Ingecon®Sun Power

50 / 60 / 70 / 80 / 90 / 100

Designed for ease of maintenance, offering high efficiency at high temperatures, and featuring full electric protections as a standard supply, this inverter family is one of the most popular in the **Ingecon®Sun** inverter range. These **Ingecon®Sun**

®Sun

Protections

The **Ingecon®Sun** inverters are equipped with the following electrical protections against:

- Galvanic isolation between the DC and AC side.
- Reverse polarity.
- Output short-circuits and overloads.
- Insulation failures.
- Anti-islanding with automatic disconnection.
- DC breaker.
- DC fuses.
- AC MT breaker.
- DC surge arresters.
- AC surge arresters.

Optional accessories

- Inter-inverter communication via RS-485 or Ethernet.
- Modem for GSM/GPRS remote communication.
- **Ingecon®Sun**
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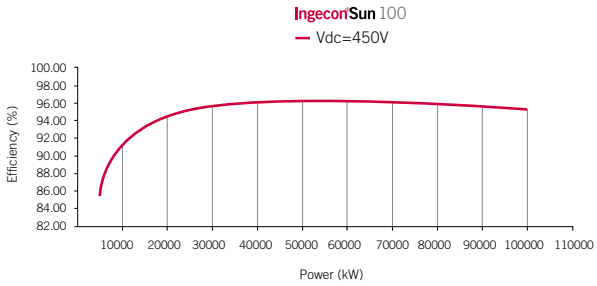
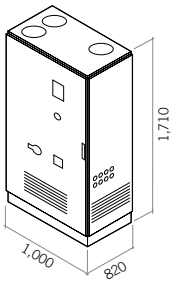
Efficiency



Size and weight

(mm)

IngeconSun 50/60 900 kg.
IngeconSun 70/80 1,026 kg.
IngeconSun 90/100 1,162 kg.



Technical data

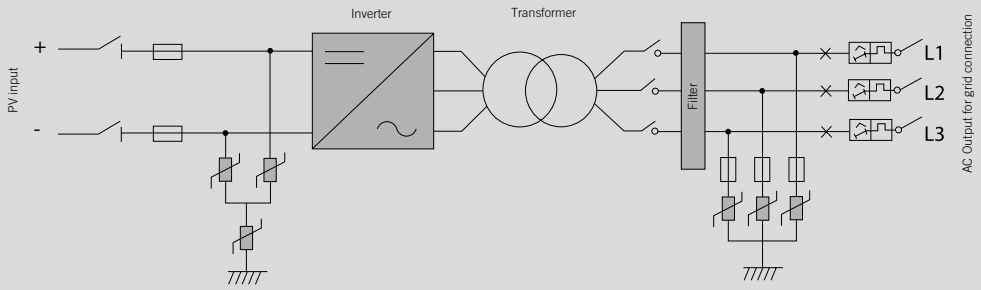
Model	IngeconSun 50	IngeconSun 60	IngeconSun 70	IngeconSun 80	IngeconSun 90	IngeconSun 100
[1]	57 - 65 kWp	69 - 78 kWp	80 - 91 kWp	92 - 104 kWp	103 - 117 kWp	115 - 130 kWp
Voltage range MPP	405 - 750 V	405 - 750 V	405 - 750 V	405 - 750 V	405 - 750 V	405 - 750 V
Maximum voltage DC[2]	900 V	900 V	900 V	900 V	900 V	900 V
Maximum current DC	143 A	172 A	200 A	229 A	257 A	286 A
DC inputs	4	4	4	4	4	4
MPPT	1	1	1	1	1	1
Output (AC)						
Rated power AC HT[3]	50 kW	60 kW	70 kW	80 kW	90 kW	100 kW
Rated power AC HP[4]	55 kW	66 kW	77 kW	88 kW	99 kW	110 kW
Maximum current AC	93 A	118 A	131 A	156 A	161 A	161 A
Rated voltage AC	400 V	400 V	400 V	400 V	400 V	400 V
Frequency AC	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz
Phi Cosine[5]	1	1	1	1	1	1
THD[6]	< 3%	< 3%	< 3%	< 3%	< 3%	< 3%
Efficiency						
Maximum efficiency	96.3%	96.40%	97.20%	97.50%	96.90%	96.80%
Euroefficiency	94.30%	94.70%	96.10%	96.20%	95.80%	95.70%
General Information						
Stand-by consumption	30 W	30 W	30 W	30 W	30 W	30 W
Consumption at night	1 W	1 W	1 W	1 W	1 W	1 W
Ambient temperature	-10ºC to +65°C	-10ºC to +65°C	-10ºC to +65°C	-10ºC to +65°C	-10ºC to +65°C	-10ºC to +65°C
Relative humidity	0 - 95%	0 - 95%	0 - 95%	0 - 95%	0 - 95%	0 - 95%
Protection class	IP 20	IP 20	IP 20	IP 20	IP 20	IP 20
Compliance with standards	VDE0126-1-1, RD 661/2007, EN 50178, Reglamento VDEW BT, RTC alle rete BT di Enel Distribuzione CEI 11-20, CEI 11-20 V1, CEI 0-16, CE Mark					

