

Post-requisite: Reinstall the Energy Processor into the load center.

1. Turn off the main circuit breaker of the load center.
2. Disconnect the Energy Processor from the external wiring setup.
3. Remove the load center front cover.
4. Reinstall the Energy Processor back into the load center. Refer to installing the device topic for instruction sheets of Energy Processor and Energy Sensor.
5. Reconnect the voltage input wiring with the correct polarity:
 - Line (L)
 - Neutral (N)
6. Reinstall the load center front cover.
7. Turn on the main circuit breaker to power the Energy Processor.

Understand LED Behavior

Booting

LED indication	Description
 Pulsing green for 2 seconds	The device enters boot mode after powering on or resetting.

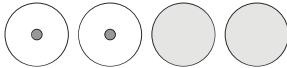
Reconnecting

LED indication	Description
Off	The device searches for a previously commissioned Matter fabric after power-on. If the device does not establish a connection within 30 seconds, it transitions to the Loss of Connection state. The device continues attempting to reconnect to the Matter fabric.

Pairing

User action	LED indication	Description
Press and hold the front push-button for less than 10 seconds	 Static green	The device enters pairing preparation mode when the button is held for at least 3 seconds.
	 Blinking Green	Indicates the device is in commissioning mode and ready to join a Matter network
	 Pulsing Green	Pairing is in progress.
	 Static Green	Pairing completes successfully.
	 Static Orange	Pairing fails. This typically occurs when the device exceeds the maximum supported number of Matter fabrics (currently limited to 5).

Operation

LED indication	Description
 Static white for 2 seconds and off for 2 seconds	The device operates normally after successfully reconnecting to the Matter fabric.

Disconnection

LED indication	Description
 Static orange	The device fails to join a Matter fabric within 30 seconds after booting and enters the Loss of Connection state.

Idle

LED indication	Description
 Off	The device is not connected to any Matter fabric.

Reset

User action	LED indication	Description
Press and hold the front push-button for more than 10 seconds	 Static orange	The device enters reset mode when you hold the front push button for more than 10 seconds. If you do not release the button within one minute, the device exits reset mode and returns to idle or operation mode.
	 Pulsing orange	The device is performing a reset operation.

Update

LED indication	Description
 Pulsing White	The device is performing an over-the-air (OTA) software update.

Troubleshooting

If the Energy Processor detects a problem, a notification may appear in the device status screen.

Symptom	Possible cause	Solution
Energy Sensor short circuit detected.	The Energy Processor has detected an issue with one of the connected Energy Sensors. Energy measurements for the affected circuit may be inaccurate or unavailable.	Contact the technical support team to resolve the issue.
Phase Loss Detected (L1, L2, or Neutral)	The device has detected an issue with its power supply connection. The Energy Processor may continue to operate, but energy measurements may be affected.	
Energy Sensor disconnected.	One of the Energy Sensors communicating with the Energy Processor. Energy monitoring for the affected circuit.	

Compliance Information

FCC Statement

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. this device may not cause harmful interference, and
2. this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

—Reorient or relocate the receiving antenna.

—Increase the separation between the equipment and receiver.

—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

—Consult the dealer or an experienced radio/TV technician for help.

FCC RF RADIATION EXPOSURE STATEMENT

This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be provided with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance. The device must be professionally installed. Installation must be controlled and requires special training. Must use the same type of antenna with lower or equal gain to the listing antenna as follows:

- Antenna Type : Dipole Antenna
- MAX Antenna Gain : 3.25 dBi

IC Statement

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS (s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

L'appareil contient un émetteur / récepteur exempté de licence conforme au CNR exempté de licence d'innovation, sciences et développement économique Canada. Les opérations sont soumises aux deux conditions suivantes:

1. Cet appareil ne peut pas causer d'interférences.

2. l'appareil doit accepter toute interférence, y compris celles qui peuvent entraîner un fonctionnement indésirable de l'appareil.

ISED RF RADIATION EXPOSURE STATEMENT:

This equipment complies with IC RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator and any part of your body.

