

# Genesys AC Power Source Specifications

Unless otherwise noted, specifications are relative to rated values, warranted over the ambient temperature range of 0° to 40° Celsius.

Models	2kVA 1200Hz 2kVA 5000Hz	3kVA 1200Hz 3kVA 5000Hz	
<b>Programming</b>			
<b>AC output voltage (*1)</b>			
Rated output RMS voltage (*2)	V	350 Line-Neutral	
Setting range (*3)	V	0 – 350.2	
Programming resolution	V	≤0.02	
Programming accuracy	16 – 1200Hz	%	≤0.2
	1200.1 – 5000Hz	%	≤0.4
<b>AC output current</b>			
Rated output RMS current (*4)	A	20	30
Setting range (*5)	A	0 – 20.2	0 – 30.2
<b>AC output power</b>			
Rated output apparent power	VA	2000	3000
Load power factor	-	0 – 1 (leading or lagging)	
<b>Frequency</b>			
Range	1200Hz models	Hz	16 – 1200
	5000Hz models	Hz	16 – 5000
Programming resolution	16 – 1200Hz	Hz	0.01
	1200.1 – 5000Hz	Hz	0.1
Programming accuracy		%	≤0.01
<b>DC output voltage</b>			
Rated output DC voltage (*2)	V <sub>DC</sub>	±500	
DC voltage setting range (*6)	V <sub>DC</sub>	0 – ±500	
Programming resolution	V <sub>DC</sub>	≤0.02	
Programming accuracy	%	≤0.15	
<b>DC output current</b>			
Rated output DC current (*4)	A <sub>DC</sub>	20	30
Setting range (*7)	A <sub>DC</sub>	0 – 20.2	0 – 30.2
<b>DC output power</b>			
Rated output power	W	2000	3000
<b>Measurement</b>			
<b>Output voltage</b>			
AC voltage resolution	V	≤0.02	
AC voltage accuracy	16 – 1200Hz	%	≤0.2
	1200.1 – 5000Hz	%	≤0.4
DC voltage resolution	V <sub>DC</sub>	≤0.02	
DC voltage accuracy	%	≤0.2	
<b>Output current</b>			
RMS current resolution	A	≤0.005	
RMS current accuracy	%	≤1	≤0.6
DC current resolution	A <sub>DC</sub>	≤0.005	
DC current accuracy	%	≤1	≤0.6
Peak current resolution	A <sub>PK</sub>	≤0.005	
Peak current accuracy	%	≤1.5	
<b>Output power</b>			
Active (real) power resolution	W	≤0.2	
Active (real) power accuracy	%	AC: ≤2.25; DC: ≤4.5	AC: ≤1.5; DC: ≤3
Apparent power resolution	VA	≤0.2	
Apparent power accuracy	%	≤2.25	
<b>Frequency</b>			
Resolution	16 – 1200Hz	Hz	0.01
	1200.1 – 5000Hz	Hz	0.1
Accuracy (*8)	%	≤0.1	
<b>Harmonics measurement</b>			
Fundamental frequency	Hz	16 – 1000	
Harmonic frequency / harmonic #	Hz	32 – 50000 / 2 – 50	
Measurement items	-	RMS Voltage, RMS current, phase angle and THD	
<b>Stability</b>			
Line regulation	%	≤0.02	
Load regulation (*9)	%	≤0.03	
Total harmonic distortion (THD) (*9)	16 – 500	%	≤0.4
	500 – 1200	%	≤0.7
	1200 – 5000	%	≤1
Temperature coefficient (*10)	ppm/°C	50	
Temperature stability (voltage)	%	±0.05 of FS over 8 hours. Constant line, load, and temperature. Remote sense	
Warm-up drift (voltage)	%	Less than 0.05% of rated output voltage over 30 minutes following power on	
<b>Supplemental</b>			
Crest factor / Maximum peak current	-	6:1 (6 times the rated RMS output current) / 120A	4:1 (4 times the rated RMS output current) / 120A
Ripple RMS (*11)	mV <sub>DC</sub>	≤500	
Transient response time (*12)	μs	≤40	
Response speed T <sub>rise</sub> , T <sub>fall</sub> (*13)	μs	1200Hz models: ≤120; 5000Hz models: ≤40	
Voltage slew rate (typical)	V/μs	1200Hz models: 4.4; 5000Hz models: 16.34	
DC offset voltage (typical)	mV <sub>DC</sub>	≤35	
Remote sense compensation	-	AC, AC+DC mode: 35V <sub>RMS</sub> , 50V <sub>PK</sub> ; DC Mode: 35V <sub>DC</sub>	
Start-up delay	-	Less than 7 seconds	
Parallel operation	-	Possible. Form 3-phase system or increase 1-phase output power	

