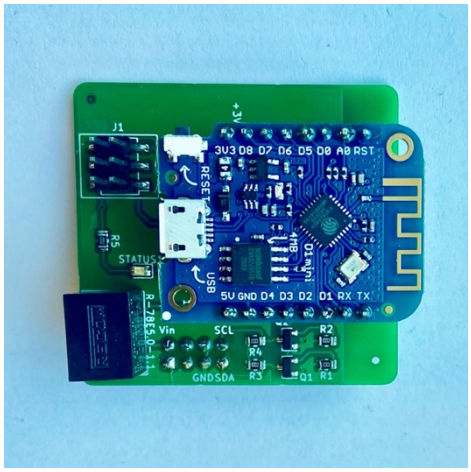
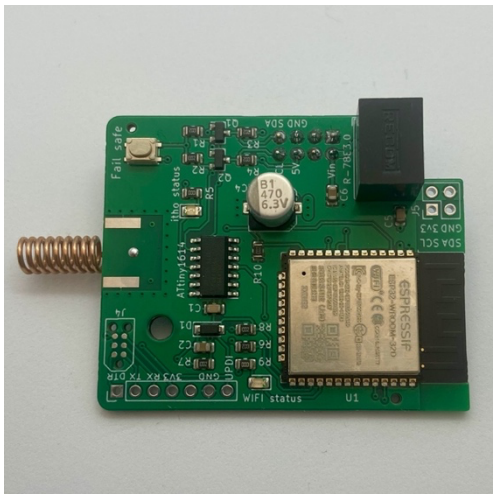
NRG.Watch

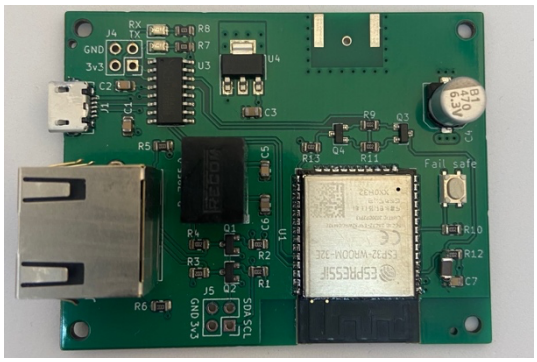
Itho WiFi add-on



CVE add-on revision 1.x



CVE add-on revision 2.x



Non-CVE add-on revision 1.x

User manualV1.2
21-11-2021

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PHYSICAL INSTALLATION CVE ADD-ON

In order to protect the add-on (PCB) properly, we supply it in an antistatic bag.
Below is a numbered list of actions to take when installing the add-on.

1. Remove the add-on from the anti-static bag;
2. Next to the add-on, you will also find a PCB spacer, put this aside for a moment.
3. Now remove the power source from the Itho ventilation unit by removing the plug from the wall socket;
4. To reach the main circuit board of the Itho, remove the cover from the unit. To access the basic print of the Itho ventilation unit, remove the cover from the unit, typically by using a flat screwdriver to unlock the clamping cams at the top and bottom. You will now see the box containing the main circuit board, which can easily be reached by opening the lid or in case of a black cover, it can be removed by combining some side pressure with a pulling movement. See the manufacturer's installation & operation manual for any other/specific instructions;
5. Now place the PCB spacer with the curved/short side in the hole on the itho base board that corresponds to the hole on the add-on. The use of this spacer reduces the risk of soldered points coming loose due to vibration. If necessary, this step can also be done after testing the add-on;
6. Installation of the add-on does not require special tools or other materials.
   You can place the add-on by attaching it to the 2×4 pin interface.
   See appendix B, circled in red, where the 2x4 pin interface is located on the main circuit board;
7. Now bring the power back to the Itho by placing the plug in the wall socket;
8. If the initialisation is successful, the status LED (see appendix A) will light up briefly. Afterwards it will remain off. This is a sign that the communication between the Itho base/main board and the add-on has been successfully started.
9. Now the add-on is installed, close the box of the basic PCB and put the cover back on the unit.

