

ThermIQ

ThermIQ-MQTT
ThermIQ-room
ThermIQ-ROOM2

These instructions are downloaded from:
http://www.thermiq.net/ThermIQ_MQTT_Installation.pdf

ThermlQ2-WEB
(If applicable)

Download ThermlQ2

• Step 1

Configure ThermlQ2 webserver

• Steps 2-5

ThermlQ-MQTT/
ROOM/ROOM2

• Functional overview

ThermlQ-MQTT
ThermlQ-ROOM
ThermlQ-ROOM2

Configuration

• Steps 10-12

Installation in
heatpump

• Steps 15-19

ThermlQ-
ROOM2

• Steps 20-25

Node-RED

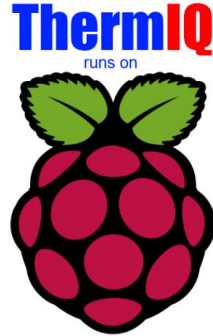
Example flows

Home Assistant



Installation

Install ThermIQ2 Webserver



- Raspberry

- Download instructions from <http://www.thermiq.net/ThermIQ2-installation-for-Raspberry-PI.pdf>

1

OR

- Windows

- Follow instructions from <http://www.thermiq.net/ThermIQ2-installation-for-Windows-XAMPP.pdf>

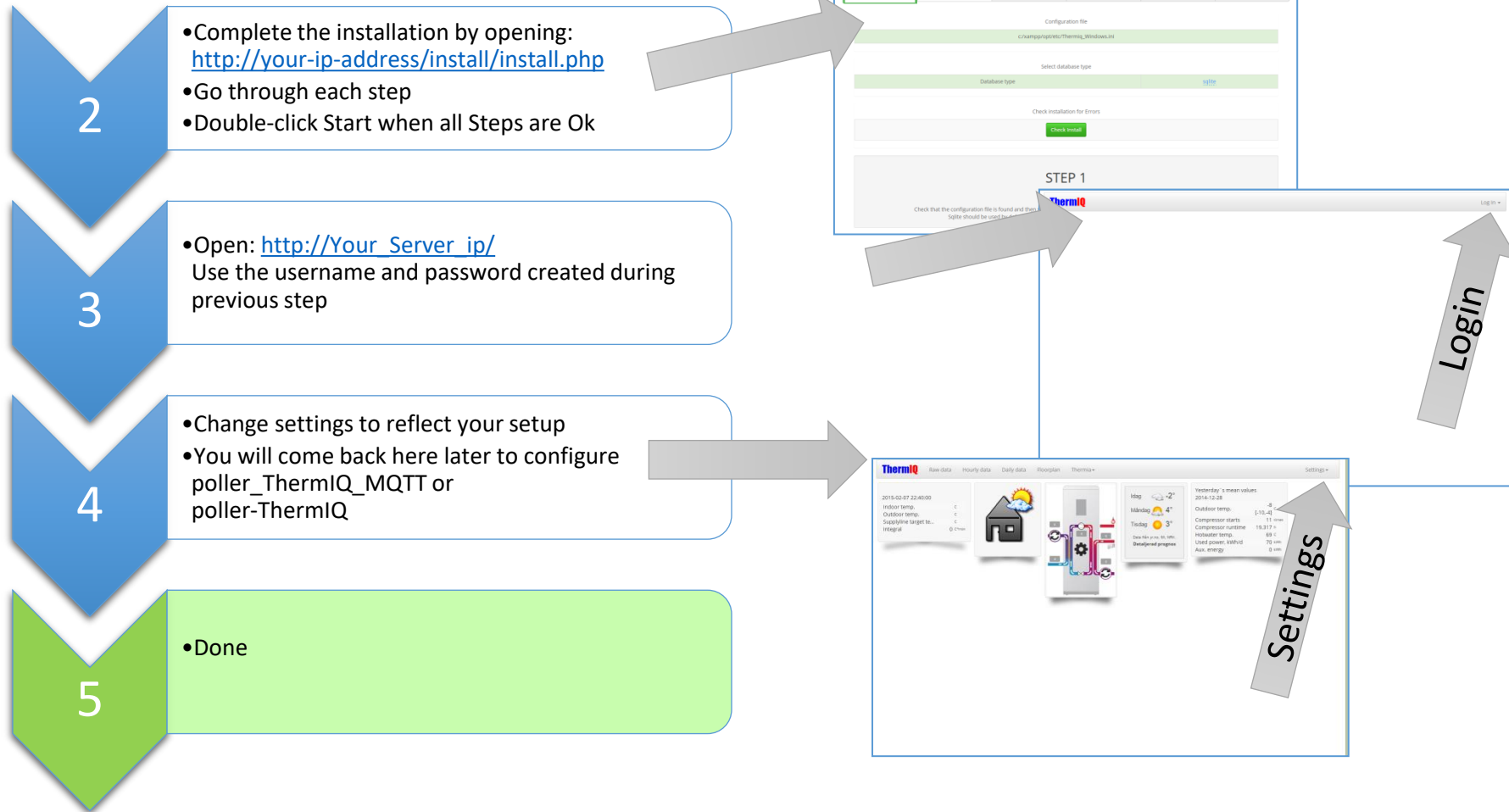
RUNS ON
XAMPP



+



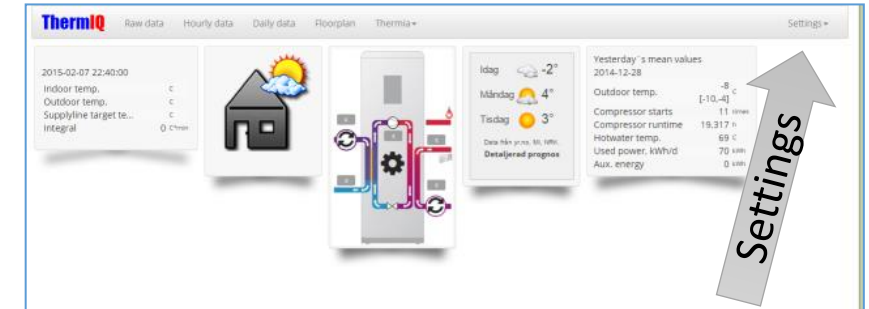
Configure ThermIQ Webserver



Replace your-ip-address with the actual ip-address of your Webserver

ThermIQ2-Web, Poller settings

- Go to ThermIQ2-WEB and select Settings
- Select Poller settings
- Use the data from previous steps and fill in the poller_ThermIQ_MQTT
 - MQTTServerIP is the Mosquitto IP
 - MQTTClient_Name should be left blank
 - MQTTNode should be the same as MQTT NodeName in "HW Config step 12"
- The poller must be restarted before changes take effect.
Type (In a shell):
`sudo systemctl restart ThermIQ_MQTT_listener`
- Debug (in a shell)
`cd /usr/sbin`
`ThermIQ_MQTT_listener -v`



