MICROROE
Ingeniería Electrónica

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About us

Since our founding in 2012, Microroe has established itself as a benchmark in the design, integration, and measurement of electronic devices, covering both digital electronics and radio frequency. We have a team of highly qualified professionals in technological development and implementation of innovative solutions.

Our commitment to innovation
At Microroe, we merge knowledge and experience to offer our clients high-quality "turnkey" solutions, as well as specialized consulting. We go beyond technological development: we forge lasting relationships by understanding each client's needs and providing continuous support for achieving their goals. We are proud to be your trusted partner on the path to technological advancement.

Excellence and training
Our commitment extends to training our clients, providing them with the necessary tools and knowledge to maximize the potential of innovations. With an unwavering focus on quality and efficiency, every project is an opportunity to reaffirm our

Vision

To be leaders in the national market in terms of development and technological innovation in communications systems and processes control.

Mission

To provide innovative solutions to our customers through technological development, offering our experience and ability towards getting excellent products and services.

Objectives

To offer solutions and prompt response to our clients' demands, accompanying their growth and work. Offering continuous support to the developments enhanced by means of our commitment and responsibility.

Clients & Partners

- INVAP
- Argentine Army
- Satellogic
- Tlon Space
- Veng S.A.
- Argentine Space Agency (CONAE)
- Argentine Institute of Radio Astronomy (IAR)
- Ektocomms
- Emtech
- Aseagro
- National University of La Plata
- National University of Comahue

Main projects

- SARAT I – L-Band Synthetic Aperture Radar (CONAE-IAR).
- SAOCOM – Argentine Microwaves Observation Satellite (CONAE-IAR).
- SNI – Integrated Navigation System (CONAE-IAR).
- SAC-D - Satellite for Scientific Applications-D (CONAE-IAR).
- DBF Radar – L-Band Digital Beamforming Radar (CONAE-STI).
- SARAT II – L-Band Synthetic Apeture Radar (CONAE-STI).
- SARE – S-Band Satellite Arquitecture (CONAE-STI).
- TRONADOR – Serie of Argentine Launch Vehicles (VENG).
- AVENTURA – Serie of Argentine Launch Vehicles (TLON).
- Defense Projects - Radar, power sources, battery chargers.
- Aleph-1 Constellation - Communication systems for comercial satellites.

With over 15 years of experience, our skilled professionals empower Microroe to deliver innovative solutions and customized systems.

The systems developed allow Microroe to provide state of the art products to our clients covering from digital platforms to radio frequency equipments.

Through our dedicated developments at Microroe, we've created a range of high-quality, standardized products.

The space Heritage allows us to offer solutions for several areas, such as industrial, radar, satellites and launch vehicles.

Customized hardware and software solutions

Microroe provides custom designs tailored to specific requirements. We specialize in the custom development of RF systems, data acquisition and processing platforms, and process control and automation. For this, we rely on a work methodology that includes review instances with the client that provide assurance of meeting their expectations.

Radio Frequency Designs

We provide RF design services at the board and system level to create high-quality RF products and solutions, such as medium and high-power amplifiers in CW and pulsed mode, low-noise amplifiers, design of RF systems such as transceivers, transmitters, and receivers from UHF to Ka band.

Microroe's experience in RF designs includes wireless communication, radars, telemetry, and systems for aerospace and defense applications.

