

data sheet **single engine, three battery bank split charge + battery guard**

12 volt P4133 part number 14133-500

24 volt P4143 part number 14143-500

charge contactor rating

continuous 200 amp @ 40 mV / contact / 100 A
 engine start 400 amp intermittent
 surge 800 amp

operation bi-directional split charge, standard
 connect voltage bow .. 13.8V / 27.6V stern 13.9V / 27.8V
 drop-out voltage 13.0V / 26.0V
 adjustment contactor engagement and drop out
 protection waterproof to IP66

power lock-out contactor rating

continuous 125 amp @ 40 mV / contact / 100 A
 Intermittent 200 amp 5 minutes
 Rupture 200 amp

operation low battery power lock-out
 disconnect 12.0V / 24.0V
 engage voltage 12.5V / 25.0V
 adjustment contact drop out and engagement
 protection waterproof to IP66

display

type 10 dot bar-graph x 5
 engine battery voltage
 service battery voltage and net amps
 bow battery voltage and charge amps..
 digital 3 digit blue, display all 5 bar-graph readings.
 ammeter shunts 2 integral Hall effect shunts
 emergency link start ... includes button to engage link start timed period.

system protection .. 4 internal PTC fuses, auto re-set

standard pre-fitted options

contactor drop-out with engine starter motor operation to protect solar panel and secondary charge systems from high current.
 bow contactor drop out with bow thruster use forces bow thruster to use local battery, avoiding charge system overload.
 emergency link start allows engine to be started from service battery bank, timed engagement, remote switch.
 fresh water gauge display can be supplied to read fresh water tank level on ammeter bar-graph, includes sensor.

split charge contactors

The system employs heavy duty contactors, these carry far higher loads than typical VSR relays, making them ideal for emergency engine starting. They also feature a high fault current rupture rating (300 amp to UL508), allowing the disconnection of high current loads at low voltage. The contacts are sealed to IP66, making them suitable for operation in a marine environment, protecting contacts from corrosion and avoiding flash from open contactor units.

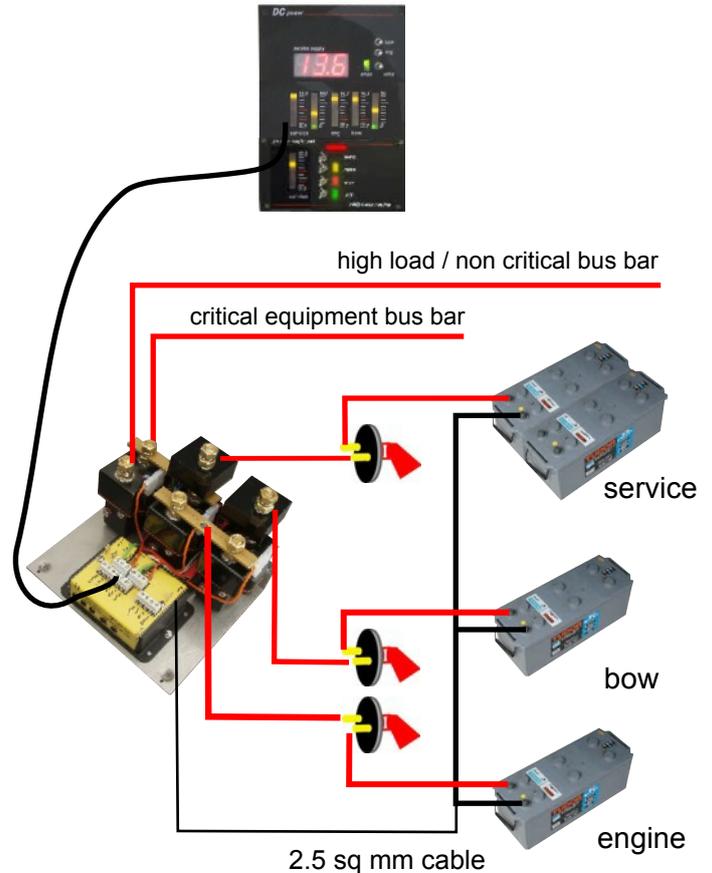
emergency link start allows the engine to be started from the service bank for timed period, if the engine battery has a low capacity.

operating voltage units are normally set to standard switching voltages, we are happy to set modules to customer requirements, or they can be adjusted on site. Alternate voltages can be supplied to order, please contact technical section.