poller_ThermIQ_MQTT		Action▼
MQTTServer_IP	<input type="text" value="192.168.2.32"/>	
MQTTServer_Port	<input type="text" value="1883"/>	
MQTTServer_User	<input type="text" value="thermiq"/>	
MQTTServer_PW	<input type="text" value="yourpw"/>	
MQTTServer_Cafile	<input type="text" value="Empty"/>	
MQTTClient_Name	<input type="text" value="Empty"/>	
MQTTNode	<input type="text" value="ThermIQ/ThermIQ-mqtt"/>	

From
Step 12

WEB

Download ThermlQ2

• Step 1

Configure ThermlQ2
webserver

• Steps 2-5

ThermlQ-MQTT/
ROOM/ROOM2

• Functional overview

ThermlQ-MQTT
ThermlQ-ROOM
ThermlQ-ROOM2

Configuration

• Steps 10-12

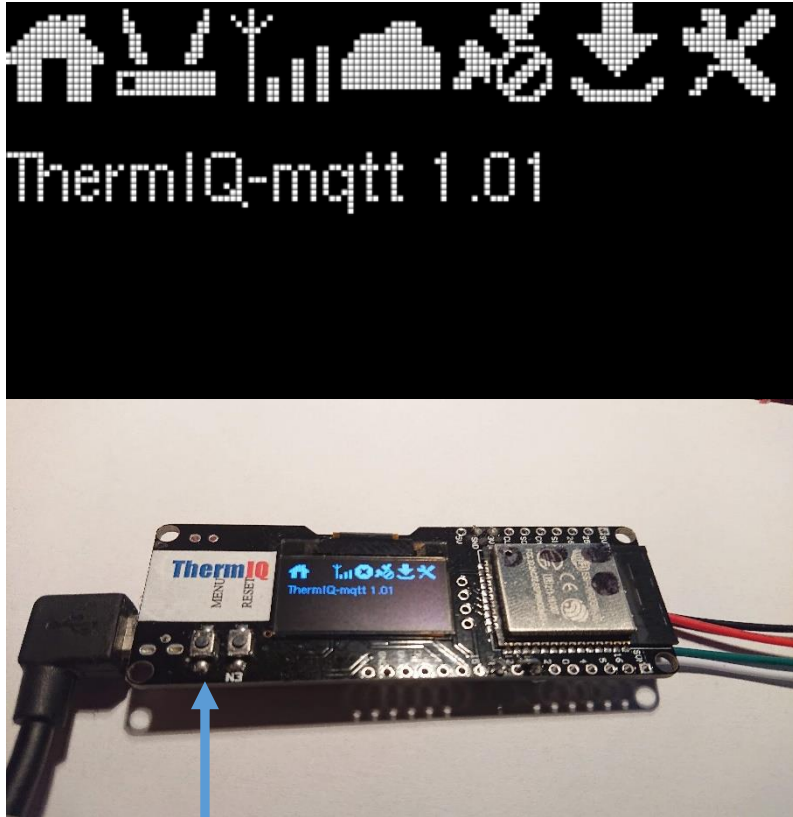
Installation in
heatpump

• Steps 15-19

ThermlQ-
ROOM2

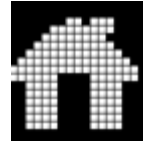
• Steps 20-25

ThermIQ-MQTT, ThermIQ-ROOM2 menus and buttons



Hold menu button to move from Icon to icon

A flashing symbols indicates that something needs attention



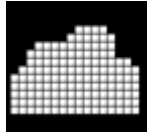
- ThermIQ-MQTT, ThermIQ-ROOM2 General info



- WiFi Config mode, Connect to "ThermIQ-cfg" and open <https://10.0.0.1> **Flashes when ready to connect to**



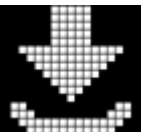
- WiFi network connection status **Flashes when unable to connect to configured network**



- MQTT Connection status **Shows a cloud with X when unable to connect**



- Heatpump connection status **Shows disconnected when not in contact**



- FW Upgrade mode



- Reset configuration and redo Web configuration

ThermIQ-MQTT, ThermIQ-ROOM2 Configuration

ThermIQ needs to be configured before connecting it to your heatpump

- Power ThermIQ with a USB Charger.
- Connect to WiFi

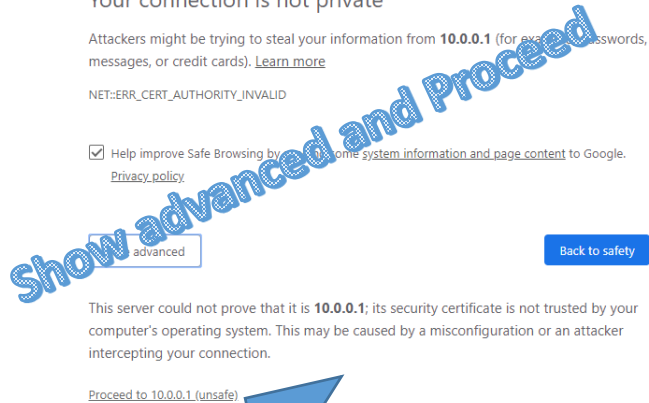


- Connect with a computer or phone to the wifi network "ThermIQ-cfg"
- Open web-page <https://10.0.0.1>

- Enter your network data and MQTT broker, see next page
- Check that ThermIQ connects successfully to your WiFi network and to the MQTT Broker by using MQTT Explorer.
- When connecting ThermIQ will send a Topic named announce
- ThermIQ will regularly send a Topic named ThermIQ/ThermIQ-MQTT/data
With the data read from the Heatpump

ThermIQ-MQTT, Web configuration

All configuration is done through the configuration web-page



Show advanced and Proceed

Select or Enter your WiFi credentials
Select DHCP Assigned IP or fill in your specifics

Select timezone for correct timestamping of MQTT messages.

