RLH 100 Watt 24V Solar Power Supply

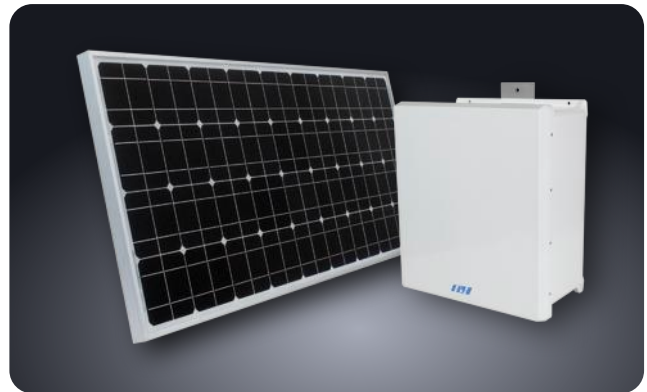## COMPLETE SOLAR POWER SYSTEM WITH 52AH BACKUP BATTERY

Introduction

The RLH 100W solar power supply is a fully integrated solution that provides remote powering for industrial equipment. RLH solar power supplies are engineered with durable and highly efficient photovoltaic panels to ensure reliable operation in any geographical region.

The solar panel uses our exclusive Easy-Mount bracket system designed for simple, one person installation, and the Quick-Tilt arm system allows for simple and accurate angle settings. The bracket is attached to the panel with tamper resistant hardware, and the assembly may be padlocked together for additional security.

The charge controller continuously maintains the correct 24V charge level on the 52Ah battery pack, and ensures a seamless power transition to battery power when needed. The charge controller allows maximum panel current to flow into the battery, optimizing the charging current for the battery condition.

The heavy duty, sealed lead-acid style battery is maintenance free and is field replaceable. The battery pack is pre-wired, and includes screw-down terminals on the charge controller for easy connection to industrial equipment. An inline fuse protects the system.

The battery, charge controller, and related equipment are contained in an outdoor rated, fiberglass cabinet. The battery pack may be wall or pole mounted, and includes mounting hardware.

