

Together we can
make a difference.™



Origin4500

Your Origin system will be supplied with the following inverters:

- Clenergy
- Fronius

Please note the inverter supplied with your solar system is AS4777 accredited.

The choice of inverter will be at the **sole discretion** of our installer subject to such matters as stock availability.

Please see the following specification sheet for further details and inverter specifications.

SolarPowerHouse Grid Connected Inverters



Performance

- 94%-96% Efficiency
- Wide Input Range
- Dual Processor
- Dual Stage Input Protection

Connectivity

- RS232 and USB
- Field upgradeable
- Lan and wireless

Reliability

- CEC Approved
- 5 years warranty
- IP65 for external mounting

Options

- 10 Year Extended Warranty
- SNMP & RS485
- Zigbee interface
- Panorama Display

The Cleenergy SolarPowerHouse range of grid connected inverters provide the latest technology in a smart package. They are highly reliable and light weight. SolarPowerHouse inverters have a wide input range with a high efficiency. They are designed to be simple to install and maintenance free.

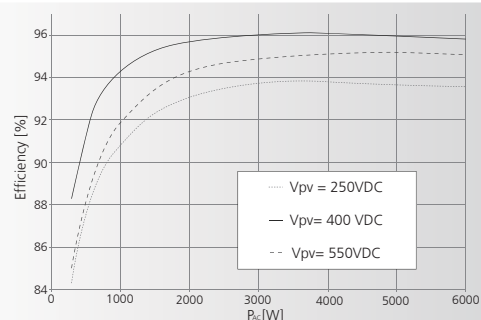
PV Input	SPH15	SPH20	SPH30	SPH40	SPH50	SPH60
Nominal DC Voltage	360 VDC	360 VDC	360 VDC	360 VDC	360 VDC	360 VDC
MPPT range	150 to 500VDC	150 to 500 VDC	150 to 500 VDC	150 to 500 VDC	150 to 600 VDC	150 to 600 VDC
Working range	100 to 500 VDC	100 to 500 VDC	100 to 500 VDC	100 to 500 VDC	100 to 600 VDC	100 to 600 VDC
Max PVO circuit voltage	550V DC	550V DC	550V DC	550V DC	600V DC	600V DC
Max. input current at 360DC	7.5A DC	10A DC	15A DC	20A DC	25A DC	30A DC
Max. input current	8.77A DC	11.57A DC	17.36A DC	20A DC	25A DC	30A DC
Max. input power.	1755W	2315W	3470W	4580W	5205W	6250W
Grid Output						
Nominal output power	1500W	2000W	3000W	4000W	5000W	6000W
Maximum output power	1650W	2200W	3300W	4400W	5000W	6000W
Operational voltage	190VAC to 270VAC	190VAC to 270VAC	190VAC to 270VAC	190VAC to 270VAC	190VAC to 270VAC	190VAC to 270VAC
Operational frequency	47-53 Hz	47-53 Hz	47-53 Hz	47-53 Hz	47-53 Hz	47-53 Hz
Current distortion	< 3%	< 3%	< 3%	< 3%	< 3%	< 3%
Power factor	>0.99	>0.99	>0.99	>0.99	>0.99	>0.99
Max. efficiency	>94%	>95%	>95%	>96%	>96%	>96%
Max. efficiency (Euro)	>93%	>94%	>94%	>95%	>95%	>95%
Environment						
Protection degree	IP65	IP65	IP65	IP65	IP65	IP65
Operation temperature	-25 to 55° C	-25 to 55° C	-25 to 55° C	-25 to 55° C	-25 to 55° C	-25 to 55° C
Humidity (0 to 95%)	non-condensing	non-condensing	non-condensing	non-condensing	non-condensing	non-condensing
Heat dissipation	Convection	Convection	Convection	Convection	Fan Assisted	Fan Assisted
Acoustic noise level	<40dB, A- weighted	<40dB, A- weighted	<40dB, A- weighted	<40dB, A- weighted	<40dB, A- weighted	<40dB, A- weighted
Communication						
Comm. Interface	RS232 & USB	RS232 & USB	RS232 & USB	RS232 & USB	RS232 & USB	RS232 & USB
Optional	SNMP & RS485	SNMP & RS485	SNMP & RS485	SNMP & RS485	SNMP & RS485	SNMP & RS485
FW upgrade	Yes, via RS232	Yes, via RS232	Yes, via RS232	Yes, via RS232	Yes, via RS232	Yes, via RS232
Technology						
Transformeless	Yes	Yes	Yes	Yes	Yes	Yes
Waveform	Sine PWM	Sine PWM	Sine PWM	Sine PWM	Sine PWM	Sine PWM
Mechanical						
HxWxD (mm)	362x312x131	362x312x131	362x312x141	384x464x131	515x464x142	515x464x142
Weight (kg)	14	14	14	21	27	27

