

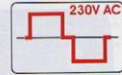
# ProCombi S

Pure Sine Wave



# ProCombi Q

Quasi Sine Wave



## 1600, 2500 & 3500 Watt

### Standard Features:

- 30 amp through current
- P.F.C. (power factor correction)
- Inc Remote control with 10 meter cable
- 4 step progressive charging
- 8 battery type selector

## Combined inverter charger



**Winner**  
Sailing Today Best Buy  
in Combi Test against  
Victron, Mastervolt &  
Studer

The new Pro Combi range are designed to be very competitive, no frills, high performance, and value for money products, presented in a simple, easy to install and use style.

If you require power assist, parallel connection, three phase output functions or any other enhanced combi features then this range is not for you. If you're not familiar with these things this ProCombi is perfect for you.

Modern combis are getting more and more complex, with each company trying to out do the next with abilities beyond the understanding and requirements of most people. This detracts from the combi's main strength of being easy to install and easy to use. There is, no doubt, there is a market for all the sexy functions but the vast majority of combi users simply do not need them and never will. Most people simply require the unit to act as a high performance constant current battery charger when on mains power then cross over to act as an efficient inverter when on battery - and that's it!

The problem with enhanced functions is, even if they are not used, they eat up valuable power. The more functions on a product running (even though you do not use them) the higher the quiescent current on the inverter (the current the unit uses itself to operate). Complex combis at 12V can use as much as 9.5 amps whereas Pro Combi can use as little as 2 amps.

Sterling have reversed this trend with this Pro Combi range by stripping away the unnecessary features from a complex combi, not only saving money but also lowering the critical quiescent current draw. The end result is a simple, straight forward product that does what you think it should. Using our years of experience in this market we have tailored the product range to suit 90% of people purchasing Combis.

We have also added what we see as important features to this range that even the expensive combis do not have such as the ability to charge totally flat batteries and allow through power with no batteries connected.

### How to compare model ratings with other Combis: Watts vers/ VA the truth

The most significant issue to be aware of is how output ratings are massaged to appear better than the competition. You might be excused for thinking that a unit with '3000' written on it, for example, means that it will deliver 3000 watts continuously. This is not necessarily the case, when you look at the small print.

Have you ever found it strange that the product you want to run (ie the hair dryer, washing machine, TV, etc) in their specification have the power consumption in watts, yet the inverter/ generator companies give you their rating in VA, and when you put your 1000 watt product on a 1000 va inverter it does not work because in the small print you find out that the 1000 va inverter is only 700 watts for 10 mins then it over heats, this simply cannot be right.

In the eyes of the unknowing consumer, rating a power product in VA is a simple way of using meaningless figures to confuse and make performance appear better than it really is. Unfortunately this practice is still allowed in Europe (European standards committees are looking into this practice) unlike the USA where there are recognised standards (eg ABYC) and you can be sued for publishing misleading information and incorrect ratings. The only true rating, without confusion, is in watts, using a simple resistive load with unity power factor, such as an electric heater / standard light bulb, etc. This method gives a lower correct figure, however it is not what the marketing teams involved in promoting power products want to see.

Take, for example a 3000 Victron Multi that is perceived by the public to be 3000 watts continuously rated. If, however, you read the Victron specification for watts at 40degC the actual power is 2000Watts. The Sterling 2500W Combi delivers 2500Watts which in fact makes it a more power full unit. This distortion is not limited to Victron, unfortunately most, if not all, the European manufacturers push model figures to the realms of fantasy in spiralling competitiveness and in order to confuse and impress the public who believe that these figures are actual continuous power rating.

To ensure you are getting value for money you have to ensure you compare the true continuous power in watts at 40degC. Companies like Mastervolt do not even publish this figure, I can only assume, is through embarrassment (not available on their specification sheet on 12Aug 2008)

Furthermore, the effects of temperature and the duration of duty (i.e. how long a load is maintained) can also be used to manipulate ratings. It is much harder for a unit working in 40degC ambient temperature than in 25degC, just as it is harder to run at a higher load for extended periods. So a unit rated for short periods at a cooler temperature will also appear more powerful.

