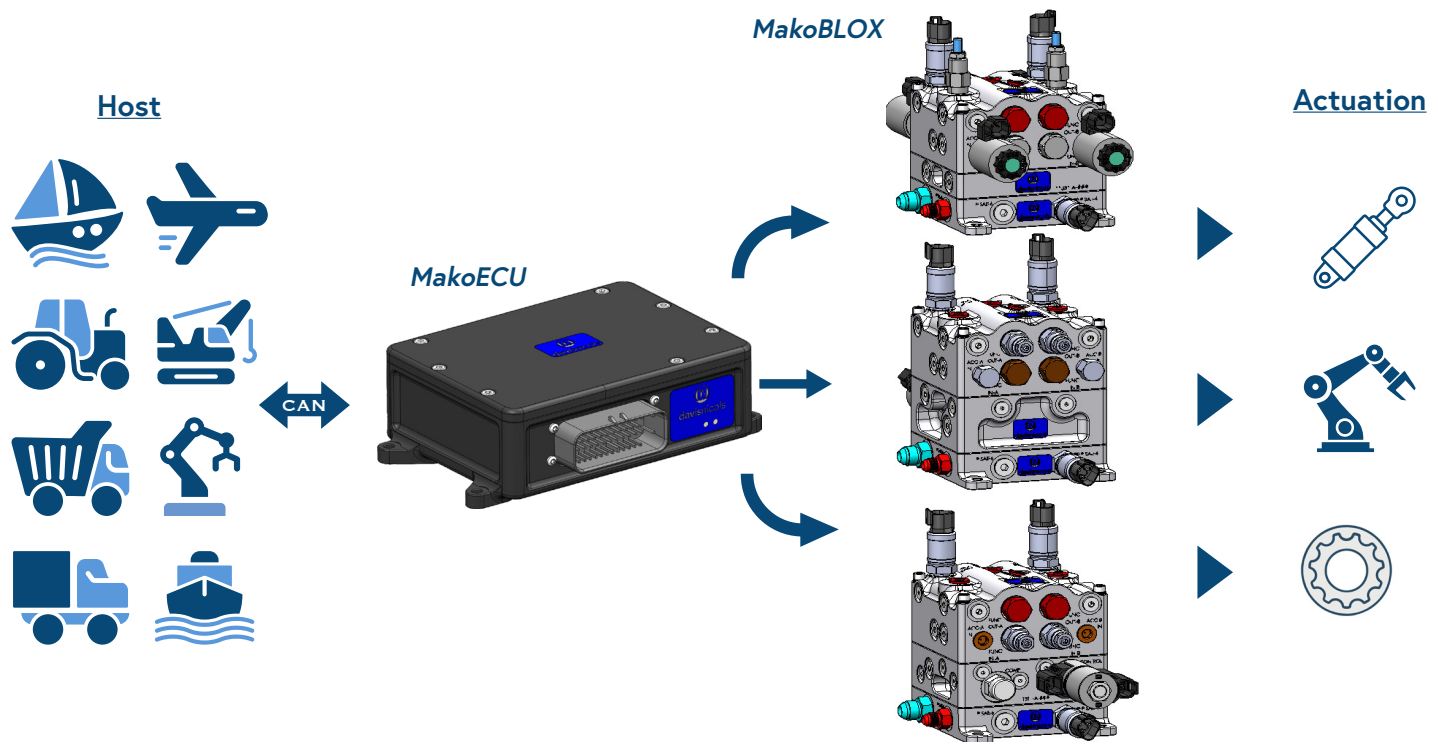


# Mako Hydraulics

by davisnicols

## Introducing the MakoECU + MakoBlox



**M**ako Hydraulics is a modular, rapid-development platform designed to streamline the design, testing, validation, and deployment of hydraulic motion control circuits. At its core are two key components:

### MakoECU

*An advanced electronic hydraulic circuit controller*



### MakoBLOX

*A versatile set of layered manifold blocks*

**Together**, they enable rapid prototyping and efficient evaluation of a wide range of standard hydraulic circuit configurations. Whether you're building new systems, validating existing ones, or scaling current solutions, **Mako Hydraulics** simplifies the hydraulic system development process—making it **faster**, **more intuitive**, and **more efficient**.

