

THE POWER OF QUALITY



Introduction

TBS Electronics BV (TBS) is a privately owned ISO 9001:2015 certified Dutch company founded in 1984. TBS can best be described as an engineering driven family business. It all started with the design and production of toroidal transformers, followed by electronics and software design in the early nineties.

Until 2006, TBS mainly operated as an Original Design Manufacturer (ODM) for other companies. But after that, our focus was shifted towards designing and marketing TBS branded equipment. Over the past years we have successfully worked on a comprehensive lineup of power conversion and instrumentation products, intended for use in independent power applications. All designed and manufactured in The Netherlands.

Our current product lineup consists of professional sinewave inverters, battery chargers, inverter-charger combinations, battery monitors and DC protection or distribution products. All these products have an excellent reputation for reliability and innovation. In the coming years we will further expand and optimize our product portfolio.





THE POWER OF QUALITY

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Powersine true sinewave inverters

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Omnicharge programmable battery chargers

> 12-40, 12-60, 24-20 and 24-30 12-90, 24-50, 24-80 and 48-40

Powersine Combi inverter/charger units

1600-12-60 and 1800-24-35 2000-12-80, 2500-24-50, 3000-12-120 and 3500-24-70

Expert Series high precision battery monitors

> Lite, Pro and Pro-hv Modular

DC Modular high current busbars, fuseholders and contactors

Premium quality Busbars, Fuseholders and Contactors









Powersine true sinewave inverters

Provides pure sine wave AC power from a DC source

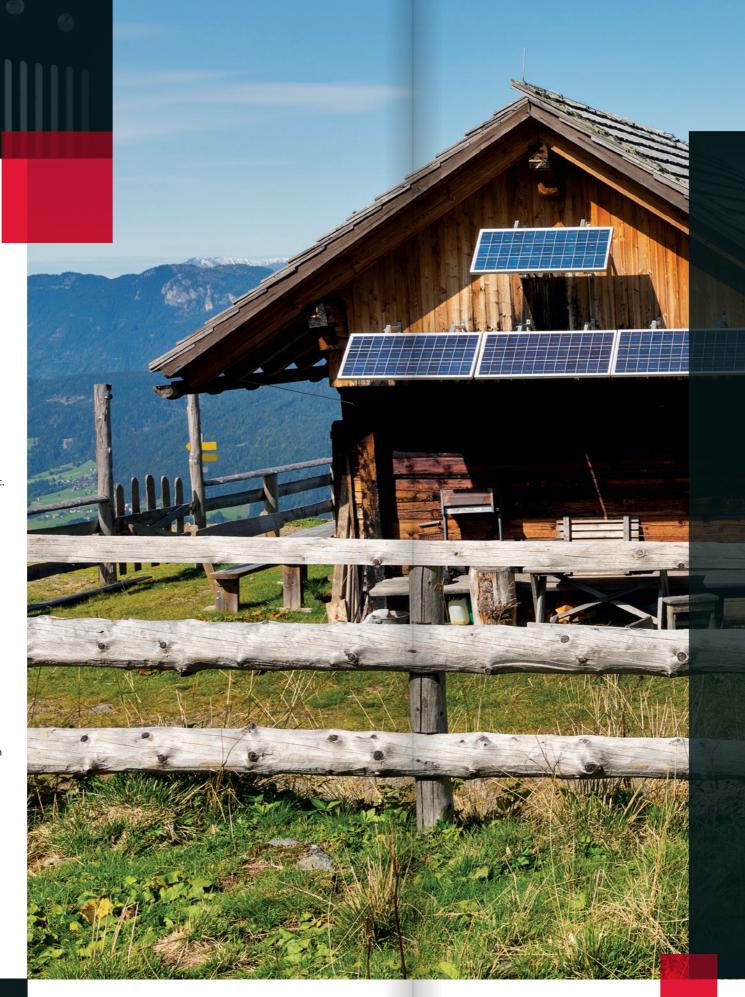
More than 20 years ago, TBS introduced the first Powersine true sinewave inverter that offered clean reliable power in a compact, yet affordable package. Since then our inverter lineup has evolved into a fine selection of different models, that are used worldwide in a wide variety of applications.

An inverter transforms the DC electricity stored in batteries into standard household AC power. With a Powersine inverter you don't have to rely on hard-to-find DC-powered appliances or a noisy generator to enjoy the comforts of home in your vehicle, RV or boat. Creating an independent mobile power system and providing silent AC electricity anytime, anywhere.

Powersine inverters are efficient and reliable and come in a variety of sizes and power ranges to meet just about any power need. We offer small models designed for lower power AC loads such as TV's, computers and electric tool chargers, plus high power units that provide electricity for larger installations in for example vehicles and boats.

Cleaner than grid power

With very low total harmonic distortion, a Powersine inverter delivers a true sine wave output that is identical or even better than the AC power supplied by the public grid. Grid power is more likely to fluctuate causing your lights to flicker. Sometimes the voltage may even drop down to a level that affects proper operation of your connected equipment. This is especially true for shore power outlets. Due to the perfect and stable AC output of a Powersine inverter, all such problems no longer exist and also helps to protect your equipment against failures, humming or interference.



Technology without compromise

All Powersine inverters are built around the superior hybrid HF/LF technology using a single power stage and a very efficient toroidal transformer. This offers many benefits like:

- Very high peak power delivery
- Low no-load power consumption
- Capable of powering the most difficult loads
- Less active components = higher

Additionally, only first class components are used inside any Powersine inverter. Ensuring a long trouble-free lifetime. This is proven by the fact that large numbers of our first generation inverters are still in service today.

System design flexibility

Using a stand-alone inverter offers you all the freedom to choose the best battery charging source for your application. Determine the right current rating to match your battery capacity and desired charging time, or choose to charge from an alternator, the grid or the sun.





300-12, 350-24 and 450-48



The PS300-12, PS350-24 and PS450-48 professional DC to AC true sinewave inverters, offer superior performance for a wide range of applications.

Unlike many other inverters, the very clean and interference free output of a Powersine inverter ensures correct operation of sensitive equipment like displays, test equipment and battery chargers.

The very robust electronic and mechanical design, make the Powersine inverter series the best choice for reliability. Designed for an extremely long lifespan and protected against short circuits, overloading and high temperatures, a Powersine inverter will deliver trouble free operation for many years.

The newest available technology results in extremely efficient operation with very low 'no-load' consumption. The Automatic Standby Function (ASB), standard in all Powersine inverters, will even reduce the no-load consumption by an extra 70%!

All Powersine inverters are easy to install and operate. Each Powersine inverter comes standard with DC cables and a very clear installation and operating instruction manual.

Features

- True sinewave AC output
- Robust design
- High surge power output
- Very efficient
- Protected against low battery voltage, high temperature, overload and short circuit
- Automatic Standby function to reduce no-load power consumption
- Variable speed fan for silent operation
- Schuko type AC outlet (other outlet types are optionally available)
- 1.5 meters DC connection cable included
- CE and e-mark certified
- 24 month warranty

Applications

- Recreational vehicles
- Marine applications
- Solar power systems
- Industrial systems
- Mobile entertainment systems
- Service vehicles
- Remote homes

Designed to power your...

- TV
- Computer
- Battery charger
- Portable work light
- Test & measurement equipment
- Smart phone charger
- Thermal printer

Technical specifications

	Parameter		PS300-12 art # 5003000-1	PS350-24 art # 5003100-1	PS450-48 art # 5003300-1		
	Output power¹)	Pnom	250W	300W	300W		
		P10minutes	330W	360W	450W		
		Psurge	700W	800W	800W		
П	Output voltage			230Vac ± 2% (115Vac ± 2% optional)			
	Output frequency			50Hz ± 0.05% (60Hz ± 0.05% optional)			
П	Input voltage (±3% tolera	nce) Nominal	12Vdc	24Vdc	48Vdc		
		Range	10.5 ²⁾ – 16.0Vdc	21.0 ²⁾ – 31.0Vdc	41.0 ²⁾ – 60.0Vdc		
	Maximum efficiency		91%	93%	95%		
	No load power consump	tion³)	<3W	<3.5W	<6.5W		
	[ASB]		[0.7W]	[W8.0]	[1.3W]		
	ASB threshold		Pout=12W	Pout=15W	Pout=15W		
	Operating temperature r	ange (ambient)	-20°C +50°C (humidity max. 95% non condensing)				
	Storage temperature ra	nge	-40°C +80°C (humidity max. 95% non condensing)				
	Cooling		Variable speed fan controlled by temperature and load				
	Communication port		No				
	Protected against		Short circuit, overload, high temperature, low battery voltage				
	Indications		Power on, error and ASB mode				
	DC input connections		Two wires, length 1.5 meters, 4 mm²				
	AC output connections		Schuko outlet ⁴⁾				
	Enclosure body size		184 x 98 x 130 mm (without mounting brackets)				
┫	Total weight		3.5 kg				
	Protection class			IP20			
4	Standards		CE marked meeting EMC directive 2014/30/EU and LVD 2014/35/EU				
			complying	g with EN60335-1, e4-95/54/EC, RoHS 2	011/65/EU		

Note: the given specifications are subject to change without notice.

⁴⁾ Also available are the following AC outlet types:





¹⁾ Measured with resistive load at 25°C ambient. Power ratings are subject to a tolerance of 4% and are decreasing as temperature rises with a rate of approx 1.2% FC starting from 25°C

of approx. 1.2%/°C starting from 25°C

²⁾ Undervoltage limit is dynamic. This limit decreases with increasing load to compensate the voltage drop across cables and connections

³⁾ Measured at nominal input voltage and 25°C

600-12, 800-24 and 800-48

Description

The PS600-12, PS800-24 and PS800-48 professional DC to AC true sinewave inverters, offer superior performance for a wide range of applications.

Unlike many other inverters, the very clean and interference free output of a Powersine inverter ensures correct operation of sensitive equipment like displays, test equipment and battery chargers.

The very robust electronic and mechanical design, make the Powersine inverter series the best choice for reliability. Designed for an extremely long lifespan and protected against short circuits, overloading and high temperatures, a Powersine inverter will deliver trouble free operation for many years.

The newest available technology results in extremely efficient operation with very low 'no-load' consumption. The Automatic Standby Function (ASB), standard in all Powersine inverters, will even reduce the no-load consumption by an extra 70%!

All Powersine inverters are easy to install and operate. Each Powersine inverter comes standard with DC cables and a very clear installation and operating instruction manual.

Features

- True sinewave AC output
- Robust design
- High surge power output
- Very efficient
- Protected against low battery voltage, high temperature, overload and short circuit
- Automatic Standby function to reduce no-load power consumption
- Variable speed fan for silent operation
- Schuko type AC outlet (other outlet types are optionally available)
- Remote on/off capability
- 1.5 meters DC connection cable included
- CE and e-mark certified
- 24 month warranty

Applications

- Recreational vehicles
- Marine applications
- Solar power systems
- Industrial systems
- Mobile entertainment systems
- Service vehicles
- Remote homes

Designed to power your...

