2+ Series

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

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 100V, Current up to 72A
- 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





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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:
- AlarmFine ControlPreview SettingsFoldback ModeRemote ModeOutput 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 output jacks (binding post style, Ø 4mm) for modules up to 60V: 24A Max 10. Optional front panel insulated output sockets (Ø 4mm) for modules up to 60V: 24A 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: Rugged Busbars for 6V up to 100V.
- 10. Optional Interface Position for LAN Interface.
- 11. Optional Interface Position for GPIB Interface (shown) or Isolated Analog Interface.

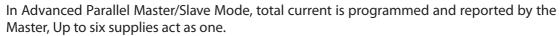


***** Power Benchtop Parallel and Series Configurations

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.





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













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.

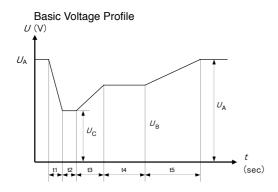
Heater Supplies

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

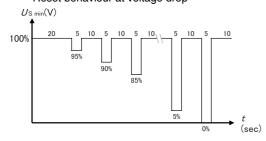
RF Amplifiers and Magnets

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

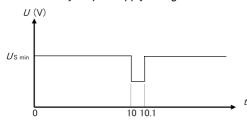
Z⁺ Series Sequence Programming Applications



Reset behaviour at voltage drop



Discontinuities in supply voltage Momentary drop in supply voltage



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

Front Panel Output

Up to 60V Output Module

P/N: Z__--L

P/N: Z__--_L2





Optional front panel output jacks (binding post style, (Ø 4mm) for modules up to 60V: 24A Max

-L

Optional front panel insulated output sockets (Ø 4mm) for modules up to 60V: 24A 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)





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
0~10V	20A	40A	60A	72A
0~20V	10A	20A	30A	40A
0~36V	6A	12A	18A	24A
0~60V	3.5A	7A	10A	14A
0~100V	2A	4A	6A	8A
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 Interface

- IEEE 488.2 SCPI Compliant
- Program Voltage
- Measure Voltage
- Over Voltage setting and shutdown
- Error and Status Messages
- Error and Status IMulti-Drop
- Allows IEEE Master to control up to 31 slaves over RS-485 daisy-chain
- Only the Master needs be equipped with IEEE Interface

Isolated Analog Programming

Four Channels to Program and Monitor Voltage and Current.

Isolation allows operation with floating references in harsh electrical environments.

Choose between programming with Voltage or Current.

Connection via removable terminal block: Phoenix MC1,5/8-ST-3.81.

Voltage Programming, user-selectable 0-5V or 0-10V signal.
 Power Supply Voltage and Current Programming Accuracy ±1%
 Power Supply Voltage and Current Monitoring Accuracy ±1.5%

Current Programming with 4-20mA signal.
 Power Supply Voltage and Current Programming Accuracy ±1%
 Power Supply Voltage and Current Monitoring Accuracy ±1.5%

P/N: IS420

P/N: IS510

P/N: IEEE

P/N: LAN

LAN Interface

VISA & SCPI Compatible

Address Viewable on Front Panel

Fixed and Dynamic Addressing

Compatible with most standard Networks

- TCP / UDP Socket Programming
- LAN Fault Indicators

Program Current

Measure Current

Current Foldback shutdown

- Auto-detects LAN Cross-over Cable
- Fast Startup

AC Cord

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

Communication Cable

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

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

Serial Link Cable*

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

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

^{*} Included with power supply

Power Supply Identification / Accessories How to order

Z	10 -	40-	-	-	
Series	Output Voltage	Output Current	Factory	Output	AC cord Options:
Name	(0~10V)	(0~40A)	Options:	Jacks	Region :
			IEEE		E - Europe
			LAN	L	J - Japan
			IS510	L2	U - North America
			IS420		I - Middle East
					C - China
Factory o	ption		P/N		
USB Interfa	ace built-in Standard	I	-		
RS-232/RS-485 Interface built-in Standard			-		
GPIB Interface			IEEE		
Voltage Programming Isolated Analog Interface			IS510		
Current Programming Isolated Analog Interface		IS420			
LAN Interface			LAN		
Front panel output jacks (binding post style, Ø 4m for modules up to 60V or 24A Max			ım)	L	
Front pane	el insulated output s	ockets (Ø 4mm)			
for module	es up to 60V or 24A l	Max		L2	

Model	Output Voltage (VDC)	Output Current (A)	Output Power (W)
Z10-20		0~20	200
Z10-40	0~10 VDC	0~40	400
Z10-60	0~10 VDC	0~60	600
Z10-72		0~72	720
Z20-10		0~10	200
Z20-20	0~20 VDC	0~20	400
Z20-30	0~20 VDC	0~30	600
Z20-40		0~40	800
Z36-6		0~6	216
Z36-12	0~36 VDC	0~12	432
Z36-18		0~18	648
Z36-24		0~24	864
Z60-3.5		0~3.5	210
Z60-7	0.60VDC	0~7	420
Z60-10	0~60 VDC	0~10	600
Z60-14		0~14	840
Z100-2		0~2	200
Z100-4	0~100VDC	0~4	400
Z100-6	U~100VDC	0~6	600
Z100-8		0~8	800



