200-800W, 160 to 650V Programmable Power Supplies

https://product.tdk.com/en/power/zplus
www.emea.lambda.tdk.com/zplus

Industrial Test

Suitable for bench or 2U rack mounting, the Z+ is a very compact programmable power supply offering power levels from 200 to 800W, voltages from 160 to 650V and currents of up to 5A. Multiple remote programming methods are available including built-in USB, RS232 & RS485 and optional LAN, GPIB & isolated analogue interfaces. The units can operate in either constant current or constant voltage mode and accept a wide 85-265Vac input. The product is backed with a five year warranty.

Features	Benefits
• 2U high	• Low Profile
• Built-in USB, RS-232 & RS-485 Interface	• No Additional Cost
• Optional LAN, GPIB & Isolated Analog Programming	• Programmable Remote Operation
• Bench or Rack Mount	• Flexible Mounting
• Constant Current or Voltage Modes	• Seamless Transition (Auto Crossover)
• Five Year Warranty	• Low Cost of Ownership

Model Selector

Model (Note: Add appropriate suffix for the AC line cord)	Voltage Adjust Range (V)	Current Adjust Range (A)	Maximum Power (W)	Ripple Voltage (RMS) 5Hz-1MHz (mV)	Noise Voltage 20MHz BW (mV)	Ripple Current (RMS) 5Hz-1MHz (mA)	Efficiency (100-200Vac) (%)	Front Panel Output Jacks (Option)
Z160-1.3	0 - 160	0 - 1.3	208	10	100	1.2	79 / 81	Yes
Z160-2.6	0 - 160	0 - 2.6	416	10	100	1.5	84 / 86	Yes
Z160-4	0 - 160	0 - 4	640	10	100	2	86.5 / 88.5	Yes
Z160-5	0 - 160	0 - 5	800	10	100	2	86.5 / 88.5	Yes
Z320-0.65	0 - 320	0 - 0.65	208	25	150	0.8	79 / 81	Yes
Z320-1.3	0 - 320	0 - 1.3	416	25	150	1	84 / 86	Yes
Z320-2	0 - 320	0 - 2	640	30	150	1.5	87 / 88.5	Yes
Z320-2.5	0 - 320	0 - 2.5	800	30	150	1.5	86.5 / 89	Yes
Z375-2.2	0 - 375	0 - 2.2	825	30	150	1.5	87.5 / 89.5	Yes
Z650-0.32	0 - 650	0 - 0.32	208	60	150	0.5	79 / 81	Yes
Z650-0.64	0 - 650	0 - 0.64	416	60	150	0.6	84 / 86	Yes
Z650-1	0 - 650	0 - 1	650	60	250	1	86.5 / 88.5	Yes
Z650-1.25	0 - 650	0 - 1.25	812	60	250	1	87 / 89	Yes

Part Number Example

Z160 - 1.3 - LAN - L2 - U

Series & output voltage

Output current

blank	USB, RS-232/RS-485 (All models)
IEEE	GPIB Interface*
IS510	Voltage Programming Isolated Analog Interface*
IS420	Current Programming Isolated Analog Interface*
LAN	LAN Interface (Complies with "LXI" Class C)

blank	No front output jacks
-L2	Output jacks* (insulated)

	AC Line cord	Plug Type
Blank	No AC cord supplied	-
U	North America cord	NEMA 5-15P
E	European cord	CEE 7/VII
J	Japan cord	JIS C8303
I	Middle East cord	SI 32

* Requires wide body case (105mm wide)

Notes: -U option line cord preferred in the Americas.
-E option supplied with unit in Europe

Related Products

Type	Part Number	Description
Z+ Low Voltage Series Datasheet	Z+ Low Voltage	Z+ 10V to 100V Programmable Power Supplies
19" Rack Housing	Z-NL100	Accepts four 105mm width units or six 70mm width units
Dual/Triple Housing	Z-NL200	Accepts two 105mm case units or three 70mm case units
Blanking Panel	Z-BP	70mm Blanking Panel For 19" Rack
Blanking Panel	Z-WBP	105mm Blanking Panel For 19" Rack
Cable	Z-RJ45	Serial Link Cable (One is included with each power supply)
DB9 Cable	Z-485-9	Communication Cable RS-485
DB9 Cable	Z-232-9	Communication Cable RS-232