- TV
- Computer
- Battery charger
- Portable work light

- Test & measurement equipment
- Smart phone charger
- Thermal printer
- Small kitchen appliance
- Electric tool

Technical specifications

Parameter		PS600-12 art # 5004000-1	PS800-24 art # 5004100-1	PS800-48 art # 5004300-1		
Output power¹)	Pnom	500W	600W	600W		
	P10minutes	600W	800W	800W		
	Psurge	1000W	1200W	1250W		
Output voltage			230Vac ± 2% (115Vac ± 2% optiona	1)		
Output frequency			$50 \text{Hz} \pm 0.05\%$ (60Hz $\pm 0.05\%$ options	al)		
Output waveform			True sinewave (THD < 5%¹) @ Pnom)		
Input voltage (±3% to	lerance) Nominal	12Vdc	24Vdc	48Vdc		
	Range	10.5 ²⁾ – 16.0Vdc	21.0 ²⁾ – 31.0Vdc	41.0 ²⁾ – 60.0Vdc		
Maximum efficiency		92%	93%	94%		
No load power consumption ³⁾		<4.8W	<6.5W	<8.2W		
[ASB]		[0.4W]	[0.7W]	[0.5W]		
ASB threshold		Pout=15W				
Operating temperatu	re range (ambient)	-20°C +50°C (humidity max. 95% non condensing)				
Storage temperature	range	-40°C +80°C (humidity max. 95% non condensing)				
Cooling		Variable speed fan controlled by temperature and load				
Communication port		No				
Protected against		Short circuit, overload, high temperature, low battery voltage				
Indications		Power on, error and ASB mode				
DC input connections	5	Two wires, length 1.5 meters, 10 mm ²				
AC output connection	ns	Schuko outlet ⁴⁾				
Enclosure body size		228 x 113 x 163 mm (without mounting brackets)				
Total weight		6.2 kg				
Protection class		IP20				
Standards		CE marked meeting EMC directive 2014/30/EU and LVD 2014/35/EU complying with EN60335-1, e4-95/54/EC, RoHS 2011/65/EU				
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Note: the given specifications are subject to change without notice.

⁴⁾ Also available are the following AC outlet types:







¹⁾ Measured with resistive load at 25°C ambient. Power ratings are subject to a tolerance of 4% and are decreasing as temperature rises with a rate of approx. 1.2%/°C starting from 25°C

²⁾ Undervoltage limit is dynamic. This limit decreases with increasing load to compensate the voltage drop across cables and connections

³⁾ Measured at nominal input voltage and 25°C

1000-12, 1400-24, 1600-12, 1800-24 and 1800-48

Description

The PS1000-12 up to PS1800-48 professional DC to AC true sinewave inverters, offer superior performance for a wide range of applications. Unlike many other inverters, the very clean and interference free output of a Powersine inverter ensures correct operation of sensitive equipment like displays, test equipment and battery chargers.

The very robust electronic and mechanical design, make the Powersine inverter series the best choice for reliability. Designed for an extremely long lifespan and protected against short circuits, overloading and high temperatures, a Powersine inverter will deliver trouble free operation for many years.

The newest available technology results in extremely efficient operation with very low 'no-load' consumption. The Automatic Standby Function (ASB), standard in all Powersine inverters, will even reduce the no-load consumption by an extra 70%!

All Powersine inverters are easy to install and operate. Each Powersine inverter comes standard with DC cables and a very clear installation and operating instruction manual.

SINEWAVE INVERTER

Features

- True sinewave AC output • Robust industrial design
- High surge power output
- Very efficient
- Protected against high/low battery voltage, high temperature, overload, short circuit and high ripple voltage
- Automatic Standby function to reduce no-load power consumption
- Variable speed fan for silent operation
- Remote on/off capability
- Alarm relay
- Remote control capability via TBSLink
- Easy to access connection bay for installing AC-, DC and control wiring

- 1.5 meters DC connection cable included
- CE certified
- 24 month warranty

Applications

- Recreational vehicles
- Marine applications
- Solar power systems
- Industrial systems
- Mobile entertainment systems
- Service vehicles

Technical specifications

Parameter		PS1000-12 art # 5006100	PS1400-24 art # 5006120	PS1600-12 art # 5006300	PS1800-24 art # 5006320	PS1800-48 art # 5006360	
Output power¹)	Pnom	850W	1000W	1300W	1400W	1400W	
	P10minutes	1050W	1450W	1600W	1800W	1800W	
	Psurge	2000W	2800W	2500W	3000W	3000W	
Output voltage				230Vac ± 2%			
Output frequency			50Hz oi	r 60Hz ± 0.05% (sel	ectable)		
Output waveform			True sine	ewave (THD < 5%1)	@ Pnom)		
Input voltage (±3% to	lerance) Nominal	12Vdc	24Vdc	12Vdc	24Vdc	48Vdc	
	Range	10.5 ²⁾ – 16.0Vdc	21.0 ²⁾ – 31.0Vdc	10.5 ²⁾ – 16.0Vdc	21.0 ²⁾ – 31.0Vdc	41.0 ²⁾ – 60.0Vdd	
Maximum efficiency		92%	92%	92%	92%	94%	
No load power consu	mption³)	<9.6W	<12W	<9.6W	<12W	<12W	
[ASB]		[2.5W]	[3.5W]	[2.5W]	[3.5W]	[4.7W]	
ASB threshold				Pout=10W			
Operating temperatu	re range (ambient)	-20°C +50°C (humidity max. 95% non condensing)					
Storage temperature	range	-40°C +80°C (humidity max. 95% non condensing)					
Cooling		Variable speed fan controlled by temperature and load					
Communication port		TBSLink (readout only)					
Protected against		Short circuit, overload, high temperature, AC back feed, high/low					
		battery voltage and high input ripple voltage					
Indications		Power on, output power bar, error and ASB mode					
DC input connections	(cable length 1.5m)	PS1000-12 / PS14	100-24 / PS1800-48.	2 x 25 mm ² P	S1600-12/PS1800	<i>0-24:</i> 2 x 35 mm ²	
AC output connection	ns			Screw terminals			
Enclosure body size				351 x 210 x 114 mm	1		
Total weight		PS1000-12 PS14	<i>100-24:</i> 10.2 kg	PS1600-1	2 PS1800-24 PS1	<i>800-48:</i> 10.5 kg	
Protection class		IP21 (mounted in upright position)					
Standards		CE m	arked meeting EM0	C directive 2014/30	/EU and LVD 2014/	35/EU	
		complying with EN60335-1, e4-95/54/EC, RoHS 2011/65/EU					

Note: the given specifications are subject to change without notice.

Accessories

- Universal Remote Control with LCD
- Basic Remote Control with LEDs
- TBSLink communication kit including software





TBSLink to USB Interface Kit, art # 5092120 (Includes TBS Dashboard for monitoring the



Basic Inverter Remote Control, art # 5095200

Universal Remote Control, art # 5095500

¹⁾ Measured with resistive load at 25°C ambient. Power ratings are subject to a tolerance of 10% and are decreasing as temperature rises with a rate of approx. 1.2%/°C starting from 25°C

²⁾ Undervoltage limit is dynamic. This limit decreases with increasing load to compensate the voltage drop across cables and connections

³⁾ Measured at nominal input voltage and 25°C

2000-12, 2500-24, 3000-12, 3500-24 and 3500-48

Description

The PS2000-12 up to PS3500-48 professional DC to AC true sinewave inverters, offer superior performance for a wide range of applications. Unlike many other inverters, the very clean and interference free output of a Powersine inverter ensures correct operation of sensitive equipment like displays, test equipment and battery chargers.

The very robust electronic and mechanical design, make the Powersine inverter series the best choice for reliability. Designed for an extremely long lifespan and protected against short circuits, overloading and high temperatures, a Powersine inverter will deliver trouble free operation for many years.

The newest available technology results in extremely efficient operation with very low 'no-load' consumption. The Automatic Standby Function (ASB), standard in all Powersine inverters, will even reduce the no-load consumption by an extra 70%!

All Powersine inverters are easy to install and operate. Due to smart connection bay mapping of AC, DC and control connectors, all wiring can be installed in a fast and logical way.

SINEWAVE INVERTER

Applications Features

- True sinewave AC output
- Robust industrial design
- High surge power output
- Very efficient
- Protected against high/low battery voltage, high temperature, overload, short circuit and high ripple voltage
- Variable speed fan for silent operation
- Remote on/off capability
- Alarm relay
- Remote control capability via TBSLink
- Easy to access connection bay for installing AC-, DC and control wiring
- Trigger input
- CE certified
- 24 month warranty

- Recreational vehicles
- Marine applications
- Solar power systems
- Industrial systems
- Mobile entertainment systems
- Service vehicles
- Remote homes



Accessories

- Universal Remote Control with LCD
- Basic Remote Control with LEDs
- TBSLink communication kit including software







Universal Remote Control, art # 5095500

TBSLink to USB Interface Kit, art # 5092120 (Includes TBS Dashboard for monitoring the Powersine inverters)

Technical specifications

Parameter		PS2000-12 art # 5008100	PS2500-24 art # 5008120	PS3000-12 art # 5008300	PS3500-24 art # 5008320	PS3500-48 art # 5008360	
Output power¹)	Pnom	1800W	2000W	2600W	2800W	2800W	
	P10minutes	2100W	2500W	3200W	3800W	3800W	
	Psurge	4000W	5500W	5000W	6500W	6500W	
Output voltage				230Vac ± 2%			
Output frequency				r 60Hz ± 0.05% (sel			
Output waveform				ewave (THD < 5%1)	,		
Input voltage (±3% tolera	ance) Nominal	12Vdc	24Vdc	12Vdc	24Vdc	48Vdc	
	Range	10.0 ²⁾ – 16.5Vdc	20.0 ²⁾ – 33.0Vdc	10.0 ²⁾ – 16.5Vdc	20.0 ²⁾ – 33.0Vdc	40.0 ²⁾ – 64.0Vdc	
Maximum efficiency		92%	93%	92%	93%	93%	
No load power consump	otion³)	<19W	<20W	<19W	<20W	<21W	
[ASB]		[2.0W]	[2.0W]	[2.0W]	[2.0W]	[2.4W]	
ASB threshold		Pout=10W					
Operating temperature	range (ambient)	-20°C +50°C (humidity max. 95% non condensing)					
Storage temperature ra	nge	-40°C +80°C (humidity max. 95% non condensing)					
Cooling		Variable speed fan controlled by temperature and load					
Communication port		TBSLink (readout only)					
Protected against		Short circuit, overload, high temperature, AC back feed, high/low					
		battery voltage and high input ripple voltage					
Indications		Power on, output power bar, error and ASB mode					
DC input connections		M10 bolt terminals					
AC output connections				Screw terminals			
Enclosure body size		370 x 431 x 132 mm					
Total weight			18.2 kg		18.5 kg		
Protection class		IP21 (mounted in upright position)					
Standards		CE m	arked meeting EM	C directive 2014/30	/EU and LVD 2014,	/35/EU	
		c	omplying with EN6	60335-1, e4-95/54/E	C, RoHS 2011/65/	EU	

Note: the given specifications are subject to change without notice.