MQTT URI, is the Mosquitto server IP and must be specified with full URI address i.e

<mqtt://192.168.0.1:1883> or
<mqtts://192.168.0.1:8883>

Examples

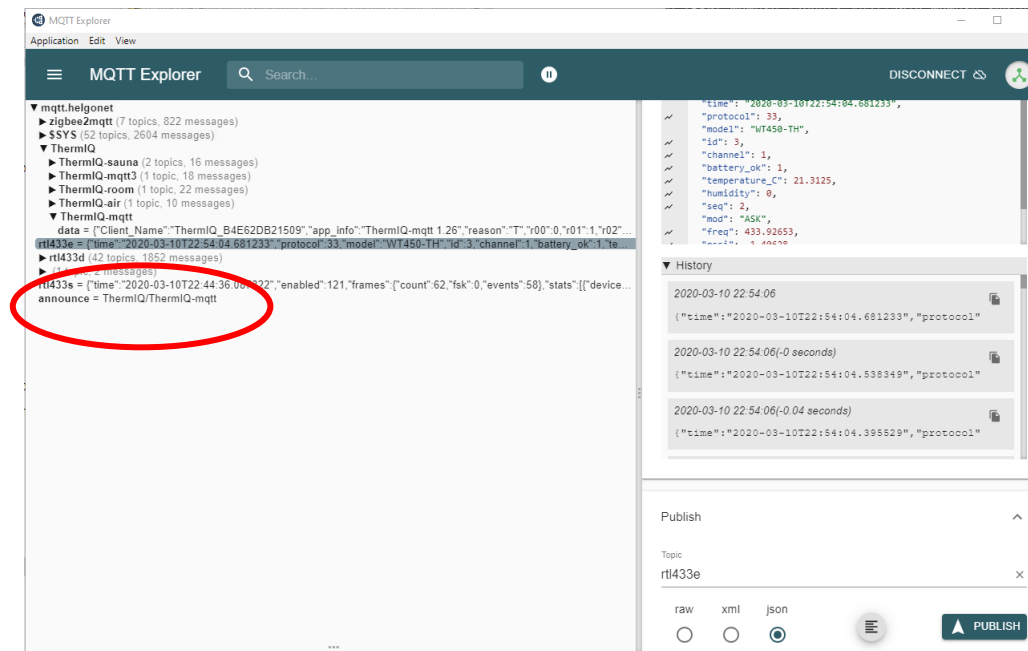
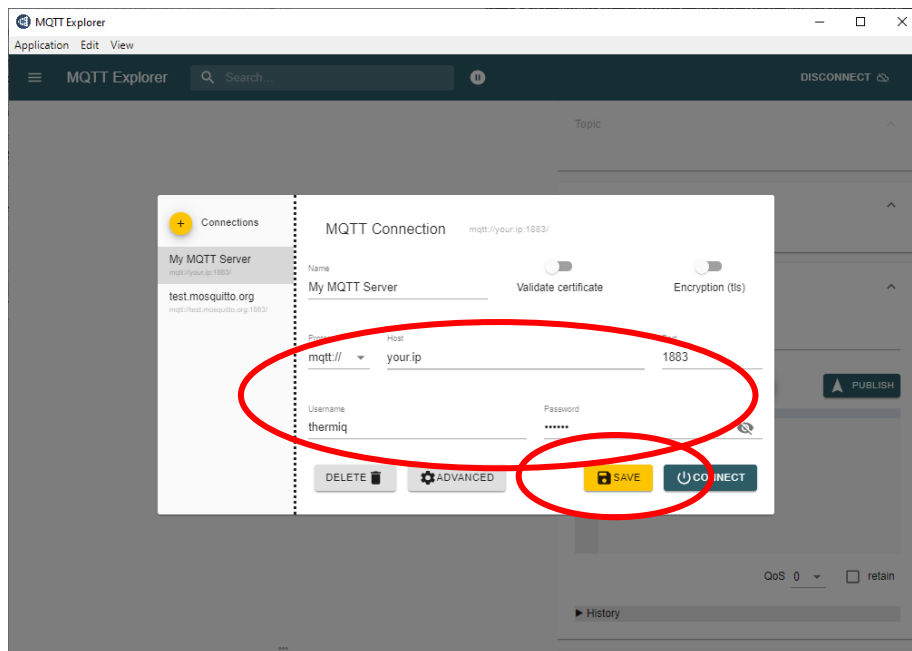
MQTT NodeName is needed in next step

A CA Cert for your MQTT -server. Paste the text
----- BEGIN CERTIFICATE -----
.....
----- END CERTIFICATE -----

Tip! Do NOT use mqtts and/or a Certificate until you got it working without

Install MQTT Explorer

- MQTT Explorer is a powerful tool setting up and debugging the MQTT Broker used by ThermIQ-MQTT.
- Install MQTT Explorer from: <http://https://mqtt-explorer.com/>
 - Create an MQTT Connection using the credentials from your installation
 - Do NOT use mqttts and/or a Certificate until you got it working without
- Look for two Topics: announce and ThermIQ/ThermIQ-mqtt or ThermIQ/ThermIQ-room2
- There should be an announce when ThermIQ-MQTT is properly configured (see next page)



ThermIQ-MQTT Messaging (Version >2.40)

COMMAND JSON PAYLOAD

- read // Read all register
- write {"r05":10,"r3f":22} // Write to register r with address in hex and data in decimal form
- write {"d5":10,"d63":22,"d11"} // Write to register d with address in decimal and data in decimal form
- set {"INDR_T":20.3} // Set actual indoor temp, only functional together with Room sensor option (ThermIQ-Room and ThermIQ-Room2)
- set {"EVU":1} // Set EVU to 0 or 1, only functional together with ThermIQ-Room2
- set {"REGFMT":1} // Change Register notation in the data payload from hex to decimal, i.e r20 -> d32. Set to 0 to get back to hex
- info // Get node info including heap and uptime
- update // Attempt fw update
- reset

