/ Battery Charging Systems / Welding Technology / Solar Electronics

Fronius
SHIFTING THE LIMITS

FRONIUS IG PLUS V STRING INVERTER

/ The all-rounder with maximum yield.

/ MIX™ concept
/ HF transformer switchover
/ Module Manager
/ PC board replacement concept
/ Mounting system
/ Ventilation concept

/ The Fronius IG Plus V generation of inverters represents an evolution of the proven Fronius IG product family. With power categories from 3 to 12 kW, there is an inverter suitable for every possible system size. The Fronius IG Plus V line achieves one of the highest efficiency values for transformer inverters, with a maximum efficiency of 95.9%.

TECHNICAL DATA: FRONIUS IG PLUS V (3.0-1 UNI, 3.8-1 UNI, 5.0-1 UNI, 6.0-1 UNI, 7.5-1 UNI)

INPUT DATA	3.0-1 UNI	3.8-1 UNI	5.0-1 UNI	6.0-1 UNI	7.5-1 UNI
Recommended PV-power (kWp)	2.50 - 3.45	3.20 - 4.40	4.25 - 5.75	5.10 - 6.90	6.35 - 8.60
Max. usable DC input current	14.0 A	17.8 A	23.4 A	28.1 A	35.1 A
Min. MPPT voltage	230 V				
DC startup voltage	245 V				
Nominal input voltage	390 V				
Max. input voltage	600 V				
MPPT voltage range	230 ... 500 V				
Nominal input current	8.3 A	10.5 A	13.8 A	16.5 A	20.7 A

OUTPUT DATA	3.0-1 UNI	3.8-1 UNI	5.0-1 UNI	6.0-1 UNI	7.5-1 UNI
Max. continuous output power @ 104°F (40°C)					
208 V	3000 W	3800 W	5000 W	6000 W	7500 W
240 V	3000 W	3800 W	5000 W	6000 W	7500 W
277 V	3000 W	3800 W	5000 W	6000 W	7500 W
Max. continuous output current					
208 V	14.4 A	18.3 A	24.0 A	28.8 A	36.1 A
240 V	12.5 A	15.8 A	20.8 A	25.0 A	31.3 A
277 V	10.8 A	13.7 A	18.1 A	21.7 A	27.1 A
Nominal AC output voltage	208 / 240 / 277 V (-12/+10%)				
Min. operating AC voltage					
208 V	183 V				
240 V	211 V				
277 V	244 V				
Max. operating AC voltage					
208 V	229 V				
240 V	264 V				
277 V	305 V				
Nominal output frequency	60 Hz				
Operating frequency range	59.3 - 60.5 Hz				
Total harmonic distortion	< 3 %				
Power factor	1 (at nominal output power)				
Consumption in standby (night)	< 1.5 W				
Number of phases	1				
Admissible conductor size	No. 14 - 4 AWG				
Max. continuous utility back feed current	0 A				

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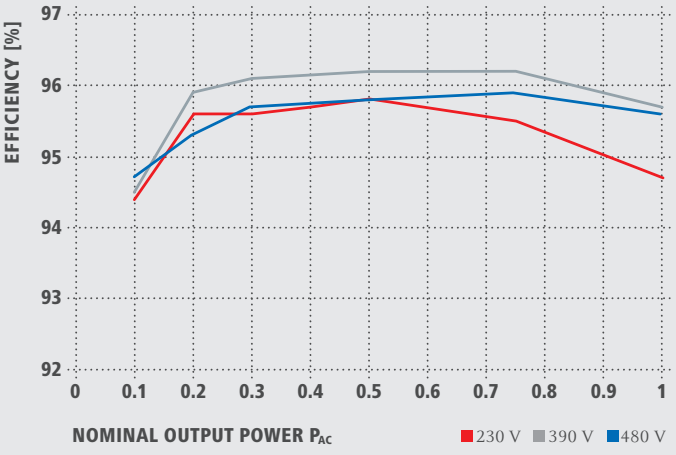
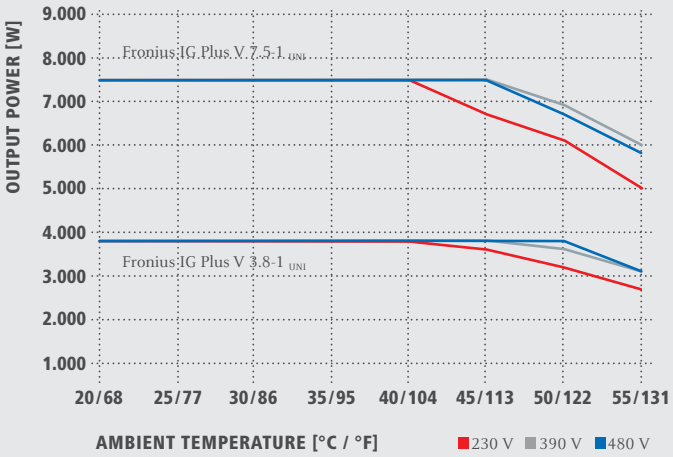
FRONIUS IG PLUS V 7.5-1 UNI EFFICIENCY CURVE



