TDK
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GENESYS™ AC

2kVA–60kVA AC Programmable Power Sources

Data Sheet & Specifications

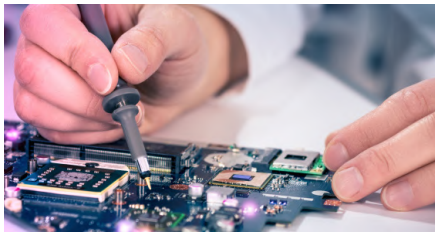
www.emea.lambda.tdk.com/il-en



TDK-Lambda

Applications

The GENESYS™ AC programmable power source supports industrial, research, and compliance applications with high power density, advanced programmability and precise AC & DC performance. Designed for renewable energy systems, laboratory environments, and automated testing, it delivers reliable and flexible power simulation for modern electronic and industrial applications.



Test & Measurement
Enables accurate compliance, validation, and production testing with stable programmable AC & DC power as an option.

- IEC and industrial compliance testing
- EMC and production validation systems
- Fast transient response and harmonic analysis



Renewable Energy
Designed for testing and validation of solar inverters, energy storage systems, and smart-grid applications.

- Grid simulation and power disturbance testing
- Solar inverter and ESS validation
- EV charging infrastructure testing



Research
Provides precise and programmable power for advanced laboratory and product development environments.

- Advanced waveform and transient generation
- Automated laboratory testing environments
- High accuracy and repeatable performance



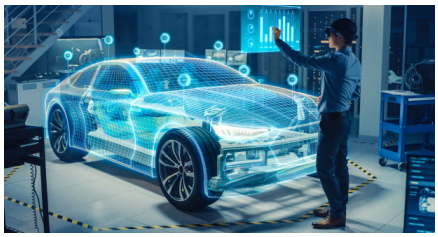
Medical
Provides stable and precise programmable power for medical device development, validation, and regulatory compliance testing.

- Medical equipment testing and validation
- Regulatory and safety compliance support
- Reliable low-distortion AC/DC performance



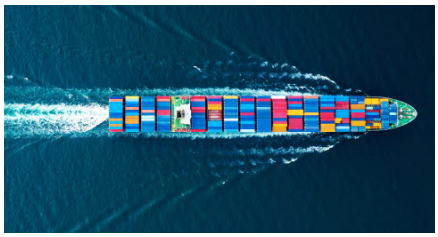
Aerospace
Designed for aerospace and avionics testing requiring accurate frequency conversion and compliance simulation.

- RTCA/DO-160 and MIL-STD testing
- Avionics and airborne equipment validation
- High-frequency and transient simulation



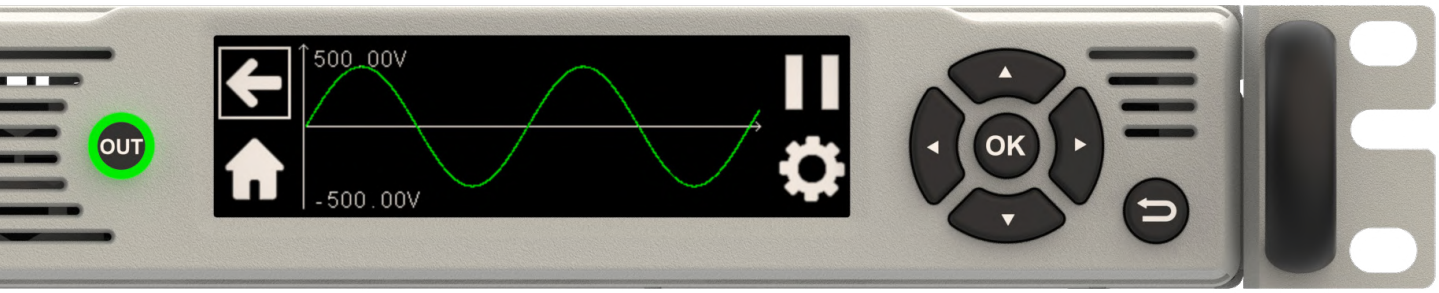
Automotive
Supports automotive electronics, EV systems, and component validation with flexible programmable AC/DC power.

- EV and charging system validation
- Automotive electronics testing
- Battery and powertrain development



Marine
Enables reliable marine power simulation and compliance testing for shipboard electrical and electronic systems.

- MIL-STD-1399 marine compliance testing
- Shipboard power system simulation
- Marine electronics validation



Features & Benefits

Ultra-High-Power Density

- Up to 4kVA in 1U chassis
- Up to 12kVA in 3U chassis
- Up to 24kVA in 6U chassis

Flexible Power Architecture

- Single-phase / Dual-phase / Three-phase
- Output up to 60kVA

Industry-Leading Reliability

- 5-year warranty
- Maximum warranty available on the market

Operational Modes

- GAC: AC only up to 360Vac
- GAC PRO: AC, DC, or combined AC+DC
- GAC PRO: Full rated DC output up to ±510 V

User-Friendly Interface

- Full-color capacitive touch panel
- Multi-language support

Expandable Power Capacity

- Field-expandable at any stage
- Up to 60kVA expandable options

Certified Compliance

- IEC / UL / EN 61010-1 Ed. 3
- cTUVus, T-Mark, CE, UKCA approved
- Market-unique certified approval

High Crest Factor Performance

- 4:1 crest factor (3 / 9 kVA)
- 6:1 crest factor (2 / 6 kVA)
- Peak current up to 1800A

Wide Frequency Range

- Standard: 16 Hz – 1.2 kHz
- PRO option: up to 5 kHz without power derating

Remote VCP Software

- GUI with sequence programming
- Pre-loaded IEC, aerospace, and marine standards
- Custom script creation supported

Virtual Control Panel – GUI

Unified control system

The VCP works both for the GAC & DC series, allowing you to connect and control multiple instruments at once from a single interface. Download once and use it for all of your Genesys, G+, and Z+ products.

Benefits of the scope features

The measurement screens allow remote viewing of the GAC's output, providing basic views much like an oscilloscope, DAQ, or spectrum analyzer, but without the need for external equipment.

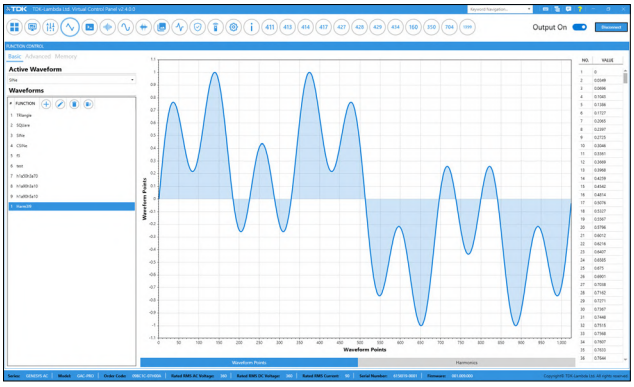
Access to upgrades

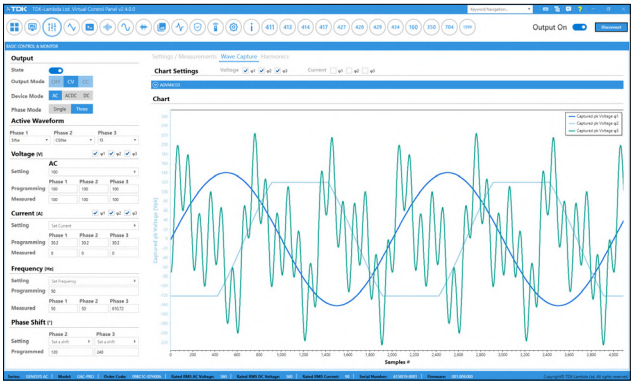
While the on-product touchscreen provides convenient access to key functions, the free VCP software enables using the standards upgrade options and Modulation Sequencer (Wave Generator option), if purchased.

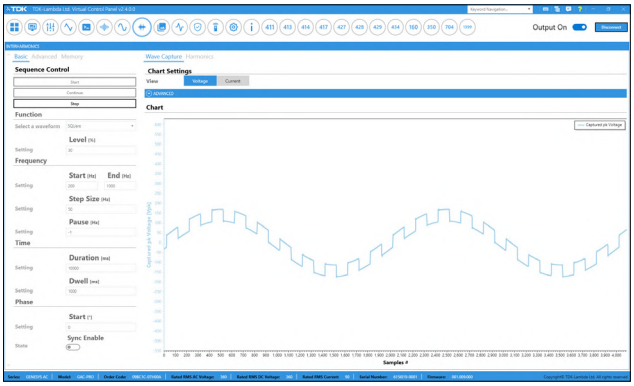
Modern & easy

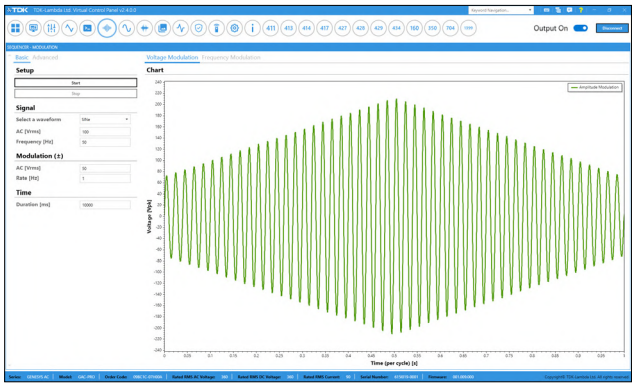
Its modern design and intuitive layout make the VCP comfortable and easy to use.

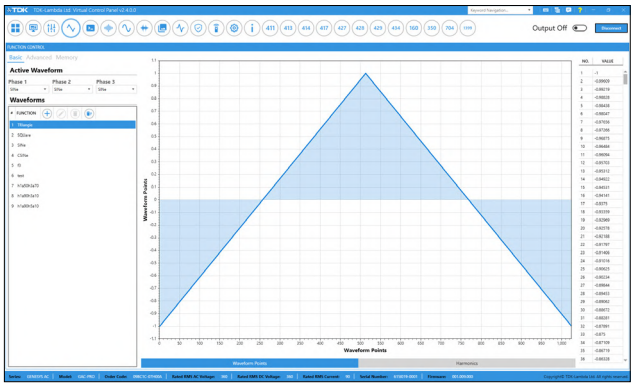
Click here to Download











Part Numbering Scheme



1	2	3	4	5	6		7	8		9	10
GAC	POWER	PANEL	INPUT	COM	FREQ	–	STANDARDS	STANDARDS	–	OPTIONS	ACCESSORIES
–	03	A	C	1	A	–	00	L	–	00	A

1 SERIES

	GAC

2 POWER

02	2kVA	09	9kVA
03	3kVA	12	12kVA
04	4kVA	18	18kVA
06	6kVA	24	24kVA

3 PANEL

A	Full Grey
B	Full Black
C	Blank Grey
D	Blank Black

4 INPUT

A	85-265Vac Single Phase
B	170-265Vac 3-Phase
C	342-528Vac 3-Phase

5 COMMUNICATION

1	Built-In RS232, RS485, USB, LAN
2	IEEE

6 FREQUENCY LIMIT

A	AC 16-1200Hz

7 AVIONIC STANDARDS

00	None

8 IEC & OTHER STANDARDS

A	None
I	WG + HA
J	4-11 + WG + HA
K	4-13 + WG + HA
L	4-11 + 4-13 + WG + HA

9 OPTIONS

00	**None**

10 ACCESSORIES

A	None

Configure Your GAC

An easy-to-use on-line part number configurator is available

Standards Reference Table

IEC & OTHER STANDARDS	
4-11	IEC61000-4-11
4-13	IEC61000-4-13
WG	Wave Generator (Sequencer)
HA	Harmonic Analysis

Example: GAC – 03 A C 1 A – 00 L – 00 A

Part Numbering Scheme



1	2	3	4	5	6		7	8		9	10
GAC-PRO	POWER	PANEL	INPUT	COM	FREQ	–	STANDARDS	STANDARDS	–	OPTIONS	ACCESSORIES
	06	B	C	1	C		07	D		00	A

1 SERIES

	GAC PRO

2 POWER

02	2kVA	09	9kVA
03	3kVA	12	12kVA
04	4kVA	18	18kVA
06	6kVA	24	24kVA

3 PANEL

A	Full Grey
B	Full Black
C	Blank Grey
D	Blank Black

4 INPUT

A	85-265Vac Single Phase
B	170-265Vac 3-Phase
C	342-528Vac 3-Phase

5 COMMUNICATION

1	Built-In RS232, RS485, USB, LAN
2	IEEE

6 FREQUENCY LIMIT

A	AC 16-1200Hz
B	AC+DC 16-1200Hz
C	AC+DC 16-5000Hz

7 AVIONIC STANDARDS

00	None
01	RD
02	MIL7
03	A350
04	RD + MIL7
05	RD + A350
06	MIL7 + A350
07	RD + MIL7 + A350

8 IEC & OTHER STANDARDS

A	None
B	4-11
C	4-13
D	MIL
E	4-11 + 4-13
F	4-11 + MIL
G	4-13 + MIL
H	4-11 + 4-13 + MIL

9 OPTIONS

00	None

10 ACCESSORIES

A	None

Configure Your GAC

An easy-to-use on-line part number configurator is available

Standards Reference Table

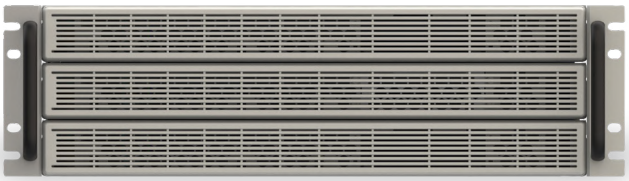
IEC & OTHER STANDARDS	
4-11	IEC61000-4-11
4-13	IEC61000-4-13
MIL	MIL-STD-1399-300 Part 1
WG	Wave Generator (Sequencer)
HA	Harmonic Analysis

AVIONIC STANDARDS *(GAC PRO ONLY)	
RD	RTCA/DO 160
MIL7	MIL-STD 704
A350	A350 (Airbus ABD100.1.8.1)

Example: GAC-PRO – 06 B C 1 C – 07 D – 00 A

TDK-Lambda

Part Numbering Scheme



1	2	3	4	5	6		7	8		9	10
GAC-PWR	POWER	PANEL	INPUT	COM	FREQ	–	STANDARD	STANDARDS	–	OPTIONS	ACCESSORIES
–	09	U	C	0	C		00	A		00	A

1 SERIES

	GAC-PWR

2 POWER

09	9kVA
12	12kVA

3 PANEL

U	Booster Grey
V	Booster Black

4 INPUT

B	170-265Vac 3-Phase
C	342-528Vac 3-Phase

* The Booster is an extension unit only
  Booster unit automatically applies all Master unit standards
  Options 3 and 4 are the only selectable options.
  The remaining fields are fixed and cannot be changed.

