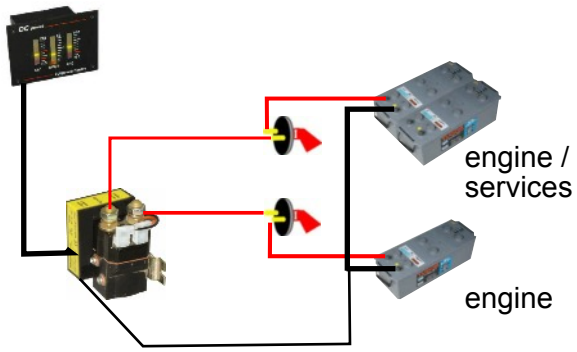
Powercentre

data sheet	P2331
issue date	12/09/13

data sheet twin engine two battery bank split charge system

12 volt …. P2331 part number …. 12331-300

24 volt …. P2341 part number …. 12341-300



contactor current 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 ..…… 13.8V / 27.6V
drop-out voltage …….. 13.0V / 26.0V

adjustment ……..... contactor engagement and drop ou

protection ……. waterproof to IP66

display

type ……..... 10 dot bar-graph x 3
engine ……. battery voltage
service …….. battery voltage and net amps, charge & discharge

Ammeter shunt …… 1 x Hall effect effect shunt fitted.

emergency link start … includes button to engage link start timed period.

system protection . . 3 internal PTC fuses, auto re-set

size / weight

contactor .. …… 70 x 60 x 100 mm / 500 gms

display …….. 100 x 60 x 50 mm / 80 gms

standard pre-fitted options

emergency link start ….. allows either engine to be started from either battery bank, timed engagement, remote switch on display.

split charge contactor

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 engages the contacts allowing the engine to be started from the service bank, if the engine battery has a low capacity.

operating voltage

Units are supplied normally set to standard voltages, we are happy to set modules to customer requirements, or they can be adjusted on site. Alternate can be supplied 12 or 24 volt operation to order, for other values please contact technical section.

operation

the system allows the engine that supplies no load, to link and supplement charging to the service battery. It is common with the high demands for electric power on modern motorboats, for the alternator never to reach regulation voltage. This results in the service battery never being fully charged, by linking both alternators to the service bank a higher voltage, thus charge level achieved. A secondary feature is that if either alternator fails, the remaining one will charge both battery banks.

options to order

contact rating …….. 100 and 350 amp
coil voltages …… 12 volt Dc to 48 volt DC
fresh water gauge …….. display can be supplied to read fresh water tank level on ammeter bar-graph, includes sensor.
display options …… digital readout in addition to the standard bar-graph, amps & volts selectable plus engine volts.

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bar-graph

The 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

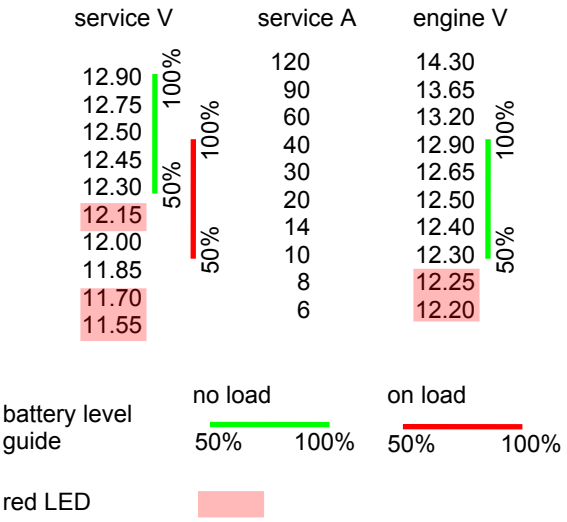
When charging batteries, the optimum recharge level for a system is when the voltage is at maximum and the current is low, easy to see as the bar-graphs are next to each other. At this point the batteries will not be taking any more significant charge, so motoring for longer is now only consuming fuel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

