

SOLAR CENTRAL UNIT WITH NETWORK INJECTION AND ISOLATED SITE



EDUCATIONAL OBJECTIVES

- Understanding the different elements of a photovoltaic system.
- Understanding the safety components involved in the system.
- Electrical measurements of different parameters.
- Analyzing and interpreting results.
- Studying the efficiency and impacts related to the positioning of the solar panels.
- Studying of the chain of solar energy (production, storage, consumption, resale, energetic behavior).
- Wiring of a photovoltaic system.

TEACHING RESOURCES STUDENT & TEACHER

1. ELECTRICAL CABINET

Technical cabinet of standardized solar central unit on wheeled frame.
Dimensions: 810 x 600 x 1890mm

Comprises

- 2 disconnectors
- 1 500mA -30A differential
- 1 30mA differential
- 1 lightning arrester + fuses
- 3 100 Wh resolution meters
- 1 Mushroom head emergency stop
- 1 source inverter
- 1 charging controller 12/24VDC-20A
- 2 batteries 12V-12Ah
- 1 set of photovoltaic connectors
- 1 500W inverter for network synchronisation
- 1 Voltage converter 24VDC/230VAC-200W

2. LINK CABLE

30-m cable for connecting the solar panels to any type of solar system.

3. PHOTOVOLTAIC SOLAR PANEL 215WC ON TILTING FRAME (FOR EACH PANEL)

- Open circuit voltage: 46V DC
- Short-circuit current: 6.3A
- Optimum operating voltage: 37V DC
- Optimum operating current: 5.7A
- Maximum power: 215Wc (variation of $\pm 10\%$ depending on the series)
- Sealed connections IP65 – 1000V on the rear of the panel.
- Type of cells: Monocrystalline silicon
- Robust aluminium frame.
- Useful surface area of the cells 1.5m².
- Output 37VDC – 5.2A – 215Wc per panel on 2 photovoltaic terminals.
- Device for measuring the tilt angle
- Tilt adjustable from 5° to 70°
- Two ball joints with clamping levers for positioning the panel to the required tilt angle.
- Light and easy to move.
- Folded position: 1600 x 800 x 100mm ($\pm 10\%$ depending on the series)

ref. SOL-1 Electrical cabinet + 2 Photovoltaic panels + 1 link cable

ref. SOL-1-N Electrical cabinet only

Sold without panel. Use your own panels with characteristics comprise between 35 and 150VDC.

PARTIAL OR TOTAL RESALE OPERATION

In the cabinet a DC/AC inverter converts the DC from the photovoltaic panels to AC 220VAC 50Hz, and injects its power in synchronism into the electrical grid. This inverter is protected against any polarity reversal and any overload on the DC or AC side. When the panels are not lit, the inverter consumes no current.

Technical characteristic for the inverter coupled to the electrical grid.

INVERTER	Voltage	Max current	Power
INPUT	65~125VDC	8A	
OUTPUT	230VAC-50Hz	2,25A	500W

