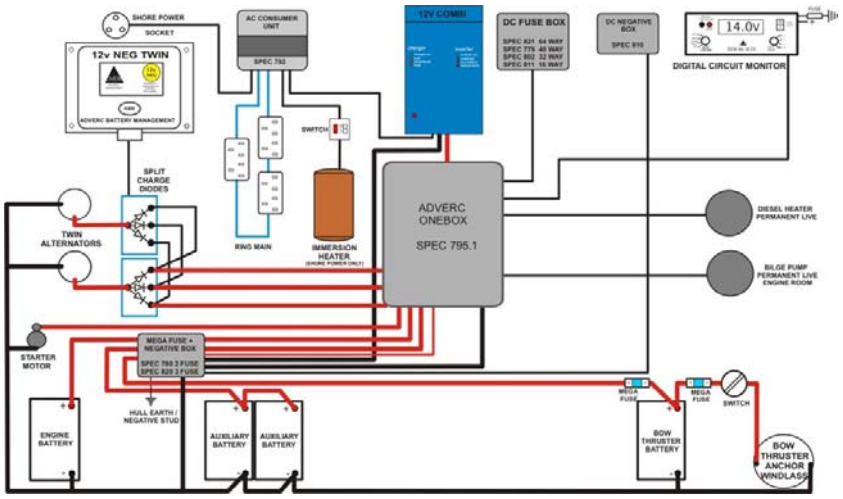
ADVERC
BATTERY
MANAGEMENT

MARINE DOCUMENT PACK



British Marine Federation
BMEA
The Inland Waterways Association
RCR
RIVER CANAL RESCUE LTD

ADVERC BM Ltd
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ADVERC - FUNCTIONAL BACK GROUND.

Twenty-seven years of study and development have gone into optimising alternator battery charging which, presently, permits only 60% - 70% state-of-charge using conventional voltage regulation.

The result is the well-proven **ADVERC Battery Management System.**

The underlying principle is that batteries should be charged fully, quickly, safely and without damage to batteries and alternator. This is achieved, firstly, by **cycling** the **battery** voltages to an established programme, at a nominal **14.0-14.4v** (12v systems) or **27.5-28.5v** (24v systems).

The **cycling** programme is normally: **5** minutes @ **14.0** volts, followed by **15** minutes @ **14.4** volts. After four **20** minute cycles, there is a 'rest period' of up to **40** minutes i.e. at the lower voltage, depending on the battery state-of-charge and electrical duty-cycle.

These voltage values lie either side of the battery gassing voltage, ensuring rapid charging **without the battery actually gassing.** Voltage settings will accommodate most battery types including gel. Ni-cads etc., require a special setting. The charging voltages will automatically adjust for ambient temperature variations around the batteries, an important consideration e.g. increased with cold ambient temperature and vice versa.

The net result is efficient alternator performance, compensation for voltage losses in the system (including that across blocking-diodes), accompanied by considerably reduced engine running time e.g. **50%**.

NOTE: ADVERC is a controller not a booster. There is no forced feeding of the batteries. ADVERC simply creates the correct voltage climate at the batteries, which then takes what they want in terms of charging current. Heavily discharged batteries can expect and obtain a high alternator output, whilst well-charged batteries will take much less.

Battery and alternator life are considerable improved but the main benefit comes from having **more available battery capacity** at one's disposal, **two to three times, without having to install extra batteries and bigger alternators.**

Twin alternators on single or twin engines can be accommodated by a **single** ADVERC system, making ADVERC ideal for catamarans, twin-engined motor-cruisers and single engines with twin alternators. Improvements in **nett** charging of up to **145%** have been achieved.

Over the years, ADVERC has provided a variety of solutions in the marine and automotive sectors, from Round the World Yachts to Supermarket Trucks, Ambulances and Security Vehicles etc.

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ALTERNATOR CHARGING - MISCONCEPTION.

Statement of fact:

With common **machine sensed alternators**, batteries are, in most cases, charged to only 60 - 70% of their capacity, however long the engine is running.

Q: This can't be true, surely?

A: It is unfortunately. With the exception of average saloon cars there are innumerable cases of battery charging problems.

The typical car scenario is one where there are no heavy electrical loads or long cables. The alternator and battery are in a nice warm environment e.g. the engine compartment, with short run electrical cables between them, an ideal recipe for reasonable charging.

The moment the locations change, say on a yacht or supermarket truck, where there is distance between alternator and batteries, where the batteries can be outside and where heavy loads are common, then adequate charging is not achieved.

Q: So how do people get over this?

A: They don't. They simply fit bigger or more batteries and higher output or additional alternators.

The effect is to obtain a 60 - 70% state of charge from more batteries, more quickly. The basic problem remains, viz. **inadequate voltage regulation.**

Q: So does ADVERC correct this situation?

A: Yes, by sensing the **battery voltage not alternator voltage,** applying the correct voltage climate **at the batteries** and compensating for ambient temperature changes. In cold weather, batteries need a higher charging voltage to drive the charge in. In warm to hot ambient temperatures, it is easy to 'gas' batteries if the voltage is not reduced.

Q: What are the benefits of charging this way?

A: Batteries last longer;
Alternators last longer;
Starter motor wear can be reduced by as much as 75% and there are generally fewer all round electrical & logistical problems.

SOME QUESTIONS AND ANSWERS ABOUT ADVERC BATTERY MANAGEMENT.

Q1: Basically what does ADVERC do?

A1: ADVERC Battery management is a sophisticated alternator voltage regulator or charge controller, which ensures batteries are 95-100% charged with minimum engine running time and without stressing the battery(s) or alternator.

Q2: Why doesn't my existing alternator do this?

A2: Because the alternator regulation is designed essentially for the motorcar. Used in specialised applications, such as marine craft, trucks, ambulances, mobile libraries etc., the battery state of charge only ever reaches 65-70% of its capacity, even with the engine running for long periods.

