



CHARGE+SYS

CHARGE+SYS
ARMORCELL 38H

ARMORCELL PORTABLE SOLAR

User & Setup Guide

No tools. No adhesive. Roll it out, connect it, and let the sun do the rest.

38W

SK38H-ACV

150W

SK150H-ACV

275W

SK275H-ACV

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chargesys.solar

Safety first

WARNING — READ BEFORE FIRST USE

Your ARMORCELL panel generates electricity whenever light reaches its face. Keep the panel rolled in its carry bag, or face-down, until every other connection is made. Always connect the charge controller to the battery **first** and the panel **last**.

Use an MPPT controller

The 150H and 275H panels produce up to 45V open-circuit. Never connect a portable panel directly to a 12V battery — it must pass through the MPPT controller supplied with the kit (or your own, on ACNC kits).

In motion up to 30 mph

The panel may stay deployed at speeds up to 30 mph provided it is lashed at every grommet and no edge can lift into the airstream. Above 30 mph, stow it — or use a self-adhesive ARMORCELL panel, which ChargeSys recommends for high-speed use.

12V systems as supplied

Kits ship configured for 12V DC battery systems. The SmartSolar controller also supports 24V; contact ChargeSys before wiring to a 24V or 48V bank.

Keep the fuse in circuit

Both supplied battery cables carry a 25A inline fuse. Do not bypass it, and replace it only with a 25A fuse of the same type.

Roll it, never fold it

Folding or creasing the panel causes permanent damage. You can walk on it — as long as it lies on a flat surface that supports it evenly. Keep it clear of hot exhaust, open flame, and sharp edges.

Water: IP68 panel, IP43 controller

The panel and its MC4 cables are rated **IP68** — heavy rain, boarding seas, and periods of submersion are fine. The controller and battery cables are **IP43**: keep them dry, ventilated, and out of spray.

Ventilation, fuel vapor, and qualified work

Never make or break battery connections where fuel vapor may be present — bilges, engine bays, fuel lockers, closed garages. A connection can spark, and charging batteries give off gas: work only in well-ventilated areas. Permanent installations should be carried out by qualified personnel per local codes, and all battery connections disconnected before working on existing wiring.

Kit contents

Everything arrives in one 12-inch cylindrical carry bag: the panel rolled up and held with its velcro cinch straps, cables and controller in the accessory bag. Check the kit against this list before your first deployment.

Qty	Component	Type	✓
1	ARMORCELL grommet-mount portable panel (38H, 150H, or 275H)	Solar	☐
1	MPPT charge controller — supplied as Victron SmartSolar 75 15 (38H, 150H) or 100 30 (275H); model may vary by kit	Controller	☐
1	20 ft MC4 extension cable, 16 AWG	Wiring	☐
1	Victron adapter cable, MC4 connectors — panel to controller PV input	Wiring	☐
1	Victron adapter cable, SAE connector — controller to battery cable	Wiring	☐
1	1 m SAE battery cable with insulated clips, 25A inline fuse, 12 AWG	Battery	☐
1	1 m SAE battery cable with ring terminals, 25A ATO inline fuse, 12 AWG	Battery	☐
2	1.2 m adjustable bungee cords with black stainless carabiners	Attachment	☐
2	Velcro cinch straps — hold the panel in its rolled state	Storage	☐
1	Cylindrical carry bag with accessory storage bag	Storage	☐

ACNC kits — SK150H-ACNC and SK275H-ACNC ship without a charge controller or its adapter cables, for use with equipment that has its own solar charge controller. Everything else is identical.

Identify each part



ARMORCELL panel

Flexible CIGS thin-film with a smooth non-adhesive back and stainless grommets on all four sides.



MPPT controller

Supplied as a Victron SmartSolar; other MPPT models may ship in future kits. Terminal pairs are marked PV and BATT — never swap them.



20 ft MC4 extension

Reaches from the deployed panel back to the controller. Red sleeve marks positive.