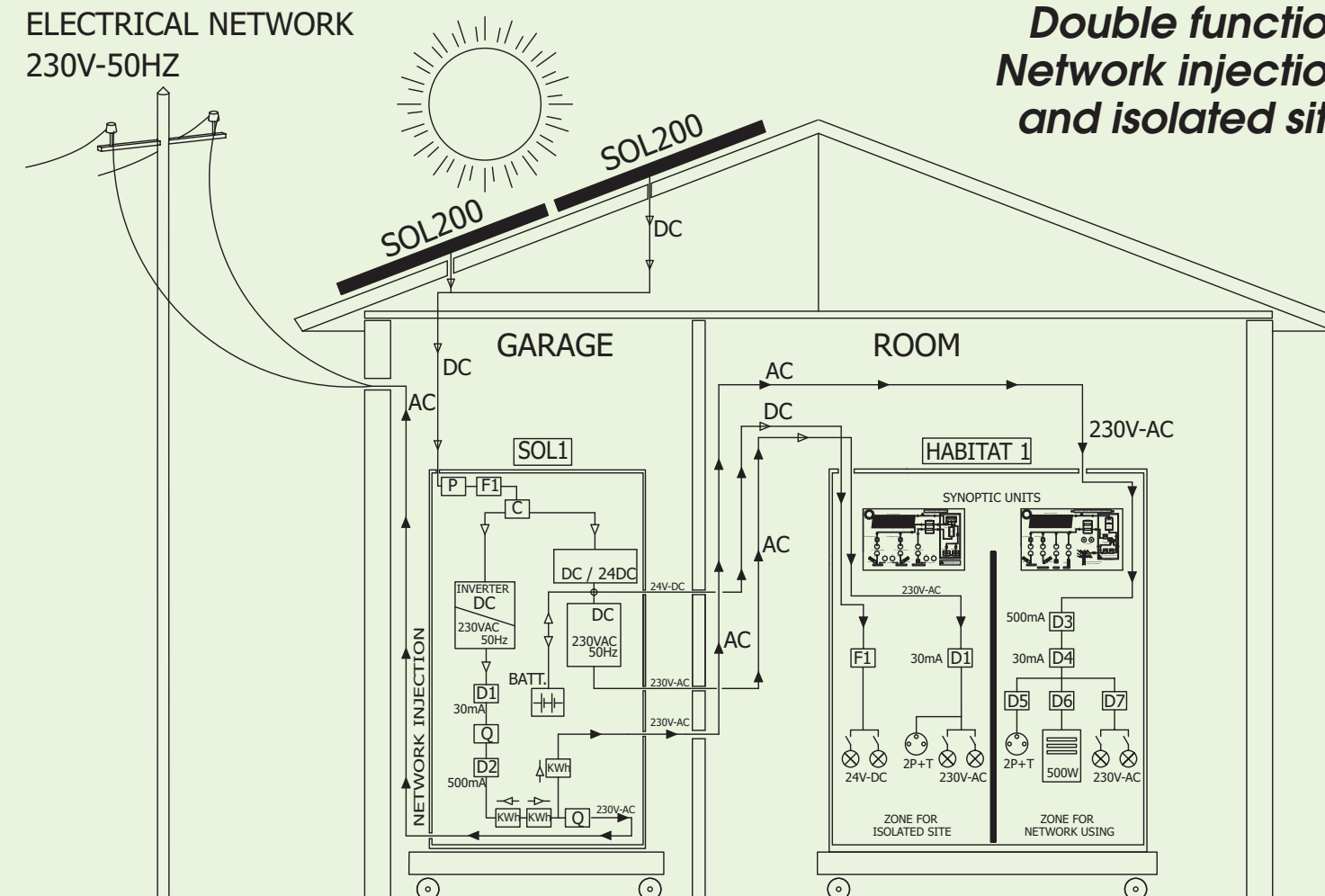
OPERATION IN ISOLATED SITE WITH NO RESALE

The photovoltaic current charges two 12V sealed batteries cabled in series through a charge controller. This DC voltage is either available on safety terminals at the rear of the cabinet or converted to 250VAC 50Hz by a 300VA voltage converter.

Technical characteristics of converter for isolated site

VOLTAGE CONVERTER	Voltage	Max Current	Power
INPUT	20~32 VDC	11A	
OUTPUT	230VAC 50Hz	1,5A	300VA

ELECTRICAL NETWORK 230V-50HZ



Double function
Network injection
and isolated site

USING SOLAR ENERGY WITH PUBLIC NETWORK INJECTION AND ISOLATED SITE
CHOOSE SOL-1 + HABITAT-1



Requires download in Play Store or Apple Store the free application "Victron Energy".

Display on tablet or Smartphone:

- Voltage – Current of the panel / Power (W)
- Voltage – Current of the battery / Charge current
- On-Off state charge



Smartphone not supplied

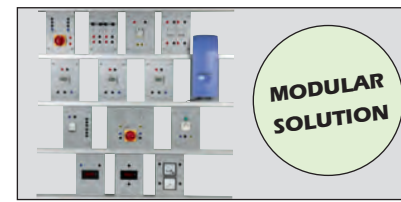
RECOMMENDED OPTION FOR INDOOR OPERATION
ARTIFICIAL SOLAR SOURCE QTE 2.

SEE REF. SOL-ARTI2

RECOMMENDED OPTION LOADING PANEL
FOR ISOLATED SITE USE

SEE REF. HABITAT-1

SOLAR CENTRAL UNIT WITH NETWORK INJECTION



EDUCATIONAL OBJECTIVES

- Understanding the different elements of a photovoltaic system.
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- Studying the efficiency and impacts related to the positioning of the solar panels.
- Studying of the chain of solar energy (production, storage, consumption, resale, energetic behavior).
- Wiring of a photovoltaic system.

