

ThermIQ2 installation for Raspberry Pi, version 3.1

This installation description is valid for ThermIQ2-Web and ThermIQ-MQTT using a Raspberry pi with Debian 11, Bullseye.

Installation prerequisites:

1. An out-of-the-box Raspberry PI3 or better
2. A suitable USB power adaptor
3. An Ethernet cable
4. A formatted SD-card of 8GB or more
5. SD card writer, Etcher or similar
6. A 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 Pi OS Lite** from:

<https://www.raspberrypi.com/software/operating-systems/>

The installation relies on Debian 11. There are good guides on the raspberry.org site on how to format and write the image to a SD-Card i.e by using etcher from

<https://www.balena.io/etcher/>

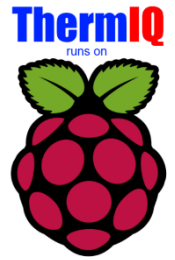
Add a file called “SSH” to the boot partition (The readable part of the newly created SD-Card). This will enable SSH terminal access which we will use to login.

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 port 22.

You have to 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 a user and password.

The older installation instruction covering ThermIQ-USB is available, but is not supported for new installs: <https://thermiq.net/ThermIQ2-installation-for-Raspberry-PI-USB.pdf>



3. Log in with

user: pi

password: raspberry

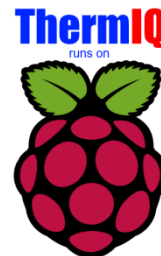
At the prompt type:

`sudo raspi-config`

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

1. Change user password -> Type a new password Write down password!
2. Localization Options
 - a. Change timezone
 - b. Adjust keyboard to match your setup
3. Advanced Options
 - a. Expand filesystem
4. Boot options (Boot to Console only, Do not enable auto-login)
 - a. -> Desktop /CLI -> Console
5. Optional, Change hostname now as rest of installation depends on it
 - a. -> Network Options->Change Hostname

Then **Finish** and reboot



- Now it's time to install the ThermIQ sw package and the mosquitto mqtt-server. The switch `--mosquitto` can be skipped if you already have an MQTT server.

Connect and login to the Raspberry with Telnet.

Type:

```
cd /tmp
```

```
sudo rm setup_script
```

```
sudo wget http://www.thermiq.net/getThermIQ2.php?setup=raspberry_mqtt -O setup_script
```

```
sudo chmod a+x setup_script
```

```
sudo ./setup_script --mosquitto 2>&1 | sudo tee /var/thermiq_install.log
```

```
cd /etc/mosquitto
```

```
sudo mosquitto_passwd -c /etc/mosquitto/passwd thermiq
```

and enter your mqtt password

Write down mqtt pw

This will take a couple of minutes. When done,

Type:

```
sudo reboot
```

That's all setup needed on the Raspberry!

- Open link: <http://<your-ip-address>/install/install.php> in a web-browser with the IP address from bullet 4. 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 to 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. Here you can also setup a Dropbox backup account and secure the installation page with a password.

Bullet	Step	Key	Value
3	-	Raspberry username	pi
3	-	Raspberry password	
4	-	Raspberry IP-address	
5		Mqtt user	thermiq
		Mqtt password	
5		MQTT Public cert	/etc/mosquito/ca.crt
6	2	Order email	
6	2	License key	
6	3	Administrator login name	
6	3	Administrator login password	
6	6	Installation username	
6	6	Installation password	

6. Hardware Installation:

ThermIQ-MQTT: Configure and connect your ThermIQ-MQTT card according to these instructions: https://thermiq.net/ThermIQ_MQTT_Installation.pdf

7. 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
- 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

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.