ISMG 3
3 Phase Solar Inverter
15kW ÷ 20kW

CARLO GAVAZZI

ISMG 3 20

- **Wide MPP input voltage range 400 to 850VDC**
- **2 Efficient MPP indipendent Tracking circuits**
- **Integrated security and filtering system according to relevant European and International standards**
- **RS232/RS485 serial communication for local/remote control**
- **128 x 64 LCD graphic display**
- **Three colour display backlight for immediate status monitoring**
- **Wall o floor mounting**
- **IP 55 protection degree**

General Description

These Carlo gavazzi ISMG3 series PV inverters convert the energy generated by the solar modules into Three Phase 400Vac power. The self produced power is fed into the Utility Grid. This Inverter is a True Sinewave three phase balanced output and delivers balanced output even in case one string falls out. The anti-islanding and the grid monitoring system ensure system safety and compliance with the most relevant national recommendations for Grid connected generating systems.
The 2 strings inputs, managed by separate MPPT circuits and the very wide MPP range allow system design flexibility and ensure power generation in many different irradiation situations. They are equipped with built in RS232 / RS485 serial communication (with 2 connectors for easy chaining), integrated mini logger and graphic display with the possibility of showing, besides the produced power data, also trends and graphs. For daily and monthly produced energy. The memory can store up to 12 months of data. The Display backlight changes colour (red, green, white) according to the Operation status in order to show at a glance the Inverter status.
The light weight, 75kg enables installation on walls or on floor with its special "floor mounting stand" that can be ordered separately.

Ordering Key

ISMG 3 15 EN

Model
Max. AC Output Power
Country Customisation

Approvals

CE RoHS COMPLIANT

RD 1663/2000 RD 661/2007 [1]

DK5940 Ed. 2.2 April 2007 [2]

VDE0126-1-1 [3]

Notes: (1) Spanish Recommendation
(2) Italian Recommendation
(3) this Recommendation is currently adopted by: Germany, Belgium, France, Greece, Holland, Czech Republic, Poland, Portugal

Maximum Output Power

15	15.0kW
20	20.0kW

Country Customisation

	Country	Interface Type	Display	Documentation
EN	Europe	VDE0126-1-1	English	English
ES	Spain	RD1663/2000 661/2007	Spanish	Spanish
IT	Italy	DK5940	Italian	Italian
DE	Germany	VDE0126-1-1	German	German
FR	France	VDE0126-1-1	French	French

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Photovoltaic DC Input Data

Model	ISMG 3 15	ISMG 3 20
Nominal DC power	15.75kW	21kW
Max. DC power	17.3kW	23.1kW
Nominal voltage	630V	
Max. DC voltage	850V	
Min. DC voltage (P_{nom})	400V	
MPP voltage range	400...850V	
Max. DC current per each string	2 x 21.6A (43.2A)	2 x 28.9A (57.8A)
DC current nominal per each string	2 x 19.7A (39.4)	2 x 26.25A (52.5A)
Number of MPP trackers	2	
Number of strings	2	
Overvoltage protection	Yes	

AC Output Data

Model	ISMG 3 15	ISMG 3 20
Nominal AC power	15kW	20kW (19.99kW)**
Max. AC power	16.5kW	22kW
Power factor	> 0.99% @ Rated Power	
Distortion factor (THD)	< 5%	
Grid connection	True sine-wave Balanced, 3 Phase	
AC voltage range	3 x 400Vac (320÷460Vac) with programmable interface settings according to national recommendation	
AC nominal current	21.8A	29A
Max. AC current	28.2A	31.9A (31.88A)**
Frequency range	50Hz÷60Hz with progr. interface settings according to national recommendation	

** this limit is specific for the IT version (according to DK5940 norm)

General Features

Model	ISMG 3 15	ISMG 3 20
Max. efficiency	96.7%	97%
EU efficiency	95.5%	96%
Efficiency	refer to diagrams	
Night consumption	1W	
Protection device	Grid monitoring system (values according to national settings)	
Anti-islanding monitoring	Yes	
Grid monitoring	Integrated interface protection with programmable national settings	

