

QCZEK LRS – 433MHz version

What is it? - Long range RC system with unidirectional telemetry, selectable power from 200-1000mW

What you need:

Hardware:

2x E32-TTL-1W

1x FTDI

1x ST-Linker

2x 433MHz antenna

1x 5V 2-3A BEC

Cables, Pin headers

Optional for PPM signal amplifier: BC546/547/548, 220kOhm, 10kOhm, 4,7kOhm

Software:

Config Tool, Firmware <http://qczek.beyondrc.com/qczek-lrs-433mhz-1w-lora-rc-link/qczek-lrs-download/>

ST Visual Develop IDE http://www.st.com/content/st_com/en/products/development-tools/software-development-tools/stm8-software-development-tools/stm8-programmers/stvd-stm8.html

Flashing Firmware:

<http://qczek.beyondrc.com/qczek-lrs-433mhz-1w-lora-rc-link/qczek-lrs-flashing-new-firmware/>

You need ST-Linker. Make you an adapter to press against the pins on the E32-TTL-1W module or solder the cables to it.

When starting the program the first time, select ST-Linker in left row, SWIM in middle row and STM8L15xG4 in right row.

Now connect adapter with E32 module and plug in USB. Choose "OPTION BYTE" tab in lower part of the window and click "Program current tab or active sectors"

After this load the desired firmware (Master or Slave) and go to "PROGRAM MEMORY" tab and press "Program current tab or active sectors"

Now firmware is installed to the module.

Configuration:

<http://qczek.beyondrc.com/qczek-lrs-433mhz-1w-lora-rc-link/qczek-lrs-configuration/>

Connect FTDI to VCC, GND, TX, RX

When powering up connect M1 to GND (TX) or M1 to M0 (RX) to get in configuration mode.

Then connect with Configuration tool to the correct COM port and make your settings.

Write to EEPROM when happy with settings.

Best frequencies (thanks to ABlomas):

```
{ParSetInt fr0 436183000}
```

```
{ParSetInt fr1 437572000}
```

```
{ParSetInt fr2 438892000}
```

```
{ParSetInt fr3 439371000}
```

```
{ParSetInt fr4 440991000}  
{ParSetInt fr5 441927000}  
{ParSetInt fr6 442682000}  
{ParSetInt fr7 443729000}
```

RSSI injection:

You do not have to waste one channel of your radio for RSSI.

If your radio puts out e.g. 8ch, then select noOfCPPMChnls = 8 for tx firmware, on rx firmware choose noOfCPPMChnls = 9 and inject RSSI to ch9, rssIChnl = 9

Telemetry:

For telemetry I use LTM on slow setting (105byte/s). QCZEK LRS can transmit up to 110byte/s. Baudrate does not matter, you can choose whatever your FC puts out.

I have selected 9600 baud for rx firmware. Connect LTM signal to RX pin of the receiver unit.

On the tx firmware choose whatever baudrate you need for connecting a device that reads telemetry. Computer, Bluetooth module, FTDI adapter.

I use a HC-05 module set to 9600baud and this connects to my mobile phone running EzGUI app.

LED blink pattern:

Slow TX blinking (twice a second): Firmware works fine, but no PPM/PXX signal detected

Slow RX blinking (twice a second): Firmware works fine, no frames are received, TX off

Fast RX pulsing: RX is bound and receives data from TX – link is good

Fast TX pulsing: PPM/PXX signal detected and transmitted



