

Field Services

Tim Martin

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Who are we and what do we do?

Field Services

We are responsible for adhering to the APS Interconnection Requirements Manual (IRM) and Electric Service Requirements Manual (ESRM) when performing the site inspection/meter installation for customers interconnecting a distributed energy resource (DER) to the APS grid.

Our goal is to ensure customers are interconnected to the APS grid without compromising the protection and safety of our customers, our employees and first responders.

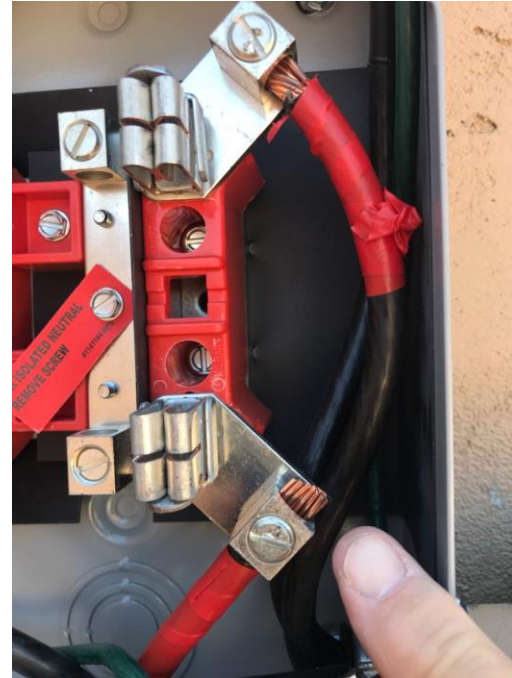
Electrical Hazards

Electrical Hazards Hide



always look for them before they surprise you

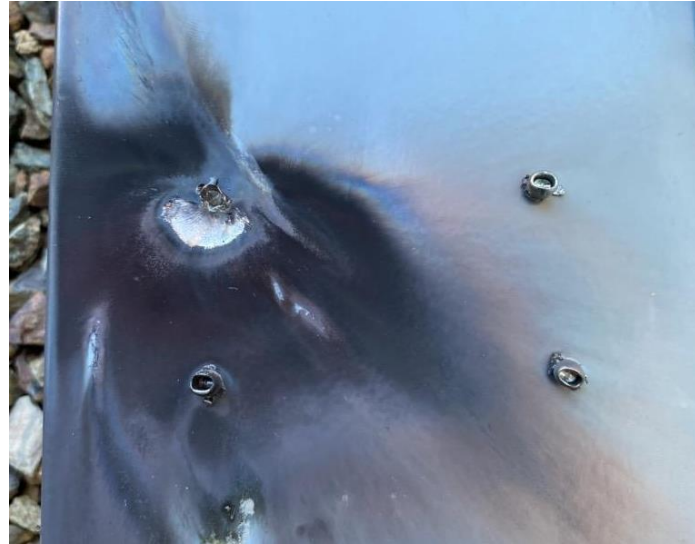
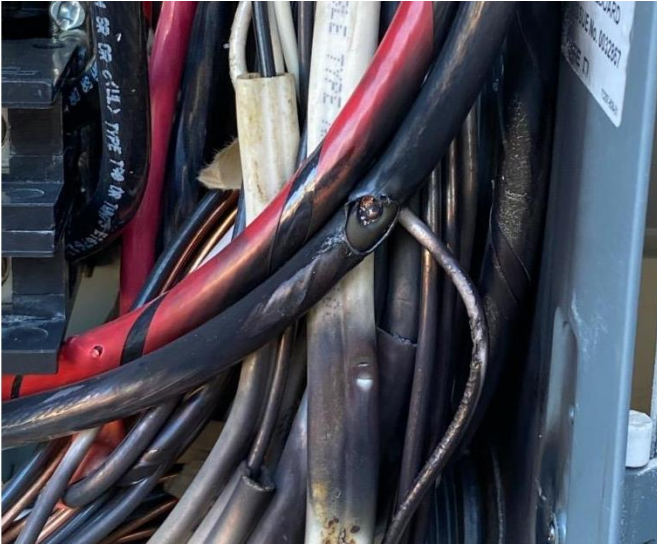
Hidden Dead Short



Don't leave a trap



Most hazards cause damage



De-Rates

- City/County Inspector on site
- Virtual inspections
- Missing / incorrect parts
- Volume of de-rates
- Prior to installation

Meter Sets

Most Common Field Issues



Equipment Labeling

Access Issues

**Clear & Safe
Workspace Zone**

Production Meter Labeling

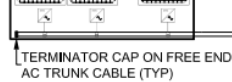
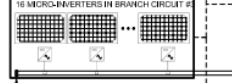
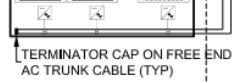
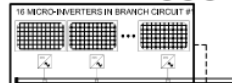


SAMPLE DRAWING IS FOR ILLUSTRATIVE PURPOSES ONLY AND IS NOT TO BE USED FOR DESIGN OR CONSTRUCTION. THIS DRAWING AND ITS SUITABILITY FOR END-USE IS NOT IMPLIED. THE INTENT IS TO ONLY ILLUSTRATE TYPICAL MINIMUM INFORMATION REQUIRED AT TIME OF APPLICATION TO APS. ADDITIONAL INFORMATION MAY BE REQUIRED.

