

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.

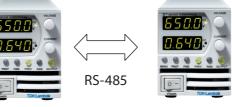
Optional Interface: LAN & IEEE488.2 SCPI (GPIB)

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

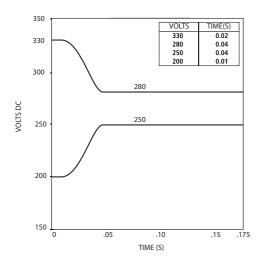
Smooth, reliable encoders enhance front panel control. Remote analog programming is user selectable 0-5V or 0-10V.

RF Amplifiers and Magnets

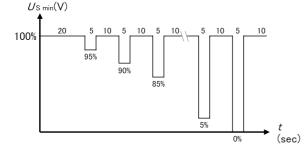
Robust design assures stable operation under a wide variety of loads. High linearity in Voltage & Current mode.

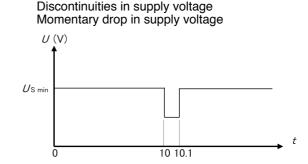
Z⁺ Series Sequence Programming Applications:





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)

Digital Programming via IEEE InterfaceIEEE 488.2 SCPI Compliant	P/N:	IEEE
 Program Voltage Measure Voltage Over Voltage setting and shutdown Error and Status Messages Multi-Drop Allows IEEE Master to control up to 31 slaves of Only the Master needs be equipped with IEEE 		wn
 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: Phoen Voltage Programming, user-selectable 0-5V of Power Supply Voltage and Current Programm 	es in harsh electrical environi Current. ix MC1,5/8-ST-3.81. r 0-10V signal. P/N: ing Accuracy ±1%	ments. IS510
 Power Supply Voltage and Current Monitoring Current Programming with 4-20mA signal. Power Supply Voltage and Current Programm Power Supply Voltage and Current Monitoring 	P/N: ing Accuracy ±1%	IS420
LAN Interface	P/N:	LAN

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

• TCP / UDP Socket Programming

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

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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 Name	Output V (0~65	9	•	it Current 1.25A)	Factor Optior		Output Jack	AC cord Options: Region :
Name	(0~0)	00)	(0~	1.ZJA)	IEEE	15.	Jack	E - Europe
					LAN			J - Japan
					IS510		L2	U - North America
					IS420			l - Middle East C - China
Factory o		I			P/N			
	ace built-in S				-			
RS-232/RS	-485 Interfa	ce built-	in Stanc	lard	-			
GPIB Inter	face				IEEE			
Voltage Pr	ogramming	Isolated	l Analog	Interface	IS51()		
Current Pr	ogramming	Isolated	Analog	Interface	IS420	C		
LAN Interf	ace				LAN			
Front pane	el insulated o	output s	ockets (Ø 4mm)				
for module	es up to 650	V or 5A l	Max				L2	
		Outpu	t	Outpu	t 📘	(Output	1

Model	Output Voltage (VDC)	Output Current (A)	Output Power (W)
Z160-1.3		0~1.3	208
Z160-2.6	0~160 VDC	0~2.6	416
Z160-4	0~100 VDC	0~4	640
Z160-5		0~5	800
Z320-0.65		0~0.65	208
Z320-1.3	0~320 VDC	0~1.3	416
Z320-2	0~320 VDC	0~2	640
Z320-2.5		0~2.5	800
Z375-2.2	0~375VDC	0~2.2	825
Z650-0.32		0~0.32	208
Z650-0.64		0~0.64	416
Z650-1	0~650 VDC	0~1	650
Z650-1.25		0~1.25	812

Z⁺200 Series Specifications

MODEL	Z	160-1.3	320-0.65	650-0.32	
1. Rated output voltage(*1)	V	160	320	650	
2. Rated output current (*2)	А	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	
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			interval following 30 minutes warm		
7. Warm-up drift			ated output voltage over 30 minute		
8. Remote sense compensation/wire	V	5	5	5	
	-	110			
9. Up-prog. Response time, 0~Vomax.(*9)	mS		170	170	
10. Down-prog. response time: Full load (*9)	mS	180	270	270	
No load (*10)	S	2	2.5	3	
11. Transient response time	mS		ver within 0.5% of its rated output fo output set-point: 10~100%, Local se		
12. Hold-up time (*19)		16mSec	Typical.	15mSec Typical.	
· · · · · · · · · · · · · · · · · · ·					
CONSTANT CURRENT MODE	Z	160-1.3	320-0.65	650-0.32	
1. Max. Line regulation (*6)			0.02% of rated output current		
2. Max. Load regulation (*11)		0.09% of rated	output current	0.15% of rated output current	
3. Load regulation thermal drift		Less than 0.05% of rat	ted output current over 30 minutes	following load change.	
4. Ripple r.m.s. 5Hz~1MHz (*12) (*14)	mA	1.2	0.8	0.5	
5. Temperature coefficient	PPM/°C	100PPM/°C from	rated output current, following 30	minutes warm-up.	
6. Temperature stability			rval following 30 minutes warm-up		
7. Warm-up drift			rated output current over 30 minute		
7. Walth up unit			fated balpat current over 50 minut	es following power on.	
PROTECTIVE FUNCTIONS	Z	160-1.3	320-0.65	650-0.32	
PROTECTIVE FONCTIONS	L				
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 rear panel ENABLE, or by communication port.			
2. Over-voltage protection (OVP)			t by AC input recycle in autostart mo nel ENABLE, or by communication p		
3. Over -voltage trip point	V	5~176	5~353	5~717	
4. Output under voltage limit (UVL)		Preset by front panel or commun	ication port. Prevents from adjustin in analog programming.	g Vout below limit. Does not affect	
5. Output under voltage protection (UVP)			upply output voltage goes below L utostart mode or by OUTPUT buttor communication port.		
6. Over temperature protection		U	lser selectable, latched or non latch	ed.	
	-				
ANALOG PROGRAMMING AND MONITORING					
1. Vout voltage programming		0.100% 0.51/0*0.101/	user selectable. Accuracy and linea	ritu: 1/0.5% of rotod Vout	
			l, user selectable. Accuracy and linea		
2. lout voltage programming (*13)					
3. Vout resistor programming			cale, user selectable. Accuracy and		
4. lout resistor programming (*13)			cale, user selectable. Accuracy and I		
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		4~5	V-OK, 0V-Fail. 500ohm series resist	ance.	
9. Parallel operation (*8)		Possible, up to 6 units in m	naster/slave mode with single wire o	current balance connection.	
10. Series operation			identical units (with external diode		
11. CV/CC indicator			CV mode: Off. Maximum voltage: 30		
12. Interlock (ILC) control			act (Short: On, Open: Off, Source current: less th		
13. Local/Remote mode Control			Open/Short: 0~0.6V or short: Remot		
14. Local/Remote mode Indicator					
15.Trigger out		Open collector (shunted by 36V zener). On (0~0.6V, 10mA sink current max.)-Remote. Off-Local (30V max.). Maximum low level output =0.8V, Minimum high level output =3.8V, Maximum high level output =5V, Maximum source current =16mA, pulse =20µs Typical.			
16.Trigger in		Maximum low level input =1.2	V, Minimum high level input =3.5V, A, positive edge, trigger: tw =10µs n	Maximum high level input =5V,	
17 Drogrammed signal 1			· · · · · ·		
17. Programmed signal 1			oltage 25V, maximum sink current 10		
18. Programmed signal 2		Upen collector, maximum vo	oltage 25V,maximum sink current 10	Juma. (Snunted by 27V zener)	
			stage 25 vinaxinani sink current n	Source by 27 v Zeiler)	

FRONT PANEL

	 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.
	 Analog Control Functions - Selection of Voltage/Current Monitoring 5V/10V, Output ON/OFF, Front Panel Lo

