

Operational Description

1 USAGE

K-Force WE 12S is a derailleur gears for bicycle drivetrain, it contains rear and front derailleur. The front derailleur is mounted on the crankset (pedal sprocket) and the rear derailleur is mounted on the flywheel (rear sprocket). Users can adjust the shift lever to control derailleur to move back and forth. All these three parts(front derailleur, rear derailleur, shifter lever) are electronic modularization, and the communication is construct by RFIC with TX, RX, ASK/ PR-ASK modulation.

2 HARDWARE

FD-ED-8412, RD-ED-8412, SF-RD-8412, SF-RD-8412(L) includes

2.1 *MCU

MCU (nRF52832, xtal 32.768KHz, xtal 32MHz), all the same part for three modules.

2.2 I/O Interface

FD(Front Derailleur): LED, push-button, and motor.

RD(Rear Derailleur): motor.

2.3 *Power supply

Power input is recharbable battery (7.4V/1100mAh) for both FD and RD.

Power input is coin cell CR2032(3V) for SF(shift level).

2.4 *RF transmitter

BLE transmitter (nRF52832, xtal 32MHz)

2.5 Peripherals / Accessories

Rechargable battery and coin cell CR2032

3 FIRMWARE

3.1 RF functions

It supports BLE 1M only.

4 *RF SPECIFICATION

4.1.1 FD-ED-8412: BLE for FCC ID: 2ALMLKW12FD8412/IC: 22650-KW12FD8412

Radio Technology:	BLE
Frequency Range:	2402 – 2480MHz
Channel number:	40 channels
Modulation type:	GFSK
Transmit Power:	BLE: -2.98dBm
Antenna	Multilayer Chip Antenna, 2.5dBi

Note: *為必要項目

4.1.2

RD-ED-8412: BLE for FCC ID: 2ALMLKW12RD8412/IC: 22650-KW12RD8412

Radio Technology:	BLE
Frequency Range:	2402 – 2480MHz
Channel number:	40 channels
Modulation type:	GFSK
Transmit Power:	BLE: -5.75dBm
Antenna	Copper Foil Sticker Antenna, 3.76dBi

4.1.3

SF-RD-8412/ SF-RD-8412(L): BLE for FCC ID: 2ALMLKW12SF8412/IC: 22650-KW12SF8412

Radio Technology:	BLE
Frequency Range:	2402 – 2480MHz
Channel number:	40 channels
Modulation type:	GFSK
Transmit Power:	BLE 1M: -4.04 dBm
Antenna	Thi Line Antenna, -9.77dBi

The differences between SF-RD-8412 and SF-RD-8412(L) are in PCB layout design for left and right sides used, no RF concerns.