AEROSPACE TEST CONTROLLER

SAFE AND RELIABLE TESTING

Rev. B, March 2025

CONFIDENTLY CONTROL AEROSPACE STATIC AND FATIGUE TESTS WITH SAFE AND PROVEN HARDWARE AND SOFTWARE FOR FASTER TESTING

MOOG | Shaping the way our world moves™

MOOG TEST CONTROLLER
SAFE. CONFIGURABLE. RELIABLE.
FOR AEROSPACE APPLICATIONS

Redundant Safety Functions

Multiple layers of redundant safety functions, integrated into hardware and software, ensure the successful completion of structural testing while keeping your test specimen safe.

Reliable Results

At Moog, we pride ourselves in providing Test Controllers with the utmost reliability. Our experience speaks for itself: Over the past 20 years, Moog has sold more than 2,000 systems with over 20,000 channels. Our large install base benefits your program.

Feature Rich Software Suite

With advanced algorithms for test commissioning and execution the Moog Test Controller software is easily upgradeable. We also have proven data center methodologies via industry standard SQL databases and RAID hardware.

Unsurpassed Precision

Deliver increased data confidence from comprehensive data analysis and reporting tools. 24 bit resolution and high signal quality allow you to visualize minute details for the variety of loops, resulting in unsurpassed precise control.

Reduce Set Up & Execution Time

One fully featured software suite for aerospace testing with advanced algorithms for test commissioning and execution assures accurate results.

Impressive Value

Designed to give you the right featureset for your acquisition which simply maximizes your purchasing power. The Moog Test Controller provides competitive initial purchase, maintenance and upgrade costs.

Easily Configurable

The Moog Test Controller can be easily configured to fit your needs - because no two test labs are the same. 1 to 500 channels with thousands of I/O combinations from six modular building blocks allow for unmatched customization.

Modular & Compact

No job is too big or too small. Our modular design can be a centralized or distributed set up. This flexibility saves both time and reduces complexity.

Expertise & Support

We've seen it all. Moog expertise in test laboratories like yours ensures high value test results. With leadership and support in over 20 countries, Moog delivers technology, innovation and service around the globe.

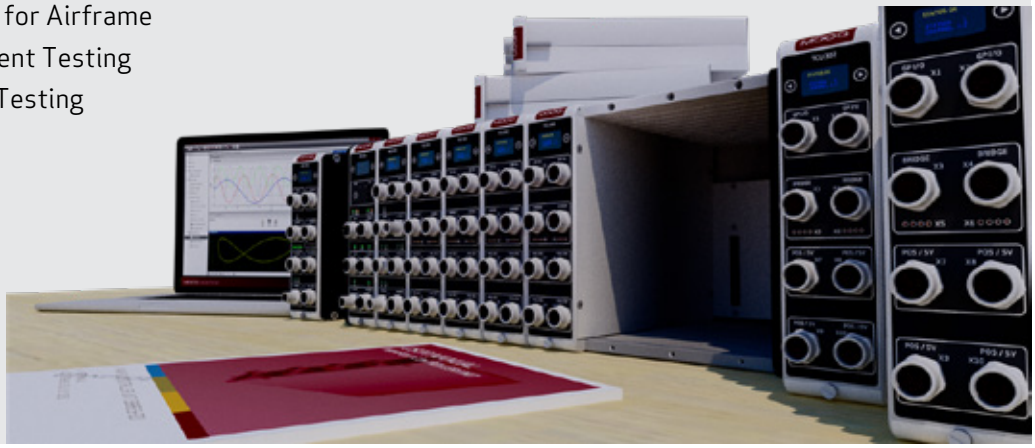
PRODUCT OVERVIEW

The Moog Test Controller is a 1 to 500 channel real-time modular control system that can control or collect data from any hydraulic or electric test system. The robust and compact modules have a wide range of transducer inputs and control outputs that can be easily configured for optimum use. The Moog test software allows the end user to control and record all of these signals in an easy to use format providing maximum value for many years of reliable usage.

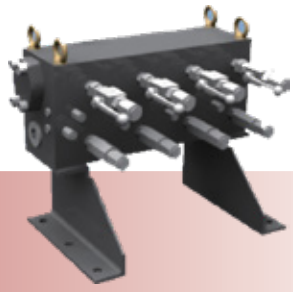
FEATURES	BENEFITS
Familiar feature-rich software: configurable hardware bindings, wizard for calibration, powerful control loops	Existing users require no additional training, while new users will benefit from simplified interfaces, enabling complex tasks with minimal effort
Easier 1 piece modules	With fewer parts to manage, transferring hardware between controllers is safer
Easier upgrades in future with CPU module and Manifold Control Unit	Modular design permits low cost upgrades to take advantage of rapidly improving technology or controller expansion
Higher density I/O per module	Lower cost per connection with more I/O packed into less space
1 to 500 channel expansion easier	Low cost controller expansion with space saving channel or data acquisition modules avoiding expensive racks with limited slots
Better 24-bit signal resolution	High resolution analog inputs providing high precision for control and data aquisition

REDEFINING PERFORMANCE THROUGH ADAPTED SOLUTIONS

- Sub-Assembly and Sub-System Testing
- Full Scale Structural Testing
- Flight Control System Testing
- Component Testing for Airframe
- Rotorcraft Component Testing
- Engine Component Testing



