



ADS-B FIS-B AND TIS-B RECEIVER  
**FREEFLIGHT  
 SYSTEMS  
 RANGR RX**

- Lightweight, remote mounted ADS-B FIS-B and TIS-B receiver
- WiFi, Bluetooth and RS-232 Display Options
- Standard Five-Year Warranty

The FreeFlight Systems RANGR RX is a diversity capable, certified, and installed ADS-B In solution that works on the 978MHz network. It displays free ADS-B weather and traffic data to an installed MFD or to a compatible tablet device via our WiFi or Bluetooth modules. Installing the RANGR RX allows for flight crews to drastically improve their situational awareness and modernize the cockpit of the aircraft with minimally invasive modifications to the aircraft.

The RANGR RX provides full ADS-B capability when paired with a Becker BXT65XX certified ADS-B Out transponder system.

FreeFlight Systems designs solutions that enable and support the global NextGen airspace transformation. Our ADS-B systems have accumulated thousands of hours of operation across a broad spectrum of aircraft platforms.

Approved for use with most common Android and Apple flight applications.

**OPTIONS**

- GPS Splitter
- Bluetooth Module
- WiFi Module
- Blade Antenna

**SPECIFICATIONS**

<b>Part Number</b>	87098-10-FR10
<b>Description</b>	RANGR FDL 978 RX ADS-B Receiver
<b>Position Update Rate</b>	Yes
<b>Altitude</b>	50,000ft

**CERTIFICATIONS**

<b>System</b>	C154C
<b>Environmental</b>	ED-14G/DO-160G
<b>Software Assurance</b>	RTCA/DO-178B Level C
<b>Installation Approvals</b>	ED-73E/DO-181C, ED-102A/DO-260B ED-12C/DO-178E, ED-80/DO-254, DO-160G

**PHYSICAL CHARACTERISTICS**

<b>Sensor Dimensions</b>	1.7" W / 5.0" D / 5.5" H
<b>Sensor Weight</b>	0.86 lbs (364 g)
<b>Interface</b>	ARINC 429, RS232 , WiFi
<b>Operating Temp</b>	-40°C to +70°C
<b>Operating Humidity</b>	95% at 50 C
<b>Cooling</b>	Ambient Air
<b>Input Voltage (Steady State)</b>	10-40 VDC
<b>Input Current (Steady State)</b>	18 VDC min 27 W max



COMPLETE ADS-B SOLUTIONS  
 BUSINESS & COMMERCIAL AVIATION

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**BECKER**  
 WE KEEP YOU SAFE



#### ADS-B POSITION SOURCE

## FREEFLIGHT SYSTEMS MODEL 1203C SBAS/GNSS

- ADS-B Position Source Compliant to AC 20-165B and ICAO standards
- Meets position source requirements for Required Navigation Performance (RNP) and other L-NAV operations
- Designed for business, regional, airline transport, military and heavy rotary wing aircraft
- Multiple STCs for ADS-B and TAWS position source and CPDLC timing source
- ARINC 743A/B I/O and ARINC 429
- Certified to TSO-C145c

The Model 1203C is a high-performance, 15-channel GPS engine that offers advanced interference protection and quick update rates. The unit can be located in either the aircraft equipment bay or under the aircraft skin (ARINC 743 alternate mounting scheme) - in close proximity to the antenna to minimize coaxial cable runs.

To achieve ADS-B compliance in retrofit applications, the Model 1203C can be connected to the rule compliant Becker Avionics International BXT65XX transponder to provide a complete ADS-B solution - no integrations with the aircraft navigation or FMS is required.

FreeFlight Systems' SBAS/GNSS line of receivers are currently in service in multiple aircraft types ranging from airline transport, to military, through rotorcraft and general aviation platforms. These receivers are characterized by their high performance, ease of installation, operational reliability and longevity. The 1203C allows customers to take advantage of the operational and safety benefits provided by the NextGen airspace transformation without the need for extensive and costly avionics upgrades.

