

Helvest® Flex HP100 user manual

1. GENERAL PRODUCT PRESENTATION

1.1 What is the Helvest Flex system?

The Helvest Flex system is designed to easily assemble electronic circuits for the control of a model railroad. Decoders can be made to manage switches, signals and other accessories, presence detectors, and other future developments.

The HP100 motherboard is the heart of the system. It manages a maximum of three modules, automatically identifying them and activating their specific functions.

There are two types of modules:

- "net" module: it communicates with other units, with the digital control unit or with the PC (e.g. it manages the DCC digital signal to control the switches, or communication buses to report the presence of trains).

- "Layout" module: manages the devices present on the layout (for example it moves the switches or receives the data from the sensors that detect the presence of the trains).

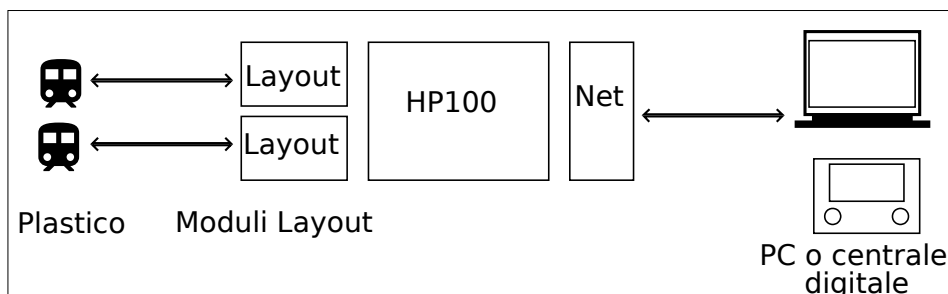


Fig. 1

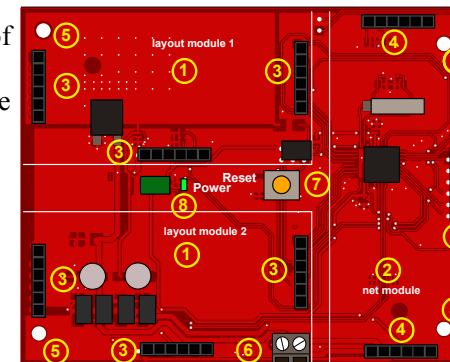
The main advantages of the system are:

- You can configure it according to your needs by combining the additional modules as you wish.
- It is extremely easy to make changes, modifications or updates to the modules.
- You can expand it with new modules that will be available in the future.

1.2 HP100 components

The main parts of the board are identified in Figure 2:

- 1) Area for "Layout" type module for connection to the layout.
- 2) Area for "Net" type module for communication with the digital control panel, the PC or other boards.
- 3) Connectors for the insertion of "Layout" modules
- 4) Connectors for the insertion of the "Net" module.
- 5) Mounting holes
- 6) Power supply connector
- 7) Power LED.



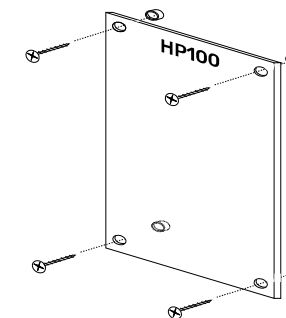
2 HELVEST FLEX SYSTEM BASIC OPERATIONS

2.1 Mounting the board

The complete board must be mounted in such a way that it DOES NOT touch anything during operation. In particular, it must not come into contact with any metallic or flammable materials.

For temporary installations, it can be placed on a non-flammable insulating surface (plastic, glass, ceramic floor, etc...).

For fixed layouts, it is recommended to mount it by screwing the HP-100 onto the wooden structure with the screws and spacers provided (fig. 3). This operation must be done before inserting the additional modules.



2.2 Installing the additional modules

The installation of the additional modules must be carried out with the power supply switched off.

You can install:

- a single "Layout" module, in any of the available slots;
- two identical "Layout" modules with the same function
- two different "Layout" modules with different functions.

It is possible to install only one "net" module, which communicates with the digital control unit.

The system will automatically identify the inserted modules and their position, activating the corresponding functions.

