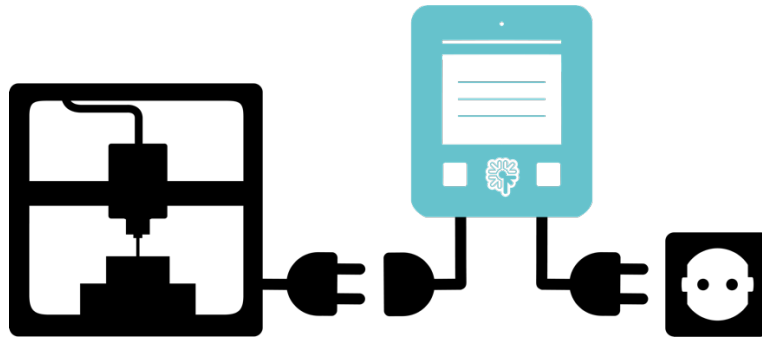




Fabman Bridge FB-V2
User Manual

1. Introduction

The Fabman Bridge acts as an authorization device for the Fabman web application. It is connected to the internet over WiFi. After successful user authorization and granted access it powers an external load, which can be a machine like a laser cutter or milling machine, a door lock or any other electrically powered device. Therefore the Bridge is connected in between the mains socket and the load's power input.



Furthermore, the integrated dead man control system prevents unattended operation, and a power monitor allows for busy/idle detection based on the power consumption of the connected machine.

Please read the operating instructions carefully and do not discard them. If you pass the product on to a third party, please hand over these operating instructions as well. If you have any questions that are not answered in this manual, please contact our technical service or another specialist.

Any use other than that described in this manual could lead to damage to this product and involves the risk of short circuits, fire, electric shock, etc.

2. Safety Instructions

The warranty will be void in the event of damage caused by failure to observe these safety instructions. We shall not accept liability for damage to property or personal injury caused by incorrect handling or non-compliance with the safety instructions.

2.1. General

- The product is designed in accordance with protection class I. Only a standard grounding mains socket of the public supply grid (a wall socket, for example) may be used as a power source.
- When the load is switched OFF, only one wire is disconnected from the mains. It depends on the plug orientation, if this is phase (L) or neutral (N). Therefore the load is not guaranteed to be voltage-free.
- The product is not a toy and should be kept out of the reach of children.
- Handle the product with care; it can be damaged by impacts, blows or falls even from a low height.
- Any changes or modifications not expressly approved void the user's authority to operate this equipment.

2.2. Operating location

- The product is only designed for indoor use. It must not get damp or wet.

- Never position the product in direct vicinity of a bathtub, shower, bathroom, swimming pool, or similar. Lethal hazard due to electric shock.
- The product must not be exposed to extremes of temperature, direct sunlight or strong vibrations. Keep the product away from strong magnetic fields generated by machines, electric motors or loudspeakers.
- Do not operate the device in environments where there are high levels of dust, flammable gases, vapors or solvents. There is a danger of fire and explosion.
- The product may get warm when it is powered. Therefore it must be surrounded by air - do not cover it with any material.
- Do not use this product in hospitals or medical institutions. Radio waves may interfere with medical equipment. The same may also apply to other areas.
- Use the product only in a temperate climate, never in a tropical climate.
- The mains plug shall remain readily operable.

2.3. Handling and use

- Never plug in, unplug or operate the product when your hands are damp or wet. There is a risk of a life-threatening electric shock.
- Never connect the product to the power supply immediately after it has been transferred from a cold room into a warm one (e.g. during transport). The condensation that forms might destroy the device. Moreover, there is danger of electric shock. Allow the product to reach room temperature. Wait until the condensation has evaporated. This might take several hours. Only then the product may be plugged into the mains socket and put into use.
- Always use the gripping surface to pull a mains plug out of the product. Never unplug a mains plug from a mains socket by pulling the cable.
- Never overload the product. Note the maximum permissible connected load in the chapter 'Technical Data'.
- Disconnect the product from the mains socket in thunderstorms for reasons of safety.
- Do not use the product if it is damaged. There is a risk of a life-threatening electric shock in this case, dispose of the product in an environmentally correct manner. Safe operation can no longer be assumed if:
 - the product shows visible signs of damage
 - the product does not work at all or works poorly (leaking smoke or a smell of burning, audible cracking noises, discoloration to the product or the adjacent surfaces)
 - the product was stored under unfavorable conditions
 - it was exposed to heavy loads during transport
- Never pour any liquids above or next to the product. You run the risk of causing a fire or a fatal electric shock. If any liquid has still managed to enter the device, immediately switch off the power supply to the mains socket at which the product is connected (turn off the fuse / circuit breaker / residual current operated circuit breaker of the associated circuit). Only then can you unplug the product from the mains socket and contact a specialist. Do not use the product any longer.
- Always pull the product out of the mains socket (e.g. wall socket) before cleaning it or when the device will not be in use for a long time (e.g. for storage).

