

SRH-WL1 Connection and Commissioning Guide

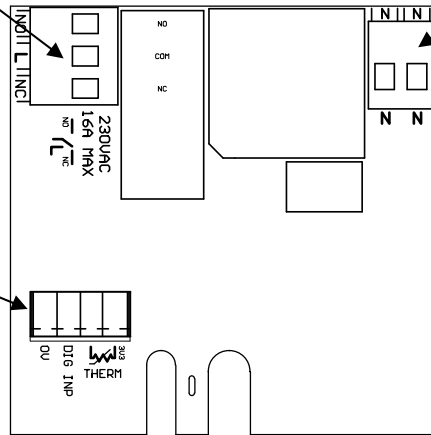
Module Connections

Mains Live (power) input and switched live NO/NC connections
 5mm pitch term. Blk.,
 Up to 4mm² conductor
16A MAX @230Vac

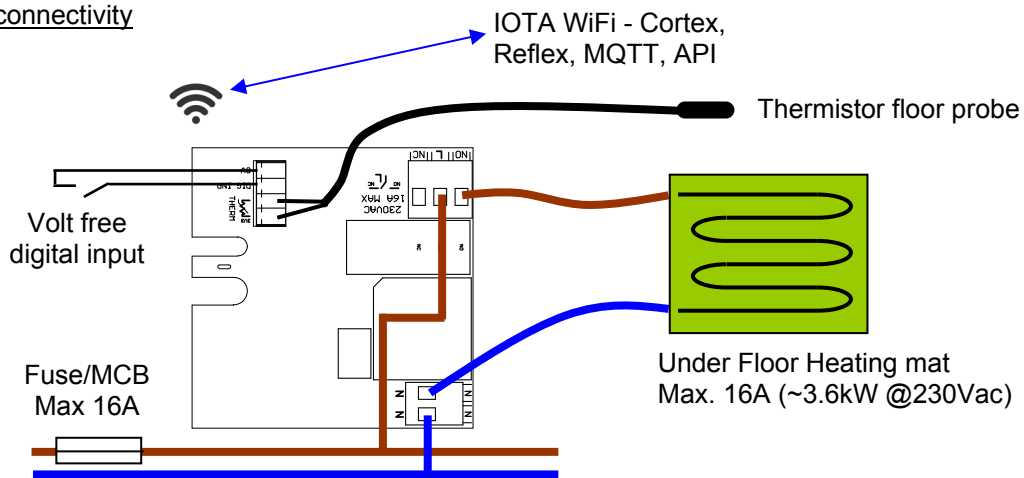
Mains Neutral connections
 5mm pitch term. Blk.,
 Up to 4mm² conductor

Digital & Analogue inputs with 0V and 3v3 reference connections
 3.5mm pitch term. Blk.,
 Up to 1.6mm² conductor

Note: Input connections are isolated from the mains supply but precautions should be taken to enforce separation between input wiring and mains wiring within the module enclosure if input wiring or signals will be exposed externally to human touch



Example connectivity



IEEE 802.11 b/g/n (2.4GHz band, 16dBm) FCC/CE
 Supply voltage: 230Vac, 50Hz
 Quiescent current (excluding load): 7mA
 Switching output capacity 16A @230Vac
 ELV/LV isolation >3kV (8mm min creepage)
 Operating temperature -10°C to +40°C
 Operating humidity 5% to 95% (non-condensing)



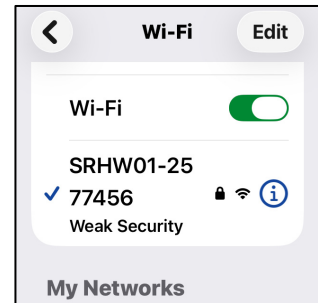
Commissioning Guide

The module receives its power directly from an AC supply. When the AC supply is first switched on the blue LED will flash briefly followed shortly by a steady ON state – indicating that some form of WiFi is active.