PHYSICAL INSTALLATION NON-CVE ADD-ON

In order to protect the add-on (PCB) properly, we supply it in an antistatic bag.
Below is a numbered list of actions to take when installing the add-on.

1. Take the add-on out of the anti-static bag;
2. Find the COM/Service port on your itho device. This is a connection that looks like a network port (RJ45 connector). Connect the add-on with a good, short network cable to the COM/Service port;
3. The add-on is installed and will start an access point.

SETUP THE ADD-ON

Below is a numbered list of operations for setting up the add-on.

1. By default, the add-on is in so-called Wi-Fi access point mode. The device is in this mode when no known Wi-Fi network is found. After 15 minutes in access point mode the add-on reboots automatically;
2. If an access point is active, the Wi-Fi LED (see Appendix A) on the add-on or Wemos flashes once per second. On the non-CVE version, a LED on the RJ45 connector flashes;
3. The built-in webserver can be reached by connecting to the add-on access point. This can be done via PC, tablet or mobile. The network name (SSID) starts with nrg-itho- followed by 4 digits/letters. The password for the network is: password
4. After connecting to the accespoint, use a browser to go to: http://nrg-itho-A1B2.local (replacing A1B2 with the 4 digits/letters of the SSID); If this does not work, browse to http://192.168.4.1;
5. On the web server you can further configure the add-on. Enter the network data of your own Wi-Fi network, so that the add-on can connect to it. Then save these settings;
6. Next, you can set and save the details of the MQTT environment on the MQTT page (restart is not yet necessary);
7. For models with a CC1101 module, it is also possible to activate RF support under the menu item 'System settings' -> 'Itho RF remote support';
8. After activating RF support, the web server will ask for a restart. After about 20 seconds the add-on will be accessible again.

Note: If RF support is activated, the add-on will check at startup whether the module is installed successfully and will then activate it. The RF support configuration will be automatically deactivated if the module is not successfully installed/found.

OPERATION (WEB INTERFACE, API)

The Itho unit can now be operated via the web interface (http://nrg-itho-A1B2.local, A1B2 replaced), via MQTT or HTML API.
This manual assumes that you have MQTT installed. If this is not the case, you will find an excellent example of how to install MQTT on, for example, a Raspberry Pi via the link below:
https://randomnerdtutorials.com/how-to-install-mosquitto-broker-on-raspberry-pi/

The MQTT "Command topic" accepts a value from 0 - 254 as command, sent as string or unsigned char.
Where 0 is the lowest setting of the Itho unit (see Itho manual) and 254 is the maximum setting.
More information about the further possibilities of the MQTT API and the HTML API can be found under the menu API.
More information on use, integration with home automation systems and other possibilities can be found on the wiki page of the Github project repository.
https://github.com/arjenhiemstra/ithowifi/wiki

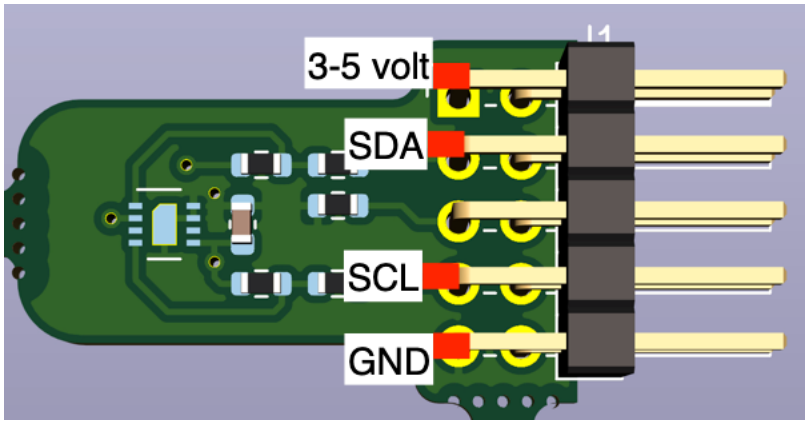
Important: Itho fans (CVE/HRU200) only accept commands from the add-on when the Itho box is in the medium/ 2/ standard position (via remote or 3 position switch), this is designed by Itho. From firmware 2.2 beta-9 it is possible to send the medium command from the add-on, before another command is sent. The settings for this can be found under the menu 'Itho settings' and then 'virtual remote'.