DESCRIPTION

TOPIC COMMAND

Topic: ThermIQ / ThermIQ-mqtt / data

Value: { "Client_Name": "ThermIQ_B4E62D821509", "app_info": "ThermIQ-mqtt 1.26", "reason": "T", "r00": 0, "r01": 0, "r02": 1, "r03": 3, "r04": 4, "r05": 5, "r06": 6, "r07": 7, "r08": 0 }

QoS: 0
2020-03-10 23:08:48

Note that register can be either hex (rXX) or decimal (dDD) any parsing must handle both formats

Publish

Topic: ThermIQ/ThermIQ-mqtt/write

raw xml json

PAYLOAD: {"r00":10,"r0f":22}

PUBLISH

QoS: 0 retain

Topic: announce

Value: announce

QoS: 0
2020-03-10 23:14:47

ThermIQ/ThermIQ-mqtt

History

2020-03-10 23:14:47
ThermIQ/ThermIQ-mqtt

Thermia status registers (read only)

Reg (Dec)	Reg (Hex)	Content	Type
0	r00	Outdoor temp.	C
1	r01	Indoor temp.	C
2	r02	Indoor temp., decimal	0.1C
3	r03	Indoor target temp.	C
4	r04	Indoor target temp., decimal	0.1C
5	r05	Supplyline temp.	C
6	r06	Returnline temp.	C
7	r07	Hotwater temp.	C
8	r08	Brine out temp.	C
9	r09	Brine in temp.	C
10	r0a	Cooling temp.	C
11	r0b	Supplyline temp., shunt	C
12	r0c	Electrical Current	A
13	r0d		
	r0d:0	Aux. heater 3 kW	Boolean
	r0d:1	Aux. heater 6 kW	Boolean
14	r0e	Supplyline target temp.	C
15	r0f	Supplyline target temp., shunt	C
16	r10		
	r10:0	Brinepump	Boolean
	r10:1	Compressor	Boolean
	r10:2	Flowlinepump	Boolean
	r10:3	Hotwater production.	Boolean
	r10:4	Auxilliary 2	Boolean
	r10:5	Shunt -	Boolean
	r10:6	Shunt +	Boolean
	r10:7	Auxilliary 1	Boolean
17	r11		
	r11:0	Shuntgroup -	Boolean
	r11:1	Shuntgroup +	Boolean
	r11:2	Shunt cooling -	Boolean
	r11:3	Shunt cooling +	Boolean
	r11:4	Active cooling	Boolean
	r11:5	Passive cooling	Boolean
	r11:6	Alarm	Boolean

Reg (Dec)	Reg (Hex)	Content	Type
18	r12	PWM Out	Units
19	r13:0	Alarm highpr.pressostate	Boolean
	r13:1	Alarm lowpr.pressostate	Boolean
	r13:2	Alarm motorcircuit breaker	Boolean
	r13:3	Alarm low flow brine	Boolean
	r13:4	Alarm low temp. brine	Boolean
20	r14		
	r14:0	Alarm outdoor t-sensor	Boolean
	r14:1	Alarm supplyline t-sensor	Boolean
	r14:2	Alarm returnline t-sensor	Boolean
	r14:3	Alarm hotw. t-sensor	Boolean
	r14:4	Alarm indoor t-sensor	Boolean
	r14:5	Alarm incorrect 3-phase order	Boolean
	r14:6	Alarm overheating	Boolean
21	r15	DEMAND1	
22	r16	DEMAND2	
23	r17	Pressurepipe temp.	C
24	r18	Hotw. supplyline temp.	C
25	r19	Integral	C*min
26	r1a	Integral, reached A-limit	
27	r1b	Defrost	*10s
28	r1c	Minimum time to start	min
29	r1d	Program version	
30	r1e	Flowlinepump speed	%
31	r1f	Brinepump speed	%
32	r20	STATUS3	

Thermia control registers (read/write)

Reg (Dec)	Reg (Hex)	Content	Type
d50	r32	Indoor target temp.	C
d51	r33	Mode	läge #
d52	r34	Curve	*
d53	r35	Curve min	*
d54	r36	Curve max	*
d55	r37	Curve +5	*
d56	r38	Curve 0	*
d57	r39	Curve -5	*
d58	r3a	Heatstop	C
d59	r3b	Temp. reduction	C
d60	r3c	Room factor	*
d61	r3d	Curve 2	*
d62	r3e	Curve 2 min	*
d63	r3f	Curve 2 max	*
d64	r40	Curve 2, Target	C
d65	r41	Curve 2, Actual	C
d66	r42	Outdoor stop temp. (20=-20C)	*
d67	r43	Pressurepipe, temp. limit	C
d68	r44	Hotwater starttemp.	C
d69	r45	Hotwater operating time	min
d70	r46	Heatpump operating time	min
d71	r47	Legionella interval	days
d72	r48	Legionella stop temp.	C
d73	r49	Integral limit A1	C*min
d74	r4a	Hysteresis, heatpump	C
d75	r4b	Returnline temp., max limit	C
d76	r4c	Minimum starting interval	min
d77	r4d	Brinetemp., min limit (-15=OFFV)	C
d78	r4e	Cooling, target	C
d79	r4f	Integral limit A2	10C*min
d80	r50	Hysteresis limit, aux	C
d81	r51	Max step, aux	# steps
d82	r52	Electrical current, max limit	A
d83	r53	Shunt time	s
d84	r54	Hotwater stop temp.	C
d85	r55	Manual test mode	mode #
d86	r56	DT_LARMOFF	
d87	r57	Language	language #
d88	r58	SERVFAS	
d89	r59	Factory settings	setting #