TEACHING RESOURCES STUDENT & TEACHER

1. ELECTRICAL CABINET

Technical cabinet of standardized solar central unit on wheeled frame.
Dimensions: 810 x 600 x 1890mm

Comprises

- 2 disconnectors
- 1 500mA -30A differential
- 1 30mA differential
- 1 lightning arrester + fuses
- 1 Mushroom head emergency stop
- 3 100 Wh resolution meters
- 1 set of photovoltaic connectors
- 1 500W inverter for network synchronisation

2. LINK CABLE

30-m cable for connecting the solar panels to any type of solar system.

3. PHOTOVOLTAIC SOLAR PANEL 215WC ON TILTING FRAME (FOR EACH PANEL)

- Open circuit voltage: 46V DC
- Short-circuit current: 6.3A
- Optimum operating voltage: 37V DC
- Optimum operating current: 5.7A
- Maximum power: 215Wc (variation of ± 10% depending on the series)
- Sealed connections IP65 – 1000V on the rear of the panel.
- Type of cells: Monocrystalline silicon
- Robust aluminium frame.
- Useful surface area of the cells 1.5m².
- Output 37VDC – 5.2A – 215Wc per panel on 2 photovoltaic terminals.
- Device for measuring the tilt angle
- Tilt adjustable from 5° to 70°
- Two ball joints with clamping levers for positioning the panel to the required tilt angle.
- Light and easy to move.
Folded position: 1600 x 800 x 100mm (± 10% depending on the series)

ref. SOL-2 Electrical cabinet + 2 Photovoltaic panels + 1 link cable

ref. SOL-2-N Electrical cabinet only

Sold without panel. Use your own panels with characteristics comprise between 35 and 150VDC.

PARTIAL OR TOTAL RESALE OPERATION

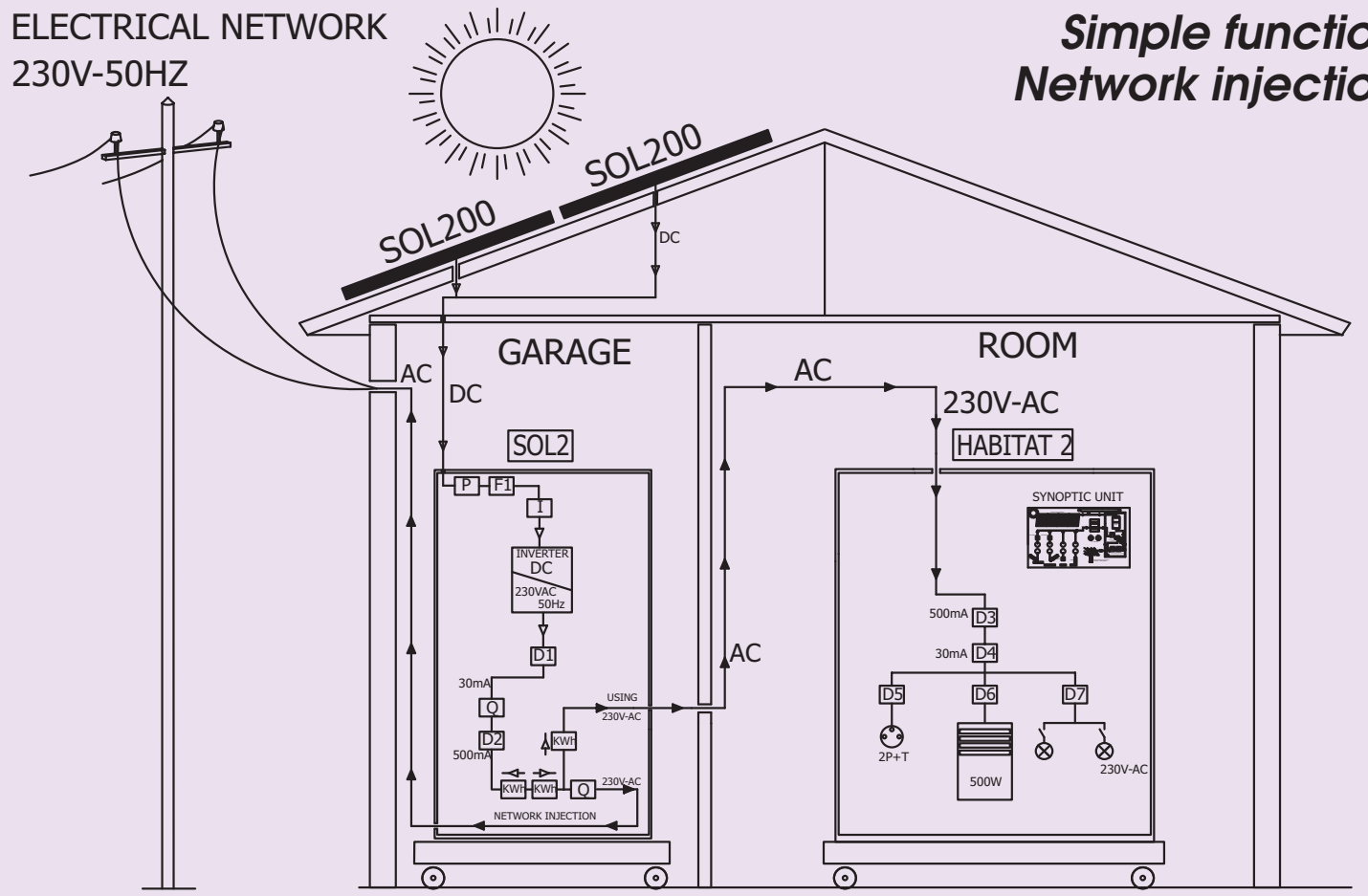
In the cabinet a DC/AC inverter converts the DC from the photovoltaic panels to AC 220VAC 50Hz, and injects its power in synchronism into the electrical grid. This inverter is protected against any polarity reversal and any overload on the DC or AC side. When the panels are not lit, the inverter consumes no current.