3. Operation

3.1. System Requirements

- You need a Fabman Bridge and a Member Card (both included)
- You need a 2,4 GHz WiFi Internet connection at the place where the Fabman Bridge will be installed.
- During the setup process you'll need a mobile device, such as a mobile phone or a laptop computer to connect to the Fabman Bridge via WiFi.
- You need a power outlet close to the Fabman Bridge.



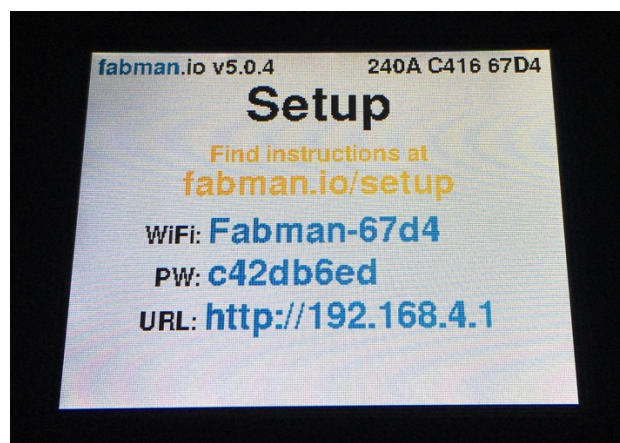
3.2. Sign Up for a Fabman Account

If you haven't done it yet, sign up for a free Fabman Account on our website www.fabman.io. Click the "Try it for FREE"-Button and follow the instructions on the screen.

3.3. Connect to your Fabman Bridge

First, plug in the Fabman bridge and it will power up automatically and show the setup screen.

Use a smartphone, a tablet, or a laptop computer to connect to **the setup WiFi** – not your own WiFi. The name of the setup WiFi ("Fabman-..." plus four digits or letters) and the 8-digit WiFi password are shown on the bridge display.



3.4. Connect the Fabman Bridge to the Internet

Once you're connected to the setup WiFi, most devices will automatically open a browser window and load the Bridge setup form.

If this does not happen on your device: open a new browser window and go to the website <http://192.168.1.1> – you should see the setup form there.

Type the name and password of **your WiFi** – not the setup WiFi – into the form and press "Connect". The bridge will then connect to your WiFi.

Remember to reconnect your smartphone or laptop to your own WiFi after the setup. Most devices will do this automatically.



3.5. Pairing the Fabman Bridge

Once the setup is complete, the bridge will begin pairing and will display a pairing code. You can then use this code and assign the Fabman bridge to your equipment such as a laser cutter or a 3D printer in just a few steps:

- Sign in to your Fabman account: <https://fabman.io/login>
- Click on the "Configure/Equipment" menu item
- Is the equipment you'd like to connect to already listed?
 - Yes, it's already listed: Click on the equipment name in the list and then on "Connect a bridge".
 - No, it's brand new equipment:
 - Click on "Add equipment" and select a category, eg. "3D Printer".
 - Enter a name for the equipment, scroll to the bottom and click "Save" (you can configure all other settings later).
 - You should see the "Connect a bridge" form.

- Enter the pairing code that's shown on the bridge display and press "Assign". The code is only valid for a short period of time and changes every few minutes.
- You'll then see the bridge settings form.
- Configure the bridge to your liking and press "Save changes".
- Plug the power cord of your equipment (e.g. your 3D printer) into the bridge's power socket.

3.6. Authorize your Member Card

If you haven't done it before, you'll need to assign a member card to your user account: go to "Members" and select your name in the list. If your name is not listed, just click the "Add member" button to add a new member. Click on "Assign a key" on the member's details page and follow the instructions.

Now you can test the Fabman bridge by swiping your member card close to the RFID symbol (👤) on the enclosure. If the configuration is correct, the bridge will switch on and show your name on the display. You can switch it off again by pressing the left button.

Admins and account owners are automatically authorized to use any equipment. To grant permission to non-admin members you need assign them one or more packages. Some standard packages have been created automatically for you. If you need more specific access control you can add customized packages in "Configure / Packages".

3.7. Mounting the Fabman Bridge

The product can be mounted on walls using screws (1). Therefore three pear-shaped mounting holes are located on the back of the bridge. Screw the screws to the wall using the drilling template (3). Then the product can be mounted on the screw heads without opening the enclosure.