Battery cables

Two 1 m SAE options, both 12 AWG and fused at 25A: insulated clips, or ring terminals for a bolted connection.



Bungee cords

Two 1.2 m adjustable cords with black stainless carabiners for grommet tie-down.

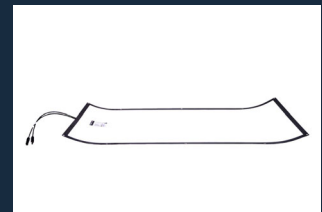


Carry bag

12 in diameter. Takes the rolled panel, cinched with its two velcro straps, plus the accessory bag of cables and controller.

Why ARMORCELL for portable power

CIGS thin-film flexes, absorbs impact, and has no glass to crack. It holds output better than crystalline silicon in heat, and tolerates the partial shading you get from masts, awnings, and trees. Roll it out on a deck, a hatch, a hood, or the ground — the smooth back won't mark gelcoat or paint.



Quick start

The short version, for anyone who has set the kit up before. Full detail follows on the next pages.

1 Site the controller and connect the battery

Victron adapter cable with SAE connector into the controller's BATT terminals, then your chosen 1 m SAE cable — clips or ring terminals — onto the battery. Red to positive, black to negative.

2 Confirm the controller powers up

The controller should show battery voltage — typically 12.0–13.0V — in the VictronConnect app or on its LEDs before any solar is connected.

3 Run the 20 ft extension to the panel position

MC4 adapter cable into the controller's PV terminals, extension cable out to where the panel will sit. Route it clear of walkways and hot surfaces.

4 Unroll, position, and secure the panel

Face it at the sun, keep it clear of shadows, and tie it down through the grommets with the bungee cords before you connect it.

5 Connect the panel last

Click the panel's MC4 connectors onto the extension cable. Charging begins immediately — the controller's blue or yellow LED will light and the app will show PV watts.

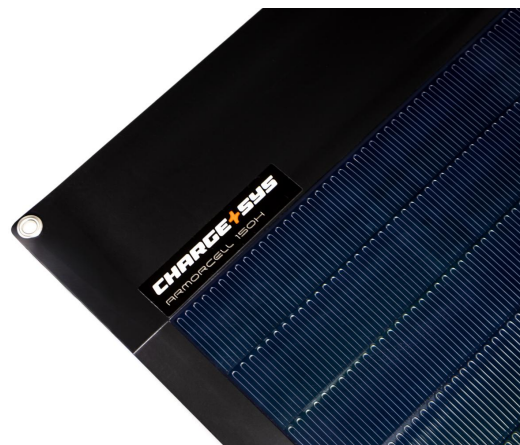
Deploying and aiming the panel

Choose the spot

Pick a surface that stays in full sun for the hours you want to charge, and that you don't need to walk across. Decks, cabin tops, hatches, hoods, trailer roofs, and flat ground all work. The panel's smooth back sits directly on gelcoat, paint, or canvas without marking it — wipe grit off both surfaces first.

Aim it, and watch the shadows

Output is highest when the panel faces the sun square-on. Lay it flat for unattended charging, or prop the sun-side edge up against a rail, cooler, or fender to tilt it toward a low winter sun. CIGS handles partial shade better than rigid panels, but a hard shadow across the cells still costs output — check where masts, antennas, awnings, and branches will throw shade as the sun moves.



Heat matters less than you think

ARMORCELL loses less output at temperature than crystalline silicon, so a hot deck is not a problem.

Securing the panel

Bungee tie-down — everyday use

Clip a carabiner into a corner grommet, run the cord to a rail, cleat, rack bar, or tie-down point, and take up the slack with the adjuster. Two cords on diagonally opposite corners hold the panel through normal wind; use all four grommets in gusty conditions.

