

Contacts

products.trescantos@airbus.com

Airbus Crisa designs and produces state-of-the-art electronic products for space applications that range from satellites, deep space probes and orbital infrastructure to space transportation systems. From ensuring proper on-board temperatures, energy management, and providing the delicate control for spacecraft and launchers, Airbus Crisa's innovative solutions build on the company's heritage in almost all types of electronics with the highest precision and performance.

Motivated by a commitment to continuous innovation, and backed by the strategy of investments in research and development, the company's products continually evolve in response to customer's needs. Airbus Crisa has proven its ability to meet requirements for all types of missions, equipping everything from large telecommunication satellites, new-space constellations and agile Earth observation platforms to scientific and deep space exploration probes.

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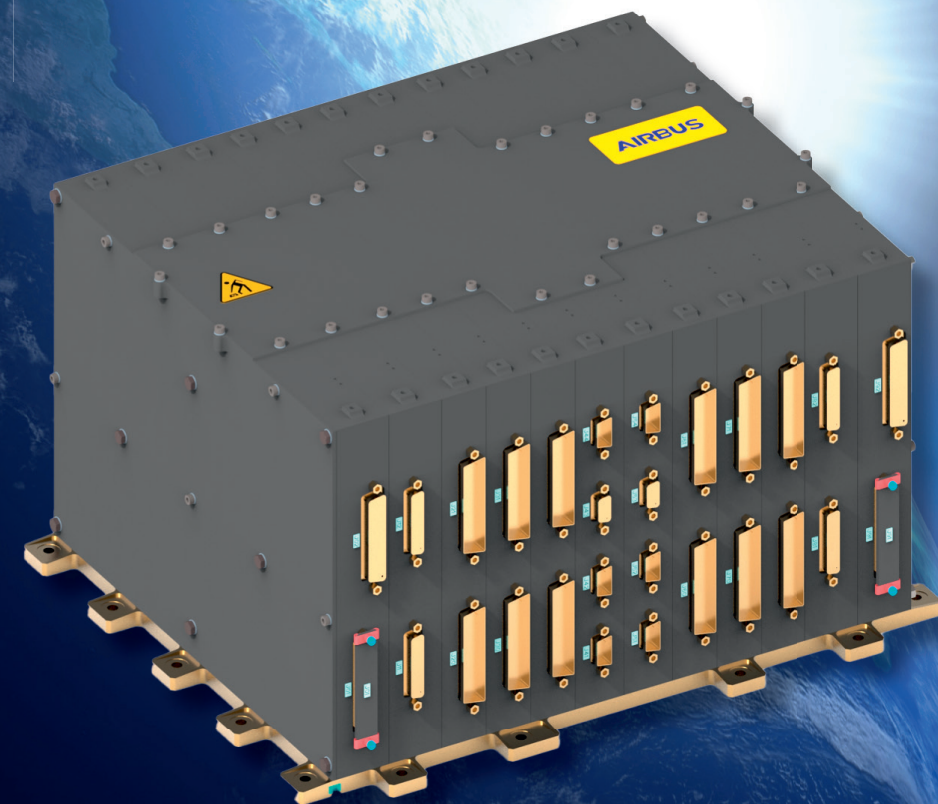
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CRISA

RIU Mk 2

A scalable modular interface unit for medium and large satellite platforms



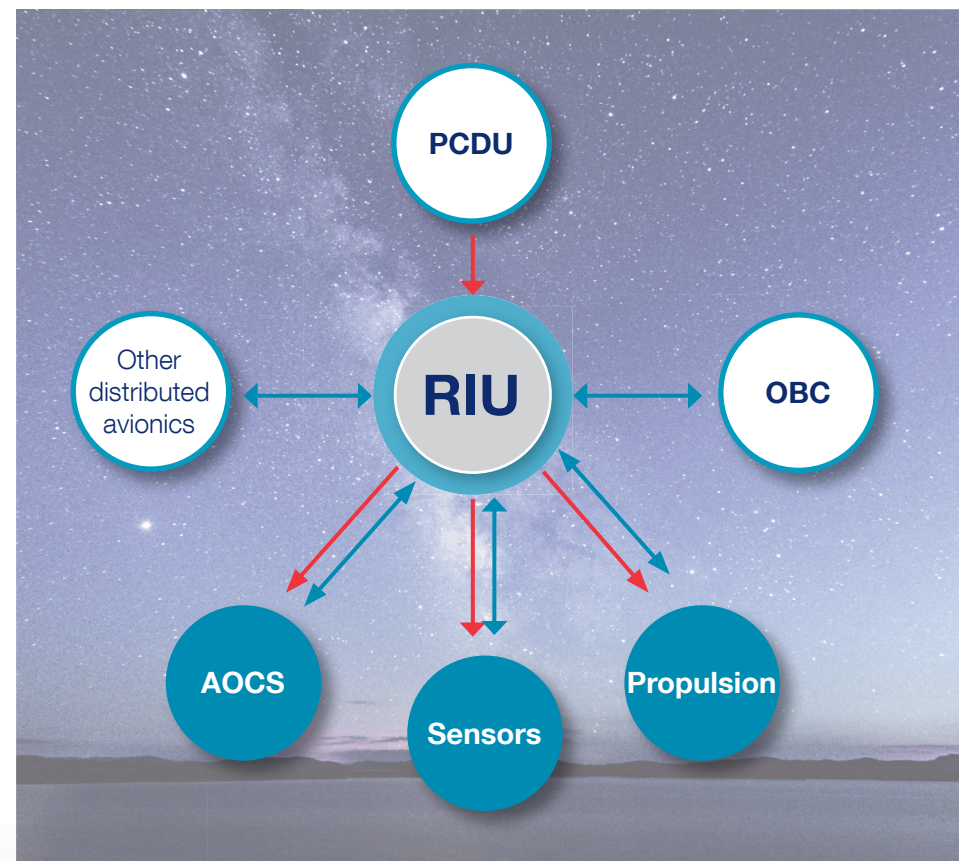
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RIU MK2

