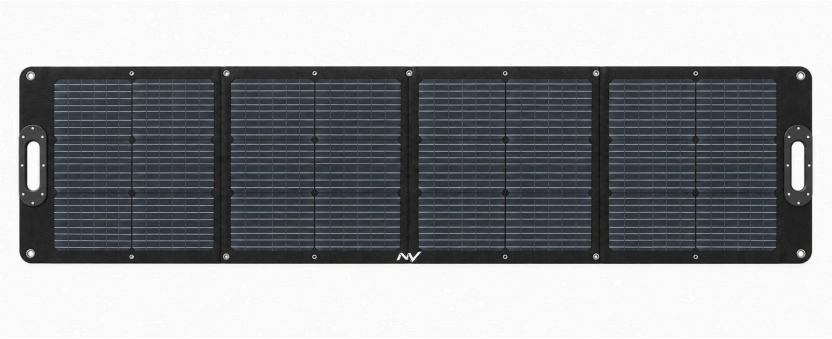
USER MANUAL

NV-S240

240 W foldable solar panel

Four folds, 8.5 kg, 2.5 m of active surface once deployed. The reference panel of the range: up to six in series on an NV-W36 or an NV-W50.



240 W	8,5 kg	23 %	IP65
RATED POWER	NET WEIGHT	CELL EFFICIENCY	INGRESS PROTECTION

CE · RoHS · FCC · 2-year warranty

Contents

Safety instructions	03
What's in the box	05
Product description	06
Getting started	07
Series and parallel	08
Compatibility with NV stations	09
Care and storage	10
Frequently asked questions	11
Specifications	12
Warranty and contact	13

This manual describes a foldable photovoltaic solar panel intended to recharge a portable power station. Read it before first use and keep it for the life of the product. If the panel is sold on, pass this manual to the new owner.

Safety instructions

Warning. The manufacturer accepts no liability for damage arising from use that does not comply with this manual, or occurring in abnormal circumstances: fire, storm, flood, earthquake.

Before use

- Read this manual in full before first use and keep it for the life of the product.
- Check that the panel, cables and connectors show no cuts, burns or crushing. A damaged cable puts the panel out of service: it cannot be repaired.
- Never open or dismantle the panel. Opening it voids the warranty.

Electrical hazard

- A panel exposed to light produces voltage continuously, even when disconnected. There is no switch: the only way to de-energise it is to fold it or cover it with an opaque cloth.
- Never short-circuit the MC4 connectors and never connect or disconnect them under load with the panel in full sun. Fold or cover the panel first.
- Never exceed the station's maximum input voltage. See the compatibility table in this manual.
- Do not use the panel if its surface is cracked, or if it has been folded backwards.

Safety instructions (continued)

Siting

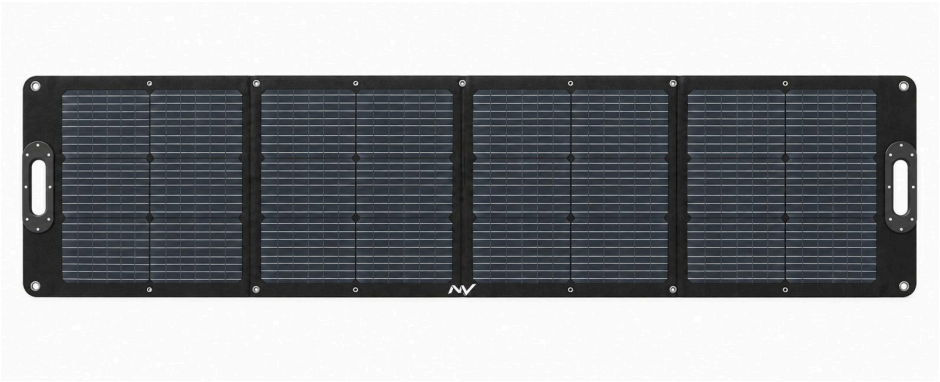
- Never set the panel on a roof, scaffold or any high point without purpose-made fixings: folded over by the wind, it becomes a projectile.
- Weigh down or tie the panel as soon as the wind rises. The kickstands will not hold the panel beyond a light breeze.
- Keep the panel away from naked flames and heat sources.
- Never walk on the photovoltaic surface or place heavy objects on it.

