

### User Manual for the Helvest MVC10 converter

#### 1. General product presentation

##### 1.1 MVC10 **MVnet**-USB converter

The MVC10 converter provides a connection between the MVnet network and the computer in order to manage the accessories on the miniature model railway. The main functions of the MVnet network for which connection to the computer is required are:

- Programming of the boards in the MVnet network (assigning the address, giving the name, setting the options of the accessories such as the duration of the movement of the switches, etc.).
- Management of the layout, during normal operation, using the various commonly available software (Windigipet, Train Controller, Rocrail etc.).

These functions are performed via the LocHaus application, available for computers running Windows, MacOS, Linux-Ubuntu and downloadable from [helvest.ch](http://helvest.ch).

One of MVnet's main innovations is precisely that it does not require a control unit. In fact, for simple automations it can operate on its own, while for more elaborate functions it connects directly to the computer without the need for cabling or complicated operations.

##### 1.2 The parts of the converter.

The product is similar to any device that connects to the computer via USB. Looking at figure 2, part 1 is the normal connector that plugs into the computer's USB sockets. Labels 2 and 3 show the LEDs that specify operation, terminal 4 is the connector to which the MVnet is installed.

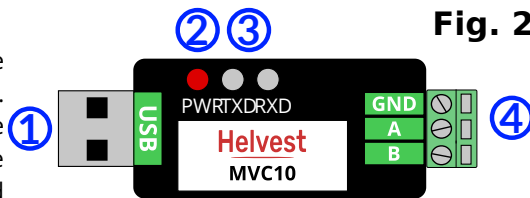


Fig. 1



##### 2.1 **MVnet** network connection

The MVnet network must be connected to terminal strip no. 4 in contacts A and B. When connecting the network, a few simple rules must be observed:

- The cable used must be a twisted pair: you can use the specific TWP10 cable supplied by Helvest, or any twisted pair, as shown in the figure. This configuration serves to minimise interference and give maximum reliability.
- The two wires of the pair must be inserted into the two terminals A and B. The boards on the MV100 board also have a terminal block with terminals A and B. It is essential that all A terminals are connected together, and all B terminals are connected together.

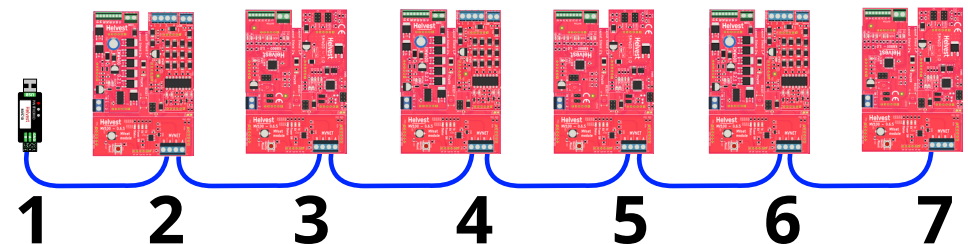
Fig. 3



**WARNING:** It is necessary that all terminals A in the network are connected to each other and all terminals B are connected to each other. If even in one device the wires are reversed, swapping the position of A and B, the entire network will not work.

- The network can have neither deviations nor closed circuits: all boards must be positioned in sequence, as in figure 4. It is preferable for the MVC10 converter to be at one extremity of the network.
- The maximum number of cards that can be connected to an MVC10 converter is 100. However, several MV10 converters can be connected to the same computer, so many thousands of accessories can be managed without problems.
- There are no limitations on wire length for indoor use.

Fig. 4



#### 2. Electrical connections

Each HP100 card must be connected to an independent power source: the MVnet network only carries instructions and signals, it does not supply power.

### 2.2 PC connection

After connecting the network as explained above, connect the USB socket to the computer as for any other device. Switch on the PC, the "PWR" LED number 2 in figure 2 lights up.

Linux and MacOS operating systems have drivers for the device already built-in, while Windows systems may need to locate the port or download the driver. After downloading and installing the driver (if necessary, at this link), open the LocHaus application. The port on which the converter is plugged is automatically detected (if the system does not recognise it, you are prompted to select it) and switch on the cards. The network is automatically detected.

If any boards are not displayed, check that the board contacts are connected correctly. Remember to disconnect the power supply whenever you do any work on the electrical connections.

**WARNING:** Always switch off the power supply when making electrical connections. When working on the electrical wiring **DISCONNECT THE USB PLUG** from the computer!  
The voltage is not dangerous for the people, but the contact between a powered cable with the boards or with the PC can destroy one or both of them.

You can then either programme the installed boards via the LocHaus app, or run the model railway with your usual software.

To run the software, you must always keep the Lochaus app open.

### 3. Troubleshooting

To resolve power supply/connection issues etc., see **HP100 board troubleshooting**.

Problem	possible causes
The converter is switched on but the PWR LED does not light up	The PC cannot supply power to the module: it may be incorrectly inserted. The PC could be in standby mode: log in again. The PC may have set the port in a protection mode. Switch the PC off and switch it on again
The computer cannot detect the device	The converter was plugged in after opening the application. Close and restart LocHaus. Try restarting the computer. If the problem persists, for a Windows PC install the driver: download it at this link <a href="#">this link</a> and it is a compressed .zip file. Unzip the file and run the setup.exe file. Computers running Linux/Ubuntu and MacOS have the driver built-in, if recognition problems persist, it could be due to a system error.
The converter is plugged in, the PWR LED is lit, the PC recognises it but the LocHaus app does not detect any cards.	Check whether the boards connected to the network are powered (green PWR LEDs lit on HP100 and MV100 boards). Check that the A and B contacts on any board are not swapped. Check that the wires in the terminal blocks make proper contact.
The converter is plugged in, the PWR LED is lit, the PC recognises it but the LocHaus app does not detect one or more cards.	Check that the cables in the terminal blocks make proper contact, in particular the boards that are not detected. Check that the network has been wired as required: no deviations, no closed paths, with the converter at one extremity.

If the above measures do not work, please contact us via the form on [helvest.ch](https://www.helvest.ch).

### 6 . TECHNICAL SPECIFICATIONS

Device type:	USB-MVnet converter for model railway control networks.
PC connection:	USB plug type A, overcurrent protected up to 200 mA.
Operating temperature:	0 °C - 40 °C

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