INTRAGRAIN
A Calian Company

Operational Description of Fuel Lock®

Fuel Lock® is an automatic fuel management system that controls access to fuel pumps and tracks fuel consumption. The device controls power to fuel pumps and detects pulses from fuel flow meters. The device connects via cellular network to IntraGrain's server and to the Fuel Lock® app for device management and real-time data transmission.

Fuel Lock® runs on 120 V AC power and uses a 120 V to 24 V transformer to step down the voltage supplied to the main PCB. The main PCB converts and regulates the power down to lower DC voltages. Fuel Lock is electrically grounded through the AC power line ground wire.

Fuel Lock® contains a pre-certified modem, ublox LARA-R202, FCC ID: XPY1EIQ24NN. The modem is connected to a multi-band flat antenna with frequency range 824 to 960 MHz / 1.7 to 2.17 GHz and has peak gain of 2.3 dBi / 3.1 dBi. The modem and antenna configuration meets the certification requirements outlined in the ublox LARA-R2 integration manual.

The modem is contained on a separate daughter PCB attached to the main PCB. The modem daughter PCB also contains a microcontroller that operates at and below 4 MHz.

The main PCB is an unintentional radiator. The main PCB contains a microcontroller that operates at and below 16 MHz.