SYSTEM OVERVIEW

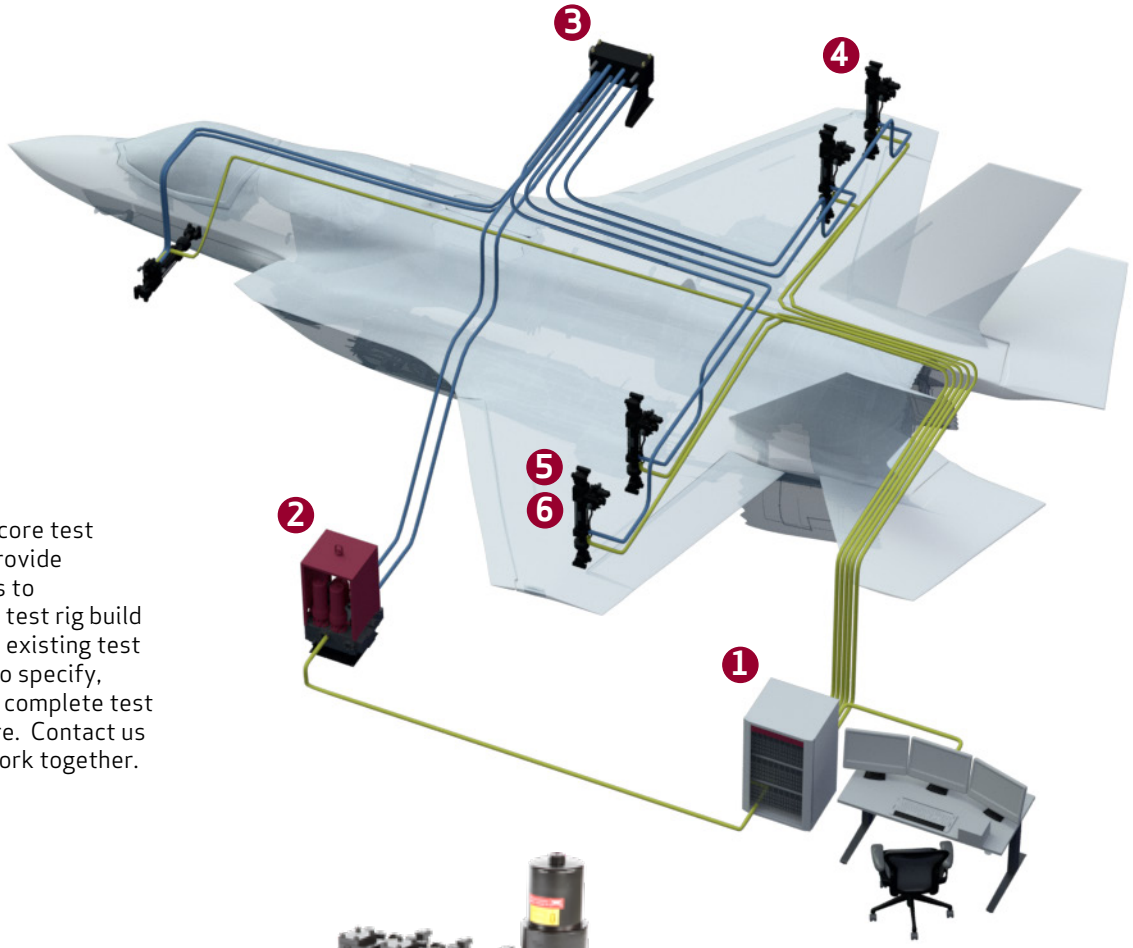


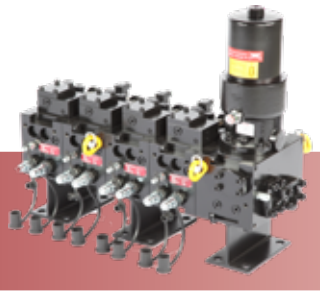
1 TEST CONTROLLER
1 to 500 channel safe, real-time modular system for control and data aquisition from any hydraulic or electric test system

2 HYDRAULIC SERVICE MANIFOLD
Off/Low/High/Pilot pressure control with adjustable pressure transition. Several flow rating sizes with up to 4 station options available

3 DISTRIBUTION MANIFOLDS
With two flow capacities, pressure rated to 280 bar and up to 8 outlet ports, the distribution manifold adds organization and control to any hydraulic test rig

As a manufacturer of core test products, Moog can provide individual components to complement your new test rig build or expand/upgrade an existing test system. Moog can also specify, manage and provide a complete test system like shown here. Contact us to learn how we can work together.





4 HYDRAULIC TEST ACTUATORS
Choose from a family of fatigue-rated, single or double ended actuators from 5kN to 1137kN and 100mm to 1,000mm

5 ON OR OFF AXIS SAFETY ABORT MANIFOLD
Set and limit the pressure in both directions to prevent overloading and remove load from the test specimen under a controlled speed. Available 1 to 8 stations

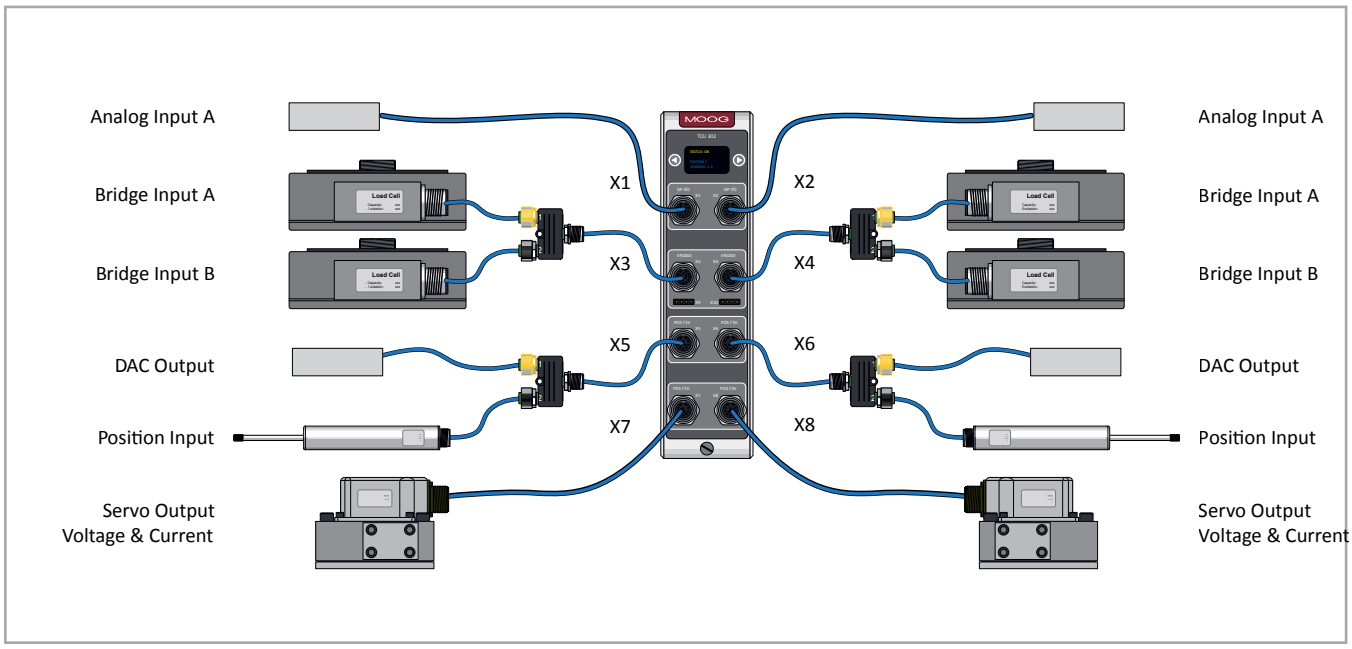
6 SERVO VALVE
Moog servo valves are most likely already in your lab. Contact us if you need more, a special application, or service to make it new again

TEST CONTROLLER UNIT (TCU)

The TCU is a dual channel digital servo controller which can be used in the Moog Test Controller. This unit has a high connection density to control hydraulic servo valves, read a wide variety of transducer signals and output analog test signals. It is a highly advanced controller which has a proven history of more than 16,000 units placed over 20 years worldwide.

FEATURES	BENEFITS
Fully enclosed	ESD protection, easy to swap and service
Ruggedized	Full aluminum enclosure which protects electronics from harsh environments
Small form factor	Cabinet space reduced by more than 50%, allowing for higher I/O density
Modular	Fits easily into a small single channel or large multi channel test system
Easy to install	No tooling required
Safety line integrated in fieldbus	No hard-to-configure safety chain between components
Integrated display/module	Immediate status and diagnostics feedback
Onboard control loop	Enables higher control loop frequencies per channel
Dual Network Interface	Control and DAQ through real-time network protocols
24 Bits on all inputs	Higher input accuracy
Input Bandwidth on all inputs 100 kHz	Simultaneous sampling
M12 Industrial standard connectors	High density, world wide availability
Integrated transducer power supply	Supply power directly from the unit, this reduces system complexity and cost
Wide range DC power input	Lower power consumption

The Test Controller Unit is equipped with a large amount of I/O to interface to various equipment such as servo valves and transducers. The I/O is divided across 8 different connectors located on the front of the module.



