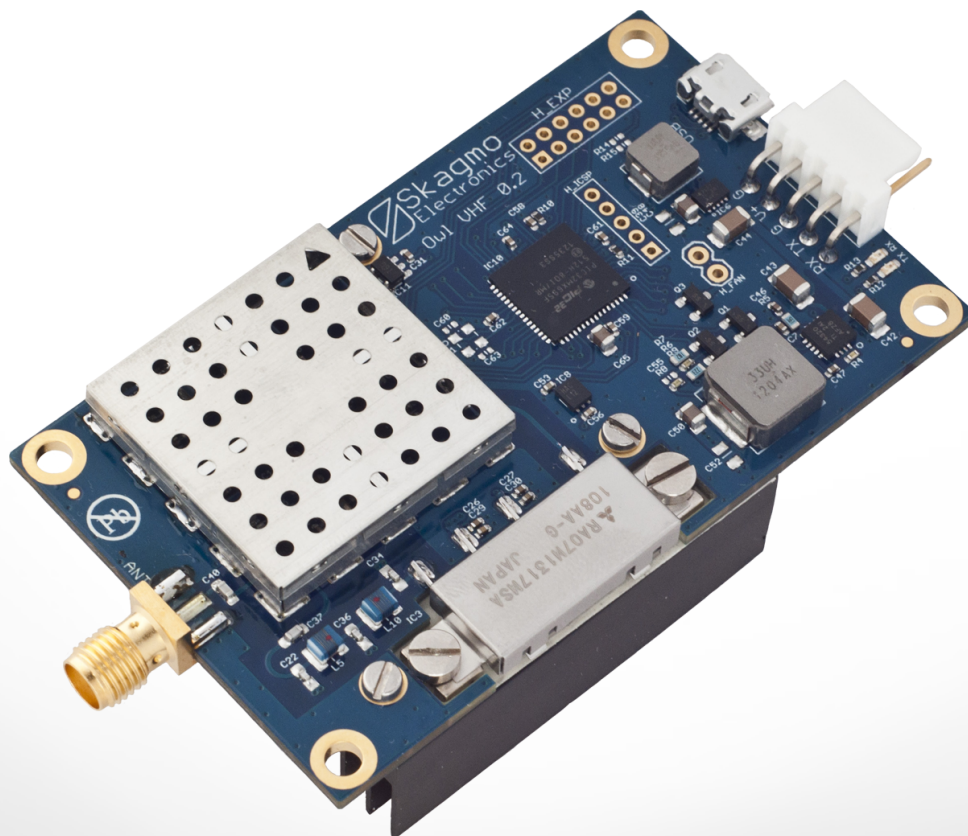

Owl VHF

High performance radio transceiver
Datasheet rev. B

- Small and light weight despite high performance
- Variable power amplifier biasing for maximum efficiency
- Made for professional use in UAVs and cube satellites, as well as for amateur radio
- Supports radio protocols such as AX.25, AIS, CW and NGHam
- Extensive command line interface for configuration and supports many different serial port protocols



 Skagmo
Electronics

1 Specifications

Table 1: Specifications

Sensitivity	-120 dBm (9.6 kbps 2-GMSK NGHAm with FEC)
Spurious emission	<-65 dBc
Power consumption (input voltage dependent)	RX: 0.39 - 0.42 W TX (0.2 W): 1.0 - 1.1 W TX (1 W): 2.2 - 2.4 W TX (5 W): 10.9 - 12 W
RF power	5 W (HI), 1 W (MID), 0.2 W (LO)
Voltage range	9 - 16 VDC
Frequency range	RX: 136 - 174 MHz TX (amateur version): 144 - 148 MHz TX (pro version): 140 - 165 MHz
Dimensions	PCB and heatsink: 75 mm x 45 mm x 20 mm Pro-version: TBD
Weight	PCB and heatsink: 58 gram Pro-version: 120 gram
Frequency stability	+/- 2 ppm (TCXO)
Temperature range	TBD, but components are specified down to -30 degrees celsius or less
Channel access	CSMA (based on demodulator state or RSSI) TDMA (with GNSS or NGHAm packets as timing reference)
Data rates (NGHAM)	25 KHz: 9.6 kbps 2-GMSK, 19.2 kbps 4-GMSK 12.5 KHz: 4.8 kbps 2-GMSK, 9.6 kbps 4-GMSK
Serial port protocols (packers)	AIVDM NMEA (for AIS reception), command line interface, KISS, NGHAm SPP, GPGGA/GPVTG NMEA (for GPS input), TNC2, text-mode, transparent
Radio protocols (modes)	AIS, 1200 baud AFSK AX.25, 9600 baud G3RUH AX.25, CW/morse code, NGHAm, analog FM voice sample playback
Interfaces	Main connector: 1 x RS-232 TX/RX, DC in Expansion connector: 2 x UART TX/RX (one additional for future use), 4 x GPIO, DC in, 3.3 V out Antenna port USB (reserved for future use) Pinout for both the PCB and D-sub on pro-version found below