Q3: How does ADVERC work?

A3: The aim is to produce the optimum charging voltage at the batteries, not the alternator, compensating for any voltage losses in the electrical system.

These voltages are cycled below and above the gassing point of the battery(s) to a given programme, without gassing actually taking place, also compensating for changes in ambient temperature. The result is fast and safe charging.

***ADVERC is NOT a BOOSTER. It is a CONTROLLER**. There is no forced feeding in terms of charging current - the batteries only take whatever charging current they need.*

Q4: Will ADVERC harm my batteries or alternator?

A4: No. Batteries and alternators last longer and perform better, in fact, as do starter motors, diesel heaters etc.

Q5: What happens if I have two battery banks?

A5: No problem. One ADVERC accommodates one, two, or more battery banks using various split-charging options e.g. blocking-diodes, 1, 2, both switches or relays.

Q6: Will ADVERC fit any alternator?

A6: Yes, though we need to know the make and other details to establish the polarity and provide the appropriate installation details.

Q7: Do I need to increase the size of my alternator?

*A7: Not necessarily and probably not. By using ADVERC, the **AVAILABLE** battery capacity is more than doubled. On the other hand, the total battery capacity is the deciding factor. ADVERC cannot make the alternator produce more than its rated output.*

Q8: Can it be used with twin alternators?

A8: Yes. One ADVERC system will accommodate two compatible alternators on the same engine, or a twin-engine configuration. The system is ideal for catamarans, for example.

Q9: Can I use ADVERC with any type of battery?

A9: Yes ADVERC is suitable for flooded, GEL or sealed VRLA types and the voltage settings can be adjusted for e.g. Ni-cads or special situations.

Q10: Can I install more batteries?

A10: Yes, if required. ADVERC will also accommodate multi-battery banks, using an appropriate split charging system.

Q11. Do I need to worry about high voltages affecting sensitive equipment?

A11: No. ADVERC 'cycles' between 14.0 and 14.4v at the batteries (27.5v and 28.5v for 24v electrical systems). These voltages are well within the scope of virtually all sensitive navigation and other equipment, unlike BOOSTERS, which can deliver voltages in excess of 15.5 volts.

Q12: How reliable is your system?

A12: Very reliable, having over twenty years development behind the concept and design.

ADVERC has a five-year warranty and is specified or approved by most Boat Builders and Safeway PLC., Asda, Securicor and many Ambulance Authorities. ADVERC has played a part in terms of battery charging on several Whitbread Yachts in the last two series, and Ellen MacArthur's Kingfisher.

Q13: But what happens if the ADVERC system fails?

A13: The current Mk IVa unit works in tandem with the original regulator. In the unlikely event of ADVERC failure, the system reverts to standard regulation, providing a vital fall-back situation.

Q14: Is it easy to install?

A14: The installation is straight forward and within the compass of a competent do-it-yourself enthusiast. Some alternators are easier than others. The first installation generally takes 3-4 hours. Full instructions are given.

Q15: Do you have Installation Specialists available?

A15: For total peace of mind we have around 150 Installation Specialists or Dealers, world-wide.

Q16: How do I know which ADVERC system to specify?

A16: Simply provide us or our Dealers with alternator details and any other background such as battery layout, capacity, method of split-charging etc., all of which helps us to provide the appropriate instructions and guidance.

Q17: What is the cost of a complete ADVERC system?

A17: From £177.50 plus VAT, upwards, depending on the system and ancillaries. This excludes installation.

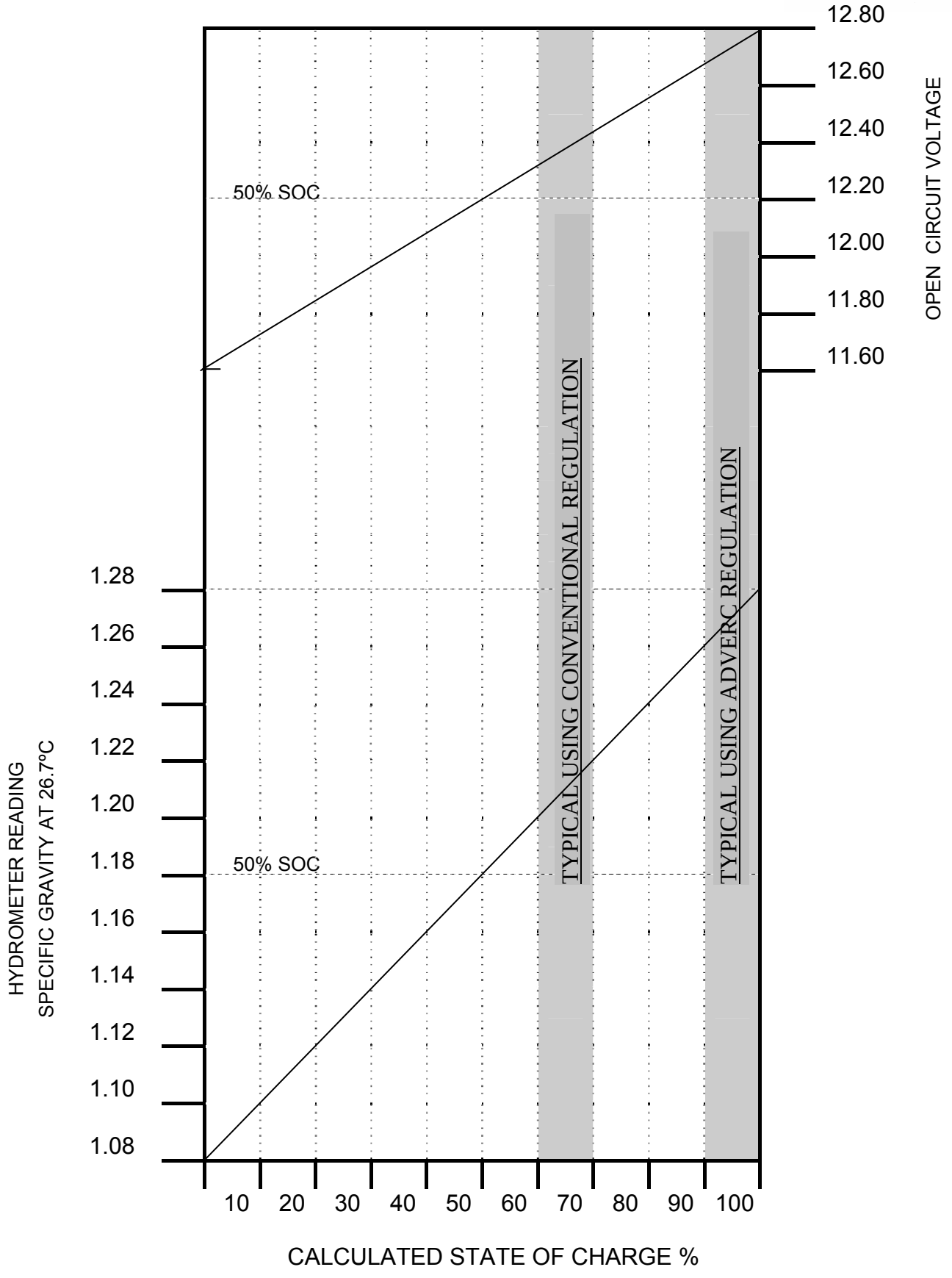
Q18: Does your company provide other complementary equipment?

