

Programmable DC Power Supplies 200W/400W/600W/800W in 2U Built-in USB, RS-232 & RS-485 Interface

> Optional Interface: LAN IEEE488.2 SCPI (GPIB) Multi-Drop Isolated Analog Programming



TDK·Lambda

Features Include:

- High Power Density 200W/400W/600W/800W in 2U: 3.5 Inch (89mm) height
- Wide Range Input (85-265Vac continuous)
- Active Power Factor Correction (0.99 typical)
- Output Voltage up to 650V, Current up to 5A
- Constant Voltage (CV)/(CC) Constant Current auto-crossover
- Built-in RS-232/RS-485 Interface Standard
- Global Commands for Serial RS-232/RS-485 Interface
- Auto-Re-Start / Safe-Start: user selectable
- Last-Setting Memory
- High Resolution 16 bit ADCs & DACs
- Low Ripple & Noise
- Front Panel Lock selectable from Front Panel or Software
- Reliable Encoders for Voltage and Current adjustment
- Parallel Operation with Active Current Sharing, for up to six identical units
- Advanced Parallel Master / Slave. Total Current is programmed and measured via the Master
- External Analog Programming and Monitoring (user selectable 0-5V & 0-10V)
- Reliable Modular and SMT Design
- 19" Rack Mount Capability for ATE and OEM applications
- Optional Interfaces

Isolated Analog Programming and Monitoring Interface (0-5V/0-10V & 4-20mA) IEEE 488.2 SCPI (GPIB) Multi-Drop

LAN

LabView® and LabWindows® drivers

Arbitrary functions for:

Automotive or laser simulation / 4 Pre-Programmed Functions

- Fast Command Processing Time
- Output Sequencing
- Four-cell Memory Settings
- User Programmable Signal Pins
- Five Year Warranty
- Worldwide Safety Agency Approvals; CE Mark for LVD and EMC regulations



Front Panel Description





- 1. AC ON/OFF Switch
- 2. Air Intake allows zero stacking for maximum system flexibility and power density.*
- 3. Reliable encoder controls Output Voltage and power supply setting.
- 4. Volt Display shows Output Voltage and directly displays and power supply settings.
- 5. Reliable encoder controls Output Current, and power supply setting.
- 6. Current Display shows Output Current and power supply setting.
- 7. Function/Status LEDs:
- Alarm
 Foldback Mode
- Fine Control
 Remote Mode
- Preview Settings
 Output On
- 8. Pushbuttons allow flexible user configuration
- Coarse and Fine adjustment of Output Voltage/Current and Advanced Parallel Master or Slave
- Preview settings and set Voltage/Current with Output OFF, Front Panel Lockout
- Set OVP, UVP, UVL Limits
- Set Current Foldback
- Local/Remote Mode and select Address and Baud Rate
- Output ON/OFF and Auto-Start/Safe-Start Mode
- Menu
- 9. Optional front panel insulated output sockets (Ø 4mm) for modules up to 650V: 5A Max

* Zero stacking - side-by-side mounting of 6 units in a 19" Rack

Rear Panel Description





- 1. Connector allows (Non-isolated) Analog Program and Monitor and other functions.
- 2. Remote/Local Output Voltage Sense Connections.
- 3. Signal Connector
- 4. RS-232/RS-485 INPUT Remote Serial Programming.
- 5. RS-485 OUTPUT to other Z^+ Power Supplies.
- 6. USB Interface
- 7. Wide-Range Input 85-265VAC continuous, 47/63Hz with Active Power Factor Correction (0.99 typical) AC Input Connector: IEC320 -C16.
- 8. Exhaust air exits at the back. Allows vertical stacking of units without any separation between units
- 9. Output Connections: MALE CONNECTOR (IC 2,5/ 4-G-5,08 , PHOENIX CONTACT). FEMALE PLUG (IC 2,5/4-ST-5,08, PHOENIX CONTACT).
- 10. Optional Interface Position for LAN Interface.
- 11. Optional Interface Position for GPIB Interface (shown) or Isolated Analog Interface.

C⁺ Power Benchtop Parallel and Series Configurations

Benchtop Power Supply

Parallel operation - Master/Slave:

Active current sharing allows up to six identical units to be connected in an auto-parallel configuration for six times the output power.

In Advanced Parallel Master/Slave Mode, total current is programmed and reported by the Master, Up to six supplies act as one.

Series operation

Up to two units may be connected in series to increase the output voltage or to provide bipolar output.

Remote Programming via Built-in USB, RS-232 & RS-485 Interface

Standard Serial Interface allows daisy chain control of up to 31 power supplies on the same bus with built-in RS-232 & RS-485 Interface.

Optional Interface: LAN & IEEE488.2 SCPI (GPIB)

Multi-Drop

Allows LAN/IEEE Master to control up to 31 slaves over RS-485 daisy-chain Only the Master needs be equipped with LAN/IEEE Interface



RS-232 RS-485 LAN IEEE









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Applications

 Z^+ series power supplies have been designed to meet the demands of a wide variety of applications.

Test and Measurement

Built-in Last-Setting memory based on Flash Memory no battery or capacitor backup. Simplifies test design and requirements.

Built-in RS-232/RS-485 gives maximum system flexibility along with 0-5V and 0-10V, selectable analog programming.

Wide range of available inputs allows testing of many different devices.

Semiconductor Burn-in

Safe-Start mode ENABLED - to re-start at Output OFF to protect load.

Wide range input (85-265Vac) with Active Power Factor correction rides through input transients easily.

Component Test

High power density, zero stacking and single wire parallel operation, give maximum system flexibility.

Laser Diode

OVP is directly set on Voltage Display, assuring accurate protection settings.

Fast Constant Current response, no over shoot. Current Limit Fold Back assures load is protected from current surges.

Heater Supplies

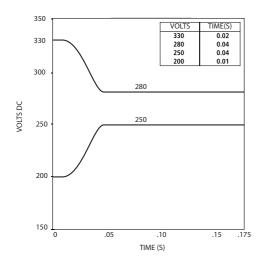
Smooth, reliable encoders enhance front panel control. Remote analog programming is user selectable 0-5V or 0-10V.

RF Amplifiers and Magnets

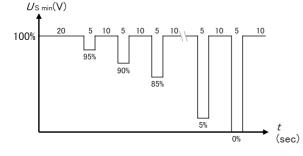
Robust design assures stable operation under a wide variety of loads. High linearity in Voltage & Current mode.

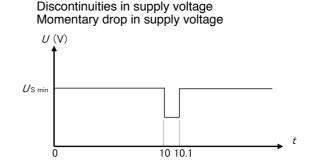
Z⁺ Series Sequence Programming Applications:





Reset behaviour at voltage drop





Options: (200W/400W/600W/800W)

Front Panel insulated Output sockets

Up to 650V Output Module P/N: Z__-__-L2



Optional front panel insulated output sockets (Ø 4mm) for modules up to 650V: 5A Max - L2

Z⁺ Assemblies

Dual Output Housing (for 105mm) 200W/400W/600W/800W Triple Output Housing (for 70mm) 200W/400W/600W/800W P/N: Z-NL200 (same p/n for both Dual & Triple Output Housing)w





19" Rack Mounted to 4.8kW

Six units (70mm) can be assembled into 19-Inch rack/2U high Four units (105mm) can be assembled into 19-Inch rack/2U high to meet your configuration requirements. In cases where the entire rack is not occupied with power units, P/N: Z-BP for 70mm, P/N: Z-WBP for 105mm blank panels can be installed: **P/N: Z-NL100**





Power Modules Table

Module Type	200W	400W	600W	800W
0~160V	1.3A	2.6A	4A	5A
0~320V	0.65A	1.3A	2A	2.5A
0~650V	0.32A	0.64A	1A	1.25A
19" rack width	1/6 width	1/6 width	1/6 width	1/6 width
19" rack width	1/4 width	1/4 width	1/4 width	1/4 width





Programming Options (Factory Installed) Distal Des

Digital Programming via IEEE Interface	F	P/N: IEEE				
 IEEE 488.2 SCPI Compliant Program Voltage Measure Voltage Over Voltage setting and shutdown Error and Status Messages Multi-Drop Allows IEEE Master to control up to 31 slaves over RS-485 daisy-chain Only the Master needs be equipped with IEEE Interface 						
 Isolated Analog Programming Four Channels to Program and Monitor Voltage a Isolation allows operation with floating reference Choose between programming with Voltage or Connection via removable terminal block: Phoer Voltage Programming, user-selectable 0-5V o Power Supply Voltage and Current Programm 	and Current. es in harsh electrical envi Current. nix MC1,5/8-ST-3.81. r 0-10V signal. F	ironments. P/ N: IS510				
 Power Supply Voltage and Current Monitoring Accuracy ±1.5% Current Programming with 4-20mA signal. Power Supply Voltage and Current Programming Accuracy ±1% Power Supply Voltage and Current Monitoring Accuracy ±1.5% 						
LAN Interface	F	P/N: LAN				

- VISA & SCPI Compatible
- Address Viewable on Front Panel
- Fixed and Dynamic Addressing
- Auto-detects LAN Cross-over Cable Compatible with most standard Networks Fast Startup

• TCP / UDP Socket Programming

LAN Fault Indicators

AC Cord

Region	Europe	Japan	North America	Israel
Output Power	850W	850W	850W	850W
AC Cords	10A/250Vac L=2m	15A/125Vac L=2m	13A/125Vac L=2m	10A/250Vac L=2m
Wall Plug	INT'L 7/VII	JIS C8303	NEMA 5-15P	SI-32
Power Supply	IEC320-C15	IEC320-C15	IEC320-C15	IEC320-C15
Connector				
Part Number	P/N: Z-E	P/N: Z-J	P/N : Z-U	P/N: Z-I

Communication Cable

RS-232/RS-485 Cable is used to connect the power supply to the PC Controller

	· · · · · · · · · · · · · · · · · · ·		
Mode	RS-485	RS-232	
PC Connector	DB-9F	DB-9F	
Communication Cable	Shield Ground L=2m	Shield Ground L=2m	
Power Supply Connector	EIA/TIA-568A (RJ-45)	EIA/TIA-568A (RJ-45)	
P/N	Z/485-9	Z/232-9	

Serial Link Cable*

Daisy-chain up to 31 Z⁺ Series power supplies.

Mode	Power Supply Connector	Communication Cable	P/N
RS-485	EIA/TIA-568A (RJ-45)	Shield Ground	Z/RJ45

* Included with power supply

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Power Supply Identification / Accessories How to order

Z 650 - 1.25-					-		-	
Series Output Voltage Output Current Name (0~650V) (0~1.25A)						ry	Output	AC cord Options:
						ns:	Jack	Region :
								E - Europe J - Japan
)	L2	U - North America
						5	LZ	I - Middle East C - China
Factory option USB Interface built-in Standard					P/N			
RS-232/RS-485 Interface built-in Standard								
GPIB Interface Voltage Programming Isolated Analog Interface Current Programming Isolated Analog Interface LAN Interface Front panel insulated output sockets (Ø 4mm) for modules up to 650V or 5A Max					IEEE			
					IS51	0		
					IS42	0		
					LAN	l		
							L2	
Output Output							Output	

Model	Output Voltage (VDC)	Output Current (A)	Output Power (W)
Z160-1.3		0~1.3	208
Z160-2.6		0~2.6	416
Z160-4	0~160 VDC 0~320 VDC 0~375VDC 0~650 VDC	0~4	640
Z160-5		0~5	800
Z320-0.65		0~0.65	208
Z320-1.3		0~1.3	416
Z320-2		0~2	640
Z320-2.5		0~2.5	800
Z375-2.2		0~2.2	825
Z650-0.32		0~0.32	208
Z650-0.64		0~0.64	416
Z650-1		0~1	650
Z650-1.25		0~1.25	812

