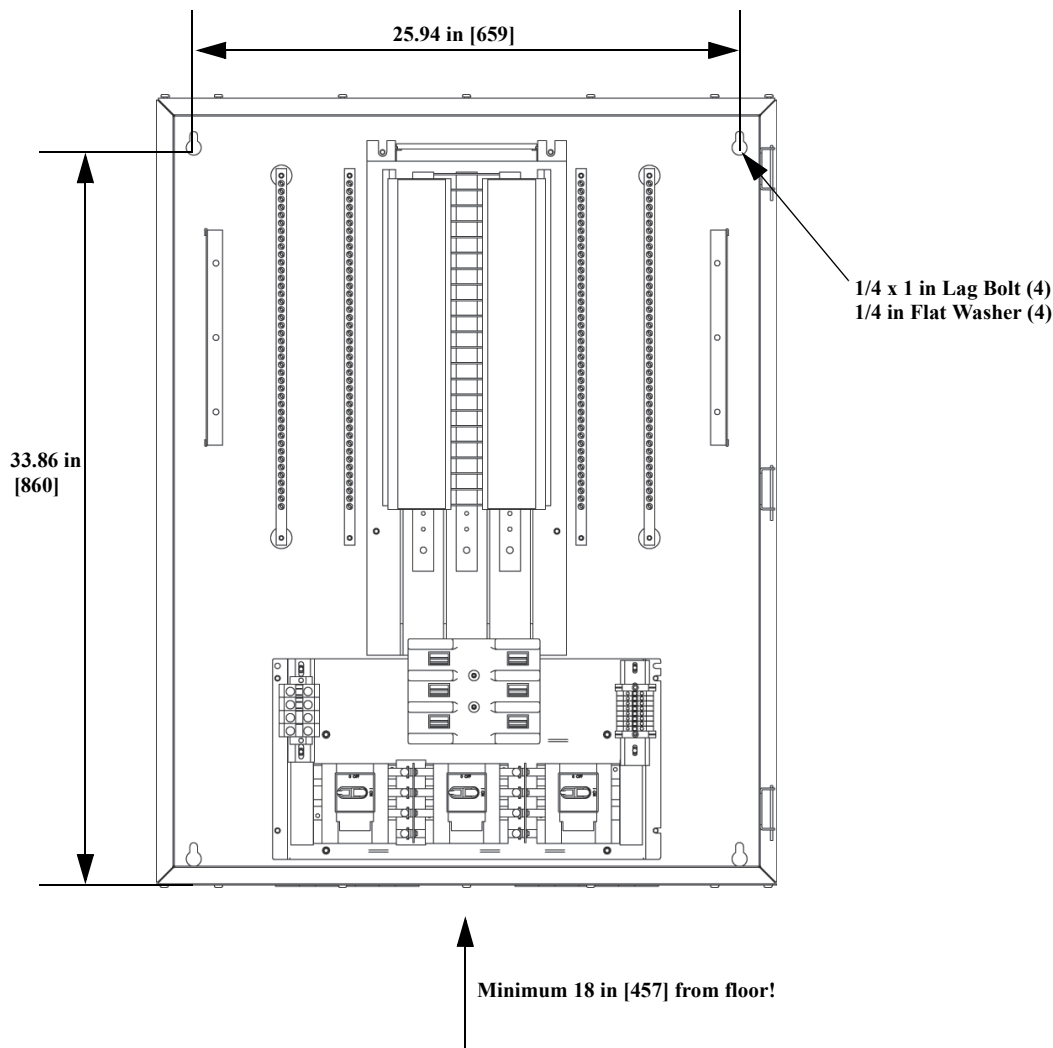
1. Place the MBP on its back such that its front door is facing straight up.
2. Use the enclosed keys to unlock and then open the front door.
3. Disconnect the internal ground cable from the ground stud on the door. Use an M10 nut driver to remove the M6 flange nut securing the cable to the stud.
4. Using your thumb and forefinger, pull the three rubber plugs off the bottom ends of the three hinge clips.
5. Using pliers, remove the three hinge clips connecting the door to the enclosure.
6. Remove the door. Store the door and all hardware in a safe location for later re-attachment.