2 Mechanical drawing

Owl VHF 0.3 mechanical layout. All dimensions in mm.
 Upper illustration: As seen from the antenna connector side.
 Lower illustration: As seen from top.

PCB thickness is 1.6 mm. Total thickness with cabled connector in H_EXP is 15-16 mm.

LEDs (three pcs on the left) are 1 mm high and the light is directed towards left when seen from top.
 Center of SMA-connector and LED light beam is 0.4 mm above the

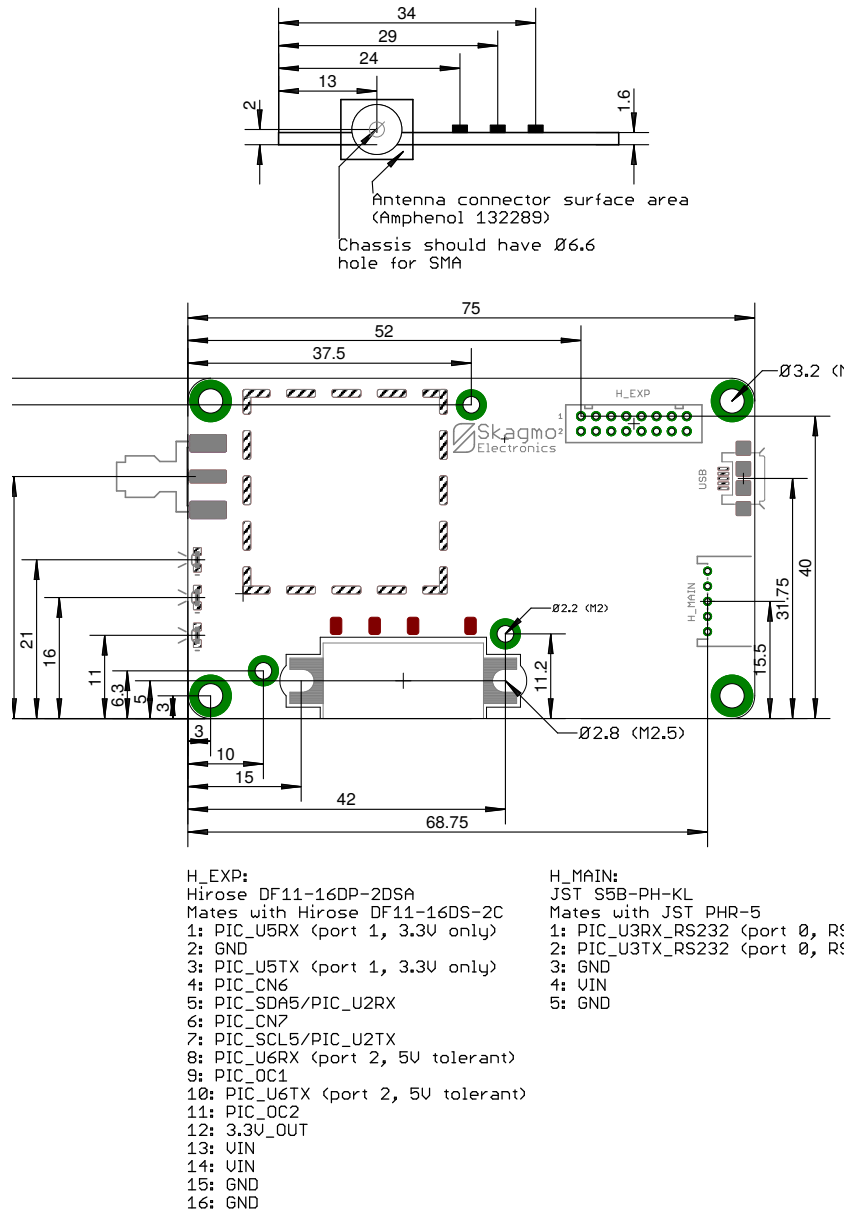


Figure 1: Mechanical drawing of Owl PCB version 0.3