PowerShield.

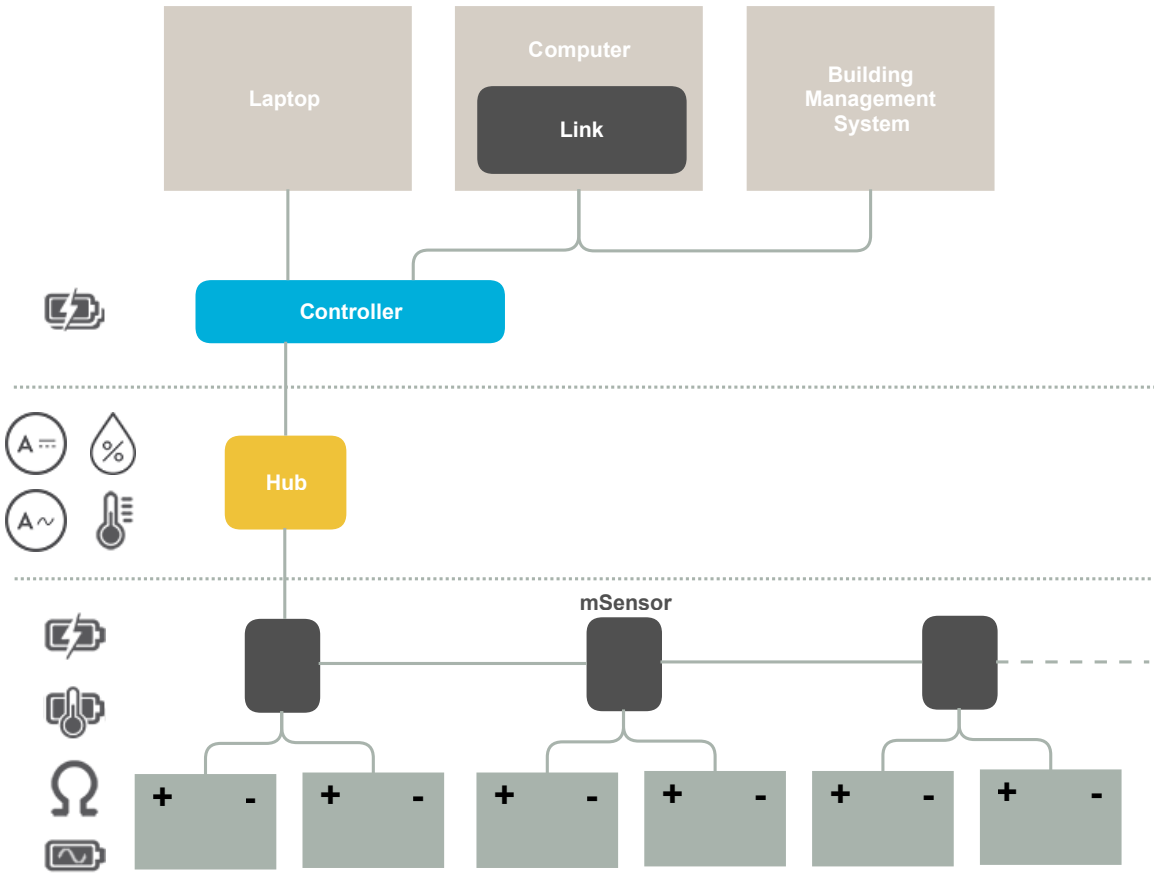
PowerShield System

Specification Sheets

PRELIMINARY

Version 001-2017

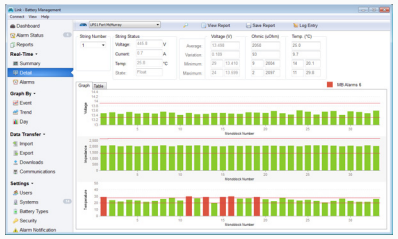
PowerShield System

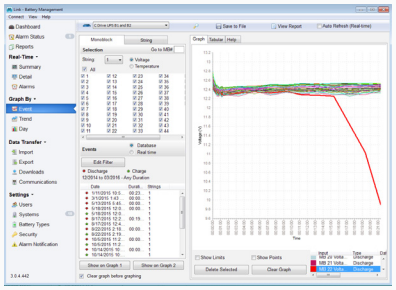


SYSTEM SPECIFICATIONS

Battery inputs	up to 512 (connected directly to PowerShield Controller or via remote Hubs)
Sensor type	mSensor
Nominal sensor voltage	1.2V Nicad, 2V, 4V, 6V, 8V, 12V, 16V Lead Acid
Maximum distance	50m / 150ft from Controller via Hub 25m / 75ft from Hub
Current inputs	up to 8 (connected via remote Hubs)
Current range	Depends on CT model* (±10A to ±2000A)
Maximum distance	50m / 150ft from Controller via Hub 3m / 15ft from Hub
Temperature inputs	up to 16 (connected via remote Hubs)
Maximum distance	50m / 150ft from Controller via Hub 3m / 15ft from Hub
Inputs	up to 18 2 via Controller, up to 16 via remote Hubs
Type	Dry Contact
Relays	4 via Controller
Type	Single Pole Double Throw (SPDT)
Rating	1A @ 30VDC, resistive