2.1 Z⁺200 Series Specifications

MO	DEL	7	10.20	20.10	26.6	(0.25	100.2
	DEL ut voltage(*1)	Z V	10-20 10	20-10	36-6 36	60-3.5	100-2 100
				· ·		60	
	ut current (*2) Itput power	A W	200	10 200	6 216	3.5 210	200
3. Rated ou	itput power	VV	200	200	210	210	200
CONSTANT VO	OLTAGE MODE	Z	10-20	20-10	36-6	60-3.5	100-2
1. Max. Line r	egulation (*6)			0.01% (of rated output voltag	ge+2mV	
	regulation (*7)				of rated output voltage		,
	e (p-p, 20MHz) (*8)	mV	50	50	50	50	80
	s. 5Hz~1MHz	mV	5	6	6	7	8
	re coefficient	PPM/°C		PPM/°C from rated ou		·	
	ture stability			out over 8hrs. interval			
	-up drift			0.05% of rated output			
	ompensation/wire	V	1	1	2	3	5
	e time, 0~Vomax.(*9)	mS	15	30	30	50	50
10. Down-prog. respon		5	12	25	30	40	50
To: Down prog. respon	Time delay (*17)		210	250	320	380	1200
	No load (*10) (*15)(*17)	mS	40	65	85	100	250
			200	200	290	310	1100
	No load (*10) (*16)(*17)						
11. Transient	response time	mS		ige to recover within 0			
40.11.11	. (74.0)			et-point: 10~100%, Lo			na including 100v
12. Hold-uj	p time (*19)		15mSec Typical.		16mSec	Typical.	,
CONSTANT C	JRRENT MODE	Z	10-20	20-10	36-6	60-3.5	100-2
	egulation (*6)		10-20		of rated output curre		100-2
					of rated output currei of rated output currei		
	egulation (*11)		1				Lebange
	on thermal drift			n 0.05% of rated outp		inutes following load	
	5Hz~1MHz (*12)	mA	25	15	8	4	3
	re coefficient	PPM/°C		OPPM/°C from rated o			
	ture stability			over 8hrs. interval foll			
7. Warm	-up drift		Less that	an +/-0.1% of rated ou	utput current over 30	minutes following po	ower on.
PROTECTIVE	FUNCTIONS	Z	10-20	20-10	36-6	60-3.5	100-2
PROTECTIVE	FUNCTIONS						
1. Foldback	protection		Docot by AC input room	-down when power sup cle in autostart mode or	bly change mode from C	V to CC or CC to CV. Usi	er presetable.
2. Over-voltage	protection (OVP)		Inverter Shut dow	n method. Reset by A			JIPUI button or by
2.0		.,	0.5.40		NABLE, or by commu		5 440
	age trip point	V	0.5~12	1~24	2~40	5~66	5~110
4. Output under v	oltage limit (UVL)			communication port. Preve			
5. Output under volt	age protection (UVP)			vn when power supply			
			Reset by AC input recy	cle in autostart mode or			by communication port
6. Over tempera	ature protection			User sele	ctable, latched or no	n latched.	
ANALOG PROGRAMMING A	ND MONITORING						
	e programming		0 1000/ 0	~5V or 0~10V, user se	actable Accuracy an	d linearity 1 / 0 E0/ o	fratad Vaut
	ogramming (*13)			0~5V or 0~10V, user se			
	r programming			10Kohm full scale, us			
	ogramming (*13)			10Kohm full scale, use			
	(SO) control		Ву е	lectrical Voltage: 0~0			ogic.
	nt monitor (*13)				V, user selectable. Ac		
	ltage monitor				V, user selectable. Ac		
	ply OK signal		5		V-Fail. 500ohm serie		
	peration (*20)		Possible, up	to 6 units in master/s			e connection.
	operation				al units (with externa		
	indicator			C mode: On, CV mode			
	(ILC) control		I Enables/Disables the DS of	utput by dry contact (Short:	On Open Off Source current	nt: less than 0.5mA). Ena/Dis	is activated by front pane
						_	
14 Local/Remote	te mode Control		By electr	ical signal or Open/SI	nort: 0~0.6V or short:		
i T. LOCAI/ NEI IIOU	te mode Control e mode Indicator		By electr Open collector (shur	rical signal or Open/Sl nted by 36V zener). Or	nort: 0~0.6V or short: 1 (0~0.6V, 10mA sink c	urrent max.)-Remote	Off-Local (30V max.)
	e mode Indicator		By electr Open collector (shur	ical signal or Open/SI	nort: 0~0.6V or short: 1 (0~0.6V, 10mA sink c	urrent max.)-Remote	Off-Local (30V max.)
			By electr Open collector (shur	rical signal or Open/Sl nted by 36V zener). Or I output =0.8V, Minim	nort: 0~0.6V or short: 1 (0~0.6V, 10mA sink c	urrent max.)-Remote t =3.8V, Maximum hi	Off-Local (30V max.)
15.Trig	e mode Indicator ger out		By electr Open collector (shur Maximum low leve	ical signal or Open/SI nted by 36V zener). Or I output =0.8V, Minim Maximum sourc	nort: 0~0.6V or short: n (0~0.6V, 10mA sink c num high level outpu e current =16mA, pul	urrent max.)-Remote t =3.8V, Maximum hi se =20µs Typical.	Off-Local (30V max.) gh level output =5V,
15.Trig	e mode Indicator		By electr Open collector (shur Maximum low leve Maximum low le	ical signal or Open/SI nted by 36V zener). Or I output =0.8V, Minim Maximum sourc vel input =1.2V, Minir	nort: 0~0.6V or short: 1 (0~0.6V, 10mA sink comments on the control of the contr	urrent max.)-Remote t =3.8V, Maximum hi se =20µs Typical. =3.5V, Maximum hig	Off-Local (30V max.) gh level output =5V, h level input =5V,
15.Trig	e mode Indicator ger out gger in		By electr Open collector (shur Maximum low leve Maximum low le Maximum sink o	rical signal or Open/SI nted by 36V zener). Or Il output =0.8V, Minim Maximum sourc vel input =1.2V, Minir current =16mA, positi	nort: 0~0.6V or short: 1 (0~0.6V, 10mA sink on 1 mum high level outpu 1 e current =16mA, pul 1 mum high level input 1 ve edge, trigger: tw	urrent max.)-Remote t =3.8V, Maximum hig se =20μs Typical. =3.5V, Maximum hig 10μs minimum, Tr/Tí	Off-Local (30V max.) gh level output =5V, h level input =5V, =1µs maximum.
15.Trig 16.Trig 17. Program	e mode Indicator ger out gger in med signal 1		By electr Open collector (shur Maximum low leve Maximum low le Maximum sink o Open collector	ical signal or Open/SI nted by 36V zener). Or I output =0.8V, Minim Maximum sourc vel input =1.2V, Minim current =16mA, positi r, maximum voltage 2	nort: 0~0.6V or short: 1 (0~0.6V, 10mA sink on 1 inum high level outpu 1 inum high level input 2 inum high level input 3 inum high level input 4 inum high level input 5 inum sink cui	urrent max.)-Remote. t =3.8V, Maximum hig se =20µs Typical. =3.5V, Maximum hig 10µs minimum, Tr/Tf rrent 100mA. (Shunte	Off-Local (30V max.) gh level output =5V, h level input =5V, =1µs maximum. d by 27V zener)
15.Trig 16.Trig 17. Program	e mode Indicator ger out gger in		By electr Open collector (shur Maximum low leve Maximum low le Maximum sink o Open collector	rical signal or Open/SI nted by 36V zener). Or Il output =0.8V, Minim Maximum sourc vel input =1.2V, Minir current =16mA, positi	nort: 0~0.6V or short: 1 (0~0.6V, 10mA sink on 1 inum high level outpu 1 inum high level input 2 inum high level input 3 inum high level input 4 inum high level input 5 inum sink cui	urrent max.)-Remote. t =3.8V, Maximum hig se =20µs Typical. =3.5V, Maximum hig 10µs minimum, Tr/Tf rrent 100mA. (Shunte	Off-Local (30V max. gh level output =5V, h level input =5V, =1µs maximum. d by 27V zener)
15.Trig 16.Trig 17. Program 18. Program	e mode Indicator ger out gger in med signal 1		By electr Open collector (shur Maximum low leve Maximum low le Maximum sink o Open collector	ical signal or Open/SI nted by 36V zener). Or I output =0.8V, Minim Maximum sourc vel input =1.2V, Minim current =16mA, positi r, maximum voltage 2	nort: 0~0.6V or short: 1 (0~0.6V, 10mA sink on 1 inum high level outpu 1 inum high level input 2 inum high level input 3 inum high level input 4 inum high level input 5 inum sink cui	urrent max.)-Remote. t =3.8V, Maximum hig se =20µs Typical. =3.5V, Maximum hig 10µs minimum, Tr/Tf rrent 100mA. (Shunte	Off-Local (30V max. gh level output =5V, h level input =5V, =1µs maximum. d by 27V zener)
15.Trig 16.Trig 17. Program 18. Program	e mode Indicator ger out gger in med signal 1		By electr Open collector (shur Maximum low leve Maximum low le Maximum sink o Open collector	ical signal or Open/Sl nted by 36V zener). Or I output =0.8V, Minim Maximum sourc vel input =1.2V, Minir current =16mA, positi c, maximum voltage 2 c, maximum voltage 2	nort: 0~0.6V or short: 1 (0~0.6V, 10mA sink on 1 inum high level outpu 1 inum high level input 2 inum high level input 3 inum high level input 4 inum high level input 5 inum sink cui	turrent max.)-Remote. t =3.8V, Maximum higse =20µs Typical. =3.5V, Maximum higstop: 10µs minimum, Tr/Tirrent 100mA. (Shunterrent 100mA. (Shunterrent 100mA. (Shunterrent 100mA.)	Off-Local (30V max. gh level output =5V, h level input =5V, =1µs maximum. d by 27V zener)
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15.Trig 16.Trig 17. Program 18. Program	e mode Indicator ger out gger in med signal 1		By electr Open collector (shur Maximum low leve Maximum low le Maximum sink o Open collector	ical signal or Open/SI nted by 36V zener). Or I output =0.8V, Minim Maximum sourc vel input =1.2V, Minir turrent =16mA, positi r, maximum voltage 2 maximum voltage 2 Multi	nort: 0~0.6V or short: 1 (0~0.6V, 10mA sink of 1 (0~0.6V, 10mA sink of 1 (0~0.6V, 10mA sink of 1 (0 mut) sink of 1 (0 mut) sink of 2 (0 mut) sink of 2 (1 mut) sink of 2 mut) sink of 3 mut) sink of	current max.)-Remote. t =3.8V, Maximum his se =20µs Typical. =3.5V, Maximum his 10µs minimum, Tr/Tf rrent 100mA. (Shunter rent 100mA. (Shunter coders	Off-Local (30V max.) gh level output =5V, h level input =5V, =1µs maximum. d by 27V zener)
15.Trig 16.Trig 17. Program 18. Program FRONT PANEL	e mode Indicator ger out gger in med signal 1 med signal 2		By electr Open collector (shur Maximum low leve Maximum low le Maximum sink o Open collector	ical signal or Open/SI nted by 36V zener). Or I output =0.8V, Minim Maximum sourc vel input =1.2V, Minir turrent =16mA, positi t, maximum voltage 2 t, maximum voltage 2 Multip V OVI	nort: 0~0.6V or short: 1 (0~0.6V, 10mA sink of 1 (0~0.6V, 10mA sink of 1 (0~0.6V, 10mA sink of 1 (0~0.6V, 10mA, pul 1 (0~0.6V, 10mA, pul 2 (0~0.6V,	current max.)-Remote. t =3.8V, Maximum his se =20µs Typical. =3.5V, Maximum his 10µs minimum, Tr/Ti rrent 100mA. (Shunter rent 100mA. (Shunter coders st	Off-Local (30V max.) gh level output =5V, h level input =5V, =1µs maximum. d by 27V zener)
