

USER MANUAL

Linear 8 / 10 Amp 13.8 Volt Power Supply With Battery Management



Power Supply (Front)



Power Supply (Back)

The power supply is designed to supply 13.8 Volts nominal D.C. at 7.5 Amps nominal (09210FB /APN6153B) or 10 Amps nominal (09211FB) from a 230 Volts 50 Hertz mains source to power radio communication equipment with an RF power output of up to 25W. A battery charger circuit is included to allow the charging of a 12 Ah SLA or AGM battery only, along with a battery manager to disconnect the battery when the voltage falls below 10.5 Volts, to stop deep discharge. It uses a thermostatically controlled internal fan to assist cooling.

This supply is presented as a black powder coated laser cut metal case, and also incorporates Nut-Serts in the side of the device for the inclusion in an external housing. The supply incorporates a socket to power an external housing fan.

GENERAL SAFETY SUMMARY

To ensure safe operation of the power supply the following instructions must be followed:

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

Children should be supervised to ensure that they do not play with the appliance.

Use Only an Approved Power Lead

The IEC power lead supplied with the power supply is certified to meet Australian Standards. Using a different lead could create a shock or fire hazard.

Do Not Operate Without Covers

To avoid electric shock or fire hazard, do not operate this product with covers or panels removed.

Use Proper Fuse

To avoid fire hazard, use only the fuse type and rating specified for this product. Mains Fuse 4AT M205, Battery Fuse 10A Red Automotive Blade Fuse.

Do Not Operate in Wet/Damp Conditions

To avoid electric shock, do not operate this product in wet or damp conditions.

Do Not Operate in Explosive Atmosphere

To avoid injury or fire hazard, do not operate this product in an explosive atmosphere.

Disconnect The Supply Before Making or Breaking the Connections To The Battery

To avoid damage to the supply or external equipment make sure the supply is turned off and the battery is isolated before making or breaking any external connections to the Power Supply.

Provide Proper Ventilation

To prevent product overheating and switching off, provide proper ventilation.

Do Not Operate With Suspected Failures

If you suspect this product is defective, have it inspected by qualified service personnel.

Use Only Specified Battery Type

Use only SLA or AGM batteries with an initial charge current rating of at least 1.5 A.

Do Not Use Non-Rechargeable Batteries

Could result in fire or explosion.

Radio Power Lead Must Be Fused

Ensure the the radio's power lead is fitted with the radio manufacturer's recommended fuse.

SPECIFICATIONS

Overall Input Voltage and Current Ratings

Model Number	09210FB (APN6153B)	09211B
Input Voltage Range	215 – 265 V AC 50 Hz	
Input Current	1075 mA	
Mains Fuse	4 A AT (Slow Blow M205)	

Overall Output Voltage and Current Ratings

Model Number	09210FB (APN6153B)	09211B
Output Voltage	13.8 V DC	
Output Current	7.5 A Nominal 8 A Maximum	10 A Nominal
Duty Cycle	50 % 3 Minutes On, 3 Minutes Off @ 8 A Total Current	50 % 3 Minutes On, 3 Minutes Off @ 10 A Total Current
Output Voltage Drop	< 350 mV DC @ 7.5 A	< 350 mV DC @ 8.5 A
Ripple and Noise	< 7 mV RMS with no discernible 50 or 100 Hz Component	

Battery Charger Specifications

Model Number	09210FB (APN6153B)/ 09211B
Battery Type	Sealed Lead Acid or AGM Only
Maximum Voltage	13.8 V DC (Set by PSU)
Charging Current	Approx. 1.45 A @ 12 V * Note 1
Battery Fuse	10 A Red Automotive Type (ATC 18 mm)
Short Circuit Current	> 200 mA after 5 seconds

Protection

Model Number	09210FB (APN6153B)	09211B
Over Current Disconnect	> 9.6 A	> 10.5 A
Over Voltage Disconnect	> 16 V DC	
Under Voltage Lock Out (Battery Manager)	Approx. 10.5 V with 2V hysteresis	
Over Head Shutdown	Case Temperature exceeds 70° C	

Indicators

Model Number	09210FB (APN6153B)/ 09211B
AC On	Green LED Indicates that power switch is On and AC main is supplied
DC Ok	Green LED Indicates that DC Output is within Specs
Error	Red LED Indicates when the Battery has been installed with reverse Polarity

Mechanical

Dimensions	180 W x 180 D x 80 H mm (inc. Feet)
Weight	2.8 Kg (Approx.)

