NEW

SEPS
Sun Enenergy
Power System

SEPS-SCFF210

DMMS
SOLUTIONS (PTY) LTD
ELECTRONIC & ELECTRICAL SERVICES
WWW.DMMS.CO.ZA
RELEASING EVOLUTION

SEPS-SCFF210

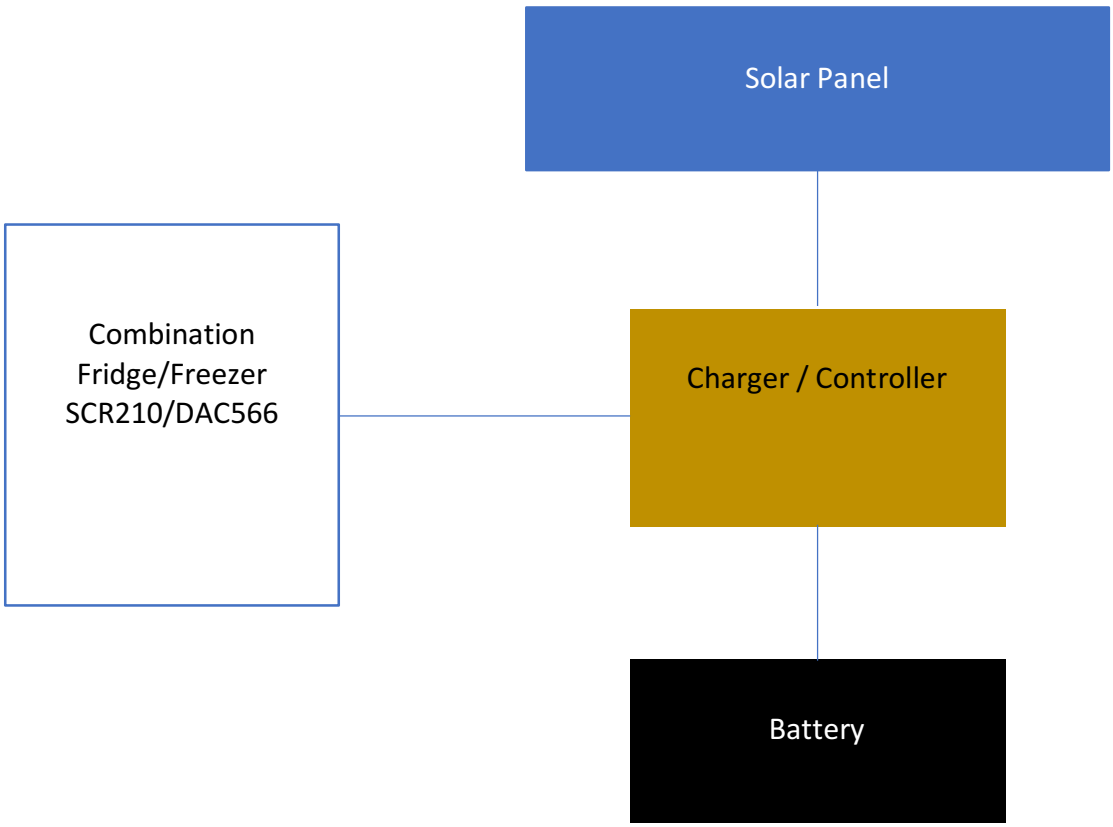
(Fully Designed and Manufactured in South Africa)

SYSTEM FEATURES

This Fridge/Freezer is a 12/24V DC unit which is driven by a Solar Photo Voltaic System. The System is specifically designed for Remote Villages in Rural Areas, Farms and Bush Camps. The System comprise of a 192Lit Fridge/Freezer, Batteries to supply the required power to drive the unit, Solar Photo Voltaic Panels which charge the batteries during daytime and a Control Unit to monitor the system and ensure safe and reliable function.

Electricity that is created sunlight, is used to charge the battery. The fridge/freezer runs off the battery, whilst the panels charge the battery. When the battery is fully harged, the charge controller allows the fridge/freezer to run of the solar panels only, saving the energy stored in the battery for night usage. During the night, the fridge/freezer runs solely on the power stored in the battery since there is no sunlight. Once the sun rises again, the process repeats itself and the sun begins to charge the battery.

SCHEMATIC DIAGRAM OF THE SYSTEM



FEATURES OF FRIDGE/FREEZER

1. A Energy efficiency 2. Total net capacity: 192 Litres 3. Interior Light 4. Antibacterial door seal 5. Auto defrost 6. adjustable levelling feet 7. Variable thermostat 8. Fridge: - 127 Litre net volume - Adjustable removable Safety glass shelves - Egg tray 9. Freezer Section: - 65 Litre net volume - 4 Star freezer - Ice cube tray 10. Dimensions (H x W x D) 1450 x 500 x 575 mm	**Eco Energy Efficient** A+ Energy efficient fridges consume 20% less energy than A class fridges helping, to reduce electricity costs and benefit the environment. **New Chilling Technology** The new Chill-In Technology™ is a superior cooling retention feature that keeps food frozen for at least 36 hours. It safeguards the food for longer in the case of interrupted power supply. Antibacterial door seals. **A Energy** A+ energy efficient fridges consume 20% less energy than A class fridges, helping to reduce battery consumption.