Environment

- The panel is rainproof, not built for prolonged immersion. Do not immerse it and do not clean it with a pressure washer.
- Do not leave the connectors in standing water: keep them off the ground, facing downwards.
- At end of life the panel falls under the waste electrical and electronic equipment stream. Do not dispose of it with household waste.

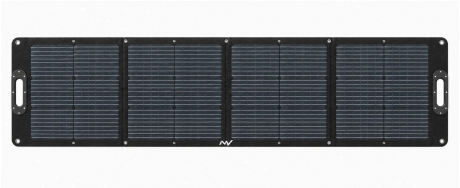
What's in the box

Foldable solar panel	× 1
DC7909 cable and pair of MC4 connectors	× 1
Detachable sun-dial indicator	× 1
User manual	× 1
Warranty card	× 1



Check the contents of the box on receipt. Any missing item must be reported to the dealer before first use.

Product description



Photovoltaic module

The active surface, in monocrystalline cells. Clean with a soft cloth only.

Detachable sun-dial indicator

Fits on top of the module. The light spot in the centre of the circle indicates optimum aim.

Kickstands

Set the tilt. They will not hold the panel in a sustained wind: weigh it down or tie it.

Mounting holes

At the four corners. For tying the panel down or hanging it from a structure.

Press studs

Hold the panel folded during transport.

Connection harness

MC4 connectors on the panel side, adapters on the station side. See the specifications.

Getting started

a) Undo all the press studs and unfold the panel on a flat, clear surface.

b) Deploy the kickstands and set the angle so the surface faces the sun, at around 90° to the rays.

c) Fit the sun-dial indicator on top of the photovoltaic module, then fine-tune the aim until the light spot falls in the centre of the circle.

d) Connect the harness to the station's solar input, then switch the station on. Charging starts on its own.

e) Re-aim every two to three hours: that is what makes the difference between a decent charge and a poor one.

> The panel has no switch and no indicator. As soon as it receives light, it produces. It is the station that shows the incoming power and controls charging.

> Connect the harness to the station **before** exposing the panel to the sun, and fold or cover the panel **before** disconnecting. Unplugging a connector under load produces an arc that damages the contacts.

Series and parallel

Two or more panels can be wired in two ways. The choice depends on the station's voltage window, never on wiring convenience.

In series

Voltages add up. Current stays that of a single panel.

The wiring to use across the whole NV range: NV-C24, NV-P36, NV-W36 and NV-W50.

3 × 20.5 V = 61.5 V · 11.7 A

In parallel

Currents add up. Voltage stays that of a single panel.

Only for pairing two NV-S100 panels on an NV-C24 or an NV-P36.

20.5 V · 3 × 11.7 A = 35.1 A

Open-circuit voltage of this panel: **24.6 V**. The total open-circuit voltage (24.6 V times the number of panels in series) must never exceed the station's maximum input voltage.

Wiring rules

- In series, voltages add up and current stays that of a single panel. That is the wiring to use across the whole NV range. Parallel (currents add up, voltage stays put) is only useful for pairing two NV-S100 panels on an NV-C24 or an NV-P36.
- Total open-circuit voltage (Voc × number of panels in series) must never exceed the station's maximum input voltage.
- Never mix panels of different ratings or references on the same string.
- Connect the harness to the station before exposing the panel to the sun, and disconnect the panel before folding it.
- Aim the panel with the sun-dial indicator: the light spot must fall in the centre of the circle. Re-aim every two to three hours.
- Rated powers are measured under STC. In real use (dust, angle, temperature), expect about 75% of peak power.

Compatibility with NV stations

STATION	INPUT	MPPT WINDOW	NUMBER OF NV-S240	MAX P.
NV-C24	12-78 V	16-70 V · 13 A · 800 W	1 to 3 in series	**720 W**
NV-P36	12-80 V	11-31 V · 10 A / 31-80 V · 15 A · 800 W	1 to 3 in series	**720 W**
NV-W36	12-148 V	18-140 V · 15 A · 2 100 W	1 to 6 in series	**1 440 W**
NV-W50	12-148 V	18-140 V · 15 A · 2 100 W	1 to 6 in series	**1 440 W**

Power actually achievable. On the NV-W36 and NV-W50 the input is rated 2,100 W but limited to 15 A. With NV-range panels, the maximum configuration allowed by the manufacturer (six NV-S240 in series) delivers 1,440 W. That is the figure to use when sizing an installation.