### Easy - Flexible - Fast - Smart - Safe - Adaptable

- Designed to support the most common and proven control circuits
  - Design an entire hydraulic system from a set of MakoBlox
    - Up and testing in under 4 weeks
  - Integrated real world hydraulic control best practices
    - Functional safety and diagnostics built-in
- Test numerous circuit options and control architectures

# MakoECU

## An ECU designed for hydraulic control

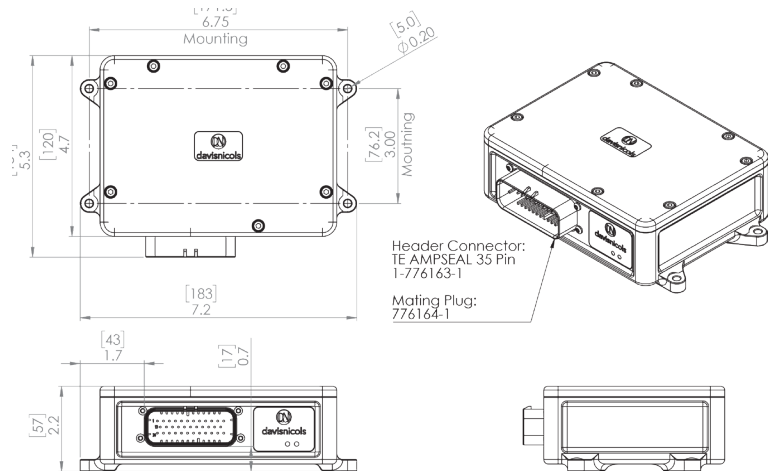
**The MakoECU** is a CAN based IO module intended to be used with the **Mako Hydraulics** development system. Our module comes preloaded with precision-tuned software designed to seamlessly control Mako Hydraulics-supported circuits.

### Key Features

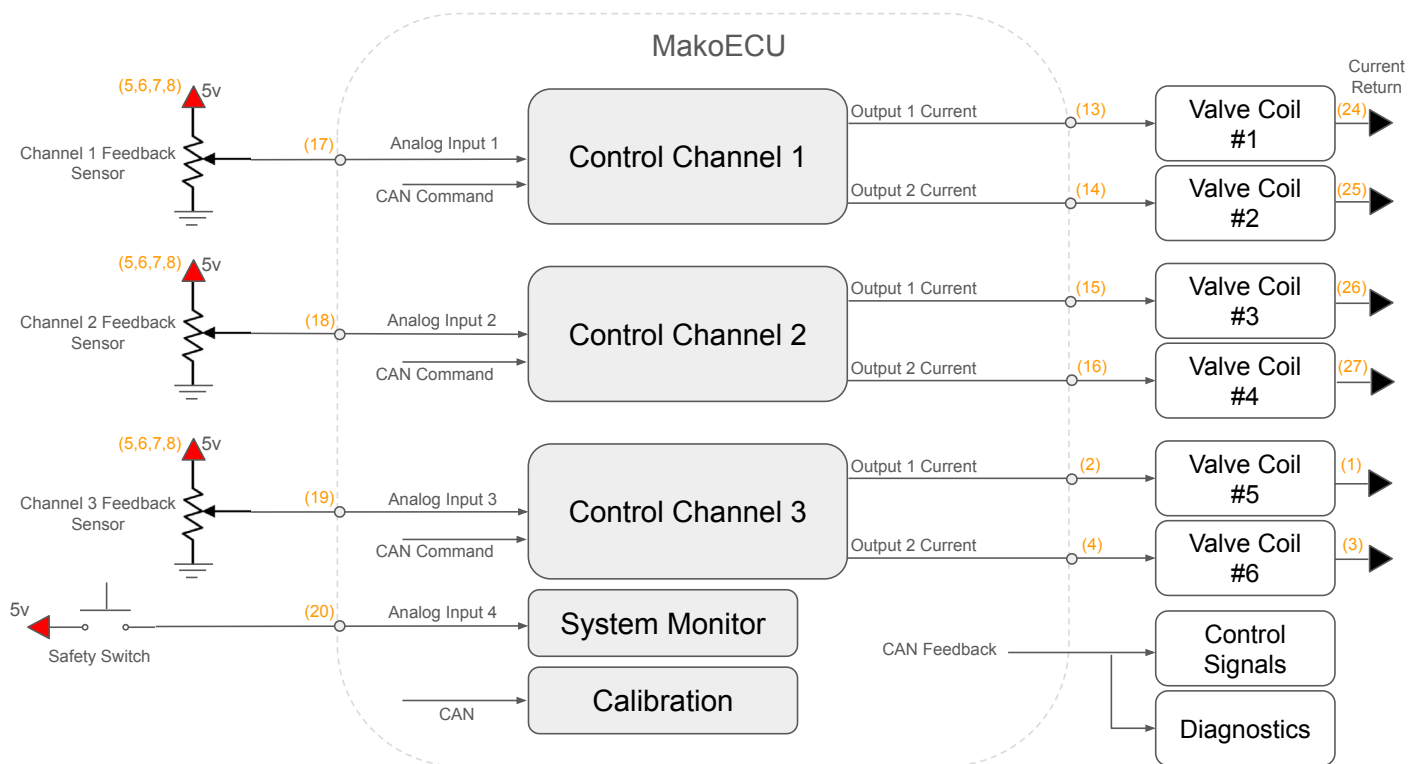
- 4 analog inputs (0-5v, 12 bit)
- 6 proportional current outputs (0 to 1.2A)
- 3 closed loop control channels
- 1 CAN 2.0b bus
- 24 VDC
- 35-pin Ampseal connector
- IP67 rated enclosure