¹⁾ Measured with resistive load at 25°C ambient. Power ratings are subject to a tolerance of 10% and are decreasing as temperature rises with a rate of approx. 1.2%/°C starting from 25°C

²⁾ Undervoltage limit is dynamic. This limit decreases with increasing load to compensate

the voltage drop across cables and connections

³⁾ Measured at nominal input voltage and 25°C

Omnicharge programmable battery chargers

BATTERY CHARGE

Charge your batteries quickly and safely

More than a decade ago, the Omnicharge battery chargers set new standards by combining a true continuous duty capable power section, with almost unlimited programming capabilities. This made these units a popular choice for applications that require extensive daily bulk charging or specific charge programs to fit the connected batteries.

All Omnicharge battery chargers operate fully automatically, so that batteries, if desired, can always stay connected to it. The charger will automatically detect when a recharge is needed. Alternatively, it will also detect when a battery is fully charged, so that the charge voltage can be reduced in order to increase the battery's lifetime and avoid battery self-discharge.

The current Omnicharge lineup contains 12V chargers with 40A, 60A and 90A outputs, 24V chargers with 20A, 30A, 50A and 80A outputs and a powerful 48V charger with 40A charge capacity.

Switch mode technology done correctly

Having a long history in switch mode power supply design, we know all common pitfalls that can result in poor reliability, short product lifetimes, low efficiency and poor radio frequency interference performance.

Each Omnicharge battery charger is very carefully designed with great attention to detail. For example, PCB and capacitor hot spots are avoided to increase long term reliability and efficiency. All power semiconductor are $\,$ properly decoupled for radio frequencies and are well over dimensioned. Internal thermal management is perfectly optimized to avoid the charge current to drop due to internal overheating.

Furthermore, each Omnicharge product is equipped with active power factor correction and smart internal rectifiers for optimal efficiency and a maximum charge current per AC Watt. A universal AC input on most models enables correct operation all around the globe and guarantees a maximum charge current even under low AC input voltage conditions.



The best battery charger for every application

All Omnicharge battery chargers are equipped with three outputs. This allows three battery banks to be charged at once. The high power Omnicharge models have three equal charge outputs that automatically redirect the available power to the lowest battery, for faster charging.

The medium power Omnicharge² models have three fully independent outputs. Each output has individually programmable charge voltages, currents and stages. This enables the possibility to charge a combination of different battery types and sizes by a single battery charger.

Lithium batteries

The use of Lithium Ion batteries is strongly growing in many different applications. Omnicharge battery chargers can seamlessly charge Lithium Ion batteries with the correct charging voltage. When the required charging voltage still differs from the standard available ones, these can be easily modified via the TBS Dashboard software or on the unit's display (Omnicharge² only). All chargers are also equipped with a remote shut down input, which can be used for allowing a Lithium battery BMS to stop the charging process.

Omnicharge²

12-40, 12-60, 24-20 and 24-30



The Omnicharge² 12-40, 12-60, 24-20 and 24-30 are fully programmable, three output, automatic battery chargers designed for professional applications. A clear backlit display shows the charge progress as well as the actual charge voltage and current for each output.

Combining the latest technologies and the best available parts with years of power electronics design expertise, the Omnicharge² battery chargers will deliver long life performance even in the most demanding applications. Utilizing high efficiency converter technology, will reduce running costs and guarantees a maximum charge current per AC Watt.

A unique new feature of the Omni charge² range is the autonomous

battery output setup. All outputs are not only isolated from each other, but these are also individually programmable. This enables the possibility to charge a combination of different battery types and sizes by a single battery charger.

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12 V 40 A

All Omnicharge² models are equipped with advanced temperature compensated charge programs, with or without a float stage. Standard available are

AGM, GEL, Flooded and Lithium charge programs. Each charge program can also be modified to different voltage and current levels in case the connected battery has special requirements. Also available is a 'Night Mode', which prevents the fans from spinning when absolute silence is desired.

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12 V 60 A

All Omnicharge² units are easy to install and come standard with temperature sensor and a very clear installation and operating instruction manual.

Features

- Three full current outputs (Individually programmable)
- Robust industrial design
- Clear backlit display for easy readout and configuration
- Designed for continuous duty charging
- Very efficient
- Universal power factor corrected auto ranging AC input
- No charge current derating at 115VAC input
- Protected against battery failure, high temperature, overload, short circuit, low input voltage and reverse polarity

- Protects the battery from being overcharged
- · Variable speed fan for low noise operation
- Remote on/off capability (for interfacing to external BMS)
- QuickLink communication port
- Night Mode for silent operation
- Easy to access connection bay for installing AC-, DC and control wiring
- Temperature sensor included
- CE certified
- 24 month warranty

Applications

- Recreational vehicles
- Marine applications
- Industrial systems
- Mobile entertainment systems
- Service vehicles
- Remote homes

Technical specifications

Parameter	OC12-40 art # 5026202	OC12-60 art # 5026402	OC24-20 art # 5026222	OC24-30 art # 5026422		
Input voltage		90-265Vac / 47	-63Hz / PF ≥ 0.95			
Full load consumption	700VA	1050VA	700VA	1050VA		
AC input current (115V/230V)	6A/3A	9A/4.5A	6A/3A	9A/4.5A		
Full load efficiency			82%			
Nominal output voltage ¹⁾		dc				
Total output current ^{1) 4)}	40A	60A	20A	30A		
Number of full current outputs	3 (internally isolated, indiv	vidually programmable)			
Charge characteristic ²⁾	IUoU	oP, intelligent 4-stage, t	emperature compensa	ted		
Absorption voltage ²⁾		14.4Vdc	28.8	Vdc		
Float voltage ²⁾		13.5Vdc	27.0	Vdc		
Equalize voltage ²⁾		15.5Vdc	31.0	Vdc		
Supported Battery types ²⁾	GEL/A	GM / Flooded / LiFePO4	(programmable per ou	ıtput)		
Recommended battery capacity ³⁾	80-400Ah	120-600Ah	50-200Ah	70-300Ah		
DC current draw (charger off)		< 2m	ıΑ			
Operating temp. range ⁴⁾	-20°	°C +60°C (humidity m	-60°C (humidity max. 95% non condensing)			
Storage temp. range	-40°	°C +70°C (humidity m	ax. 95% non condensin	g)		
Cooling	Varia	ble speed fan controlle	d by temperature and l	oad		
Communication port		Quickl	_ink			
Protected against	Low AC voltage,	output short circuit, hig and reverse bat		y overcharging		
Indications	LCD shov	ving charging status, vo	tage- and current level	s, еггог		
DC output connections		M6 studs (3x positive, 1	x common negative)			
AC input connections	Fix	ed AC cord with Schuko	plug (1.5 meter length)		
Enclosure body size (L x W x H)	295 x 206 x 86mm	356 x 206 x 99mm	295 x 206 x 86mm	356 x 206 x 99mm		
Total weight	3.0 kg	4.4 kg	3.0 kg	4.4 kg		
Protection class		IP3	2			
Standards		d meeting EMC directive g with EN60335-1, EN60				

Note: the given specifications are subject to change without notice.

Accessories

- QuickLink to RS-232 Communication Kit, art # 5092030
- QuickLink to USB Communication Kit, art # 5092130 (Includes TBS Dashboard 2 for monitoring and programming the Omnicharge² chargers)





¹⁾ Maximum output current tolerance is +/-3%. Maximum setpoint voltage deviations are +/- 0.1V for 12V and +/- 0.2V for 24V models. All setpoint voltages are temperature compensated when battery temperature sensor is connected.

³⁾ Always consult battery manufacturers specifications for maximum allowable charge current
4) At higher ambient temperatures (>40°C), maximum output current may be reduced automatically

Omnicharge

12-90, 24-50, 24-80 and 48-40



Description

The Omnicharge 12-90, 24-50, 24-80 and 48-40 are fully programmable, automatic battery chargers designed for professional applications.

Combining the latest technologies and the best available parts with years of power electronics design expertise, the Omnicharge battery chargers will deliver long life performance even in the most demanding applications. A unique active rectifier output stage ensures unmatched efficiency figures. Combined with active PFC, the Omnicharge battery chargers are very energy efficient. This will reduce running costs and guarantees a maximum charge current per AC Watt.

Up to six charger units can be connected in parallel, allowing synchronized charging with currents up to 540A. Three separate battery banks can be charged simultaneously, thanks to the triple output design.

All Omnicharge models are equipped with advanced temperature compensated charging programs for lead acid and lithium based batteries. Besides easily selectable standard charge

programs, users are also allowed to create a custom charging program using the TBS Dashboard software. The standard available TBSLink port enables connection to a number of accessories like the TBS remote controls.

BATTERY CHARGER

All Omnicharge units are easy to install and come standard with temperature sensor and a very clear installation and operating instruction manual.

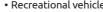
Features

- Three full current outputs
- Robust industrial design
- Designed for continuous duty charging
- · Very efficient
- Universal power factor corrected auto ranging AC input
- Parallel capability up to 6 units
- Protected against battery failure, high temperature, overload, short circuit, low input voltage and reverse polarity (fuse)
- Multistage intelligent charging programs
- Programmable charging programs up to 8 stages

- Protects the battery from being overcharged
- Variable speed fan for silent operation
- Remote on/off capability (for interfacing to external BMS)
- Alarm relay (optional Alarm Output Expander available for additional relays)
- Remote control capability via TBSLink
- Easy to access connection bay for installing AC-, DC and control wiring
- Temperature sensor included
- CE certified
- 24 month warranty

Applications

- Recreational vehicles
- Service vehicles
- Remote homes



- Marine applications
- Industrial systems
- Mobile entertainment systems

Technical specifications

Parameter	OC12-90 art # 5027200	OC24-50 art # 5027220	OC24-80 art # 5027420	OC48-40 art # 5027440
Input voltage	100-260Vac / 47-6	3Hz / PF ≥ 0.90	180-260Vac / 47-6	3Hz / PF ≥ 0.90
Full load consumption	1550VA	1700VA	2750VA	2750VA
AC input current (115V/230V)	13.5A/6.8A	15A/7.5A	-/12A	-/12A
Nominal output voltage ¹⁾	12Vdc	24	Vdc	48Vdc
Total output current ^{1) 4)}	90A	50A	80A	40A
Number of full current outputs		3 (interna	ally isolated)	
Charge characteristic ²⁾	IU	JoUoP, intelligent 4-stag	e, temperature comper	sated
Absorption voltage ²⁾	14.4Vdc	28.	8Vdc	57.6Vdc
Float voltage ²⁾	13.5Vdc	27.	0Vdc	54.0Vdc
Equalize voltage ²⁾	15.8Vdc	31.	6Vdc	63.2Vdc
Supported Battery types ²⁾		Flooded / GEL / AC	Flooded / GEL / AGM / LiFePO4 / Custom	
Recommended battery capacity ³⁾	180-900Ah	100-500Ah	160-800Ah	80-400Ah
DC current draw (charger off)		< 0	.1mA	
Operating temp. range ⁴⁾		-10°C +55°C (humidit	y max. 90% non conder	sing)
Storage temp. range		-20°C +70°C (humidit	y max. 90% non conder	sing)
Cooling	V	ariable speed fan contro	olled by temperature ar	nd load
Communication port		T	BSLink	
Protected against	Low AC volta	age, output short circuit	, high temperature, bat	tery overcharging
		and revers	e polarity (fuse)	
Indications	Р	ower on, output current	: bar, state of charge ba	г, еггог
DC output connections		4x I	M8 bolts	
AC input connections		Screw	/ terminals	
Enclosure body size (L x W x H)		370 x	270 x 132mm	
Total weight		(5.2 kg	
Protection class		IP21 (mount	ed in upright position)	
Standards	CE ma	arked meeting EMC dire	ctive 2014/30/EU and L	VD 2014/35/EU
	compl	ying with EN60335-1, EN	N60335-2-29 and RoHS	2011/65/EU

Note: the given specifications are subject to change without notice.

