

UNISOLAR-DOWNEE

Instruction Manual



Downee
Your perimeter solution partner

ABN 31 004 313 937

 SAFETY WARNINGS

- Only qualified and trained personnel should install, wire, or service the solar gate operator.
- The system contains a **24 V lead-acid battery** capable of delivering high short-circuit current. Always disconnect the battery before servicing or modifying the wiring.
- Observe the correct **polarity (+/-)** when connecting the batteries, solar regulator, solar panel, and gate operator. Incorrect polarity may damage the equipment.
- Always install the specified **fuse and fuse holder** in the battery circuit. Do not bypass or replace the fuse with an incorrect rating.
- Do not short-circuit the battery terminals or allow metal tools to contact both terminals simultaneously.
- Lead-acid batteries can produce **hydrogen gas**, which is flammable. Keep the battery away from sparks, flames, and ignition sources and ensure adequate ventilation.
- Wear appropriate **eye and hand protection** when handling or servicing the battery.
- Do not open, puncture, or damage the battery. If the battery is damaged or leaking, avoid contact with the electrolyte and follow the battery manufacturer's safety instructions.
- The **30 W solar panel will generate electrical voltage whenever exposed to sunlight**. Cover the panel or disconnect it from the regulator before servicing the solar wiring.
- Connect the system in the correct sequence and according to the wiring diagram provided in this manual.
- Keep all electrical connections clean, dry, secure, and properly insulated. Protect wiring from mechanical damage, water, and excessive heat.
- **Never work on the system during wet conditions** or with wet hands.
- Before servicing the gate operator, isolate the battery and solar supply and ensure the gate cannot move unexpectedly.
- Keep people, children, and objects away from the gate's operating area during installation, testing, and operation.
- Do not modify the solar regulator, battery, wiring, or gate operator without approval from the manufacturer.

Important: Use only the specified **24 V lead-acid battery, PWM solar regulator, 30 W solar panel, fuse, and wiring** or manufacturer-approved equivalents.

PRODUCT DESCRIPTION

UNISOLAR-DOWNEE is a solar-powered energy system designed to provide reliable power for 24V gate automation systems and control units. The photovoltaic solar panel converts sunlight into electrical energy, which is regulated by the PWM solar charge controller and stored in the rechargeable battery. UNISOLAR-DOWNEE particularly suitable for installations where connection to the fixed electrical grid is difficult or unavailable.

The UNISOLAR-DOWNEE system consists of a 24V battery system using a 22Ah rechargeable battery, a PWM solar charge controller, a 15A blade fuse, and a photovoltaic solar panel.

PRODUCT OVERVIEW

ACCUMULATOR	
Rated voltage	24 V DC
Maximum output current	15 A
Battery capacity	22 Ah
Enclosure protection degree	IP66
Operating temperature	-40°C to + 80°C
Accumulator dimensions	400 × 300 × 210 mm
Approx Accumulator weight	15 kg

SOLAR PANEL	
Peak Power (Wp)	30
Operating Temperature (°C)	-40 °C to 85 °C
Dimensions (mm)	575 x 350 x 30
Weight (kg)	3.7

INSTALLATION PROCEDURE



Solar Panel Positioning:

- Mount the panel facing the equator (north-facing) at a tilt angle suited to the local latitude, for maximum year-round exposure.
- Avoid shading from trees, walls, fences or the gate structure at any time of day.
- Mount securely using the supplied bracket; ensure the panel cannot be dislodged by wind or vibration from gate operation.
- Route the panel cable to the controller location, protecting it from abrasion, UV exposure and moisture.

