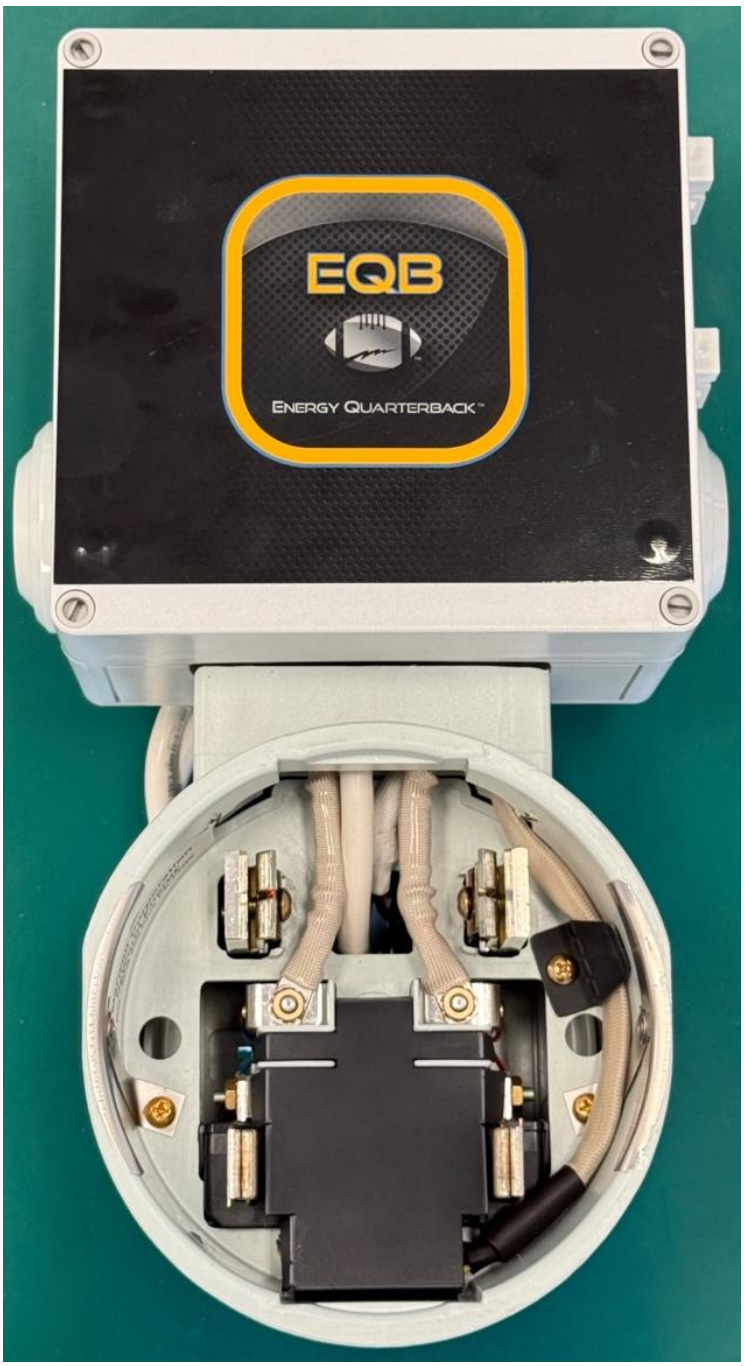
EQB MIM 200 PLUS PE

2025 INSTALLATION MANUAL

NeWorld Energy EQB MIM 200 PLUS PE

200A Meter Socket Adapter for Whole Home ESS Grid Isolation (MID) & Optional 100A DER Tap.



Caution – ELECTRIC SHOCK HAZARD - For use with interactive equipment only.

Do NOT attempt to install EQB MIM 200 PLUS PE without reading the Product Manual & Installation Guide.