FRONIUS IG PLUS V TEMPERATURE DERATING



TECHNICAL DATA: FRONIUS IG PLUS V (3.0-1 UNI, 3.8-1 UNI, 5.0-1 UNI, 6.0-1 UNI, 7.5-1 UNI)

GENERAL DATA	3.0-1 UNI	3.8-1 UNI	5.0-1 UNI	6.0-1 UNI	7.5-1 UNI
Unit dimensions (W x H x D)	17.1 x 26.5 x 9.9 inch (434 x 673 x 250 mm)		17.1 x 38.1 x 9.9 inch (434 x 968 x 250 mm)		
Weight	55 lbs. (25 kg)		81 lbs. (37 kg)		
Protection class	1				
Enclosure type	Nema 3R				
Topology	HF transformer (galvanic separation)				
Cooling	Controlled forced ventilation, variable speed fan				
Mounting	Indoor & outdoor				
Ambient operating temperature	- 13°F ... 131°F (-25°C ... 55°C)				
Rel. humidity	0-95% (non-condensing)				
DC connection type	6x Screw Terminals; No. 14 - 6 AWG; 20 Amps maximum per DC input terminal; optional bus bar available for higher input currents				
AC connection type	Screw terminals; No. 14 - 4 AWG				
GND connection type	3x Screw terminals; No. 14 - 4 AWG				
Compliances	UL 1741-2010, IEEE 1547-2003, IEEE 1547.1, ANSI/IEEE C62.41, FCC Part 15 A & B, NEC Article 690, C22. 2 No. 107.1-01 (September 2001), California Solar Initiative - Program Handbook - Appendix C: Inverter Integral; 5 % Meter Performance Specification				

EFFICIENCY	3.0-1 UNI	3.8-1 UNI	5.0-1 UNI	6.0-1 UNI	7.5-1 UNI
Max. efficiency	96.2%				
CEC efficiency (η_{CEC})					
208 V	95.0%	95.0%	95.5%	95.5%	95.0%
240 V	95.5%	95.5%	95.5%	96.0%	95.5%
277 V	96.0%	96.0%	96.0%	96.0%	96.0%
η at 10 % P_{ac}*	91.9 / 92.2 / 91.9	92.7 / 93.3 / 93.1	93.2 / 93.8 / 93.4	93.9 / 94.6 / 93.9	94.4 / 94.5 / 94.0
η at 20 % P_{ac}*	94.5 / 95.1 / 94.6	95.0 / 95.3 / 94.6	95.3 / 95.2 / 94.5	95.5 / 95.5 / 95.0	95.6 / 95.9 / 95.3
η at 30 % P_{ac}*	95.3 / 95.4 / 94.6	95.7 / 95.7 / 95.1	95.7 / 95.8 / 95.4	95.7 / 96.1 / 95.7	95.6 / 96.1 / 95.7
η at 50 % P_{ac}*	95.9 / 96.1 / 956	95.9 / 96.3 / 95.8	95.8 / 96.1 / 95.3	95.9 / 96.1 / 95.6	95.8 / 96.2 / 95.8
η at 75 % P_{ac}*	95.8 / 96.3 / 95.9	95.6 / 96.2 / 95.9	95.8 / 96.3 / 95.9	95.8 / 96.3 / 95.9	95.5 / 96.2 / 95.9
η at 100 % P_{ac}*	95.5 / 96.2 / 95.9	94.9 / 95.8 / 95.7	95.7 / 96.2 / 95.9	95.3 / 96.1 / 95.9	94.7 / 95.7 / 95.6
MPPT Efficiency	> 99.9 %				

*at $U_{mpp\ min}$/ $U_{dc\ nom}$/ $U_{mpp\ max}$

PROTECTION DEVICES	3.0-1 UNI	3.8-1 UNI	5.0-1 UNI	6.0-1 UNI	7.5-1 UNI
DC reverse polarity protection	Internal diode				
Over temperature	Output power derating / active cooling				
Islanding protection	Internal; in accordance with UL 1741-2010, IEEE 1547-2003 and NEC				
Ground fault protection	Internal GFDI (Ground Fault Detector/Interruptor); in accordance with UL 1741-2010 and NEC Art. 690				
DC disconnect	Integrated				