Red (Dec)	Reg (Hex)	Content	Type
d90	r5a	Reset runtime counters	C
d91	r5b	Calibration outdoor sensor	
d92	r5c	Calibration supplyline sensor	
d93	r5d	Calibration returnline sensor	
d94	r5e	Calibration hotwater sensor	
d95	r5f	Calibration brine out sensor	
d96	r60	Calibration brine in sensor	
d97	r61	Heating system type 0=VL 4=D	type #
d98	r62	(Bits cannot be accessed individually, only as integer)	
bit0		Add-on phase order measurement	Boolean
bit1		TILL2	Boolean
bit2		Add-on HGW	Boolean
bit3		TILL4	Boolean
bit4		TILL5	Boolean
bit5		TILL6	Boolean
bit6		Add-on Optimum	Boolean
bit7		Add-on flow guard	Boolean
d99	r63	Logging time	min
d100	r64	Brine run-out duration	*10s
d101	r65	Brine run-in duration	*10s
d102	r66	Legionella peak heating enable	Boolean
d103	r67	Legionella peak heating duration	h
d104	r68	Runtime compressor	h
d105	r69	DVP_MSD1	
d106	r6a	Runtime 3 kW	h
d107	r6b	DTS_MSD1	
d108	r6c	Runtime hotwater production	h
d109	r6d	DVV_MSD1	
d110	r6e	Runtime passive cooling	h
d111	r6f	DPAS_MSD1	
d112	r70	Runtime active cooling	h
d113	r71	DACT_MSD1	
d114	r72	Runtime 6 kW	h
d115	r73	DTS2_MSD1	
d116	r74	GrafCounterOffset	
d117- d127	r75- r7f	Unknown/Undocumented	

READ ONLY

Install ThermIQ-MQTT in heatpump

15

- Make sure that you have done the WIFI-setup and that ThermIQ connects to the MQTT broker before installing it in the heatpump.
- Turn off heatpump and remove front cover

16

- Find the EXT connector on the main control-board and connect the ThermIQ-MQTT board to the heatpump. Carefully verify that the connector is correctly inserted. The extension connector on ThermIQ-MQTT should be in the same direction as the one on the heatpump

17

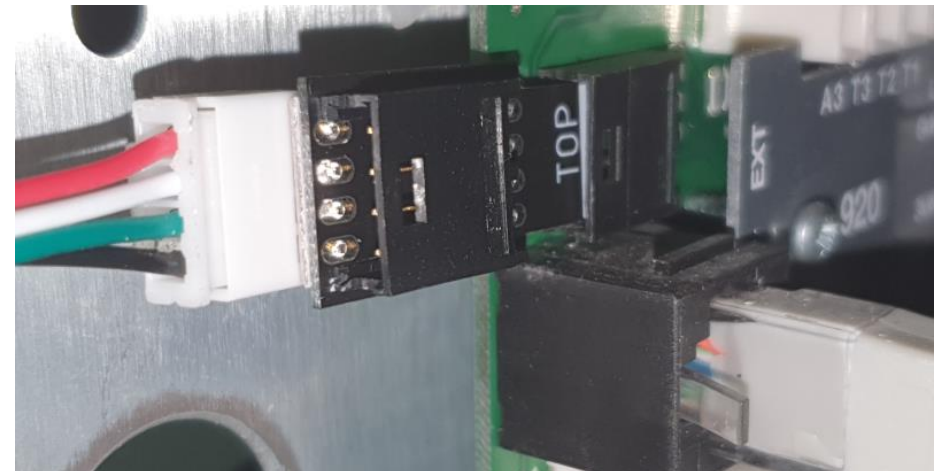
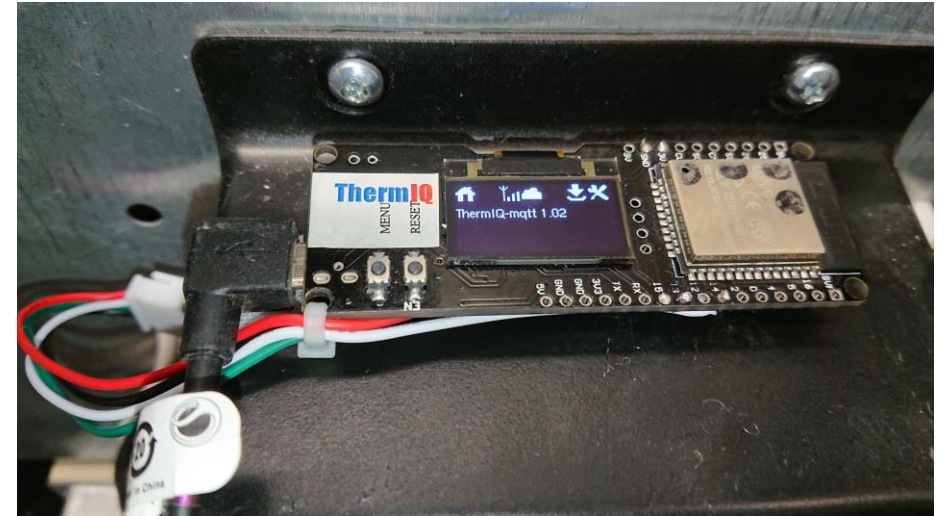
- Connect other peripherals, i.e extension board(s) to the ThermIQ-board with the existing cable. Please note that you cannot connect a Thermia Online module together with ThermIQ as it will cause conflicts.

18

- Power ThermIQ-MQTT with a USB Charger capable of delivering around 2A. Make sure you use a quality brand as it will be in continuous use.

19

- Turn on heatpump and check that ThermIQ-MQTT shows Connected to Heatpump
- Replace front cover



Install ThermIQ-ROOM in heatpump

20

- Start by following instructions 15-18 for ThermIQ-MQTT

21

- Connect the ThermIQ-room Interface to the free connector on ThermIQ (Grey-Blue-Violet-White)

22

- Check you heatpump manual to see where the Thermia Indoor unit should be connected. For most units this will be terminal 303/304