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 cur	rent+/-1 count.		
3. Indications			GREEN LEDs: FINE, MENU, PREV, PROT, REM, OUTPUT, CV, CC				
5. Indications				LED: PROT (OVP, UVP, OTP, FOLD, AC			
4. Function buttons			F	INE, MENU, PREV, PROT, REM, OUTP	UT		
PROGRAMMING AND READBACK (RS2	232/485 USB On	tional IFFF(*17) I AN)				
1. Vout programming accuracy	192/403,03D, Op			of actual + 0.05% of rated output	voltage		
2. lout programming accuracy (*13)			0.05 /	0.2% of rated output current	voltage		
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	voltage		
6. lout readback accuracy (*13)				6 of actual +0.3% of rated output ci			
7. Vout readback resolution			0.17	0.012% of full scale			
8. lout readback resolution				0.012% of full scale			
lo. lour readback resolution			1	0.012/0 01 Tull scale			
INPUT CHARACTERISTICS		Z	160-1.3	320-0.65	650-0.32		
1. Input voltage/freq. (*3)			85~2	, 65Vac continuous, 47~63Hz, single	phase		
2. Maximum Input current 100/200VAC	(*4) (*15)		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	5)	%	79/81	79/81	79/81		
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).				
		/0	Maximum 3000m. Derate ambient temp above 2000m.				
5. Altitude			Operating: Maximum ambient temperature, From 2000m up to 3000m Ambient temperature 40°C.				
					· · · · · · · · · · · · · · · · · · ·		
SAFETY/EMC							
	Safety		UL61010-1, EN61010-1, IEC61010-1. Built to meet UL60950-1, EN60950-1				
1. Applicable standards:					ED Analog ,LAN are Non Hazardous		
	EMC			61326-1 (Built to meet EN55022/El			
				Hazardous; J3, J4, USB, LAN, IEEE/ISO			
2.Interface classification					EE/ISOLATED ANALOG are Non Hazardous		
					/ISOLATED ANALOG are Hazardous		
				Input-Output&J1,J2: 2970VDC/1min; Inp			
				1min; Output&J1,J2- J3,J4,USB,LAN/IEEE/I			
			Input-J3,J4,USB,LAN/IEEE/ISOLATED ANALOG: 4242VDC/1min; J3,J4,USB,LAN/IEEE/ISOLATDE ANALOG Input-Ground: 707VDC/1min.				
3. Withstand voltage	3. Withstand voltage		650V model: Input-Output&J1,J2: 3704VDC/1min; Input-Ground: 2828VDC/1min.				
				1min; Output&J1,J2-J3,J4,USB,LAN/IEEE/			
			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				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 Casling		1	1	Favoral air an alian bu internal far			

MECHANICAL			
1. Cooling			Forced air cooling by internal fan.
2. Weight	STANDARD	Kg	Less than 1.9Kg.
z. weight	WIDE BODY		Less than 2.4Kg. Wide body with Isolated analog or IEEE.
3. Dimensions (WxHxD)	STANDARD		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

NOTES:

*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

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	l.	
CONSTANT VOLTAGE MODE	Z	160-2.6	320-1.3	650-0.64	
1. Max. Line regulation (*6)			0.01% of rated output voltage	l .	
2. Max. Load regulation (*7)			0.01% of rated output voltage		
3. Ripple and noise (p-p, 20MHz) (*14)	mV	100			
4. Ripple r.m.s. 5Hz~1MHz (*14)	mV	10	25	250 60	
5. Temperature coefficient	PPM/°C	-	rated output voltage, following 30 r		
6. Temperature stability			interval following 30 minutes warm		
7. Warm-up drift			ated output voltage over 30 minute		
8. Remote sense compensation/wire	V	5	5	5	
9. Up-prog. Response time, 0~Vomax.(*9)	mS	80	150	150	
10. Down-prog. response time: Full load (*9)		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.	
CONSTANT CURRENT MORE	-	100.20	220.1.2	650.054	
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		1	ed output current over 30 minutes		
4. Ripple r.m.s. 5Hz~1MHz (*12) (*14)	mA	1.5	1	0.6	
5. Temperature coefficient	PPM/°C		rated output current, following 30		
6. Temperature stability			rval following 30 minutes warm-up		
7. Warm-up drift		Less than +/-0.1% of r	rated output current over 30 minute	es following power on.	
PROTECTIVE FUNCTIONS	Z	160-2.6	320-1.3	650-0.64	
1. Foldback protection		Output shut-down when po	ower 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 par	nel ENABLE, or by communication port.	
		Inverter Shut down method. Res	set by AC input recycle in autostart i	node or by OUTPUT button or by	
2. Over-voltage protection (OVP)		rear p	panel ENABLE, or by communication	n 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	n 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	· · · · · ·	
		1	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	cu	
ANALOG PROGRAMMING AND MONITORING					
1. Vout voltage programming		$0 \sim 100\% 0 \sim 5 \times 0 \sim 10 \times 10$	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		
		1			
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			V mode: Off. Maximum voltage: 30		
12. Interlock (ILC) control			act (Short: On, Open: Off, Source current: less tha		
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 Triagor in		Maximum low level input =1.2V, Minimum high level input =3.5V, Maximum high level input =5V,			
16.Trigger in		Maximum sink current = 16mA, positive edge, trigger: tw = 10 μ s minimum, Tr/Tf = 1 μ s maximum.			
17. Programmed signal 1		1	Itage 25V, maximum sink current 10		
18. Programmed signal 2			Itage 25V, maximum sink current 10		
FRONT PANEL					
			Multiple options with 2 Encoders		
			Variat/land manual address		

	 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.				
2. Display			lout: 4 digits, a	accuracy: 0.5% of rated output curre	nt+/-1 count.		
3. Indications			GREEN LEDs	: FINE, MENU, PREV, PROT, REM, OUT	PUT, CV, CC		
3. Indications			RED L	ED: PROT (OVP, UVP, OTP, FOLD, AC F	AIL).		
4. Function buttons			FINE, MENU, PREV, PROT, REM, OUTPUT				
PROGRAMMING AND READBACK (RS2	232/485.USB. Op	tional: IEEE(*17), LAN)				
1. Vout programming accuracy				of actual + 0.05% of rated output vo	bltage		
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 vo	bltage		
6. lout readback accuracy (*13)				of actual +0.3% of rated output cur			
7. Vout readback resolution			0.170	0.012% of full scale			
8. lout readback resolution				0.012% of full scale			
			I	0.012/00110113Cale			
INPUT CHARACTERISTICS		Z	160-2.6	320-1.3	650-0.64		
1. Input voltage/freq. (*3)			85~26	65Vac continuous, 47~63Hz, single p	hase		
2. Maximum Input current 100/200VAC	2 (*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	5)	%	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.				
			Operating: Maximum ambient temperature, From 2000m up to 3000m Ambient temperature 40°C.				
SAFETY/EMC							
	Cafatu		UL61010-1, EN610	10-1, IEC61010-1. Built to meet UL60	950-1, EN60950-1		
1. Applicable standards:	Safety		160V≤Vout≤650V: Output,J1,J2 are	Hazardous. J3, J4, USB, IEEE/ISOLATE	D Analog ,LAN are Non Hazardou:		
	EMC			61326-1 (Built to meet EN55022/EN5			
				Hazardous; J3, J4, USB, LAN, IEEE/ISOL			
2.Interface classification				J1, J2 are Hazardous; J3, J4, USB, LAN, IEEE			
			Vout>400V, +Output grounded: C)utput, J1, J2, J3, J4, USB, LAN, IEEE/IS	SOLATED ANALOG are Hazardous		
				Input-Output&J1,J2: 2970VDC/1min; Input-			
			Output&J1,J2,-Ground: 2000VDC/1min; Output&J1,J2- J3,J4,USB,LAN/IEEE/ISOLATED ANALOG :3200VDC/1min;				
				OG: 4242VDC/1min; J3,J4,USB,LAN/IEEE/ISOLAT			
3. Withstand voltage				Output&J1,J2: 3704VDC/1min; Input-Grour			
				1min; Output&J1,J2- J3,J4,USB,LAN/IEEE/ISC			
				4,USB,LAN/IEEE/ISOLATED ANALOG: 4242VI			
A la sulation variator es		-		I/IEEE/ISOLATDE ANALOG Input-Ground: 70			
4. Insulation resistance				Nore than 100Mohm at 25°C, 70%RH 6-1 Industrial Location - B, FCC part 1			
5. Conducted emission				· · · ·	,		
6. Radiated emission			IEC/EN61326	5-1 Industrial Location - A, FCC part 1	S-A, VCCI-A		

		Forced air cooling by internal fan.
STANDARD	Kg	Less than 1.9Kg.
WIDE BODY	Kg	Less than 2.4Kg. 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

NOTES:

*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 moles (2) Steppe and moles (2) 0.02% of rated output voltage wort age montase warm sp. 660 Steppe and moles (2) Steppe and moles (2) Steppe and moles (2) 5 5 Steppe and moles (2) OA Steppe and moles (2) 5 5 5 Steppe and moles (2) Max (2) Steppe and moles (2) 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5<						
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; (*1/1)*) mV 100 15.0 2.0 Stemperature configure PW/C 30PPW/C from teal dougu voltage, following 30 minutes warmu, go. Contant line, Load & temp. Stemperature configure Y 5.0 5	OUTPUT RATING					
Bitsete dougs 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 Bege and noise (*7) 0.01% of rated output voltage 750-1 Bege and noise (*7) 0.02% of rated output voltage minutes warm-sp. 750-1 Semetor seme compensation/wire V 5 5 75 75 10. Down prog, response time 1665 85 85 85 10. Down prog, response time 1676-4 320-2 650-1 143 146 1476-5 146 1476-5 146 1476-5						
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 (*f) 0.01% of rated output voltage 8. Reple and noise (p-, 20MHz (*14) (*17) mV 100 150 250 8. Reple and noise (p-, 20MHz (*14) (*17) mV 100 30 PM/C* from rated output voltage. 250 8. Reple and noise (p-, 20MHz (*14) (*17) mV 100 30 PM/C* from rated output voltage. 60 8. Reple and noise (p-, 20MHz (*14) (*17) mV 100 30 PM/C* from rated output voltage. 60 8. Reple and noise (p-, 20MHz (*16) (*17) mV 100 30 PM/C* from rated output voltage. 60 0.00% not represent time. Lest than 0.05% of rated output voltage. 7 5 0.00% not represent time. Full load (*10) 5 2 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 1090% if or fated output corrent 12. Hold uptime (*15) 106-4 20.00% for frated output corrent 13. Line regulation (*16) - 10.02% for frated output corrent 2.00% 14. Hold uptimut (*15) - 10.02% for frated outpu	3.Rated output power at 100≤Vin≤265Vac	, la ≤ 50°c	VV	640	640	650
1. Max. Line regulation (*f) 0.01% of rated output voltage 8. Reple and noise (p-, 20MHz (*14) (*17) mV 100 150 250 8. Reple and noise (p-, 20MHz (*14) (*17) mV 100 30 PM/C* from rated output voltage. 250 8. Reple and noise (p-, 20MHz (*14) (*17) mV 100 30 PM/C* from rated output voltage. 60 8. Reple and noise (p-, 20MHz (*14) (*17) mV 100 30 PM/C* from rated output voltage. 60 8. Reple and noise (p-, 20MHz (*16) (*17) mV 100 30 PM/C* from rated output voltage. 60 0.00% not represent time. Lest than 0.05% of rated output voltage. 7 5 0.00% not represent time. Full load (*10) 5 2 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 1090% if or fated output corrent 12. Hold uptime (*15) 106-4 20.00% for frated output corrent 13. Line regulation (*16) - 10.02% for frated output corrent 2.00% 14. Hold uptimut (*15) - 10.02% for frated outpu	CONSTANT VOLTAGE MODE		Z	160-4	320-2	650-1
2. Max. Lond 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 single ward output voltage ward with single ward output voltage ward with single ward ward ward ward ward ward ward ward				100 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 followin		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						
2. Warn-up drift — Less than 0.05% of rated output voltage over 30 minutes following power on. 3. Deprog.Response time, U-Vortax(*9) m5 5 75 75 10. Down-prog.response time, Wo load (*10) S 2,2 2,5 3 10. Down-prog.response time, Wo load (*10) S 2,2 3 3 11. Transient response time m5 5 2,2 3 12. Hold-up time (*15) — 16m5e Typical. 14m5er Typical. 14m5er Typical. 12. Hold-up time (*15) — 16m5e Typical. 14m5er Typical. 660-1 12. Max Line regulation (*10) — 0.02% of rated output current. 660-1 12. Max Line regulation (*11) — 0.02% of rated output current. 660-1 13. Temperature coefficient PPM/*C 100PPM/*C from rated output current. 10 1 14. Rippe ran.us, Strz-tiMtk (*12) (*14) mAx 2 10.5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	· · ·					
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 . CONSTANT CURRENT MODE Z 160-4 320-2 650-1 . S. Temperature coefficient PPM/C 100PM/C from rated output current. following 30 minutes warm-up. .						
2.0 prog. response time, bit of the second	· · · · · · · · · · · · · · · · · · ·					
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) 0.02% of rated output current 2. Load regulation (*11) 0.02% of rated output current 3. Load regulation (*11) 0.02% of rated output current toers 30 minutes somm-up. 3. S. Temperature coefficient PPM/°C 100PPM/°C from rated output current, following 30 minutes warm-up. Constant line, load & temperature. V. Warm-up dirit Less than 0.40% of rated output current over 30 minutes warm-up. Constant line, load & temperature. V. Warm-up dirit Less than 0.40% of rated output current over 30 minutes warm up. Constant line, load & temperature. V. Warm-up dirit Less than 0.40% of rated output current over 30 minutes warm up. Constant line, load & temperature. V. Warm-up diri	9. Up-prog. Response time, 0~Vomax.(*9)		mS	55	75	75
In 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: 10–10%, 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 Is doad regulation (*11) 0.05% of rated output current over 30 minutes sellowing load change. 1 S. Temperature coefficient PPM/°C 100PPM/°C from rated output current over 30 minutes sellowing power on. Remost the coefficient PPM/°C 100PPM/°C from rated output current over 30 minutes following power on. REMORECTIVE FUNCTIONS Z 160-4 320-2 650-1 I. foldback protection Reset by A Cinput recycle in autostant mode or by OUTPUT button or by res panel ENABLE, or by communication port. I. foldback protection (OVP) Inverter Shut down method. Reset by A Cinput recycle in autostant mode or by OUTPUT button or by res panel ENABLE, or by communication port. 3. Over-voltage protection (UVP) Preset by from tand or ommunication port. Prevents from adjusting Vout below limit. Does not affect in autostant mode or by OUTPUT button or by res panel ENABLE, or by communication port.		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 50-1 2. Max. Load regulation (*1) 0.03% of rated output current over 30 minutes following load change. 3. Ripple rms. Sitz-1MHz (*12) (*14) mA 2 1.5 5. Temperature coefficient PPM/C 100PPM/C from rated output current over 30 minutes following 30 minutes warm-up. 6. Temperature coefficient PPM/C 100PPM/C from rated output current over 30 minutes following 20 minutes warm-up. 6. Temperature coefficient PPM/C 100PPM/C from rated output current over 30 minutes following 20 minutes warm-up. 7. Marm-up drift 0.05% of rated lout over 80% instructs more 30 minutes following power on. 7. Marm-up drift Less than 4/-0.1% of rated output current over 30 minutes following vower and the set by AC input recycle in autostart mode or by OUTPUT butnor or by response protection (VoP) 2. Over-voltage protection (OVP) Inverter Shut down method. Reset by VC input recycle in autostart mode or by OUTPUT butnor or by rear panel ENABLE, or by communication port. 3. Over-voltage protection (UVP) Inverter Shut down when power supply output voltage goes below UVP programming.	11. Transient response time		mS			
1. Max. Line regulation (*G) 0.02% of rated output current 2. Max. Load regulation (*TI) 0.09% of rated output current 2. Max. Load regulation (*TI) 1.5 1 3. Rippet cms. Sitz-1MHz (*12) (*14) mA 2 1.5 1 5. Temperature coefficient PPW/CC 100PPM/C from rated output current over 30 minutes following load change. 6. Temperature coefficient PPM/CT 0.05% of rated lout over 8hrs. interval following 30 minutes warm-up. Constant line, load & temperature stability 7. Warm-up drift 0.05% of rated lout over 8hrs. interval following 30 minutes warm-up. Constant line, load & temperature stability 7. Marcu pdrift 0.05% of rated lout over 8hrs. interval following and minutes warm-up. Constant line, load & temperature stability 7. Marcu pdrift Less than 1/0.1% of rated output current 7. Output shut-down when power supply change mode from CV to CC or CC to CV. User presenses the communication port. 2.0 excluse protection (0VP) Inverter Shut down method. Reset by AC input recycle in autostart mode or by OUTPUT but on or by rear panel ENABLE, or by communication port. 2. Over-voltage trip point V 5-176 5-33 5-717 5. Output under voltage potection (UVP)	12. Hold-up time (*15)			16mSec	c Typical.	14mSec Typical.
1. Max. Line regulation (*G) 0.02% of rated output current 2. Max. Load regulation (*TI) 0.09% of rated output current 2. Max. Load regulation (*TI) 1.5 1 3. Rippet cms. Sitz-1MHz (*12) (*14) mA 2 1.5 1 5. Temperature coefficient PPW/CC 100PPM/C from rated output current over 30 minutes following load change. 6. Temperature coefficient PPM/CT 0.05% of rated lout over 8hrs. interval following 30 minutes warm-up. Constant line, load & temperature stability 7. Warm-up drift 0.05% of rated lout over 8hrs. interval following 30 minutes warm-up. Constant line, load & temperature stability 7. Marcu pdrift 0.05% of rated lout over 8hrs. interval following and minutes warm-up. Constant line, load & temperature stability 7. Marcu pdrift Less than 1/0.1% of rated output current 7. Output shut-down when power supply change mode from CV to CC or CC to CV. User presenses the communication port. 2.0 excluse protection (0VP) Inverter Shut down method. Reset by AC input recycle in autostart mode or by OUTPUT but on or by rear panel ENABLE, or by communication port. 2. Over-voltage trip point V 5-176 5-33 5-717 5. Output under voltage potection (UVP)						
1. Max. Line regulation (*10) 0.02% of rated output current 2. Max. Load regulation (*11) 0.09% of rated output current 3. Load regulation thermal drift 1.5 1 3. Cade regulation thermal drift 1.5 1 5. Temperature coefficient PPW/C 100PPM/C from rated output current following 30 minutes warm-up. Constant line, load & temperature stability 0.05% of rated lout over 8hrs, interval following 30 minutes warm-up. Constant line, load & temperature stability Less than +/0.1% of rated output current varb. Somman stability 0.05% of rated lout over 8hrs, interval following 30 minutes warm-up. Constant line, load & temperature stability Less than +/0.1% of rated output current Varm-up drift Less than +/0.1% of rated output current Sommal stability PROTECTIVE FUNCTIONS Z 0.160-4 320-2 650-1 1. foldback protection Reset by AC input recycle in autosatr mode or by OUTPUT but on or by rear panel ENABLE, or by communication port. 2. Over-voltage trip point V 5-176 5-33 5-717 4. Output under voltage trotection (UVP) Uset selectable, latched or non latched.	CONSTANT CURRENT MODE		Z	160-4	320-2	650-1
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 bad change. 4. Ripple Lms. SHz-1MHz (*12) (*14) mA 2 15 5. Temperature coefficient PPW/C 100PPM/C from rated output current over 30 minutes warm-up. Costant line, load & temperature varm-up. Costant varm-up. Line varm-up. L	1. Max. Line regulation (*6)				0.02% of rated output current	
3. Load regulation thermal drift Less than 0.05% of rated output current over 30 minutes following load change. 4. Rippler.ms. SHz-INHEz (*12) (*14) mA 2 1.5 5. Temperature coefficient PPW/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 & temperature stability 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 9. 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 when power supply change protection modulus fly fout below limit. Does not affect in analog programming. 3. Over-voltage trip point V 5-177 5-333 5-717 4. Output under voltage protection (UVP) Vest by forth panel or communication port. Prevents from aljusting Yout below limit. Does not affect in analog programming. 5. Output under voltage protection (UVP) User selectable, latched or non latched. XNALCO PROGRAMMING AND MONITORING 0-100%, 0-5V or 0-10	2. Max. Load regulation (*11)					
