HELTUN
WALL TOUCH PANEL SWITCH HE-ZW-SW-5A-1
USER MANUAL V1.0

OVERVIEW

The HELTUN 5 channel wall touch panel switch replaces an existing in-wall switch and enables manual or remote switch (On/Off) controls of lights, blinds, motors and heating systems with a maximum load of 5A for each channel.

The switcher has two independent inputs for the relay channels which allows it to control systems with different power sources or to use outputs as dry contacts. Each relay can be controlled by the switcher touch buttons or independently via a Z-Wave gateway.

The panel has five sensitive capacitive touch control buttons with a two-colour (red and blue) backlight for each button. Button backlight brightness can be adjusted automatically depending on the illumination of the ambient environment or manually in the settings.

Each touch button can be configured to control any relay (from one up to five) output state in 7 different modes. The buttons also can be used as controller scene activators and the backlight can indicate the gateway mode or associated device status.

The HELTUN wall panel switch has internal air temperature, humidity and light sensors and is also equipped with built-in power consumption logic.

The device has an integrated 5th generation secure Z-Wave Plus module which allows the use of the device with a Z-Wave Home Automation system. Non secure, S0 secure, S2 unauthorized and S2 authorized inclusion modes are supported.

The switcher has 11 endpoints and 30 association groups which allow associating and control up to 90 different Z-Wave devices.

TECHNICAL SPECIFICATIONS

- Front frame dimensions: 89x89x9mm
- Back dimensions: 53x53x28mm
- Material: Flame retardant plastic, tempered glass
- 4 frame colors: Silver, Chrome, Black, White
- 6 glass colors: White, Black, Yellow, Green, Red, Blue
- 5 sensitive capacitive touch buttons
- Red and Blue color LED back light for each button
- 4 levels adjustable brightness for back light
- 5 channel relay output, resistive load up to 5A each
- 2 independent inputs as relays channel output power
- Relays life time: 100.000 switches
- Internal ambient brightness sensor
- Internal temperature sensor
  - Measurement range: -30°C to +80°C
  - Accuracy: ±0.5°C
- Internal humidity sensor
  - Measurement range: 0 – 80%RH
  - Accuracy: ±3.0%RH
- Operating temperature: -20°C – +50°C
- Power supply: 110V – 240VAC, 50Hz/60Hz
- Power consumption: 1.5W
- IP class: IP21
- Z-Wave Plus SDK: V6.71
- Security: S0, S2 unauthorized and S2 authorized

FUNCTIONAL SPECIFICATIONS

- Inclusion/exclusion into/from z-wave network
  - Non Secure
  - S0 secure
  - S2 unauthorized, S2 authorized
- Independent control of each relays and LEDs
- Association control of 90 devices from network
- Temperature sensors calibration
- Adjustable back light brightness: Auto or Manual
- Backlight standby mode
- Power consumption logic
- Factory reset
- OTA function (Firmware update over the air).

Z-WAVE DEVICE TYPE

GENERIC_TYPE_WALL_CONTROLLER
SPECIFIC_TYPE_BASIC_WALL_CONTROLLER

Z-WAVE SUPPORTED CLASSES

COMMAND_CLASS_BASIC,
COMMAND_CLASS_ZWAVEPLUS_INFO,
COMMAND_CLASS_ASSOCIATION,
COMMAND_CLASS_ASSOCIATION_GRP_INFO,
COMMAND_CLASS_MULTI_CHANNEL_ASSOCIATION,
COMMAND_CLASS_MULTI_CHANNEL,
COMMAND_CLASS_TRANSPORT_SERVICE,
COMMAND_CLASS_VERSION,
COMMAND_CLASS_MANUFACTURER_SPECIFIC,
COMMAND_CLASS_DEVICE_RESET_LOCALLY,
COMMAND_CLASS_POWERLEVEL,
COMMAND_CLASS_SECURITY,
COMMAND_CLASS_SECURITY_2,
COMMAND_CLASS_SUPERVISION,
COMMAND_CLASS_CONFIGURATION,
COMMAND_CLASS_SENSOR_MULTILEVEL,
COMMAND_CLASS_CENTRAL_SCENE,
COMMAND_CLASS_METER,
COMMAND_CLASS_FIRMWARE_UPDATE_MD
COMMAND_CLASS_SWITCH_BINARY

INSTALLATION

We recommend the installation conforms to your local regulations and is undertaken by a qualified electrical engineer. We recommend installation about 1.5 metres above the floor.

