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Programmable DC Power Supply Specifications

SPECIFICATION CONDITIONS

This document contains specifications for the Series 2260B Programmable DC Power Supplies. Specifications are the standards against which the 2260B power supplies are tested. Upon leaving the factory, the 2260B power supplies meet these specifications.

The specifications apply when the 2260B is powered on for at least 30 minutes.

2260B 360W (2260B-30-36, 2260B-80-13, 2260B-250-4)

	Units	Model		
		2260B-30-36	2260B-80-13	2260B-250-4
Rated output voltage	Volts	30	80	250
Rated output current	Amperes	36	13.5	4.5
Rated output power	Watts	360	360	360
Power ratio	Not applicable	3	3	3.125

Constant voltage mode

	Units	Model		
		2260B-30-36	2260B-80-13	2260B-250-4
Line regulation ¹	mV	18	43	128
Load regulation ²	mV	20	45	130
Ripple and noise ³				
Peak-to-peak ⁴	mV	60	60	80
Root mean square (rms) ⁵	mV	7	7	15
Temperature coefficient	ppm/°C	100 ppm/°C of rated output voltage, after a 30-minute warmup.		
Remote sense compensation voltage (single wire)	Volts	0.6	0.6	1
Rise time ⁶				
Rated load	ms	50	50	100
No load	ms	50	50	100
Fall time ⁷				
Rated load	ms	50	50	150
No load	ms	500	500	1200
Transient response time ⁸	ms	1	1	2

¹ At 85 V ac to 132 V ac or 170 V ac to 265 V ac, constant load.

² From no load to full load, constant input voltage. Measured at the sensing point in remote sense.

³ Measure with JEITA RC-9131B (1:1) probe.

⁴ Measurement frequency bandwidth is 10 Hz to 20 MHz.

⁵ Measurement frequency bandwidth is 5 Hz to 1 MHz.

⁶ From 10% to 90% of rated output voltage, with rated resistive load.

⁷ From 90% to 10% of rated output voltage, with rated resistive load.

⁸ Time for output voltage to recover within 0.1% + 10 mV of its rated output for a load change from 50% to 100% of its rated output current.



Constant current mode

	Units	Model		
		2260B-30-36	2260B-80-13	2260B-250-4
Line regulation ¹	mA	41	18.5	9.5
Load regulation ⁹	mA	41	18.5	9.5
Ripple and noise				
Root mean square (rms) ⁵	mA	72	27	10
Temperature coefficient	ppm/°C	200 ppm/°C of rated output voltage, after a 30-minute warmup.		

Protection functions

	Model		
	2260B-30-36	2260B-80-13	2260B-250-4
Overvoltage protection (OVP)			
Setting range (voltage)	3 to 33	8 to 88	20 to 275
Setting accuracy	± (2% of rated output voltage)		
Overcurrent protection (OCP)			
Setting range (amperes)	3.6 to 39.60	1.35 to 14.85	0.45 to 4.95
Setting accuracy	± (2% of rated output voltage)		
Overtemperature protection (OTP)			
Operation	Turn the output off.		
Low ac input protection (AC-FAIL)			
Operation	Turn the output off.		
Power limit (POWER LIMIT)			
Operation	Over power limit.		
Value (fixed)	Approximately 105% of rated output power.		

Analog programming and monitoring

	Model		
	2260B-30-36	2260B-80-13	2260B-250-4
External voltage control output voltage at 23 °C ± 5 °C	Accuracy and linearity: ±0.5% of rated output voltage.		
External voltage control output current at 23 °C ± 5 °C	Accuracy and linearity: ±1% of rated output current.		
External resistor control output voltage at 23 °C ± 5 °C	Accuracy and linearity: ±1.5% of rated output voltage.		
External resistor control output current at 23 °C ± 5 °C	Accuracy and linearity: ±1.5% of rated output current.		
Output voltage monitor at 23 °C ± 5 °C			
Accuracy (%)	±1	±1	±2
Output current monitor at 23 °C ± 5 °C			
Accuracy (%)	±1	±1	±2
Shutdown control	Turns the output off with a low TTL signal (0 V to 0.5 V) or short circuit.		

