

ElektroBank Installer & User Manual Model D1



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AMENDMENT RECORD

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Associated / Referenced documents

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Content

| | |
|--|-----------|
| 1. Markings & Symbols..... | 5 |
| 2. External RCD Requirements | 6 |
| 3. Installation..... | 6 |
| 4. Wiring..... | 8 |
| 4.1 Port Locations..... | 8 |
| 4.2 Grid Port Including Protective Earthing..... | 8 |
| 4.3 Backup Port | 9 |
| 4.4 Maintaining Neutral Continuity to Earth | 9 |
| 4.5 PV ports | 9 |
| 4.6 DRM0..... | 10 |
| 4.7 Ethernet..... | 10 |
| 5. Maintenance | 10 |
| 5.1 User Maintenance..... | 10 |
| 5.2 Trained Service Professional Maintenance..... | 11 |
| 6. Warnings | 11 |
| 6.1 Electrical Interface | 12 |

List of Figures:

No table of figures entries found.

1. Markings & Symbols

1. To identify the location where the operator's manual is stored or to identify information that relates to the operating instructions. To indicate that the operating instructions should be considered when operating the device or control close to where the symbol is placed.



2. To identify equipment that has risk of electric shock.



3. To identify energy storage timed discharge – that is the time required after disconnecting the unit from all energy sources and turning off the battery circuit breaker until the energy storage in the unit is less than 50VDC.



4. To indicate that caution is necessary when operating the device or control close to where the symbol is placed, or to indicate that the current situation needs operator awareness or operator action in order to avoid undesirable consequences.



5. To identify any terminal which is intended for connection to an external conductor for protection against electric shock in case of a fault, or the terminal of a protective earth (ground) electrode.

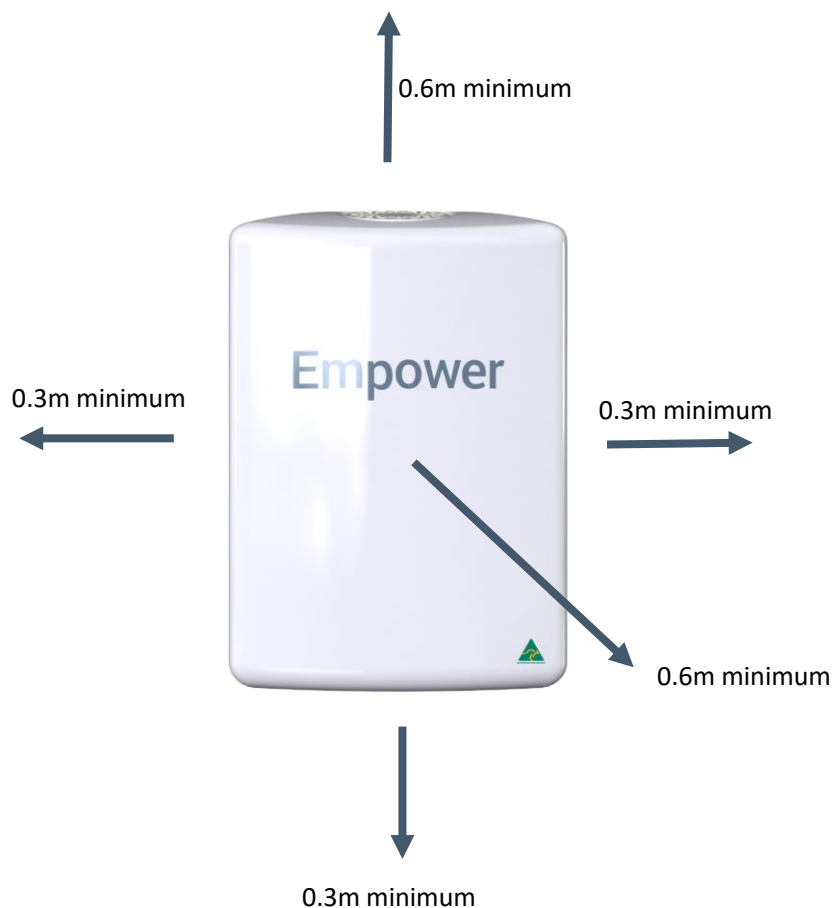


2. External RCD Requirements

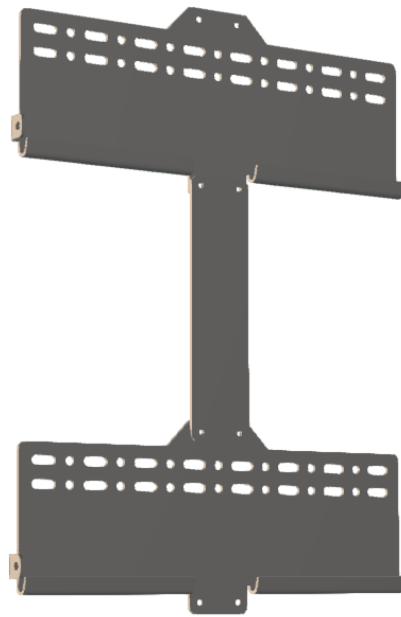
This product requires an external RCD Type B to be installed on the backup port, external to the product. It needs to be a combined MCB/RCD Type B and rated to 20A and 30mA respectively.

