



AKCP Inline Power Meter AC Power Monitoring and Switching Instruction Manual

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AKCP Inline Power Meter AC Power Monitoring and Switching



What is the Inline Power Meter – AC Version

The PM is an “in-line” AC power meter that is connected between the electrical source and the power strip, or AC voltage equipment, monitoring the voltage (V), current (A), and Kilowatt Hours (kWh) being consumed with billable grade accuracy. Remotely switch devices on with an optional relay. The relay is a Bi-Stable Latched relay, which retains its state regardless of whether it is receiving power or not.

Essential Benefits

Check how close you are to tripping your circuit breaker Ensure sufficient power overhead before adding new equipment to a circuit\Bill individual clients in co-located services Monitor up to 16 Inline Power Meters from a single sensorProbe+ or SEC+ The AC ILPM comes in either a 16A or 32Amp version. AC Voltage rating = 110AC to 220VAC. Please refer to the product datasheet for specific part numbers and connector types.

Very Important note: The ILPM is ONLY compatible with the SP+ (SP2+, SPX+ & SEC+) base units and will not work on the securityProbe or sensorProbe family of base units. They also are not compatible with any version of the AKCess AKCP Pro Server prior to v13.0.

Rules for Safe Operation

To avoid possible electric shock or personal injury, and to avoid possible damage to the ILPM sensor Meter, or to the equipment being connected, to, please adhere to the following rules:-

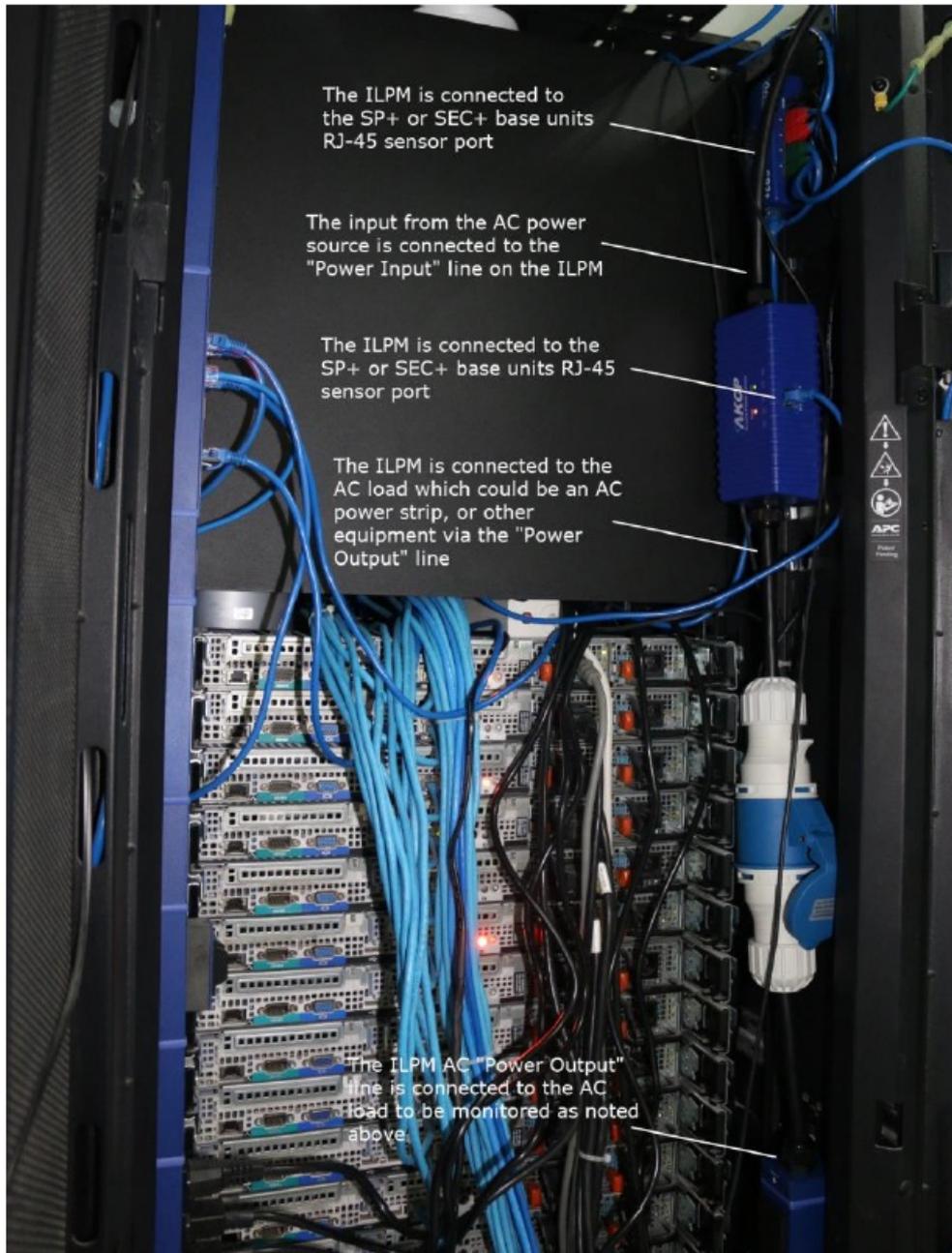
- Before using the ILPM, inspect the housing. Do not use the ILPM if the housing or any portions of the power input and output connectors are damaged.
- DO NOT connect the ILPM, or the power plugs to the AC power input source without first cutting or disengaging the AC power that will connect to the ILPM power input connection.
- When connecting the AC power plugs, or direct AC lines/cables to the ILPM make sure you are connecting the positive (Line or Hot Phase), negative (Neutral or Return Phase), and ground (Protective Earth Ground) correctly.
- Ensure that the sensorProbe+ or securityProbe+ base units, and the equipment being connected to is are