⁹ For load voltage change, equal to the unit voltage rating, constant input voltage.

	Model		
	2260B-30-36	2260B-80-13	2260B-250-4
Output on/off control	Possible logic selections: <ul style="list-style-type: none"> • Turn the output on using a low TTL signal (0 V to 0.5 V) or short circuit; turn the output off using a high TTL signal (4.5 V to 5 V) or open circuit. • Turn the output on using a high TTL signal (4.5 V to 5 V) or open circuit; turn the output off using a low TTL signal (0 V to 0.5 V) or short circuit. 		
CV/CC/ALM/PWR ON/OUT ON indicator	Photocoupler open collector output; maximum voltage 30 V, maximum sink current 8 mA.		

FRONT PANEL

	Model		
	2260B-30-36	2260B-80-13	2260B-250-4
Display, four digits			
Voltage accuracy at 23 °C ± 5 °C; ± (0.1% +)	20 mV	20 mV	200 mV
Current accuracy at 23 °C ± 5 °C; ± (0.1% +)	40 mA	20 mA	5 mA
Indicators	Green LEDs: CV, CC, VSR, ISR, DLY, RMT, 20, 40, 60, 80, 100, %W, W, V, A.		
	Red LEDs: ALM.		
Buttons	Function, OVP/OCP, Set, Test, Lock/Local, PWR DSPL, Output.		
Knobs	Voltage, current.		
USB port	Type A USB connector.		

PROGRAMMING AND MEASUREMENT (USB, LAN)

	Units	Model		
		2260B-30-36	2260B-80-13	2260B-250-4
Output voltage programming accuracy at 23 °C ± 5 °C; ± (0.1% +)	mV	10	10	200
Output current programming accuracy at 23 °C ± 5 °C; ± (0.1% +)	mA	30	10	5
Output voltage programming resolution	mV	1	2	5
Output current programming resolution	mA	1	1	1
Output voltage measurement accuracy at 23 °C ± 5 °C; ± (0.1% +)	mV	10	10	200
Output current measurement accuracy at 23 °C ± 5 °C; ± (0.1% +)	mA	30	10	5
Output voltage measurement resolution	mV	1	2	5
Output current measurement resolution	mA	1	1	1

INPUT CHARACTERISTICS

	Model		
	2260B-30-36	2260B-80-13	2260B-250-4
Nominal input rating	100 V ac to 240 V ac, 50 Hz to 60 Hz, single phase.		
Input voltage range	85 V ac to 265 V ac.		
Frequency	47 Hz to 63 Hz.		
Maximum input current			
100 V ac	5 A		
200 V ac	2.5 A		
Inrush current	Less than 25 A.		
Maximum input power	500 VA		
Power factor			
100 V ac	0.99		
200 V ac	0.97		
Efficiency			
100 V ac	77%	78%	79%
200 V ac	79%	80%	81%
Hold-up time	20 ms or greater.		

INTERFACE CAPABILITIES**USB:**

- Type A: Host
- Type B: Subordinate
- Speed: 1.1/2.0
- USB class: Communications device class (CDC)

LAN: MAC address, DNS IP address, user password, gateway IP address, instrument IP address, subnet mask.

ENVIRONMENTAL CONDITIONS

Operating temperature: 0 °C to 50 °C.

Storage temperature: -15 °C to 70 °C.

Operating humidity: 20% to 85% relative humidity; no condensation.

Storage humidity: 90% relative humidity or less; no condensation.

Altitude: Maximum 2000 m.

GENERAL SPECIFICATIONS

Weight (main unit only): Approximately 3 kg.

Dimensions: 71 mm wide × 124 mm high × 350 mm deep.

Cooling: Forced air cooling by internal fan.

EMC: Complies with the European EMC directive 2004/108/EC for Class A test and measurement products.

Safety: Complies with the European Low Voltage Directive 2006/95/EC and carries the CE marking.

Withstand voltage:

- **Between input and chassis:** No abnormalities at 1500 V ac for 1 minute.
- **Between input and output:** No abnormalities at 3000 V ac for 1 minute.
- **Between output and chassis:** No abnormalities at 500 V dc for 1 minute for 30 V and 80 V models. No abnormalities at 1500 V dc for 1 minute for 250 V models.