A. Hipperans. SHz='NHM2 (*12) (*14) mA 2 1.5 1 S. Temperature coefficient PPW/C 1000PM/C from rated output current, following 30 minutes warm-up. 5.5 S. Temperature stability 0.05% of rated lout over 8hx: Interval following 30 minutes warm-up. 5.6 S. Merry 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 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 selectable. Accuracy and linearity: +/+0.5% of rated lout. 6. Output shut-down when power supply				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 9. Foldback protection Reset by AC input recycle in autostart mode or by OUTPU toor 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 S-176 S-353 S-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. S-717 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. Output under voltage programming 0-100%, 0-5V or 0-10V, user selectable. Accuracy and linearity: +/-15% of rated Vout. 3. Out resistor programmin						
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 User selectable, latched or non latched. ANLIGG PROGRAMMING AND MONITORING 0-100%, 0-5V or 0-10V, 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: +/-1% of rated Vout. 2. Lout 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%. <td< td=""><td> /</td><td></td><td></td><td></td><td></td><td></td></td<>	/					
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. Prevents from adjusting Vout below limit. Does not affect in analog programming. S717 5. Output under voltage protection (UVP) Preset by front panel or communication port. Second or by OUTPUT button or by rear panel ENABLE, or by communication port. 6. Over temperature protection Ustput 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. 1. Vout voltage programming (*13) 0100%, 0-5V or 010V, user selectable. Accuracy and linearity: +/-1% of rated Vout. 2. Output current monitor (*13) 0100%, 0-5/10Kohm full scale, user selectable. Accuracy and linearity: +/-1% of rated lout. 3. Output current monitor (*13) 05/00 or 0-10V, user selectable. Accuracy and linearity: +/-1% of rated	7. Warm-up drift			Less than +/-0.1% of	rated output current over 30 minute	es 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. Prevents from adjusting Vout below limit. Does not affect in analog programming. S717 5. Output under voltage protection (UVP) Preset by front panel or communication port. Second or by OUTPUT button or by rear panel ENABLE, or by communication port. 6. Over temperature protection Ustput 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. 1. Vout voltage programming (*13) 0100%, 0-5V or 010V, user selectable. Accuracy and linearity: +/-1% of rated Vout. 2. Output current monitor (*13) 0100%, 0-5/10Kohm full scale, user selectable. Accuracy and linearity: +/-1% of rated lout. 3. Output current monitor (*13) 05/00 or 0-10V, user selectable. Accuracy and linearity: +/-1% of rated						
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 User selectable. Accuracy and linearity: +/-105% of rated Yout. 9. Dut voltage programming 0-100%, 0-5710Kohm full scale, user selectable. Accuracy and linearity: +/-15% of rated Yout. 9. Output voltage monitor 0-50 or 0-10V, user selectable. Accuracy and linearity	PROTECTIVE FUNCTIONS		Z			
2. Over-voltage protection (OVP) Inverter Shut down method. Reset by AC input recycle in autostart mode or by OUTPUT button or by respanel 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 Vou below limit. Does not affecting 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. 7. Yout voltage programming (*13) 0~100%, 0~5V or 0~10V, user selectable. Accuracy and linearity: +/-1% of rated Vout. 8. Output survisitor programming (*13) 0~100%, 0~5V or 0~10V, user selectable. Accuracy and linearity: +/-1% of rated lout. 9. Output voltage monitor 0~100%, 0~5V or 0~10V, user selectable. Accuracy and linearity: +/-1% of rated lout. 9. Output voltage monitor 0~100%, 0~5V or 0~10V, user selectable. Accuracy and linearity: +/-1% of rated lout. 9. Sout coltage monitor 0~100%, 0~5V or 0~10V, user selectable. Accuracy and linearity: +/-1% of rated lout. 9. Output voltage monitor	1. Foldback protection				utostart mode or by OUTPUT buttor	
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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 current monitor (*13) 05V 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 current balance connection.	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 Of, Maximum mish current: 10mA 12. Interlock (ILC) control By electrical signal or Open.Of, Source urent less than 0.5mA). Ena/Ds is activated by front pane 13. Local/Remote mode Control </td <td>4. Output under voltage limit (UVI.)</td> <td></td> <td></td> <td colspan="3">Preset by front panel or communication port. Prevents from adjusting Vout below limit. Does not affect</td>	4. Output under voltage limit (UVI.)			Preset by front panel or communication port. Prevents from adjusting 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						
ANALOG PROGRAMMING AND MONITORING 1. Vout voltage programming 0~100%, 0~5V or 0~10V, user selectable. Accuracy and linearity: +/-1% 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)					
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%, 0~5V or 0~10V, user selectable. Accuracy and linearity: +/-1% of rated Vout. 4. lout resistor programming (*13) 0~100%, 0~5V or 0~10V, user selectable. Accuracy and linearity: +/-1% of rated lout. 5. Shut Off (SO) control 0~100%, 0~5V or 0~10V, user selectable. Accuracy and linearity: +/-1% of rated lout. 5. 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%. 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 12. Interlock (ILC) control Enables/Disables the PS output by dry contact (Shot: 0n, Open: Off. Source current less than 0.5mA	6. Over temperature protection			U	Iser selectable, latched or non latch	ed.
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3. Vout resistor programming 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 lout. 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 0~5V or 0~10V, user selectable. Accuracy: +/-1%. 9. Parallel operation (*8) 0~5V or 0.10K, 0V-Fail. 5000hm series resistance. 9. Parallel operation (*8) Possible, up to 6 units in master/slave mode with single wire current balance connection. 10. Series operation Open collector. CC mode: On, CV mode: Off. Maximum voltage: 30V, maximum sink current: 10mA 12. Interlock (ILC) control By electrical signal or Open/Short: 0.0pen: Off. Source current less than 0.5mA). Ena/Dis is activated by front pane 13. Local/Remote mode Control By electrical signal or Open/Short: 0.0V or Short: Remote, 2~15V or open: Local 14. Local/Remote mode Indicator Open collector (shunted by 36V zener). On (0~0.6V, 10mA si	2. lout voltage programming (*13)					
4. lout resistor programming (*13) 0~100%, 0~5/10Kohm full scale, user selectable. Accuracy and linearity: +/-1.5% of rated lout. 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 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 0 Open collector. CC mode: On, CV mode: Off. Maximum voltage: 30V, maximum sink current: 10mA 12. Interlock (ILC) control By electrical signal or Open/Short: 0~0.6V or short: Remote, 2~15V or open: Local 14. Local/Remote mode Control By electrical signal or Open/Short: 0~0.6V or short: Remote, 2~15V or open: Local 15. Trigger out Maximum low level output = 0.8V, Minimum high level output = 5V, Maximum low level input = 1.2V, Minimum high level input = 5V, Maximum high level input = 5V, Maximum sink current = 16mA, positive edge, trigger: tw = 10µs minimum, Tr/Tf = 1µs maximum.						
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 0~5V or 0~10V, user selectable. Accuracy: +/-1%. 9. Parallel operation (*8) 4~5V-OK, 0V-Fail. 5000hm series resistance. 9. Parallel operation (*8) Possible, up to 6 units in master/slave mode with single wire current balance connection. 10. Series operation 2 identicial units (with external diodes). 11. CV/CC indicator Open collector. CC mode: On, CV mode: Off. Maximum voltage: 30V, maximum sink current: 10mA 12. Interlock (ILC) control By electrical signal or Open/Short: 0~0.6V or short: Remote, 2~15V or open: Local 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 (30V max 15.Trigger out Maximum low level output = 0.8V, Minimum high level output = 3.8V, Maximum high level output = 5V, Maximum noulevel output = 1.2V, Minimum high level input = 5V, Maximu						
5. 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%. 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 Open collector. CC mode: On, CV mode: Off. Maximum voltage: 30V, maximum sink current: 10mA 12. Interlock (ILC) control By electrical signal or Open/Short: 0~0.6V or short: Remote, 2~15V or open: Local 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 (30V max 15.Trigger out Maximum low level output =0.8V, Minimum high level output =3.8V, Maximum high level output =5V, Maximum source current =16mA, polse =20µs Typical. 16.Trigger in Open collector, maximum voltage 25V, maximum sink current 100mA. (Shunted by 27V zener) 17. Programmed signal 1 Open collector, maximum voltage 25V, maximum sink current 100mA. (
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. 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 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 from tpane 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 (30V max 15. Trigger out Maximum low level output =0.8V, Minimum high level output =3.8V, Maximum high level output =5V, Maximum source current =16mA, polse =20µs Typical. 16. Trigger in Open collector, maximum voltage 25V, maximum sink current 100mA. (Shunted by 27V zener) 17. Programmed signal 1 Open collector, maximum voltage 25V, maximum sink current 100mA. (Shunted by 27V zener)				,	· · · ·	
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15.Trigger out Maximum low level output =0.8V, Minimum high level output =3.8V, Maximum high level output =5V, 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 =10µs minimum, Tr/Tf =1µs maximum. 17. Programmed signal 1 Open collector, maximum voltage 25V, maximum sink current 100mA. (Shunted by 27V zener)	14. Local/Remote mode Indicator					
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 =10µs minimum, Tr/Tf =1µs maximum. 17. Programmed signal 1 Open collector, maximum voltage 25V, maximum sink current 100mA. (Shunted by 27V zener)	15.Trigger out			Maximum low level output =0.8	V, Minimum high level output =3.8V	, Maximum high level output =5V,
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	V, 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	onna (Shunced 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 cur	rent+/-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			FINE, MENU, PREV, PROT, REM, OUTPUT			
PROGRAMMING AND READBACK (RS2	232/485,USB, Op	tional: IEEE				
1. Vout programming accuracy			0.05% of actual + 0.05% of rated output 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	(*4)		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)			00.3/08.3	Less than 30A	80.3/88.3	
5. mush current 100/200 AC (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).			
			Maximur	n 3000m. Derate ambient temp abo	ve 2000m.	
5. Altitude			Operating: Maximum ambient temperature, From 2000m up to 3000m Ambient temperature			
			* 			
SAFETY/EMC	1	1				
	Safety			010-1, IEC61010-1. Built to meet UL6		
1. Applicable standards:	- FNIC			e Hazardous. J3, J4, USB, IEEE/ISOLAT		
	EMC			61326-1 (Built to meet EN55022/EN	· · · · · · · · · · · · · · · · · · ·	
			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;			
3. Withstand voltage			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.			
5. Withstand Voltage				1min; Output&J1,J2- J3,J4,USB,LAN/IEEE/I		
				4,USB,LAN/IEEE/ISOLATED ANALOG: 4242		
				V/IEEE/ISOLATDE ANALOG Input-Ground:		
4. Insulation resistance				Nore than 100Mohm at 25°C, 70%R		
5. Conducted emission				6-1 Industrial Location - B, FCC part		
6. Radiated emission				6-1 Industrial Location - A, FCC part		
			·	· •		
MECHANICAL		·	1			

