

## ThermIQ2 installation for Raspberry Pi, version 4.0a

This installation description is valid for ThermIQ2-Web with ThermIQ-USB and ThermIQ-MQTT using Raspbian OS 32/64-bit (Debian 11, Bullseye)

Installation prerequisites:

1. An out-of-the-box Raspberry PI3 or better
2. A suitable USB power adaptor for the Pi
3. An Ethernet cable
4. A formatted SD-card of 8GB or more
5. Raspberry PI Imager for writing the SD-Card
6. A ThermIQ-USB or ThermIQ-MQTT card
7. telnet/ssh client, in windows: i.e telnet.exe or Putty. Mac: terminal
8. Optional: USB Keyboard and HDMI Cable

Configuration (expect about 30 min-1h installation time)

Help and instructions in black

Things to write down in green. You might use the table at last page

Actual commands/actions in blue

1. Start on your PC by downloading and installing **Raspberry Imager** from:

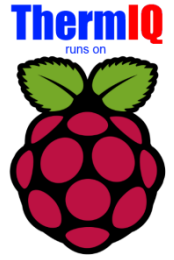
<https://www.raspberrypi.com/software/>

ThermIQ-2-Web requires PHP7.4 which is available in Raspberry OS Lite. Both 32- and 64-bit version works. There are good guides on the raspberry.org site on how to download and write the image to a SD-Card with Raspberry PI Imager. There are some important settings under the cog to make before writing the image:

- Set your own **hostname**
- Enable ssh with password authentication
- Set a **username** and **password**
- Configure your wifi if needed
- Set your locale

2. Connect the Raspberry to the network, insert the SD-card and power it on. Start the telnet client, putty.exe, or similar on your PC and connect to the Raspberry using SSH protocol on "**hostname.local**" port 22.  
If the "**hostname.local**" doesn't work you can also find out the ip-address given to it by dhcp. Either by having a monitor connected or by checking your router to see if you can find it there.

Once connected it will prompt you for the **user** and **password** defined above.



Log in with

user: **user**

password: **password**

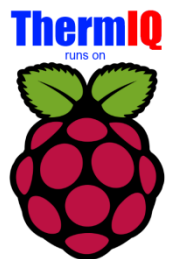
At the prompt type:

**sudo raspi-config**

In Raspi-config do (Meny layout differs slightly between releases):

1. **Advanced Options**
  - a. **Expand filesystem**

Then **Finish** and reboot



3. Now it's time to install the ThermIQ sw package.  
The switches **--thermiq\_usb** and **--thermiq\_mqtt** is required depending of which ThermIQ hw you have.  
If you have ThermIQ-MQTT you also need an mqtt-server which can be optionally installed with the switch **--mosquitto**.

Connect and login to the Raspberry with Telnet.

Type (and note down the **IP-Address** given after the first command):

**hostname -I**

**cd /tmp**

**sudo rm setup\_script**

**sudo wget [http://www.thermiq.net/getThermIQ2.php?setup=raspberry\\_mqtt](http://www.thermiq.net/getThermIQ2.php?setup=raspberry_mqtt) -O setup\_script**

**sudo chmod a+x setup\_script**

#### ThermIQ-USB

**sudo ./setup\_script --thermiq\_usb 2>&1 | sudo tee /var/thermiq\_install.log**

#### ThermIQ-MQTT

**sudo ./setup\_script --mosquitto --thermiq\_mqtt 2>&1 | sudo tee /var/thermiq\_install.log**

**cd /etc/mosquitto**

**sudo mosquitto\_passwd -c /etc/mosquitto/passwd thermiq**

**whoami**

This will take a couple of minute. When done,

**sudo reboot**

That's all setup needed on the Raspberry!

4. Open link: <http://hostname.local/install/install.php> in a web-browser using the **hostname** from step 1.  
Or <http://IP-Address/install/install.php> using **IP-Address** from step 3

A page like this will open:

**ThermIQ Installation**

1 Initial config 2 Download ThermIQ 3 User database 4 Main database 5 Dropbox 6 Secure installation

Configuration file  
c:/xampp/htdocs/Thermiq\_Windows.ini

Select database type  
Database type sqlite

**STEP 1**  
Instructions  
Check that the configuration file is found and then select which database type you want to use. Make sure all fields are green. Sqlite should be used by default. Mysql requires an already running and configured mysql-server.

Install messages >

Follow the steps 1-4 shown in the browser to complete the installation until all items are green, write down your data in the table below. Use “sqlite” as database type unless you already have a MySQL database setup and know how to administrate it.

For MySQL you need to create two new databases, ‘**thermiq\_db**’ and ‘**thermiq\_userdb**’

Each step will be enabled as the previous step is completed but a manual “reload” of the page is sometimes needed. The “Download ThermIQ” step might be needed more than once until the step is cleared. Here you can also setup a Dropbox backup account and secure the installation page with a password.

5. Hardware Installation:

**ThermIQ-USB:** Configure and connect your ThermIQ-USB card according to these instructions the default port is /dev/ttyACM0: <https://thermiq.net/installation2.pdf>

**ThermIQ-MQTT:** Configure and connect your ThermIQ-MQTT card according to these instructions: [https://thermiq.net/ThermIQ\\_MQTT\\_Installation.pdf](https://thermiq.net/ThermIQ_MQTT_Installation.pdf)

6. Open link: <http://<your-ip-address>/> in a web-browser with the IP address from step 4  
Login with:
- User: as given during Bullet 6, Step 3
  - Password: as given during Bullet 6, Step 3
  - Check the different settings in the right corner drop down menu
  - Select "[Poller settings](#)" and configure what device to collect data from.
    - Select ThermIQ\_MQTT or ThermIQ\_USB and configure with
  - Select "[Widget settings](#)" and enable the widgets you want to see on the home page

Done ☺

Now is a good time to check out the RaspberryPI home page at <http://www.raspberrypi.org> where there's a lot of information available especially in the forum i.e :

- How to secure your Raspberry from intruders.
- How to setup a free dynamic ip service if you want your PI to be easily accessible from the internet

and don't forget to check out the ThermIQ forum at [www.ThermIQ.net](http://www.ThermIQ.net)

Note 1: If you want to access your ThermIQ remotely, you can open your router/firewall using “port forwarding” for the ip-address and port above. But please be aware of the potential security risks this enables.

Note 2: The MQTT server installed is from mosquitto.org, it is configured to enable both open and encrypted connections using self-signed certificates in /etc/mosquitto/certs/  
These certificates can be regenerated by logging in with ssh as pi and typing

```
cd
cd certs
generate-CA.sh
cp -f *.cert `hostname`.key /etc/mosquitto/certs/
systemctl restart mosquitto.service
```

ThermIQ\_MQTT will only be able to use encrypted “MQTTS” connection if the raspberry has a public IP-address or port forward from one. Edit /usr/sbin/generate-CA.sh to add the IP-address in ‘IPLIST’ and hostname in ‘HOSTLIST’ before regenerating certificates then copy ca.crt to all mqtt clients.

## Cheat-sheet:

Bullet	Step	Key	Value
1		Raspberry hostname	
1	-.	Raspberry username	
1	-	Raspberry password	
2	-	Raspberry IP-address	hostname.local, IP:
3		MQTTServer	
3		Mqtt user	thermiq
3		Mqtt password	
3		MQTT Public cert	/etc/mosquito/ca.crt
4	2	Order email	
4	2	License key	
4	3	Administrator login name	
4	3	Administrator login password	
4	6	Installation username	
4	6	Installation password	
		ThermIQ-USB port	/dev/ttyACM0