100W 24V Solar Power Supply w/ 52Ah Battery Pack

Easy-Mount Bracket with Quick-Tilt Feature

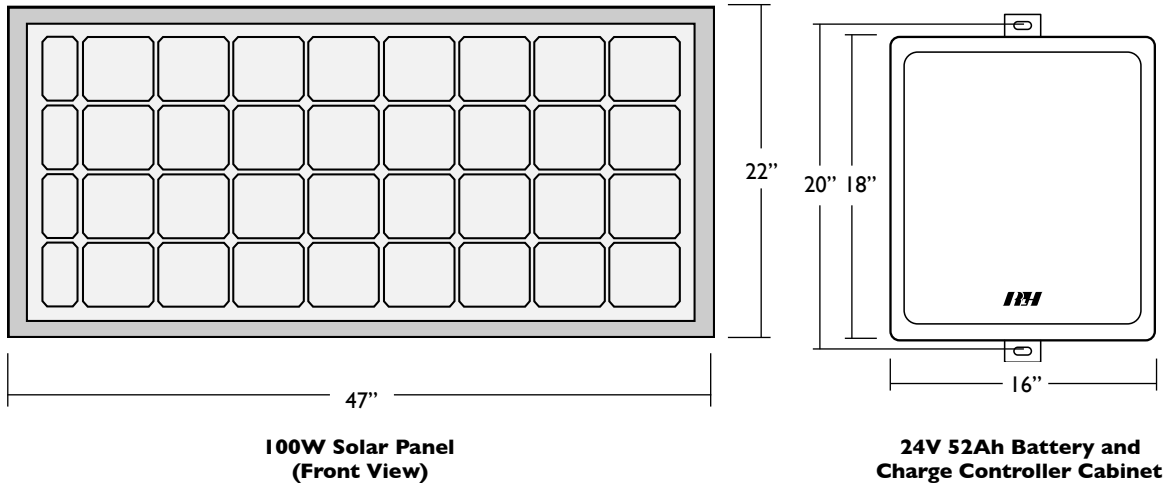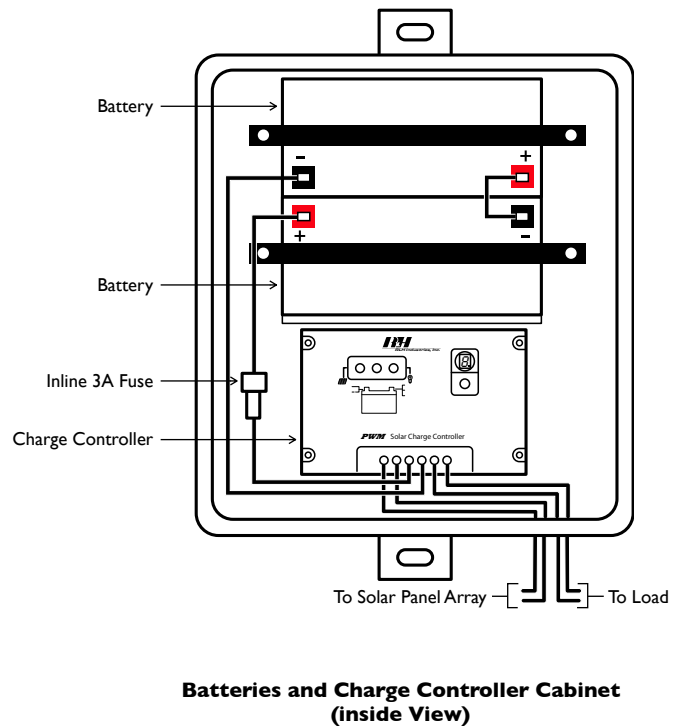| Features |
| --- |
| Complete solar power system with panels, charge controller and sealed battery in a compact battery pack |
| Recommended load up to 300mA (minimum 5 day battery backup) |
| RLH Easy-mount Quick-tilt system for easy installation |
| Battery pack may be wall mounted, and includes a padlock hasp |
| Includes fuse holder and screw down connection terminals |
| Solar panel includes flexible mounting hardware for easy mounting onto poles or structures |
| Sealed 24V 52Ah battery pack, field replaceable |
| Built-in battery test function |
| Charge controller maintains batteries in optimum condition |

Dimensional Information

**100W Solar Panel
(Front View)**

22"

47"

**24V 52Ah Battery and
Charge Controller Cabinet**

20" 18"

16"

Connection Diagram

Battery

Battery

Inline 3A Fuse

Charge Controller

To Solar Panel Array — To Load

PWM Solar Charge Controller

**Batteries and Charge Controller Cabinet
(inside View)**

Installation

Plan the installation of the battery pack and solar panel array prior to installation. For best results, mount the battery pack in a cabinet as close to the panels as practicable. Mount the cabinet and Install and connect the batteries before connecting the solar panels. Refer to the wiring diagram.

Mount the solar panel assembly in an appropriate South facing (in the Northern hemisphere) location.

