

## 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 are recommended to print out and use the table at last page

Actual commands/actions in blue

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

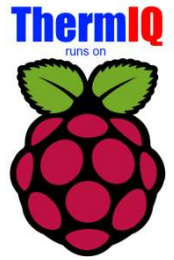
<https://www.raspberrypi.com/software/>

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`

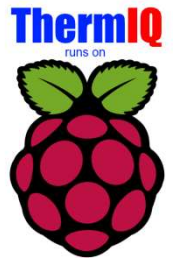
At the prompt type:

```
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 -f setup_script  
sudo wget 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
```

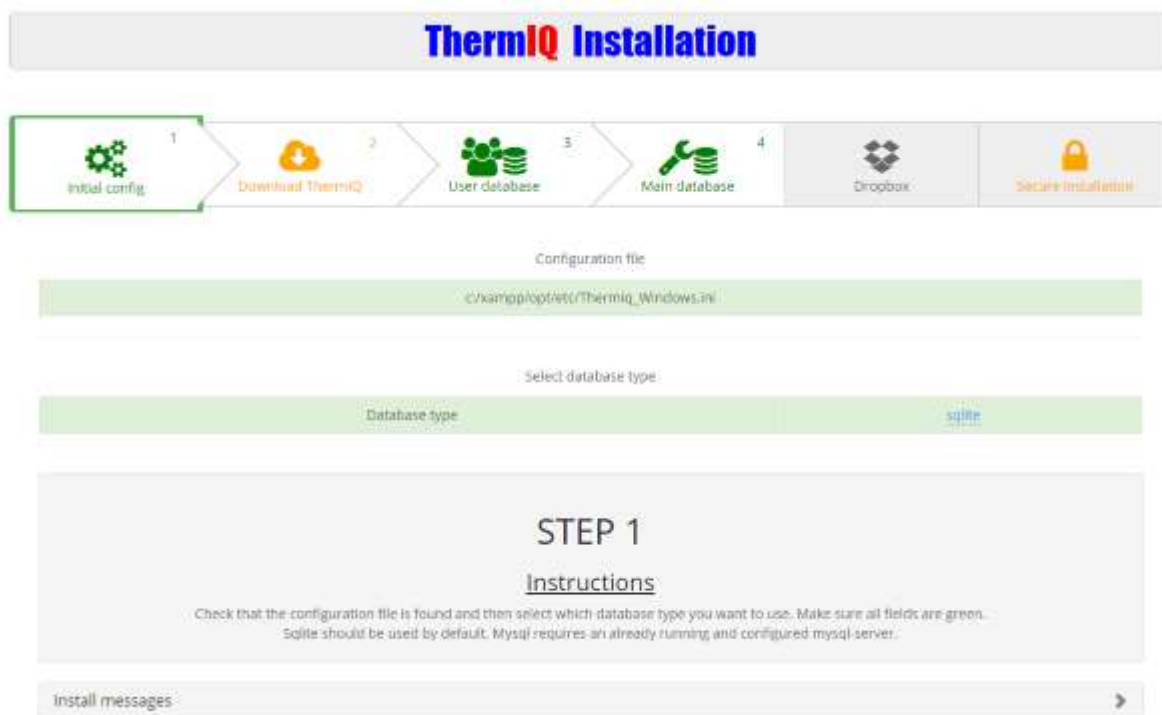
This will take a couple of minutes. When done,

```
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:



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:
  - a. User: as given during Bullet 6, Step 3
  - b. Password: as given during Bullet 6, Step 3
  - c. Check the different settings in the right corner drop down menu
  - d. Select "**Poller settings**" and configure what device to collect data from.  
- Select ThermIQ\_MQTT or ThermIQ\_USB and configure with
  - e. 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 *.crt `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.

## Config-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