

ControlSafe™ cIOU-UART Module

8-Port Serial I/O Module for the ControlSafe™ Carborne Computer

Data Sheet

The cIOU-UART is ideal for connecting external serial interface devices, such as GPS receivers, modems or external I/O, to the ControlSafe™ Carborne Computer.

KEY FEATURES:

- 8 serial interface ports
 - 4 RS-422/RS-485
 - 4 RS-422/RS-485/RS-232
- RS-422/RS-485 full/half duplex support
- RS-422/RS-485 hardware receiver configurable in half duplex
- Bit rate from 1.2 Kbps to 1.5 Mbps (RS-422/485) or 115.2 Kbps (RS-232)
- 500V isolation
- EN 50155 compliance

PRODUCT DESCRIPTION:

The Artesyn cIOU-UART Module for the ControlSafe™ Carborne Computer provides up to 8 serial interfaces providing flexible configuration between RS-485, RS-422 and RS-232 support. With front access I/O, it is perfect for onboard applications such as Automatic Train Protection (ATP), Automatic Train Operation (ATO), and Positive Train Control (PTC).

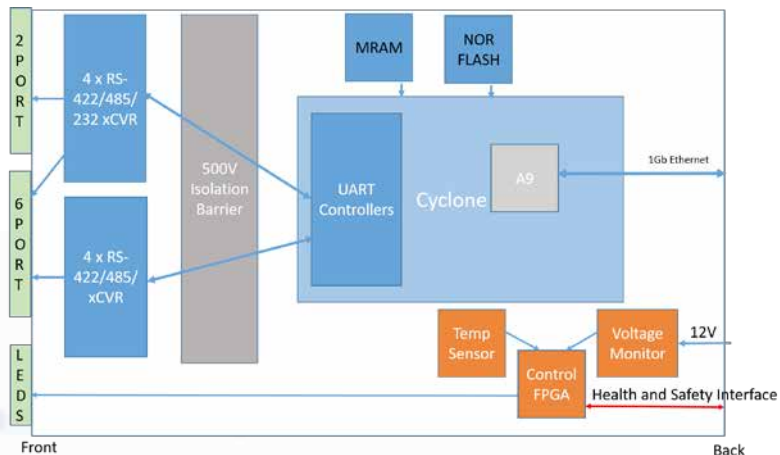
All incoming and outgoing serial interface traffic is packetized, and transported to/from the CPU module through a TCP socket. Flexible provisioning allows the module to support fixed-frame, delimited, and time-based serial protocols. This module supports Artesyn's remote management feature, which allows it to be fully provisioned and configured by the application on the CPU module.



As an interference free (non-vital) communications module, the cIOU-UART is designed to be fully certified for installation in a system certified to EN 50126 for reliability, availability, maintainability and safety (RAMS) processes; EN 50128 for safety-related software; and EN 50129 for safety-related electronic systems. It is fully EN 50155 compliant with long term availability.



FUNCTIONAL BLOCK DIAGRAM



Technical Specifications

Processor	Altera Cyclone V SoC with single ARM Cortex-A9	
Operating System	Yocto Linux	
Software Support	Application development and runtime software / firmware package. Includes: <ul style="list-style-type: none"> • Bootloader / POST binaries for Module, FPGA, CPU Core • Linux binaries providing UART<->IP I/O forwarding, supervisory, maintenance, and configuration functions • CPU API libraries for remote HW/SW configuration / management of UART Module and ports • CPU header files / structures for encoding / decoding serial data streams to / from IP packets • CPU Application configuration / IO coding examples 	
Memory	512 MB DDR3	
Flash	2 x 64MB NOR	
MRAM	1 x 512KB MRAM	
SEEPROM	1 x 8KB	
Maintenance Ports	RS-232 onboard header	
Data Fabric	1 GigE link to backplane	
Serial Ports	Serial Port 0-3	RS-422/RS-485
	Serial Port 4-7	RS-422/RS-485/RS-232
Board Management	Voltage and Temperature Sensors	
Operating Temperature	-40 °C to 50 °C	In open rack or other environment with low impedance to convection cooling
	-40 °C to 70 °C	With a required airflow measured at the intake to the bottom of chassis; or with an optional integrated fan cooling solution
Power	12V@~8W typical	
Vibration	Compliant with EN 61373, Category 1, Class B (EN 50155 12.2.11)	
Shock	Compliant with EN 61373, Category 1, Class B (IEC 60068-2-27)	
Conformal Coating	ST1 rating for EN 50155 Section 12.2.10 (Salt Mist Test)	
Standards	Designed in accordance with EN50121, EN50124, EN50155, EN50126, EN50128, EN50129, EN55024, EN60529, EN60571, IEC61508. See documentation for specific compliances.	
Safety Certificates	Interference free	

SOLUTION SERVICES

Artesyn Embedded Technologies provides a portfolio of solution services optimized to meet your needs throughout the product lifecycle. Design services help speed time-to-market. Deployment services include global 24x7 technical support. Renewal services enable product longevity and technology refresh.

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