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

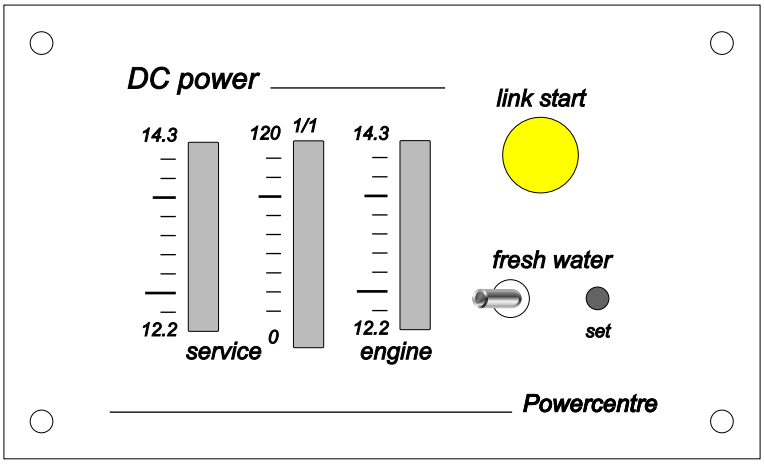
The display can be supplied to display the fresh water tank level on the ammeter bar-graph, it only requires the sensor head to be fitted to water tank. The system has the provision to set gauge reading to match the fresh water tank level.

The display only requires connecting a 6 way data cable matching colour to colour, no shunts or cable modifications required.

display read-out



standard display unit ***full size 100 mm x 60 mm x 50 mm deep***



display options

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

logarithmic scale provides a extended scale in the low half, allowing 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 section.

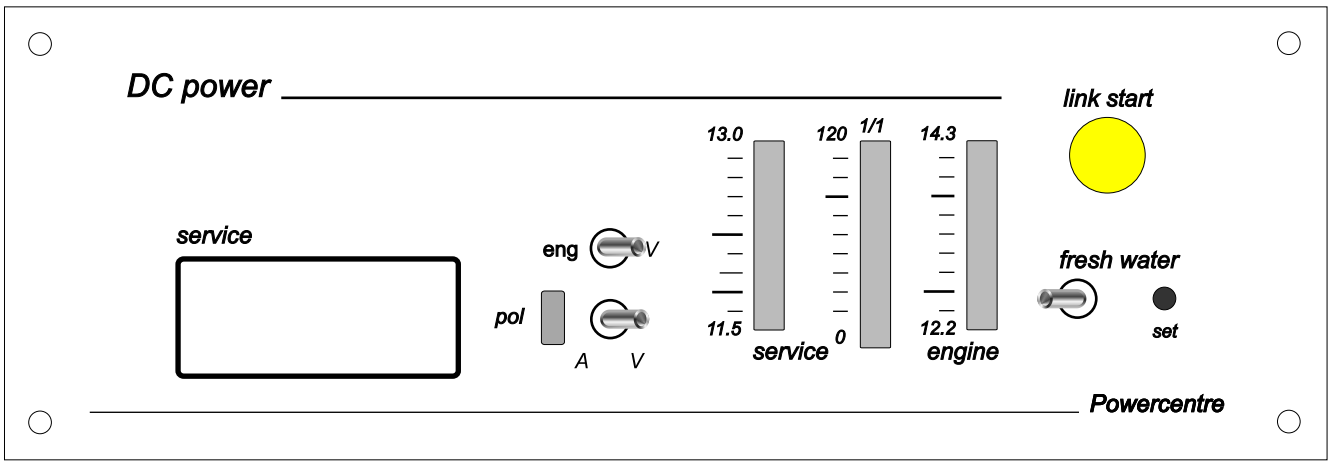
linear scale, is used for monitoring charge current, or high discharge loads, the meter scale is uniform over the full meter range.

For non standard options please contact technical section.

alternate display scaling

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

digital / bar-graph display ***full size 175 mm 60 mm x 50 deep***



Powercentre

data sheet	P2431
issue date	12/09/13

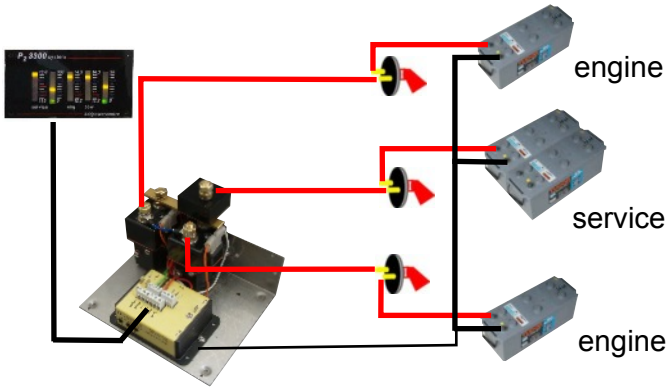
data sheet twin engine three battery bank split charge system

