

This reference describes the necessary steps for connecting and commissioning your microControl *plus* system. The system manual answers frequently asked questions and provides support with troubleshooting.

### 1 Commissioning

For commissioning the system, please open the front cover of the housing and disconnect the PE earth connection on the inside of the front cover. Figure 1 shows a diagramm of the opened system.

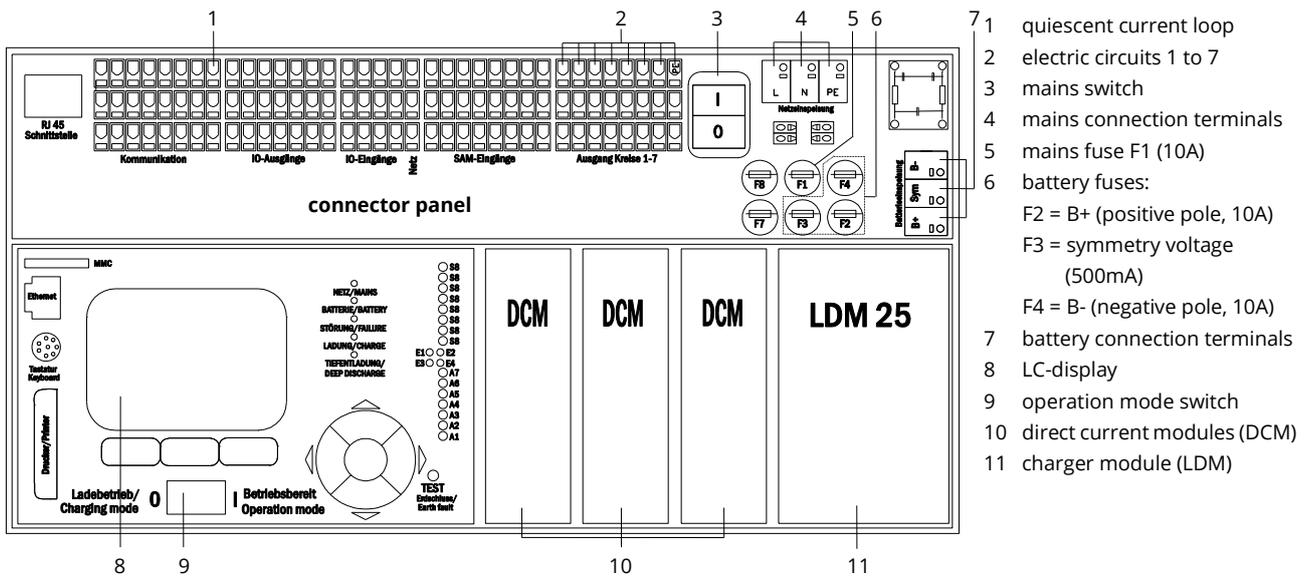


Figure 1: View of the opened microControl *plus* system

Now follow these instructions (the numbers in brackets refer to Figure 1):

#### 1. Mounting and wiring of the batteries.

Make sure that the battery fuses F2/F3/F4 have been removed. Mount the batteries (18 pieces 12V each), connect them in series (see Figure 2) and connect the cables coming from the battery terminal (7) (observe correct polarity: red = B+/positive pole, blue = B-/negative pole, grey = symmetry). Incorrect polarity is acoustically indicated by a beep. The symmetry cable (grey) has to be connected to one of the ends of the connection cable between battery no. 9 and battery no. 10.

#### 2. Connection of the de-energised mains cable to the mains terminal.

Make sure that the mains cable is de-energised and connect it to the mains terminal (4). **Caution:** The mains cable gets energised only in step 7.

#### 3. Mains switch off and operation mode switch to charging operation.

Switch off the mains switch (3) (position "0") and switch the operation mode switch (9) to charging mode (also position "0").

