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Spireon Flex2-L GPS Tracker User Manual

Flex2-L User Manual
CAT.1
Revision 1.0

Contents

Introduction

The Flex2-L is a remote start and security tracking device that uses a GPS satellite receiver to determine location information and an LTE transceiver to communicate information to and from a land-based server. This document outlines the operation and configuration of the FLEX2-L product line using the supplied tracking application. This

document is the user manual for FLEX2-L. This device contains Bluetooth, a battery, and three LED lights. The colors are red, blue, and orange.

Physical and Electrical Specifications

Input Voltage: 10-30VDC

Power consumption:
– Active mode: 70mA 12VDC
– Low power mode: 5mA @ 12VDC
– Sleep mode: 100uA@ 12VDC
Operating temperature: -30℃ to 80℃
Storage temperature: -40℃ to 85℃

Wire Harness

UART test and equipment power supply harness. Test line, this harness is used for connecting equipment debugging. The specific use of the wiring harness can be changed according to the customer's choice. This shipment only has the equipment and no harness.

Pin	Function	
1	PRINT	
2	PRINT	
3	PRINT	
4	Relay	Puma Mux Switch not Needed, can be Relay
	GND	
to	PROV_TX	3.3V Signaling for CS and Provisioning
	1_WIRE	
8	GPIO2	
9	Tamper	
10	PROV_RX	3.3V Signaling for CS and Provisioning
11	3V4_OUT	
12	GPIO1	

1. TheFLEX2-LPCB devices. For PCB equipment, the PCB of this equipment is divided into two, one is the daughter board of FLEX2-L, and the other is the motherboard. As shown below.
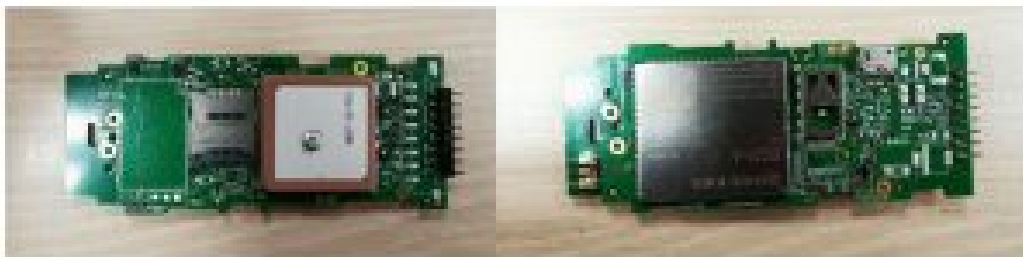

2. Complete equipment of Flex2-L. For the complete equipment, as shown below. After installation, the device sometimes connects the harness, and some will not connect the harness.

Description

1. Connect the UART cable to the UART interface of MCU on the device, the other side connects to PC, you can communicate to MCU with UART cable. Just like this.
2. Connect the DC 12V cable to the connector of 12 PINon the device, the other side connects to DC 12V, you can use the DC 12v cable to supply power
3. The other interfaces of the theFLEX2-L device are shown in the following pictures.(The Modem USB PORT on

the device is for modem debug and update firmware)
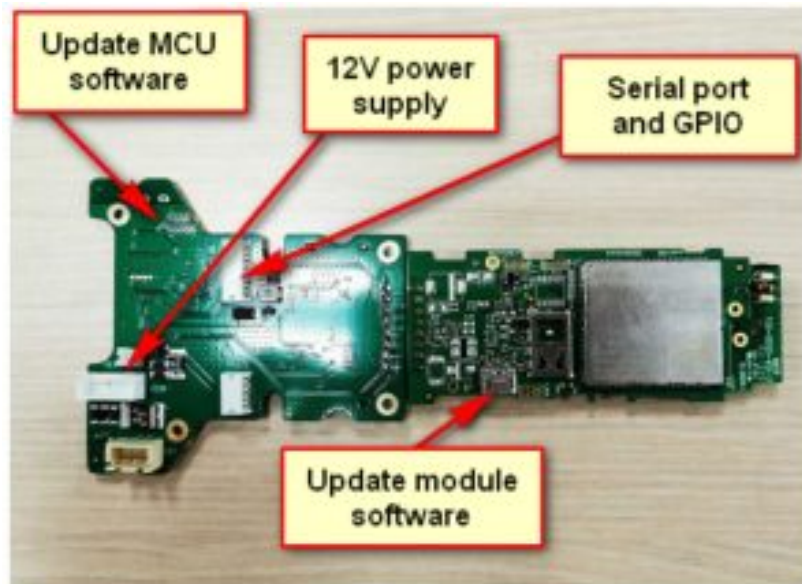
LED Indicators