3. Installation

1. Remove external packaging but keep ElektroBank on pallet.
2. Remove plastic cover and wall mount bracket from ElektroBank.
3. Only Install the ElektroBank wall mounted on solid wall, brick or concrete (not wood).
 - a. Don't mount in direct sunlight.
 - b. Ensure no animals or insects nest inside the cover.
4. Ensure there are no obstructions inside the dimensions below.
 - a. Installation position shall not prevent access to disconnection means.
 - b. No plants can grow inside these limits.




5. Ensure the wall bracket is placed vertically by using a spirit level.
6. Use at least 4 suitable anchor bolts in the top section of the wall bracket and 3 anchor bolts in the base section.



7. Lift the ElektroBank with the help of the pallet lifter so it is now upright on the pallet. Lift the pallet using a pallet lifter and hook the ElektroBank onto the wall bracket.
8. Place supplied M6 screws into the side of the ElektroBank to fix the unit to the wall bracket.
9. Ensure separate PV disconnect is used and that it is isolated and locked. Same with grid.
10. Lay conduit for grid, backup and PV wires that fit in the slot at the back of the plastic cover.
11. Unhinge front cover and remove lower escutcheon panel.
12. Feed conduit into conduit glands for grid and backup ports. Wire up to DIN rail.
13. Connect fast connect PV connectors to PV cables and connect to PV connectors.
14. Connect Ethernet and DRM0 cables if required.
15. Turn on battery Circuit breaker.
16. Place escutcheon panel back on and close lid. Turn grid power on.
17. Connect to ElektroBank via WiFi.
18. Go to installer page and setup all parameters as per local regulations.
19. Test charge, discharge, both PV inputs and backup.
20. If the backup functionality is required, connect the backup wires directly to a double pole external RCD Type B 30mA with overcurrent protection 20A. This should be sited either in the main consumer distribution board or in a special backup distribution board.
21. Fit a warning label on the escutcheon panel.

Before working on this circuit
- Isolate Uninterruptible Power System (UPS)
-Then check for Hazardous Voltage between all terminals
including the protective earth