15.Trig 16.Trig 17. Program 18. Program FRONT PANEL	e mode Indicator ger out gger in med signal 1		By electr Open collector (shur Maximum low leve Maximum low le Maximum sink o Open collector Open collector	ical signal or Open/SI nted by 36V zener). Or I output =0.8V, Minim Maximum sourc vel input =1.2V, Minim urrent =16mA, positi , maximum voltage 2 , maximum voltage 2 Multip V OVF Protection Function	nort: 0~0.6V or short: 0~0.6V or short: 0.0~0.6V, 10mA sink on the short of the sho	turrent max.)-Remote. t =3.8V, Maximum higse =20µs Typical. =3.5V, Maximum higse 10µs minimum, Tr/Tirrent 100mA. (Shunterrent 100mA. (Shunterrent 100mA.) coders ist djust ddback, OCP, INT, SO	Off-Local (30V max.) gh level output =5V, h level input =5V, =1µs maximum. d by 27V zener) d by 27V zener)
15.Trig 16.Trig 17. Program 18. Program FRONT PANEL	e mode Indicator ger out gger in med signal 1 med signal 2		By electr Open collector (shur Maximum low leve Maximum low le Maximum sink o Open collector Open collector	ical signal or Open/SI nted by 36V zener). Or l output =0.8V, Minim Maximum sourc vel input =1.2V, Minim urrent =16mA, positi , maximum voltage 2 , maximum voltage 2 Multip V OVE Protection Function	nort: 0~0.6V or short: 0~0.6V or short: 0.0~0.6V, 10mA sink on the properties of the	turrent max.)-Remote. t =3.8V, Maximum his se =20µs Typical. =3.5V, Maximum his e=20µs Typical. (Shunterrent 100mA. (Shunterrent 100mA. (Shunterrent 100mA.) coders ist dijust dback, OCP, INT, SO N,IEEE,RS232,RS485,U	Off-Local (30V max.) gh level output =5V, h level input =5V, =1µs maximum. d by 27V zener) d by 27V zener)
15.Trig 16.Trig 17. Program 18. Program FRONT PANEL	e mode Indicator ger out gger in med signal 1 med signal 2		By electr Open collector (shur Maximum low leve Maximum low le Maximum sink c Open collector Open collector	ical signal or Open/SI nted by 36V zener). Or I output =0.8V, Minim Maximum sourc vel input =1.2V, Minim :urrent =16mA, positi ;, maximum voltage 2 ;, maximum voltage 2 Multip V OVF Protection Function ommunication Fu	nort: 0~0.6V or short: 0~0.6V or short: 0.0~0.6V, 10mA sink of 10 migh level output e current =16mA, pull num high level input we edge, trigger: tw = 5V,maximum sink cursty,maximum sink	turrent max.)-Remote. t =3.8V, Maximum his se =20µs Typical. =3.5V, Maximum his 10µs minimum, Tr/Tirrent 100mA. (Shunterent 100mA. (Shunterent 100mA.) coders st dijust dback, OCP, INT, SO N,IEEE,RS232,RS485,U Baud Rate, Address	Off-Local (30V max.) gh level output =5V, h level input =5V, =1µs maximum. d by 27V zener) d by 27V zener)
15.Trig 16.Trig 17. Program 18. Program FRONT PANEL	e mode Indicator ger out gger in med signal 1 med signal 2		By electr Open collector (shur Maximum low leve Maximum low le Maximum sink c Open collector Open collector Collector Analog Control Fu	ical signal or Open/SI nted by 36V zener). Or I output =0.8V, Minim Maximum sourc vel input =1.2V, Minim rurrent =16mA, positi r, maximum voltage 2 Multin V OVF Protection Function communication Function Communication Function communication Function communication Function communication Function communication Function	nort: 0~0.6V or short: 0~0.6V or short: 0.0~0.6V, 10mA sink of the properties of the	turrent max.)-Remote. t =3.8V, Maximum his se =20µs Typical. =3.5V, Maximum his 10µs minimum, Tr/Tf trent 100mA. (Shunter trent 100mA. (Shunter) trent 100mA. (Shunter trent 10	Off-Local (30V max.) gh level output =5V, h level input =5V, =1µs maximum. d by 27V zener) d by 27V zener)
15.Trig 16.Trig 17. Program 18. Program FRONT PANEL	e mode Indicator ger out gger in med signal 1 med signal 2		By electr Open collector (shur Maximum low leve Maximum sink of Open collector Open collector Open collector Analog Control Fu	ical signal or Open/SI nted by 36V zener). Or I output =0.8V, Minim Maximum sourc vel input =1.2V, Minim current =16mA, positi r, maximum voltage 2 maximum voltage 2 Multi V OVF Protection Functio communication Functi Communication Fu unctions - Selection V tions - Selection of Volt	nort: 0~0.6V or short: 0~0.6V or short: 0.0~0.6V, 10mA sink of the properties of the	turrent max.)-Remote. t =3.8V, Maximum higse =20µs Typical. =3.5V, Maximum higse =10µs minimum, Tr/Tf trent 100mA. (Shunter trent 1	Off-Local (30V max.) gh level output =5V, h level input =5V, =1µs maximum. d by 27V zener) d by 27V zener)
15.Trig 16.Trig 17. Program 18. Program FRONT PANEL 1. Control	e mode Indicator ger out gger in med signal 1 med signal 2		By electr Open collector (shur Maximum low leve Maximum sink o Open collector Open collector Collector Analog Control Func	ical signal or Open/Sl nted by 36V zener). Or I output =0.8V, Minim Maximum sourc vel input =1.2V, Minim turrent =16mA, positi t, maximum voltage 2 Multip V OVF Protection Function communication Functi Communication Functions - Selection of Volt vout: 4 digits, accuract	nort: 0~0.6V or short: 0~0.6V or short: 1 (0~0.6V, 10mA sink of 10 to the current = 16mA, pul num high level input we edge, trigger: tw = 5V,maximum sink cur 5V,maximum sink cur 5V,maximum sink cur 5V,maximum sink cur 10 to the current sink cu	turrent max.)-Remote. t =3.8V, Maximum his se =20µs Typical. =3.5V, Maximum hig 10µs minimum, Tr/Ti trent 100mA. (Shunter trent 100	Off-Local (30V max.) gh level output =5V, h level input =5V, =1µs maximum. d by 27V zener) d by 27V zener) SB 10K programming OFF, Front Panel Lock
15.Trig 16.Trig 17. Program 18. Program FRONT PANEL 1. Control	e mode Indicator ger out gger in med signal 1 med signal 2		By electr Open collector (shur Maximum low leve Maximum sink o Open collector Open collector Collector Analog Control Func	ical signal or Open/SI nted by 36V zener). Or I output =0.8V, Minim Maximum sourc vel input =1.2V, Minim turrent =16mA, positi t, maximum voltage 2 t, maximum voltage 2 t, maximum voltage 2 Multin V OVF Protection Functio communication Functi Communication Function - Selection V tions - Selection of Volt Vout: 4 digits, accurac lout: 4 digits, accurac	nort: 0~0.6V or short: 0~0.6V or short: 1 (0~0.6V, 10mA sink of 10 me high level output e current = 16mA, pul mum high level input ve edge, trigger: tw = 5V,maximum sink cursus of 10 me high level input ve edge, trigger: tw = 5V,maximum sink cursus of 10 me high level input out/lout manual adjut/lov/L/UVP manual adjut/lov/L/UVP, Folons - Selection of oldage/current Monitorin: 2y: 0.5% of rated outpy: 0.5%	turrent max.)-Remote. t =3.8V, Maximum higse =20µs Typical. =3.5V, Maximum higse =10µs minimum, Tr/Tirrent 100mA. (Shunterrent 100mA. (Shunterren	Off-Local (30V max.) gh level output =5V, h level input =5V, =1µs maximum. d by 27V zener) d by 27V zener) SB 10K programming OFF, Front Panel Lock
15.Trig 16.Trig 17. Program 18. Program FRONT PANEL 1. Control	e mode Indicator ger out gger in med signal 1 med signal 2		By electr Open collector (shur Maximum low leve Maximum sink o Open collector Open collector Collector Analog Control Func	ical signal or Open/Sl nted by 36V zener). Or l output =0.8V, Minim Maximum sourc vel input =1.2V, Minim turrent =16mA, positi V OVF Protection Function ommunication Function ommunication Function communication Function ommunication Function ommunication of Volt Vout: 4 digits, accurac GREEN LEDs: FINE,	nort: 0~0.6V or short: 0~0.6V or short: 1 (0~0.6V, 10mA sink of the properties of th	turrent max.)-Remote: t = 3.8V, Maximum higse = 20µs Typical. = 3.5V, Maximum higse = 10µs minimum, Tr/Tirrent 100mA. (Shunterrent 100mA. (Shunter	Off-Local (30V max.) gh level output =5V, h level input =5V, =1µs maximum. d by 27V zener) d by 27V zener)
15.Trig 16.Trig 17. Program 18. Program FRONT PANEL 1. Control 2. Di 3. Indi	e mode Indicator ger out gger in med signal 1 med signal 2		By electr Open collector (shur Maximum low leve Maximum sink o Open collector Open collector Collector Analog Control Func	ical signal or Open/SI nted by 36V zener). Or l output =0.8V, Minim Maximum sourc vel input =1.2V, Minim rurrent =16mA, positi r, maximum voltage 2 , maximum voltage 2 , maximum voltage 2 Multip V OVF Protection Function communication Functi Communication Function voltage 2 incommunication function communication funct	nort: 0~0.6V or short: 0~0.6V or short: 1 (0~0.6V, 10mA sink of 10 me high level output e current = 16mA, pul mum high level input ve edge, trigger: tw = 5V,maximum sink cursus of 10 me high level input ve edge, trigger: tw = 5V,maximum sink cursus of 10 me high level input out/lout manual adjut/lov/L/UVP manual adjut/lov/L/UVP, Folons - Selection of oldage/current Monitorin: 2y: 0.5% of rated outpy: 0.5%	current max.)-Remote. t = 3.8V, Maximum his se = 20µs Typical. = 3.5V, Maximum his = 10µs minimum, Tr/Ti rent 100mA. (Shunterent 100mA. (Shuntere	Off-Local (30V max.) gh level output =5V, h level input =5V, =1µs maximum. d by 27V zener) d by 27V zener)