ELECTRICAL SPECIFICATIONS:

ELECTRICAL LOAD RATING.....200 AMPS CONTINUOUS 120/240VAC 60HZ 1PH
DER TAP SOURCE RATING.....100 AMPS CONTINUOUS 120/240VAC 60HZ 1PH
SHORT CIRCUIT CURRENT RATING.....22kA W/ BREAKER, 10kA NO BREAKER
METER SOCKET COMPATIBILITY.....ANY ANSI 2S METER SOCKET & ANY ANSI C12 METER
BREAKER COMPATIBILITY.....ANY BREAKER UP TO AND INCLUDING 200 AMPS

ENVIRONMENTAL SPECIFICATIONS:

ENCLOSURE RATING.....NEMA 3R
OPERATING TEMPERATURE..... 50*C - 125*C (-58*F - 257*F)
FLAMMABILITY RATING.....UL 94 COMPLIANT

CERTIFICATION & COMPLIANCE:

UL LISTED.....UL 414 SB
COMPLIANCE.....UL 414, 2735, 94, 746; ANSI C12.1; IEEE 1547-2018; E-51941, RULE 21
CURRENT UTILITY APPROVAL.....PGE, SDGE, SCE
COMPATIBLE ESS.....FRANKLINWH MAC & APOWER 2/S

Caution – ELECTRIC SHOCK HAZARD - For use with interactive equipment only.

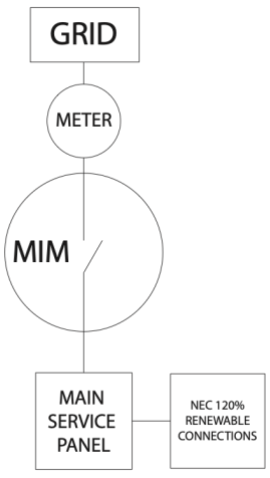
Do NOT attempt to install EQB MIM 200 PLUS PE without reading the Product Manual & Installation Guide.

OVERVIEW:

The EQB is a plug in 200A Grid Isolation Meter Socket Adapter for use with Energy Storage Systems (FranklinWH aPower 2/S & MAC), featuring optional built in 100A DER Tap & sensors for PCS control of import/export. EQB simplifies traditional ESS installation practices by effectively replacing the MID in a traditional system architecture, allowing for Solar, Battery, & EV's to either interact with the Grid for DER programs, or isolate from the Grid for backup power purposes. EQB enables plug & play electric panel upgrades by integrating with backup battery inverters to control a facility's connection to the electrical grid automatically or on demand, while also utilizing CT's for inverter PCS control. Whole Home Backup can be achieved by installing the EQB behind the utility meter (Utility Approval Required), & Partial Home Backup can also be achieved by installing a meter socket downstream of customer load panel & relocating ESS & desired backup loads to a subpanel located after the EQB meter socket (C10 can install using this method).

- The EQB has two modes of operation:
  (1) **Grid Interactive Mode** (Grid Following Inverters)
  - EQB's Grid Isolation Relay remains in Closed position, enabling DER system to interact with the Grid as a Generation Source for NEM, VPP, & other DERMS.
  - Can stay on Grid permanently until a compatible system is connected to EQB.
  (2) **Grid Isolated Mode** (Hybrid Grid Following/Forming Inverters)
  - EQB's Grid Isolation Relay can be switched to Open position by Inverter control, automatically or on demand, enabling DER ESS system to power a home without backfeeding the grid.
  - Visual Indicator Manual Bypass available to reconnect to Grid if Inverter fails.

- The EQB enables two types of **interconnection** methods:
  (1) Load Side Tap - **Isolation only**
  - DER(s) interconnected in Load panel, electrically after Main Breaker.
  - DER Breaker space available in Main Service Panel or Subpanel.
  - Panel Expansion PCS control of Busbar from FranklinWH CT's in EQB.

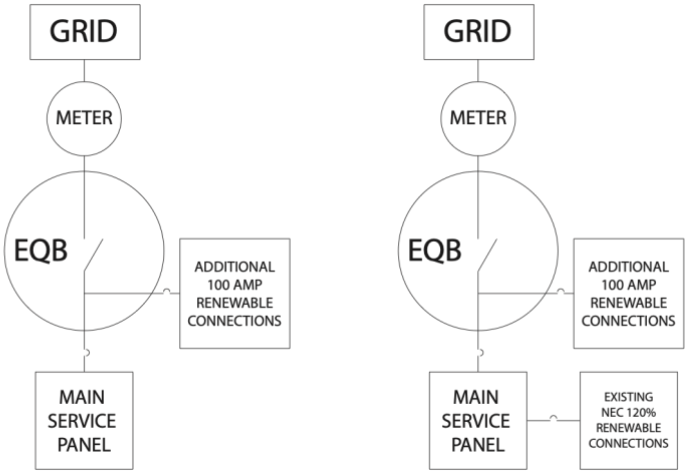


Caution – ELECTRIC SHOCK HAZARD - For use with interactive equipment only.

Do NOT attempt to install EQB MIM 200 PLUS PE without reading the Product Manual & Installation Guide.

