PowerShield

Battery Management System

System specifications

	Controller LX	Controller MX		Controller LX	Controller MX
Capability	up to 512 blocks up to 8 strings*	up to 200 blocks up to 4 strings*	**Interfaces**	Link Battery Management Software Controller Web Interface	
				16 x 2 character LCD & keypad	–
Battery system information	Block: Voltage, Ripple Voltage, Ohmic, Temp String: Voltage, Current, Ripple Current Environment: Ambient Temperature, Humidity		**Communication ports**	2 x 1000Base-T Ethernet 2 x Expansion ports Expansion port options: RS485, Wi-Fi[1]	1 x 1000Base-T Ethernet 1 x USB 1 x Expansion ports - RS485 (optional) 1 x Wifi (optional)[1]
Battery types	Lead Acid (2V, 4V, 6V, 8V, 12V & 16V) Ni-Cd (1.2V, 3.6V)		**Protocols**	ModbusTCP, SNMP, HTTP and HTTPS ModbusRTU when RS485 card is fitted	
Battery charging regime	Float and Intermittent		**Relay outputs**	up to 12, 4 via Controller up to 8 via Hubs	1
Thermal runaway management	String breaker or charger step down signalling		**Digital inputs**	up to 10, 2 via Controller, up to 8 via Hubs	up to 4 via Hubs
Environment	Operating temperature: 0 to 50°C / 32 – 122°F Storage temperature: -10 to 70°C / 14 – 158°F 10 to 90% RH non condensing Altitude: 2000m max., Indoor use only.		**Certifications**	FC CE UL LISTED UKCA	

[1]Wi-Fi 802.11 dual band 2.4/5 GHz a/ac/b/g/n, security WPA2. * Contact PowerShield for further details.

Controller

	Controller LX	Controller MX		Controller LX	Controller MX
Service port	Front Ethernet port (1000Base-T)	USB 2.0 (Type B)	**Dimensions** Width Depth Height Weight	1U High 19" rack mount 430mm / 16.9 inches 265mm / 10.4 inches 45mm / 1.8 inches 3.0 kg / 6.6 lb	250mm / 9.84 inches 155mm / 6.1 inches 36mm / 1.4 inches 1.2kg / 2.7lb
Port 1	Back Ethernet port (1000Base-T)				
Port 2	Expansion port - optional RS485				
Port 3	Expansion port' RS485 or Wi-Fi[1]	–	**Power supply**	AC Model: 90 – 260V 50/60Hz 24V DC Model: 18 – 30V 48V DC Model: 35 – 60V 110V DC Model: 80 – 150V	AC Model: 90 – 260V 50/60Hz 48 DC Model: 18 – 60V 110 DC Model: 80 – 150V
Display	16 x 2 character LCD	–			
Front	USB data storage	SD Card data storage	**Power consumption**	5W + 1.2W per Hub	1.5W + 1.2W per Hub
Relay outputs	4 SPDT	1 SPDT	**Digital inputs**	2 (Voltage free / Dry contact)	–
Rating **Selectable**	1A @ 30VDC, resistive* Any relay configurable to any alarm				
Configuration interface **Minimum version**	Web browser Chrome 51, Edge 15, Firefox 54, Safari 10.0		**Memory**	2GB RAM 16GB Flash	1GB RAM 8GB Flash

* Contact PowerShield for further details.

Link battery management software

Minimum PC system requirements[1]

Processor	Intel i3-8100 or faster	RAM	8GB
Operating system	Windows 10 or 11 Windows Server 2012 R2, 2016, 2019 or 2022	Storage Monitor	20GB available hard disk space 1024 x 768 or 1366 x 768

[1] Recommended for up to 5 Controller connections, with single seat operation. Refer to PowerShield for larger configurations.

mSensor

Dual and Single Input

Nominal voltage[1]	NiCad[2]	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	1mV / ±0.3%	1mV / ±0.3%	5mV / ±0.2%	5mV / ±0.2%
AC resolution	1mV	1mV	1mV	1mV
Ohmic measurement range	0.10-5mΩ	0.10-5mΩ	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
Temperature[3] Range Resolution / accuracy	-10 to 80°C / 14 to 176 °F (all models) 0.1°C / ±1°C (all models)			
Power supply current[4]	50mA	30mA	20mA	20mA
Dimensions	76mm x 26mm x 106mm (W x D x H) (all models)			
Weight	110 g / 0.24 lb (all models)			

[1] Most common models, other models available on request
[2] Ni-Cd single 1V mSensor cannot perform ohmic measurement

[3] Operating temperature -10 to 50°C / 14 to 122°F
[4] Power by block being monitored

Design rated to 750VDC. UL certified to 600Vdc

Hub

Powered	24Vdc supplied by Controller
Power consumption[2]	1.2W
Current transducer input	2
DC current Typical resolution[1] Accuracy	0 -2000A 0.05A ±1% + CT accuracy
Ripple current (AC) Typical resolution[1] Accuracy Frequency range	True RMS 0.5A ±1% + CT accuracy 10 – 1000Hz
Dimensions	120mm x 25mm x 107mm (W x D x H)

Digital inputs	1, voltage free
Relay outputs Rating Selectable	1 SPDT 1A @ 30VDC, resistive* Configurable to any alarm
Temperature Resolution Accuracy	-10 to 80°C / 14 to 176°F 0.1°C / 0.18°F ±1°C / 1.8°F
Relative humidity Resolution Accuracy	0 - 100% 1.0% ±3% @ 25°C / 77 °F, 20% to 80% RH
Weight	180 g / 0.40 lb

[1] Resolution dependent on CT model used, typical values are based on 400A CT.
[2] With 1 CT connected

*Contact PowerShield for further details.

Installation Dimensions

Dimension	Maximum		Factory sizes	
	Metres	Feet	Metres	Feet
A	75	246	-	-
B	50	164	3, 5, 10, 15	10, 16, 33, 49
C	25	82	-	-
D	15	49	3	10
E	-	-	0.2, 0.4, 0.7, 1.0	8, 16, 28, 39 in

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