Z⁺200 Series Specifications

I. Rated output voltage(*1) V 160 320 650 2. Rated output current (*2) A 1.3 0.65 0.32 3. Rated output power W 208 208 208 CONSTANT VOLTAGE MODE Z 160-13 320-0.65 650-0.32 I. Max. Line regulation (*6) 0.01% of rated output voltage 208 2. Max. Load regulation (*7) 0.01% of rated output voltage 60 3. Ripple and noise (p-p. 20MHz) (*14) mV 100 150 250 6. Temperature coefficient PPM/*C 30PPM/*C from rated output voltage, following 30 minutes warm-up. 6. Temperature coefficient PPM/*C 7. Warm-up drift Less than 0.05% of rated output voltage over 30 minutes warm-up. 6. Temperature stability Less than 0.05% of rated output voltage over 30 minutes warm-up. 6. Temperature coefficient PPM/*C 30PPM/*C 5 5 9. Up-prog. Response time, 0-Vomax(*9) mS 110 170 170 10. Down-prog. response time, 0-Vomax(*9) mS 180 270 27			1		
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3. Vout resistor programming 0~100%, 0~5/10Kohm full scale, user selectable. Accuracy and linearity: +/-1% of rated V					
	/				
14. Iour resistor programming (*13) – – – – – – – – – – – – – – – – – – –					
5. Shut Off (SO) control By electrical Voltage: 0~0.6V/4~15V or dry contact, user selectable logic.			· · · · · · · · · · · · · · · · · · ·		
6. Output current monitor (*13) 0~5V or 0~10V, user selectable. Accuracy: +/-1%.					
7. Output voltage monitor 0~5V or 0~10V, user selectable. Accuracy: +/-1%.					
8. Power supply OK signal 4~5V-OK, 0V-Fail. 500ohm series resistance.					8. Power supply OK signal
9. Parallel operation (*8) Possible, up to 6 units in master/slave mode with single wire current balance connection	Possible, up to 6 units in master/slave mode with single wire current balance connection.				9. Parallel operation (*8)
10. Series operation 2 identical units (with external diodes).					
	Open collector. CC mode: On, CV mode: Off. Maximum voltage: 30V, maximum sink current: 10mA				
12. Interlock (ILC) control Enables/Disables the PS output by dry contact (Short: On, Open: Off, Source current: less than 0.5mA). Ena/Dis is activated b					
13. Local/Remote mode Control By electrical signal or Open/Short: 0~0.6V or short: Remote, 2~15V or open: Local					
14. Local/Remote mode Indicator Open collector (shunted by 36V zener). On (0~0.6V, 10mA sink current max.)-Remote. Off-Local					
15.Trigger out	=3.8V, Maximum high level output =5V,	0.8V, Minimum high level output =3	Maximum low level output =0.8		
16.Trigger in Maximum low level input =1.2V, Minimum high level input =3.5V, Maximum high level input =1.2V, Minimum h	3.5V, Maximum high level input =5V,	=1.2V, Minimum high level input =3.	Maximum low level input =1.2		16.Trigger in
	· · · ·				17 Drogrammod signal 1
	Open collector, maximum voltage 25V, maximum sink current 100mA. (Shunted by 27V zener)				
18. Programmed signal 2 Open collector, maximum voltage 25V, maximum sink current 100mA. (Shunted by 27V z					10 Due sus as a d signal 2

FRONT PANEL

L		
		 Multiple options with 2 Encoders
	 Vout/lout manual adjust	
		 OVP/UVL/UVP manual adjust
	1. Control functions	 Protection Functions - OVP, UVL,UVP, Foldback, OCP, INT, SO
		 Communication Functions - Selection of LAN, IEEE (*17), RS232, RS485, USB
		 Communication Functions - Selection of Baud Rate, Address
		 Analog Control Functions - Selection Voltage/resistive programming, 5V/10V, 5K/10K programming
		 Analog Control Functions - Selection of Voltage/Current Monitoring 5V/10V, Output ON/OFF, Front Panel Lock.

FRONT PANEL							
2. Display			Vout: 4 digits,	accuracy: 0.5% of rated output vol	tage+/-1 count.		
2. Display			lout: 4 digits, accuracy: 0.5% of rated output current+/-1 count.				
3. Indications				s: FINE, MENU, PREV, PROT, REM, OL			
S. Indications			RED	LED: PROT (OVP, UVP, OTP, FOLD, AC	FAIL).		
4. Function buttons			F	INE, MENU, PREV, PROT, REM, OUTP	UT		
PROGRAMMING AND READBACK (RS2	22/495 LICP On	tional: IEEE(*17) / NI				
1. Vout programming accuracy	.52/465,05B, Op			of actual + 0.05% of rated outputs	voltago		
2. lout programming accuracy (*13)			0.05% of actual + 0.05% of rated output voltage 0.2% of rated output current				
3. Vout programming resolution				0.012% of full scale			
4. lout programming resolution				0.012% of full scale			
5. Vout readback accuracy			0.05%		valtaga		
6. lout readback accuracy (*13)			0.05% of actual + 0.05% of rated output voltage 0.1% of actual +0.3% of rated output current				
7. Vout readback resolution							
8. lout readback resolution			0.012% of full scale				
INPUT CHARACTERISTICS		Z	160-1.3 320-0.65 650-0.32				
1. Input voltage/freq. (*3)			85~265Vac continuous, 47~63Hz, single phase				
2. Maximum Input current 100/200VAC		2.64/1.30	2.64/1.30	2.64/1.30			
3. Power Factor (Typ)	() ())			99 at 100Vac, >0.98 at 200Vac,100%			
4. Efficiency (Typ) 100/200VAC (*4) (*15)	%	79/81	79/81	79/81		
5. Inrush current 100/200VAC (*5)	/		/ ////	Less than 25A	73/01		
ENVIRONMENTAL CONDITIONS							
			1	0~50°C, 100% load.			
1. Operating temperature				0~50 €, 100%10a0. -20~85°€			
2. Storage temperature							
3. Operating humidity		%	20~90% RH (no condensation). 10~95% RH (no condensation).				
4. Storage humidity		%					
5. Altitude			Maximum 3000m. Derate ambient temp above 2000m. Operating: Maximum ambient temperature, From 2000m up to 3000m Ambient temperature 40°C.				
			Operating: Maximum ampient	temperature, From 2000m up to 30	00m Ambient temperature 40°C.		
SAFETY/EMC							
	Safety		UL61010-1, EN610)10-1, IEC61010-1. Built to meet UL6	50950-1, EN60950-1		
1. Applicable standards:	Salety		160V≤Vout≤650V: Output,J1,J2 are Hazardous. J3,J4,USB, IEEE/ISOLATED Analog ,LAN are Non Hazardous				
	EMC		IEC/EN61326-1 (Built to meet EN55022/EN55024)				
			Output floating: Output, J1, J2 are Hazardous; J3, J4, USB, LAN, IEEE/ISOLATED ANALOG are Non Hazardou				
2.Interface classification			Vout≤400V, +Output grounded: Output	, J1, J2 are Hazardous; J3, J4, USB, LAN, IEE	EE/ISOLATED ANALOG are Non Hazardous		
			Vout>400V, +Output grounded: 0	Dutput, J1, J2, J3, J4, USB, LAN, IEEE	/ISOLATED ANALOG are Hazardous		
			160≤Vout≤320V models: Input-Output&J1,J2: 2970VDC/1min; Input-Ground: 2828VDC/1min.				
3. Withstand voltage			Output&J1,J2,-Ground: 2000VDC/1min; Output&J1,J2- J3,J4,USB,LAN/IEEE/ISOLATED ANALOG :3200VDC/1min;				
			Input-J3,J4,USB,LAN/IEEE/ISOLATED ANALOG: 4242VDC/1min; J3,J4,USB,LAN/IEEE/ISOLATDE ANALOG Input-Ground: 707VDC/1min.				
			650V model: Input-Output&J1,J2: 3704VDC/1min; Input-Ground: 2828VDC/1min.				
			Output&J1,J2,-Ground: 2780VDC/1min; Output&J1,J2- J3,J4,USB,LAN/IEEE/ISOLATED ANALOG :4244VDC/1min;				
				4,USB,LAN/IEEE/ISOLATED ANALOG: 4242			
			J3, J4, USB, LAN/IEEE/ISOLATDE ANALOG Input-Ground: 707VDC/1min.				
4. Insulation resistance				Nore than 100Mohm at 25°C, 70%R			
5. Conducted emission				6-1 Industrial Location - B, FCC part			
6. Radiated emission			IEC/EN6132	6-1 Industrial Location - A, FCC part	t 15-A, VCCI-A		
MECHANICAL							
			1	Forced air cooling by internal for			

MECHANICAL					
1. Cooling Forced air cooling by internal fan.		Forced air cooling by internal fan.			
2. Weight		Less than 1.9Kg.			
WIDE BODY Kg Less than 2.4Kg. Wide body with Isolated analog or IEEE.		Less than 2.4Kg. Wide body with Isolated analog or IEEE.			
3. Dimensions (WxHxD)		H: 83, W: 70, D: 350 (excluding bus bars, handles). (Refer to Outline drawing).			
S. DIMENSIONS (WXHXD) WIDE BODY		H: 83, W: 105, D: 350 (excluding bus bars, handles). (Refer to Outline drawing).			
4. Vibration According to: IEC60068-2-64		According to: IEC60068-2-64			
5. Shock		Less than 20G, half sine, 11mS. Unit is unpacked. According to: IEC60068-2-27			
	WIDE BODY STANDARD	STANDARD Kg WIDE BODY Kg STANDARD mm WIDE BODY mm			

*1: Minimum voltage is guaranteed to maximum 0.1% of rated output voltage.

*2: Minimum current is guaranteed to maximum 0.2% of rated output current.

*3: For cases where conformance to various safety standards (UL, IEC, etc...) is required, to be described as 100-240Vac (50/60Hz).

*4: Ta=25°C with rated output power.

*5: Not including EMI filter inrush current, less than 0.2mSec at cold start Ta=25°C

*6: At 85~132Vac or 170~265VAC, constant load.

*7: From No-Load to Full-Load, constant input voltage. Measured at the sensing point in Remote Sense.

*8: For parallel operation up to 4 units, 5% of total output current is required.

For parallel operation more than 4 units, 20% of total output current is required.

*9: From 10% to 90% or 90% to 10% of Rated Output Voltage, with rated resistive load.

*10: From 90% to 10% of Rated Output Voltage.

- *11: For load voltage change, equal to the unit voltage rating, constant input voltage.
- *12: Ripple is measured at 10~100% of rated output voltage and rated output current.

*13: The Constant Current programming, readback and monitoring accuracy do not include the warm-up and Load regulation thermal drift. *14: Measured with 10:1 probe.

*15: P.S with Lan, IEEE, models decrease efficiency by 0.5% and increase input current by 0.5%.

P.S with Isolated analog option decreases efficiency by 1.5% and increases input current by 1.5%.

*16: At rated output power.

*17: Max. ambient temperature for using IEEE is 45°C.

Z⁺400 Series Specifications

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MODEL	Z	160-2.6	320-1.3	650-0.64		
1. Rated output voltage(*1)	V	160	320	650		
2. Rated output current (*2)	A	2.6	1.3	0.64		
3. Rated output power	W	416	416	416		
		l	l	1		
CONSTANT VOLTAGE MODE	Z	160-2.6	320-1.3	650-0.64		
1. Max. Line regulation (*6)			0.01% of rated output voltage	•		
2. Max. Load regulation (*7)			0.01% of rated output voltage			
3. Ripple and noise (p-p, 20MHz) (*14)	mV	100	150	250		
4. Ripple r.m.s. 5Hz~1MHz (*14)	mV	10	25	60		
5. Temperature coefficient	PPM/°C		rated output voltage, following 30 r			
6. Temperature stability		0.02% of rated Vous over 8hrs. interval following 30 minutes warm-up. Constant line, load & temp.				
7. Warm-up drift						
8. Remote sense compensation/wire	V	5	Less than 0.05% of rated output voltage over 30 minutes following power on.			
9. Up-prog. Response time, 0~Vomax.(*9)	mS	5 5 5 80 150 150				
10. Down-prog. response time: Full load (*9)		80 150 150 100 150 150				
	1	2	2.5	3		
No load (*10	5			-		
11. Transient response time	mS		thin 0.5% of its rated output for a load cl			
12 Hold up time (*10)		· · · · ·	set-point: 10~100%, Local sense. Less th			
12. Hold-up time (*19)		16mSec	c Typical.	15mSec Typical.		
CONCTANT CURRENT MODE	-	7 160.26 220.1.2 650.064				
CONSTANT CURRENT MODE	Z	160-2.6 320-1.3 650-0.64				
1. Max. Line regulation (*6)			0.02% of rated output current			
2. Max. Load regulation (*11)			0.09% of rated output current			
3. Load regulation thermal drift		Less than 0.05% of rated output current over 30 minutes following load change.				
4. Ripple r.m.s. 5Hz~1MHz (*12) (*14)	mA	1.5 1 0.6				
5. Temperature coefficient	PPM/°C	100PPM/°C from rated output current, following 30 minutes warm-up.				
6. Temperature stability		0.05% of rated lout over 8hrs. interval following 30 minutes warm-up. Constant line, load & temperatu				
7. Warm-up drift		Less than +/-0.1% of rated output current over 30 minutes following power on.				
PROTECTIVE FUNCTIONS	Z	160-2.6 320-1.3 650-0.64				
1. Foldback protection		Output shut-down when power supply change mode from CV to CC or CC to CV. User presetable.				
1. FOIDBACK PIOLECTION		Reset by AC input recycle in autostart mode or by OUTPUT button or by rear panel ENABLE, or by communication port.				
		Inverter Shut down method. Reset by AC input recycle in autostart mode or by OUTPUT button or by				
2. Over-voltage protection (OVP)		rear panel ENABLE, or by communication port.				
3. Over -voltage trip point	V	5~176 5~353 5~717				
4. Output under voltage limit (UVL)		Preset by front panel or communication port. Prevents from adjusting Vout below limit. Does not affect in analog programming.				
		, , ,	er supply output voltage goes below UVP			
5. Output under voltage protection (UVP)			mode or by OUTPUT button or by rear par			
6. Over temperature protection			ser selectable, latched or non latche	· · · · · ·		
			er supply output voltage goes below UVP			
5. Output under voltage protection (UVP)			mode or by OUTPUT button or by rear par			
6. Over temperature protection			ser Selectable. Latched or non latch			
of over temperature protection			Ser Selectable. Eatened of Hornaten			
ANALOG PROGRAMMING AND MONITORING						
1. Vout voltage programming		0~100% 0~5V or 0~10V	user selectable. Accuracy and linea	rity: +/-0.5% of rated Vout		
2. lout voltage programming (*13)			, user selectable. Accuracy and line			
3. Vout resistor programming			cale, user selectable. Accuracy and line			
4. lout resistor programming (*13)			cale, user selectable. Accuracy and li			
5. Shut Off (SO) control						
			ge: 0~0.6V/4~15V or dry contact, us			
6. Output current monitor (*13)			or 0~10V, user selectable. Accuracy:			
7. Output voltage monitor			or 0~10V, user selectable. Accuracy:			
8. Power supply OK signal			V-OK, 0V-Fail. 500ohm series resist			
9. Parallel operation (*8)			aster/slave mode with single wire of			
10. Series operation			identical units (with external diode			
11. CV/CC indicator		Open collector. CC mode: On, CV mode: Off. Maximum voltage: 30V, maximum sink current: 10mA				
12. Interlock (ILC) control		Enables/Disables the PS output by dry contact (Short: On, Open: Off, Source current: less than 0.5mA). Ena/Dis is activated by front panel.				
13. Local/Remote mode Control		· · · · · · · · · · · · · · · · · · ·	Open/Short: 0~0.6V or short: Remot	· · · · · · · · · · · · · · · · · · ·		
14. Local/Remote mode Indicator			ener). On (0~0.6V, 10mA sink current r			
15.Trigger out			/, Minimum high level output =3.8V			
		Maximum source current =16mA, pulse =20µs Typical.				
16.Trigger in		Maximum low level input =1.2V, Minimum high level input =3.5V, Maximum high level input =5V,				
		Maximum sink current = 16mA, positive edge, trigger: tw =10 μ s minimum, Tr/Tf =1 μ s maximum.				
17. Programmed signal 1		Open collector, maximum vo	Itage 25V, maximum sink current 10	00mA. (Shunted by 27V zener)		
18. Programmed signal 2			Itage 25V, maximum sink current 10			
	·	· · · · · · · · · · · · · · · · · · ·				
FRONT PANEL						
			Multiple options with 2 Encoders			
With the options with 2 Encoders						