Accessories

- Universal Remote Control with LCD
- Basic Remote Control with LEDs
- TBSLink communication kit including software





TBSLink to USB Interface Kit, art # 5092120 (Includes TBS Dashboard for monitoring the



Basic Charger Remote Control, art # 5095220

Universal Remote Control (Omnicharge), art # 5095500

¹⁾ Maximum output current tolerance is +/-10%. Maximum setpoint voltage deviations are +/- 1%.

All setpoint voltages are temperature compensated when battery temperature sensor is connected.

³⁾ Always consult battery manufacturers specifications for maximum allowable charge current

⁴⁾ At higher ambient temperatures (>40°C), maximum output current may be reduced automatically



Powersine Combi inverter/ charger units

TBS Powersine Combi integrates a powerful inverter, a smart charger and an AC transfer switch in one robust and compact enclosure. An ideal power station solution for caravan, RV, marine, off-grid solar and many more applications.

A Powersine Combi recharges the house batteries when AC power from the grid or a generator is available at the input. The device also allows any surplus AC power to pass through and power downstream AC loads, such as a television or microwave oven. When there is no AC power available, the unit inverts DC battery power into clean true sinewave AC electricity. All this is done automatically and the AC transfer switch operates extremely fast, not disturbing any AC loads connected to the output.

High performance

Using hybrid HF/LF power conversion technology in combination with an ultra-fast Digital Signal Processor, results in a high performance inverter/charger combination. Powersine Combi units are equipped with the fastest and most accurate phase lock system in the market, allowing it to even operate correctly with very poor generators as AC source. The conservatively rated inverter delivers clean true sinewave power and has a very large peak power capability. The powerful charger section guarantees fast charging times, but also offers great flexibility by allowing many charge profile parameters to be customized through the TBS Dashboard software.

AC Input Power Boost

The Powersine Combi offers many innovative features like AC Input Power Boost. When more power is required than the grid or generator can provide, the Powersine Combi will supplement the shortage by automatically activating the inverter. Once the peak power demand has passed, the Powersine Combi ensures that the battery is being recharged again. This, for example, allows the use of a smaller generator which reduces the overall system costs.

Powerful Trigger-Action feature

An integrated power system solution is nothing without extensive programming possibilities. Besides configuring standard parameters like maximum charging current, shore current limit level etc., the Powersine Combi offers something unique called 'Trigger-Actions'. This is based on a so-called 'If This Then That' scheme, where a user selectable state, event or trigger can cause a certain action.

For example, you can configure to ignore incoming AC grid power as long as the battery voltage is above a certain level. This way you can prioritize (solar charged-) battery power above the metered grid power. Or you can set the Powersine Combi into a silent 'night mode' when one of the physically available trigger inputs is active. This Trigger-Action feature allows almost countless scenarios to be programmed inside the Powersine Combi.

Powersine Combi

1600-12-60 and 1800-24-35



The PSC1600-12-60 and PSC1800-24-35 Powersine Combi products are based on the latest generation Powersine inverter engine, which guarantees very reliable operation and huge output power reserves. The Powersine Combi also features a powerful intelligent battery charger and an ultra fast AC transfer switch. All this is combined in a very compact, yet installer friendly unit.

The Powersine Combi offers many innovative features like AC Input Power Boost, which temporarily assists weak AC input sources when more power is needed than available. Another feature is AC Input Current Limit, which limits the maximum current consumed from the AC input source by the Powersine Combi in charger mode.

Furthermore, the Powersine Combi is equipped with a TBSLink port to connect to a remote control or to a Windows device running TBS Dashboard, for easy step by step configuration and readout.

Also available are a fully configurable alarm relay output and a unique trigger input, that can convert external trigger commands into a number of Powersine Combi status changes.

INVERTER / CHARGER

Each Powersine Combi comes standard with DC cables, a temperature sensor and a very clear installation and operating instruction manual.

Features

- True sinewave AC output
- Robust industrial design
- High surge power output
- Powerful 4-stage battery charger
- Power factor corrected AC input
- Fast AC transfer switch
- AC Input Power Boost
- AC Input Current Limit
- Protected against high/low battery voltage, high temperature, overload, short circuit, high ripple voltage and low AC input voltage
- Automatic Standby function to reduce no-load power consumption

- Variable speed fan for silent operation
- Remote on/off capability
- Configurable alarm relay
- Versatile trigger input
- Remote control capability via TBSLink
- Easy to access connection bay for installing AC-, DC and control wiring
- 1.5 meters DC connection cable included
- CE certified
- 24 month warranty

Applications

- Recreational vehicles
- Marine applications
- Solar power systems
- Industrial systems
- Mobile entertainment systems
- Service vehicles
- Remote homes

Technical specifications

Parameter		PSC1600-12-60 art # 5016300	PSC1800-24-35 art # 5016320			
Inverter stage						
Output power ¹⁾	Pnom	1300W	1400W			
	P10minutes	1600W	1800W			
	Psurge	2500W	3000W			
Output voltage		230Vac	± 2%			
Output frequency		50Hz or 60Hz ± 0.	05% (selectable)			
Output waveform		True sinewave (TH	D < 5%1) @ Pnom)			
Input voltage (±3% tolerance)	Nominal	12Vdc	24Vdc			
	Range	10.0 ²⁾ – 16.5Vdc	20.0 ²⁾ – 33.0Vdc			
Maximum efficiency		92%	94%			
No load power consumption	³⁾ [ASB]	<10W [2.0W]	<12W [2.0W]			
Charger stage						
AC input voltage		185 - 270Vac / 45 - 65Hz / PF > 0.95				
Maximum continuous chargi current ⁴⁾ (Secondary output)	ing	60A	35A			
Standard charge voltage (bu	lk / float @ 25°C)	14.3Vdc / 13.3Vdc (programm	able) 28.6Vdc/26.6Vdc (programmable)			
Charge algorithm		IUoUoP, intelligent 4-stage, t	temperature compensated (programmable)			
AC Transfer switch						
Maximum continuous currer	nt	16A	ırms			
Transfer time (typical)		0ms (inverter → mains) $/ < 5$ ms (mains → inverter)				
General						
Communication port		TBS	SLink			
Protected against		high/low battery voltage, high temperature, overload, short circuit, high ripple voltage and low AC input voltage				
Indications		Power on, output power	bar, error and ASB mode			
DC input connections		Two wires, length	1.5 meters, 35 mm²			
AC output connections		Screw to	erminals			
Enclosure body size (height x	width x depth)	351 x 210) x 114 mm			
Total weight		10.	7 kg			
Protection class / operating to	emp. / storage temp.	IP21 / -20°C to + 50°C / -40°C to + 8	30°C (humidity max. 95% non condensing)			
Standards			tive 2014/30/EU and LVD 2014/35/EU EN60335-2-29 and RoHS 2011/65/EU			
		Note: the	g given specifications are subject to change without notice.			

- 1) Measured with resistive load at 25°C ambient. Power ratings are subject to a tolerance of 10% and are decreasing as temperature rises with a rate of approx. 1.2%/°C starting from 25°C
- 2) Undervoltage limit is dynamic. This limit decreases with increasing load to compensate the voltage drop across cables and connections
 - 3) Measured at nominal input voltage and 25°C
 - 4) At high ambient temperatures, maximum output current shall be reduced automatically



• Alarm output expander

• Universal Remote Control with LCD

• TBSLink communication kit including software

• Basic Remote Control with LEDs

Accessories



TBSLink to USB Interface Kit, art # 5092120 (Includes TBS Dashboard for monitoring and configuring the Powersine Combi inverter/chargers)



Basic Combi Remote Control, art # 5095210

Universal Remote Control (Powersine Combi), art # 5095500

Powersine Combi

2000-12-80, 2500-24-50, 3000-12-120 and 3500-24-70

to AC true sinewave inverter ogrammable automatic battery charger



Description

The PSC2000-12-80 up to PSC3500- 24-70 Powersine Combi products are based on the latest generation Powersine inverter engine, which guarantees very reliable operation and huge output power reserves. The Powersine Combi also features a powerful intelligent battery charger and an ultra fast AC transfer switch. All this is combined in a very compact, yet installer friendly unit.

The Powersine Combi offers many innovative features like AC Input Power Boost, which temporarily assists weak AC input sources when more power is needed than available. Another feature is AC Input Current Limit, which limits the maximum current consumed from the AC input source by the Powersine Combi in charger mode.

Furthermore, the Powersine Combi is equipped with a TBSLink port to connect to a remote control or to a Windows device running TBS Dashboard, for easy step by step configuration and readout.

Also available are two fully configurable 16A alarm relay

outputs and two unique trigger inputs, that can convert external trigger commands into a number of Powersine Combi status changes.

Each Powersine Combi comes standard with a mounting kit, a temperature sensor, crimp terminals for DC cables and clear manuals.

