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Dauhphine
C3 and Power Hub for Maritime Use

Robust, Flexible Power Solution for Autonomous Maritime Platforms

Dauphine is a command, control, communications (C3), and power distribution platform that evolved from our Clio B product and specifically designed to operate in maritime environments.

Dauphine has the computing power to be everything from a simple data switch and power hub to a navigation computer. Built-in functionality enables seamless connectivity between point-to-point and redundant ring networks making Dauphine ideal for platforms needing configurable smart hubs. An expansion slot provides the addition of navigation sensors to unlock autonomous mission planning and control.

Communications

Dauphine is outfitted with a variety of serial communication protocols such as RS-485, RS-232, 5VTTL, CAN-FD, and 10/100 switched Ethernet in a variety of port mappings.

Various serial wire protocols are natively supported, and for ports connected to the FPGA coprocessor many more are possible. Serial channels support fixed or programmable hardware termination, and fixed or programmable duplex control.

Dauphine also has General Purpose Input/Output (GPIO) ports that can be used as a Remote Control receiver and for Pulse Wave Modulation (PWM).

Power

Dauphine features 4 independent power inputs, each with fault detection and feedback prevention. These power inputs can be fed to 3 independent (but tieable) power distribution busses, one of which can be powered from an internal, adjustable 3.5A power supply for maximum flexibility. The power distribution busses can feed 9 independently switched and e-fused power outputs.

Safe operation of Dauphine is assured by a comprehensive set of voltage taps, as well as high and low side current measurements on both the inputs and outputs.

Control

A 400 MHz ARM® Cortex® M7 MCU coupled with a Spartan 7 FPGA communications coprocessor and internal expansion ports means Dauphine is prepared to handle heavy workloads.

A 9-DOF Inertial Measurement Unit/ Magnetometer and GPS via the SPI expansion interface also allows Dauphine to provide global navigation and precise positioning.

Customizable

Our open-platform C++ allocore SDK allows Dauphine to be configured to each customer's specific needs

