

SUNBEAM^{SYSTEM}



HIGH PERFORMANCE SOLAR PANELS

PLUG & PLAY SMART LITHIUM

ADVANCED MPPT CONTROLLERS



INNOVATIVE POWER SOLUTIONS CATALOGUE 2020

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SAIL & SOLAR

The Swedish company SUNBEAMsystem is renowned for its innovative power solutions. Their sole focus lies on developing high-performance products that can handle the most demanding circumstances. Most popular applications include the professional yachting industry and extreme off-grid environments, ranging from both arctic to tropical climates.



Innovation is the main driving force behind SUNBEAMsystem. The Swedish brand distinguishes itself with a series of unique features you won't find anywhere else, making it a market leader in high performance power solutions. Curious about what our state-of-the-art designs have to offer?

SOLAR PANELS

SUNBEAMsystems extensive range of flexible and walkable solar panels belong to the most powerful in the world: our latest Tough++ model delivers an incredible 25.1% efficiency. By using the latest Sunpower™ cells we can guarantee the highest possible power density per square meter and the best performance in low light conditions.

SMART LITHIUM BATTERIES

The SMART LITHIUM batteries offer the next big step in battery technology. Plug & Play ensures an effortless installation with minimal support and preparation. Always connected and in full control with the advanced smartphone app.

MPPT CHARGE CONTROLLERS

The MoonRay MPPT is built to get a better output from the handful of solar panels that normally will fit on a small roof. It offers an improved charge in real life weather conditions on a day to day basis. The result is a noticeably better performance for Yacht and Motorhome owners. The advanced connectivity offers added value and control for the user.



SOLAR PANELS

INVISIBLE FLUSH POWER CABLE

The flat Flush power cable allows our panels to be seamlessly integrated with the underlying surface, resulting in a cable-free installation.

THE REVOLUTIONARY TOUGH SURFACE

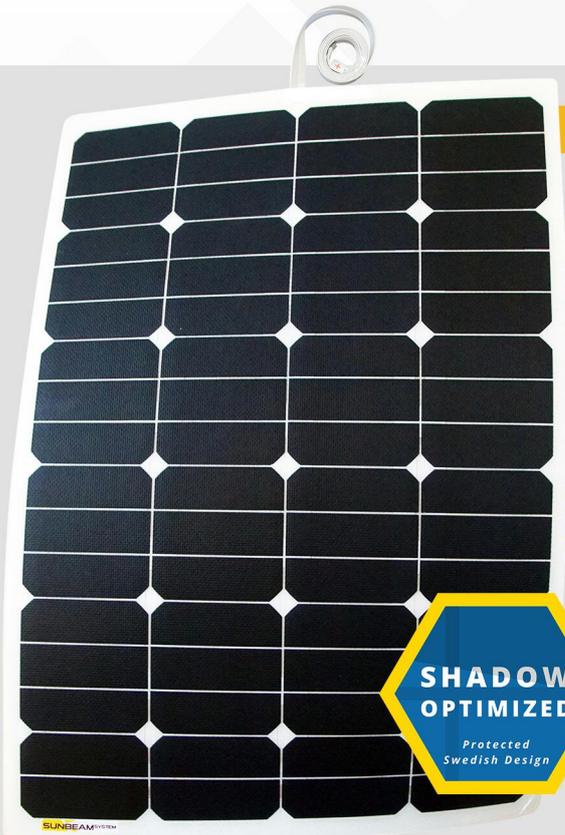
Made from extremely durable materials and fitted with an anti-slip profile. The Tough surface catches more light than glass, resulting in a higher daily production.

THE BEST SUNPOWER SOLAR CELLS

SUNPOWER[®] Maxeon cells are by far the best and most efficient solar cells currently available, resulting in the highest possible production per m².

UNIQUE SHADOW OPTIMIZED TECHNOLOGY

Most models are equipped with our protected Shadow Optimized technology to improve production in shadow rich environments.



SMART LITHIUM BATTERY

The SMART LITHIUM battery is still one of the few available LiFePO₄ batteries that offer a true Plug & Play installation. An easy upgrade that can be done by anyone.

Built-in smartphone app with unique notifications and multi-battery connections for perfect ease of mind.

Lithium phosphate (LiFePO₄) with multiple electronic safeguards offers the safest battery technology available on the market today.

PLUG & PLAY

BLUETOOTH APP

BEST AND SAFEST TECHNOLOGY



MOONRAY MPPT CONTROLLER

PERFORMANCE MPPT

Peak performance in all conditions.

SHADOW OPTIMIZED

Unrivaled output in shaded and low light conditions .

OPTIMIZED FOR SINGLE & PARALLEL SYSTEMS

No need for sensitive serial installations.

BLUETOOTH APP

Networking and stacking of several controllers with a combined interface.



TOUGH++

25.1% CELL EFFICIENCY

2020 FLAT FLUSH CABLE

UV-PROOF & ANTISLIP

5 YEAR WARRANTY

3M MOUNTING



TOUGH++ 124.5W FLUSH

THE BEST AND MOST EFFICIENT SOLAR PANEL ON THE MARKET!