Configure
Your GAC

An easy-to-use on-line part number configurator is available

Example: GAC-PWR – 09 U C 0 C – 00 A – 00 A

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	4kVA 1200Hz 4kVA 5000Hz
Programming (*38)					
AC output voltage (*1)					
Output phase configuration		-	1 phase		
Rated output RMS voltage		V	360 Line-Neutral		
Setting range (*3)		V	0 – 360.2		
Programming resolution		V	≤0.02		
Programming accuracy	16 – 1200Hz	%	≤0.2		
	1200.1 – 5000Hz	%	≤0.4		
AC output current					
Rated output RMS current	1 phase	A	20	30	
	3 phase (per phase)		-		
Setting range (*5)	1 phase	A	0 – 20.2	0 – 30.2	
	3 phase (per phase)		-		
Programming resolution		mA	≤5		
Programming accuracy		%	≤1	≤0.6	
AC output power					
Rated output apparent power	1 phase	VA	2000	3000	4000
	3 phase (per phase)		-		
Load power factor		-	0 – 1 (leading or lagging)		
Frequency					
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		
DC output voltage					
Rated output DC voltage		V_{DC}	±510		
DC voltage setting range (*6)		V_{DC}	0 – ±510.2		
Programming resolution		V_{DC}	≤0.02		
Programming accuracy		%	≤0.15		
DC output current					
Rated output DC current		A_{DC}	20	30	
Setting range (*7)		A_{DC}	0 – 20.2	0 – 30.2	
Programming resolution		mA	≤5		
Programming accuracy		%	≤1	≤0.6	
DC output power					
Rated output power		W	2000	3000	4000
Measurement					
Output voltage					
AC voltage resolution		V	≤0.02		
AC voltage accuracy	16 – 1200Hz	%	≤0.2		
	1200.1 – 5000Hz	%	≤0.4		
DC voltage resolution		V_{DC}	≤0.02		
DC voltage accuracy		%	≤0.2		
Output current					
RMS current resolution		mA	≤5		
RMS current accuracy		%	≤1	≤0.6	
DC current resolution		mA_{DC}	≤5		
DC current accuracy		%	≤1	≤0.6	
Peak current resolution		mA_{PK}	≤5		
Peak current accuracy (*25)		%	≤1.5		
Output power					
Active (real) power resolution		W	≤0.2		
Active (real) power accuracy		%	AC: ≤2.25; DC: ≤3	AC: ≤1.5; DC: ≤3	
Apparent power resolution		VA	≤0.2		
Apparent power accuracy		%	≤2.25	≤1.5	
Frequency (*4)					
Resolution	16 – 1200Hz	Hz	0.01		
	1200.1 – 5000Hz	Hz	0.1		
Accuracy (*8)		%	≤0.1		

Models			2kVA 1200Hz 2kVA 5000Hz	3kVA 1200Hz 3kVA 5000Hz	4kVA 1200Hz 4kVA 5000Hz
Supplemental					
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_{RMS}	≤500		
Transient response time (*12)		µs	≤40		
Response speed T_{rise}, T_{fall} (*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_{DC}	≤35		
Remote sense compensation		-	AC, AC+DC mode: $35V_{RMS}$, $50V_{PK}$; DC Mode: $35V_{DC}$		
Start-up delay		-	Less than 7 seconds		
Parallel operation (*50)		-	Possible. Form 3-phase system or increase 1-phase output power		
AC input					
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	13.5 @ 200VAC	18.5 @ 200VAC	-
	3-Phase 200		7.5 @ 200VAC	11.2 @ 200VAC	15 @ 200VAC
	3-Phase 480		4 @ 380VAC	6 @ 380VAC	8 @ 380VAC
Frequency nominal		Hz	50 – 60		
Frequency variation		Hz	47 – 63		
Power factor (*15)	1-Phase	-	0.96	0.98	-
	3-Phase 200 and 480	-	0.92	0.94	
Efficiency (*15)	1-Phase	%	78	81.5	-
	3-Phase 200		79	82.5	84
	3-Phase 480		79	82.5	84
Hold-up time (*15)		ms	≥10		
Inrush peak current (*16)		A	Less than 52		
Mechanical					
Cooling		-	Forced air cooling by internal fans. Airflow direction: From front panel to power source rear		
Weight		Kg	≤8		≤8.5
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 MIL-STD-810G:08, Method 514.6, procedure I		
Shock		-	MIL-PRF-28800F, Class 3; 30G half-sine with 11ms duration per 4.5.5.4.1		
Transportation integrity		-	ISTA 1A		
Regulatory compliance (safety / EMC)					
Safety (*18)		-	IEC/UL/EN 61010-1 Ed. 3 (cTUVus, T-Mark, CE/UKCA)		
Interface classification (*29) (*31)		-	Hazardous: Input, Output (including Sense), J9 and J10 Non-hazardous: J1~J8		
Withstand voltage (*29) (*31)		V_{DC} 1min	Input – Output (including sense), J1~J10: 4000 Output (including sense), J9 and J10 – J1~J8: 3850 Output (including sense), J9 and J10 – Ground: 3060 Input – Ground: 2835		
Isolation resistance (*48)		MΩ	>100		
Isolation to ground		V	360VAC, 510VDC		
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		
Protective functions					
Foldback protection		Output shutdown when power source changes mode from CV to CC mode or from CC to CV mode			
Output overvoltage protection (OVP)		Output shutdown when overvoltage is sensed on the output Programming range: 385VAC, +/-550VDC; Accuracy: ≤0.5%			
Output overvoltage protection (OVP) type		RMS – Shutdown when RMS voltage exceeds OVP RMS setting Peak – Shutdown 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			
Overcurrent protection (OCP) range		A_{PK}	±0.5 – ±130		
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			

Models			6kVA 1200Hz 6kVA 5000Hz	9kVA 1200Hz (*30) 9kVA 5000Hz (*30)	12kVA 1200Hz (*30) 12kVA 5000Hz (*30)
Programming (*38)					
AC output voltage (*1)					
Output phase configuration		-	1/3 phase		
Rated output RMS voltage		V	360 Line-Neutral		
Setting range (*3)		V	0 – 360.2		
Programming resolution		V	≤0.02		
Programming accuracy	16 – 1200Hz	%	≤0.2		
	1200.1 – 5000Hz	%	≤0.4		
AC output current					
Rated output RMS current	1 phase	A	60	90	
	3 phase (per phase)		20	30	
Setting range (*5)	1 phase	A	0 – 60.6	0 – 90.6	
	3 phase (per phase)		0 – 20.2	0 – 30.2	
Programming resolution		mA	≤5		
Programming accuracy		%	≤1	≤0.6	
AC output power					
Rated output apparent power	1 phase	VA	6000	9000	12000
	3 phase (per phase)		2000	3000	4000
Load power factor		-	0 – 1 (leading or lagging)		
Frequency					
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		
DC output voltage					
Rated output DC voltage		V_{DC}	±510		
DC voltage setting range (*6)		V_{DC}	0 – ±510.2		
Programming resolution		V_{DC}	≤0.02		
Programming accuracy		%	≤0.15		
DC output current					
Rated output DC current		A_{DC}	60	90	
Setting range (*7)		A_{DC}	0 – 60.6	0 – 90.6	
Programming resolution		mA	≤5		
Programming accuracy		%	≤1	≤0.6	
DC output power					
Rated output power		W	6000	9000	12000
Measurement					
Output voltage					
AC voltage resolution		V	≤0.02		
AC voltage accuracy	16 – 1200Hz	%	≤0.2		
	1200.1 – 5000Hz	%	≤0.4		
DC voltage resolution		V_{DC}	≤0.02		
DC voltage accuracy		%	≤0.2		
Output current					
RMS current resolution		mA	≤5		
RMS current accuracy		%	≤1	≤0.6	
DC current resolution		mA_{DC}	≤5		
DC current accuracy		%	≤1	≤0.6	
Peak current resolution		mA_{PK}	≤5		
Peak current accuracy (*25)		%	≤1.5		
Output power					
Active (real) power resolution		W	≤0.2		
Active (real) power accuracy		%	AC: ≤2.25; DC: ≤3	AC: ≤1.5; DC: ≤3	
Apparent power resolution		VA	≤0.2		
Apparent power accuracy		%	≤2.25	≤1.5	
Frequency (*4)					
Resolution	16 – 1200Hz	Hz	0.01		
	1200.1 – 5000Hz	Hz	0.1		
Accuracy (*8)		%	≤0.1		

Models			6kVA 1200Hz 6kVA 5000Hz	9kVA 1200Hz (*30) 9kVA 5000Hz (*30)	12kVA 1200Hz (*30) 12kVA 5000Hz (*30)
Supplemental					
Crest factor / Maximum peak current		-	6:1 (6 times the rated RMS output current) / 360A	4:1 (4 times the rated RMS output current) / 360A	
Ripple RMS (*11)		mV_{RMS}	≤500		
Transient response time (*12)		µs	≤40		
Response speed T_{rise}, T_{fall} (*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_{DC}	≤35		
Remote sense compensation		-	AC, AC+DC mode: $35V_{RMS}$, $50V_{PK}$; DC Mode: $35V_{DC}$		
Start-up delay		-	Less than 7 seconds		
Parallel operation (*50)		-	Possible. Form 3-phase system or increase 1-phase output power		
AC input					
Voltage nominal	3-Phase 200	V	190 – 240		
	3-Phase 480		380 – 480		
Voltage variation	3-Phase 200	V	170 – 265		
	3-Phase 480		342 – 528		
Maximum input current	3-Phase 200	A	22.4 @ 200VAC	33.6 @ 200VAC	45 @ 200VAC
	3-Phase 480		12 @ 380VAC	18 @ 380VAC	24 @ 380VAC
Frequency nominal		Hz	50 – 60		
Frequency variation		Hz	47 – 63		
Power factor(*15)	3-Phase 200 and 480	-	0.92	0.94	
Efficiency (*15)	3-Phase 200	%	79	82.5	84
	3-Phase 480		79	82.5	84
Hold-up time (*15)		ms	≥10		
Inrush peak current (*17)		A	Less than 156		
Mechanical					
Cooling		-	Forced air cooling by internal fans. Airflow direction: From front panel to power source rear		
Weight		Kg	≤25		≤26
Dimensions	Without strain relief	mm	W: 423, H: 132.5, D: 649.7		
	With strain relief		W: 423, H: 132.5, D: 755.5		
Vibration		-	MIL-PRF-28800F, Class 3; 5-500 Hz per Paragraph 4.5.5.3.1 MIL-STD-810G:08, Method 514.6, procedure I		
Shock		-	MIL-PRF-28800F, Class 3; 30G half-sine with 11ms duration per 4.5.5.4.1		
Transportation integrity		-	ISTA 1A		
Regulatory compliance (safety / EMC)					
Safety (*18)		-	IEC/UL/EN 61010-1 Ed. 3 (cTUVus, T-Mark, CE/UKCA)		
Interface classification (*29) (*31) (*46)		-	Hazardous: Input, Output, Sense, J9 and J10 Non-hazardous: J1~J8 and Service Port (including J4-1, J4-2, J6-1, J6-2, J7-1 and J7-2)		
Withstand voltage (*29) (*31) (*46)		V_{DC} 1min	Input – Output, Sense, J1~J10 and Service Port (including J4-1, J4-2, J6-1, J6-2, J7-1 and J7-2): 4000 Output, Sense, J9 and J10 – J1~J8 and Service Port (including J4-1, J4-2, J6-1, J6-2, J7-1 and J7-2): 3850 Output, Sense, J9 and J10 – Ground: 3060 Input – Ground: 2835		
Isolation resistance (*48)		MΩ	>60		
Isolation to ground		V	360VAC, 510VDC		
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		
Protective functions					
Foldback protection		Output shutdown when power source changes mode from CV to CC mode or from CC to CV mode			
Output overvoltage protection (OVP)		Output shutdown when overvoltage is sensed on the output Programming range: 385VAC, +/-550VDC; Accuracy: ≤0.5%			
Output overvoltage protection (OVP) type		RMS – Shutdown when RMS voltage exceeds OVP RMS setting Peak – Shutdown 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			
Overcurrent protection (OCP) range		A_{PK}	±1.5 – ±390		
AC input protection		Three fuses, fuse on each phase. 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			