Insulation resistance:

- **Between input and chassis:** 500 V dc, 100 M Ω or more.
- **Between input and output:** 500 V dc, 100 M Ω or more.
- **Between output and chassis:** 500 V dc, 100 M Ω or more for 30 V, 80 V, and 250 V models.

2260B 720W (2260B-30-72, 2260B-80-27, 2260B-800-2)

	Units	Model		
		2260B-30-72	2260B-80-27	2260B-800-2
Rated output voltage	Volts	30	80	800
Rated output current	Amperes	72	27	2.88
Rated output power	Watts	720	720	720
Power ratio	Not applicable	3	3	3.2

Constant voltage mode

	Units	Model		
		2260B-30-72	2260B-80-27	2260B-800-2
Line regulation ¹⁰	mV	18	43	403
Load regulation ¹¹	mV	20	45	405
Ripple and noise¹²				
Peak-to-peak ¹³	mV	80	80	200
Root mean square (rms) ¹⁴	mV	11	11	30
Temperature coefficient	ppm/ $^{\circ}$ C	100 ppm/ $^{\circ}$ C of rated output voltage, after a 30-minute warmup.		
Remote sense compensation voltage (single wire)	Volts	0.6	0.6	1
Rise time¹⁵				
Rated load	ms	50	50	150
No load	ms	50	50	150
Fall time¹⁶				
Rated load	ms	50	50	300
No load	ms	500	500	2000
Transient response time ¹⁷	ms	1	1	2

¹⁰ At 85 V ac to 132 V ac or 170 V ac to 265 V ac, constant load.

¹¹ From no load to full load, constant input voltage. Measured at the sensing point in remote sense.

¹² Measure with JEITA RC-9131B (1:1) probe.

¹³ Measurement frequency bandwidth is 10 Hz to 20 MHz.

¹⁴ Measurement frequency bandwidth is 5 Hz to 1 MHz.

¹⁵ From 10% to 90% of rated output voltage, with rated resistive load.

¹⁶ From 90% to 10% of rated output voltage, with rated resistive load.

¹⁷ Time for output voltage to recover within 0.1% + 10 mV of its rated output for a load change from 50% to 100% of its rated output current.

Constant current mode

	Units	Model		
		2260B-30-72	2260B-80-27	2260B-800-2
Line regulation ¹⁰	mA	77	32	7.88
Load regulation ¹⁸	mA	77	32	7.88
Ripple and noise				
rms ¹⁴	mA	144	54	10
Temperature coefficient	ppm/°C	200 ppm/°C of rated output voltage, after a 30-minute warmup.		

Protection functions

	Model		
	2260B-30-72	2260B-80-27	2260B-800-2
Overvoltage protection (OVP)			
Setting range (voltage)	3 to 33	8 to 88	20 to 880
Setting accuracy	± (2% of rated output voltage)		
Overcurrent protection (OCP)			
Setting range (amperes)	5 to 79.2	2.7 to 29.7	0.288 to 3.168
Setting accuracy	± (2% of rated output voltage)		
Overtemperature protection (OTP)			
Operation	Turn the output off.		
Low ac input protection (AC-FAIL)			
Operation	Turn the output off.		
Power limit (POWER LIMIT)			
Operation	Over power limit.		
Value (fixed)	Approximately 105% of rated output power.		

Analog programming and monitoring

	Model		
	2260B-30-72	2260B-80-27	2260B-800-2
External voltage control output voltage at 23 °C ± 5 °C	Accuracy and linearity: ±0.5% of rated output voltage.		
External voltage control output current at 23 °C ± 5 °C	Accuracy and linearity: ±1% of rated output current.		
External resistor control output voltage at 23 °C ± 5 °C	Accuracy and linearity: ±1.5% of rated output voltage.		
External resistor control output current at 23 °C ± 5 °C	Accuracy and linearity: ±1.5% of rated output current.		
Output voltage monitor at 23 °C ± 5 °C			
Accuracy (%)	±1	±1	±2
Output current monitor at 23 °C ± 5 °C			
Accuracy (%)	±1	±1	±2
Shutdown control	Turns the output off with a low TTL signal (0 V to 0.5 V) or short circuit.		