Models		2kVA 1200Hz 2kVA 5000Hz	3kVA 1200Hz 3kVA 5000Hz
<b>AC input</b>			
Voltage nominal	1-Phase (*14)	V	100 – 240
	3-Phase 200		190 – 240
	3-Phase 480		380 – 480
Voltage variation	1-Phase (*14)	V	85 – 265
	3-Phase 200		170 – 265
	3-Phase 480		342 – 528
Maximum input current	1-Phase	A	12.4 @ 200VAC
	3-Phase 200		18.5 @ 200VAC
	3-Phase 480		11.2 @ 200VAC
			4 @ 380VAC
Frequency nominal		Hz	50 – 60
Frequency variation		Hz	47 – 63
Power factor (*15)	1-Phase	-	0.96
	3-Phase 200 and 480	-	0.92
Efficiency (*16)	1-Phase	%	78
	3-Phase 200		81.5
	3-Phase 480		79
			82.5
Hold-up time (*15)		ms	≥10
Inrush peak current (*17)		A	Less than 52
<b>Mechanical</b>			
Cooling		-	Forced air cooling by internal fans. Airflow direction: From front panel to power supply rear
Weight		Kg	≤8
Dimensions	Without strain relief	mm	W: 423, H: 43.6, D: 544.5
	With strain relief		W: 423, H: 43.6, D: 640.5
Vibration		-	MIL-PRF-28800F, Class 3; 5-500 Hz per Paragraph 4.5.5.3.1
Shock		-	MIL-PRF-28800F, Class 3; 30G half-sine with 11ms duration per 4.5.5.4.1
Transportation integrity		-	ISTA 1A
<b>Regulatory compliance (safety / EMC)</b>			
Safety (*18)		-	IEC/UL/EN 61010-1 Ed. 3 (cTUVus, T-Mark, CE/UKCA)
Interface classification		-	Input, output (including sense), J9 and J10 are hazardous; J1, J2, J3, J4, J5, J6, J7 and J8 are non-hazardous
Withstand voltage		V <sub>DC</sub> 1min	Input – Output (including sense), J1, J2, J3, J4, J5, J6, J7, J8, J9 and J10: 4000 Output (including sense), J9 and J10 – J1, J2, J3, J4, J5, J6, J7 and J8: 3850 Output (including sense), J9 and J10 – Ground: 3060 Input – Ground: 2835
Isolation resistance		MΩ	>100 at 25°C, 70%RH, output to ground 500VDC
Isolation to ground		V	350VAC, 500VDC
EMC (*19)	General	-	EN 61326-1:2021
	Immunity	-	EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11
	Conducted emissions	-	CISPR11 Class A
	Radiated emissions	-	CISPR11 Class A
<b>Environmental conditions</b>			
Operating temperature		°C / °F	0 – 40 / 32 – 104
Storage temperature		°C / °F	-30 – 85 / -22 – 185
Operating environment		-	Overvoltage category II, Indoor use
Operating humidity		%	20 – 90 RH (no condensation)
Storage humidity		%	10 – 95 RH (no condensation)
Altitude	Operating	m / feet	2000 / 6562
	Non-operating	m / feet	12000 / 39370
<b>Protective Functions</b>			
Foldback protection			Output shutdown when power source changes mode from CV to CC mode or from CC to CV mode. User presetable
Output overvoltage protection (OVP)			Output shutdown when overvoltage is sensed on the output. Programming range: 110%. Accuracy: ≤0.5%
Output overvoltage protection (OVP) type			RMS – Shutdown when RMS voltage exceeds OVP RMS setting. Peak – shut-down when peak voltage exceeds OVP Peak setting
Overtemperature protection (OTP)			Output shutdown when ambient temperature sensor or internal temperature sensors thresholds exceed
Overcurrent protection (OCP)			Output shutdown when peak overcurrent is sensed on the output. Programming range: Up to 120A
AC input protection			Fuse on each phase, two fuses in 1-Phase input, three fuses in 3-Phase input. Not user accessible
Output undervoltage limit (UVL)			Prevents from adjusting output voltage below limit