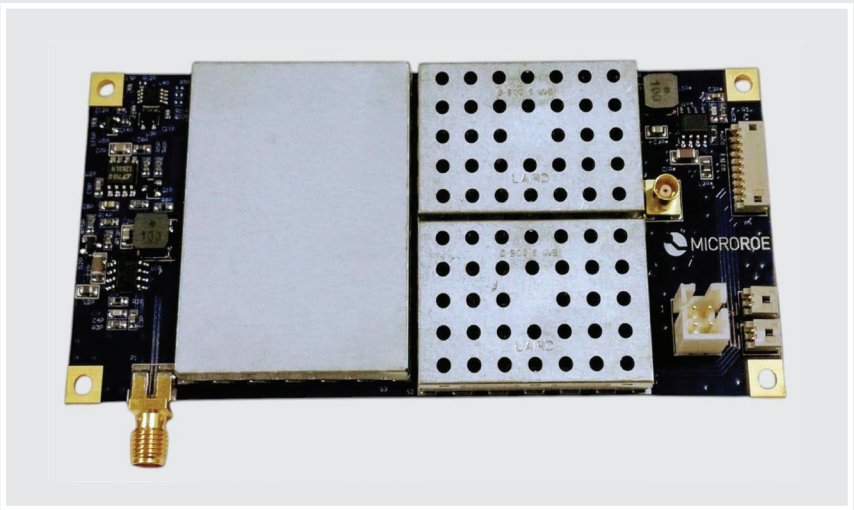
Our RF design services include circuit design, simulation, design modeling, and prototyping.

The validation plan contemplated in our work methodology ensures that the designs comply with client specifications.

High-Speed Digital and Analog Designs

We provide high-speed digital design services applied to acquisition, processing, and control platforms with different technologies: FPGA, CPLD, RFSOM, microcontrollers, embedded processors, high-speed AD and DA conversions.

The experience acquired in high-speed digital designs allows us to develop systems such as baseband and IF modulators and demodulators, as well as systems based on SDR technology.

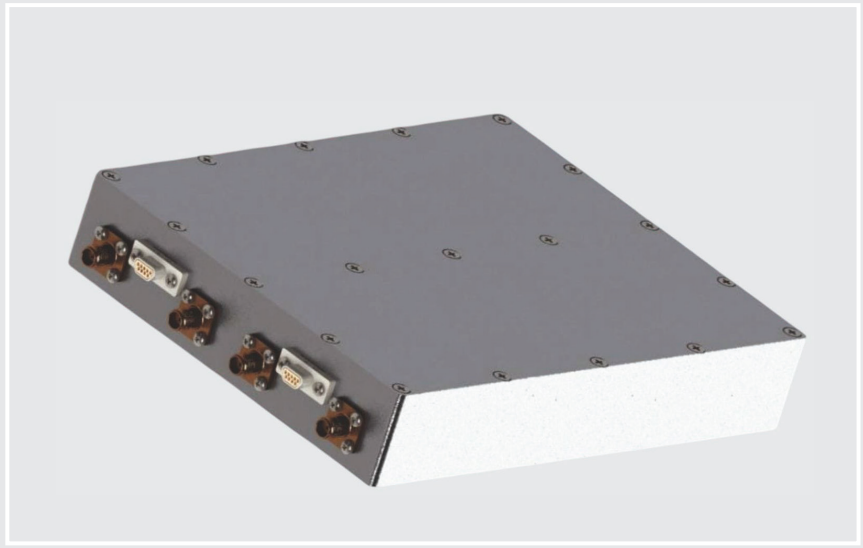


RF Modules for Communication Systems

> Radio frequency Front-Ends
> Up and Down frequency conversions
> Power, linearity, efficiency
> Low noise figure
> Equipment control and telemetry interface
> Designed with high-quality commercial components suitable for use in low-orbit satellites
> With flight heritage

High Power RF Amplifiers and Synchronization Modules

Medium and high-power amplifiers in CW and pulsed modes, single and double balanced for frequencies from UHF to X-band with output power, voltage, current, and temperature telemetry. Power-on and synchronization control.
LDMOS, GaN, and GaAs technologies for communications and radar applications.
Control and synchronization modules implemented with programmable logic.
Validated in operational environments.