	 Multiple options with 2 Encoders
	 Vout/lout manual adjust
	 OVP/UVL /UVP manual adjust
1. Control functions	 Protection Functions - OVP, UVL, UVP, Foldback, OCP, INT, SO
1. Control functions	 Communication Functions - Selection of LAN, IEEE (*20), RS232, RS485, USB
	 Communication Functions - Selection of Baud Rate, Address
	 Analog Control Functions - Selection Voltage/resistive programming, 5V/10V, 5K/10K programming
	 Analog Control Functions - Selection of Voltage/Current Monitoring 5V/10V, Output ON/OFF, Front Panel Lock.

FRONT PANEL								
2. Display			Vout: 4 digits, accuracy: 0.5% of rated output voltage+/-1 count.					
			lout: 4 digits, accuracy: 0.5% of rated output current+/-1 count.					
3. Indications			GREEN LEDs: FINE, MENU, PREV, PROT, REM, OUTPUT, CV, CC					
			RED LED: PROT (OVP, UVP, OTP, FOLD, AC FAIL).					
4. Function buttons			F	NE, MENU, PREV, PROT, REM, OUTPL	JT			
PROGRAMMING AND READBACK (RS2	232/485.USB. Op	tional: IEEE(*	*17), LAN)					
1. Vout programming accuracy				of actual + 0.05% of rated output v	oltage			
2. lout programming accuracy (*13)				0.2% of rated output current				
3. Vout programming resolution				0.012% of full scale				
4. lout programming resolution				0.012% of full scale				
5. Vout readback accuracy			0.05%	of actual + 0.05% of rated output v	oltage			
6. lout readback accuracy (*13)				of actual +0.3% of rated output cu	2			
7. Vout readback resolution				0.012% of full scale				
8. lout readback resolution				0.012% of full scale				
o. lour readback resolution		1	1	3.012/0 01 full Scale				
INPUT CHARACTERISTICS		Z	160-2.6	320-1.3	650-0.64			
1. Input voltage/freq. (*3)			85~2	65Vac continuous, 47~63Hz, single	phase			
2. Maximum Input current 100/200VAC	(*4) (*15)		5/2.44	5/2.44	5/2.44			
3. Power Factor (Typ)				0.99 at 100/200Vac,100% load				
4. Efficiency (Typ) 100/200VAC (*4) (*15)	%	84/86	84/86	84/86			
5. Inrush current 100/200VAC (*5)			Less than 25A					
ENVIRONMENTAL CONDITIONS								
1. Operating temperature				0~50°C, 100% load.				
2. Storage temperature				-20~85°C				
3. Operating humidity		%	20~90% RH (no condensation).					
4. Storage humidity		%	10~95% RH (no condensation).					
5. Altitude			Maximum 3000m. Derate ambient temp above 2000m.					
5. Altitude			Operating: Maximum ambient temperature, From 2000m up to 3000m Ambient temperature 40°C.					
SAFETY/EMC								
SAFETT/EMC	1		LII 61010 1 EN610	10-1, IEC61010-1. Built to meet UL6	0050 1 EN60050 1			
1. Applicable standards:	Safety							
	EMC		160V≤Vout≤650V: Output,J1,J2 are Hazardous. J3,J4,USB, IEEE/ISOLATED Analog ,LAN are Non Hazardou IEC/EN61326-1 (Built to meet EN55022/EN55024)					
	LIVIC		Output floating: Output, J1, J2 are Hazardous; J3, J4, USB, LAN, IEEE/ISOLATED ANALOG are Non Hazardous					
2.Interface classification								
			Vout<400V, +Output grounded: Output, J1, J2 are Hazardous; J3, J4, USB, LAN, IEEE/ISOLATED ANALOG are Non Hazardous Vout>400V, +Output grounded: Output, J1, J2, J3, J4, USB, LAN, IEEE/ISOLATED ANALOG are Hazardous					
				Input-Output&J1,J2: 2970VDC/1min; Input				
3. Withstand voltage			Output&J1,J2,-Ground: 2000VDC/1min; Output&J1,J2- J3,J4,USB,LAN/IEEE/ISOLATED ANALOG :3200VDC/1min; Input-J3,J4,USB,LAN/IEEE/ISOLATED ANALOG : 4242VDC/1min; J3,J4,USB,LAN/IEEE/ISOLATDE ANALOG Input-Ground: 707VDC/1min.					
				Output&J1,J2: 3704VDC/1min; Input-Grou				
			Output&J1,J2,-Ground: 2780VDC/	1min; Output&J1,J2- J3,J4,USB,LAN/IEEE/IS	OLATED ANALOG :4244VDC/1min;			
			Input-J3,J	4,USB,LAN/IEEE/ISOLATED ANALOG: 4242\	/DC/1min;			
				V/IEEE/ISOLATDE ANALOG Input-Ground: 7				
4. Insulation resistance			N	Nore than 100Mohm at 25°C, 70%RF	1.			
5. Conducted emission			IEC/EN61326-1 Industrial Location - B, FCC part 15-B, VCCI-B					
6. Radiated emission			IEC/EN61326-1 Industrial Location - A, FCC part 15-A, VCCI-A					

MECHANICAL			
1. Cooling			Forced air cooling by internal fan.
2 Weinht	STANDARD	Kg	Less than 1.9Kg.
2. Weight	WIDE BODY	Kg	Less than 2.4Kg. Wide body with Isolated analog or IEEE.
2. Dimensional (MULLED)	STANDARD	mm	H: 83, W: 70, D: 350 (excluding bus bars, handles). (Refer to Outline drawing).
3. Dimensions (WxHxD)	WIDE BODY	mm	H: 83, W: 105, D: 350 (excluding bus bars, handles). (Refer to Outline drawing).
4. Vibration			According to: IEC60068-2-64
5. Shock			Less than 20G, half sine, 11mS. Unit is unpacked. According to: IEC60068-2-27

*1: Minimum voltage is guaranteed to maximum 0.1% of rated output voltage.

*2: Minimum current is guaranteed to maximum 0.2% of rated output current.

*3: For cases where conformance to various safety standards (UL, IEC, etc...) is required, to be described as 100-240Vac (50/60Hz).

*4: Ta=25°C with rated output power.

*5: Not including EMI filter inrush current, less than 0.2mSec at cold start Ta=25°C

*6: At 85~132Vac or 170~265VAC, constant load. *7: From No-Load to Full-Load, constant input voltage. Measured at the sensing point in Remote Sense.

*8: For parallel operation up to 4 units, 5% of total output current is required. For parallel operation more than 4 units, 20% of total output current is required.

*9: From 10% to 90% or 90% to 10% of Rated Output Voltage, with rated resistive load.

*10: From 90% to 10% of Rated Output Voltage.

*11: For load voltage change, equal to the unit voltage rating, constant input voltage.

*12: Ripple is measured at 10~100% of rated output voltage and rated output current. *13: The Constant Current programming, readback and monitoring accuracy do not include the warm-up and Load regulation thermal drift.

*13: The Constant Current programming, readback and monitoring decade, do not not strain a second of the second of the

*16: At rated output power.

*17: Max. ambient temperature for using IEEE is 45°C.