Output undervoltage protection (UVP)			Output shutdown when undervoltage is sensed on the output
<b>Remote control interfaces (isolated from the output)</b>			
USB			2.0, Full Speed, Virtual COM Port, Type B high retention connector
RS232			Up to 921.6kbps with optional handshake (RTS/CTS), DB9 connector
RS485			Up to 921.6kbps, full duplex (4-wire), DB9 connector (shared with RS232)
LAN			10/100Mbps, Auto-MDIX, Auto-Negotiation, built-in web server
GPIB (optional interface)			IEEE488.1, IEEE488.2 compliant
<b>Signals and controls (isolated from the output)</b>			
Constant voltage / Constant current monitor			Open collector. CC mode: On (0 – 0.6V). CV mode: Off. Maximum voltage: 30V. Maximum sink current: 10mA
Power supply OK #2 monitor			Push pull. Output on: 4.5 – 5.5V. Output off: 0 – 0.6V. Maximum source / sink current: 10mA
Power supply OK #1 monitor			Open collector. Output on: On (0 – 0.6V). Output off: Off. Maximum voltage: 30V. Maximum sink current: 10mA
Trigger in signals			Maximum low level input voltage: 0.8V. Minimum high level input voltage: 2.5V. Maximum high level input: 5V Positive edge trigger width: 10us minimum. Maximum Tr, Tf: 1us. Minimum delay between 2 pulses: 1ms
Trigger out signals			Maximum low level output voltage: 0.6V. Minimum high level output voltage: 4.5V. Maximum high level output voltage: 5V Maximum source / sink current: 10mA. Minimum pulse width: 100us
Local / Remote analog programming monitor			Open collector. Remote: On (0 – 0.6V). Local: Off. Maximum Voltage: 30V. Maximum sink current: 10mA
Local / Remote Analog programming enable			Enable / Disable analog programming control by electrical signal or dry contact. Remote: On (0 – 0.6V) or short. Local: Off (2 – 30V) or open
Enable / Disable (ENA) power source output			Enable / Disable power source output by electrical signal or dry contact. Voltage levels: 0 – 0.6V or short, 2 – 30V or open User selectable output on / off logic
Interlock (ILC) inhibit power source output			Enable / Disable power source output by electrical signal or dry contact. Output on: 0 – 0.6V or short. Output OFF: 2 – 30V or open
Programmed signals			Two open drain programmable signals. Maximum voltage: 25V. Maximum sink current: 100mA
AC input voltage OK monitor			Open collector. AC input voltage OK: 0 – 0.6V. AC input voltage not OK: Off. Maximum voltage: 30V. Maximum sink current: 10mA
Alarm (fault) monitor			Open collector. No faults: 0 – 0.6V. power source fault: Off. Maximum voltage: 30V. Maximum sink current: 10mA
Emergency power off (EPO)			Enable / Disable power source output by electrical signal or dry contact. Output on: 0 – 0.6V or short. Output OFF: 2 – 30V or open
<b>Analog programming and monitoring (isolated from the output)</b>			
Output voltage programming (*21)			Full mode range: ±0 – 10V. RMS mode range: 0 – 10V. User selectable range: ±2.5 – 10V. Accuracy: 0.3%
Output voltage monitoring (*21)			Full mode range: ±0 – 10V. RMS mode range: 0 – 10V. User selectable range: ±2.5 – 10V. Accuracy: 0.4%
Output current monitoring (*21)			Full mode range: ±0 – 10V. RMS mode range: 0 – 10V. User selectable range: ±2.5 – 10V. Accuracy: 2kVA - ≤1.3%; 3kVA - ≤0.9%

