PowerManager Control Solution (PMCS): Control + DAS for Utility PV

Empowering energy stakeholders to rapidly scale and confidently optimize the clean energy portfolios, AlsoEnergy provides an edge-to-cloud platform that drives insightful decisions that improve portfolio performance. At the edge, PowerManager Control Solution (PMCS) is an end-to-end control and data acquisition (DAS) solution that provides PV power plant control and grid stability management. The complete solution includes BOS hardware, local network communications infrastructure, and the PowerManager CE, combining the functionality of plant controller and datalogger in a single device. Expert engineering services can be provided to manage project risk during deployment, along with advanced web-based software. All solutions include global support to ensure optimized long-term operations. Through its professional engineering, AlsoEnergy deploys advanced control algorithms and communication sequences, making PMCS an industry-leading tool for fast and stable power plant control.

PowerManager CS features

- PowerManager CE plant controller/datalogger
- Utility grade BOS hardware and sensors
- Central communication architecture enabling secure remote management and control
- Highly adaptable for compliance with different local or regional grid codes
- Supports 3rd-party interface for energy trading
- Compatible with major inverter brands in all worldwide markets
- Push data up to 3 destinations at the same time
- Data compression & SSL transport encryption
- Fully integrated with PowerTrack

Associated Professional Services

- Professional design and engineering services
- Project management
- Global support, training and onboarding

PowerManager CS plant control

- Closed-loop control of active and reactive power
- Ensure controlled grid injection, both at the medium and high voltage level
- Feedback of actual values from grid connection point at medium or high voltage level
- Advanced curtailment and grid stability management
- Reactive power compensation of passive components
- Voltage stabilisation
- Frequency stabilisation
- Characteristic curves
- Balancing power reserve
- Control of reactive power compensation devices
- Nightly grid support
- Fully stackable – hierarchical design
- Protocols: IEC60870-5-101/104, OPC-UA, IEC61850, DNP3, Modbus
- Repeatable, scalable, model-driven approach deployed by AlsoEnergy's engineering & project management teams

Technical data

Components (Choose up to one option in each category)	Embedded computer	1 x Embedded computer (System memory 8GB, internal watchdog, Linux OS)
		2 x Embedded computer
	Network	1 x Multimode industrial (un)managed Ethernet switch large [2x 100BaseFX MM optical fiber, 6x 10/100BaseT(X)]
		1 x Single-mode industrial (un)managed Ethernet switch large [2x 100BaseFX SM optical fiber, 6x 10/100BaseT(X)]
		1 x Multimode industrial (un)managed Ethernet switch small [2x 100BaseFX MM optical fiber, 3x 10/100Base]
		1 x Single-mode industrial (un)managed Ethernet switch small [2x 100BaseFX SM optical fiber, 3x 10/100BaseT(X)]
		1x Industrial (un)managed Ethernet switch [8 x 10/100BaseT(X)]
		2x Industrial (un)managed Ethernet switch [8 x 10/100BaseT(X)]
	Power supply	Power supply 85 to 264 V AC / 45 to 65 Hz mains
		Power supply 85 to 264 V AC / 45 to 65 Hz mains & UPS with 2 batteries (12 Ah AGM integrated)
		Power supply 85 to 264 V AC / 45 to 65 Hz mains & UPS with 2 batteries (26 Ah or 38 Ah AGM external enclosure)
	RS485 overvoltage protection	3 x RS485 fieldbus interfaces, overvoltage protected
		5 x RS485 fieldbus interfaces, overvoltage protected
		6 x RS485 fieldbus interfaces, overvoltage protected
		1 x RS485 fieldbus interface, overvoltage protected / 24V external power supply
		7 x RS485 fieldbus interfaces, overvoltage protected
	Ethernet overvoltage protection	Remote software update capability
	Splice box	Multimode splice box with SC Connector
		Single-mode splice box with SC Connector
	Fieldbus coupler/controller	1 x Fieldbus coupler/controller to connect several I/O modules
		2 x Fieldbus couplers/controllers to connect several I/O modules
	Router	LTE-Router / VPN Gateway WW
	Heating	150 W Heater w/ internal thermostat: 110 to 240 VAC, heater off at rise 5°C

Technical data

		I/O Modules	
Additional interfaces	<7 I/O modules can be connected to the fieldbus coupler / controller in anyarrangement	2 channels RTD: Pt100, Pt1000	2 S0 counter channels
		8 digital input channels: 2wire SE 24V input	4 analog output channels: 4-20mA SE output
		4 analog input channels: 4-20mA SE sink	2 analog input channels: 4-20mA differential input
		2 relay channels: NO+NC	4 analog input channels: ±10V SE input

Internal plant communication	Protocol	IP Ethernet, AlsoEnergy specific communication
	Connection	Multimode 50/125 µm, e.g. HITRONIC® HQN outdoor cable with SC connector 4G50/125 multimode up to 4 km / 2.5 miles
		Single mode 9/125 µm, e.g. HITRONIC® HQN outdoor cable with SC connector 4E9/125 single mode up to 20 km / 12.5 miles

		Cabinet	Battery cabinet
Mechanical data	Dimensions, W x H x D	847 x 636 x 300 mm	436 x 647 x 250 mm
	Weight	Approx. 32 kg; dependent on options	14 kg; without batteries
	Material of cabinet	UV-resistant, glass-reinforced polyester	
	Protection class	IP66 / NEMA 4X	
	UL listing / marks	CE / cETLus	
	Standards	EN 60950-1, EN 61000-6, UL 62368-1:2014 Ed.2, CSA C22.2 62368-1:2014 Ed.2	

		I/O Modules
Ambient conditions	Operating temperature	-20 °C to +50 °C / -4 °F to +122 °F
	Storage temperature	-20 °C to +70 °C / -4 °F to +158 °F
	Relative air humidity	up to 95 % non-condensing

Technical data

Certifications

Germany	Certified by Moeller Operating Engineering, according to DIN EN ISO/IEC 17065:2013, VDE-AR-N-4110 (medium voltage) and VDE-AR-N-4120 (high voltage)
Spain	Certified by CERE according to NTS631 v2 [SEPE]
Poland	Certified by Moeller Operating Engineering, according to ‘Rozporządzenie Komisji (UE) 2016/631 z dnia 14 kwietnia 2016 r. ustanawiające kodeks sieci dotyczący wymogów w zakresie przyłączenia jednostek wytwórczych do sieci (Dz.U. UE L 112/1 z 27.4.2016) concretisized by Wymogi ogólnego stosowania wynikające z Rozporządzenia Komisji (UE) 2016/631 z dnia 14 kwietnia 2016 r. ustanawiającego kodeks sieci dotyczący wymogów w zakresie przyłączenia jednostek wytwórczych do sieci (NC RfG)’