Z⁺600 Series Specifications

JAsted output voltage (*1) V 160 320 650 Reade output corrent (2) OA 440 2.0 1.00 SRated output corrent (2) OA 440 2.0 1.00 SRated output corrent (2) OA 440 2.0 1.00 SRated output corrent (2) OA 660 650 CONSTANT VOLTAGE MODE Z 160.4 2.00 % of rated output voltage 660 States output corrent (2) OA 0.01% of rated output voltage 660 660 Steppe and rosice (2) OA 0.02% of rated output voltage worts are out			-		220.0	(50 f	
Zheise dougu current (*2) A 4.0 2.0 10.0 Zheise dougu current (*2) A 4.0 2.0 10.0 Stelet dougu current (*2) A 4.0 60.0 60.0 CONSTANT VOLKEE MODE Z 16.0-4 320-2 60-1 Max. Line regulation (*0) 0.01 by frated output voltage 2.0 Ringhe and note (rp. 20Mid; 01/12) PW/C 302PW/C from test dougs voltage, following 30 minutes warmup, contain line, back & temp, strengthere contain line, back & tem	OUTPUT RATING						
Bitted coupup power at 102xVin.205Vec, Ta ± 5Vrc W 640 640 650 CONSTANT VOLTAGE MODE Z 160-4 320-2 650-1 Max, Line regulation (*6) 0.01% of rated output voltage 650-1 Max, Line regulation (*7) 0.01% of rated output voltage 750-1 Bitted rate output voltage 0.01% of rated output voltage 750-1 Bitted rate output voltage 0.01% of rated output voltage 750-1 Bitted rate output voltage 0.02% of rated output voltage over 30 minutes some-up. Constant me, but Astrona file output voltage over 30 minutes following power on. 8.8 minute some-up. Constant me, but Astrona file output voltage over 30 minutes following power on. All proping response time Full load (*10) S 2.0 75 75 75 10. Down prog. response time Full load (*10) S 2.0 100-00% for faced output corrent 400-00% for faced output corrent 2.1 Addute time regulation f*11 160-4 320-2 650-1 2.1 Addute time regulation f*10 100-2% for faced output corrent 400-2% for faced output corrent			-				
CONSTANT VCIRGE MODE Z 160-4 320-2 650-1 1. Max. Line regulation (*6) 0.01% of rated output voltage		T 500					
1. Max. Line regulation (*fs) 0.01% of rated output voltage 8. Replace and noise (p-, 20MHz (*14) (*17) mV 100 150 250 8. Replace and noise (p-, 20MHz (*14) (*17) mV 100 30PW/C from rated output voltage. Following 30 minutes warm-up. 8. Temperature schedicient PPW/C 30PW/C from rated output voltage. Following 30 minutes warm-up. 8. Temperature schedicient PPW/C 30PW/C from rated output voltage vortage minutes warm-up. 0.02% of rated output voltage vortage minutes warm-up. 6.03% of rated output voltage vortage minutes warm-up. 0.02% of rated output voltage vortage minutes warm-up. 6.03% of rated output voltage vortage minutes warm-up. 0.02% of rated output voltage voltage minutes warm-up. 6.05% of rated output voltage voltage minutes warm-up. 0.02% of rated output voltage voltage minutes warm-up. 6.05% of rated output voltage voltage monet within 0.3% of its rated output corrent 10. Instrume interval following 30 minutes warm-up. 6.02% of rated output voltage	3.Rated output power at 100≤Vin≤265Vac	, la ≤ 50°c	W	640	640	650	
1. Max. Line regulation (?) 0.01% of rated output voltage 3. Ripple and noise (p., 20MHz (?H) (?T) mV 100 150 250 3. Ripple and noise (p., 20MHz (?H) (?T) mV 100 30 Increased 3. Ripple and noise (p., 20MHz (?H) (?T) mV 100 30 Increased 600 5. Rimpeature scellicient PPK/C 30PPK/C from rated output voltage, following power 6n. 5 1. Max increased intervice compensation/Wire Less than 0.05% of rated output voltage ever 30 minutes warm-up. Constant files load & famp. 3 1. Do non roots, response time. Full load (?10) 5 2 2.5 3 1. Transient response time. mS Time for output voltage to mscorer within 0.5% of it rated output cortent 1 1 1. Max Line regulation (?1) 1 1 1 1 1 1. A load regulation file 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 <t< td=""><td>CONSTANT VOLTAGE MODE</td><td></td><td>Z</td><td>160-4</td><td>320-2</td><td>650-1</td></t<>	CONSTANT VOLTAGE MODE		Z	160-4	320-2	650-1	
2. Max. Load regulation (?) 0.01% of rated output voltage 3. Bipple and noise (pp. 20MHz (*14) (?17) mV 10 30 60 5. Remperature confering PMVC 30PMVC from nated output voltage, following 30 minutes warm up. 60 5. Remperature confering PMVC 30PMVC from mated output voltage with a more provided to the second output voltage with a more provided to the second output voltage with a more provided to the second output voltage with a more provided to the second output voltage with a more provided to the second output voltage with a more provided to the second output voltage with a more provided to the second output voltage to recover within 0.5% of its rated output voltage to a more provided to the second output voltage to recover within 0.5% of rated output corrent 11. Transient response time ms5 Time for output voltage to recover within 0.5% of rated output corrent 14mSec Typical. 12. Hold up time (*15) Item for up to the second output corrent 12mSec Typical. 14. Max. Line regulation (*1) 0.00% for rated output corrent 12mSec Typical. 14. Max. Line regulation (*1) 0.00% for rated output corrent 12mSec Typical. 14. Max. Line regulation (*1) 0.00% for rated output corrent 12mSec Typical. 14. Max. Line regulation (*1)							
3. Bipple and noise (p-, 20MH/k) (*14) (*17) mV 100 150 230 5. Temperature softicient PPM/C 30PPM/C from rated dupt voltage, following 30 minutes warm-up, constraint line, load 8 temp. 0.02% of rated Voltage with sine varial following power on. 8. Emperature softicient 9.01% of rated Voltage with sine varial following a 30 minutes warm-up, constraint line, load 8 temp. 2. Warm-up drift					· · · · · · · · · · · · · · · · · · ·		
8. Biple max. SHz-1MHz (*14) (*17) mV 10 30 60 5. Temperature collicient PPM/C 30PPM/C from rated output voltage following 30 minutes set 50 minutes following 3		7)		100		250	
5. Temperature coefficient PM/C 30PPM/C from rared output voltage following a limit.ex warm-up. 5. Temperature subliky		/)					
5. Temperature stability — 0.02% of ratel Vout over 8hrs. interval following 20 minutes warrup. Constant line, load & tempe. 8. Benote serves compensation/vire V 5 5 5 5 10. Down-prog. response time. IValid Volume Volum							
Wam-up diff. Less than 0.05% of rated output voltage over 30 minutes following power on. 81 emote sense compensation/wei V 5 5 91 eprog. Response time. Fulload (%) 75 75 10. Down-prog. response time. No load (*10) 5 2 2.5 3 11. Transient response time Mo load (*10) 5 2 2.5 3 12. Hold up time (*15) 16m5e Typical. 14m5er Typical. 14m5er Typical. 12. Hold up time (*15) 16m5er Typical. 14m5er Typical. 14m5er Typical. 12. Hold up time (*15) 0.02% of rated output current 0.02% of rated output current 0.02% of rated output current 1.5 12. Hold up time (*16) 0.02% of rated output current over 30 minutes following 30 minutes wam-up. Constant time, load 8 temperature time, load 8	· · ·						
Bernot senses compensation/wire V 5 5 5 10. Down prog. response time Full lead (*9) m5 65 75 75 10. Down prog. response time Full lead (*9) m5 65 85 85 11. Transient response time Full lead (*9) m5 2 2.5 3 11. Transient response time m5 Time for output voltage to recover within 0.5% of fits rated output corrent. Output set-point: 10-100%, local sense less than 2m5. 14mSec Typical. 14mSec Typical. 12. Hold up time (*15) 16mSec Typical. 14mSec Typical. 14mSec Typical. CONSTANT CURRENT MODE Z 160-4 320-2 650-1 . 2. Max. Load regulation (*1) Less than 0.05% of rated output current. 10mitutes warm-up. . 3. Emperature coefficient PPM/C 100PM/C from rated output current tow 30 minutes warm-up. . . 5. Temperature calificient PPM/C 100PM/C from rated output current over 30 minutes marm-up. . 6. Reset by AC input recycle in autotaxit mode or by OUTPUT button or by reat pamel ENABLE, or by conture working protection					~		
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10. Down-prog. response time: Full add (*9) ms 65 85 85 11. Transient response time ms Time for output voltage to recover within 0.5% of first add utput for a lad change 10–90% of rated output carrent. Output set point. 10–100%, Local sense Less than 20.5% 14 Mass Typical. 14 14 Mass Typical. 14 14 Mass Typical. Mass Typical. 14 Mass Typical. 14 Mass Typical. 14 Mass Typical. Mass Typical. 16 Mass Typical. 14 Mass Typical. Mass			-				
No load (*10) S Z 2.5 3 11. Transient response time mS 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 Less than 2n5. 12. Hold-up time (*15) 16mSec Typical. 14mSec Typical. CONSTANT CURRENT MODE Z 160-4 320-2 650-1 Max. Line regulation (*11) 0.025% of rated output current 3. Load regulation (*11) 0.025% of rated output current 3. Load regulation (*11) 0.025% of rated output current. 1.6 S. Temperature coefficient PPM/CC 100PPM/C from rated output current, following 30 minutes warm-up. 0.63% of rated output current. 1.6 Y. Warm-up dift Less than 0.4/0.1% of rated output current over 30 minutes warm-up. Constraint line, load & temperature. Y. Warm-up dift Report output durrent ower 30 minutes warm-up. Constraint down when power supply change mode from CV to CC or CL to CV. User prestetable. F. Foldback protection Reset by AC input recycle in autostart mode or by OUTPUT buttor or by ren panel ENABLE, or by communication port. <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td></t<>							
Interference ms 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: 10–10%, Local serve Less than 2mS. 12. Hold-up time (*15)	10. Down-prog. response time:	Full load (*9)	mS	65	85	85	
II. Idaminent response time ms output current. Output set-point: 10-100%, Local sense Less than 2mS. 12. Hold-up time (*15) — 16mSet Typical. 14mSet Typical. CONSTANT CURRENT MODE Z 160-4 320-2 650-1 Max Line regulation (*10) — 0.02% of rated output current 0.02% of rated output current 0.02% of rated output current Isoda regulation (*11) — Less than 0.05% of rated output current over 30 minutes softmuses softm		No load (*10)	S	2	2.5	3	
CONSTANT CURRENT MODE Z 160-4 320-2 650-1 1. Max. Load regulation (*1) 0.03% of rated output current 500-7 500-7 2. Max. Load regulation (*1) 0.03% of rated output current tower 30 minutes following 30 minutes swarn-up. 1 3. Rippet rms. Sitz-1MHz (*12) (*14) mA 2 1.5 1 3. Temperature coefficient PPM/C 100PPM/C from rated output current over 30 minutes following 30 minutes warn-up. 0.5% of rated lout over 8/hs. Interval following 30 minutes warn-up. 0.5% of rated lout over 8/hs. Interval following 30 minutes following power on. 7. Warn-up drift 0.05% of rated lout over 8/hs. Interval following 30 minutes following power on. PROTECTVE FUNCTIONS Z 160-4 320-2 650-1 1. Foldback protection Reset by AC input recycle in autostart mode or by OUTPUT button or by correst protection 0/V for CY or CT CV. User presetable 1 New row protection 0/V for CY or CT or CY to CY or CY	11. Transient response time		mS				
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A. Hipperans. SHz='NHHz (*12) (*14) mA 2 1.5 1 5. Temperature coefficient PPW/*C 1000PM/*C from rated output current, following 30 minutes warm-up. 5. 6. Emperature stability 0.05% of rated lout over 8hrs. Interval following 30 minutes warm-up. 5. 7. Warm-up drift Less than +/0.1% of rated output current over 30 minutes following power on. PROTECTIVE FUNCTIONS Z 160-4 320-2 650-1 1. Foldback protection Reset by AC input recycle in autostart mode or by OUTPUT button or by rear panel ENABLE, or by communication port. 2. Over-voltage protection (OVP) Inverter Shut down method. Reset by AC input recycle in autostart mode or by OUTPUT button or by rear panel ENABLE, or by communication port. 3. Over-voltage trip point V 5-176 5-353 5-717 4. Output shut-down when power supply output voltage goes below UVP programming. Use presetable Soutput shut-down when power supply output voltage goes below UVP programming. Soutput shut-down when power supply output voltage goes below UVP programming. Soutput shut-down when power supply output voltage goes below UVP programming. 5. Over temperature protection Use resistor programming. Soutput shut-down when power supply output voltage goes below UVP programming. <				Less than 0.05% of rat		following load change	
5. Temperature coefficient PPM/PC 100PPM/PC from rated output current, following 30 minutes warm-up. 5. Temperature stability						1	
5. Temperature stability						I	
7. Warm-up drift Less than +/-0.1% of rated output current over 30 minutes following power on. PROTECTIVE FUNCTIONS Z 160-4 320-2 650-1 I. Foldback protection Reset by AC input recycle in autostart mode or by OUTPU tom or by rear panel ENABLE, or by communication port. 2. Over-voltage protection (OVP) Inverter Shut down method. Reset by AC input recycle in autostart mode or by OUTPUT button or by rear panel ENABLE, or by communication port. 3. Over-voltage trip point V 5-176 5-353 5-717 4. Output under voltage limit (UVL) Preset by fron tpanel or communication port. Prevents from adjusting Yout below limit. Does not affect in analog programming. 5. Output under voltage protection (UVP) Output shut-down when power supply output voltage goes below UVP programming. User presetable Reset by AC input recycle in autostart mode or by OUTPUT button or by rear panel ENABLE, or by communication port. 6. Over temperature protection User selectable. Accuracy and linearity: +/-0.5% of rated Vout. 1. Vout voltage programming 0-100%, 0-5V or 0-10V, user selectable. Accuracy and linearity: +/-15% of rated Vout. 2. lout voltage programming 0-100%, 0-5V or 0-10V, user selectable. Accuracy and linearity: +/-15% of rated Vout. 3. Out resistor programming							
