

200-1100 Watts BX Series



- AC or DC Input
- Temperature Compensated Charging
- Auto Boost Option
- Low Ripple & Noise
- Battery Low Volts Disconnect
- Battery Low Pre-warning
- Non-standard Configurations Available

Specification

Input

Input Voltage	• See table (DC input options also available, see DC-DC SX series for specification)
Input Frequency	• See table
Input Current	• See table
Inrush Current	• See table
Power Factor	• PFC models: 0.9 typical Other models: 0.6 typical
Earth Leakage Current	• See table

Output

Output Voltage	• See table
Output Voltage Trim	• $\pm 10\%$
Initial Set Accuracy	• $\pm 1\%$ max
Minimum Load	• No minimum load required
Start Up Delay	• 600 ms max
Start Up Rise Time	• 150 ms max
Hold Up Time	• 28 ms 200 & 300 W models 18 ms 350 & 550 W models 12 ms 750 & 1k1 models from nom input
Line Regulation	• $< 0.5\%$ for max input voltage swing
Load Regulation	• $< 1\%$ for 0-100% load change
Transient Response	• 2% max. deviation, recovery to within 0.25% in 1 ms for a 10% load change
Ripple & Noise	• $< 1\%$ pk-pk, 20MHz BW
Overvoltage Protection	• 120% typical, nominal output
Overtemperature Protection	• Fitted as standard to fan-cooled models
Overload Protection	• 110% typical
Short Circuit Protection	• Constant current
Temperature Coefficient	• 0.02% / °C
Temperature Compensation	• At -3 mV / °C / cell
Remote On/Off	• On = Logic High or Open Off = Logic Low or Short
Current Share	• Up to 10 supplies to share within 5%

General

Efficiency	• 85% max (depending on model)
Isolation	• 6000 VDC Input to Output (Y caps disconnected) 2200 VDC Input to Ground 2200 VDC Output to Chassis
Switching Frequency	• 30 kHz typical
Signals	• See SX AC-DC signals table
MTBF	• Typically > 110 kHrs at 20 °C per MIL-HDBE-217E. Consult sales for individual models

Environmental

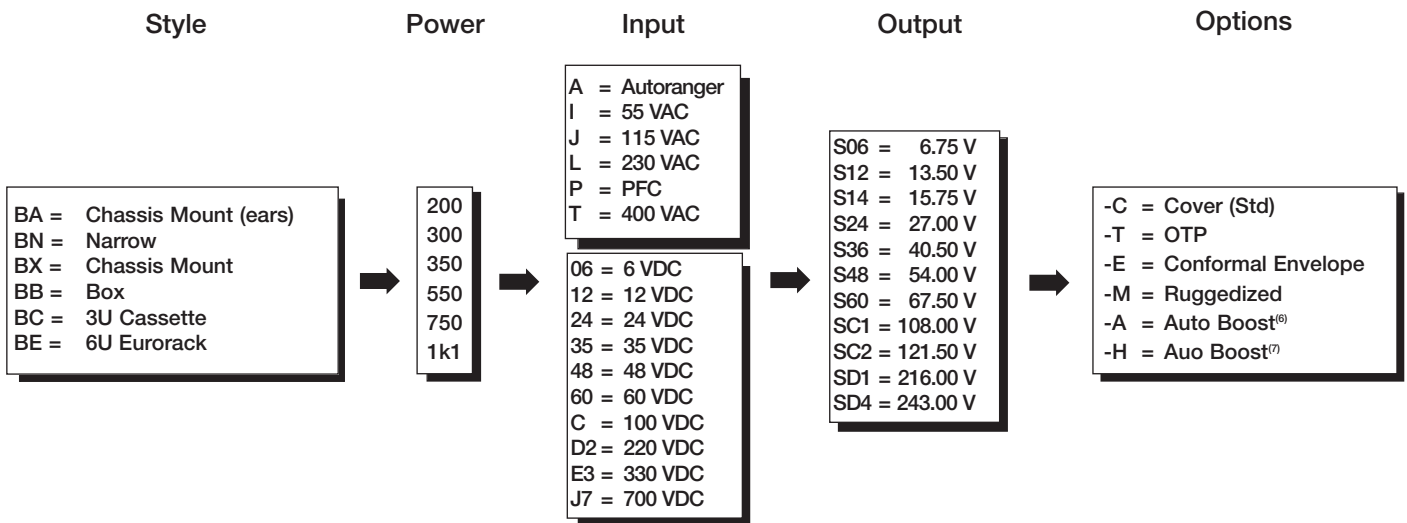
Operating Temperature	• -20 °C to +40 °C, see SX AC-DC derating curves
Operating Humidity	• 90% RH, non-condensing
Storage Temperature	• -25 °C to +85 °C
Operating Altitude	• 3000 m
Airflow Direction	• Where fitted, fan blows air into unit
Shock	• Non-operating 100 mm drop on to chassis face
Vibration	• Operating 5-50 Hz 0.05 mm pk-pk, 50-100 Hz, 0.025 mm pk-pk

