

MGL Avionics

V16 airband COM transceiver

OEM PCB information

General

The V16 airband transceiver is available as OEM module for integration into third party systems.

The module is identical to that used in V16 end products from MGL Avionics.

Limitations

The V16 transceiver in its OEM form is not certified to FCC part 87 and part 15, however it also will not perform any differently to the certified version provided the guidance in this document is adhered to.

Depending on use and location it may be required to re-certify the end product. Test results from an approved FCC testing facility (TCB) are available to the third party integrator based on the certified end product.

Note: The FCC ID assigned to the V16 is 2ANEFV16. This ID may NOT be used by the third party integrator.

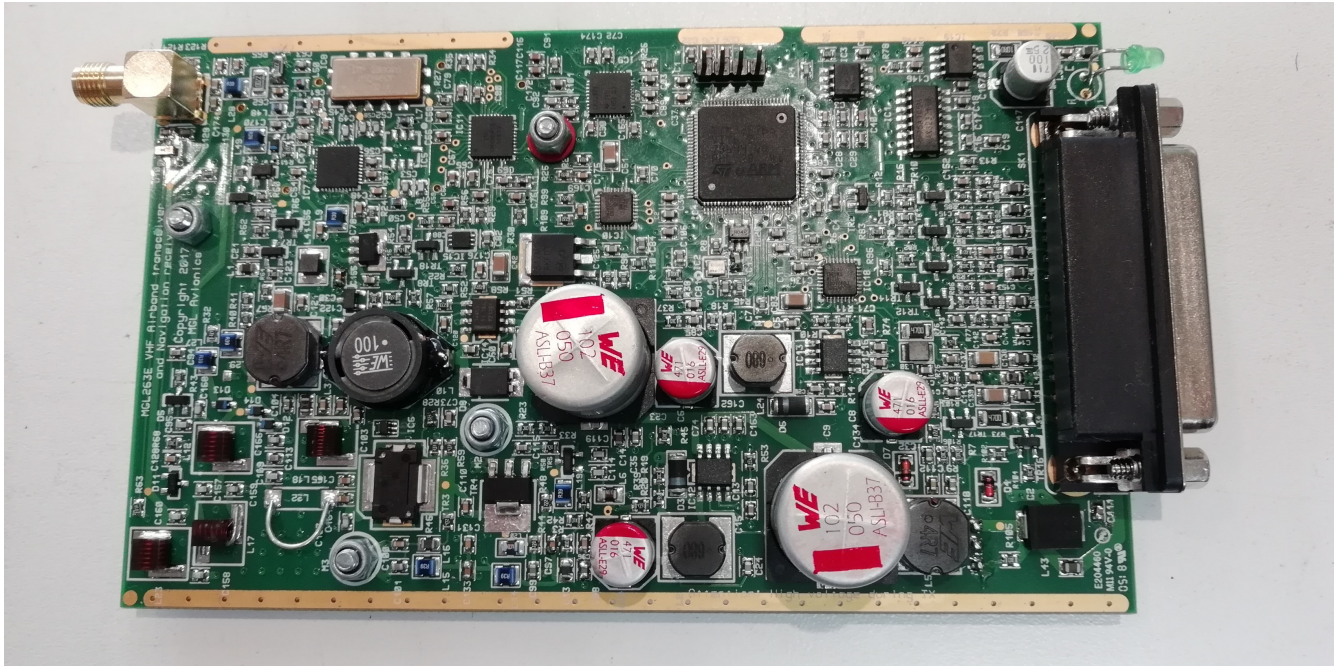
Documents

Also read:

V16 manual.pdf - user and installation manual for the V16.

V16 ICD xx.pdd - Interface document specifies the communication protocol for both RS232 as well as CAN bus interface.