PROTECTIVE FUNCTIONS Z 160-4 320-2 650-1 0utput shut-down when power supply change mode from CV to CC or CC to CV. User presetable. Reset by AC input recycle in autostart mode or by OUTPUT button or by rear panel ENABLE, or by communication port. Inverter Shut down method. Reset by AC input recycle in autostart mode or by OUTPUT button or by rear panel ENABLE, or by communication port. 2. Over-voltage trip point V 5-176 5-353 5-717 4. Output under voltage limit (UVL) Preset by front panel or communication port. Prevents from adjusting Vout below limit. Does not affect in analog programming. Sover reveal prevents from adjusting Vout Pologramming. User presetable Reset by AC input recycle in autostart mode or by OUTPUT button or by rear panel ENABLE, or by communication port. 5. Over temperature protection (UVP) User selectable, latched or non latched. ANLIGG PROGRAMMING AND MONITORING User selectable, latched or non latched. 1. Vout voltage programming 0-100%, 0-5V or 0-10V, user selectable. Accuracy and linearity: +/-1% of rated lout. 2. Jout voltage programming (*13) 0-100%, 0-5V or 0-10V, user selectable. Accuracy and linearity: +/-1%. 3. Out resistor programming (*13) 0-100%, 0-5V or 0-10V, user selectable. Accuracy: and linearity: +/-1%. 4. Output voltage monitor	/						
1. Foldback protection Output shut-down when power supply change mode from CV to CC or CC to CV. User presetable. Reset by AC input recycle in autostart mode or by OUTPUT button or by rea panel ENABLE, or by communication port. 2. Over-voltage protection (OVP) Inverter Shut down method. Reset by AC input recycle in autostart mode or by OUTPUT button or by rea panel ENABLE, or by communication port. 3. Over-voltage trip point V 5176 5353 5717 4. Output under voltage limit (UVL) Preset by front panel or communication port. 5717 5. Output under voltage protection (UVP) Preset by front panel or communication port. 5717 6. Over temperature protection (UVP) Utput shut-down when power supply output voltage goes below UVP programming. User presetable. 7. Over temperature protection User selectable. Accuracy and linearity: +/-0.5% of rated Vout. 8. Over temperature protection 0100%, 0-5/10 Kohm full scale, user selectable. Accuracy and linearity: +/-1% of rated lout. 9. Vout resistor programming 0100%, 0-5/10 Kohm full scale, user selectable. Accuracy and linearity: +/-1% of rated lout. 9. Output current monitor (*13) 05/10 Kohm full scale, user selectable. Accuracy and linearity: +/-1% of rated lout. 10. Series operation	7. Warm-up drift			Less than +/-0.1% of rated output current over 30 minutes following power on.			
1. Foldback protection Output shut-down when power supply change mode from CV to CC or CC to CV. User presetable. Reset by AC input recycle in autostart mode or by OUTPUT button or by rea panel ENABLE, or by communication port. 2. Over-voltage protection (OVP) Inverter Shut down method. Reset by AC input recycle in autostart mode or by OUTPUT button or by rea panel ENABLE, or by communication port. 3. Over-voltage trip point V 5176 5353 5717 4. Output under voltage limit (UVL) Preset by front panel or communication port. 5717 5. Output under voltage protection (UVP) Preset by front panel or communication port. 5717 6. Over temperature protection (UVP) Utput shut-down when power supply output voltage goes below UVP programming. User presetable. 7. Over temperature protection User selectable. Accuracy and linearity: +/-0.5% of rated Vout. 8. Over temperature protection 0100%, 0-5/10 Kohm full scale, user selectable. Accuracy and linearity: +/-1% of rated lout. 9. Vout resistor programming 0100%, 0-5/10 Kohm full scale, user selectable. Accuracy and linearity: +/-1% of rated lout. 9. Output current monitor (*13) 05/10 Kohm full scale, user selectable. Accuracy and linearity: +/-1% of rated lout. 10. Series operation							
1. Foldback protection Reset by AC input recycle in autostart mode or by OUTPUT button or by rear panel ENÅBLE, or by communication port. 2. Over-voltage protection (OVP) Inverter Shut down method. Reset by AC input recycle in autostart mode or by OUTPUT button or by rear panel ENÅBLE, or by communication port. 3. Over-voltage trip point V 5-176 5-353 5-717 4. Output under voltage limit (UVL) Preset by front panel or communication port. Prevents from adjusting Vout below limit. Does not affect in analog programming. 5. Output under voltage protection (UVP) Preset by front panel or communication port. 6. Output shut-down when power supply output voltage goes below UVP programming. User presetable Reset by AC input recycle in autostart mode or by OUTPUT button or by rear panel ENÅBLE, or by communication port. 7. Output under voltage programming Output shut-down when power supply output voltage goes below UVP programming. User presetable Reset by AC input recycle in autostart mode or by OUTPUT button or by rear panel ENÅBLE, or by communication port. 8. Output under voltage programming 9. Provide programming	PROTECTIVE FUNCTIONS		Z				
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4. Output under voltage limit (UVL) Preset by front panel or communication port. Prevents from adjusting Vout below limit. Does not affect in analog programming. 5. Output under voltage protection (UVP) Output shut-down when power supply output voltage goes below UVP programming. User presetable Reset by AC input recycle in autostart mode or by OUTPUT button or by rear panel ENABLE, or by communication port. 6. Over temperature protection User selectable, latched or non latched. ANALOG PROGRAMMING AND MONITORING 0~100%, 0~5V or 0~10V, user selectable. Accuracy and linearity: +/-1% of rated Vout. 2. lout voltage programming 0~100%, 0~5/10Kohm full scale, user selectable. Accuracy and linearity: +/-1% of rated Vout. 3. Vout resistor programming (*13) 0~100%, 0~5/10Kohm full scale, user selectable. Accuracy and linearity: +/-1% of rated lout. 5. Shut Off (SO) control 0~100%, 0~5/10Kohm full scale, user selectable. Accuracy: +/-1%. 6. Output voltage monitor 0~5V or 0~10V, user selectable. Accuracy: +/-1%. 7. Output voltage monitor 0~5V or 0~10V, user selectable. Accuracy: +/-1%. 8. Power supply OK signal Possible, up to 6 units in master/slave mode with single wire current balance connection. 12. Interlock (LIC) control Possible, up to 6 units in master/slave mode with single wire c	2. Over-voltage protection (OVP)				t by AC input recycle in autostart me		
4. Output under voltage initi (UVL) in analog programming. 5. Output under voltage protection (UVP) Output stut-down when power supply output voltage goes below UVP programming. User presetable Reset by AC input recycle in autostart mode or by OUTPUT button or by rear panel ENABLE, or by communication port. 5. Over temperature protection User selectable, latched or non latched. ANALOG PROGRAMMING AND MONITORING 0~100%, 0~5V or 0~10V, user selectable. Accuracy and linearity: +/-0.5% of rated Vout. 2. lout voltage programming (*13) 0~100%, 0~5V or 0~10V, user selectable. Accuracy and linearity: +/-1% of rated lout. 3. Vout resistor programming (*13) 0~100%, 0~5/10Kohm full scale, user selectable. Accuracy and linearity: +/-1% of rated lout. 4. lout resistor programming (*13) 0~100%, 0~5/10Kohm full scale, user selectable. Accuracy and linearity: +/-1% of rated lout. 5. Shut Off (SO) control By electrical Voltage: 0~0.6V/4~15V or dry contact, user selectable logic. 6. Output uventem monitor (*13) 0~5V or 0~10V, user selectable. Accuracy: +/-1%. 7. Output voltage monitor Possible, up to 6 units in master/slave mode with single wire current balance connection. 10. Series operation (*8) Possible, up to 6 units in master/slave mode with singlee wire curent balance connection. </td <td>3. Over -voltage trip point</td> <td></td> <td>V</td> <td>5~176</td> <td>5~353</td> <td>5~717</td>	3. Over -voltage trip point		V	5~176	5~353	5~717	
0 Utput shut-down when power supply output voltage goes below UVP programming. User presetable Reset by AC input recycle in autostart mode or by OUTPUT button or by rear panel ENABLE, or by communication port. 5. Over temperature protection User selectable, latched or non latched. ANALOG PROGRAMMING AND MONITORING 0~100%, 0~5V or 0~10V, user selectable. Accuracy and linearity: +/-1% of rated Vout. 2. lout voltage programming (*13) 0~100%, 0~5/10Kohm full scale, user selectable. Accuracy and linearity: +/-1% of rated Vout. 3. Vout resistor programming (*13) 0~100%, 0~5/10Kohm full scale, user selectable. Accuracy and linearity: +/-1% of rated lout. 5. Shut Off (SO) control 0~100%, 0~5/10Kohm full scale, user selectable. Accuracy: and linearity: +/-1%. 7. Output voltage monitor 0~100%, 0~5/10Kohm full scale, user selectable. Accuracy: +/-1%. 8. Power supply OK signal 0~5V or 0~10V, user selectable. Accuracy: +/-1%. 9. Parallel operation (*8) Possible, up to 6 units in master/slave mode with single wire current balance connection. 11. CV/CC indicator Den collector. CC mode: On, Ower Off. Maximum mish current: 10mA 12. Interlock (ILC) control By electrical signal or Open.Off. Maximum mish current: 10mA 13. Local/Remote mode Control				Preset by front panel or commun	ication port. Prevents from adjustin	g Vout below limit. Does not affect	
5. Output under voltage protection (UVP) Reset by AC input recycle in autostart mode or by OUTPUT button or by rear panel ENABLE, or by communication port. 6. Over temperature protection User selectable, latched or non latched. ANALOG PROGRAMMING AND MONITORING 1. Vout voltage programming (*13) 0~100%, 0~5V or 0~10V, user selectable. Accuracy and linearity: +/-1% of rated lout. 2. lout voltage programming (*13) 0~100%, 0~5/10Kohm full scale, user selectable. Accuracy and linearity: +/-1% of rated lout. 3. Vout resistor programming (*13) 0~100%, 0~5/10Kohm full scale, user selectable. Accuracy and linearity: +/-1.5% of rated lout. 5. Shut Off (\$0) control By electrical Voltage: 0~0.6V/4~15V or dry contact, user selectable logic. 6. Output current monitor (*13) 0~5V or 0~10V, user selectable. Accuracy: +/-1%. 7. Output voltage monitor 0~5V or 0~10V, user selectable. Accuracy: +/-1%. 8. Power supply OK signal 0~5V or 0~10V, user selectable. Accuracy: +/-1%. 10. Series operation Possible, up to 6 units in master/slave mode with single wire current balance connection. 11. CV/CC indicator Open collector. CC mode: On, CV mode: Off. Maximum voltage: 30V, maximum sink current: 10mA 13. Local/Remote mode Indicat	4. Output under voltage limit (OVL)				in analog programming.	-	
ANALOG PROGRAMMING AND MONITORING 1. Vout voltage programming 0~100%, 0~5V or 0~10V, user selectable. Accuracy and linearity: +/-0.5% of rated Vout. 2. lout voltage programming (*13) 0~100%, 0~5V or 0~10V, user selectable. Accuracy and linearity: +/-1% of rated Vout. 3. Vout resistor programming (*13) 0~100%, 0~5/10Kohm full scale, user selectable. Accuracy and linearity: +/-1% of rated Vout. 4. lout resistor programming (*13) 0~100%, 0~5/10Kohm full scale, user selectable. Accuracy and linearity: +/-1% of rated Vout. 5. Shut Off (SO) control By electrical Voltage: 0~0.6V/4~15V or dry contact, user selectable logic. 6. Output current monitor (*13) 0~5V or 0~10V, user selectable. Accuracy: +/-1%. 8. Power supply OK signal 0~5V or 0~10V, user selectable. Accuracy: +/-1%. 9. Parallel operation (*8) Possible, up to 6 units in master/slave mode with single wire current balance connection. 10. Series operation 2 identical units (with external diodes). 11. CV/CC indicator Depen collector. CC mode: On, CV mode: Off. Maximum voltage: 30V, maximum sink current: 10mA 13. Local/Remote mode Control By electrical signal or Open/Short: On-0.6V or short: Remote, 2~1SV or open: Local 14. Local/Remote mode Indicator	5. Output under voltage protection (UVP)						
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17. Programmed signal 1 Open collector, maximum voltage 25V, maximum sink current 100mA. (Shunted by 27V zener)	16.Trigger in			Maximum low level input =1.2	2V, Minimum high level input =3.5V,	Maximum high level input =5V,	
	17 Programmed signal 1				· · · · · ·		
open concettor, maximum voltage 254, maximum sink current rooma, (Shuhted by 274 Zenet)							
					Shage 25 v, maximum sink current fo	ooma, (Shunted by 27 v zener)	