¹⁸ For load voltage change, equal to the unit voltage rating, constant input voltage.

	Model		
	2260B-30-72	2260B-80-27	2260B-800-2
Output on/off control	Possible logic selections: <ul style="list-style-type: none"> • Turn the output on using a low TTL signal (0 V to 0.5 V) or short circuit; turn the output off using a high TTL signal (4.5 V to 5 V) or open circuit. • Turn the output on using a high TTL signal (4.5 V to 5 V) or open circuit; turn the output off using a low TTL signal (0 V to 0.5 V) or short circuit. 		
CV/CC/ALM/PWR ON/OUT ON indicator	Photocoupler open collector output; maximum voltage 30 V, maximum sink current 8 mA.		

FRONT PANEL

	Model		
	2260B-30-72	2260B-80-27	2260B-800-2
Display, four digits			
Voltage accuracy at 23 °C ± 5 °C; ± (0.1% +)	20 mV	20 mV	400 mV
Current accuracy at 23 °C ± 5 °C; ± (0.1% +)	70 mA	40 mA	4 mA
Indicators	Green LEDs: CV, CC, VSR, ISR, DLY, RMT, 20, 40, 60, 80, 100, %W, W, V, A.		
	Red LEDs: ALM.		
Buttons	Function, OVP/OCP, Set, Test, Lock/Local, PWR DSPL, Output.		
Knobs	Voltage, Current.		
USB port	Type A USB connector.		

PROGRAMMING AND MEASUREMENT (USB, LAN)

	Units	Model		
		2260B-30-72	2260B-80-27	2260B-800-2
Output voltage programming accuracy at 23 °C ± 5 °C; ± (0.1% +)	mV	10	10	400
Output current programming accuracy at 23 °C ± 5 °C; ± (0.1% +)	mA	60	30	4
Output voltage programming resolution	mV	1	2	14
Output current programming resolution	mA	2	2	1
Output voltage measurement accuracy at 23 °C ± 5 °C; ± (0.1% +)	mV	10	10	400
Output current measurement accuracy at 23 °C ± 5 °C; ± (0.1% +)	mA	60	30	4
Output voltage measurement resolution	mV	1	2	14
Output current measurement resolution	mA	2	2	1

INPUT CHARACTERISTICS

	Model		
	2260B-30-72	2260B-80-27	2260B-800-2
Nominal input rating	100 V ac to 240 V ac, 50 Hz to 60 Hz, single phase.		
Input voltage range	85 V ac to 265 V ac.		
Frequency	47 Hz to 63 Hz.		
Maximum input current			
100 V ac	10 A		
200 V ac	5 A		
Inrush current	Less than 50 A.		
Maximum input power	1000 VA		
Power factor			
100 V ac	0.99		
200 V ac	0.97		
Efficiency			
100 V ac	77%	78%	80%
200 V ac	79%	80%	82%
Hold-up time	20 ms or greater.		

INTERFACE CAPABILITIES

USB:

- Type A: Host
- Type B: Subordinate
- Speed: 1.1/2.0
- USB class: Communications device class (CDC)

LAN: MAC address, DNS IP address, user password, gateway IP address, instrument IP address, subnet mask.

ENVIRONMENTAL CONDITIONS

Operating temperature: 0 °C to 50 °C.

Storage temperature: -15 °C to 70 °C.

Operating humidity: 20% to 85% relative humidity; no condensation.

Storage humidity: 90% relative humidity or less; no condensation.

Altitude: Maximum 2000 m.

GENERAL SPECIFICATIONS

Weight (main unit only): Approximately 5.3 kg.

Dimensions: 142.5 mm wide x 124 mm high x 350 mm deep.

Cooling: Forced air cooling by internal fan.

EMC: Complies with the European EMC directive 2004/108/EC for Class A test and measurement products.

Safety: Complies with the European Low Voltage Directive 2006/95/EC and carries the CE marking.

Withstand voltage:

- **Between input and chassis:** No abnormalities at 1500 V ac for 1 minute.
- **Between input and output:** No abnormalities at 3000 V ac for 1 minute.
- **Between output and chassis:** No abnormalities at 500 V dc for 1 minute for 30 V and 80 V models. No abnormalities at 1500 V dc for 1 minute for 800 V models.