Features

- True sinewave AC output
- Robust industrial design
- High surge power output
- Powerful 4-stage two output battery charger
- Power factor corrected AC input
- Fast 30A AC transfer switch
- AC Input Power Boost
- AC Input Current Limit
- Protected against high/low battery voltage, high temperature, overload, short circuit, high ripple voltage and low AC input voltage

- Automatic Standby function to reduce no-load
- power consumption
- Variable speed fan for silent operation
- Remote on/off capability
- Two programmable 250V/16A relays
- · Two trigger inputs
- Remote control capability via TBSLink
- Easy to access connection bay for installing AC-, DC and control wiring
- CE certified
- 24 month warranty 24 month warranty

Applications

- Recreational vehicles
- Marine applications
- Solar power systems
- Industrial systems
- · Mobile entertainment systems
- Service vehicles
- · Remote homes

Accessories

- Universal Remote Control with LCD
- Basic Remote Control with LEDs





Basic Combi Remote Control, art # 5095210

- TBSLink communication kit including software
- Alarm output expander



Universal Remote Control (Powersine Combi), art # 5095500

TBSLink to USB Interface Kit. art # 5092120 (Includes TBS Dashboard for monitoring and configuring the Powersine Combi inverter/chargers)



Technical specifications

Parameter		PSC2000-12-80 art # 5018100	PSC2500-24-50 art # 5018120	PSC3000-12-120 art # 5018300	PSC3500-24-70 art # 5018320	
Inverter stage	_					
Output power ¹⁾	Pnom P10minutes Psurge	1800W 2100W 4000W	2000W 2500W 5500W	2600W 3200W 5000W	2800W 3800W 6500W	
Output voltage			230Vac ±	2%		
Output frequency			50Hz or 60Hz ± 0.05	% (selectable)		
Output waveform			True sinewave (THD <	: 5%1) @ Pnom)		
Input voltage	Nominal Range	12Vdc 10.0 ²⁾ – 16.5Vdc	24Vdc 20.0 ²⁾ – 33Vdc	12Vdc 10.0 ²⁾ – 16.5Vdc	24Vdc 20.0 ²⁾ – 33.0Vdc	
Maximum efficiency		92%	93%	92%	93%	
No load power consumption	(ASB]	<19W [2.0W]	<20W [2.0W]	<19W [2.0W]	<20W [2.0W]	
Charger stage						
AC input voltage		185 - 270Vac / 45 - 65Hz / PF > 0.95				
Maximum continuous chargi current ⁴⁾ (Secondary output)	ng	80A (4A)	50A (4A)	120A (4A)	70A (4A)	
Standard charge voltage (bul	k / float @ 25°C)	14.3Vdc / 13.3Vdc	28.6Vdc / 26.6Vdc	14.3Vdc / 13.3Vdc	28.6Vdc / 26.6Vdc	
Charge algorithm		IUoUoP, intelligent 4-stage, temperature compensated (programmable)				
AC Transfer switch						
Maximum continuous curren	t	30Arms				
Transfer time (typical)		0ms (inverter → mains) / < 5ms (mains → inverter)				
General						
Communication port			TBSLin			
Protected against		high/low battery voltage, high temperature, overload, short circuit, high ripple voltage and low AC input voltage				
Indications		Powe	r on, output power ba	r, error and ASB mode		
DC input connections			M10 bolt ter	minals	ſ	
AC output connections		Screw terminals				
Enclosure body size (height x width x depth)			370 x 431 x	132 mm		
Total weight		18.5 kg	18.5 kg	19.0 kg	19.0 kg	
Protection class/operating tem	o./storagetemp.	IP21 / -20°C to + 50 °C / -40°C to + 80 °C (humidity max. 95% non condensing)				
Standards		CE marked meeting EMC directive 2014/30/EU and LVD 2014/35/EU complying with EN60335-1, EN60335-2-29 and RoHS 2011/65/EU				

Note: the given specifications are subject to change without notice.



¹⁾ Measured with resistive load at 25°C ambient. Power ratings are subject to a tolerance of 10% and are decreasing as temperature rises with a rate of approx. 1.2%/°C starting from 25°C

² Undervoltage limit is dynamic. This limit decreases with increasing load to compensate the voltage drop across cables and connections

³⁾ Measured at nominal input voltage and 25°C

⁴⁾ At high ambient temperatures, maximum output current shall be reduced automatically

Expert Series high precision battery monitors

-manual synchronize

Complete battery status at a glance

Operating your battery bank without good metering is like running your car without any gauges, although possible to do, it's always better to know how much fuel is left in the tank. Defining the amount of energy available in a battery is a complex task and very different to simply checking the water or fuel level inside a tank.

Many different factors influence the actual battery capacity, including its age, the intensity of the loads connected to the battery and the battery temperature. Although a Volt meter can give a rough indication of the battery's state of charge under some conditions, for more accurate and reliable status information an Expert battery monitor is the best choice.

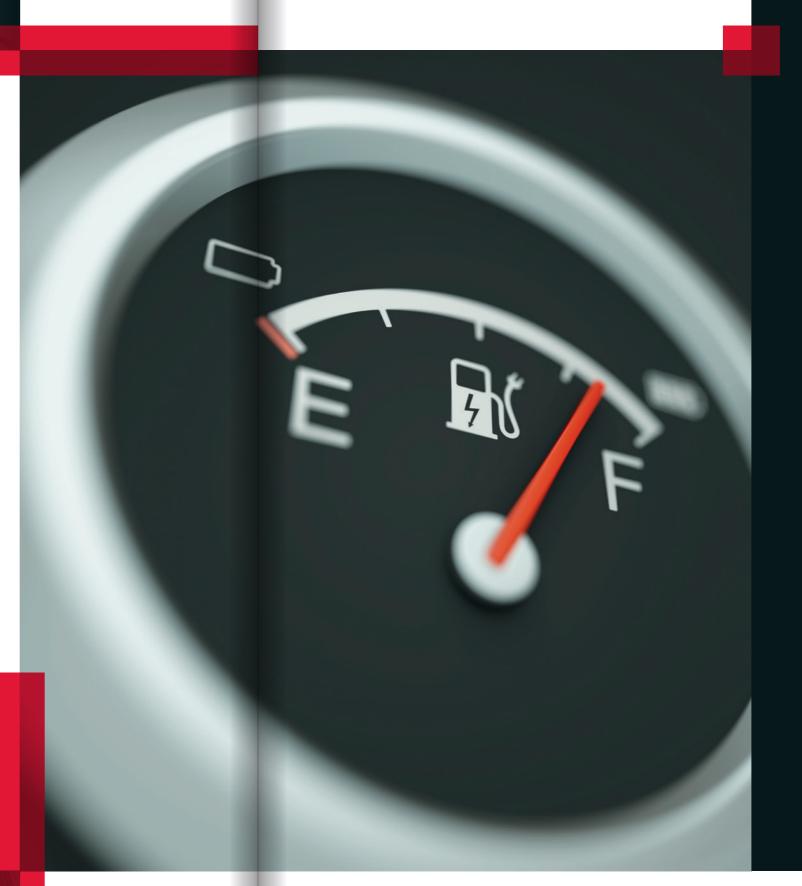
More than just a State of Charge readout

Offering an accurate State of Charge readout is the primary function of an Expert battery monitor. But much more functionality is added to these products. All models are also showing battery voltage, charge-/discharge current, Amphours and the voltage plus rough State of Charge indication of a second battery bank.

The Expert Pro also adds a time remaining and a battery temperature readout to this. While the Expert Modular goes even further by adding a readout for power, operating/maintenance hours and the status of a third battery bank.

All Expert battery monitors are equipped with a potential free alarm contact, that can be configured to activate when a certain battery State of Charge or voltage level has been reached. This can be used to for example start a generator for charging the battery when a critical level has been reached.

The Pro and Modular models offer even more features which are explained on the next few pages. Each Expert model has specific properties, which enables us to offer a proper solution for a wide range of applications.



Monitoring Lithium batteries

Although in some lead-acid battery applications people are still relying on a Volt meter for a rough battery status readout, this option is no longer valid when implementing Lithium batteries. A Lithium battery is known for its very flat voltage response against State of Charge. Therefore, monitoring such a battery only on voltage is not possible anymore. All Expert battery monitors are fully compatible with Lithium batteries and are being widely used in Lithium based applications for many years already.

Passive and Active shunts

The Expert Lite, Pro and Pro-hv are connected to a passive shunt for current measurement. This is a cost effective solution with a small footprint. It also offers the possibility to exchange the standard supplied 500Amp shunt with a smaller or larger capacity one.

The Expert Modular however, contains an active shunt. Since all measurement and control electronics are build inside the shunt, it will result in the highest accuracy. Information to the display unit is transferred over a digital cable connection instead of an analogue one, making it even more robust in noisy industrial environments. Additionally, the active shunt can also run in a standalone setup without display. This is an interesting option for systems that only require the battery data processed inside the shunt.

Expert Lite, Pro and Pro-hv



Description

Defining the amount of energy available in a battery is a complex task since battery age, discharge current and temperature all influence the actual battery capacity. All Expert battery monitors are equipped with high performance measuring circuits, which in combination with complex software algorithms, are used to exactly determine the remaining capacity of your battery.

In general, our entry model Expert Lite is focussed on a simple readout by utilizing most of the display area to show a large battery state of charge bar graph. Although it still offers great accuracy, the feature set is more limited compared to the higher end Expert Pro and Expert Modular. This makes the Expert Lite the ideal instrument for less technical end-users and relatively simple battery installations.

The Expert Pro is physically identical to the Expert Lite, but offers a larger amount of features and a more detailed display. Most of the additional features are very useful when installing the battery monitor in more advanced battery systems. Programming voltage or state of charge alarms more extensively, recalling certain history events or the capability to extend the input voltage range with an

optional voltage prescaler, are some of the additional features offered by the Expert Pro. The Expert Pro-hv is identical to the Expert Pro, with the exception of the input voltage range which is extended up to 70Vdc. All models are equipped with an internal programmable alarm relay, to run a generator when needed or to turn off devices when the battery voltage exceeds programmable boundaries. A passive 500A shunt is standard included in the package.

Features

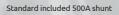
- Read your battery bank like a fuel gauge
- Provides critical information about the status of your battery bank
- · Displays voltage, current, consumed amphours, remaining battery capacity and time remaining (Pro only)
- Two battery inputs
- · Large display with backlight
- Quick nut mounting construction
- Programmable alarm relay
- Shunt selection capability, enables flexible system integration
- Communication/expansion port (Pro only)
- History event storage (Pro only)
- · Splash proof frontpanel

- 500 Amp shunt included
- CE and e-mark certified
- 24 month warranty

- Electric Vehicles
 - · Marine applications

Applications

- · Solar power systems
- Industrial systems
- · Electric forklifts
- · Mobile entertainment systems
- Service vehicles
- Recreational vehicles
- Remote homes



Expert Lite available screens



State of Charge

Shows the exact state of charge of your battery in percent. This is the most essential reading, as it represents the true status of your battery, being calculated by the advanced Expert algorithms.



Volts

This is a simple reading to show the battery voltage under load, idle or charge. It is a quick reflection of the state of your battery, but does not really let you know the true battery condition.



Amps

The Amp reading is an excellent way to check the load intensity on your battery. It allows you to minimize the current draw of non essential loads, or to check if your battery is actually being charged.



Amp hours

Shows the accumulated amphours consumed from the battery over a set period of time. This value will start from zero again, after the battery has been fully charged.

Expert Pro / Pro-hv available screens



State of Charge

Shows the exact state of charge of your battery in percent. This is the most essential reading, as it represents the true status of your battery, being calculated by the advanced Expert algorithms.