A18: Yes. We have been in the business of battery related matters for twenty years and can advise on or supply: Solar Panels, Wind Chargers, Split-Charging Systems, Monitoring & Measuring Equipment, Low Voltage Protection, Mains Chargers, Inverters, Converters, AC and DC Generators, Batteries and most things to do with this subject.

An ADVERC Technical Brochure is available on request together with information on the complementary product range indicated, or look at our web-site at ***www.adverc.co.uk****.*

TYPICAL BATTERY STATE-OF-CHARGE
CORRELATION BETWEEN S.G. AND OPEN CIRCUIT VOLTAGE

ADVERC BATTERY MANAGEMENT



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TESTING AN ADVERC, ALTERNATOR & CHARGING SYSTEM – USING AN ADVERC TEST LEAD.

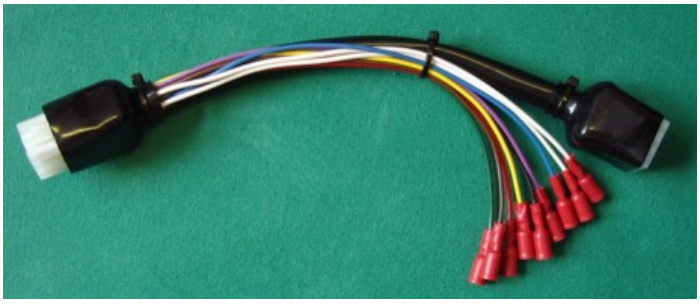
PURPOSE:

An ADVERC test-lead enables a number of voltage readings to be taken at various terminations to check the functionality of an Adverc charging system. This simple approach also obviates the previous inconvenience and impracticality of having to insert multimeter probes into the back of plugs and sockets, to obtain these readings.

RECOMMENDED PROCEDURE:

1. Insert the test-lead between the Adverc unit plug and 9-pin socket on the harness.
2. Before starting the engine, measure and record the **actual battery voltage – the one to which the Adverc red battery sense lead is connected.**
3. Using a multimeter, measure the voltage across the following leads:

   Red/Black
   Brown/Black
   Blue/Black
   Green/Black
   Yellow/Black
   Red/Blue

   The **Red/Black** reading should be the same as in 2.
4. Start the engine and maintain the rpm just above idle i.e. so that the alternator is 'producing'. Switch-off all electrical loads.
5. Allow the Adverc to 'cycle' i.e. after 5 minutes, both the battery voltage and **Red/Black** voltage should jump by approximately **0.4** volts.
6. Repeat 3.
7. **Disconnect** the Adverc, whilst the engine is running – it is safe to do so.
8. Repeat 3.
9. Switch-off the engine.

   With the Adverc plug still disconnected, using a multimeter on a **Kohms** setting, measure the resistance between the **two white** leads. The reading should be between **4 and 10 Kohms.**
10. Typical readings for a 12 volt system are as follows:

SCENARIO			TYPICAL VOLTAGES ± 0.2 VOLTS					
ENGINE	B/DIODE USED	ADVERC	RED/ BLACK	BROWN/ BLACK	BLUE/ BLACK	GREEN/ BLACK	YELLOW/ BLACK	RED/ BLUE
OFF	YES	CONNECTED	12.6	0	12.6	0	0	0
OFF	NO	CONNECTED	12.6	0	12.6	0	0	0
ON	YES	CONNECTED	14.4	15.3	14.4	3 - 13	14.4	0
ON	NO	CONNECTED	14.4	14.4	14.4	3 - 13	14.4	0
ON	YES	DISCONNECTED	13.4	14.1	13.4	3 - 13	13.4	0
ON	NO	DISCONNECTED	13.9	14.1	14.1	3 - 13	13.9	0.2

Note:

(a) Red/Black voltages vary with ambient temperature.

(b) Green/Black readings can vary, depending on the polarity of the Adverc, the state of charge of the battery and if any electrical loads are applied.

(c) Red/Blue values should be no more than **0.3** volts. The ideal value is **zero**, indicating no voltage losses in the system. Voltage losses in the positive line will be compensated for by the Adverc system. However, the Adverc will not compensate for any losses in the negative return, resulting in lower Red/Black voltages e.g. **14.2**, instead of **14.4**, reducing charging performance.