TEMPERATURE/HUMIDITY SENSOR

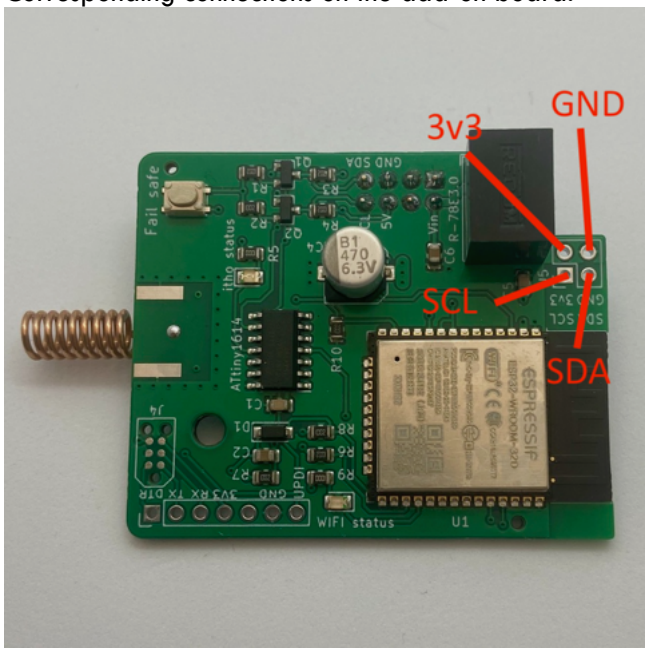
New Itho CVE units are supplied with a humidity sensor as standard. The add-on can read this sensor.

Older Itho models without a humidity sensor can, with some tweaking skills, also be equipped with a temperature/humidity sensor.

The connections of the humidity sensor are as follows:



Corresponding connections on the add-on board:



Example from someone on the Tweakers forum who installed the sensor:
https://gathering.tweakers.net/forum/view_message/69663020

RF-MODULE

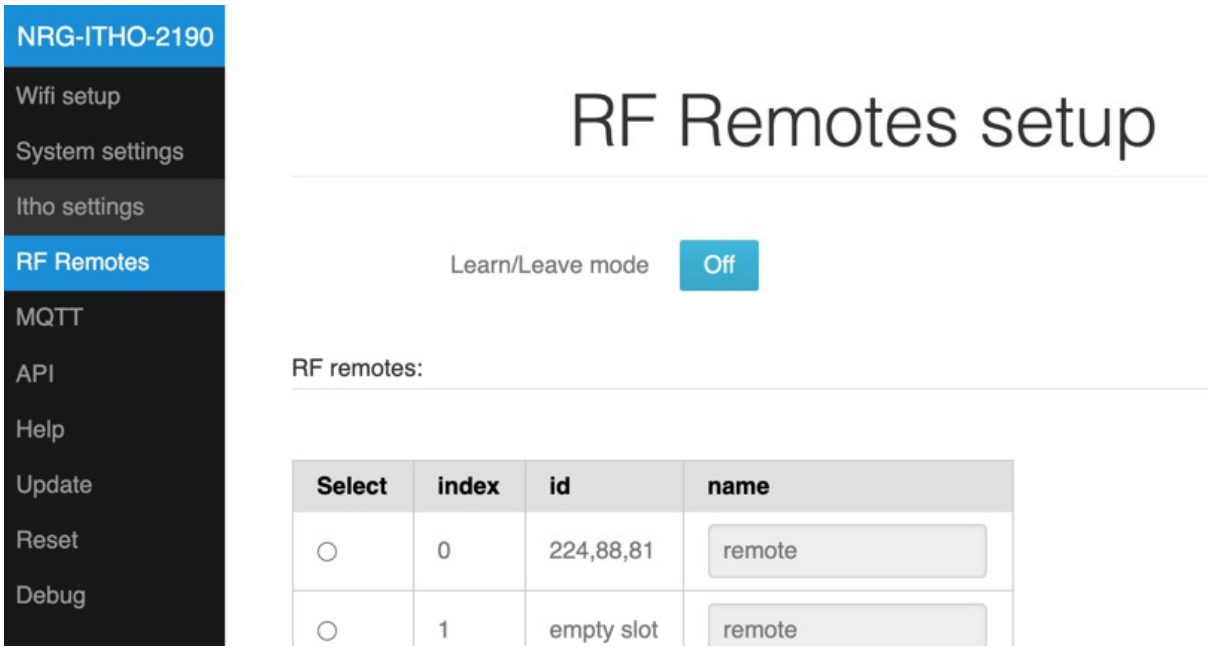
(RF remote support is not available on CVE add-on hardware revision 1)

