

The British Power Conversion Company



BPC635-01
PPBC40100 BATTERY CABINET
USER MANUAL



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CHAPTER 1 – SAFETY WARNINGS

Read the following safety information carefully before you install or operate the BPC PPBC40100 Battery Cabinet equipment and keep this manual within easy access of the equipment for future reference.

1.1 DESCRIPTION OF SYMBOLS USED IN THIS MANUAL



WARNING: The warning symbol is used where there is danger of an electrical shock, equipment damage or personal-injury.



CAUTION: The caution symbol is used to highlight important information to avoid possible equipment malfunction or damage.

1.2 BATTERY SAFETY



WARNING: The battery is not isolated from the mains voltage. Hazardous voltage may occur between the battery terminals and ground.



WARNING: A battery can present a risk of electric shock or burn from high short circuit currents. Always take the following precautions when working on batteries:

- Remove watches, rings or other metal objects.
- Use tools with insulated handles.



WARNING: The PPBC40100 system uses recyclable batteries:

- The batteries contain lead and pose a hazard to the environment and human health if not disposed of properly.
- If you replace the batteries you must dispose of the used batteries in accordance with local environmental laws and regulations.



WARNING: Heed the following warnings concerning battery handling:

- Do not dispose of batteries in a fire. The batteries may explode.
- Do not open or mutilate the batteries. They contain an electrolyte which is toxic and harmful to the skin and eyes.
- If electrolyte comes into contact with the skin, the affected area should be washed immediately with clean flowing water.
- The internal energy source (the battery) cannot be de-energized by the user.



WARNING: When changing the batteries, install the same number and same type of batteries.

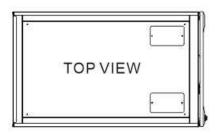


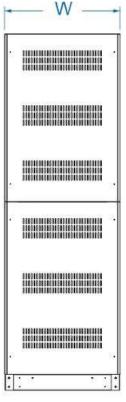
CHAPTER 2 – OVERVIEW

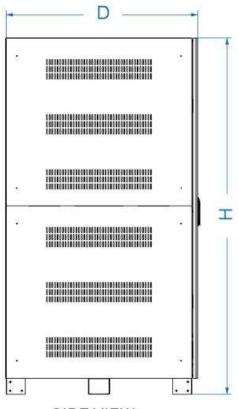
2.1 MECHANICAL INFORMATION

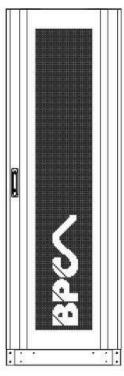
Dimension: 1080 mm(D)*647 mm(W)*2010 mm(H)

Empty Cabinet Weight :260 Kgs









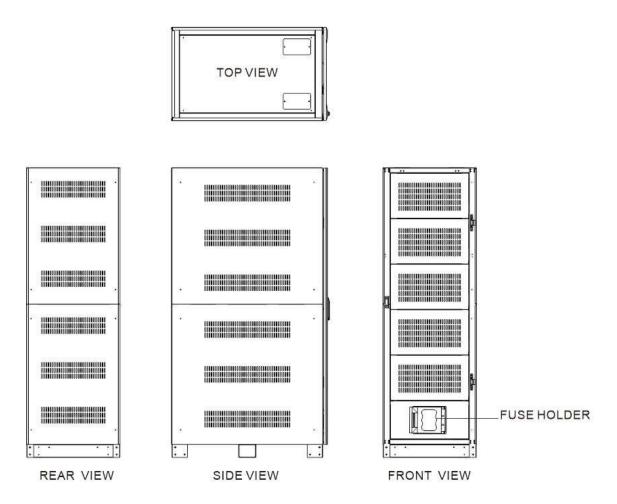
REAR VIEW

SIDE VIEW

FRONT VIEW



2.2 FUSE HOLDER



There are two variants of fuse systems for the PPBC40100 cabinets:

UPS - 3 POLE FUSING

NH00 Fuse holder with 160A DC rated fuses

EMRGENCY LIGHTING - 3 POLE FUSING WITH 120V FUSE SEPERATION

22 x 58 Fuse holder with 100A DC rated fuses



CHAPTER 3 – POWER RATING

The Battery cabinet is designed for multiple battery combinations for UPS installations:

