



AVIONICS

Products and Services

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We are VENG

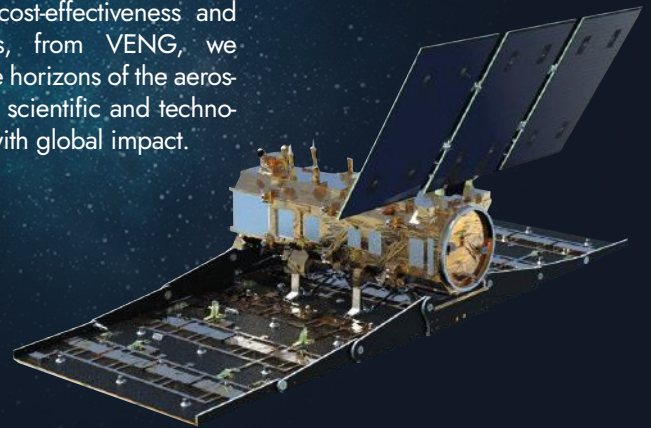
**A HIGH VALUE-ADDED
TECHNOLOGY AND SERVICES
COMPANY SPECIALIZED IN THE
SPACE INDUSTRY.**

Since our founding, **VENG** has been an essential player in establishing Argentina as a reference in the space sector. Our multidisciplinary team works on integrating advanced solutions aligned with the **New Space** paradigm, fostering competitiveness and international projection in the exploration and application of space technology.

Through a forward-looking vision, commitment to excellence, cost-effectiveness and strategic partnerships, from **VENG**, we continue to expand the horizons of the aerospace industry, driving scientific and technological development with global impact.

17+
YEARS OF **EXPERIENCE**

400+
**EMPLOYEES INCLUDING
PROFESSIONALS
AND TECHNICIANS**



RTV Enhanced Flight Termination Receiver

The EFTS is a digital, FPGA-based, flight termination receiver that meets the requirements of the standard RCC 319, designed for space launch applications.

The EFTS provides a high dynamic range front-end, and a digital receiver that implements Reed-Solomon channel coding to enhance the link, as well as a 3-DES encryption to strengthen the mission security.

Output power
TBD to 40 dBm

Center frequency
425 MHz

Modulation
CPFSK

Dynamic Range
-107 to +13 dBm

Bit rate
7200 bps

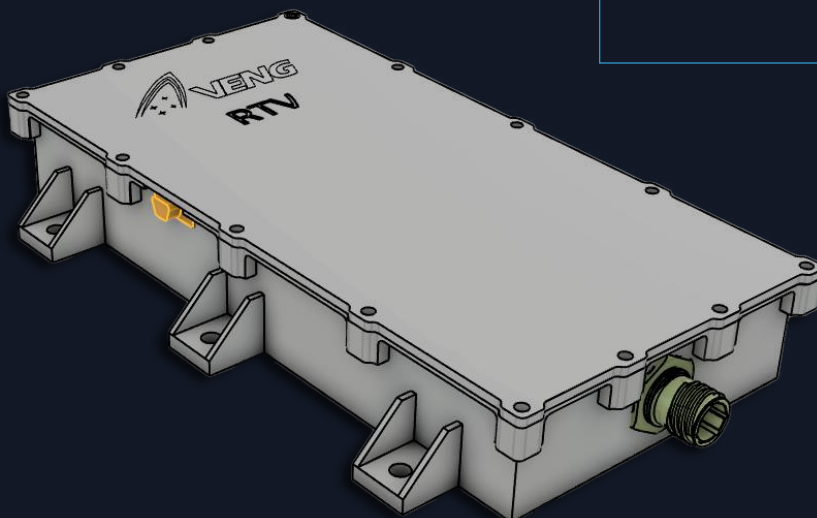
Message rate
50 Hz

Message error probability
 1×10^{-4} @ $P_{in} < -107$ dBm

Channel Coding
Reed-Solomon (16, 8)

Encryption
3-DES

Standard
Meets the requirements of RCC 319-19 (tailored)



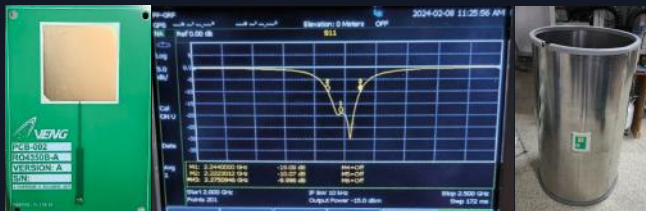
Learn more!

S-Band Patch Antenna



Learn more!

High-precision antennas optimized for space applications, ensuring reliable communications for launch vehicles and satellites in extreme environments. Our comprehensive development process—from advanced electromagnetic design to rigorous testing in anechoic chambers—delivers mission-critical performance that meets the highest international standards in the space sector.



