

# FRONIUS GALVO

/ Not just an inverter, but an energy management system.



/ PC board replacement process



/ SnapINverter Technology



/ HF transformer switchover



/ Integrated data communication



/ Smart Grid Ready

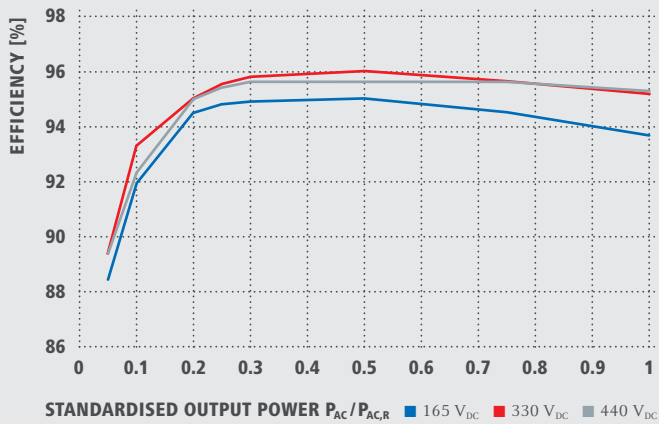
/ With power categories ranging from 1.5 to 3.1 kW, the Fronius Galvo is perfect for households – and is especially suitable for self-consumption systems. The integrated energy management relay allows the self-consumption component to be maximised. A host of other smart features make the Fronius Galvo one of the most future-proof inverters in its class: for example, the integrated datalogging, the simple connection to the internet by WLAN, or the plug-in card technology for retrofitting additional functions.

## TECHNICAL DATA FRONIUS GALVO

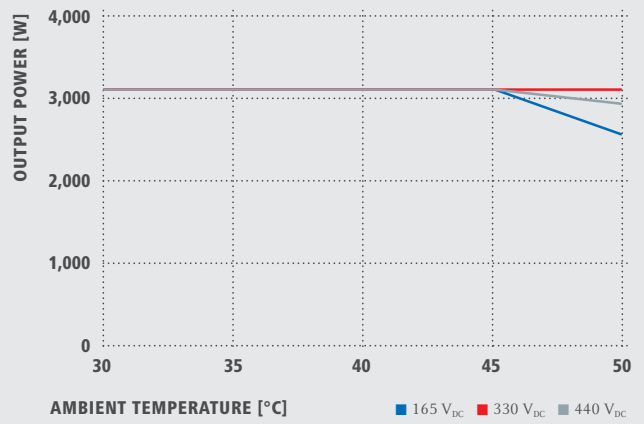
INPUT DATA	GALVO 1.5-1	GALVO 2.0-1	GALVO 2.5-1	GALVO 3.0-1	GALVO 3.1-1
DC maximum power at $\cos \varphi = 1$ <sup>1)</sup>	1,600 W	2,140 W	2,650 W	3,160 W	3,310 W
Max. input current ( $I_{dc,max}$ )	13.3 A	17.8 A	16.6 A	19.8 A	20.7 A
Max. array short circuit current	20.0 A	26.8 A	24.8 A	29.6 A	31.0 A
Min. input voltage ( $U_{dc,min}$ )		120 V		165 V	
Feed-in start voltage ( $U_{dc,start}$ )		140 V		185 V	
Nominal input voltage ( $U_{dc,r}$ )		260 V		330 V	
Max. input voltage ( $U_{dc,max}$ )		420 V		550 V	
MPP voltage range ( $U_{mpp,min} - U_{mpp,max}$ )		120 - 335 V		165 - 440 V	
Number of MPP trackers			1		
Number of DC connections			3		
OUTPUT DATA	GALVO 1.5-1	GALVO 2.0-1	GALVO 2.5-1	GALVO 3.0-1	GALVO 3.1-1
AC nominal output ( $P_{ac,r}$ )	1,500 W	2,000 W	2,500 W	3,000 W	3,100 W
Max. output power	1,500 VA	2,000 VA	2,500 VA	3,000 VA	3,100 VA
Max. output current ( $I_{ac,max}$ )	7.2 A	9.7 A	12.1 A	14.5 A	15.0 A
Grid connection (voltage range)			1-NPE 230 V (+17 % / -20 %)		
Frequency (frequency range)			50 Hz / 60 Hz (45 - 65 Hz)		
Total harmonic distortion			< 4 %		
Power factor ( $\cos \varphi_{ac,r}$ )			0.85 - 1 ind. / cap.		
GENERAL DATA	GALVO 1.5-1	GALVO 2.0-1	GALVO 2.5-1	GALVO 3.0-1	GALVO 3.1-1
Dimensions (height x width x depth)			645 x 431 x 204 mm		
Weight	16.4 kg			16.8 kg	
Degree of protection			IP 65		
Protection class			1		
Overvoltage category (DC / AC) <sup>2)</sup>			2 / 3		
Night-time consumption			< 1 W		
Inverter concept			HF transformer		
Cooling			Regulated air cooling		
Installation			Indoor and outdoor installation		
Ambient temperature range			-25 - +50 °C		
Permitted humidity			0 to 100 %		
Max. altitude		2,000 m / 3,500 m (unrestricted / restricted voltage range)			
DC connection technology		Screw terminal connection 2.5 mm <sup>2</sup> - 16 mm <sup>2</sup>			
AC connection technology		Screw terminal connection 2.5 mm <sup>2</sup> - 16 mm <sup>2</sup>			
Certificates and compliance with standards	AS 4777-2&3, AS3100, IEC 62109-1&2, IEC 61727, IEC 62116, G83, G59, DIN V VDE 0126-1-1/A1, VDE AR N 4105, CER 06-190, CEI 0-21, EN 50438, ÖVE / ÖNORM E 8001-4-712				

<sup>1)</sup> Maximum power inverter can convert <sup>2)</sup> Testing to IEC 62109-1.