PERFORMANCE SPECIFICATIONS – TEST CONTROLLER UNIT

DESCRIPTION	SPECIFICATION
Supported Servo Channels	2
Max. Control Loop Speed/channel	Up to 5000 Hz
Power Supply	Wide range 20 V to 50 VDC
Bus System	Ethernet 1000 Mbps
Analog Input	
Input Signal Range	Voltage: ±10 VDC Current: ±20 mA (activated through internal shunt resistor)
Input Resolution	24 bits simultaneous sampling
Bridge Input/output	
Input Signal Range	+/- 10 VDC (max +/- 12 VDC)
Input Accuracy	<0.1% full scale
Input Resolution	24 bits simultaneous sampling
Input Programmable Gain	1/8 to 128, in 11 steps
Supported Bridge Types	Full
Supported Number of Bridge Wires	4-wire, 6-wire, 7-wire, 8-wire (physical 7-wire interface; internal/external shunt +/- possible)
Excitation Voltage	10 VDC +/- 1mV
Excitation Current	100 mA max
Load Cell Support/Excitation Drive	120 to 1000 [c]
Excitation Drift	10 ppm / °C
Internal Shunt Resistor	100 k [c]
External Shunt Resistor	1 connection/interface (4 total)
LVDT/Potentiometer/Encoder (Position) Input	
Input Signal Range	+/-10VDC, 7 VRMS (max +/-12VDC)
Input Accuracy	<0.1% full scale
Input Temperature Drift	<0.23% full scale; <0.25% at highest gain
Excitation Signal Range	Potentiometer up to +/- 5 V (<+/-4 mV) max, +/- 50 mA LVDT +/- 2.0 Vrms or +/-3.5 Vrms (<=±1 mVrms) max at +/- 50 mA
Excitation Frequency	2.5 kHz or 5 kHz (+/- 5 Hz)
Wire Type Support	3-wire, 4-wire, 5-wire
Encoder Supported Types	SSI, relative (quadrature), Endat 2.2
Servo and DAC Output	
Servo Output Signal Range	+/- 100 mA; +/- 10 VDC
Servo Current Output Load	Between 0 and 100 [c]
DAC Voltage Output Signal Range	Up to +/- 10 V;+/- 25 mA
DAC Voltage Output Resolution	16 bits

I/O SPECIFICATIONS – TEST CONTROLLER UNIT

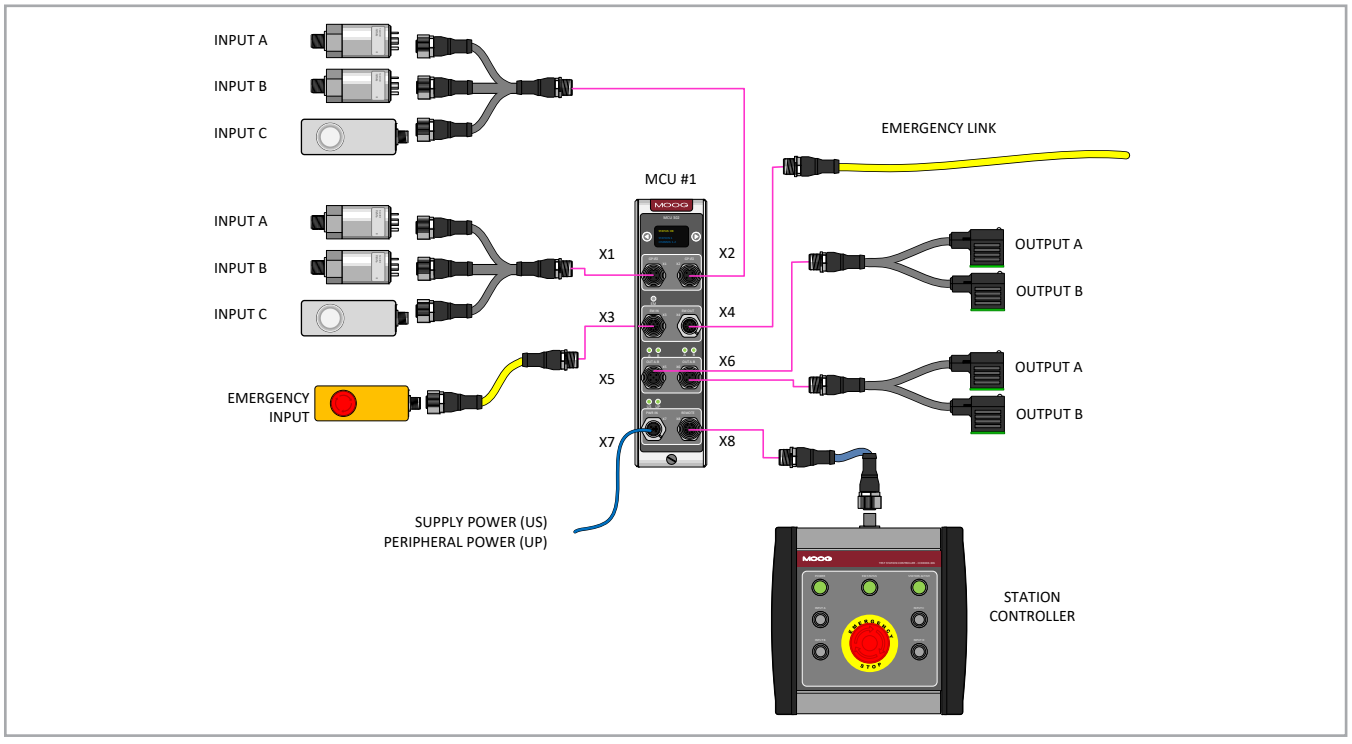
TCU	CONNECTOR	# OF INTERFACES	TYPE	COMMENTS
Analog Input (ADC)	X1 and X2	2x	Input	Voltage or Current type input
Bridge Input	X3 and X4	4x	Excitation output Excitation Sense input Signal input	Voltage type input
LVDT or Potentiometer or Encoder (Position)	X5 and X6	2x	Excitation output Signal input	Voltage type input
DAC	X5 and X6	2x	DAC output	Voltage output
Servo	X7 and X8	2x	Servo current/voltage output Servo current read back	Voltage and current type output

MANIFOLD CONTROL UNIT (MCU)

The MCU is a single or dual test station manifold controller with two independent outputs providing off/low/high voltage to hydraulic service manifold (HSM) solenoids. The high current output allows up to 4 total off/low/high outputs in parallel. The emergency stop button has a dedicated connection and turns off all HSM outputs.

FEATURES	BENEFITS
Fully enclosed	ESD protection, easy to swap and service
Ruggedized	Full aluminum enclosure protects electronics from harsh environments
Small form factor	Reduction of >50% in cabinet space, more I/O fits into less space
Modular	Fits easily into small single channel or large multi channel test system
Easy to install	No tooling required
Safety line integrated in fieldbus	No hard-to-configure safety chain between components
Integrated display/module	Immediate status & diagnostics feedback
Control of a 1 to 4 stage manifold with a single unit	No need for additional power source or digital logic connections
18 Bits on all inputs	Higher input accuracy
Input bandwidth on all inputs 10 kHz	Simultaneous sampling
M12 industrial standard connectors	High density, world-wide availability
Integrated transducer power supply	Supply power directly from unit, reducing system complexity and cost
Wide range DC power input	Low power consumption
Emergency stop with internal safety relay	Safe shutdown in conformance with international safety standards

The MCU is typically configured with pressure switches and a station interlock, where only that station will shut down. These same connectors are general purpose inputs that also can be flexibly configured as analog or digital inputs. The MCU connectors can be individually bound to the desired station. The typical use of a station controller is shown in the diagram below. This connection can alternately provide a remote pendant, which gives actuator jogging control to the user during specimen installation. If no pendant or station controller unit is used, then six additional digital inputs or outputs are available. The I/O is divided across eight different connectors located on the front of the module. Additional MCUs can be added to the Moog Test Controller linked together or separate for up to two test stations each.