EMC & Safety

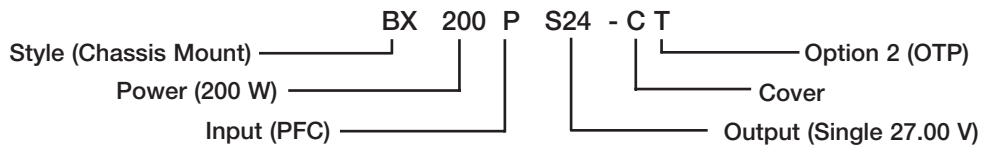
Emissions	• EN55022, level B conducted EN55022, level A radiated
Harmonic Currents	• EN61000-3-2, class A
Voltage Flicker	• EN61000-3-3
ESD Immunity	• EN61000-4-2, level 3 Perf Criteria A
Radiated Immunity	• EN61000-4-3, level 3 Perf Criteria A
EFT/Burst	• EN61000-4-4, level 3 Perf Criteria B
Surge	• EN61000-4-5, level 3 Perf Criteria B
Conducted Immunity	• EN61000-4-6, level 2 Perf Criteria A
Dips & Interruptions	• EN61000-4-11, 30% 10 ms, 60% 100 ms, 100% 5000 ms Perf Criteria A, B, B
Safety Approvals	• CE Mark LVD

Model Numbering & Option Codes

BX



Example:



Notes

The BX series has been designed specifically for battery-charging and standby systems including the following features:

- 2.25 V/cell 20 °C float charge voltage.
- Temperature compensation -3 mV/°C/cell. Sensing circuit fitted to PCB as standard. Can be provided on remote flying lead - contact sales office for details.
- Supply fail relay changeover contacts.
- Battery fail relay changeover contacts - operates 20 seconds before under voltage disconnect.
- Output 'OR' diode for zero bleed on battery in UVD

Auto Boost-charging options

- Option A - Automatic selection of boost charge when the output current >10% and float charge when the output current <10%. Suitable for cyclic charging of batteries e.g. traction vehicle applications.
- Option H - Automatic selection of boost charge when the output current >90%. Suitable for battery backed-up systems where the battery can be boost-charged while the load is connected.

AC INPUT SPECIFICATION							
CODE:		I	J	L	A	T	P
Nominal Input Voltage	All models	55 V rms ⁽³⁾	115 V rms	230 V rms	Autoranger	400 V rms ⁽⁴⁾	Universal ⁽¹⁾
Voltage Range	All models	50-65 V	90-127 V	180-253 V	115/230 V	300-450 V	90-253 V
Frequency Range	All models	44-66 Hz	44-66 Hz	44-66 Hz	44-66 Hz	44-66 Hz	44-66 Hz
Earth Leakage Current	All models	<0.5 mA	<1.6 mA	<2.5 mA	<2.5 mA	<2.5 mA	<2.5 mA
440 Hz Operation Leakage	All models	<3.0 mA	<10 mA	<20 mA	<20 mA	<20 mA	<20 mA
Inrush Current	200	25.0 A	15.0 A	25.0 A	25.0 A	40.0 A	25.0 A
	300	25.0 A	15.0 A	25.0 A	25.0 A	40.0 A	25.0 A
	350	25.0 A	15.0 A	25.0 A	25.0 A	40.0 A	25.0 A
	550	25.0 A	15.0 A	25.0 A	25.0 A	70.0 A	25.0 A
	750		15.0 A	25.0 A	25.0 A	40.0 A	25.0 A
	1k1			25.0 A		40.0 A	25.0 A
Internal Input Fusing (input fuses are fast HRC types)	200	10.0 A	5.0 A	5.0 A	5.0 A	5.0 A	5.0 A
	300	10.0 A	5.0 A	5.0 A	5.0 A	5.0 A	5.0 A
	350	16.0 A	10.0 A	10.0 A	10.0 A	5.0 A	10.0 A
	550	16.0 A	10.0 A	10.0 A	10.0 A	5.0 A	10.0 A
	750		16.0 A	16.0 A	16.0 A	5.0 A	10.0 A
	1k1			16.0 A		10.0 A	10.0 A
Input Current	200	7.5 A	3.6 A	1.8 A	3.6 A	1.1 A	3.0 A
	300	8.7 A	5.4 A	2.7 A	5.4 A	1.6 A	4.4 A
	350	10.1 A	6.2 A	3.1 A	6.2 A	1.9 A	5.2 A
	550	15.9 A	9.8 A	4.9 A	9.8 A	2.9 A	8.1 A
	750		13.4 A	6.7 A	13.4 A	4.0 A	10.0 A
	1k1			9.9 A		5.9 A	8.0 A