Volts

This is a simple reading to show the battery voltage under load, idle or charge. It is a quick reflection of the state of your battery, but does not really let you know the true battery condition.



The Amp reading is an excellent way to check the load intensity on your battery. It allows you to minimize the current draw of non essential loads, or to check if your battery is actually being charged.



Amp hours

Shows the accumulated amphours consumed from the battery over a set period of time. This value will start from zero again, after the battery has been fully charged.



Time Remaining

Smart software calculates the time remaining in your battery based upon the current load. This can be used as a good guide to when your battery has reached the discharge floor and must be recharged



Temperature

This reading is only available when an external temperature sensor is connected to the battery monitor and shows you the actual battery temperature.



Expert Lite, Pro and Pro-hv



Accessories



Professional Connection Kit 10m

art # 5055440

The Expert professional connection kit makes life easier during installation of your battery monitor. It contains all necessary items for a professional and safe connection of the Expert battery monitor to your battery and shunt.



Temperature Sensor Kit 3m (Pro/Pro-hv only)

art # 5055310

By connecting the temperature sensor kit to your Expert Pro or Expert Modular, the exact temperature of your battery can be determined, resulting in even more precise battery monitoring. Also available in 10m length.



USB Communication Kit (Pro/Pro-hv only)

art # 5092100

This kit enables you to control, readout and configure the Expert Pro from your Windows PC. Another possibility is to use the PC as a datalogger to record all measured parameters for further analysis.



RS-232 Communication Kit (Pro/Pro-hv only)

art # 5055200

This kit enables you to control, readout and configure the Expert Pro from your Windows PC. Another possibility is to use the PC as a datalogger to record all measured parameters for further analysis.



1:5 Active Prescaler Kit (Pro only)

art # 5055511

The Expert Pro 1:5 Active voltage prescaler kit, extends the input voltage range of the expert pro to enable implementation in 48 VDC up to 120 VDC battery systems (maximum input voltage is 175VDC).



1200A/50mV Shunt Kit (Pro/Pro-hv only)

art # 5055180

The Expert pro 1200A/50mV Shunt kit, can be used in applications where the battery current would exceed the maximum ratings of the standard supplied 500A shunt.

Technical specifications

Parameter		Expert Lite art # 5055010	Expert Pro art # 5055030	Expert Pro-hv art # 5055040
Supply voltage rang	e	935Vdc	935Vdc	1470Vdc
Supply current ¹⁾		7mA @Vin=24Vdc	7mA @Vin=24Vdc	5mA @Vin=48Vdc
Supply current		9mA @Vin=12Vdc	9mA @Vin=12Vdc	6mA @Vin=36Vdc
Input voltage range	(auxiliary hattery)	235Vdc	235Vdc	235Vdc
	Input voltage range (main battery)		035Vdc	070Vdc
Input current range ²				9+9999A
Battery capacity ran		-999+999A 20999Ah		9990Ah
Operating temperat			-20+50°C	
Storage temperatur			-30+70°C	
Readout resolution:		± 0.1Vdc (035V)	± 0.01Vdc (035V)	± 0.01Vdc (070V)
	Current	± 0.1A (0100A)		A (0200A)
	Current	± 1A (100999A)	± 1A	(2009999A)
	Amphours	± 0.1Ah (0100Ah)	± 0.1/	Ah (0200Ah)
	Amphours	± 1Ah (100999Ah)	± 1Al	n (2009990Ah)
	State-of-charge	± 0.1% (0100%)	± 0.19	% (0100%)
	Time remaining Time remaining		X ± 1minute (024hrs) X ± 1hr (24240hrs)	
	Temperature	Х	± 0.5°	°C (-20+50°C)³)
Voltage measureme	nt accuracy		± 0.5%	
Current measureme	nt accuracy		± 0.8%	
General feature com	parison:			
Supported battery v	oltages	12V/24V	12V/24V	36V/48V
Advanced battery m	odelling engine			•
Lithium compatible				
State of Charge bar				•
Alarm relay				•
Two battery inputs				•
Time remaining read	lout	X		•
History event storag		Х		•
Communication port		X		•
Temperature sensor	input	X	•	•
Meter dimensions	100 mg 1	Ø 64 mm (front diam	neter) / Ø 52 mm (body diameter)	/ 79 mm (depth)
Meter weight			95 gr	
Shunt dimensions (le	ngth x width x height)		87 x 45 x 35 mm	- 1 2 miles
Shunt weight			145 gr	ORNIHHI SILETTIVI
Protection class			IP20 (front panel only IP65)	
Standards			ed meeting EMC directive 2014/30	
		complyi	ing with EN60335-1, RoHS 2011/6	5/EU and e4-95/54/EC

Measured with backlight and alarm relay turned off
Depends on selected shunt. With standard delivered 500A/50mV shunt (350A continuous), the range is limited to -600..+600A

³⁾ Only available when optional temperature sensor is connected

Expert Modular



Description

Defining the amount of energy available in a battery is a complex task since battery age, discharge current and temperature all influence the actual battery capacity. All Expert battery monitors are equipped with high performance measuring circuits, which in combination with complex software algorithms, are used to exactly determine the remaining capacity of your battery.

The Expert Modular is our latest generation, highly advanced battery monitor. It consists of an intelligent shunt and a remote control and display unit. The shunt has a Grid Optimized footprint for perfect integration with our DC Modular products. This advanced battery monitor not only shows the true state of charge of your battery system. It also offers a large amount of additional features to optimally supervise your battery system and control external equipment.

The Expert Modular is compatible with lead based and Lithium batteries (LiFePO4). This battery monitor can monitor up to three battery banks. The inputs for battery bank 2 and 3 can also be configured for other purposes, like midpoint voltage measurement, keyswitch input, setup lock or backlight control. The Expert Modular can measure DC currents up to 600Amps (500Amp continuous) and voltages up to 70Vdc. So any lead- or lithium based battery bank from 12V up to 48V can be monitored.

The installation time is minimal, requiring only one supply wire to the intelligent shunt base and a single 'QuickLink' cable between the shunt base and the control/display unit (CDU).

Additionally, the battery minus cable must be interrupted in order to insert the shunt into the high current circuit. The fused supply wire and the QuickLink

cable are both included in the package, avoiding the need for a separate connection kit.

Features

- Read your battery bank like a fuel gauge
- Provides critical information about the status of your battery bank
- Very simple 'plug and play' installation
- Displays voltage, current, consumed amphours, remaining battery capacity, time remaining and power
- Extensive alarm programming capability
- Three battery inputs
- Large display with backlight
- · Very small installation depth of display unit

- Programmable alarm relay
- Perfect integration with TBS DC Modular products
- QuickLink communication port
- · History event storage
- Active shunt supports two display units or can also run stand alone
- Splash proof front panel of display unit
- CE and automotive certified (EN50498)
- 24 month warranty

Applications

- Electric Vehicles
- · Marine applications
- Solar power systems
- Industrial systems
- Electric forklifts
- Mobile entertainment systems
- Service vehicles
- · Recreational vehicles



Expert Modular highlights

Special fiber reinforced base material offers excellent high temperature properties, good chemical resistance and high strength.

Voltage sense input for (main) battery bank 1. Also positive supply input for Expert Modular.

Voltage sense inputs for ___ battery banks 2 and 3. Or assignable to other functions.

Potential free 5A/30Vdc • (1A/70Vdc) programmable alarm relay contact to control external equipment. expert modular

Ultra low loss custom made shunt module can handle 500A continuously.

Stainless steel studs, nuts and washers for optimal corrosion resistance.

Dual QuickLink port for connection to the Control & Display Unit or other accessories.

Input port for optional battery temperature sensor.

Multi purpose indicator provides status, error and battery state of charge information (3 colours).

Large circular bar graph provides a clear battery state of charge indication. Smart display animations indicate whether the battery is being charged or discharged and by which intensity.

Simple three button interface allows easy parameter readout selection in normal operating mode and intuitive navigation through the setup menus.

Compact round Control & Display Unit with splash proof front panel, large backlit display and only 36 mm installation depth.

> Permanent large digit battery state of charge (%) indicator.

Second parameter row allows an additional parameter to be shown along with state of charge (%). During setup, this row will also show a clear textual explanation of each function.

Control & Display Unit

Active shunt module

Expert Modular readout examples



Standard view The image above shows the normal operating mode with the second parameter row disabled. This results in a clean display area that only shows the battery state of charge (%) and the bar graph. A perfect mode for less technical end users.



By enabling the second parameter row, the user can scroll through the following battery parameters: Volt, Amp, Ah, time remaining, temperature and Watts. The second parameter row can be set to automatically hide after a while, or to stay present permanently.



Easier setup During function setup, status or history readout, each parameter is clearly explained using scrolling text in the display. This will make it a lot easier to browse through the Expert Modular menu, without having to consult a list of parameter numbers.

Alarm indications When an alarm is activated (for example due to a low battery state of charge), the alarm bell icon will be lit and an explanation about the type of alarm will scroll through the display. An audible alarm can be enabled as well for additional attention.



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Expert Modular

Accessories



QuickLink to USB Communication Kit art # 5092130

This kit enables you to control, readout and configure the Expert Modular from your Windows PC. Another possibility is to use the PC as a datalogger to record all measured parameters for further analysis.



QuickLink to RS-232 Communication Kit art # 5092030

This kit enables you to control, readout and configure the Expert Modular from your Windows PC.

Another possibility is to use the PC as a datalogger to record all measured parameters for further analysis.



QuickLink to Bluetooth

Communication Kit art # 5092230

This kit enables you to control, readout and configure the Expert Modular from an iOS or Android based mobile phone via Bluetooth. The Dashboard Mobile app is available in the Apple App Store and Google Play.



QuickLink Alarm Output Expander Kit

art # 5093120

This kit adds two additional alarm relays to the Expert Modular and can be used in case a system requires each alarm type to be assigned to a separate relay.



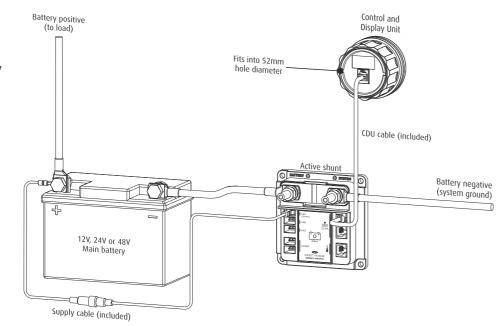
Temperature Sensor Kit 3 m

art # 5055310

By connecting the temperature sensor kit to your Expert Modular, the exact temperature of your battery can be determined, resulting in even more precise battery monitoring. Also available in 10 m length.

Wiring diagram

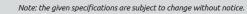
Example diagram of a single battery setup. Notice the small amount of cables that are needed to get the Expert Modular up and running. The supply and CDU cables are both included. Also included but not shown in this picture are rubber caps to cover unused I/O ports against polution.



