

## PowerManager 2000™ Advanced Data Controller

Ideal for utility scale PV projects with unmanned operation, typically 5 - 45MW.

## PowerServer 3000™ Supervisory Control Server

For utility scale PV projects of any size; ideal for stand-alone systems with local HMI supervision; requires indoor shelter.

The **PowerManager 2000** and **PowerServer 3000** combine dependable industry-standard hardware with AlsoEnergy's PowerTrack software platform. These devices may serve as the central component of a turnkey AlsoEnergy SCADA system, or they may be deployed stand-alone as an onsite overlay data aggregator for a third party SCADA system.

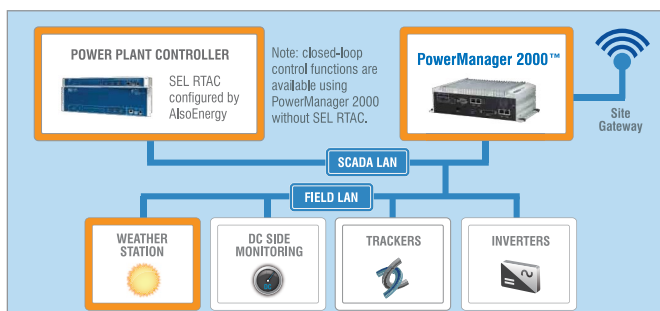
- Optional to combine with an AlsoEnergy Power Plant Controller running on industry standard SEL RTAC platform.
- AlsoEnergy hardware devices are extensively tested, listed to UL standards, and come with our standard 5-year warranty. Hardware is wired and mounted in enclosures where applicable.

### System Capabilities

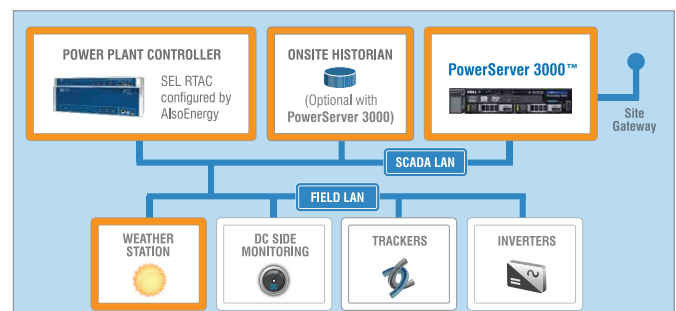
- Full SCADA functionality
- Closed-loop control functions such as zero-net export control and fixed power factor operation
- Utility telemetry solutions including DNP3, Modbus, or OSI PI interfaces; CAISO-compliant RIG telemetry
- Utility-grade weather station, UPS, wireless communications, and other supporting hardware
- Optional to integrate AlsoEnergy Power Plant Controller running on industry standard SEL RTAC platform
- User-adjustable sampling rates down to one second

### Integration with PowerTrack Software

- Intuitive solar-specific SCADA system interface including local real-time HMI
- Remote real-time HMI; control room video wall
- PowerManager 2000 is designed for use with our cloud-based software
- PowerServer 3000 supports optional standalone operation (with PowerTrack local historian)
- Includes access to full suite of PowerTrack software features for performance analysis, asset management, and operational oversight



typical PowerManager 2000 system diagram



typical PowerServer 3000 system diagram

## Specifications

General	PowerManager 2000	PowerServer 3000
Devices supported	Up to 200 devices	Up to 1000 devices
Logging interval	Configurable down to 1 second	
Offline storage	More than 4 months offline storage with 200 field devices logging at 1 minute intervals	More than 4 months offline storage with 1000 field devices logging at 1 minute intervals
Configuration	Remote automated configuration; local network setup	
Software management	Remote software update capability	
Tools support	Ability to use third party Windows-based tools through secure remote desktop connection	
Local display	Supports local HMI and remote desktop access	
Real-time HMIs	Supports configurable PowerTrack real time HMIs	
Native control capabilities	External command input (Modbus or DNP3) for real-time or scheduled set points; zero net export restriction; maximum export limit; closed loop reactive power control; closed loop ramp rate control; closed loop grid voltage control	
External plant controller integration	Seamless integration with SEL RTAC as independent power plant controller	
Telemetry	Customizable DNP3 or Modbus TCP upstream interface; supports CAISO compliant RIG functionality	

### Interfaces

Ethernet	2 x 10/100/1000 ports	
Primary protocols	Modbus TCP, Modbus RTU, DNP3, HTTP, HTTPS, Telnet, FTP, SNMP, proprietary inverter protocols, RDP, VPN	
Discrete I/O	Available with accessory	Available with accessory
Display	VGA and HDMI ports for local display	
Peripheral support	USB ports for keyboard and mouse	

### Mechanical

Mounting configuration	Outdoor enclosure mount	Indoor rack mount
Dimensions	10.4" x 2.96" x 5.2"	19" rack mount - 1U x 29" D

### Environmental Rating

Operating Temperature	-20°C to 60°C (-40°C to 75°C available)	Indoor temperature controlled 10°C to 35°C
Storage Temperature	-40°C to 85°C	

### Electrical

Input Voltage	12-24 VDC	90-264 VAC
Power Consumption	26W maximum, 10W typical	Redundant power supplies; 495W max
Surge protection	Designed with protection against transients and ESD for use in harsh environments	n/a

### Regulatory

Warranty	Standard 5 year warranty	Standard 5 year warranty; next business day on site support
Listings	Listed to applicable UL Standards; FCC Part 15 Subpart B Class A	

