uAvionix

ping2020i

PING-2020i ADS-B Transceiver

Overview

ping2020i is the world's smallest, lightest and most affordable full range, dual link Automatic Dependent Surveillance - Broadcast (ADS-B) UAT transceiver with integrated Satellite Based Augmentation System (SBAS) Global Positioning System (GPS) and precision barometric sensor. At just 26 grams, it assists with Detect and Avoid (DAA) functionality for Unmanned Aircraft Systems (UAS) operations in the National Airspace System (NAS). ADS-B IN on 1090MHz and 978MHz. ADS-B OUT on 978MHz.

Features

Transceiver

- Detects ADS-B equipped aircraft on 1090MHz and 978MHz within a 100-statute mile radius in real time
- Transmits ADS-B on 978MHz
- Combined UAT / 1090ES traffic reports
- SMA 978/1090MHz Antenna Connector. Antenna included.

GPS

- Integrated high integrity SBAS GPS sensor
- Integrated GPS antenna
- Integrated precision, temperature controlled static pressure sensor accurate to 80,000ft
- Battery backed GPS for fast Time-to-First-Fix (TTFF)
- GPS/SBAS augmentation system with RAIM layer for Fault Detection and Exclusion

Performance

- Mavlink control serial input compatible with popular autopilots
- GDL 90 ownship and altitude packets
- Meets RTCA DO-282B Class B1S
- Meets RTCA DO-260B Class A0
- Meets RTCA DO-160G sections 4 and 5

Regulatory

- FCC ID: 2AFFTUAT016

Technical Specifications

Specification	Value
Input Power	11-28V
	500mW Ave.
	30W Peak (400us)
Size	25x40x16mm
Weight	26grams
SIL/SDA	1/1
Operating Temp	-45 to 70°C
Transceiver	
Transmit	
978MHz	20W Nominal (43dBm)
1090MHz	S/W Disabled
Receive	
MTL 1090MHz	-88dBm
Dynamic Range	-79 to 0dBm
MTL 978MHz	-93dBm
Dynamic Range	-90 to -3dBm
WAAS GPS	
Augmentation	SBAS
Sensitivity	-166dBm
Altimeter	
Range	-1000ft - 80,000ft
Interfaces	
Data Interface	
Control	57600bps Mavlink
Ownship	57600bps Mavlink
Programming Interface	
Programming	115200bps GDL 90
Options	
978MHz Transceiver Antenna Included	

Quality Standards and Procedures

Designed and assembled in the U.S., HALT and HASS tested, IPC-610 class II soldering, production functional testing. Software to DO-178C Level C, Hardware to DO-254 Level C.

Electrical Specification

Programming Interface

Pin	Type		
1	Input	UTC	
2	Input	RXD	MavLink
3	Output	TXD	GDL90
4	Power	5V	
5	Ground	Ground	

Mating Connector: JST ZHR-5
Pins: SZH-002T-P0.5

Indicators

LED	ON	FLASHING
GREEN		UAT /1090ES Traffic
RED	FAULT	Transmit

Power Interface

Pin	Type	
1	Power	11-28V
2	Ground	

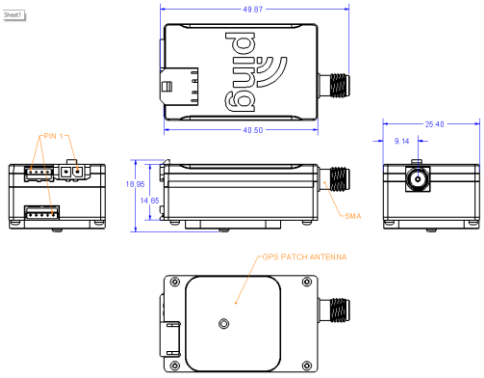
Mating Connector: Molex 0436450200
Pins: 0462350001

Data Interface

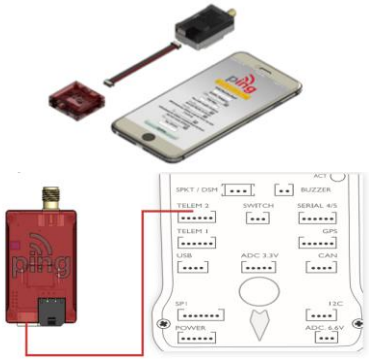
Pin	Type		
1	Input	RXD/SDA	MavLink
2	Output	TXD/SCL	MavLink
3	Power	5V	Output
4	Ground		

Mating Connector: JST ZHR-4
Pins: SZH-002T-P0.5

Mechanical Specification



Programming and Configuration



Any antenna certified to TSO-C66, TSO-C74, TSO-C112 with a peak gain of 4 dBi or less, an omni-directional radiation pattern, and a VSWR of 1.8 or less at 1090MHz is approved for use with this device and will ensure conformance to all applicable standards for RF emissions.

Modifications and use outside of Intended Scope

This device has been designed and tested to conform to all applicable standards in the original form and when configured with the components shipped with the device. It's not permissible to modify the device, use the device for any use outside of the intended scope, or use the device with any antenna other than the one shipped with the device.

Important Pilot Advisory Note Regarding Safety of Radio Frequency Energy

Safe use of this device requires care as to the placement of the antenna. Place the antenna at least 4cm away from any part of your body or that of other cabin occupants. To stop all RF emissions, remove power from the equipment. Only handle the antenna when power is disconnected. Advise your passenger(s) to avoid contact with the antenna while power is applied to the equipment. Retain these instructions with your maintenance logs/files and for future reference.

FCC RF Radiation Exposure Statement

This equipment complies with FCC RF radiation exposure limits (Table 1 of 47Pt1 (i) 1.1310) set forth for a Public/Uncontrolled Environment.

Warning: This transceiver is to be used to improve pilot situational awareness only and as a navigational aid. It is not intended for use in IFR flight conditions. uAvionix is not responsible for the transceiver's end use and will not be held liable for any events occurring from its use.