PERFORMANCE SPECIFICATIONS – MANIFOLD CONTROL UNIT

DESCRIPTION	SPECIFICATION
Analog or Digital Input	
Input Signal Range	Voltage: ±10 VDC Current: ±24 mA (activated through internal shunt resistor)
Input Resolution	18 bits simultaneous sampling
Digital Input Type	Source/Sink
Digital Input Range	0 - 28 VDC
Digital Input Threshold	Low <= 3 VDC, High >= 8 VDC
High Power Output	
Output Current	24 VDC @ Max 2.5 A/output
Proportional Definition	PWM Mode: 0 to 100%, Solenoid Mode: auto PWM
Digital Inputs or Outputs	(when not connected to a Station Controller or Pendant)
Digital Input Signal Range	0-30 VDC
Digital Output Signal Range	0-30 VDC (non-isolated)
Digital Output Current	Max 500 mA

I/O SPECIFICATIONS – MANIFOLD CONTROL UNIT

TCU	CONNECTOR	# OF INTERFACES	TYPE	COMMENTS
General Purpose Input (Analog or Digital)	X1 and X2 (GP-I/O)	6x	Input	Analog I or V, Digital
Emergency Input for E-Stop	X3 (EM-IN)	1x	Input	Analog I or V, Digital
Emergency Output	X4 (EM-OUT)	1x	Output	To link Multi MCUs
High Power Outputs	X5 & X6 (OUT 2x)	4x	Output	Voltage
Manifold Power	X7 (PWR-IN)	1x	Input	–
Digital Input/Output	X8 (REMOTE)	6x	Input/Output	Or to Station Controller or Pendant

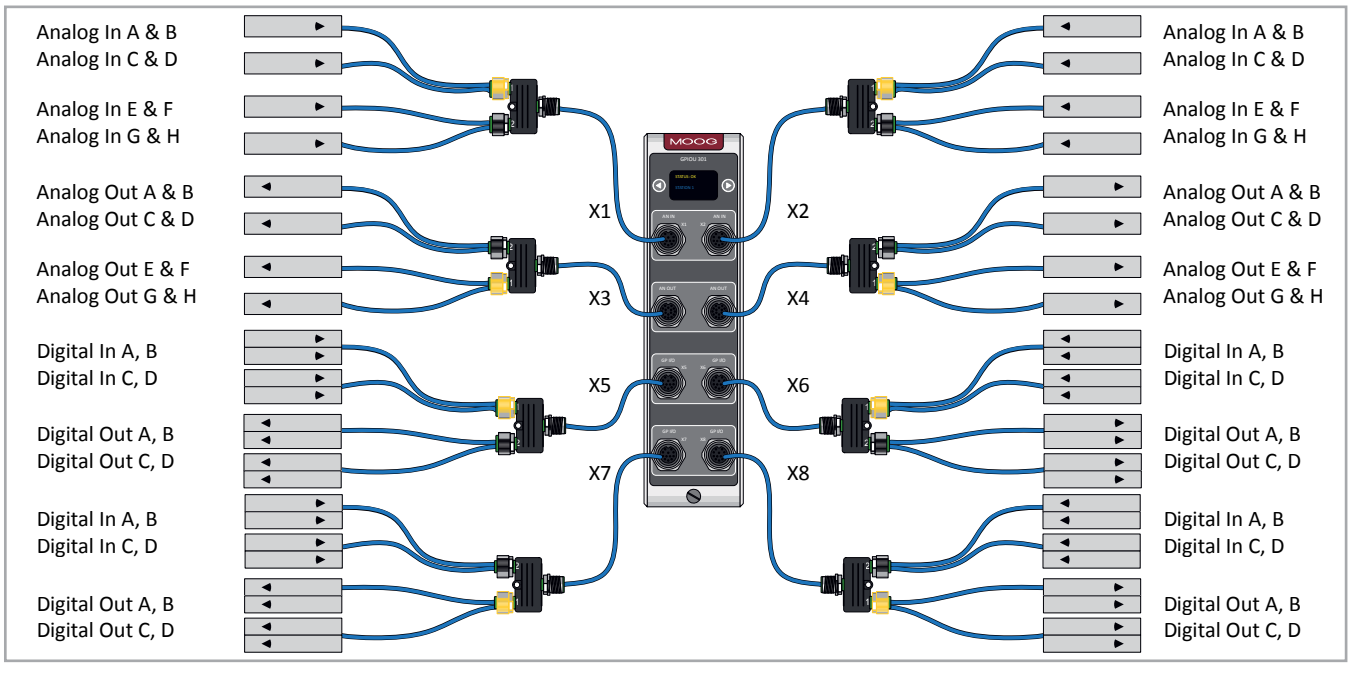
GENERAL PURPOSE INPUT/OUTPUT UNIT – (GPIOU)

The General Purpose Input/Output Unit (GPIOU) is a flexible module that provides 8 differential analog input and analog output channels (16 channel single ended) as well as 16 digital input and digital outputs all in one configurable module. This high channel density gives a cost effective tool to complement the other available control units for additional control or recording of data signals.

Its full aluminum enclosure makes it ruggedized and easy to handle. It's equipped with a display for immediate status and diagnostics feedback.

Communication with the module is achieved through Ethernet interfaces, along with control power through the back of the module. The internal ZYNQ processor module provides power to run multiple control loops that can control external equipment or internal processes.

FEATURES	BENEFITS
Fully enclosed	ESD protection, easy to swap and service
Ruggedized	Full aluminum enclosure protects electronics from harsh environments
Small form factor	Reduction of >50% in cabinet space, more I/O fits into less space
Modular	Fits easily into small single channel or large multi channel test system
Easy to install	No tooling required
Integrated OLED display/module	Immediate status & diagnostics feedback
Dual Network Interface	Control and DAQ through real-time network protocols
Record or control 4 different types of transducers on a single unit	Configurable connections giving flexible value as test needs change
24 Bits on all inputs	Higher input accuracy
Input bandwidth on all inputs 50 kHz	Simultaneous sampling
M12 industrial standard connectors	High density, world-wide availability
Integrated transducer power supply	Supply power directly from unit, reducing system complexity and cost
Wide range DC power inp	Low power consumption