12 volt …. P2431 part number …. 12431-400

24 volt …. P2441 part number …. 12441-400

contactor current 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 ..…… 13.8V / 27.6V
drop-out voltage …….. 13.0V / 26.0V

adjustment ……..... relay engagement and drop out

protection ……. waterproof to IP66

display

type ……..... 10 dot bar-graph x 4

engine ……. battery voltage 2
service …….. battery voltage and net amps, charge & discharge

ammeter shunt …… 1 integral hall effect shunt

emergency link start … includes button to engage link start timed period.

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

size / weight

contactor .. ……175 x 150 x 135 mm / 1.5 Kgs

display …….. 100 x 60 x 50 mm / 80 gms

standard pre-fitted options

contact drop-out with engine starter motor operation …. to protect solar panel and secondary charge systems from high current.

emergency link start ….. allows engine to be started from service battery bank, timed engagement, remote switch on display.

split charge contactor

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 engages the contacts allowing the engine to be started from the service bank, if the engine battery has a low capacity.

operating voltage

Units are supplied normally set to standard voltages, we are happy to set modules to customer requirements, or they can be adjusted on site. Alternate can be supplied 12 or 24 volt operation to order, for other values please contact technical section.

operation

The system allows both engines to charge separate engine start batteries, when a set voltage is reached the contactors are closed and the service battery charged by both alternators, contactors drop out at a set low voltage. If the boat is fitted with an inverter it can be monitored for operation, dropping out the contactors to prevent damage to the charging system due to high load being drawn from the engine battery due to low service battery. If one alternator fails, the remaining one will charge all battery banks via charge contactors

options to order

contact rating …….. 100 and 350 amp
coil rating …….. 12 volt DC to 48 volt DC

fresh water gauge …….. display can be supplied to read fresh water tank level on ammeter bar-graph, includes sensor.

remote current sensor .. sensor protects the charge system from high loads i.e. inverter use with low battery level.

display options …… digital readout in addition to the standard bar-graph, amps & volts selectable plus engine volts.

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bar-graph

The 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

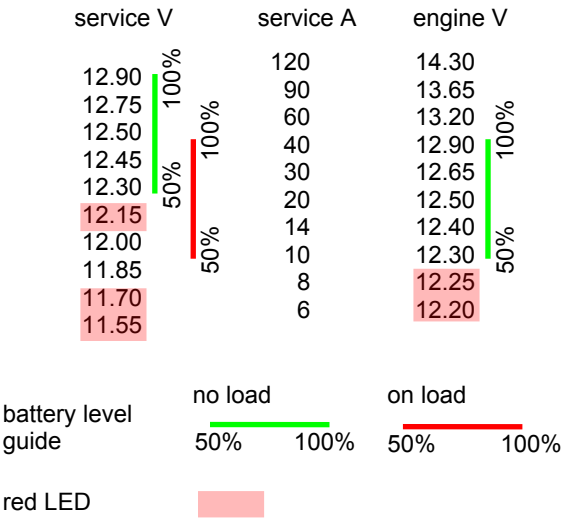
When charging batteries, the optimum recharge level for a system is when the voltage is at maximum and the current is low, easy to see as the bar-graphs are next to each other. At this point the batteries will not be taking any more significant charge, so motoring for longer is now only consuming fuel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

