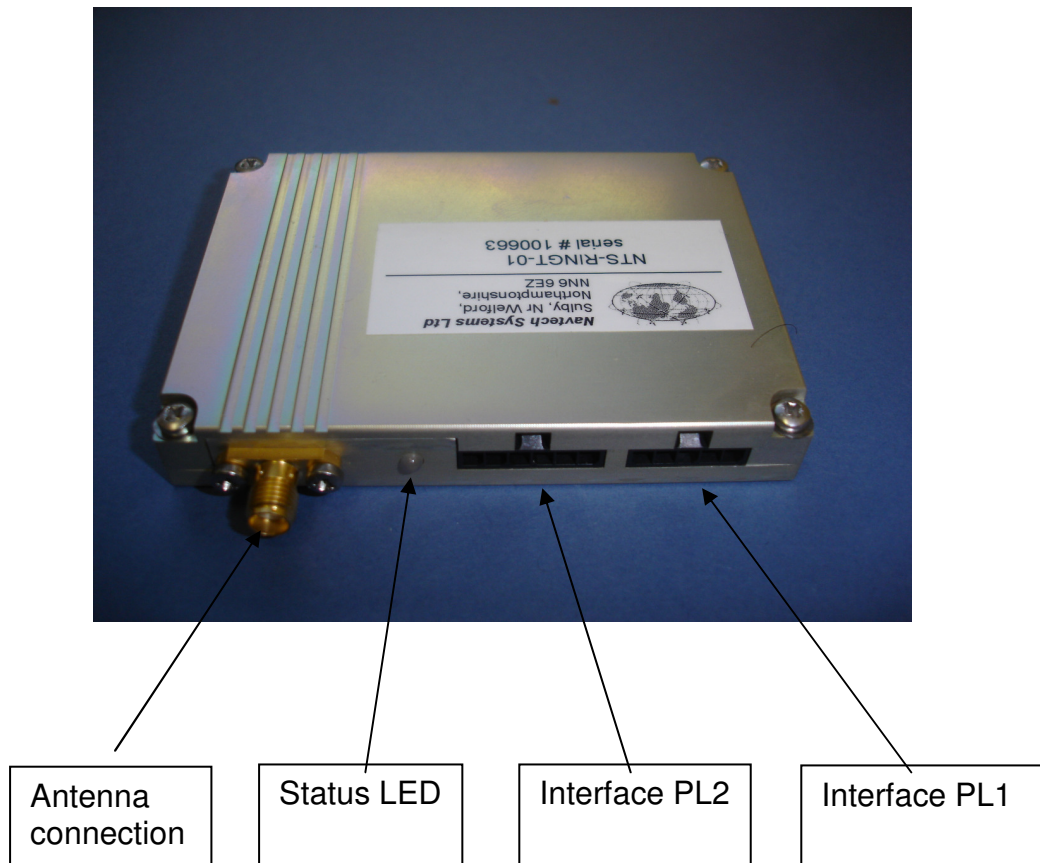


Navtech Systems RF Links

GTR5i - based 118MHz Wireless Packet Modem -

Introduction

This wireless modem was developed to enable half-duplex serial data communication between a ground station and a moving air vehicle using frequencies centred around 118MHz. Performance has been optimised for data rates of 9600 baud with the capability of either packet mode operation or transparent (continuous) mode operation. The design is based on an existing radio module developed for MK Consultants (the GTR5i) with both hardware and software modifications to suit the requirements of this application.



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General Technical Description

The transmitter outputs approximately 29dBm (880mW). Typically, channels with 25kHz centre spacing are used, with channel bandwidth being a function of operating data rate – at 9600 baud, bandwidth is 18.75kHz.

Although described as a 12V DC system, the units have an integral DC/DC converter rated from 9-32 V DC. Power consumption is approximately 250mA @ 12V DC when transmitting and 30mA when receiving.

The radios are housed in custom-designed, milled aluminium enclosures to provide a robust construction and suitable RF shielding. Antenna connection is via a single female SMA.

The modem is equipped with two data interfaces:

The principal interface (PL1) is a 5-pin connector carrying both main DC power and RS-232 data for transmission.

The second interface (PL2) is a 6-pin connector designated for programming and configuration functions. It should be noted that this interface uses serial communication at TTL levels and is designed to be used with the supplied USB programming cable. This cable is based on an FTDI USB to TTL serial converter cable - FEC part # 1328311 – with suitable mating connector fitted. When configuring /programming the units, power is available via this interface – the main 12V radio supply is not required.

Interface connectors mounted to the module are from AMP:

AMP 2-1445055-5
AMP 2-1445055-6

A single LED proves the following status information:

| Off | Amber | Red | Green |
|--------------|-------------------|--------------|----------------|
| No 12V power | Receive – no data | Transmitting | Data receiving |



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