Notes

- Universal input range for 1k1 model only 180-264 VAC.
- For DC-DC input specification see DC-DC SX series.
- 55 V input ratings assume trapezoidal input wave shape.
- 400 VAC input is single phase.

Output Voltage & Current Ratings

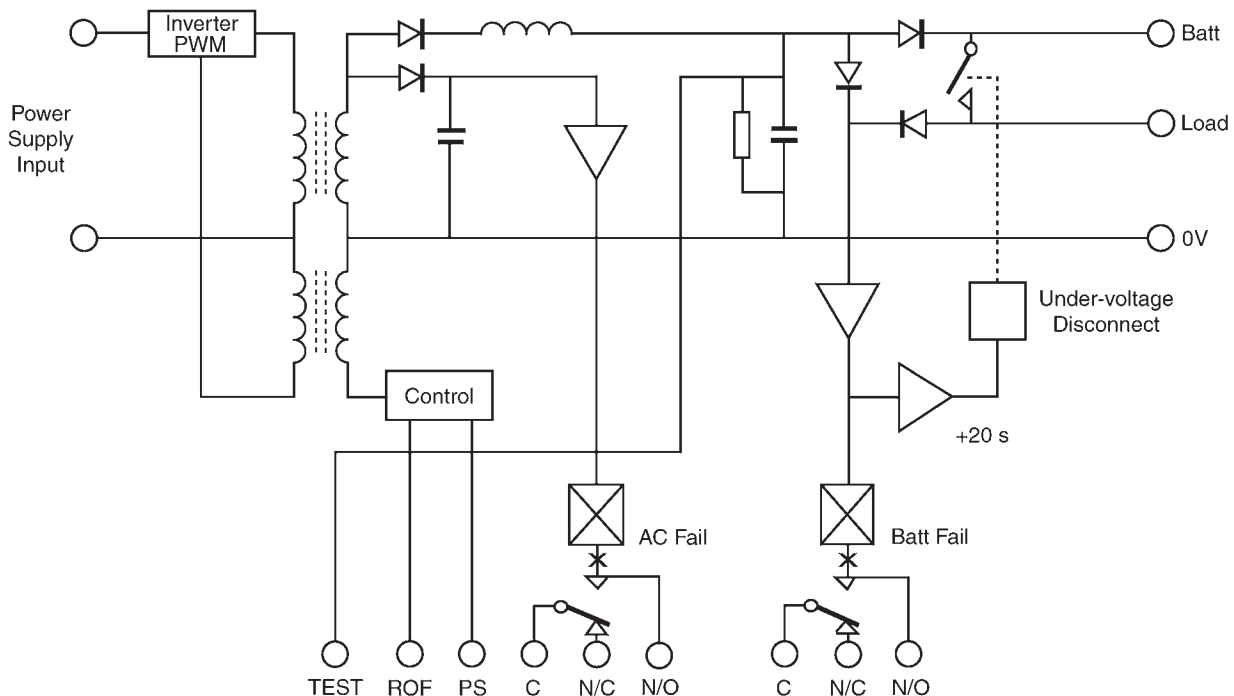
BX

Battery Voltage				Maximum Continuous Power						Unit Output Code
Battery Low (1.75 V/cell)	Nom (2.00 V/cell)	Float (2.25 V/cell)	Boost (2.40 V/cell)	200 W	300 W	350 W	550 W	750 W	1K1 W	
5.25	6	6.75	7.2	29.6 A	44.4 A	52.0 A	81.5 A	N/A	N/A	06
10.50	12	13.50	14.4	14.8 A	22.2 A	26.0 A	40.7 A	55.5 A	N/A	12
12.25	14	15.75	16.8	12.7 A	19.0 A	22.2 A	35.0 A	47.6 A	N/A	14
21.00	24	27.00	28.8	7.4 A	11.1 A	13.0 A	20.4 A	27.7 A	40.7 A	24
31.50	36	40.50	43.2	4.9 A	7.4 A	8.6 A	13.6 A	18.5 A	27.6 A	36
42.00	48	54.00	57.6	3.7 A	5.5 A	6.5 A	10.2 A	13.9 A	20.7 A	48