HT Mode (high temperature) - Rated outputs at 45ºC

HP mode (high power) - Rated outputs at 40ºC

Notes: [1] Depending on the type of installation and geographical location. [2] Must not be exceeded under any circumstances. Consider the voltage increase of the 'Voc' at low temperatures. [3] Up to 45ºC ambient temperature, Pmax= 110% Pnom for non permanent transients [4] Up to 40ºC ambient temperature, Pmax = Pnom [5] For Pout > 25% of the rated power. Possibility to modify the Phi Cosine. [6] For Pout > 25% of the rated power and voltage in accordance with IEC 61000-3-4

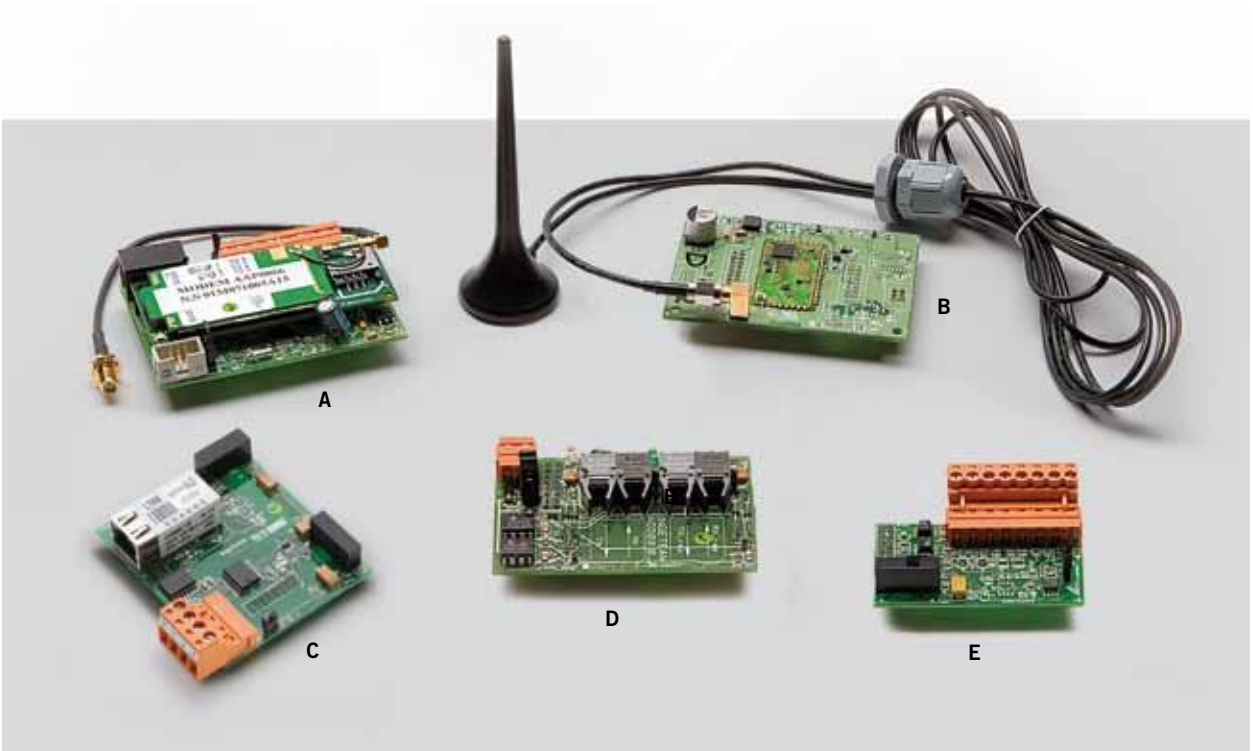
IngeconSun Power



Ingecon®Sun Communication

Multiple options for data communication with inverters from a PC

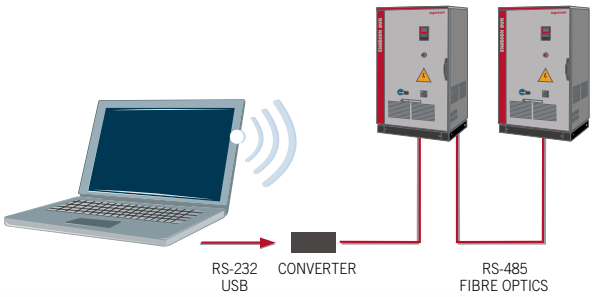
With the **Ingecon®Sun**

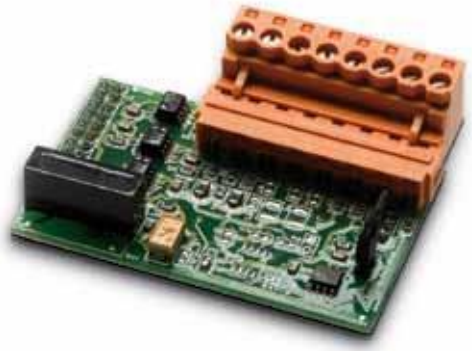


A. Modem card for remote communication via the GSM/GPRS network. **B.** ISM868 wireless card. **C.** Ethernet card and RS-485. **D.** Fibre optics card. **E.** RS-485 card for remote communication of the PV plant inverters.

RS-485 and fibre optics card

- Controllable from a local PC.
- Half-Duplex (two wire) configuration mode.
- Multi-connection between inverters in a closed loop system.
- Supply of RS-485/RS232 or RS485/USB for easy PC connection with a PC.





Fibre optics card

Lightning induced surge immunity.

GSM/GPRS Modem

For remote communications from the **Ingecon®Sun**

Ethernet card and RS-485

For Ethernet communications between the **Ingecon®Sun**

Remote operation and SCADA