Technical specifications

Parameter		Expert Modular art # 5056030
Supply voltage range		770Vdc
Supply current (@ 12V/ 2	24V/48V)	10mA / 6mA / 5mA
Input voltage range mair	n battery (+B1)	770Vdc¹)
Input voltage range seco	ond and third battery (+B2, +B3)	170Vdc
Input current range		-600+600A ²⁾
Battery capacity range		1010000Ah
Operating temperature	range	-20+50°C
Storage temperature rar	nge	-30+70°C
Readout resolution:	Voltage (070V)	± 0.01Vdc
	Current (010A)	± 0.01A
	Current (10100A)	± 0.1A
	Current (100600A)	± 1A
	Amphours (010000Ah)	± 0.01Ah - 10Ah (variable)
	Power (042kW)	± 0.01W - 1kW (variable)
	State-of-charge (024hrs)	± 1%
	Time remaining (024hrs)	± 1 min
	Time remaining (24240hrs)	±1hr
	Temperature (-20°C+50°C)	± 0.5°C
	Maintenance hours (0100000hrs)	±1hr
Voltage measurement a	ссигасу	± 0.3%
Current measurement ac	ссигасу	± 0.4%
Display unit dimensions		Ø64 mm (front diameter) / Ø51.5 mm (body diameter) /
		36 mm (depth)
Display unit weight		70 gr
Shunt dimensions (lengt	h x width x height)	100 x 100 x 64.5 mm
Shunt weight		260 gr
Protection class		IP20 (front panel only IP65)
Standards		CE certified meeting EMC Directive 2014/30/EU, LVD 2014/35/EU complying with EN60335-1, EN50498 Automotive EMC, RoHS 2011/65/EU

¹⁾ When input +B1 is only used for supply and +B2 for main battery voltage measurement, the input voltage range for the main battery is 1..70Vdc





The Expert Modular active shunt base has a Grid Optimized footprint. This enables perfect system integration with busbars and fuseholders from the TBS DC Modular product lineup. The picture on the left shows a nice solution to avoid stacking all battery negative return cables on the single "System side" stud of the shunt.





 $^{^{2)}}$ +/- 600A is the maximum rating for 20 minutes. The continuous input current range is +/- 500A

DC Modular high current busbars, fuseholders and contactors

Modular DC power protection and distribution solutions

Due to the ever increasing complexity of electrical DC systems onboard of boats, vehicles or in stationary applications, there is a growing need for a uniform set of products that significantly improves the installation time and flexibility. The TBS DC Modular product range offers a perfect solution for this. It contains a wide range of high current busbars, fuseholders, contactors and interconnection materials. Compared to more traditional and often incompatible DC distribution products, the DC Modular system offers many innovative features.

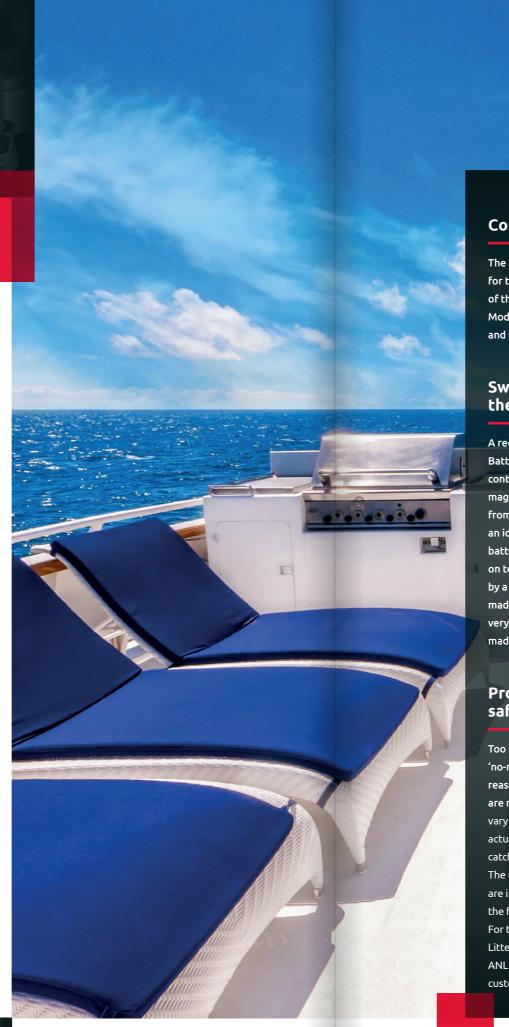
Create space saving arrangements of different DC Modular products

All DC Modular products carrying the Grid Optimized Footprint logo, are easy to cluster along with each other. This results in a considerable reduction of the mounting footprint, offering greater flexibility to installers and allowing installation in tight spaces.

The common interconnection height enables quick and easy combining of multiple products using optional link plates. Besides reducing the installation time by avoiding the use of assembled interconnection cables, it will also increase the safety and efficiency of the high current link.

Only the best materials

All DC Modular products are equipped with stainless steel studs, washers and nuts for optimal corrosion resistance. Tin plated high purity copper busses provide maximum conductivity, reducing heat and improving efficiency. The base material used for the DC Modular products, is made from a special fiber reinforced compound. This material offers excellent high temperature properties, good chemical resistance and high strength. This focus on the highest quality materials, ensures long lifetimes in harsh environments. All DC Modular products are designed and assembled in The Netherlands.



Compatibility with the Expert Modular

The DC Modular product range is also a perfect companion for the TBS Expert Modular battery monitor. The footprint of this advanced battery monitor fits perfectly into the DC Modular grid, allowing optimal integration with the busbars and fuse holders.

Switching high current loads with the Remote Battery Switch

A recent addition to the DC Modular lineup is the Remote Battery Switch (RBS). This is an intelligently controlled 500A contactor that can switch voltages up to 60Vdc. Due to its magnetically latching construction, the RBS draws no current from the battery in between switching actions. This makes it an ideal part to use as a low voltage disconnection relay for battery loads. The RBS can be controlled locally with switches on top of the device, or remotely through the control wiring by a panel switch, battery monitor or BMS. We have of course made the RBS compatible with our DC Modular grid, so that very compact clusters of RBS products and other parts can be made to fit into tight installation spaces.

Professional fuseholders deserve safe high quality fuses

Too often we have seen things go bad due to the use of cheap 'no-name' fuses. Our own tests have demonstrated that a reasonable amount of low cost fuses on the market today, are not performing according to their specifications. This can vary from great deviations between the specified and the actual melting currents versus time, up to fuse housings almost catching fire when exposed to continuous rated current levels. The use of such fuses must obviously be avoided, since these are installed to protect against fire or equipment damage in the first place and not to become a safety hazard itself. For these reasons, TBS is an authorized dealer of A-brand Littelfuse. We stock a wide range of values from the MEGA, ANL and Class-T fuse families. This enables us to offer our customers a reliable and safe circuit protection package.

Premium quality Busbars,
Fuseholders and Contactors



DC Modular highlights

Easy in-system connection access due to top locked covers by convenient thumb screws.

Special fiber reinforced base material offers excellent high temperature properties, good chemical resistance and high strength.

Smart terminal design allows dual mirrored cable lug connections.

to pro
Robust
break

Top sides of transparant covers are equipped with recessed locations to properly add custom labels.

Robust transparent covers with breakouts to allow wire access from any direction.

Tin plated high purity copper busses provide maximum conductivity, reducing heat and improving efficiency.

Stainless steel studs, nuts and washers for optimal corrosion resistance.



Transparent polycarbonate cover with break-out side skirts at each side, for easy cable entry.



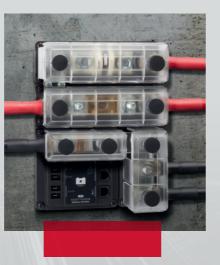
Multiple fuseholders and busbars can be connected to each other with the optional link plates.



The optional adapter plate allows a mixture of high- and low power cables to be connected to the same stud.



Smart terminal design allows dual mirrored cable lug connections.



Application example of a compact DC Modular cluster containing the Expert Modular active shunt, a 3-Stud Busbar and two Fuseholders.

High current Busbars

Description

The DC Modular high current busbars are used to distribute high DC currents to a number of connected cables, or other DC Modular family members.

The solid and compact design, as well as the possibility to link up multiple busbars on a fixed grid, make these products the best choice for all professional DC power systems. The high current busbars are available with M8 or M10 stud sizes.

3 stud Busbar

Features

- Stainless steel studs, nuts and washers for optimal corrosion resistance
- Tin plated high purity copper busses provide maximum conductivity, reducing heat and improving efficiency
- Special fiber reinforced base material offers excellent high temperature properties, good chemical resistance and high strength
- Unique grid optimized footprints allow space saving arrangements of multiple products
- Common interconnection heights for easy combining of multiple products using link plates
- Robust transparent covers with breakouts to allow wire access from any direction
- Smart terminal design allows dual mirrored cable lug connections
- Easy in-system connection access due to top locked covers



¹⁾ Higher voltages may require additional safety measures

5 stud Busbar



lacksquare	•	GRID	OPTIMIZ
• •	·	עוחט	FOOTPRIN

Model	Art#	Grid size	Max. Current	Max. Voltage ¹⁾	Stud size	Dimensions
DCM 5xM8 Busbar	5075160	1 x 3	600A	60V	M8	150.0 x 50.0 x 64.5 mm
DCM 5xM10 Busbar	5075180	1 x 3	600A	60V	M10	150.0 x 50.0 x 64.5 mm

¹⁾ Higher voltages may require additional safety measures

Insulated Studs

Description

The DC Modular single and dual insulated studs are ideal parts to extend cables, add power taps or form termination end-points.

The solid and compact design, as well as the possibility to link these up with other DC Modular family members, make these products the best choice for all professional DC power systems. The insulated studs are available with M8 or M10 stud sizes.

Single Insulated Stud



Features

- Stainless steel studs, nuts and washers for optimal corrosion resistance
- Special fiber reinforced base material offers excellent high temperature properties, good chemical resistance and high strength
- Unique grid optimized footprints allow space saving arrangements of multiple products
- Common interconnection heights for easy combining of multiple products using link plates
- Robust transparent covers with breakouts to allow wire access from any direction
- Top sides of transparant covers are equipped with recessed locations to properly add custom labels (Dual insulated stud only)
- Smart terminal design allows dual mirrored cable lug connections
- Easy in-system connection access due to top locked covers



Model	Art#	Grid size	Maximum Current	Max. Voltage ¹⁾	Stud size	Dimensions
DCM 1xM8 Single Stud	5071160	1 x 1	N/A	60V	M8	50.0 x 50.0 x 64.5 mm
DCM 1xM10 Single Stud	5071180	1 x 1	N/A	60V	M10	50.0 x 50.0 x 64.5 mm

¹⁾ Higher voltages may require additional safety measures

Dual Insulated Stud





Model	Art#	Grid size	Maximum Current	Max. Voltage ¹⁾	Stud size	Dimensions
DCM 2xM8 Dual Stud	5072160	1 x 1.5	N/A	60V	M8	75.0 x 50.0 x 64.5 mm
DCM 2xM10 Dual Stud	5072180	1 x 1.5	N/A	60V	M10	75.0 x 50.0 x 64.5 mm

¹⁾ Higher voltages may require additional safety measures

Fuseholders

Description

A wide range of fuseholders are available in the DC Modular lineup, covering fuse Amp ratings from 35A up to 600A.