properly grounded.

- Do not apply more than the rated AC voltage and AC current as specified for the ILPM.
- Do not install the ILPM in an environment where there is very high humidity, flammable, or anywhere near or in contact with strong magnetic fields.
- Do not install or use the ILPM if the meter is wet or if the customer's user's hands are wet.
- When servicing or replacing the ILPM, use only the same model number and with identical electrical specifications.
- The internal circuits and components of the ILPM must not be tampered with. Tampering with the internal circuitry can cause damage to the ILPM and personal injury.
- Always use common sense when working with the AC voltages and currents to ensure your safety and if you are not sure please consult with a qualified electrician.
- AKCP is not liable for any type of damage or injury resulting from a lack of knowledge or incorrectly installed equipment.
- Noted in the image below, you need to connect the RJ-45 extension cable from the RJ-45 port on the unit to the RJ-45 sensor port on the sensorProbe+ or securityProbe+ base unit.

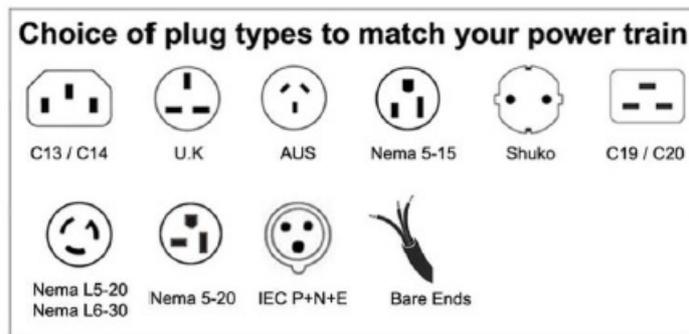
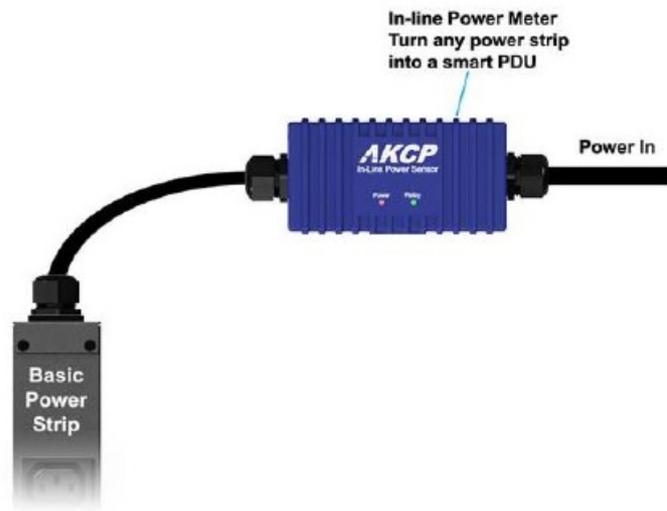


- With the AC power disconnected, connect the AC power plug to the AC power source using the “Power In” line on the ILPM. Then connect the AC power plug to the “Power Out” line and then to the AC load or power strip. the sentence is confusing, maybe just say: connect the AC power plug of the “Power In” to the AC power source, and the AC power plug of the “Power Out” to the AC appliance or the power strip.
- The following image shows an example of how the ILPM has been installed in a 19” server cabinet to monitor the other equipment that has been installed in the cabinet.
- The above installation example shows how the ILPM is connected to the SP2+ unit and the AC equipment installed in this server cabinet.