* Note 1: This current is subtracted from the total PSU Current. Battery Drypower 12SB12P-F2 is recommended.

FRONT VIEW



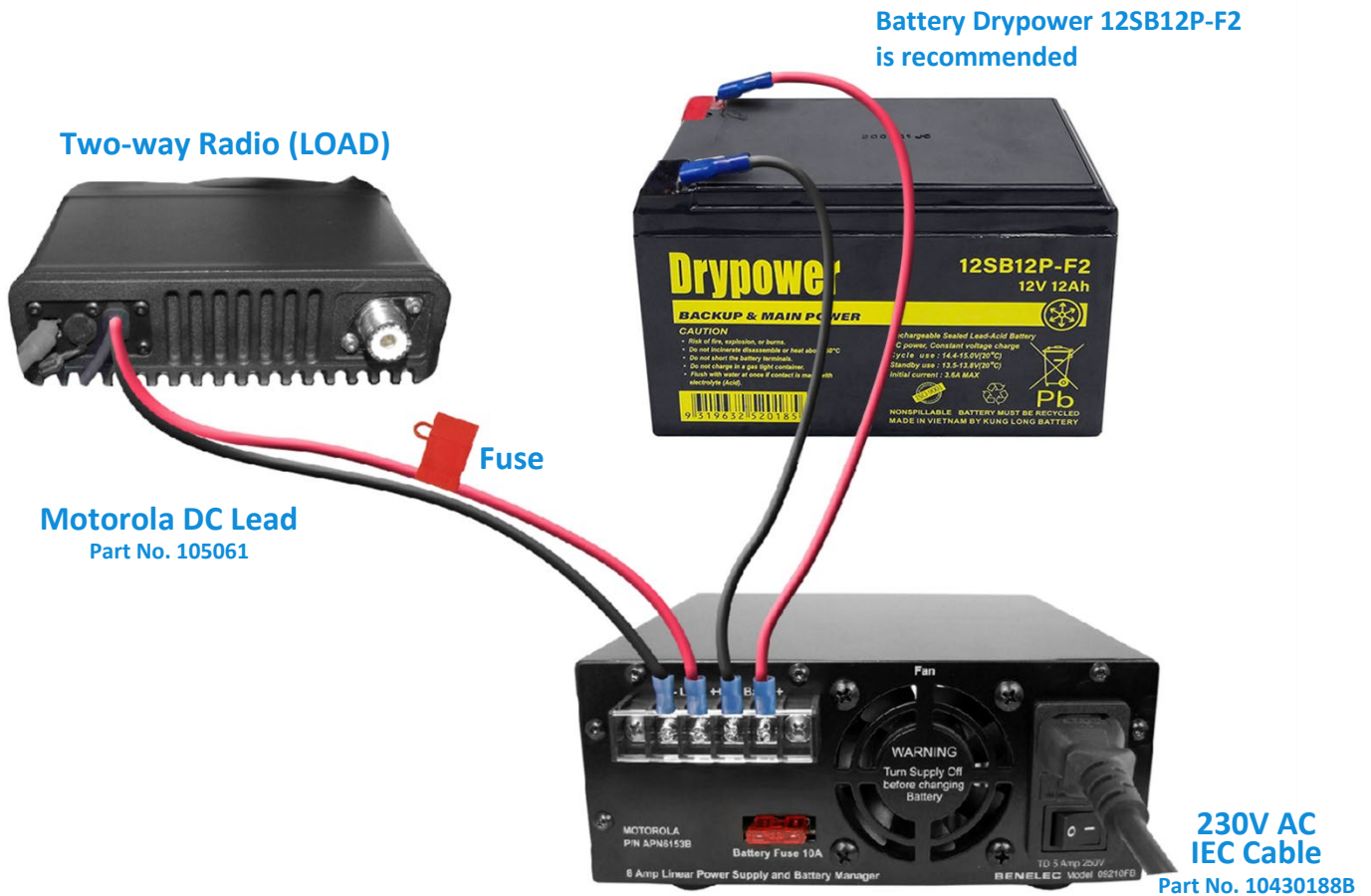
1. **AC ON** : Lights up when the AC Power is connected and turned on.
2. **ERROR** : Lights up red if the battery is connected with reverse polarity
3. **DC OK** : Lights up when the DC Output of the supply is within specifications