It is possible to solder a CC1101 RF module on the backside of the add-on.
You may have ordered an add-on, where this module is already present.

This module can receive RF signals from Itho remote controls.
At this moment, this function is functional with some limitations. See the wiki for the latest information.

To use the RF function effectively, it is necessary to transfer the Itho remote control association from the Itho unit to the add-on, this is done as follows:

1. Decontaminate the remote control by sending a leave command within the first 2 minutes after switching on the Itho unit (on the remote control you do this by pressing all 4 buttons at the same time);
2. If you haven't done so yet; further adjust the add-on module and activate (finally) the RF module under the menu "Itho settings";
3. The add-on reboots;
4. If the RF module is correctly detected, the option to manage Itho remote controls appears in the same menu. Only add remote controls after the Itho unit is out of learn/leave mode (so at least 2 minutes after switching on) otherwise the remote control will be linked to the Itho again;
5. Put the add-on in learn/leave mode (via the web server);
6. Send a learn command with your remote (press 2 diagonally opposite buttons at the same time).
7. If all goes well, your remote ID should be on the first position (see picture below). If it still doesn't work after several attempts, the remote might not be supported (yet).



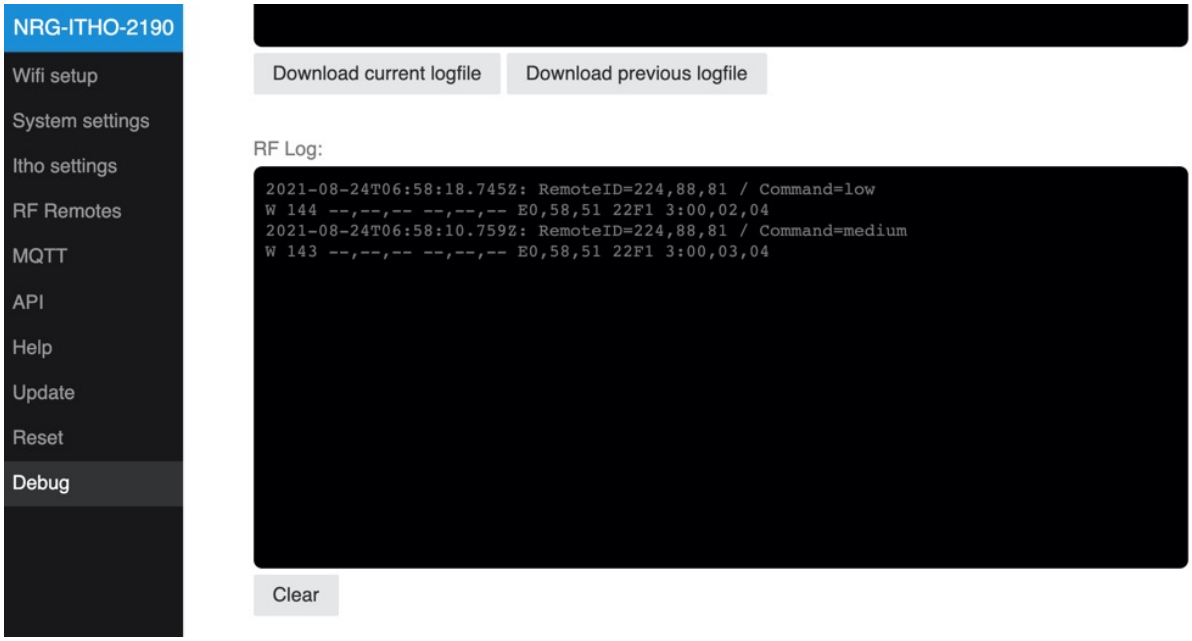
Note: There is a debug option to make RF commands visible in the web interface.
This can be done by issuing one of the following commands:

