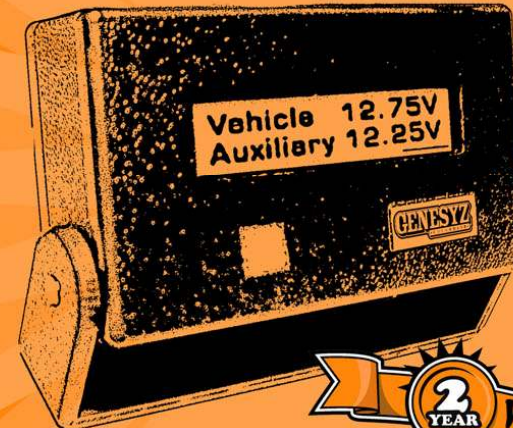


PERCHED HIGH ON THE BACKS OF THEIR TRUSTED STEEDS,
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TODAY ADVENTURING
INTO THE WIDE-OPEN SPACES OF THE GREAT OUTDOORS HAS BECOME
A RECREATIONAL ACTIVITY ALLOWING MAN TO ESCAPE FROM HIS
MUNDANE EXISTENCE INTO THE LIFE OF ADVENTURE. RIDING NOT
IN THE SADDLE OF A TRUSTED STEED BUT SEATED COMFORTABLY
IN THE SEAT OF HIS OFF-ROAD VEHICLE
MAN STEPS INTO THE GREAT OUTDOORS
LEAVING MODERN CONVENIENCES FAR BEHIND.
WELL, NOT ENTIRELY!



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GENESYZ
ROCK SOLID
Dual Battery
Management System
V20P
Owner's Manual



ADVENTURE
HAS ALWAYS PROVIDED MAN
WITH INSPIRATION FOR LIFE.
VENTURING
INTO THE GREAT OUTDOORS
PROVIDES ADVENTURES,
SECOND TO NONE.



Introduction to the Genesyz Dual Battery Management System

Adventure has always provided man with inspiration for life. Venturing into the great outdoors provides adventures, second to none.

Perched high on the backs of their trusted steeds, adventurers of old explored the great outdoors through necessity. Equipped with limited resources and lots of initiative, these adventurers lived off the land at the mercy of the elements. Today adventuring into the wide-open spaces of the great outdoors has become a recreational activity allowing man to escape from his mundane existence into the life of adventure. Riding not in the saddle of a trusted steed but seated comfortably in the seat of his off-road vehicle, man steps into the great outdoors leaving modern conveniences far behind. Well, not entirely!

Not able to live off the land, man reverts to more acceptable means of sustaining his existence - portable fridges.

Unable to adjust to the light of campfires, man reverts to his trusted friend, electricity, to light up his outdoor experience in the blanketing darkness of night.

Providing water for washing off the grime of the day, electricity again pumps water diligently into man's portable showerhead.

Unable to negotiate dangerous and difficult terrain successfully, man reverts once again to his friend electricity, to winch his vehicle to safety.

The evolution of man's adventures into an electrically sustained existence has introduced the need for a reliable source of continuous electric current. Lights, fridges, pumps and winches quickly exhaust man's only supply of electricity during these adventures - his vehicle's battery. Like a horse without legs a vehicle without a charged battery is useless, leaving its owner stranded in the wild. To overcome this problem it has become common practice to install a second battery into the vehicle to supply his need for electrical energy. Along with the second battery comes a need to charge it efficiently with the necessary electrical current without damaging or depleting his vehicle's existing battery and electrical system.

The **Genesyz Dual Battery Management System (DBMS)** was developed to provide this peace of mind as man ventures into unknown territory.

The Genesyz DBMS can be fitted to any vehicle and will ensure that a second or auxiliary battery fitted to the vehicle will receive an optimum electrical charge without damaging or depleting the vehicle's main battery. Using the vehicle's existing electrical charge system, the Genesyz DBMS will ensure enough charge is distributed to the auxiliary battery, allowing for enough power to sustain, within reason, man's need for electricity while on his expeditions into the wild.

Incorporating advanced features such as REAL time voltage tracking and ActiveT current monitoring, the Genesyz DBMS ensures that the vehicle's main and auxiliary batteries are charged optimally. REALtime voltage tracking is a feature, unique to the Genesyz DBMS. With this feature the Genesyz DBMS is able to take a 'snap-shot' of the voltage on the vehicle's main and auxiliary battery several thousand times every second. Applying advanced filtering techniques, the REALtime voltage monitoring capability of the Genesyz DBMS continuously constructs a clear picture of the condition of both the main and auxiliary battery while the system is operational. Once the Genesyz DBMS has developed a clear 'picture' of the condition of both batteries, the ActiveT current monitoring feature is launched. The ActiveT current monitoring feature establishes a safe charge pattern for efficiently charging the auxiliary battery while keeping the vehicle's main battery sufficiently charged.