After any reset the module will always enable it's 'Access Point' mode (AP mode). This means it behaves like a mini router to which you can connect at a fixed known address. Module settings are accessed via a web browser. If a WiFi connection has been configured, AP mode will remain enabled for around 10 minutes, otherwise it will be left on indefinitely until a WiFi connection is configured (see below). AP mode will also automatically be enabled if an established WiFi connection becomes broken. Thus it is a fallback method to access the module directly if not accessible via the main WiFi link. Cortex also provides a utility to manage and access multiple WiFi modules once they have been connected to a WiFi router.

Step 1 - Connect to the module Access Point:

With the AP mode operational you can access the module directly via your smart phone/PC. Visit your phone/PC WiFi settings and look for the SSID (network name) of the module. Now connect to (join) this network. Some devices may report this connection to have 'weak security' but don't be concerned as the connection is local and just temporarily being used for configuration purposes. Now enter the default AP password: **IdratekWFM01**



Step 2 - Connect to and set password for the on board web server:

Assuming you have successfully joined the module's AP you will be able to access the on board configuration web server. To do so you should use a browser on your device and the default URL for the AP, which is: **http://20.0.0.1**

The initial page will force you to set a password for accessing the module's web server itself, before allowing you to proceed any further. Once you have entered such a password you will be asked to enter it again in order to proceed to the next step.

Step 3 - Change password for the Access Point function:

The next step asks you to change the module's AP network password. In other words to change it away from the default value on the label. Once you submit this new password the module will reset and you will have to repeat the joining network process with the new AP network password. When you have rejoined you can browse again to **http://20.0.0.1** and log in.

Step 4 - Connect the module to a WiFi router:

You can now proceed to connect the module into your main WiFi network. Typically this will be the same network that is accessible by Cortex and by any other WiFi modules, e.g the home router. After log in, the home page will be presented with functions described briefly below:

WiFi Config

Allows setting up of connections to a router and changing parameters relating to station or access point modes

IDRANet Config

Presently just for setting up the module NID and the sub domain number/s

I/O Status

Allows basic interaction with and viewing states of input output functions provided by this module

Other Tools

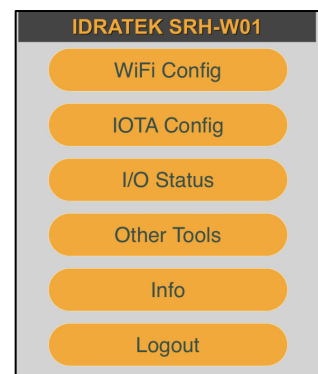
Various module settings/functions such as enabling WiFi activity indication, setting module name, firmware updates, and performing module soft reset or factory reset

Info

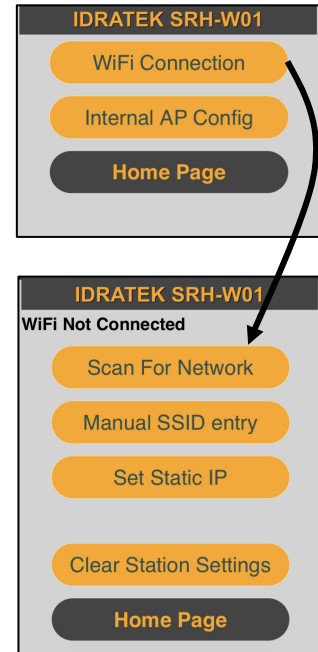
Display various items of information such as module name, firmware versions, RSSI, assigned IP address etc

Logout

Forces a logout – note that logout will automatically be performed typically after 5 minutes of inactivity



Click on **WiFi Config**. On the next page click on **WiFi Connection**. Next click on **Scan For Network**. After a brief pause a list of networks visible to the module will be presented. Select your router from this list and click **Submit**. You will then be asked for the router WiFi password. After this is entered the module will attempt to connect. A message will appear on your browser asking you to wait for 30s, after which the module will attempt to refresh the page with information about the success of the connection and the IP address assigned to the module by that router. At this point the module will be operating in BOTH AP and Station (STN) modes and your browser is still connected via the AP. If the process breaks the connection to the AP for some reason, then you will still be able to connect back to it using the WiFi settings on your browsing device as you did at the start. You may then check if the WiFi connection was in fact successful or not via the Info page. If not, you can go back to the home page and try again