Mounting the MBP

APC by Schneider Electric recommends mounting the MBP to 3/4 inches plywood backing (36 in [914mm] high x 28 in [711 mm] wide).

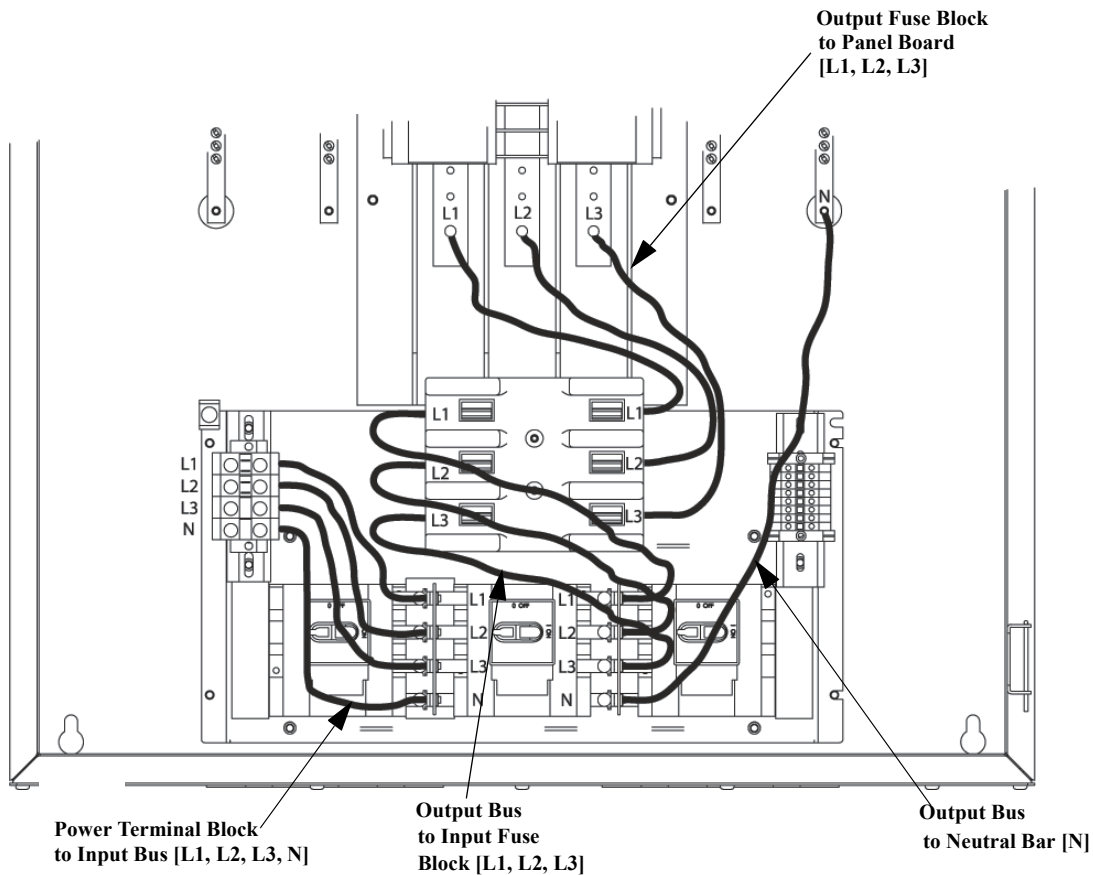
1. Attach the 3/4 inches plywood securely to the designated wall area. The wall should be strong enough to support the 120lb [54.5kg] MBP. Leave at least 18in [457mm] of space between the floor and the bottom of the plywood. Use appropriate hardware for the type of wall employed.
2. Measure and mark four (4) mounting-hole locations on the plywood backing. The locations will be in the shape of a rectangle measuring 25.94 in [659mm] across and 33.86 in [860mm] down.
3. Drill starter holes in each of the four marked locations.
4. At least three people are needed to lift the MBP and position it against the plywood backing. Line up the MBP's four mounting holes with the four drilled starter holes.
5. Screw four (4) 1/4 x 1 inches hex-head lag bolts, along with four (4) 1/4 inches flat washers, into the holes. Use a 1/2 inches socket with ratchet and tighten until rigid.