To illustrate, taking data published by Victron Energy and Mastervolt, the following comparison can be made:

Model/product	Public perceived power	True Cont. Watts @ 40degC
Victron Phoenix MultiPlus 12/3000/120	3000W	2000Watts
Mastervolt Mass Combi 12/2500-100	2500W	Not stated
Sterling Pro CombiS or Q 12/2500	2500W	2300Watts
Victron Quatro 12/5000/120	5000W	12v 3000Watts
Sterling 3500 combi	3500W	3300Watts

The simple truth of the matter is VA means nothing, if you want to know how much power your inverter is going to give you then ask for the rating in watts at 40 deg c, all the other ratings should be kept for the comic books where they belong. ProCombi has the lower value in the model name but, in fact, is the more powerful of the bunch when like for like ratings are compared making it even better value for money than you thought! With a Sterling unit you get what you think you should be getting, and it does what it says on the box.

The sooner ratings have a legal recognise standard like the U.S.A. then the better for everyone.

Wave Form	Input voltage	Inverter power	Part number	Retail inc vat
ProCombi Q				
Quasi Sine	12 v	1600 watt	PCQ121600	
Quasi Sine	12 v	2500 watt	PCQ122500	
Quasi Sine	12 v	4000 watt	PCQ123500	
Quasi Sine	24 v	1600 watt	PCQ241600	
Quasi Sine	24 v	2500 watt	PCQ242500	
Quasi Sine	24 v	4000 watt	PCQ243500	
ProCombi S				
Pure Sine Wave	12 v	1500 watt	PCS121500	
Pure Sine Wave	12 v	2500 watt	PCS122500	
Pure Sine Wave	12v	3500 watt	PCS123500	
Pure Sine Wave	24 v	1500 watt	PCS241500	
Pure Sine Wave	24 v	2500 watt	PCS242500	
Pure Sine Wave	24v	3500 watt	PCS243500	
accessories				
	1.2 m 300A cable for 12 v 2500		C300	
	1.2 m 180A cable for 12 v 1500 & 24v 2500		C150	



What does the Pro Combi range offer?

**On the battery charger side**

- 1) 4 step constant current battery charging
- 2) 8 pre set battery type selector plus de-sulphation
- 3) powerful charge rate
- 4) will charge totally flat batteries
- 5) PFC, draws about 30% less power than conventional units

**On the crossover side**

- 1) 20 m/s crossover time, will not lose any equipment due to power loss
- 2) 30 amp through current ability on all models
- 3) twin 30 amp / single 50 amp on the 3500 watt models

**On the inverter side**

- 1) high overload ability
- 2) high temperature rating
- 3) low quiescent current
- 5) power saver mode to automatically reduce power
- 6) allows through power even with no batteries connected

**On the remote control**

- 1) ability to switch the unit on/off
- 2) ability to select or de select power saver mode