Top view



Dimensions

PCB excluding connectors: 138 x 83mm

D25 connector overhang: 7.5mm

SMA connector overhang: 8mm

PCB thickness: 1.7mm

Highest elevation of any component above PCB: 20mm

SMA center over PCB: 6mm

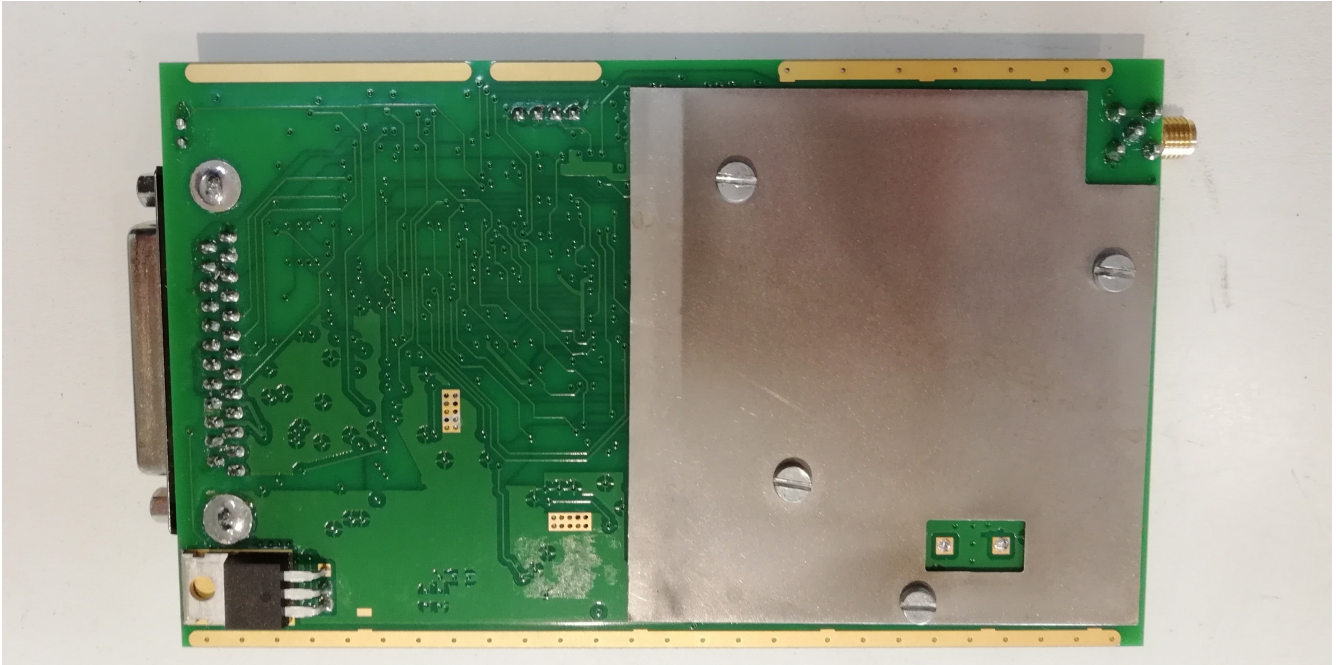
SMA center from edge: 10mm

D25 bottom hex nut center from bottom edge: 20mm (bottom referred to above image)

D25 top hex nut center from top edge: 18mm (top referred to above image)

Note: D25 connector is not centered on PCB but offset by 1mm.

Bottom view



Dimensions

Highest elevation of any component above PCB surface: 5mm

Mounting

The V16 PCB is intended to be mounted on a slotted PCB rail. The rail may be metallic and may be connected to power supply ground potential. The slot, if conductive may not extend past the visible gold strips of the PCB.

The gold strips are not internally connected to the V16 circuit - however provision is made on the PCB to provide either a capacitive or resistive connection should this be desired.

This connection is by means of a standard 1206 SMD component on the PCB underside.

Shield plate

A shield plate is mounted using 4 M3 screws. This plate serves as heat sink for the TX power transistor and also improves stability of the TX circuit.

It may not be removed but may be replaced with an alternative arrangement..Should this be considered, please contact MGL Avionics with your alternate solution for comment.

Housing

The V16 PCB must be operated inside a shielded enclosure, preferably of similar nature as

the standard housing used in the normal end product.

The transmitter is sensitive to EMI sources and may superimpose any received EMI which can appear as side bands possibly at levels that are not permitted.

This implies that care must be taken packaging any other electronics into the same housing as the V16 PCB. Troublesome noise sources include processors and other digital devices as well as switch mode power supplies.

The V16 avoids these issues by careful design of the various processor clocks, also using spread spectrum clocking and adapting signals dynamically based on tuned frequency. Even the switch mode power supplies on the V16 PCB are under frequency control to avoid contamination by harmonic content. Extensive use of signal edge slew rate control is also used.

All of these measures may be difficult or impossible to apply in additional systems packaged close to the V16 PCB.

In cases where this is unavoidable the completed system must be verified as compliant to FCC requirements ON EVERY FREQUENCY. This requires a suitable spectrum analyzer and 50 ohm dummy load.

Also, RX interference is often localized to certain frequencies only due to harmonics from oscillators and similar sources. A scan of every possible RX frequency should be done while observing the RX level (this is available in the information sent by the V16 on RS232 and CAN bus).