Software / Firmware test sequences (*20)	
RTCA/DO 160 (*22)	Environmental conditions and test procedures for airborne equipment
MIL-STD 704 (*22)	Aircraft electric power characteristics
A350 (Airbus ABD100.1.8.1) (*22)	Electric characteristics of A350 AC and DC equipment
MIL-STD-1399-300 PART 1 (*22)	Low voltage electric power, alternating current
IEC61000-4-11 (*23)	Voltage dips, short interruptions and voltage variations immunity
IEC61000-4-13 (*23)	Harmonics and interharmonics including mains signalling at a.c. power port
IEC61000-4-14 (*24)	Voltage fluctuation immunity test for equipment with input current not exceeding 16 A per phase
IEC61000-4-17 (*24)	Ripple on d.c. input power port immunity
IEC61000-4-27 (*24)	Unbalance, immunity test for equipment with input current not exceeding 16 A per phase
IEC61000-4-28 (*24)	Variation of power frequency, immunity test for equipment with input current not exceeding 16 A per phase
IEC61000-4-29 (*24)	Voltage dips, short interruptions and voltage variations on d.c. input power port immunity tests
IEC61000-4-34 (*24)	Voltage dips, short interruptions and voltage variations immunity tests for equipment with mains current more than 16 A per phase

## Output Characteristics

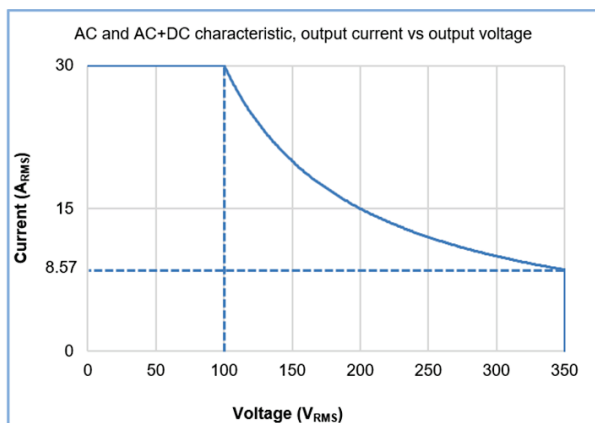


Figure 1: 3kVA AC and AC+DC characteristic

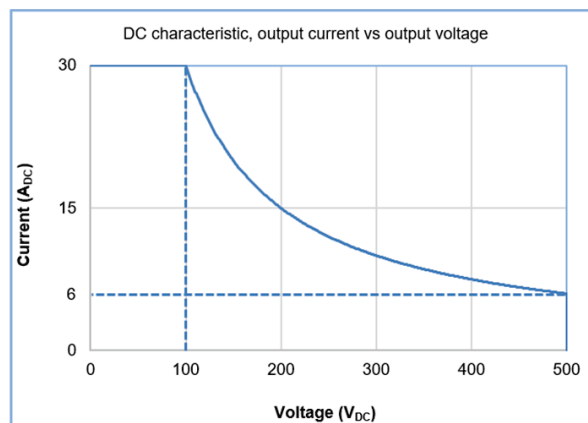


Figure 2: 3kW DC characteristic

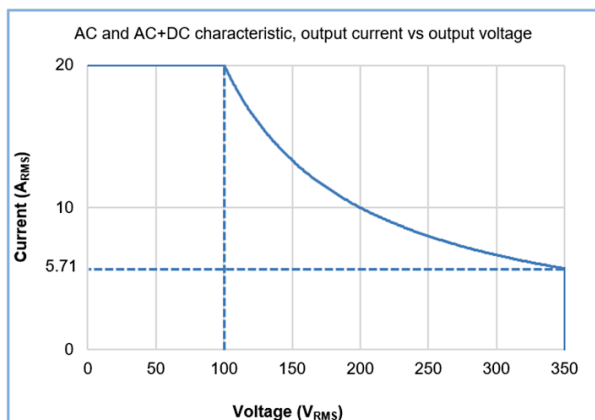


Figure 3: 2kVA AC and AC+DC characteristic

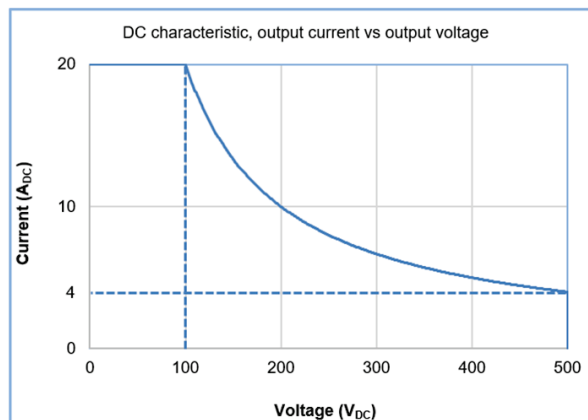


Figure 4: 2kW DC characteristic

## NOTES:

- \*1: Combined with AC and DC output, the peak voltage must be between -500V to +500V.
- \*2: Minimum voltage is guaranteed to maximum 0.1% of rated output voltage (350VAC, 500VDC).
- \*3: Maximum RMS voltage setting range is associated with the output current setting. When the output current setting is above 5.714A for 2kVA or 8.571A for 3kVA, the output voltage setting is limited to rated output power. Refer to Figure 1 and Figure 3.
- \*4: Minimum current is guaranteed to maximum 0.2% of rated output current.