23

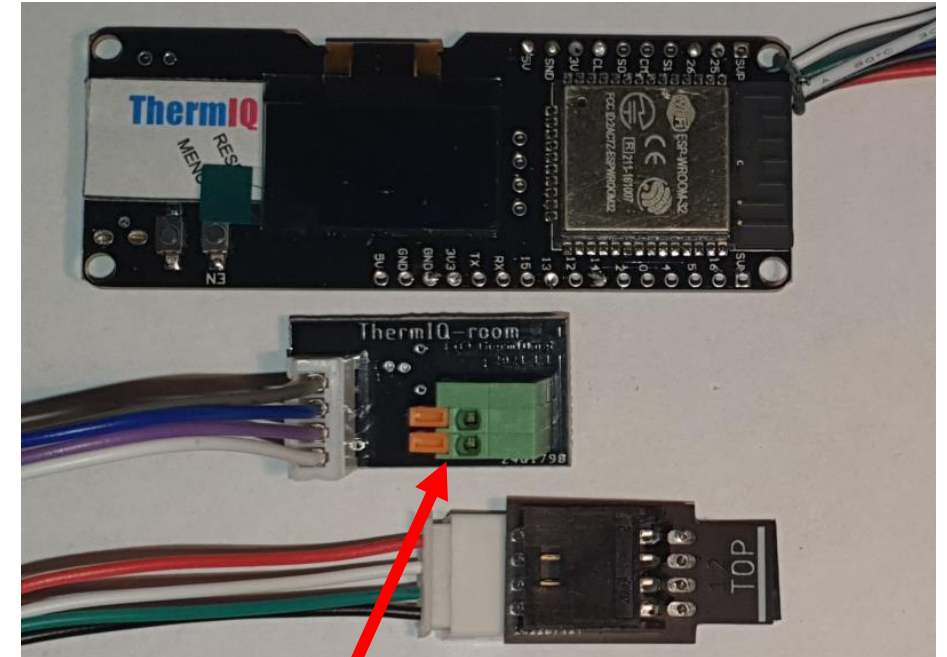
- Use a thin cable of approx. 40cm length to connect ThermIQ-ROOM to the heatpump. Gently push down the orange tab and insert the cable in the hole.

24

- Turn on heatpump and check that ThermIQ-ROOM shows Connected to Heatpump. By default the current room-temperature will be set 20.5

25

- Replace front cover



Push-down connectors

Install ThermIQ-ROOM2 in heatpump

20

- Start by following instructions 15-18 for ThermIQ-MQTT

21

- If upgrading connect the ThermIQ-room2 Interface to the free connector on ThermIQ (Grey-Blue-Violet-White)

22

- Check your heatpump manual to see where the Thermia Indoor unit and EVU function should be connected. For most units this will be terminal 303/304 and 307/308. See marking on ThermIQ circuitboard for numbering.
- Put the switch in EVU mode for ON/OFF, or NIGHT for lower temperature mode

23

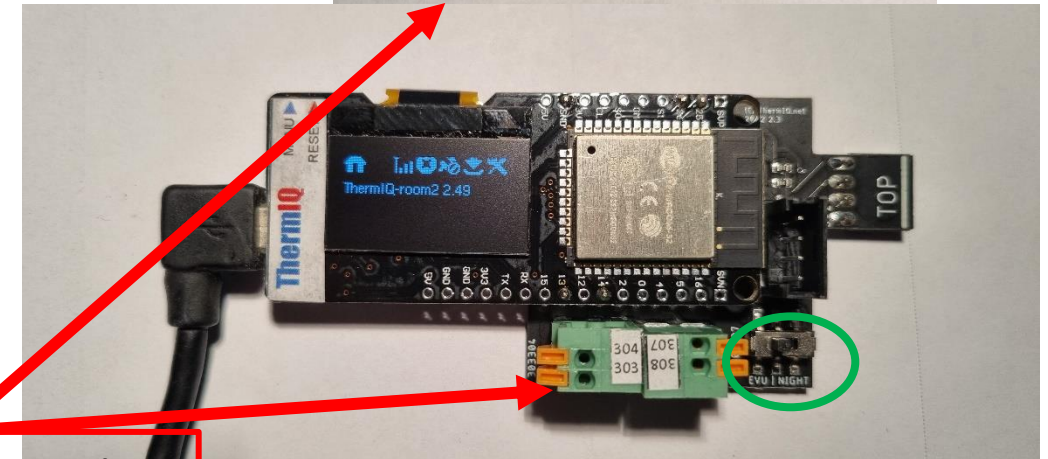
- Use a thin cable of approx. 40cm length to connect ThermIQ-ROOM2 to the heatpump. Gently push down the orange tabs and insert the cable in the holes. Do this before connecting the board to the heatpump to avoid stress on the boards.

24

- Insert the connector marked TOP or use an EXT-Cable to connect to the Heatpump controller.

25

- Turn on heatpump and check that ThermIQ-ROOM2 shows Connected to Heatpump. By default the current room-temperature will be set to 20.5



Push-down connectors

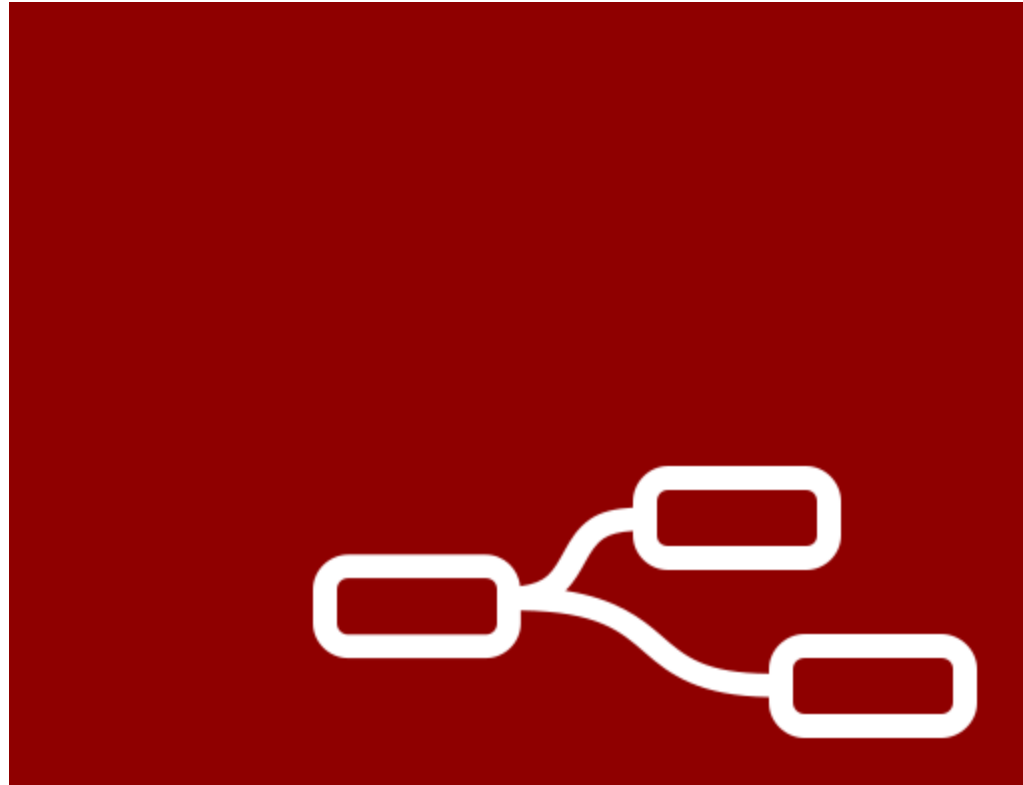
Additional help when not connecting to heatpump



