

# REMOTE CONTROLLED LAY-Z-SPA

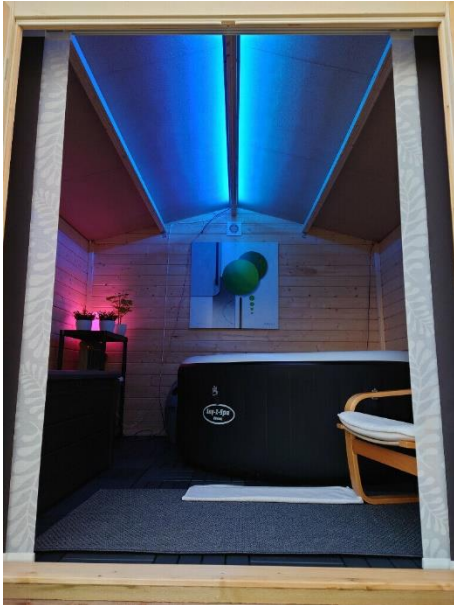


Photo cred: forei



Photo cred: davidmardanielsson



Photo cred: jarisiv

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## HOW TO BUILD THE WI-FI REMOTE FOR BESTWAY LAY-Z-SPA

IF YOU LIKE THIS PROJECT, PLEASE BUY ME A **COFFEE**:

***PAYPAL.ME/TLAND AHL***

***THANK YOU!***



## CHECKING COMPATIBILITY

TABLE OF MODELS (NOT EXHAUSTIVE)

Alias examples These names can be sold with other pump models than listed here!	Model Number	Pump shape	Wires	MALDIVES201=hydrojets MIAMI201=no jets	Confirmed working with  1  2 
2021 Bali	?	Square 2021	6	MIAMI201	
2021 Maldives/Hydrojets	?	Square 2021	6	MALDIVES201	
Riviera	12220	Eggshape	?	?	
Coleman SaluSpa	13804 ?	Eggshape	6	PRE2021	
Dreamstream	24949	Square2021	6	MIAMI201	2 (PCB_V2B)
Vegas	54112	?	4	NO54123	
Monaco	54113	Eggshape	?	?	
Vegas	54122	Eggshape	6	?	
Miami	54123	Eggshape	6/4	PRE2021/NO54123	
Palm Springs	54129	Eggshape	4	NO54154	
Hawaii/Hydrojet	54138	Square	4	NO54138	
Palm Springs/Hydrojet	54144	Square	?	Probably	
Paris	54148	Eggshape	?	?	
Bestway Paris	54149E	?	6	NO54149E	
Hawaii airjet	54154	Eggshape	6	PRE2021	2
Siena	54156	Eggshape	4	?	
2019 Maldives/Hydrojets	54173	Square	4	NO54173	
Honolulu	54174	Eggshape	6	?	
St. Moritz	54175	Eggshape	6	PRE2021	
Bali	54183	Eggshape	6	PRE2021	
Milan	54184	Eggshape	?	?	
Tahiti	54186	Eggshape	6	PRE2021	
Helsinki	54189	Eggshape	6	PRE2021	1+2
Cancun	54286	Eggshape	6	?	
Ibiza	54291	Eggshape	?	?	
Havana	54298	Eggshape	?	?	



	<b>54327</b>		6	PRE2021	
<i>Coleman SaluSpa Cali</i>	<b>90437E</b>	Eggshape	6	PRE2021	
<i>Dreamstream P06461</i>	<b>24949</b>	Square 2021	6	MIAMI2021	
<i>St. Lucia/Rio</i>	<b>S100101</b>	Square 2021	6	MIAMI2021	1+2
<i>2021 Miami</i>	<b>S100102</b>	Square 2021	6	MIAMI2021	
<i>Helsinki</i>	<b>S100103</b>		6	MIAMI2021	
<i>SaluSpa Honolulu</i>	<b>S100104</b>	Square 2021	6	MIAMI2021	
<i>Maldives</i>	<b>S100104</b>	Square 2021	6	MALDIVES2021	2
<i>Saluspa Miami</i>	<b>S100105</b>	Square 2021?	6	MIAMI2021	1
<i>Santorini whirlpool</i>	<b>S200102</b>	?	6	MIAMI2021	
<i>Hawaii Hydrojet Pro</i>	<b>S200102</b>	Square 2021	6	MALDIVES2021	2 (PCB_V2B)
<i>Ibiza 2021</i>	<b>60015</b>	Square 2021	6	MIAMI2021	1

---

## GENERAL INFO ON PUMP MODELS

- If you find errors in the table above, or want to add information, please post a discussion on github.
- Some 4-wire models are reported to get communication error messages. Some due to poor power supply, some suspected to be caused by something else (no conclusions yet)
- 2021 and later 6-wire models may need 560-680 Ohms resistors between LLC and display (CLK, DATA, CS), as reported by cyberfly79. Use short wires. I can't say what models since the reports is differing on the same models. If the display flashes you need them. @SigmaPic came up with the idea of using other pins and it should hopefully solve this issue. See later in this doc.
- NO54149E may show sporadic button presses.