**General specification**

<b>Input Wave form:</b>	Sinusoidal
<b>Nominal Voltage:</b>	Input 230 v a/c
<b>Low voltage trip:</b>	184v +/- 4%
<b>Minimum engage:</b>	voltage 194v +/- 4%
<b>High voltage trip:</b>	253v +/- 4%
<b>High voltage re engage:</b>	243v +/- 4%
<b>Max input a/c voltage:</b>	270 v rms
<b>Nominal input frequency:</b>	50hz or 60hz auto detect
<b>Low freq trip:</b>	47 hz for 50 hz, 58 hz for 60 hz
<b>High freq trip:</b>	53 hz for 50 hz, 62 hz for 60 hz
<b>Output wave form:</b>	( on by pass mode ) same as input
<b>Overload protection :</b>	Circuit breaker
<b>Short circuit protection :</b>	Circuit breaker
<b>Transfer switch rating :</b>	30 amp
<b>Efficiency on line transfer mode:</b>	96%+
<b>Line transfer time :</b>	20 ms
<b>Bypass without battery connected :</b>	yes
<b>Max by pass current :</b>	30 amps
<b>By pass over load current :</b>	35 amps: Alarm
<b>Inverter Specification / output</b>	
<b>Output wave form:</b>	Modified Sine Wave/ Quasi sine wave
<b>Output continuous power watts</b>	1600 2500
<b>Output continuous power VA</b>	2400 3600
<b>Power factor:</b>	0.9- 1.0
<b>Nominal output voltage rms :</b>	230vac
<b>Max voltage rms :</b>	260vac
<b>Output voltage regulation:</b>	+/- 10% rms
<b>Output frequency:</b>	50hz +/- 0.3hz or 60hz +/- 0.3hz
<b>Transient response time:</b>	<150ms; 0% to 100% RCD load
<b>Nominal efficiency :</b>	>85%
<b>Surge ratings :</b>	1500model = 4500va 2500model = 7200va
<b>Online current consumption at 12 v/24</b>	12v 1.8a 24v 0.9a
<b>Power saver mode current consumption</b>	12v 0.4a 24v 0.2a
<b>Short circuit protection:</b>	yes, less than 3 cycles
<b>Inverter Specification / input</b>	
<b>Nominal input voltage :</b>	12 or 24 v depending on model
<b>Minimum start voltage :</b>	10 v for 12 v model 20v for 24 v
<b>Low battery alarm:</b>	10.5v for 12 v model 21v for 24 v
<b>Low battery trip:</b>	10 v for 12 v model 20v for 24 v
<b>High voltage alarm:</b>	15.5 for 12v model 30v for 24 v
<b>Power saver :</b>	below 20 watts when enabled
<b>Power saver :</b>	can be switched on/off on remote control
<b>Charger Mode specification</b>	
<b>Input voltage range:</b>	196-245 v ac
<b>Output voltage:</b>	dependent on battery type selection
<b>Output current 12 v model :</b>	1600- 40A 2500 - 50A
<b>Output current 24 v model :</b>	1600- 20A 2500 - 25A
<b>Battery initial voltage for start up:</b>	0-15v for 12 v x 2 /24v
<b>Over charge protection shutdown:</b>	15.7 12 v x 2 for 24 v

**Charger curves (4 stage constant current) Battery types**

**4 step digital controlled progressive charge**

Battery type	charge v	float v	x 2 for 24 v
Gel U.S.A	14.0	13.7	
A.G.M. 1	14.1	13.4	
A.G.M. 2	14.6	13.7	
Sealed Lead Acid	14.4	13.6	
Gel Euro	14.4	13.8	
Open Lead acid	14.8	13.3	
Ca <sup>2+</sup> m	15.1	13.6	
Desulphation	15.5 for 4 hrs		

**Battery bank size:** auto detected / auto program adjusted

**General Features.**

**Remote control.** Front control panel removable as remote

Size: in mm	185W 180H 430L (1600, 2500)
Weight:	1600w 18 kg 2500w 20 kg

**General**

- 1) removable local panel to give remote control with warning and function i.e.d.
- 2) remote on/off plus remote power saver on/off
- 4) 10 metres remote cable
- 5) almost 20 alarms/ warnings/and information

There are 2 main models the **Pro Combi Q** ( for quasi-sinewave ) and the **Pro Combi S** ( for Pure-sinewave )

So the simple question is what best suits your needs?

**Pro Combi Q**, (quasi-sine model) suitable for most installations, where you would use a microwave, fridge, hair dryer, vacuum cleaner, kettle, computer, etc. The vast majority of products will run on quasi-sinewave.

**Pro Combi S** ( sine wave model ) where all the above plus washing machines, bread makers, thyristor controlled equipment are used - then sinewave is required

**To Make the choice even simpler**, we have a 6 months exchange/upgrade policy. If you purchase a Pro Combi Q and find there is some equipment that you cannot run due to the Quasi Sinewave and require Pure Sinewave, Sterling are happy to up-grade your quasi-sine unit for sinewave with the only cost being the difference between the 2 products (unit must be sent direct to Sterling and in good condition).

