

| Model #       | Cabinets | kWh  | Ah     | Hours @ 7.5kW |
|---------------|----------|------|--------|---------------|
| <b>iQM185</b> | 1        | 185  | 3600   | 24            |
| <b>iQM370</b> | 2        | 370  | 7200   | 48            |
| <b>iQM550</b> | 3        | 550  | 10800  | 72            |
| <b>iQMxxx</b> | 4+       | 735+ | 14400+ | 96+           |

# iQM Microgrid System

The iQM microgrid system provides advanced energy storage that's scalable to support a dynamic load in a compact footprint.

- NFPA 855 compliant (pending)
- UL 1973 Battery Module Level (pending)
- UL 9540 Entire System Level (pending)
- GR-487 compliant
- 15-year limited warranty



**Battery Management System**



**Energy Management System**



**Smart Meter**



**Edge Controller**



**Power Support System**

## Energy Storage Features

→))| Asset resiliency

⌒ Peak shaving

⌒ Load shifting

↻ Demand response

⚡ Grid sell back

💰 Rate tariff optimization

⚡ Utility grid tie

🔌 Generator tie (cam locks)

⚡ Renewable energy tie

🛡️ Safe battery chemistry

♻️ Environmentally friendly

⌚ Long lasting

### Battery Management System

- Manages and protects the battery from damage
- Monitors charge/discharge rate and temperature to the cell level
- Local read/write and data collection from the BMS
- Communication and reporting back to the Edge Controller

#### Cabinet Specifications

|                                    |                 |
|------------------------------------|-----------------|
| <b>Battery Cabinet (H×W×D)</b>     | 83" × 30" × 47" |
| <b>Approx. Weight w/ Batteries</b> | 3700 LBS        |

#### Battery Specifications

|                                    |               |
|------------------------------------|---------------|
| <b>Dimensions (H×W×D)</b>          | 6" × 7" × 38" |
| <b>Rated Capacity</b>              | 100Ah         |
| <b>Rated Voltage</b>               | 51.2V         |
| <b>Max Charge Current</b>          | 50A           |
| <b>Max Discharge Current</b>       | 50A           |
| <b>Max Charge / Discharge Rate</b> | 0.5C          |
| <b>Average Charge Voltage</b>      | 56.8          |
| <b>Discharge Cut-Off Voltage</b>   | 43.2V         |
| <b>Working Temp Charge</b>         | 0°C ~ 55°C    |
| <b>Working Temp Discharge</b>      | -18°C ~ 55°C  |
| <b>Integrated Heater Pad</b>       | If required   |
| <b>Battery Weight</b>              | 88 LBS        |
| <b>Cycle Life Characteristics</b>  | ≥ 5000        |

### Safe Battery Chemistry

- **Stable cathode material:** The cathode material used in Lithium Iron Phosphate (LiFePO<sub>4</sub>) batteries is more stable than other types of cathode materials used in lithium-ion batteries, such as nickel manganese cobalt (NMC) or nickel cobalt aluminum (NCA). These materials release oxygen when heated, which can cause thermal runaway and combustion. On the other hand, LiFePO<sub>4</sub> does not release oxygen when heated, which makes it more resistant to thermal runaway and combustion.
- **Non-flammable electrolyte:** LiFePO<sub>4</sub> batteries use a non-flammable electrolyte that does not catch fire even if the battery is punctured or damaged. The electrolyte is a mixture of lithium salts and a solvent that is less volatile and less flammable than the organic electrolytes used in other types of lithium-ion batteries.
- **Low toxicity:** LiFePO<sub>4</sub> batteries are non-toxic and environmentally friendly because they do not contain any caustic materials or dangerous odors. When disposed of properly, they do not pose any negative health or environmental hazards.
- **Built-in protection circuit:** The Protection Circuit Module (PCM) or Battery Management System (BMS) is an essential component that monitors and controls the











voltage, current, and temperature of the LiFePO<sub>4</sub> battery. It ensures that the battery operates within safe limits and prevents overcharge, over-discharge, short-circuit, and physical damage. The PCM or BMS also balances the voltage of each cell in the battery pack, which helps prolong the battery life and prevent cell damage.

- **Robust cell design:** LiFePO<sub>4</sub> cells have a robust design that makes them more resistant to physical damage, such as impact or puncture. The cells are enclosed in a hard metal casing that protects them from external forces and prevents them from leaking or catching fire. Aither LiFePO<sub>4</sub> batteries also have a built-in pressure relief valve that releases gas in case of an internal overpressure, preventing the battery from exploding.



## Energy Management System

Every Microgrid System is accompanied with access to the EMS (Energy Management System). EMS offers features such as:

-  Automated monitoring & data collection system
-  Data presentation & analysis tool
-  Alarming & notification engine
-  Equipment maintenance tool
-  Wide area supervisory control platform
-  Time-of-use scheduling
-  Energy deployment planning tool
-  Financial reconciliation tool
-  Fleet management system
-  Energy cost analysis tool

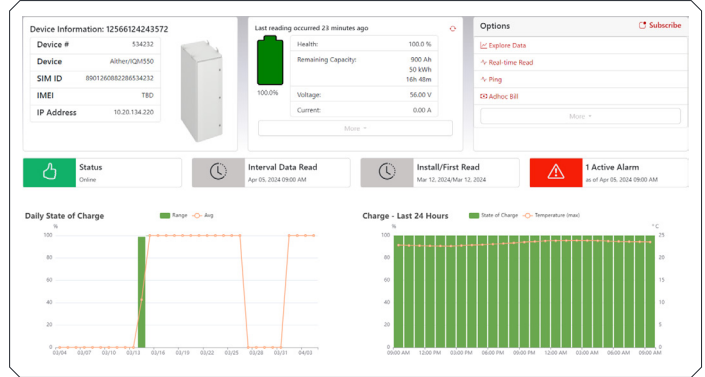
## Smart Meter

Smart metering allows you to produce, track, and forecast your energy needs with ease.

