

WP6 Operational Description

Power is supplied to the WP6 via a 2 pin Deutsch connector from a 12V battery bank, or a 15V DC supply. Upon receiving power, the WP6 will load default radio settings or the most recent configuration it had before power was disconnected. Upon startup, the main processor (STM32L462VET6) communicates with the radio module (CMWX1ZZABZ) via UART to set modulation parameters. The radio configuration can be set using the OLED menu and user interface buttons, or through the USB serial port connection. The radio will operate in either LoRa or FSK modulation, as selected through user configuration, but never both concurrently. The default state of the radio module is reception in the selected modulation.

After the main processor and radio module have been initialized, if an input is detected (via pushbutton press, or sensor detection) the radio will be put into transmission mode. A packet is generated for transmission and sent from the main processor to the radio module via the UART connection. The radio module will transmit this packet and return to reception mode. The main processor will initiate a light flash routine activating the connected LED beacons, the pattern and length of the flash routine can be set using the OLED user button interface, or the USB serial port connection.

If another compatible JSF Technologies device is in range of the WP6, with the same radio parameters selected via configuration, the radio circuitry will receive the radio packet, and pass it to the main processor to be acted upon. The main processor will utilize the radio circuitry to acknowledge the transmission by transmitting a packet before returning to reception mode. The main processor will then utilize the LED control circuitry to fulfill the instructions contained in the radio packet, based on previously set configuration options.