The Genesyz DBMS is unique in its approach to battery management. Complementing its advanced charging capability, several additional features further enhance the system.



Features such as:

- 1 In-Cab Liquid Crystal Display
- 2 Single Button Operation
- 3 Start Assist Capability
- 4 Winch Assist Capability
- 5 Back Light System
- 6 Low Voltage Auxiliary Cut-Off System
- 7 Easy to Install Wiring Harness
- 8 Faulty Solenoid Warning

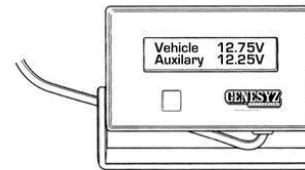
How to use the Genesyz Dual Battery Management System

The Genesyz is designed to function without the intervention of the operator, however additional features that are built into the system require input from the operator. The Genesyz Dual Battery Management System includes seven (7) different operating modes:

1. Standby mode.
2. Start assist mode.
3. System check mode.
4. Dual Charge mode.
5. Winch Assist mode.
6. Auxiliary battery low mode.
7. Auxiliary battery not connected mode.

Depressing the square button on the bottom left of the display activates the Back Light. Only two modes require user intervention i.e. Mode (2) Start assist, Mode (5) Winch assist

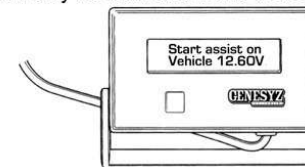
1. Stand By Mode.



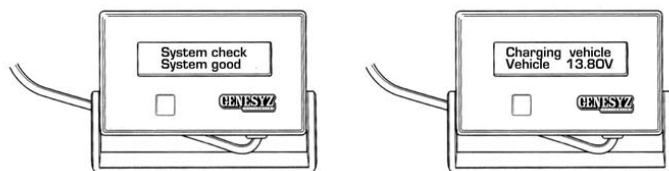
In Stand By Mode the voltage on both batteries is displayed on the Genesyz In Cab Display. No charging takes place.

2. Start Assist Mode

Holding the control button in for three seconds activates the start assist mode. This mode is used to assist the main battery in starting the engine. The mode is automatically disengaged after ± 45 seconds. The main and auxiliary batteries are placed in parallel for this operation. Start assist mode can only be activated while the Genesyz is in standby mode.

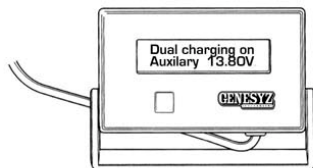


3. System Check Mode.



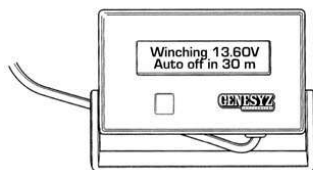
The system check mode is entered into each time the vehicle is started and the alternator of the vehicle is generating enough power to charge the main battery. After the system check the main battery is charged for a short period (2 minutes) to ensure the cranking current is replaced in the battery before the system attempts to charge the auxiliary battery. At this time the system also checks whether an auxiliary battery is present in the charging circuit. If no battery is detected or if the voltage on the auxiliary battery is below 8 volts the system will not attempt to charge the auxiliary battery.

4. Dual Charge Mode



During the dual charge mode the parallel voltage of the main and auxiliary is displayed. In this mode both the main and the auxiliary battery is charged equally. The dual charge mode is activated.

5. Winch Assist Mode



To enter winch assist mode, hold the control button in for three seconds (3 Sec). **Please Note: (Winch assist mode can only be entered into while the system is in dual charge mode)**

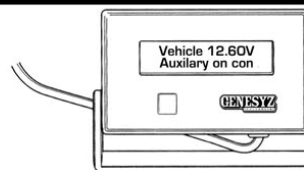
In Winch Assist mode the Genesyz Battery Management system keeps the main and auxiliary battery in parallel regardless of the current draw (a controlled fault on the charging system). Winch assist mode will automatically disengage after 30 minutes and go into system check mode to ensure the correct charge is delivered to the main battery and the auxiliary battery. To disengage the winch assist mode during the window period of 30 minutes, hold the control button in for 3 seconds.