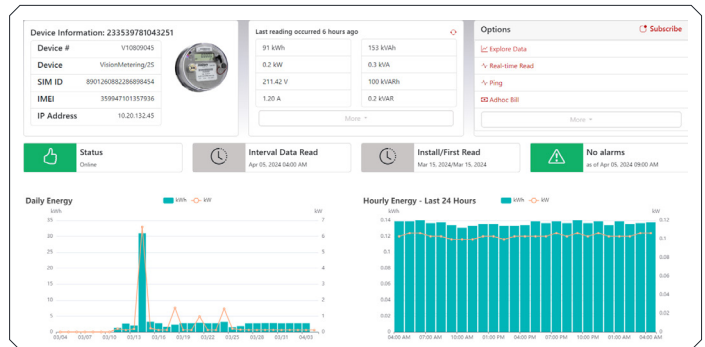
- Real Time Read and Control
- Historical Power Data
- Power Usage
- Remote Connectivity for E-Stop



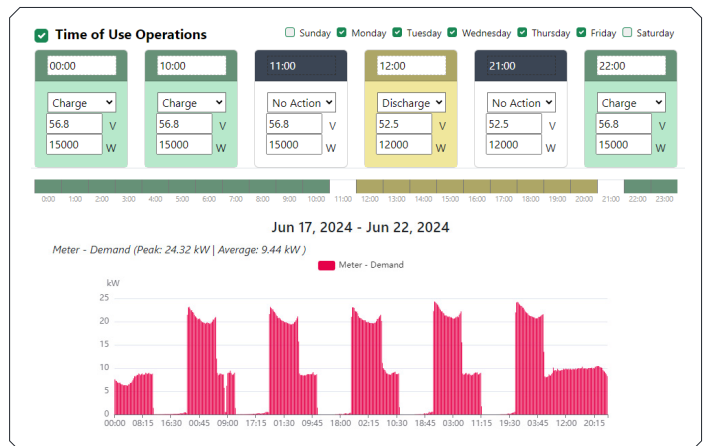
## Battery Monitoring & Reporting



## Utility Monitoring & Reporting



## Peak Shaving / Time-of-Use (Utility)



## Edge Controller

The Edge Controller is a Supervisory Control and Data Acquisition (SCADA) device that communicates with controllers, sensors, or devices within the Microgrid System and serves as a single point of communication with remote monitoring and management systems.



- **Remote access:** Provides remote access to logged and instant (real-time) data.
- **Remote configuration management:** Provides remote systems to configure itself and any connected controllers that allow configuration over local communication channels.

- **Log data:** Reads data from connected controllers or other devices and log this data to a local database.
- **Record and report alarms:** Records alarms generated by connected equipment or inferred from measurements.
- **Execute control commands:** Allows remote monitoring systems to initiate control commands on itself and locally connected equipment.
- **Control strategies:** Stores and executes control strategies and algorithms across connected devices

by issuing control commands to the devices in response to locally acquired data and remote commands.

- **Manage cellular communications:** Communicates remotely via a cellular modem and ensures consistent and stable communication to the extent possible.
- **Ethernet switch:** Serves as an ethernet switch and creates a local area network with interconnectivity within a larger wide area network to allow local devices to communicate via wired TCP/IP connections and remote requests to be routed to the appropriate device.

## Power Support System



### Supported Configurations:

- ✓ 15kW power rectifier / inverter (can parallel up to 12x units)
- ✓ 48VDC output to batteries (rectifier)
- ✓ 240VAC output to load (inverter)
- ✓ 19.5kW solar input
- ✓ 240VAC Grid Tie + Gen Tie w/ Grid AC pass through

### Certifications:

- NEC 690.4B & NEC 705.4/6
- Grid Sell Back – UL1741-2010/2018
- IEEE1547a 2003/2014
- FCC 15 Class B
- UL1741SB

### Power Support System Specifications

|                                |                             |
|--------------------------------|-----------------------------|
| <b>Power Encloser (H×W×D)</b>  | 57" × 24.5" × 17"           |
| <b>Approx. Weight Empty</b>    | 215 LBS                     |
| <b>Mounting Type</b>           | Wall mounted / Pole mounted |
| <b>Nominal AC Voltage</b>      | 120/240, 120/208            |
| <b>Operating Temperature</b>   | -25°C – 55°C                |
| <b>Grid Frequency</b>          | 50 / 60Hz                   |
| <b>Max Continuous Power</b>    | 15,000W                     |
| <b>Max AC Output Current</b>   | 62.5A                       |
| <b>Max Grid Pass through</b>   | 200A                        |
| <b>Transfer Time</b>           | 5ms                         |
| <b>Nominal DC Voltage</b>      | 48V                         |
| <b>Operating Voltage Range</b> | 43 – 63V                    |
| <b>Max Charge/Discharge</b>    | 275A                        |
| <b>Charging Efficiency</b>     | 96.0%                       |
| <b>Noise</b>                   | <30 dB                      |
| <b>Idle Consumption</b>        | 90W                         |