

FRONIUS IG TRANSFORMER INVERTER

/ The dependable PV inverter range.



/ MIX™ concept

/ HF transformer
switchover

/ Module Manager

/ PC board
replacement concept

/ With the Fronius IG product family, Fronius has launched a generation of inverters rated from 1.5 to 5 kW that is compatible with all solar modules. What makes the inverters so appealing is their intuitive operation and ease of use, together with their highly informative analyses of system values in every situation. In short: a PV inverter that any system operator would welcome.

TECHNICAL DATA: FRONIUS IG

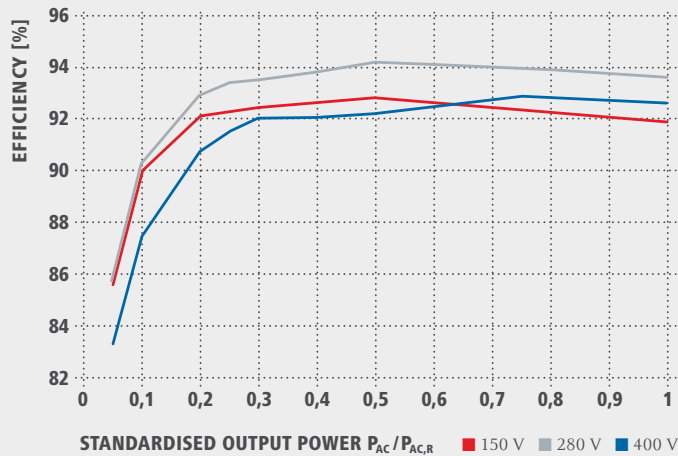
INPUT DATA	IG 15	IG 20	IG 30	IG 40	IG 50 ¹⁾	IG 60 HV
DC maximum power at $\cos \varphi = 1$	1,610 W	2,150 W	2,850 W	4,410 W	4,950 W	5,380 W
Max. input current ($I_{dc \max}$)	10.8 A	14.3 A	19.0 A	29.4 A	33.0 A	35.8 A
Min. input voltage ($U_{dc \min}$)						150 V
Feed-in start voltage ($U_{dc \text{ start}}$)						170 V
Nominal input voltage ($U_{dc, r}$)						280 V
Max. input voltage ($U_{dc \max}$)	500 V				530 V	
MPP voltage range ($U_{mpp \min} - U_{mpp \max}$)	150 V – 400 V					
Number of DC inputs	5					

OUTPUT DATA	IG 15	IG 20	IG 30	IG 40	IG 50 ¹⁾	IG 60 HV
AC nominal output ($P_{ac, r}$)	1,300 W	1,800 W	2,500 W	3,500 W	4,600 W	4,600 W
Max. output power	1,500 W	2,000 W	2,650 W	4,100 W	4,600 W	5,000 W
Max. output current ($I_{ac \max}$)	6.5 A	8.7 A	11.5 A	17.8 A	20.0 A	21.7 A
Grid connection ($U_{ac, r}$)						1-NPE 230 V
Min. output voltage ($U_{ac \min}$)						180 V
Max. output voltage ($U_{ac \max}$)						270 V
Frequency (f_r)						50 Hz / 60 Hz
Frequency range ($f_{\min} - f_{\max}$)						47 Hz – 65 Hz
Distortion factor						< 3 %
Power factor ($\cos \varphi_{ac, r}$)						1

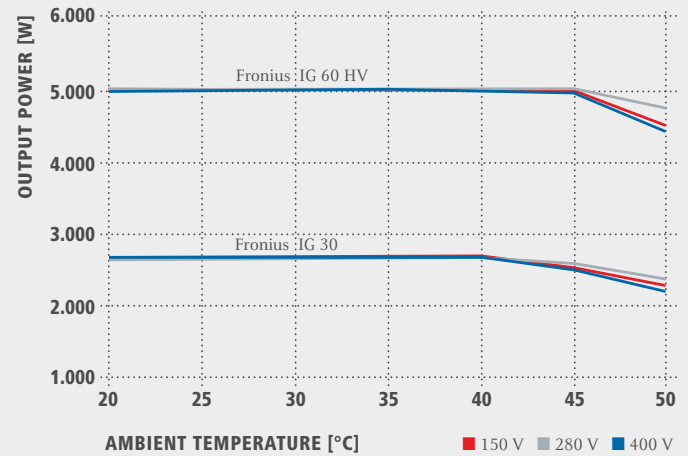
GENERAL DATA	IG 15	IG 20	IG 30	IG 40	IG 50 ¹⁾	IG 60 HV
Dimensions (height x width x depth)	366 x 344 x 220 mm / 500 x 435 x 225 mm ²⁾			610 x 344 x 220 mm / 733 x 435 x 225 mm ²⁾		
Weight	9 kg / 12 kg ²⁾			16 kg / 20 kg ²⁾		
Degree of protection						IP 21 / IP 45 ²⁾
Protection class						1
Overvoltage category (DC / AC)						2 / 3
Night-time consumption						< 1 W
Inverter concept						HF transformer
Cooling						Regulated air cooling
Installation						Indoor and outdoor installation ²⁾
Ambient temperature range						from -20°C – +50°C
Permitted humidity						0% – 95%
DC connection technology						Screw terminal connection 1.5 – 10 mm ² ; DC plug optional ³⁾
AC connection technology						Screw terminal connection 1.5 – 16 mm ²
Certificates and compliance with standards	DIN V VDE V 0126-1-1, ÖVE/ÖNORM E 8001-4-712, UTE C15-712-1, 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					