Electrical power must be switched off during all aspects of installation.

1. Remove the front cover and back plate of the switcher from the main box.

2. Ensuring the power is off and using a small cross head (Phillips) screwdriver connect the wires to the switcher terminals:
a) POWER is for the device lead power source. It can be 110VAC – 240VAC
b) Connect the required power source for Relays 1, 2 and 3 outputs to terminal IN-1-3.
c) Connect the required power source for Relays 4 and 5 outputs to terminal IN-4-5
d) Connect the loads to relays output terminals OUT-1, OUT-2, OUT-3, OUT-4, OUT-5

3. Making sure "TOP" is uppermost secure the back plate into the wall mounting box using the screws provided. Install the device body by carefully aligning the top snap connectors and then pushing on the front cover with gentle pressure ensuring it snaps firmly into position all the way round.

4.POWER CONNECTION
Switch on the main power and the switcher will start up operating the original default factory settings (all buttons backlight will light blue).

5.Remove protective film by pulling the tab in the top right hand side.

DISASEMBLY
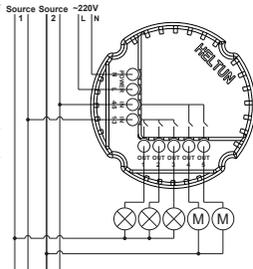
1. ENSURE POWER IS SWITCHED OFF AND ALL BUTTONS BACKLIGHT ARE OFF.
2. To remove the device body grasp firmly and pull back from the bottom until all tabs disconnect.
3. Remove screws from back plate and disconnect the wires.

OPERATION

The device has 5 relays, 5 touch buttons and two-color (red and blue) backlights for each button.

1. Each relay can be controlled by any touch button or via a Z-Wave network (Z-Wave gateway).

2. Each touch button can be configured to control any relay (from one and up to five) output state in below modes:
   a) press the button and the relay output goes to ON state only (contacts are closed).
   b) press the button and the relay output goes to OFF state only (contacts are open).
   c) press the button and the relay output inverts the state (ON to OFF or OFF to ON).
   d) press the button and the relay output goes to ON for a specified time then changes back to OFF. This function can be used to open/close garage doors, blinds, curtains, etc.
   e) press the button and the relay output goes to OFF for the specified time then changes back to ON. Time can be configured from 0.5 sec to 125 sec. This function can be used to switch off some security for a short time.
   f) When the button is held the relay output is ON, as soon as the button is released the relay output state changes to OFF.
   g) When the button is held the relay output is OFF, as soon as the button is released the relay output state changes to ON.
Each touch buttons can also be used to run scenarios or modes in the connected gateway or associated devices.

3. Each button backlight can be configured
   a) To indicate the relay output state
   b) To indicate the touch button state
   c) To indicate some mode state in the connected gateway
   d) To indicate the associated device state
It is possible to choose the light colour for each state (red for ON and blue for OFF or blue for ON and red for OFF).

If the Heltun wall touch panel switch is included in the z-wave gateway, the scene controller and 10 binary switches appear. The scene controller indicates which button was pressed, held or released and allows the running of scenes. The first 5 binary switches indicate and allow the control of the buttons backlight and the remaining 5 binary switches indicate and control the relays.

The device can be used to manage lighting systems. It allows the association (via multilevel switch command) of a dimmer and control of both turning On and Off as well as smooth up and down light dimming.

The switch can also be used to manage any motorized system e.g. garage doors, window blinds, etc. It allows to association (via basic set or multilevel switch commands) with relay switches and roller shutters by controling the opening or closing of the system. If door/window sensors are installed they can be associated with backlights as well. In this case the touch buttons will serve as controls and the backlight will indicate the actual state of the system (open or closed).

