



# FREECOLD

BY COLDINNOV

**COLDINNOV manufactures in France FREECOLD<sup>®</sup>, independent solar cooling and freezing solutions, for places which are not connected to power grid.**

**Designed for hard environments and operating conditions, the FREECOLD<sup>®</sup> range responds to the essential needs of cold for healthcare preservation and economic development.**



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# Refrigeration and freezing solution

## RSI 180 Refrigerator - Direct solar-powered



Technical Data FREECOLD®	RSI 180 Refrigerator
Power supply	Direct photovoltaic module (Voc maximum voltage: 42V)
Direct current voltage acceptable	10.5 - 42 Vdc
Energy class	A++
Refrigerant fluid	R134a (without CFC)
Wall insulation	90mm polyurethane (80mm on cover)
Working inner volume	155 liters
Electrical power consumed (CECOMAF)	72 W
Refrigerating power (EN 12900 CECOMAF)	75 W
Cold accumulator	FREECOLD Ecotainer
Hanging baskets	1
Standardized energy consumption	40 kWh / year
Ambient temperature range	10°C / 43°C
Outer dimensions HxWxD (with/without packaging)	87 x 89 x 68.5 cm / 90 x 95 x 73 cm
Net / gross weight	57 kg / 59 kg
Connection cable - MC4 connectors as standard	4 meters of 4mm² solar power cable as standard - Other length on request
Number of devices per 20' and 40' container	42 (Ctn 20') - 72 (Ctn 40') - 112 (Ctn 40' High Cube)

FREECOLD 180L refrigerator is directly connected to the photovoltaic module located outdoor, on a roof or a terrace. The excess energy of the day is converted and stored not in batteries but in a cold container inserted into the heart of the evaporator, the FREECOLD Ecotainer, to be released slowly during the night and no-sunny days, and to maintain the quality of the cold in autonomy for 2-3 days according to the outside temperature. Robust and reliable, the solar direct drive refrigerator is adapted to hard environments and operating conditions in Africa and the Middle East.

## RCSI 180 refrigerator and freezer



FREECOLD® technical data	RCSI 180 refrigerator / freezer	RCSI 180+ refrigerator / freezer
Power supply	12, 24 or 36 Volt battery	24 or 36 Volt battery
Acceptable input voltage	10.5 - 42 Vdc	24 - 42 Vdc
Energy class	A++	
Refrigerant	R134a (without CFC)	
Wall insulation thickness	90mm Polyurethan foam (80mm in the lid)	
Net capacity	175 liters	175 liters
Power consumption (CECOMAF)	61 W	130W to 180 W
Cooling capacity (EN 12900 CECOMAF)	55 W	125W to 185 W (to define on order)
Inside Ecotainers	-18°C, 0°C or 5°C blocks or Ecotainer on demand	
Baskets	2	
Standard energy consumption	refrigerator 40kWh/year / freezer 145 kWh/year	
Ambiant temperature range	10°C / 43°C ( 50°F / 110°F)	
Outside dimensions HxLxD (without/with packing)	87 x 89 x 68.5 cm / 90 x 95 x 73 cm	
Net weight / gross weight	39 / 41 kg	40 / 42 kg
20' & 40' container loadability	42 (20' Ctn) - 72 (40' Ctn) - 112 (40' High Cube Ctn)	

Powered by solar batteries, RCSI 180 can be used either as a refrigerator or a chest freezer, with an internal temperature adjustable by the user. The capacity of each appliance is configured in workshop and adapts to the operating and using conditions.

## RCSI 300 Refrigerator and freezer



Technical Data FREECOLD®	Refrigerator / Freezer RCSI 300
Power supply	24 or 36 Volt Batteries
Direct current voltage acceptable	24 - 42 Vdc
Energy class	A++
Refrigerant fluid	R134a (without CFC)
Wall insulation	90mm polyurethane (80mm on cover)
Working inner volume	300 liters
Electrical power consumed (CECOMAF)	130W to 180 W
Refrigerating power (EN 12900 CECOMAF)	125W to 185 W (to define at order)
Cold accumulator	Ecotainer or Tablets 5°C, 0°C or -18°C on request
Hanging baskets	2
Protection against deep discharges (LVD)	22.0V as standard – different values on request
Automatic reset threshold (LVR)	23.8V as standard - different values on request
Standardized energy consumption	refrigerator 55kWh/year / freezer 190 kWh/year
Ambient temperature range	10°C / 43°C
Outer dimensions HxWxD (with/without packaging)	87 x 133 x 68.5 cm / 90 x 139 x 73 cm
Net / gross weight	54 / 56 kg
Connection cable - MC4 connectors as standard	4 meters of 4mm <sup>2</sup> solar power cable as standard - Other length on request
Number of devices per 20' and 40' container	28 (Ctn 20') - 50 (Ctn 40') - 75 (Ctn 40' High Cube)