---

## OPEN THE PUMP TO VERIFY NUMBER OF WIRES

Unscrew the 6 screws as the picture shows, and carefully lift the display. It is attached with a cable with a connector on it. Check if there are 6 or 4 wires/pins. Other models can be disassembled in a similar manner. On the older Hydrojets you must remove the whole cover, not the display. That pump is heavy and fiddlier to disassemble on your own.








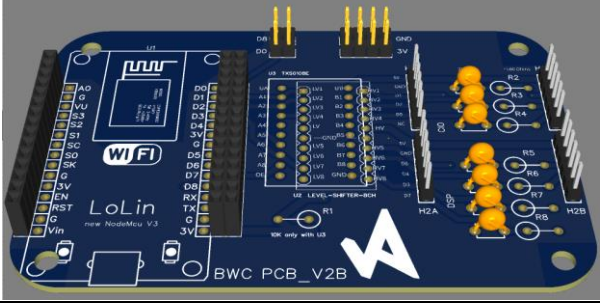
Example – eggshaped 6-wire pump



2021 square model. Do not disassemble the display. Take apart the pump body instead with the screws.

## HARDWARE

## BOM

ESP8266 NodeMCU 1.0 (12E) V2/3 V3 is wider than V2. PCB_v1 can only fit V3. PCB_v2 can fit both. (NOT ESP32)	
8 channel bidirectional level converter* TXS0108E (NOT TXB...) (the blue one) Transistor based LLC (the red one) <i>*Not necessarily required. If it works without LLC you don't need it. ESP8266 is 5V tolerant and if you are lucky the pump sees the 3.3V as logic high. Read discussion #312 if you want to experiment without this component.</i>	
6 or 4 pin male/female pair cable 0.1" spacing: JST SM Housing Connector <a href="http://www.wish.com">www.wish.com</a>	
PCB version 2B (better option) <a href="https://oshwlab.com/visualapproach/bestway-wireless-controller-2_copy">https://oshwlab.com/visualapproach/bestway-wireless-controller-2_copy</a> To order, scroll down to the PCB layout, click open in editor. Then go to Fabrication/download gerber files. (I don't get % on your order. You pay same \$ as me)	
Resistor, 10K Ohms, through hole	Optional. <u>Only use with TXS0108E!</u> For power-on stability. I runs without it and it works fine.
Female header pins (0.1")	Optional but highly recommended! Make sockets for the ESP and LLC. Removing a broken part is very time consuming if soldered directly to the PCB.

## WHAT ABOUT WEMOS D1 MINI

There is a really nice tutorial out there on the interweb about building this with just a wemos D1 mini and no LLC (level converter). Even though it is cheaper and "easier" (using less parts) it will not work with every model and you may end up wasting your time and mine when asking for support. I encourage you to try but just be aware that you're out of spec.

<https://github.com/visualapproach/WiFi-remote-for-Bestway-Lay-Z-SPA>

Last edited 2023-11-20 13:38





## BUILD 6-WIRE

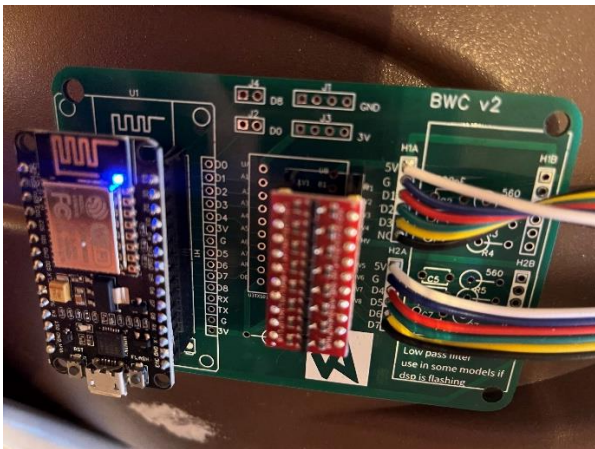
## PCB VERSION 1

Solder the 6-wire cables to the PCB (H1, H2):



## PCB VERSION 2

Solder the 6-wire cables to the PCB (H1A, H2A):



On some 2021+ models you will need to use the red LLC (or no LLC) and select the PCB\_V2B. You also need to connect the wires according to this:

```

CIO_DATA (wire #3) : D1 (port H1A)
CIO_CLK (wire #4)  : D2 (port H1A)
CIO_CS (wire #5)   : D5 (port H2A)

DSP_DATA (wire #3) : D6 (port H2A)
DSP_CLK (wire #4)  : D4 (port H2A)
DSP_CS (wire #5)   : D3 (port H1A)
  
```

<https://github.com/visualapproach/WiFi-remote-for-Bestway-Lay-Z-SPA>

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It will look like this:

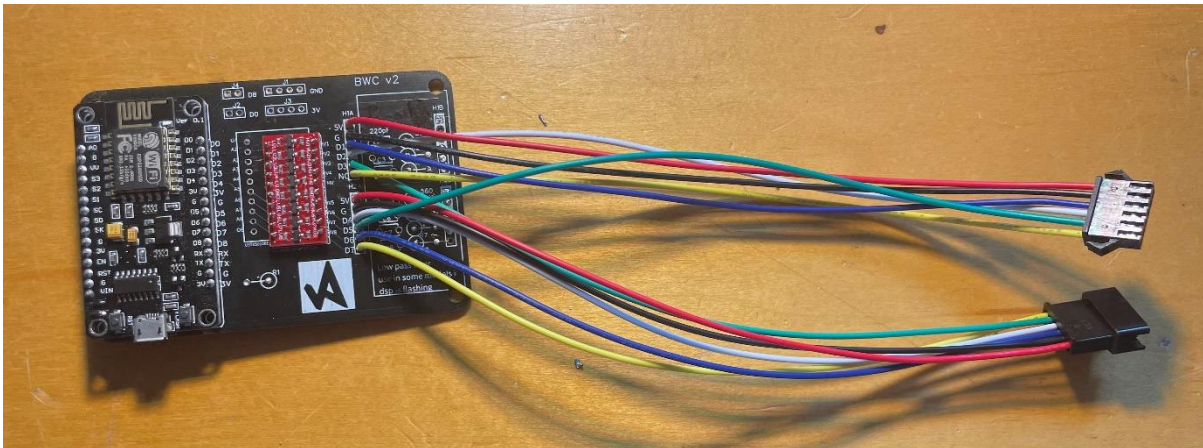


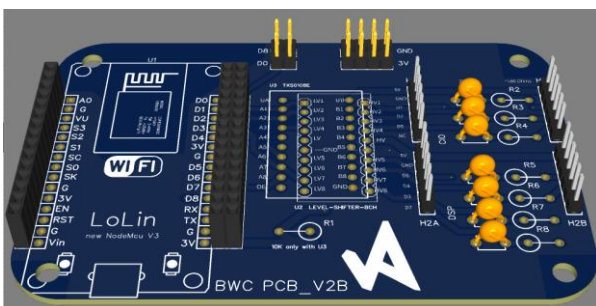
Image cred: @Bischof-Mak

The above method should take care of the problem with flashing display also.

---

## PCB VERSION 2B

This is the latest and greatest.



## BUILD 4-WIRE

## PCB V1

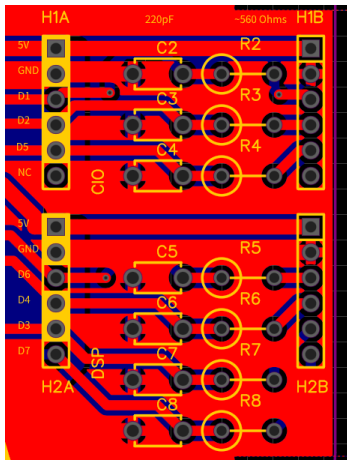
Solder the 4-wire cables to the headers H3/H4. Solder the 10 K resistor if using TXS0108E LLC.

**PCB V2B (RECOMMENDED):**

I suggest using the red LLC (voltage level shifter) in the "U2" socket on the PCB. The blue TXS0108E IC LLC is sometimes not working. Solder the 10 K resistor only if using TXS0108E LLC.

**"LAZY SETUP"**

Solder the wires to the marked holes in H1A and H2A headers (Yellow squares in this picture).

**"AMBITIOUS SETUP"**

Install the filter capacitors C3, C4, C6, C7 and resistors R3, R4, R6, R7. Then solder the wires to the corresponding holes in H1B and H2B headers.

See issue #208 for some info about E13.

4-wire pinout on my test pump NO54138 (*Colors and pinout on your pump may differ!*):

1 (Uppermost. Black on pump)	= 5V
2 (Red on pump)	= GND
3 (Yellow on pump)	= DSP TX
4 (Green on pump)	= CIO TX

## BUILD CONTINUED

You can go on and solder the LLC and ESP8266 directly to the PCB, but I recommend using female headers, in case you want to switch or reuse them. You will regret if not using headers...

<https://github.com/visualapproach/WiFi-remote-for-Bestway-Lay-Z-SPA>

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D0, D8, 3V3 and GND is left empty. They are there for the possibility to connect auxiliary equipment. Special considerations needed. See ESP8266 datasheet.

*You can connect a DS18B20 Temperature Sensor for Ambient Temperature, but unfortunately **not to D0 or D8**. If you're on a 6-wire pump, you'd have to switch out the audio pin which is reported to work on D0. Don't forget to edit the hardware config to "custom" and save your special pins.*

Put the PCB in a box, plastic bag or something to protect against water if you want.

Don't connect the connectors to the pump yet.



## SOFTWARE

6-wire and 4-wire versions

DL and install Visual studio code: <https://code.visualstudio.com/download>

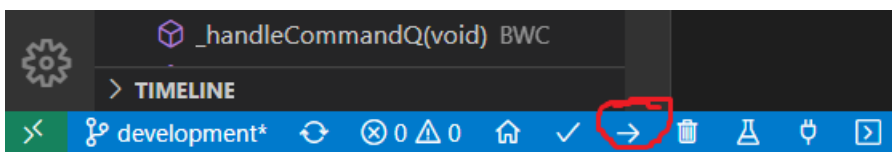
From within VSC, click on Extensions icon (ctrl+shift+X). Select PlatformIO IDE and install.