Battery +/-	Total Blocks	Total End of discharge voltage	DC current rating (DCA)	AC load Rating based on 1.65 (KW)	AC load Rating based on 1.7 (KW)
+16 / -16	32	316.8	160	50.7	52.2
+17 / -17	34	336.6	160	53.9	55.5
+18 / -18	36	356.4	160	57.0	58.8
+19 / -19	38	376.2	160	60.2	62.0
+20 / -20	40	396	160	63.4	65.3
+21 / -21	42	415.8	160	66.5	68.5
+22/ -22	44	435.6	160	69.7	71.8
+28 / -28	56	554.4	160	88.7	91.4
+30 / -30	60	594	160	95.0	97.9

Calculation based on DC/AC efficiency at 93%

Calculation based on Cell discharge voltage of 1.65

EL SYSTEMS USING +/-20 BLOCKS - 120V SEPERATATION

Battery +/-	Total Blocks	Total End of discharge voltage	DC current rating (DCA)	AC load Rating based on 1.65 (KW)	AC load Rating based on 1.7 (KW)
+20 / -20	40	396	100	39.6	40.8

Calculation based on DC/AC efficiency at 93%

Calculation based on Cell discharge voltage of 1.65



CHAPTER 4 – VARIOUS INSTALLATION DESIGNS

The battery cabinet has been designed to hold various battery models and sizes, see below for battery designs:

BATTERY	BATTERY	QTY OF BATTERIES	BATTERY CABLE	QTY OF	MAX
DESIGN	MODEL		KIT	CABINETS	CURRENT
DN2194 - P1	PSLW780	40 (+/-20)	CK-PPBB40100-4	1	160A
DN2194 – P2	PSLW780	60 (+/-30)	CK-PPBB40100-4	1	160A
DN2194 – P3	PSLW1100	40 (+/-20)	CK-PPBB40100-2	1	160A
DN2194 – P4	PSLW1100	44 (+/-22)	CK-PPBB40100-2	1	160A
DN2194 – P5	PSLW1100	60 (+/-30)	CK-PPBB40100-4	1	160A
DN2194 – P6	PSLW1500	40 (+/-20)	CK-PPBB40100-2	1	160A
DN2194 – P7	PSLW1500	44 (+/-22)	CK-PPBB40100-2	1	160A
DN2194 – P8	PSLW1550	40 (+/-20)	CK-PPBB40100-2	1	160A
			&		
			CK-PPBB40100-		
			2B		
DN2194 – P9	PSLW1900	40 (+/-20)	CK-PPBB40100-2	1	160A
DN2194 – P10	PSLW2400	40 (+/-20)	CK-PPBB40100-2	1	160A
DN2194 – P11	PSLW2650	40 (+/-20)	CK-PPBB40100-2	1	160A
DN2194 – P12	PSL26-12	40 (+/-20)	CK-PPBB40100-3	1	160A
DN2194 – P13	PSL26-12	60 (+/-30)	CK-PPBB40100-3	1	160A
DN2194 – P14	PSL35-12	40 (+/-20)	CK-PPBB40100-4	1	160A
DN2194 – P15	PSL35-12	60 (+/-30)	CK-PPBB40100-4	1	160A
DN2194 – P16	PSL44-12	40 (+/-20)	CK-PPBB40100-2	1	160A
DN2194 – P17	PSL44-12	44 (+/-22)	CK-PPBB40100-2	1	160A
DN2194 – P18	PSL44-12	60 (+/-30)	CK-PPBB40100-4	1	160A
DN2194 - P19	PSL55-12	40 (+/-20)	CK-PPBB40100-2	1	160A
DN2194 – P20	PSL55-12	44 (+/-22)	CK-PPBB40100-2	1	160A
DN2194 – P21	PSL70J-12	40 (+/-20)	CK-PPBB40100-1	1	160A
DN2194 – P22	PSL80-12	40 (+/-20)	CK-PPBB40100-2	1	160A
DN2194 – P23	PSL100-12	40 (+/-20)	CK-PPBB40100-1	1	160A
DN2194 – P24	PSL110-12	40 (+/-20)	CK-PPBB40100-2	1	160A
DN2194 – P25	PSL70J-12	60 (+/-30)	CK-PPBB40100-5	2	160A
DN2194 – P26	PSL100-12	60 (+/-30)	CK-PPBB40100-5	2	160A
DN2194 – P27	PSL110-12	60 (+/-30)	CK-PPBB40100-6	2	160A
DN2194 – P28	PSL70J-12	40 (+/-20) + 120V SEPERATION	CK-PPBB40100-7	1	100A
DN2194 - P29	PSL80-12	40 (+/-20) + 120V SEPERATION	CK-PPBB40100-8	1	100A
DN2194 - P30	PSL100-12	40 (+/-20) + 120V SEPERATION	CK-PPBB40100-8	1	100A
DN2194 - P31	PSL110-12	40 (+/-20) + 120V SEPERATION	CK-PPBB40100-8	1	100A