REAR VIEW



1. Load Terminals
2. Battery Terminals
3. Battery Fuse 10 A Blade (ATC 18 mm)
4. Internal Fan
5. AC Power Socket – IEC
6. Fuse 4A AT (Slow Blow M205)
7. Power Switch

CONNECTING THE POWER SUPPLY



INSTALLATION

- This supply should be installed by suitably qualified personal.
- The power supply should be located in a dry, well-ventilated indoor area.
- Connect the radio to the load terminal and the battery terminals on the rear of the power supply as per the diagram above. You must ensure that the radio manufacturer's recommended fuse is fitted between the power supply and the radio.

Note: The power supply must be off before any external connections are made or modified.

FAN CONNECTOR (WHERE FITTED)

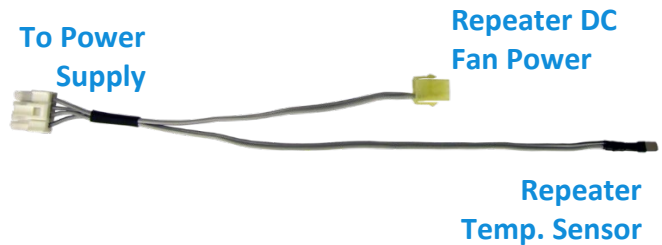
REAR VIEW



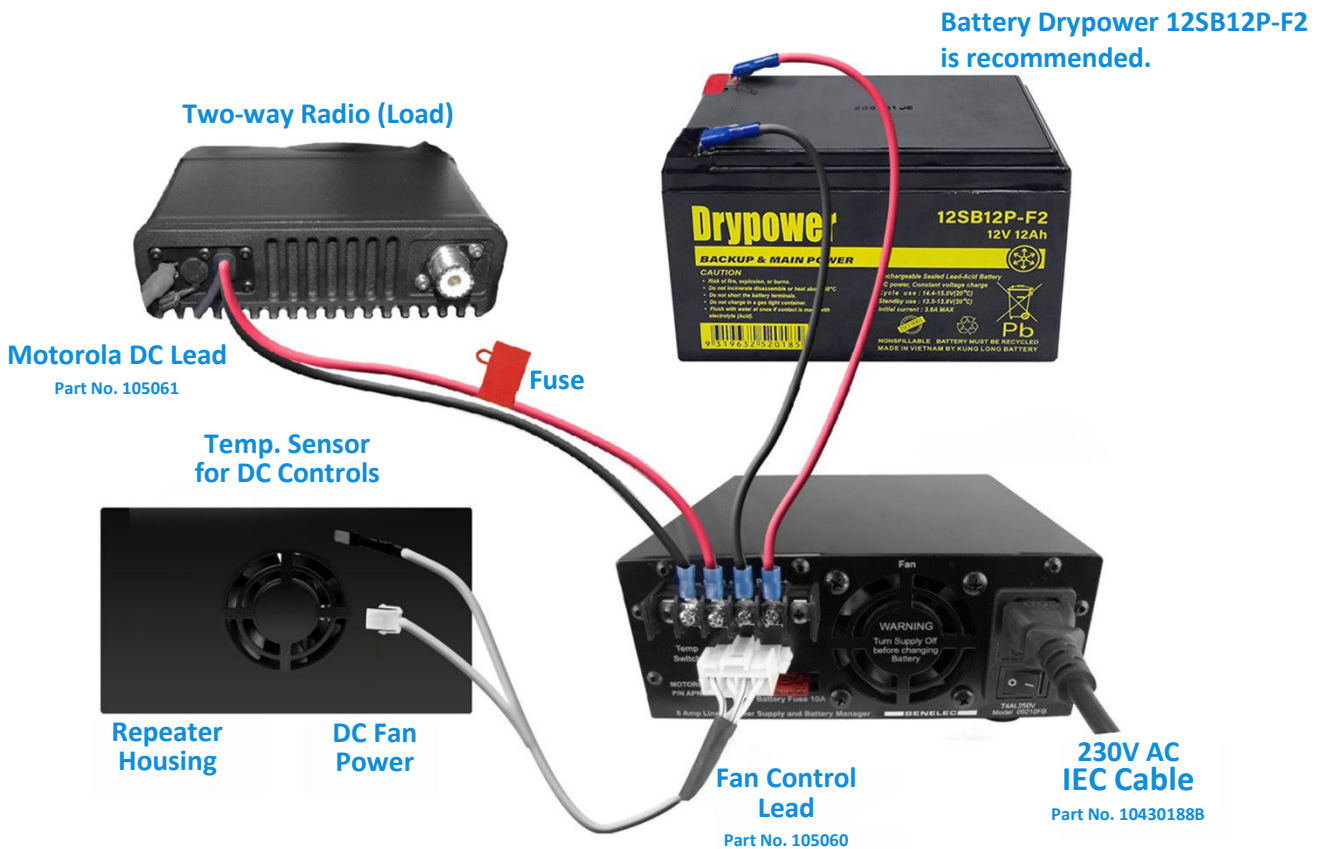
8. Temperature Switch Socket

FAN CONTROL LEAD (WHERE FITTED)

A fan control lead is supplied with the power supply this is designed specifically for the Motorola repeater housing. The maximum current rating of this lead is 1 A.



CONNECTING THE POWER SUPPLY (WHERE FAN CONNECTOR FITTED)



INSTALLATION (WHERE FAN CONNECTOR FITTED)

- This supply should be installed by suitably qualified personal.
- The power supply should be located in a dry, well-ventilated indoor area.
- Connect the radio to the load terminal and the battery terminals on the rear of the power supply as per the diagram above. You must ensure that the radio manufacturer's recommended fuse is fitted between the power supply and the radio. If the power supply is being used in conjunction with the Motorola repeater, you can use the supplied DC fan lead to connect the power supply to the repeater's fan input socket, and the temperature sensor is placed between the fins on the heat sink of the repeater where required.

Note: The power supply must be off before any external connections are made or modified

BACK UP BATTERY (OPTIONAL)

If required, an SLA or AGM backup battery can be fitted to the power supply to provide power when there is a mains failure. The power supply is designed only for SLA/AGM batteries and can supply 1.4A charging current at 12V.

A SLA or AGM battery up to 20 Ah in capacity may be used provided it is rated for at least 1.5 A initial charge current. Drypower 12SB12P-F2 is recommended.