There are 3 indicator LEDs on the device, which are used to indicate the status of cellular communications and GPS, and to indicate when messages are created and transmitted.

The orange LED indicates communications status:

- Off indicates the modem is off
- The device enters a sleep low-power state

The RED LED indicates GPS status:

- Off indicates GPS is off
- Indicates network status
- The device starts normally

The green LED indicates GPS status:

- Instruct to turn on the GPS, and the GPS works normally.
- Implies that GPS has been successfully located

Programming and Configuration Summary

1. DMAN Server
   FLEX2-L is programmed and configured either via the serial UART connection or via another Air (OTA) process on the cellular data network.
   A Device Manager Server on the Positioning Universal infrastructure automatically updates Applications and Settings files for groups of devices. When an update of the application or new settings are released, they are loaded into the DMAN server and assigned to the Groups of devices that are to receive the update. The DMAN

server automatically updates devices to the latest assigned versions. In normal operation, devices "check-in" to the DMAN server regularly to report their health, and to check whether they are due to get updates.

2. Applications

The application provides standard tracking functionality to the FLEX2-L. The specific operation and variations in behavior are provided via parameters included in a Settings file. These parameter values may vary depending on the nature of the specific tracking application that the device is employed in.

The Tracking Application is a software developed to run on the VSM550 device family and provide functions that are typically used in vehicle and asset tracking. Updates to the application are provided by Positioning Universal to provide improvements, corrections, and add new functionality when it is ready for release.

Tracking Behavior Summary

FLEX2-L applications address the needs of the typical vehicle and asset tracking. Variations in functional behavior for specific applications are controlled via parameters in the settings file.

1. Power State Reporting

The FLEX2-L can be configured to report power up and rebooting behavior in a variety of ways depending on what is desired. Cold Boot, Warm Boot, and first GPS Acquisition are reported if so configured following Power Up events, power cycling, commanded reboots and configured periodic reboots. In addition, there is an option to report a Stop event following a reboot of a non-moving device to address some customer needs to ensure that the corner case of a reboot occurring at the end of a trip doesn't result in an error in a trip or idle reporting by the server.

If the device is equipped with a backup battery, then it will also report Power

Disconnected and Power Connected events when primary power is removed and restored.

2. Moving State

A device enters a Moving state either due to detection of a hardwired Ignition signal, an increase in the supply voltage, detection of movement by the GPS, or an "Absolute G" detection. While in the Moving state, the device reports periodically as configured. Both primary Moving interval reports with full data, and "minor intervals" (with only latitude, longitude, speed, and time) for data compression can be reported while in a Moving state.

3. Sleeping State

A device enters the Sleeping state from a Stopped state when all vibration, GPS movement, and primary voltage are quiescent for a sufficient duration. The qualifying duration of quiescence, and the degree of sleep encountered, are controlled by parameters in the Settings file.

4. Heartbeat Reporting

The device reports a Heartbeat message at an interval specified regardless of state. If the device is sleeping when the Heartbeat timer expires, it will wake up and generate the Heartbeat message. Whether the device attempts a GPS fix for each Heartbeat message can be specified.

FCC Regulations:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that

interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

—Reorient or relocate the receiving antenna.
—Increase the separation between the equipment and receiver.
—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
—Consult the dealer or an experienced radio/ TV technician for help.

Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

FCC RF Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. To comply with FCC RF exposure compliance requirements, this grant is applicable to only Mobile Configurations. The antennas used for the transmitter must be installed to provide a separation distance of at least 20cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

Documents / Resources

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