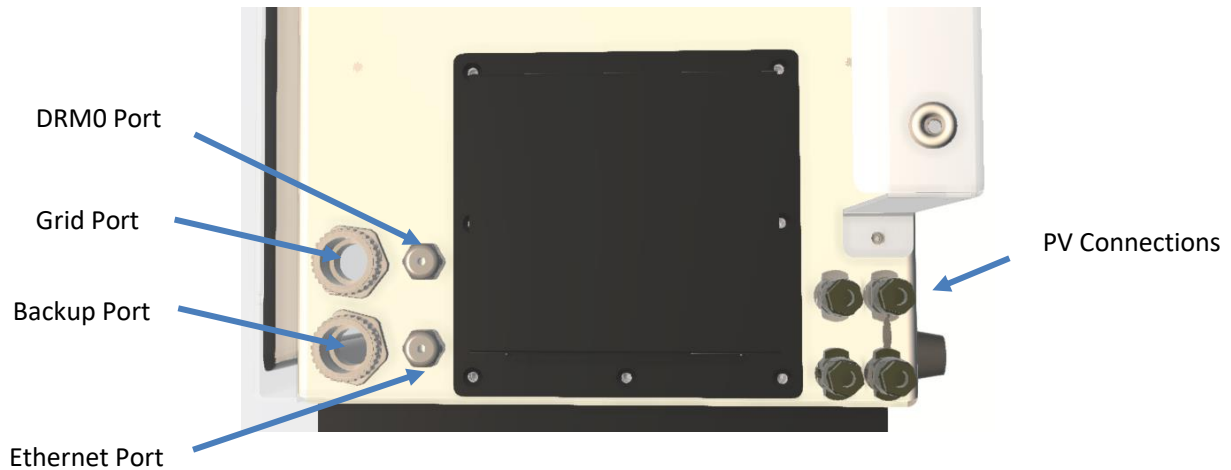


Risk of Voltage Backfeed

4. Wiring

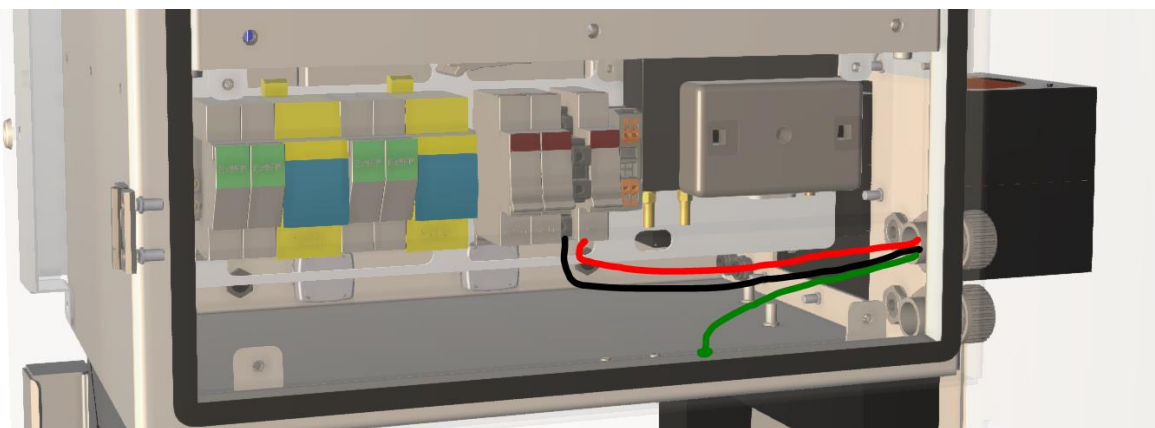
In addition to all requirements in this document, ensure all wiring conforms to AS/NZS 3000 and AS/NZS 477.1 for Australia.

4.1 Port Locations



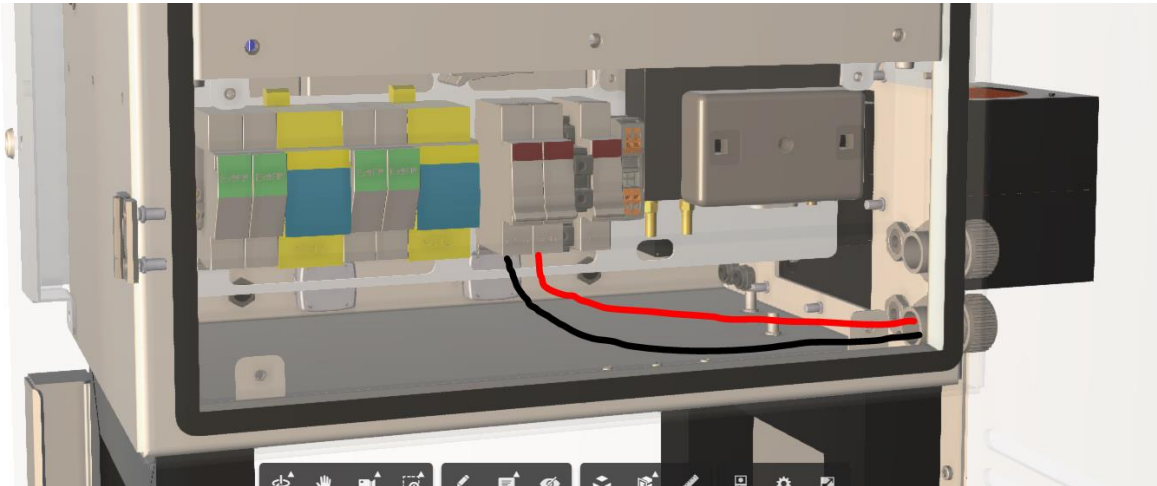
4.2 Grid Port Including Protective Earthing

1. Use minimum 6mm² twin core and earth cable for the grid port – **ensure earth is the same cross sectional area as live and neutral**. Make sure the cable is rated for outdoor use as per local standards. Recommend running all external cabling in conduit. Connect cable as in the below image, live (red) to 40A CB and neutral (black) to terminal block to the left of 40A CB.
2. Install an AC isolator switch close to the ElektroBank to enable simple isolation.
3. Put a ring terminal on earth cable and bolt to M4 stud labelled with earth sign.