CONFIGURATION

In order to configure the Heltun Switcher use the Z-Wave gateway or a usb stick.
All configuration parameters are accessed through COMMAND_CLASS_CONFIGURATION

PARAMETERS LIST:

Parameter Number	Parameter Size	Description	Default Value	Available Values
01	1 byte	Backlight 1 control source	1	0, 1, 2
02	1 byte	Backlight 2 control source	1	0, 1, 2
03	1 byte	Backlight 3 control source	1	0, 1, 2
04	1 byte	Backlight 4 control source	1	0, 1, 2
05	1 byte	Backlight 5 control source	1	0, 1, 2
06	1 byte	Relay 1 control source	1	0, 1, 2, 3, 4, 5
07	1 byte	Relay 2 control source	2	0, 1, 2, 3, 4, 5
08	1 byte	Relay 3 control source	3	0, 1, 2, 3, 4, 5
09	1 byte	Relay 4 control source	4	0, 1, 2, 3, 4, 5
10	1 byte	Relay 5 control source	5	0, 1, 2, 3, 4, 5
11	1 byte	Click control mode for touch button 1	1	0 - 6
12	1 byte	Click control mode for touch button 2	1	0 - 6
13	1 byte	Click control mode for touch button 3	1	0 - 6
14	1 byte	Click control mode for touch button 4	1	0 - 6
15	1 byte	Click control mode for touch button 5	1	0 - 6
16	1 byte	Hold control mode for touch button 1	1	0, 1, 2
17	1 byte	Hold control mode for touch button 2	1	0, 1, 2
18	1 byte	Hold control mode for touch button 3	1	0, 1, 2
19	1 byte	Hold control mode for touch button 4	1	0, 1, 2
20	1 byte	Hold control mode for touch button 5	1	0, 1, 2
21	1 byte	Timer mode duration for button 1	1	1 - 240
22	1 byte	Timer mode duration for button 2	1	1 - 240
23	1 byte	Timer mode duration for button 3	1	1 - 240
24	1 byte	Timer mode duration for button 4	1	1 - 240
25	1 byte	Timer mode duration for button 5	1	1 - 240
26	2 bytes	Power of the Relay 1 load in W	0	0 - 5000
27	2 bytes	Power of the Relay 2 load in W	0	0 - 5000
28	2 bytes	Power of the Relay 3 load in W	0	0 - 5000
29	2 bytes	Power of the Relay 4 load in W	0	0 - 5000
30	2 bytes	Power of the Relay 5 load in W	0	0 - 5000
31	1 byte	Red colour backlight brightness	0	0, 1, 2, 3
32	1 byte	Blue colour backlight brightness	0	0, 1, 2, 3
33	2 bytes	Red colour auto brightness level 1 max lumens	30	0 - 5000
34	2 bytes	Red colour auto brightness level 2 max lumens	200	0 - 5000
35	2 bytes	Blue colour auto brightness level 1 max lumens	30	0 - 5000
36	2 bytes	Blue colour auto brightness level 2 max lumens	200	0 - 5000
37	1 byte	Active state backlight colour	1	0, 1
38	2 bytes	Temperature sensor calibration	0	-95 - 95
39	1 byte	Temperature difference to send to controller, value X 10	2	1 -10
40	1 byte	Touch buttons sensitivity. 10=Supper sensitive. 60=lowest sensitivity.	20	10 - 60
41	1 byte	Gateway	0	0, 1

Parameters 01-05 – Buttons backlight control source
0 – Backlight is disabled (both colour leds are turned off)
1 – Controlled by touch button
2 – Controlled by gateway or associated device
Factory default value: 1

Parameters 06-10 – Touch button number for Relay control
0 – Controlled by gateway or associated device
1 – Controlled by touch button N1 (Top Left)
2 – Controlled by touch button N2 (Top Right)
3 – Controlled by touch button N3 (Bottom Left)
4 – Controlled by touch button N4 (Bottom Right)
5 – Controlled by touch button N5 (Center)
Factory default value: Each relay corresponds to its button, e.g. for Relay 3 the default value is touch number 3

Parameters 11-15 – Click control mode
0 – Click function is disabled
1 – press the button and the relay inverts the state (ON to OFF, OFF to ON like a toggle switch) regarding touch button state.
2 – press the button and the relay inverts the state (ON to OFF, OFF to ON like a toggle switch) regarding button backlight state
3 – press the button and the relay goes to ON state only
4 – press the button and the relay goes to OFF state only
5 – Timer mode ON-OFF. Press the button and the relay output goes to the ON state (contact is closed) then after a specified time it goes back to the OFF state (contact is open). The time is specified in parameters 21-25.
6 – Timer mode OFF-ON. Press the button and the relay output goes to the OFF state (contact is open) then after a specified time it goes back to the ON state (contact is close). The time is specified in Parameters 21-25
Factory default value: 1