Download the code from github.

From the new platformio icon, open folder "code".

Connect USB data cable to ESP module.

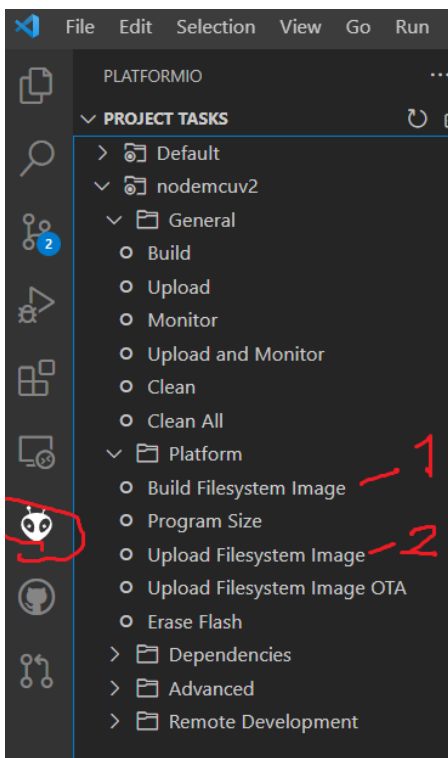
Build+Upload firmware via USB. (By clicking on the Right arrow at bottom of screen)



**Now pay attention! Uploading the firmware is only one part of the upload. You also need to upload the data files. I can't stress this enough.**

**Build file system, then upload it. Se picture below.**

*You can also download the files from the "firmware update" page in the UI*



**If you miss this step you will get a 404 error!**

<https://github.com/visualapproach/WiFi-remote-for-Bestway-Lay-Z-SPA>

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## AFTER UPLOAD – CONFIGURING YOUR DEVICE

An Access Point is created called "Lay-Z-Spa Module". Look for a new Wi-Fi hot spot on your phone. When connecting to that SSID you should automatically be taken to the login page.

Pswd: **layzspam0dule**

Log in and enter your wifi credentials.

From your ordinary Wi-Fi, visit <http://layzspa.local> and click on the hamburger menu in the top right corner.

## WEB INTERFACE

"Hamburger" menu

Main page

*Note to 4-wire users: If the display has pump/heat/bubbles or jets ON, you may get an error in the display when switching things from this User Interface. Best to keep everything OFF before taking control from UI. Reason being that the display expects the pump (CIO) to acknowledge waterflow etc with some flags. These flags could be generated by the device, but they may be different between the models and would need a lot of effort to reverse engineer even if I had all the models at hand. Which I don't.*

<https://github.com/visualapproach/WiFi-remote-for-Bestway-Lay-Z-SPA>

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## HARDWARE CONFIG

Select your pump model, display model and PCB model. Hit [save] and **REBOOT** the device.

**Hardware Config**

**Hardware:**

Select your CIO (pump) model:

- ☒ 6 wire, pre 2021 (air)
- ☐ 6 wire, 2021 (air)
- ☐ 6 wire, 2021 (air+jet)
- ☐ 6 wire, 54149E (air)
- ☐ 4 wire, 54173 (air+jet)
- ☐ 4 wire, 54154 (air)
- ☐ 4 wire, 54144 (jet)
- ☐ 4 wire, 54138 (air+jet)
- ☐ 4 wire, 54123 (air)

Select your DSP (display) model: ?

- ☒ 6 wire, pre 2021 (air)
- ☐ 6 wire, 2021 (air)
- ☐ 6 wire, 2021 (air+jet)
- ☐ 6 wire, 54149E (air)
- ☐ 4 wire, 54173 (air+jet)
- ☐ 4 wire, 54154 (air)
- ☐ 4 wire, 54144 (jet)
- ☐ 4 wire, 54138 (air+jet)
- ☐ 4 wire, 54123 (air)

Select your PCB:

- ☐ V1
- ☒ V2
- ☐ V2B ?
- ☐ Custom ?

Pinout ?

CIO data/tx/rx  1  clk/bx  2  cs/ld  3

DSP data/tx/rx  4  clk/rx  5  cs/ld  6  audio  7

Ambient Temperature Sensor ?

Enable ☐ Sensor Pin ?  unde

**Save**

Note: Earlier versions of the page has flipped DSP tx and rx.

## SPA CONFIG

Enter your settings, click SAVE.

Notification will make the display beep [notification time] before bubbles, water pump or heat is changing due to scheduled action. It will make a second beep at half that time. And half that time again, until 2 seconds remain. The display will also show seconds to go. This feature only works with 6-wire displays.

**ENABLED DISPLAY BUTTONS.** Unchecked buttons will not work from the display, but the button press will be sent to MQTT.

You can schedule actions in the next section on the page. Scheduled actions will show up in the command queue at the bottom of the page. The example to the right will set *furelise* melody on repeat when you **ADD NEW** command.