Fuseholders are offered for the Mega®, ANL and Class-T type of fuses, providing solutions for a wide range of applications. The solid and compact design, as well as the possibility to link up multiple fuseholders on a fixed grid, make these products the best choice for all professional DC power systems.

Mega Fuseholder

Features

- Stainless steel studs, nuts and washers for optimal corrosion resistance
- Tin plated high purity copper busses provide maximum conductivity, reducing heat and improving efficiency
- Special fiber reinforced base material offers excellent high temperature properties, good chemical resistance and high strength
- Unique grid optimized footprints allow space saving arrangements of multiple products
- Common interconnection heights for easy combining of multiple products using link plates (except Mega and ANL (300A) fuseholders)
- Robust transparent covers with breakouts to allow wire access from any direction
- Smart terminal design allows dual mirrored cable lug connections
- Easy in-system connection access due to top locked covers (except Mega and ANL (300A) fuseholders)





Model	Art#	Grid size	Fuse range¹)	Max. Voltage²)	Stud size	Dimensions
DCM Mega Fuseholder	5073300	1 x 1.78 ³⁾	40 300A	60V	M8	89.0 x 50.0 x 53.0 mm

¹⁾ Compatible with Littelfuse® 'Mega' and Cooper Bussmann® 'AMG' fuses

ANL Fuseholder (300A)





Model	Art#	Grid size	Fuse range¹)	Max. Voltage ²⁾	Stud size	Dimensions
DCM ANL Fuseholder (300A) M8	5073500	1 x 2 ³⁾	35 300A	60V	M8	100.0 x 50.0 x 53.0 mm
DCM ANL Fuseholder (300A) M10	5073510	1 x 2 ³⁾	35 300A	60V	M10	100.0 x 50.0 x 53.0 mm

¹⁾ M8 version compatible with Littelfuse 'CNN' and 'CNL' plus Cooper Bussmann® 'ANL' and 'ANN' fuses

²⁾ Higher voltages may require additional safety measures

³⁾ The Mega fuseholder is optimized for stand-alone use and is not compatible with link- and adapter plates

M10 version compatible with Littelfuse '157.57' plus SIBA '90 058 05' fuses

²⁾ Higher voltages may require additional safety measures

³⁾ The ANL fuseholder has a grid optimized footprint but is not compatible with link- and adapter plates

ANL Fuseholder (600A)







Model	Art#	Grid size	Fuse range ¹⁾	Max. Voltage ²⁾	Stud size	Dimensions
DCM ANL Fuseholder (600A) M8	5073550	1 x 3	35 600A	60V	M8	150.0 x 50.0 x 64.5 mm
DCM ANL Fuseholder (600A) M10	5073560	1 x 3	35 600A	60V	M10	150.0 x 50.0 x 64.5 mm

¹⁾ M8 version compatible with Littelfuse® 'CNN' and 'CNL' plus Cooper Bussmann® 'ANL' and 'ANN' fuses M10 version compatible with Littelfuse® '157.57' plus SIBA '90 058 05' fuses

Class-T Fuseholder (225-400A)







Model	Art #	Grid size	Fuse range ¹⁾	Max. Voltage ²⁾	Stud size	Dimensions
DCM Class-T Fuseholder (400A)	5073850	1 x 3	225 400A	60V	M10	150.0 x 50.0 x 64.5 mm

Ocompatible with Littelfuse® 'JLLN', Cooper Bussmann® / Edison® 'JJN' and 'TJN' and Mersen® 'A3T' fuses

Class-T Fuseholder (450-600A)







Model	Art#	Grid size	Fuse range¹)	Max. Voltage²)	Stud size	Dimensions
DCM Class-T Fuseholder (600A)	5073880	1 x 3	450 600A	60V	M10	150.0 x 50.0 x 64.5 mm

¹⁾ Compatible with Littelfuse® 'JLLN', Cooper Bussmann® / Edison® 'JJN' and 'TJN' and Mersen® 'A3T' fuses

Contactors - Remote Battery Switch

Description

The DC Modular Remote Battery Switch (RBS) is a smart high current magnetic latching contactor, that can handle continuous DC currents

of up to 500Amps. The RBS can easily be installed in an engine room

or battery compartment, while being controlled from a more convenient location by a small panel mounted switch. But the RBS can for instance also be controlled by a battery monitor or managed Lithium battery.

Besides controlling the RBS remotely, buttons positioned at the top also provide a way to open or close the main contact locally. For external control, the RBS is equipped with a 5 wire interface cable. It can be configured to accept two wire or single wire

ON/OFF commands for optimal flexibility.

Technical specifications





Very compact setup

Class-T fuseholder and 5xM10 busbar

of DCM-RBS.

Parameter	DCM-RBS-12V-500A art # 5074510	DCM-RBS-24V-500A art # 5074520			
Main contact circuit (electrical)					
Rated voltage	60Vdc				
Nominal current	500A				
Cranking current (1min.)	1000A				
Nominal make / break current	500A (034	Vdc)			
	350A (3560)Vdc)			
Peak make / break current	1600A (034	lVdc)			
	1200A (3560Vdc)				
Control circuit (electrical)					
Coil / supply voltage (+Vdc)	717Vdc	1434Vdc			
Coil / supply current (idle state) ¹⁾	< 100uA	\			
Coil / supply current (state change) ¹⁾	< 4A	< 3A			
General					
Remote control	By control v	vires			
Local control ²⁾	Top side buttons (On/Standby	, Close contact, Open contact)			
Indicators	Top side LEDs for Contact open,	Contact closed, Error and Setup			
Mechanical life	100000 cy	cles			
Electrical life	10000 cyc	les			
Operating temperature range	-20+60°	С			
Connection stud size	M10				
DC Modular grid size	1 x 3				
Protection class	IP65				
Dimensions	150.0 x 50.0 x 9	94.0 mm			
Weight	800 дг				
Standards	CE certified (EMC Directive 2014/30/EU, L RoHS Directive 2011/65/EU and Ignition	Low voltage Directive 2014/35/EU, n protection standard ISO 8846)			

Note: the given specifications are subject to change without notice.

³⁾ Higher voltages may require additional safety measures

²⁾ Higher voltages may require additional safety measures

²⁾ Higher voltages may require additional safety measures

¹⁾ C Due to the magnetic latch construction, the DCM-RBS draws virtually no current in the ON or OFF state.

A current draw only exists shortly (500ms max) when changing the state of the contact.

²⁾ Using the top side buttons, one can manually override the switch state as commanded through the control wires. A dedicated 'On/Standby' button also allows the user to put the DCM-RBS in a standby mode with open contact. In this mode any command from the control wires and/or manual override buttons are ignored.

Accessories

Description

Due to the common interconnection heights, smart space saving arrangements of multiple DC Modular products can be made by linking these together using the optional Link Plates.

We have managed to offer only two Link Plate sizes to create all possible combinations. Both Link Plates are compatible with M8 and M10 studs. Additionally, we have equipped the Link Plates with two M4 screws to provide convenient connection points for smaller cables.

For this purpose only, we are also offering an Adapter Plate which allows a mixture of high and low power cables to be connected to the same stud. The Adapter Plate can be used on M8 and M10 studs and offers four connection points for smaller cables.

Features

- Tin plated high purity copper busses provide maximum conductivity, reducing heat and improving efficiency
- Stainless steel M4 screws and washers provide convenient connection points for smaller cables
- Compatible with M8 and M10 studs

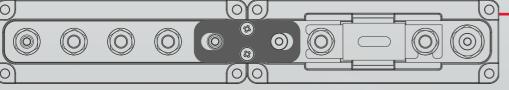
Link Plate 41 mm



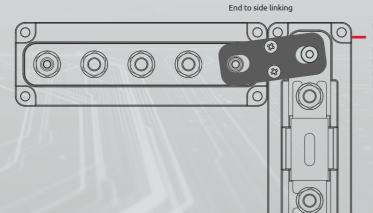
Model ¹⁾	Art#	Max. Current ²⁾	Dimensions (L x W)	Accepts stud size
DCM Link Plate 41mm	5079062	600A	63.0 x 25.0 mm	M8 + M10

- ¹⁾ Not compatible with "Mega" and "ANL (300A)" fuseholders
 ²⁾ Current capacity can be doubled by stacking two Link Plates (after removal of M4 screws)

End to end linking



For linking to and from: DCM 1xM8/M10 Single Stud DCM 2xM8/M10 Dual Stud DCM 3xM8/M10 Busbar DCM 5xM8/M10 Busbar DCM ANL Fuseholder (60V/600A) DCM Class-T Fuseholder (60V/225-400A) DCM Class-T Fuseholder (60V/450-600A)



For linking to and from: DCM 2xM8/M10 Dual Stud DCM 3xM8/M10 Busbar DCM 5xM8/M10 Busbar DCM ANL Fuseholder (60V/600A) DCM Class-T Fuseholder (60V/225-400A) DCM Class-T Fuseholder (60V/450-600A)

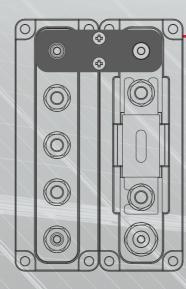
Link Plate 50 mm



١	Model ¹⁾	Art#	Max. Current ²⁾	Dimensions (L x W)	Accepts stud size
	DCM Link Plate 50 mm	5079072	600A	75.0 x 25.0 mm	M8 + M10

- Not compatible with "Mega" and "ANL (300A)" fuseholders
- ²⁾ Current capacity can be doubled by stacking two Link Plates (after removal of M4 screws)

Side to side linking



For linking to and from:

DCM 1xM8/M10 Single Stud DCM 2xM8/M10 Dual Stud

DCM 3xM8/M10 Busbar

DCM 5xM8/M10 Busbar

DCM ANL Fuseholder (60V/600A)

DCM Class-T Fuseholder (60V/225-400A) DCM Class-T Fuseholder (60V/450-600A)

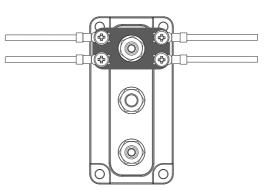
Adapter Plate



Model ¹⁾	Art#	Max. Current	Dimensions (L x W)	Accepts stud size
Adapter Plate (1xM8/M10 to 4xM4)	5079020	600A	46.0 x 25.0 mm	M8 + M10

¹⁾ Not compatible with "Mega" and "ANL (300A)" fuseholders

For converting an M8 or M10 stud to 4xM4 fork/ring terminals





Notes