Operation the engine charges it's battery till a set voltage is reached, at this point the service contactor closes and alternator output charges the service until a second threshold voltage is achieved. The bow contactor now closes and the bow battery charged till it reaches a similar capacity to engine and service battery, at this point all batteries take a charge. When the engine stops, charge lost or a high load is applied causing a volt drop, the contactors will drop out isolating all the battery banks.

power lock-out contactor

The power lock-out system monitors service battery for a low voltage, this represents around 50% battery capacity, at this point the contactor will open. This isolates high load and non critical circuits to minimise battery drain until re-charge is possible, providing a power reserve for critical circuits and extending battery life by minimising deep discharge.



size / weight

contactor 175 x 140 x 135 mm / 1.9 Kgs
 display 160 x 110 x 50 mm / 150 gms

bar-graph display allows real time charge monitoring of both volts and amps for all batteries, plus it provides a battery level guide to both battery banks. By employing LED bar-graphs all voltages and amperages can be viewed with out the need for selector switch, or waiting for a display to scroll through. Critical battery voltage levels have red LED's to give visual warning, even when not close to display. The ammeter bar-graphs have a bi-colour LED's that shows polarity of current, green for charge, red for discharge, again providing instant warning if a problem

digital display allows all bar-graph reading to be checked in detail, display has a default reading of service battery volts or net amps, the polarity light is on even if the volt reading is selected.

charging batteries the optimum recharge level for a system is when the voltage is at maximum and the current is low, easy to see as the bar-graphs are next to each other. At this point the batteries will not be taking any more significant charge, so motoring for longer is now only consuming fuel and money.

high volt alarm drives a audio alarm to indicate high charge voltage level, normally set at 15 volt, other values can be supplied factory set.

inter-connection the display only requires connecting a 8 way data cable four battery status and 4 way data cable for power lock-out. Connection is by matching colour to colour, no shunts to fit or cable modifications required to alternator.

options to order

remote bow shunt shunt monitors net charge and discharge for bow battery, it also picks up local battery positive voltage.

display read-out

service V	service A	bow A	engine V
12.90	120	60	14.30
12.75	90	45	13.65
12.50	60	30	13.20
12.45	40	20	12.90
12.30	30	15	12.65
12.15	20	10	12.50
12.00	14	7	12.40
11.85	10	5	12.30
11.70	8	4	12.25
11.55	6	3	12.20



red LED

power lock-out control

The control forms part of the standard P4000 main display panel, and provides the following functions :-

audio alarm and a visible red bar is illuminated indicate that the power lock-out contactor has isolated power to non-critical equipment.

mute switch kills the audio and illuminates the small window by the switch as a reminder.

temp override will give 4 minute full power usage for emergency use, before power is cut again.

manual engage provides manual power lock-out at any point, maximising power reserve if required.

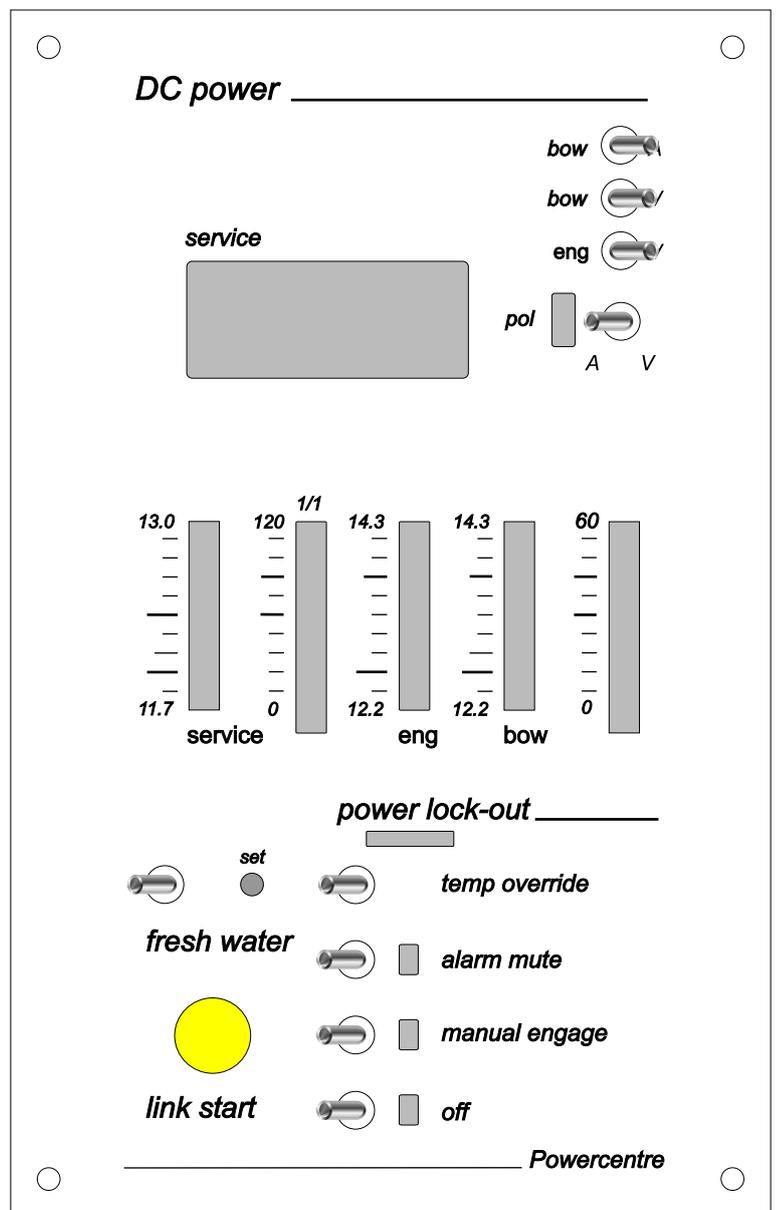
off over rides all functions and provides full power to all circuits, battery voltage has no effect.