#### SPECIFICATIONS

<b>Part Number</b>	84537-50-XXXX
<b>Description</b>	15 Channel GPS Receiver
<b>Position Update Rate</b>	5 times per second at one/second
<b>Velocity</b>	1,000 Knots, steady state
<b>Performance</b>	Complies with DO-229D

#### CERTIFICATIONS

<b>System</b>	TSO-C145c
<b>Environmental</b>	DO-160F
<b>Software Assurance</b>	DO-178B Level C
<b>Installation Approvals</b>	Approved as ADS-B Position Source as defined in AC 20-165B

#### PHYSICAL CHARACTERISTICS

<b>Sensor Dimensions</b>	4.7" W / 8.7" D / 1.6" H
<b>Sensor Weight</b>	1.9 lbs (0.9 kg)
<b>Interface</b>	ARINC 429, ARINC 743
<b>Operating Temp</b>	-40°C to +70°C
<b>Operating Humidity</b>	95% at 50°C
<b>Cooling</b>	Ambient Air
<b>Input Voltage (Steady State)</b>	10-32 VDC
<b>Input Current (Steady State)</b>	0.3A at 14 VDC 0.2A at 28 VDC



#### ADS-B TRANSPONDER

## BECKER AVIONICS INTERNATIONAL BXT65XX

- Mode S - interrogations are selective and Mode S transponders will respond to a single directed interrogation from ground stations or another aircraft with ICAO 24-bit address
- Quick and easy configuration of interfaces
- Diversity - operation with two antennas (top and bottom) for aircraft and jurisdictions that require such operations
- Configurable data is stored on an external memory module making replacement simple. Easy installation and removal thanks to the back-shell mounting tray
- Reduced AOG times thanks to an integrated USB service interface
- Reduced cost for maintenance work by diagnostics without removal of the device from the aircraft
- Smooth design; no ventilation slots, no forced convection needed
- Lightweight

The Becker BXT65XX Mode S transponder is designed to be installed as a remote mounted transponder, to meet the certification requirements ADS-B for aircraft flying in rule complaint airspace. With it's compact size and multiple integration options, this system is designed for both fixed and rotary wing applications. Manufactured with a standard ARINC 429/743 output, this transponder integrates easily with the FreeFlight Systems Model 1203C SBAS/GNSS sensor to provide a complete ADS-B Solution. This transponder can be installed as dual installation for primary transponder interrogations or as single install for a dedicated ADS-B transmission. The BXT65XX can be controlled by a glass cockpit, control unit, dedicated integrated radio tuning units or a Flight Management System. This transponder is available in both a TCAS I and TCAS II integration option.

#### SPECIFICATIONS

<b>Part Number</b>	Article No. 0645.141-915
<b>Description</b>	BXT65XX XPDR/ADS-B Out (B1)
<b>Transmitter Frequency</b>	1090 MHz
<b>Altitude</b>	Non-Pressurized, Non Controlled Temp - 25,000 ft Non-Pressurized, Controlled Temp- 55,000 ft
<b>Interrogations</b>	Mode A, C A/S All Call, C/S All Call, Mode S (DF=0,4, 5, 11, 16, 20, 21)
<b>Receiver Sensitivity</b>	-74 (plus/minus) 3 dBm at antenna terminal

#### CERTIFICATIONS

<b>System</b>	ETSO C112d ETSO C166b
<b>Environmental</b>	ED-14G/DO-160G
<b>Software Assurance</b>	ED-12C/DO-178E
<b>Installation Approvals</b>	ED-73E/DO-181C, ED-102A/DO-260B, ED-12C/DO-178E, ED-80/DO-254, DO-160G

#### PHYSICAL CHARACTERISTICS

<b>Sensor Dimensions</b>	6.73" W / 1.87" D / 10.87" H
<b>Sensor Weight</b>	3.52lbs (1.6 kg)
<b>Interface</b>	ARINC 429, ARINC 743
<b>Operating Temp</b>	-40°C to +70°C
<b>Operating Humidity</b>	95% at 50°C
<b>Cooling</b>	Ambient Air
<b>Input Voltage (Steady State)</b>	28 VDC
<b>Input Current (Steady State)</b>	18 VDC min 27 W max