52.50	60	67.50	72.0	3.0 A	4.4 A	5.2 A	8.1 A	11.1 A	16.3 A	60
84.00	96	108.00	115.0	1.8 A	2.7 A	3.2 A	5.1 A	7.0 A	10.2 A	C1
94.50	108	121.50	129.6	1.6 A	2.8 A	2.3 A	4.5 A	6.2 A	9.0 A	C2
168.00	192	216.00	230.4	0.9 A	1.4 A	1.6 A	2.5 A	3.5 A	5.1 A	D1
189.00	216	243.00	259.2	0.8 A	1.2 A	1.4 A	2.3 A	3.1 S	4.6 A	D4

Notes

1. Shading denotes UVD unable to break full load. External contactor required.

Internal Block Diagram



Note:

Relay contacts are shown in unenergised condition i.e. no input and no battery.

Alarm relays:

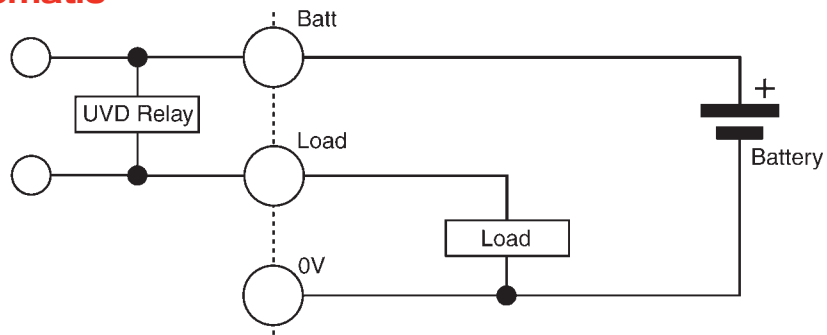
AC FAIL & BATT FAIL isolated change over relay contacts.

AC FAIL energises when input voltage >85% of nominal.

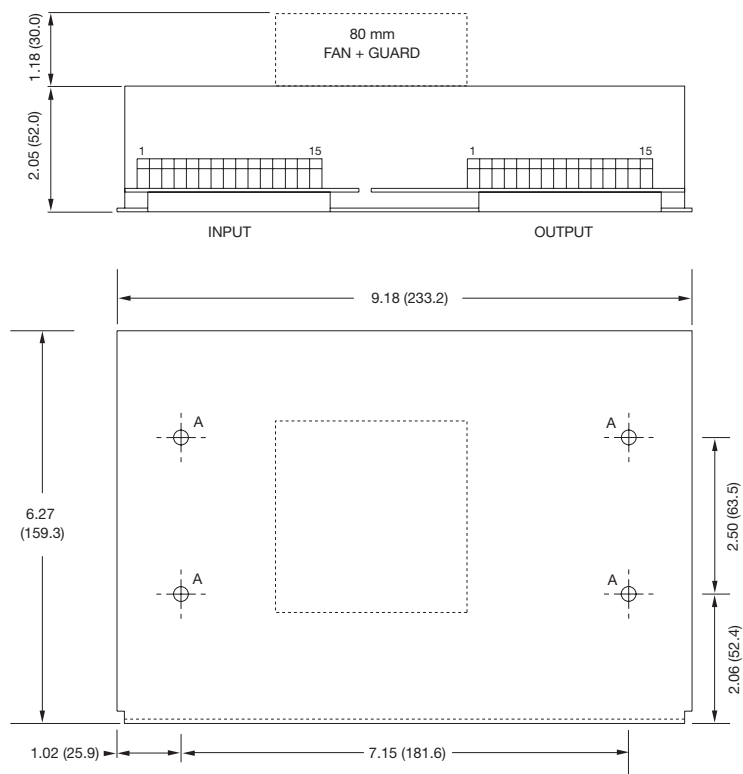
BATT FAIL energises when battery terminal voltage >2 V/Cell.

BATT FAIL de-energises when battery terminal voltage <1.75 V/Cell, then 20 seconds later the LVD will operate.