#### 4. Connection of the electric circuits.

Connect the installed and checked lighting circuits to the circuit terminals (2). **Note:** The circuits to be connected have to be checked for installation errors such as short circuit and earth fault prior to connection.

#### 5. Insertion of the battery fuses F2/F3/F4.

Please insert the battery fuses (6) by means of a suitable screw driver.

#### 6. Insertion of the mains fuse F1.

Please insert the mains fuse (5) by means of a suitable screw driver.

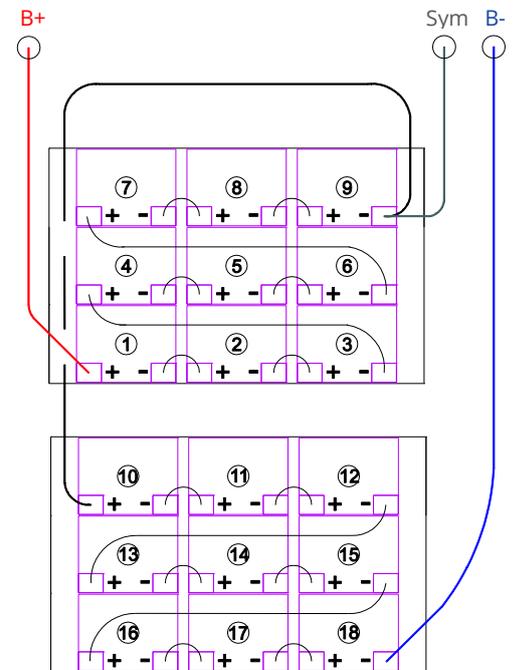


Figure 2: Wiring of the batteries top view

7. **Connection to power supply.** Energise the mains cable and check the correct configuration of the mains terminals (4) by conducting the measurements listed below. In case of a connection error abort the commissioning:
- voltage between L and N
  - voltage between L and PE
  - voltage between PE and N
- } These voltages should be between 220 V and 240 V (supplied mains voltage).  
If they are not, there must be a connection error.  
This voltage should be zero. If it is not, there must be a connection error.
8. **Energising the system.** For energising the system switch the mains switch (3) to position "1".
9. **System boot-up.** After switching on (indicated by a beep) the system starts booting. This can take a few minutes. **Caution:** Wait for the end of the booting process and do not, by any means, switch off the system! The LC-display (8) should show the following during or after the booting process:



Figure 3: Booting process (left, centre) and status (right)

10. **Checking the battery voltage.** Check the battery voltage by means of the status information in the LC-display (8). It should be between 192V and 250V (Figure 3, right picture, arrow).
11. **Checking the direct current modules (DCM).** Check the LEDs of the DCM-modules (10) and the LDM-charger module (11). Steady green light or blinking of the LEDs indicates correct functioning. Red light/blinking indicates an error (e.g. insulation fault). In this case abort commissioning. For further information see the manual.
12. **Operation mode switch to "ready to operate".** Turn the operation mode switch (9) to "ready to operate" (position "1"). This activates the electric circuits.
-  **Caution:** Make sure that nobody works on the electric circuits before switching the system on as circuits in maintained lighting mode get energised when activated. If there are still circuits that are being worked on, remove the respective fuses before switching on the system.
13. **Check voltage on circuit terminals.** Check the voltage on all circuit terminals (2). The measured voltage on each circuit in maintained lighting mode should correspond to the AC mains voltage.
14. **Open quiescent current loop.** Open the quiescent current loop (1) (for exact pin assignment see connection diagram).
15. **Check voltage on circuit terminals again.** Check voltage on all circuit terminals again (2). The measured voltage on each circuit should correspond to the alternating mains voltage.
16. **Close quiescent current loop.** Close quiescent current loop (1) (for exact pin assignment see connection diagram). The system keeps running and remains in modified non-maintained lighting mode for ca. 1 minute, before each circuit returns to its programmed operation mode.

**Now the installation process is completed and the system is ready to operate.**