Environmental Data

Model	ISMG 3 15	ISMG 3 20
Operating temperature with derating > 50°C	-25°C...+60°C / -13°F...140°F	
Max. acceptable temperature @ P_{nom}	+50°C / 126°F	+45°C / 121°F
Storage temperature	-25°C...+70°C / -13°F..158°F	
Humidity	0...95% (without condensation)	
Temperature control	Automatic temperature control by software	
Cooling	Integrated fans with operation controlled by software	
Protection degree	IP 55 (according to DIN EN60529)	
Installation location	Outdoor / Indoor	
Noise level	< 50dB	< 55dB

Standard Norms and Certifications

Model	ISMG 3 15	ISMG 3 20
Safety Standard	EN50178	
EMC capability	EN61000-3-2, EN61000-3-3 EN61000-3-11, EN61000-3-12 EN61000-6-2, EN61000-6-3	
Grid monitoring settings	EN VDE0126-1-1 - ES RD 1663/2000 IT DK5940 Ed. 2.2 April 2007 - DE VDE0126-1-1 - FR VDE0126-1-1	

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User Interface

Model	ISMG 3 15	ISMG 3 20
Display	128 x 64 LCD Graphic Display with variable backlight colour	
Keypad	4 keys membrane: UP; DOWN; ENTER; ESC	
AC connectors	1 x Wieland	
DC connectors	2 x 2 Multicontact (MC4 series)	
Serial interface connectors	2 x RJ45 (for chain connection)	

LCD Backlight Indication Table

LCD Backlight		Operationg Status	Description
White		Initialization	The inverter sets the initial values and detects all parameters.
		Illumination	The low solarirradiation can not start the inverter.
		Checking	The inverter is monitoring all the system parameters.
Green		Grid/MPP	The Inverter feeds the AC power to the grid.
		Derating	Reduced AC power feeding.
		Warning	The system has encountered a minor warning, but it can continue to feed the AC power to the grid.
Red		SystemFault	The inverter has detected a recoverable failure and re-starts on its own.
		SystemIdle	An unrecoverable failure occurred; manual restart from skilled personnel required.
		Programming	The program is being updated.

LCD Integrated Minilogger: Display Data

Parameter	Unit	Parameter	Unit
Output Voltage for each phase	Vac	Actual Vac grid L1	Vac
Output Freq.	Hz	Actual Iac grid L1	A
AC power fed in the grid	W	Actual Pac Grid L1	W
Produced AC Energy Today	kW/h	Actual Vac grid L2	Vac
Produced AC Energy Total	kW/h	Actual Iac grid L2	A
CO2 saved	kg	Actual Pac Grid L2	W
PV V string A	Vdc	Actual Vac grid L3	Vac
PV I string A	A	Actual Iac grid L3	A
PV Power A	W	Actual Pac Grid L3	W
PV V string B	Vdc		
PV I string B	A		
PV Power B	W		