6. Auxiliary Battery low cut off Mode (For this mode the system must be wired for low voltage cut off. Consult your installer).



As current is drained from the auxiliary battery by the various accessories coupled to it, the voltage across the battery drops. The Genesyz will start to warn the user that the auxiliary battery is low when its voltage reaches 11.7 volts, **Aux low** is displayed on the In Cab display. The warning will continually be displayed unless the battery is charged. If the auxiliary battery is drained to 11.5 volts the Genesyz will switch the accessories off and display **Start vehicle**. The accessories will only be switched back on once the auxiliary battery is charged by the charging system.

7. Auxiliary Battery not connected.



In this mode the main battery voltage is displayed on the top line with the words **Aux not con** on the second line. In this mode the Genesyz performs no special functions with the exception of displaying the charge voltage on the main battery.

Installing the Genesyz System

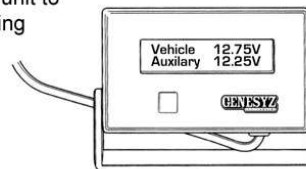
The installation procedure is comprised of five sections: (Refer to diagram on page 5 and 6)

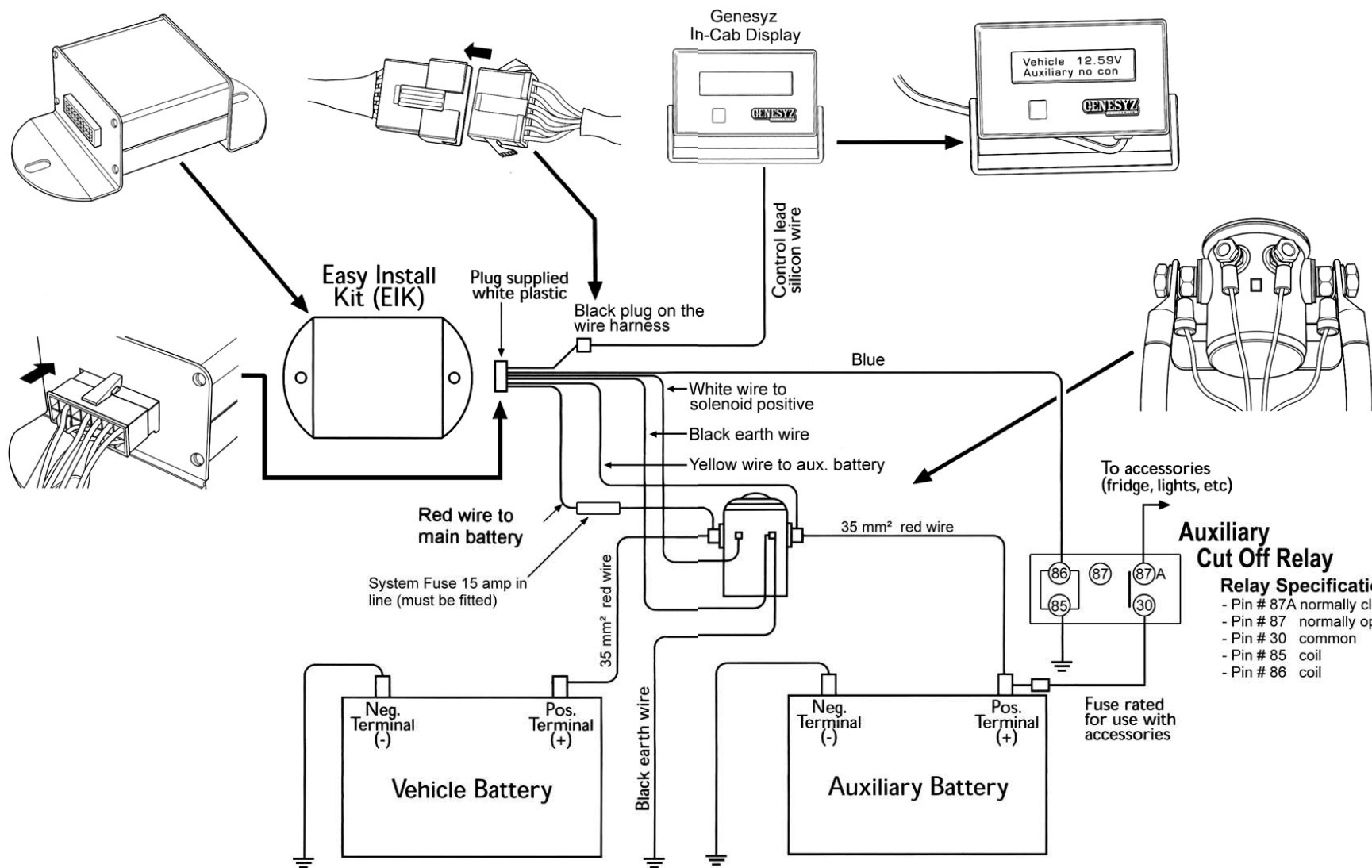
1. Fitting the In-Cab Digital Display Unit (DDU)
2. Fitting the Easy Install Kit. (EIK)
3. Wiring Genesyz to the Solenoid.
4. Mounting the Deep Cycle Auxiliary Battery
5. Wiring the Auxiliary Cut-Off Relay