- This symbol indicates that communication with the heatpump is not achieved.
 - Check that connectors are firmly pushed in and that wire harness looks ok.
 - If more devices are on the EXT-port make sure they are all connected.
 - Make sure that you don't have Thermia Online connected in the EXT-chain of devices
1. Push and hold left and right arrow simultaneously for at least 5 sec until the display shows "Service" on top. Or reach Installation menu according to your manual.
 2. Push "Down arrow" until you reach item "Installation" then push "Right arrow".
 3. Push "Down arrow" until you reach item "Node" and change the value to 2 or higher. If it's already higher then keep the current value.

Configuring with MQTTS

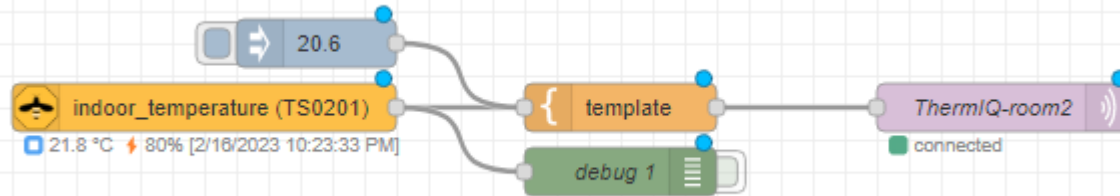
- The connection to the MQTT Broker can be configured to use SSL encryption by using MQTTS and a Client certificate.
- The client certificate must be issued to the MQTT Broker and have a valid global domain name.
- The global domain name must resolve to the MQTT Broker
- The client certificate can be tested in MQTT Explorer
- The text in the certificate should be copy/pasted into the ThermlQ-MQTT Web configuration and MQTT Url should start with mqtt://
- Disable MQTT connections in mosquitto.conf