Models			18kVA 1200Hz (*34) 18kVA 5000Hz (*34)	24kVA 1200Hz (*34) 24kVA 5000Hz (*34)	27kVA 1200Hz (*34) 27kVA 5000Hz (*34)
Programming (*38)					
AC output voltage (*1)					
Output phase configuration (*2)		-	1/3 phase		
Rated output RMS voltage		V	360 Line-Neutral		
Setting range (*3)		V	0 – 360.2		
Programming resolution		V	≤0.02		
Programming accuracy	16 – 1200Hz	%	≤0.2		
	1200.1 – 5000Hz	%	≤0.4		
AC output current					
Rated output RMS current	1 phase	A	180		270
	3 phase (per phase)		60		90
Setting range (*5)	1 phase	A	0 – 181.2		0 – 271.8
	3 phase (per phase)		0 – 60.4		0 – 90.6
Programming resolution		mA	≤5		
Programming accuracy		%	≤0.6		
AC output power					
Rated output apparent power	1 phase	VA	18000	24000	27000
	3 phase (per phase)		6000	8000	9000
Load power factor		-	0 – 1 (leading or lagging)		
Frequency					
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		
DC output voltage					
Rated output DC voltage		V_{DC}	±510		
DC voltage setting range (*6)		V_{DC}	0 – ±510.2		
Programming resolution		V_{DC}	≤0.02		
Programming accuracy		%	≤0.15		
DC output current					
Rated output DC current		A_{DC}	180		270
Setting range (*7)		A_{DC}	0 – 181.2		0 – 271.8
Programming resolution		mA	≤5		
Programming accuracy		%	≤0.6		
DC output power					
Rated output power		W	18000	24000	27000
Measurement					
Output voltage					
AC voltage resolution		V	≤0.02		
AC voltage accuracy	16 – 1200Hz	%	≤0.2		
	1200.1 – 5000Hz	%	≤0.4		
DC voltage resolution		V_{DC}	≤0.02		
DC voltage accuracy		%	≤0.2		
Output current					
RMS current resolution		mA	≤5		
RMS current accuracy		%	≤0.6		
DC current resolution		mA_{DC}	≤5		
DC current accuracy		%	≤0.6		
Peak current resolution		mA_{PK}	≤5		
Peak current accuracy (*25)		%	≤1.5		
Output power					
Active (real) power resolution		W	≤0.2		
Active (real) power accuracy		%	AC: ≤1.5; DC: ≤3		AC: ≤2.25; DC: ≤3
Apparent power resolution		VA	≤0.2		
Apparent power accuracy		%	≤1.5		≤2.25
Frequency (*4)					
Resolution	16 – 1200Hz	Hz	0.01		
	1200.1 – 5000Hz	Hz	0.1		
Accuracy (*8)		%	≤0.1		

Models			18kVA 1200Hz (*34) 18kVA 5000Hz (*34)	24kVA 1200Hz (*34) 24kVA 5000Hz (*34)	27kVA 1200Hz (*34) 27kVA 5000Hz (*34)
Supplemental					
Crest factor / Maximum peak current		-	4:1 (4 times the rated RMS output current) / 720A		4:1 (4 times the rated RMS output current) / 1080A
Ripple RMS (*11)		mV_{DC}	≤500		
Transient response time (*12)		µs	≤40		
Response speed T_{rise}, T_{fall} (*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_{DC}	≤60		
Remote sense compensation		-	AC, AC+DC mode: $35V_{RMS}$, $50V_{PK}$; DC Mode: $35V_{DC}$		
Start-up delay		-	Less than 7 seconds		
Parallel operation (*50)		-	Possible. Form 3-phase system or increase 1-phase output power		
AC input					
Voltage nominal	3-Phase 200	V	190 – 240		
	3-Phase 480		380 – 480		
Voltage variation	3-Phase 200	V	170 – 265		
	3-Phase 480		342 – 528		
Maximum input current	3-Phase 200	A	67.2 @ 200VAC	89.6 @ 200VAC	100.8 @ 200VAC
	3-Phase 480		36 @ 380VAC	48 @ 380VAC	54 @ 380VAC
Frequency nominal		Hz	50 – 60		
Frequency variation		Hz	47 – 63		
Power factor(*15)	3-Phase 200 and 480	-	0.92		
Efficiency (*15)	3-Phase 200	%	82.5	84	82.5
	3-Phase 480		82.5	84	82.5
Hold-up time (*15)		ms	≥10		
Inrush peak current (*17)		A	Less than 312		Less than 468
Mechanical					
Cooling		-	Forced air cooling by internal fans. Airflow direction: From front panel to power source rear		
Weight	Field assembly (*49)	Kg	≤50	≤52	≤75
	Component (*49)		≤52	≤54	-
Dimensions	Without strain relief (*49)	mm	Field assembly - W: 423, H: 265, D: 649.7 Component - W: 423, H: 283.9, D: 745.3		W: 423, H: 399, D: 649.7
	With strain relief (*47)		W: 423, H: 265, D: 755.5		W: 423, H: 399, D: 755.5
Vibration		-	MIL-PRF-28800F, Class 3; 5-500 Hz per Paragraph 4.5.5.3.1 MIL-STD-810G:08, Method 514.6, procedure I		
Shock		-	MIL-PRF-28800F, Class 3; 30G half-sine with 11ms duration per 4.5.5.4.1		
Transportation integrity		-	ISTA 1A		
Regulatory compliance (safety / EMC)					
Safety (*18) (*35)		-	IEC/UL/EN 61010-1 Ed. 3 (cTUVus, T-Mark, CE/UKCA)		
Interface classification (*29) (*31) (*46)		-	Hazardous: Input, Output, Sense, J9 and J10 Non-hazardous: J1~J8 and Service Port (including J4-1, J4-2, J4-3, J4-4, J4-5 J6-1, J6-2, J6-3, J6-4, J6-5, J7-1, J7-2, J7-3, J7-4 and J7-5)		
Withstand voltage (*29) (*31) (*46)		V_{DC} 1min	Input – Output, Sense, J1~J10 and Service Port (including J4-1, J4-2, J4-3, J4-4, J4-5, J6-1, J6-2, J6-3, J6-4, J6-5, J7-1 and J7-2, J7-3, J7-4, J7-5): 4000 Output, Sense, J9 and J10 – J1~J8 and Service Port (including J4-1, J4-2, J4-3, J4-4, J4-5, J6-1, J6-2, J6-3, J6-4, J6-5, J7-1 and J7-2, J7-3, J7-4, J7-5): 3850 Output, Sense, J9 and J10 – Ground: 3060 Input – Ground: 2835		
Isolation resistance (*48)		MΩ	>30		>20
Isolation to ground		V	360VAC, 510VDC		
EMC (*19) (*35)	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		
Protective functions					
Foldback protection		Output shutdown when power source changes mode from CV to CC mode or from CC to CV mode			
Output overvoltage protection (OVP)		Output shutdown when overvoltage is sensed on the output Programming range: 385VAC, +/-550VDC; Accuracy: ≤0.5%			
Output overvoltage protection (OVP) type		RMS – Shutdown when RMS voltage exceeds OVP RMS setting Peak – Shutdown 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			
Overcurrent protection (OCP) range		A_{PK}	±3 – ±780	±3 – ±780	±4.5 – ±1170
AC input protection		Three fuses, fuse on each phase. 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			

Models			36kVA 1200Hz (*34) 36kVA 5000Hz (*34)	45kVA 1200Hz (*34) 45kVA 5000Hz (*34)
Programming (*38)				
AC output voltage (*1)				
Output phase configuration (*2)		-	1/3 phase	
Rated output RMS voltage		V	360 Line-Neutral	
Setting range (*3)		V	0 – 360.2	
Programming resolution		V	≤0.02	
Programming accuracy	16 – 1200Hz	%	≤0.2	
	1200.1 – 5000Hz	%	≤0.4	
AC output current				
Rated output RMS current	1 phase	A	360	450
	3 phase (per phase)		120	150
Setting range (*5)	1 phase	A	0 – 362.4	0 – 453
	3 phase (per phase)		0 – 120.8	0 – 151
Programming resolution		mA	≤5	
Programming accuracy		%	≤0.6	
AC output power				
Rated output apparent power	1 phase	VA	36000	45000
	3 phase (per phase)		12000	15000
Load power factor		-	0 – 1 (leading or lagging)	
Frequency				
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	
DC output voltage				
Rated output DC voltage		V_{DC}	±510	
DC voltage setting range (*6)		V_{DC}	0 – ±510.2	
Programming resolution		V_{DC}	≤0.02	
Programming accuracy		%	≤0.15	
DC output current				
Rated output DC current		A_{DC}	360	450
Setting range (*7)		A_{DC}	0 – 362.4	0 – 453
Programming resolution		mA	≤5	
Programming accuracy		%	≤0.6	
DC output power				
Rated output power		W	36000	45000
Measurement				
Output voltage				
AC voltage resolution		V	≤0.02	
AC voltage accuracy	16 – 1200Hz	%	≤0.2	
	1200.1 – 5000Hz	%	≤0.4	
DC voltage resolution		V_{DC}	≤0.02	
DC voltage accuracy		%	≤0.2	
Output current				
RMS current resolution		mA	≤5	
RMS current accuracy		%	≤0.6	
DC current resolution		mA_{DC}	≤5	
DC current accuracy		%	≤0.6	
Peak current resolution		mA_{PK}	≤5	
Peak current accuracy (*25)		%	≤1.5	
Output power				
Active (real) power resolution		W	≤0.2	
Active (real) power accuracy		%	AC: ≤2.25; DC: ≤3	
Apparent power resolution		VA	≤0.2	
Apparent power accuracy		%	≤2.25	
Frequency (*4)				
Resolution	16 – 1200Hz	Hz	0.01	
	1200.1 – 5000Hz	Hz	0.1	
Accuracy (*8)		%	≤0.1	

Models			36kVA 1200Hz (*34) 36kVA 5000Hz (*34)	45kVA 1200Hz (*34) 45kVA 5000Hz (*34)
Supplemental				
Crest factor / Maximum peak current		-	4:1 (4 times the rated RMS output current) / 1440A	4:1 (4 times the rated RMS output current) / 1800A
Ripple RMS (*11)		mV_{DC}	≤500	
Transient response time (*12)		µs	≤40	
Response speed T_{rise}, T_{fall} (*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_{DC}	≤60	
Remote sense compensation		-	AC, AC+DC mode: $35V_{RMS}$, $50V_{PK}$; DC Mode: $35V_{DC}$	
Start-up delay		-	Less than 7 seconds	
Parallel operation (*50)		-	Possible. Form 3-phase system or increase 1-phase output power	
AC input				
Voltage nominal	3-Phase 200	V	190 – 240	
	3-Phase 480		380 – 480	
Voltage variation	3-Phase 200	V	170 – 265	
	3-Phase 480		342 – 528	
Maximum input current	3-Phase 200	A	134.4 @ 200VAC	168 @ 200VAC
	3-Phase 480		72 @ 380VAC	90 @ 380VAC
Frequency nominal		Hz	50 – 60	
Frequency variation		Hz	47 – 63	
Power factor(*15)	3-Phase 200 and 480	-	0.92	
Efficiency (*15)	3-Phase 200	%	82.5	
	3-Phase 480		82.5	
Hold-up time (*15)		ms	≥10	
Inrush peak current (*17)		A	Less than 624	Less than 780
Mechanical				
Cooling		-	Forced air cooling by internal fans. Airflow direction: From front panel to power source rear	
Weight		Kg	≤100	≤125
Dimensions	Without strain relief	mm	W: 423, H: 532, D: 649.7	W: 423, H: 665, D: 649.7
	With strain relief		W: 423, H: 532, D: 755.5	W: 423, H: 665, D: 755.5
Vibration		-	MIL-PRF-28800F, Class 3; 5-500 Hz per Paragraph 4.5.5.3.1 MIL-STD-810G:08, Method 514.6, procedure I	
Shock		-	MIL-PRF-28800F, Class 3; 30G half-sine with 11ms duration per 4.5.5.4.1	
Transportation integrity		-	ISTA 1A	
Regulatory compliance (safety / EMC)				
Safety (*18) (*35)		-	IEC/UL/EN 61010-1 Ed. 3 (cTUVus, T-Mark, CE/UKCA)	
Interface classification (*29) (*31) (*46)		-	Hazardous: Input, Output, Sense, J9 and J10 Non-hazardous: J1~J8 and Service Port (including J4-1, J4-2, J6-1, J6-2, J7-1 and J7-2)	
Withstand voltage (*29) (*31) (*46)		V_{DC} 1min	Input – Output, Sense, J1~J10 and Service Port (including J4-1, J4-2, J6-1, J6-2, J7-1 and J7-2): 4000 Output, Sense, J9 and J10 – J1~J8 and Service Port (including J4-1, J4-2, J6-1, J6-2, J7-1 and J7-2): 3850 Output, Sense, J9 and J10 – Ground: 3060 Input – Ground: 2835	
Isolation resistance (*48)		MΩ	>15	>12
Isolation to ground		V	360VAC, 510VDC	
EMC (*19) (*35)	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	
Protective functions				
Foldback protection		Output shutdown when power source changes mode from CV to CC mode or from CC to CV mode		
Output overvoltage protection (OVP)		Output shutdown when overvoltage is sensed on the output Programming range: 385VAC, +/-550VDC; Accuracy: ≤0.5%		
Output overvoltage protection (OVP) type		RMS – Shutdown when RMS voltage exceeds OVP RMS setting Peak – Shutdown 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		
Overcurrent protection (OCP) range		A_{PK}	±6 – ±1560	±7.5 – ±1950
AC input protection		Three fuses, fuse on each phase. 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		