WHOLE HOME SYSTEM

⑧ REFERENCE SHEET 3 FOR KEYED NOTES.

(N) (48) ENPHASE IQ7-60-2-US, 240V MICRO-INVERTERS, 240V, 1.004 MAX CEC WEIGHTED EFFICIENCY 97.0% NEMA 6, UL LISTED, INTERNAL GFDI ⑤ ⑧ ⑩



NOTES:

- ENCHARGE BATTERY SYSTEM ENERGY CAPACITY SHALL BE SIZED TO SUPPLY ALL DESIRED LOADS DURING AN OUTAGE. POWER CAPACITY OF THE ENCHARGE BATTERY SYSTEM SHALL BE CAPABLE OF SUPPLYING THE LARGEST LOAD ON SITE, PER 2020 NEC 710.15(A) & NEC 710.15(E).
- ENCHARGE BATTERY STORAGE DISCONNECT SHALL BE REQUIRED USING AN EATON TYPE-8R CIRCUIT BREAKER HOLD DOWN KIT #BRHDK125 IS REQUIRED PER NEC 710.15(E).
- DISTANCE BETWEEN ENPOWER AND ENCHARGE SHOULD BE LESS THAN 9' ELSE AN AC DISCONNECT WILL BE REQUIRED.
- INSTALLER TO VERIFY HOW ENCLOSURES ARE COUPLED TOGETHER VIA CHASE NIPPLE/ CONDUIT DRAWING COMPLIES WITH NEC 2020.

(N) JUNCTION BOX
600 V, NEMA 4
UL LISTED
(BOND IS REQUIRED
IF METALLIC
ENCLOSURE)

(4) #10 AWG THWN-2
(1) #8 AWG THWN-2 GND
3/4" EMT CONDUIT RUN

(N) COMBINER PANEL ENPHASE IQ
COMBINER 3 MAXIMUM 64/240V
CONTINUOUS, PROTECTION MAX 80A
BREAKER ON SOLAR OUTPUT; WITH
MINIMUM 10 KAIC CIRCUIT BREAKERS

WiFi or
ETHERNET
MUST BE
CONNECTED

ESS HOLD
DOWN KIT
BRHDK125 IS
REQUIRED
PER NEC
710.15

(N) BI-DIRECTIONAL METER
LINE SIDE DISCONNECT
(VISIBLE OPEN, NON FUSED)
(SPECIFY MAKE & MODEL #)
2-POLE, 60A, 240 VAC

(N) UNI-DIRECTIONAL METER
240V, 125A, FORM 2S,
RING TYPE

(1) (7) (16) (N) BI-DIRECTIONAL METER
LINE SIDE DISCONNECT
(VISIBLE OPEN, NON FUSED)
(SPECIFY MAKE & MODEL #)
2-POLE, 60A, 240 VAC

(N) BI-DIRECTIONAL METER
240V, 125A, FORM 2S,
RING TYPE

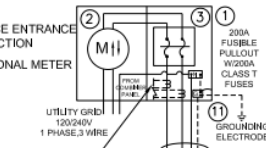
(2) #8 AWG THWN-2
(2) #8 AWG THWN-2
GND
3/4" EMT CONDUIT

(N) BI-DIRECTIONAL METER
LINE SIDE DISCONNECT
(VISIBLE OPEN, NON FUSED)
(SPECIFY MAKE & MODEL #)
2-POLE, 60A, 240 VAC

(N) (7) ENPHASE
ENCHARGE-10-1P-14A,
240 VAC, 10.5 kWh, 3.84 kVA
(REFER, NOTE-1, NOTE-3)

(N) SERVICE ENTRANCE
SECTION
BI-DIRECTIONAL METER

(N) ENPHASE ENPOWER SMART SWITCH
MICROGRID INTERCONNECT DEVICE,
EP200G101-M240US00, NEMA 3R, 160A
RATED, 240V ① ⑩



(N) UTILITY DISCONNECT
(VISIBLE OPEN, NON FUSED)
(SPECIFY MAKE & MODEL #)
2-POLE, 200A, 240 VAC

NOTE TO INSTALLER:
REMOVE FACTORY
INSTALLED N-G BOND.