With the Tough++ 124.5W Flush SUNBEAMsystem sets a new benchmark: it's literally the best and most efficient solar panel on the market. The newest Sunpower™ Maxeon cells, with an incredible efficiency of 25.1%, are almost twice as efficient as standard glass solar panels you normally see on houses. Improved cell sensitivity allows for better low light performance. Combined with our protected Shadow Optimized technology this model will provide the highest possible output per m2, not just in the lab but in real life.

If you really want to get the most out of the available space: look no further. With this state-of-the-art solar panel, you get the newest and most powerful solar technology currently available, protected by the best materials to ensure it's resilient against the most demanding circumstances.

In addition to the highest power density, the Tough++ 124.5W Flush will also provide you with all the advantages of our extremely durable anti-slip Tough surface. Together with the newest SUNBEAMsystem Flush flat power cable, this will allow for seamless integration with the underlying surface, without any visible cables.

The Tough++ series is shipped without stainless steel eyes and includes a separately packed double-sided 3M sticker sheet for easy mounting. If you prefer to use a kit instead, we recommend a soft flexible glue like the white Sikaflex 291i.



Art. #	Model	W _p	Shadow Optimized	Size (cm)	Sunpower Cell	Max system voltage (incl by-pass diode)	V _{mp}	I _{mp}	V _{oc}	I _{sc}	P _{tot} +/-	Kg	Cable	Eyelets
TPP106x54F	Tough++ 124.5W Flush	124.5	Yes	106x54	25.10%	30V (80V)	20.48	6.08	23.264	6.45	3%	2	2m	No

TOUGH+



TOUGH+ 82W FLUSH



TOUGH+ 58W FLUSH

- 16% MORE POWER
- 2020 FLAT FLUSH CABLE
- UV-PROOF & ANTISLIP
- 5 YEAR WARRANTY
- 3M MOUNTING

TOUGH+ IS SPECIFICALLY DEVELOPED FOR PROFESSIONAL PURPOSES

The SUNBEAMsystem Tough+ series is developed for professional purposes and all kinds of high-end installations.

All models are fitted with Sunpower™ cells with an efficiency of no less than 23.7%, resulting in a high production on even the smallest surfaces.

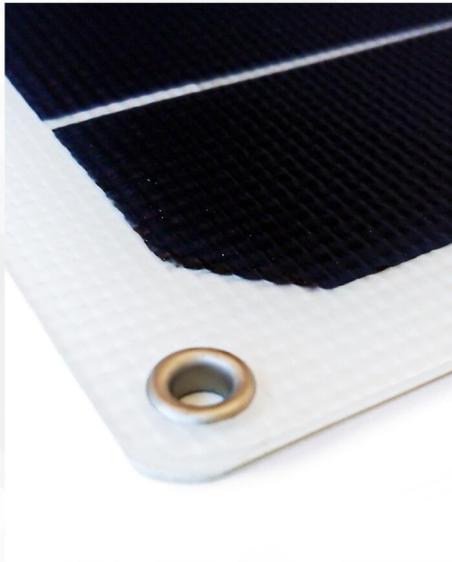
Tough+ is equipped with the same superior materials that have previously been developed for the original Tough series by SUNBEAMsystem. The innovative Tough surface offers a longer lifespan than any other thin and lightweight solar panels. The anti-slip profile is not only practical for deck mounting; it also catches more light in low sun angles. In addition, the dirt-repellent properties also improve daily production by helping to keep the panels clean.

Being only 3mm thin, the panels can be seamlessly integrated on any hard surface (both flat and slightly curved). The flat SUNBEAMsystem Flush power cable will be invisible after installation, leaving no external wiring exposed, resulting in a robust and durable end result.

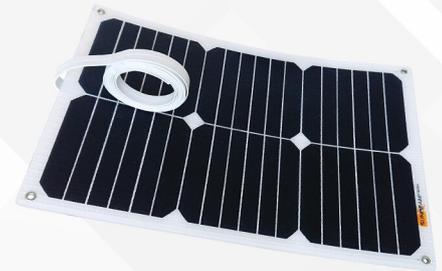
The Tough+ series is shipped without stainless steel eyes and includes a separately packed double-sided 3M sticker sheet for easy mounting. If you prefer to use a kit instead, we recommend a soft flexible glue like the white Sikaflex 291i.

Art. #	Model	W _p	Shadow Optimized	Size (cm)	Sunpower Cell	Max system voltage (incl by-pass diode)	V _{mp}	I _{mp}	V _{oc}	I _{sc}	P ₁₀ +/-	Kg	Cable	Eyelets
TP106x54F	Tough+ 116W Flush	116.1	Yes	106x54	23.70%	30V (80V)	19.87	5.84	23.07	6.5	3%	2	2m	No
TP78x54F	Tough+ 82W Flush	82.3	Yes	77.8x54	23.70%	30V (80V)	21.12	3.9	24.52	4.36	3%	1.5	2m	No
TP54x53F	Tough+ 58W Flush	58.1	-	54.5x53.5	23.70%	30V (80V)	19.87	2.92	23.07	3.08	3%	1	2m	No
TP38x53F	Tough+ 39W Flush	38.7	-	37.8x53.5	23.70%	30V (80V)	19.88	1.95	23.08	2.05	3%	0.7	2m	No

TOUGH



TOUGH 111W FLUSH



TOUGH 21W FLUSH

POWERFUL & COMPACT

2020 FLAT FLUSH CABLE

UV-PROOF & ANTISLIP

SHADOW OPTIMIZED

5 YEAR WARRANTY

TOUGH SERIES: WINNER IN MULTIPLE REAL-LIFE TESTS

Since its introduction, the SUNBEAMsystem Tough series has been the absolute winner in multiple real-life tests. Due to the wide range of different models, the Tough series provides a universal solution for numerous applications. The Tough surface is the preferred choice for the yachting industry, but also for more industrial off-grid purposes. All Tough models are fitted with Sunpower™ Maxeon™ cells with an efficiency of 22.5% or higher.