Like RCSI 180, RCSI 300 is suitable for all DC applications in remote areas: Home, Business (catering, hotel and resort, tourism industry, alimentary retailing and selling including street markets...) and Medical (refrigeration and preservation of vaccines and medicines).

## RCVI 360 upright refrigerator and freezer



Technical Data FREECOLD®	360 L Refrigerator / Freezer Cupboard
Power supply	Photovoltaic solar and 24 or 36 V batteries
Recommended photovoltaic power	2 x 240 Wc (240 Wc mini for refrigerator use)
Direct current voltage acceptable	24 - 42 Vdc
Energy class	A++
Refrigerant fluid	R134a (without CFC)
Wall insulation	90mm polyurethane (80mm in the door)
Electrical power consumed (CECOMAF)	125 W à 180 W (workshop configuration)
Refrigerating power (EN 12900 CECOMAF)	105 W to 185 W
Working inner volume	360 liters
Number of shelves and baskets	7 / 8
Protection against deep discharges (LVD)	22.0V as standard – different values on request
Automatic reset threshold (LVR)	23.8V as standard - different values on request
Indoor temperature range	-24°C / +8°C
Outdoor temperature range	10°C / 43°C
Outer dimensions HxWxD (with/without packaging)	70 x 75 x 175 cm / 72 x 82 x 182 cm
Net / gross weight	97 kg / 91 kg
Connection cable - MC4 connectors as standard	4 meters of 4mm <sup>2</sup> solar power cable as standard - Other length on request
Number of devices per 20' and 40' container	24 (Ctn 20') - 48 (Ctn 40')

FREECOLD® 360L upright refrigerators and freezers are designed for comfort : the extra-high and removable drawers are closed all round. This means that the cold cannot dissipate so quickly when the appliance is opened ; the transparent front of the compartments guarantees an optimum overview of the items. The drawers and intermediate glass shelves underneath them can be conveniently removed so that space can be created quickly even for larger frozen food items ; Thanks to the evaporator drowned in insulating foam on all 4 sides of the appliance, the RCVI 360 freezes food faster and reduces ice build-up, making defrosting simpler and quicker.

## CRC195 Combined refrigerator / freezer



**A++**

Technical Data FREECOLD®	Combined Refrigerator / Freezer 195 L
Power supply	Photovoltaic solar and 12 or 24 V batteries
Direct current voltage acceptable	12 - 42 Vdc
Energy class	A++
Refrigerant fluid	R134a (without CFC)
Wall insulation	90mm polyurethane (80mm in the door)
Electrical power consumed (CECOMAF)	72 W (workshop configuration)
Refrigerating power (EN 12900 CECOMAF)	75 W
Working inner volume - refrigerator	151 liters
Working inner volume – freezer	44 liters
Protection against deep discharges (LVD)	10.5V as standard
Automatic reset threshold (LVR)	11.8V as standard
Standardized energy consumption	176 kWh/year
Ambient temperature range	10°C - 43°C
Outer dimensions HxWxD (with/without packaging)	124 x 55 x 63 cm / 130 x 56,5 x 71 cm
Net / gross weight	52 kg / 49 kg
Connection cable - MC4 connectors as standard	4 meters of 4mm <sup>2</sup> solar power cable as standard - Other length on request
Number of devices per 20' and 40' container	24 (Ctn 20') - 48 (Ctn 40')

Powered by solar batteries, these 2 combined fridges/freezers are multi-purpose home appliances. Solid and reliable, they have a good thermal insulation and convenient facilities such as adjustable glass shelves and transparent drawers.