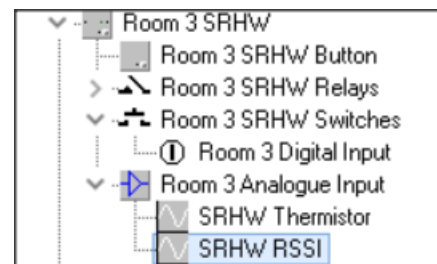
Step 5 - Commissioning into Cortex:

Assumes that you are communicating EITHER via a correctly configured MRG-W01 IDRANet/WiFi gateway module OR directly via the Cortex IOTA-WiFi option. Cortex should be in a launched state but not running the network.

Commissioning is performed as for a wired module - You can either pre-introduce a suitable empty object (SRH) to represent this module, or you can simply rely on the Cortex auto detect commissioning process, in which case Cortex will guide you to introduce and commission a suitable object once it has detected the module.

Either way, the next step is to reset the module either via its physical reset button or via the Other Tools menu if connected to it via a browser. After a few seconds a standard commissioning dialogue should appear in Cortex. This will guide you to introduce a suitable object if you had not pre-introduced one (in which case you would choose 'use existing free object'), then it will assign a unique node ID (relative to the present database) and will write this to the physical module.

Note that since the standard SRH object used to represent this module presently does not include an analogue sub object you will need to add this manually. This is done by selecting the parent object in Cortex structure view then, from Tools | Design network | Add Idratek Network Object, find at the bottom of the list 'Variant Sub Objects' click on this and select Analogue Inputs. This will add an analogue input sub-object to the SRH object. Right click on this and select connections from the next menu. You will now be presented with two potential connections to which you must 'Add' an Analogue input signal type to each connection (the only option). Connection 1 will represent the analogue input and later, from its behaviour menu, you should set up its scaling function to represent the analogue input as appropriate. Since this module is pre-configured to suit a 10k thermistor probe, the NTC scaling option and its default parameters will likely be an appropriate starting point for a 10k probe although an accurate beta value requires probe specific information. Connection 2 will always represent the module WiFi signal strength signal (RSSI). You must use the Quadratic scaling option for this and adjust the scaling parameters to be $a=0$, $b=2.56$, $c=-256$. You can select suitable icon representations, (e.g thermometer and signal bars respectively) by right clicking on the connection name in structure view, then select Plan view | Choose icon.



Other Notes

Note: your smart phone may still be connected to the module's AP even after a reset so you should remember to disconnect it and rejoin your main router once you have completed such an exercise.

Accessing the module via the main router

You can access the module's on board web server at any time via the local IP address which it was assigned by the router. If you have forgotten this then, since the AP will be enabled for a few minutes after a reset, you will be able to access the module via the AP route and visit the Info page in order to find this. Alternatively you may more conveniently utilise the Cortex WiFi module management utility.

Factory Reset

There are two methods to accomplish a factory reset. If the module is accessible via a browser then you can reach this option via the Other Tools menu. Otherwise the other option is via the physical reset button. If this is pressed **exactly 8** times in quick succession (<1.5s between successive presses) then the module will perform a memory wipe to factory state. This will be indicated shortly afterwards by the blue LED flashing slowly until the process is complete. This will then be followed by a module self reset.



Reset

Blue LED indications

- Steady ON means either the AP is ON or that the module has connected to a router, in which case the AP mode will automatically be switched off after a few minutes.
- If WiFi activity indication enabled (via Module options) then will flash briefly when transmitting data.
- If router credentials have been set but the router cannot be reached then the AP mode will be turned on in a temporary mode – meaning that the module will continuously try to re-establish a connection to the router at regular intervals. In this case the blue LED will briefly flash every couple of seconds
- Slow flashing: indicates the initial retry phase after a connection loss to the router i.e before turning the AP mode back on.
- Slow flashing: After a factory reset request, the blue LED will flash slowly for some seconds until the data wipe is complete