

Frequently Asked Questions

SEM3™ - Embedded Micro Metering Module™

What is the fuse disconnect switch rating?

Panel Boards are rated for 200 kA rating and for the SEM3 application we would need 30 Amp, 600Vac, 200 kA rated breaker or Fuse disconnection switch.

What is the recommended part number for the fuse disconnect switch?

The correct part number for the switch is CCP-3-30CC (Cooper Busmann).

Regarding retrofit applications, if we were to use a spare breaker compartment to house the controller and meters, can that compartment be fitted out with appropriate barriers to ensure no live 480V bussing is accessible? (We want to be sure the OPS person would not need to suit up with PPE to access this device).

A "metering" compartment can be designed. However, the remote panel solution can provide much better isolation from the switchboard bussing.

If customer were to implement this overseas, does it have appropriate product listing (IEC, or some other NRTL listing)?

Currently the SEM3 product listings include UL and CUL. Current plan is to introduce an IEC version by 2015.

The Controller's Device LED does not turn on.

The Controller is not powered. Check that the Controller's lead wires are properly connected to the line voltage.

The Controller's Device LED stays on solid.

The Controller is not communicating to the attached Meter Modules. Check that the Ethernet cables are firmly plugged into the correct ports on the Controller and meter rack(s).

The Controller's TCP/IP LED does not turn on.

The Controller is not communicating by TCP/IP (Modbus or WebPages).

- Check that the Ethernet cable is firmly plugged into the RJ45 port.
- Check that the correct TCP/IP settings are being used.

The Controller's RTU LED does not turn on.

- The Controller is not communicating by Modbus RTU.
- Check for proper wiring into the RS485 terminals.
- Check that the correct Modbus RTU settings are being used.

The measured voltage is zero.

The Controller is wired incorrectly.

- Check for proper wiring in to and out of the fuse disconnect.

The Phase Selector Switch is not in a valid position.

- Check that the Phase Selector switch is in the correct position.

What will happen to the controller if bus goes down (as we are tapping to Bus for the voltage and control power)?

The controller turns off.

Does SEM3 system have Single Phase Loss of Current Alarm (if a load were to single phase)?

Yes, Single phase of Loss of Current alarm is available.

Can SEM3 pulse out be used as a heart beat out to a PLC? Health checks to see if the device is communicating?

If the PLC (S7 1200) can read Modbus data then it could monitor any register and this would indicate that it was communicating at least that channel.

The controller is powered from the 3-phase voltage being sensed by the device. As we discussed at the factory, this means that the controller will lose power, thus lose communication capability, during power outages and source transfers such as open-transition from utility to generator)?

When the power is restored to SEM3 controller, the data will display in Modbus Poll or Modscan tool (Third party tool) within 10 seconds. The Controller has to go through and scan the available meter modules, checks the CT ratings, and responds back within 10 seconds.

The Meter Module's power LED does not turn on.

The Meter Module is not powered.

- Check that the Meter Module is firmly inserted into the rack, with an audible click from each latch when it is secure.
- Check that the Ethernet cables are firmly plugged into the correct ports on the Controller and meter rack.

The Meter Module's power LED stays on solid.

The Meter Module is not communicating to its Controller. Check that none of the meter racks on the Controller are set to conflicting Modbus addresses.

The Meter Module's Phase LEDs are all off.

The Phase Selector Switch is not in a valid position. Check that the Phase Selector switch is in the correct position.

Some of the Meter Modules are not displayed on the webpage.

The Meter Modules are not powered.

- Check that the Meter Modules are firmly inserted into the rack, with an audible click from each latch when it is secure.
- Check that the Ethernet cables are firmly plugged into the correct ports on the Controller and meter rack.
- Some/all of the attached meter racks have conflicting Modbus addresses.
- Check that none of the meter racks on the Controller are set to conflicting Modbus addresses.

The Modbus addresses for the Meter Modules shown on the webpage are incorrect.

The Modbus address switch on the meter rack is in the wrong position. Set the Modbus address switch on the meter rack to the desired position.

"-NC-" is displayed on the Realtime page in the webpage for some/all of the Meter Modules.

The Meter Modules were not configured in the webpage. Go to the Multi-Pole Configuration Page and configure the Meter Modules.

What will happen to the system if the meter module didn't communicate?

SEM3 Controller will behave normal and meter module will not communicate.

Ratings of the meter – Can the system handle a NEMA 3R application where it is 90% humidity and 120° deg F in a panelboard to handle the heat and humidity?

NEMA 3R application shouldn't be a problem. SEM3 system is tested @ 65° C and all the SEM3 parts have conformal coating, so the 90% humidity shouldn't be an issue. 120° F is equivalent to 49° C.

What is the retention period for the kWh values stored in the SEM3 Meter module?

It is >45 years.

What will happen to the system if one of the meter racks didn't communicate?

That means that all the meters will not communicate that are on the rack. This could happen if a cable is detached or disconnected.

The measured current is zero.

The CT is wired incorrectly.

- Check that the CT is properly wired into the Meter Module.

There is no current through the CT.

- Check that the breaker the CT is monitoring is closed.

The measured power is negative when it should be positive (or vice versa).

The Meter Module's CT is not installed correctly.

- Check that the CT is properly wired into the meter module.
- Check that the CT load arrow is pointing in the correct direction.

The measured phase angle is off by $\pm 120^\circ$.

The wrong voltage phase is selected for the connected CT.

- Check that the Phase Selector switch is in the correct position.

The Controller wiring to the voltage phases is not in the correct sequence.

- Check for proper wiring in to and out of the fuse disconnect.

How are we marking the label for CT arrow direction (Load side vs. Line Side)?

The arrow is pointing to the Load.

What is the maximum length of the CT lead wire? Can we have or test more than 6 feet? Do we lose accuracy if we go more than 6 feet?

Six feet is the standard length of the CT cable. CT cable length can be up to 100 feet and we are still maintaining the 0.2% accuracy.

What will happen to the accuracy if the load is only 200 amps for 1600 Amp CT?

Accurate down to .01 X CT rating.

Understand that we wire to three phases from the bus to the fused disconnect switch for a three phase board. What if we are only using one phase or two phases? Which phase is used to power the controller? What happens if one of the phases is not working or failure?

Power is A-B. If one of these phases is out means no power.

Understand that we wire to three phases from the bus to the fused disconnect switch for a three phase board. What if we are only using one phase or two phases? Which phase is used to power the controller? What happens if one of the phases is not working or failure?

Power is A-B. If one of these phases is out means no power.

If we do not have a Neutral do we just ground the neutral leg?

No. Do not connect.

Can we power up the controller through the external source as it is very critical in Data Center market?

No. SEM3 does not have an external power source. The metering parameters are derived from the same voltage.

Siemens Industry, Inc.
5400 Triangle Parkway
Norcross, GA 30092

1-800-241-4453
info.us@siemens.com

Subject to change without prior notice
Order No. RPFL-SEMFQ-0814
Printed in USA
All rights reserved
© 2014, Siemens Industry, Inc.

The information provided in this flyer contains merely general descriptions or characteristics of performance which in case of actual use do not always apply as described or which may change as a result of further development of the products. An obligation to provide the respective characteristics shall only exist if expressly agreed in the terms of contract.

All product designations may be trademarks or product names of Siemens AG or supplier companies whose use by third parties for their own purposes could violate the rights of the owners.

www.usa.siemens.com/SEM3