Parameters 16-20 – Hold control mode.
0 – Hold function is disabled
1 – Operate like click
2 – When the button is held the relay output state is ON, as soon as the button is released the relay output state changes to OFF (momentary switch).
3 – When the button is held the relay output state is OFF, as soon as the button is released the relay output state changes to ON (momentary switch).
Factory default value: 1

Parameters 21-25 – Relay Timer mode duration
These parameters specifiy the duration in seconds for the Timer mode (value 5 or 6 in Parameters 11-15 respectively). Press the button and the relay output goes to ON/OFF for the specified time then changes back to OFF/ON. This function can be used to open/close garage doors, blinds, curtains, etc. or to turn off the security for a short time. Time can be configured from 1 sec to 255 sec.
Factory default value: 1

Parameters 26-30 – Relays load power in watt.
It is possible to specify the consumption of the loads in watts for each relays channel. The device will calculate total consumption relativel to the time since the output of the relays is in the ON state.
Factory default value: 0

BACKLIGHT BRIGHTNESS
The Switcher can adjust the buttons backlight brightness automatically depending on the illumination of the ambient environment. To activate auto adjust function set Parameters 31 and 32 values 0.
To control the brightness manually choose one of three available levels in Parameter 31 for the red colour backlight and in Parameter 32 for the blue colour backlight.

Parameter 31 – Red colour backlight brightness
To activate the auto adjust function for the red colour backlights set the parameter value 0. The comfort brightness for the red colour can be chosen depending on the room illumination in Parameters 28 and 29.
0 – Auto, 1 – Level 1 (Min), 2 – Level 2, 3 – Level 3 (Max)
Factory default value: 0

Note: The illumination of the environment can be checked via the Z-Wave gateway.

Parameter 32 – Blue colour backlight brightness
To activate the auto adjust function for the blue colour backlights set parameter value 0. The comfort brightness for the blue colour can be chosen depending on the room illumination in Parameters 30 and 31.
0 – Auto, 1 – Level 1 (Min), 2 – Level 2, 3 – Level 3 (Max)
Factory default value: 0

Note: The illumination of the environment can be checked via the Z-Wave gateway.

Parameter 33 – Red colour auto brightness level 1 max lumens
The value indicates the maximum level of ambient illumination during which the brightness of the red colour backlight will be at level 1 (the lowest level). For example if this parameter is set to 30 and the ambient illumination is in range 0-30 then the backlight will be in the lowest brightness level. As soon as the illumination will be 31 or higher the backlight brightness will be changed to Level 2.
Factory default value: 30.

Parameter 34 – Red colour auto brightness level 2 max lumens
The value indicates the maximum level of ambient illumination during which the brightness of the red colour backlight will be at level 2. In case the illumination is in the range Parameter 33 - Parameter 34 the display brightness will be on level 2. If the illumination drops below the value of Parameter 33 the brightness will be decreases to level 1, and if the illumination increases beyond the value of Parameter 34 the brightness will rise to level 3.
Factory default value: 200.

Parameter 35 – Blue colour auto brightness level 1 max lumens
The value indicates the maximum level of ambient illumination during which the brightness of the blue colour backlight will be at level 1 (at the lowest level).
Factory default value: 30.

Parameter 36 – Blue colour auto brightness level 2 max lumens
The value indicates the maximum level of ambient illumination during which the brightness of the blue colour backlight will be at level 2. If the illumination increases beyond this value the brightness will rise to level 3.
Factory default value: 200.

Parameter 37 – Active state backlight colour
Choose the value 0 if the red colour backlight is required for button active state and the blue colour for the inactive state. Choose the value 1 if the blue colour backlight is preferable for the active state and the red colour for the button inactive state.
Factory default value is 1.

Parameter 38 – Temperature sensor calibration
This parameter defines the offset value for the air temperature sensor. If the internal temperature sensor is not correctly calibrated the change of temperature can be made by adjusting the values by up to +/- 9.5°C. This value will be added or subtracted from the internal air temperature sensor reading. To define the offset value set it is multiplied by 10 (value*10). E.g. the value -15 means -1.5°C.
Factory default value: 0

Parameter 39 – Temperature difference to notify the gateway
The switcher will send a new temperature to the gateway only in case the temperature change is equal or greater than the parameter value/10 (value divided by 10) specified in this parameter. For example if the parameter value is 3 and sensor reading is 24.0°C the switcher will send new sensor reading to the gateway only in case if it is 24.3°C and above or in case if it is 23.7°C and below.
From 1 (0.1°C) to 10 (1.0°C) can be chosen.
Factory default value: 2 (0.2°C)
Note: The switcher sensor is very sensitive to changes of ambient temperature and can often vary by ±0.1C, therefore it is recommended to set this parameter from 2 (0.2°C) and above to reduce the load on your Z-Wave network.