Specifications

Model		Z160	Z320	Z650
Input				
Input Voltage Range (Operating)	Vac	85 - 265		
Nominal Input Voltage Range	Vac	100 - 240 (Note: Safety certified for 90-264Vac)		
Input Frequency	Hz	47 - 63 (Note: Safety certified for 50/60Hz only)		
Input Current (100/200Vac)	A	200W: 2.76 / 1.37, 400W: 5.25 / 2.57, 600W: 10 / 4.9, 800W: 10.3 / 5.1		
Inrush Current at 200Vac (typ) (Cold Start)	A	200W: <30, 400W: <25, 600W: <25, 800W: <30		
Leakage Current (220Vac)	mA	<1.2		
Power Factor (100/200Vac)	-	>0.99 / 0.98		
Harmonic Compliance	-	Meets IEC61000-3-2 Class A		
Hold Up Time (typ)	ms	200W: 15, 400W: 15, 600W: 15, 800W: 10		
Efficiency	-	See Model Selector Table		
Conducted & Radiated EMI	-	IEC/EN61326-1, -B radiated, -A conducted, designed to meet EN55032/EN55024		
Immunity	-	See IEC61000 reports on website		
Insulation Class	-	Class I		
Safety Certifications and Markings	-	IEC/UL/CSA/EN61010-1,60950, CE Mark and UKCA Mark		
Output				
Output Voltage and Current Adjustment	-	See Model Selector Table		
Load Regulation (CV Mode)	%	0.01 of rated voltage over 0 - 100% load change		
Line Regulation (CV Mode)	%	0.01 of rated voltage over a 85 - 132 or 170 - 265Vac line change		
Transient Response Recovery Time[1]	ms	2		
Load Regulation (CC Mode)	%	0.09 of rated current over 0 - 100% Vout change		0.15 of rated output current
Line Regulation (CC Mode)	%	0.02 of rated current over a 85 - 132 or 170 - 265Vac line change		
Ripple & Noise (CC or CV Mode)	-	See Model Selector Table		
Temperature Coefficient (CV Mode)	ppm/°C	30 (following 30 minute warm up)		
Temperature Stability (CV Mode)	%	0.02 of rated voltage over 8 hours following 30 minute warm up time		
Warm-up Drift (CV Mode)	%	<0.05 of rated output voltage (after 30 min warm up period)		
Temperature Coefficient (CC Mode)	ppm/°C	100 (following 30 minute warm up)		
Temperature Stability (CC Mode)	%	0.05 of rated current over 8 hours following 30 minute warm up time		
Load Regulation Thermal Drift (CC Mode)	%	< 0.05 of rated current over 30 minutes after load change		
Warm-up Drift (CC Mode	%	±0.1 of rated output current over 30 minutes following power on		
Up Programming Resp Time (CV Mode) (10-90% or 90-10% of Vmax)[2]	ms	110	170	170
Down Programming Resp Time (CV Mode) Full Load (10-90% or 90-10% of Vmax)[2]	ms	180	270	270
Minimum Load	-	No minimum load required		
Overcurrent Protection	-	User programmable, can be set to foldback mode		
Overvoltage Protection	V	Shut down. User programmable		
Overtemperature Protection	-	User selectable - latched or non-latching		
Remote Sense Compensation (per wire)	V	5		
Remote On/Off		By applied voltage or dry contact relay (user selectable logic)		
DC Good	-	Open Collector, Low on fail		
Communication	-	RS232, RS485 & USB standard, IEEE488 (GPIB) & LAN optional		
Indicators	-	Green LEDs: FINE, MENU, PREV, PROT, REM, OUTPUT, CV, CC Red LED: PROT (OVP, UVP, OTP, FOLD, AC FAIL).		
Display		4 digits. Accuracy 0.5% of rated voltage or current ±1 count		
Parallel Operation	-	Up to 6 units		