PERFORMANCE SPECIFICATIONS – GENERAL PURPOSE INPUT/OUTPUT UNIT

DESCRIPTION	SPECIFICATION
Analog or Digital Input	
Connections	8x Differential (16x Single Ended)
Input Signal Range	Voltage: +/- 10 VDC Current: +/- 10 mA Diff, +/- 20 mA S.E. (activated through internal shunt resistor)
Input sample rate	Up to 100 kHz
Input resolution	24 bits simultaneous sampling
Analog Output	
Connections	8x Differential (16x Single Ended)
Voltage output signal range	Up to +/- 10 V; +/- 25 mA
Voltage output resolution	16 bits
Digital Input	
Connections	16x with common ground
Digital Input type	Source/Sink
Digital Input range	0-50 VDC
Digital Input Threshold	Low <= 3 VDC, High >= 4.5 VDC
Digital Output	
Connections	16x
Digital Output Signal Range	12 - 28 VDC (common ground)
Digital Output current	Max 1A per channel, 4A total for 16 channels

I/O SPECIFICATIONS– GENERAL PURPOSE INPUT/OUTPUT UNIT

TCU	CONNECTOR	# OF INTERFACES	TYPE	COMMENTS
Analog Input (AI)	X1 and X2	8x Differential or 16x Single Ended	Input- individually configurable	Voltage or current type, software configurable
Analog Output (AO)	X3 and X4	8x Differential or 16x Single Ended	Output- individually configurable	Voltage type, software configurable
Digital Input (DI)	X5, X6, X7, X8	16x	Input	Source/Sink
Digital Output (DO)	X5, X6, X7, X8	16x	Output	Required external power supply (24 VDC) Insulated High Side Driver

BRIDGE CONDITIONER UNIT – (BCU)

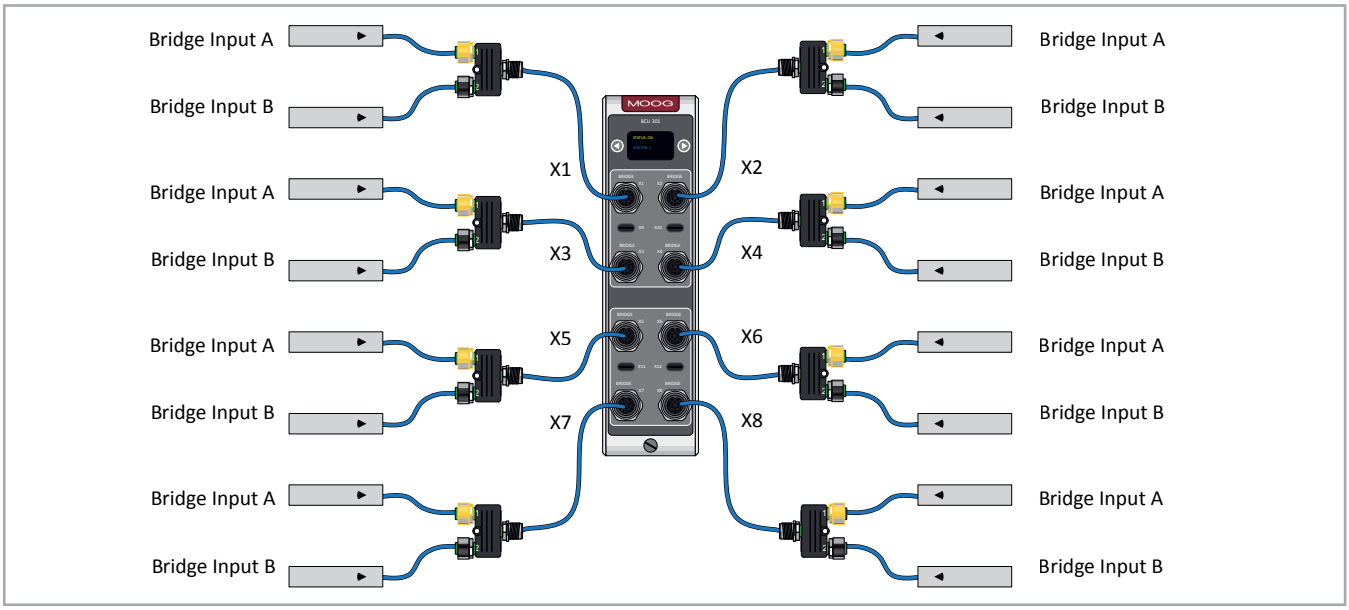
The Bridge Conditioner Unit is a flexible module that provides signal conditioning for up to 16 channels. It is designed primarily for Wheatstone bridge style sensors, but can be used on any high level signal-based sensor using 10 VDC excitation and output like a potentiometer or accelerometer. The strain gage-based sensors are compatible when wired in quarter, half or full bridge configuration. Each bridge type input is equipped with one internal shunt, one external shunt connection, and a connection for matched external completion resistors. This high channel density gives a cost effective tool to complement the other available control units for additional control or recording of data signals.

Its full aluminum enclosure makes it ruggedized and easy to handle. It's equipped with a display for immediate status and diagnostics feedback.

Communication with the module is achieved through EtherCAT and Ethernet interfaces, along with control power through the back of the module. The internal ZYNQ processor module provides power to run multiple control loops that can control external equipment or internal processes.

FEATURES	BENEFITS
Fully enclosed	ESD protection, easy to swap and service
Ruggedized	Full aluminum enclosure protects electronics from harsh environments
Small form factor	Reduction of >50% in cabinet space, more I/O fits into less space
Modular	Fits easily into small single channel or large multi channel test system
Easy to install	No tooling required
Integrated OLED display/module	Immediate status & diagnostics feedback
Dual Network Interface	Control and DAQ through real-time network protocols
24 Bits on all inputs	Higher input accuracy
Input bandwidth on all inputs 40 kHz	Simultaneous sampling
M12 industrial standard connectors	High density, world-wide availability
Integrated transducer power supply	Supply power directly from unit, reducing system complexity and cost
Wide range DC power input	Low power consumption

Cable design and manufacturing is critical to measure these small signals and isolate electrical noise from the outside environment. Moog has already designed and manufactured a wide variety of cost effective cabling options to meet your specific needs. Talk to one of our experts who will make sure all the equipment runs with the best performance.