Lab:



Certificate:

AS3100
AS4777





FRONIUS **IG** PV Inverter

Technical data sheet

- + An informative display for monitoring all system functions.
- + Quick and easy installation.
- + Maximum reliability.
- + High Frequency Transformer Technology offers maximum output in minimum space.
- + The Intelligent Module-Manager's™ process optimises yields.
- + The MIX™ Concept increases energy yields in the part load area.
- + FRONIUS IG DatCom components offer a reliable and simple visualisation and monitoring.



POWERING YOUR FUTURE



OVERVIEW OF THE FRONIUS IG FAMILY

FRONIUS IG. The Reliable PV Inverter Series.

The FRONIUS IG series has proven itself to be powerful, user-friendly and highly reliable in a compact format. Equipped for every size of system, the combination of different types available for selection is limitless. The ingenious processor control combined with the powerful HF transformer extracts the maximum energy yield from all types of modules.

FRONIUS IG 60 HV. The Powerhouse.

Higher yield due to work-sharing is achieved by linking the two power circuits using the MIX™ concept, our optimised master-slave system. In the part-load range only one of the two power stage sets operates, while both work together at full-load. The advantages are a noticeable increase in yield with a simultaneous reduction in operating wear.

FRONIUS IG Outdoors. The Weatherproof IG.

The FRONIUS IG Outdoors has been created specially for use in the open air and has been tested to an IP45 degree of protection. This ensures a continuous circulation of air that prevents condensate from collecting. The IG is also protected against the ingress of solid foreign bodies and hose water. It is also reliable and safe to use near the sea due to a special protective coating applied to the printed circuit boards within the inverter.

TECHNICAL DETAILS.

It goes without saying that every FRONIUS IG complies with all the obligatory guidelines and standards of each country. More in-depth information and certificates may be viewed at www.fronius.com under "downloads". Of course, all FRONIUS IG bear the **CE** mark.

TECHNICAL DATA	FRONIUS IG 15	20	30	40	60 HV
MPP voltage range	150 - 400 V	150 - 400 V	150 - 400 V	150 - 400 V	150 - 400 V
Max. input voltage (at 1000 W/m ² ; -10°C)	500 V	500 V	500 V	500 V	530 V
PV array output	1300 - 2000 Wp	1800 - 2700 Wp	2500 - 3600 Wp	3500 - 5500 Wp	4600 - 6700 Wp
Nominal output	1300 W	1800 W	2500 W	3500 W	4600 W
Max. power output	1500 W	2000 W	2650 W	4100 W	5000 W
Max. efficiency	94.2 %	94.3 %	94.3 %	94.3 %	94.3 %
Euro efficiency	91.4 %	92,3 %	92.7 %	93.5 %	93.5 %
Mains voltage/frequency	230 V / 50 Hz (60 Hz)				
Size (l x w x h)	366 x 344 x 220 mm (500 x 435 x 225 mm) 610 x 344 x 220 mm (733 x 435 x 225 mm)				
Weight	9 kg (12 kg)		16 kg (20 kg)		
Cooling	controlled forced-air cooling				
Housing variations	designer internal housing; optional outer housing				
Ambient temperature range	-20 50 °C				



FRONIUS INTERNATIONAL GMBH
 A 4600 Wels-Thalheim, Günter-Fronius-Straße 1
 E-Mail: PV@fronius.com
www.fronius.com

Fronius IG TL

Transformerless PV inverter with standard system monitoring

System monitoring with the Status Manager comes standard with the Fronius IG TL. This includes string malfunction detection, detailed status codes as well as a direct signaling contact. The Status Manager immediately reports any problems throughout the entire system thus locking in system yields for the long-term. It also has a unique feature in which a commercially-available USB stick can be used for easy system monitoring as well as simple inverter updating. Get plugged into the future!