Specifications

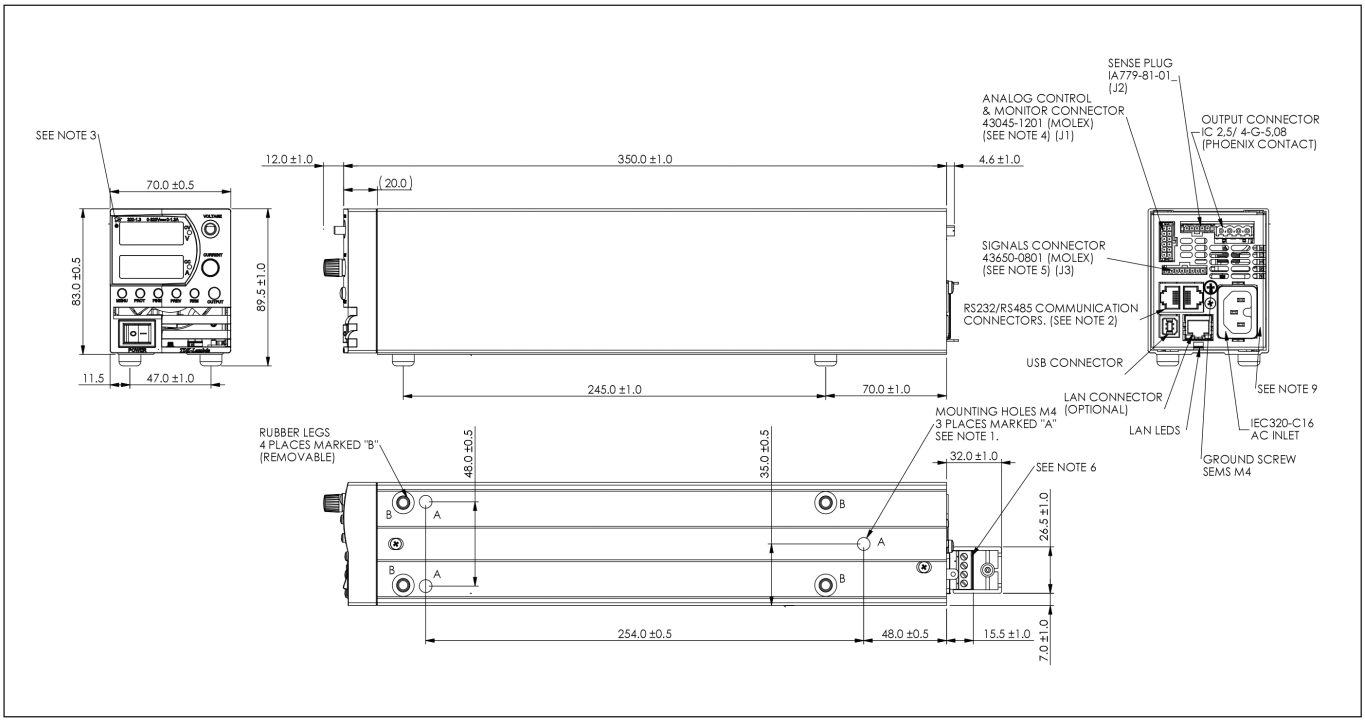
Model		Z160	Z320	Z650
Environmental				
Operating Temperature	°C	0 - 50, full load		
Storage Temperature	°C	-20 to +85		
Humidity (Non condensing)	%RH	20 - 90 operating, 10 - 95 storage		
Cooling	-	Internal fan		
Altitude	m	3000. Derate ambient temperature above 2000.		
Withstand Voltage (For 1 minute)	Vac / Vdc	Input to Ground 2kVac, Input to Output 3kVac, Output to Ground 2828Vdc		
Isolation Resistance	MΩ	>100 at 25°C, 70%RH & 500Vdc		
Vibration (Non operating)	-	IEC60068-2-64		
Shock (Unpacked)	-	IEC60068-2-27: 20G half sine wave, for a duration of 11ms		