FRONT PANEL

 Multiple options with 2 Encoders
 Vout/lout manual adjust
 OVP/UVL/UVP manual adjust
 Protection Functions - OVP, UVL,UVP, Foldback, OCP, INT, SO
 Communication Functions - Selection of LAN, IEEE (*17), RS232, RS485, USB
 Communication Functions - Selection of Baud Rate, Address
 Analog Control Functions - Selection Voltage/resistive programming, 5V/10V, 5K/10K programming
 Analog Control Functions - Selection of Voltage/Current Monitoring 5V/10V, Output ON/OFF, Front Panel Lock.

FRONT PANEL							
			Vout: 4 digits,	accuracy: 0.5% of rated output volt	age+/-1 count.		
2. Display			lout: 4 digits, accuracy: 0.5% of rated output current+/-1 count.				
3. Indications				s: FINE, MENU, PREV, PROT, REM, OU			
3. Indications			RED LED: PROT (OVP, UVP, OTP, FOLD, AC FAIL).				
4. Function buttons			F	INE, MENU, PREV, PROT, REM, OUTP	UT		
PROGRAMMING AND READBACK (RS	232/485,USB, Op	tional: IEEE	(*16), LAN)				
1. Vout programming accuracy			0.05%	6 of actual + 0.05% of rated output v	voltage		
2. lout programming accuracy (*13)				0.2% of rated output current			
3. Vout programming resolution				0.012% of full scale			
4. lout programming resolution				0.012% of full scale			
5. Vout readback accuracy				6 of actual + 0.05% of rated output v			
6. lout readback accuracy (*13)			0.19	% of actual +0.3% of rated output cu	irrent		
7. Vout readback resolution				0.012% of full scale			
8. lout readback resolution				0.012% of full scale			
INPUT CHARACTERISTICS		Z	160-4	320-2	650-1		
1. Input voltage/freq. (*3)				65Vac continuous, 47~63Hz, single			
2. Maximum Input current 100/200VAC	- (*A)		7.5/3.7	7.5/3.7	7.6/3.75		
3. Power Factor (Typ)	- (+)			99 at 100Vac, >0.98 at 200Vac,100%			
4. Efficiency (Typ) 100/200VAC (*4)		%	86.5/88.5	87/88.5	86.5/88.5		
5. Inrush current 100/200VAC (*5)		/0	00.5/08.5	Less than 30A	00.5/00.5		
5. musi current 100/200VAC (5)							
ENVIRONMENTAL CONDITIONS							
1. Operating temperature			0~50°C, 100% load.				
2. Storage temperature			-20~85°C				
3. Operating humidity		%	20~90% RH (no condensation).				
4. Storage humidity		%	10~95% RH (no condensation).				
E Althout			Maximum 3000m. Derate ambient temp above 2000m.				
5. Altitude			Operating: Maximum ambient temperature, From 2000m up to 3000m Ambient temperature 40°C.				
SAFETY/EMC	1	1					
1 And Parkland and a	Safety		UL61010-1, EN61010-1, IEC61010-1. Built to meet UL60950-1, EN60950-1				
1. Applicable standards:	FNAC		160V≤Vout≤650V: Output,J1,J2 are Hazardous. J3,J4,USB, IEEE/ISOLATED Analog ,LAN are Non Hazardou				
	EMC			61326-1 (Built to meet EN55022/EN			
2.Interface classification			Output floating: Output, J1, J2 are Hazardous; J3, J4, USB, LAN, IEEE/ISOLATED ANALOG are Non Hazardous				
2.Interface classification			Vout<400V, +Output grounded: Output, J1, J2 are Hazardous; J3, J4, USB, LAN, IEEE/ISOLATED ANALOG are Non Hazardous Vout>400V, +Output grounded: Output, J1, J2, J3, J4, USB, LAN, IEEE/ISOLATED ANALOG are Hazardous				
				Input-Output&J1,J2: 2970VDC/1min; Inpu			
			Output&J1,J2,-Ground: 2000VDC/1min; Output&J1,J2-J3,J4,USB,LAN/IEEE/ISOLATED ANALOG :3200VDC/1min; Input-J3,J4,USB,LAN/IEEE/ISOLATED ANALOG: 4242VDC/1min; J3,J4,USB,LAN/IEEE/ISOLATED ANALOG Input-Ground: 707VDC/1min.				
3. Withstand voltage			650V model: Input-Ostput&JJ,2: 3704VDC/1min; Input-Ground: 2828VDC/1min.				
s. musule voluge			Output&J1,J2,-Ground: 2780VDC/1min; Output&J1,J2- J3,J4,USB,LAN/IEEE/ISOLATED ANALOG :4244VDC/1min;				
			Input-J3,J4,USB,LAN/IEEE/ISOLATED ANALOG: 4242VDC/1min;				
		J3,J4,USB,LAN/IEEE/ISOLATDE ANALOG Input-Ground: 707VDC/1min.					
4. Insulation resistance				More than 100Mohm at 25°C, 70%R			
5. Conducted emission			IEC/EN61326-1 Industrial Location - B, FCC part 15-B, VCCI-B				
6. Radiated emission				6-1 Industrial Location - A, FCC part			
MECHANICAL		1	1				

MECHANICAL			
1. Cooling			Forced air cooling by internal fan.
2 Wainht	STANDARD	Kg	Less than 2Kg
2. Weight	WIDE BODY	Kg	Less than 2.5Kg. Wide body with isolated analog or IEEE
	STANDARD	mm	H: 83, W: 70, D: 350 (excluding bus bars, handles). (Refer to Outline drawing).
3. Dimensions (WxHxD)	WIDE BODY	mm	H: 83, W: 105, D: 350 (excluding bus bars, handles). (Refer to Outline drawing).
4. Vibration			According to: IEC60068-2-64
5. Shock			Less than 20G, half sine, 11mS. Unit is unpacked. According to: IEC60068-2-27

*1: Minimum voltage is guaranteed to maximum 0.1% of rated output voltage.

*2: Minimum current is guaranteed to maximum 0.2% of rated output current.

*3: For cases where conformance to various safety standards (UL, IEC, etc...) is required, to be described as 100-240Vac (50/60Hz).
 *4: Ta=25°C with rated output power.
 *5: Not including EMI filter inrush current, less than 0.2mSec.

*6: At 85~132Vac or 170~265VAC, constant load.

*7: From No-Load to Full-Load, constant input voltage. Measured at the sensing point in Remote Sense.

*8 For Parallel operation up to 4 units, 5% of total output current is required.

For Parallel operation more than 4 units, 20% of total output current is requierd.

*9: From 10% to 90% or 90% to 10% of rated output voltage, with rated resistive load. *10: From 90% to 10% of rated output voltage.

*11: For load voltage change, equal to the unit voltage rating, constant input voltage.

*12: Ripple is measured at 10~100% of rated output voltage and rated output current.

*13: The Constant Current programming, readback and monitoring accuracy do not include the warm-up and Load regulation thermal drift.

*14: Measured with 10:1 probe.

*15:At rated output power.

*16 Max. ambient temperature for using IEEE is 45°C. *17: start in low ambient temp. (0°C), 1 min. warm up is required

