



SPACEMANIC

Murgas

The Space Transceiver

SM-TRX-VHF-UHF-MURGAS

Space grade, reliable and software configurable UHF/VHF transceiver for satellite long-range communication



FEATURES

- Advanced high performance narrow-band transceiver for UHF and VHF
- Full and half duplex operations
- Two modules for full redundancy
- RF parameters are fully configurable on-orbit
- Plug & Play Design
- Compatible with Spacemanic cubesat standard
- Compatible with components from other vendors
- HAM services (beacon, CW, digipeater)
- Engineering model and simulator available
- Robust design

PRODUCT PROPERTIES

- Operating temperature: -40 °C to +85 °C
- Power Supply: 3.3V, 5V
- 67x42 mm size module form factor
- Mass: 25g
- Integrated heat sink (also works as EMI shield).
- PCB material: Glass/Polyimide (ESA ECSS-Q-ST-70-11-C)
- IPC-A-610 Class 3 assembly

SOFTWARE

- Cubesat Space Protocol compatible
- Supporting: KISS, CSP, AX25, PUSopen
- Full compilation of drivers

FUNCTIONAL CHARACTERISTICS

- GFSK/GMSK
- UHF 430-440Mhz, VHF 145±1Mhz (modified version for ±400Mhz)
- RF carrier frequency and FSK deviation programmable in 1 Hz steps
- Data rates from 0.1 kbps to 38.4 kbps (100 baud to 38400 baud)
- 1W Power output
- Power consumption: <40 mA in listening mode, ~300mA average (10 min. total TX time during 94 min. orbit)

INTERFACES

- 1 x I2C
- 1 x RS485
- 2 x UART
- 1x CAN
- External reset input
- JTAG on separated connector
- SSMCX antenna connector
- Mainboard Slim Stack Connectors
- Debug LEDs

TESTING & HERITAGE

- Based on Flight Heritage Hardware
- Successful vibration & heated vacuum tests
- Radiation tests (TID @ 20 krad, SEE @ 60 MeV)