(2) Line Side Tap **- Isolation + Panel Expansion (DER TAP)**

- DER(s) connected via EQB's built in 100A DER Lugs (located electrically after isolation switch, before Main Breaker).
- Two methods of Panel Expansion, DER Lugs & Panel Expansion PCS control of Busbar from FranklinWH CT's in EQB.
- Most effective when breaker space or other constraints would normally require the installation of a subpanel or Main Panel Upgrade.
- DER's can be split between Load & Line Panels for easy AC Coupling.
- Neutral Pigtail must be bonded to Neutral bar in Panel or Utility Neutral wire in Utility Pull Section or Meter Socket.
- AC Disconnect must be grounded per local AHJ requirements. (UFER/Rod)



Caution – ELECTRIC SHOCK HAZARD - For use with interactive equipment only.

Do NOT attempt to install EQB MIM 200 PLUS PE without reading the Product Manual & Installation Guide.

WHAT YOU WILL NEED:

LICENSED ELECTRICAL CONTRACTOR, AHJ & UTILITY APPROVAL FOR ESS COMPONENTS.
UTILITY METER TECHNICIAN REQUIRED TO INSTALL WITH UTILTIY METER.

- Proper PPE, Certification, & Authorization to perform high voltage electrical work.
- (1) EQB
- (1) COMPATIBLE ENERGY STORAGE SYSTEM & EQB CONTROLLER
- 2 Meter Rings (Locking Adjustable/Screw type Sealing Rings preferred)
- 1" OR 1.25" Liquid Tight NMFC from EQB to ESS
- (2) 1" OR 1.25" (1 ¼") NMFC Straight/Elbow Connector(s)
- ANSI C12 Electric Meter (Utility Smart Meter)
- Typical mounting screws for exterior/interior installation
- Note: If not using EQB's 100A DER tap, Neutral conductor can be removed.

+ WHEN USING OPTIONAL 100A DER TAP CONNECTION:

- AC Disconnect (Fused Lockable Blade or Breaker in Subpanel, per local AHJ/NEC)
- (1) 1.25" (1 ¼") Liquid Tight Non-Metallic Flexible Conduit (NMFC-B)
- (2) 1.25" (1 ¼") 90* Conduit Straight/Elbow Connector(s)
- (3) #3 AWG THHN/THWN (L1, N, L2 for 100A DER Tap, #6 AWG ok for 1 battery, follow local AHJ & NEC guidance)
- 1" or larger EMT Conduit / Liquid Tight NMFC from disconnect to FWH BESS
- Neutral Bonding via Polaris connector (PGE, SDGE, SCE), Single Use Insulation Piercing Connecter (ie: ILSCO KUP-L-Tap Insul-Eater), #4AWG Neutral Lug in Load side of panel (PGE), Neutral Lug kit from panel manufacturer (PGE, SCE, SDGE), or similar UL Listed / AHJ approved neutral bonding method (Please list method on plans submitted to Utility/AHJ).
- External Grounding REQUIRED from AC disconnect to UFER/Ground Rod/Etc, per local AHJ requirements, unless installing in SDGE. It is recommended to utilize external grounding. Please list chosen external grounding method on plans submitted to Utility/AHJ.

  <u>If installing in PGE & SCE territories, please remove Green wire from EQB's lugged connection in Upper Junction Box, as they will NOT install if present</u>.

<u>EQB MIM 200 Plus PE compatible panel examples</u>:

Some panels with breakers above meter socket require alternate EQB model with junction box on left/right for clearance purposes, please contact your distributor for more information.

Caution – ELECTRIC SHOCK HAZARD - For use with interactive equipment only.

Do NOT attempt to install EQB MIM 200 PLUS PE without reading the Product Manual & Installation Guide.

EQB INSTALLATION

Step 1: Verify Meter Socket compatibility

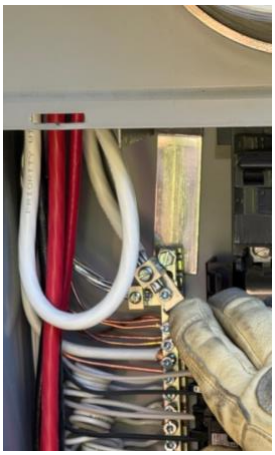
- Ring style 2S meter socket. (Ringless option available)
- No clearance issues, breakers are accessible. If panel door access is an issue, one of the vents can be swapped for waterproof knockout, or use EQB with left/right junction box.
- Minimum 10" working clearance for meter technicians.
- No Electrical Service Violations, site meets NEC, Utility & AHJ code requirements.
- NMFC from EQB secured within 12" of meter socket & strapped every 12" or less.