PERFORMANCE SPECIFICATIONS – BRIDGE CONDITIONER UNIT

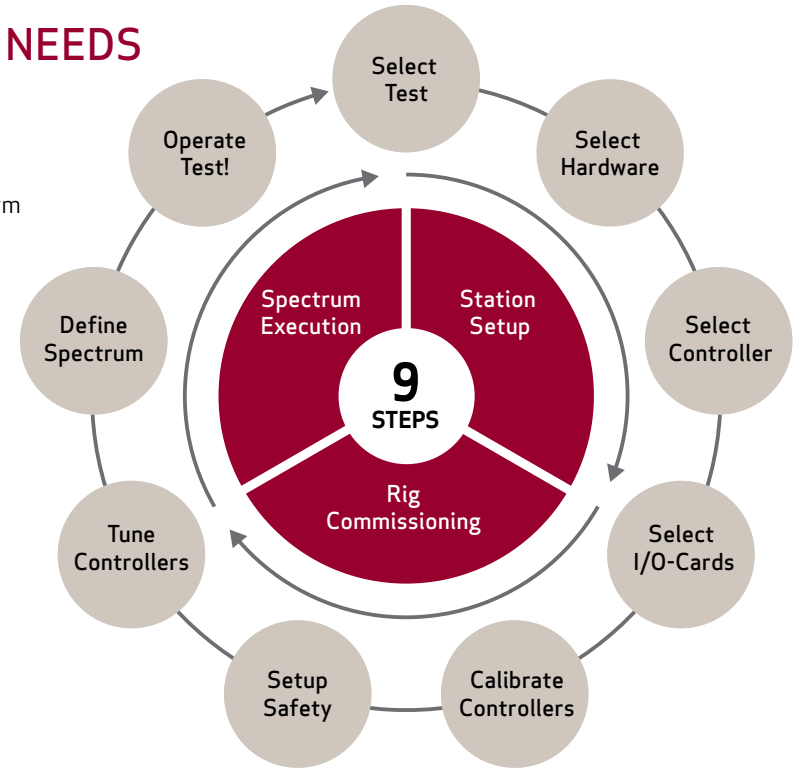
DESCRIPTION	SPECIFICATION
Number of Interfaces	16
Input Type	Differential
Input signal range	±16V AC or DC
Input programmable gain	1/8 to 176 in 22 software selectable combinations
Input sample rate	Up to 100 kHz
Input resolution	24 Bits simultaneous sampling
Supported bridge type	Full/Half/Quarter (quarter bridge is supported making use of the completion resistor connector for external bridge completion
Supported number of bridge wires	4-wire, 6-wire, 7-wire, 8-wire* (*physical 7-wire interface; internal/external shunt ± possible)
Broken wire detection	Yes (all wires)
Excitation voltage	Programmable; max ±10 V (±1 mV)
Excitation current	100 mA max.
Load cell support/excitation drive	120 to 1000 [c]
Internal shunt resistor	1 pcs; 100 k[c] (<10 [c] internal multiplex resistor)
Exernal shunt resistor	1 connection/interface (total 4); (<10 [c] internal multiplex resistor)

I/O SPECIFICATIONS – BRIDGE CONDITIONER UNIT

TCU	# OF INTERFACES	TYPE	COMMENTS
Bridge type inputs Full, half or quarter	16x	Input Individually configurable per in/output	Including - internal/external shunt - external shunt bridge completion

SOFTWARE TO MEET YOUR NEEDS

The Moog Test Controller operates using one of two core software packages: the Moog Integrated Test Suite or the Moog Aerospace Test Suite software. These packages allow operators to setup and perform complex tasks in easy-to-use ways. The following pages describe the use and benefits of the Moog Aerospace Test Suite Software.



CONTROL YOUR TEST WITH THE MOOG AEROSPACE TEST SOFTWARE

Configure, calibrate and tune equipment with easy-to-use setup screens and then build and play simple to complex test sequences for durability tests.

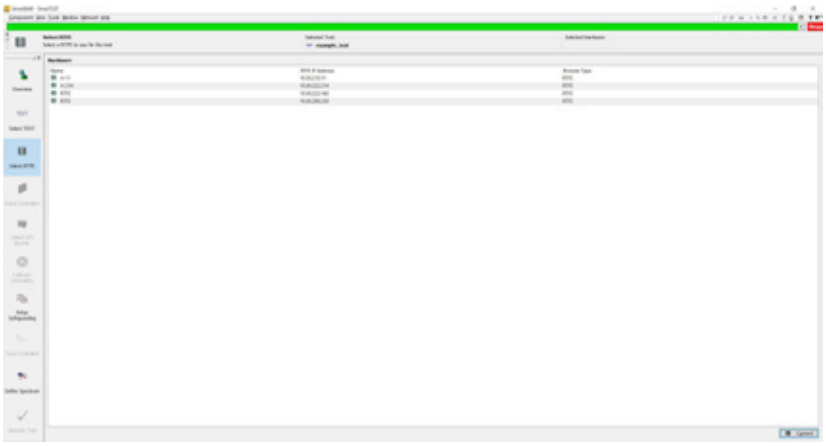
KEY FEATURES	USER BENEFITS
Supports multiple test systems • Single and multi-axis hydraulic or electric test systems • State-of-the-art configurable controller settings • Software can handle up to 500 channels	**One controller platform for many uses** • User interface includes configuration, calibration, tuning and test players for strength and fatigue tests • Optimize control for complex test rigs • Allows expansion of test rig as required
Safety and Reliability • Dual safety; hardware and software • Extensive set of configurable safeguard settings • Quick data upload/download, simple system calibration and set-up	**Minimize Risk** • Safety of the test specimen • User definable to suit your needs • Data reliability
• **Integrated testing suite** • Utilize a variety of functions for simple or complex tasks • Native windows application with easy workflow supporting 'drag and drop'	**User friendly and intuitive** • Supports less experienced operators or total control for advanced users • One learning curve for operating different test rigs • High value software without hidden extras
Real time motion control • Perform complex control algorithms using both internal and external data • Unique force/position control loop • Real-time data; import and export	**Test accuracy and efficiency** • Online dynamic calculations • Decrease set-up time 50%, increase test operation 30% • All data available as control parameter
Customize your user interface • User-defined operator panels and configurable graphic views	**Efficient localization** • Operation and monitoring made easy
Data Acquisition • On-board data acquisition • Data Acquisition Systems (DAS) synchronization	**Collect data you need** • Simple tests set-up and run faster • Use your existing DAS for synchronized integration

CONTROL YOUR TEST WITH THE MOOG AEROSPACE TEST SOFTWARE

SELECT TEST

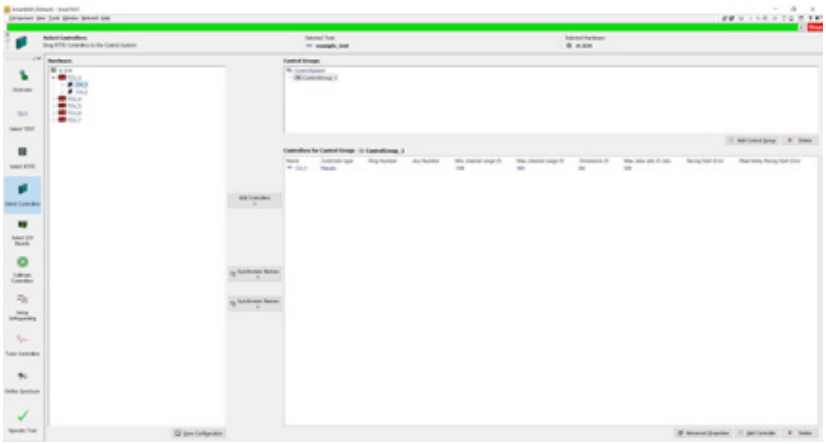
The user can select or create a test by following a simple left-to-right setup structure.

SELECT HARDWARE (RTFE)



Most systems will have one Real-time-front-end or control computer and those with multiple can be selected here.