Z⁺800 Series Specifications

OUTPUT RATING		Z	160-5	320-2.5	375-2.2	650-1.25	
1.Rated output voltage (*1)		 V	160-5	320-2.5	375-2.2	650	
		v	5.0	2.5	2.2	1.25	
2.Rated output current (*2) at 100≤Vin≤265							
Rated output current (*2) at 85≤Vin<100V Rated output current (*2) at 85≤Vin<100Vac,		A	5.0	2.5	2.2	1.25	
			4.7	2.35	2.0	1.15	
3.Rated output power at 100≤Vin≤265Va			800	800	825	812.5	
Rated output power at 85≤Vin<100Vac, T		W	800	800	825	812.5	
Rated output power at 85≤Vin<100Vac, 4	10° c < Ta $\leq 50^{\circ}$ c		752	752	750	747.5	
CONSTANT VOLTAGE MODE		7	160 5	220.2.5	375 3 3	650-1.25	
		Z	160-5	320-2.5 .01% of rated output voltage	375-2.2	650-1.25	
1. Max. Line regulation (*6)					/		
2. Max. Load regulation (*7) 3. Ripple and noise (p-p, 20MHz) (*14) (*1	17)	mV	100	.01% of rated output voltage 150	je 150	250	
4. Ripple r.m.s. 5Hz~1MHz (*14) (*17)	17)	mV	100	30	30	60	
5. Temperature coefficient		PPM/°C		°C from rated output volta			
6. Temperature stability				ver 8hrs. interval following			
7. Warm-up drift	-			05% of rated output voltad			
8. Remote sense compensation/wire		V	5	5	5	5	
9. Up-prog. Response time, 0~Vomax.(*9))	mS	45	55	55	55	
10. Down-prog. response time:	Full load (*9)	mS	55	65	65	65	
	No load (*10)	S	2	2.5	2.5	3	
				to recover within 0.5% of		1	
11. Transient response time		mS		urrent. Output set-point: 1			
12. Hold-up time (*15)		mS	13msec Typical.		11.5msec Typical.		
				<u>I</u>	rishisee typical.		
CONSTANT CURRENT MODE		Z	160-5	320-2.5	375-2.2	650-1.25	
1. Max. Line regulation (*6)				0.02% of rated	output current		
2. Max. Load regulation (*11)				0.09% of rated	output current		
3. Load regulation thermal drift			Less than 0.0	5% of rated output current	over 30 minutes following	g load change.	
4. Ripple r.m.s. 5Hz~1MHz (*12) (*14)		mA	2	1.5	1.5	1	
5. Temperature coefficient		PPM/°C	100PPM	/°C from rated output curr	ent, following 30 minutes	warm-up.	
6. Temperature stability			0.05% of rated lout over 8	3hrs. interval following 30 r	ninutes warm-up. Constar	nt line, load & temperature.	
7. Warm-up drift			Less than +/-0.1% of rated output current over 30 minutes following power on.				
[1	
PROTECTIVE FUNCTIONS		Z	160-5	320-2.5	375-2.2	650-1.25	
			Output shut-down wł	hen power supply change r	node from CV to CC or CC	to CV. User presetable.	
PROTECTIVE FUNCTIONS 1. Foldback protection		Z 	Output shut-down wł	hen power supply change r ycle in autostart mode or b	node from CV to CC or CC y OUTPUT button or by re	to CV. User presetable.	
1. Foldback protection			Output shut-down wh Reset by AC input rec	hen power supply change r ycle in autostart mode or b communic	node from CV to CC or CC y OUTPUT button or by re ation port.	to CV. User presetable. ear panel ENABLE, or by	
			Output shut-down wh Reset by AC input rec	hen power supply change r ycle in autostart mode or b communic od. Reset by AC input recyc	node from CV to CC or CC y OUTPUT button or by re ation port.	to CV. User presetable. ear panel ENABLE, or by	
1. Foldback protection			Output shut-down wh Reset by AC input rec	hen power supply change r ycle in autostart mode or b communic od. Reset by AC input recyc	node from CV to CC or CC y OUTPUT button or by re ation port. le in autostart mode or by	to CV. User presetable.	
1. Foldback protection 2. Over-voltage protection (OVP) 3. Over -voltage trip point			Output shut-down wh Reset by AC input rec Inverter Shut down meth 5~176	en power supply change r ycle in autostart mode or b communic od. Reset by AC input recycy panel ENABLE, or by 5~353 communication port. Preve	node from CV to CC or CC y OUTPUT button or by re ation port. le in autostart mode or by communication port. 5~413 nts from adjusting Vout b	to CV. User presetable. ear panel ENABLE, or by y OUTPUT button or by rear	
1. Foldback protection 2. Over-voltage protection (OVP)		 V	Output shut-down wh Reset by AC input rec Inverter Shut down meth 5~176 Preset by front panel or o	en power supply change r ycle in autostart mode or b communic od. Reset by AC input recyc panel ENABLE, or by 5~353 communication port. Preve in analog pr	node from CV to CC or CC y OUTPUT button or by re <u>ation port.</u> le in autostart mode or by communication port. 5~413 nts from adjusting Vout b ogramming.	to CV. User presetable. ear panel ENABLE, or by OUTPUT button or by rear 5~717 elow limit. Does not affect	
1. Foldback protection 2. Over-voltage protection (OVP) 3. Over -voltage trip point 4. Output under voltage limit (UVL)		 V	Output shut-down wh Reset by AC input rec Inverter Shut down meth 5~176 Preset by front panel or o Output shut-down wher	een power supply change r ycle in autostart mode or b communic od. Reset by AC input recyc panel ENABLE, or by 5~353 communication port. Preve in analog pr power supply output volt	node from CV to CC or CC y OUTPUT button or by re ation port. le in autostart mode or by communication port. 5~413 nts from adjusting Vout b ogramming. age goes below UVP prog	to CV. User presetable. ear panel ENABLE, or by OUTPUT button or by rear 5~717 elow limit. Does not affect ramming. User presetable.	
1. Foldback protection 2. Over-voltage protection (OVP) 3. Over -voltage trip point)	 V	Output shut-down wh Reset by AC input rec Inverter Shut down meth 5~176 Preset by front panel or o Output shut-down wher	een power supply change r ycle in autostart mode or b communic od. Reset by AC input recyc panel ENABLE, or by 5~353 communication port. Preve in analog pr power supply output volt ycle in autostart mode or b	node from CV to CC or CC y OUTPUT button or by re ation port. le in autostart mode or by communication port. 5~413 nts from adjusting Vout b ogramming. age goes below UVP prog y OUTPUT button or by re	to CV. User presetable. ear panel ENABLE, or by OUTPUT button or by rear 5~717 elow limit. Does not affect ramming. User presetable.	
1. Foldback protection 2. Over-voltage protection (OVP) 3. Over -voltage trip point 4. Output under voltage limit (UVL) 5. Output under voltage protection (UVP))	 V 	Output shut-down wh Reset by AC input rec Inverter Shut down meth 5~176 Preset by front panel or o Output shut-down wher	een power supply change r ycle in autostart mode or b communic od. Reset by AC input recyc panel ENABLE, or by 5~353 communication port. Preve in analog pu power supply output volt ycle in autostart mode or b communic	node from CV to CC or CC y OUTPUT button or by re ation port. le in autostart mode or by communication port. 5~413 nts from adjusting Vout b ogramming. age goes below UVP prog y OUTPUT button or by re ation port.	to CV. User presetable. ear panel ENABLE, or by OUTPUT button or by rear 5~717 elow limit. Does not affect ramming. User presetable.	
1. Foldback protection 2. Over-voltage protection (OVP) 3. Over -voltage trip point 4. Output under voltage limit (UVL))	 V	Output shut-down wh Reset by AC input rec Inverter Shut down meth 5~176 Preset by front panel or o Output shut-down wher	een power supply change r ycle in autostart mode or b communic od. Reset by AC input recyc panel ENABLE, or by 5~353 communication port. Preve in analog pu power supply output volt ycle in autostart mode or b communic	node from CV to CC or CC y OUTPUT button or by re ation port. le in autostart mode or by communication port. 5~413 nts from adjusting Vout b ogramming. age goes below UVP prog y OUTPUT button or by re	to CV. User presetable. ear panel ENABLE, or by OUTPUT button or by rear 5~717 elow limit. Does not affect ramming. User presetable.	
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1. Foldback protection 2. Over-voltage protection (OVP) 3. Over -voltage trip point 4. Output under voltage limit (UVL) 5. Output under voltage protection (UVP) 6. Over temperature protection ANALOG PROGRAMMING AND MONITO		 V 	Output shut-down wh Reset by AC input rec Inverter Shut down meth- 5~176 Preset by front panel or o Output shut-down wher Reset by AC input rec	en power supply change n ycle in autostart mode or b communic dd. Reset by AC input recyc panel ENABLE, or by 5~353 communication port. Preve in analog p power supply output volt ycle in autostart mode or b communic User selectable, lato	node from CV to CC or CC y OUTPUT button or by re ation port. le in autostart mode or by communication port. 5~413 nts from adjusting Vout b ogramming. age goes below UVP prog y OUTPUT button or by re ation port.	to CV. User presetable. ear panel ENABLE, or by y OUTPUT button or by rear 5~717 elow limit. Does not affect ramming. User presetable. ear panel ENABLE, or by	
1. Foldback protection 2. Over-voltage protection (OVP) 3. Over -voltage trip point 4. Output under voltage limit (UVL) 5. Output under voltage protection (UVP) 6. Over temperature protection ANALOG PROGRAMMING AND MONITO 1. Vout voltage programming		 V 	Output shut-down wh Reset by AC input rec Inverter Shut down meth 5~176 Preset by front panel or o Output shut-down wher Reset by AC input rec 0~100%, 0~5V c	en power supply change r ycle in autostart mode or b communic od. Reset by AC input recyc panel ENABLE, or by 5~353 communication port. Preve in analog pr power supply output volt ycle in autostart mode or b communic User selectable, late	node from CV to CC or CC y OUTPUT button or by re ation port. le in autostart mode or by communication port. 5~413 nts from adjusting Vout b ogramming. age goes below UVP prog y OUTPUT button or by re ation port. hed or non latched.	to CV. User presetable. ear panel ENABLE, or by 2 OUTPUT button or by rear 5~717 elow limit. Does not affect ramming. User presetable. ear panel ENABLE, or by .5% of rated Vout.	
1. Foldback protection 2. Over-voltage protection (OVP) 3. Over -voltage trip point 4. Output under voltage limit (UVL) 5. Output under voltage protection (UVP) 6. Over temperature protection ANALOG PROGRAMMING AND MONITO 1. Vout voltage programming 2. lout voltage programming (*13)		 V 	Output shut-down wł Reset by AC input rec Inverter Shut down meth 5~176 Preset by front panel or o Output shut-down wher Reset by AC input rec 0~100%, 0~5V c 0~100%, 0~5V c	ien power supply change r ycle in autostart mode or b communic od. Reset by AC input recycy panel ENABLE, or by 5~353 communication port. Preve in analog pr power supply output volt ycle in autostart mode or b communic User selectable, lato r 0~10V, user selectable. A or 0~10V, user selectable. A	node from CV to CC or CC y OUTPUT button or by re ation port. le in autostart mode or by communication port. 5~413 nts from adjusting Vout b ogramming. age goes below UVP prog y OUTPUT button or by re ation port. .hed or non latched.	to CV. User presetable. ear panel ENABLE, or by 2 OUTPUT button or by rear 5~717 elow limit. Does not affect ramming. User presetable. ear panel ENABLE, or by .5% of rated Vout. 1% of rated lout.	
1. Foldback protection 2. Over-voltage protection (OVP) 3. Over -voltage trip point 4. Output under voltage limit (UVL) 5. Output under voltage protection (UVP) 6. Over temperature protection ANALOG PROGRAMMING AND MONITO 1. Vout voltage programming 2. lout voltage programming 1. Vout resistor programming		 V 	Output shut-down wł Reset by AC input rec Inverter Shut down meth 5~176 Preset by front panel or o Output shut-down wher Reset by AC input rec 0~100%, 0~5V c 0~100%, 0~5V 0~100%, 0~5V	ien power supply change r ycle in autostart mode or b communic od. Reset by AC input recyc panel ENABLE, or by 5~353 communication port. Preve in analog pu power supply output volt ycle in autostart mode or b communic User selectable, late r 0~10V, user selectable. A or 0~10V, user selectable. A	node from CV to CC or CC y OUTPUT button or by re ation port. le in autostart mode or by communication port. 5~413 nts from adjusting Vout b ogramming. age goes below UVP prog y OUTPUT button or by re ation port. thed or non latched.	to CV. User presetable. ear panel ENABLE, or by / OUTPUT button or by rear 5~717 elow limit. Does not affect ramming. User presetable. ear panel ENABLE, or by .5% of rated Vout. 1% of rated lout. +/-1% of rated Vout.	
1. Foldback protection 2. Over-voltage protection (OVP) 3. Over -voltage trip point 4. Output under voltage limit (UVL) 5. Output under voltage protection (UVP) 6. Over temperature protection ANALOG PROGRAMMING AND MONITO 1. Vout voltage programming 2. lout voltage programming 4. lout resistor programming 4. lout resistor programming (*13)		 V 	Output shut-down wł Reset by AC input rec Inverter Shut down meth 5~176 Preset by front panel or o Output shut-down wher Reset by AC input rec 0~100%, 0~5V o 0~100%, 0~5V o 0~100%, 0~5V o 0~100%, 0~5V o	ien power supply change r ycle in autostart mode or b communic od. Reset by AC input recyc panel ENABLE, or by 5~353 communication port. Preve in analog pu power supply output volt ycle in autostart mode or b communic User selectable, late r 0~10V, user selectable. A or 0~10V, user selectable. A hm full scale, user selectable.	node from CV to CC or CC y OUTPUT button or by re lation port. le in autostart mode or by communication port. 5~413 nts from adjusting Vout b ogramming. age goes below UVP prog y OUTPUT button or by re ation port. thed or non latched.	to CV. User presetable. ear panel ENABLE, or by / OUTPUT button or by rear 5~717 elow limit. Does not affect ramming. User presetable. ear panel ENABLE, or by .5% of rated Vout. 1% of rated lout. +/-1% of rated lout.	
1. Foldback protection 2. Over-voltage protection (OVP) 3. Over -voltage trip point 4. Output under voltage limit (UVL) 5. Output under voltage protection (UVP) 6. Over temperature protection ANALOG PROGRAMMING AND MONITO 1. Vout voltage programming 2. lout voltage programming 4. lout resistor programming 4. lout resistor programming 4. lout resistor programming 5. Shut Off (SO) control		 V 	Output shut-down wł Reset by AC input rec Inverter Shut down meth 5~176 Preset by front panel or o Output shut-down wher Reset by AC input rec 0~100%, 0~5V o 0~100%, 0~5V o 0~100%, 0~5V o 0~100%, 0~5V o	ien power supply change r ycle in autostart mode or b communic od. Reset by AC input recyc panel ENABLE, or by 5~353 communication port. Preve in analog pi power supply output volt ycle in autostart mode or b communic User selectable, late user selectable. A or 0~10V, user selectable. A or 0~10V, user selectable. A mf full scale, user selectabl mf full scale, user selectabl cal Voltage: 0~0.6V/4~15V	node from CV to CC or CC y OUTPUT button or by re ation port. le in autostart mode or by communication port. 5~413 nts from adjusting Vout b ogramming. age goes below UVP prog y OUTPUT button or by re ation port. thed or non latched.	to CV. User presetable. ear panel ENABLE, or by / OUTPUT button or by rear 5~717 elow limit. Does not affect ramming. User presetable. ear panel ENABLE, or by .5% of rated Vout. 1% of rated lout. +/-1% of rated lout.	
1. Foldback protection 2. Over-voltage protection (OVP) 3. Over -voltage trip point 4. Output under voltage limit (UVL) 5. Output under voltage protection (UVP) 6. Over temperature protection ANALOG PROGRAMMING AND MONITO 1. Vout voltage programming 2. lout voltage programming 4. lout resistor programming 4. lout resistor programming 5. Shut Off (SO) control 6. Output current monitor (*13)		 V 	Output shut-down wł Reset by AC input rec Inverter Shut down meth 5~176 Preset by front panel or o Output shut-down wher Reset by AC input rec 0~100%, 0~5V o 0~100%, 0~5V o 0~100%, 0~5V o 0~100%, 0~5V o	ien power supply change r ycle in autostart mode or b communic od. Reset by AC input recyc panel ENABLE, or by 5~353 communication port. Preve in analog pr power supply output volt ycle in autostart mode or b communic User selectable, late or 0~10V, user selectable. A or 0~10V, user selectable. A hm full scale, user selectabl cal Voltage: 0~0.6V/4~15V 0~5V or 0~10V, user selectabl	node from CV to CC or CC y OUTPUT button or by re ation port. le in autostart mode or by communication port. 5~413 nts from adjusting Vout b ogramming. age goes below UVP prog y OUTPUT button or by re ation port. thed or non latched.	to CV. User presetable. ear panel ENABLE, or by / OUTPUT button or by rear 5~717 elow limit. Does not affect ramming. User presetable. ear panel ENABLE, or by .5% of rated Vout. 1% of rated lout. +/-1% of rated lout.	
1. Foldback protection 2. Over-voltage protection (OVP) 3. Over -voltage trip point 4. Output under voltage limit (UVL) 5. Output under voltage protection (UVP) 6. Over temperature protection ANALOG PROGRAMMING AND MONITO 1. Vout voltage programming 2. lout voltage programming 4. lout resistor programming 4. lout resistor programming 4. lout resistor programming 5. Shut Off (SO) control 6. Output current monitor (*13) 7. Output voltage monitor		 V 	Output shut-down wł Reset by AC input rec Inverter Shut down meth 5~176 Preset by front panel or o Output shut-down wher Reset by AC input rec 0~100%, 0~5V o 0~100%, 0~5V o 0~100%, 0~5V o 0~100%, 0~5V o	ien power supply change r ycle in autostart mode or b communic d. Reset by AC input recyc panel ENABLE, or by 5~353 communication port. Preve in analog pr power supply output volt ycle in autostart mode or b communic User selectable, late r 0~10V, user selectable. A or 0~10V, user selectable. A m full scale, user selectab m full scale, user selectab cal Voltage: 0~0.6V/4~15V 0~5V or 0~10V, user sele 0~5V or 0~10V, user sele	node from CV to CC or CC y OUTPUT button or by re ation port. le in autostart mode or by communication port. 5~413 nts from adjusting Vout b ogramming. age goes below UVP prog y OUTPUT button or by re ation port. thed or non latched.	to CV. User presetable. ear panel ENABLE, or by / OUTPUT button or by rear 5~717 elow limit. Does not affect ramming. User presetable. ear panel ENABLE, or by .5% of rated Vout. 1% of rated lout. +/-1% of rated lout.	
1. Foldback protection 2. Over-voltage protection (OVP) 3. Over -voltage trip point 4. Output under voltage limit (UVL) 5. Output under voltage protection (UVP) 6. Over temperature protection ANALOG PROGRAMMING AND MONITO 1. Vout voltage programming 2. lout voltage programming 4. lout resistor programming 4. lout resistor programming 4. lout resistor programming 5. Shut Off (SO) control 6. Output current monitor (*13) 7. Output voltage monitor 8. Power supply OK signal		 V -	Output shut-down wh Reset by AC input rec Inverter Shut down meth 5~176 Preset by front panel or o Output shut-down wher Reset by AC input rec 0~100%, 0~5V c 0~100%, 0~5V c 0~100%, 0~5/10Kol By electri	ien power supply change r ycle in autostart mode or b communic d. Reset by AC input recyc panel ENABLE, or by 5~353 communication port. Preve in analog pi power supply output volt ycle in autostart mode or b communic User selectable, late user selectable, late r 0~10V, user selectable. A or 0~10V, user selectable. A or 0~10V, user selectable. A m full scale, user selectable cal Voltage: 0~0.6V/4~15V 0~5V or 0~10V, user sele 0~5V or 0~10V, user sele 4~5V-OK, 0V-Fail. 500	node from CV to CC or CC y OUTPUT button or by re ation port. le in autostart mode or by communication port. 5~413 nts from adjusting Vout b ogramming. age goes below UVP prog y OUTPUT button or by re ation port. thed or non latched. ccuracy and linearity: +/- le. Accuracy and linearity: +/- le. Accuracy and linearity: +/- te. Accuracy and linearity: or dry contact, user select ctable. Accuracy: +/-1%. totable. Accuracy: +/-1%.	to CV. User presetable. ear panel ENABLE, or by / OUTPUT button or by rear 5~717 elow limit. Does not affect ramming. User presetable. ear panel ENABLE, or by .5% of rated Vout. 1% of rated lout. +/-1% of rated lout. +/-1.5% of rated lout. table logic.	
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Power supply OK signal Power supply OK		 V -	Output shut-down wh Reset by AC input rec Inverter Shut down meth- 5~176 Preset by front panel or of Output shut-down wher Reset by AC input rec 0~100%, 0~5V of 0~100%, 0~5V 0~100%, 0~5/10Kol 0~100%, 0~5/10Kol	ien power supply change r ycle in autostart mode or b communic od. Reset by AC input recyc panel ENABLE, or by 5~353 communication port. Preve in analog pi power supply output volt ycle in autostart mode or b communic User selectable, lato User selectable, lato 0~10V, user selectable. A or 0~10V, user selectable. A nfull scale, user selectable. al Voltage: 0~0.6V/4~15V 0~5V or 0~10V, user sele dav 5V or 0.0000000000000000000000000000000000	node from CV to CC or CC y OUTPUT button or by re ation port. le in autostart mode or by communication port. 5~413 nts from adjusting Vout b ogramming. age goes below UVP prog y OUTPUT button or by re ation port. thed or non latched. ccuracy and linearity: +/- le. Accuracy and linearity: or dry contact, user select atable. Accuracy: +/-1%. actable. Accuracy: -/-1%. actable. Accu	to CV. User presetable. tar panel ENABLE, or by y OUTPUT button or by rear 5~717 elow limit. Does not affect ramming. User presetable. tar panel ENABLE, or by 	