Internal cable connections

For the convenience of the installer, ALL internal MBP cable connections were made prior to shipment. Check to make certain the following internal cable connections were completed:

- Power Terminal Block [L1, L2, L3, N, top-to-bottom] to Input Bus [L1, L2, L3, N, top-to-bottom]
- Output Bus [L1, L2, L3, top-to-bottom] to Input Fuse Block [L1, L2, L3, top-to-bottom]
- Output Bus [N] to Neutral Bar [N]
- Output Fuse Block [L1, L2, L3, top-to-bottom] to Panel Board [L1, L2, L3, left-to-right]
- Neutral Bar [N] to Neutral Bar [N] (refer to “Internal components” on page 4)
- Control Terminal Block to optional customer contacts [1, 2, 3, 4, 5, 6] and UPS connections for Q3 [7, 8]. **Note:** *The control wires from the UPS MUST be connected to the Normally Closed Auxiliary Contacts on Q3 [7, 8]. DO NOT use terminals 5 and 6 for these connections! Refer to “Schematic” on page 5 and to the appropriate wiring diagram in the UPS Installation Manual.*



Making external cable connections



Note: Utility cables can enter through the top or the bottom of the MBP. However, BOTTOM is recommended.

External cables can enter the MBP through any of the available 1-inch [25.4mm] knockouts, or by making larger cutouts in the top or bottom plates of the enclosure. Each plate offers 22 knockouts and the ability to create up to four (4) 2-inch [50.8mm] cutouts.

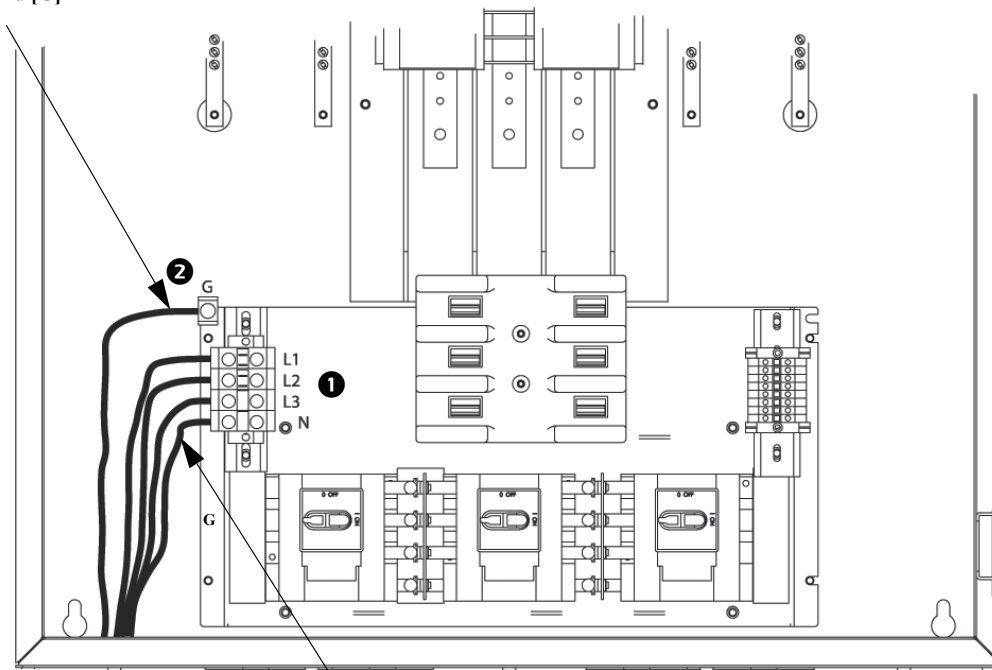
Prior to making any of the following external cable connections, establish an appropriate point of access by knocking out a 1-inch hole or cutting a larger hole in the top or bottom plate. The plate can be removed using a Phillips screwdriver to loosen the 12 screws securing it to the enclosure. An M10 nut driver is needed to remove the M6 flange nut securing the ground cable to the plate's ground stud.