¹⁾ Fronius IG 50 devices may only be used in Germany. ²⁾ This applies to Fronius IG Outdoor ³⁾ MC3, MC4 or Tyco

FRONIUS IG 60 HV EFFICIENCY CURVE



FRONIUS IG TEMPERATURE DERATING



TECHNICAL DATA: FRONIUS IG

EFFICIENCY	IG 15	IG 20	IG 30	IG 40	IG 50 ¹⁾	IG 60 HV
Max. efficiency	94.2 %	94.3 %	94.3 %	94.3 %	94.3 %	94.3 %
European efficiency (η_{EU})	91.4 %	92.3 %	92.9 %	93.2 %	93.5 %	93.5 %
η at 5% $P_{AC,R}$ ⁴⁾	75.0 / 76.9 / 71.1 %	77.4 / 80.6 / 71.1 %	81.6 / 83.1 / 81.4 %	82.7 / 83.3 / 80.2 %	85.6 / 85.8 / 83.3 %	85.6 / 85.8 / 83.3 %
η at 10% $P_{AC,R}$ ⁴⁾	81.6 / 83.1 / 81.4 %	84.9 / 86.2 / 83.4 %	87.4 / 88.6 / 85.9 %	88.5 / 89.3 / 85.0 %	90.0 / 90.3 / 87.5 %	90.0 / 90.3 / 87.5 %
η at 20% $P_{AC,R}$ ⁴⁾	87.8 / 89.2 / 85.9 %	89.7 / 90.5 / 87.3 %	91.2 / 91.8 / 89.1 %	91.5 / 92.3 / 89.6 %	92.2 / 93.0 / 90.8 %	92.2 / 93.0 / 90.8 %
η at 25% $P_{AC,R}$ ⁴⁾	89.3 / 89.9 / 86.8 %	90.8 / 91.3 / 88.5 %	91.8 / 92.7 / 90.2 %	92.1 / 92.9 / 90.6 %	92.4 / 93.5 / 91.6 %	92.4 / 93.5 / 91.6 %
η at 30% $P_{AC,R}$ ⁴⁾	90.1 / 90.7 / 87.9 %	91.5 / 92.3 / 89.8 %	92.3 / 93.2 / 90.9 %	92.4 / 93.3 / 91.1 %	92.5 / 93.6 / 92.1 %	92.5 / 93.6 / 92.1 %
η at 50% $P_{AC,R}$ ⁴⁾	92.0 / 92.9 / 90.3 %	92.6 / 93.7 / 91.4 %	92.8 / 94.0 / 92.4 %	92.7 / 93.9 / 91.5 %	92.9 / 94.3 / 92.3 %	92.9 / 94.3 / 92.3 %
η at 75% $P_{AC,R}$ ⁴⁾	92.7 / 93.8 / 91.7 %	92.8 / 94.3 / 92.6 %	92.4 / 94.3 / 92.8 %	92.9 / 94.1 / 92.6 %	92.5 / 94.1 / 92.9 %	92.5 / 94.1 / 92.9 %
η at 100% $P_{AC,R}$ ⁴⁾	92.8 / 94.2 / 92.5 %	92.4 / 94.0 / 92.9 %	92.0 / 93.4 / 92.6 %	92.5 / 94.3 / 92.9 %	92.0 / 93.7 / 92.7 %	92.0 / 93.7 / 92.7 %
MPP adaptation efficiency	>99.9%					

⁴⁾ and at $U_{mpp\ min} / U_{dc,r} / U_{mpp\ max}$

PROTECTIVE EQUIPMENT	IG 15	IG 20	IG 30	IG 40	IG 50 ¹⁾	IG 60 HV
DC insulation measurement	Warning/shutdown (depending on country setup) at $R_{ISO} < 500\ k\Omega$					
Overload behaviour	Operating point shift, power limitation					
Reverse polarity protection	Integrated					

/ Battery Charging Systems / Welding Technology / Solar Electronics

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