Insulation resistance:

- **Between input and chassis:** 500 V dc, 100 M Ω or more.
- **Between input and output:** 500 V dc, 100 M Ω or more.
- **Between output and chassis:** 500 V dc, 100 M Ω or more for 30 V and 80 V models. 1000 V dc, 100 M Ω or more for 800 V models.

2260B 1080W (2260B-30-108, 2260B-80-40)

	Units	Model	
		2260B-30-108	2260B-80-40
Rated output voltage	Volts	30	80
Rated output current	Amperes	108	40.5
Rated output power	Watts	1080	1080
Power ratio	Not applicable	3	3

Constant voltage mode

	Units	Model	
		2260B-30-108	2260B-80-40
Line regulation ¹⁹	mV	18	43
Load regulation ²⁰	mV	20	45
Ripple and noise²¹			
Peak-to-peak ²²	mV	100	100
Root mean square (rms) ²³	mV	14	14
Temperature coefficient	ppm/°C	100 ppm/°C of rated output voltage, after a 30-minute warmup.	
Remote sense compensation voltage (single wire)	Volts	0.6	0.6

¹⁹ At 85 V ac to 132 V ac or 170 V ac to 265 V ac, constant load.

²⁰ From no load to full load, constant input voltage. Measured at the sensing point in remote sense.

²¹ Measure with JEITA RC-9131B (1:1) probe.

²² Measurement frequency bandwidth is 10 Hz to 20 MHz.

²³ Measurement frequency bandwidth is 5 Hz to 1 MHz.

	Units	Model	
		2260B-30-108	2260B-80-40
Rise time²⁴			
Rated load	ms	50	50
No load	ms	50	50
Fall time²⁵			
Rated load	ms	50	50
No load	ms	500	500
Transient response time ²⁶	ms	1	1

Constant current mode

	Units	Model	
		2260B-30-108	2260B-80-40
Line regulation ¹⁰	mA	113	45.5
Load regulation ²⁷	mA	113	45.5
Ripple and noise			
rms ¹⁴	mA	216	81
Temperature coefficient	ppm/°C	200 ppm/°C of rated output voltage, after a 30-minute warmup.	

Protection functions

	Model	
	2260B-30-108	2260B-80-40
Overvoltage protection (OVP)		
Setting range (voltage)	3 to 33	8 to 88
Setting accuracy	± (2% of rated output voltage)	
Overcurrent protection (OCP)		
Setting range (amperes)	5 to 118.8	4.05 to 44.55
Setting accuracy	± (2% of rated output voltage)	
Overtemperature protection (OTP)		
Operation	Turn the output off.	
Low ac input protection (AC-FAIL)		
Operation	Turn the output off.	
Power limit (POWER LIMIT)		
Operation	Over power limit.	
Value (fixed)	Approximately 105% of rated output power.	

²⁴ From 10% to 90% of rated output voltage, with rated resistive load.

²⁵ From 90% to 10% of rated output voltage, with rated resistive load.

²⁶ Time for output voltage to recover within 0.1% + 10 mV of its rated output for a load change from 50% to 100% of its rated output current.

²⁷ For load voltage change, equal to the unit voltage rating, constant input voltage.

Analog programming and monitoring

	Model	
	2260B-30-108	2260B-80-40
External voltage control output voltage at 23 °C ± 5 °C	Accuracy and linearity: ±0.5% of rated output voltage.	
External voltage control output current at 23 °C ± 5 °C	Accuracy and linearity: ±1% of rated output current.	
External resistor control output voltage at 23 °C ± 5 °C	Accuracy and linearity: ±1.5% of rated output voltage.	
External resistor control output current at 23 °C ± 5 °C	Accuracy and linearity: ±1.5% of rated output current.	
Output voltage monitor at 23 °C ± 5 °C		
Accuracy (%)	±1	±1
Output current monitor at 23 °C ± 5 °C		
Accuracy (%)	±1	±1
Shutdown control	Turns the output off with a low TTL signal (0 V to 0.5 V) or short circuit.	
Output on/off control	Possible logic selections: <ul style="list-style-type: none"> Turn the output on using a low TTL signal (0 V to 0.5 V) or short circuit; turn the output off using a high TTL signal (4.5 V to 5 V) or open circuit. Turn the output on using a high TTL signal (4.5 V to 5 V) or open circuit; turn the output off using a low TTL signal (0 V to 0.5 V) or short circuit. 	
CV/CC/ALM/PWR ON/OUT ON indicator	Photocoupler open collector output; maximum voltage 30 V, maximum sink current 8 mA.	