PROGRAMMING AND READBACK (RS232/485,USB, Optional: IEEE, LAN)

1. Vout programming accuracy	 0.05% of rated output voltage
2. lout programming accuracy (*13)	 0.1% of actual +0.1% 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 rated output voltage
6. lout readback accuracy (*13)	 0.1% of actual +0.3% of rated output current
7. Vout readback resolution	 0.012% of full scale
8. lout readback resolution	 0.012% of full scale

INPUT CHARACTERISTICS	Z	10-20	20-10	36-6	60-3.5	100-2
1. Input voltage/freq. (*3)			85~265Vac	continuous, 47~63Hz,	single phase	
2. Maximum Input current 100/200VAC (*4) (*18)		2.65/1.31	2.62/1.29	2.76/1.37	2.69/1.33	2.55/1.26
3. Power Factor (Typ)			>0.99 at 10	00Vac, >0.98 at 200Va	c,100% load	
4. Efficiency (Typ) 100/200VAC (*4) (*18)	%	76/77.5	77/79	79/80.5	79/80.5	79/81
5. Inrush current 100/200VAC (*5)				Less than 15A/30A		

ENVIRONMENTAL CONDITIONS

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	5 Altitude	Maximum 3000m. Derate ambient temp above 2000m.
5. Attitude		Operating: Maximum ambient temperature, From 2000m up to 3000m Ambient temperature 40°C.

SAFFTY/FMC

SAFETY/EIVIC		
1. Applicable standards:	Safety	 UL61010-1, EN61010-1, IEC61010-1. Design to meet UL60950-1, EN60950-1 10V≤Vout≤60V: Output,J1,J2,J3,J4,USB,LAN,IEEE/ISOLATED Analog are Non Hazardous Vout=100V:Output,J1,J2 are Hazardous J3,J4,USB, IEEE/ISOLATED Analog ,LAN are Non Hazardous
	EMC	 IEC/EN61326-1 (Built to meet EN55022/EN55024)
2. Withstand voltage		 10≤Vout≤36V models: Input-Output&J1,J2,J3,J4,USB,LAN/IEEE/ISOLATED ANALOG: 4242VDC/1min; Input-Ground: 2828VDC/1min. Output&J1,J2,J3,J4,USB,LAN/IEEE/ISOLATED ANALOG-Ground: 707VDC/1min. 60V,100V models: Input-Output&J1,J2: 4242VDC/1min; Input-J3,J4,USB,LAN/IEEE/ISOLATED Analog: 4242VDC/1min; Input-Ground: 2828VDC/1min. Output&J1,J2- J3,J4,USB,LAN/IEEE/ISOLATED ANALOG: 1910VDC/1min; Output&J1,J2-Ground: 1380VDC/1min. J3, J4, USB/LAN/IEEE/ISOLATED ANALOG - Ground: 707VDC/1min;
3. Insulation resistance		 More than 100Mohm at 25°C, 70%RH.
4. Conducted emission		 IEC/EN61326-1 Industrial Location - B, FCC part 15-B, VCCI-B
5. Radiated emission		 IEC/EN61326-1 Industrial Location - A, FCC part 15-A, VCCI-A

MECHANICAL

1. Co	1. Cooling		Forced air cooling by internal fan.
2. Weight	STANDARD	Kg	Less than 1.9Kg.
2. Weight	WIDE BODY	Kg	Less than 2.4Kg. Wide body with Isolated analog or Binding post or IEEE.
3 Dimensions (MyHyD)	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. SI	5. Shock		Less than 20G, half sine, 11mS. Unit is unpacked. According to: IEC60068-2-27

- *1: Minimum voltage is guaranteed to maximum 0.1% of rated output voltage.
- *2: Minimum current is guaranteed to maximum 0.2% of rated output current.
- *3: For cases where conformance to various safety standards (UL, IEC, etc...) is required, to be described as 100-240Vac (50/60Hz).
- *4: Ta=25°C with rated output power.
- *5: Not including EMI filter inrush current, less than 0.2mSec at cold start Ta=25°C
- *6: At 85~132Vac or 170~265VAC, constant load.
- *7: From No-Load to Full-Load, constant input voltage. Measured at the sensing point in Remote Sense.
- *8: Measured with JEITA RC-9131A (1:1) probe.
- *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: For 10V model the ripple is measured at 2V to rated output voltage and rated output current. For other models, the 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 JEITA RC-9131A (1:1) probe.
- *15: For cases where the time interval between each down programming is longer than Td (time delay).
- *16: For cases where the time interval between each down programming is shorter than Td (time delay).
- *17: Td typical Minimum time between consecutive down programming cycles.
- *18: PS with Lan, IEEE, models decrease efficiency by 0.5% and increase input current by 0.5%. PS with Isolated analog option decreases efficiency by 1.5% and increases input current by 1.5%.
- *19: At rated output power.
- *20: For Parallel operation more than 2 units 5% of total output current is requierd.



