

## ControlSafe™ cIOU-CAN Module

4-port Controller Area Network (CAN) Module for the ControlSafe™ Carborne Computer

### Data Sheet

The Artesyn cIOU-CAN Module provides Controller Area Network (CAN) input and output processing for the ControlSafe™ Carborne Computer.

### KEY FEATURES:

- 4 High Speed (HSCAN) Ports
- PeliCAN mode support
- Compatible with ISO 11898-2
- 1500V isolation
- EN 50155 compliance
- Certified as an Interference Free Communication Module

### PRODUCT DESCRIPTION:

The Artesyn cIOU-CAN module extends the capability of the ControlSafe™ Carborne Platform to interface with up to four High Speed Controller Area Network busses (HSCAN) through its front panel. With front access I/O it is perfect for onboard applications requiring train communication network (TCN) or other CAN connectivity, such as Automatic Train Protection (ATP), Automatic Train Operation (ATO), and Positive Train Control (PTC).



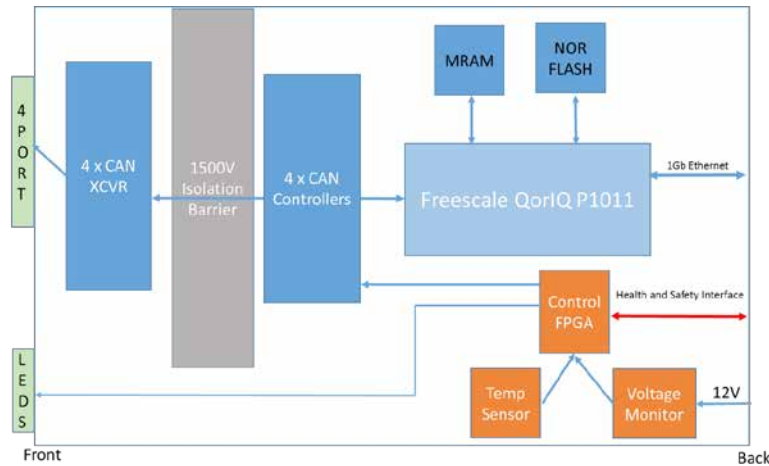
This module packetizes and transmits all incoming CAN traffic (using the Ethernet fabric) to the application on the CPU module. Similarly, the CPU module will packetize and transmit any outgoing CAN frames to the cIOU-CAN module for transmission over the CANbus. This module also supports a port mirroring function, which allows both Active and Standby ControlSafe™ Carborne Computer CPUs to access CAN traffic simultaneously.

The following bit rates and cable lengths are supported.

BIT RATE	MAXIMUM
50 kbit/s	1 kilometer
125 kbit/s	500 meters
250 kbit/s	250 meters
500 kbit/s	100 meters
1 Mbit/s	25 meters



The cIOU-CAN is certified to be interference free according to EN 50126 for reliability, availability, maintainability and safety (RAMS) processes; EN 50128 for safety-related software; and EN50129 for safety-related electronic systems; and fully EN 50155 compliant with long term availability.



### Technical Specifications

<b>Processor</b>	<b>NXP P1011 QorIQ @800MHz</b>	
Operating System	VxWorks 653 2.4.0.1	
Software Support	Application development and runtime software / firmware package. Includes: <ul style="list-style-type: none"> <li>• Bootloader / POST boot image.</li> <li>• OS binaries implementing the Can-Eth protocol converter / forwarder.</li> <li>• Demo/sample cIOU-CAN application/OS runtime images and source.</li> <li>• API libraries and makefiles to create custom cIOU-CAN application/OS runtime images. For CAN port configuration and statistics gathering.</li> <li>• Demo/sample CPU application source to exercise cIOU-CAN with loopback data.</li> </ul>	
Memory	512 MB DDR3 with ECC support	
Flash	2 x 64 MB NOR	
MRAM	1 x 512 KB MRAM	
EEPROM	1 x 8 KB	
Maintenance Ports	RS-232 onboard header	
Data Fabric	1 GigE link to backplane	
4 Front Ports	Port 0-3	PeliCAN Input/Output ISO 11898-2 compatible
Port Isolation	1500 V	
Module 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	12 V@~9 W 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	Certified as Interference Free	

## Ordering Information

Part Number	Description
CSP-CCC-CAN-01	CAN I/O BOARD FOR 4U CONTROLSAFE CARBORNE COMPUTER
CSP-CBL-CAN-01	2 BREAKOUT CABLES FOR CAN I/O MODULE OF CONTROLSAFE PLATFORM
CCP-CCC-CAN-<Rel>-<Date>	cIOU-CAN and cCPU application development, runtime SW / FW upgrade package. (Download, available to HW customers)

## 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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CCP CAN Data Sheet-19Jun2018