## FRONIUS GALVO 3.1-1 EFFICIENCY CURVE



## FRONIUS GALVO 3.1-1 TEMPERATURE DERATING



## TECHNICAL DATA FRONIUS GALVO

EFFICIENCY	GALVO 1.5-1	GALVO 2.0-1	GALVO 2.5-1	GALVO 3.0-1	GALVO 3.1-1
Max. efficiency	95.9 %	96.0 %		96.1 %	
European efficiency (η <sub>EU</sub> )	94.5 %	94.9 %	95.2 %	95.4 %	95.4 %
η at 5 % P <sub>AC,r</sub> <sup>1)</sup>	84.5 / 86.0 / 86.0 %	84.2 / 86.1 / 85.9 %	88.6 / 89.6 / 89.4 %	88.2 / 89.2 / 89.1 %	88.4 / 89.4 / 89.4 %
η at 10 % P <sub>AC,r</sub> <sup>1)</sup>	87.5 / 89.7 / 89.6 %	89.6 / 91.4 / 91.3 %	91.2 / 92.3 / 91.4 %	91.8 / 93.1 / 92.1 %	91.9 / 93.3 / 92.3 %
η at 20 % P <sub>AC,r</sub> <sup>1)</sup>	91.3 / 93.3 / 93.1 %	92.6 / 94.3 / 93.9 %	94.0 / 94.8 / 94.5 %	94.4 / 95.0 / 94.9 %	94.5 / 95.0 / 95.0 %
η at 25 % P <sub>AC,r</sub> <sup>1)</sup>	92.4 / 94.1 / 93.9 %	93.3 / 94.9 / 94.5 %	94.5 / 95.1 / 95.0 %	94.8 / 95.5 / 95.3 %	94.8 / 95.5 / 95.4 %
η at 30 % P <sub>AC,r</sub> <sup>1)</sup>	93.0 / 94.6 / 94.3 %	93.6 / 95.2 / 94.9 %	94.8 / 95.5 / 95.3 %	94.8 / 95.7 / 95.6 %	94.9 / 95.8 / 95.6 %
η at 50 % P <sub>AC,r</sub> <sup>1)</sup>	93.9 / 95.5 / 95.2 %	94.3 / 95.8 / 95.2 %	95.0 / 95.7 / 95.2 %	95.0 / 96.0 / 95.5 %	95.0 / 96.1 / 95.6 %
η at 75 % P <sub>AC,r</sub> <sup>1)</sup>	94.2 / 95.6 / 95.4 %	94.0 / 95.9 / 95.6 %	94.8 / 95.9 / 95.6 %	94.6 / 95.8 / 95.6 %	94.5 / 95.6 / 95.6 %
η at 100 % P <sub>AC,r</sub> <sup>1)</sup>	94.0 / 95.9 / 95.6 %	93.5 / 95.6 / 95.5 %	94.4 / 95.7 / 95.5 %	93.9 / 95.4 / 95.3 %	93.7 / 95.2 / 95.3 %
MPP adaptation efficiency	> 99.9 %				
PROTECTION DEVICES	GALVO 1.5-1	GALVO 2.0-1	GALVO 2.5-1	GALVO 3.0-1	GALVO 3.1-1
DC insulation measurement	Warning/shutdown (depending on country setup) at R <sub>ISO</sub> < 600 kOhm				
Overload behavior	Operating point shift, power limitation				
DC disconnecter	Included				
INTERFACES	GALVO 1.5-1	GALVO 2.0-1	GALVO 2.5-1	GALVO 3.0-1	GALVO 3.1-1
WLAN / Ethernet LAN	Fronius Solar.web, Modbus TCP SunSpec, Fronius Solar API (JSON)				
6 inputs and 4 digital inputs/outputs	Interface to ripple control receiver				
USB (A socket) <sup>2)</sup>	Datalogging, inverter update via USB flash drive				
2x RS422 (RJ45 socket) <sup>2)</sup>	Fronius Solar Net, interface protocol				
Signalling output <sup>2)</sup>	Energy management (floating relay output)				
Datalogger and Webserver	Included				
RS485 <sup>3)</sup>	Modbus RTU SunSpec or meter connection				

<sup>1)</sup> And at U<sub>mpp min</sub> / U<sub>dc,r</sub> / U<sub>mpp max</sub>. <sup>2)</sup> Also available in the light version. <sup>3)</sup> Available 2015

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