2.2 Z⁺400 Series Specifications

	MODEL	7	10.40	20.20	26 12	60.7	100.4
1 Rate	ed output voltage(*1)	Z V	10-40 10	20-20	36-12 36	60-7 60	100-4 100
	ed output current (*2)	A	40	20	12	7	4
	lated output power	W	400	400	432	420	400
	TANT VOLTAGE MODE	Z	10-40	20-20	36-12	60-7	100-4
	x. Line regulation (*6)		10-40		of rated output voltage		100-4
	x. Load regulation (*7)				of rated output voltage		
	nd noise (p-p, 20MHz) (*8)	mV	50	50	50	50	80
	pple r.m.s. 5Hz~1MHz	mV	5	6	6	7	8
	nperature coefficient	PPM/°C		PPM/°C from rated ou		ng 30 minutes warm-	
6. Te	emperature stability		0.02% of rated Vo	out over 8hrs. interva	following 30 minute	s warm-up. Constant	line, load & temp.
	7. Warm-up drift		Less than	0.05% of rated output	t voltage+2mV over :	30 minutes following	
	sense compensation/wire	V	1	1	2	3	5
	Response time, 0~Vomax.(*9)	mS	15	30	30	50	50
10. Down-prog	response time: Full load (*9)		10	10 250	15 320	30 380	50
	Time delay (*17) No load (*10) (*15) (*17)	mS	210 40	65	85	100	1200 250
	No load (*10) (*16) (*17)		200	200	290	310	1100
	No load (10) (10) (17)			age to recover within (
11. Tra	ansient response time	mS		et-point: 10~100%, Lo			
12.	Hold-up time (*19)		15mSec Typical.			Typical.	
				20.00			100.4
	TANT CURRENT MODE	Z	10-40	20-20	36-12	60-7	100-4
	x. Line regulation (*6) . Load regulation (*11)				of rated output currer of rated output currer		<u>, </u>
	regulation (* 1 1)		l acc tha	0.01% on 0.05% of rated out			change
	e r.m.s. 5Hz~1MHz (*12)	mA	70	40	15	8	3
	nperature coefficient	PPM/°C		OPPM/°C from rated o		<u> </u>	
	emperature stability			over 8hrs. interval foll			
	7. Warm-up drift			an +/-0.1% of rated or			
DDOT	FECTIVE FUNCTIONS	Z	10-40	20-20	26.12	60-7	100-4
PROI	TECTIVE FUNCTIONS			ut-down when power sup	36-12		
1. Fe	oldback protection		Reset by AC input rec	ycle in autostart mode or	by OUTPUT button or by	rear panel ENABLE, or by	communication port.
2. Over-v	voltage protection (OVP)		Inverter Shut dow	n method. Reset by A rear panel El	C input recycle in aut NABLE, or by commui		JTPUT button or by
3. Ove	er - voltage trip point	V	0.5~12	1~24	2~40	5~66	5~110
4. Output	under voltage limit (UVL)		Preset by front panel or communication port. Prevents from adjusting Vout below limit. Does n in analog programming.			imit. Does not affect	
5. Output un	der voltage protection (UVP)			n when power supply o			
6. Over t	temperature protection		nesees) nempariee)		ctable. Latched or no		y communication porti
	MING AND MONITORING voltage programming		0100% 0-	~5V or 0~10V, user se	loctable Accuracy an	d linearity: 1 / 0 50/ o	f rated Vout
	Itage programming (*13)			0~5V or 0~10V, user se			
	resistor programming						
	sistor programming (*13)		0~100%, 0~5/10Kohm full scale, user selectable. Accuracy and linearity: +/-1% of rated Vout. 0~100%, 0~5/10Kohm full scale, user selectable. Accuracy and linearity: +/-1.5% of rated lout.				
	hut Off (SO) control			electrical Voltage: 0~0			
6. Outpu	ut current monitor (*13)				V, user selectable. Ac		
7. Out	tput voltage monitor		0~5V or 0~10V, user selectable. Accuracy: +/-1%.				
	wer supply OK signal			4~5V-OK, 0	V-Fail. 500ohm serie	s resistance.	
	rallel operation (*21)		Possible, up to 6 units in master/slave mode with single wire current balance connection.				
). Series operation				al units (with externa		
	1. CV/CC indicator			C mode: On, CV mod			
	nterlock (ILC) control			output by dry contact (Short:			
	I/Remote mode Control /Remote mode Indicator			rical signal or Open/S			
14. LOCAL				nted by 36V zener). Or I output =0.8V, Minin			
	15.Trigger out		Maximum low leve		e current =16mA, pul		gii ievei output –5V,
			Maximum low le	evel input =1.2V, Minir			h level input –5V
	16.Trigger in			current =16mA, positi			
17. P	Programmed signal 1			, maximum voltage 2			
	Programmed signal 2			, maximum voltage 2			
				,	,		
FRONT PANEL					ala antione with 2 En	codors	,
					ole options with 2 En		
			1		out/lout manual adju P/UVL /UVP manual ad		
					ns - OVP, UVL, UVP, Fo		
1.	Control functions		Com	munication Function			5.USB
			Com		nctions - Selection of		-,500
			Analog Control Fu	unctions - Selection V			10K programming
				tions - Selection of Volt			
	2.00			Vout: 4 digits, accura			
	2. Display			lout: 4 digits, accurac			
	3. Indications				MENU, PREV, PROT, R		
					OT (OVP, UVP, OTP, FC		
	Function buttons			EINIE ME	NU, PREV, PROT, REM	OLITRUIT	



PROGRAMMING AND READBACK (RS232/485,USB, Optional: IEEE(*20), LAN)

1. Vout programming accuracy	 0.05% of rated output voltage
2. lout programming accuracy (*13)	 0.1% of actual +0.1% 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 rated output voltage
6. lout readback accuracy (*13)	 0.1% of actual +0.3% of rated output current
7. Vout readback resolution	 0.012% of full scale
8. lout readback resolution	 0.012% of full scale

INPUT CHARACTERISTICS	Z	10-40	20-20	36-12	60-7	100-4
1. Input voltage/freq. (*3)			85~265Vac	continuous, 47~63Hz,	single phase	
2. Maximum Input current 100/200VAC (*4) (*18)		5.05/2.47	4.98/2.45	5.25/2.57	5.10/2.50	4.80/2.37
3. Power Factor (Typ)			0.99	at 100/200Vac, 100%	load	
4. Efficiency (Typ) 100/200VAC (*4) (*18)	%	80/82	81/83	83/85	83/85	84/86
5. Inrush current (*5)				Less than 25A		

ENVIRONMENTAL CONDITIONS

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		
1. Applicable standards:	Safety	 UL61010-1, EN61010-1, IEC61010-1. Design to meet UL60950-1, EN60950-1 10V≤Vout≤60V: Output,J1,J2,J3,J4,USB,LAN,IEEE/ISOLATED Analog are Non Hazardous Vout=100V:Output,J1,J2 are Hazardous J3,J4,USB, IEEE/ISOLATED Analog ,LAN are Non Hazardous
	EMC	 IEC/EN61326-1 (Built to meet EN55022/EN55024)
2. Withstand voltage		 10≤Vout≤36V models: Input-Output&J1,J2,J3,J4,USB,LAN/IEEE/ISOLATED ANALOG: 4242VDC/1min; Input-Ground: 2828VDC/1min. Output&J1,J2,J3,J4,USB,LAN/IEEE/ISOLATED ANALOG-Ground: 707VDC/1min. 60V,100V models: Input-Output&J1,J2: 4242VDC/1min; Input-J3,J4,USB,LAN/IEEE/ISOLATED Analog: 4242VDC/1min; Input-Ground: 2828VDC/1min; Output&J1,J2-Ground: 0utput&J1,J2- J3,J4,USB,LAN/IEEE/ISOLATED ANALOG: 1910VDC/1min; Output&J1,J2-Ground: 1380VDC/1min. J3, J4, USB/LAN/IEEE/ISOLATED ANALOG - Ground: 707VDC/1min;
3. Insulation resistance		 More than 100Mohm at 25°C, 70%RH.
4. Conducted emission		 IEC/EN61326-1 Industrial Location - B, FCC part 15-B, VCCI-B
5. Radiated emission		 IEC/EN61326-1 Industrial Location - A, FCC part 15-A, VCCI-A

MECHANICAL

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

- *1: Minimum voltage is guaranteed to maximum 0.1% of rated output voltage.
- *2: Minimum current is guaranteed to maximum 0.2% of rated output current.
- *3: For cases where conformance to various safety standards (UL, IEC, etc...) is required, to be described as 100-240Vac (50/60Hz).
- *4: Ta=25°C with rated output power.
- *5: Not including EMI filter inrush current, less than 0.2mSec.
- *6: At 85~132Vac or 170~265VAC, constant load.
- *7: From No-Load to Full-Load, constant input voltage. Measured at the sensing point in Remote Sense.
- *8: Measured with JEITA RC-9131A (1:1) probe.
- *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: For 10V model the ripple is measured at 2V to rated output voltage and rated output current. For other models, the 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 JEITA RC-9131A (1:1) probe.
- *15: For cases where the time interval between each down programming is longer than Td (time delay).
- *16: For cases where the time interval between each down programming is shorter than Td (Time delay).
- *17: Td typical Minimum time between consecutive down programming cycles.
- *18: PS with Lan, IEEE, models decrease efficiency by 0.25% and increase input current by 0.25%. PS with Isolated analog option decreases efficiency by 0.75% and increases input current by 0.75%.
- *19: At rated output power.
- *20: Max. ambient temperature for using IEEE is 45°C
- *21: For Parallel operation more than 2 units 5% of total output current is requierd.