## CRC295 Combined refrigerator / freezer



**A+**

Technical Data FREECOLD®	Combined Refrigerator / Freezer 295 L
Power supply	Photovoltaic solar and 24 V batteries
Direct current voltage acceptable	24 - 42 Vdc
Energy class	A+
Refrigerant fluid	R134a (without CFC)
Wall insulation	90mm polyurethane (80mm in the door)
Electrical power consumed (CECOMAF)	125 W to 180 W (workshop configuration)
Refrigerating power (EN 12900 CECOMAF)	180 W
Working inner volume - refrigerator	210 liters
Working inner volume – freezer	84 liters
Protection against deep discharges (LVD)	22.5V as standard
Automatic reset threshold (LVR)	23.8V as standard
Standardized energy consumption	210 kWh/year
Ambient temperature range	10°C - 38°C
Outer dimensions HxWxD (with/without packaging)	182 x 55 x 63 cm / 187 x 57 x 71 cm
Net / gross weight	72 kg / 67.5 kg
Connection cable - MC4 connectors as standard	4 meters of 4mm <sup>2</sup> solar power cable as standard - Other length on request
Number of devices per 20' and 40' container	30 (Ctn 20') - 60 (Ctn 40')

## CSV185 and CSV260 Refrigerator / Freezer with double glass slid tops



Like super-insulated chest refrigerators and freezers, CSV 185 and 260 appliances are suitable for all commercial applications in remote areas: catering, hotels and resorts, tourism sector, distribution and sales of food products including in the outdoor markets,...).

Their main advantage: the 2 glass slid tops that allow customers to see the goods inside.

Placed on a FrigoMobile, the CSV 185 is particularly suitable for transporting, storing and selling meat, fish or ice through cold produced at a lower temperature than by the RSI 180.

## 3-way running RFO 85 refrigerator and CFO 65 freezer



FREECOLD <sup>®</sup> technical data	85 L Refrigerator	65 L Freezer
Power supply	Direct photovoltaic module or 12 or 24 V batteries	
Recommended mini photovoltaic power	180 Wp	
Self switching module	Self-switching module of power source (photovoltaic / batteries / external power) with priority to photovoltaic power	
Voltage	10 to 22V with Autocom12 as standard - 17 to 31.5V with Autocom24 as an option	
Compressor	Danfoss Secop BD35F	Danfoss Secop BD50F
Net capacity	85 liters	65 liters
Average power consumption	+22°C out./+6°C in.: 380Wh/24h +32°C out./+6°C in.: 620Wh/24h	+22°C out./-12°C in.: 440Wh/24h +32°C out./-12°C in.: 800Wh/24h
Cooling capacity (EN 12900 CECOMAF)	45 W	60W
Wall insulation	40mm polyurethane (35mm in the door)	60mm polyurethane (60mm in the door)
Protection against deep discharges (LVD)	9.6V (21.3V)	
Automatic reset threshold (LVR)	10.9V (22.7V)	
Ambiant temperature range	10°C / 38°C ( 50°F / 100°F)	
Outside dimensions HxLxD (without/with packing)	62.5 x 47.5 x (51+4) cm / 67 x 51 x 56 cm	
Net weight / gross weight	20 kg	

Difficult to accommodate a refrigerator and a freezer in a leisure vehicle... With FREECOLD you will carry out this exploit successfully. Here are twice devices presenting a good volume and especially a small 47,5 cm width. Impossible to make more compact...

## Dairy sectors

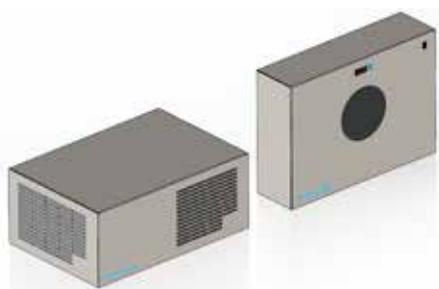
### SPL 260 Split air-conditioner - Direct solar power



FREECOLD® technical data	Split air-conditioner
Power supply	Direct photovoltaic modules or 24V batteries
Acceptable direct current voltage	24 - 42 Vdc
Cooling capacity	2.600 W - 8.750 BTU
Puissance électrique absorbée	750 W
Refrigerant fluid	R134a (sans CFC)
Self-switching module	Self-switching module of power source (photovoltaic / batteries / external power) with priority to photovoltaic power
Room area - Cooled air flow	35 sqm - 400m <sup>3</sup> /h
Dimensions HxWxD - weight (indoor unit / outdoor unit)	50 x 35 x 70 cm - 55 kg / 65 x 40 x 50 cm - 28 kg
Solar plant delivered with AC unit	6x 255 Wp polycrystalline modules (European origin)