On the NV-P36, connect panels in pairs. Its controller works in two bands: up to 31 V it is limited to 10 A, above that it rises to 15 A. A single NV-S240, working at 20.5 V, therefore stays in the low band and delivers only about 205 W instead of 240 W. From two panels in series onwards the high band applies and full power is recovered.

Care and storage

Cleaning

- Wipe the surface with a soft dry cloth, or a slightly damp one. Never use solvent, abrasives or a pressure washer.
- A layer of dust costs up to 20% of output. On a dusty site, wipe the panel once a day.

Storage

- Fold the panel dry. A panel stored damp will pit and delaminate.
- Store flat, in a dry and temperate place, with nothing on top of it.
- Do not leave the harness wound tightly around the panel: it strains the connectors.

Frequently asked questions

The panel is not charging the station: what should I check?

In order: is the harness fully seated at both ends; is the station switched on; is the solar input the one being used; is the array voltage inside the station's MPPT window. An array whose voltage is too low will not start.

Why is the power shown lower than the rated power?

Rated power is measured under STC: 1,000 W/m², 25 °C, rays perpendicular to the surface. Outdoors, between dust, angle and cell temperature, expect about 75% of peak power. This is normal.

Can I mix panels of different ratings?

No. On the same string, the weakest panel imposes its current on all the others: the output of the whole array collapses.

Can the panel stay outside in the rain?

Yes. It must however be folded dry before storage, and must never be left in standing water.

Can the station be charged and power appliances at the same time?

Yes. The station manages the split between solar charging and consumption on its own.

Specifications

POWER	
Rated power	**240 W ±5 %**
Cell efficiency	**23 %**
Cell type	**Monocrystalline PERC silicon: grade A**
Test conditions	**STC: 1 000 W/m² · AM1.5 · 25 °C**
ELECTRICAL	
Open-circuit voltage (Voc)	**24,6 V**
Short-circuit current (Isc)	**12,3 A**
Max power voltage (Vmp)	**20,5 V**
Max power current (Imp)	**11,7 A**
MECHANICAL	
Folded size	**665 × 590 × 60 mm**
Unfolded size	**2 529 × 590 × 35 mm**
Net weight	**8,5 kg**
Gross weight	**11 kg**
Number of folds	**4**
CONNECTIONS	
Panel connector	**MC4**
Cables supplied	**DC7909 cable and pair of MC4 connectors**
ENVIRONMENT	
Ingress protection	**IP65**
Operating temperature	**−20 °C … 85 °C**
Max system voltage	**1 000 V DC**
Certifications	**CE · RoHS · FCC**

Electrical values given under STC: 1,000 W/m² irradiance, AM1.5 spectrum, 25 °C cell temperature. In real use, expect about 75% of peak power.

Warranty and contact

The warranty covers **defects in workmanship and material** for **2 years from the date of purchase**, parts and labour included. A replacement product carries the remaining warranty of the original.

Warranty extension. A third year can be taken out at the time of order, as a paid option. Please ask us for the price.

Exclusions

- Surface cracked, scratched or pierced by an impact, a tool or a vehicle.
- Panel folded backwards, walked on, or stored under a load.
- Cables or connectors cut, burnt, crushed, or replaced by non-original parts.
- Panel carried off by the wind for want of ballast or tie-downs.
- Dismantling, opening the junction box, or modification of the wiring.
- Immersion, pressure washing, use of solvent or abrasives.

> The warranty is limited to the original purchaser and is not transferable.

Compliance

EMC Directive 2014/30/EU (EN 55032:2015+A11:2020 · EN 55035:2017+A11:2020 · EN 61000-3-2:2009 · EN 61000-3-3:2013+A1:2019) · RoHS Directive 2011/65/EU and (EU) 2015/863 (IEC 62321) · FCC part 15 class B

After-sales service

Contact the dealer who supplied the panel. Have the model reference, the serial number marked on the back and the date of purchase to hand.