RFm Technical Description

The RFm measures torque and angle from a transducer. The torque module can connect to a transducer via a cable or by an RF connection.

The RFm connects to a transducer via a 19 way military connector. The torque signals are then amplified by op amps (U9 and U10) and then digitized by an ADC in the STM processor (U1).

The angle signals are counted in U12, and the angle result is passed to the processor (U1).

The results are passed via uart to U15, which is an nRF24LE1 from Nordic Semiconductor. This is an “On chip”, “Off the shelf” ultra low power wireless system.

This then transmits the results to a data collector which also has the nRF24LE1 on board.

The radio transmitter has an operating frequency of between 2.400GHz and 2.4835GHz.

There are 79 selectable channels within this frequency range that can be used.

It uses GFSK frequency modulation.

The output power is programmed to 0dBm.

The air data rate is programmed to 250Kbps.

The antenna is a Wurth 7488910425 smd chip antenna with a peak gain of 3.0 dBi and an average gain of 1.0dBi.

The antenna is integral to the main pcbs’ construction and cannot be separated.