The battery should be mounted as per the battery manufacturer's instructions as close to the power supply as practical but where there are long runs of cable between the battery and the power supply the installer should fit a 10 A fuse on the battery terminal to negate any fire risk should a short circuit occur due to cable damage between the battery and the Power Supplies battery terminals.

Note: The battery must be fitted while the power supply is turned off. Once the battery is fitted and before powering up the supply check the Error LED on the front panel - if it is lit up the battery is installed with its polarity reversed. Correct the battery polarity before turning the supply on.

CURRENT RATING

The power supply is rated at 8 A (09210FB /APN6153B) /10 A (09211B) at a 50% duty cycle 3 minutes on and 3 minutes off. This rating also includes any battery charging current and external fan where fitted.

If there is no backup battery or external fan fitted the full 8 A (09210FB /APN6153B) / 10 A (09211B) will be available to operate the transceiver. If the battery is fitted the maximum current available for the transceiver may be as low as 6.6A (09210FB s/APN6153B) / 8.6 A (09211B) while the battery is charging.

With the external fan running the current will be reduced by approx. 0.5 A.

PROTECTION

The power supply has several protection features.

1. Over Voltage protection that will disconnect the load if the power supply fails and more than 16V is applied to the load terminals.
2. Thermal shutdown if the power supplies bottom panel exceeds 65° C.
3. Over Current Protection that will disconnect the load if the output current exceeds 9.6 A (09210FB /APN6153B) / 10.5A (09211B) or the output terminals are shorted out.
4. Battery Fuse. This protects from short circuits when the power supply is shut down and the load is running off the battery. Maximum battery current 10A.

TROUBLESHOOTING

AC ON Does Not Light Up

- Check the power switch on the rear panel is on
- Check the power lead is connected to the rear of the power supply and the power point is turned on.
- Check the mains fuse and replace where necessary (4AT M205)

DC OK Does Not Light Up

- Check the power supply is turned on (is the AC OK light on?)
- Return to Benelec for repair.

ERROR Light is On

- The battery is connected with its polarity reversed the power supply must not be turned on until the battery is fitted correctly.

Power Supply Cuts Out Intermittently

- The power supply has overheated and switched off. Make sure that the power supply is located in a well-ventilated area and the fan and vents are not obstructed by dust or other objects.