The surface of the Tough series is extremely durable and resistant to strong and long UV exposure. It transmits more light than standard materials, contributing to a higher daily production.

The ribbed profile provides a steady grip when walking on the panel, but also catches more light in low sun angles. In addition, all Tough models from 55W and up are equipped with SUNBEAMsystems protected Shadow Optimized technology, improving output in partially shaded conditions.

Tough models equipped with a flat Flush power cable are by far the best choice for marine installations. The anti-slip profile provides a safe and walkable surface, without any cables to trip on. The mere thickness of only 3mm enables a perfect installation on a yacht deck. For installation, we recommend double-sided tape or a soft flexible glue like the white Sikaflex 2911.

Art. #	Model	W _p	Shadow Optimized	Size (cm)	Sunpower Cell	Max system voltage (incl by-pass diode)	V _{mp}	I _{mp}	V _{oc}	I _{sc}	P _{tot} +/-	Kg	Cable	Eyelets
T106x54F	Tough 111W Flush	110.8	Yes	106x54	> 22.5%	30V (65V)	18.56	5.97	21.76	6.32	3%	2	1.5m	6x6mm
T78x54F	Tough 78W Flush	78.4	Yes	77.8x54	> 22.5%	30V (65V)	19.72	3.98	23.12	4.48	3%	1.5	1.5m	4x6mm
T54x53F	Tough 55W Flush	55.4	Yes	54.5x53.5	> 22.5%	30V (65V)	19.50	2.82	25.11	3.16	3%	1	1.5m	4x6mm
T38x53F	Tough 37W Flush	36.9	-	37.8x53.5	> 22.5%	30V (50V)	18.57	1.99	21.77	2.11	3%	0.7	1.5m	4x6mm
T28x43F	Tough 21W Flush	20.8	-	43.4x27.7	> 22.5%	30V (50V)	20.88	0.99	24.48	1.19	3%	0.3	1.5m	4x6mm
T15x85F	Tough 21W Long Flush	20.8	-	14.7x85	> 22.5%	30V (50V)	20.88	0.99	24.48	1.19	3%	0.3	1.5m	No

TOUGH

BLACK SERIES



TOUGH 55W FLUSH BLACK



TOUGH 78W FLUSH BLACK



TOUGH 55W LONG FLUSH BLACK

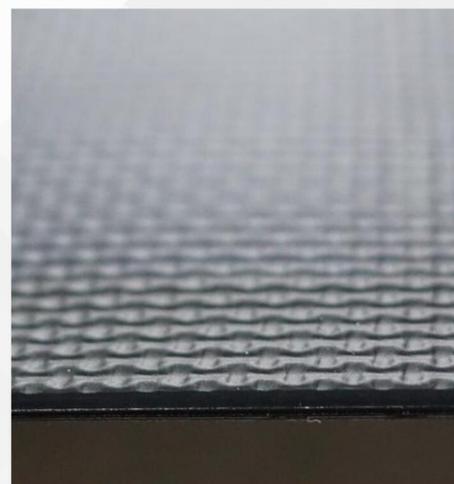
BLACK DESIGN PANEL

2020 FLAT FLUSH CABLE

UV-PROOF & ANTISLIP

POWERFUL & COMPACT

5 YEAR WARRANTY



THE BEST TOUGH FEATURES BUT WITH A DISCREET BLACK LOOK

The SUNBEAMsystem Tough Black series has been designed to look both inconspicuous and elegant at the same time. Developed with the intention to integrate perfectly in the looks of both modern yachts and historical ships. Best suited for applications that put an emphasis on aesthetics: Tough Black pleases both the eye as well as your battery level.

With their dark appearance, the Tough Black panels will blend in on any even colored background. Whether this background is pure white or a classic brown: nobody will suspect there's a solar panel hidden behind the all-black surface.

For a truly seamless surface integration, you can use the Tough Black Hole filler. An identical material without any cells that can be cut to size to fill up any irregular shapes surrounding the panels.

The Tough Black series provides you with the same advantages as the normal Tough series but offers two additional models: the 55W Long Flush and the 114W Flush. For installation, we advise black flexible glue like Sikaflex 291i.