Pour se conformer aux exigences de conformité CNR 102 RF exposition, une distance de séparation d'au moins 20 cm doit être maintenue entre l'antenne de cet appareil et toutes les personnes

This radio transmitter [IC: 25381-H22120] has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device. The concrete contents to check are the following three points.

1. Antenna type is a Dipole with no more than 3.25 dBi gain.
2. Should be installed so that the end user cannot modify the antenna.
3. Feed line should be designed in 50 ohm.

Le présent émetteur radio [IC: 25381-H22120] a été approuvé par Innovation, Sciences et Développement économique Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal. Les types d'antenne non inclus dans cette liste, et dont le gain est supérieur au gain maximal indiqué pour tout type figurant sur la liste, sont strictement interdits pour l'exploitation de l'émetteur. Le contenu concret à vérifier sont les trois points suivants.

1. Le type d'antenne est un Dipole avec pas plus de 3.25 dBi gain
2. doivent être installés de façon que l'utilisateur final ne peut pas modifier l'antenne
3. La ligne d'alimentation doit être conçue en 50ohm

Le réglage précis de la perte de rendement, etc. peut être effectué en utilisant un réseau correspondant.

Technical Data

Mechanical characteristics

IP degree of protection (IEC 60529-1)	IP40
Installation location	Indoor, Mount to the side wall of the electrical panel
Weight	Wired: 186,6 g Wireless: 185.1 g
Dimensions W x H x D	120 x 66 x 33 mm

Electrical Characteristics

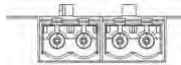
Measurement Accuracy

Current, Phase	$\pm 0.5\%$
Voltage L-N, L-L	$\pm 0.5\%$
Power factor	$\pm 1\%$
Power	Active power : $\pm 1\%$
Frequency	$\pm 0.02\text{Hz}$
Active Energy	ANSI C12.1 Class 1

Voltage Inputs

Nominal voltage	120 Vac L-N / 240 Vac L-L , 120 Vac L-N / 208 Vac L-L
Voltage range	96- 144 Vac L-N
Impedance	$\geq 400 \text{ k}\Omega$
Nominal Frequency	50 / 60 Hz $\pm 5 \text{ Hz}$
Power consumption	0,03 A, <3 W

Energy Sensor Signal Input Terminals

Current signal range	Signal input: 0 ~333 mV Split-core ES: 333 mV / 60A and 333 mV / 225A, Ring-core ES: 333 mV / 80A
Frequency	50 / 60 Hz $\pm 5\text{Hz}$
Protection Class	Class II
Split-core ES 225A ports on meter module	
Split-core ES 60A / ES 80A ports on meter module	

Energy Sensor

Type	Split-core ES: 333 mV / 60A, 333 mV / 225A Ring-core ES: 333 mV / 80A
Compliance Standard	UL2808
Measurement Category	CAT III
Overvoltage Category	333 mV / 225A ES meets OVC IV; 333 mV / 60 A ES meets OVC III 333 mV / 80A ES meets OVC III

For your safety

NOTICE	
HAZARD OF EQUIPMENT DAMAGE	
Do not use this product if the enclosure is broken, cracked, open, or shows any other indication of damage	
Do not expose this product to moisture.	
Do not open device. No user servicable parts inside.	
Use only power supply provided..	
Indoor use only.	
Failure to follow these instructions can result in equipment damage.	

EMC Compliance

FCC / IC	Energy Processor Wired (Matter over Ethernet): FCC Part 15B, 15C (US) / ICES-003, RSS-GEN (Canada) Energy Processor Wireless (Matter over Thread): FCC Part 15B, 15C(US) / ICES-003, RSS-GEN,, RSS-247 (Canada)
ESD	IEC61000-4-2 1. Contact discharge: $\pm 8\text{kV}$, Class A 2. Air discharge: $\pm 15\text{kV}$, Class A
Surge	IEC 61000-4-5
EFT	IEC 61000-4-4

Safety

Measurement Category	CAT III
Overvoltage Category	Current Input (I1/I2): OVC IV Other terminals: OVC III
Dielectric Strength	UL 61010-1

Protection Class	Class II, Double insulation on user-accessible parts
Insulation Resistance	>50 MΩ Normal environment (15–35 °C, 45%–75% RH)

Maintenance and upgrades

Maintenance overview

If the Energy Processor requires service, contact your local Schneider Electric Technical Support representative.