(d) Voltage losses in the negative return can be checked by measuring the voltage between alternator negative and the battery negative terminal. This ideally, should be **zero** and not greater than **0.1** volts, for optimum charging performance.

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Schematic Diagram

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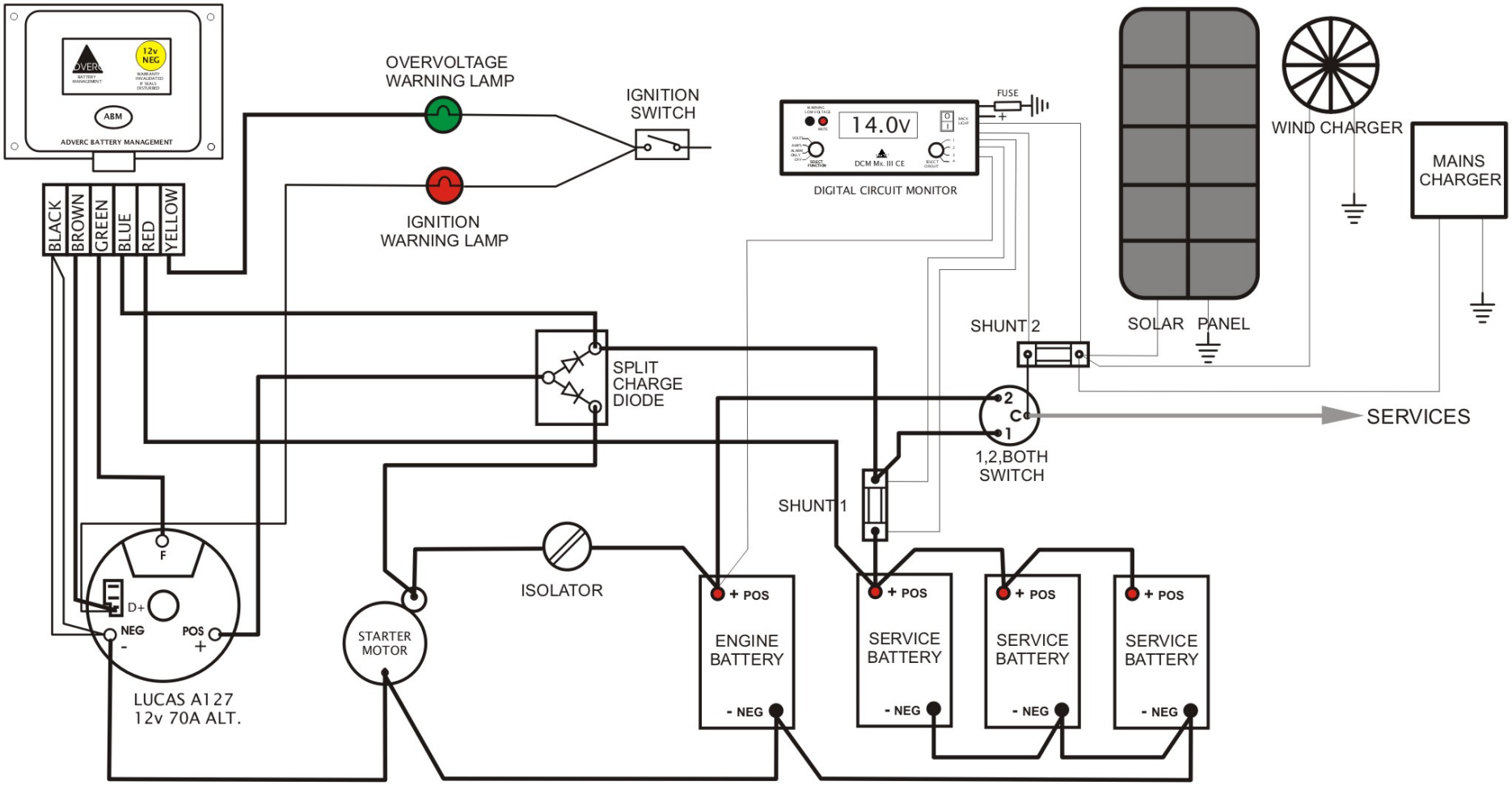
TITLE	ADVERC IDEAL BOAT ELECTRICS -Typical Marine Installation					
PREPARED BY	JAH		06/05/2003	REVISION		Spec 025.4
NOTES						