- http://nrg-itho-A1B2.local/api.html?debug=level1
  Debug level 1 displays all recognised Itho remote commands incl. remote ID
- http://nrg-itho-A1B2.local/api.html?debug=level2
- Debug level 2 shows all RF packets coming from a set remote control
- (see https://github.com/arjenhiemstra/ithowifi/tree/master/remotes for more details on how to use this) http://nrg-itho-A1B2.local/api.html?debug=level3

Debug level 3 shows all RF packets being processed (there are probably a lot of non-Itho related packets in there)

- http://ngr-itho-A1B2.local/api.html?debug=level0
  With this command you turn off the debug option again

The debug RF log can be found on the debug page after receiving the first RF command:



FTDI HEADER & FAILSAFE BOOT

FTDI header (CVE add-on):

In case you want to flash a new firmware yourself or you can't use the firmware update option via the web interface, it is possible to flash the ESP module using a USB-TTL serial adapter. Make sure you use an adapter that can deliver the following power at 3.3 volts (around 300mA is recommended). An auto reset/flash mode circuit is provided to allow for easy flashing from within the Arduino environment.

USB (non-CVE add-on):
In case you want to flash a new firmware yourself or you cannot/do not want to use the firmware update option via the web interface, it is possible to flash the ESP module by using the USB connection. Recent and widely used operating systems have drivers for the used USB to serial chip CH340 built-in as standard. Uploading can be done with a speed up to 460800 baud.

Failsafe boot:

In the unlikely event that the module is no longer accessible due to a wrong configuration, it is possible to boot the module in fail safe mode. The file system with the configuration files is formatted and the module starts a simplified web interface with which it is possible to flash new firmware.
To activate this mode for hardware revisions up to version 2.5 (see back of add-on): Connect the two metal pieces marked 'failsafe' on the PCB. The easiest way to do this is with a soldering iron and some solder or by connecting the two surfaces with a screwdriver.
For hardware revisions from 2.6 onwards, this mode can be activated by pressing the button with the caption 'fail save'.

The add-on then starts an access point, as it did the first time it was used, and the firmware upload option can then be accessed via: http://192.168.4.1/update

After this procedure, remove any soldered connections and put the module back into operation as described in this manual.

This method is only available when using an 'official' firmware or, a firmware based one.

HMMM, BUT....?

Further questions, feedback and code changes via info@nrg.watch or https://www.github.com/arjenhiemstra/ithowifi.
On tweakers.net, there is a thread on the forum about this add-on.
Here is also more information about the use of this add-on, in combination with eg Home Assistant, Domoticz other systems.

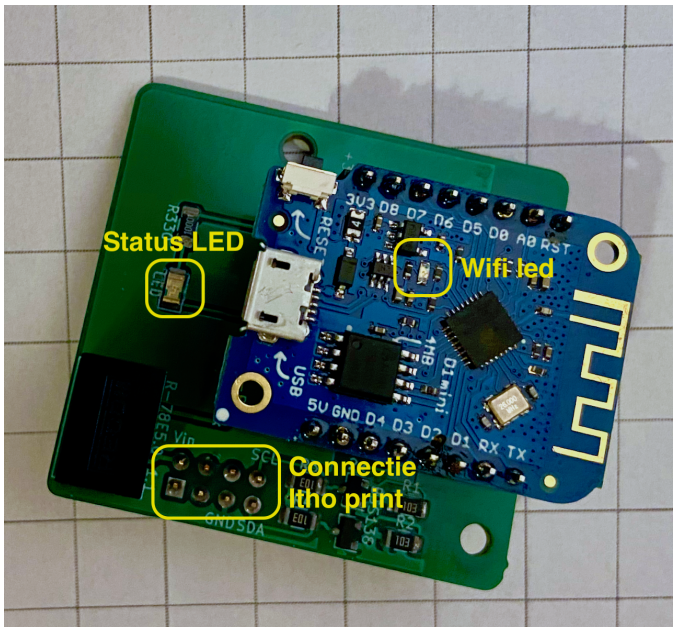
You can also go there for questions.
The link is: https://gathering.tweakers.net/forum/list_messages/1976492/0

