

## MX1090 For Flight



As the airspace becomes ever more saturated with fast, high performance aircraft, we are proud to introduce a solution which enables pilots to take advantage of new technology dedicated to enhanced early detection, while maintaining the safety and high detection rate of proven PCAS technology.

ADS-B (Automatic Dependent Surveillance – Broadcast) is an automatic broadcast of position, altitude, and flight path information based on the GPS system. The concept enables an aircraft equipped with ADS-B “out” to broadcast their location, altitude, speed, and other important data that can then be used to help increase traffic awareness. Another feature of ADS-B includes the ability for ground facilities to uplink their RADAR data of all surrounding aircraft. This includes all aircraft detected within a 200NM range to the ground RADAR facility used. While all types of aircraft use ADS-B, today aircraft are manufactured with ADS-B “out” transponders (such as the GTX330), which means an ever increasing population of aircraft which can be detected. Many of these also tend to be high performance aircraft, which makes early detection paramount to a safe flight.

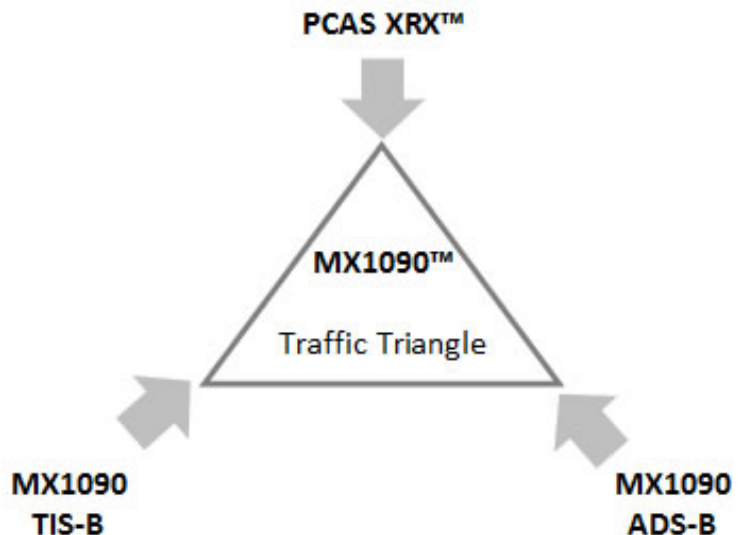
While ADS-B is a new technology, there is an increasing number of aircraft which are broadcasting ADS-B data intended to be utilized for traffic awareness. The MX1090™ monitors the 1090ES ADS-B link, as well as TIS-B messages as it provides highly accurate traffic information peer-to-peer, which means the MX1090 works in any country, and throughout the world. Military aircraft can also be shown, with an early warning to reflect both their speed and flight path if a converging course is determined.

Although TIS-B and ADS-B provide more detailed traffic information, transponders will continue to be used indefinitely, which enables PCAS XRXTM to be a very powerful detection tool for non ADS-B aircraft. To ensure traffic is detected, all three technologies are combined, completing the “traffic triangle.” When flying in areas where TIS-B is not available, the MX1090 can still provide ADS-B and correlation traffic from your XRXTM.

When you fly in an area of TIS-B coverage, the local ground RADAR facility will broadcast real-time traffic data, which means that any aircraft flying within range of this facility can be received by the MX1090. However; Any aircraft too low to be sensed will still be detected by your XRXTM. Because the XRXTM detects the transponder directly, the closer you are the better the XRXTM can detect them. This is opposite of TIS-B, but it is why we refer to the “traffic triangle” as a complete hybrid system.

While the MX1090 can function as a stand-alone ADS-B traffic detection system, it is highly recommended that it be used in conjunction with the XRXTM to ensure the detection of non ADS-B

aircraft. No portable ADS-B system can detect all aircraft, which is why we have designed the MX1090 to manage multiple sources of traffic. The MX1090 offers an easy solution to adding ADS-B traffic to your Garmin GPSmap, or favorite portable GPS system.

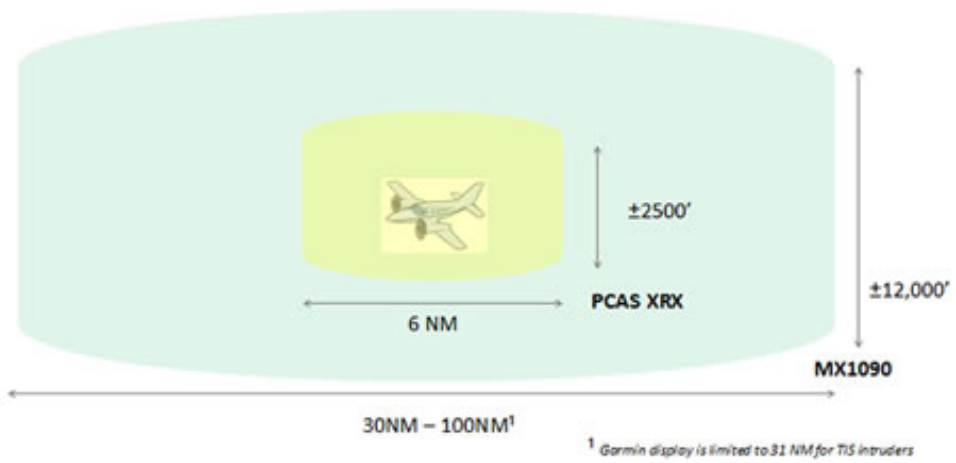


# TCAS accuracy for PCAS prices

Of all the benefits to adding ADS-B traffic, the increase in range is most evident. A head-on scenario can often reach closure speeds in excess of 600 KTS. When detected from a range of 30 NM or more, this provides at least 3 minutes advanced notice. When detected from a range of 50

