

Powerware BP111 Industrial UPS

30-160 kVA

Features

Standard features

- ▶ High inrush inverter
- ▶ Generator-compatible rectifier
- ▶ Battery management system
- ▶ Phone home alarm reporting
- ▶ Remote diagnostics
- ▶ Dual feed inputs

Optional Features

- ▶ Heavy duty filters
- ▶ Input isolation transformer
- ▶ RS232 communication port
- ▶ Intelligent 10% THD input filter
- ▶ ANSI 61 gray exterior
- ▶ DC ground fault detection
- ▶ Matching maintenance bypass modules



BP111 50 Series Models:

30/40/50 kVA @ 40°C

27/36/45 kVA @ 50°C

BP111 80 Series Models:

50/65/80 kVA @ 40°C

45/58.5/72 kVA @ 50°C

BP111 160 Series Models:

100/130/160 kVA @ 40°C

90/117/144 kVA @ 50°C

Maintaining power integrity and availability is especially challenging for industrial applications in which environmental factors such as temperature, moisture, corrosive conditions, and dust and dirt can have a negative impact on sensitive digital equipment. The Powerware BP111 Industrial Grade UPS is designed to withstand these and many other, hazards that your critical industrial applications may face.

The Powerware BP111 is a double conversion online uninterruptible power system (UPS) with the advanced communications and high reliability you expect, with the industrial features such as a generator-compatible rectifier, 50°C operation capability and heavy duty enclosure you need.

High inrush inverter

In industrial applications, UPSs are commonly used to drive load equipment that requires large currents when energized. These inrush currents

can be several times the normal operating current and can last up to ten seconds or longer. This creates a situation in which the UPS overload rating can be exceeded, resulting in a transfer to bypass. To address the risks posed by high inrush loads, the BP111 offers a high inrush inverter to drive high inrush loads. The inverter overload capacity has been rated at 200% for 30 seconds by increasing the IGBT components by 100%. This robust inverter design reduces the UPS capacity required by 25%, resulting in significant cost and space savings. The high inrush inverter also reduces input feeder sizing requirements, increases component reliability and rated life, and delivers higher operating efficiency for cost savings.

Specifications

ELECTRICAL INPUT

Voltage:	
Configuration	3-phase, 3-wire plus ground
Range	Nominal +10%, -15%
Frequency range	Nominal ±3 Hz (60 Hz)
Power factor with filter	Minimum 0.9
Power walk-in	3 to 60 seconds to full load
Input current distortion with filter	10% THD under nominal conditions
Transient protection	6 kV OC, 3 kA per ANSI 62.41 and IEC 801-4

This data sheet provides specification information unique to this rating. The specifications reflect operation in a controlled test environment. Performance may vary under actual operating conditons. Specifications are subject to change without notice.

INDUSTRIAL SERIES SYSTEM DATA

KEY 40°C : 50°C

50 Series												
	30 kVA / 24 kW 27 kVA / 21.6 kW				40 kVA / 32 kW 36 kVA / 28.8 kW				50 kVA / 40 kW 45 kVA / 36 kW			
AC INPUT (WITH FILTER)												
Input Voltage (VAC, L-L)	208	480	480	600	208	480	480	600	208	480	480	600
Input Frequency (Hz)	60	60	60	60	60	60	60	60	60	60	60	60
Nominal Current (Amps)	82 : 74	35 : 31	35 : 31	28 : 25	110 : 99	46 : 42	46 : 42	38 : 34	137 : 23	58 : 52	58 : 52	47 : 42
Maximum Current (Amps)	115 : 104	50 : 45	50 : 45	40 : 36	150 : 135	65 : 59	65 : 54	55 : 49	190 : 171	80 : 72	80 : 72	65 : 58
AC OUTPUT												
Output Voltage (VAC, L-L)	208	208	480	208	208	208	480	208	208	208	480	208
Output Frequency (Hz)	60	60	60	60	60	60	60	60	60	60	60	60
Nominal Current (Amps)	83 : 75	83 : 75	36 : 32	83 : 75	111 : 100	111 : 100	48 : 43	111 : 100	139 : 125	139 : 125	60 : 54	139 : 125
15 Minutes Max (Amps)	104 : 94	104 : 94	45 : 41	104 : 94	139 : 125	139 : 125	60 : 52	139 : 125	173 : 156	173 : 156	75 : 68	173 : 156
BYPASS INPUT												
Nominal Current (Amps)	83 : 75	36 : 32	36 : 32	29 : 26	111 : 100	48 : 43	48 : 43	38 : 35	139 : 125	60 : 54	60 : 54	48 : 43
DC INPUT LINK												
Nominal Voltage (VDC)	480	480	480	480	480	480	480	480	480	480	480	480
Float Voltage(VDC)	540	540	540	540	540	540	540	540	540	540	540	540
End of Discharge (VDC)	401	401	401	401	401	401	401	401	401	401	401	401
Maximum Current (Amps)	64 : 58	64 : 58	64 : 58	64 : 58	86 : 77	86 : 77	86 : 77	86 : 77	107 : 97	107 : 97	107 : 97	107 : 97
MECHANICAL SPECIFICATIONS												
Installed Weight (lbs)	2075	1750	1750	2075	3000	1750	1750	3000	2075	1750	1750	3000
(kg)	940	790	790	940	1361	790	790	1361	940	790	790	1361
Installed Width (in)	34	34	34	34	34	34	34	58	34	34	34	58
(cm)	86	86	86	86	147	86	86	147	86	86	86	147
SYSTEM EFFICIENCIES												
100% Load (%)	90	92	92	91	90	92	92	91	90	92	92	91
75% Load (%)	89	90	90	90	90	92	92	91	90	92	92	91
50% Load (%)	87	88	88	88	88	90	90	89	89	91	91	90
Inverter DC-AC (%)	93	93	93	93	93	93	93	93	93	93	93	93
FULL LOAD HEAT DISSIPATION												
BTU/Hr. (x1000)	91 : 82	71 : 64	71 : 64	81 : 73	121 : 109	95 : 85	95 : 85	108 : 97	152 : 136	119 : 107	119 : 107	135 : 21
Watts (x1000)	267 : 24	209 : 188	209 : 188	237 : 214	356 : 32	278 : 25	278 : 25	316 : 285	444 : 40	348 : 313	348 : 313	3906 : 356