<i>NOTICE</i>
EQUIPMENT DAMAGE Do not open the meter case. Do not attempt to repair any components of the meter. Failure to follow these instructions can result in equipment damage.

Do not open the Energy Processor. Opening the Energy Processor voids the warranty.

Energy Processor memory

The Energy Processor stores configuration and logging information in non-volatile memory and a long-life memory chip.

The Energy Processor uses its non-volatile memory (FRAM) to retain all data and configuration values.

Viewing firmware version

You can view the Energy Processor firmware version through the associated application interface.

Technical assistance

Visit www.se.com for support technical problems with the Energy Processor.

Make sure you include your Energy Processor's model, serial number and firmware version in your email or have it readily available if calling Technical Support.

Verifying accuracy

Overview of Energy Processor accuracy

All Energy Processors are tested and verified at the factory in accordance with ANSI C12.1 Class 1.

Your Energy Processor typically does not require re-calibration .

Signal and power source

The Energy Processor maintains its accuracy during voltage and current signal source variations but its energy pulsing output needs a stable test signal to help produce accurate test pulses. The Energy Processor's energy pulsing mechanism needs approximately 10 seconds to stabilize after every source adjustment.

The Energy Processor must be connected to control power in order to conduct accuracy verification testing. Refer to your Energy Processor's installation documentation for power supply specifications.

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Verify the device's power source meets the specifications for your device's power supply.

Failure to follow these instructions will result in death or serious injury.

Control equipment

Control equipment is required for counting and timing the pulse outputs from an energy pulsing LED. The reference device or energy standard typically has digital inputs that can detect and count pulses coming from an external source (i.e., the Energy Processor's pulse output).

Environment

The Energy Processor should be tested at the same temperature as the testing equipment. The ideal temperature is about 23 °C (73 °F). Make sure the Energy Processor is warmed up sufficiently before testing.

A warm-up time of 30 minutes is recommended before beginning energy accuracy verification testing. At the factory, the Energy Processor are warmed up to their typical operating temperature before calibration to help ensure that the Energy Processor will reach their optimal accuracy at operating temperature.

Most high precision electronic equipment requires a warm up time before it reaches its specified performance levels. Energy Processor standards allow the manufacturers to specify Energy Processor's accuracy decreasing due to ambient temperature changes and self-heating.

Your Energy Processor complies with and meets the requirements of these energy metering standards.

For a list of accuracy standards that your Energy Processor complies to, contact your local Schneider Electric representative or download the meter brochure from www.se.com.

Reference device or energy standard

To help ensure the accuracy of the test, it is recommended that you use a reference device or reference energy standard with a specified accuracy that is 6 to 10 times more accurate than the Energy Processor under test. Before you start testing, the reference device or energy standard should be warmed up as recommended by its manufacturer.

NOTE: Verify the accuracy and precision of all measurement equipment used in accuracy testing (for example, voltmeters, ammeters, power factor meters).

Verifying accuracy test

The following tests are guidelines for accuracy testing your Energy Processor; your meter shop may have specific testing methods.

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Apply appropriate Personal Protective Equipment (PPE) and follow safe electrical work practices.

Turn off all power supplying this device before working on or in the equipment.

Always use a properly rated voltage sensing device to confirm that all power is off.

Do not exceed the maximum ratings of this device.

Verify the device's power source meets the specifications for your device's power supply.

Failure to follow these instructions will result in death or serious injury.

1. Turn off all power supplying this device before working on the device or equipment.
2. Use a properly rated voltage sensing device to confirm that all power is off.
3. Connect the test voltage and current source to the reference device or energy standard. Ensure all voltage inputs to the Energy Processor under test are connected in parallel and all current inputs are connected in series.
4. Connect the control equipment used for counting the standard output pulses using one of these methods:

Option	Description (This feature is available only on custom instruments during external testing.)
Pulse output	Connect the Energy Processor's pulse output to the standard test bench pulse counting connections.