SPECIFICATION OF FRIDGE/FREEZER

1. Total gross lt.	199
2. Total nett lt.	192
3. Cooling Technology	Static
4. Chill-in Technology	Yes
5. Energy Efficiency	A
6. Temperature control	Mechanical
7. Refrigerant gas	R600a
8. Freezing capacity (kg/24h)	15
9. Cooling retention (hrs)	15 hrs
10. Energy consumption (W/h/24h)	1200W (50W/h)
11. Dimensions (Packed)	H - 1495mm, W - 535mm, D - 615mm
12. Weight	Packed - 35kg, Unpacked - 32kg

COMPRESSOR SAFETY FEATURE

As a safety feature for both the freezer compressor and battery, the compressor will cut off if the battery voltage drops below 10.4V and will only come back on when he battery voltage rises above 11.7V. This safety feature ensures an increased lifespan of both the compressor and the battery.

SOLAR PV POWER SYSTEM

Feature & Benefits

The unit does not require AC operation and supply's efficient DC electricity directly to power the refrigeration unit bypassing the need to convert from DC to AC. The use of DC electricity is more efficient than AC and result in further savings. No more. electricity cuts or load shedding. This is a sustainable energy source and does not harm the environment bringing you the revolution in green energy. Simply set up the panels in direct sunlight and connect your freezer. The freezer runs on DC power which is more effective and efficient, with no need for expensive inverters.

Specification of the PV Power System

a. Control Unit for Battery Management

The Control Unit Indicates the voltage levels on the battery and the charge supplied by the solar panels. It controls the amount of charge on the battery and prevents over charging of battery.

b. Solar PV Modules 120W

The Systems uses two 120W Solar Photovoltaic (PV) Panels to provide ample charging capacity to charge the Batteries High Efficiency Solar PV Panels designed for Off-Grid and Rooftop Applications.

These PV Panels have the following common features:

- Polycrystalline PV Cell Technology.
- Anodized Aluminium Frame.
- Shock Resistant Tempered Glass.
- Product Warranty of 10 years.
- Linear Power Warranty of 25 years.

Panel Specification

PV Cell Size	156x156mm		Open Circuit Voltage	22.2V
Total Cells	36 (4x9)		Short Circuit Current	7.84A
Panel Dimensions	1250x670x38mm		NOCT	$48^0C \pm 2^0C$
Weight	11.6kg		Power Temp. Coeff.	-0.5%K
Connectors & Cables	Complete Set		Current Temp. Coeff	0.035%K
Maximum Power	120Wp		Voltage Temp. Coeff.	-0.37MV/K
Power Tolerance	0/+5Wp		Operating Temp.	(-40^0C) to 85^0C
Maximum Voltage	18V		Max. System Voltage	1000V DC
Maximum Current	6.67A			

c. Connecting Cables

A complete set of connecting cables consisting of the following are supplied with the System:

- 2x Panel looping Cables
- 1x Panel to Control Unit Connecting Cable
- 3x Battery Connecting Cables.
- 1x Battery Bus bar to Control Unit Connecting Cable
- 1x Control Unit to Chest Freezer Connecting Cable

d. Deep Cycle Battery 100A each

For this system, the AGM-Gel electrolyte technology for a long deep-cycle lifetime is used. This top of the range technology uses special fibre separators between plates. This innovative combination prevents acid stratification.

Features:

- 1800 cycles at 20% discharge
- 105Ah capacity for 20 hours
- Maintenance free thanks to regulation valves
- 10 year expected lifetime
- Compliant with IEC 60896-21/22

Technical Specification:

- Dimensions: 407 x 173 x 210 mm
- Weight: 29.5 kg
- Expected life: 10 years*
- Internal resistance: 5.0 mΩ
- Self discharge rate: ≤ 3% per month
- Max charge current: 20A

e. Galvanised Solar PV Panel mounting Structures (Optional)

Two types of PV Panel Mounting Structures are available. Roof type tile or iron and free-standing structure.

- Tile/Iron upright roof type: a complete set of mounting hardware is supplied for mounting the two PV panels on upright tile or iron roofs.
- Iron Flat Roof Type: a complete set of mounting hardware is supplied for mounting the two PV Panels on a flat iron roof. Included in the set is a Tilt Kit to adjust the angle of the panels. Also included is an all-weather cable termination box.
- A free-standing pole mount structure consist of Galvanised steel hardware for mounting the panels next to the house or building on a single pole (Wood or Steel). A complete set of mounting hardware is supplied for mounting the two PV Panels on a pole. Also included is an all-weather Cable Termination Box.

f. Steel Battery Cabinet for 2x 100A Batteries (Optional)

A Steel battery cabinet is supplied for the housing of the two 100Ah batteries. It is also equipped with termination for the connecting cable to the Control/Charging Unit. Dimensions: (H)320mm (L)450mm (W)470mm Wheels are also fitted to make it easy to move around.