Technical Data Fronius IG TL 3.0 / 3.6 / 4.0 / 5.0

Naturally, all Fronius IG TL devices have the **CE** mark and meet all required guidelines and standards. For more information and certificates as well as details regarding system analysis and control using the DATCOM system, please go to www.fronius.com.

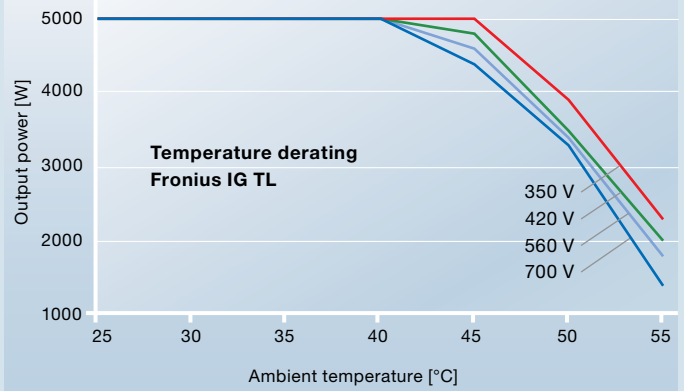
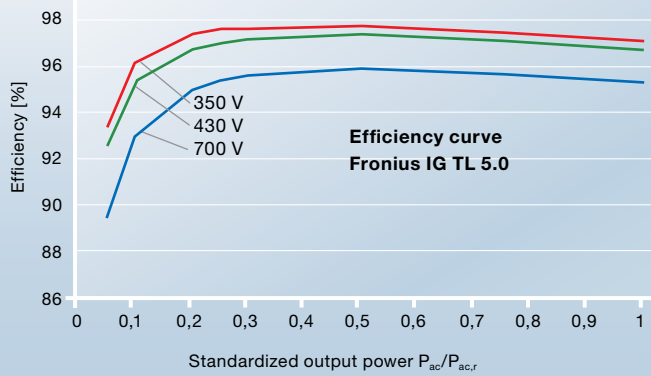
Data as per EN 50524:2008

INPUT DATA	Fronius IG TL 3.0	Fronius IG TL 3.6	Fronius IG TL 4.0	Fronius IG TL 5.0
DC maximum power	3130 W	3840 W	4190 W	5250 W
Max. input current ($I_{dc\ max}$)	8.8 A	10.8 A	11.8 A	14.7 A
Min. input voltage ($U_{dc\ min}$)			350 V	
Feed-in starting voltage ($U_{dc\ start}$)			350 V	
Nominal input voltage ($U_{dc,r}$)			350 V	
Max. input voltage ($U_{dc\ max}$)			850 V	
MPP voltage range ($U_{mpp\ min} - U_{mpp\ max}$)			350 - 700 V	
OUTPUT DATA				
AC nominal output ($P_{ac,r}$)	3000 W	3680 W	4000 W	4600 W* / 5000 W
Max. output power	3000 W	3680 W	4000 W	5000 W
Max. output current ($I_{ac\ max}$)	13.0 A	16.0 A	17.4 A	21.7 A
Grid connection			1~NPE 230 V	
Min. output voltage ($U_{ac\ min}$)			180 V	
Max. output current ($U_{ac\ max}$)			270 V	
Frequency (f_i)			50 Hz / 60 Hz	
Frequency range ($f_{min} - f_{max}$)			45 Hz - 65 Hz	
Harmonic distortion			< 3 %	
Power factor ($\cos \varphi_{ac,r}$)			1	
Night consumption			< 1 W	

* Fronius IG TL 5.0 devices destined for Germany, Austria, Belgium and the Czech Republic have an AC nominal output of 4600 W.