*Larger range CT's available



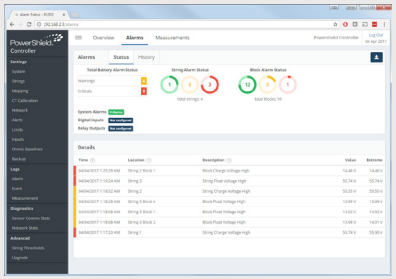


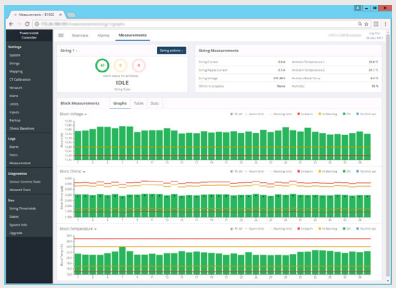
Link Battery Management Software

Link manages the Controller and records all battery readings in its database for viewing, trending and reporting.

RECOMMENDED MINIMUM PC SYSTEM REQUIREMENTS

Processor	1GHz or better x86 or x64 processor
Operating System	Windows 7 or later
RAM	4GB or more
Storage	20GB available hard disk space
Monitor	1024 x 768, 1366 x 768 or better





Controller UI

Controller UI provides an easy to follow installation configuration process and real-time battery status information and measurements.

CONTROLLER UI REQUIREMENTS

Minimum Browser version	Chrome 50, Firefox 45, Safari 6.1, Internet Explorer 10, Edge 12
Configuration screens	Desktop, tablet
Status screens	Desktop, tablet or smartphone

Controller

The PowerShield Controller captures, processes and stores data from the hubs and mSensors. This includes monoblock voltage (DC and ripple), impedance and temperature, string voltage and current (DC and ripple), humidity plus ambient temperature.

CONTROLLER SPECIFICATIONS

Communication Front	1000Base-T Ethernet (Service Port) USB (Flash drive only) LCD (optional)
Rear	1000Base-T Ethernet (Link software, ModbusTCP, SNMP) RS485 (optional) RS232 (optional)
Wireless	Wi-Fi (optional) 3G/4G Modem (optional)
Configuration interface	Web browser
Memory	2GB RAM 4GB Flash
Physical Dimensions	1U High 19" rack mount enclosure, mild steel with powder coat finish Width: 430mm / 16.9 inches Depth: 265mm / 10.4 inches Height: 45mm / 1.8 inches *The Controller must be installed in a location that allows 30mm space at the top and sides of the unit for adequate air circulation. Installation must allow unrestricted airflow.*
Power Supply	AC Model: 90V to 260Vac, 50/60Hz 24V DC Model: 19V to 30Vdc 48V DC Model: 36V to 60Vdc 110V DC Model: 80V to 150Vdc
Environment	Indoor use only, Overvoltage Category II, Pollution Degree 2 **Operating Temperature:** 0°C to 50°C / 32F to 122F **Storage Temperature:** 0°C to 70°C / 32F to 158F **Humidity:** Maximum relative humidity of 80 % for temperatures up to 31°C decreasing linearly to 50 % relative humidity at 40°C. **Altitude:** 2000m max.

Hub

The PowerShield Hub takes inputs from sensors at the battery rack and connects them through to the Controller. One Hub is applied per battery string.

The Hub measures current (DC and ripple) and ambient temperature via external sensors, plus humidity through on-board sensor.

HUB SPECIFICATIONS

Battery inputs	up to 64 (via 32 mSensors)
Sensor type	mSensor
Maximum distance	25m / 75ft from Hub
Current inputs	1 [Provides string DC current and ripple current]
Current range	Depends on CT model* (±10A to ±2000A)
Maximum distance	3m / 15ft
Temperature inputs	2
Maximum distance	3m / 15ft
Inputs	2
Type	Dry Contact

*Larger range CT's available

mSensor

The PowerShield mSensor measures individual monoblock voltage (DC and ripple voltage), impedance (ohmic value) and temperature.

mSENSOR SPECIFICATIONS

Battery inputs	2			
Battery type	1.2V Nicad, 2V, 4V, 6V, 8V, 12V, 16V Lead Acid			
Maximum distance	25m / 75ft from Hub			
Protocol	Modbus			
Interface	Proprietry differential bus			
Nominal voltage	NiCad	2V	6V	12V
Operating range*	0.8V-1.9V	1.6V-2.6V	4.8V-7.8V	9.6V-15.6V
Maximum input voltage	±5V	±6V	±25V	±65V
DC Resolution / Accuracy	0.001V / 0.3%	0.001V / 0.3%	0.005V / 0.2%	0.005V / 0.2%
AC Resolution	1mV	1mV	1mV	1mV
Ohmic measurement range	0.15-5mΩ	0.15-5mΩ	0.50-20mΩ	1.00-40.00mΩ
Resolution / Accuracy	1uΩ / ±2.5% + ±15uΩ	1uΩ / ±2.5% + ±15uΩ	1uΩ / ±2.5% + ±25uΩ	1uΩ / ±2.5% + ±25uΩ
Power supply current	50mA	30mA	18mA	18mA
Temperature inputs	1			
Location	Negative terminal of battery			
Measurement range	-4°C to 70°C/24.8F to 158F			
Isolation	750VDC optical isolation barrier			

*Other models available 4V, 8V, 16V