Information Sheet – Rayzig Software

The Rayzig System has multiple software facets:

Firmware – to control the hardware

Rayzig	– Communications, Configuration and Control Firmware
RayDal	- Firmware for the DALI Master module
RaxMega	– Firmware for the Gateway xMega processor
WBxMega	– Firmware for the Wire-Bridge & IP Bridge modules
Raymon	– PC Based - Command and Control Software
Rayweb	– Web-based control software

Firmware

The hardware in all modules use the open source Light Weight Mesh stack from Atmel, which provides a basis for the communication system between modules. Added to this is the command and control software that is used within the module. There are a number of modules that have more than one processor, so there is a necessity to provide suitable code to operate between the communications system and the configuration and control software. This is provided specifically for the modules that require it. Any new module that may be developed could require additional firmware.

Raymon communicates with the Rayzig network through the Rayzig gateway

Raymon

This is the PC based software that is used to configure and act as a conduit to the Rayzig network. The gateway holds details of the modules that have been defined for that Rayzig network, and also:

- System setup parameters and security details;
- Setup and modification of module configuration and control details;
- Show Module status and emulate modules;
- Module testing
- Saving module details as complete system configuration backup.
- Define zones and themes;
- Show details of events that have occurred within Network modules;
- Save configuration details to PC files, or transfer details to the MySQL databases;
- Provide access to multiple sites;
- Define DALI configurations and scenes;
- Provide Over the Air Updates (OTAU) to keep modules up to date;
- Show battery powered switch module "low battery" alerts;
- Provide external connection through the LanTronix LAN Interface;
- Interface to the RPi based Web Server based application software – Rayweb;

Rayweb

Rayweb is a Web Server based application running on a Raspberry Pi single board computer, which is integrated within the Rayzig Gateway. The RPi has its' own LAN interface and runs a LAMP stack, along with additional services to give a functional mobile control and configuration system for the Rayzig Network.

Rayweb offers many of the features found within Raymon, as well as some features which are only to be found in the Rayweb software, such as Multi-occupancy setup, configuration and control.

Rayweb allows setup of users, whereby they can be limited to a designated number of modules, zones and themes. Once defined the Administrator, or User, is limited to only those modules allocated to them.

The DALI setup features, whilst similar to Raymon, are better suited to being able to check operations whilst traversing a site (eg on an Android tablet). The use of Rayzig's DALI master module setup allows the user all aspects of setting up a DALI lighting configuration: ie: initialising luminaires, setting up addresses, specifying Groups, Scenes and Levels. It can 'flash' lights so that location details can be entered. Using multiple master modules, the flexibility of the system grows, and is particular useful in multiple occupancy situations.

Email Battery Alerts and Module Failures. In order to ensure that the system functions optimally, a regular check is made within the system to ensure that all modules are functioning. In the event of a module not being accessible for a number of hours, an email is sent to defined users (up to 3), detailing the failed module type, description and location. This will enable the necessary checks of the system to ensure that the module can be replaced, if required. Battery powered switch modules have a set level, so that battery replacement can be undertaken as required. When the battery module voltage is below the set level, an email is sent to ensure replacement is carried out in a timely manner. Routine battery replacement is thus avoided (and with a sleeping background of 2.5 microamps is likely to be infrequent!)

An operational Rayzig system can function without the Raymon and Rayweb configuration software and the central gateway through which they connect. Communications are direct from source (switches etc) to destination controllers, therefore reducing points of failures within the network.

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