5. Before performing the verification test, let the test equipment power up the Energy Processor and apply voltage for at least 30 seconds. This helps stabilize the internal circuitry of the Energy Processor.
6. Configure the Energy Processor's parameters for verifying accuracy testing.
7. Depending on the method selected for counting the energy pulses, configure the Energy Processor's energy pulsing to perform energy pulsing. Set the Energy Processor's energy pulse constant to 5000 so it is in sync with the reference test equipment.
8. Perform accuracy verification on the test points. Run each test point for at least 30 seconds to allow the test bench equipment to read an adequate number of pulses. Allow 10 seconds of dwell time between test points.

Required pulses calculation for accuracy verification testing

Accuracy verification test equipment typically requires you to specify the number of pulses for a specific test duration.

The reference test equipment typically requires you to specify the number of pulses required for a test duration of t seconds. Normally, the number of pulses required is at least 25 pulses, and the test duration is greater than 30 seconds.

Use the following formula to calculate the required number of pulses:

$$\text{Number of pulses} = P \times K \times t / 3600$$

Where:

- P_{tot} = total instantaneous power in kilowatts (kW)
- K = the meter's pulse constant, in pulses per kWh
- t = test duration, in seconds (typically greater than 30 seconds)

Total power calculation for accuracy verification testing

Accuracy verification testing supplies the same test signal (total power) to both the energy reference/standard and the Energy Processor under test.

Total power is calculated as follows, where:

- P = instantaneous power in kilowatts (kW)
- V_{LN} = test point line-to-neutral voltage in volts (V)
- I = test point current in amps (A)
- PF = power factor

The result of the calculation is rounded up to the nearest integer.

For a balanced 3-phase Wye system:

$$P_{\text{tot}} = 3 \times V_{\text{LN}} \times I \times PF \times 1 \text{ kW} / 1000 \text{ W}$$

NOTE: A balanced 3-phase system assumes that the voltage, current and power factor values are the same for all phases.

For a single-phase system:

$$P = V_{\text{LN}} \times I \times PF \times 1 \text{ kW} / 1000 \text{ W}$$

Percentage error calculation for accuracy verification testing

Accuracy verification testing requires you to calculate the percentage error between the Energy Processor being tested and the reference/standard.

Calculate the percentage error for every test point using the following formula:

$$\text{Energy error} = (EM - ES) / ES \times 100\%$$

Where:

- EM = energy measured by the Energy Processor under test
- ES = energy measured by the reference device or energy standard.

NOTE: If accuracy verification reveals inaccuracies in your Energy Processor, they may be caused by typical sources of test errors. If there are no sources of test errors present, please contact your local Schneider Electric representative.

Accuracy verification test points

The Energy Processor should be tested at full and light loads and at lagging (inductive) power factors to help ensure testing over the entire range of the Energy Processor.

The test amperage and voltage input rating are labeled on the Energy Processor. Refer to the installation sheet or data sheet for your Energy Processor's nominal current, voltage and frequency specifications .

Watt-hour test point	Sample accuracy verification test point
Full load	100% to 200% of the nominal current, 100% of the nominal voltage and nominal frequency at unity power factor or one (1).
Light load	10% of the nominal current, 100% of the nominal voltage and nominal frequency at unity power factor or one (1).
Inductive load (lagging power factor)	100% of the nominal current, 100% of the nominal voltage and nominal frequency at 0.50 lagging power factor (current lagging voltage by 60° phase angle).

Energy pulsing considerations

The meter is available for active power optical pulse output.

Description	Pulse output (This feature is available only on custom instruments during external testing.)
Meter constant	400 imp / kwh

The pulse rate depends on the voltage, current and PF of the input signal source, the number of phases.

