

# MODULAR TEST CONTROLLER

Effective single-channel solution for component testing



At Moog we understand that your investments in automotive prototypes and aerospace specimens are significant. That's why you need a dependable, proven test controller to protect both the test article and the integrity of your data.

The single-channel Modular Test Controller makes it simple to operate electric, pneumatic and hydraulic test actuators. It is the ideal choice for test labs that need a compact and easy to use test controller for efficient operation in an array of testing applications. You can use it standalone, but it also allows for easy integration into your test machine.

The PC application software provides all the functionalities you need to prepare and run your tests, such as station setup, calibration and tuning, sequence building, test operation, recording and scripting. For test operation near the test rig a tablet or smartphone can be used to start and stop cycles, monitor tests, adjust safety limits and enable manifold control.

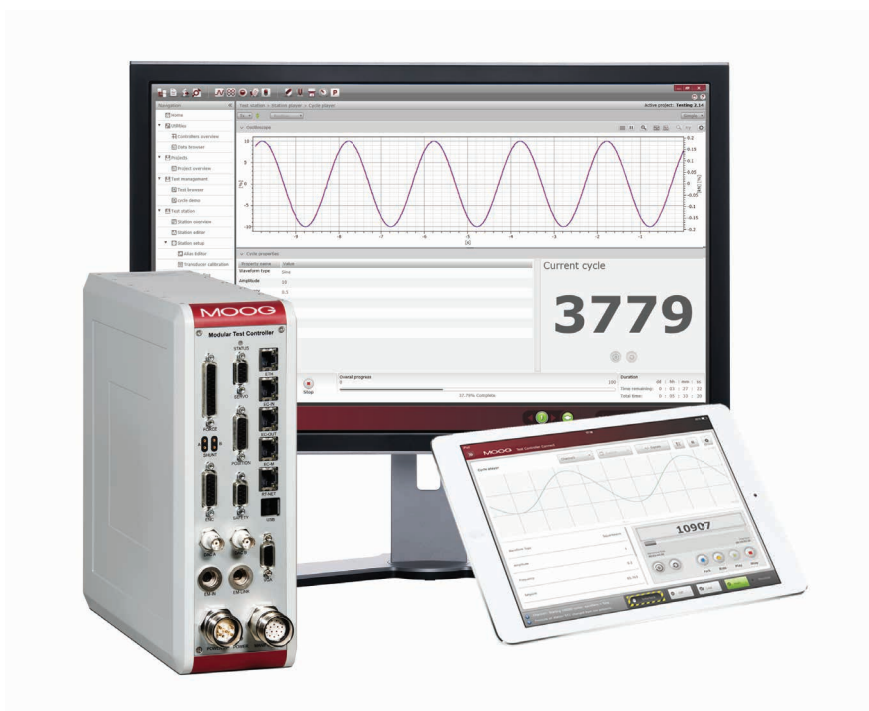
Driven by proven technology this controller has all conditioners on board designed to quickly interface with all commonly used sensors used to control a single axis.

## ADVANTAGES

- Proven controller technology—over ten thousand control channels installed and used daily in test labs around the world
- Flexible, user-friendly and cost-effective operation in an array of testing applications
- Ideal solution for integration within test machines such as load frames
- Small housing: 261 x 280 x 90mm
- Advanced safety checks are built-in to ensure your test article and test data are always protected
- Multiple Modular Test Controllers can be linked together (daisy chaining) to create multi-axis control

## TEST APPLICATIONS

- Component tests
- Material tests
- Durability and fatigue
- Play out road load data



# SPECIFICATIONS

## INTERFACES

Perform your tasks, including station configuration, calibration, tuning, playing, editing and recording sequences by using the PC application software. In addition, you can perform operating tasks, such as starting and stopping cycles and sequences and monitoring tests, by using a tablet or smartphone.