The cables are typically color coded: L1 = black, L2 = red, L3 = blue, N = white, and G = green.

Utility connections.

1. Connect the four inputs [L1, L2, L3, N, top-to-bottom] from the Utility to the Power Terminal Block. Use a standard (flathead) screwdriver and torque to 60in-lbs [7Nm].
2. Connect the one ground input [G] from the Utility to the Ground Terminal Compression Lug. Place the cable end in the bottom section of the compression lug, and then use a standard (flathead) screwdriver and torque to 240in-lbs [27Nm].

Utility
to Ground [G]



Utility to
Power Terminal Block
[L1, L2, L3, N]

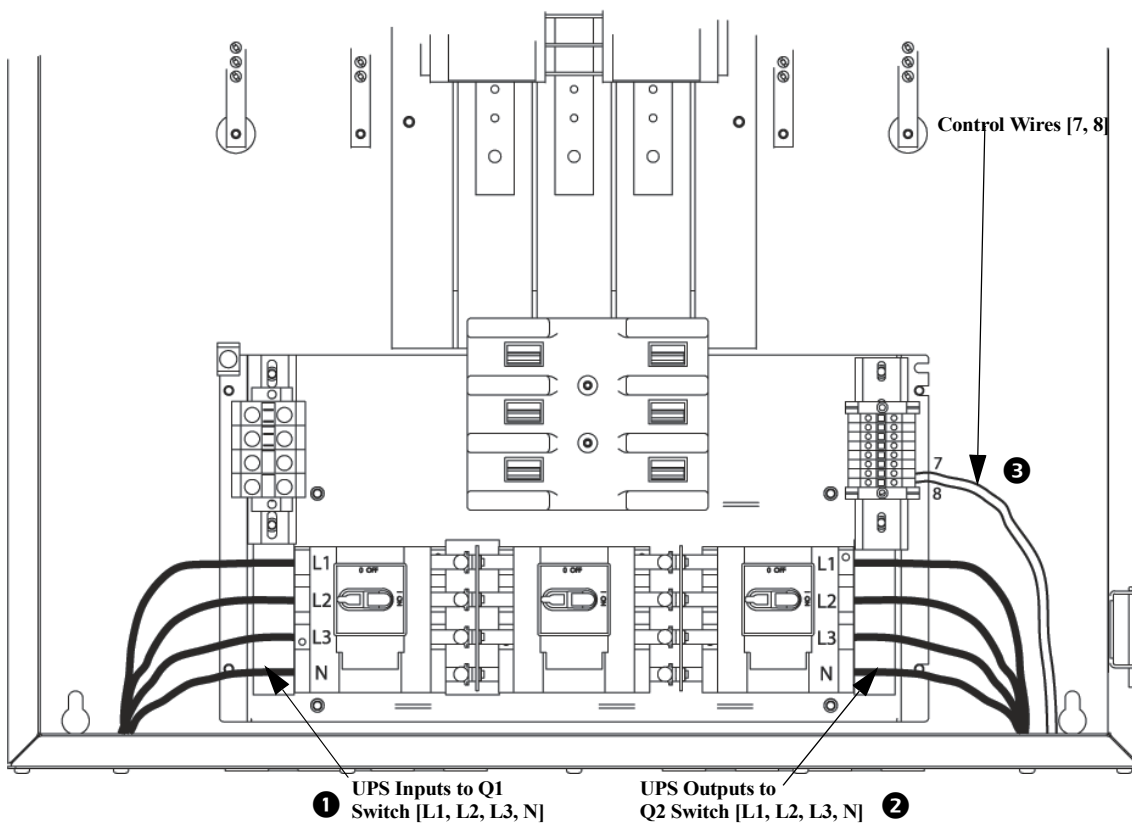
UPS connections.