MECHANICAL			
1. Cooling			Forced air cooling by internal fan.
2 Weinht	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

NOTES:

*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		7	160 E	220.2.5	275.2.2	650 1 25
1.Rated output voltage (*1)		Z	160-5 160	320-2.5 320	375-2.2 375	650-1.25 650
		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 < 1a $\leq 50^{\circ}$ c		752	752	750	747.5
CONSTANT VOLTAGE MODE		Z	160-5	320-2.5	375-2.2	650-1.25
1. Max. Line regulation (*6)				.01% of rated output volta		050-1.25
2. Max. Load regulation (*7)				.01% of rated output volta		
3. Ripple and noise (p-p, 20MHz) (*14) (*1	17)	mV	100	150	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
11 Transient response time		m ^C		to recover within 0.5% of		
11. Transient response time		mS	output c	urrent. Output set-point: 1	0~100%, Local sense Less	than 2mS.
12. Hold-up time (*15)		mS	13msec Typical.		11.5msec Typical.	
CONSTANT CURRENT MODE		Z	160-5	320-2.5	375-2.2	650-1.25
1. Max. Line regulation (*6)					output current	
2. Max. Load regulation (*11)			Less there 0.0	0.09% of rated 5% of rated output current	output current	-
3. Load regulation thermal drift			2	1.5	1.5	g load change.
4. Ripple r.m.s. 5Hz~1MHz (*12) (*14) 5. Temperature coefficient		mA PPM/°C				
6. Temperature stability		PPIVI/ C		/°C from rated output curr		warm-up. nt line, load & temperature.
7. Warm-up drift				-0.1% of rated output curre		
7. Warn-up unit				-0.1% Offated output curre	int over 30 minutes follow	ing power on.
PROTECTIVE FUNCTIONS		Z	160-5	320-2.5	375-2.2	650-1.25
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 by OUTPUT button or by re	to CV. User presetable.
			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.
1. Foldback protection			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 recyc panel ENABLE, or by 5~353	node from CV to CC or CC or OUTPUT button or by re cation port. le in autostart mode or by communication port. 5~413	to CV. User presetable. Par panel ENABLE, or by OUTPUT button or by rear 5~717
1. Foldback protection 2. Over-voltage protection (OVP)			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 or OUTPUT button or by re cation port. le in autostart mode or by communication port. 5~413	to CV. User presetable. Far panel ENABLE, or by OUTPUT button or by rear
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- iation port. le in autostart mode or by communication port. 5~413 ints from adjusting Vout b- ogramming. age goes below UVP progi y OUTPUT button or by re- iation 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- iation 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.
 Foldback protection Over-voltage protection (OVP) Over -voltage trip point Output under voltage limit (UVL) Output under voltage protection (UVP) Over temperature protection 		 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- ration port. le in autostart mode or by communication port. 5~413 ints from adjusting Vout b- ogramming. age goes below UVP progi y OUTPUT button or by re- ration 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) 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 r 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, late	node from CV to CC or CC y OUTPUT button or by re- ration 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- ration port. thed or non latched.	to CV. User presetable. ear panel ENABLE, or by or 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- tation port. 5~413 nts from adjusting Vout b- ogramming. age goes below UVP progi y OUTPUT button or by re- tation port. hed or non latched.	to CV. User presetable. tar panel ENABLE, or by OUTPUT button or by rear 5~717 elow limit. Does not affect ramming. User presetable. tar panel ENABLE, or by .5% of rated Vout.
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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 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 9. Parallel operation (*8) 10. Series operation		 	Output shut-down wh Reset by AC input rec Inverter Shut down meth 5~176 Preset by front panel or o Output shut-down when Reset by AC input rec 0~100%, 0~5V c 0~100%, 0~5V c 0~100%, 0~5/10Ko 0~100%, 0~5/10Ko By electri Possible, up to 6 u 2 identical u	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, lato user selectable, lato r 0~10V, user selectable, lato or 0~10V, user selectable, a hm full scale, user selectable ant full scale, user selectable cal Voltg co-10V, user selectable 0~5V or 0~10V, user selectable 0~5V or 0~10V, user selectable av-5V-OK, 0V-Fail. 500 units in master/slave mode units (with external diodes)	node from CV to CC or CC y OUTPUT button or by re- tation port. ile in autostart mode or by communication port. 5~413 nts from adjusting Vout b- ogramming. age goes below UVP progi y OUTPUT button or by re- tation port. hed or non latched. ccuracy and linearity: +/-10 Accuracy and linearity: +/-12 I.e. Accuracy and linearity: -/-12 I.e. Accuracy and linearity: -/-12 e. Accuracy and linearity: -/-12 e. Accuracy and linearity: -/-12 e. Accuracy and linearity: -/-10 Accuracy ester and linearity: -/-10 Accuracy and linearity: -/-10 Accuracy ester and linearity: -/-10 Accuracy ester and linearity: -/-10 Accuracy ester and linearity: -/-10 Accuracy and linearity: -/-10 Accuracy ester and linearity: -/-10 Accuracy ester and linearity: -/-10 Accuracy ester and linearity: -/-10 Accuracy and linearity: -/-10 Accuracy ester and linearity: -/-10 Accu	to CV. User presetable. tar panel ENABLE, or by / OUTPUT button or by rear 5~717 elow limit. Does not affect ramming. User presetable. tar panel ENABLE, or by .5% of rated Vout. 1% of rated lout. +/-1% of rated lout. +/-1.5% of rated lout. table logic. alance connection. sis to ground
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I. Foldback protection I. 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 10. Series operation 10. Series operation 11. CV/CC indicator 12. Interlock (ILC) control 13. Local/Remote mode Control 14. Local/Remote mode Indicator		 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 Output shut-down wher By electrical s Open collector (shunted b	ien power supply change r ycle in autostart mode or b <u>communit</u> 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 user selectable, late or 0~10V, user selectable. A or 5V or 0~10V, user sele 0~5V or 0~10V, u	node from CV to CC or CC y OUTPUT button or by re- ration port. 1e in autostart mode or by communication port. 5~413 nts from adjusting Vout b- ogramming. age goes below UVP progi- y OUTPUT button or by re- ration port. thed or non latched. Ccuracy and linearity: +/-0 Accuracy and linearity: +/-1 le. Accuracy and linearity: +/-1 le. Accuracy: +/-1%. Iohm series resistance. with single wire current b . 650VDC MAX. From chas imum voltage: 30V, maxin Source current: less than0.5mÅ). V or short: Remote, 2~15V OmA sink current max.)-Re	to CV. User presetable. tar panel ENABLE, or by / OUTPUT button or by rear 5~717 elow limit. Does not affect ramming. User presetable. tar panel ENABLE, or by