Through-grommet mounting — semi-permanent

For a panel that stays put for a season, fasten through the grommets with stainless screws, bolts, or lashing line. Use a washer against the grommet, do not overtighten, and never drill new holes in the panel. Fastened at every grommet against a flat surface, a panel tolerates considerably higher wind than a bungee tie-down — but only if no edge or corner can lift. Wind under a lifted edge is what tears a panel.

Secure the panel **before** connecting it. Lashed at every grommet with no edge free to lift, it can stay deployed in motion up to **30 mph**. Above that, stow it.

Wiring the system

CAUTION — ORDER MATTERS

Wire the battery side first and the panel last. An MPPT controller reads the battery to set its own working voltage — the Victron SmartSolar auto-detects a 12V or 24V system on first connection — so it must see battery voltage before it sees solar input. Powering it from the panel first can leave it on the wrong profile, and can damage it.

1. **Position the controller.** Dry, ventilated, out of direct sun and spray, with at least 4 inches of clear space above and below for heat. Mounted permanently, it should be vertical with the terminals at the bottom. Used loose, stand it on a hard surface — never leave it in the accessory bag while charging.
2. **Connect the battery cable to the controller.** Plug the Victron adapter cable with the SAE connector into the controller's **BATT** terminals — red to +, black to -. Tighten the terminal screws firmly.
3. **Choose a battery connection.** Mate the SAE end to either 1 m battery cable — *clips* for a quick top-up, *ring terminals* for a connection you can leave in place. Both are fused at 25A; keep the fuse in circuit. Connect positive first, then negative.
4. **Verify battery voltage.** The controller should power up and report battery voltage in VictronConnect (typically 12.0–13.0V). If nothing happens, check the fuse and the polarity before going further.
5. **Connect the PV side to the controller.** Plug the Victron adapter cable with MC4 connectors into the controller's **PV** terminals — red to +, black to -. Then mate the 20 ft MC4 extension cable to it and run the extension out to the panel.
6. **Connect the panel.** With the panel positioned and secured, click its MC4 connectors onto the extension cable. Push until each connector latches. Charging starts as soon as the circuit closes.

MC4 connections

IP68 rated, so wet ground and standing water are fine. Pull gently to confirm each pair is latched.

Cable routing

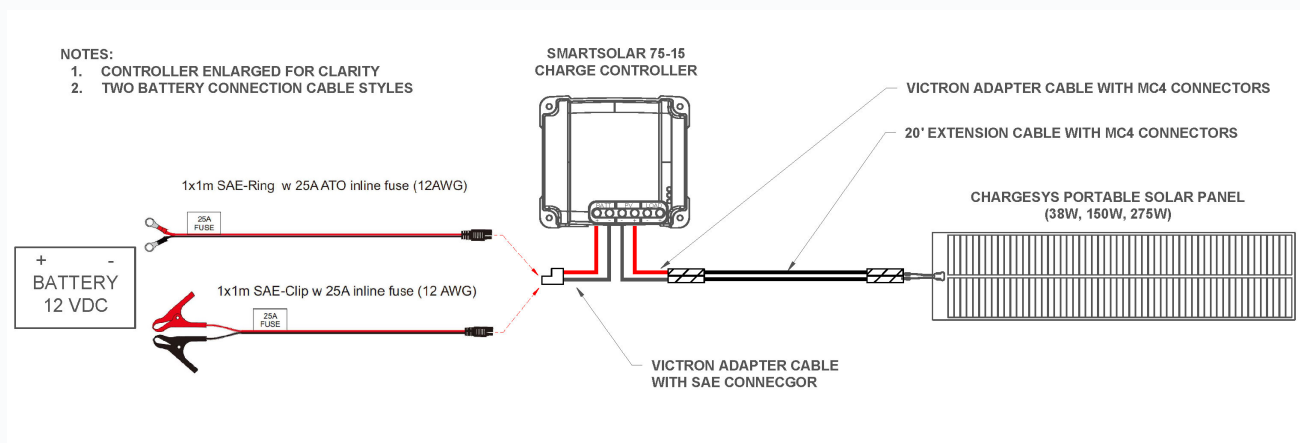
Avoid walkways, hot exhaust, hinges, and hatch edges. Coil surplus extension cable loosely — never in a tight bundle.