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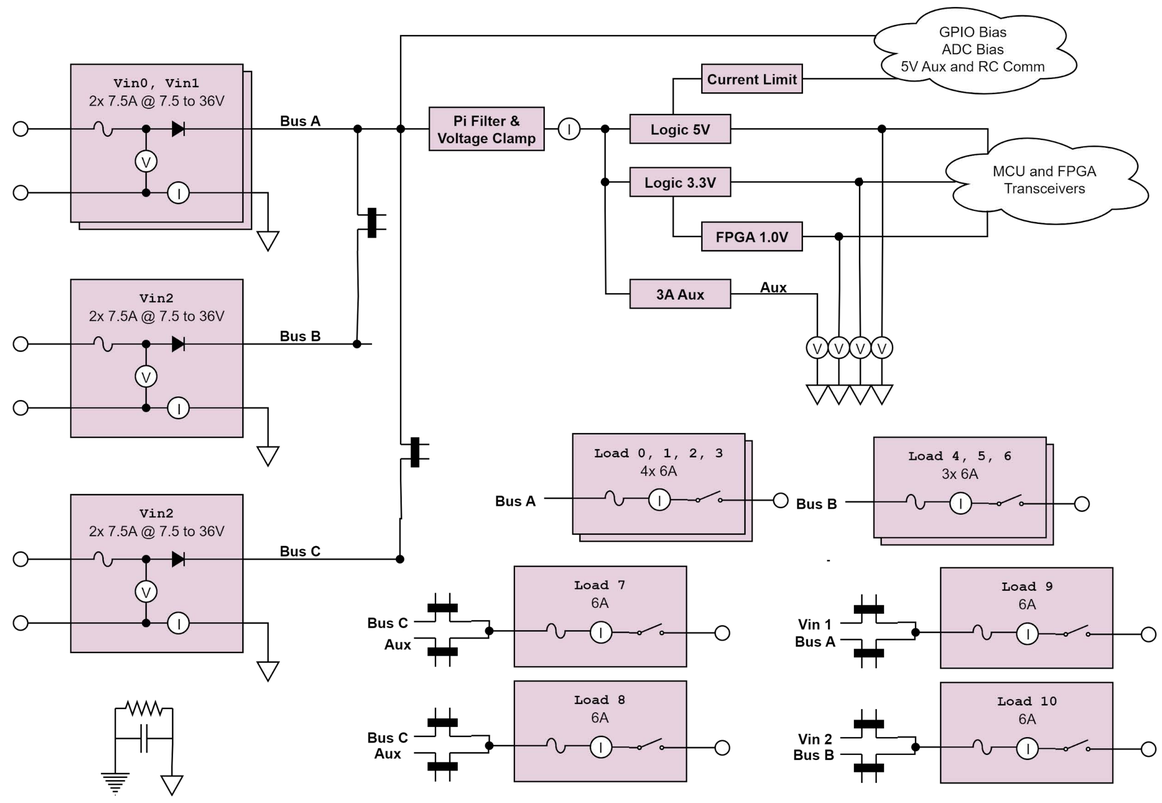
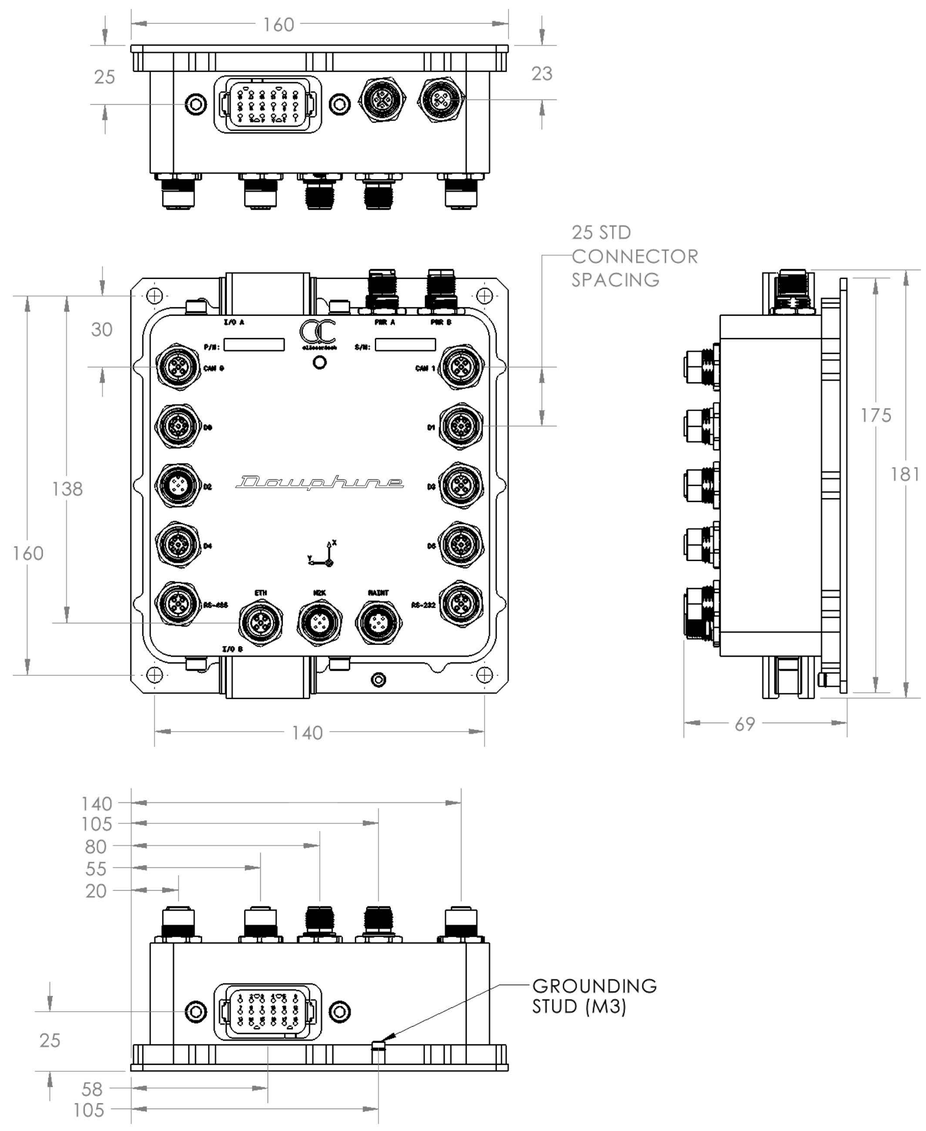
Specifications

Input Voltage	12V - 24V typical (38V max)
Power Consumption	3.5 Watts Typical 15 Watts Maximum
Weight	1000g
Environmental	Ingress: IP67 Operating Temp: -40°C to +70°C Vibration: DO-160G Cat R* Altitude: -5k to 40k MSL* * designed, but not tested to
Power Distribution	3A Buck SMPS 11x 6A Switched/Fused Outputs
Supported Serial Standards	15x Half Duplex RS-485 1x RS-232 1x 5V Invertible TTL 10x CAN-FD Programmable or Fixed Termination and Duplexing
Managed Ethernet	2x 10/100 Mbps, Auto-MDI-X
GPIO	3x Isolated 50V/3A Solid State Relay Outputs 2x Isolated 50V/3mA Max Constant Current Inputs 11x 3.3V PWM or GPIO
Analog Inputs	2x differential with programmable gain
E-Stop or Flight Termination	Voltage or Current Mode, Monitored by FPGA with Programmable Reaction
Optional Expansion	Custom daughtercards with Navigation Sensors are supported via UART and SPI

Power Tree



Mechanical Outline



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