Art. #	Model	W _p	Shadow Optimized	Size (cm)	Sunpower Cell	Max system voltage (incl by pass diode)	V _{mp}	I _{mp}	V _{oc}	I _{sc}	P _{tot +/-}	Kg	Cable	Eyelets
TBlackHole	Tough Black Hole	0		106x54										No
T106x54F-Black	Tough Black 111W Flush	110.8	Yes	106x54	> 22.5%	30V (65V)	18.56	5.97	21.76	6.32	3%	2	1.5m	6x6mm
T79x74F-Black	Tough Black 114W Flush	114.3	Yes	78.5x74	> 22.5%	30V (65V)	19.14	6.16	22.44	6.52	3%	2.1	1.5m	No
T78x54F-Black	Tough Black 78W Flush	78.4	Yes	77.8x54	> 22.5%	30V (65V)	19.72	3.98	23.12	4.48	3%	1.5	1.5m	4x6mm
T54x53F-Black	Tough Black 55W Flush	55.4	Yes	54.5x53.5	> 22.5%	30V (65V)	19.50	2.98	21.76	3.16	3%	1	1.5m	4x6mm
T106x27F-Black	Tough Black 55W Long Flush	55.4	Yes	106x27.7	> 22.5%	30V (65V)	19.50	2.82	25.11	3.16	3%	1	1.5m	No

TOUGH

FOLD SERIES

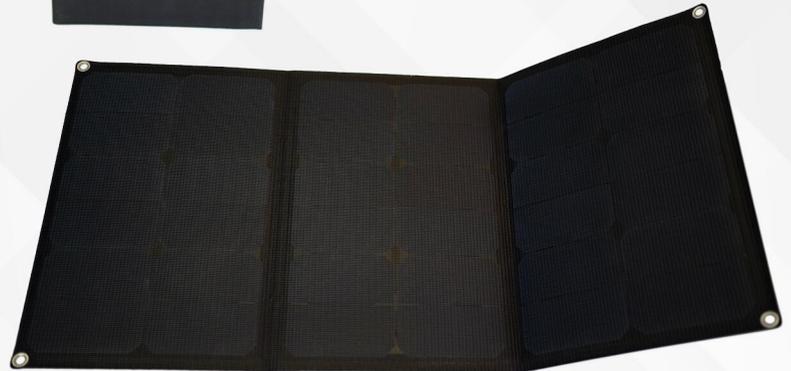
TOUGH CELL PROTECTION

LAMINATED TEXTILE COVER

LIGHTWEIGHT & COMPACT

ONE-PIECE DESIGN

WATERPROOF



TOUGH FOLD 62W

PORTABLE SOLAR PANEL: DESIGNED FOR ADVENTURE

The new Tough Fold series are the most durable and most portable solar panels you could ever wish for. As a part of the Tough family, the Fold has inherited the same sturdy cell cover. The laminated textile outside combined with the edge-soft and center-stiff core offers an exquisite and functional solar panel.

The laminated one-piece design results in a completely waterproof solution hence greatly improving life expectancy.

Un-folded size is remarkably small thanks to highly efficient solar cells.

Folded size is smaller in all dimensions thanks to the one-piece construction and the extremely flat sized Junction box.

For full compatibility with industry-standard solar panel equipment the panel utilizes waterproof MC4 connectors. Connection and disconnection is made easy by the extra finger-friendly construction of the connections.

The portable Mini-R solar charge controller is the perfect match for Tough Fold panels up to 65W.

Art. #	Model	W _p	Folded (cm)	Unfolded (cm)	Sunpower Cell	Max system voltage (incl by-pass diode)	V _{mp}	I _{mp}	V _{oc}	I _{sc}	P _{tot} +/-	Kg	Cable	Eyelets
TZ172x42	Tough Fold 124.5W	124.5	42 x 29	171.5x42	> 22.5%	30V	20.88	5.97	24.48	6.32	3%	2.2	Short + MC4	4 x 9mm
TZ95x42	Tough Fold 62W	62	42 x 28.5	85x42	> 22.5%	30V	20.88	2.99	24.48	3.16	3%	1.1	Short + MC4	4 x 9mm
TZ84x30	Tough Fold 41.5W	41.5	30 x 28	84x30	> 22.5%	30V	20.88	1.99	24.48	2.11	3%	0.7	Short + MC4	4 x 9mm
TZ47x30	Tough Fold 21W	20.75	30.5 x 16	47x30.5	> 22.5%	30V	20.88	0.99	24.48	1.19	3%	0.4	Short + MC4	4 x 9mm

CARBON

CARBON FIBER REINFORCED

SPRAYHOOD & BIMINI

QUICK FIX MOUNTING

SHADOW OPTIMIZED

5 YEAR WARRANTY

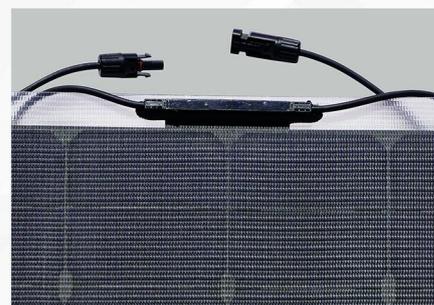
A LONG LIFE SOLAR PANEL FOR CANVAS AND BIMINI



TOUGH + CARBON 116W

The Tough+ Carbon 116W Quick Fix is a highly advanced panel, capable of transforming your sprayhood and bimini into efficient solar power generators. Mounting a large solar panel on a canvas surface has always been a challenge, mostly because of the lack of structural support will increase the risk of early panel failure.