For DER Tap:

- AC disconnect must be landed within 6.5' radius of meter socket (no gas meter <36")
- AC Disconnect must be Grounded & bonded per local AHJ requirements. External grounding to UFER or ground rod is recommended. (Only SDGE permits adapter grounding)
- AC Disconnect & all conductors match system amperage on stamped plans.
- NMFC from EQB secured within <12" & strapped every <12" to MAC / AC Disconnect
- Neutral connection must be bonded to panel or utility Neutral feeder line.
- PGE Requires: installer placed landing lug on existing neutral bus to bond neutral, with a port from meter socket to load center, some panels have this feature while others need installer to create a path through the insulating material for PGE meter techs. SCE may ask installer to utilize this method for meter sockets above load center due to limited space.

Note: Ground wire only required in SDGE & must be removed in PGE & SCE. If DER Tap in EQB is not connected to ESS and the device is used for isolation only, the Neutral pigtail can also be removed. Connecting the Neutral wire to EQB & Load Panel can be beneficial for future electrification upgrades, but any subpanel connected to the 100A DER Tap MUST ONLY be used with Grid Interactive equipment that is UL/NRTL Certified for use with EQB.

Neutral Bonding examples:




Caution – ELECTRIC SHOCK HAZARD - For use with interactive equipment only.

Do NOT attempt to install EQB MIM 200 PLUS PE without reading the Product Manual & Installation Guide.

Step 2: Verify Gas Meter Clearances

- Some Utilities (PGE, SCE, SDGE) do not allow new devices within a 36” radius from the bottom of the Gas Meter regulator. If your meter socket falls within that radius, your local AHJ & Utility will ultimately determine if EQB can be installed.
- If gas meter is within 36” of meter socket, AC Disconnect must be placed outside of 36” and within 6.5’ radius of meter socket, with 12” minimum lateral clearance required on either side of gas lines, & restrictions extending up to 10’ high for surrounding environment.

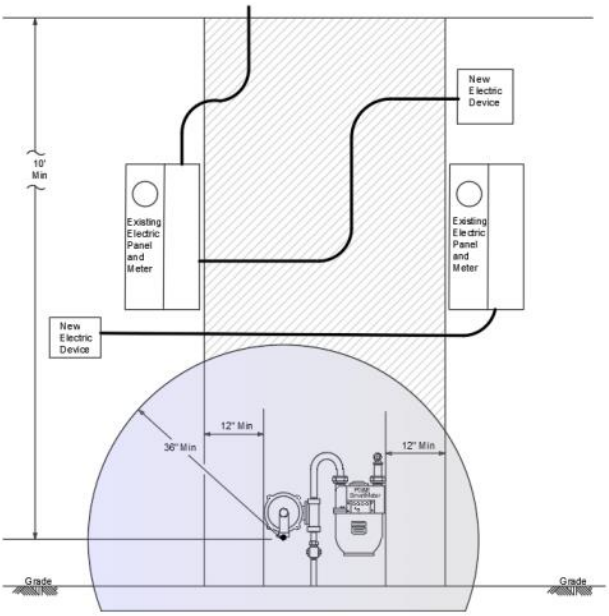


Figure 2-22. Clearance Requirements When Replacing Panels, Altering Panels, or Adding Electric Devices

LEGEND

- Regulator Vent Opening
- Conduit
- No Existing Electric Meter/Panel and No New Electric Devices (See Note 1)
- No Electrical, No Conduit, No Source of Ignition, No Meter/Panel, and No New Grounding Wires or Clamps

Note:

1. This includes electric meters and panels in cabinets.

Figure 1: Addressing & Overcoming Gas Meter Clearance Requirements with Line Side Tap

Note: Steps 3-7 ONLY to be performed by qualified personnel wearing Proper Arc Flash PPE for working with live unregulated 240v. NO METAL JEWLERY OR CLOTHING ALLOWED.

PGE, SCE, & SDG&E REQUIRE THEIR APPROVED METER TECHNICIANS TO INSTALL.

RISK OF DEATH WHEN PERFORMING THESE TASKS!

Leave Behind Condition Required for all installs, with EQB in orange bag for meter tech install.

