Summery

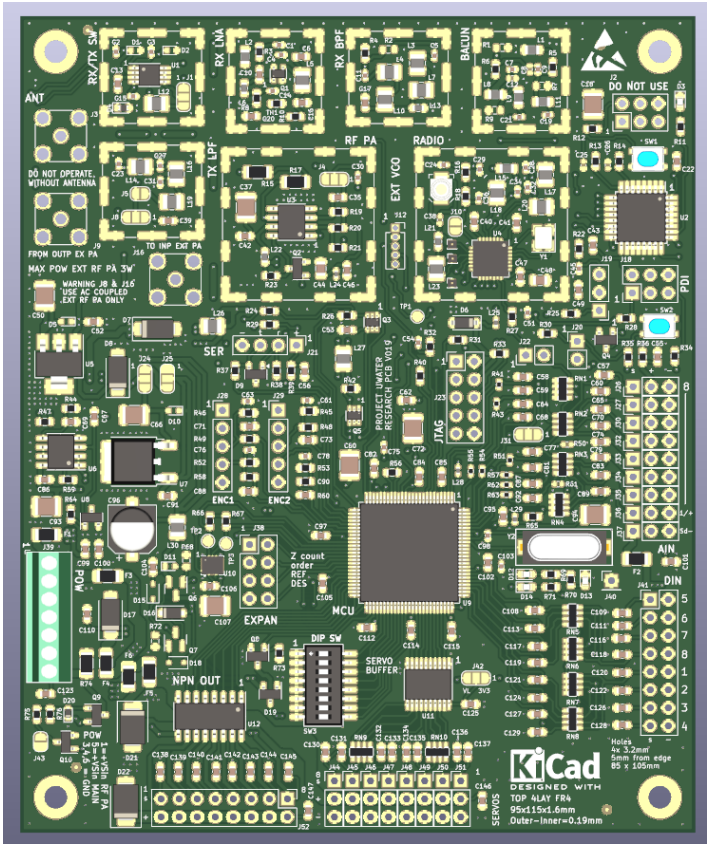
- Wireless half-duplex underwater RF data link.
- For use in fresh water (500…1000µS/cm).
- For hobbyists and professionals.
- Multiple antenna solutions.
- Many on board electronic interface options.
- On board sensitive 6-axis accelerometer sensor.
- Free programmable or pre-configured RF front-end.

Applications

- Extended/next level RF transceiver evaluation kit.
- Educational/research tool for technical colleges/universities.
- Measurement and control

Technical

- 27MHz ISM-band, 6 channels
- Flexible protocol payload and data-rate.
- Simplex or half-duplex
- Antenna connection: 50 Ohm SMA connector.
- On board max. 100mW RF power
- Optional external 3Watt RF amplifier.
- Multiple power supply options (6...24V, battery/regulated).
- Onboard RF PA requires 24VDC (battery/regulated).
- XMEGA128A1U micro controller & AX5043 RF transceiver IC.
- Optional RF shielding.
- LNA (compensation filter losses).



Research PCB 95x115mm

Interfacing

8x Analogue input (12bit) 8x Digital input (3.3-5.0V) 8x Digital output (push-pull) 8x Digital output (NPN) 8x DIP switch 2x LED (red & blue) 2x Quadrature encoder input	1x ACCEL meter (6-axis) 1x Analog output 1x Expansion port 1x PDI programmer port 1x JTAG progr./debug port 1x Serial port (USART 3.3V)

In compliance with radio regulations?

Free programmable RF front-end	Pre-configured RF front-end [bps]		
Depends on application	≤2400	2400-3600	>3600
?	☑	☑	☒

Range

Free programmable RF front-end	Pre-configured RF front-end [2400bps]	
Depends on application	Submersed in fresh water	Crossing air/water boundary
?	Max ≈ 6 meters	☑

Programming RF front-end (transceiver IC)

Free programmable	Pre-configured
• Requires in depth knowledge RF transceiver • For professionals	• No in depth knowledge RF transceiver required • For hobbyist and professional

Application example: Imagine a model submarine equipped with an underwater depth stabilization computer. To update the software, the model must be taken out of the water and opened. This time-consuming and cumbersome process can be avoided by transferring most of the intelligence to the shore. This leaves the model mainly with sensors and actuators. Because the software now runs on a computer ashore, parameters, control algorithms and programs can easily be changed. The effect of these measures on the course and stability of the vessel can be observed immediately. This without taking the model out of the water.