By reinforcing the panel with carbon fiber, the Carbon model achieves the perfect strength to weight ratio needed to tackle this problem. It makes the panel not only stiff enough to support itself, but also light enough to protect the underlying canvas from damages. The soft transparent edges do not only protect the fabric from wear, but also provide a smooth color transition from any colored top to the uniform black panel surface.



QUICK FIX

DETACHABLE SOLAR PANEL

SUITED FOR EVERY SURFACE

QUICK FIX MOUNTING

SHADOW OPTIMIZED

5 YEAR WARRANTY



DETACHABLE SOLAR PANEL TO MOUNT ON ANY SURFACE



The Tough 55W Quick Fix model allows for a detachable mounting on any type of surface. Fitted with the same Quick Fix system as featured on the Carbon, but offering a more versatile character due to its smaller and more practical size.

This panel can be used in combination with any of the three different types of LOXX fittings. These fittings provide the option to mount the panel on both a hard or a canvas surface.

It's even possible to install multiple LOXX fittings in different places, ensuring you can always place the Tough 55W Quick Fix in the best spot with the most sun.

The durable Tough surface and waterproof MC4 connectors offer a long lifespan, while the protected Shadow Optimization technology will ensure an optimal performance whenever a panel is partially shaded.

CARBON VELCRO BATTEN



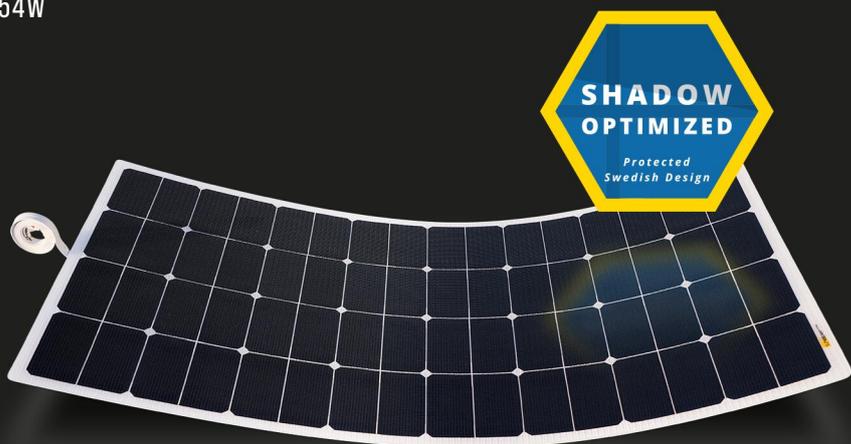
For use of the Carbon model in heavy wind or on fast-moving vessels, we recommend the Carbon Velcro Batten. These will even out the forces on the underlying canvas using velcro strips.

Art. #	Model	Wp	Shadow Optimized	Size (cm)	Sunpower Cell	Max system voltage (incl by-pass diode)	V _{mp}	I _{mp}	V _{oc}	I _{sc}	P _{tol} +/-	Kg	Cable	Eyelets
TPC107x55QF	Tough+ 116W Carbon	116.1	Yes	107.8x 55.4	23.70%	45V (80V)	19.87	5.84	23.07	6.15	3%	2.8	0.7 + MC4	6 x QuickFix
T54x53QF	Tough 55W Quick Fix	55.4	Yes	55.5x53.5	> 22.5%	45V (45V)	19.50	2.82	25.11	3.16	3%	1	0.7 + MC4	4 x QuickFix
CVB116	Carbon Velco Batten			107.8x5		2mm carbon fiber							Canvas Side Velcro in Black included	

MAXA



MAXA 54W



MAXA 109W

- ETFE SURFACE
- 2020 FLAT FLUSH CABLE
- SHADOW OPTIMIZED
- HIGH EFFICIENCY CELLS
- 2 YEAR WARRANTY

MAXA ETFE SERIES: DURABILITY FOR A SHARP PRICE

The new Maxa series is packed with a lot of the unique features you only find at SUNBEAMsystem. It's fitted with an ETFE surface (the next best thing after Tough) and comes at a very sharp price.

The Maxa series has been designed as the ideal solar panel for use on both motorhomes and yachts, where value for money matters, with build quality and durability outshining the competition. The low weight and 3mm thickness make it perfect for rooftop integration. Avoid the weight and air turbulence caused by solid solar panels. The flat cable is easily glued along the roof to the cable entrance, resulting in a neat and uncluttered installation. The ETFE surface is easily cleaned by the occasional rain shower.

The Maxa series is fitted with high-efficiency cells (22.3%), ensuring you get an impressive amount of power from the available roof space. On top of that, the Maxa models are also equipped with SUNBEAMsystems protected Shadow Optimized technology, which ensures a maximum charge in all weather conditions.

Maxa panels don't feature eyelets and need to be installed using double-sided tape or soft flexible glue such as white Sikaflex 291i.