**SAVE TO FILE** will save current commandqueue to a file that you name. It is saved on the ESP filesystem.

**LOAD FROM FILE** will replace current command queue with the file you choose. You have to remember the filename or peek in the directory. Try the provided 'weekender' file. It will run the pump on weekday nights, and keep 30 degrees. Weekends will keep 38 degrees and pump on all day.

**SPA Config**

Price per kWh:  1

Chlorine add (Days):  14

Filter change (Days):  30

Audio: ☒

Notification: ☒

Notification time (s):  32

Restore last states on startup: ☒

Calibrated: ? ☒ [manual cal.](#)

Enabled display buttons. All: ☐

Lock ☒ Timer ☒ Air ☒ Unit ☒ Heat ☒

Pump ☒ Down ☒ Up ☒ Pwr ☒ Jets ☒

**save**

Allowed values in "()"

Command:  Set beep (0/1 or 2+text=filename)

Value:  2

Execute time:  2023-08-26 08:42:00

Repeat interval:  30 seconds

(0=once, 1h=3600, 1d=86400, 1w=604800)

Text:  furelise.mel  Text

**Command queue**

**Set** Reset daily meter:1  
2023-08-27 00:00:00  
Interval: 86400s **Del**

**Add new** **Clear queue**

**Save to file** **Load from file**

Last boot: 2023-08-24 22:37:19 Software/System restart



---

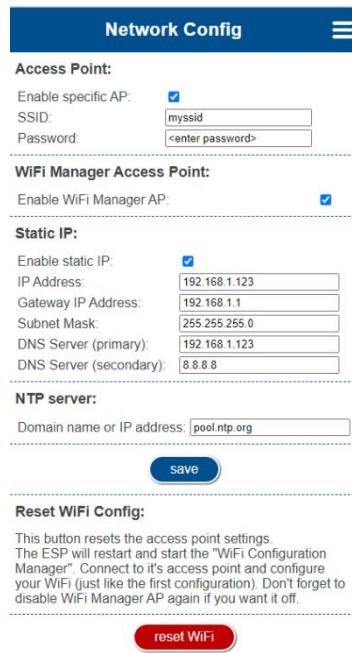
## WEB CONFIG

Here you can customize the look of the web UI.

---

## NETWORK CONFIG

Make your choices and hit [save]

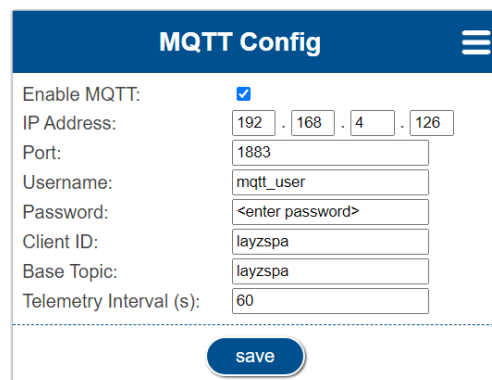


The screenshot shows the 'Network Config' page with a blue header and a hamburger menu icon. The page is divided into several sections: 'Access Point:' with a checked 'Enable specific AP' checkbox, 'SSID' (myssid), and 'Password' (<enter password>); 'WiFi Manager Access Point:' with a checked 'Enable WiFi Manager AP' checkbox; 'Static IP:' with a checked 'Enable static IP' checkbox and fields for IP Address (192.168.1.123), Gateway IP Address (192.168.1.1), Subnet Mask (255.255.255.0), DNS Server (primary) (192.168.1.123), and DNS Server (secondary) (8.8.8.8); 'NTP server:' with a 'Domain name or IP address' field (pool.ntp.org); a 'save' button; and 'Reset WiFi Config:' with a description and a 'reset WiFi' button.

NTP server is set by default but you can enter your preferred NTP here.

---

## MQTT CONFIG



The screenshot shows the 'MQTT Config' page with a blue header and a hamburger menu icon. The page contains fields for 'Enable MQTT:' (checked), 'IP Address:' (192.168.4.126), 'Port:' (1883), 'Username:' (mqtt\_user), 'Password:' (<enter password>), 'Client ID:' (layzspa), 'Base Topic:' (layzspa), and 'Telemetry Interval (s):' (60). A 'save' button is at the bottom.