Note: UPS cables can enter through the top or the bottom of the MBP. However, BOTTOM is recommended.

Refer to the Smart-UPS VT 10-30kVA or MGE Galaxy 3500, 208V Installation Manual for MBP cable connections at the UPS.

1. Connect the four UPS inputs [L1, L2, L3, N, top-to-bottom] to the Q1 Switch in the MBP. Use a 4mm Allen wrench and torque to 60 in-lbs [7Nm].
2. Connect the four UPS outputs [L1, L2, L3, N, top-to-bottom] to the Q2 Switch in the MBP. Use a 4mm Allen wrench and torque to 60 in-lbs [7Nm].
3. Connect the two UPS control wires to Pins 7 and 8 in the MBP Control Terminal Block. Use a standard (flathead) screwdriver and make the screws hand-tight.



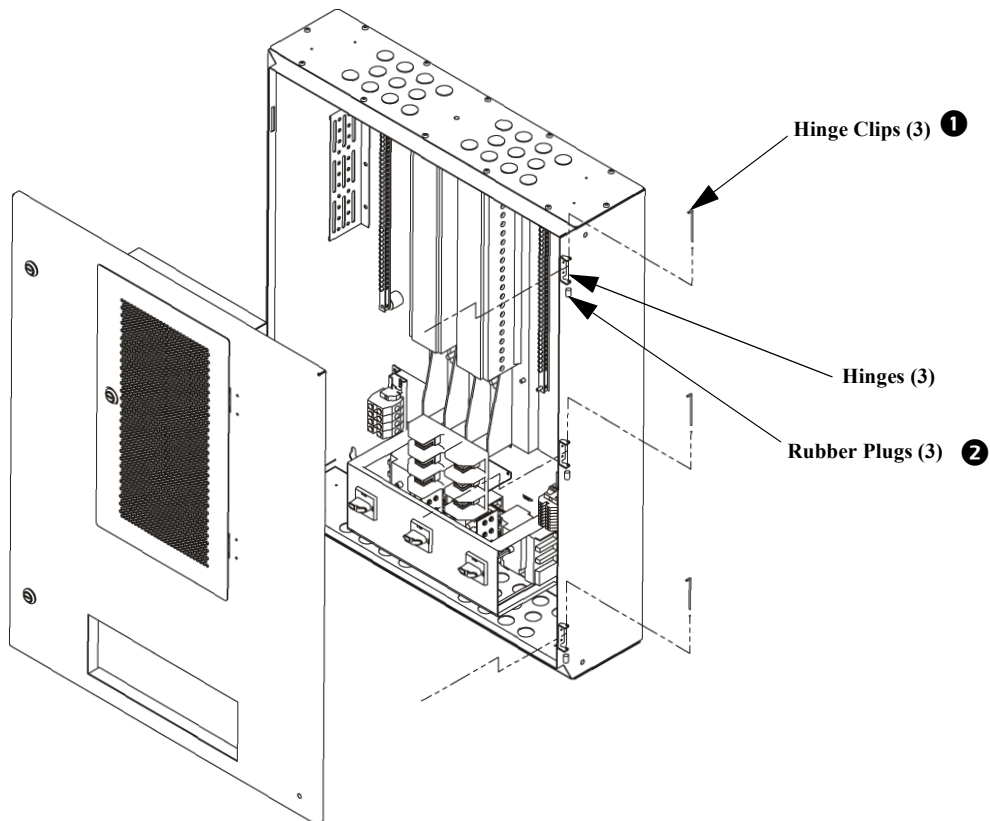
Re-attaching the front door



Note: This section applies only if the front door was removed at the start of the installation process. If you chose not to remove the door, ignore this section.