Connecting to existing power strips

With the AC power disconnected, first connect the "Power In" connector to the power wires on ILPM power in port, then connect the "Power Out" connector first to the ILPM then the other end connector to the power strip as shown in the image below. Then connect the RJ-45 extension cable from the ILPM to the RJ-45 sensor port on the sensorProbe+. A variety of the AC power plug types can be ordered for each specific requirement as shown above. Please refer again to the ILPM sensor datasheet for the part numbers and ordering information.



What can the Inline Power Meter monitor?

The Inline Power Meter can monitor and record the following from the sensorProbe+ base units.

- Current = AC RMS Current to the load. Voltage = AC RMS Voltage of the load.
- **Active Power** = power in kW (kilowatt), it is the real power transmitted to loads such as motors, lamps, heaters, and computers. Power merely absorbed and returned in load due to its reactive properties is referred to as reactive power. ... Total power in the AC circuit[[needed to rephrase this, confusing.
- **Power Factor** = In AC circuits, the power factor is the ratio of the active power consumed by a component or circuit to the apparent power is the ratio of the real power that is used to do work and the apparent power that is supplied to the circuit. It is an indicator of the quality of design and management of an electrical installation.
- **Leakage Current** = Leakage current is the current that flows from the AC circuit in the equipment to the chassis, or to the ground, and can be either from the input or the output. If the equipment is not properly grounded most power supply supplies in equipment have a small amount of leakage current

(Optional) Relay = Allows the ability to shut off or turn on the power to the I

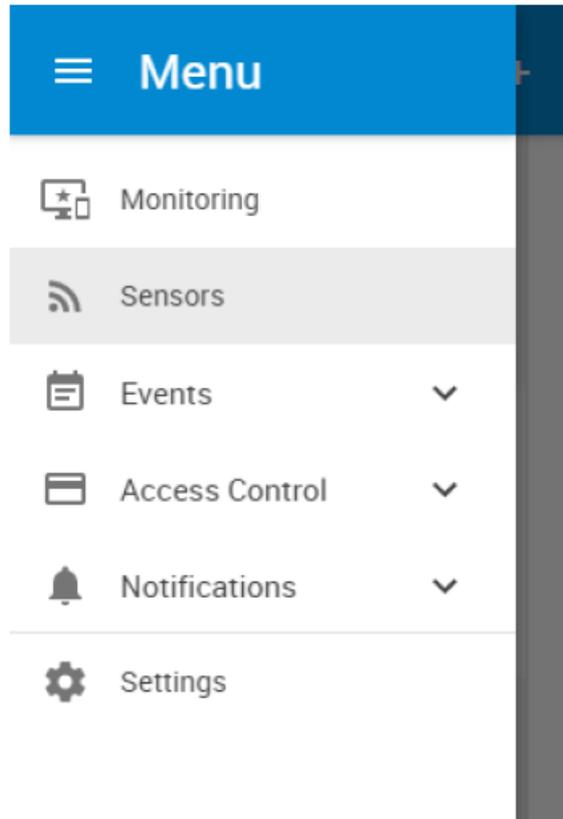
Maximum Current & Power

- Below shows the maximum current & power (temporary overload condition) for each model.
- maximum measurement range of current for 16A model = 16A, current reading value will saturate at 16A, device is rated for 20A max (derated 16A for UL),
- maximum measurement range of power for 16A model = 3.84 kW (16A x 240V, with PF=1)
- maximum measurement range of current for 32A model = 32A, current reading value will saturate at 32A,

device is rated for 32A max (derated 24A for UL)

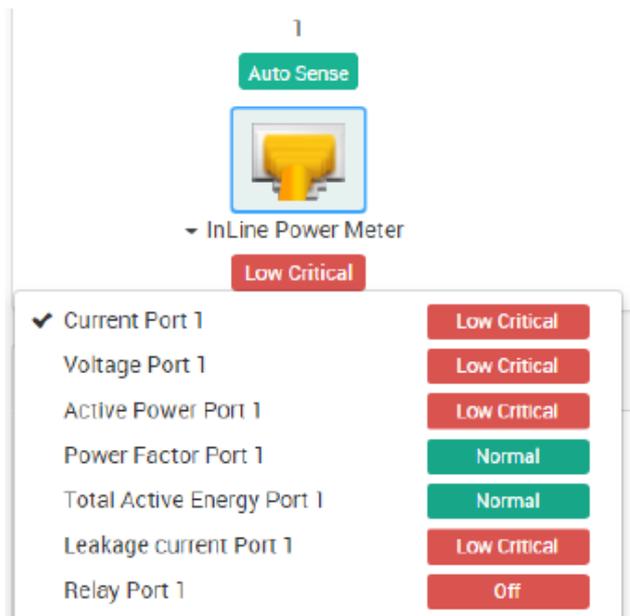
- maximum measurement range of power for 32A model = 7.68 kW (32A x 240V, with PF=1)

ILPM Sensor Web UI Setup



After connecting the ILPM to the base unit and connecting the power, log into the SP+ or SEC+ base unit as administrator and navigate to the sensors page as shown above.