### Key Functions

- Mako Hydraulics system controller
- Valve driver module
- Generic CAN based IO module



## MakoECU Application - Static Input/Output Assignments



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# MakoBLOX

## A modular hydraulic manifold development system

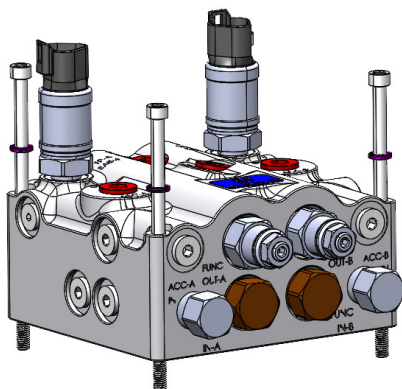
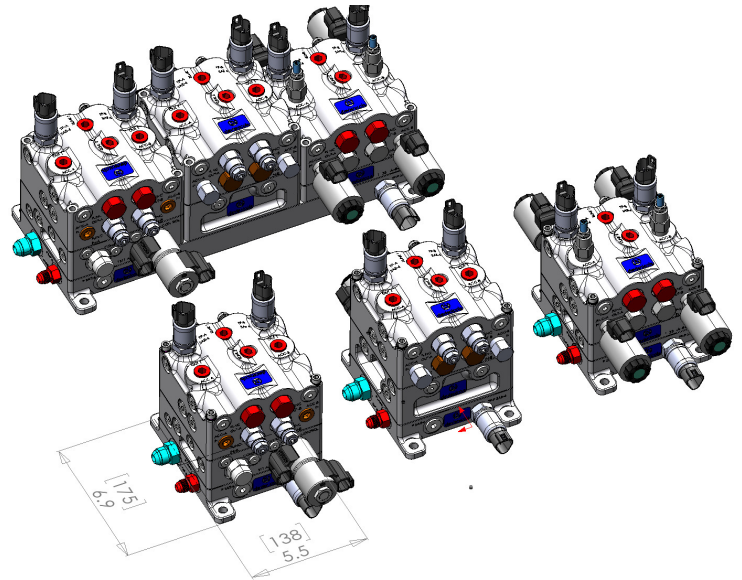
Engineered to combine the compact form factor and minimal leak paths typically found in custom manifolds, while providing the flexibility to independently configure control circuits, functions and hardware safety, and energy efficiency requirements.

### Key Features

- Layered modular manifold concept
- Configures quickly
- 25 or more circuits supported with 5 MakoBLOX
- Supports common motion control valves
- MakoBLOX components include:
  - Multi-function BLOX
  - Valve control BLOX
  - 1 and 3 station backplane
- 3,000 PSI working pressure
- 5,000 PSI optional
- SAE port on all system interfaces

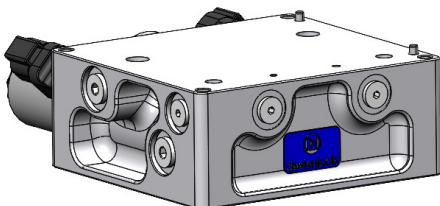
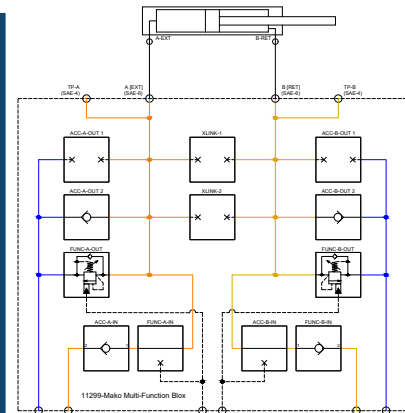
### Applications

- Mobile equipment
- Test rig development
- HIL/SIL/MIL testing



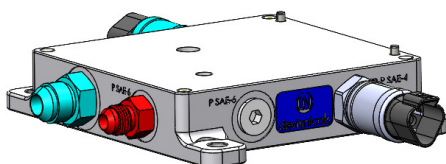
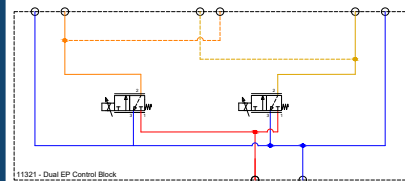
### Multi-Function BLOX

- Load/ Safety hold
- Over-Pressure Reliefs
- Anti-Cavitation
- Float
- X-flow reliefs
- Function sensing