---

## DIRECTORY

[bootlog.txt](#) Size: 4454 Bytes [remove](#)  
[chkupdatefw.html.gz](#) Size: 1222 Bytes [remove](#)  
[cmdq.json](#) Size: 9 Bytes [remove](#)  
[config.html.gz](#) Size: 3017 Bytes [remove](#)  
[debug.html.gz](#) Size: 762 Bytes [remove](#)  
[favicon.ico](#) Size: 9662 Bytes [remove](#)  
[favicon.png](#) Size: 1817 Bytes [remove](#)  
[function.js.gz](#) Size: 491 Bytes [remove](#)  
[hwcfg.json](#) Size: 69 Bytes [remove](#)  
[hwconfig.html.gz](#) Size: 2454 Bytes [remove](#)  
[hwtest1.jpg](#) Size: 10533 Bytes [remove](#)  
[hwtest2.jpg](#) Size: 9432 Bytes [remove](#)  
[hwtestinfo.html.gz](#) Size: 879 Bytes [remove](#)  
[index.html.gz](#) Size: 2711 Bytes [remove](#)  
[index.js.gz](#) Size: 3249 Bytes [remove](#)  
[main.css.gz](#) Size: 1852 Bytes [remove](#)  
[manifest.json](#) Size: 149 Bytes [remove](#)  
[menu.png](#) Size: 223 Bytes [remove](#)  
[mqtt.html.gz](#) Size: 1418 Bytes [remove](#)  
[mqtt.json](#) Size: 196 Bytes [remove](#)  
[remove.html.gz](#) Size: 754 Bytes [remove](#)  
[settings.json](#) Size: 310 Bytes [remove](#)  
[states.txt](#) Size: 33 Bytes [remove](#)  
[success.html.gz](#) Size: 671 Bytes [remove](#)  
[upload.html.gz](#) Size: 829 Bytes [remove](#)  
[visualapproach.png](#) Size: 8177 Bytes [remove](#)  
[webconfig.html.gz](#) Size: 1510 Bytes [remove](#)  
[webconfig.json](#) Size: 82 Bytes [remove](#)  
[wifi.html.gz](#) Size: 2045 Bytes [remove](#)  
[wifi.json](#) Size: 242 Bytes [remove](#)

Will show a list of installed files on the filesystem. Clicking remove will remove the file.

---

## CHECK FIRMWARE UPDATE

This function is removed.

---

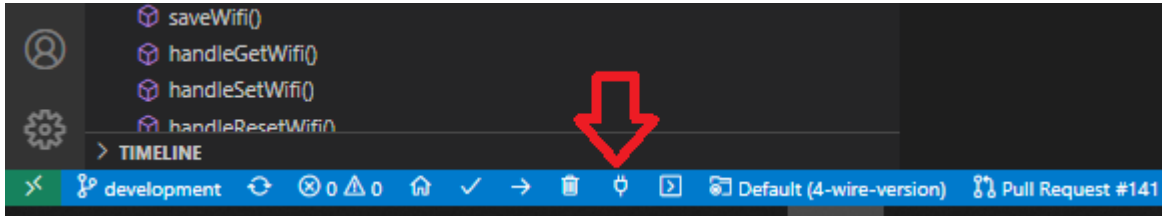
## OTHER WEB PAGES

<a href="#">/resetwifi/</a>	= reset WiFi credentials from chip. Don't do this unless Autoportal is active.
<a href="#">/inputs/</a>	= If you want to check activities on the ESP pins to determine if you have connected right (in situ)
<a href="#">/hwtestinfo.html</a>	Test connections (out of pump)
<a href="#">/info/</a>	= some info about the ESP
<a href="#">/debug-on/</a>	= start logging messages from cio/dsp to flash file.
<a href="#">/debug-off/</a>	= stop logging.



## UPLOADING FIRMWARE OVER THE AIR FROM PLATFORMIO

The device's IP is shown in the serial monitor window and in the pump display (only 6-wire). Start the serial monitor by clicking here:



After first upload you can update the device over the air (OTA) by editing platformio.ini file. Default setting is to upload via USB cable:

```
upload_protocol = esptool
; upload_protocol = espota
; upload_port = layzspa.local
; upload_flags =
; --auth=esp8266
```

Edit like this to upload Over The Air. If you have several devices you would want to use different hostnames. You can replace 'layzspa.local' with the IP of your device if you need. Tip: use ctrl+' to toggle commented lines. That way you will keep the correct indentations.

```
; upload_protocol = esptool
upload_protocol = espota
upload_port = layzspa.local
upload_flags =
--auth=esp8266
```

## CONNECT

Unplug pump from mains!

Connect device to pump.

Close the display with the screws.

Turn on pump and enjoy.



## SECRET KEY COMBINATION

If you press the following button sequence on the (6-wire) display, the ESP will reset and forget the Wi-Fi settings and activate the access point. Useful if you change your router or SSID/password and AP was turned off.

POWER

LOCK

TIMER

POWER



## MQTT

This chapter is for advanced users. If you know what MQTT is, and have an MQTT broker, this is what you need to know:

There is two ways to enter your credentials. You can edit the "config.h" file before compiling and then you are done with it. Or you can go to the web interface and click on the MQTT link. If you save from the MQTT web page it will override config.h.