Models			48kVA 1200Hz (*34) 48kVA 5000Hz (*34)	60kVA 1200Hz (*34) 60kVA 5000Hz (*34)
Programming (*38)				
AC output voltage (*1)				
Output phase configuration (*2)		-	1/3 phase	
Rated output RMS voltage		V	360 Line-Neutral	
Setting range (*3)		V	0 – 360.2	
Programming resolution		V	≤0.02	
Programming accuracy	16 – 1200Hz	%	≤0.2	
	1200.1 – 5000Hz	%	≤0.4	
AC output current				
Rated output RMS current	1 phase	A	360	450
	3 phase (per phase)		120	150
Setting range (*5)	1 phase	A	0 – 362.4	0 – 453
	3 phase (per phase)		0 – 120.8	0 – 151
Programming resolution		mA	≤5	
Programming accuracy		%	≤0.6	
AC output power				
Rated output apparent power	1 phase	VA	48000	60000
	3 phase (per phase)		16000	20000
Load power factor		-	0 – 1 (leading or lagging)	
Frequency				
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	
DC output voltage				
Rated output DC voltage		V_{DC}	±510	
DC voltage setting range (*6)		V_{DC}	0 – ±510.2	
Programming resolution		V_{DC}	≤0.02	
Programming accuracy		%	≤0.15	
DC output current				
Rated output DC current		A_{DC}	360	450
Setting range (*7)		A_{DC}	0 – 362.4	0 – 453
Programming resolution		mA	≤5	
Programming accuracy		%	≤0.6	
DC output power				
Rated output power		W	48000	60000
Measurement				
Output voltage				
AC voltage resolution		V	≤0.02	
AC voltage accuracy	16 – 1200Hz	%	≤0.2	
	1200.1 – 5000Hz	%	≤0.4	
DC voltage resolution		V_{DC}	≤0.02	
DC voltage accuracy		%	≤0.2	
Output current				
RMS current resolution		mA	≤5	
RMS current accuracy		%	≤0.6	
DC current resolution		mA_{DC}	≤5	
DC current accuracy		%	≤0.6	
Peak current resolution		mA_{PK}	≤5	
Peak current accuracy (*25)		%	≤1.5	
Output power				
Active (real) power resolution		W	≤0.2	
Active (real) power accuracy		%	AC: ≤2.25; DC: ≤3	
Apparent power resolution		VA	≤0.2	
Apparent power accuracy		%	≤2.25	
Frequency (*4)				
Resolution	16 – 1200Hz	Hz	0.01	
	1200.1 – 5000Hz	Hz	0.1	
Accuracy (*8)		%	≤0.1	

Models			48kVA 1200Hz (*34) 48kVA 5000Hz (*34)	60kVA 1200Hz (*34) 60kVA 5000Hz (*34)
Supplemental				
Crest factor / Maximum peak current		-	4:1 (4 times the rated RMS output current) / 1440A	4:1 (4 times the rated RMS output current) / 1800A
Ripple RMS (*11)		mV_{DC}	≤500	
Transient response time (*12)		µs	≤40	
Response speed T_{rise}, T_{fall} (*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_{DC}	≤60	
Remote sense compensation		-	AC, AC+DC mode: $35V_{RMS}$, $50V_{PK}$; DC Mode: $35V_{DC}$	
Start-up delay		-	Less than 7 seconds	
Parallel operation (*50)		-	Possible. Form 3-phase system or increase 1-phase output power	
AC input				
Voltage nominal	3-Phase 200	V	190 – 240	
	3-Phase 480		380 – 480	
Voltage variation	3-Phase 200	V	170 – 265	
	3-Phase 480		342 – 528	
Maximum input current	3-Phase 200	A	179.2 @ 200VAC	224 @ 200VAC
	3-Phase 480		96 @ 380VAC	120 @ 380VAC
Frequency nominal		Hz	50 – 60	
Frequency variation		Hz	47 – 63	
Power factor(*15)	3-Phase 200 and 480	-	0.92	
Efficiency (*15)	3-Phase 200	%	84	
	3-Phase 480		84	
Hold-up time (*15)		ms	≥10	
Inrush peak current (*17)		A	Less than 624	Less than 780
Mechanical				
Cooling		-	Forced air cooling by internal fans. Airflow direction: From front panel to power source rear	
Weight		Kg	≤104	≤130
Dimensions	Without strain relief	mm	W: 423, H: 532, D: 649.7	W: 423, H: 665, D: 649.7
	With strain relief		W: 423, H: 532, D: 755.5	W: 423, H: 665, D: 755.5
Vibration		-	MIL-PRF-28800F, Class 3; 5-500 Hz per Paragraph 4.5.5.3.1 MIL-STD-810G:08, Method 514.6, procedure I	
Shock		-	MIL-PRF-28800F, Class 3; 30G half-sine with 11ms duration per 4.5.5.4.1	
Transportation integrity		-	ISTA 1A	
Regulatory compliance (safety / EMC)				
Safety (*18) (*35)		-	IEC/UL/EN 61010-1 Ed. 3 (cTUVus, T-Mark, CE/UKCA)	
Interface classification (*29) (*31) (*46)		-	Hazardous: Input, Output, Sense, J9 and J10 Non-hazardous: J1~J8 and Service Port (including J4-1, J4-2, J6-1, J6-2, J7-1 and J7-2)	
Withstand voltage (*29) (*31) (*46)		V_{DC} 1min	Input – Output, Sense, J1~J10 and Service Port (including J4-1, J4-2, J6-1, J6-2, J7-1 and J7-2): 4000 Output, Sense, J9 and J10 – J1~J8 and Service Port (including J4-1, J4-2, J6-1, J6-2, J7-1 and J7-2): 3850 Output, Sense, J9 and J10 – Ground: 3060 Input – Ground: 2835	
Isolation resistance (*48)		MΩ	>15	>12
Isolation to ground		V	360VAC, 510VDC	
EMC (*19) (*35)	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	
Protective functions				
Foldback protection		Output shutdown when power source changes mode from CV to CC mode or from CC to CV mode		
Output overvoltage protection (OVP)		Output shutdown when overvoltage is sensed on the output Programming range: 385VAC, +/-550VDC; Accuracy: ≤0.5%		
Output overvoltage protection (OVP) type		RMS – Shutdown when RMS voltage exceeds OVP RMS setting Peak – Shutdown 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		
Overcurrent protection (OCP) range		A_{PK}	±6 – ±1560	±7.5 – ±1950
AC input protection		Three fuses, fuse on each phase. 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		

Models			All models
Harmonics measurement			
Fundamental frequency		Hz	16 – 1000
Harmonic frequency / harmonic #		Hz	32 – 50000 / 2 – 50
Measurement items		-	RMS Voltage, RMS current, phase angle and THD
Stability			
Line regulation		%	≤0.02
Load regulation (*9)		%	≤0.03
Total harmonic distortion (THD) (*9)	16 – 500	%	≤0.4
	501 – 1200		≤0.7
	1201 – 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
Environmental conditions			
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 (*26) (*41 – *45)		m / feet	Operating: 2000 / 6562; Non-operating: 12000 / 39370
Remote control interfaces (isolated from the output) (*32)			
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
Signals and controls (isolated from the output)			
Constant voltage / Constant current monitor			Open collector. CC mode: On (0 – 0.6V); CV mode: Off. Maximum voltage: 30V. Maximum sink current: 10mA
Power source OK #2 monitor (*32)			Push pull. Output on: 4.5 – 5.5V; Output off: 0 – 0.6V. Maximum source / sink current: 10mA
Power source OK #1 monitor (*32)			Open collector. Output on: On (0 – 0.6V); Output off: Off. Maximum voltage: 30V. Maximum sink current: 10mA
Trigger in signals (*32)			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 (*32)			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 (*32)			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) (*32)			Enable / Disable power source output by electrical signal or dry contact. Output on: 0 – 0.6V or short; Output OFF: 2 – 30V or open

Models	All models
Analog programming and monitoring (isolated from the output)	
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/6kVA: ≤1.3%. Accuracy 3kVA/4kVA/9kVA/12kVA/18KVA/24kVA/27kVA/36KVA/45KVA/48kVA/60kVA: ≤0.9%
Software / Firmware test sequences (*20) (*33)	
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	

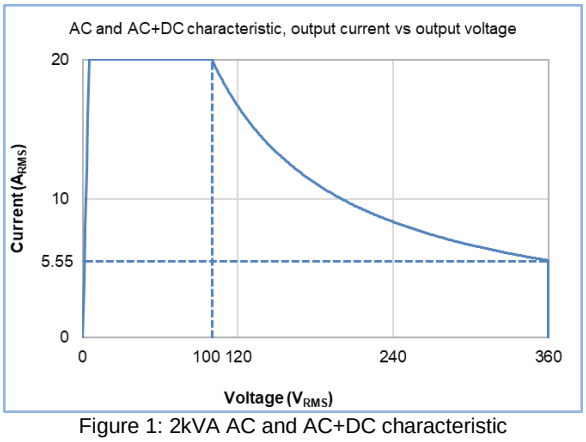


Figure 1: 2kVA AC and AC+DC characteristic

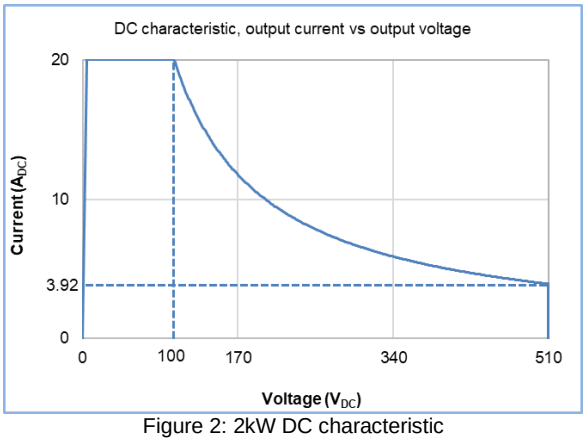


Figure 2: 2kW DC characteristic

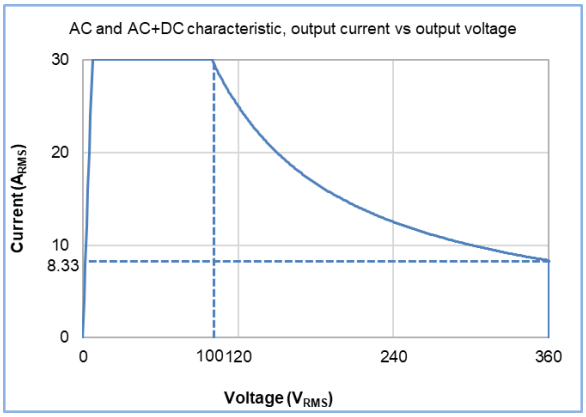


Figure 3: 3kVA AC and AC+DC characteristic (*27)

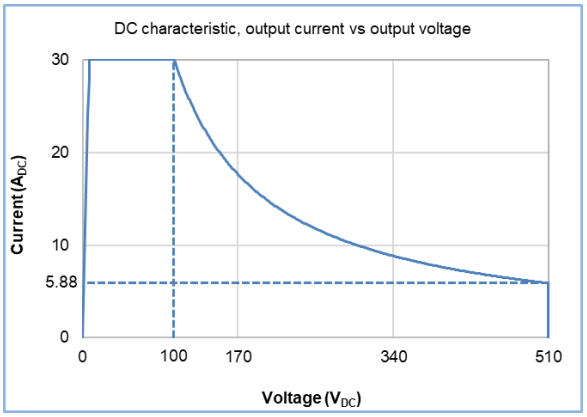


Figure 4: 3kW DC characteristic

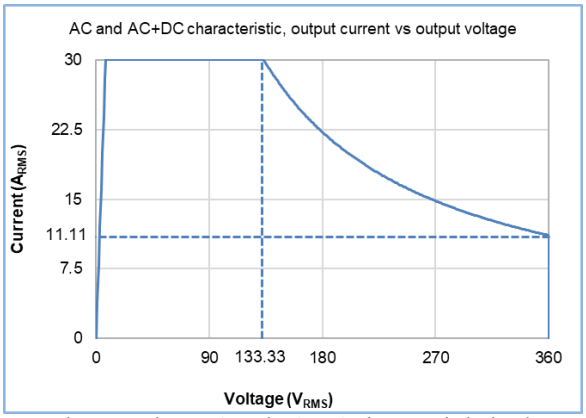


Figure 5: 4kVA AC and AC+DC characteristic (*41)