• The location should be free of shadow between the hours of 9:00am and 3:00pm
• For maximum power generation the solar panels must have the proper tilt angle for the latitude of installation.
• Refer to the latitudinal chart to determine the proper amount of tilt for your location. Note that all figures refer to angle from horizontal.
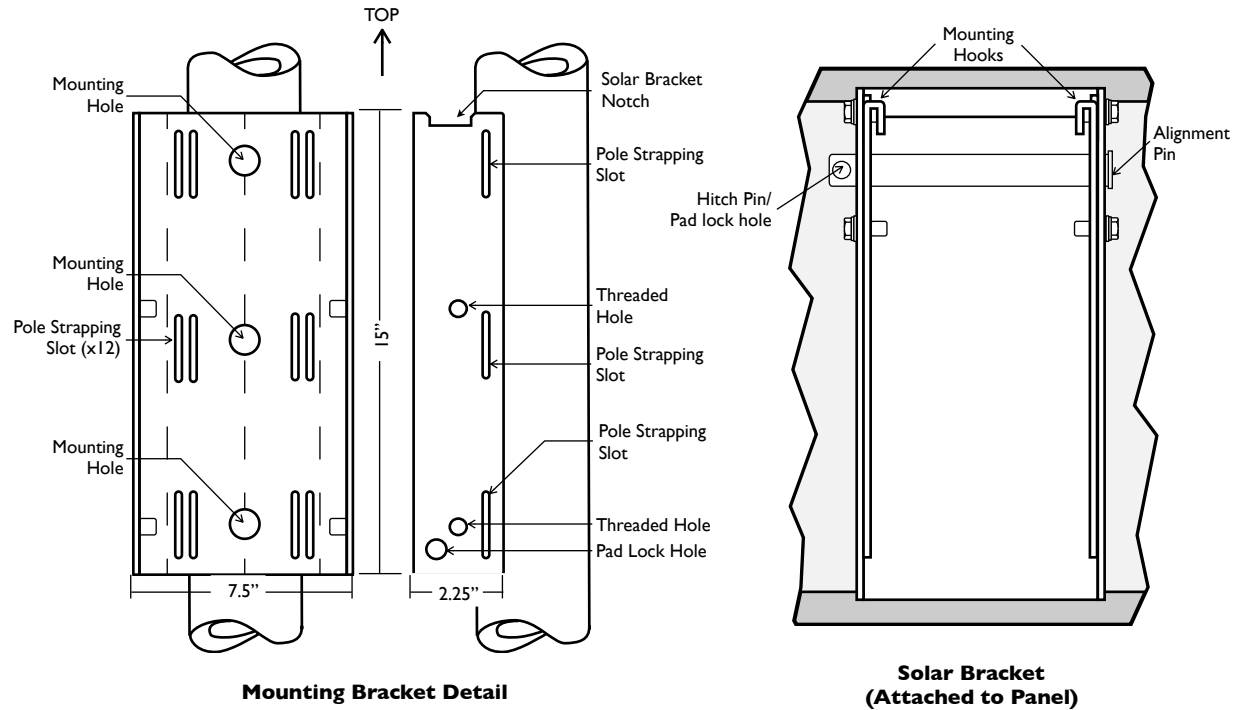

Mounting Diagram Side View
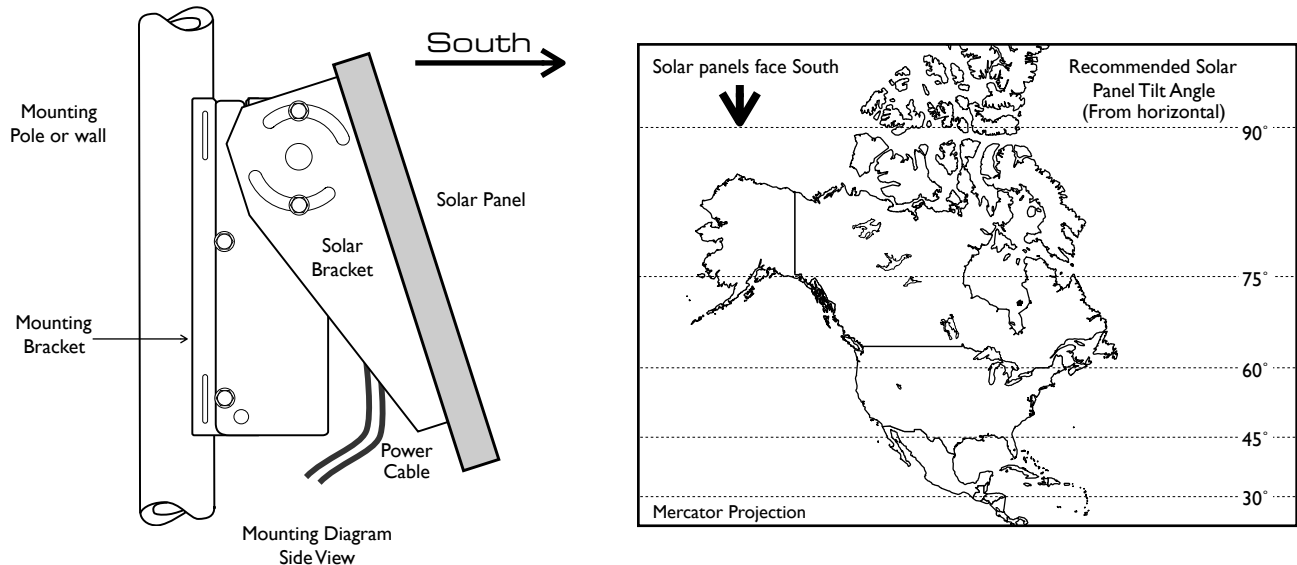
Mount the provided RLH *Easy-Mount* mounting bracket to a wall or a 4" diameter pole or larger using either the hardware or straps. After securing the mounting bracket, hook the solar bracket panel assembly on to the mounting bracket notch and secure the brackets together. Adjust the angle of the solar panel with the *Quick-Tilt* feature for optimum sun angle, and tighten all bolts securely after making adjustments. Refer to the bracket mounting diagram.