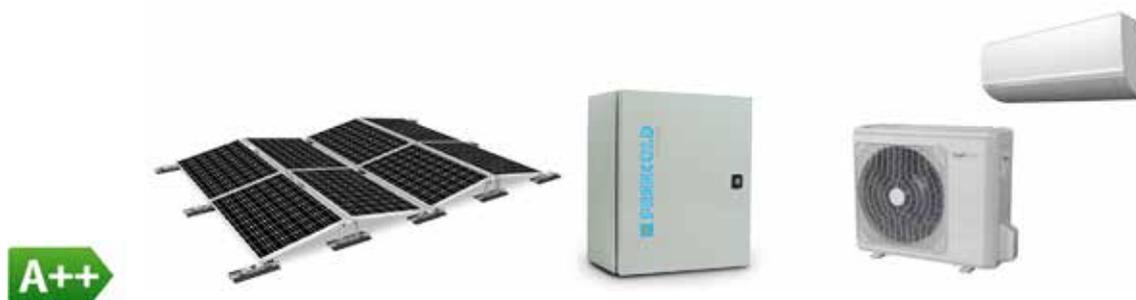
The air conditioner is delivered preloaded in R134a refrigerant fluid and the electrical wiring is pre-installed. The FREECOLD air conditioner offers you a triple energy flexibility with its three 24V power sources that can be connected simultaneously, giving priority to the photovoltaic solar supply. The FREECOLD solar split is ideal to air-condition professional premises [offices, rooms, consulting surgeries, workshops, workmen's sheds...] and technical premises [GSM/GPRS base stations, battery storage, power distribution boards, IT racks, shelters in remote areas...]. An easy installation, a minimum maintenance and a sustainable investment.

### MSP 500 Solar mini-air conditioner



The FREECOLD solar mini-air conditioners, available in 500w or 750W version, are specially developed for professional premises (offices, surgeries, laboratories...), technical premises (GSM/GPRS stations, Electrical cabinets, battery stations, shelters in remote areas...) and houses (lounges, living rooms, rooms...) for a better quality of life and sleep. Powered by 24V batteries, the mini-air conditioner is delivered preloaded with R134a refrigerant fluid and the electrical wiring is pre-installed for easy installation and maintenance.

### CMS 09 & CMS 12 independent split air-conditioners



With 2.6kW (9,000 btu) and 3.5kW (12,000 btu) of cooling capacity, FREECOLD® solar air conditioners are particularly silent and energy efficient. They are delivered with their photovoltaic plant, energy storage for the night by AGM solar batteries and FREECOLD® enclosure of smart energy management.

That prewired box integrates all essential electrical safety devices and couples power sources based on available energy (solar PV, batteries, grid or external generator) and needs (air conditioning and charging for batteries).

## Dairy sectors

### Independent solar milk tank : 300 liters / 2 milkings

Including photovoltaic plant, battery storage and smart management of energy



The FREECOLD milk tank cools a 150 liters milking in 2 hours down to a temperature of 4 °C with an ambient temperature of 35 °C.

All in stainless steel, the tank has a smooth inner wall, rounded corners and polished welds for optimum conditions of hygiene and food safety. Its walls are insulated with injected polyurethane foam to limit heat losses.

The solar power plant with its photovoltaic modules of European origin, is delivered with their support in kit and preinstalled wiring for a quick and easy commissioning. The solar plant powers directly the milk tank and simultaneously recharges the battery to ensure the autonomy of the dairy installation.

The FREECOLD® smart management of energy ensures a high-quality power supply and enables a second potential source, grid or generator. Solar batteries of the installation allow to smooth the peaks and hollows of the photovoltaic source as well as the intermittences.

The solar milk tank is also available in 125 liters/2 milkings version and the solar plant can be pooled to power at the same time a «all in stainless steel» 60 Liters pasteurizer for heat treatment of milk.