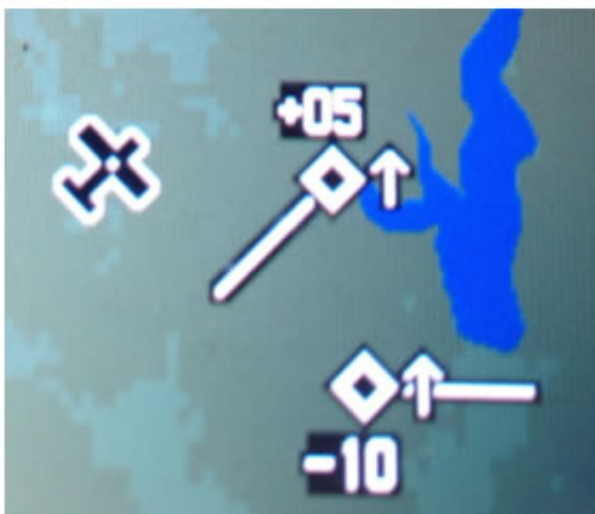
NM, the closure time increases to 5 minutes. The altitude window for detection is extended to ±12,000 to ensure rapid descending/ascending aircraft are detected with advanced warning. For example; an aircraft climbing at 6000 FPM will only take 2 minutes to reach your altitude with a 12,000 foot separation.

The MX1090 and the XRX have complete opposite advantages and limitations. When combined, this effect increases the total traffic capabilities beyond even the most sophisticated TCAS systems when distant range, azimuth, and speed data are compared to price.



XRX Advantages & Limitations	X <sup>2</sup> Hybrid Maximum Detection	MX1090 Advantages & Limitations
Maximum Range for passive is 7NM	<b>Total Range 0 to 100 NM</b>	Range from 30NM up to 100NM
Azimuth ±22.5° Range accuracy ±20%	<b>Accuracy ±0.1° / 0.1 NM</b>	Azimuth and Range accuracy ±0.1° / 0.1 NM
Limited to one display output	<b>Display Traffic Multiple Displays</b>	Multiple display capability
Detects any transponder equipped aircraft	<b>Detect Both ADS-B and non ADS-B</b>	Detects only ADS-B equipped aircraft
Maximum Altitude FL220	<b>Effective Altitude -1000 - FL510</b>	Maximum Altitude FL510
Collision path warning to 2NM	<b>Head On Collision Warning 30NM</b>	High Speed Collision path warning to 30 NM

## MX1090 Displayed on Garmin 396



Intruder 1  
+500 feet, heading 225°, Climbing

### Technical Specifications

MAXIMUM ALTITUDE:	FL500 (pressurized mode)
MAXIMUM ALTITUDE:	FL320 (non-pressurized mode)
MAXIMUM SPEED:	1000 KTS (GS)

Intruder 2  
-1000 feet, heading 90°, Climbing

TEMPERATURE:	-25C (-13F) to +75C (+167 F)
Formats:	DF-17, DF-18, DF-19, TIS-B (DF-19, Mode-S, Mode A/C) <sup>1</sup>
Garmin Displays:	396 and up
COM 1 Port:	Integration RS232 Data I/O
COM 2 Port:	RS232 Garmin Output Format (Tx) / XRX Traffic Input (Rx)
Maximum RF input:	+10 dBm
Total Dynamic Range:	100 dB
DC power input:	+4.7V to +34V (COM PORT 1 or 2)
DC current:	100 mA
DME EMI suppression:	70 dB
HOST Transponder detection:	-32 to +10 dBm
GPS Sensitivity (tracking):	-164 dBm <sup>2</sup>
Pressure Altimeter:	-1000' to FL330
Altitude Window:	± 12,000 feet (Garmin display)
Target Capacity:	50 (+3 XRX targets, 8 targets total on Garmin systems)
Display Range:	31 NM (Garmin display)
Track Range:	Up to 100 NM
Range resolution:	0.1NM
Azimuth resolution:	0.1°
ADS-B position resolution:	½ LSB (.00005 degrees latitude or longitude)
Data position output formats:	Latitude / Longitude / Range (NM) / Bearing (degrees relative true north) Latitude DD.dddd / Longitude DDD.dddd
Wireless Options:	Bluetooth or Wi-Fi <sup>3</sup>
<sup>1</sup> Other formats are available and can be customized. (DF-19 restrictions apply)	
<sup>2</sup> Internal GPS antenna must have a clear view of the sky	
<sup>3</sup> With optional internal Wi-Fi or Bluetooth (Can be upgraded post-purchase)	