[base topic] is set from the web UI or in config.h

### DEVICE IS PUBLISHING FOLLOWING TOPICS:

<b>[base topic]/Status</b>	
<b>[base topic]/MAC_Address</b>	
<b>[base topic]/MQTT_Connect_Count</b>	
<b>[base topic]/message</b>	Payload is JSON string containing all states of the pump. Se next table
<b>[base topic]/button</b>	Plain text. Pretty name of the button being pressed on the pump display
<b>[base topic]/times</b>	Payload is JSON string containing uptime etc.
<b>[base topic]/other</b>	Payload is JSON string containing other info such as IP, RSSI, FW, MODEL etc
<b>[base topic]/reboot_time</b>	Plain text
<b>[base topic]/reboot_reason</b>	Plain text





Payload in **/message** is a JSON string with these key/value pairs:

KEY	VALUE
CONTENT	"STATES" (only used in websockets)
TIME	Unix timestamp (seconds since 1970-01-01 00:00Z)
LCK	LOCKEDSTATE
PWR	POWERSTATE
UNT	UNITSTATE (0=F, 1=C)
AIR	BUBBLESSTATE
GRN	HEATGRNSTATE
RED	HEATREDSTATE
FLT	PUMPSTATE
TGT, TGTC, TGTF	TARGET TEMP
TMP, TMPC, TMPF	TEMPERATURE
CH1	CHAR1 <i>DISPLAY'S FIRST CHARACTER ASCII code</i>
CH2	CHAR2
CH3	CHAR3
HJT	JETSSTATE
ERR	ERROR NUMBER
GOD	GODMODE (ESP have control) (Only 4 wire)
VTM, VTMC, VTMF	VIRTUAL TEMPERATURE
AMB, AMBC, AMBF	AMBIENT TEMPERATURE
BRT	Display Brightness (Only 6 wire)



## SUBSCRIPTIONS

Device is subscribing to topic **layzspa/command** and **layzspa/command\_batch**. The batch is expecting an array of commands.

Payload in **command** must be a JSON string with these key/value pairs:

KEY	VALUE
CMD	INTEGER64, see next table
VALUE	INTEGER64
XTIME	INTEGER64, Execution time in UNIX TIMESTAMP or 0 for immediate action. (Seconds since 1970)
INTERVAL	INTEGER64, Repeat every Nth second INTEGER or 0 for NO REPEAT
TXT	String, optional. Will be shown on 6-wire-displays. Send a super long string to crash the ESP.

## AVAILABLE COMMANDS (CMD) ARE

CMD:VALUE	Meaning	VALUE:expected value	Remark
0	SETTARGET	20-40C / 68-104F	
1	SETUNIT	0 for F, 1 for C	
2	SETBUBBLES	0/1	
3	SETHEATER	0/1	
4	SETPUMP	0/1	
5	RESETQ (clear command queue)	-	
6	REBOOTESP	-	
7	GETTARGET	-	<i>Not used</i>
8	RESETTIMES	-	Set all other timers to zero
9	RESETCLTIMER	-	Set chlorine age to zero
10	RESETFTIMER	-	Set filter age to zero
11	SETJETS	0/1	If equipped.
12	SETBRIGHTNESS	0-8	6 wire only. Sets display brightness
13	SETBEEP	0 - beeps once 1 - chirps once 2 - plays the melody with the filename you have entered in the TXT field	6-wire only  i.e. furelise.mel



14	SETAMBIENTF	any	Set the ambient temperature in F, so virtual temperature and time to ready is accurate.
15	SETAMBIENTC	any	Set the ambient temperature in C, so virtual temperature and time to ready is accurate.
16	RESETDAILY	-	Resets daily energy meter to 0
17	SETGODMODE	0/1	4-wire only. Takes control over pump.
18	SETFULLPOWER	0/1	4-wire only. 0 = use only 1 heater 1 = use both heaters
19	PRINTTEXT	(the text should be in the TXT value)	6-wire only. If you just want to display a message on the display. Like "get up"
20	SETREADY	-	Set XTIME to the time you want the water to be at target temperature. Make sure you have calibrated first.  In contrast to all other commands, XTIME is not when the command should be handled, but the time you want to take a bath. It will look different in the command queue.

#### EXAMPLE

To turn on pump immediately and don't repeat:

Topic: layzspa/command

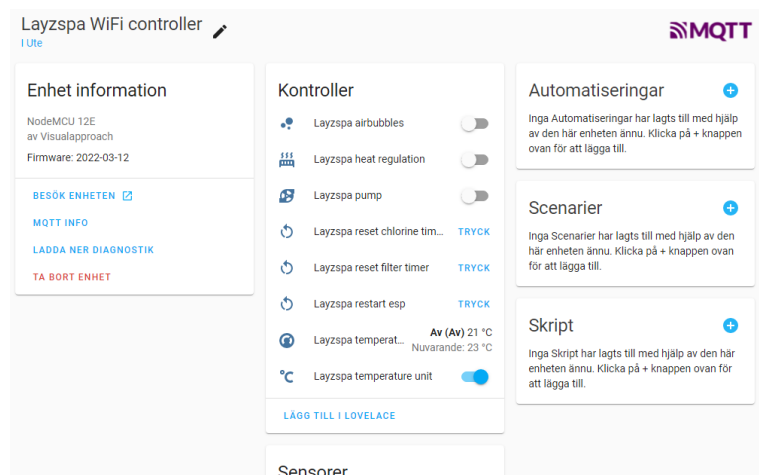
Payload: {"CMD":4,"VALUE":{"states("sensor.temp\_rh\_ute\_temperature") | round}},"XTIME":0,"INTERVAL":0}