4.3 Backup Port

1. Use minimum 4mm² cable for the backup and connect directly to double pole 25A circuit breaker on DIN rail.
2. Install an AC isolator switch close to the ElektroBank to ensure simple isolation.
3. Recommended: Optionally a diverter switch could be installed so the user can choose whether power to the backup circuits is routed through the ElektroBank or straight from the grid.
4. Outside the ElektroBank the backup wiring should wire directly to a Type B RCD 30mA with 20A tripping current.



4.4 Maintaining Neutral Continuity to Earth.

1. The neutral input from the grid port is internally always connected through to the neutral output from the backup port.
2. Ensure that the neutral input to the grid port is connected to earth at the single point.

4.5 PV Ports

1. There are 2 sets of PV connectors, one for each MPPT.
2. Use the following connectors, ensure the right polarity wire is put into the correct connector.

Negative Polarity – Phoenix Contact:

- PV-CM-S 2,5-6 -
- P/N: 1774687
- <https://www.phoenixcontact.com/online/portal/nz/?uri=pxc-oc-itemdetail:pid=1774687&library=nzen&pcck=P-20-06-12&tab=1&selectedCategory=ALL>

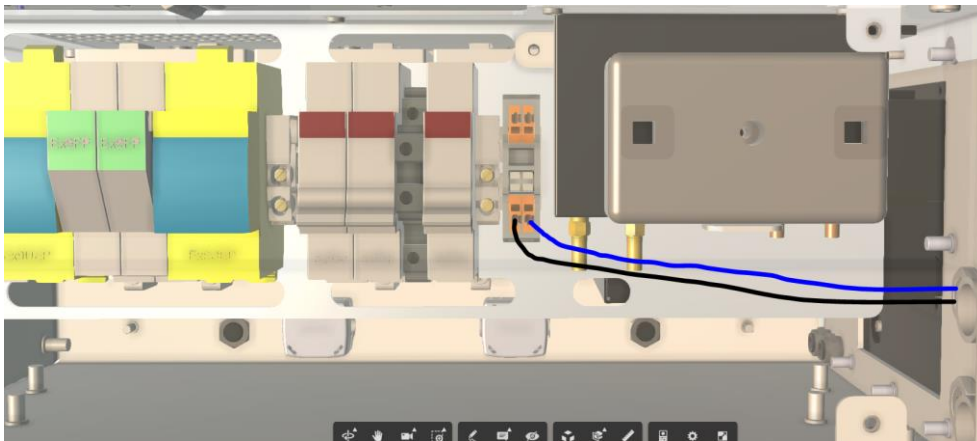
Positive Polarity – Phoenix Contact:

- PV-CF-S 2,5-6
- P/N: 1774674

- <https://www.phoenixcontact.com/online/portal/nz/?uri=pxc-oc-itemdetail:pid=1774674&library=nzen&pcck=P-20-06-12&tab=1&selectedCategory=ALL>

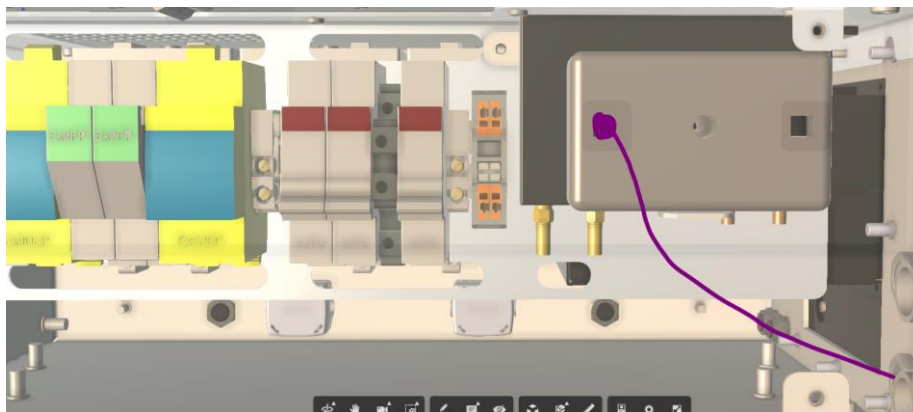
4.6 DRMO

If required place 2 core DRMO cable through gland and attach to DRMO (Blue) and DRM_RTN (black).



4.7 Ethernet

If the unit requires hard wiring to the LAN put cable through gland, crimp on an RJ45 connector and connect to Ethernet isolator.



5. Maintenance

5.1 User Maintenance

1. The ElektroBank does not require scheduled maintenance and only requires an external debris and salt clean every 6 months by the user.
2. Only a trained service professional may open the metal cover.