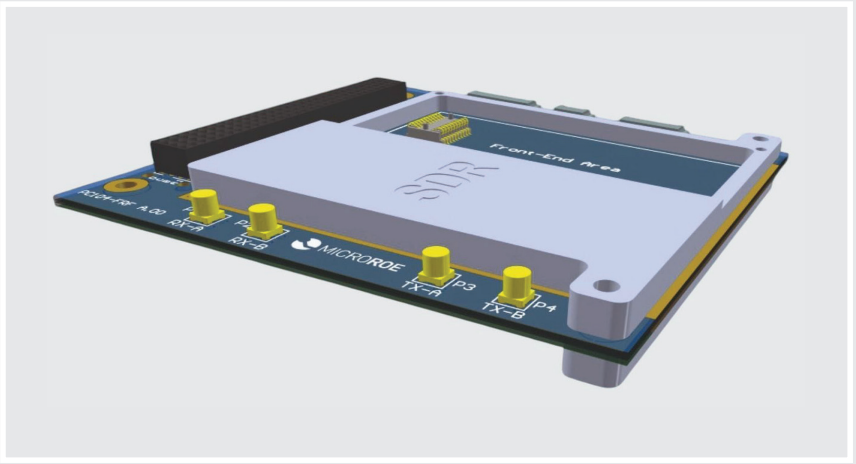


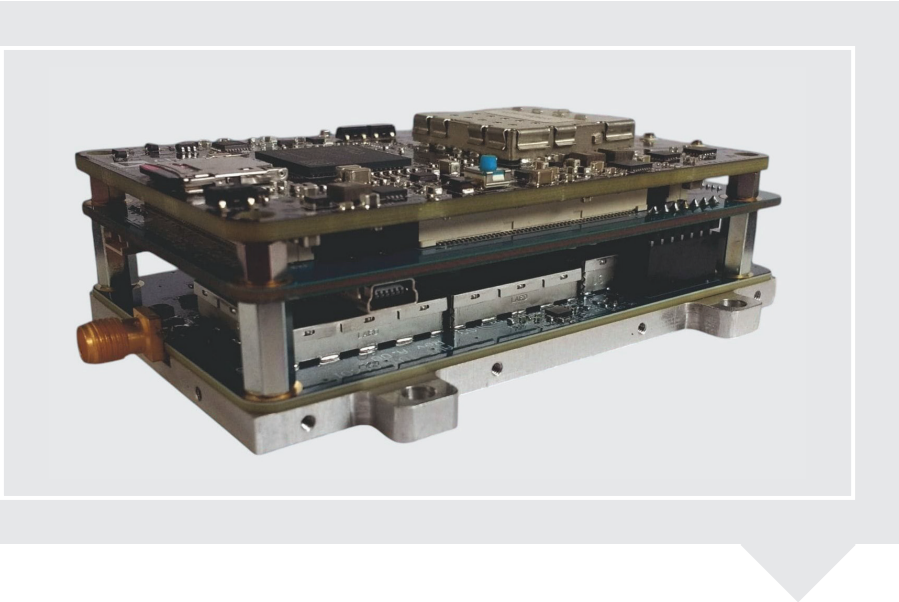
TR Modules and Frequency Converters

> Transmit/Receive Modules for airborne radar systems
> Compact and high-efficiency design
> Fast switching capability
> RS-485 control interface with Modbus protocol
> Integration of power and low-noise amplifiers
> Digital control of functions
> Applications in defense and aerospace systems
> Based on technology with flight heritage

SDR System-On-Module

> For use in SDR applications where modulation and demodulation are required
> Modular implementation: SDR main board + RF Front-End
> The main board integrates an FPGA and provide interfaces
> Front- End modules inter-changeability
> Adjustable output frequency and power
> Transmit and receive channels up to 6GHz
> Adaptable to client requirements
> Optimized for CubeSat platforms
> PC104 standard
> Interfaces: Gigabit Ethernet, CAN, UART, SPI, RS485