Detailed Assembly Manual – Solar Panel Mounting Bracket System

Parts List



1 Solar Panel Frame
(1 No.)



2 H-Bracket
(1 No.)



3 Post
(1 No.)



4 End Bracket
(1 No.)

Fasteners

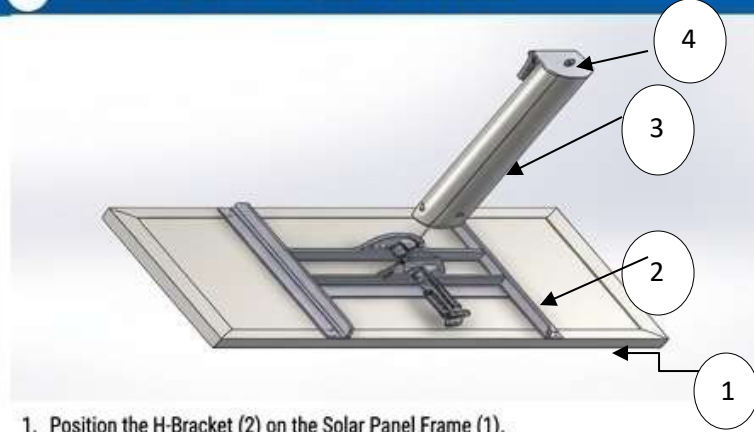


Hex Bolt (M8)



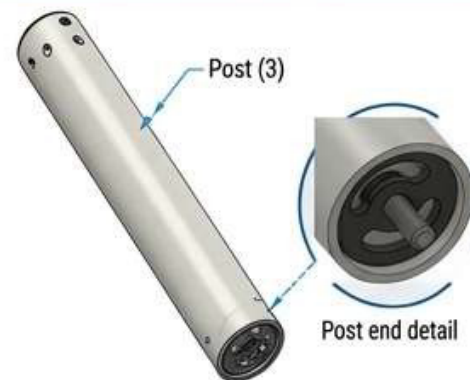
Nyloc Nut (M8)

1 Attach H-Bracket to Solar Panel Frame

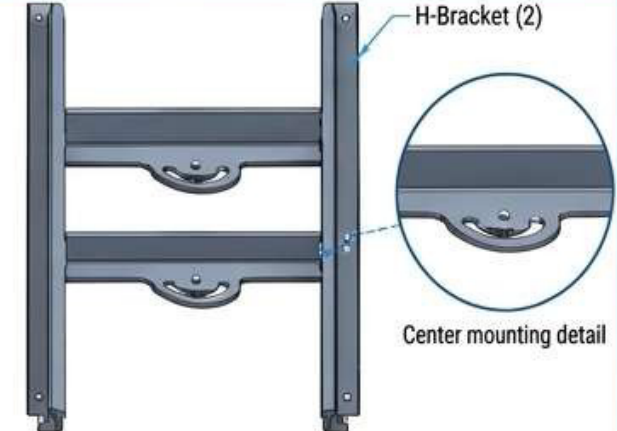


1. Position the H-Bracket (2) on the Solar Panel Frame (1).
2. Secure the H-Bracket to the panel using M8 bolts and nuts.
3. Attach the base of the Post (3) to the H-Bracket.

2 Post Detail View



3 H-Bracket Detail View



4 End Bracket Installation



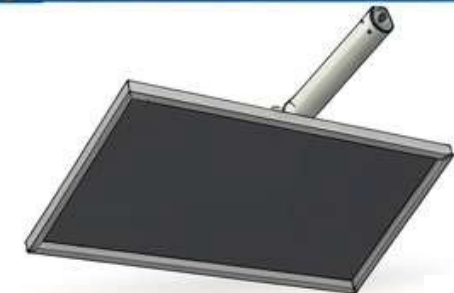
1. Align the end bracket (4) with the post (3) top holes.
2. Secure using an M8 bolt and nut.