INTERFACES	3.0-1 UNI	3.8-1 UNII	5.0-1 UNI	6.0-1 UNI	7.5-1 UNI
2x RJ45 sockets (RS485)	Optional				

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TECHNICAL DATA: FRONIUS IG PLUS V (10.0-1 UNI, 11.4-1 UNI, 10.0-3 DELTA, 11.4-3 DELTA, 12.0-3 WYE277)

INPUT DATA	10.0-1 UNI	11.4-1 UNI	10.0-3 DELTA	11.4-3 DELTA	12.0-3 WYE277
Recommended PV-power (kWp)	8.50 - 11.50	9.70 - 13.10	8.50 - 11.50	9.70 - 13.10	10.20 - 13.80
Max. usable DC input current	46.7 A	53.3 A	46.7 A	53.3 A	56.1 A
Min. MPPT voltage	230 V				
DC startup voltage	245 V				
Nominal input voltage	390 V				
Max. input voltage	600 V				
MPPT voltage range	230 ... 500 V				
Nominal input current	27.6 A	31.4 A	27.6 A	31.4 A	33.1 A

OUTPUT DATA	10.0-1 UNI	11.4-1 UNI	10.0-3 DELTA	11.4-3 DELTA	12.0-3 WYE277
Max. continuous output power @ 104°F (40°C)					
208 V	9995 W	11400 W	9995 W	11400 W	n. a.
240 V	9995 W	11400 W	9995 W	11400 W	n. a.
277 V	9995 W	11400 W	n. a.	n. a.	12000 W
Max. continuous output current					
208 V	48.1 A	54.8 A	27.7 A*	31.6 A*	n. a.
240 V	41.6 A	47.5 A	24.0 A*	27.4 A*	n. a.
277 V	36.1 A	41.2 A	n. a.	n. a.	14.4 A*
Nominal AC output voltage	208 / 240 / 277 V (-12/+10%)		208 / 240 V (-12/+10%)		277 V (-12/+10%)
Min. operating AC voltage					
208 V	183 V				
240 V	211 V				
277 V	244 V				
Max. operating AC voltage					
208 V	229 V				
240 V	264 V				
277 V	305 V				
Nominal output frequency	60 Hz				
Operating frequency range	59.3 - 60.5 Hz				
Total harmonic distortion	< 3 %				
Power factor	1 (at nominal output power)				
Consumption in standby (night)	< 1.5 W				
Number of phases	1		3		
Admissible conductor size	No. 14 - 4 AWG				
Max. continuous utility back feed current	0 A				

GENERAL DATA	10.0-1 UNI	11.4-1 UNI	10.0-3 DELTA	11.4-3 DELTA	12.0-3 WYE277
Unit Dimensions (W x H x D)	17.1 x 49.7 x 9.6 inch (434 x 1263 x 250 mm)				
Weight	110 lbs. (50 kg)				
Protection class	1				
Enclosure type	Nema 3R				
Topology	HF-Transformer (galvanic separation)				
Cooling	Controlled forced ventilation, variable speed fan				
Mounting	Indoor & outdoor				
Ambient operating temperature	- 13°F ... 131°F (-25°C ... 55°C)				
Rel. humidity	0-95% (non-condensing)				
DC connection type	6x Screw terminals; No. 14 - 6 AWG; 20 amps maximum per DC input terminal; optional bus bar available for higher input currents				
AC connection type	Screw terminals; No. 14 - 4 AWG				
GND connection type	3x Screw terminals; No. 14 - 4 AWG				
Compliances	UL 1741-2010, IEEE 1547-2003, IEEE 1547.1, ANSI/IEEE C62.41, FCC Part 15 A & B, NEC Article 690, C22. 2 No. 107.1-01 (September 2001), California Solar Initiative - Program Handbook - Appendix C: Inverter Integral; 5 % Meter Performance Specification				