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

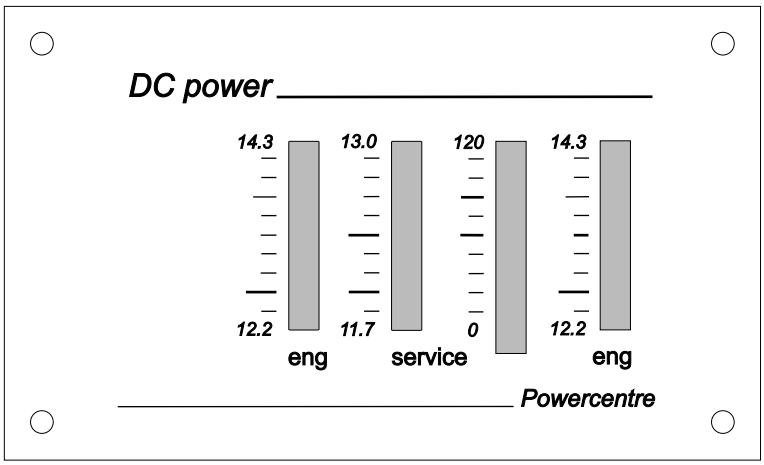
The display can be supplied to display the fresh water tank level on the ammeter bar-graph, it only requires the sensor head to be fitted to water tank. The system has the provision to set gauge reading to match the fresh water tank level.

The display only requires connecting a 6 way data cable matching colour to colour, no shunts or cable modifications required.

display read-out



standard display unit ***full size 100 mm x 60 mm x 50 mm deep***



display options

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

logarithmic scale provides a extended scale in the low half, allowing 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.

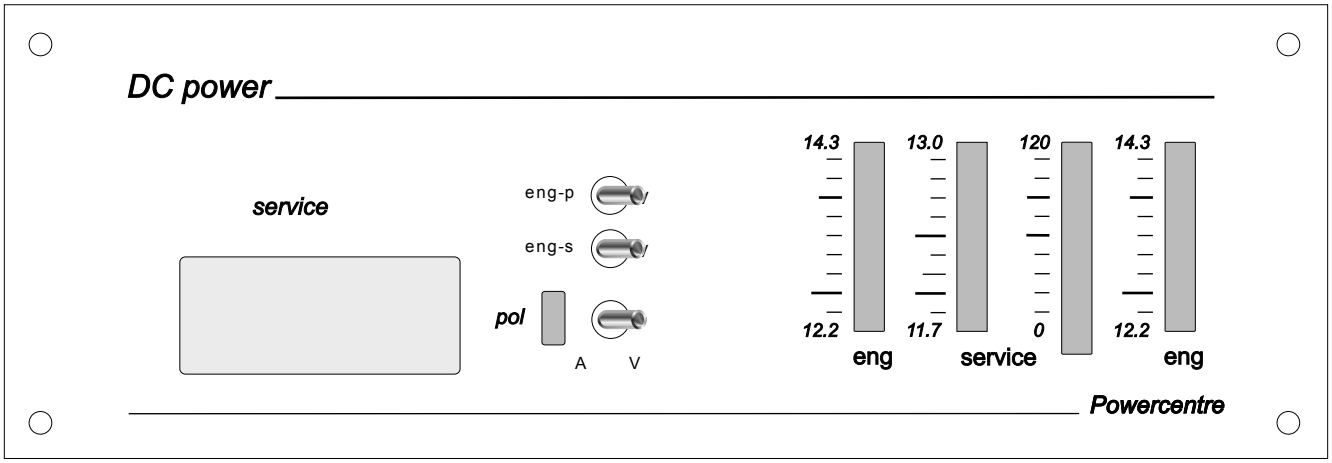
linear scale, is used for monitoring charge current, or high discharge loads, the meter scale is uniform over the full meter range.

For non standard options please contact technical section.

alternate display scaling

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

Digital / bar-graph display ***full size 175 mm 60 mm x 50 deep***



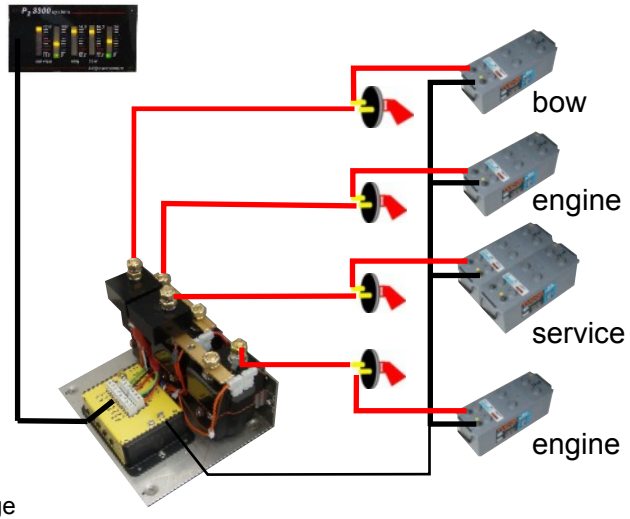
Powercentre

data sheet	P2531
issue date	12/09/13

data sheet twin engine four battery bank split charge system

12 volt …. P2531 part number …. 12531-600

24 volt …. P2541 part number …. 12541-600



contactor current 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 ..…… 13.8V / 27.6V
drop-out voltage …….. 13.0V / 26.0V