Once the solar assembly is installed, two pad locks may be installed to assure the security of the equipment, locking the alignment pin and the brackets together. Refer to the bracket information diagram for lock locations.

The panel wiring is connected directly to the solar battery charge controller inside the battery cabinet. A section of wiring and liquid tight conduit is provided for ease of installation. Refer to the connection diagram.

Bracket Information

Mounting Hole

Mounting Hole

Pole Strapping Slot (x12)

Mounting Hole

TOP

Solar Bracket Notch

Pole Strapping Slot

Threaded Hole

Pole Strapping Slot

Pole Strapping Slot

Threaded Hole

Pad Lock Hole

15"

7.5"

2.25"

Mounting Bracket Detail

Mounting Hooks

Alignment Pin

Hitch Pin/ Pad lock hole

Solar Bracket (Attached to Panel)

Bracket Mounting

① Pole or Wall   Pole

②

③ See Angle Chart for Maximum Power Generation
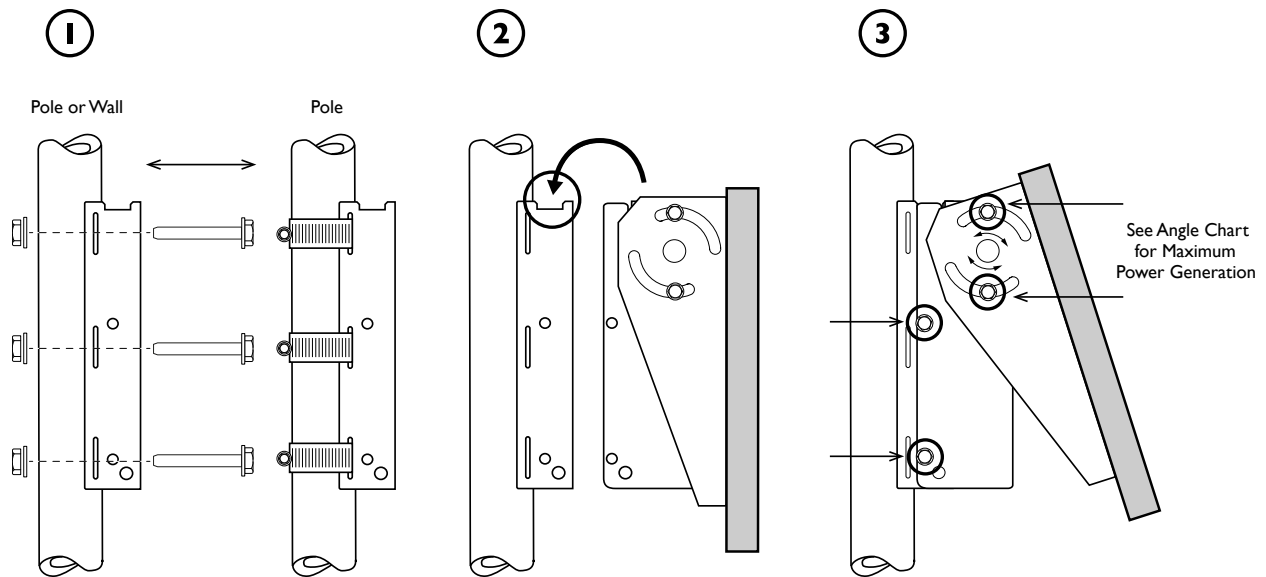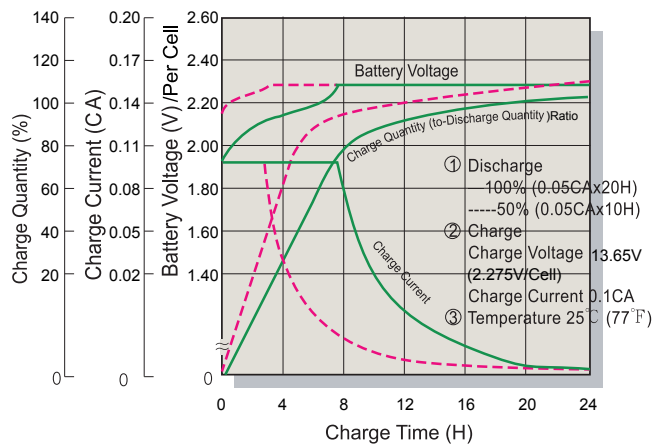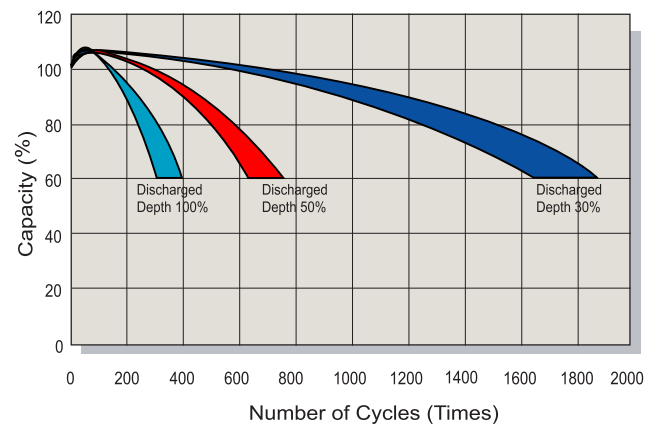
Battery Characteristics