*per phase

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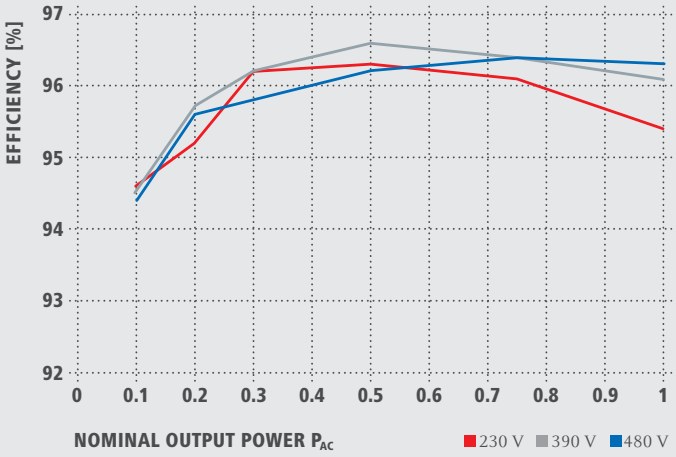
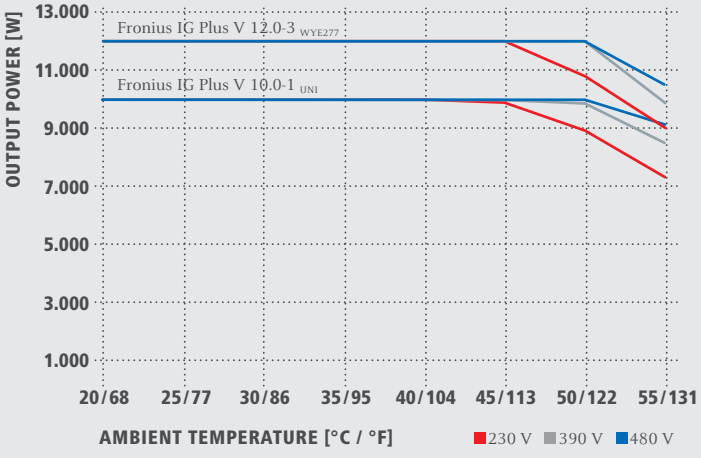
FRONIUS IG PLUS V 12.0-3 WYE277 EFFICIENCY CURVE



FRONIUS IG PLUS V TEMPERATURE DERATING



TECHNICAL DATA: FRONIUS IG PLUS V (10.0-1 UNI, 11.4-1 UNI, 10.0-3 DELTA, 11.4-3 DELTA, 12.0-3 WYE277)

EFFICIENCY	10.0-1 UNI	11.4-1 UNI	10.0-3 DELTA	11.4-3 DELTA	12.0-3 WYE277
Max. efficiency			96.2%		
CEC eficiency (η_{CEC})					
208 V	95.0%	95.0%	95.5%	95.0%	n. a.
240 V	95.5%	95.5%	95.5%	96.0%	n. a.
277 V	96.0%	96.0%	n. a.	n. a.	96.0%
η at 10 % P_{ac}*	94.2 / 93.8 / 93.2	94.6 / 94.3 / 93.6	94.1 / 94.3 / 93.3	94.7 / 94.5 / 94.0	92.6 / 92.5 / 94.4
η at 20 % P_{ac}*	95.2 / 95.6 / 95.1	95.2 / 95.7 / 95.4	94.7 / 95.4 / 95.0	95.4 / 95.8 / 95.4	95.2 / 95.7 / 95.6
η at 30 % P_{ac}*	95.6 / 95.8 / 95.2	95.6 / 95.9 / 95.5	95.3 / 95.7 / 95.1	95.7 / 96.0 / 95.5	96.2 / 96.2 / 95.8
η at 50 % P_{ac}*	95.7 / 96.0 / 95.5	95.7 / 96.1 / 95.7	95.3 / 96.0 / 95.4	95.8 / 96..3 / 95.8	96.3 / 96.6 / 96.2
η at 75 % P_{ac}*	95.5 / 96.1 / 95.8	95.3 / 96.0 / 95.8	95.0 / 95.8 / 95.4	95.5 / 96.2 / 95.9	96.1 / 96.4 / 96.4
η at 100 % P_{ac}*	94.9 / 95.9 / 95.7	94.5 / 95.6 / 95.5	94.1 / 95.2 / 95.1	94.7 / 95.7 / 95.6	95.4 / 96.1 / 96.3
MPPT efficiency			> 99.9 %		

*at $U_{mpp\ min}$/ $U_{dc\ nom}$/ $U_{mpp\ max}$

PROTECTION DEVICES	10.0-1 UNI	11.4-1 UNI	10.0-3 DELTA	11.4-3 DELTA	12.0-3 WYE277
DC reverse polarity protection	Internal diode				
Over temperature	Output power derating / active cooling				
Islanding protection	Internal; in accordance with UL 1741-2010, IEEE 1547-2003 and NEC				
Ground fault protection	internal GFDI (Ground Fault Detector/Interruptor); in accordance with UL 1741-2010 and NEC Art. 690				
DC disconnect	integrated				

INTERFACES	10.0-1 UNI	11.4-1 UNI	10.0-3 DELTA	11.4-3 DELTA	12.0-3 WYE277
2x RJ45 sockets (RS485)	optional				

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