



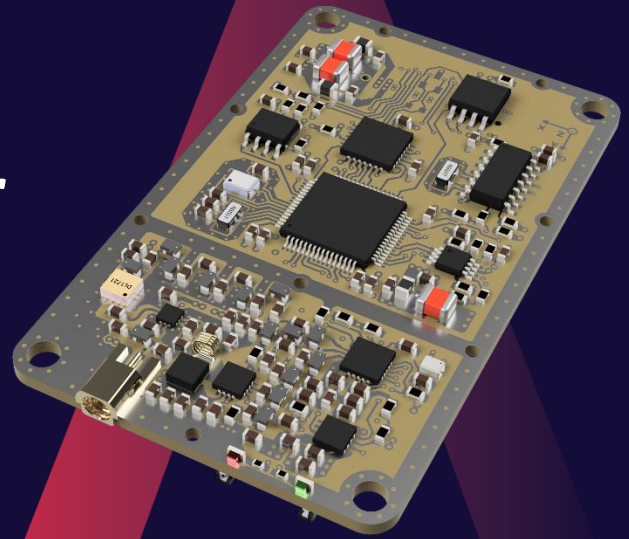
SPACEMANIC

# Murgas

## The Space Transceiver

### SM-TRX-VHF-UHF-MURGAS

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



#### FEATURES

- Plug&Play design
- Compatible with Spacemanic cubesat standard
- Compatible with cubesat components from other vendors
- Robust design
- Advanced high-performance narrow-band transceiver for UHF and VHF
- Half duplex operations
- Two modules for full duplex
- HAM services (beacon, CW, digipeater)

#### PRODUCT PROPERTIES

- Operating temperature: -40 °C to +85 °C
- Dimensions: 67x42x7 mm
- Power Supply: 3.3V, 5V (CAN)
- Mass: 25g
- Power consumption: <40 mA in receiving mode, <1A transmitting mode
- IPC-A-610 Class 3 assembly

#### SOFTWARE

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

#### FUNCTIONAL CHARACTERISTICS

- GFSK/GMSK, CW
- UHF low 400-402MHz, UHF 420-450MHz, VHF 144-148MHz
- Programmable RF carrier frequency and FSK deviation
- Data rates from 0.1 kbps to 38.4 kbps (100 baud to 38400 baud)
- RF power output: +30dBm (1W)
- Integrated heat sink (also works as EMI shield)
- RF parameters are fully configurable in orbit

#### INTERFACES

- 1 x I2C
- 1 x RS485
- 1 x UART
- 1x CAN
- External reset output (1kHz)
- JTAG on separated connector
- MMCX antenna connector
- Debug LEDs

#### TESTING & HERITAGE

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