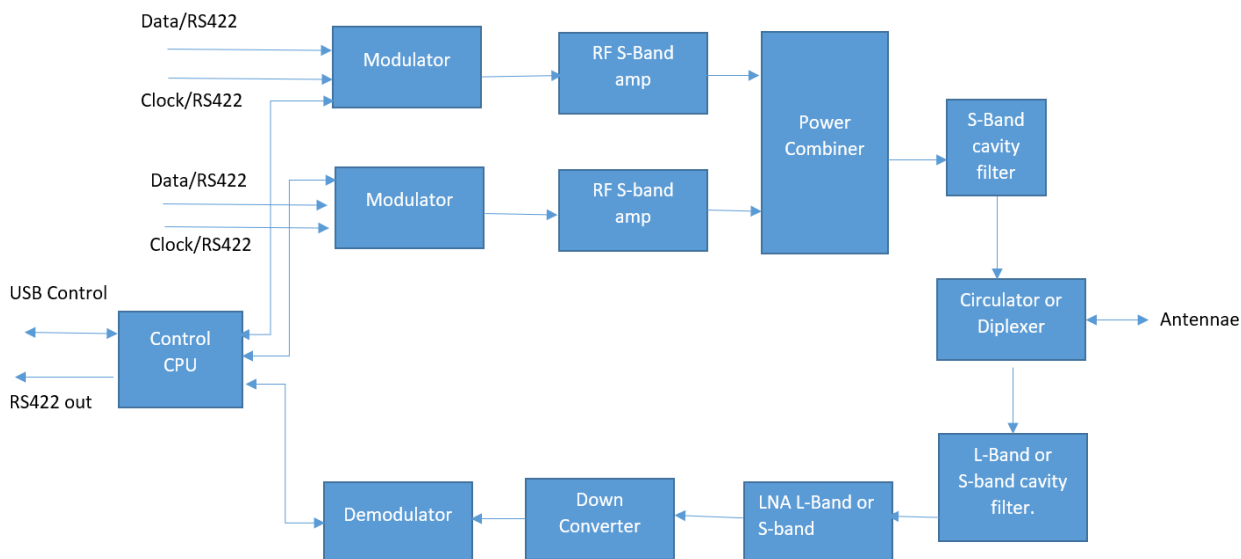


The Apollotek APK724 transceiver system is a ruggedised unit which provides the capability to acquire and transmit two independent data channels with each channel supplying a data and clock signal at RS422 levels to the transceiver. The RF transmissions are in the S-Band Telemetry frequency range allocation between 2200 MHz to 2400 MHz. The information from each of the data channels is transmitted on a separate and different RF frequency and is transmitted as an SOQPSK signal.

The unit provides on-board user control capability through a USB Port. The receiver can only be programmed through the USB port. The transmitters can be programmed via the USB port or a received defined data packet.

The Transceiver unit includes an RF reception capability to receive and demodulate a customer generated and transmitted asynchronous bit stream and will provide that bit stream as an RS422 output from the transceiver unit. The transmissions are packetized to enable control information for the transceiver transmitters to be separated from the received RS422 output data.

The top-level block diagram of the transceiver system is presented below:



Transceiver Transmit Section Specification for each channel:

RS-422 Data and clock inputs	Up to 10 MBPS serial NRZ-L with zero-degree clock phase
Input Connector	shared 25-Way Micro-miniature D-Type socket
Modulation	SOQPSK in accordance with IRIG 106
RF Tuning Range per channel	200MHz in S-Band (2200 MHz to 2400 MHz)
Recommended RF channel spacing	50 MHz
Composite RF Power Output	Up to 50 mW RF power
RF Output Impedance	50 Ω
RF Output connector	SMA socket

Transceiver Receive Section Specification:

Standard RF Input connector	SMA socket shared with the transmitters.
Receiver Tuning Range	200MHz in S-Band (2200 MHz to 2400 MHz)
Recommended frequency spacing	At least 50 MHz from a Transmit Channel centre frequency
Receiver Sensitivity	Nominal -65 dBm
Receiver Demodulation	PCM/FM modulated with asynchronous serial datastream
Serial PCM Data Rate	Up to 156K baud
Data Output	RS-422 levels
RS422 Output Connector	Shared 25-way micro-miniature socket connector

Transceiver Unit Power Supply

Operating Voltage range	5 V and 3.3 VDC
Current consumption at 5 V DC	Approximately 1A
Current consumption at 3.3 V DC	Approximately 0.5A

Top Level User Control Interface

Electrical Interface	USB 2
User Control Connector	shared 25-way micro-miniature socket (3 pins used)
User Control Host requirement	Windows 10 64-bit Operating System device (User supplied)

User Programmable Functions

A Windows Utility program is supplied with the Transceiver system to enable the user to program the following parameters:

- RS422 Input Source Data Rates for Channel 1 and Channel 2
- RF Transmit Centre Frequency for Channel 1 and Channel 2
- RF Power Output attenuator control
- RF Receive Frequency for data sent to the Transceiver
- RF Receiver Section PCM serial data rate

Mechanical Specifications

The Transceiver is designed to be installed in the centre section of a Carrier Device installed in a rotating machine similar to the following example. The Apollotek Transceiver Assembly is shown in blue:

**Transceiver Housing Material:**

The transceiver housing material will be Aluminium 6082 T6 with an Alocrom 1200 coating

Transmitter Weight Estimate

The maximum weight of the Transceiver System (excluding the weight of an associated antenna) will be approximately 300 grams.