Schematic Diagram

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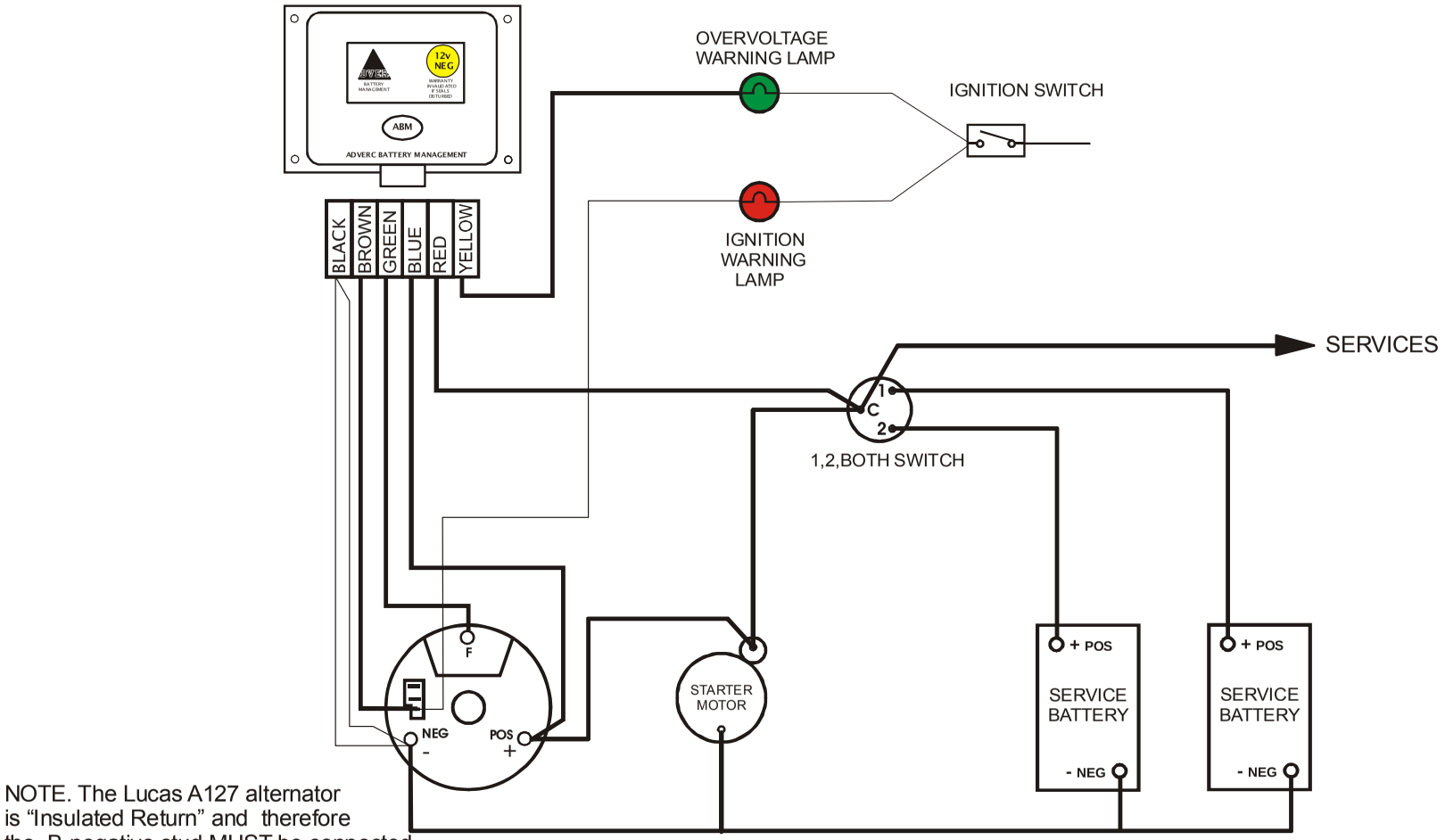
TITLE	LUCAS 14v 70A ALTERNATOR					
PREPARED BY	MT		12/09/2005	**REVISION**	1	Spec 032.1
NOTES						



NOTE. The Lucas A127 alternator is “Insulated Return” and therefore the B-negative stud MUST be connected to the Battery negative system.
(On non insulated system connect to engine frame.)

ADVERC 3-STAGE CHARGERS

Features

- Multistage microprocessor controlled, constant current, constant voltage and float.
- Fast constant current bulk charge.
- Proportional timing, adjusts constant voltage period to suit state and size of battery.
- Soft start mode protects plates and prolongs battery life.
- Optional switch selection for battery type e.g. lead acid, gel.
- Battery LED indicators - mains, charging, timer and float/standby.
- Digital electronics.
- Protection: Reverse polarity, Short circuit, Excessive load e.g. engine start during charge.
- Compliance to BS EN 55014 etc., BS EN 60-335-2-29. **Note:** The charger must be used in a well ventilated area.
- Options: Internal switchable dual input voltage for 110v.
- Case construction: Steel, polyester powder coated.

The AVF 3-Stage Range

	AVF1210	AVF1215	AVF1220	AVF1230	AVF1240	AVF1250
Rec. Batt. Capacity	50-100	50-150	70-200	100-300	130-400	180-550
Input (v)	110-120 215-240	110-120 215-240	110-120 215-240	110-120 215-240	110-120 215-240	110-120 215-240
Float	13.3v	13.3v	13.3v	13.3v	13.3v	13.3v
Max.Charge Current (A)	10	15	20	30	40	50
Dim. HxWxD (mm)	145x165x 165	155x250x 180	260x350x 250	260x350x 250	260x450x 260	260x450x 260
Weight (Kg)	5.5	10	15	18	25	30
	AVF2410	AVF2415	AVF2420	AVF2430	AVF2440	AVF2450
Rec. Batt. Capacity	30-100	50-150	70-200	100-300	130-400	130-500
Input (v)	110-120 215-240	110-120 215-240	110-120 215-240	110-120 215-240	110-120 215-240	110-120 215-240
Float	26.6v	26.6v	26.6v	26.6v	26.6v	26.6v
Max.Charge Current (A)	10	15	20	30	40	50
Dim. HxWxD (mm)	155x250x 180	155x250x 180	260x350x 250	260x350x 250	260x450x 260	260x450x 260
Weight (Kg)	10	12	20	24	35	37

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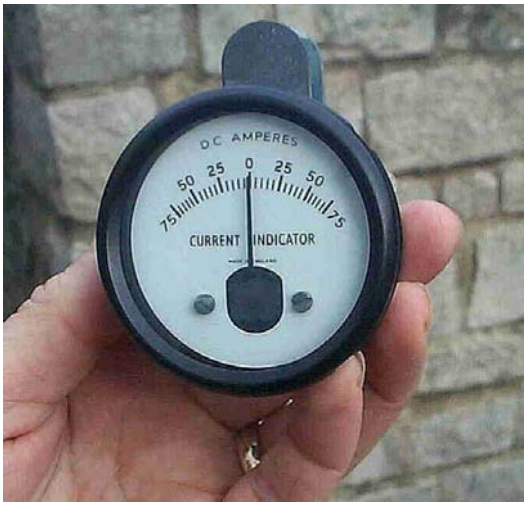
ADVERC DC CLIP-ON AMMETER.