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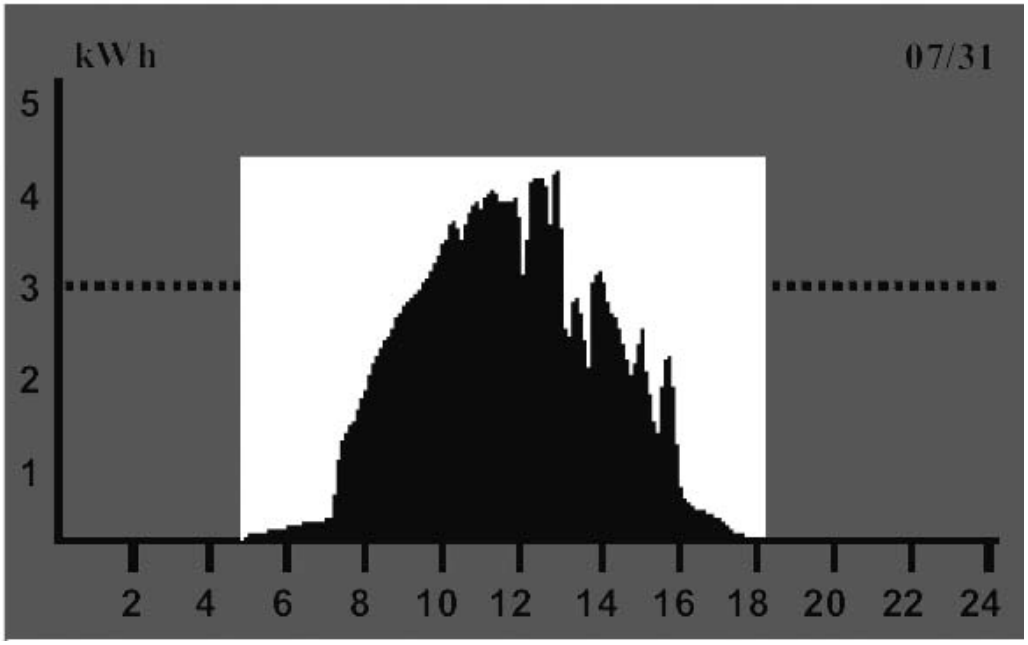
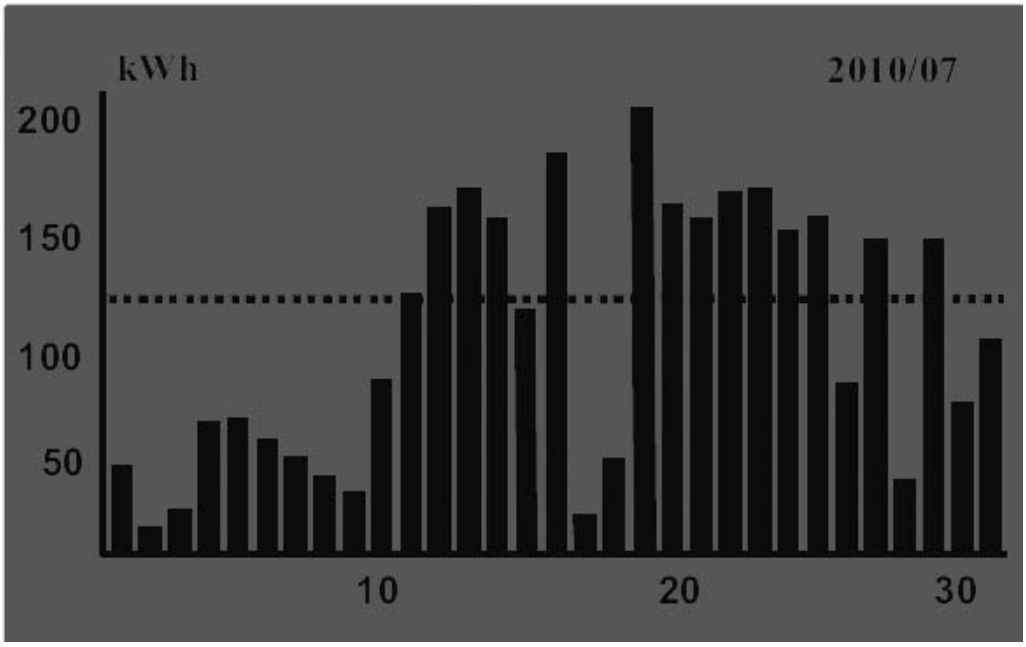
Display Graphic Function