5 Bottom View (Completed Assembly)



Completed assembly - bottom view

6 Top View (Completed Assembly)

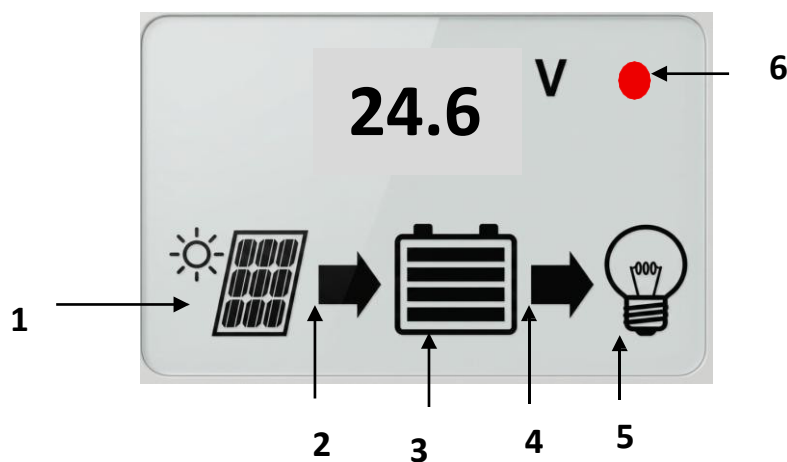


Completed assembly - final top view

Charge Controller Connection Sequence

- Connecting the solar panel before the battery can prevent the controller from powering up correctly or trigger a fault condition on some models.
- Confirm the charge controller is set to **24V system voltage**.
- Connect the solar panel cable to the controller's SOLAR / PV terminals, matching polarity exactly
- Connect the load cable from the controller's LOAD terminals to the gate operator's low-voltage DC input, matching polarity exactly.
- To disconnect the system for servicing, reverse this order: load, then solar panel, then battery bank.

PWM SOLAR CHARGE CONTROLLER



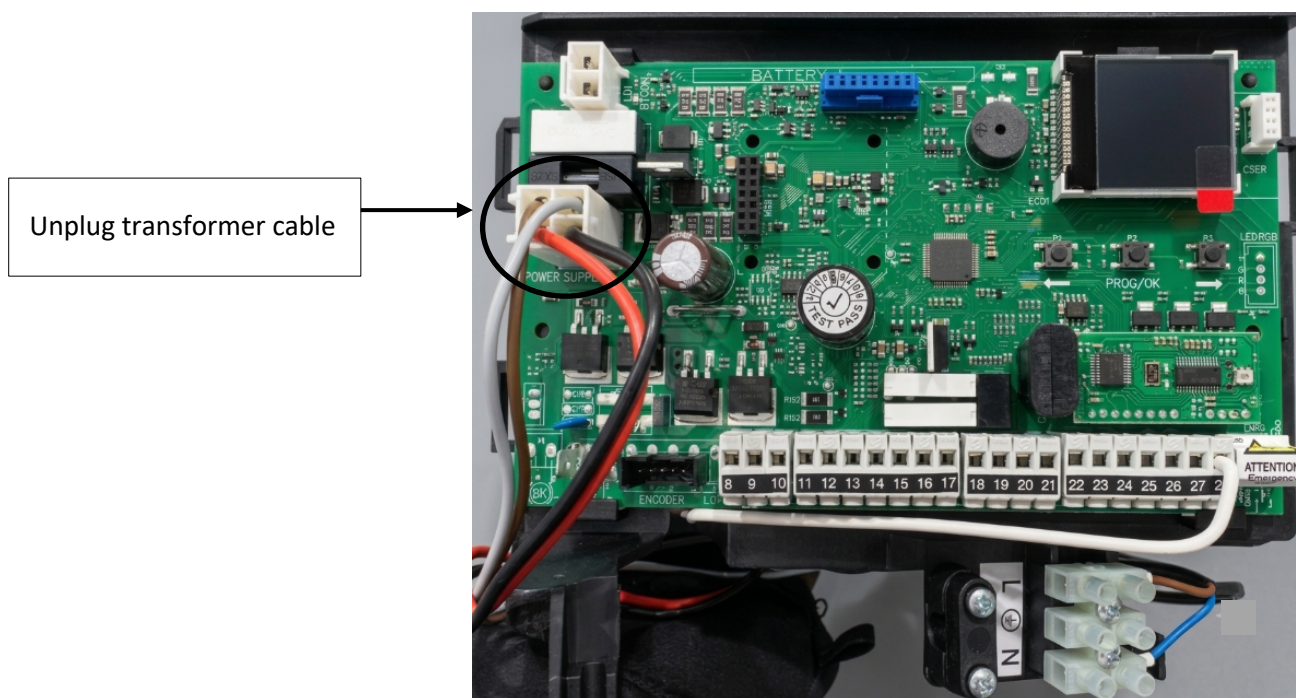
1. Solar Panel Connection
2. Solar Panel Charging
3. Battery
4. Load Turn ON
5. Load
6. Push Button (Turn load ON/OFF)

Note: Refer to the PWM Solar Charge Controller Manual for further information.