Airbus Crisa has developed and produced Remote Interface / Terminal Units (RIU / RTU) for more than 15 years. Many Airbus-built satellites for earth observation, science and governmental applications embark an Airbus Crisa's RIU. Three different variants have been currently qualified, 19 already launched, totaling more than 650 kh in orbit with no reported failure.

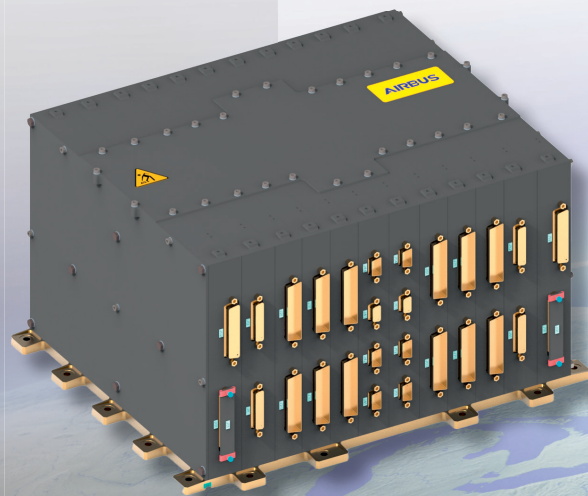
These products are being updated to a single, more modular and compact RIU (RIU Mk 2), basing this evolution on the heritage and return of experience accumulated with its predecessors. Modularity and scalability makes this product suitable for a wide range of applications, minimizing the tailoring needed to cope with new applications.

Its fully redundant concept, its radiation hardened design and its compliance with the ECSS standards make the RIU Mk 2 the perfect choice for missions where failure is not an option, such as optical and radar Earth Observation or Governmental satellites. The product will be qualified for these applications in 2025.



Key Features

- Fully redundant unit. Qualification perimeter: 12 modules unit, with 3+3 STDIM
- Communication with the OBC through a redundant MIL-STD-1553B interface
- Propulsion and AOCS interface modules can be switched off for energy saving
- PIM and AOCS deliver power to the actuators they drive from dedicated PCDU's power lines
- Standard interfaces can be operated in hot redundancy
- HW-based controller module, i.e. with no SW
- Flight-proven building blocks
- Acquisition of most of the satellite's telemetry data
- Connectors in front and rear sides, to ease the harness' routing
- The concept is scalable; different number of STDIM boards can be installed



Interfaces (3+3 STDIM boards configuration)

Module	Interface type	Quantity(*)
AIM	• SAS/CSS	8
	• Magnetometer (power + acquisition)	2
PIM	• Pressure transducer (power + acquisition)	6
	• Magnetic torque (power)	3
STDIM (**)	• Reaction wheels (full interface, including tachometer)	6
	• Flow control valves	8
	• Latching valves (commands + position acquisition)	5
	• Catalyst bed heaters	8
	• Analog signal monitor (ASM)	96 ⁽¹⁾
	• Bi-level discrete monitor (BDM)	
	• Thermistors (YSI-44907/-44908/Fenwall/Betatherm)	80
	• Thermistors (PT-1000)	28 ⁽²⁾
	• Bi-level switch monitor (BSM)	96
	• High power command (HV-HPC + HC-HPC)	132
	• Low power command (LPC)	12
(*)	• RS-422 @ 3.3V - BDM + LPC - UART - Synchronization signals (in/out) - 16-bit bi-directional serial digital	5 input groups + 7 output groups ⁽³⁾

(*) : N+R for STDIM. One section for the rest

(**) : interfaces compliant with ECSS-E-ST-50-14C

(1): ASM and BDM interfaces use the same connector pins, the kind of interface to be implemented by each mission, may be selected by TMTC

(2): Unused PT-1000 channels may be reconfigured as YSI-44907 /-44908 / Fenwall / Betatherm types

(3): The RS-232 interfaces are distributed in groups (each group providing 4 RS-422 lines each), each group may be configured as:

- BDM: 4 BDM lines per input group
- LPC: 4 BDM lines per output group
- Sync: 2 input + 2 output groups
- UART: 1 input + 1 output group for 4 UART lines
- 16-bit bi-directional serial digital: 1 input + 1 output group per line

Technical Budgets

Parameter	Value
Mass	<22 kg
Volume (length x width + height) ^(*)	400 x 337 x 226 mm ³
Standby power consumption	<30 W (all modules on)

(*) : envelope, considering protruding elements

Environment

Type	Qualification level	Qualification level
Operating temperature range	-40°C to +70°C	
Vibration	Random	Out of plane: 15.4 grms, In-plane: 12.8 grms
	Sine	24 g, up to 100 Hz
Shock	2,000 g for high frequencies	
Natural space radiation	TID: 50 krad(Si)	
EMC	As per ECSS-E-ST-20-07C	