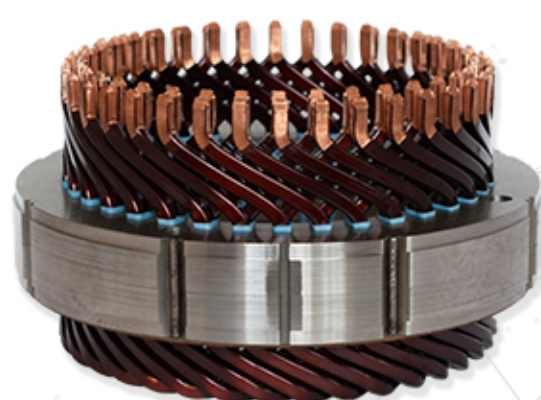


## PROPORTIONAL AC THRUSTER DRIVE

with CAN Control Unit (Smart Joystick with Bluetooth) for OEM/Retrofit

Designed from the ground up to use brushless induction or permanent magnet AC technology, the drive introduces a number of innovations to the marine tunnel thruster market. The same 24-48V architecture, with minor variations in length, covers thrust levels from 65 to 300kgf with speeds in the range of 2000 to 8000rpm. It offers OEM thruster manufacturers a modern technology which at the same time is fully compatible with existing constructions.



The AC motor, similar to automotive starters, has a hairpin stator where a few massive rectangular conductors are used rather than multiple thin round wires in parallel, achieving a very high slot fill factor. This results in compact dimensions to fit under most boats' decks (80-110kgf models are only 150mm high), superior efficiency and heat dissipation (long working cycle with passive cooling – even a radiator is not required in most cases). Coupling dimensions of the front flange and shaft are customizable so the drive can be used as a drop-in replacement for legacy DC brushed OEM models or as a retrofit. All components are under a protective plastic cover so one only needs to connect the battery and the joystick without ever removing it.



The motor support shown is for illustration only and NOT part of the offering!

A world class inverter, made by Curtis Instruments, provides accurate speed and torque control. It features dual, high-performance ARM Cortex microprocessors to ensure highest possible levels of functional safety, while providing highly efficient motor control and flexible system management functions with significant CANbus master capabilities. Thermal cutback, warning and automatic shutdown provide protection to motor and controller. Wide operating voltage range allows use with the latest cell chemistries such as lithium ion.



The Thruster Control Module is an ultra-rugged, IP67 rated proportional joystick with CAN, Bluetooth, RF433MHz capabilities and two RGB illuminated multipurpose programmable buttons. The unit is extremely robust, able to withstand aggressive conditions during outdoor use in marine applications, including EMI, vibrations, UV light and salt water.

It has an automotive grade power supply, over/under voltage, reverse polarity and ESD protection. The smart joystick provides proportional or programmable control over CAN interface. Various functional safety mechanisms comply with SIL2/EN 61508. The wireless connectivity options enable FOTA, Android, (iOS planned for end of 2023) and extend the functionality from Plug & Play to a fully customizable IoT device.

Another significant innovation is the mobile application which visualizes real time performance data (thrust percentage applied, battery voltage/SOC, motor rpm and power, overheat status in degrees Celsius, etc) **on a smartphone** but also serves as a remote diagnostics and troubleshooting channel. The mobile application communicates with the user in plain English so there is no need to count flashing lights or look up obscure error codes.