Remote control enables real time operation and supervision of the PV installations and is an essential tool for guaranteeing the highest level of availability.

It is adapted to the requirements of each installation and can incorporate new features based on modular SCADA architecture.

It is scalable and flexible thanks to its OPC based client / server architecture.

The Remote Controller can integrate the Substation and any other device that may be remotely controlled. It is compatible with a multitude of protocols and supports (ADSL, RDSI, GSM, GPRS, Internet, fibre optics, radio, microwaves, and satellite).

Communication Remotes

In the case that signals not coming from the inverter should be implemented in the SCADA, such as the status of automatics, temperatures, etc., communication remotes would need to be installed in each of the enclosures. In the case of Power Max Inverters, this remote would need to be installed in the AC and auxiliary services enclosure.

Some possible communication protocols:

- Ethernet-TCP/IP (MODBUS, IEC-608-70-5-104, etc.)
- Interbus-S
- Profibus-DP
- RS-232 (3964, MODBUS, IEC-60870-5-101, etc.)
- RS-485 (3964, MODBUS, etc.)
- CAN

Ingecon®Sun String Control

String current monitoring

The **Ingecon®Sun** is a device for measuring each PV generator string current and detecting defective string currents through **Ingecon®Sun** software.

String currents can be monitored through the RS-485 communication cards, GSM/GPRS, Ethernet or WIFI.It is easy to mount and is suitable for outdoor installations.

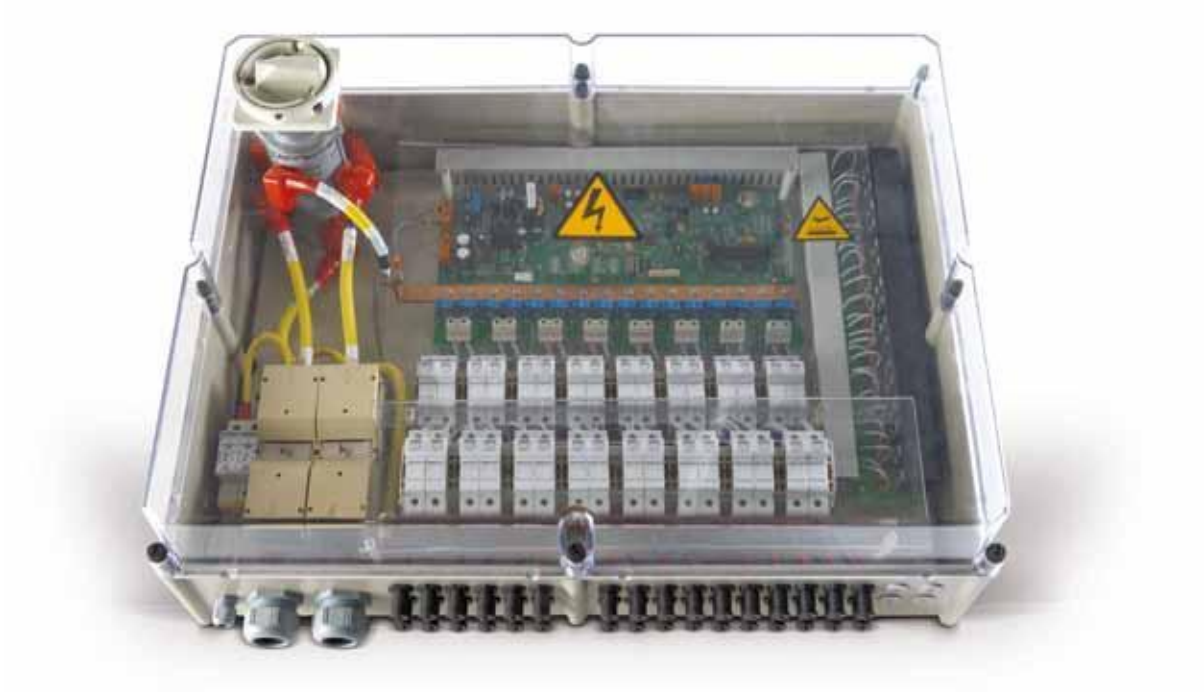
It is particularly recommended for three phase inverters.