2.3 Z⁺600 Series Specifications

		-	10.50	20.20	26.40	60.40	100 (
	DDEL (*1)	Z	10-60	20-30	36-18	60-10	100-6
	out voltage(*1)	V	10	20	36	60	100
	out current (*2)	A	60	30	18	10	6
3. Rated ou	utput power	W	600	600	648	600	600
CONICTANITY	OLTAGEMODE		10.00	20.20	26.10	60.10	100.6
	OLTAGE MODE	Z	10-60	20-30	36-18	60-10	100-6
	regulation (*6)				of rated output voltage		
	regulation (*7)			i .	of rated output voltag		
	e (p-p, 20MHz) (*8)	mV	50	50	50	50	80
	.s. 5Hz~1MHz	mV	5	5	5	12	15
	ure coefficient	PPM/°C		PPM/°C from rated ou			
	ture stability			out over 8hrs. interval			
	n-up drift			0.05% of rated outpu			/
	compensation/wire	V	1 50	1	2	3	5
	se time, 0~Vomax.(*9)	mS	50	50	50	50	100
10. Down-prog. respo			25	25	25	25	80
	Time delay (*17)	mS	285	425	450	570	1370
	No load (*10) (*15)(*17)		65	110	155	175	375
	No load (*10) (*16)(*17)		280	470	470	500	1200
11. Transient	response time	mS		age to recover within (
12 11-11	(*10)			set-point: 10~100%, Lo	Cai sense. Less than Tr		na including 100v
12. Hold-u	p time (*18)		15mSec	c Typical.		20mSec Typical.	
CONCTANT	IDDENT HODE	_	10.60	20.20	26.40	60.40	100.6
	URRENT MODE	Z	10-60	20-30	36-18	60-10	100-6
	regulation (*6)				of rated output curre		
	egulation (*11)		1 .1		of rated output curre		
	ion thermal drift			n 0.15% of rated out		inutes following load	
	5Hz~1MHz (*12)	mA	150	75	25	8	5
	ure coefficient	PPM/°C		0PPM/°C from rated o			
6. Temperat	ture stability			over 8hrs. interval foll			·
7. Warm	n-up drift		20V, 36V Model:	ess than +/-0.3% of ra Less than +/-0.15% o ls: Less than +/-0.1% o	f rated output curren	t over 30 minutes fol	lowing power on.
PROTECTIVE	FUNCTIONS	Z	10-60	20-30	36-18	60-10	100-6
1. Foldback	k protection			own when power supp cle in autostart mode or			
2. Over-voltage	protection (OVP)			n method. Reset by A		ostart mode or by O	
3. Over -volt	age trip point	V	0.5~12	1~24	2~40	5~66	5~110
	voltage limit (UVL)		Preset by front panel or	r communication port. Prev	ents from adjusting Vout b	elow limit. Does not affect	in analog programming.
·	tage 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 po				ng. User presetable.
6. Over temper	ature protection				ctable. Latched or no		
	•						
ANALOG PROGRAMMING A			0.4000: -	F)/ 0 101/	L L. L A	11	C
	e programming			~5V or 0~10V, user se			
	rogramming (*13)			0~5V or 0~10V, user s			
	r programming			10Kohm full scale, us			
	rogramming (*13)			10Kohm full scale, use			
	(SO) control nt monitor (*13)		By 6	electrical Voltage: 0~0	1.6V/4~15V or dry con IV, user selectable. Ac		iogic.
	ltage monitor oply OK signal				IV, user selectable. Ac IV-Fail. 500ohm serie:		
	peration (*20)		Possible up	to 6 units in master/s			e connection
	operation (*20)		rossible, up		cal units (with externa		e connection.
	C indicator		Open collector (CC mode: On, CV mod			ink current: 10m A
	(ILC) control			PS output by dry cont		Off, Source current: les	
13. Local/Remo	13. Local/Remote mode Control		Bv electi	rical signal or Open/S			pen: Local
	te mode Indicator			nted by 36V zener). Or			
				el output =0.8V, Minim			
	gger out gger in		Maximum low le	Maximum sourcevel input =1.2V, Minir	e current =16mA, pul mum high level input	lse =20µs Typical. =3.5V, Maximum hig	h level input =5V,
	gger in Inmed signal 1			current =16mA, positi , maximum voltage 2			
18. Programmed signal 2 Open collector, maximum voltage 25V, maximum sink current 100mA. (Shunted by 27V zener)							

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FRONT PANEL

FROINT FAINEL		
		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 (*19), 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.
2. Display		Vout: 4 digits, accuracy: 0.5% of rated output voltage+/-1 count.
2. Display		lout: 4 digits, accuracy: 0.5% of rated output current+/-1 count.
3. Indications		GREEN LEDs: FINE, MENU, PREV, PROT, REM, OUTPUT, CV, CC
		RED LED: PROT (OVP, UVP, OTP, FOLD, AC FAIL).
4. Function buttons		FINE, MENU, PREV, PROT, REM, OUTPUT
		RED LED: PROT (OVP, UVP, OTP, FOLD, AC FAIL).

PROGRAMMING AND READBACK (RS232/485,USB, Optional: IEEE(*19), LAN)

Vout programming accuracy		0.05% of rated output voltage		
2. lout programming accuracy (*13)	2. lout programming accuracy (*13) 0.1% of actual +0.1% 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	5. Vout readback accuracy 0.05% of rated output voltage			
6. lout readback accuracy (*13)		0.1% of actual +0.3% of rated output current		
7. Vout readback resolution		0.012% of full scale		
8. lout readback resolution		0.012% of full scale		

INPUT CHARACTERISTICS		10-72	20-40	36-24	60-14	100-8
1. Input voltage/freq. (*3)			85~265Vac	continuous, 47~63Hz, s	ingle phase	
2. Maximum Input current 100/200VAC		8.9/4.40	9.60/4.70	9.40/4.60	10.00/4.90	9.05/4.60
3. Power Factor (Typ)			0.9	9 at 100/200Vac, 100% l	load	
4. Efficiency (Typ) 100/200VAC (*4)	χ.	81/83	84/86	85/87	85/87	85/87
5. Inrush current (*5)		Less than 25A				

ENVIRONMENTAL CONDITIONS

ENVIRONMENTAL CONDITIONS								
1. Operating temperature		0~50°C, 100% load.						
2. Storage temperature		-20~85°C						
3. Operating humidity	7.	20~90% RH (no condensation).						
4. Storage humidity	7.	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						

AFETY/EMC						
1. Applicable standards:	Safety		UL61010-1, EN61010-1, IEC61010-1. Design to meet UL60950-1, EN60950-1 10V≤Vout≤60V: Output,J1,J2,J3,J4,USB,LAN,IEEE/ISOLATED Analog are Non Hazardous			
			Vout=100V:Output,J1,J2 are Hazardous J3,J4,USB, IEEE/ISOLATED Analog ,LAN are Non Hazardous			
	EMC		IEC61326-1 (Built to meet EN55022/EN55024)			
			10≤Vout≤36V models: Input-Output&J1,J2,J3,J4,USB,LAN/IEEE/ISOLATED ANALOG: 4242VDC/1min; Input-Ground: 2828VDC/1min.			
	2. Withstand voltage		Output&J1,J2,J3,J4,USB,LAN/IEEE/ISOLATED ANALOG-Ground: 1000VDC/1min.			
2. Withstar			60V,100V models: Input-Output&J1,J2: 4242VDC/1min; Input-J3,J4,USB,LAN/IEEE/ISOLATED Analog: 4242VDC/1min; Input-Ground: 2828VDC/1min.			
			Output&J1,J2- J3,J4,USB,LAN/IEEE/ISOLATED ANALOG :1910VDC/1min; Output&J1,J2-Ground: 1380VDC/1min.			
			J3, J4, USB/LAN/IEEE/ISOLATED ANALOG - Ground: 1000VDC/1min;			
3. Insulation	3. Insulation resistance		More than 100Mohm at 25°C, 70%RH.			
4. Conducted emission			IEC/EN61326-1 Industrial Location - B, FCC part 15-B, VCCI-B			
5. Radiated	5. Radiated emission		IEC/EN61326-1 Industrial Location - A, FCC part 15-A, VCCI-A			
5. Radiated emission			EN55022B, FCC part 15-B, VCCI-B			

MECHANICAL

MECHANICAL					
1. Cooling			Forced air cooling by internal fan.		
2. Weight	STANDARD	Kg	Less than 2.5Kg.		
z. weight	WIDE BODY	l kā	Less than 3.0Kg. Wide body with Isolated analog or Binding post or IEEE.		
3. Dimensions (WxHxD) STANDARD WIDE BODY	STANDARD		H: 83, W: 70, D: 350 (excluding bus bars, handles). (Refer to Outline drawing).		
	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: IEC600068-2-27		

- *1: Minimum voltage is guaranteed to maximum 0.1% of rated output voltage.
 *2: Minimum current is guaranteed to maximum 0.2% of rated output current.
- *3: For cases where conformance to various safety standards (UL, IEC, etc...) is required, to be described as 100-240Vac (50/60Hz).
- *4: Ta=25°C with rated output power.
 *5: Not including EMI filter inrush current, less than 0.2mSec.
 *6: At 85~132Vac or 170~265VAC, constant load.
- *7: From No-Load to Full-Load, constant input voltage. Measured at the sensing point in Remote Sense. *8: Measured with JEITA RC-9131A (1:1) probe.
- *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: For 10V model the ripple is measured at 2V to rated output voltage and rated output current. For other models, the 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 JEITA RC-9131A (1:1) probe.
- 115. For cases where the time interval between each down programming is longer than Td (time delay).
 116: For cases where the time interval between each down programming is shorter than Td (time delay).
 117: Td typical (±20%) Minimum time between consecutive down programming cycles.
 118: PS with isolated analog option decreases efficiency by 0.5% and increases input current by 0.5%
 119: For Parallel operation more than 2 units 5% of toatal output current is requierd.