DAILY ENERGY



The ISMG 3 can record up to 31 days of daily production charting

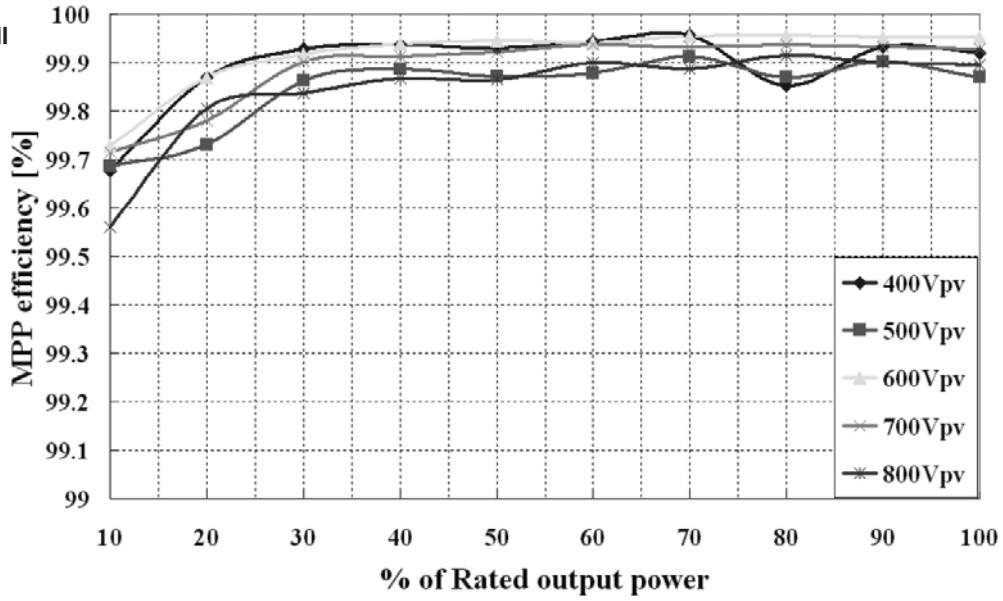
MONTHLY PRODUCTION



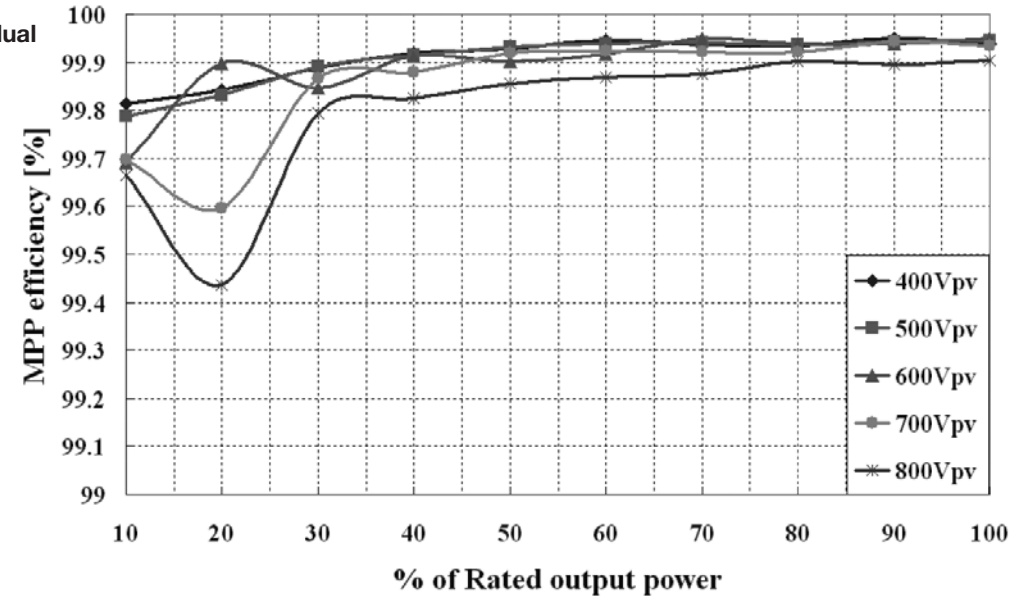
The ISMG 3 can record up to 12months of Monthly production charting