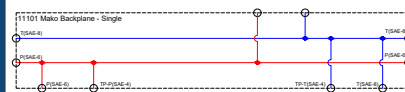
### Control BLOX

- Flow control
- Pressure control



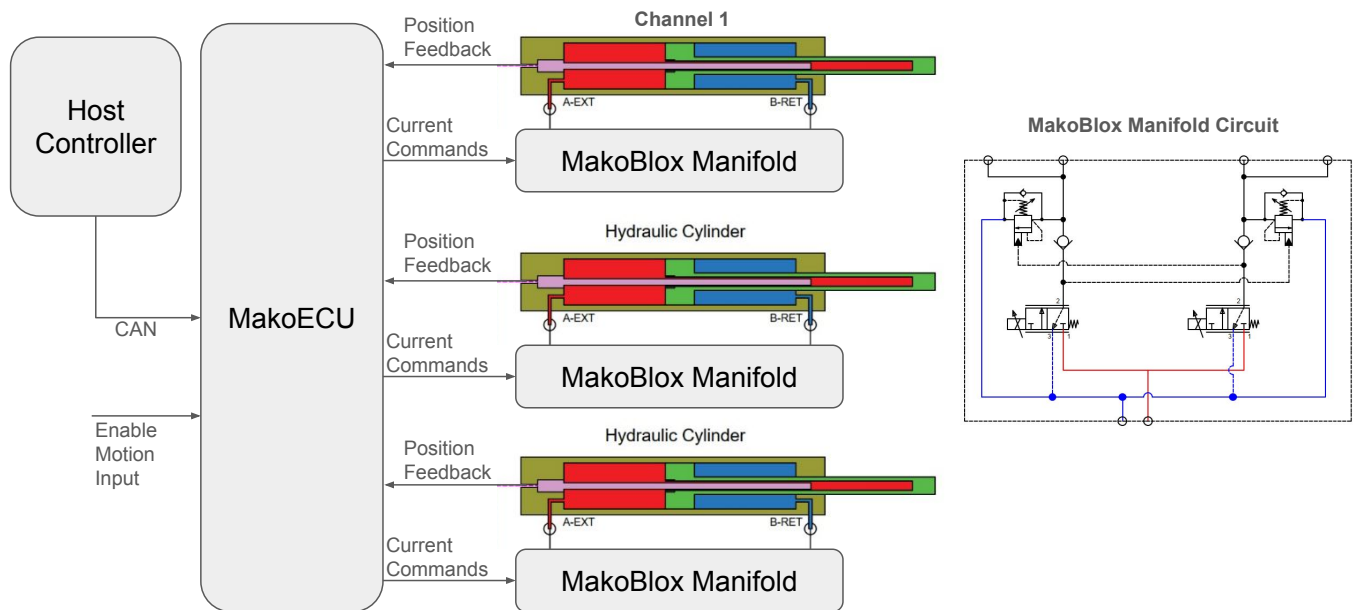
### Backplane

- Supply sensing
- Single and multiple options

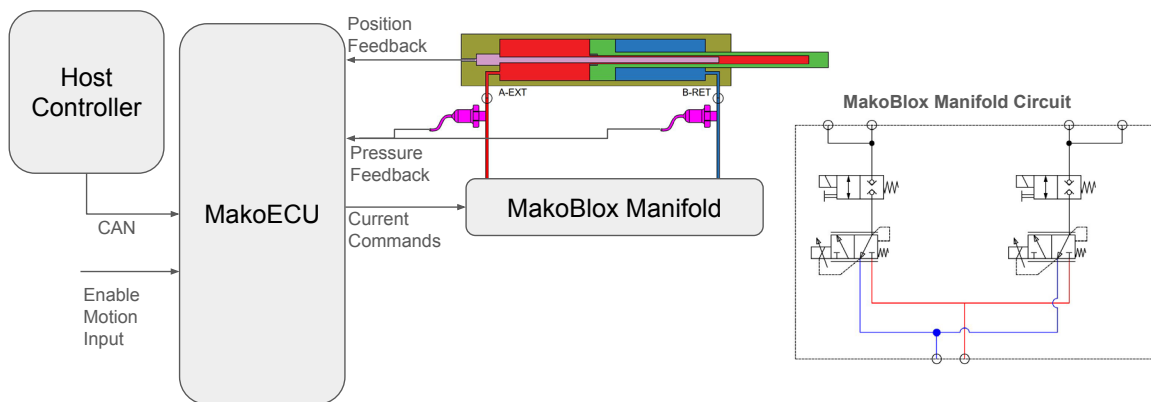


# Mako Hydraulics Use Case

## 3-Channel Loop Position Control



## 1-Channel Position Force Control with Actuated Locking Valves



Mako Hydraulics by DavisNicols LLC  
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