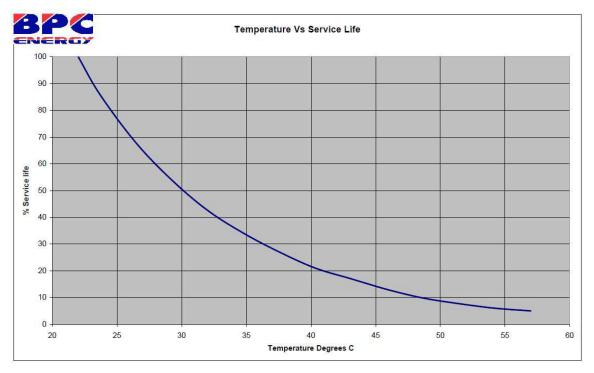


CHAPTER 5 - POSITIONING

5.1 ENVIRONMENT

The battery will produce a small amount of hydrogen and oxygen at the end of charging. Therefore, it must be ensured that the fresh air ventilation of the battery installation environment meets the requirements of EN 50172-2012 electrical installation, battery construction and acceptance specifications. Ambient temperature is a major factor affecting battery capacity and life. Under normal circumstances, the ambient temperature allowed by the battery is within 5 °C 35 °C.

However, temperatures above 22 °C will dramatically affect the life of the battery, see chart below for service life against temperature:

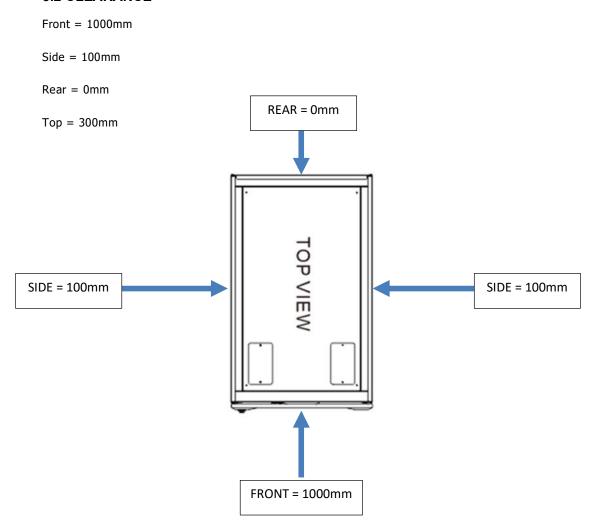


Temperatures below 15°C will affect the autonomy of the battery, therefore reduced runtimes will occur.

The ambient temperature of the battery should be constant. The optimum temperature is 20-22 °C. The battery should be away from the heat source and the main vent.



5.2 CLEARANCE



5.3 STORAGE

If immediate installation not required, you must store the Batteries with original packing indoors, to avoid any damp or overheating. Batteries need to be stored in dry, low temperature, good ventilation, the most suitable storage temperature is 20° C to 25° C.



WARNING: The battery should be periodically charged according to the battery manufacturer's instructions.

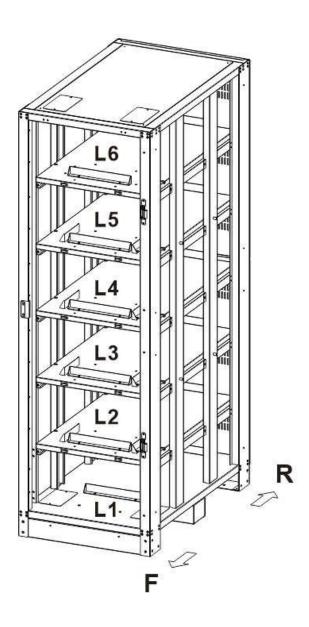


CHAPTER 6 – INSTALLATION

This chapter provides details of the battery installation.

6.1 INITIAL

There are 6 battery levels within the battery cabinet marked Level 1 (L1) to Level 6 (L6)

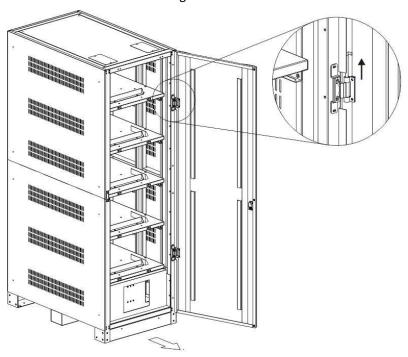




6.2 INSTALL

6.2.1 STEP 1 - REMOVE FRONT DOOR AND INTERNAL PANELS

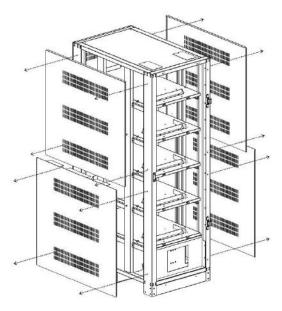
Pull out the latch from door hinge then remove the front door.