Specifications

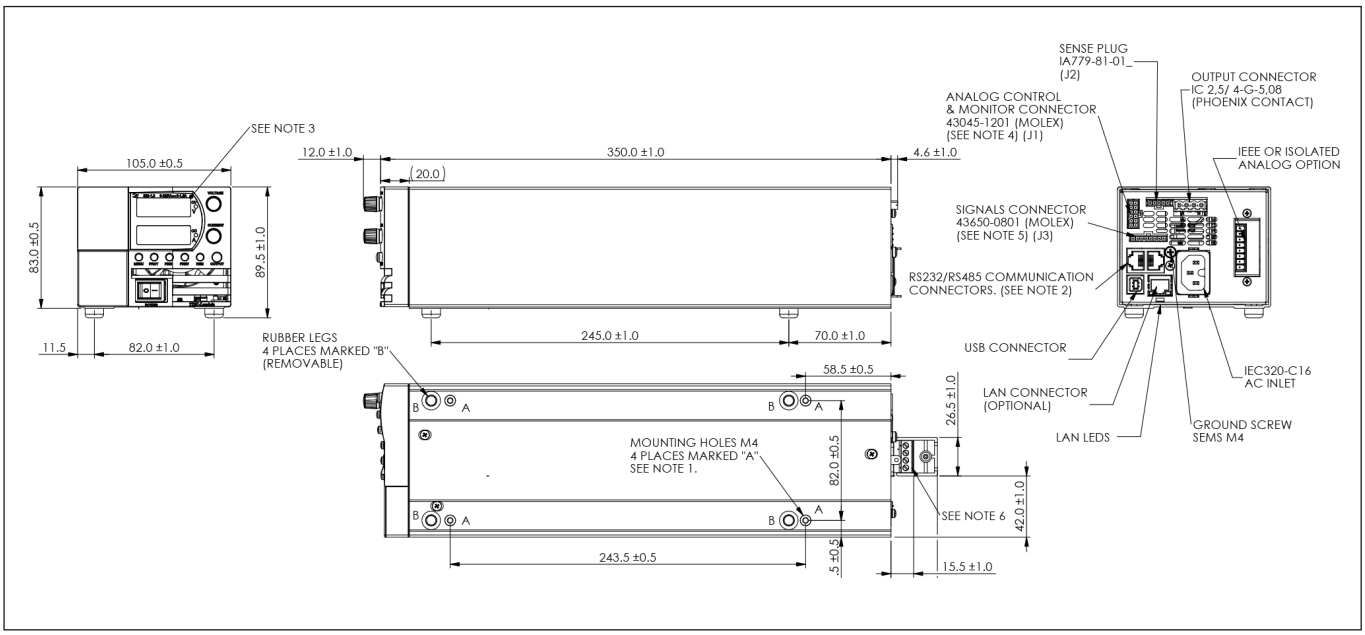
Model		200W	400W	600W	800W
Other					
Weight (Typ)	g	Standard body 1,900; Wide Body 2,400		Standard body 2,100; Wide Body 2,600	
Size (WxHxD)	mm	Standard body: 70 x 83 x 350: Wide Body 105 x 83 x 350			
Size (WxHxD)	Inches	Standard body: 2.76 x 3.27 x 13.78: Wide Body 4.13 x 3.27 x 13.78			
Connectors		See outline drawings			
Case Material	-	Metal case, plastic front panel			
MTBF - MIL HDBK-217F(3)	Hours	75,839	75,667	76,274	76,274
Warranty	Years	5			

Notes
See website for detailed specifications, test methods and installation manual
(1) Recovery to within 0.5% of rated voltage after a load change of 10-90% (Output current 10-100% of Imax)
(2) 200W models. See specification on website for 400, 600 & 800W models
(3) Ground, Fixed. Excludes fan. See reliability data on website

Z+ Outline Drawing (70mm wide)



Z+ Outline Drawing (105mm wide) with Optional IEEE, Isolated Analog Interface



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