

## Product Description

The AMORES Telemetry Radio is a state-of-the-art, high speed telemetry radio intended for professional UAV applications. The module meets the relevant European regulations.



## Features

- Test-proven, reliable operation onboard UAV aircrafts
- 869 MHz ISM band
- Long range, low bit error rate
- Controllable output power for decreased current draw in short range applications
- Point-to-point operation
- High RF power for long range applications
- Antenna diversity for optimal signal quality
- Buffer alignment algorithm for MAVLink and AirGuardian protocols
- Hardware flow control for reliable UART data transmission
- Conforming to EU R&TTE directive EN 300 220

## Specifications

Supply voltage	5 V <sub>DC</sub> ±5%
Maximal current consumption	365 mA
Maximal output power	26 dBm (400 mW)
Modulation	MSK, GFSK
Payload data transmission rate	17-185 kbit/sec
Nominal frequency	869 MHz
Antenna connectors	Standard 50 Ω SMA connector
Suggested antenna	Amores Robotics λ/2 dipole
Expected range	Several kilometers (5-10) with maximal output power, dependent on modulation, RF data rate, use of ECC, antennas and terrain
Operating temperature	from -40°C to +85°C
Dimensions	54 x 30 mm
Weight	12 g

**Hardware:**

- lightweight, compact device
- uses 868 MHz ISM band with a maximum RF output power of 26 dBm (400 mW)
- dual antenna connectors support antenna diversity
- 6-pin FTDI-compatible interface for power supply and data transfer
- indicator LEDs show RX/TX activity as well as active antenna
- setup jumper for configuration

**Software & digital radio:**

- provides a transparent, virtually full duplex link between two UART interfaces
- efficient selective acknowledge & retransmit scheme adds robustness against packet loss or corruption
- automatic division of channel capacity between transmit directions based on actual demand
- four alternative radio modes allow trading payload capacity for available range
- optional antenna diversity algorithm effectively mitigates fading-induced link dropouts
- optional forward error correction algorithm adds even more resiliency to long range links
- optional buffer alignment algorithm to align radio packets with user datagrams
- diagnostic mode for link capacity measurement and link quality assessment
- highly configurable UART interface allows connecting with any UART-enabled host device
- textual menu-driven configuration interface for setting up the device via a serial console
- user upgradable software – no proprietary programming device required

**Host connection:**

Data transfer and power supply is provided via a single 6-pin FTDI-compatible connector header.

The UART connection supports:

- full duplex operation: independent receiving and sending of frames
- configurable speed: 9600, 19200, 38400, 57600, 115200, 230400 Baud
- configurable parity (None, Even, Odd)
- configurable number of stopbits (1 or 2)
- optional RTS/CTS flow control

**User configurability and upgradability:**

The software of TeRad allows end users to configure the operation of their device according to several options, in order to create a radio link that suits their specific transmission requirements. For example, it is possible to trade payload channel capacity for useful range and link robustness by changing the RF data rate and usage of ECC. Other features (antenna diversity, datagram framing etc.) can also be setup as desired.

Configuration is possible via a convenient, easy to use textual menu interface accessible via the normal UART connection (no special host software needed). Setup mode is activated by the presence of the setup jumper when the device is powered on. Configuration is persistent (stored in flash memory).

The software itself is easily upgradable via the TeRad software updater, a PC-based application that allows the end user to re-flash the device with the newest (or any supported) version of the TeRad software. This software updater is freely available for download from our product website. This future-proofing solution ensures customers purchasing TeRad will always be able to get the benefits of the latest features and bugfixes!