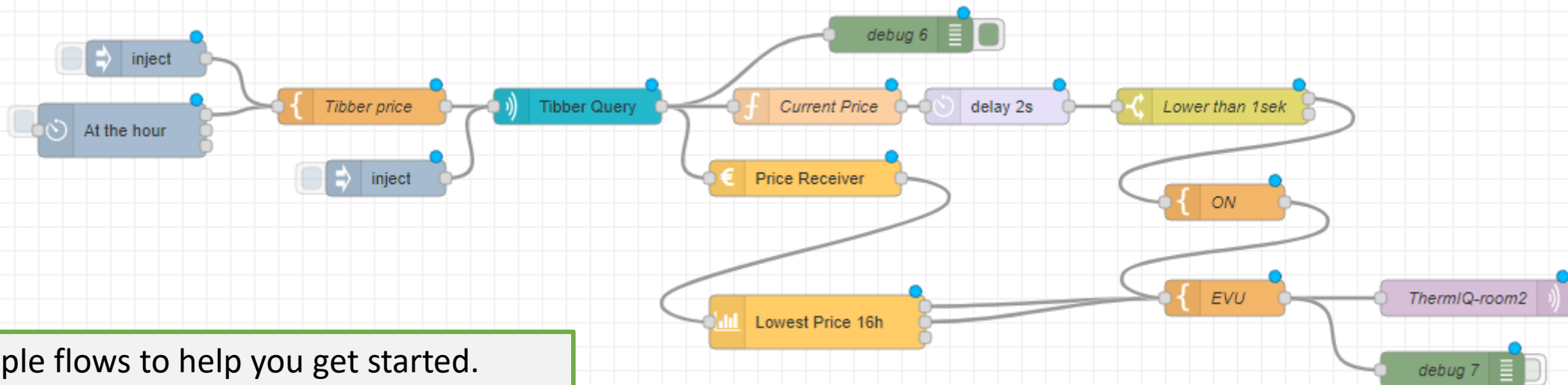
Node-RED

Node RED Example flows

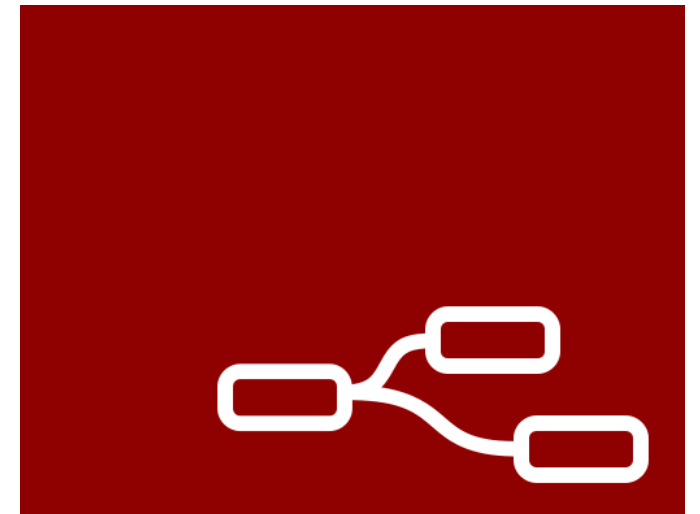
Example of Indoor Temperature set flow



Example of Energy Price Optimization



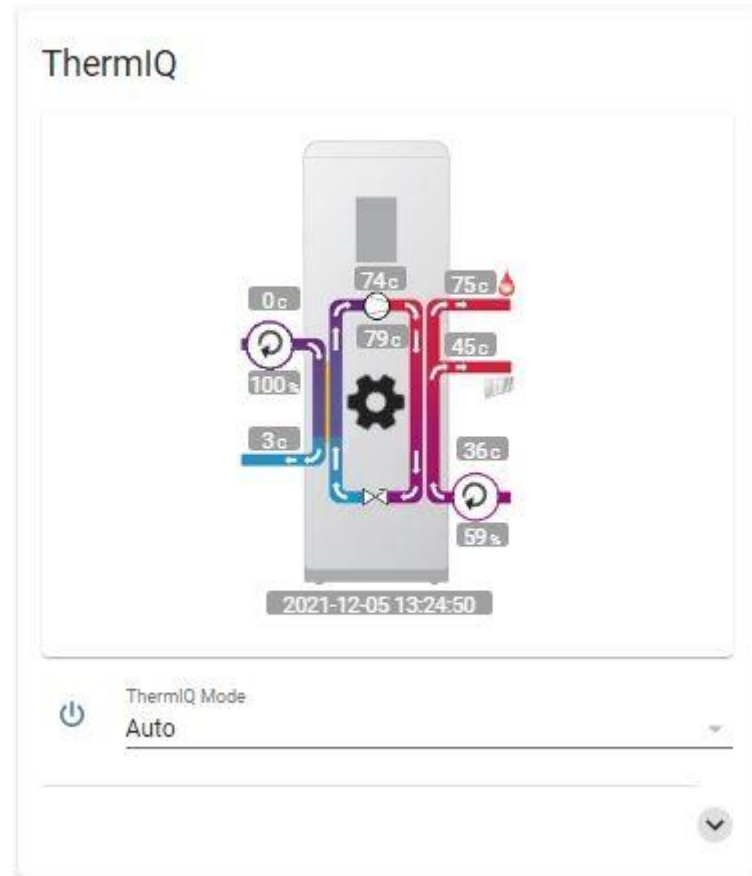
Example flows to help you get started.
Provided without further support



Node-RED



Home Assistant Integration



This integration allows you to use the ThermlQ-MQTT hardware interface to control and monitor your Thermia or Danfoss heatpump from Home Assistant. It is available as a default component of HACS, the Home Assistant Community Store.

- **Requirements**
- A running Mosquitto MQTT broker (server). If you have one already you can use it otherwise install Mosquitto broker from HA Add-On Store
- The HA MQTT Integration added in "Devices/Services" and properly configured for the above broker.
- ThermlQ-MQTT interface installed in your heatpump and properly configured to communicate over MQTT to the above broker
- A couple of HACS plugins

Read more here:

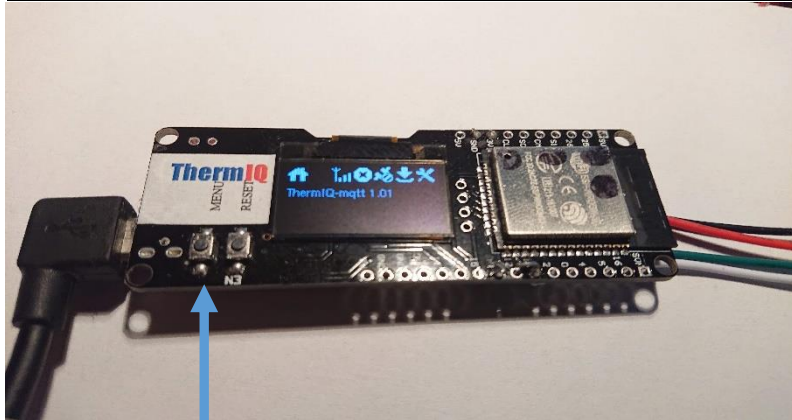
[Instructions on github](#)

Recovery Fallback Mode



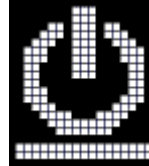
ThermIQ-boot

Recovery fallback mode if ThermIQ-MQTT fails. Use the FW Upgrade function

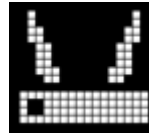


Use menu button to move from Icon to icon

A flashing symbols indicates that something needs attention



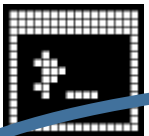
- ThermIQ-boot
General info



- WiFi Config mode, Connect to "ThermIQ-cfg" and open <https://10.0.0.1> . **Flashes when ready to connect to**



- WiFi network connection status.
Flashes if unable to connect to the configured network



- Booat and App info



- FW Upgrade mode
Load and upgrade the firmware

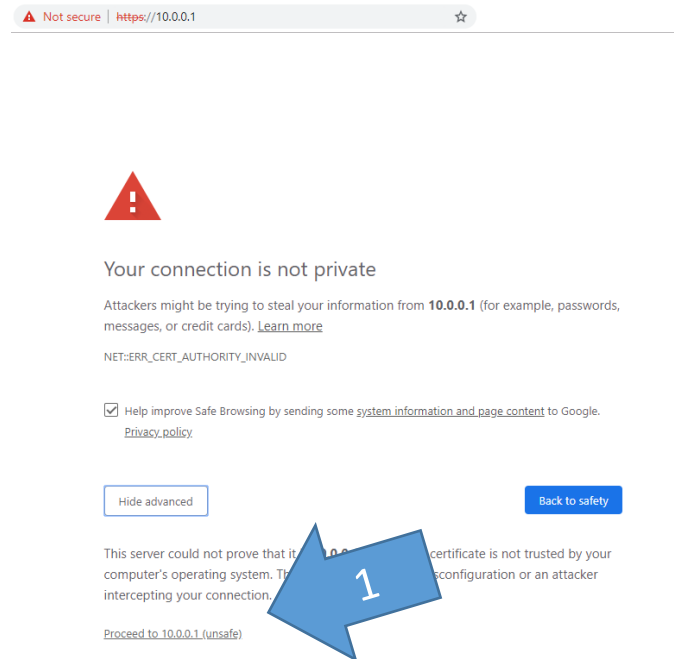


- Reset configuration
Reset configuration and redo Web configuration



ThermIQ-boot, Web configuration

All configuration is done through the configuration web-page



ThermIQ-boot 1.02

Client_Name: ThermIQ_30AEA490B634

SSID:

Password:

DHCP Assigned IP: ☒

Submit

Copyright ThermIQ 2019, (1547986425)

Enter your WiFi credential, select DHCP Assigned IP or fill in your specifics.