adjustment ……..... contactor engagement and drop ou

protection ……. waterproof to IP66

display

type ……..... 10 dot bar-graph x 6

engine ……. battery voltage
service …….. battery voltage and net amps, charge & discharge
bow …… battery voltage and charge amps

ammeter shunt …… 2 integral Hall effect shunts

emergency link start … includes button to engage link start timed period.

system protection . . 5 internal PTC fuses, auto re-set

size / weight

contactor .. ……175 x 150 x 135 mm / 500 gms

display …….. 175 x 60 x 50 mm / 80 gms

standard pre-fitted options

contactor drop-out with engine starter motor operation …. to protect solar panel and secondary charge systems from high current.

contactor drop-out with bow thruster operation ……. forces bow thruster to use local battery, avoids charge system overload.

emergency link start ….. allows engine with low battery to start from good engine battery, maintains clean service power supply, .

split charge contactor

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 engages the contacts allowing the engine to be started from the service bank, if the engine battery has a low capacity.

operating voltage

Units are supplied normally set to standard voltages, we are happy to set modules to customer requirements, or they can be adjusted on site. Alternate can be supplied 12 or 24 volt operation to order, for other values please contact technical section.

operation

The system allows both engines to charge separate engine start batteries, when a set voltage is reached the contactors are closed and the service battery charged by both alternators, contactors drop out at a set low voltage. Both bow thruster and inverter can be monitored for operation, dropping out the contactors to prevent damage to the charging system due to high load being drawn from the engine battery due to low service or bow battery. If one alternator fails, the remaining one will charge all battery banks

options to order

contact rating …….. 100 and 350 amp
coil voltages ……..12 volt DC to 48 volt DC

fresh water gauge x 2 ... display can be supplied to read 2 x fresh water tank levels on ammeter bar-graphs, includes sensors.

remote current sensor .. sensor protects the charge system from high loads i.e. inverter use with low service battery levels.

remote current shunt …. monitors charge and load on bow thruster battery, plus local battery positive voltage.

display options …… digital readout in addition to the standard bar-graph, amps & volts selectable.

link start …….. option for internal or external emergency link start contactor,

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bar-graph

The 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

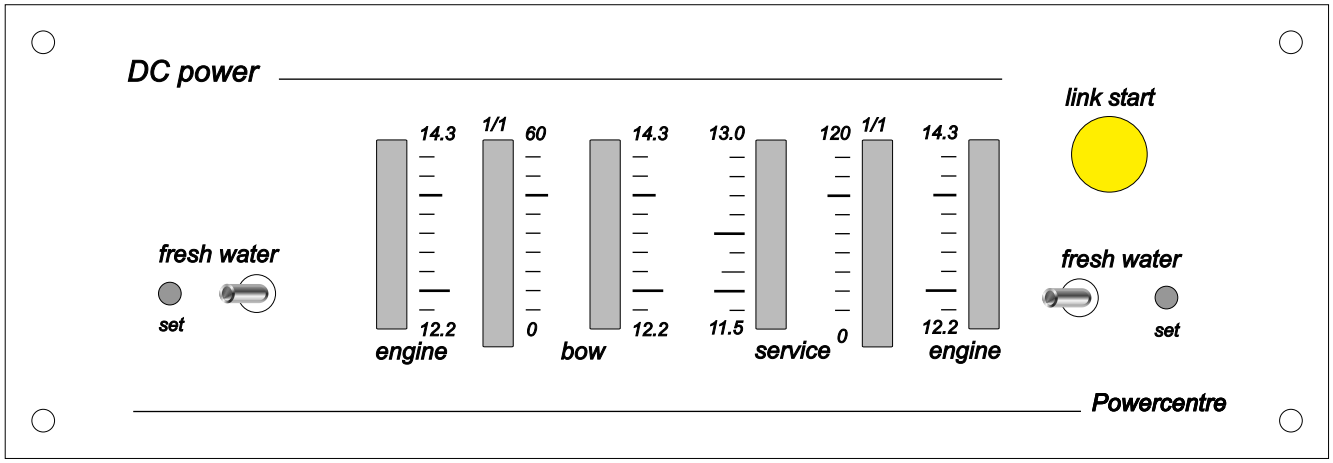
When charging batteries, the optimum recharge level for a system is when the voltage is at maximum and the current is low, easy to see as the bar-graphs are next to each other. At this point the batteries will not be taking any more significant charge, so motoring for longer is now only consuming fuel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