Art. #	Model	W _p	Shadow Optimized	Size (cm)	Cell type	Max system voltage (incl by-pass diode)	V _{mp}	I _{mp}	V _{oc}	I _{sc}	P _{tot} +/-	Kg	Cable	Eyelets
X106x54F	Maxa 109W Flush	109.1	Yes	106x54	Sunpower	30V	18.432	5.92	21.696	6.29	4%	2	1.5m	No
X54x53F	Maxa 54W Flush	54	Yes	54.5x53.5	Sunpower	30V	20.224	3.06	25.74	2.75	4%	1	1.5m	No

NORDIC



NORDIC 54W JUNCTION BOX



NORDIC 104W FLUSH

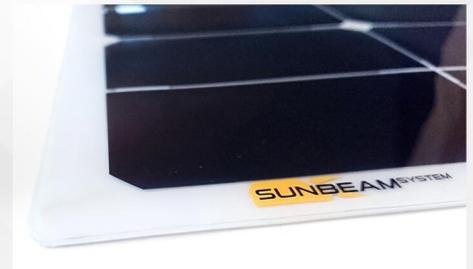
HIGH PRODUCTION

UPGRADED SOLAR CELLS

FLUSH & JUNCTION BOX

SHADOW OPTIMIZED

2 YEAR WARRANTY



DESIGNED FOR NORDIC REGIONS

The Nordic series has been developed by SUNBEAMsystem for use in its region of origin: the northern latitudes. It offers a universal solution for applications with a requirement for lightweight, flexible and compact solar panels. Because of being more efficient than standard glass solar panels you'll get a higher power output from a relatively small surface area. All in all the Nordic series offers the best value for the money option in the market.

All Nordic models are equipped with our unique Shadow Optimized technology for improved performance in partial shadowing.

In 2020 all Nordic models have been retrofitted with newer and more efficient solar cells, increasing the peak power output.

The Nordic models feature a smooth surface that is not scratch resistant but can be walked on occasionally with clean shoes.

The Flush models are shipped without stainless steel eyes allowing for a seamless integration on hard surfaces. We recommend white Sikaflex 291i kit for mounting.

JUNCTION BOX MC4 STEKKERS

The Junction Box models are fitted with stainless steel eyes and MC4 connectors for easy mounting and a waterproof connection.



Art. #	Model	W _p	Shadow Optimized	Size (cm)	Cell type	Max system voltage (incl. by-pass diode)	V _{mp}	I _{mp}	V _{oc}	I _{sc}	P _{tot} +/-	Kg	Cable	Eyelets
N106x54JB	Nordic 104W Junction Box	104	Yes	106x54	Sunpower	30V	17.55	5.93	22.69	6.34	5%	2	0.7 + MC4	6 x 6mm
N106x54F	Nordic 104W Flush	104	Yes	106x54	Sunpower	30V	17.55	5.93	22.69	6.34	5%	2	1.5m	No
N54x53F	Nordic 54W Flush	54	Yes	54.5x53.5	Sunpower	30V	19.6	2.76	25.74	3.06	5%	1	1.5m	No
N54x53JB	Nordic 54w Junction Box	54	Yes	54.5x53.5	Sunpower	30V	19.6	2.76	25.74	3.06	5%	1	0.7 + MC4	4 x 6mm



TOUGH BLACK

THE MOST DISCRETE SOLAR PANEL

PLUG & PLAY SYSTEM

ANDROID & IOS APP

EXTREME POWER DELIVERY

COMPACT & LIGHTWEIGHT

QUICK CHARGE



NEW 2020 SMART LITHIUM: THE SAFEST BATTERY TECHNOLOGY AVAILABLE

The SMART LITHIUM is completely Plug & Play! Simply remove your old-fashioned batteries and upgrade them to the latest effortlessly. No need for extensive installation planning or support. It has been developed from scratch to solve any shortcomings other battery types have. The SUNBEAMsystem SMART LITHIUM batteries are a drop-in replacement for users who want to upgrade to the best and safest battery technology available.

The SMART LITHIUM ONE model packs all the best features in a single battery. This includes the ability for quick charge in less than an hour. The SMART LITHIUM Basic model offers all the advantages that the ONE does, except for the quick charge.

It is still as easily charged but the hardware does not allow the insane charging currents as the ONE. The big advantage of the Basic model is the unbeatable price per Ah. The Basic is only sold in a 2-pack and is meant for anybody with a need for a big storage capacity.

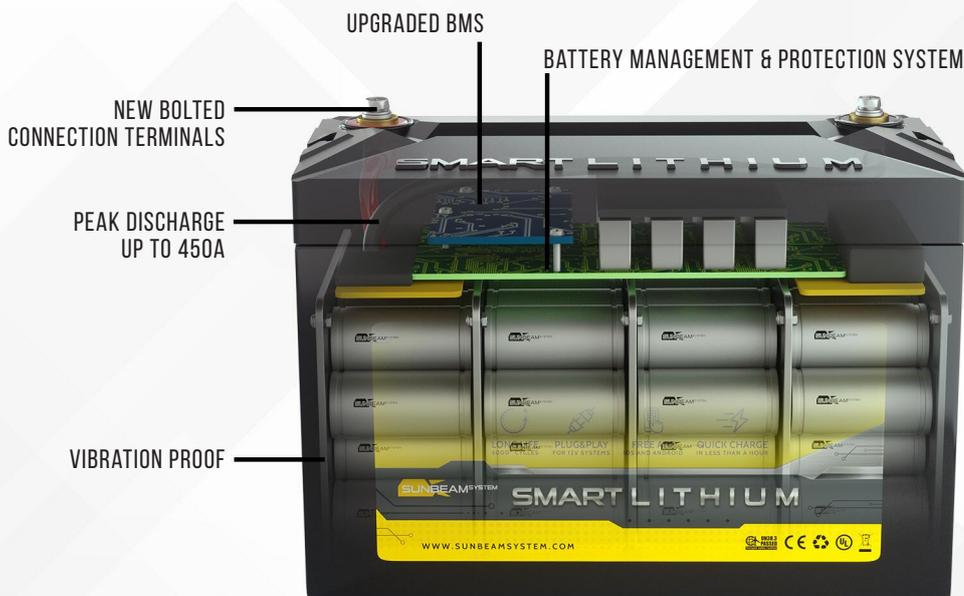
The advanced app will allow you to build a battery network, connecting multiple batteries (both ONE and Basic) and show the system as a single entity.