To insert the module, place it in the desired position being careful of the right orientation, align the connectors and exert a slight pressure (fig. 4). To remove the module, pull it out gently.

Check that all connectors are aligned with their respective sockets before inserting them.

Never force the board connectors as this may damage them.

2.3 Electrical connections

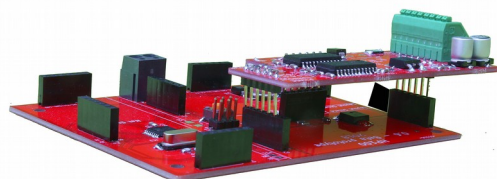
The HP100 board can be powered by alternating or direct current between 7 and 16V (commonly supplied by any transformer or power supply for model railway), or by digital signal (DCC or other).

The power supply should be protected against short circuits. Protection is normally included in all model railway power supplies.

If you want to use it as a decoder, the easiest thing is to supply it directly through DCC.

To connect it to the power supply, loosen the screws in terminal no. 6 of figure 2, strip the sheaths about 0.5 cm long and connect the two wires of the power supply to the terminal as shown in figure 5. The two wires can be reversed without any variation. Then tighten the screws firmly.

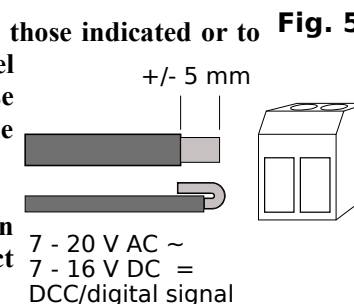
Fig. 4



If the wire is very thin, fold it up as in figure 5 on the sleeve to ensure good contact. Do all this with the power off.

Do not connect the board to voltages higher than those indicated or to digital signals not expressly provided for model railway! Connecting higher voltages can cause irreversible damage to the card, serious risks to the user and fire hazards.

Connecting auxiliary boards or circuits other than those supplied officially may damage the product and invalidate the warranty.



7 - 20 V AC ~
7 - 16 V DC =
DCC/digital signal

When the board is correctly powered, the green LED (no. 8 in fig. 2) lights up. To connect the additional modules, refer to their manuals.

3 - TROUBLESHOOTING

3.1 The most common problems

Problem	Possible causes and solutions
The board does not light up (green LED no. 8 does not light up)	Input cables (connector no. 6) are not properly connected. The board touches metal parts. There is a short circuit in the rest of the system (the control unit or power supply have turned off). There is a short circuit in the outputs of the board (check the output of the layout modules). If the short circuit cannot be detected, remove the layout modules one at a time, and try again, to find out which module the problem is in.
The Board does not perform the functions of the installed modules.	The plug in of the modules is wrong. Check the correct insertion.

The board touches some metal object.

4 FIRMWARE UPGRADE AND SUPPORT

4.1 Firmware updates

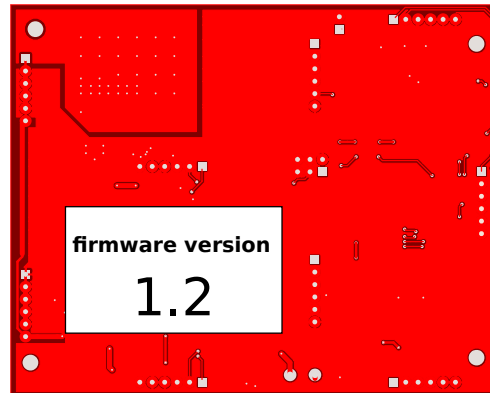
The firmware version is shown on a label on the bottom of the board (fig.6).

The add-on modules manuals contain the firmware version required for its operation. The firmware can be updated if necessary.

4.2 Service and customer care

If you have any questions about the products you can contact us via the form on the website www.helvest.ch, via email, and via social networks.

Fig. 6



In case of need for replacement or repair under warranty, please refer to the seller of the product.

5. Technical Specifications

Power supply	7 - 16 V DC
	10 - 20 V AC
	Digital bus for model railroading
Max. current consumption (HP100 board only)	40 mA
Dimensions	100 x 80 mm
Operating temperature	0 °C - 40 °C

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