Frequency band
2200 to 2290 MHz
(lower S band)

Bandwidth
50MHz

Radiation pattern type
Omnidirectional

Polarization
RHCP (Right Hand Circular,
Polarization) (Option LHCP)

(*) Custom polarization can be
implemented upon request

Antenna Gain
G>5dBi

VSWR
< 1.5

XPD
> 20 dB

Minimum radiated power
The antenna handles at least
10W

Substrate
RO4350B from Rogers
Corporation

Antartix OBC Computer

Antartix v2.0 OBC is a high-performance, user-friendly onboard computer and FPGA development board built around the AMD Xilinx Artix-7 FPGA. Optimized for running MicroBlaze and PetaLinux, it delivers exceptional processing capabilities and is ideal for a wide range of space applications.

Fully compatible with the PCI/104-Express form factor, it ensures seamless integration into LEO nanosatellites, microsatellites, and launch vehicles. Its comprehensive set of interfaces enables reliable connectivity for subsystems and payloads, making it a versatile solution adaptable to the demands of any mission.

Engineered for versatility and reliability, Antartix v2.0 OBC is built entirely with extended temperature range components, ensuring robust performance in harsh environments.

It features the AMD Xilinx XC7A200T-FBG484I FPGA, and is also available in a variant populated with the XQ7A200T-1RB484M, offering defense-grade qualification for mission-critical applications.



Form factor
PCI/104-Express Fully
compatible

FPGA
AMD Artix-7
XC7A200T-1FBG484IHz

Memory
DDR3L SDRAM 4Gb 933 MHz
20 ns MT41J128M16HA-125:K

Flash Memory
On board - NOR Memory IC
128Mbit SPI - Quad I/O 104
MHz

Additional Memory
BPI On board - NOR Memory
IC 512Mbit Parallel 133 MHz
96 ns

PCIe interface
x1 lane PCIe Gen1.0(2.5GT/s)

PCI BUS
Local Bus

General purpose I/O
x11 @ 3.3V, x7 @ 1.8V

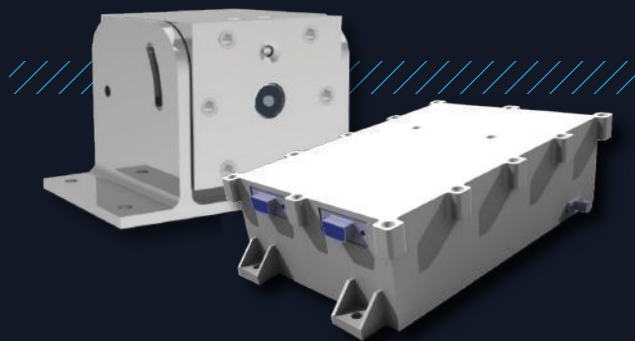
Power consumption
5 VDC, X.X A

Dimensions
Length: 3.775 inches (95.89
mm)
Width: 3.550 inches (90.17
mm)
Stand-off Height: 0.600 inches



Learn more!

SVD / Digital Video System



Digital video system Tx unit and Rx software designed for launch vehicles.

An onboard unit with four video cameras, each equipped with lighting, connected via a network cable to a main unit.

The unit powers the cameras, controls their lighting, receives the video streams, and sends it to a transmitting antenna.

Specially designed software to control the Cortex RTR telemetry receiver series, enabling the video reception, local recording, transmission to a viewer and more.

Tx Frequency band
2200 to 2290 MHz (lower S band)

Tx Modulation
SOQPSK-TG (Tier 1)

Tx Bitrate
≤ 5Mbps

Tx Output power
10W

Total power consumption (4 cameras + main unit)
< 40W

Designed for H265 video codec

Up to 4 video cameras
@ 1920x1080, 25fps
@ 1080x720, 30fps

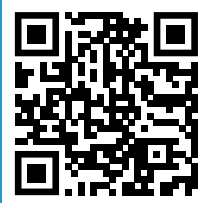
Camera lightning configurable
Up to 1400 lm

Camera Mass
0.3 kg (TBC)

Transmitter Mass
1.5 kg (TBC)

Camera Dimensions
80x80x80 mm (W x H x L)

Transmitter Dimensions
190.5x130x60 mm (W x H x L)



Learn more!

Engine Controller Test bench version

The Engine Controller is a cutting-edge solution engineered for the precise management of propulsion systems, including turbopump-fed engines. Designed for reliability, it ensures continuous monitoring and instant response to critical events. Its robust, autonomous architecture enables high-precision valve actuation, real-time sensor data acquisition, and seamless system status oversight, optimizing performance and safety.