Parameter 40 – Touch buttons sensitivity
The device touch buttons sensitivity can be adjusted.
From 10 (supper sensitive) to 60 (minimum sensitivity) can be chosen.
Factory default value: 20.
Note: Too high sensitivity can lead to false detection. Do not change this parameter unless there is an urgent need.

Parameter 41 – Gateway
If Fibaro Home Center Lite or Fibaro Home Center 2 is used as a gateway for correct communication of the devices set this parameter 1. For other gateways choose 0.
Factory default value: 0.

Z-WAVE NETWORK

Inclusion
1. Start the inclusion mode from the gateway
2. To start the inclusion process on the device simultaneously press two bottom touch buttons and hold them for 3 seconds.
3. Two upper buttons will sequentially blink blue-red
4. If the inclusion has been successful the two upper buttons will turn blue.
5. If the inclusion was not completed the two upper buttons will turn red. In that case start the inclusion process again.
Note: In case the device has been part of the Z-Wave network before and not excluded since, inclusion is not possible. In this case, exclusion or factory reset must be performed before inclusion.

Security: S0, S2 unauthorized and S2 authorized inclusion modes are supported. If you use S2 authorized inclusion mode the security key should be used in inclusion process.
NOTE: Be sure to save this key. Without this key it is impossible to perform an inclusion in S2 authorized mode.

Exclusion
To exclude the switcher from the Z-Wave network
1. Start the exclusion mode from the gateway
2. Simultaneously press two bottom touch buttons and hold them for 3 seconds.
3. Two upper buttons will sequentially blink blue-red
4. If the exclusion has been successful the two upper buttons will turn red
5. If the exclusion was not completed the two upper buttons will turn blue. In that case start the exclusion process again.

FACTORY RESET

For factory reset simultaneously press the two bottom and central touch buttons and hold them for 5 seconds. If successful the two upper buttons will turn blue.
NOTE: The factory reset will change all the parameters to the original factory defaults and will also exclude the device from the Z-Wave network.

ASSOCIATION

The switch has 11 EndPoints and 30 groups with a maximum of 3 device associations with each group:
The EndPoint 0 is the main device and includes the Touch Button association groups as well as all the association groups of Backlights and Relays (the EndPoints 1-10):
Group 1 – Z-Wave Plus "LifeLine"
Group 2 – Touch button 1 "Basic Set (On/Off)"
Group 3 – Touch button 1 "Multilevel Set"
Group 4 – Touch button 2 "Basic Set (On/Off)"
Group 5 – Touch button 2 "Multilevel Set"
Group 6 – Touch button 3 "Basic Set (On/Off)"
Group 7 – Touch button 3 "Multilevel Set"
Group 8 – Touch button 4 "Basic Set (On/Off)"
Group 9 – Touch button 4 "Multilevel Set"
Group 10 – Touch button 5 "Basic Set (On/Off)"
Group 11 – Touch button 5 "Multilevel Set"
Group 12 – Backlight 1 "Basic Set (On/Off)"
Group 13 – Backlight 2 "Basic Set (On/Off)"
Group 14 – Backlight 3 "Basic Set (On/Off)"
Group 15 – Backlight 4 "Basic Set (On/Off)"
Group 16 – Backlight 5 "Basic Set (On/Off)"
Group 17 – Realy 1 "Basic Set (On/Off)"
Group 18 – Realy 2 "Basic Set (On/Off)"
Group 19 – Realy 3 "Basic Set (On/Off)"
Group 20 – Realy 4 "Basic Set (On/Off)"
Group 21 – Realy 5 "Basic Set (On/Off)"

EndPoint 1-5 are assigned to Backlights 1-5 and provide the association of the two groups:
Group 1 – Z-Wave Plus "Lifeline" allows for the assigment of single device.
Group 2 – "Basic Set (On/Off)" is assigned to the backlight and reflects its state.

EndPoint 6-10 are assigned to the Relays 1-5 and provide the association of the two groups:
Group 1 – Z-Wave Plus "Lifeline"
Group 2 – "Basic Set (On/Off)" is assigned to the relay and reflects its state.

2-YEAR LIMITED WARRANTY