Technical characteristic for the inverter coupled to the electrical grid.

INVERTER	Voltage	Max current	Power
INPUT	65~125VDC	8A	
OUTPUT	230VAC-50Hz	2,25A	500W

ELECTRICAL NETWORK 230V-50HZ

Simple function Network injection



USING SOLAR ENERGY WITH PUBLIC NETWORK INJECTION CHOOSE SOL-2 + HABITAT-2

RECOMMENDED OPTION FOR INDOOR OPERATION ARTIFICIAL SOLAR SOURCE QTE 2.



SEE REF. SOL-ARTI2

RECOMMENDED OPTION LOADING PANEL FOR USE ON SITE WITH ELECTRICITY NETWORK



SEE REF. HABITAT-2

SOLAR CENTRAL UNIT FOR ISOLATED SITE



1. ELECTRICAL CABINET

Technical cabinet of standardized solar central unit on wheeled frame.
Dimensions: 810 x 600 x 1890mm

Comprises

- 2 disconnectors
- 1 lightning arrester + fuses
- 1 Mushroom head emergency stop
- 1 charging controller 12/24VDC-20A
- 2 batteries 12V-12Ah
- 1 set of photovoltaic connectors
- 1 Voltage converter 24VDC/230VAC-200W

2. LINK CABLE

30-m cable for connecting the solar panels to any type of solar system.

3. PHOTOVOLTAIC SOLAR PANEL 215WC ON TILTING FRAME (FOR EACH PANEL)

- Open circuit voltage: 46V DC
- Short-circuit current: 6.3A
- Optimum operating voltage: 37V DC
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- Maximum power: 215Wc (variation of ± 10% depending on the series)
- Sealed connections IP65 – 1000V on the rear of the panel.
- Type of cells: Monocrystalline silicon
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- Useful surface area of the cells 1.5m².
- Output 37VDC – 5.2A – 215Wc per panel on 2 photovoltaic terminals.
- Device for measuring the tilt angle
- Tilt adjustable from 5° to 70°
- Two ball joints with clamping levers for positioning the panel to the required tilt angle.
- Light and easy to move.
- Folded position: 1600 x 800 x 100mm (± 10% depending on the series)



Supplied with 1 pyranometer

ref. SOL-3 Electrical cabinet + 2 Photovoltaic panels + 1 link cable

ref. SOL-3-N Electrical cabinet only
Sold without panel. Use your own panels with characteristics comprise between 18 and 150VDC.