POWERING YOUR FUTURE



EFFICIENCY	Fronius IG TL 3.0	Fronius IG TL 3.6	Fronius IG TL 4.0	Fronius IG TL 5.0
Max. efficiency	97.7 %	97.7 %	97.7 %	97.7 %
Euro. efficiency (η_{EU})	97.1 %	97.2 %	97.3 %	97.3 %
η at 5 % $P_{ac,r}$ and at $U_{mpp\ min} / U_{mpp\ max}$	92.1 / 87.8 %	92.6 / 88.3 %	92.9 / 88.6 %	93.4 / 89.4 %
η at 10 % $P_{ac,r}$ and at $U_{mpp\ min} / U_{mpp\ max}$	94.2 / 90.2 %	95.3 / 91.2 %	95.7 / 91.8 %	96.1 / 92.9 %
η at 20 % $P_{ac,r}$ and at $U_{mpp\ min} / U_{mpp\ max}$	96.6 / 93.6 %	96.9 / 94.2 %	97.2 / 94.5 %	97.4 / 94.9 %
η at 25 % $P_{ac,r}$ and at $U_{mpp\ min} / U_{mpp\ max}$	97.0 / 94.3 %	97.2 / 94.7 %	97.4 / 94.9 %	97.6 / 95.3 %
η at 30 % $P_{ac,r}$ and at $U_{mpp\ min} / U_{mpp\ max}$	97.3 / 94.7 %	97.4 / 95.1 %	97.5 / 95.2 %	97.6 / 95.5 %
η at 50 % $P_{ac,r}$ and at $U_{mpp\ min} / U_{mpp\ max}$	97.6 / 95.5 %	97.6 / 95.7 %	97.7 / 95.7 %	97.7 / 95.8 %
η at 75 % $P_{ac,r}$ and at $U_{mpp\ min} / U_{mpp\ max}$	97.6 / 95.8 %	97.6 / 95.8 %	97.5 / 95.7 %	97.4 / 95.6 %
η at 100 % $P_{ac,r}$ and at $U_{mpp\ min} / U_{mpp\ max}$	97.5 / 95.7 %	97.4 / 95.6 %	97.3 / 95.5 %	97.0 / 95.2 %
MPP adaptation efficiency	> 99.9 %			

GENERAL DATA

Dimensions (height x width x depth)	597 x 413 x 195 mm
Weight	19.1 kg
Degree of protection	IP 45
Protection class	1
Inverter concept	Transformerless
Cooling	Regulated air cooling
Installation	Indoor and outdoor installation
Ambient temperature range	From -20°C to +55°C
Permitted humidity	0 % to 95 %
DC connection technology	6x DC + and 6x DC - screw terminal connections 2.5 mm ² - 16 mm ²
AC connection technology	3-pin AC screw terminal connection 2.5 mm ² - 16 mm ²
Standards for grid interface (country-specific)	DIN V VDE V 0126-1-1, ÖVE/ÖNORM E 8001-4-712, UTE C15-712, EN 50438, G83, G59, C 10 / 11, CER 06-190 Guida per le connessioni alla rete elettrica di ENEL Distribuzione, AS 4777-1, AS 4777-2, AS 4777-3

SAFETY EQUIPMENT

DC insulation measurement	Universal-current-sensitive fault monitoring
Overload behavior	Operating point shift, power limiter
DC circuit breaker	integrated

INTERFACES

USB A socket	For USB sticks** with max. dimensions of 80 x 33 x 20 mm (L x W x H)
Signalling output (NO contact)	2-pin screw terminal, 12 V max. 300 mA
2x RJ45 sockets (RS485)	Solar Net interface, interface protocol

** Please note the information regarding the use of USB sticks in the operating instructions (temperature range).



FRONIUS AUSTRALIA PTY LTD
 90-92 Lambeck Drive
 Tullamarine, VIC 3043
 E-Mail: pv-sales-australia@fronius.com

FRONIUS INTERNATIONAL GMBH
 Froniusplatz 1, 4600 Wels, Austria
 E-Mail: PV@fronius.com

www.fronius.com.au