2.4 Z⁺800 Series Specifications

	-						
	MODEL	Z	10-72	20-40	36-24	60-14	100-8
1. Ra	ated output voltage(*1)	V	10	20	36	60	100
	Vin ≥ 100Vac, Ta ≤ 50°C	A	72	40	24	14	8
2. Rated output	85Vac ≤ Vin < 100Vac, Ta ≤ 40°C	A	72	40	24	14	8
current (*2)(*21)	85Vac ≤ Vin < 100Vac, 1a ≤ 40 C		66	36	20	12.5	7.5
		A W					
3. Rated output	Vin ≥ 100Vac, Ta ≤ 50°C		720	800	864	840	800
power	85Vac ≤ Vin < 100Vac, Ta ≤ 40°C	W	720	800	864	840	800
P	85Vac ≤ Vin < 100Vac, 40°C < Ta ≤ 50°C	W	660	720	720	750	750
CON	STANT VOLTA CE MODE		10.72	20.40	26.24	60.14	100.0
	STANT VOLTAGE MODE	Z	10-72	20-40	36-24	60-14	100-8
	lax. Line regulation (*6)				of rated output voltag		
	ax. Load regulation (*7)			0.01% (of rated output voltag		
3. Ripple	and noise (p-p, 20MHz) (*8)	mV	50	50	50	60	80
4. R	Ripple r.m.s. 5Hz~1MHz	mV	5	5	5	12	15
5. Te	emperature coefficient	PPM/°C	30	PPM/°C from rated ou	itput voltage, followi	ng 30 minutes warm-	up.
	Temperature stability			out over 8hrs. interval			
	7. Warm-up drift			0.05% of rated outpu			
Q Domot	te sense compensation/wire	V	1	1	2	3	5
			50	50	50	50	100
	. Response time, 0~Vomax.(*9)	mS					
10. Down-pro	og. response time: Full load (*9)		25	25	25	25	80
	Time delay (*17)	mS	285	425	450	570	1370
	No load (*10) (*15) (*17)	1113	65	110	155	175	375
	No load (*10) (*16) (*17)		280	470	470	500	1200
			Time for output volt	age to recover within 0	15% of its rated output	t for a load change 10	~90% of rated output
11.T	Fransient response time	mS		et-point: 10~100%, Lo			
	2 Hold up time (*10)		carrent. Output S				na merading 1007
12	2. Hold-up time (*18)			TUmSec	Typical. Rated outpu	ıı power.	
COM	STANT CURRENT MODE	Z	10-72	20-40	36-24	60-14	100-8
			10-72				100-0
	Max. Line regulation (*6)				of rated output curre		
2. Ma	ax. Load regulation (*11)				of rated output curre		
3 1 020	d regulation thermal drift			s than 0.15% of rated			
				: Less than 0.1% of rat	ed output current ov	er 30 minutes followi	
4. Ripp	ole r.m.s. 5Hz~1MHz (*12)	mA	180	100	31	28	12
5. Te	emperature coefficient	PPM/°C	10	OPPM/°C from rated o	utput current, follow	ing 30 minutes warm	-up.
6.	Temperature stability		0.05% of rated lout	over 8hrs. interval foll	owing 30 minutes wa	arm-up. Constant line	load & temperature
	•			nan +/-0.3%, 20V mod			
	7. Warm-up drift		TOV MODEL ECSS (I		nt over 30 minutes for		C33 (11d11 17 0.170 01
				Tatea output curre	int over 50 minutes it	Showing power on:	
PRO	OTECTIVE FUNCTIONS	Z	10-72	20-40	36-24	60-14	100-8
				wn when power supp			
1.	. Foldback protection			cle in autostart mode or			
					,	•	<u> </u>
2 Over	r-voltage protection (OVP)		Inverter Shut dow	n method. Reset by A			JTPUT button or by
2.000	voltage protection (ovi)			rear panel EN	NABLE, or by commu	nication port.	
3.0	Over - voltage trip point	V	0.5~12	1~24	2~40	5~66	5~110
			Preset by front pan	el or communication	port. Prevents from a	diustina Vout below I	imit. Does not affect
4. Outpu	ut under voltage limit (UVL)		,		analog programmin		
			Output shut-down	when power supply o			na User presetable
5. Output u	ınder voltage protection (UVP)		Reset by AC input recy	cle in autostart mode or	by OUTPUT button or b	v rear panel FNABI F. or h	ov communication port
6. Ove	er temperature protection		neset by me input reey		ctable. Latched or no		y communication porti
0.010	temperature protection			030, 50,0	etabler Eaterlea of the		
ANALOG PROGRAI	MMING AND MONITORING						
	ut voltage programming		0~100% 0	~5V or 0~10V, user se	lectable Accuracy an	d linearity: +/-0.5% of	f rated Vout
	voltage programming (*13)			0~5V or 0~10V, user se			
	ut resistor programming			10Kohm full scale, use			
	esistor programming (*13)			10Kohm full scale, use			
	Shut Off (SO) control		∏ By €	electrical Voltage: 0~0			ogic.
	put current monitor (*13)				V, user selectable. Ac		
	Output voltage monitor				V, user selectable. Ac		
8. P	Power supply OK signal			4~5V-OK, 0	V-Fail. 500ohm serie	s resistance.	
9. P	Parallel operation (*20)		Possible, up	to 6 units in master/sl	ave mode with single	e wire current balance	e connection.
	10. Series operation				al units (with externa		
	11. CV/CC indicator		Open collector C	C mode: On, CV mode			ink current: 10mA
				PS output by dry cont			
12.	. Interlock (ILC) control		Litables Disables tile		activated by front par		, and it o.J. in/Dis
12 1 00	cal/Remote mode Control		Puoloct	rical signal or Open/Sh			en local
14. LOC	al/Remote mode Indicator			nted by 36V zener). Or el output =0.8V, Minim			
	15.Trigger out		iviaximum iow lev				n ievei output =5V,
<u> </u>			Mavimum loud	<u>Maxımum sourc</u> evel input =1.2V, Minir	e current =16mA, pul	se =20µs Typical.	level input -51/
	16.Trigger in			current =16mA, positi			
17	Programmed signal 1			current = 16mA, positi , maximum voltage 2:			
18.	. Programmed signal 2		Den collector	, maximum voltage 2	ov, maximum SINK Cu	ireni rooma. (Shunte	u by Z/V zener)
FRONT PANEL							
I NONI FAINEL				44.10			
	ļ				ole options with 2 En		
					out/lout manual adju		
			OVP/UVL /UVP manual adjust				
	, <u> </u>						
	1. Control functions						
			Communication Functions - Selection of LAN,IEEE (*19) ,RS232,RS485,USB Communication Functions - Selection of Baud Rate, Address				
	ļ						
				unctions - Selection Vo			
			Analog Control Func	tions - Selection of Volt	age/Current Monitorir	ng 5V/10V, Output ON/	OFF, Front Panel Lock

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FRONT PANEL

	2. Display		Vout: 4 digits, accuracy: 0.5% of rated output voltage+/-1 count.				
			lout: 4 digits, accuracy: 0.5% of rated output current+/-1 count.				
	3 la diameira -		GREEN LEDs: FINE, MENU, PREV, PROT, REM, OUTPUT, CV, CC				
	3. Indications		RED LED: PROT (OVP, UVP, OTP, FOLD, AC FAIL).				
	4. Function buttons		FINE, MENU, PREV, PROT, REM, OUTPUT				

PROGRAMMING AND READBACK (RS232/485, USB, Optional: IEEE(*20), LAN)