MPP Efficiency

2 PV Parallell Strings

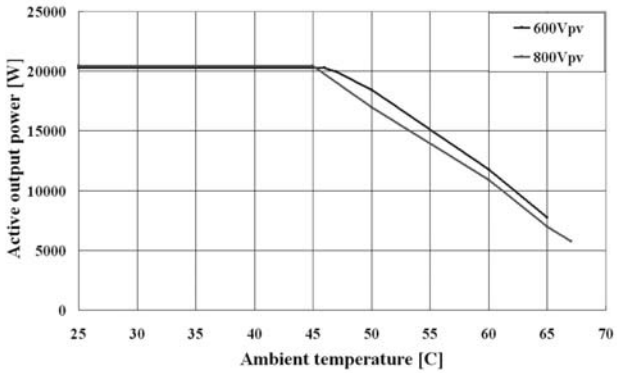


2 PV Individual Strings



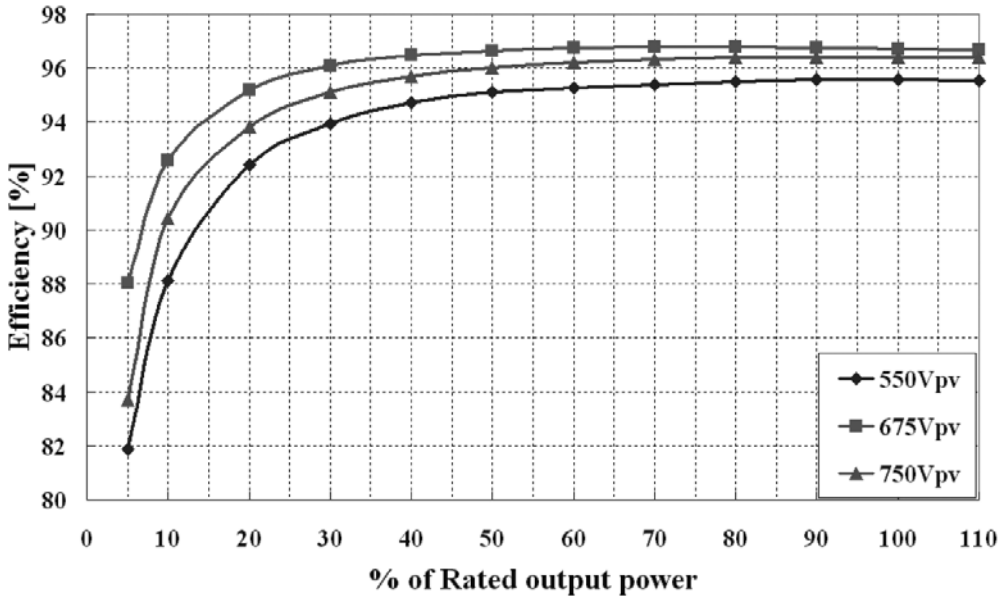
Temperature Behaviour

DERATING CURVE

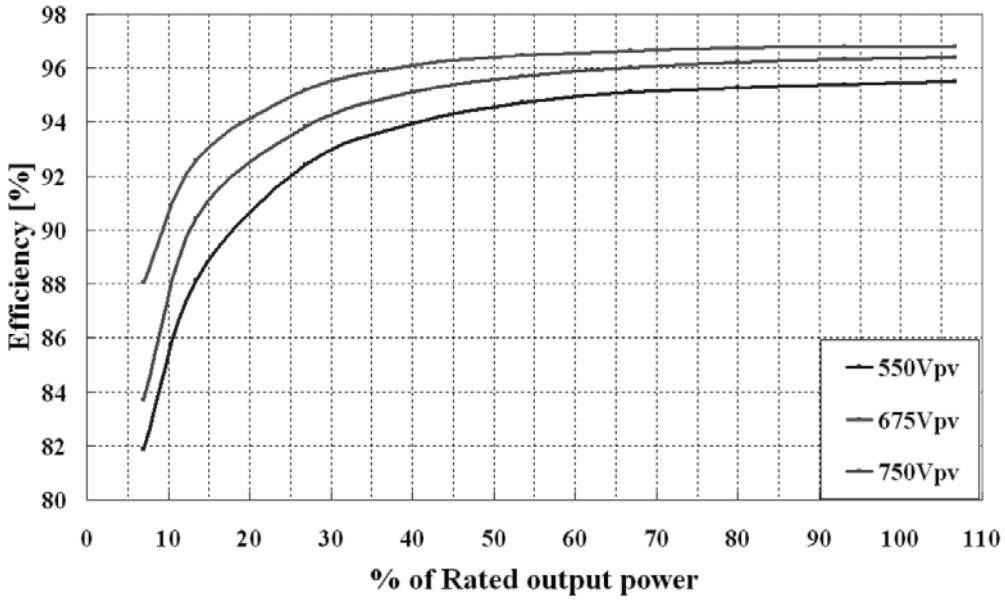


Efficiency Diagrams

ISMG 3 15

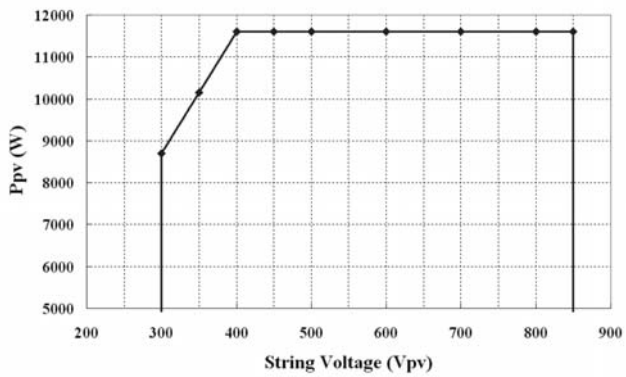


ISMG 3 20



DC Power Curve

ISMG 3 XX