**Pro Combi S**

<b>Input Wave form:</b>	Pure sine wave
<b>Input 230 v a/c</b>	Input 230 v a/c
<b>Low voltage trip:</b>	184v +/- 4%
<b>Minimum engage:</b>	voltage 194v +/- 4%
<b>High voltage trip:</b>	253v +/- 4%
<b>High voltage re engage:</b>	243v +/- 4%
<b>Max input a/c voltage:</b>	270 v rms
<b>Nominal input frequency:</b>	50hz or 60hz auto detect
<b>Low freq trip:</b>	47 hz for 50 hz, 58 hz for 60 hz
<b>High freq trip:</b>	53 hz for 50 hz, 62 hz for 60 hz
<b>Output wave form:</b>	( on by pass mode ) same as input
<b>Overload protection :</b>	Circuit breaker
<b>Short circuit protection :</b>	Circuit breaker
<b>Transfer switch rating :</b>	1500-2500 w = 30 amp the 3500 w= 50 amp
<b>Efficiency on line transfer mode:</b>	95%+
<b>Line transfer time :</b>	20 ms
<b>Bypass without battery connected :</b>	yes
<b>Max by pass current :</b>	30 amp
<b>By pass over load current :</b>	35 amps: Alarm
<b>Inverter Specification / output</b>	
<b>Output wave form:</b>	Pure sine wave
<b>Output continuous power watts</b>	continuous 2100 (2500 30 min), 3200 ( 3500 30 mins )
<b>Output continuous power VA</b>	3100 5000
<b>Power factor:</b>	0.9-1.0
<b>Nominal output voltage rms :</b>	230vac
<b>Max voltage rms :</b>	260vac
<b>Output voltage regulation:</b>	+/- 10% rms
<b>Output frequency:</b>	50hz +/- 0.3hz or 60hz +/- 0.3hz
<b>Transient response time:</b>	<150ms; 0% to 100% RCD load
<b>Nominal efficiency :</b>	>88%
<b>Surge ratings :</b>	PQS1500=4500va PQS2500=7200va
<b>Online current consumption at 12 v/24</b>	not available until march 2008
<b>Power saver mode current consumption</b>	not available until march 2008
<b>Short circuit protection:</b>	yes, less than 3 cycles
<b>Inverter Specification / input</b>	
<b>Nominal input voltage :</b>	12 or 24 v depending on model
<b>Minimum start voltage :</b>	10 v for 12 v model 20v for 24 v
<b>Low battery alarm:</b>	10.5v for 12 v model 21v for 24 v
<b>Low battery trip:</b>	10 v for 12 v model 20v for 24 v
<b>High voltage alarm:</b>	15.5 for 12v model 30v for 24 v
<b>Power saver :</b>	below 20 watts when enabled
<b>Power saver :</b>	Same switched on/off on remote

**Charger Mode specification**

<b>Input voltage range:</b>	196-245 v ac
<b>Output voltage:</b>	dependent on battery type
<b>Output current 12 v model :</b>	1500 - 40A 2500 - 70A 3500 - 100A
<b>Output current 24 v model :</b>	1500 - 20A 2500 - 35A 3500 - 50A
<b>Battery initial voltage for start up:</b>	0-15v for 12 v x 2 /24v
<b>Over charge protection shutdown:</b>	15.7 12 v x 2 for 24 v

**Charger curves**

Battery type	charge v	float v	x 2 for 24 v
Gel U.S.A	14.0	13.7	
A.G.M. 1	14.1	13.4	
A.G.M. 2	14.6	13.7	
Sealed Lead Acid	14.4	13.6	
Gel Euro	14.4	13.8	
Open Lead acid	14.8	13.3	
Ca <sup>2+</sup> m	15.1	13.6	
Desulphation	15.5 for 4 hrs		

**Charger curves**

Same as Pro Combi Q

same

same

same

same

same

same

same

same

same

same

**General Features.**

Front control panel removable as remote  
Size: 185W 180H 430L (1600, 2500) 227W 180H 512L (3500)  
Weight: 1500w 20 kg 2500w 20 kg 3500 24kg