- \*5: Maximum RMS current setting range is associated with the output voltage setting. When the output voltage setting is above 100VAC, the output current setting is limited to rated output power. Minimum constant current regulation value is 5% of the rated output current.
- \*6: Maximum DC voltage setting range is associated with the output current setting. When the output current setting is above 4A for 2kW or 6A for 3kW, the output voltage setting is limited to rated output power. Refer to Figure 2 and Figure 4.
- \*7: Maximum DC current setting range is associated with the output voltage setting. When the output voltage setting is above 100V<sub>DC</sub>, the output current setting is limited to rated output power.
- \*8: Accuracy is guaranteed above 5% of rated output voltage.
- \*9: Load power factor is 1.
- \*10: ppm/°C of rated output voltage, following 30 minutes warm-up.
- \*11: The ripple is measured at 10 – 100% of rated output voltage and rated output current. B.W 5Hz – 1MHz, load power factor is 1.
- \*12: Time for output voltage to recover within 0.5% of its rated output for a load change 10-90% of rated output current. Output set point: 10 – 100%, local sense, load power factor is 1.
- \*13: At 10% to 90% of the output voltage.
- \*14: Output power is limited to 1500W or 1500VA at input voltage below 170VAC.
- \*15: Typical at rated output power, rated output current, DC mode or sine wave, load power factor is 1.
- \*16: Typical at rated output power, rated output current, DC mode or sine wave, load power factor is 1. 3-Phase 200V models at 200VAC input voltage, 3-Phase 480V at 380V<sub>ac</sub> input voltage.
- \*17: Not including the EMI filter inrush current, less than 0.2mSec. 1-Ph Input, at Input line  $\geq$  240V<sub>ac</sub>, less than 70A.
- \*18: Class I; Pollution Degree 2.
- \*19: All cables length except LAN must be less than 3 meters.
- \*20: Software / Firmware test sequences must be acquired. Require Virtual Control Panel (VCP) software via RS232, RS485, USB, LAN or GPIB.
- \*21: RMS mode, programming and monitoring.
- \*22: Available in Genesys AC Pro (must be acquired).
- \*23: Available in Genesys AC and Genesys AC Pro (must be acquired).
- \*24: Available in Genesys AC and Genesys AC Pro. Wave Generator & Harmonic Analysis must be acquired in Genesys AC.