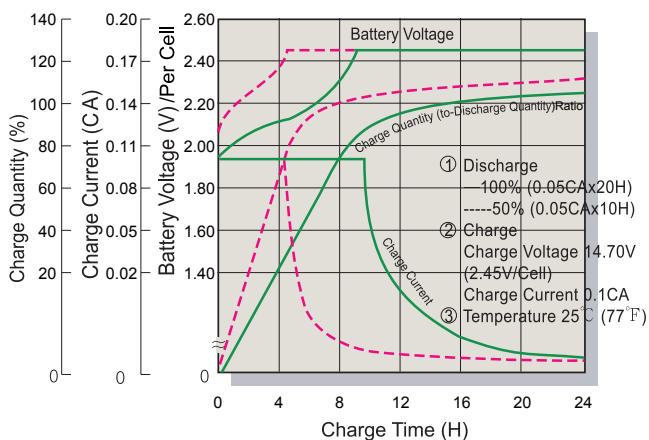The following battery specifications are for each battery. There are two batteries in the solar power supply cabinet.
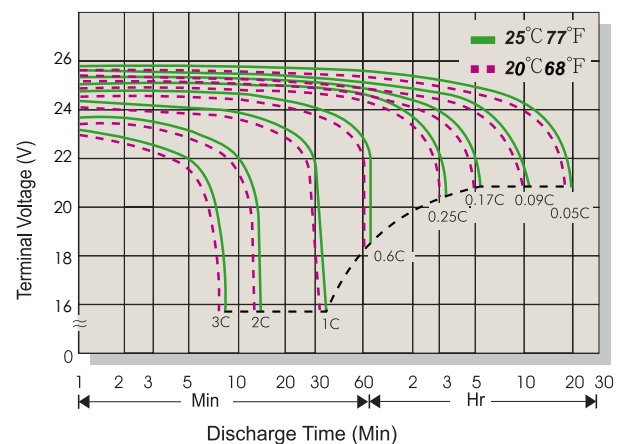
**BATTERY VOLTAGE AND
CHARGE TIME FOR STANDBY USE**

Charge Quantity (%) — Charge Current (CA) — Battery Voltage (V)/Per Cell vs Charge Time (H)

Battery Voltage

Charge Quantity (to-Discharge Quantity)Ratio

Charge Current

① Discharge
    100% (0.05CAx20H)
-----50% (0.05CAx10H)
② Charge
    Charge Voltage 13.65V
    (2.275V/Cell)
    Charge Current 0.1CA
③ Temperature 25℃ (77℉)