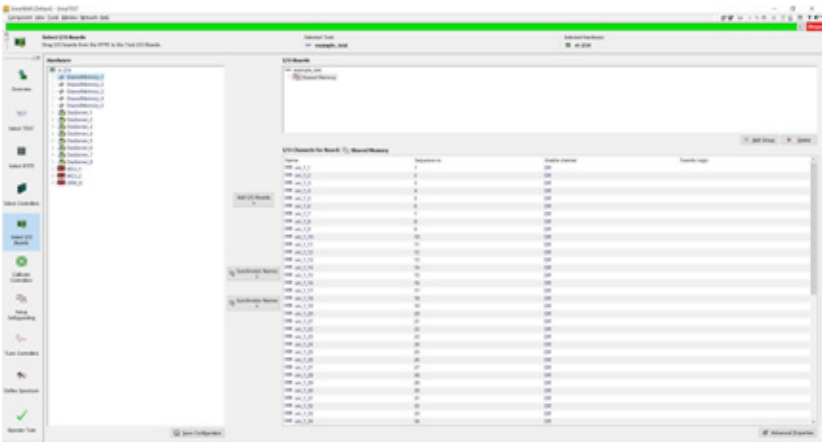
SELECT CONTROLLER



As the Moog Test Controller can run multiple tests simultaneously from one Real-Time Front End, the user needs to be able to select the control channels required for the test. This can be done by pressing the –Select Controller- button and then dragging and dropping the control channels into control channel window on the bottom right screen

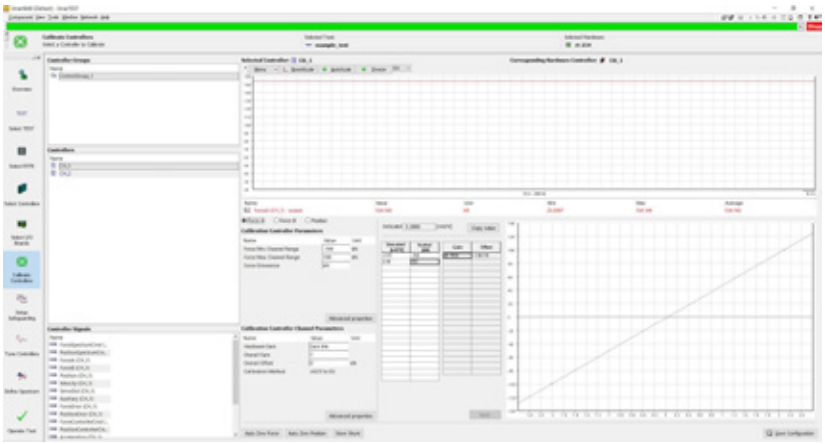
MOOG AEROSPACE TEST SUITE SOFTWARE

SELECT I/O CARDS



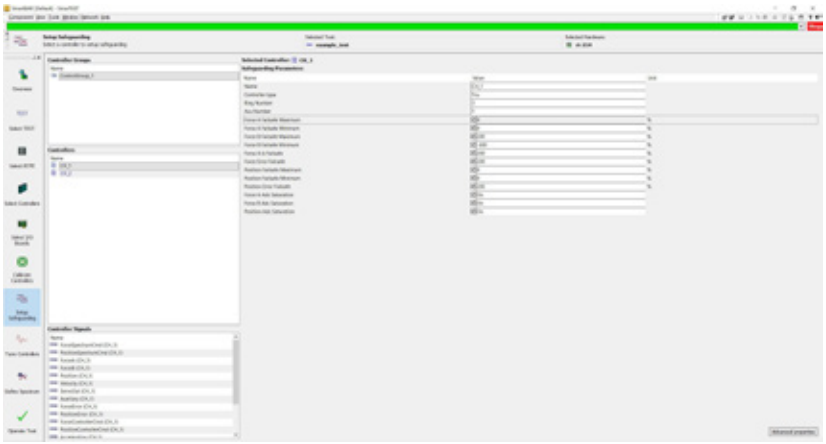
As the Moog Test Controller can run multiple tests simultaneously from one Real-Time FrontEnd, the user needs to be able to select the I/O channels required for the test. This can be done by pressing the –Select I/O Boards- button and then dragging and dropping the I/O channels into channel window on the right of the screen.

CALIBRATE CONTROLLERS



The operator can now calibrate the controllers by pressing the –Calibrate Controllers- button.

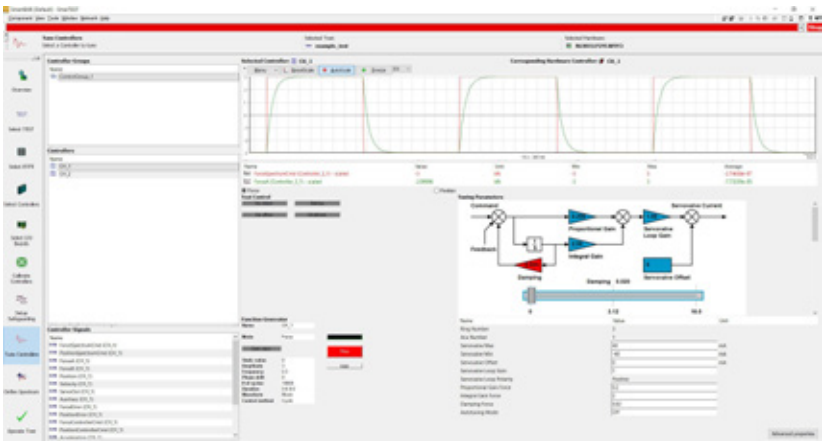
SETUP SAFETY



The operator can set the safety limits for the test by pressing the –Setup Safeguarding- button. The most common of the channel limits are shown in the window on the right hand side for the channel selected from the left hand window. Selecting each channel in turn the user can set the safety limits for all channels.

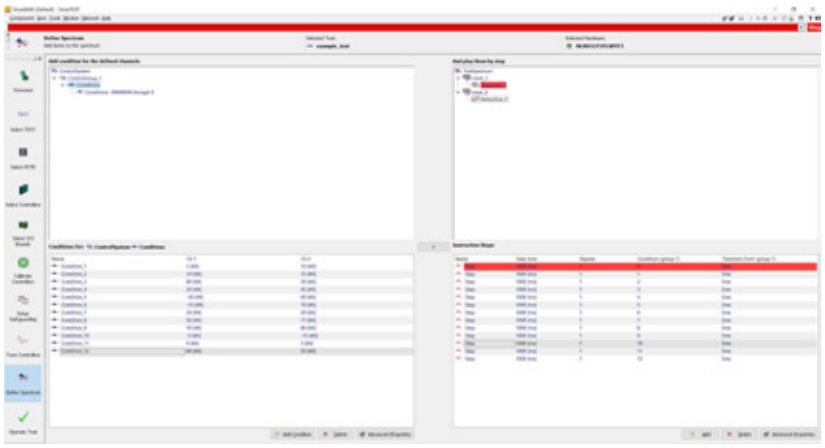
MOOG AEROSPACE TEST SUITE SOFTWARE

TUNE CONTROLLERS



The operator can now tune each channel in the test by pressing the –Tune Controllers - button. The channel can be selected from the left hand window. Select each channel in turn and the relevant tuning parameters, function generator and feedback parameters are displayed in the window, along with a graphical representation of the control loop to give the user an understanding of the control loop configuration.

DEFINE SPECTRUM



The final stage in the test setup is to define the test spectrum. This is accomplished by pressing the -Define Spectrum- button. Here the user can customize the test profile in detail.

OPERATE TEST

The test creation is now complete and the test is ready to run, this is accomplished by pressing the –Operate Test – button. The operator screen in the top left window can be used to go online and initialise and run the test. The graphs on the right hand side can be configured to display commands and feedbacks so that the operator can monitor the test.

A VARIETY OF APPLICATIONS

Test labs need a variety of capabilities and flexibility to perform tests with many different requirements.