The Adverc clip-on ammeter makes tracing faults and reading current easy.

NEW GEAR

With Colin Jones

The Earls Court January festival of dreams and indulgence is now so vast that many of the better buys get lost in the glitz and tinsel, so locating them takes time, to say nothing of the wear and tear on your feet and brain. The editorial brief was to scour the London Boat Show for some of the smaller items of practical and sensible equipment at fair prices.

The Adverc Clip-On Ammeter is a case in point. I found it in a corner of their display and was immediately hooked. Voltage is easy, but measuring current is a messy business of disconnecting something so that you can get your meter line. This tool about 2" across, slips over the insulation of any DC wire and gives an analogue readout on a circular car dashboard style dial. If you suspect that your alternator is lazy, or that you have a battery leak via a particular circuit, the clip-on device will soon locate it. For £18 inc. p & p that can save a lot of time and aggro.

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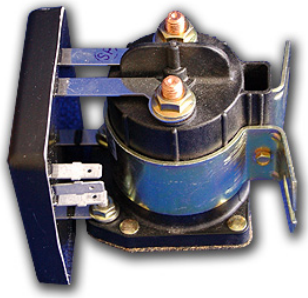
ADVERC ABM SOLENOID SYSTEM.
INTELLIGENT SPLIT CHARGING.



The ABM allows multiple batteries to be charged from one source, whilst giving protection to a vehicle charging system and battery, in the event of excessive electrical loading being applied.

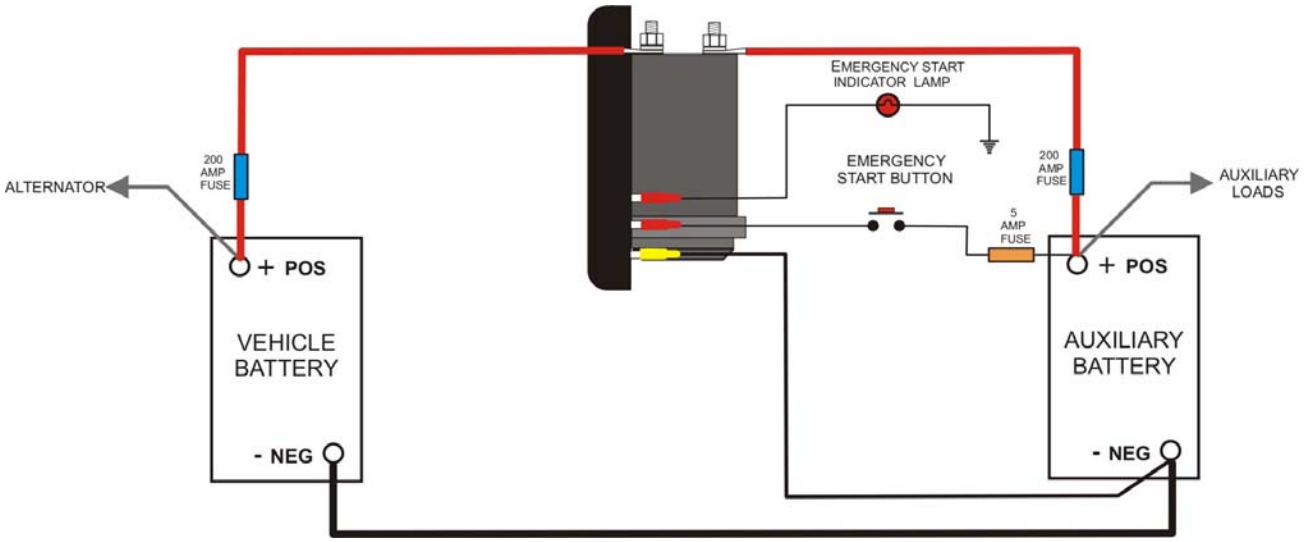
The basic features are as follows:

Intelligent Split-Charging:
Being bi-directional, the ABM monitors both the vehicle and auxiliary battery banks. When either battery reaches a satisfactory voltage level eg when the engine is running or a mains charger is applied to either bank, then the solenoid engages both banks in parallel.

Should the drain on the charging system be significantly reduced, the ABM disconnects the battery banks from each other to prevent both batteries from being dragged down simultaneously. A delay function is incorporated in the control circuit to prevent the ABM from reacting to spontaneous voltage fluctuations, causing ‘chattering’ at the contacts.

Assistance in engine starting:
Should the vehicle battery be heavily discharged, assistance from the auxiliary battery is available at the press of a button.

Simple Installation: see below.
No system modifications are necessary.



Available units:

ABM12100P	Solenoid System	12v 100A twin bank
ABM12200P	Solenoid System	12v 200A twin bank
ABM24100P	Solenoid System	24v 100A twin bank
ABM24200P	Solenoid System	24v 200A twin bank

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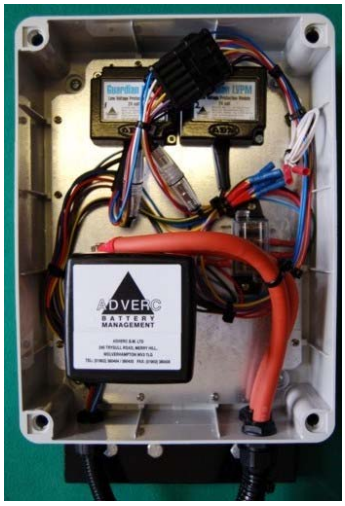
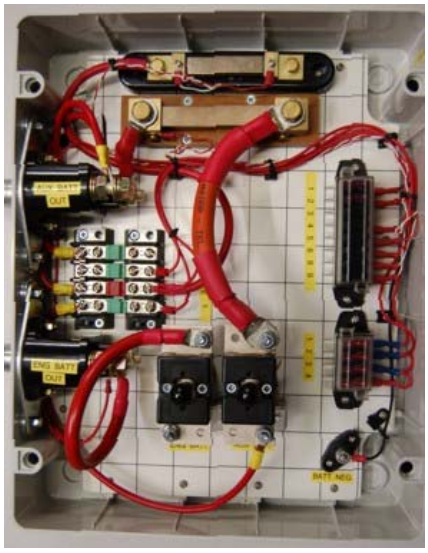
***ONE*box**

To further enhance their 25 years unrivalled customer support, Adverc BM Ltd is currently undergoing a period of expansion, including the provision of integrated development, production, assembly and installation, facilities, all under one roof.