Disconnecting

Reverse the order: panel first, then battery negative, then positive. Roll the panel away before unplugging anything else.

System wiring diagram

Portable kits, 12V DC battery system. Drawing CS-SOLARKIT-002.



BATTERY CONNECTION

Two 1 m battery cable styles are supplied — SAE to ring terminals and SAE to insulated clips, each with a 25A inline fuse. Use one at a time.

ACNC KITS

Kits supplied without a controller omit the Victron adapter cables — the 20 ft extension connects to your own MPPT controller.

Leaving the controller wired in

Many owners mount the controller permanently inside the vehicle or vessel with the battery cable bolted on via ring terminals, and only the MC4 lead run outside. The panel then plugs in whenever you want to charge and stows in the bag the rest of the time.

Charge controller setup

Whichever MPPT controller shipped with your kit, setting the correct battery type is the one step you should not skip. The charge settings below apply to any controller; the steps that follow are for the Victron SmartSolar MPPT — if your kit shipped with a different ChargeSys-supplied controller, follow the setup procedure in that controller's own manual and use the same battery settings.

VICTRON SMARTSOLAR MPPT

1. Install **VictronConnect** from the App Store or Google Play.
2. Enable Bluetooth and open the app. The controller appears in the device list whenever it is powered by the battery.
3. The default PIN is **000000**; you will be asked to change it on first connection. If it is rejected, use the PIN printed on the controller label.
4. Open **Settings** → **Battery** and select your battery type — Flooded, AGM, Gel, or Lithium.
5. For lithium, confirm absorption and float voltages against your battery manufacturer's specification. The wrong charge profile can damage a battery or shorten its life.

Recommended charge settings

Battery type	Absorption	Float	Equalize	Temp comp.
Flooded lead-acid	14.4V	13.8V	15.0V	-24mV/°C
AGM	14.4V	13.8V	N/A	-24mV/°C
Gel	14.2V	13.8V	N/A	-24mV/°C
LiFePO ₄ (lithium)	14.2V	13.5V	N/A	0mV/°C

Lithium voltages vary by manufacturer. Always verify against your battery's documentation.

LED status at a glance — Victron SmartSolar; other controllers signal status their own way

Green, solid	Battery fully charged — float stage
Yellow, solid	Absorption charge stage
Blue, solid	Bulk charge stage
Blue, slow blink	Not charging — insufficient solar power
Other patterns	See the Victron controller manual for fault codes

Roll, stow, and care

Packing the panel away

1. Disconnect the panel's MC4 connectors first, then release the bungee cords.
2. Wipe the panel dry — rolling a wet panel into the bag traps moisture against the cells.
3. Roll the panel with the **cells facing out** — never fold it, and never roll it tighter than **10 in (5 in radius)**, the minimum recommended diameter.
4. Fasten the two velcro cinch straps around the roll to hold it closed, then slide the roll into the carry bag.
5. Coil the cables loosely, put them with the controller in the accessory bag, and stow it alongside.

Long-term storage. Store the bag upright somewhere dry and out of direct sun. Nothing should be stacked on top of it.



Rolled panel and accessory bag, stowed together.

Maintenance

Cleaning. Water and a soft cloth or sponge. No abrasive cleaners, stiff brushes, or pressure washers. Salt spray should be rinsed off with fresh water.

Grommets and edges. Check the grommets and panel edges for wear where cords or fasteners bear on them. Re-position tie-downs if you see chafe.

Firmware. Check your controller's app for firmware updates now and then; they can improve charging behaviour.

Connections. Inspect MC4 connectors, SAE mates, and battery terminals a few times a season for corrosion or damage. Dielectric grease helps on exposed terminals.

Fuse. Carry a spare 25A ATO fuse. Replace like for like — never fit a higher rating.