If P is the instantaneous power (in kW) and K is the pulse constant (in pulses per kWh), then the pulse period is:

$$\text{Pulse period (in seconds)} = 3600 / (K \times P)$$

Typical sources of test errors

If you see excessive errors during accuracy testing, examine your test setup and test procedures to eliminate typical sources of measurement errors.

Typical sources of accuracy verification testing errors include:

- Loose connections of voltage or current circuits, often caused by worn-out contacts or terminals. Inspect terminals of test equipment, cables, test harness and the meter under test.
- Energy Processor ambient temperature is significantly different than 23 °C (73 °F).
- Floating (ungrounded) neutral voltage terminal in any configuration with unbalanced phase voltages.
- Inadequate Energy Processor control power, resulting in the Energy Processor resetting during the test procedure.
- Ambient light interference or sensitivity issues with the optical sensor.
- Unstable power source causing energy pulsing fluctuations.
- **Incorrect test setup:** not all phases connected to the reference device or the energy standard. All phases connected to the Energy Processor under test should also be connected to the reference meter / standard.
- Moisture (condensing humidity), debris or pollution present in the Energy Processor under test.

Power and power factor

Power and power factor

The sampled measurements taken at the Energy Processor's voltage and current inputs provide data for calculating power and power factor.

In a balanced 3-phase alternating current (AC) power system source, the AC voltage waveforms on the current-carrying conductors are equal but offset by one-third of a period (a phase angle shift of 120 degrees between the three voltage waveforms).

Current phase shift from voltage

Electrical current can lag, lead, or be in phase with the AC voltage waveform, and is typically associated with the type of load — inductive, capacitive or resistive.

For purely resistive loads, the current waveform is in phase with the voltage waveform.

For capacitive loads, current leads voltage. For inductive loads, current lags voltage.

The following diagrams show how voltage and current waveforms shift based on load type under ideal (laboratory) conditions.

Real, reactive, and apparent power (PQS)

A typical AC electrical system load has both resistive and reactive (inductive or capacitive) components.

Real power, also known as active power (P) is consumed by resistive loads. Reactive power (Q) is either consumed by inductive loads or generated by capacitive loads.

Apparent power (S) is the capacity of your measured power system to provide real and reactive power.

The units for power are watts (W or kW) for real power P, vars (VAR or kVAR) for reactive power Q, and volt-amps (VA or kVA) for apparent power S.

Power flow

Positive real power P (+) flows from the power source to the load. Negative real power P (-) flows from the load to the power source.

Power factor (PF)

Power factor (PF) is the ratio of real power (P) to apparent power (S).

PF is provided as a number between -1 and 1 or as a percentage from -100% to 100%, where the sign is determined by the convention.

$$PF = P/S$$

A purely resistive load has no reactive components, so its power factor is 1 (PF = 1, or unity power factor). Inductive or capacitive loads introduce a reactive power (Q) component to the circuit which causes the PF to become closer to zero.

True PF and displacement PF

The Energy Processor supports true power factor and displacement power factor values.

- True power factor includes harmonic content.
- Displacement power factor only considers the fundamental frequency.

NOTE: Unless specified, the power factor displayed by the Energy Processor is true power factor.

Power factor sign convention

Power factor sign (PF sign) can be positive or negative and is defined by the conventions used by the IEC standards.

You can set the power factor sign (PF sign) convention that is used on the display to either IEC

PF sign convention: IEC

PF sign correlates with the direction of real power (kW) flow.

- Quadrant 1 and 4: Positive real power (+kW), the PF sign is positive (+).
- Quadrant 2 and 3: Negative real power (-kW), the PF sign is negative (-).

Power factor register format

The Energy Processor performs a simple algorithm to the PF value then stores it in the PF register.

Each power factor value (PF value) occupies one floating point register for power factor (PF register). The meter and software interpret the PF register for all reporting or data entry fields according to the following diagram:

Printed in:
Schneider Electric
1884 Boulevard de la Défense
92000 Nanterre - France

Schneider Electric
1884 Boulevard de la Défense
Nanterre
France

www.se.com

© 2026 – 2026 Schneider Electric. All rights reserved.
Energy Processor_SH_00