3. The 8 screws holding the external plastic cover should be removed and the cover gently removed and placed on soft dirt free ground.
4. Check for signs of ingress by insects, animals, plants or water/dust. Check for any signs of corrosion. Call your service technician if you see any signs.
5. Then, with a low pressure hose, wash down the whole product. Make sure all debris is cleared, especially from the heatsink side and the heat exchanger.
6. Wash the inside of the plastic shield and replace. Wipe down with a wet cloth.

5.2 Trained Service Professional Maintenance

Always ensure the unit is completely de-powered and isolated before removing the escutcheon panel.

1. Ensure grid voltage is isolated with a locked off circuit breaker or isolator switch.
2. Ensure backup voltage is isolated with a locked off circuit breaker or isolator switch.
3. Ensure PV connectors are disconnected or PV isolators are OFF and locked.
4. Ensure battery Circuit breaker is in the OFF position.
5. Ensure there is no LED light on top of the unit.
6. Remove the bottom escutcheon panel and using a DVM check all terminals on the DIN rail are not live.

6. Warnings

1. When the photovoltaic (PV) array is exposed to light, it supplies a d.c. voltage to the PCE.
2. This product can cause current with a d.c. component. Where a residual current operated protective (RCD) or monitoring (RCM) device is used for protection in case of direct or indirect contact, only an RCD or RCM of Type B is allowed on the supply side of this product.
3. If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.
4. Only a qualified professional (e.g. service person) may install the UPS.
5. External RCD required.
6. Servicing or replacement of batteries shall not be conducted in the field.
7. CAUTION: Do not dispose of batteries in a fire. The batteries may explode.
8. CAUTION: Do not open or damage batteries. Released electrolyte is harmful to the skin and eyes. It may be toxic.
9. It is required that any PV modules connected to the device have an IEC 61730 Class A rating.

6.1 Electrical Interface

| PV Input | |
|--|---|
| Type of Voltage | DC, OVC II |
| Vmax PV | 600V |
| Max Continuous Current | 15A |
| PV MPPT Starting Voltage | 100V (then works down to 50V for hysteresis) |
| PV Operating Range | 50V – 550V |
| PV MPPT Operating Range | 50V – 430V |
| Isc PV | 20A |
| Max inverter backfeed current to the array | 7mA |
| PV Safety | PV is non-isolated, floating voltage, external isolation device required |
| AC Input / Output Ratings (Grid port) | |
| Type of Voltage | AC, OVC III, Neutral should always be connected to earth at the single point earth connection in the property |
| Frequency | 50Hz |
| Voltage (nominal) | 240V |
| Maximum Continuous Current | 40A |
| Inrush Current | 90A max (dependent on backup load) |
| No. of Phases | 1 |
| Active Power Continuous | 9.6kW |
| Apparent Power Continuous | 9.6kVA |
| Power Factor | +/-0.8 |
| Maximum Output Overcurrent Protection | 40A |
| Maximum Output Fault Current | 90A |
| AC Output Ratings (Backup Port) | |
| Type of Voltage | AC, OVC III, Neutral is internally connected to Grid port so has continuity to earth at the single point earth connection in the property |
| Frequency | 50Hz |
| Voltage (nominal) | 240V |
| Maximum Continuous Current | 19.1A |
| Rated short-time withstand current (Icw) | 28A |
| Inrush Current | 90A max (dependent on backup load) |
| Active Power | 4.6kW |
| Apparent Power | 4.6kVA |
| Power Factor | +/-0.5 |
| Number of Phases | 1 |
| Maximum Output Overcurrent Protection | 25A |
| Maximum Output Fault Current | 90A |
| Battery | |
| Voltage (nominal) | 105V, OVC II |
| Voltage (range) | 90-115V |
| Maximum Continuous Current Input / Output | 50A |
| Maximum Continuous Power | 5kW |
| Battery Type | Lithium Ion NMC |
| Battery Capacity | 7.77kWh |
| System | |
| Residual Current Monitoring | Integral for grid port (backup port requires Type B RCD) |
| Inverter Topology | Non-isolated |
| Protective Class | 1 |
| Active Anti-Islanding Method | Frequency Instability |
| Supporting Demand Response Modes | DRM0 |
| Certification Marks | AS4777.2.2015, IEC62109-1, IEC62109-2, AS62040.1, AS61000.6.3:2012 |
| Mechanical & Environmental | |
| Ambient Operating Temperature Range | -20 to 50C (power auto-derates above 40C) |
| Ingress Protection (IP) rating | IP 66 |
| Weight | 112kg |
| Environmental Category | Outdoor |
| Wet Location Classification | Wet |
| Pollution Degree | PDII |
| Relative Humidity | 4-100% condensing |
| Maximum Altitude | 2000m |