This strategy has quickly produced customer-focussed benefits, **including our new DC and AC distribution systems**: ***ONE**box(**DC**) and **ONE**box(**AC**)*.

***ONE*box**, provides an enclosed DC or AC electrical distribution panel, incorporating many of the components, normally installed separately.





A ***ONE*box** (DC) panel available as standard or bespoke, may well enclose shunts, solenoids', a busbar, fuses, a split-charging system etc, providing an integrated system all within a single enclosure. This simplifies installation, reduces fitting out time and minimizes installation errors.

***ONE*box** employs installer friendly connection points or cables. It can be in standard form, a bespoke unit or optimised for rapid production line fitting out.

The ***ONE*box** concept means that spare units can be kept to enable a rapid exchange in the event of a suspected fault.

A ***ONE*box** unit can be easily bench tested at a convenient time, either by the customer or Adverc BM.

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Question: **DO I NEED A GALVANIC ISOLATOR?**

Answer:

1. Only if you (and perhaps your neighbour) rely on shore-power to provide a mains supply on the boat.
2. If you wish to preserve your health!

1. Shore-power Considerations:

The subject of electrolytic corrosion is a complex one, involving dissimilar metals, on the one hand, and differences in voltage potential, on the other.

In the first instance, sacrificial anodes are common place and are a fundamental part of the equation. In the second instance, connecting your vessel to a shore-power mains supply, or even mooring alongside another vessel, can significantly exacerbate the problem, creating an 'earth loop'.

The **Galvanic Isolator (Zinc Saver)** will not affect the earth return passage of the AC current but it will block DC galvanic current flow, the cause of the problem.

2. Safety Considerations:

Unlikely as it sounds, faulty electrical appliances on boats could have lethal consequences, if the path to earth is easier via an individual, the hull and water, rather than the recognised earth path.

Accordingly, the practice recommended by the BMEA (The British Marine Electronics Association) and RCD (European Recreational Craft Directive), is that all AC appliances and metal fittings on the boat should be earthed and bonded to the boat's common DC ground.

This practice, whilst affording the necessary AC protection, does create the opportunity for galvanic corrosion to occur, which can be avoided by the use of a relatively inexpensive **Galvanic Isolator (Zinc Saver).** This will also reduce the erosion on any sacrificial anodes, that are fitted for electrolytic protection.

The general subject of electrolytic corrosion, in all its forms and with several causes, has been amply addressed in detail by several well-informed experts. For those interested in a further study of this phenomenon, we would thoroughly recommend the following sources of detailed information:

Alastair Garrod	-	'Electrics Afloat.'
John Payne	-	'The Marine Electrical & Electronics Bible'.
Nigel Calder	-	'Boat Owner's Mechanical & Electrical Manual'.
BMEA	-	'Code of Practice for Electrical & Electronic Installations - Small Craft (4th edition).'

NOTE: Galvanic Isolators supplied by Adverc must be used in conjunction with a recognised RCD device.

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ADVERC DIGITAL CIRCUIT MONITOR
DCM Mk III.

Battery problems
Charging problems
Electrical problems

?

Having essential information at a glance is the first step to solving them!

The Adverc DCM Mk III does this and more.

FEATURES

- Up to 4 circuits can be monitored simultaneously.
- Voltage current displayed instantly.
- Can measure up to 199amps.
- Large 4 digit display.
- Low voltage alarm, with audio visual functions.
- Adjustable threshold level provides ample time to react.
- Back lighting facility.
- Low power consumption – less than 5mA.
- Compatible fascia plate – white legend on black.
- Straightforward installation.

The DCM Mk III……..

another SIMPLE solution

from ADVERC.

FUNCTIONS AND TECHNICAL DATA

SELECT FUNCTION

OFF: DCM is off and draws no current.

ALARM ONLY: The display will remain blank, but the low voltage facility will monitor the circuits that have been connected and activate the alarm function if the voltage falls below the present value.
The SELECT CIRCUIT control enables you to determine which battery bank is low.

VOLTS: The display will show the voltage on the circuit selected.

AMPS: The display will show the charge or discharge current of the circuit selected.

SELECT CIRCUIT

Select which ever circuit is to be displayed.

WARNING LOW VOLTAGE

When the voltage on any selected circuit falls below the preset value, the red lamp will light and the buzzer sound. The buzzer may be turned off by pressing the mute button. However the red lamp will only go out if the battery voltage is restored above its preset alarm voltage.
The low voltage threshold can be adjusted.

BACK LIGHT

This switch will activate the back light to make the display easier to read in low ambient light.

DIMENSIONS Front Plate: 160mm x 80 x 35mm
Hole Centres: 150mm x 70mm
Cut-out dimensions: 140mm x 60mm nominal

FRONT PANEL Black traffolyte – white legends

SHUNTS Shunts are required when measuring current. These are available in mounted form, if required.

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ADVERC SLP Mains Charger Range

Adverc's SLP range of electronic switch-mode chargers are protected by a strong steel case*, yet offer a light weight and efficient solution to battery charging, making them suitable for portable applications.

4 LEDs indicate the state-of-charge and a timed stage ensures the battery is fully charged, when the green LED is lit.

Some of the units are available with automatic sensing of the input voltage and can be used internationally.**

*Alpha models are housed in a compact plastic moulding.