### Housing

- 261 x 280 x 90 mm (L x D x W)
- Fanless

### Servo

- 16 bits Current ( $\pm 100$  mA) or Voltage ( $\pm 10$  V) valve driver output with a limit in software

### Force

- 2x high resolution (0.03 %) with selectable gain

### Position

- Total 2x high resolution (0.03 %)
- 1x Pot meter or LVDT input (user selectable) with Pot excitation  $\pm 5$  V 5 mA or LVDT excitation 3.35 V RMS @ 3.5 kHz) 1x LVDT input with excitation 3.35 V RMS @ 2.5 kHz)

### Encoder

- Encoder, absolute (SSI, maximum 32 bit) or relative

### DAC A & B

- Acceleration
  - ICP\* Acceleration input. 18 Bit (\*ICP is a registered trademark of PCB Group, Inc., Depew, New York)

### Safety

- E-stop /Safety link

### Power in

- Controller input: 24 VDC  $\pm 20$  %
- Power adapter input: 95 - 132 VAC / 190 - 240 VAC; 47 - 63 Hz, 160 W

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## KEY FEATURES

- Suitable for any hydraulic, electric or pneumatic actuators
- Unique control loops (e.g. force, displacement and acceleration) reduce set up and run time
- Built-in real-time data-acquisition
- Pseudo channels capability allowing the user to create online calculated channels using formulas and other inputs, offering greater flexibility

- Online adaptive controls for amplitude and phase saves operator time
- Integrated controls for activating a pump and switching pilot/low/high pressure
- In addition to the Integrated Test Suite software, specific software modules are available for advanced tests, such as Replication, Sinesweep and Vibration

### Dedicated control loops

- Force-position loop (high stability low overshoot)
- Trimode loop (switch between 3 independent control modes)
- PVA loop (optimize bandwidth by using simultaneous position/velocity/acceleration control)
- PID and open loop type

### Servo Controller

- Up to 10 kHz control loop frequency (software selectable)
- Three feedback control possibilities (Force, Position, Acceleration)

### Communication

- EtherCAT interface
- Daisy chain for multi-axis control
- Ethernet (home/office)

### Function Generation

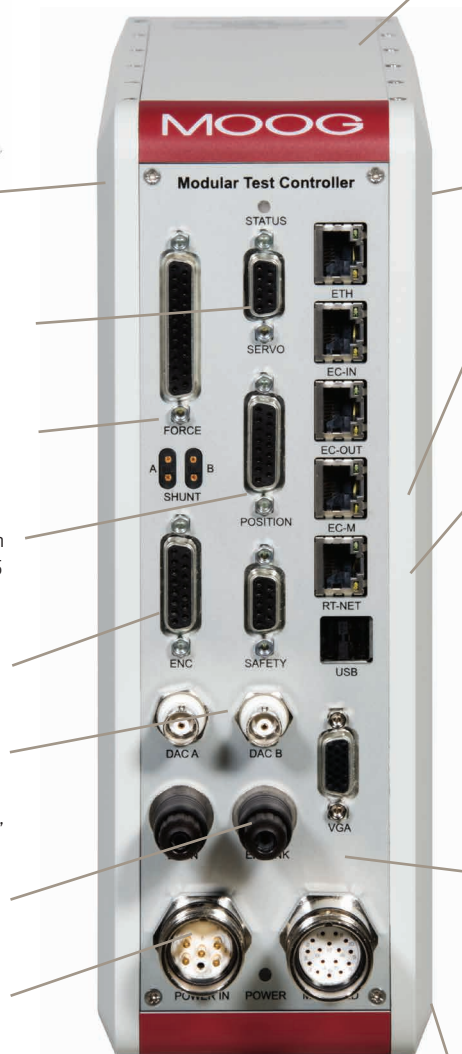
- Frequency range 0.01 to 1000 Hz
- Sine on Sine function generation (e.g. mix a low frequency offset with a higher frequency load)
- Waveforms: sine, sawtooth, block/square, ramp, rounded ramp, exponential
- Play back a sequence of instructions to simulate realistic loading conditions
- External mode option: analog input can be used as command
- Complex simulation spectrum support including power spectral density (psd frequency definition)
- Constant amplitude and phase matching

### Manifold Output / Input

- 1x Pressure switch input activation generates a fail-safe action
- 1x Free programmable digital input activation generates a user defined action
- 4x Manifold power output (Low, High, Pressure, Pump) 24V DC, single output max 2A, combined max 6A
- 1x safety controlled output (power supply for external equipment)

### Software

- Application software: Integrated Test Suite, Software modules: Replication, Runner, Sinesweep and Vibration.
- Open interface : RESTful API Moog Test Controller SDK (for connection to Matlab®, LabVIEW®, and other programming environments)



This technical data is based on current available information and is subject to change at any time by Moog. Specifications for specific systems or applications may vary.

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