FRONT PANEL

	Model	
	2260B-30-108	2260B-80-40
Display, four digits		
Voltage accuracy at 23 °C ± 5 °C; ± (0.1% +)	20 mV	20 mV
Current accuracy at 23 °C ± 5 °C; ± (0.1% +)	100 mA	50 mA
Indicators	Green LEDs: CV, CC, VSR, ISR, DLY, RMT, 20, 40, 60, 80, 100, %W, W, V, A.	
	Red LEDs: ALM.	
Buttons	Function, OVP/OCP, Set, Test, Lock/Local, PWR DSPL, Output.	
Knobs	Voltage, Current.	
USB port	Type A USB connector.	

PROGRAMMING AND MEASUREMENT (USB, LAN)

	Units	Model	
		2260B-30-108	2260B-80-40
Output voltage programming accuracy at 23 °C ± 5 °C; ± (0.1% +)	mV	10	10
Output current programming accuracy at 23 °C ± 5 °C; ± (0.1% +)	mA	100	40
Output voltage programming resolution	mV	1	2
Output current programming resolution	mA	3	3
Output voltage measurement accuracy at 23 °C ± 5 °C; ± (0.1% +)	mV	10	10
Output current measurement accuracy at 23 °C ± 5 °C; ± (0.1% +)	mA	100	40
Output voltage measurement resolution	mV	1	2
Output current measurement resolution	mA	3	3

INPUT CHARACTERISTICS

	Model	
	2260B-30-108	2260B-80-40
Nominal input rating	100 V ac to 240 V ac, 50 Hz to 60 Hz, single phase.	
Input voltage range	85 V ac to 265 V ac.	
Frequency	47 Hz to 63 Hz.	
Maximum input current		
100 V ac	15 A	
200 V ac	7.5 A	
Inrush current	Less than 75 A.	
Maximum input power	1500 VA	
Power factor		
100 V ac	0.99	
200 V ac	0.97	
Efficiency		
100 V ac	77%	78%
200 V ac	79%	80%
Hold-up time	20 ms or greater.	

INTERFACE CAPABILITIES

USB:

- **Type A:** Host
- **Type B:** Subordinate
- **Speed:** 1.1/2.0
- **USB class:** Communications device class (CDC)

LAN: MAC address, DNS IP address, user password, gateway IP address, instrument IP address, subnet mask.

ENVIRONMENTAL CONDITIONS

Operating temperature: 0 °C to 50 °C.

Storage temperature: –15 °C to 70 °C.

Operating humidity: 20% to 85% relative humidity; no condensation.

Storage humidity: 90% relative humidity or less; no condensation.

Altitude: Maximum 2000 m.

GENERAL SPECIFICATIONS

Weight (main unit only): Approximately 7.5 kg.

Dimensions: 214 mm wide × 124 mm high × 350 mm deep.

Cooling: Forced air cooling by internal fan.

EMC: Complies with the European EMC directive 2004/108/EC for Class A test and measurement products.

Safety: Complies with the European Low Voltage Directive 2006/95/EC and carries the CE marking.

Withstand voltage:

- **Between input and chassis:** No abnormalities at 1500 V ac for 1 minute.
- **Between input and output:** No abnormalities at 3000 V ac for 1 minute.
- **Between output and chassis:** No abnormalities at 500 V dc for 1 minute for 30 V and 80 V models.

Insulation resistance:

- **Between input and chassis:** 500 V dc, 100 MΩ or more.
- **Between input and output:** 500 V dc, 100 MΩ or more.
- **Between output and chassis:** 500 V dc, 100 MΩ or more for 30 V and 80 V.