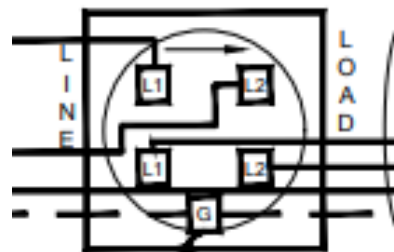
(3) #10 AWG THWN-2
(1) #8 AWG THWN-2 GND
2" EMT CONDUIT

(3) #10 AWG THWN-2
(1) #8 AWG THWN-2 GND
2" EMT CONDUIT

(N) 200A PANEL
120/240V
1 PHASE, 3 WIRE
ENSURE NO N-G BOND

PV Meter Wiring

APS owned meters are required for all generation resources interconnecting to the APS grid. The wiring configuration of the meters allow us to calculate the energy output of the generation system. The meter information is collected as delivered and received.

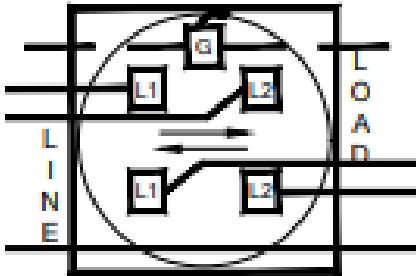


UNI-DIRECTIONAL METER
240V, 200A, FORM 2S,
RING TYPE

Photovoltaic (PV) generation is collected as delivered and should be connected to the top of the meter socket.

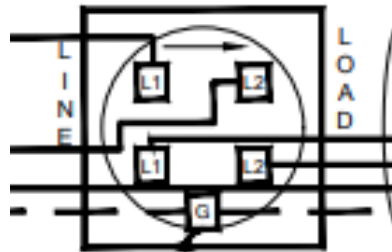
ESS Bi-Directional Meter Wiring

BI-DIRECTIONAL METER
240V, 200A, FORM 2S,
RING TYPE



The ESS generation is collected as delivered and should be connected to the top of the meter socket.

Backup Load Production Meter



UNI-DIRECTIONAL METER
240V, 200A, FORM 2S,
RING TYPE

The connected load is **received** and should be connected to the **bottom** of the meter socket

Clear Workspace

Aps reserves the right to determine all meter and service locations

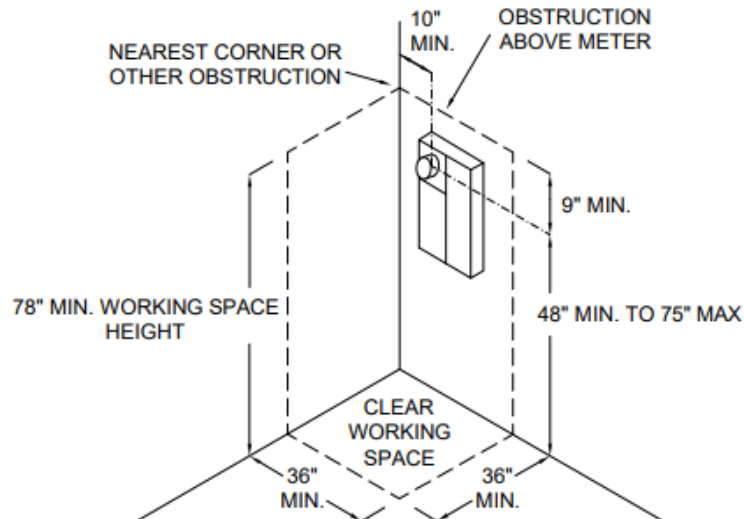
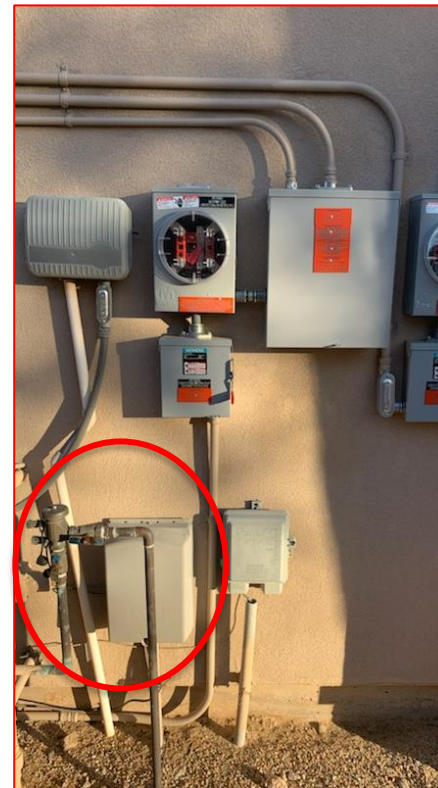


FIGURE 1
SURFACE OR SEMI-FLUSH
METER INSTALLATIONS

- The production meter(s) and utility disconnect(s) must be readily accessible without passing through restricted areas, gates or fences and should not be under covered structures such as a carport, breezeway, patio, porch, or other area that can be enclosed.
- APS prohibits water valves or hose bibs to be located within the working space of the equipment.
- APS requires a 36-inch radial clearance from the gas exhaust vent.

Workspace



Workspace



Considerations

- Customer experience
- Multiple site visits
- Lost production
- Incomplete installations
- Missing/wrong parts
- Damaged equipment

Questions?