NO GIT WINNING THE REPORTER (NO 2021 100) 000)	peroman ieee	20// 2/114/				
1. Vout programming accuracy		0.05% of rated output voltage				
2. lout programming accuracy (*13)		0.1% of actual +0.1% of rated output current				
3. Vout programming resolution		0.012% of full scale				
4. lout programming resolution		0.012% of full scale				
Vout readback accuracy		0.05% of rated output voltage				
6. lout readback accuracy (*13)		0.1% of actual +0.3% of rated output current				
7. Vout readback resolution		0.012% of full scale				
8. lout readback resolution		0.012% of full scale				
INPUT CHARACTERISTICS	Z	10-72	20-40	36-24	60-14	100-8

INPUT CHARACTERISTICS		Z	10-72	20-40	36-24	60-14	100-8
1. Input voltage/freq. (*3)			85~265Vac continuous, 47~63Hz, single phase				
2. Maximum Input current 100/200VAC (*4)			9.00/4.45	9.65/4.75	10.30/5.10	10.00/4.95	9.50/4.7
3. Power Factor (Typ)			0.99 at 100Vac, 100% load / 0.98 at 200Vac, 100% load				
4. Efficiency (Typ) 100/200VAC (*4) %		%	81/83	84/86	85/87	85/87	85/87
5. Inrush current (*5)		Less than 30A					

ENVIRONMENTAL CONDITIONS

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. F	Maximum 3000m. From 2000m up to 3000m, max. Ambient temperature 40°C and rated output current according to the table below:			
	Z	10-72	20-40	36-24	60-14	100-8
Rated output current at 100≤Vin≤265Vac	Α	72	40	24	14	8
Rated output current at 85≤Vin<100Vac	А	A 66 36 20 12.5		7.5		

SAFETY/EMC

DAFELI/LINIC						
1. Applicable standards:	Safety		UL61010-1, EN61010-1, IEC61010-1. Design to meet UL60950-1, EN60950-1 10V≤Vout≤60V: Output,J1,J2,J3,J4,USB,LAN,IEEE/ISOLATED Analog are Non Hazardous Vout=100V:Output,J1,J2 are Hazardous J3,J4,USB, IEEE/ISOLATED Analog ,LAN are Non Hazardous			
	EMC		IEC/EN61326-1 (Built to meet EN55022/EN55024)			
2. Withstand voltage			10≤Vout≤36V models: Input-Output&J1,J2,J3,J4,USB,LAN/IEEE/ISOLATED ANALOG: 4242VDC/1min; Input-Ground: 2828VDC/1min. Output&J1,J2,J3,J4,USB,LAN/IEEE/ISOLATED ANALOG-Ground: 707VDC/1min. 60V,100V models: Input-Output&J1,J2: 4242VDC/1min; Input-J3,J4,USB,LAN/IEEE/ISOLATED Analog: 4242VDC/1min; Input-Ground: 2828VDC/1min. Output & J1,J2-J3,J4,USB,LAN/IEEE/ISOLATED ANALOG: 1910VDC/1min; Output&J1,J2-Ground: 1380VDC/1min. J3, J4, USB/LAN/IEEE/ISOLATED ANALOG - Ground: 707VDC/1min;			
3. Insulation resistance			More than 100Mohm at 25°C, 70%RH.			
4. Conducted emission			IEC/EN61326-1 Industrial Location - B, FCC part 15-B, VCCI-B			
5. Radiated emission			IEC/EN61326-1 Industrial Location - A, FCC part 15-A, VCCI-A			

MECHANICAL

MEGINATORE					
1. Cooling			Forced air cooling by internal fan		
STANDAI	STANDARD	Kg	Less than 2.1 Kg.		
2. Weight	WIDE BODY	Kg	Less than 2.6Kg. Wide body with Isolated analog or Binding post or IEEE		
2 5:	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:

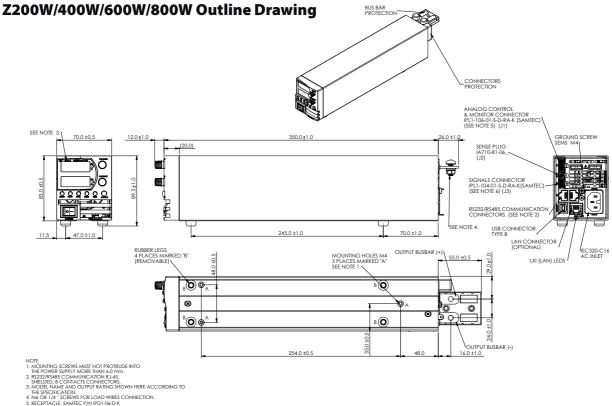
- *1: Minimum voltage is guaranteed to maximum 0.1% of rated output voltage.
- Minimum current is guaranteed to maximum 0.2% of rated output current.
- For cases where conformance to various safety standards (UL, IEC, etc...) is required, to be described as 100-240Vac (50/60Hz).
- Ta=25°C with rated output power.
- Not including EMI filter inrush current, less than 0.2mSec.
- At 85~132Vac or 170~265VAC, constant load.
- From No-Load to Full-Load, constant input voltage. Measured at the sensing point in Remote Sense. Measured with JEITA RC-9131A (1:1) probe.
- 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: For 10V model the ripple is measured at 2V to rated output voltage and rated output current. For other models, the 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 JEITA RC-9131A (1:1) probe.

- *15: For cases where the time interval between each down programming is longer than Td (time delay). *16: For cases where the time interval between each down programming is shorter than Td (Time delay).
- *17: Td typical Minimum time between consecutive down programming cycles.
- *18: At rated output power.
- *19: Max. ambient temperature for using IEEE is 45°C
- *20: For Parallel operation more than 2 units 5% of toatal output current is requierd.
- *21: Refer to Fig.2-1 below

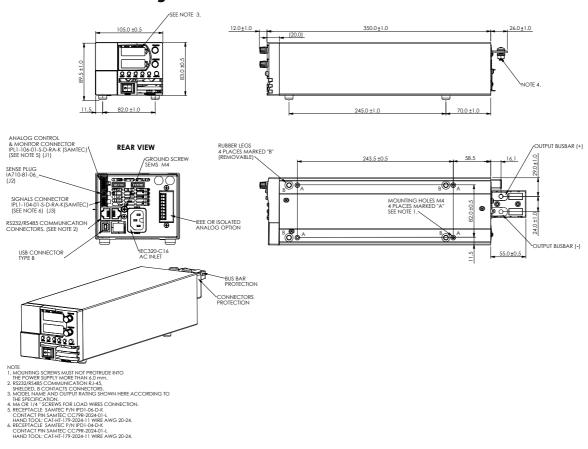


Fig. 2-1: Z⁺800 Rated Output Current Vs. Line Voltage and Ambient Temperature





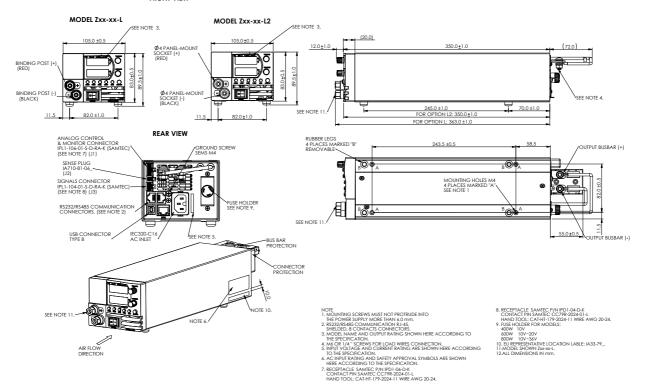
Z200W/400W/600W/800W Optional IEEE, Isolated Analog **Interface Outline Drawing**



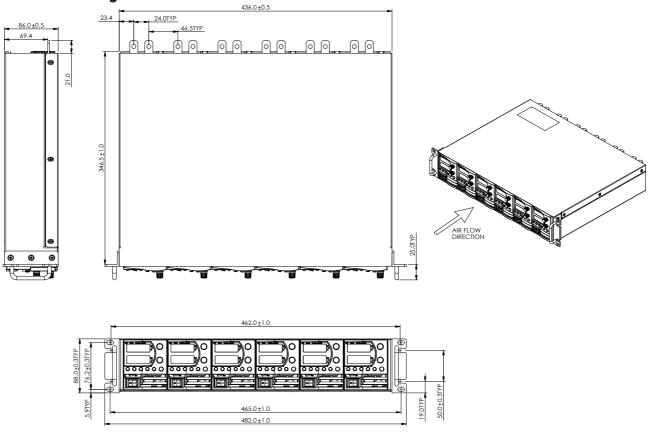


Z200W/400W/600W/800W Front Panel Output Binding Post/Socket Outline Drawing L/L2

FRONT VIEW



19" Rack Housing for Z*200W/400W/600W/800W



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