POWERFUL ANDROID & IOS APP

Via the built-in Bluetooth module, you can monitor your SMART LITHIUM batteries with our SUNBEAMsystem app. It's available for Android and iOS and works on both tablets and smartphones. Connect your battery and get access to get real-time info such as the state of charge and (dis)charging currents, or set alarms for whenever the SoC drops below a certain percentage. The app supports stacking of multiple batteries, and even allows for adding MoonRay MPPT controllers in the network (provided you have the separate Bluetooth module installed).



Art. #	Model	Capacity	System Voltage	Max. cont. charge	Max cont. discharge	Peak discharge (10s)	Weight	Dimensions
SmartLi100One	SMART LITHIUM ONE	100Ah	12V	150A	150A	450A	14.5kg	328 x 172 x 222 mm
SmartLi100Basic2	SMART LITHIUM BASIC	2 x 100Ah	12V	2 x 95A	2 x 95A	2 x 300A	14.5kg	328 x 172 x 222 mm



The all-new SUNBEAMsystem SMART LITHIUM ONE features an upgraded BMS and comes with an improved smartphone app. But not only the inside has been overhauled: it's also fitted with improved bolted connection terminals, with all the new hardware protected by a new black casing.

LONG LIFE | HIGH EFFICIENCY | HIGH CAPACITY

Packed with innovative features and offering an extremely long lifespan, SUNBEAMsystem SMART LITHIUM is a reliable power source for years to come. As opposed to a lead-acid battery, it can be discharged completely without permanently damaging the battery. This allows you to use the full 100Ah capacity, making it the equivalent of a 200Ah lead-acid battery (which can only be discharged to 50% without damage). On top of that, the extremely high conversion efficiency ensures that almost all power that you put in will be available for use later on. And even after thousands of charging cycles, the SMART LITHIUM will still uphold a high percentage of its factory capacity.



DEPTH OF DISCHARGE	100% DoD	80% DoD	70% DoD	50% DoD
80% OF FACTORY CAPACITY AFTER	2000 cycles	2500 cycles	3000 cycles	5000 cycles

MULTI-LAYERED SAFETY



Due to our multi-layered safety, the SMART LITHIUM is one of the few batteries that's certified under UN 38.3 legislation, guaranteeing it's safe for air transport. It also means that the battery is secured against penetration (or crushing) of the cells, fire, changing air pressure, repeated vibrations, shock impact, short-circuiting and overcharging. In case there is a risk to the system, the built-in BMS will automatically protect and shut down the battery, isolating itself from the casing.

All these features, combined with the low weight and small size, make the SMART LITHIUM the perfect candidate for even the most extreme applications.

SUNBEAMSYSTEM

MOONRAY SERIES

The new MoonRay MPPT charge controllers are fully optimized for use on yachts and RV's. They outperform every other type of MPPT in both perfect as well as 'real-life' weather conditions. So even when slightly clouded or with panels partially shadowed: MoonRay will put out the maximum possible charge.



WIDE SPECTRUM
MPPT

ENHANCED FOR
SINGLE & FEW
SOLAR PANELS

IMPROVED
LOW LIGHT
CHARGE

MOONRAY SERIES: DEVELOPED & TESTED FOR REAL LIFE WEATHER



IP33 DRIPPING WATER PROTECTION



LOW SELF CONSUMPTION $\leq 12\text{mA}$



ADAPTABLE FOUR STEP CHARGE ALGORITHM



INTELLIGENT & EFFECTIVE MPPT FUNCTION



ALLOWANCE FOR SINGLE PANELS AND SHADING



RELIABLE HIGH QUALITY COMPONENTS

OPTIMIZED FOR SINGLE & PARALLEL SOLAR PANEL SYSTEMS

Most MPPT charge controllers require solar panels to be put in series to utilize their full potential. Only, most users won't have enough space available for such a setup. Furthermore, when put in series, the output will be less in an environment with partial shadows compared to connecting the same panels in parallel.

With MoonRay these outdated limitations belong to the past. It is constructed to make optimal use of single panels and panels connected in parallel but also supports 24V systems. The controller will maximize the output of any modern solar panel (no matter the brand) during daily sunlight variations. Combine MoonRay with our Shadow Optimized models and you have the most versatile solar setup possible.