Re-attaching the front door requires at least two people: one to hold the door in place, and the other to make the necessary hardware connections.

1. Holding the door at an angle to the MBP enclosure, re-insert the three hinge clips into the three door hinges.
2. Using your thumb and forefinger, push the three rubber plugs onto the bottom ends of the three hinge clips.
3. Keeping the door open, re-connect the internal ground cable to the ground stud on the inside of the door. Place the M6 flange nut over the cable lug on the stud. Use an M10 nut driver and torque to 120 in-lbs [14Nm].
4. Close and lock the front door.



Installing Panel Board Breakers

This section describes how to install breakers to the MBP's 42-position panel board.



Electrical Hazard: Before installing breakers, make sure ALL MBP switches are in the OFF position. From normal operation, first switch Q2 OFF, and then switch Q1 OFF.

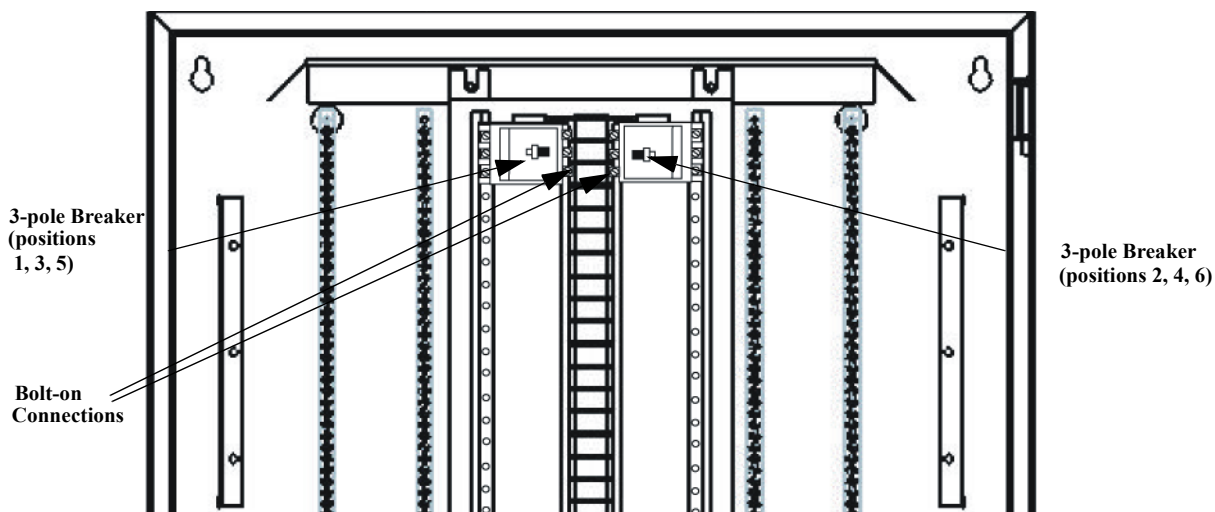
1. Use the enclosed keys to unlock and open the front door of the MBP.
2. Select the next available breaker position(s) on the panel board, and then snap the new 1-, 2-, or 3-pole breaker into the appropriate guard rail.



Note: The panel board supports Square D® bolt-on circuit breakers. For a listing of recommended breakers, refer to “Panel board breakers” on page 7.

The top pole of a 3-pole breaker must always be placed in an L1 position on the panel board. Counting down from the top, these are positions 1, 7, 13, 19, etc. on the left side of the board and positions 2, 8, 14, 20, etc. on the right side of the board.