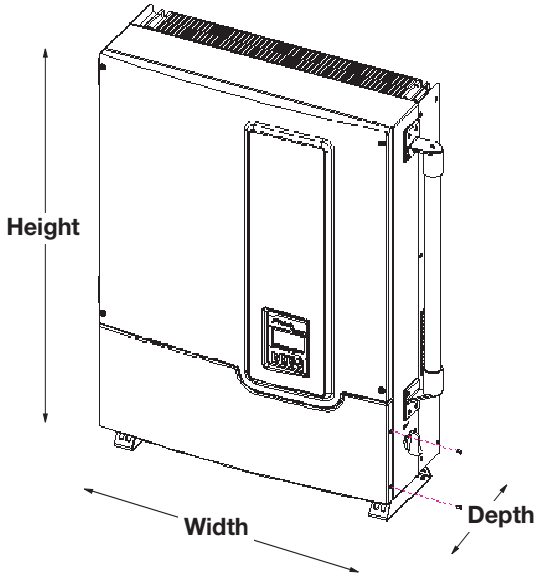


Mechanical Data

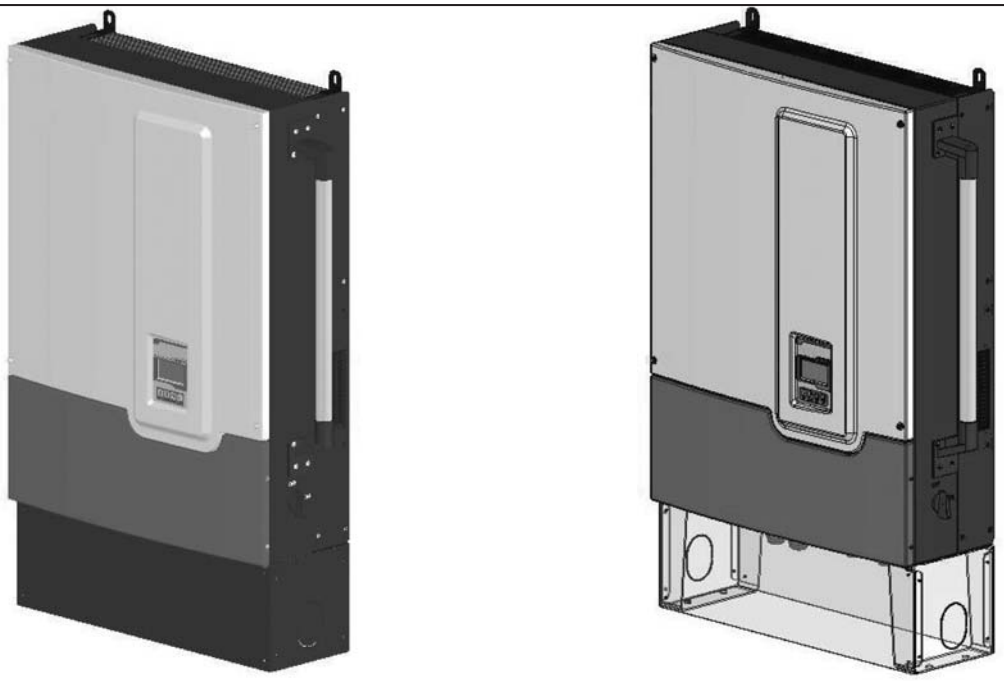
Model	ISMG 3 15	ISMG 3 20
Housing material	Powder coated aluminium	
Weight	74.5kg/164.2lb (85kg/187.4lb shipping weight)	

Dimensions

Model	ISMG 3 15	ISMG 3 20
H x W x D mm inches	890.5 x 751 x 256 (+6.5 mounting support) 35” x 29.57” x 