### 180 L FrigoMobile - Solar Direct



The 100% solar FREECOLD® FrigoMobile is the ideal solution to develop micro-enterprises in rural or suburban areas without electrification, to answer to:

- the need of cold for fishing, food and beverage, livestock farming...
- the need of communication: 1 hour of mobile phone charging is sold € 0.15 or FCFA 100
- the need of lighting to extend the sale in the evening, or at home.

To generate a real income and to develop a responsible, autonomous and sustainable economic activity.



Equipped with CSV185, the FrigoMobile is particularly suitable for the transport and sale of meat, fish and ice.



## Farming sectors

Independent solar cold rooms from 10m<sup>3</sup> to 25m<sup>3</sup>, from -18°C to +12°C

Including photovoltaic plant, battery storage and smart management of energy



Featuring a modular design which fulfils the requirements of the various food industry sectors, the room's volume of 10 to over 30 m<sup>3</sup> offers an ideal and adaptable solution for storing crops, foodstuffs or frozen products in optimum conditions.

100 or 150 mm reinforced insulation and an efficient opening system significantly reduce heat loss. From 200 kg to 800 kg of harvest produce can be cooled daily, using storage batteries that provide between 30 and over 60 hours of autonomy.

As an option, a tough, non-slip, easy-to-clean floor, a strip curtain and shelving for butchery, fishery and dairy applications.

Mounted in few hours, FREECOLD solar cold rooms are complying with the strictest hygiene & safety rules.

## Independent solar freezer-room to make 200 kg of ice per day

Including photovoltaic plant, battery storage and smart management of energy

The need for ice is daily in Africa, storekeepers or people buy them every day, for business use or for their families;

In market towns and villages that are not connected to the electricity grid, ice is a very valuable product; It is used to refresh drinking water and beverages, but it is also essential to preserve food such as meat and fish;

The FREECOLD solar freezer-room responds to this need for accessible cold and creates a new trade activity with high profitability and a return on investment less than 2 years.



## Independent solar charger for the charge of 10 mobile phones

Mobile technologies contribute massively to the growth of remote areas. The M-economy is developing in Africa, the flow of money and the deployment of agricultural and health services. But it is still necessary to be able to recharge the batteries of the phones.

Easy to move and install, the FREECOLD solar charger provides electric power sources to safely recharge the batteries of the phones.



- Solar charger for the charge of 10 mobiles
- Strong design (anodized aluminum cover, unbreakable plastic case) for professional use
- Complete kit with its European-Origin 150w solar panel, 10 USB outputs, 5 Micro-USB and '5-in-1' charging cables (Nokia 6101, Samsung G600, Micro-USB, Mini-USB, iPhone 4/4S)
- 5V-1A regulated outputs for a total safety of des batteries
- Easy and convenient holding of the phones during the charge
- Dimensions : 40 x 22 x H 10 cm

## Public lighting



### All in One solar LED street lights

Our 10W and 15W LED street lights are equipped with

- waterproof and replaceable LED module powered by high brightness and low light decay MLS or Nichia LED
- high efficiency solar panels (15 - 30Wp)
- long lifespan lithium battery (48 - 192Wh LiFePO4)
- wireless remote-control with dimming function
- light and motion controls: motion sensor automatically regulates the light source from full bright (100%) to the energy saving level (30%) to increase battery autonomy
- Mounting parts on Ø60mm pole (mast or wall console)

These LED lightings are mounted very quickly and require no electric wiring. They are ideal to light a village square or the courtyard of a concession.

## Solar kits

Solar energy kit : 3 LED lamps and charging of mobile phones



Components :

- 1 solar panel with 5 m long cable
- 1 black control box including a lithium battery
- 3 waterproof LED lights with 3 m long cable
- 10 phone charging connectors

USB Duo kit : to recharge electronic devices from the excess energy of a solar panel



Components :

- 3m long connection on cable
- control box with 2 USB outputs
- 2 '10 in 1' cables including each 10 phones and electronic devices charging connectors

115 or 230V solar kits : from 50W à 800W to power household equipments, lighting, fans, TV, notebook ...



This range of 12, 24 and 48V kits includes a wide variety of power and the easiest setup so far to hook up

Components :

- solar panels with photovoltaic cable
- VRLA AGM sealed solar batteries
- Solar controller (from 10 to 50A)
- 12, 24 or 48V PureSinus inverter to 115 or 230V (from 300W to 3kW)



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