As shown in the screenshot below, then you would click on the sensor port that the ILPM is connected to and choose which sensor to setup.



Inline Current

Now you can set your current thresholds as shown in the screenshot below.

Current | **Advanced** | Continuous Time

Sensor Name:

Sensor Status: **Low Critical**

Sensor Reading: 0 A

Sensor Currently: **Online**

0 → (Low Critical) → (Low Warning) → (Normal) → (High Warning) → (High Critical)

Offline All Sensors In Error On This Port

Save

By clicking on the [Advanced](#) tab you can then setup the Rearm, Data Collection type. Enable the Calendar, Graph or Filter Status.

Current | **Advanced** | Continuous Time

Rearm:

Data Collection Type:

Enable Calendar: On Off

Graph Enable: Enable Disable

Filter Status: Enable Disable

Save

Note: [Advanced Settings](#) ~~[Continuous Time Settings](#)~~ are exactly the same for each InlinePower Meter [reading_readingsensor](#).

By clicking on the [Advanced](#) tab you can then set up the Rearm, Data Collection type. Enable the Calendar, Graph, or Filter Status.

Note: Advanced Settings Continuous Time Settings are exactly the same for each InlinePower Meter reading sensor.

Inline Current Continuous Time

You can also set the Continuous-Time as shown in the screenshot below.

Current **Advanced** Continuous Time

Continuous Time for a Sensor Status to be active before accepting as a new status ?

High Critical

High Warning

Normal

Low Warning

Low Critical

Sensor Error

Save Cancel

Note: Continuous-Time Settings are exactly the same for each InlinePower Meter reading sensor.

Inline Voltage

Now you can set your Voltage thresholds as shown in the screenshot below.

Voltage **Advanced** Continuous Time

Sensor Name

Sensor Status **Low Critical**

Sensor Reading 0 V

Sensor Currently **Online**

180 → → → → → 260

Low Critical Low Warning Normal High Warning High Critical

Selected Voltage 220 Volts 110 Volts

Offline All Sensors In Error On This Port

Save Cancel

Inline Active Power

Now you can set your Active Power thresholds as shown in the screenshot below.

Active Power **Advanced** Continuous Time

Sensor Name: Active Power Port 1

Sensor Status: **Low Critical**

Sensor Reading: 0 kW

Sensor Currently: **Online**

0 → **Low Critical** 0.50 → **Low Warning** 1.50 → **Normal** 2.50 → **High Warning** 3 → **High Critical** 10

Offline All Sensors In Error On This Port

Save Cancel

Inline Power Factor

Now you can see the Power Factor as shown in the screenshot below.

Power Factor **Advanced**

Sensor Name: Power Factor Port 1

Sensor Status: **Normal**

Sensor Reading: 1

Sensor Currently: **Online**

Offline All Sensors In Error On This Port

Save Cancel

Inline Total Active Energy

Now you can see the Active Energy as shown in the screenshot below.

Total Active Energy **Advanced**

Sensor Name

Sensor Status **Normal**

Sensor Reading 0 kWh

Last Reset N/A

Sensor Currently

Inline Leakage Current

Now you can set your Current Leakage thresholds as shown in the screenshot below.

Current **Advanced** Continuous Time

Sensor Name

Sensor Status **Low Critical**

Sensor Reading 0 A

Sensor Currently

Low Critical Low Warning Normal High Warning High Critical
 0 → → → → → 1

Invalid Status Threshold.

Optional Bi-Stable Latched Relay

A latched relay is basically a relay that will maintain its position after the power is removed. The relay LED is located on the right of the power LED and shows the status of the relay.

Relay **Advanced**

Sensor Name

Sensor Status **Off**

Sensor Currently

Boot Up State On Off

Description of Status When Off

Description of Status When On

Relay Advanced Settings

This concludes the InlinePower Sensor AC Manual.

Relay **Advanced**

Sensor Control

Toggle 5s

Enable Calendar On Off

Graph Enable Enable Disable

Filter Status Enable Disable

Please contact support@akcp.com if you have any further technical questions or problems setting up your modem or your alerts.

Documents / Resources

	<p>AKCP Inline Power Meter AC Power Monitoring and Switching [pdf] Instruction Manual ILPM-AC, Inline Power Meter AC, Power Monitoring and Switching</p>
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References

- [AKCP - AKCP Remote Sensor Monitoring | Data Center Monitoring](#)

Manuals+.