Connection Schematic



Mechanical Details
BX200 & BX300 Chassis Mount Units

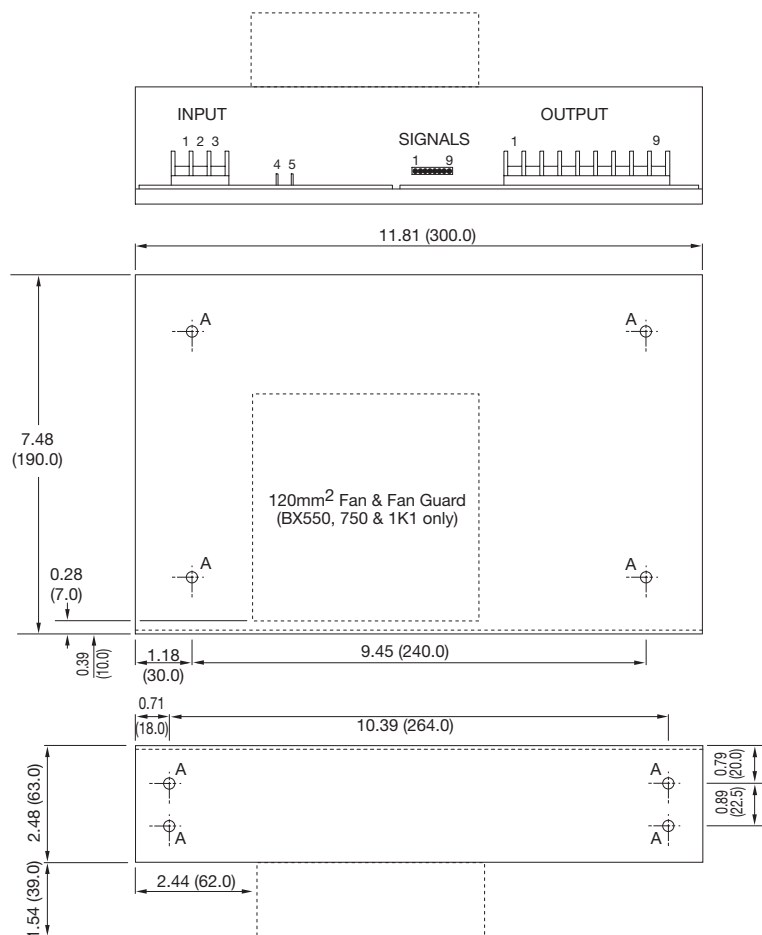


Connections - BX200 & BX300			
Pin No.	INPUT		OUTPUT
	AC	DC	Function
1	Earth	Earth	Test
2		Positive	ROF
3	Neutral	Positive	PS
4		Negative	ACF COM
5	Line	Negative	ACF N/C
6			ACF N/O
7	115 V Link	N/C	BF COM
8		N/C	BF N/C
9	Not used	N/C	BF N/O
10	Not used	N/C	0 V
11	Not used	N/C	0 V
12	Not used	N/C	Load
13	Not used	N/C	Load
14	Not used	N/C	Battery
15	Not used	N/C	Battery

Notes

1. All dimensions in inches (mm) and include cover.
2. Customer fixings: A = M3 ISO Metric.
3. Fixing screws must not penetrate unit by more than 0.20" (5 mm).
4. Weight: BX200 - 3.09 lbs (1.4 kg)
BX300 - 3.75 lbs (1.7 kg)
5. For other mechanical options, see AC-DC SX series.

BX350, BX550, BX750, BX1k1 Chassis Mount Units



Connections & Signals - BX350, BX550, BX750, BX1k1				
Pin No.	INPUT		OUTPUT	SIGNALS
	AC	DC	Function	
1	Earth	Earth	0 V	TEST
2	Neutral	Positive	0 V	ROF
3	Line	Negative	0 V	PS
4	115 V		LOAD	ACF COM
5	Link		LOAD	ACF N/C
6			LOAD	ACF N/O
7			BATTERY	BF COM
8			BATTERY	BF N/C
9			BATTERY	BF N/O

Notes

1. All dimensions in inches (mm) and include cover.
2. Customer fixings: A = M3 ISO Metric.
3. Fixing screws must not penetrate unit by more than 0.20" (5 mm).
4. Weight: BX350 - 5.07 lbs (2.3 kg)
BX550/750 - 6.83 lbs (3.1 kg)
5. For other mechanical options, see AC-DC SX series.