FRONT PANEL								
				Multiple options	with 2 Encoders			
					anual adjust			
				OVP/UVL/UVP	manual adjust			
			Pr	Protection Functions - OVP, UVL, UVP, Foldback, OCP, INT, SO				
1. Control functions			Commur	ication Functions - Selectio	n of LAN,IEEE (*16),RS232,F	RS485,USB		
			Co	mmunication Functions - S	election of Baud Rate, Add	ress		
			Analog Control Functi	ons - Selection Voltage/resi	stive programming, 5V/10	/, 5K/10K programming		
			Analog Control Functions	- Selection of Voltage/Currer	t Monitoring 5V/10V, Outpu	t ON/OFF, Front Panel Lock.		
			Vout	: 4 digits, accuracy: 0.5% of	rated output voltage+/-1 o	count.		
2. Display			lout: 4 digits, accuracy: 0.5% of rated output current+/-1 count.					
2 Indiantina			GI	REEN LEDs: FINE, MENU, PRE	V, PROT, REM, OUTPUT, CV,	, CC		
3. Indications				RED LED: PROT (OVP, U	VP, OTP, FOLD, AC FAIL).			
4. Function buttons				FINE, MENU, PREV,	PROT, REM, OUTPUT			
PROGRAMMING AND READBACK (RS2	32/485,USB, O	tional: IEEE	(*16), LAN)					
1. Vout programming accuracy				0.05% of actual + 0.05%	of rated output voltage			
2. lout programming accuracy (*13)					output current			
3. Vout programming resolution				0.012% o	f full scale			
4. lout programming resolution				0.012% o	f full scale			
5. Vout readback accuracy				0.05% of actual + 0.05%	of rated output voltage			
6. lout readback accuracy (*13)				0.1% of actual +0.3% (of rated output current			
7. Vout readback resolution				0.012% o	f full scale			
8. lout readback resolution				0.012% o	f full scale			
INPUT CHARACTERISTICS		Z	160-5	320-2.5	375-2.2	650-1.25		
1. Input voltage/freq. (*3)				85~265Vac continuous	, 47~63Hz, single phase			
2. Maximum Input current 100/200VAC	(*4)		9.35/4.61	9.35/4.59	9.58/4.7	9.44/4.64		
3. Power Factor (Typ)				0.99 at 100Vac, 0.98	at 200Vac, 100% load			
4. Efficiency (Typ) 100/200VAC (*4)		%	86.5/88.5	86.5/89	87.5/89.5	87/89		
5. Inrush current 100/200VAC (*5)				Less th	an 30A			
ENVIRONMENTAL CONDITIONS								
1. Operating temperature				0~50°C, 1	00% load.			
2. Storage temperature			-20~85°C					
3. Operating humidity		%	20~90% RH (no condensation).					
4. Storage humidity		%		· · · · · · · · · · · · · · · · · · ·	condensation).			
5. Altitude			Maximum 3000m. Derate ambient temp above 2000m.					
				ambient temperature, Fron				
SAFETY/EMC		1	111 61010	-1, EN61010-1, IEC61010-1.	Puilt to most LIL 60050 1 5	N60050 1		
1. Applicable standards:	Safety			it, J1, J2 are Hazardous. J3, J4				
	EMC				meet EN55022/EN55024)	g, Erni are non nazardous		
				J1, J2 are Hazardous; J3, J4, I				
2.Interface classification			Vout≤400V, +Output grounded: Output, J1, J2 are Hazardous; J3, J4, USB, LAN, IEEE/ISOLATED ANALOG are Non Hazardous					
			Vout>400V, +Output grounded: Output, J1, J2, J3, J4, USB, LAN, IEEE/ISOLATED ANALOG are Hazardous					
				V models: Input-Output&J1,J2:				
3. Withstand voltage			Output&J1,J2,-Ground: 2000VDC/1min; Output&J1,J2-J3,J4,USB,LAN/IEEE/ISOLATED ANALOG :3200VDC/1min; Input-J3,J4,USB,LAN/IEEE/ISOLATED ANALOG: 4242VDC/1min; J3,J4,USB,LAN/IEEE/ISOLATDE ANALOG Input-Ground: 707VDC/1min.					
			Input-J3,J4,USB,LAN/IEEE/ISOLATED ANALOG: 4242VDC/1min; J3,J4,USB,LAN/IEEE/ISOLATDE ANALOG Input-Ground: 707VDC/1min. 375≤Vout≤650V model: Input-Output&J1,J2: Input-Output&J1,J2: 3704VDC/1min; Input-Ground: 2828VDC/1min.					
			Outpu	t&J1,J2,-Ground:2154VDC/1min	for 375VDC, 2780VDC/1min for	65VDC;		
			Ou	tput&J1,J2-J3,J4,USB,LAN/IEEE/I				
			ci	Input-J3,J4,USB,LAN/IEEE/ISOL J4,USB,LAN/IEEE/ISOLATDE ANA	ATED ANALOG: 4242VDC/1min;			
4. Insulation resistance			CC CC		nm at 25°C, 70%RH.			
5. Conducted emission			IE	C/EN61326-1 Industrial Loca	,	~I-B		
6. Radiated emission				C/EN61326-1 Industrial Loca				
o. Radiated emission								

	Forced air cooling by internal fan.	
STANDARD	Kg	Less than 2Kg
WIDE BODY	Kg	Less than 2.5Kg. Wide body with isolated analog or IEEE
STANDARD	mm	H: 83, W: 70, D: 350 (excluding bus bars, handles). (Refer to Outline drawing).
WIDE BODY	mm	H: 83, W: 105, D: 350 (excluding bus bars, handles). (Refer to Outline drawing).
		According to: IEC60068-2-64
		Less than 20G, half sine, 11mS. Unit is unpacked. According to: IEC60068-2-27
	WIDE BODY STANDARD	STANDARD Kg WIDE BODY Kg STANDARD mm WIDE BODY mm

*1: Minimum voltage is guaranteed to maximum 0.1% of rated output voltage. *2: Minimum current is guaranteed to maximum 0.2% of rated output current.

*3: For cases where conformance to various safety standards (UL, IEC, etc...) is required, to be described as 100-240Vac (50/60Hz).

*4: Ta=25°C with rated output power.
 *5: Not including EMI filter inrush current, less than 0.2mSec.

*6: At 85~132Vac or 170~265VAC, constant load.

*7: From No-Load to Full-Load, constant input voltage. Measured at the sensing point in Remote Sense. *8 For Parallel operation up to 4 units, 5% of total output current is required.

For Parallel operation more than 4 units, 20% of total output current is requierd.

*9: From 10% to 90% or 90% to 10% of rated output voltage, with rated resistive load.

*10: From 90% to 10% of rated output voltage.

*11: For load voltage change, equal to the unit voltage rating, constant input voltage.
*12: Ripple is measured at 10~100% of rated output voltage and rated output current.
*13: The Constant Current programming, readback and monitoring accuracy do not include the warm-up and Load regulation thermal drift.

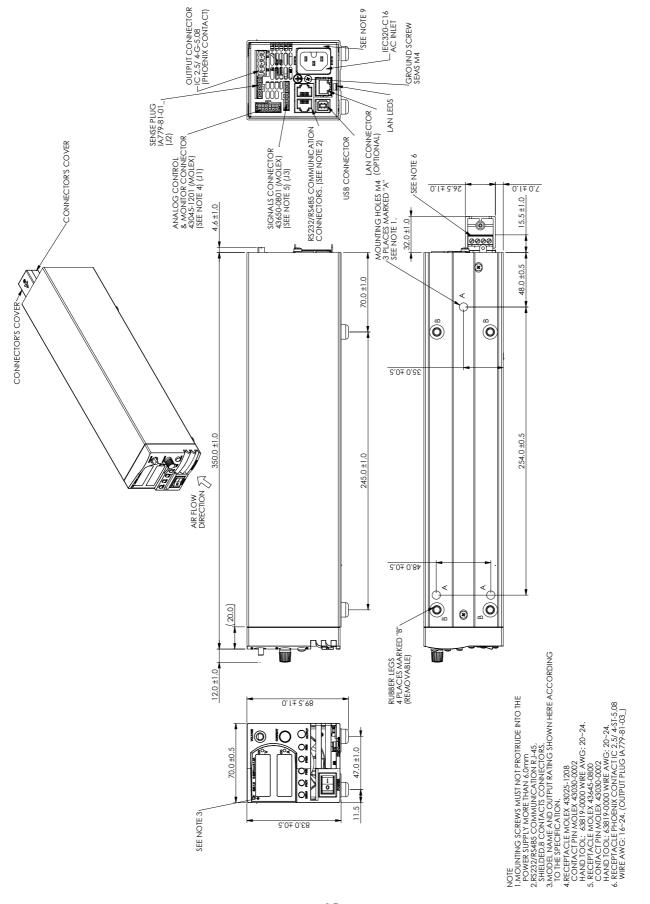
*14: Measured with 10:1 probe.

*15:At rated output power.

*16 Max. ambient temperature for using IEEE is 45°C.

*17: start in low ambient temp. (0°C), 1 min. warm up is required

2.6 Z200W/400W/600W/800W Outline Drawing



2.7 Z200W/400W/600W/800W Optional IEEE, Isolated Analog Interface, Front Panel insulated Output sockets CONNECTOR'S COVER Ŕ CONNECTOR'S COVER SENSE PLUG IA779-81-01_-(J2) OUTPUT CONNECTOR -IC 2,5/ 4-G-5,08 (PHOENIX CONTACT) 8 ANALOG CONTROL & MONITOR CONNECTOR 43045-1201 (MOLEX) (SEE NOTE 4) (J1) AIR FLOW DIRECTION SFF NOTE 3 12.0 ±1.0 350.0 ±1.0 ±1.0 _IEEE OR ISOLATED ANALOG OPTION 105.0 ±0.5 (20.0) ō SIGNALS CONNECTOR 43650-0801 (MOLEX) (SEE NOTE 5) (J3) 8 8 83.0 ±0.5 ō ٥İ 89.5±1.0 222 20 RS232/RS485 COMMUNICATION CONNECTORS. (SEE NOTE 2) RUBBER LEGS 4 PLACES MARKED "B"-(REMOVABLE) 245.0 +1.0 70.0 +1.0 82.0 ±1.0 USB CONNECTOR 11.3 58.5 ±0.5 IEC320-C16 AC INLET 26.5±1.0 LAN CONNECTOR (OPTIONAL) ୢୖ୕ୄୄୄୄୄୄୄୄୄ B OOA A GROUND SCREW SEMS M4 Θ LAN LEDS MOUNTING HOLES M4 4 PLACES MARKED "A" SEE NOTE 1. 82.0±0.5 8000 ® 3 0 0 0 B 🔿 SEE NOTE 6 42.0 ± 243.5 ±0.5 ģ 15.5 ±1.0 -SCREWS MUST NOT PROTRUDE INTO THE 'PLY MORE THAN 6.0mm 3 COMMUNICATION R14-5 ME AND OUT INTO 163. WE AND OUT INTO 164. 2 PICATION. E MOLEX 43030-0002 1: 43819-0000 WIRE AWG: 20-24. LE MOLEX 4345-5800 11 MOLEX 43030-0002 L: 43819-0000 WIRE AWG: 20-24. LE PHOENIX CONTACT LC 2/s 4-51-5.08 : 16-24. [OUTPUT PLUG - IA779-81-03_] 19" Rack Housing for Z*200W/400W/600W/800W 436.0+0.5 23.4 24.0TYP 86.0±0.5 46.5TYP 69.4 ß 向 00 00 0 ചില 21.0 346.5±1.0 25.0TYP ⊕ • Θ ₩⋶╼┲╤Ĵ 1 Н 1 462.0 ±1.0 0 88.0±0.3TYP 76.2±0.3TY **_**/_ ю lc la lo **6**00 **6**00 ര്ംറ **0**00 50.0±0.3TYP 19.0TYP 5.9TYP 465.0±1.0 482.0±1.0

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