1. Make the bolt-on connections (those nearer the center of the panel board). Use a standard (flathead) screwdriver and torque to 24 in-lbs [3Nm].
2. Remove the corresponding plastic blanking plate(s) located directly in front of the newly installed breaker. The blanking plates can be accessed through the smaller, hinged “panel board” door at the front of the MBP. Use one of the front door keys to open this door.



Note: After installation, panel board breakers can be accessed by simply opening the panel board hinged door.

Appendix A: Changing Fuses



Warning: Before changing fuses, make sure ALL MBP switches are in the OFF position. From normal operation, first switch Q2 OFF, and then switch Q1 OFF.



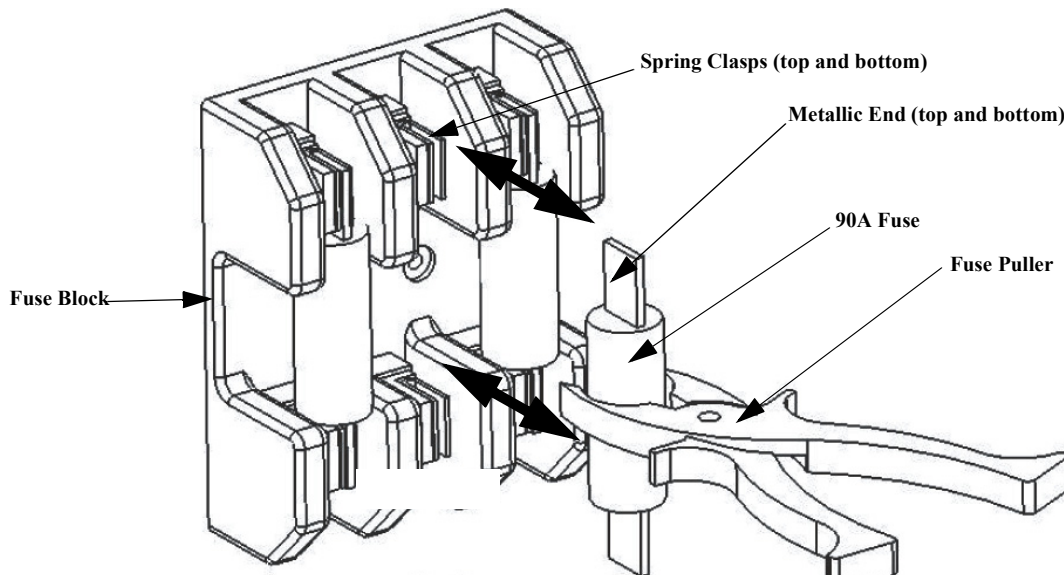
Note: Replace ALL blown fuses with Bussmann “Class J” 90 Amp fuses (p/n JKS-90).

Removing fuses

1. Open the front door of the MBP to access the fuse block. Use the enclosed front door keys.
2. Using a plastic or insulated fuse puller, tightly grasp the center section of the blown fuse.
3. Pull the fuse toward you, forcing its release from the two sets of spring clasps.

Replacing fuses

1. Using a plastic or insulated fuse puller, tightly grasp the center portion of the replacement fuse.
2. Align the fuse’s metallic ends with the two sets of spring clasps that will hold it in place.
3. Push the fuse into the two sets of clasps until the clasps snap around the metallic ends.
4. Close and lock the front door.



Note: After changing fuses, the MBP can be returned to normal operation by first switching Q2 ON, and then switching Q1 ON. Q3 remains OFF.

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 - **www.apc.com** (Corporate Headquarters)
Connect to localized APC Web sites for specific countries, each of which provides customer support information.
 - **www.apc.com/support/**
Global support searching APC Knowledge Base and using e-support.
- Contact the APC Customer Support Center by telephone or e-mail.
 - Local, country-specific centers: go to **www.apc.com/support/contact** for contact information.

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990-4198D-001



8/2009