Output derated 10% for 50°C operation.

Specifications

ELECTRICAL OUTPUT			
Voltage:	Unbalanced regulation ±3% for 100% load unbalance (linear load)		
Configuration	3-phase, 3 or 4 wire plus ground		
Steady state regulation	Overload (inverter) 125% for 15 minutes 200% for 30 seconds 1000% for 10 cycles with bypass		
	Frequency regulation ±0.01% free running		
Dynamic regulation	Frequency slew rate 1 Hz per second maximum		
Harmonic distortion	±1% from nominal for the combined effects of minimum to maximum AC input voltage, 20% to 100% and 100% to 20% load and maximum to minimum DC voltage		
	±5% from nominal for 20% to 100% and 100% to 20% step load recovering to within 1% in 1 cycle		
	2% THD at full-linear load 5% THD at full non-linear load		

INDUSTRIAL SERIES SYSTEM DATA

KEY 40°C 50°C

80 Series												
	50 kVA / 40 kW 45 kVA / 36 kW				65 kVA / 52 kW 58 kVA / 46.8 kW				80 kVA / 64 kW 72 kVA / 57.6 kW			
AC INPUT												
Input Voltage (VAC, L-L)	208	480	480	600	208	480	480	600	208	480	480	600
Input Frequency (Hz)	60	60	60	60	60	60	60	60	60	60	60	60
Nominal Current (Amps)	137:123	58:52	58:52	47:42	178:160	76:68	76:68	61:55	219:197	93:81	93:84	75:68
Maximum Current (Amps)	190:171	80:72	80:72	65:58	240:216	110:99	110:99	80:72	270:243	120:108	120:108	95:86
AC OUTPUT												
Output Voltage (VAC, L-L)	208	208	480	208	208	208	480	208	208	208	480	208
Output Frequency (Hz)	60	60	60	60	60	60	60	60	60	60	60	60
Nominal Current (Amps)	139:125	139:125	60:54	139:125	180:162	180:162	78	180:162	222:200	222:200	96:87	22:200
15 Minutes Max (Amps)	173:156	173:156	75:68	173:156	226:203	226:203	98	226:203	278:250	278:250	120:108	278:250
BYPASS INPUT												
Nominal Current (Amps)	139:125	60:54	60:54	48:43	180:162	78:70	78:70	63:56	222:200	96:87	96:87	77:69
DC INPUT LINK												
Nominal Voltage (VDC)	480	480	480	480	480	480	480	480	480	480	480	480
Float Voltage (VDC)	540	540	540	540	540	540	540	540	540	540	540	540
End of Discharge (VDC)	401	401	401	401	401	401	401	401	401	401	401	401
Maximum Current (Amps)	107:97	107:97	107:97	107:97	138:124	138:124	138:124	138:124	170:153	170:153	170:153	170:153
MECHANICAL SPECIFICATIONS												
Installed Weight (lbs)	2475	2000	2000	3400	2475	2000	2000	3400	2475	2000	2000	3400
(kg)	1123	909	909	1542	1123	909	909	1542	1123	909	909	1542
Installed Width (in)	34	34	34	58	34	34	34	58	34	34	34	58
(cm)	86	86	86	147	86	86	86	147	86	86	86	147
SYSTEM EFFICIENCIES												
100% Load (%)	90	92	92	91	90	92	92	91	90	92	92	91
75% Load (%)	89	91	91	90	90	92	92	91	90	92	92	91
50% Load (%)	87	89	89	88	89	91	91	90	89	91	91	90
Inverter DC-AC (%)	93	93	93	93	93	93	93	93	93	93	93	93
FULL LOAD HEAT DISSIPATION												
BTU/Hr. (x1000)	152:136	119:107	119:107	135:121	197:158	154:123	154:123	176:140	243:218	190:171	190:171	216:194
Watts (x1000)	444:40	348:313	348:313	396:356	578:462	452:362	452:362	514:411	711:64	557:501	557:501	633:57

Output derated 10% for 50°C operation.