CONTROL EVERYTHING WITH OUR ANDROID & IOS APP

With the optional Bluetooth module, you gain full control of your system with the SUNBEAMsystem app. Not only does it feature real-time data at your hand, it also allows you to stack multiple MoonRay controllers in a single overview. Any SMART LITHIUM batteries installed in the system will automatically be included, allowing you to review the full system from the palm of your hand.



TEMPERATURE
SENSOR



CHARGE OPTIMIZATION
& PROTECTION



NATURAL QUIET
CONVECTION COOLING

For the user aiming to install many solar panels, MoonRay supports the stacking of several controllers. Our advanced networking app can show all controllers in a single clear overview, or only data from a specific controller. The extremely low self-consumption (<12mA) is industry-leading, ensuring no power goes to waste.

MoonRay is fully configurable and most settings can be made by using the onboard LCD interface. It supports any type of battery. Traditional Lead-Acid and Gel charging profiles can be set via the onboard interface. Advanced charger profiles for batteries such as AGM and Lithium can be set via the optional display or optional app.



MoonRay is certified on both electrical emissions and its outstanding electrical safety functions. It's also equipped with a more advanced safety function. For instance, when faced with the risk of overheating or too high currents the controller will not simply shut down, but instead dials down the energy flow to a sustainable level. It then saves a shows and saves an event notification, helping the user to take suitable action later on.

SUNBEAMSYSTEM

MINI-R



MICRO CHARGE CONTROLLER

SUITED FOR MOBILE USE

PORTABLE & LIGHTWEIGHT

WATERPROOF DESIGN

MC4 CONNECTORS

THE SMALLEST 65W SOLAR CHARGE CONTROLLER YOU HAVE EVER SEEN

The SUNBEAMsystem Mini-R might be the smallest 65A charging regulator you have ever seen. As a so called 'in-line' controller, it's been specifically designed for mobile applications. Combine it with a solar panel (max. 65W) and you'll have a fully portable solar power source at your disposal.

The Mini-R is extremely light, user-friendly and features a waterproof IP67 housing. It comes with three extension cables: one fitted with MC4 connectors for connecting a solar panel, one fitted with a 12V cigarette plug and one fitted with croc clamps for connecting your battery. There's also an optional battery cable fitted with cable eyes to permanently connect to your battery terminals.

Art. #	Model	System Voltage	Max. PV rated power	Weight	Dimensions
MoonRay160	MoonRay 160 MPPT	12/24V DC	160W (12V) / 320W (24V)	0.6 kg	172 x 139 x 44 mm
MoonRay320	MoonRay 320 MPPT	12/24V DC	320W (12V) / 640W (24V)	1.1 kg	220 x 154 x 52 mm
Mini-R	Mini-R PWM 65W	12V DC	65W (12V)	0.1 kg	66 x 38 x 16 mm



THE FLUSH CABLE

Most of the SUNBEAMsystem models are fitted with the flat Flush power cable, a unique feature you will only find at SUNBEAMsystem. The Flush cable allows for a professional installation, without visible wiring. The result? A completely flat and integrated surface, without protruding Junction Box and without visible power cables.

On all the SUNBEAMsystem Flush models the flat power cables are attached to the backside of the panel, allowing the cable to be led away, or connected, underneath the panel. The cable can also be glued to the deck (or other surface), making it practically invisible on a white background.

The Flush cable is only 1.4mm thin but features an impressive 2 x 2.1mm² inner core. It's fitted with an UV-resistant housing and a fully pre-tinned copper core to ensure the longest possible longevity.

SHADOW OPTIMIZED

The SUNBEAMsystem Shadow Optimized technology is unique in the market and allows for an improved production when a solar panel is partially shaded.

In models featuring the Shadow Optimized label the solar cells are internally divided in multiple groups, connected in parallel, allowing them to function independently from each other.

Because of this, a single solar panel with Shadow Optimized technology is essentially build up from two separate internal solar panels. This means that when one part of the solar panel catches less light, or is shaded, the other part can continue to generate electricity at full power.

This technology offers an innovative solution for users who experience shading on a regular basis, such as sailing yachts, and especially when the panels are positioned in the middle of the deck.

INFORMATION ON DIFFERENT OPTIONS AND CORRECT MOUNTING CAN BE FOUND IN THE KNOWLEDGE BANK ON THE SUNBEAMSYSTEM WEBSITE

EXPLANATION OF LISTED VALUES

All values are measured in standard testing conditions:

- 1000W/M², 1.5 atm, 25° Celsius.

- Temperature coefficient $I_{sc} = -0.05$ (%/°C)

- Temperature coefficient $V_{oc} = -0.27$ (%/°C)

- Temperature coefficient $P_{max} = -0.29$ (%/°C)

P_{max} is the maximal attainable power.

V_{oc} (Voltage open circuit), also referred to as the clamping voltage, is the maximum voltage when no load is connected

I_{sc} (Ampere short circuit) is the maximum current when the panel is short circuited.

V_{mp} (Voltage maximum power) is the maximum voltage a panel produces under ideal circumstances.

I_{mp} (Ampere maximum power) is the maximum current a panel produces under ideal circumstances

Kg Listed weights without cables.



**SHADOW
OPTIMIZED**
*Protected
Swedish Design*

**TOUGH 55W LONG
FLUSH BLACK**

GET THE MOST OUT OF EVERY SPACE



TOUGH 55W FLUSH