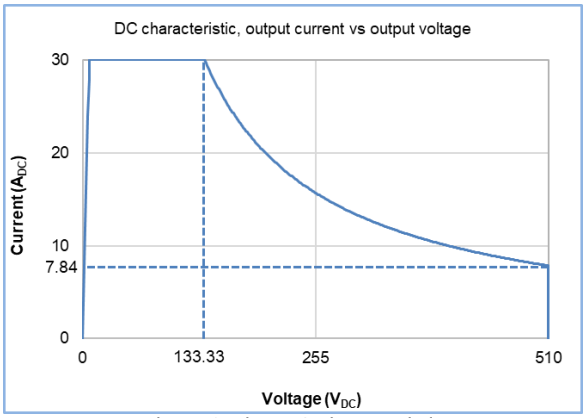


Figure 6: 4kW DC characteristic

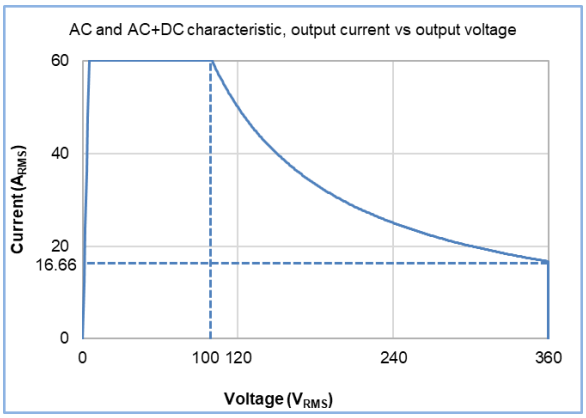


Figure 7: 6kVA AC and AC+DC characteristic

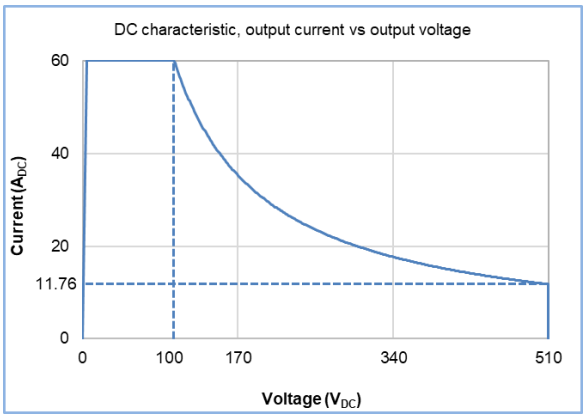


Figure 8: 6kW DC characteristic

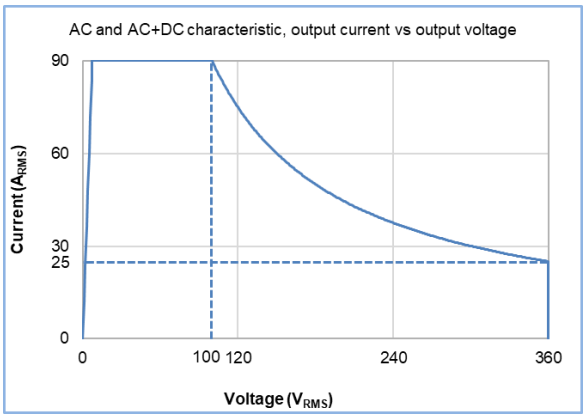


Figure 9: 9kVA AC and AC+DC characteristic (*28)

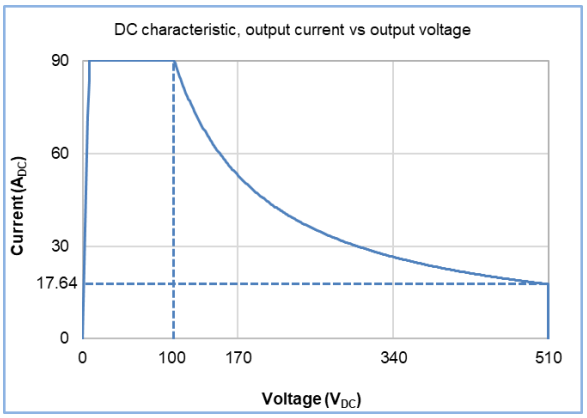


Figure 10: 9kW DC characteristic

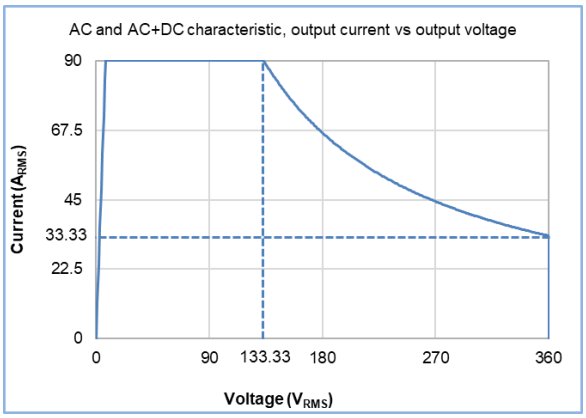


Figure 11: 12kVA AC and AC+DC characteristic (*42)

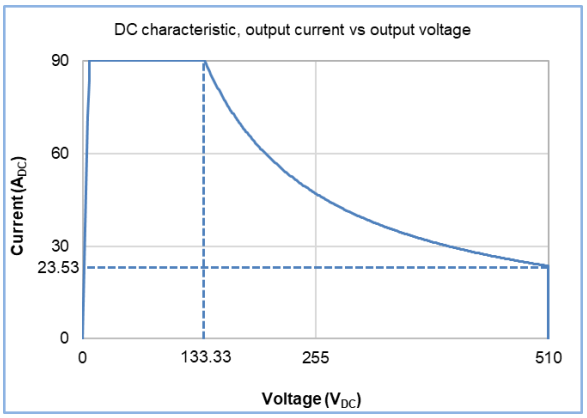


Figure 12: 12kW DC characteristic

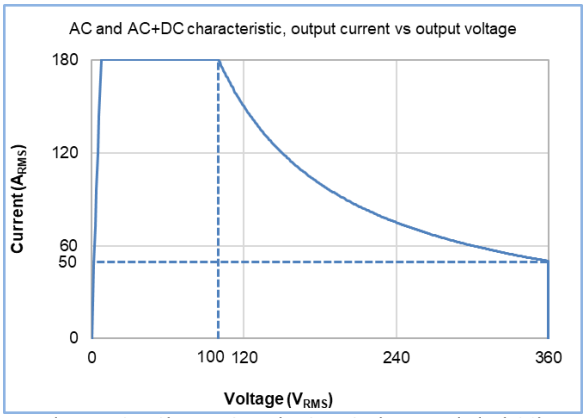


Figure 13: 18kVA AC and AC+DC characteristic (*36)

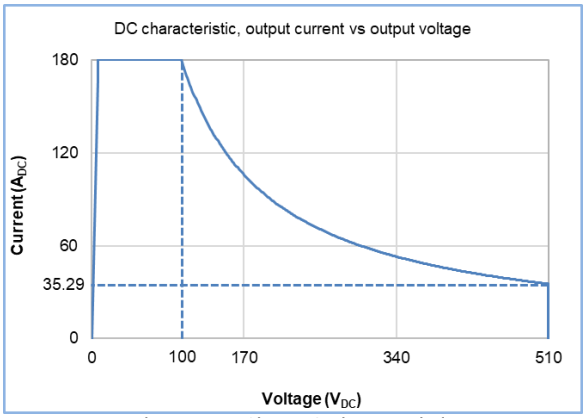


Figure 14: 18kW DC characteristic

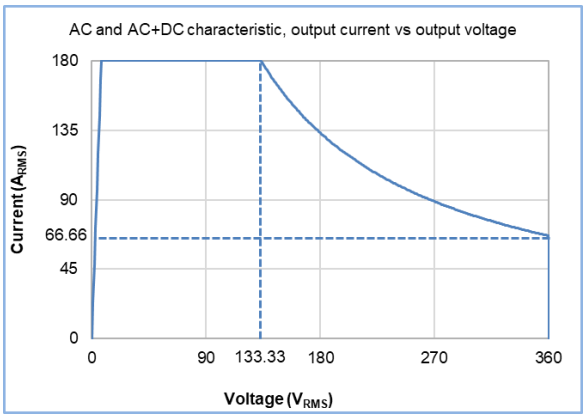


Figure 15: 24kVA AC and AC+DC characteristic (*43)

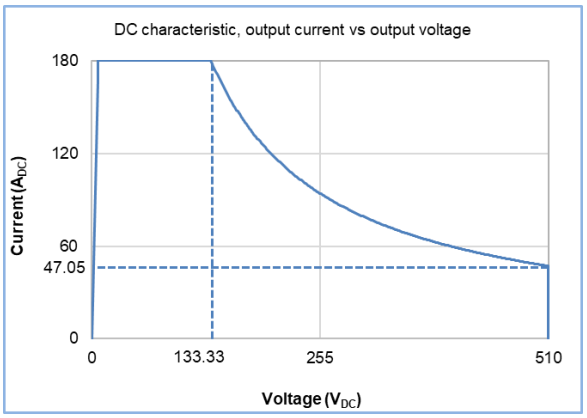


Figure 16: 24kW DC characteristic

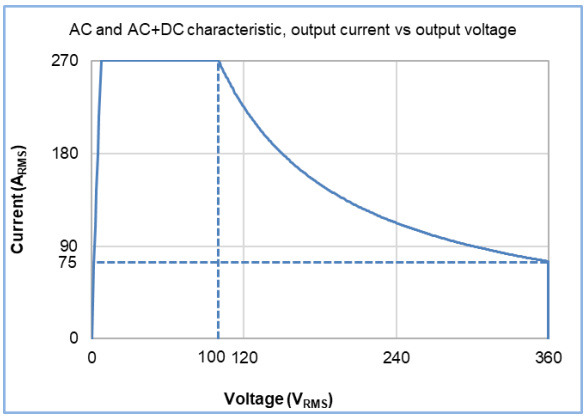


Figure 17: 27kVA AC and AC+DC characteristic (*39)

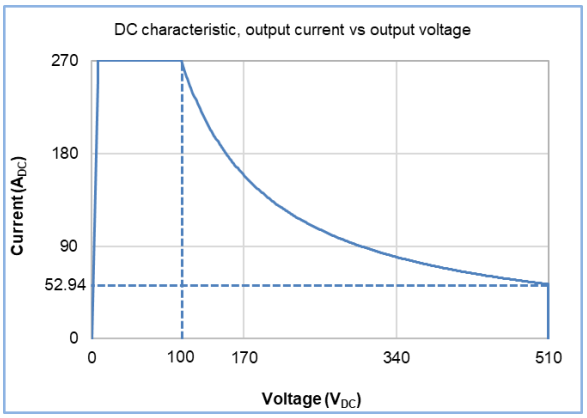


Figure 18: 27kW DC characteristic

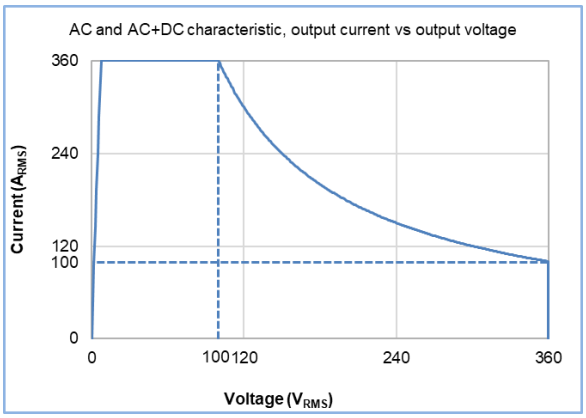


Figure 19: 36kVA AC and AC+DC characteristic (*40)

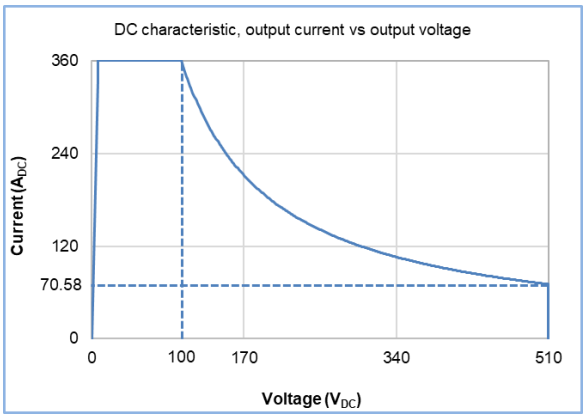


Figure 20: 36kW DC characteristic

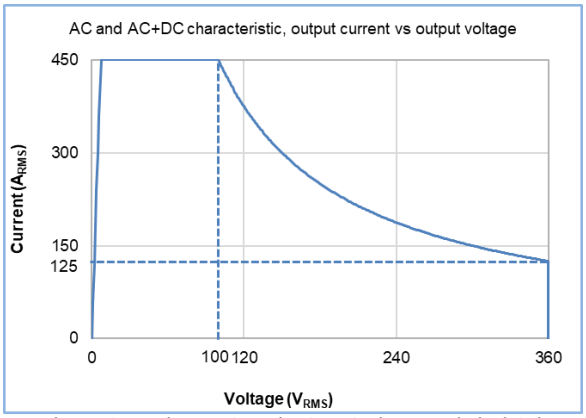


Figure 21: 45kVA AC and AC+DC characteristic (*37)