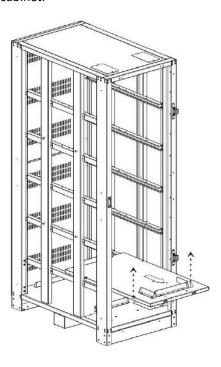
6.2.2 STEP 2 - REMOVE SIDE COVERS

Unscrew the M4 screws (16 pcs) by cross screwdriver and then remove the side panels. This is only required if access to sides is necessary – the cabinet is designed to be built from front only.



6.2.3 STEP 2 - REMOVE BATTERY SHELVES

Unscrew all the M6 screws (20 pcs) form each battery shelves and remove all battery shelves from cabinet.



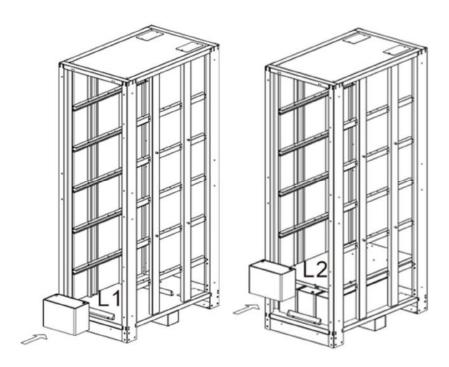


6.2.4 STEP 4 - INSTALL DC FUSE SYSTEM

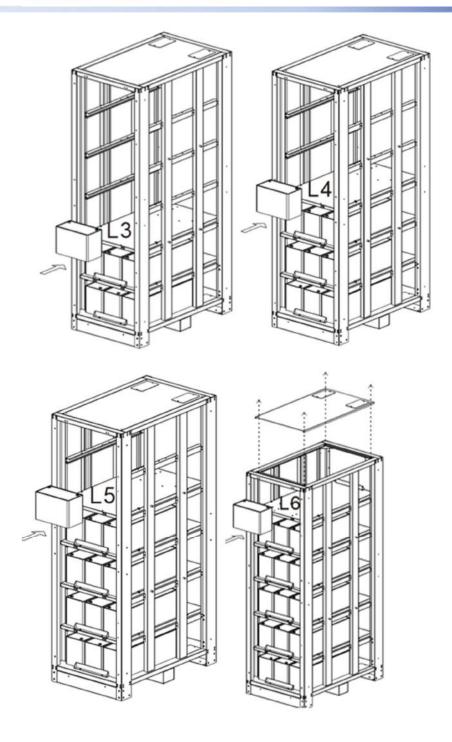
Within the cable kit is provided fuse holder for the cabinet, install the fuse holder to the lower section of the cabinet as per the drawings.

6.2.5 STEP 4 – INSTALL BATTEREIS TO BOTTOM SHELF (L1)

Install batteries from bottom shelf and then insert shelves and build upwards, follow battery build drawing shown in end of the user manual:

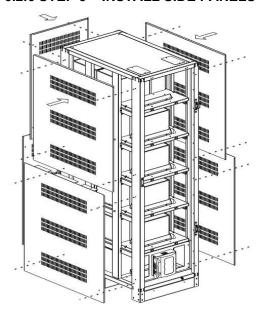




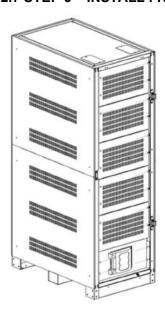




6.2.6 STEP 5 - INSTALL SIDE PANELS

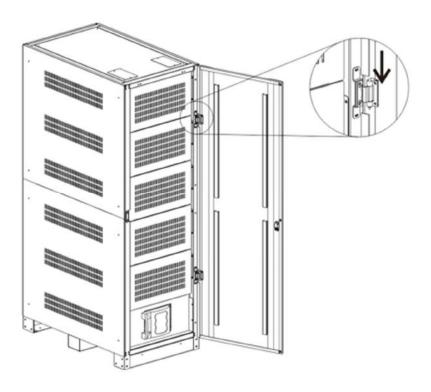


6.2.7 STEP 6 - INSTALL FRONT COVERS





6.2.8 STEP 7 - INSTALL FRONT DOOR





CHAPTER 7 – WARRANTY TERMS

7.1 BATTERY WARRANTY CONDITIONS

The Warranty is subject to the following conditions:

- a) The Product must have been installed, charged, discharged, stored, used and maintained in accordance with the "BPC013 Battery Installation Manual" and the battery Specifications.
- b) The Warranty Period for any Product which has been installed in an environment where the temperature exceeds 20°C shall be proportionately reduced by fifty percent (50%) for every 8°C increase in temperature above 20°C. Operation or storage of the Product for any length of time in an environment having a temperature above 45°C will void the Warranty.
- c) A Product will not be considered defective or nonconforming if it has delivered at least eighty percent (80%) of its rated capacity during the Warranty Period. This will be determined by recharging the battery for 48 hours, then discharging and measuring the amount of Watts used versus the Watts capacity of the battery.
- d) Product must be of proper capacity and size for the intended application.
- e) Warranty does not cover:
- Misuse (1), load related failures (2), mains supply related failures (3), abuse (4), neglect (5), mishandling (6), vandalising (7), unauthorised modifications (8), use of BPC non-approved parts (9), operation beyond the limit of design intent (10) including high temperature (11)/humidity (12)/dust (13), improper maintenance (14), accidents (15), Flood (16)/Fire (17) any other natural calamities (18) or other abnormal conditions (19).
- f) All battery terminals must be tightened up to the correct torque rating shown in the battery specification. Battery terminals should never be overtightened above the recommended torque setting.
- g) Battery must be kept charged at all times. Battery that have been left in a discharged state for more than 72Hrs may self-discharge below a recoverable voltage level. Warranty will be void for batteries that have been left in this condition.
- h) Battery must be connected to a suitable charger and activated into float charge mode within 3 months of delivery date.
- i) The superimposed effective alternating component of the charge current leff (rms) should be limited, under float and boost charge conditions, to the values of 5A/100Ah10 in float and 10A/100Ah10 in Boost.

Higher values of AC ripple current will detrimentally affect the life of batteries by generating

heat.

The effective current leff can be measured with an AC clamp-on ammeter or similar.

- j) BPC PSLOGGER For all hardwired systems a BPC PSLOGGER must be installed, 1 per battery cabinet. The PSLOGGER must be set up to continuously record the temp and discharges of a battery. Data must be sent to helpdesk for warranty claim <9Ah.
- k) The Warranty shall be void for any Product to the extent that the depth and number of discharges exceed any of the following:
- 1. 225 Cycles during the Warranty Period with a 30% discharge depth;
- 2. 185 Cycles during the Warranty Period with a 50% discharge depth;



- 3. 100 Cycles during the Warranty Period with a 100% discharge depth.
- I) All battery blocks in all strings should be of the same model, Ah and manufacturer.

7.2 LIMITATIONS

- a) BPC LIABILITY FOR ANY BREACH OF THE WARRANTY IS LIMITED AS SET FORTH IN THE WARRANTY. THE WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, EXPRESS, IMPLIED OR STATUTORY INCLUDING, WITHOUT LIMITATION, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. UNDER NO CIRCUMSTANCES SHALL BPC PRODUCT BE SUBJECT TO ANY CONSEQUENTIAL, INCIDENTAL, INDIRECT, SPECIAL OR CONTINGENT DAMAGES WHATSOEVER, INCLUDING BUT NOT LIMITED TO DAMAGES FOR LOST PROFITS OR GOODWILL.
- b) BPC makes no warranty and shall have no obligation for any damage to the Product caused by or resulting from abuse, misuse, neglect or any unauthorized repairs, maintenance or alterations of the Product. The preceding paragraphs set forth the exclusive remedies of Customer and/or Sales/Service Partner, for all claims based on a defect in or nonconformity of the Product, whether the defect or nonconformity arises before or during the Warranty Period, and whether a claim, however instituted, is based on contract, indemnity, warranty, tort (including negligence and strict liability), or otherwise.

7.3 GOVERNING LAW AND JURISDICTION

- a) These terms and conditions and any dispute or claim (including non-contractual disputes or claims) arising out of or in connection with it or its subject matter or formation shall be governed by and construed in accordance with the law of England and Wales.
- b) Each party irrevocably agrees that the courts of England and Wales shall have exclusive jurisdiction to settle any dispute or claim (including non-contractual disputes or claims) arising out of or in connection with these terms and conditions or its subject matter or formation.



CHAPTER 8 – BATTERY LAYOUT DRAWINGS