Bag. Rinse and dry the carry bag after coastal use so grit does not work into the zipper.

Troubleshooting

Symptom	Likely cause	What to do
Controller will not power on	Blown 25A fuse, clips not biting, or reversed polarity	Check the 25A inline fuse, re-seat the clips on clean metal, confirm red to + and black to –, and measure battery voltage.
No PV input shown	MC4 not latched, panel shaded, or PV leads on the BATT terminals	Push each MC4 pair until it clicks, move the panel into full sun, and confirm the PV cable is in the PV terminals.
Output lower than expected	Partial shade, insufficient aim, dirty panel, or low sun angle	Clear shadows, re-aim square to the sun, rinse the face. Expect less in early morning, late afternoon, and overcast conditions.
Controller reports an error	PV overvoltage, battery disconnect, or a wiring fault	Read the error code in VictronConnect, then check that the controller is rated for the panel (75 15 for 38H and 150H, 100 30 for 275H).
Battery not holding charge	Loads exceed harvest, wrong charge profile, or an aged battery	Check the daily harvest history in the app, confirm the battery type setting, and test the battery independently.
Panel shifts or lifts in wind	Too few tie-down points, or slack cords	Use all four grommets, take up the cord adjusters, and lower the tilt angle. Stow the panel if conditions build.
Charging stops when the panel is moved	Strain on a connector, or an intermittent SAE mate	Support the cable so nothing pulls on the connectors, and re-seat the SAE and MC4 mates.

Still stuck?

Open VictronConnect, note the exact error code and the PV and battery readings, then contact ChargeSys technical support with your kit SKU and serial number. Those three details usually settle the diagnosis in one exchange.

Technical specifications

All data at STC: irradiance 1000 W/m², cell temperature 77°F (25°C), air mass AM 1.5.

Spec	SK38H-ACV 38W	SK150H-ACV 150W	SK275H-ACV 275W
Technology	CIGS thin-film	CIGS thin-film	CIGS thin-film
Pmax (STC)	38W	150W	275W
Vmp	18.4V	36.7V	36.1V
Imp	2.1A	4.1A	7.6A
Voc	22.8V	45.6V	45.1V
Isc	2.4A	4.6A	8.6A
Weight	2.2 lbs	4.6 lbs	8.6 lbs
Dimensions	14.8" × 34.6"	26.3" × 64.0"	26.0" × 122.2"
Temp range	-40 ~ +185°F	-40 ~ +185°F	-40 ~ +185°F
Mounting	Grommet holes	Grommet holes	Grommet holes
Connectors	MC4	MC4	MC4
Controller (as supplied)	Victron 75 15	Victron 75 15	Victron 100 30
Warranty	3 years	3 years	3 years

Kits without a controller. SK150H-ACNC and SK275H-ACNC use the same panels and the same 20 ft MC4 extension, supplied for equipment that already has its own MPPT solar charge controller. Confirm your controller's maximum PV input voltage is above the panel's Voc (45.6V for 150H, 45.1V for 275H) before connecting.

SmartSolar 75|15

Max PV input 75V · Max charge current 15A · Max PV power 220W at 12V · 12/24V auto · Bluetooth built in

SmartSolar 100|30

Max PV input 100V · Max charge current 30A · Max PV power 440W at 12V · 12/24V auto · Bluetooth built in

Controller models are subject to change. Any ChargeSys-supplied replacement will meet or exceed these ratings; check the label on your controller and its own manual for setup.

Warranty & support

Every ARMORCELL portable kit carries a 3-year limited warranty. Our panels are engineered, tested, and proven on boats, trucks, trailers, and job sites — season after season.

TECHNICAL SUPPORT

support@chargesys.solar
833-SOL-POWR · 833-765-7697
chargesys.solar

HAVE READY

Kit SKU and panel serial number
Battery type and bank size
VictronConnect error code, if any



CHARGE+SYS

Engineered power. Uncompromising quality.