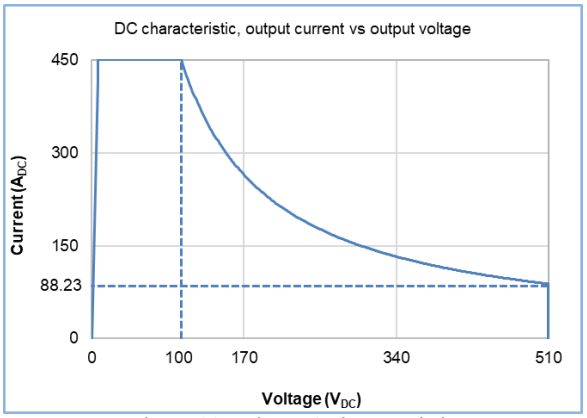


Figure 22: 45kW DC characteristic

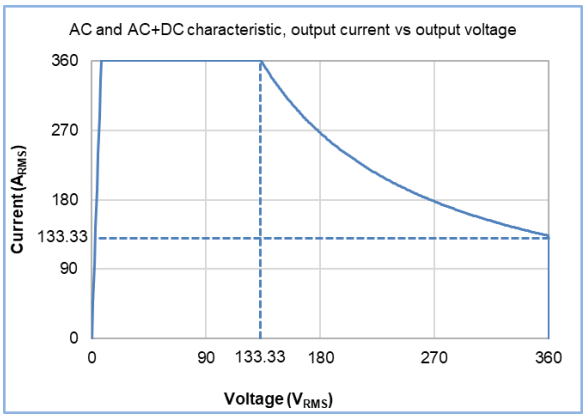


Figure 23: 48kVA AC and AC+DC characteristic (*44)

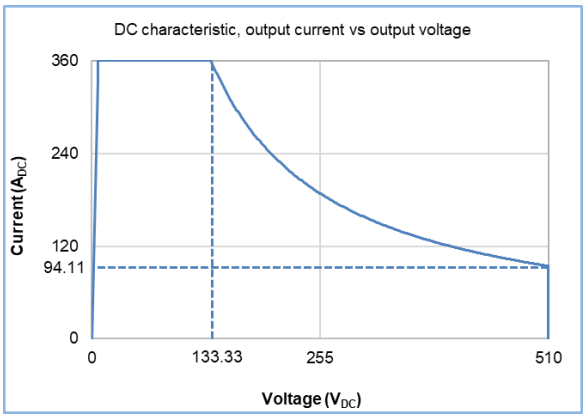


Figure 24: 48kW DC characteristic

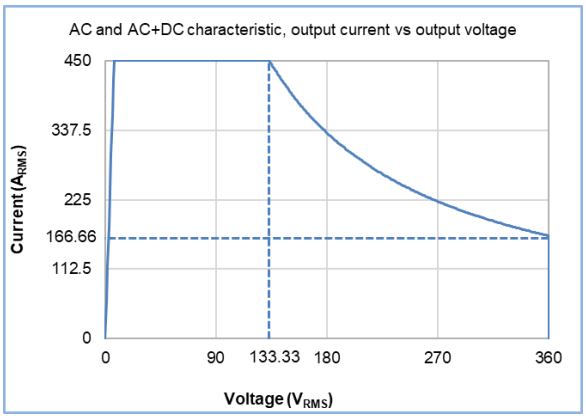


Figure 25: 60kVA AC and AC+DC characteristic (*45)

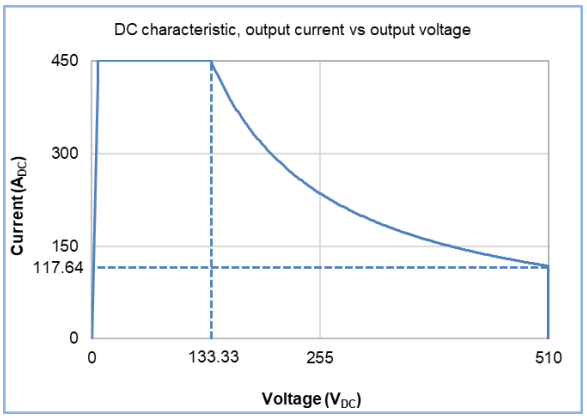


Figure 26: 60kW DC characteristic

NOTES:

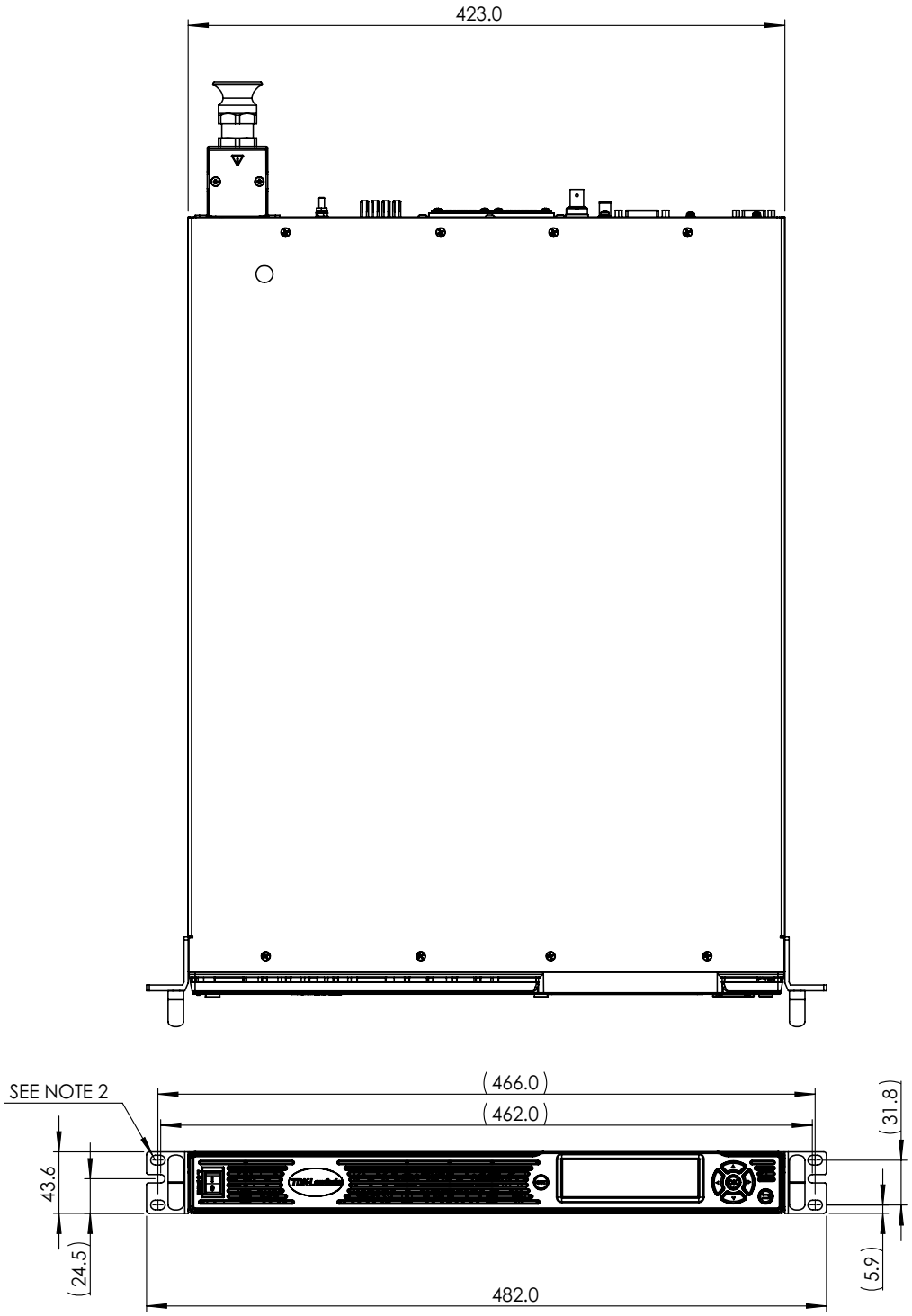
*1: Combined with AC and DC output, the peak voltage must be between -510V to +510V.
*2: 18kVA, 24KVA, 36kVA and 48KVA models support 2-Phase output configuration.
*3: Maximum RMS voltage setting range is associated with the output current setting. When the output current setting is above 5.55A for 2kVA, 8.33A for 3kVA, 11.11A for 4kVA, 16.66A for 6kVA, 25A for 9kVA, 33.33A for 12kVA, 50A for 18kVA, 66.66A for 24kVA, 75A for 27kVA, 100A for 36kVA, 125A for 45kVA, 133.33A for 48kVA or 166.66A for 60kVA the output voltage setting is limited to rated output power.
Refer to Figure 1, Figure 3, Figure 5, Figure 7, Figure 9, Figure 11, Figure 13, Figure 15, Figure 17, Figure 19, Figure 21 or Figure 23.
Maximum RMS current setting is adjusted automatically to the maximum allowed value according to the rated output power when the RMS voltage is set.
*4: Frequency measurements are available above 10VAC in AC Mode, 17.5VAC in AC+DC Mode.
*5: Maximum RMS current setting range is associated with the output voltage setting.
*6: Maximum DC voltage setting range is associated with the output current setting. When the output current setting is above 3.92A for 2kW, 5.88A for 3kW, 7.84A for 4kW, 11.76A for 6kW, 17.64A for 9kW, 23.53A for 12kW, 35.29A for 18kW, 47.05 for 24kW, 52.94A for 27kW, 70.58A for 36kW, 88.23A for 45kW, 94.11A for 48kW or 117.64A for 60kW the output voltage setting is limited to rated output power.
Refer to Figure 2, Figure 4, Figure 6, Figure 8, Figure 10, Figure 12, Figure 14, Figure 16, Figure 18, Figure 20, Figure 22 or Figure 24.
Maximum DC current setting is adjusted automatically to the maximum allowed value according to the rated output power when the DC voltage is set.
*7: Maximum DC current setting range is associated with the output voltage setting.
*8: Accuracy is guaranteed above 5% of rated output voltage.
*9: Load power factor is 1. Measured on the sensing point. Regulation is guaranteed above 5% of rated output voltage. THD is guaranteed above 15% of rated output voltage.
*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 1% 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, at rated output voltage.
*13: At 10% to 90% of the output voltage, at rated 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. 1-Phase models at 230VAC input voltage, 3-Phase 200V models at 200VAC input voltage, 3-Phase 480V at 380Vac input voltage.
*16: Not including the EMI filter inrush current, less than 0.2mSec. 1-Ph Input, at Input line ≥ 240Vac, less than 70A.
*17: Not including the EMI filter inrush current, less than 0.2mSec.
*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.
Wave Generator & Harmonic Analysis: Built-in in Genesys AC Pro Series. Must be acquired in Genesys AC Series.
IEC61000-4-17 and IEC61000-4-29: Built-in in Genesys AC Pro Series (not available in Genesys AC models without DC capability).
For details and limitations on test sequences, see Virtual Control Panel (VCP) Installation and Applications Guide (IA761-04-03).
*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.
*25: Minimum peak current duration - 10µsec.
*26: AC operating mode, frequency below 40Hz:
3kVA: Derate output power linearly from 3000VA to 2700VA starting at 500 meters (maximum allowed output power is 2700VA at 2000 meters).
4kVA: Derate output power linearly from 4000VA to 3600VA starting at 500 meters (maximum allowed output power is 3600VA at 2000 meters).
9kVA: Derate output power linearly from 9000VA to 8100VA starting at 500 meters (maximum allowed output power is 8100VA at 2000 meters).
12kVA: Derate output power linearly from 12000VA to 10800VA starting at 500 meters (maximum allowed output power is 10800VA at 2000 meters).
18kVA: Derate output power linearly from 18000VA to 16200VA starting at 500 meters (maximum allowed output power is 16200VA at 2000 meters).
24kVA: Derate output power linearly from 24000VA to 21600VA starting at 500 meters (maximum allowed output power is 21600VA at 2000 meters).
27kVA: Derate output power linearly from 27000VA to 24300VA starting at 500 meters (maximum allowed output power is 24300VA at 2000 meters).
36kVA: Derate output power linearly from 36000VA to 32400VA starting at 500 meters (maximum allowed output power is 32400VA at 2000 meters).
45kVA: Derate output power linearly from 45000VA to 40500VA starting at 500 meters (maximum allowed output power is 40500VA at 2000 meters).
48kVA: Derate output power linearly from 48000VA to 43200VA starting at 500 meters (maximum allowed output power is 43200VA at 2000 meters).
60kVA: Derate output power linearly from 60000VA to 54000VA starting at 500 meters (maximum allowed output power is 54000VA at 2000 meters).
*27: Maximum allowed output power in AC+DC mode: 2kVA at output frequency <30Hz, 2.5kVA at output frequency ≥30Hz and <100Hz, 3kVA at output frequency ≥100Hz.
*28: Maximum allowed output power in AC+DC mode: 6kVA at output frequency <30Hz, 7.5kVA at output frequency ≥30Hz and <100Hz, 9kVA at output frequency ≥100Hz.
*29: J1 – RS232 and RS485, J2 – USB, J3 – LAN, J4, J4-1, J4-2, J4-3, J4-4, J4-5 – Remote Programming, J5 – Emergency Power Off, J6, J6-1, J6-2, J6-3, J6-4, J6-5 – Trigger Out, J7, J7-1, J7-2, J7-3, J7-4, J7-5 – Voltage Monitor, J8 – Optional Interface slot, J9 – Parallel Master, J10 – Parallel Slave.
*30: Including GAC-PWR, except items marked by *31, *32 and *33.
*31: J1, J2, J3, J5 and J8 are not available in GAC-PWR.
*32: Not applicable to GAC-PWR. Controlled by the Master unit via parallel connection.
*33: Not applicable to GAC-PWR. Software / Firmware test sequences are defined by the Master unit.
*34: 18kVA unit specifications cover GAC-18, GAC-PRO-18 or a field assembly of a GAC-09/GAC-PRO-09 unit and a GAC-PWR-09 unit.
24kVA unit specifications cover GAC-24, GAC-PRO-24 or a field assembly of a GAC-12/GAC-PRO-12 unit and a GAC-PWR-12 unit.
The 27kVA unit consists of a GAC-09/GAC-PRO-09 unit and two GAC-PWR-09 units.
The 36kVA unit consists of a GAC-09/GAC-PRO-09 unit and three GAC-PWR-09 units.
The 45kVA unit consists of a GAC-09/GAC-PRO-09 unit and four GAC-PWR-09 units.
The 48kVA unit consists of a GAC-12/GAC-PRO-12 unit and three GAC-PWR-12 units.
The 60kVA unit consists of a GAC-12/GAC-PRO-12 unit and four GAC-PWR-12 units.
*35: The 18kVA, 27kVA, 36kVA and 45kVA approval is based on each 9kVA unit approval.
The 24kVA, 48kVA and 60kVA approval is based on each 12kVA unit approval.
*36: Maximum allowed output power in AC+DC mode: 12kVA at output frequency <30Hz, 15kVA at output frequency ≥30Hz and <100Hz, 18kVA at output frequency ≥100Hz.