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

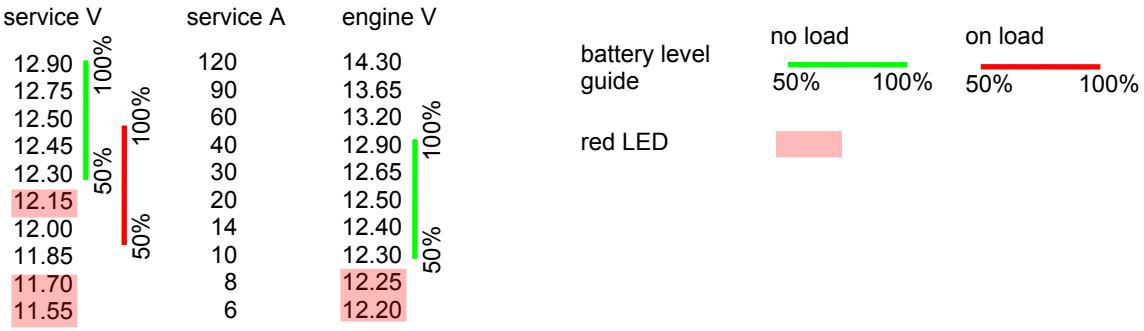
The display can be supplied to display the fresh water tank level on the ammeter bar-graph, it only requires the sensor head to be fitted to water tank. The system has the provision to set gauge reading to match the fresh water tank level.

The display only requires connecting a 8 way data cable matching colour to colour, no shunts or cable modifications required.

standard display unit ***full size 175 mm x 60 mm x 50 mm deep***



display read-out



display options

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

logarithmic scale provides a extended scale in the low half, allowing 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..

For non standard options please contact technical section.

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

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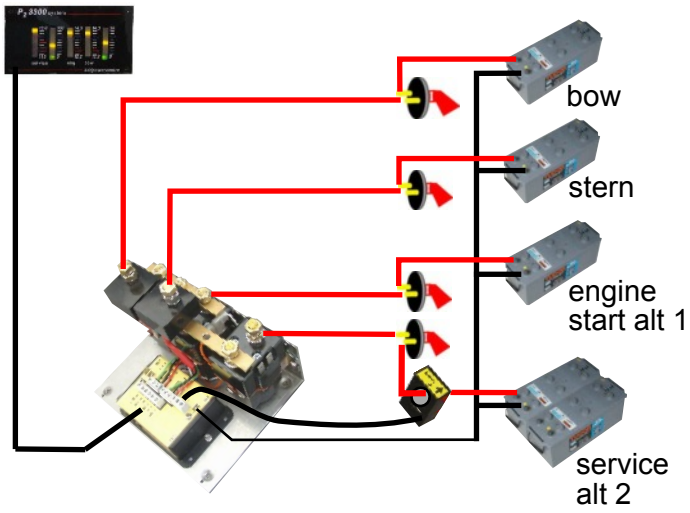
Powercentre

data sheet	P2831
issue date	12/09/13

data sheet twin engine, four bank, start, service, bow and stern

12 volt …. P2831 part number …. 12731-800

24 volt …. P2841 part number …. 12741-800



contactor current 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

display

type ……..... 10 dot bar-graph x 8

engine …… battery voltage
service …….. battery voltage and net amps, charge & discharge
bow …….. battery voltage and charge amps.
stern ……..... battery voltage and charge amps.

ammeter shunts …….. 3 integral Hall effect shunts

emergency link start … includes button to engage link start timed period.

system protection . . 5 internal PTC fuses, auto re-set

size / weight

contactor .. ……..... 175 x 140 x 135 mm / 1.9 Kgs

display ……..... 175 x 60 x 50 mm / 100 gms

standard pre-fitted options

bow contactor drop out with bow thruster use ……..... forces bow thruster to use local battery, avoiding charge system overload.

stern contactor drop out with stern thruster use …… forces stern 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.