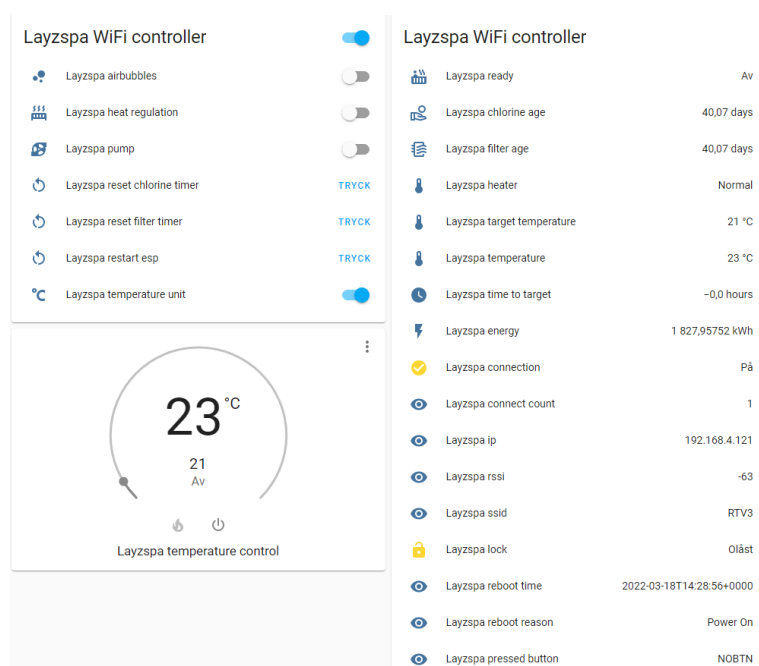
## SMART HUBS

## HOMEASSISTANT

From firmware version 2022-03-13 this device will register in HA by auto discovery when you connect to your MQTT broker. Go to configuration – devices – Layzspa WiFi controller and click on “add to dashboard”.



## Lovelace panels:



The climate control and temperature sensors has its own unit conversion according to your general settings in HA. Switching unit only changes the pump display and the actual numbers sent over MQTT, but the Lovelace translates to your preferred unit. After changing HA general unit you have to restart HA.

If you update firmware and get double entities, remove the device from HA interface and restart HA and the device.

Note: Some switches may not be relevant to your pump model. Like “take control” is only for 4-wire pumps and will not do anything for 6-wire models.

<https://github.com/visualapproach/WiFi-remote-for-Bestway-Lay-Z-SPA>

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Example of an automation that feeds ambient temperature to the device. Replace entity\_id with your sensor's name. If using imperial units then use "CMD":14

```
alias: Lay-z-spa update amb temp
description: ""
trigger:
  - platform: state
    entity_id:
      - sensor.temp_rh_ute_temperature
condition:
  - condition: not
    conditions:
      - condition: state
        entity_id: sensor.temp_rh_ute_temperature
        state: unknown
      - condition: state
        entity_id: sensor.temp_rh_ute_temperature
        state: unavailable
action:
  - service: mqtt.publish
    data:
      topic: layzspa/command
      payload_template: >-
        {"CMD":15,"VALUE":{{ states("sensor.temp_rh_ute_temperature")|round
          }}, "XTIME":0, "INTERVAL":0}
mode: single
```



## HOMEBRIDGE

homebridge-mqttthing: see this example: [MQTT Homebridge Integration #109](#) (Thank you [@PierreBier](#))

homebridge-mqtt: see this nice write-up by [@chrstnmr MQTT to homebridge \(HomeKit\) for bloody beginners #106](#)

## OPENHAB

[@DandeMC](#) provided this link: [openhab whirlpool](#)

## PROMETHEUS

Support added by [@svanscho](#). Data retrieved at [layzspa.local/metrics](#)

## OTHER

Powershell script to update ambient temperature from a met office:  
[discussions/600#](#)

## FAQ

<https://github.com/visualapproach/WiFi-remote-for-Bestway-Lay-Z-SPA/discussions>

### Can I make my pump not turn off?

Yes, on the Config.html page, add a command in the commandqueue to be repeated daily. E.g. Set pump 1 every 86400 s

### How do I connect to solar panels etc?

Uncomment the relevant code provided in main.cpp to write logic for other pins. This needs some considerations. Some pins have special limitations. Better option is to use Home Assistant.

### Does this project support my home automation system not mentioned here?

It supports all systems that can handle MQTT and JSON data. Possibly also over Web Sockets. All information about MQTT is provided in this document. How to implement it on your system – you need to seek advice by experts in your system.

## MQTT

Sends status to broker every 10 minutes (configurable via web gui), and when anything has changed.

### My blue LED blinks, should I be worried?

It's just an LED. It has nothing to do with Wi-Fi!

It blinks whenever that particular pin is toggled. Doesn't mean anything useful.

IF YOU STILL LIKE THIS PROJECT, PLEASE BUY ME A COFFEE:

[PAYPAL.ME/TLAND AHL](#)

*THANK YOU!*

<https://github.com/visualapproach/WiFi-remote-for-Bestway-Lay-Z-SPA>

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