SERIES CYCLE SERVICE LIFE

Capacity (%) vs Number of Cycles (Times)

Discharged Depth 100%
Discharged Depth 50%
Discharged Depth 30%

**BATTERY VOLTAGE AND
CHARGE TIME FOR CYCLE USE**

Charge Quantity (%) — Charge Current (CA) — Battery Voltage (V)/Per Cell vs Charge Time (H)

Battery Voltage

Charge Quantity (to-Discharge Quantity)Ratio

Charge Current

① Discharge
    100% (0.05CAx20H)
-----50% (0.05CAx10H)
② Charge
    Charge Voltage 14.70V
    (2.45V/Cell)
    Charge Current 0.1CA
③ Temperature 25℃ (77℉)

TERMINAL VOLTAGE AND DISCHARGE TIME

Terminal Voltage (V) vs Discharge Time (Min)

25℃ *77*℉
20℃ *68*℉

0.05C
0.09C
0.17C
0.25C
0.6C
3C 2C 1C

Min — Hr

System Components

SOLAR PANEL ARRAY	Aluminum alloy mounting frame with RLH Easy-Mount with Quick-Tilt mounting brackets and hardware
	Liquid tight junction box
CABINET	Outdoor rated, fiberglass construction with Pole/Wall mount bracket and hardware
	Sealed type batteries
	Prewired charge controller
INCLUDED ACCESSORIES	25ft. Outdoor rated #12 AWG wiring with preinstalled panel connectors

Specifications

SOLAR ARRAY	TYPE	100W Solar Panel
	RATED MAXIMUM POWER (Pmax)	100W
	TOLERANCE	± 3%
	VOLTAGE @ Pmax (Vmp)	36V
	CURRENT @ Pmax (Imp)	2.76A
	SHORT CIRCUIT CURRENT (Isc)	2.94A
	OPEN CIRCUIT VOLTAGE (Voc)	43.2V
	NOMINAL OPERATING CELL TEMPERATURE	47°C ± 2°C
	CELL TYPE	Mono
	WIND LOADING	50lbs/sq. ft.
	PANEL DIMENSIONS	H 22" x W 47" x D 1.5" (550mm x1200mm x 35mm)
	PANEL ASSEMBLY WEIGHT	29 lbs. (13.2 kg)
	STANDARD TEST CONDITIONS	AM -1.5 STC=1000W/m2 TC=25°C
	WARNING Electric Hazard: This unit produces DC electricity when exposed to light. Cover the panel surface before removing terminal junction box or connecting to charge controller pedestal.	
CABINET	CIRCUIT PROTECTION	Diode across solar array input
	FUSE	3A fuse
	CABINET CONSTRUCTION	Thermoplastic
	CABINET DIMENSIONS	H 18" x W 16" x L 10"
	CHARGE CONTROLLER	Digital charge controller with battery status indicators
	OUTPUT VOLTAGE	24VDC
	WORKING TEMP., HUMIDITY	-20 ~ +70° C, 20 ~ 90% RH
	STORAGE TEMP., HUMIDITY	-20 ~ +85° C, 10 ~ 95% RH
BATTERY	VOLTAGE	24VDC (2 X 12VDC)
	CAPACITY	52Ah
	SELF DISCHARGE	Battery Pack may be stored for more than six months at 25°C (77°F). Please charge batteries before using. For higher temperatures the time interval will be shorter.
	BATTERY TYPE	Deep cycle, sealed lead acid
	HOUSING (ea.)	Polypropylene UL 94-V0/File E50955
SYSTEM	RECOMMENDED LOAD	Max load up to 300mA (minimum 5 day battery backup)
	WARRANTY	Limited 1 Year Visit www.fiberopticlink.com for warranty details.
		Battery covered by OEM warranty

Ordering Information

Part Number	Description
RLH-SK100-2452	100W 24V Solar Power Supply with 52Ah battery and charge controller in wall mount cabinet
RLH-RB-2452	24V 52A Replacement Battery Set

Technical Support

Email:	support@fiberopticlink.com
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	Toll Free 1-855-754-2497

Contact Information

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Please contact your RLH sales representative for pricing and delivery information.

Specifications subject to change without notice.