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 engines are wired to allow both engines to start from a single battery bank, the alternators are split to allow the engine 1 (alt 1) to charge the starter battery bank and then connects the bow battery at 13.8 volt, then the stern battery at 13.9 volt, when this reaches a set voltage the third contactor closes to allow charge to the service battery. The engine 2 alternator is permanently connected to the service battery. The system allows for either alternator to charge all the battery banks, thus if one alternator fails, the remaining one will charge all battery banks. A suitable secondary charge source connected to the service battery bank can charge both engine start, bow and stern battery.

options to order

contact rating …….. 100 and 350 amp
coil voltage …….. 12 volt DC to 48 volt DC

fresh water gauge …….. display can be supplied to read fresh water tank level on ammeter bar-graph, includes sensor.

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

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

display options …… custom display with digital readout in addition to bar-graph, amps & volts.

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bar-graph

The 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

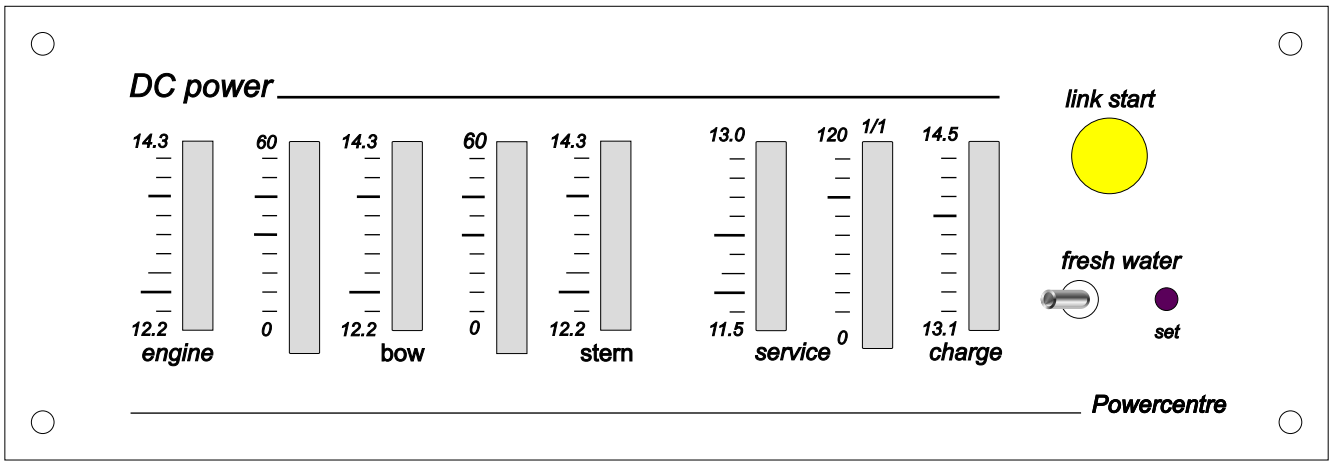
When charging batteries, the optimum recharge level for a system is when the voltage is at maximum and the current is low, easy to see as the bar-graphs are next to each other. At this point the batteries will not be taking any more significant charge, so motoring for longer is now only consuming fuel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

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

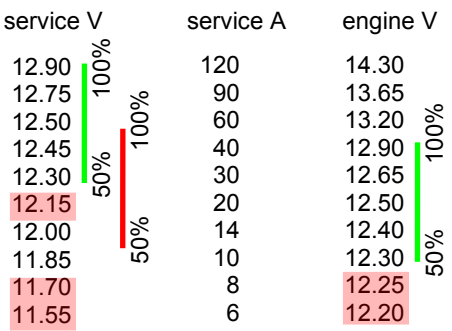
The display can be supplied to display the fresh water tank level on the ammeter bar-graph, it only requires the sensor head to be fitted to water tank. The system has the provision to set gauge reading to match the fresh water tank level.