Warning: Before installing the system disconnect the vehicle main battery

1. Fitting the In-Cab Display Unit (DDU)

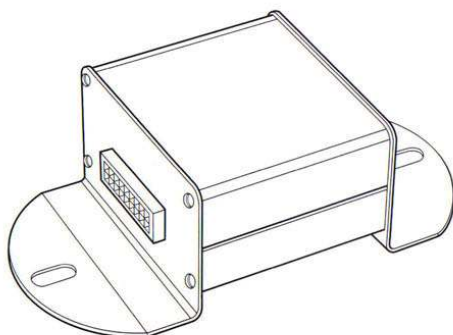
- Identify a suitable place within the CAB to mount the display unit.
- The display module should be within comfortable view and reach of the driver.
- The unit should not interfere with the normal function of any of the vehicle controls.
- Use either two self-tapping screws or double sided self adhesive tape to mount the display
- Route the control cable from the Genesyz display unit to Easy Install Kit (EIK). Make use of the existing wiring looms where possible to secure and hide the wire.



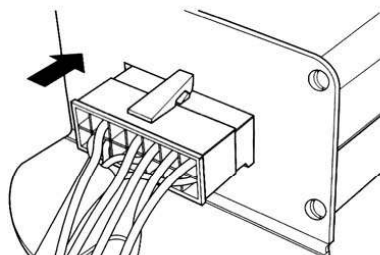


Basic Wiring Diagram

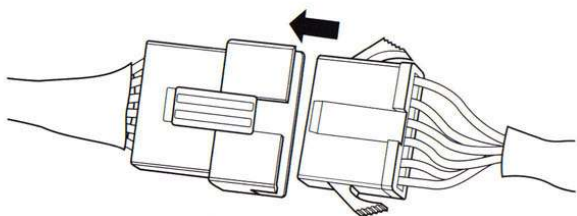
2. Mounting the Easy Install Kit (EIK)



- Identify a suitable position inside the cab under the dash where the EIK is easy to access and where it is not visible.



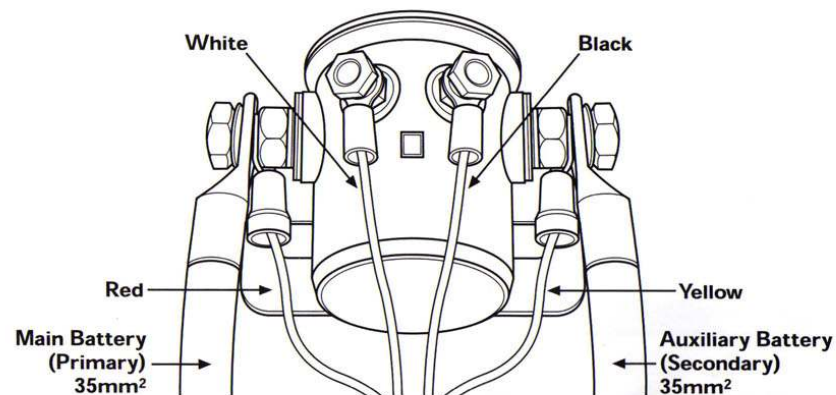
- Plug the supplied installation harness into the EIK.
- Route the wire from the display and plug it into the easy install kit.



- Route the bundle of coloured wires from the EIK through the firewall into the engine bay.

Note that all wire should be wrapped in electrical wire protection sleeving and correctly routed to avoid contact to hot surfaces and moving parts.