Electric

Input Voltage
+24 VDC ±10%

Interfaces

- ▶ Valve and ignition control
- ▶ Communication interfaces
- ▶ Power interface
- ▶ Supervision of sensors

Mechanic and Thermal

Dimensions
364mm x 222mm x 102mm

Mass
3.5 kg

Temperature range

- ▶ Operating temperature range
-40°C a 85°C
- ▶ Storage temperature range
-55°C a 125°C



Learn more!

Avionics battery

The cells used are NCA-type (Nickel Cobalt Aluminum - Lithium), and feature a specific energy of 243 Wh/kg with a nominal capacity of 3.35Ah. Each cell undergoes a rigorous selection process based on a statistical analysis of its capacities.

Our battery stands out for:

Designed for launch vehicles: Advanced battery with high capacity and adaptability to various operating conditions, ideal for demanding applications.

High-energy performance: Effective operational capacity of 19.6Ah, ensuring reliability under intensive use conditions.

Thermal versatility: Reliable operational temperature range from -10°C to 45°C , capable of withstanding extreme environmental conditions.

Balanced performance: Stable and safe voltages during charge and discharge, optimizing lifespan.

Adaptive power: Supports charge and discharge currents of up to 20A, providing reliable performance in high-demand energy applications.

Guaranteed durability: Designed to operate within a safe depth of discharge (DOD) level, maximizing lifespan and reliability.

BOL (beginning of life)

Capacity

20.4Ah (3.4Ah / cell at C/10 discharge rate)

BOL Capacity under real operating conditions

19.6Ah (3.25Ah / cell at C/2 discharge rate)

Maximum operating temp. range

-10°C to 45°C

Optimal operating temp. range

5°C to 30°C

Maximum charging voltage (100% SOC)

33.6V (4.2V / cell)

Minimum discharge voltage (0% SOC)

24V (3V / cell)

Average discharge voltage
29.6V between 50% and 80% SOC (3.7V / cell)

Maximum charging current
20A

Nominal charging current
12A (6 x 2A)

Maximum discharge current
20A

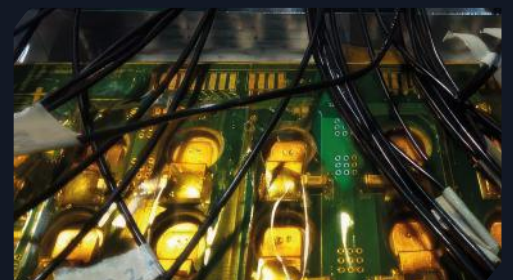
Nominal discharge current
12A

Minimum safe DOD
20%

Recommended op. DOD
 $\geq 40\%$



Learn more!



S-Band Data Transmitter

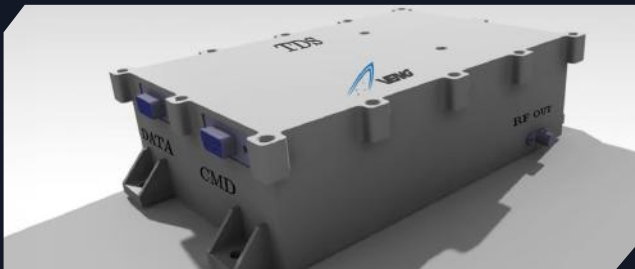


TDS is an SDR based S-Band transmitter designed for launch vehicles, engineered to meet telemetry standards requirements.

It supports three modulation schemes defined by the IRIG-106 telemetry standard: PCM/FM (Tier 0), SO-QPSK (Tier 1) and Multi-h CPM (Tier 2).

It also features CCSDS/IRIG randomization and convolutional (7, 1/2) channel coding, enhancing data integrity.

Its embedded Linux OS allows customization of the system to meet the specific mission requirements.



Frequency band
2200 to 2290 MHz
(lower S band)

Output power
Variable output power up
to 40 dBm

Modulations(*)
PCM/FM (Tier 0) +
SOQPSK-TG (Tier 1) y ARTM
CPM (Tier 2)

(*) Custom modulations can be
implemented upon request

Bit rate
Up to 5 Mbps RS-422
Up to 15 Mbps Ethernet (TBC)

Data Interfaces
Sync RS-422, Ethernet

Channel coding
Convolutional (7, 1/2)

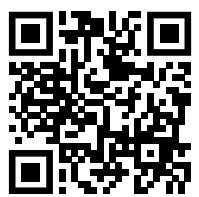
Control interface
Ethernet, Serial UART

Randomization methods
Synchronous CCSDS, IRIG
PN15

Power consumption
28 VDC, 1.7 A

Mass
1.3 kg (TBC)

Dimensions
Length: 190.5 mm
Width: 130 mm
Height: 53 mm



Learn more!

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