EDUCATIONAL OBJECTIVES

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TEACHING RESOURCES STUDENT & TEACHER

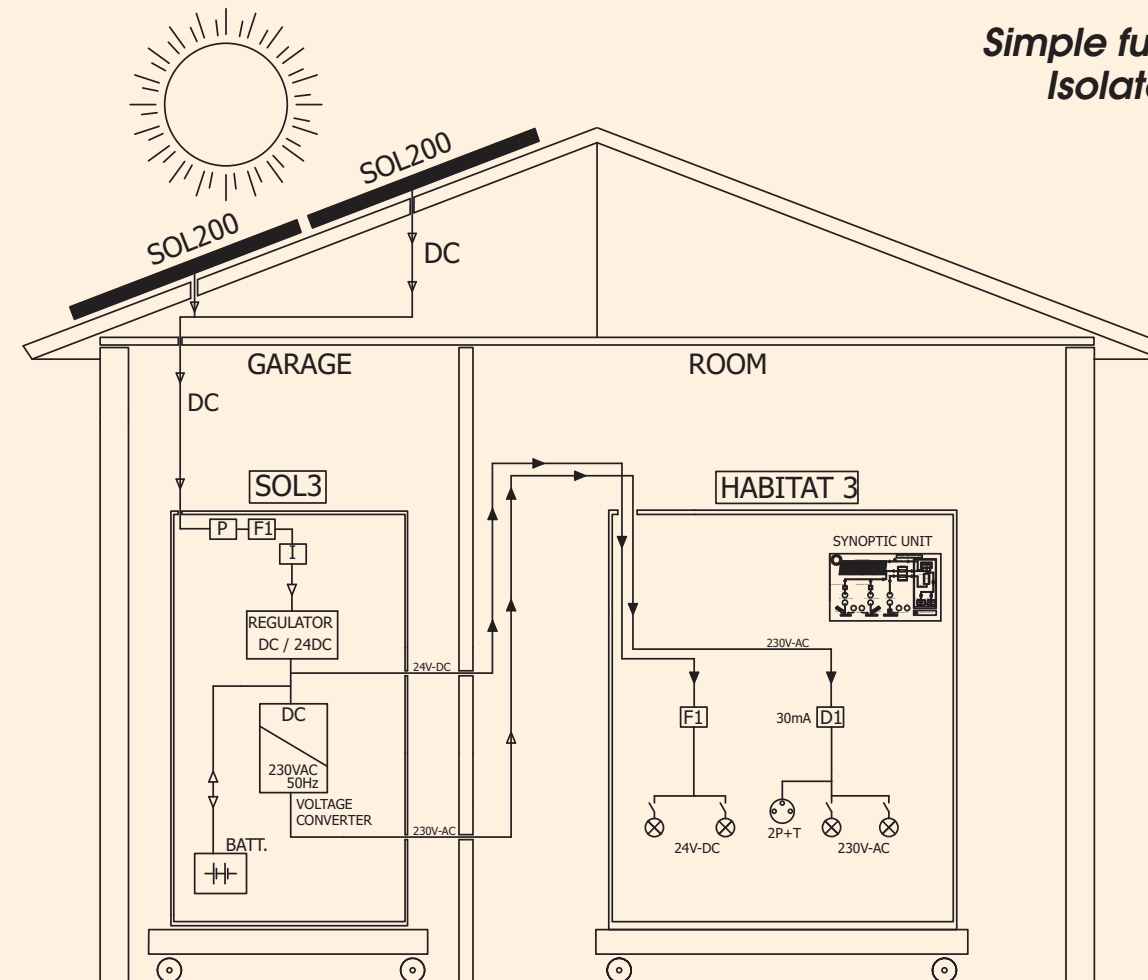
OPERATION IN ISOLATED SITE WITH NO RESALE

The photovoltaic current charges two 12V sealed batteries cabled in series through a charging controller. This DC voltage is used directly by low energy consumption lamps 24VDC, and/or converted to 250VAC 50Hz by a 300VA voltage converter.

Technical characteristics of converter for isolated site

VOLTAGE CONVERTER	Voltage	Max current	Power
INPUT	20~32 VDC	11A	
OUTPUT	230VAC 50Hz	1,5A	300VA

Simple function
Isolated site



USING SOLAR ENERGY ON AN ISOLATED SITE WITHOUT PUBLIC NETWORK ACCESS - CHOOSE SOL-3 + HABITAT-3



Requires download in Play Store or Apple Store the free application "Victron Energy".
Display on tablet or Smartphone:
- Voltage – Current of the panel / Power (W)
- Voltage – Current of the battery / Charge current
- On-Off state charge



Smartphone not supplied

RECOMMENDED OPTION FOR INDOOR OPERATION ARTIFICIAL SOLAR SOURCE QTE 2.



SEE REF. SOL-ARTI2

RECOMMENDED OPTION LOADING PANEL FOR ISOLATED SITE USE



SEE REF. HABITAT-3