3. Wiring Genesyz to the solenoid.



- The solenoid (supplied) should be mounted in the engine bay as close to the main battery as possible.
- Ensure that the solenoid does not interfere with the normal vehicle operation and access to the vehicle's other engine bay components is not restricted.
- Use 35mm² multi-strand automotive wire (not supplied) to connect the main battery positive terminal to the one end of the solenoid (8mm diameter connection).
- Use the same thickness of wire and connect the auxiliary battery to the other end of the solenoid. (Note that all wiring can be done around the solenoid).
- Use a black wire to earth the solenoid actuator to the vehicle earth (battery negative terminal is best).
- Connect the white wire from the EIK supplied electrical harness to the open solenoid actuator.
- Connect the yellow wire from the EIK supplied electrical harness to the positive terminal of the auxiliary battery.
- Connect a black earth wire from the solenoid to the negative terminal of the vehicle battery or alternatively to a good earth connection.
- Connect a black earth wire from the EIK supplied electrical harness to the negative terminal of the vehicle battery or alternatively to a good earth connection.
- Connect the red wire to the positive terminal of the main battery on the solenoid.

4. Mounting the deep cycle auxiliary battery

- The mechanical procedures to mount the auxiliary battery are beyond the scope of this installation manual. The following rules should however be adhered to:
- Identify a suitable position to mount the deep cycle auxiliary battery. This could be in the engine bay or inside the load bay, or under the seat as in the case of the Land Rover Defender.
- The battery must be securely mounted.
- The positive terminal of the auxiliary battery when mounted should be at a sufficient distance away from the vehicle body to prevent short circuit.
- Connect the negative terminal of the auxiliary battery to the vehicle chassis or earth node. Ensure that the correct cable thickness is used. A good ground connection is of utmost importance.

5. Wiring the auxiliary cut off relay.

The auxiliary cut off relay is wired inline with the fuse from the auxiliary battery. The fuse is connected to the common (COM) contact of the relay. The wire from the relay is connected to the normally closed (NC) contact of the 5 pin relay. This wire then goes to the accessories for which 12V DC is required.

The installation is as follows:

- Mount auxiliary cut off relay (5 pin with normally close contactors) near the auxiliary battery.
- Connect the blue wire from the EIK to the relay actuator (pin no 86). Connect a black wire from pin no 85 to vehicle chassis or earth.
- Connect the 30 Amps fuse holder to the auxiliary battery positive terminal. Connect the other end of the fuse holder wire to terminal no 30 (common) of the auxiliary cut off relay
- Connect the accessories wire to the relay terminal 87A (normally closed).

6. Technical specifications.

Operating voltage 7 - 15 Volts DC
Operating current 22mA average
Temperature range (Operating) -5 to +75°C
Temperature range (Storage) -20 to +85°C
Physical length (Display Unit) 130 mm
Physical width (Display Unit) 82 mm
Physical height (Display Unit) 43 mm
Max. operating current 100 mA

Voltage display range 5 - 15,25V
Display resolution 10 mV
Display accuracy ± 5 mV
Solenoid max. switch current 80 Amp

**All specifications are
subject to change
without notice**

Warranty

WARRANTY

Petra Technologies CC warrants that the Genesyz V20P is manufactured with due care and workmanship and using the best materials commercially available to it.

The Genesyz V20P is guaranteed against faulty workmanship for a period of two years from date of purchase. Petra Technologies CC shall replace all faulty parts and repair any malfunction in the Genesyz V20P arising from faulty workmanship.

This warranty shall be void if the Genesyz V20P has been opened up or tampered with in any way by any party other than Petra Technologies CC or if the Genesyz V20P is used in any manner not strictly in accordance with the operating instructions as issued by Petra Technologies CC or if the parts have been damaged due to any fault of any other person than Petra Technologies CC.

Petra Technologies CC and its agents and employees shall not be responsible in any way whatsoever for any damage or loss caused as a result (however arising) from the use of the Genesyz V20P, except for gross negligence on the part of Petra Technologies CC, except as provided for herein. All use of the Genesyz V20P shall be at the user's own risk.

The purchase and use of the Genesyz V20P shall be governed by the standard terms and conditions which are available on request and which can be found at www.genesyz.co.za.

Packaging List:

- | | |
|-------------------------|--------------------------|
| 1. Display Unit | ☐ |
| 2. Easy Install Kit | ☐ |
| 3. 5 Pin 12V 35A Relay | ☐ |
| 4. Wiring Harness | ☐ |
| 5. DIY Kit | ☐ |
| 6. Cole Hersee solenoid | ☐ |

Product Serial #



Automotive electronics by:



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