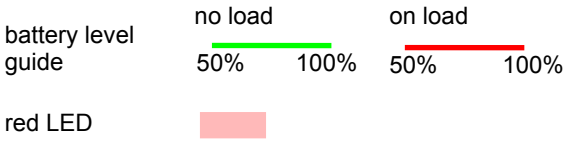
The display only requires connecting a 8 way data cable matching colour to colour, no shunts or cable modifications required.

standard display unit ***full size 175 mm x 60 mm x 50 mm deep***



display read-out





display options

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

logarithmic scale provides a extended scale in the low half, allowing 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.

digital readout for all functions can be supplied to supplement the bar-graph display, allowing detail examination of volts or amps.

For non standard options please contact technical section.

alternate display scaling

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

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Powercentre

data sheet	P2431_02
issue date	12/09/13

data sheet twin engine emergency link start systems

emergency link starting

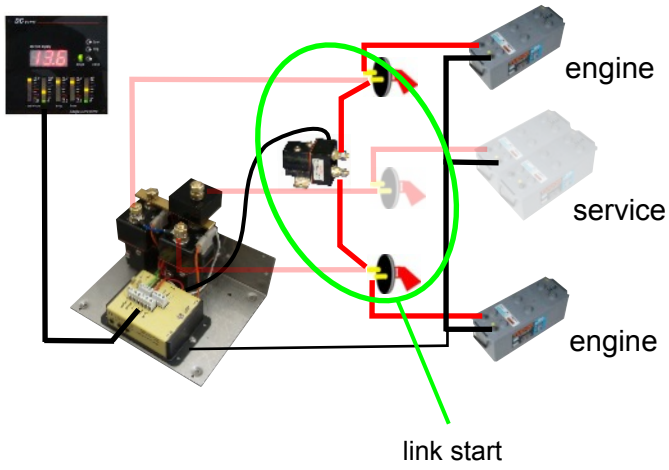
Emergency link start allows an engine with low battery capacity to link to another battery bank to improve or provide starting. The one problem using the service battery is low voltage from starter motor power draw, and the spikes generated by the starter motor. This can have serious problems with electronic equipment and system memory.
With twin engine installation that use two engine battery banks, by linking these for emergency starting a clean power supply is maintained for the service power supply.
Start the good engine, press the link button to close the link contactor for 2 minutes, allowing the engine with the low battery to start from the other battery bank. Coil power supply is optimised by drawing power from all battery banks available.
Normally a low battery would not be a problem as the bar-graph display would have provided advanced warning of a low engine battery, allowing the fault to be corrected.

Twin engine external link start

The external link start contactor is connected between the battery isolators, making the connecting cable length a minimum, reducing both cost and volt drop.

This system is also used were the charge cables to the split charge module are to small for the starter motor current.

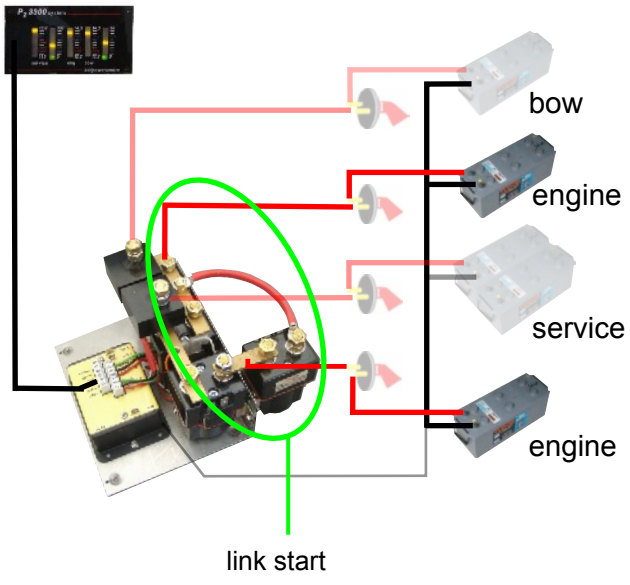
Control connection is a 2 core cable between contactor an split charge control module.



Twin engine, internal link start

The internal link start contactor is pre-wired between the input feeds from engine battery isolators. Control of the link contactor is also pre-wired, making this a very simple installation.

The critical point with this system is that all power cables are of a rating suitable for the starter motor load.



Kddpowercentre, TR11 5TT phone 01326 376938 web www.kddpowercentre.co.uk