*37: Maximum allowed output power in AC+DC mode: 30kVA at output frequency <30Hz, 37.5kVA at output frequency ≥30Hz and <100Hz, 45kVA at output frequency ≥100Hz.
*38: Starting from firmware 001.008.000:
Maximum programming voltage (rated voltage) range is extended from 350VAC / ±500VDC to 360VAC / ±510VDC.
Minimum programming current range is extended from 5% of rated current to 0 Amperes.
*39 Maximum allowed output power in AC+DC mode: 18kVA at output frequency <30Hz, 22.5kVA at output frequency ≥30Hz and <100Hz, 27kVA at output frequency ≥100Hz.
*40 Maximum allowed output power in AC+DC mode: 24kVA at output frequency <30Hz, 30kVA at output frequency ≥30Hz and <100Hz, 36kVA at output frequency ≥100Hz.
*41 Maximum allowed output power in AC+DC mode: 3kVA at output frequency <30Hz, 3.3kVA at output frequency ≥30Hz and <100Hz.
For output frequencies ≥100Hz, the maximum permitted output power is 4.0kVA at an altitude of 500m, with linear derating to 3.6kVA at 2000m.
*42 Maximum allowed output power in AC+DC mode: 9kVA at output frequency <30Hz, 9.9kVA at output frequency ≥30Hz and <100Hz.
For output frequencies ≥100Hz, the maximum permitted output power is 12kVA at an altitude of 500m, with linear derating to 10.8kVA at 2000m.
*43 Maximum allowed output power in AC+DC mode: 18kVA at output frequency <30Hz, 19.8kVA at output frequency ≥30Hz and <100Hz.
For output frequencies ≥100Hz, the maximum permitted output power is 24kVA at an altitude of 500m, with linear derating to 21.6kVA at 2000m.
*44 Maximum allowed output power in AC+DC mode: 36kVA at output frequency <30Hz, 39.6kVA at output frequency ≥30Hz and <100Hz.
For output frequencies ≥100Hz, the maximum permitted output power is 24kVA at an altitude of 500m, with linear derating to 43.2kVA at 2000m.
*45 Maximum allowed output power in AC+DC mode: 45kVA at output frequency <30Hz, 49.5kVA at output frequency ≥30Hz and <100Hz.
For output frequencies ≥100Hz, the maximum permitted output power is 24kVA at an altitude of 500m, with linear derating to 54kVA at 2000m.
*46 J4-1, J4-2, J6-1, J6-2, J7-1, J7-2 are available in GAC-06, GAC-PRO-06, GAC-09, GAC-PRO-09, GAC-PWR-09, GAC-12, GAC-PRO-12, GAC-PWR-12, GAC-18, GAC-PRO-18, GAC-24, GAC-PRO-24 only.
J4-3, J4-4, J4-5, J6-3, J6-4, J6-5, J7-3, J7-4, J7-5 are available in GAC-18, GAC-PRO-18, GAC-24, GAC-PRO-24 only.
*47 Strain relief is not applicable to GAC-18, GAC-PRO-18, GAC-24, GAC-PRO-24 (applicable to GAC/GAC-PRO-06, GAC/GAC-PRO-09 and GAC-PWR-09, or GAC/GAC-PRO-12 and GAC-PWR-12 only).
*48 At 25°C, 70%RH, 500VDC output to ground
*49 Field assembly - Relates to GAC/GAC-PRO-09 and GAC-PWR-09 or GAC/GAC-PRO-12 and GAC-PWR-12.
Component - Relates to GAC-18, GAC-PRO-18, GAC-24, GAC-PRO-24 factory assembled.
*50 Parallel connection of even number of units allows 2-Phase output configuration.

Outline Drawing

1U - 2kVA ,3kVA ,4kVA

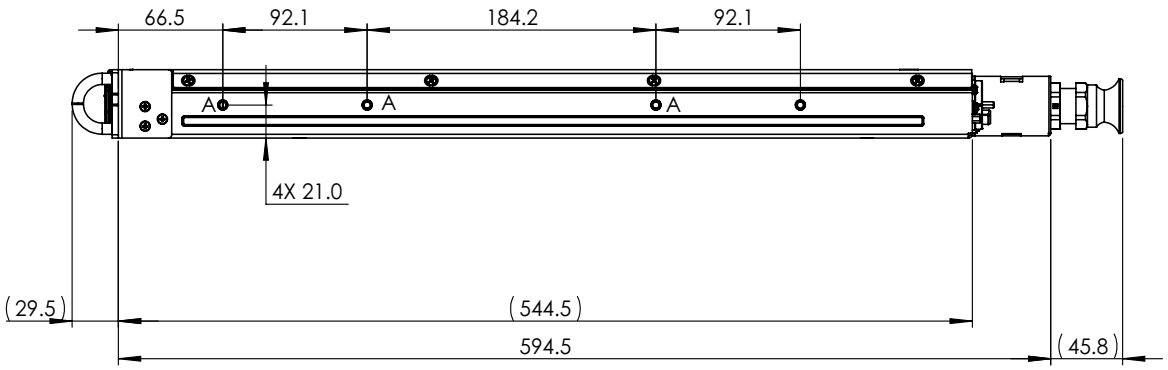


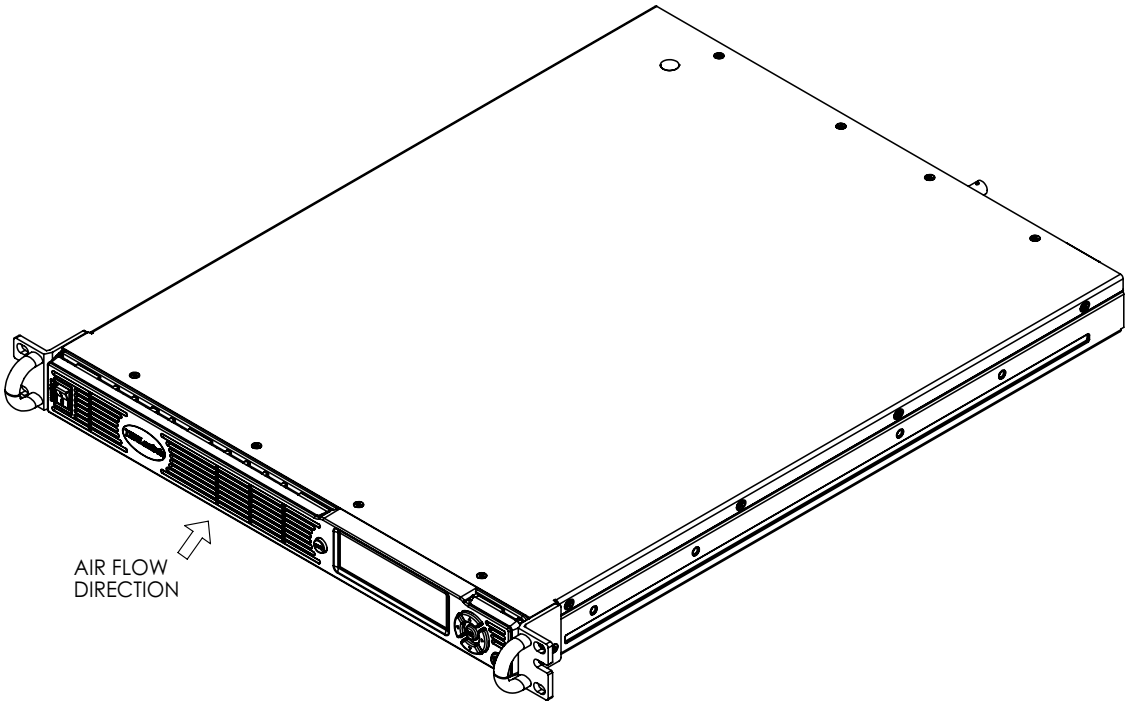


Outline Drawing

1U - 2kVA ,3kVA ,4kVA







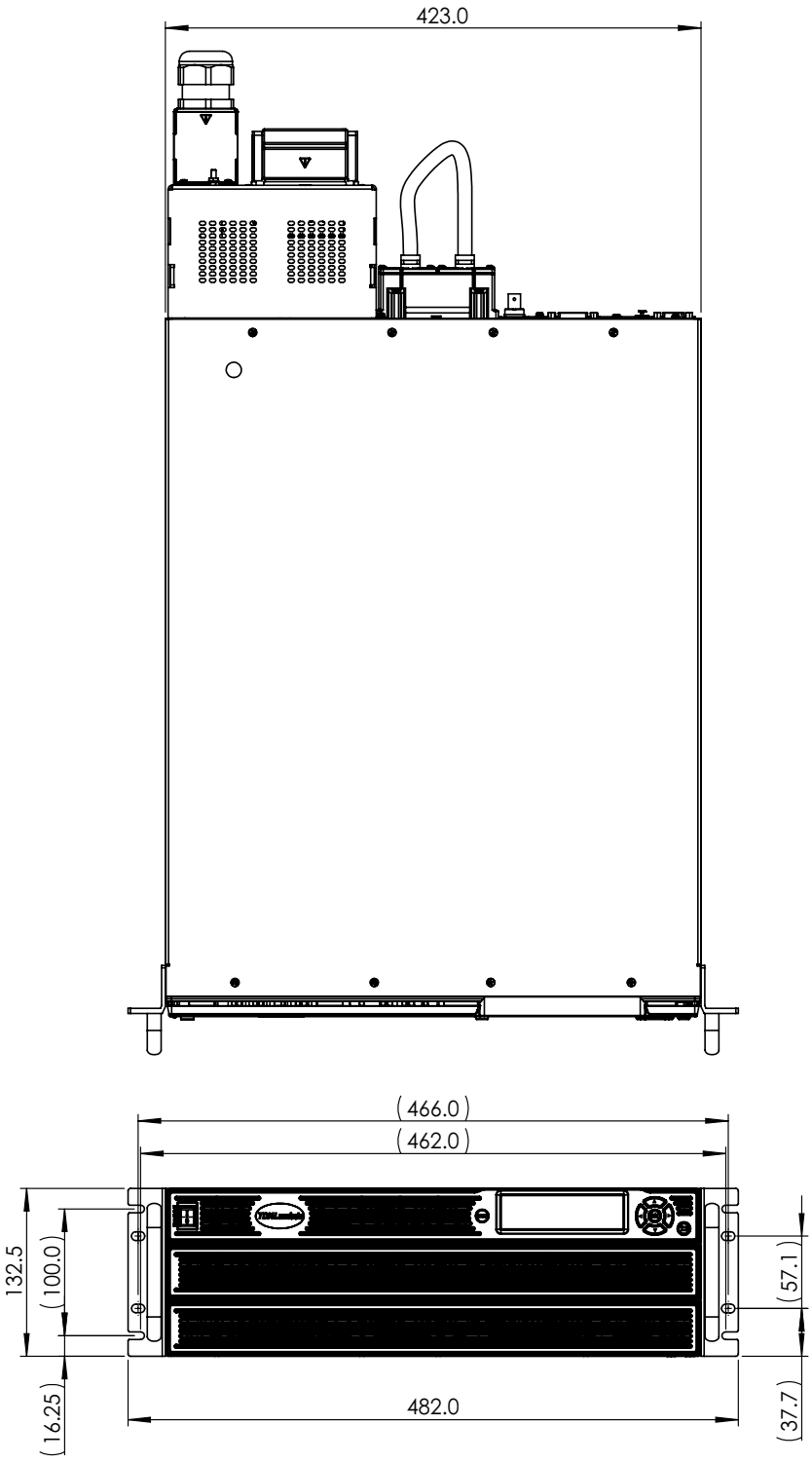
NOTE

1. MOUNTING HOLES FOR SLIDES P/N:CC3001-00-S160,GENERAL DEVICES OR EQUIVALENT.
   USE #10-32x0.375 INCH x 3 SCREWS FOR EACH SLIDE IN POSITION MARKED BY "A".
   ENSURE THAT THE SCREWS DO NOT PENETRATE MORE THAN 6.0mm INTO THE UNIT.
2. MOUNTING HOLES FOR 19'' RACK, USE M6x16 SCREWS TO FIX THE UNIT TO THE RACK.
3. RACK DIMENSIONS COMPLIES TO EIA310 & JIS C 6010 STANDARDS.