Protections

- Individual string fuse protection.
- IP65 protection for outdoor installation.

Optional

- SMS alarm functionality for any faulty currents.
- DC overvoltage dischargers.
- DC switch.



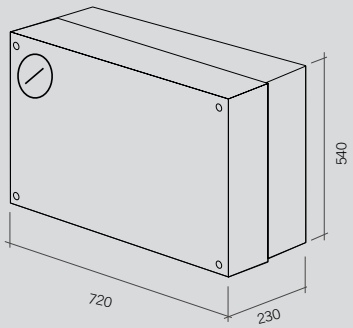
Technical Data

Ingecon®Sun String Control	
	[2])
Communications	RS-485, GSM/GPRS, Ethernet, WIFI, fibre optics card
Ambient temperature	-10°C to +65°C
Protection class	IP65
Grounding connector	PG M16 (35 mm²)

Size and weight

(mm)

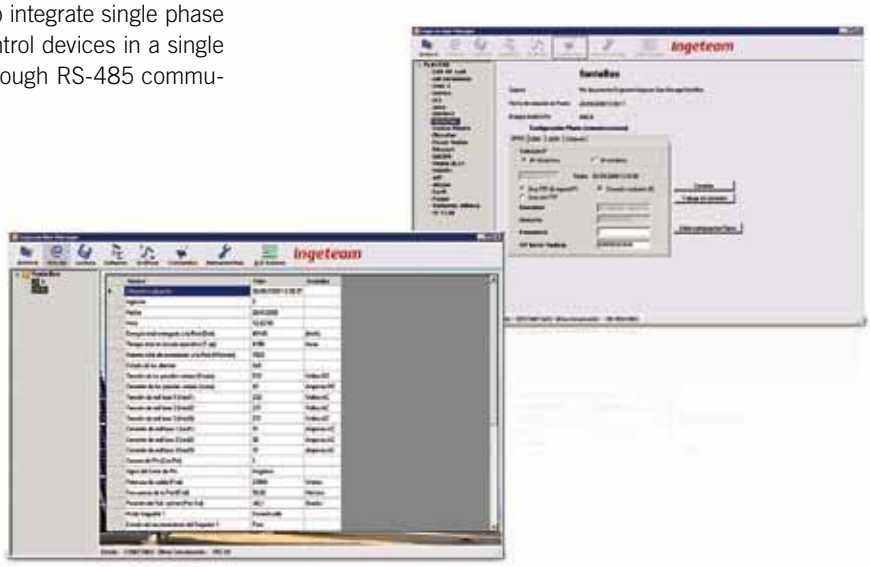
IngeconSun String Control 15 kg.



Ingecon®Sun Manager

PV plant monitoring software

The **Ingecon®Sun** software is a Windows® graphic environment PC based program for PV plant monitoring and management over the Internet. It is possible to integrate single phase and three phase inverters and string control devices in a single software package. Communication is through RS-485 communication cards, Ethernet and modem.



The software features:

- Individual configuration of each PV plant inverter.
- On-line display of the inverter internal variables.
- One-screen display of all the plant inverters.
- Multi-PV plant management from a single PC.
- Historical data capture and disc storage possibility.
- Data log display in various graph or table formats.
- Data storage in XML format.
- Configurable modem SMS alarm message functionality.
- Available in Spanish, English, German, French and Italian.

Display informativo

Totally configurable tool for displaying the most important plant parameters:

- Accumulated energy.
- Daily energy.
- Instantaneous power.
- Irradiance.
- Module temperature.
- Ambient temperature.
- Wind speed.

Customizable screen wallpaper. Data display on a TFT, LCD screen etc.

Online viewable variables

List of the online viewable variables, and which are saved by the inverter:

- Accumulated energy to the grid.
- Total time in operating status.
- Total number of grid connections.
- Total number of errors.
- Alarm status.
- Solar panel voltage.
- Solar panel current.
- Solar panel power.
- Output current to the grid.
- Phi Cosine.
- Positive/Negative Phi Cosine.
- Grid voltage.
- Grid frequency.
- Actual date and time.