10” (+0.26” mounting support) (shipping box dimensions: 1130 x 900 x 700)	

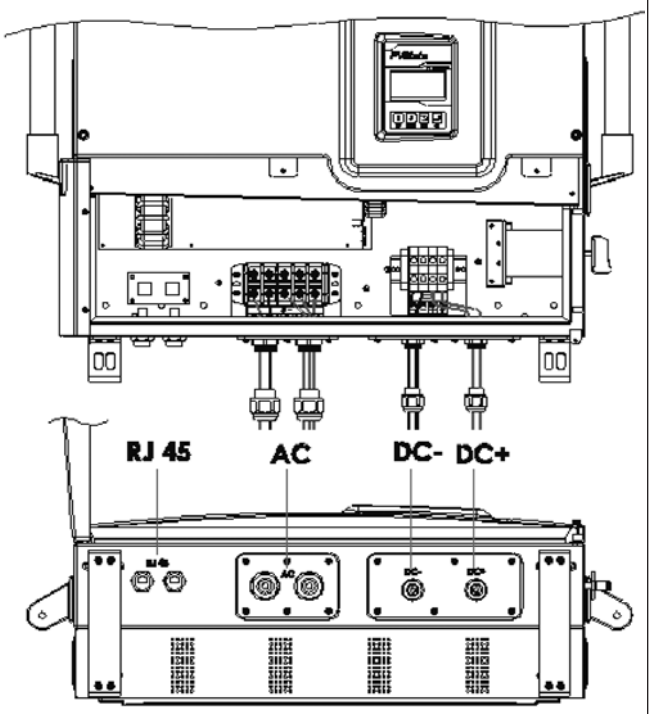


Optional Floor Mounting Support

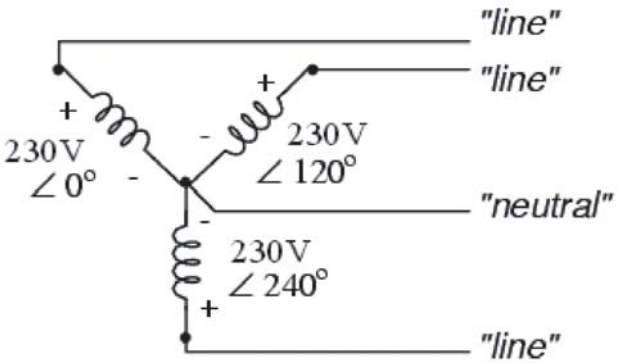


The set includes all the parts needed to install the inverter on the floor: brackets, front and side panels, stands and screws
Ordering Code: ISMG3-FMS