Outline Drawing

3U - 6kVA, 9kVA, 12kVA



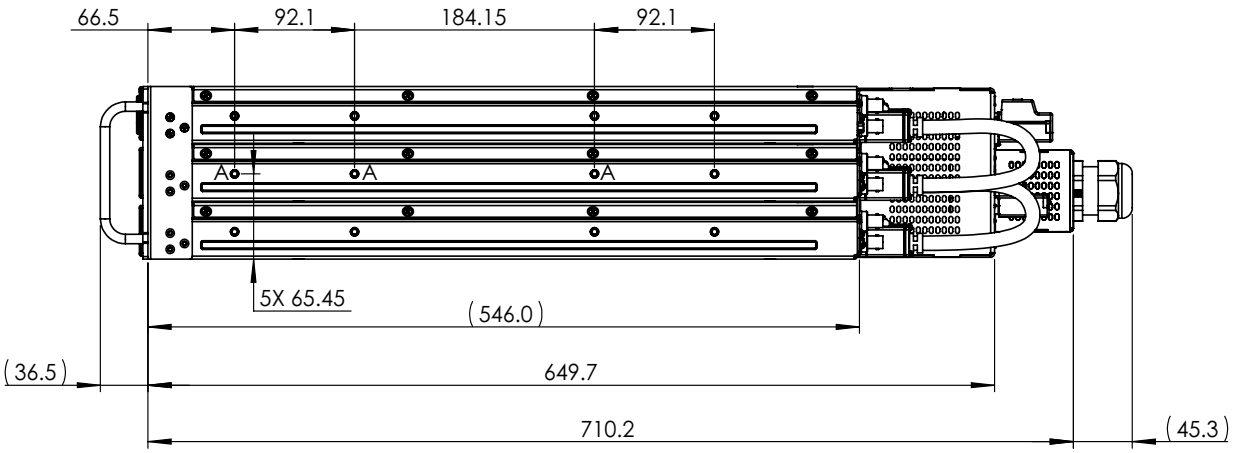


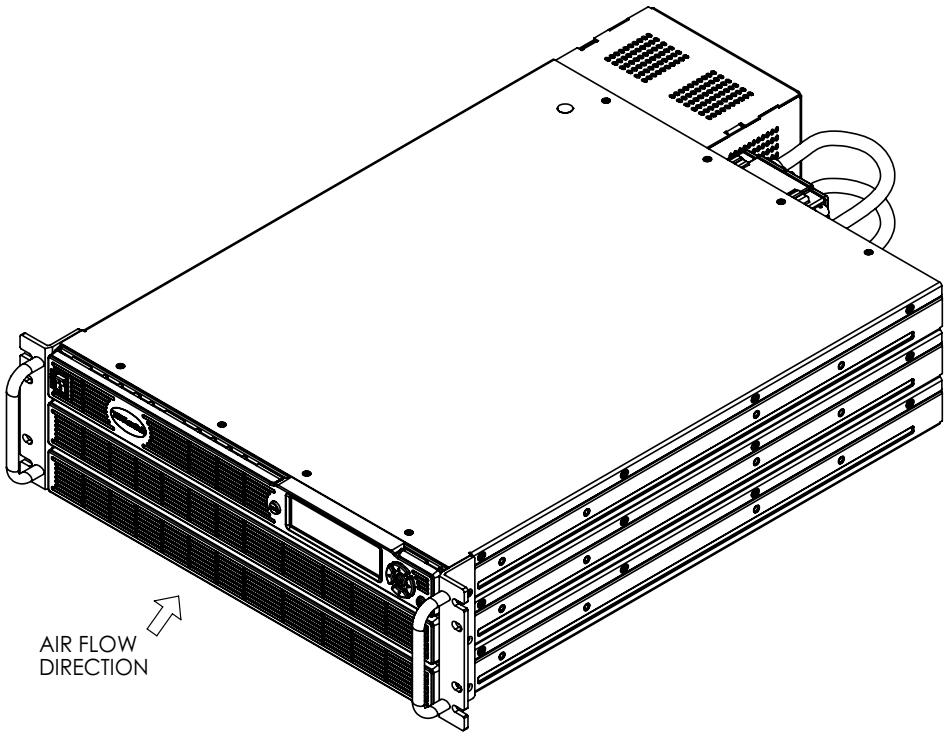
The booster unit does not include a display or ON/OFF switch.
The outline drawing is identical to that of the Master unit

Outline Drawing

3U - 6kVA, 9kVA, 12kVA







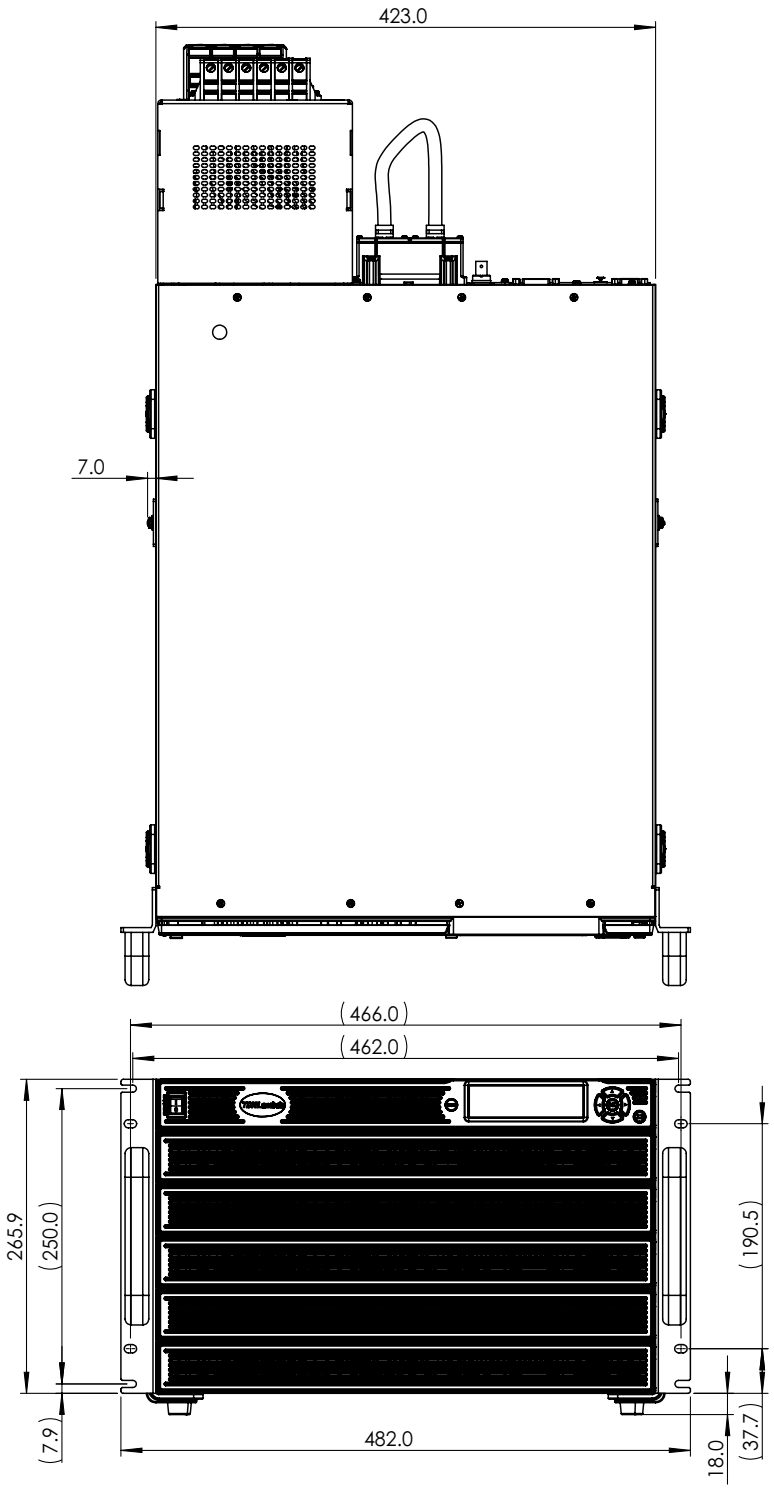
NOTE

1. MOUNTING HOLES FOR SLIDES P/N:CC3001-00-S160,GENERAL DEVICES OR EQUIVALENT.
   USE #10-32x0.375 INCH x 3 SCREWS FOR EACH SLIDE IN POSITION MARKED BY "A".
   ENSURE THAT THE SCREWS DO NOT PENETRATE MORE THAN 6.0mm INTO THE UNIT.
2. MOUNTING HOLES FOR 19" RACK, USE M6x16 SCREWS TO FIX THE UNIT TO THE RACK.
3. RACK DIMENSIONS COMPLIES TO EIA310 & JIS C 6010 STANDARDS.
4. THE BOOSTER UNIT DOES NOT INCLUDE A DISPLAY OR ON/OFF SWITCH.
5. THE BLANK PANEL UNIT DOES NOT INCLUDE A DISPLAY.
6. THE BLANK PANEL AND BOOSTER UNIT OUTLINE DRAWING IS IDENTICAL TO THAT OF THE STANDARD UNIT

Outline Drawing

6U - 18kVA, 24kVA

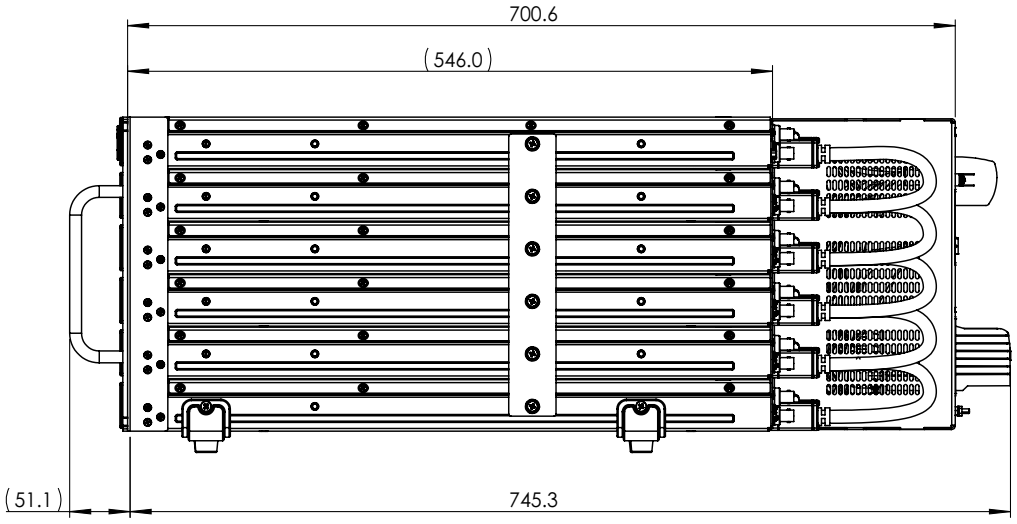


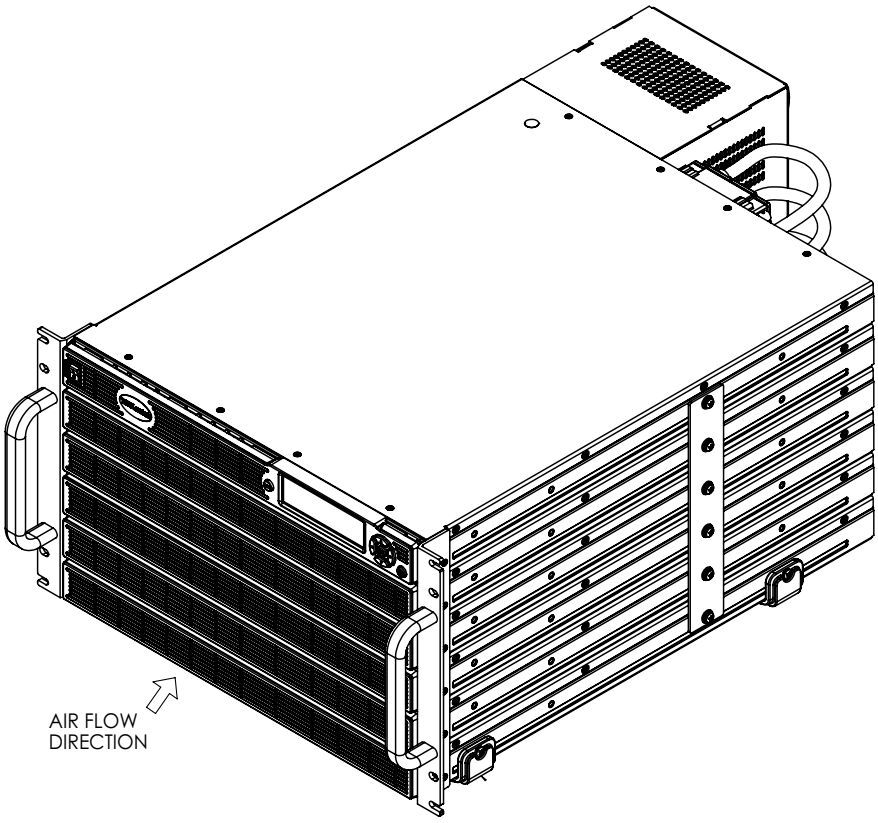


Outline Drawing

6U - 18kVA, 24kVA







NOTE
1. MOUNTING HOLES FOR 19" RACK, USE M6x16 SCREWS TO FIX THE UNIT TO THE RACK.
2. RACK DIMENSIONS COMPLIES TO EIA310 & JIS C 6010 STANDARDS.
3. REMOVE THE FEETS BEFORE RACK MOUNTING.



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