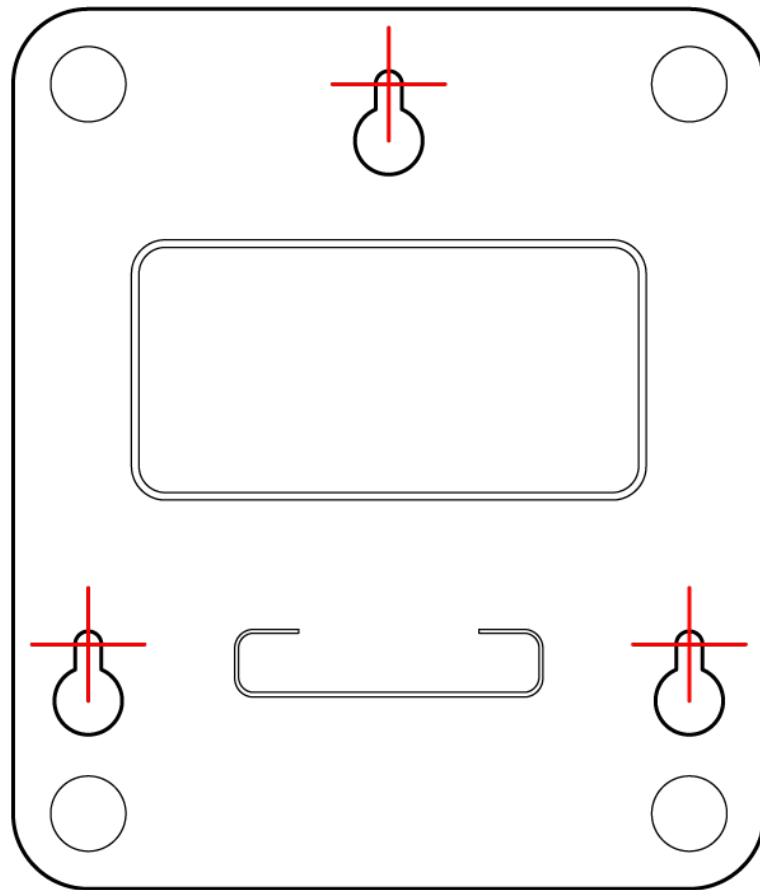
Furthermore the optional Bridge Stand (2) can be used to place the Bridge on flat surfaces like on desks. The Bridge Stand is available in the Fabman online shop.



(1)

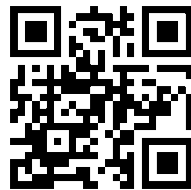


(2)



(3)

More detailed setup instructions can be found at www.fabman.io/setup



4. Technical Data

ELECTRICAL	
Rated input/output	100 V – 240 V AC, 50/60 Hz
Max. load current	10 A / 16 A*
Power monitor, max. threshold value	5 A
Self-consumption standby/maximum	4W / 7W
Operating conditions	0 to +40 °C, 0 to 75 % relative humidity, non-condensing
Storage conditions	-20 to +50 °C, 0 to 75 % relative humidity, non-condensing

* up to 16A if the power supply is connected to the mains directly instead of using the cold-device plugs. Installation requires opening the device housing and may only be carried out by a trained technician and at your own risk.

PHYSICAL	
Dimensions	117 mm (L) x 100 mm (W) x 53 mm (H)
Weight	400 g (without cables)
Protection class	IP20

NETWORKING	
Wi-Fi protocols	802.11 b/g/n
Operating frequency	2.4GHz (from 2400MHz to 2483.5MHz)
Security	WPA/WPA2
Encryption	WEP/TKIP/AES
IP configuration	DHCP

NFC	
Operating frequency	13.56 MHz
Operating distance *	up to 30 mm
Supported tag types **	MIFARE, NFCIP-1/2, ISO14443 A/B, ISO/IEC 14443 A/B, FeliCa PCD mode, ISO/IEC 15693/ICODE VCD mode

* depends on tag type

** some types are not yet fully supported by the firmware

RFID 125 kHz EM (optional, for future use)	
Operating frequency	125 kHz
Operating distance *	up to 50 mm
Supported tag types	EM 4001 or compatible

* depends on tag type

RFID 125 kHz HID (optional, for future use)	
Operating frequency	125 kHz
Operating distance *	up to 50 mm
Supported tag types	HID H10301 or compatible

* depends on tag type

RFID 134 kHz ISO (optional, for future use)	
Operating frequency	134 kHz
Operating distance *	up to 50 mm
Supported tag types	ISO11785 or compatible

* depends on tag type

This product complies with the legal national and European requirements. All names of companies and products are the trademarks of the respective owners. All rights reserved.

This device complies with part 15 and §2.1091 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20 cm between the radiator & your body.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Any changes or modifications not expressly approved in this manual could void the user's authority to operate the equipment.

Fabman GmbH
E-Mail: contact@fabman.io
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Registration number: FN 451448w



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