

# FRONIUS IG TRANSFORMER INVERTER

/ The dependable PV inverter range.

/ Fronius  
MIX™ concept/ HF transformer  
switchover/ Fronius Module  
Manager/ PC board  
replacement concept

/ With the Fronius IG product family, Fronius has launched a generation of inverters rated from 1.3 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 60 HV
DC maximum power at $\cos \varphi = 1$	1,610 W	2,150 W	2,850 W	4,410 W	5,380 W
Max. input current ( $I_{dc \max}$ )	10.8 A	14.3 A	19.0 A	29.4 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				

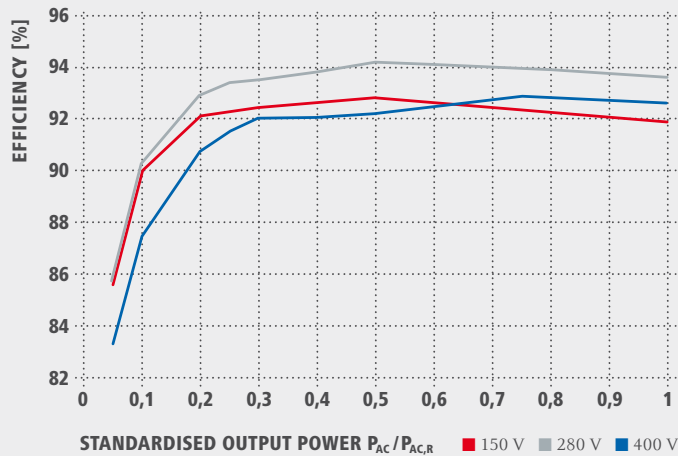
OUTPUT DATA	IG 15	IG 20	IG 30	IG 40	IG 60 HV
AC nominal output ( $P_{ac,r}$ )	1,300 W	1,800 W	2,500 W	3,500 W	4,600 W
Max. output power	1,500 W	2,000 W	2,650 W	4,100 W	5,000 W
Max. output current ( $I_{ac \max}$ )	6.5 A	8.7 A	11.5 A	17.8 A	21.7 A
Grid connection ( $U_{ac,r}$ )	1-NPE 230 V				
Min. output 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 60 HV
Dimensions (height x width x depth)	366 x 344 x 220 mm / 500 x 435 x 225 mm <sup>1)</sup>			610 x 344 x 220 mm / 733 x 435 x 225 mm <sup>1)</sup>	
Weight	9 kg / 12 kg <sup>1)</sup>			16 kg / 20 kg <sup>1)</sup>	
Degree of protection	IP 21 / IP 45 <sup>1)</sup>				
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 <sup>1)</sup>				
Ambient temperature range	from -20°C to +50°C				
Permitted humidity	0 % to 95 %				
DC connection technology Fronius Indoor	Screw terminal connection 1.5 – 10 mm <sup>2</sup> ; DC plug optional <sup>2)</sup>				
DC connection technology Fronius Outdoor	DC plug <sup>2)</sup>				
AC connection technology Fronius Indoor	Screw terminal connection 1.5 – 10 mm <sup>2</sup> ; plug optional				
AC connection technology Fronius Outdoor	Screw terminal connection 1.5 – 10 mm <sup>2</sup>				
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				

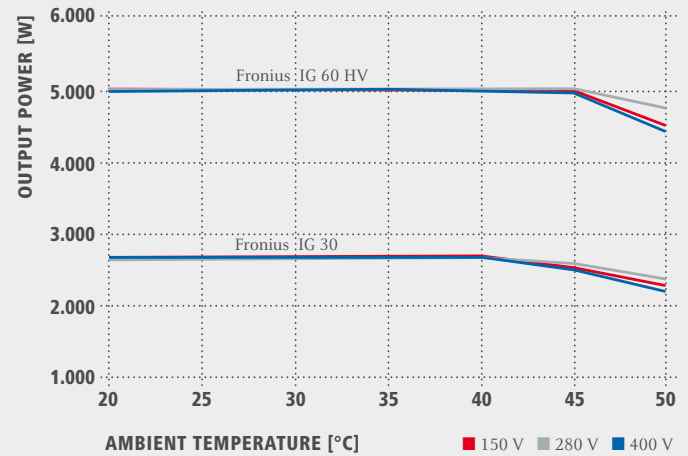
Fronius IG devices are not intended to be used in Germany, Denmark and Italy. Fronius IG 40 and Fronius IG 60 devices are not intended to be used in the UK.

<sup>1)</sup> This applies to Fronius IG Outdoor <sup>2)</sup> 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 60 HV
Max. efficiency	94,2 %	94,3 %	94,3 %	94,3 %	94,3 %
European efficiency ( $\eta_{EU}$ )	91,4 %	92,3 %	92,9 %	93,2 %	93,5 %
$\eta$ at 5% $P_{ac,r}$ <sup>1)</sup>	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 %
$\eta$ at 10% $P_{ac,r}$ <sup>1)</sup>	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 %
$\eta$ at 20% $P_{ac,r}$ <sup>1)</sup>	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 %
$\eta$ at 25% $P_{ac,r}$ <sup>1)</sup>	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 %
$\eta$ at 30% $P_{ac,r}$ <sup>1)</sup>	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 %
$\eta$ at 50% $P_{ac,r}$ <sup>1)</sup>	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 %
$\eta$ at 75% $P_{ac,r}$ <sup>1)</sup>	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 %
$\eta$ at 100% $P_{ac,r}$ <sup>1)</sup>	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 %
MPP adaptation efficiency			> 99,9 %		

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

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<sup>1)</sup> and at  $U_{mpp\ min} / U_{dc,r} / U_{mpp\ max}$ .

/ Battery Charging Systems / Welding Technology / Solar Electronics

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