More information about use, integration with home automation systems and other possibilities can be found on the wiki page of the Github project repository.
https://github.com/arjenhiemstra/ithowifi/wiki

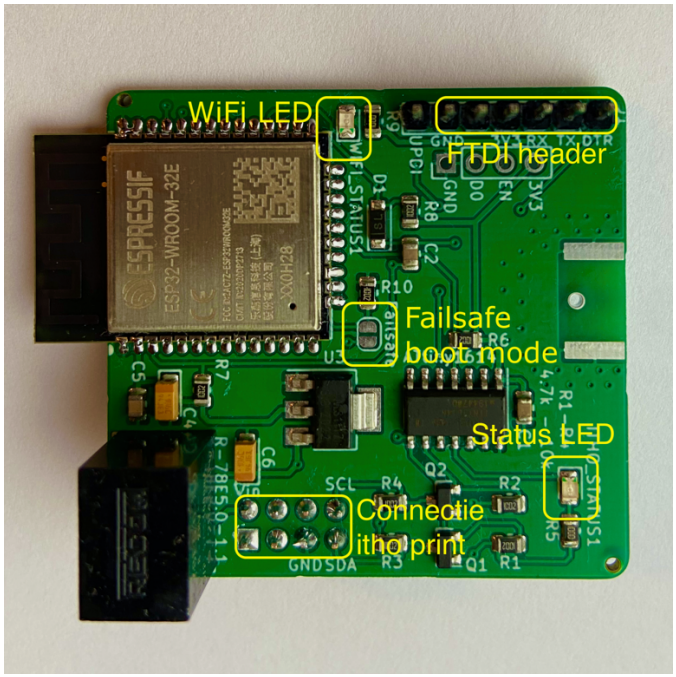
APPENDIX A

Images may differ slightly from the product you received, but the function is the same.

Hardware revision 1:

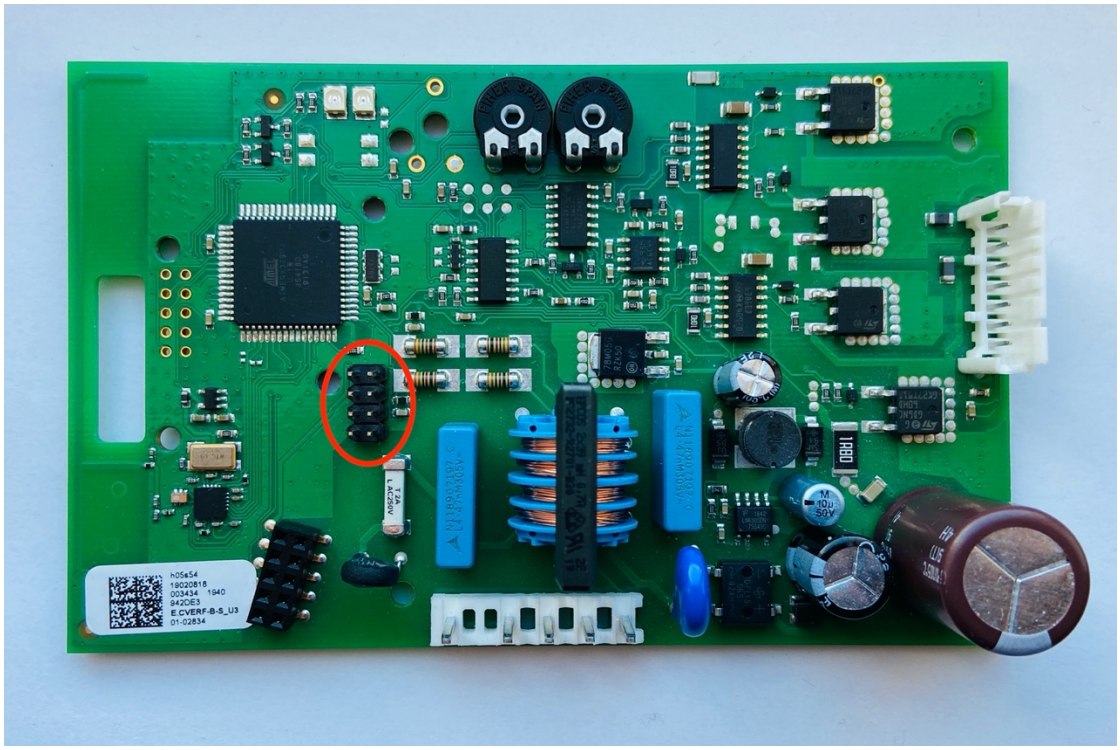


Hardware revision 2:

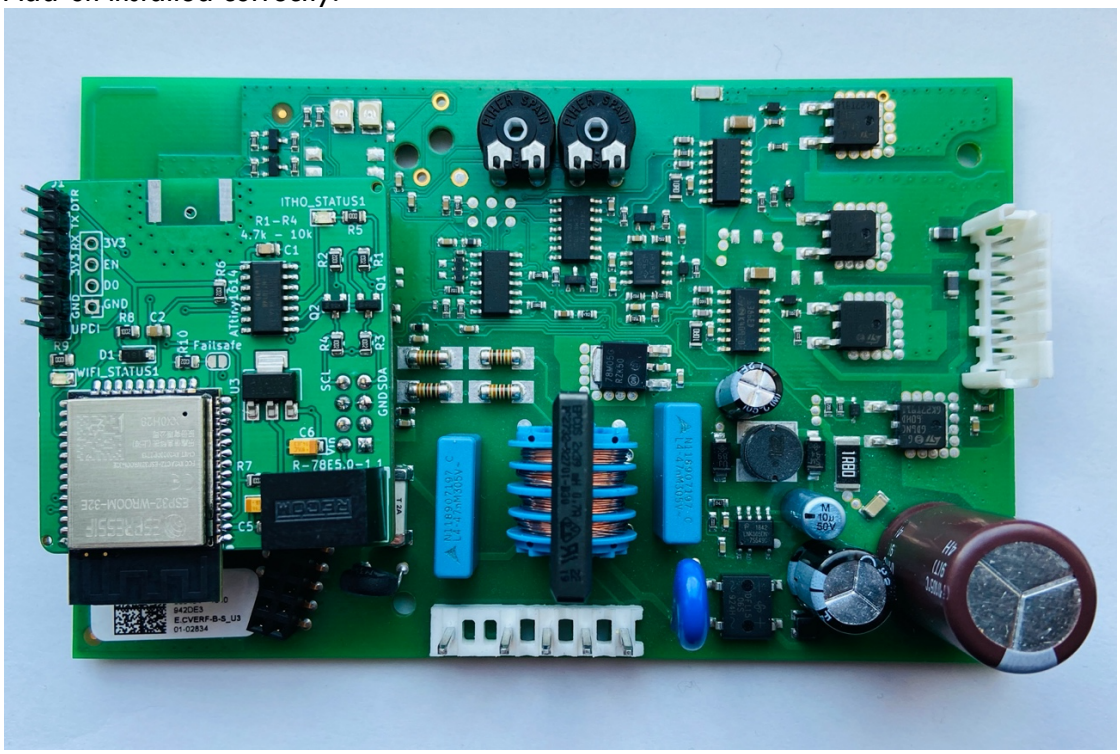


APPENDIX B

Installation header for the add-on in the red circle.
Depending on the production date of the Itho box, the print may look slightly different.



Add-on installed correctly:



APPENDIX C

Below is a Node-red example:


```
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```

APPENDIX D

Itho remote controls tested working:

- RFT Remote (536-0124)

- RFT AUTO C02 (536-0150)