I. Foldback protection I. Foldback protection 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 5. Shut Off (SO) control 6. Output current monitor (*13) 7. Output voltage monitor 8. Power supply OK signal 9. Parallel operation (*8) 10. Series operation 11. CV/CC indicator 12. Interlock (ILC) control 13. Local/Remote mode Control		 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%, 0~5/10Ko 0~100%, 0~5/10Ko 0~100%, 0~5/10Ko By electric By electric Enables/Disables the PS output By electrical s Open collector (shunted t Maximum low level output	ien power supply change r ycle in autostart mode or b <u>communic</u> 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 user selectable, late r 0~10V, user selectable. A or 0~10V, user selectable. So o~5V or 0~10V, user sele 4~5V-OK, 0V-Fail. 500 units in master/slave mode inits (with external diodes) de: On, CV mode: Off. Maa yd y contat (Short: 0n, Open: Off. ignal or Open/Short: 0~0.6V, 1 yut =0.8V, Minimum high I Maximum source current =	node from CV to CC or CC y OUTPUT button or by re- tation port. 5~413 nts from adjusting Vout b- ogramming. age goes below UVP progi- y OUTPUT button or by re- tation port. thed or non latched. ccuracy and linearity: +/-0 Accuracy and linearity: +/-1 le. Accuracy and linearity: +/- le. Accuracy and linearity: -/- le. Accuracy and linearity: -/- to r dry contact, user select or dry contact, user select ctable. Accuracy: +/-1%. ctable. Accuracy: +/-1%. ctable. Accuracy: +/-1%. bohm series resistance. with single wire current b .650VDC MAX. From chas imum voltage: 30V, maxin .5ourec current less than 0.5mA). Soures current less than 0.5mA). Soures current max.)-Re evel output =3.8V, Maximu: 16mA, pulse =20µs Typica	to CV. User presetable. tar panel ENABLE, or by / OUTPUT button or by rear 5~717 elow limit. Does not affect tramming. User presetable. tramming. User presetable.
I. Foldback protection I. Foldback protection Over-voltage protection (OVP) Output under voltage limit (UVL) Output under voltage protection (UVP) Output under voltage protection ANALOG PROGRAMMING AND MONITO I. Vout voltage programming Output under voltage protection Nout resistor programming Output current monitor (*13) S. Shut Off (SO) control Output current monitor (*13) Output voltage monitor Newer supply OK signal Parallel operation Output voltage monitor I. CV/CC indicator I. CV/CC indicator I. CV/CC indicator I. Local/Remote mode Control I. Local/Remote mode Indicator I. Trigger in		 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 Output shut-down wher Not input rec Output shut-down wher Possible, up to 6 to 2 identical to Open collector. CC mo Enables/Disables the PS output By electrical s Open collector (shunted to Maximum low level in Maximum low level in Maximum sink current	ien power supply change r ycle in autostart mode or b communic 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 user selectable, late or 0~10V, user selectable. A or 0~10V, user selectable. A or 0~10V, user selectable. A m full scale, user selectable m full scale, user selectable cal Voltage: 0~0.6V/4~15V 0~5V or 0~10V, user sele 4~5V-OK, 0V-Fail. 500 0~5V or 0~10V, user sele 4~5V-OK, 0V-Fail. 500 de: On, CV mode: Off. Maa ny dry contact (Short: 0n, Open: Off ignal or Open/Short: 0~0.6V, 1 bout =0.8V, Minimum high t =16mA, positive edge, tr	node from CV to CC or CC y OUTPUT button or by re- iation port. 1/2 in autostart mode or by communication port. 5~413 Ints from adjusting Vout b- ogramming. age goes below UVP progg y OUTPUT button or by re- iation port. I hed or non latched. Ccuracy and linearity: +/-0 Accuracy and linearity: +/- le. Accuracy and linearity: e. Accuracy and linearity: cot dry contact, user select actable. Accuracy: +/-1%. I catable. Accuracy: +/-1%. I con chase: resistance. With single wire current b . 650VDC MAX. From chas imum voltage: 30V, maxin . Source current: less than 0.5mA). V or short: Remote, 2~15W Orn A sink current max.)-Re evel output = 3.8V, Maximu igger: tw =10µs minimum	to CV. User presetable. tar panel ENABLE, or by / OUTPUT button or by rear 5~717 elow limit. Does not affect ramming. User presetable. tar panel ENABLE, or by
I. Foldback protection I. 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 4. lout under voltage monitor 6. Output current monitor (*13) 7. Output voltage monitor 8. Power supply OK signal 9. Parallel operation (*8) 10. Series operation 11. CV/CC indicator 12. Interlock (ILC) control 13. Local/Remote mode Control 14. Local/Remote mode Indicator		 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 Output shut-down wher Possible, up to 6 to 2 identical to Open collector. CC mo Enables/Disables the PS output By electrical s Open collector (shunted to Maximum low level output Maximum low level output Maximum sink currer Open collector, max	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 SV or 0~10V, user sele da	node from CV to CC or CC y OUTPUT button or by re- ration port. le in autostart mode or by communication port. 5~413 Ints from adjusting Vout b- ogramming. age goes below UVP progg y OUTPUT button or by re- ration port. thed or non latched. Ccuracy and linearity: +/- le. Accuracy and linearity: - or dry contact, user select actable. Accuracy: +/-1%. Cotable. Accuracy: +/-1%. Cotable. Accuracy: +/-1%. Cotable. Accuracy: +/-1%. Source current: less than 0.5mÅ). V or short: Remote, 2~15% OmA sink current max.)-Re evel output =3.8%, Maximu igger: tw =10µs minimum un sink current 100mA. (SI	to CV. User presetable. tar panel ENABLE, or by / 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	
				manual adjust	
1 Control functions			Protection Functions - OVP, U		SO
1. Control functions			Communication Functions - Selectio	n of LAN,IEEE (*16),RS232,R	S485,USB
			Communication Functions - S	election of Baud Rate, Addr	ess
			Analog Control Functions - Selection Voltage/resi	stive programming, 5V/10V	, 5K/10K programming
			Analog Control Functions - Selection of Voltage/Curren		
			Vout: 4 digits, accuracy: 0.5% of		
2. Display			lout: 4 digits, accuracy: 0.5% of		
			GREEN LEDs: FINE, MENU, PRE		
3. Indications			RED LED: PROT (OVP, UVP, OTP, FOLD, AC FAIL).		
4. Function buttons				PROT, REM, OUTPUT	
PROGRAMMING AND READBACK (RS232/4	485.USB. Opt	tional: IFFF	(*16), I AN)		
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				f full scale	
4. lout programming resolution				f full scale	
5. Vout readback accuracy				of rated output voltage	
6. lout readback accuracy (*13)				of rated output current	
7. Vout readback resolution				f full scale	
8. lout readback resolution				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		%	· · · · · · · · · · · · · · · · · · ·	,	
			10~95% RH (no condensation). Maximum 3000m. Derate ambient temp above 2000m.		
5. Altitude			Operating: Maximum ambient temperature, From		
SAFETY/EMC					
	Safety			UL61010-1, EN61010-1, IEC61010-1. Built to meet UL60950-1, EN60950-1	
1. Applicable standards:			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)		
1. Applicable standards:	,				LAN die Non Hazdiuous
1. Applicable standards:	EMC			meet EN55022/EN55024)	
1. Applicable standards: 2.Interface classification	,		IEC/EN61326-1 (Built to r	neet EN55022/EN55024) JSB, LAN, IEEE/ISOLATED ANA	ALOG are Non Hazardous
	,		IEC/EN61326-1 (Built to r Output floating: Output, J1, J2 are Hazardous; J3, J4, I	neet EN55022/EN55024) JSB, LAN, IEEE/ISOLATED ANA ; J3, J4, USB, LAN, IEEE/ISOLATED	ALOG are Non Hazardous ANALOG are Non Hazardous
	,		IEC/EN61326-1 (Built to r Output floating: Output, J1, J2 are Hazardous; J3, J4, U Vouts400V, +Output grounded: Output, J1, J2 are Hazardous Vout>400V, +Output grounded: Output, J1, J2, J3, J 160_SVouts320V models: Input-Output&J1, J2;	neet EN55022/EN55024) JSB, LAN, IEEE/ISOLATED AN/ ; J3, J4, USB, LAN, IEEE/ISOLATED 4, USB, LAN, IEEE/ISOLATED 2970VDC/1min; Input-Ground: 2	ALOG are Non Hazardous ANALOG are Non Hazardous ANALOG are Hazardous 828VDC/1min.