emergency link start

Pressing the link button will link the engine to the service battery, to allow starting with low battery. The charge contactor is engaged for 2 minutes, after which it will drop out, or revert to VSR engagement.

fresh water tank gauge

The system allows for checking the fresh water tank level, this is displayed on the service ammeter bar-graph. The standard scale is log allowing a extended scale on lower tank levels, adjustment allows setting gauge to full (1/1).



display options

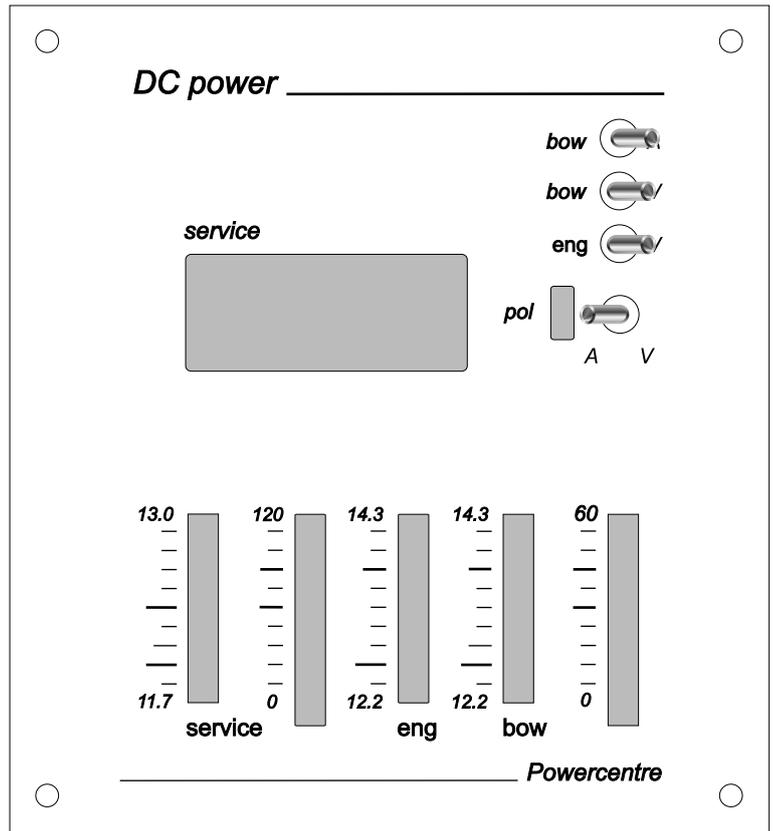
The bar-graph can be supplied to order with alternate display values to suit a particular charging system, see **alternate scaling** allowing the display to be matched to the intended use,

logarithmic scale provides a extended scale in the low half, allowing better low current monitoring of the completion of charge, or current drain during use. While the initial high charge current can be monitored on the upper high section.

linear scale, is used for monitoring charge current, or high discharge loads, the meter scale is uniform over the full meter range.

alternate display reading

log scale		linear scale	
60	240	100	200
45	175	90	180
30	125	80	160
20	80	70	140
15	60	60	120
10	40	50	100
7	28	40	80
5	20	30	60
4	16	20	40
3	12	10	20

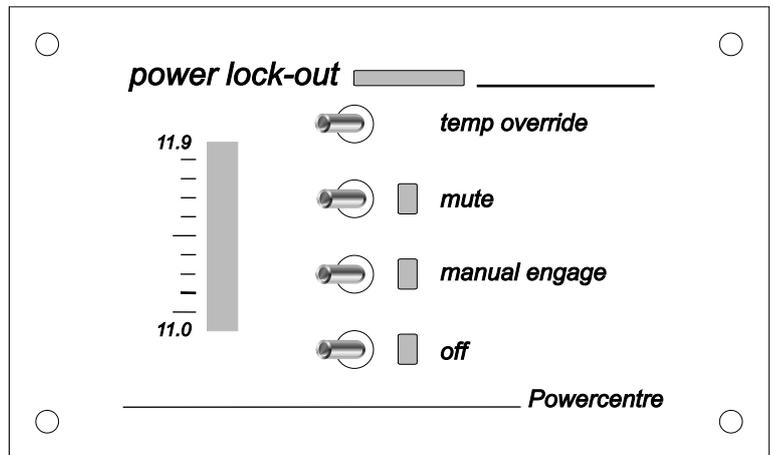


power lock-out options



separate control panel allowing remote monitoring.
up-rated contactor on a separate mounting plate.

- 250 amp continous
- 375 amp max rupture amps
- 375 amp intermittent (5 min)



VSR options

P4000 options

Single engine installations can be supplied with all VSR options in the P2000 range, 100, 200 and 350 amp, 12 to 48 volt, single or twin alternators. These are custom designed allowing choice of display and control panel layout.

P5000 options

Twin engine installations can be supplied with all VSR options in the P2000 range, 100, 200 and 350 amp, 12 to 48 volt, single or twin alternators. These are custom designed allowing choice of display and control panel layout.

