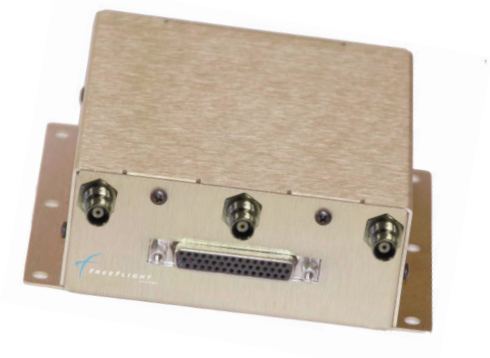
# RANGR-E 978MHZ ADS-B DATALINK FAMILY

*Cost-effective, modular ADS-B solutions for experimental in the United States*

**RANGR-E Transmitter**



**RANGR-E Transmitter w/GPS and RANGR-E Transceiver**

FreeFlight System's RANGR-E 978MHz ADS-B Datalink family offers a low cost, light-weight solution for adding datalink traffic and weather in experimental aircraft.

Automatic Dependent Surveillance-Broadcast (ADS-B) technology is the new advanced airspace management system currently being implemented worldwide. In addition to ATC situational awareness, ADS-B offers expanded ATC coverage and search and rescue capabilities, and the 978 MHz system (available in the United States only) offers traffic information and free datalink weather. The FreeFlight Systems RANGR-E family provides a low-cost, light-weight ADS-B solution for experimental aircraft.

### ADS-B Compliance

For experimental category aircraft the certification process for ADS-B systems will most likely follow the model of "for credit" equipment such as transponders. The easiest way to get sign off will be to use TSO equipment. However, equipment that meets the minimum standards but does not carry a TSO may suffice because FreeFlight Systems offers TSO units and can demonstrate that the non TSO product is identical. In addition to installation approval this also ensures the integrity of the information and will allow for the most accurate and useful TIS-B and FIS-B information. To gain full credit for ADS-B, the customer only needs to add an approved control head to the 978MHz transmitter.

### Upgradability

If for any reason, the FAA requires the system to have a full TSO certificate to be ADS-B compliant, FreeFlight Systems will upgrade the RANGR-E to a TSO'd RANGR for only a little more than the difference in the prices of the systems. This allows customers to rest at ease, confident that their ADS-B purchase today will still be a good investment tomorrow.
Designed for aircraft flying below 18,000 feet, the 978MHz system offers additional benefits over ATC extended coverage including TIS-B and free datalink weather (FIS-B).

### TIS-B

When coupled with an ADS-B receiver, the FAA will send a customized traffic picture relative to aircraft position. Because it is relative to aircraft position it is crucial to have a GPS installed with the proper integrity. As more aircraft are equipped with ADS-B, direct communication with other aircraft will also be available which is why FreeFlight Systems offers a dual antenna solution.

### FIS-B

The same datalink weather available today through monthly service providers will be available through ADS-B at no charge. The weather can be displayed on any compatible MFD, EFB or IPAD display. This is only available on 978Mhz receivers and will eventually require a valid ADS-B transmission to receive the data.

### HIGHLIGHTS

- **Several models offer flexibility in capability and price**
- **Designed to TSO-C154c for the RANGR transmitters and TSO-C145 for the internal GPS**
- **Lightweight and easy to install**
- **Enables real time traffic and free weather on compatible MFDs, EFBs and IPADs**
- **Increased ATC coverage**
- **Allows for search and rescue operations**
- **In flight aircraft can receive vital information from remote ADS-B beacons on the ground**
- **Supports dual antenna installation**

# FDL-978 ADS-B DATALINK

## FEATURES

The RANGR family is UAT equipment class B1 (Dual Antennas) and B1S (Single Antenna), 978MHz transmitter and transceiver designed to meet TSO-C154c requirements. The RANGR family is intended to provide a low cost UAT ADS-B solution to meet the FAA mandate for ADS-B installation.

The RANGR family collects position, velocity, and other aircraft information from aircraft GPS, altitude sensor, and pilot control inputs and transmits this data once per second through non-diversity or diversity antennas. The GPS, altitude sensor, and pilot control inputs are received by the transmitter and transceiver through configurable RS-232/422/485 serial interfaces, ARINC-429 serial interfaces, and/or discrete interfaces. Status information about the RANGR family's health and state are output on the configured serial links and/or discrete signals for display to the pilot. Two year warranty included.

## INTERFACE

| | |
|---|---|
| **UARTs** | 4 |
| **ARINC 429 outputs** | 2 |
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| **USB 2.0** | 1 |
| **I2C** | 1 |
| **Discrete inputs** | 6 |
| **Discrete outputs** | 3 |
| **Discrete in/out** | 1 |
| **Antenna** | Diversity capable |
| **Control:** | Compatible with TC978 controller with altitude sensor or third party controller using discrete & RS-232 or ARINC 429 signals |

## PHYSICAL CHARACTERISTICS

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|---|---|
| **Dimensions:** | 1.37 x 5 x 5.75 (HxWxD inches) |
| **Weight:** | 1.4 lb Transmitter |
| | 2 lb Transceiver |
| **Input Voltage:** | 10 - 40 VDC |
| **Input Current (Steady State):** | 0.7 A at 12 VDC |
| **Output Voltage (To Control Head):** | 6.5 VDC |
| **Output Current (To Control Head):** | 0.35 A |

## REGULATORY COMPLIANCE

| | |
|---|---|
| **Environmental:** | Designed and tested to meet DO-160F |
| **Certifications:** | Designed and tested to meet DO-282B |
| | Designed and tested to meet TSO-C154c |

**Availability**

RANGR-E Transmitter scheduled for Q4, 2010

RANGR-E Transmitter with GPS scheduled for Q4, 2010

RANGR-E Transceiver scheduled for Q2, 2011

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