Specifications

ENVIRONMENTAL		MECHANICAL	
Ambient temperature*	0°C to 40°C without derating.	Dimensions	
Operating:	10% derating at 50°C	Width	See System data
Storage:	-20°C to 70°C	Depth	31.5 inches (124 cm)
Relative humidity	Non-condensing up to 95%	Height	73.5 inches (187 cm)
Altitude	5000 ft (1500 m) at 40°C without derating	Access	Maintenance access required from front
Operating			
Accoustical noise	65 dB 'A' scale @ 1 meter, in accordance with ISO 7179	MISCELLANEOUS	
EMI suppression:	Meets FCC Part 15 for class A devices	5 micron filter specification	ASHRE 62-1989R or equivalent
ESD suppression:	Meets IEC 801-2 specifications.	* Battery warranty is conditional upon application at or below 24°C (75°F). Continuous operation above 25°C (75°F) may reduce or void battery warranty (see battery warranty).	
	Withstands up to 25 kV without damage and with no disturbance or adverse effect to the critical load		

INDUSTRIAL SERIES SYSTEM DATA

KEY 40°C : 50°C

160 Series												
	100 kVA / 80 kW 90 kVA / 72 kW				130 kVA / 104 kW 117 kVA / 93.6 kW				160 kVA / 128 kW 144 kVA / 115.2 kW			
AC INPUT												
Input Voltage (VAC, L-L)	208	480	480	600	208	480	480	600	208	480	480	600
Input Frequency (Hz)	60	60	60	60	60	60	60	60	60	60	60	60
Nominal Current (Amps)	274:247	116:105	116:105	94:85	356:321	151:136	151:136	122:110	439:375	186:167	186:167	150:136
Maximum Current (Amps)	380:342	160:144	160:144	130:117	480:432	200:180	200:180	160:144	600:540	250:225	250:225	200:180
AC OUTPUT												
Output Voltage (VAC, L-L)	208	208	480	208	208	208	480	208	208	208	480	208
Output Frequency (Hz)	60	60	60	60	60	60	60	60	60	60	60	60
Nominal Current (Amps)	278:250	278:250	120:108	278:250	361:325	361:325	156:141	361:305	444:400	444:400	192:173	444:400
15 Minutes Max (Amps)	347:312	347:312	150:135	347:312	451:408	451:408	195:176	451:408	555:500	555:500	241:217	555:500
BYPASS INPUT												
Nominal Current (Amps)	278:250	120:108	120:108	96:87	361:325	156:141	156:141	125:113	444:400	192:173	192:173	154:139
DC INPUT LINK												
Nominal Voltage (VDC)	480	480	480	480	480	480	480	480	480	480	480	480
Float Voltage (VDC)	540	540	540	540	540	540	540	540	540	540	540	540
End of Discharge (VDC)	401	401	401	401	401	401	401	401	401	401	401	401
Maximum Current (Amps)	215:193	215:193	215:193	215:193	279:251	279:251	279:251	279:251	343:309	343:309	343:309	343:309
MECHANICAL SPECIFICATIONS												
Installed Weight (lbs)	5000	3150	3150	5000	5000	3150	3150	5000	5000	3150	3150	5000
(kg)	2268	1429	1429	2268	2268	1429	1429	2268	2268	1429	1429	2268
Installed Width (in)	73	49	49	73	73	49	49	73	73	49	49	73
(cm)	185	124	124	185	185	124	124	185	185	124	124	185
SYSTEM EFFICIENCIES												
100% Load (%)	90	92	92	91	90	92	92	91	90	92	92	91
75% Load (%)	89	91	91	90	90	92	92	91	90	92	92	91
50% Load (%)	87	89	89	88	89	91	91	90	89	91	91	90
Inverter DC-AC (%)	93	93	93	93	93	93	93	93	93	93	93	93
FULL LOAD HEAT DISSIPATION												
BTU/Hr. (x1000)	30.3:27.3	23.8:21.4	23.8:21.4	27.0:24.3	39.5:35.5	30.9:27.8	30.9:27.8	35.1:31.6	48.5:43.7	38.0:34.2	38.0:34.2	43.2:38.9
Watts (x1000)	8.89:8.0	6.96:6.26	6.96:6.26	7.91:7.12	11.56:10.4	9.04:8.14	9.04:8.14	10.29:9.26	14.22:12.8	11.13:10.0	11.13:10.0	12.66:11.4

Output derated 10% for 50°C operation.

Powerware

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