Step 3: Shut Down Power & Remove Meter (Meter Technicians ONLY in PGE, SCE, & SDGE)

- Turn off Main Breaker to disconnect utility power from the facility load panel.
- Turn off any Breakers and AC Disconnects to backup power (if present) confirm no secondary voltages present using voltmeter in load center.
- Remove Lockring.
- Put on insulated gloves with arc flash protective PPE & Flame-Resistant clothing.
- Pull down on smart meter with two hands to safely remove the meter. A Meter Puller can also be used if available.
- DO NOT TOUCH ANY METAL INSIDE PANEL, ASSUME ALL CONTACTS ARE ENERGIZED.
- Verify voltages & grounding in panel.
- Verify neutral bonding location & method.
- Confirm jaws in meter socket are within specifications using a Hot Socket Gap Indicator.

Step 4: Place Adapter

- When utilizing DER Tap, feed Neutral wire (& Ground in SDGE) through meter socket to utility pull section (PGE requests feeding Neutral through to forked lug attached to Neutral bus in customer side of load panel).
- Align EQB stabs with Meter Socket Jaws.
- Press firmly into place.
- Confirm continuity between L1/L2 of Utility Feed Line landing lug and meter socket jaws.
- Place lockring to secure adapter to panel (Screw Type Lockring preferred to support weight).

Step 5: Land Connections

- Verify conduit lengths & fitment to prevent tension on meter socket, trim to fit as needed.
- Feed all wires through conduit into adapter. Use caution as some connectors can be very sensitive, taping wires with electrical tape and fiberglass fish tape is preferred. When using 90* conduit elbows, disassembling connectors and conduit can help feed wires easier.

Step 6: Place Meter

- ONLY to be performed by qualified personnel wearing proper PPE. NO METAL JEWLERY OR CLOTHING ALLOWED. RISK OF DEATH WHEN PERFORMING THIS TASK.
- Read meter, confirm screen is active, indicating grid presence.
- Seal Meter with Meter Rings. Lock/Tag out as required.

Step 6: Confirm Grid Connection to Home

- Close Main Breaker to restore power to home.
- Read meter, confirm screen is active, and load is being delivered. If no power, open EQB junction box, locate connections inside the lid, initiate Manual Bypass operation to close back to grid (Step 7).

Caution – ELECTRIC SHOCK HAZARD - For use with interactive equipment only.

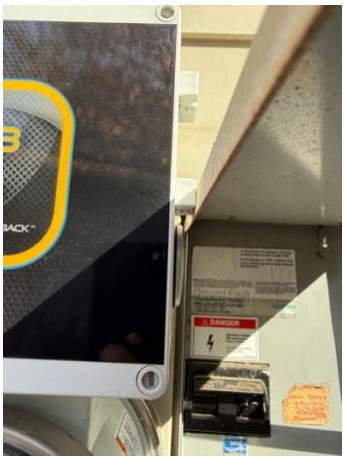
Do NOT attempt to install EQB MIM 200 PLUS PE without reading the Product Manual & Installation Guide.

Step 7: VISUAL INDICATOR & MANUAL BYPASS – Installation Confirmation

- WARNING – ASSUME ALL CONTACTS ARE ENERGIZED WITH 240V AC POWER.
- Carefully open EQB upper junction box, locate connections inside the lid.
- Find 6 pin connector coming from EQB lid (middle size of the 3 connectors, rectangle).
- Connect 6 pin connector to mating 6 pin connector (J1) in lid of EQB.
- Confirm EQB status in visual indicator STATUS window (LINE, OPEN, CLOSED).
- Grid status (LINE) should always be illuminated, EQB switch position Visual Indicator (OPEN, CLOSED) only available when 6 pin connector is plugged into mating connector (J1).
- Press button (PB1) to close EQB on to the grid. Audible “CLICK” sound from EQB.
- Confirm EQB status in visual indicator STATUS window (LINE, OPEN, CLOSED).
- If ESS commissioning has been completed, it is ok to reconnect to wiring harness.
- Confirm smart meter is reporting power to home & main breaker is closed on grid.
- Close junction box.

Panel Door clearance can be solved by replacing one of the vents with a waterproof knockout, such as the Wiegmann HW-FGHP-100-125WW or other fiberglass knockout covers.

Please use caution and avoid metal knockouts without waterproof ratings.

Caution – ELECTRIC SHOCK HAZARD - For use with interactive equipment only.

Do NOT attempt to install EQB MIM 200 PLUS PE without reading the Product Manual & Installation Guide.