Typical Applications:

- Motorcycles
- Jet Skis
- Motor Homes
- Caravans
- Golf Buggies & Trolleys
- Motability Scooters
- Vehicles
- Horseboxes

Features:

- 110V as an option
- 4A up to 20A
- Unlimited output connector options
- 3 stage charging - bulk, absorption and float/read
- 4 LED status indication
- Reverse polarity protection
- Rugged steel case
- Compact size and weight
- Short circuit protection

Model	Input Voltage	Output (Volt/Amps)	Dimensions (L x W x H mm)	Weight (Kg)	Recommended Minimum Battery Size
Alpha 122.5	220/240V 50Hz	12V 2.5A	105 x 62 x 42	0.27	10Ah
BetaE124	220/240V 50Hz	12V 4A	150 x 110 x 40	0.65	16Ah
EliteE126	220/240V 50Hz	12V 6A	150 x 110 x 45	0.7	24Ah
DeltaE128	220/240V 50Hz	12V 8A	210 x 110 x 50	1.1	32Ah
DeltaE1210	**90-265V 50/60Hz	12V 10A	210 x 110 x 50	1.1	40Ah
DeltaE1220	**90-265V 50/60Hz	12V 20A	225 x 110 x 50	1.4	80Ah
EliteE245	220/240V 50Hz	24V 5A	150 x 110 x 45	0.85	20Ah
DeltaE248	**90-265V 50/60Hz	24V 8A	225 x 110 x 50	1.8	32Ah
DeltaE2410.5	**90-265V 50/60Hz	24V 10.5A	225 x 110 x 50	1.8	42Ah
DeltaE2412.5	**90-265V 50/60Hz	24V 12.5A	225 x 110 x 50	1.8	50Ah

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ADVERC OSCA-P RANGE.

DC-DC 12 or 24 VOLT BATTERY CHARGERS.

OSCA-P: A range of DC-DC battery chargers with an excellent track record and which has been adopted by many of the leading OEM's and the MOD.

No mains power is required. The 'recipient' battery takes its charge from the 'host' or 'donor' battery, when it is being charged from another source. The donor battery is protected from going flat and the recipient battery cannot be overcharged.

This product range is built to a high specification which offers high efficiency. **OSCA-P** units are much smaller in size than conventional chargers, saving space, but they can be built up in modular form to provide high outputs, e.g. 60amps.

OSCA-P units are suitable for most applications, including Marine, Ambulances and RRV's.





FEATURES

- Over 90% efficient
- High temperature protection
- Overload protection
- Fast charging with float facility
- Compact Design
- Rugged
- Short circuit protection
- Easy to fit, c/w fuse box and wiring harness

Basic Range	Dimensions	Weight
12-12 12amp single module	215 x 70 x 50mm	680g
12-24 10amp single module	155 x 70 x 50mm	500g
24-12 15amp single module	155 x 70 x 50mm	500g
24-24 12amp single module	215 x 70 x 50mm	680g

Full technical back-up.

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ADVERC VOLTAGE CONVERTER.

DC-DC VOLTAGE CONVERTERS:

A range of high specification DC-DC switch-mode voltage converters.

These units are highly efficient with an excellent track record. They have been adopted by many of the leading OEM's and the MOD.

Do not confuse these high quality devices with inefficient linear devices. Step up models are over 80% efficient and step down over 90% efficient.

They are suitable for most applications, marine and automotive.

These units are not suitable for battery charging – See OSCA-P DC-DC Chargers.

Adverc voltage converters are supplied with leads, fuse box and are designed as a building block system where higher performance is required.

FEATURES:

- High temperature protection
- Short circuit protection
- Easy to fit, c/w fuse box & wiring harness
- Over voltage protection
- Reverse polarity protected
- Overload protection
- Highly efficient
- Rugged
- Compact Design

BASIC RANGE:

Step-Up					Step-Down				
6v	12v	1.5	amp	single module	24v	12v	15	amp	single module
12v	16.5v	10	amp	single module	24v	12v	30	amp	double module
12v	24v	10	amp	single module	24v	12v	45	amp	triple module
12v	24v	20	amp	double module	24v	12v	60	amp	quad module
12v	24v	30	amp	triple module	48v	12v	10	amp	single module
12v	24v	40	amp	quad module	72v	24v	6	amp	single module
12v	28v	7	amp	single module					
12v	36v	5	amp	single module					
12v	48v	3	amp	single module					
12v	56v	2.5	amp	single module					

Please contact us for full specification, price and delivery.

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ADVERC BATTERY MANAGEMENT

Specialists in Electrical Power Generation
& Battery Management Systems

SYSTEMS AND PRODUCTS FROM ADVERC:

- Adverc Battery Management Systems
- Alternators 12v and 24v up to 200amps
- Batteries
- Battery Selector Switches
- Battery Cables, Connectors etc.
- Blocking-diodes
- Trailer Charging System (TCS)
- ONEBox
- Sleeper Cab Solutions (SCS)
- Mains Chargers
- DC-DC converters
- DC-DC chargers
- DC-AC inverters
- Charger/Inverter Combinations (Combis)
- Digital Circuit Monitors (DCM), Battery Status Monitors & Portable LCD Multimeters
- Generator Sets and Wind Chargers
- High output DC Generators up to 100amps
- Line Conditioners and filters with stabilised voltage supply (VS300)
- Low/High Voltage Alarm, Protection and Shut-down (Guardian LVPM)
- Over-voltage shut-down modules (OSM)
- Shunt Ammeters and Voltmeters (Clip-on Ammeters)
- Solar Panels
- Twin Alternator configurations
- On-board supplementary charging (OSCAP)
- Split-Charging systems

Whatever the scenario Adverc systems ensure that performance is not impaired or jeopardised by battery related problems. We have the equipment, know how and 27 years experience.

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