For SLW Cardin Operator only:

To use the solar power system with the Cardin operator, the provided adaptor must be connected in place of the transformer.

1. Unplug the transformer cable from the Cardin operator.



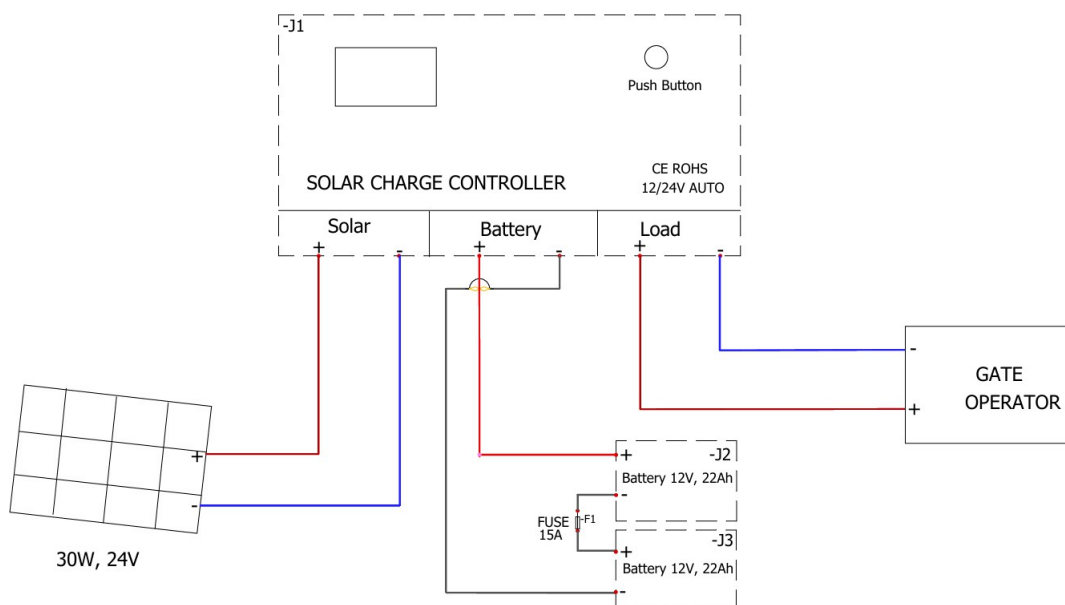
2. Connect the provided adaptor with right polarity to the same connection point where the transformer was connected. Ensure that the adaptor connector is fully inserted and securely connected before powering on the operator



3. Turn **ON** the **SunPower option** under the “**Options**” parameters. This can be done either directly from the control board by pressing **PROG/OK** or through the Cardin App.

Electrical Connection

5



TROUBLESHOOTING

Error	Possible Cause	Recommended Action
Solar controller is not charging	Solar panel is shaded, disconnected, or wiring is incorrect	Check that the panel receives sufficient sunlight. Check all solar-panel connections and polarity.
Battery is not charging	Solar panel, PWM controller, fuse, or wiring fault	Check solar-panel output, controller connections, 15 A fuse, and battery connections.
Gate operator does not operate	Battery is discharged or fuse is blown	Check battery voltage and inspect the 15 A fuse. Allow the battery to recharge if voltage is low.
Gate operates intermittently	Low battery voltage or loose connection	Check battery voltage and tighten all battery and controller terminals.
Controller display/indicator is off	Battery disconnected, low battery voltage, or incorrect polarity	Check battery connection, polarity, battery voltage, and fuse.
Solar charging is very low	Panel is dirty, shaded, or damaged	Clean the solar panel, remove shading, and inspect the panel and cables for damage.