	,		IEC/EN61326-1 (Built to r Output floating: Output, J1, J2 are Hazardous; J3, J4, U Vout≤400V, +Output grounded: Output, J1, J2 are Hazardous Vout>400V, +Output grounded: Output, J1, J2, J3, J 160≤Vout≤320V models: Input-Output&J1,J2: Output&J1,J2; Ground: 2000VDC/1 min; Output&J1,J2:	neet EN55022/EN55024) JSB, LAN, IEEE/ISOLATED AN/ 13, J4, USB, LAN, IEEE/ISOLATED 4, USB, LAN, IEEE/ISOLATED 2970VDC/1min; Input-Ground: 2 3,J4,USB,LAN/IEEE/ISOLATED AN	ALOG are Non Hazardous ANALOG are Non Hazardous ANALOG are Hazardous 828VDC/1min. VALOG :3200VDC/1min;
2.Interface classification	,		IEC/EN61326-1 (Built to r Output floating: Output, J1, J2 are Hazardous; J3, J4, U Vout≤400V, +Output grounded: Output, J1, J2 are Hazardous Vout>400V, +Output grounded: Output, J1, J2, J3, J 160≤Vouts320V models: Input-Output&J1,J2: Output&J1,J2, Ground: 2000VDC/1mir; Output&J1,J2: Input-J3,J4,USB,LAN/IEEE/ISOLATED ANALOG: 4242VDC/1mir; J3	neet EN55022/EN55024) JSB, LAN, IEEE/ISOLATED AN/ ; J3, J4, USB, LAN, IEEE/ISOLATED 4, USB, LAN, IEEE/ISOLATED 2970VDC/1min; Input-Ground: 3, J4, USB, LAN/IEEE/ISOLATED AN 4, USB, LAN/IEEE/ISOLATDE ANALO	ALOG are Non Hazardous ANALOG are Non Hazardous ANALOG are Hazardous 828VDC/1min. VALOG :3200VDC/1min; 5 Input-Ground: 707VDC/1min.
	,		IEC/EN61326-1 (Built to r Output floating: Output, J1, J2 are Hazardous; J3, J4, l Vout<400V, +Output grounded: Output, J1, J2 are Hazardous Vout>400V, +Output grounded: Output, J1, J2, J3, J 160cVout<320V models: Input-Output&J1,J2: Output&J1,22,-Ground: 2000VDC/1min; Output&J1,J2: Input-J3,J4,USB,LAN/IEEE/ISOLATED ANALOG: 4242VDC/1min; J3, 3755Vout<650V model: Input-Output&J1,2: Input-Outp	neet EN55022/EN55024) JSB, LAN, IEEE/ISOLATED AN/ ; J3, J4, USB, LAN, IEEE/ISOLATED 4, USB, LAN, IEEE/ISOLATED 2970VDC/1min; Input-Ground: 2 13, J4, USB, LAN/IEEE/ISOLATDE ANALO (4, USB, LAN/IEEE/ISOLATDE ANALO (4, USB, LAN/IEEE/ISOLATDE ANALO (4, USB, LAN/IEEE/ISOLATDE ANALO	ALOG are Non Hazardous ANALOG are Non Hazardous ANALOG are Hazardous 828VDC/1min. VALOG :3200VDC/1min; 5 Input-Ground: 707VDC/1min. Ground: 2828VDC/1min.
2.Interface classification	,		IEC/EN61326-1 (Built to r Output floating: Output, J1, J2 are Hazardous; J3, J4, U Vout≤400V, +Output grounded: Output, J1, J2 are Hazardous Vout>400V, +Output grounded: Output, J1, J2, J3, J 160≤Vout≤320V models: Input-Output&J1,J2: Output&J1,J2, Ground: 2000VDC/1 min; Output&J1,J2: Input-J3,J4,USB,LAN/IEEF/SOLATED ANALOG: 4242VDC/1min; J3, 375≤Vout≤650V model: Input-Output&J1,J2: Input-Outp Output&J1,J2, -Ground:2154VDC/1min Output&J1,J2, -J3,J4,USB,LAN/IEEF/	neet EN55022/EN55024) JSB, LAN, IEEE/ISOLATED AN/ J3, J4, USB, LAN, IEEE/ISOLATED 2970VDC/1min; Input-Ground: 2 3,J4, USB, LAN/IEEE/ISOLATED AN 4,USB, LAN/IEEE/ISOLATDE ANALOG ut&J1,2: 3704VDC/1min; Input for 375VDC, 2780VDC/1min for SOLATED ANALOG: 4244VDC/1r	ALOG are Non Hazardous ANALOG are Non Hazardous ANALOG are Hazardous 828VDC/1min. VALOG :3200VDC/1min; 5 Input-Ground: 707VDC/1min. 6 Ground: 2828VDC/1min. 55VDC;
2.Interface classification	,		IEC/EN61326-1 (Built to r Output floating: Output, J1, J2 are Hazardous; J3, J4, U Vout≤400V, +Output grounded: Output, J1, J2 are Hazardous Vout>400V, +Output grounded: Output, J1, J2, J3, J 160≤Vout≤320V models: Input-Output&J1,J2: Output&J1,J2, Ground: 2000VDC/1mir; Output&J1,J2: Input-J3,J4,USB,LAN/IEEE/ISOLATED ANALOG: 4242VDC/1mir; J3, 375≤Vout≤650V model: Input-Output&J1,J2: Input-Outp Output&J1,J2, Ground:2154VDC/1mir Output&J1,J2, J3,J4,USB,LAN/IEEE/I Input-J3,J4,USB,LAN/IEEE/ISOLATED ANALOG: 424UDC/1mir	neet EN55022/EN55024) JSB, LAN, IEEE/ISOLATED AN/ ; J3, J4, USB, LAN, IEEE/ISOLATED 4, USB, LAN, IEEE/ISOLATED 2970VDC/1min; Input-Ground: 2 3,J4, USB, LAN/IEEE/ISOLATDE ANALO 4,USB, LAN/IEEE/ISOLATDE ANALO ut&J1,J2: 3704VDC/1min; Input for 375VDC, 2780VDC/1min for SOLATED ANALOG: 4244VDC/1r ATED ANALOG: 4242VDC/1min;	ALOG are Non Hazardous ANALOG are Non Hazardous ANALOG are Hazardous 828VDC/1min. 4ALOG :3200VDC/1min; 3 Input-Ground: 707VDC/1min. Ground: 2828VDC/1min. 55VDC; nin;
2.Interface classification 3. Withstand voltage	,		IEC/EN61326-1 (Built to r Output floating: Output, J1, J2 are Hazardous; J3, J4, U Vouts400V, +Output grounded: Output, J1, J2 are Hazardous Vout>400V, +Output grounded: Output, J1, J2, J3, J 160:SVouts320V models: Input-Output&J1,J2- Output&J1,J2,-Ground: 2000VDC/1min; Output&J1,J2- Input-J3,J4,USB,LAN/IEEE/ISOLATED ANALOG: 4242VDC/1min; J3, 375≤Vout≤650V model: Input-Output&J1,J2: Input-Output Output&J1,J2,-Ground:2154VDC/1min Output&J1,J2-J3,J4,USB,LAN/IEEE/ISOL Input-J3,J4,USB,LAN/IEEE/ISOL	neet EN55022/EN55024) JSB, LAN, IEEE/ISOLATED AN/ 13, J4, USB, LAN, IEEE/ISOLATED 4, USB, LAN, IEEE/ISOLATED 2970VDC/1min; Input-Ground: 2 13, J4, USB, LAN/IEEE/ISOLATED ANALOG 14, USB, LAN/IEEE/ISOLATED ANALOG 14, USB, LAN/IEEE/ISOLATED ANALOG 14, USB, LAN/IEE/ISOLATED	ALOG are Non Hazardous ANALOG are Non Hazardous ANALOG are Hazardous 828VDC/1min. 4ALOG :3200VDC/1min; 3 Input-Ground: 707VDC/1min. Ground: 2828VDC/1min. 55VDC; nin;
2.Interface classification 3. Withstand voltage 4. Insulation resistance	,		IEC/EN61326-1 (Built to r Output floating: Output, J1, J2 are Hazardous; J3, J4, U Vouts400V, +Output grounded: Output, J1, J2 are Hazardous Vout>400V, +Output grounded: Output, J1, J2, J3, J 160:SVouts320V models: Input-Output&J1,J2; Output&J1,J2,-Ground: 2000VDC/1min; Output&J1,J2; Input-J3,J4,USB,LAN/IEEF/ISOLATED ANALOG: 4242VDC/1min; J3, 375:SVouts650V model: Input-Output&J1,J2: Input-Outp Output&J1,J2,-Ground: 2154VDC/1min Output&J1,J2,-Ground: 2154VDC/1min Output&J1,J2,-J3,J4,USB,LAN/IEEF/ISOL J3,J4,USB,LAN/IEEF/ISOLATDE ANA More than 100Moł	meet EN55022/EN55024) JSB, LAN, IEEE/ISOLATED AN/ 4, USB, LAN, IEEE/ISOLATED 4, USB, LAN, IEEE/ISOLATED 2970VDC/1min; Input-Ground: 2 13, J4, USB, LAN/IEEE/ISOLATED AN 4, USB, LAN/IEEE/ISOLATED ANALOG 13, J4, USB, LAN/IEEE/ISOLATED ANALOG 13, J4, USB, LAN/IEEE/ISOLATED ANALOG 50, LATED ANALOG: 4244VDC/1rin ATED ANALOG: 4242VDC/1min ATED ANALOG: 4242VDC/1min at 25°C, 70%RH.	ALOG are Non Hazardous ANALOG are Non Hazardous ANALOG are Hazardous 828VDC/1min. VALOG :3200VDC/1min; 5 Input-Ground: 707VDC/1min. - Ground: 2828VDC/1min. 55VDC; nin;
2.Interface classification 3. Withstand voltage	,		IEC/EN61326-1 (Built to r Output floating: Output, J1, J2 are Hazardous; J3, J4, U Vouts400V, +Output grounded: Output, J1, J2 are Hazardous Vout>400V, +Output grounded: Output, J1, J2, J3, J 160:SVouts320V models: Input-Output&J1,J2- Output&J1,J2,-Ground: 2000VDC/1min; Output&J1,J2- Input-J3,J4,USB,LAN/IEEE/ISOLATED ANALOG: 4242VDC/1min; J3, 375≤Vout≤650V model: Input-Output&J1,J2: Input-Output Output&J1,J2,-Ground:2154VDC/1min Output&J1,J2-J3,J4,USB,LAN/IEEE/ISOL Input-J3,J4,USB,LAN/IEEE/ISOL	meet EN55022/EN55024) JSB, LAN, IEEE/ISOLATED AN/ 4, USB, LAN, IEEE/ISOLATED 4, USB, LAN, IEEE/ISOLATED 2970VDC/1min; Input-Ground: 2 2970VDC/1min; Input-Ground: 2 3,4/USB, LAN/IEEE/ISOLATED AN 4,USB, LAN/IEEE/ISOLATED AN 4,USB, LAN/IEEE/ISOLATED AN 4,USB, LAN/IEE/ISOLATED AN 4,USB, LAN/IEE/ISOLATED AN 4,USB, LAN/IEE/ISOLATED AN 4,USB, LAN/IEE/ISOLATED AN 4,USB, LAN/IEE/ISOLATED AN 4,USB, LAN/IEE/ISOLATED AN 16 375VDC, 2780VDC/1min; 50LATED ANALOG: 4244VDC/1r ATED ANALOG: 4242VDC/1min; LOG Input-Ground: 707VDC/1m m at 25°C, 70%RH. ttion - B, FCC part 15-B, VCC	ALOG are Non Hazardous ANALOG are Non Hazardous ANALOG are Hazardous 828VDC/1min. VALOG :3200VDC/1min; 51nput-Ground: 707VDC/1min. -Ground: 2828VDC/1min. 55VDC; nin; in.