Wiring Box Front View

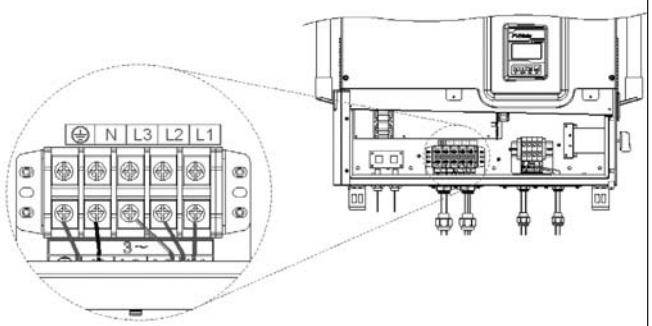


Utility Configurations



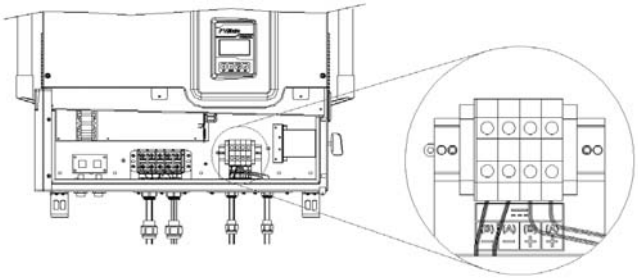
Connections of the AC Cable

Reccommended cable:
6 ÷ 10mm² / AWG # 8 ÷ AWG10

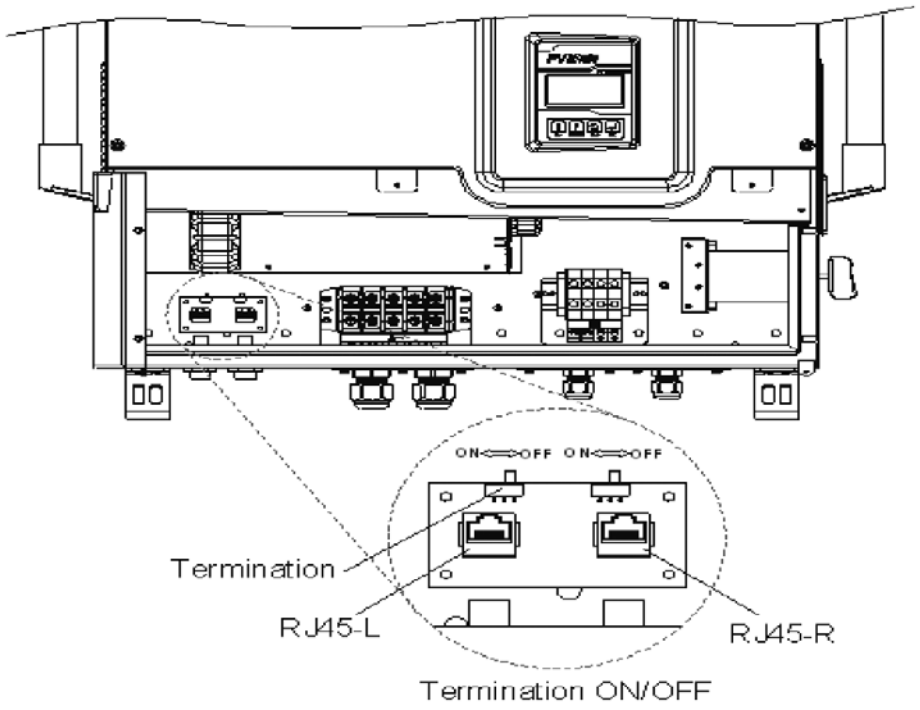


Connections of the DC Cable

Reccommended cable:
10 ÷ 16mm² / AWG # 6 ÷ AWG8



Serial Communication RS232 / RS485



Daisy Chain Configuration