The Moog Aerospace Test Suite software provides tools to create effective tests that adapt to evolving priorities while safeguarding test specimens.

Our expert approach to achieving reliable testing results using better hardware and software with electric and hydraulic technologies, ensures we can control the highest requirements and give you easy to use test equipment for the best value.

By addressing modern test challenges and responding to global customer needs, we deliver tools and expertise to enhance test application efficiency and exceed performance expectations.

FULL SCALE STATIC TESTING

The Moog Test Controller has the features, safety and channel count to safely operate large static tests up to 500 channels.

SUB-ASSEMBLY AND SUB-SYSTEM TESTING

The Moog Test Controller and Aerospace Test Suite Software are capable and necessary tools to interface with your test rig for many component applications including landing gear, flight controls, and fuselage members.

FULL SCALE FATIGUE TESTING

Not only can the Moog Test Controller and software operate large static tests, with a simple spectrum definition, long term fatigue tests are controlled safely and efficiently.

TEST PRODUCTS

Moog engineers are always ready to meet your unique application needs with building blocks or complete turnkey systems that include hydraulic and electric test actuators, servo valves, hydraulic service manifolds, test controllers, software and more.

SERVO VALVES

Because we design our renowned Moog Servo Valves, the world standard in performance and durability, you're assured of a system tailored to your exacting requirements.

HYDRAULIC SERVICE MANIFOLDS

The Moog Hydraulic Service Manifold (HSM) provides on/off pilot and system hydraulic pressure with an adjustable transition from off to high pressure. Filters protect sensitive servo valves and accumulators provide instantaneous flow or pressure damping when needed. Several flow-rating sizes with 1 to 4 station options are available.

DISTRIBUTION MANIFOLDS

Moog Hydraulic Distribution Manifolds (HDM) provide hydraulic power distribution for aerospace, automotive and other test systems. The HDM connects in between a hydraulic power source, such as Hydraulic Service Manifold (HSM) or Hydraulic Power Unit (HPU), and downstream devices, like hydraulic actuators. It helps the test facilities layout the hydraulic circuity in a simple and neat structure.

HYDRAULIC TEST ACTUATORS

Fatigue rated actuators are the heart of high performance test systems. Moog manufactures a family of single and double-ended actuators that deliver dependability, less maintenance and high performance, yet are available at an affordable price.

SERVICE AND SUPPORT

Inspection Process

Our number one goal is to eliminate downtime and make repairs that will deliver reliability and cost savings for years to come. When you send in your repair, it must work like new when you get it back. This is the Moog Global Support® promise.

- Incoming inspection will provide the customer details on the performance of the assembly. For actuators it could be leakage or response. For electronic modules it could be a non-functional connection. The inspection will also provide details to our technicians in regards to critical performance specs that need to be addressed.
- Technicians will then review engineering notes for any design improvements that may have been initiated since inception.
- Servo valves are removed and sent through the same rigorous evaluation, disassembly and test.
- Finally, the individual component or assembly will be tested to original specs to ensure the overhauled unit meets all design and performance criteria as if it were new.

Moog Engineering On Call For You

In today's competitive manufacturing environment, machine performance plays a significant role in determining your bottom line. Moog Global Support is key to achieving cost-effective machine operation, day in and day out.

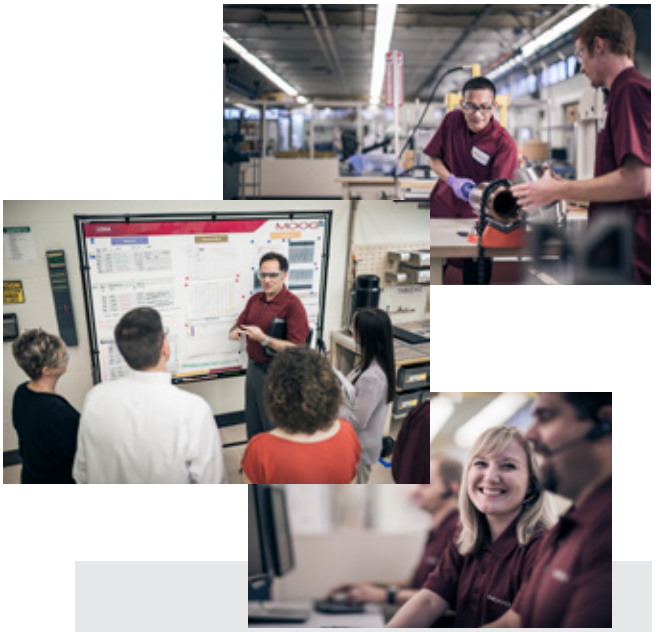
We are committed to providing world-class motion control products and solutions, taking customer support far beyond the initial sale. Our dedicated approach solves your problems, addresses your machine challenges, and allows you to achieve maximum productivity on a daily basis.

Repair Capabilities

Moog Global Support® is designed to keep your critical machines up and running at peak performance with only 100% genuine Moog replacement parts. Only Moog replacement parts can deliver the reliability, versatility and long life that you would expect from a world leader in motion control solutions. Each Moog part delivers essential components with precise dimensions, close tolerances and specifications. Because we understand the key role our parts play in the overall operation of your machine, we carefully inspect and test each repair to identify only those components that need replacement.

The Moog Difference

It's time you worked with a partner who can offer both the world-class products you desire and collaborative expertise you need to reach the next level of performance. Contact us today to see the difference Moog can make.



OLD CONTROLLER? UPGRADE IT.

Do you have an analog test controller? Moog can provide a digital controller to provide commands to the existing controller as a transition to full digital or a drop-in replacement in one step. Why not take advantage of the many features digital controls can bring to your tests like advanced control loops and sequenced tests, built-in data acquisition, and settings that can be saved for future use. Contact Moog for more details!

Consider the Moog Trade-In Program which is an attractive way to upgrade an older Moog Test Controller. Or if you have an non-Moog test controller the program also offers top trade-in values. This way you can upgrade to the latest technology, minimize downtime risk, and enable increased productivity through advanced features and available expansion.

TAKE A CLOSER LOOK.

Moog designs a range of products that complement the performance of those featured in this catalog. Visit our website for more information or contact the Moog facility nearest you.

Australia
+61 3 9561 6044
info.australia@moog.com

Brazil
+55 11 3572 0400
info.brazil@moog.com

Canada
+1 716 652 2000
info.canada@moog.com

China
+86 512 5350 3600
info.china@moog.com

France
+33 1 4560 7000
info.france@moog.com

Germany
+49 7031 622 0
info.germany@moog.com

Hong Kong
+852 2 635 3200
info.hongkong@moog.com

India
+91 80 4057 6666
info.india@moog.com

Ireland
+353 21 451 9000
info.ireland@moog.com

Italy
+39 0332 421 111
info.italy@moog.com

Japan
+81 46 355 3767
info.japan@moog.com

Korea
+82 31 764 6711
info.korea@moog.com

The Netherlands
+31 252 462 000
test@moog.com

Singapore
+65 677 36238
info.singapore@moog.com

Spain
+34 902 133 240
info.spain@moog.com

Sweden
+46 31 680 060
info.sweden@moog.com

Turkey
+90 216 663 6020
info.turkey@moog.com

United Kingdom
+44 168 485 8000
info.uk@moog.com

USA
+1 716 652 2000
info.usa@moog.com

www.moogtest.com

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