		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).
4. Vibration -		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

NOTES:

*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.

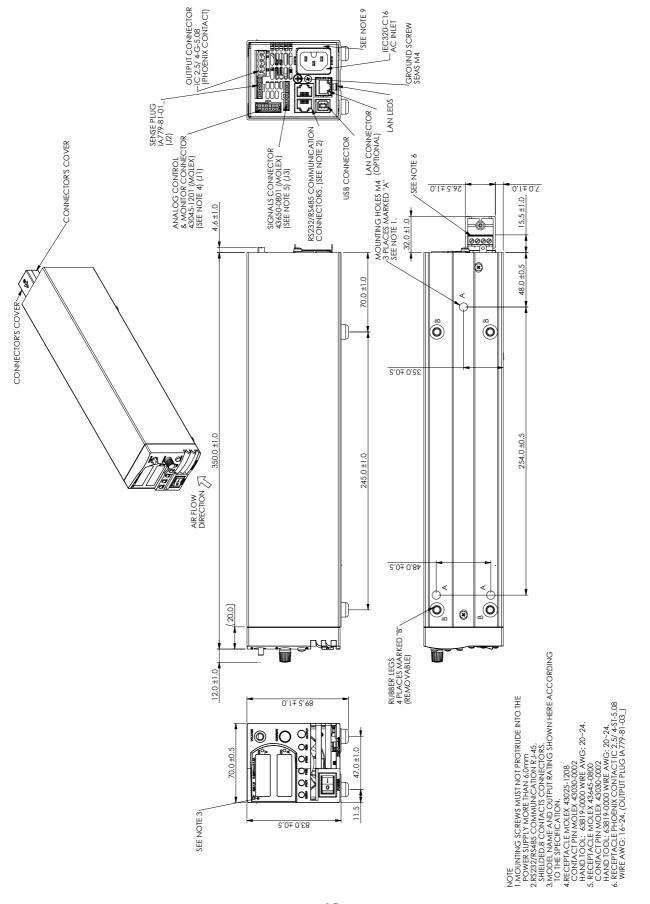
*14: Measured with 10:1 probe.

*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 4345-5800 11 MOLEX 4345-5800 11 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 ሐ 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

TDK·Lambda



Distribution:





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