



# Smart Off-Grid Controller

For Solar & Hybrid Powered Systems

Delivers power anywhere, anytime with remote operations of mission critical applications. Commercial, business, and industrial systems will now have unparalleled:

- > Energy Forecasting & Management
- > Troubleshooting & Remediation



Clear Blue's industry leading Smart Off-Grid Controller with our Illumience Management Software and Service provides energy generation, storage management and load control for systems needing:



## Maximum Uptime

Our predictive analytics, weather forecasting and individual load control enables management for maximum uptime.



## Long Life

Our Dynamic Charging algorithm uniquely focus' on battery charging with the unpredictable nature of off-grid solar energy.



## Maintenance & Easy Installation

More than 80% of all issues are managed and eliminated through our remote management service. Installers and customers get peace of mind through our commissioning & provisioning services to ensure you get it right the first time, every time.

**Delivering on the Promise of Power**  
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# Smart Off-Grid Controller

## Technical Data

Feature	S2 (24V Model)		S21 (12V Model)	
	Voltage and Power	Current	Voltage and Power	Current
Battery Input/Output	22-32V	Max 30A	11-16V	Max 30A
Nominal PV Power	840W	Max 30A	420W	Max 30A
Solar 1, Solar 2 Input	52V Maximum	Max 15A each	52V Maximum	Max 15A each
Hybrid P3 Port Input	42V	Max 30A	21V	Max 30A
Hybrid P3 Port Output	22-32V	Max 30A	11-16V	Max 30A
Load 1, Load 2 Output	22-32V	Max 20A Each Combined 30A	11-16V	Max 20A Each Combined 30A

Signal I/O Rating		
MP-Output	Software Configurable (default 12V)	Maximum 1A
M1-Input/M2-Input	9-32V	N/A
D1-Output/D2-Output	Analog: 0-5V or 0-10V with protection up to 82V	4.5mA source; 50mA sink
Auxiliary Port Output	Software controlled internal switch to battery negative	50mA

Smart Off-Grid Cloud Management & Service	
Illumience Management (Cloud Based)	All settings remotely managed by the Illumience cloud service including remote monitoring, troubleshooting and remote software upgrade.
Management Benefits	Remote control, >50 customizable parameters, customizable alarms, weather & energy forecasting, remote resting & remediation tools, group management, battery state of charge and health.
Service Support	Clear Blue service team monitors and manages sites on behalf of customer.
Security	All data between devices and the Cloud are encrypted for security purposes.

Communications	
Built In Communications	Cellular, mesh or RS485.

Safety & Standards	
Refer to manual for GSM, Cellular, Safety & Emmissions Standadrds	

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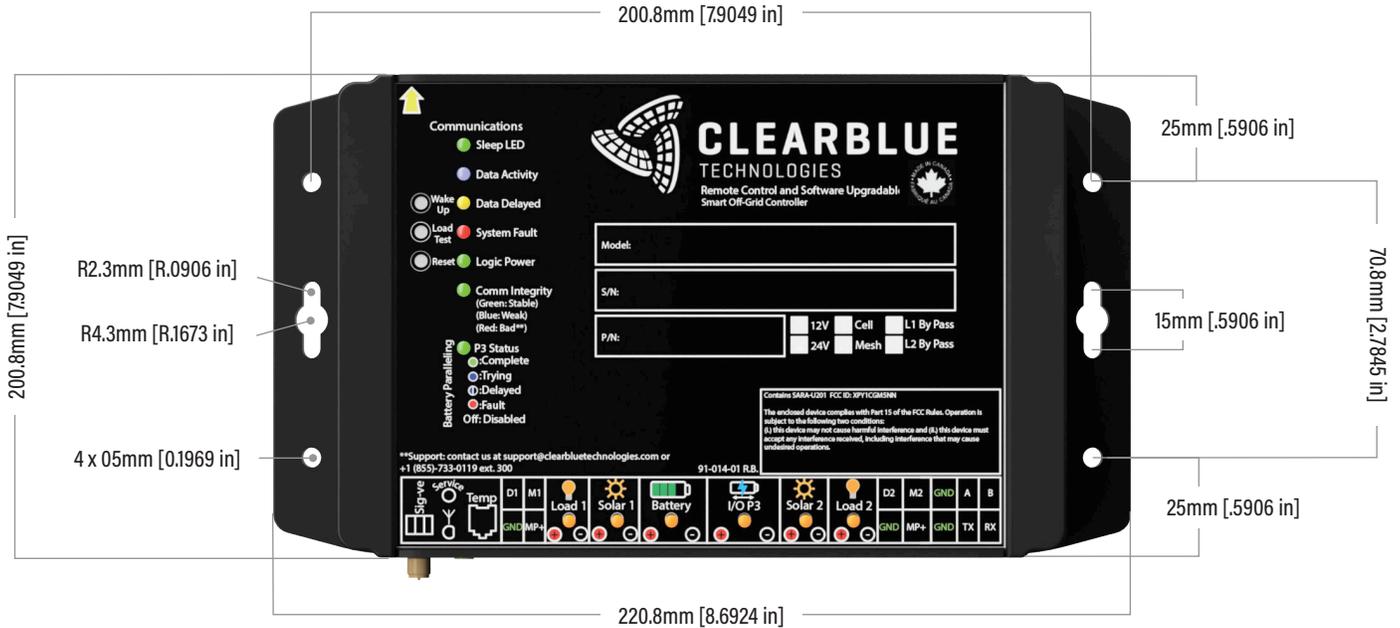
Features	
Protection	Reverse polarity, battery overcharge, over discharge and temperature compensation, I/O overload protection, short circuit and low voltage disconnect, overvoltage protection and transient voltage protection across all power I/O's. High availability features - variable short circuit multi-try and variable surge current management.
Dimming Control	Dimming controls are 0-10V, 0-5V, PWM signal and PWM power with remote frequency adjustable from 100kHz to 10kHz.
Motion Detection	Motion detection can be enabled in all four adjustable light profile stages. Real time event settings combined with motion detection ensures the right amount of light at the right time while optimizing system availability and cycle life of the system. Includes output protection, short circuit and overload.
Smart Battery Charge Profile	Four stage eight parameter, remote software configurable charge profile designed specifically for solar charging. It can be adjustable to all battery chemistries using Clear Blue's dynamic charging complete with fully customizable temperature compensation.
Remote Software Update	New Features delivered to all devices via remote software download.
High Availability Internal Bypass for L1 and or L2 (optional)	Eliminates need for external bypass. Designed for mission critical applications. Make before break feature ensures always on loads remain on in event of controller failure. Includes overload, short circuit, LVD, LVR.
MP-Output	Power signal that can be used to power small signal loads. DCDC voltage regulated output that is software configurable.
M1/M2 Input	This is input signal typically used for external sensors such as door sensors, motion sensor etc.
D1/D2 Output	This is output signal use for dimming. Output analog or digital PWM (software configurable).
Battery Type	Configurable for all lead acid, lithium batteries and other battery chemistries.

Physical & Environmental	
Connectors	Toolless colour coded wire push-in connectors make for easy foolproof installation. Molex and RJ11 connectors for temperature.
Dimensions (L x W x H)	180 mm x 119 mm x 62 mm
Weight	0.6 kg
Enclosure Rating	IP65 when connectors pointed down.
Ambient Temperature	-30°C to 60°C
Controller Power Consumption	5W Max

Warranty	
5 Year Warranty	

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Mounting Option A



Mounting Option B