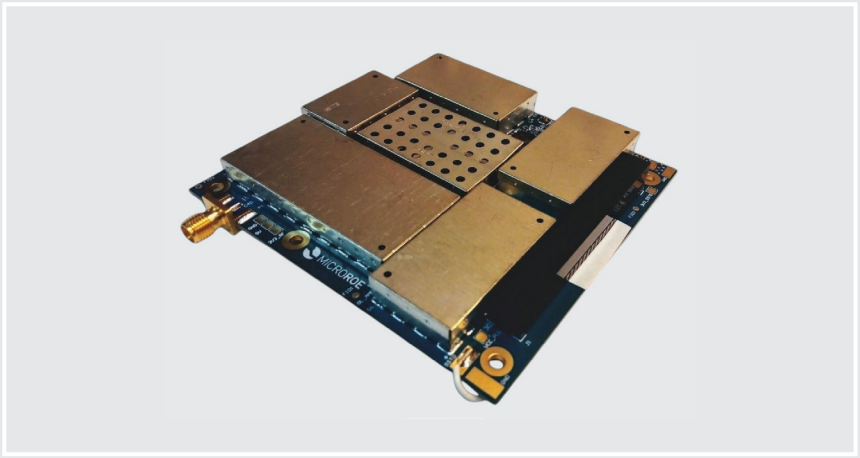


S-Band video and telemetry transmitter

- Operating Frequency: S-band (2.2 - 2.3 GHz)
- Output Power: 10W
- Video: Two high-resolution video channels
- Telemetry: Two digital telemetry channels
- Maximum Bit Rate: 20 Mbps
- Modulation: QPSK
- Interface: Ethernet for IP camera and SPI for control and telemetry
- Applications: Launch vehicles
- Flight Heritage: Yes
- Compatible with commercial ground stations

S-band Telemetry and Video Receiver

- Operating Frequency: S-band (2.2 - 2.3 GHz)
- Sensibilidad: -100 dBm
- Demodulation: QPSK
- Channels: 2 Video and 2 Telemetry, frequency configurable
- RF Interface: "N" type 50 ohm
- Electrical Output Interface: Ethernet
- Video and Telemetry Outputs: TCP/IP LAN connection protocol
- User Interface: Website
- Implementation: SDR Platform + Low Noise Amplifier
- Applications: Ground segment for Launch vehicles
- Mounting: Standard rack-mountable cabinet



UHF Flight Termination Receiver

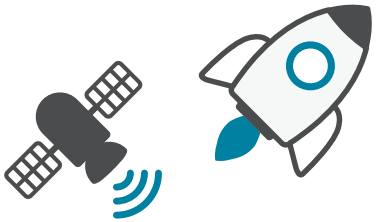
- Operating Frequency: UHF band (400 - 450 MHz)
- Maximum Input Power: +13 dBm
- Sensibilidad: -107 dBm
- Rechazo de imagen: >60 dB
- Modulation: FM/CPFSK
- Encryption: 3-DES
- Interface: RS-422
- Telemetry: SSTO, Temperature, Voltage, and Current
- Applications: Launch vehicles
- Compatibility: IRIG and EFTS standards
- Compact and optimized for space environments

UHF Flight Termination Transmitter

- Operating Frequency: UHF band (400 - 450 MHz)
- Output Power: 50W
- Modulation: FM/CPFSK
- Encryption: 3-DES
- Configuration: 4 to 20 tones per command
- Commands: ARM, CHECK and TERMINATE
- Implementation: SDR Platform + High Power Amplifier
- RF Interface: "N" type 50 ohm
- Montaje: Standard rack-mountable cabinet
- Applications: Ground segment for Launch vehicles
- Compatibility: IRIG and EFTS standards

Application areas

We believe that Technology transfer is an essential process to innovate in other areas. Our expertise in AEROSPACE industry allows us to give solutions to other industries such as Energy, Mining, Oil & Gas, Navy, Agro and Automotive.



New Space

Design and development of modules and systems for satellite technology, including communication and monitoring.

Radar

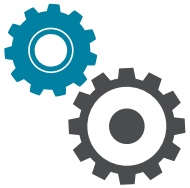
Advanced solutions in radar systems for detection, tracking, and mapping in various terrestrial and airborne applications.

Wireless Links

Implementation and optimization of long and short-range wireless communication solutions.

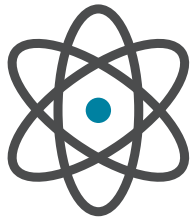
IoT

Development and implementation of Internet of Things solutions to connect and optimize devices.



Industry

Development of prototypes and custom electronic equipment for automation and optimization of industrial processes.



Science

Design and construction of specialized electronic instruments and devices for research and scientific laboratories.