



Automated test solutions for the entire product lifecycle



Real-time HIL test of Vehicle Management Systems for novel and traditional aircraft types

Bloomy's Vehicle Management System (VMS) Test Platform provides a hardware in-the-loop (HIL) closed-loop test environment for dynamic test of VMSs for electric, fueled, commercial, military, rotary, fixed-wing, piloted and unpiloted types of aircraft. The system provides a real-time environment to simulate all aspects of a vehicle under control of a VMS, including navigation, stores, environment, weapons, flight surfaces, fuel, propulsion, and brakes. And with the combination of Bloomy's Battery Simulation portfolio, this capability is extended to battery management and power systems control as well.

By leveraging commercial, off-the-shelf components in combination with a new mechanism for system design and construction, the VMS Test Platform delivers repeatable, cost-effective testing in a fraction of the time needed for delivery of typical in-house simulation test systems.

The VMS Test Platform is based upon the Bloomy Simulation Reference System which reduces overall lifecycle costs and creates a common test platform for closed-loop test systems in System Integration Laboratories (SILs).

VMS Test System

APPLICATIONS

- Vehicle Management Systems verification and validation
- System Integration Labs (SILs)
- Development, production, or maintenance testing
- "Fly the Box" test of customer return material
- Development of control laws prior to airframe test
- Environmental Stress Screening (ESS)/ Highly Accelerated Life Testing (HALT)

FEATURES

- Simulation environment for comprehensive VMS testing
- Pack and cell-level simulation for complete energy storage subsystem testing
- Analog I/O including thermistor, RTDs, strain gages
- Actuator loads including inductive solenoids, torque motors, and indicator loads
- Discrete switch signals including open/ground, open/Vcc, open/closed
- Available digital communications including ARINC-429, MIL-STD-1553B, FireWire, AFDX, serial
- Simulation-controlled variable DC power supplies; optional 1Ø/3Ø AC supplies
- ThroughPoint™ Interface Panels with integrated breakout box functionality

SPECIFICATIONS

SIGNAL CONDITIONING AND COMMUNICATION I/O

Interface Type	Channels
VDT/Resolver simulation (4W, 5W, 6W)**	8
Thermocouple simulation**	8
RTD simulation**	8
Thermistor simulation*	8
Strain Gauge simulation*	8
Loads (torque motors, solenoid, lamp, etc.)**	16 (8x <5W, 8x >5W)
Discrettes (one-wire and two-wire)*	32
Differential analog outputs to UUT*	8
Potentiometer/variable resistor simulation	8
RS-422	2
ARINC-429	8
AFDX/ARINC-664	Optional
MIL-STD-1553B	Optional
IRIG B	1
Ethernet Test Bus	Optional
DC Power	2
AC Power	Optional

BATTERY SUBSYSTEM

Up to 800V pack voltage simulation
Individual cell sink/source of 500mA
Bulk power via DC supply

FAULT INSERTION

*Open circuit fault included.
Other fault conditions (short to ground, pin to pin short, etc.) optional for all signal types

SELF-TEST

*Self-test standard, calibration optional
Loopback self-test optional for all other signal types

COMPUTING RESOURCES

Real-Time Simulation Host	PXle-based, RTOS, up to 8-Core Xeon
Instrumentation and System Management	PXle-based, Windows, up to 8-Core Xeon

SOFTWARE ENVIRONMENTS

Real-time Framework	National Instruments VeriStand
Test Executive	National Instruments TestStand
Data Acquisition and Programming	National Instruments LabVIEW, C/C++
Data Management and Analysis	National Instruments DIAdem
Software Models	23 model types, including LabVIEW, Simulink, Matrix, C/C++, MapleSim

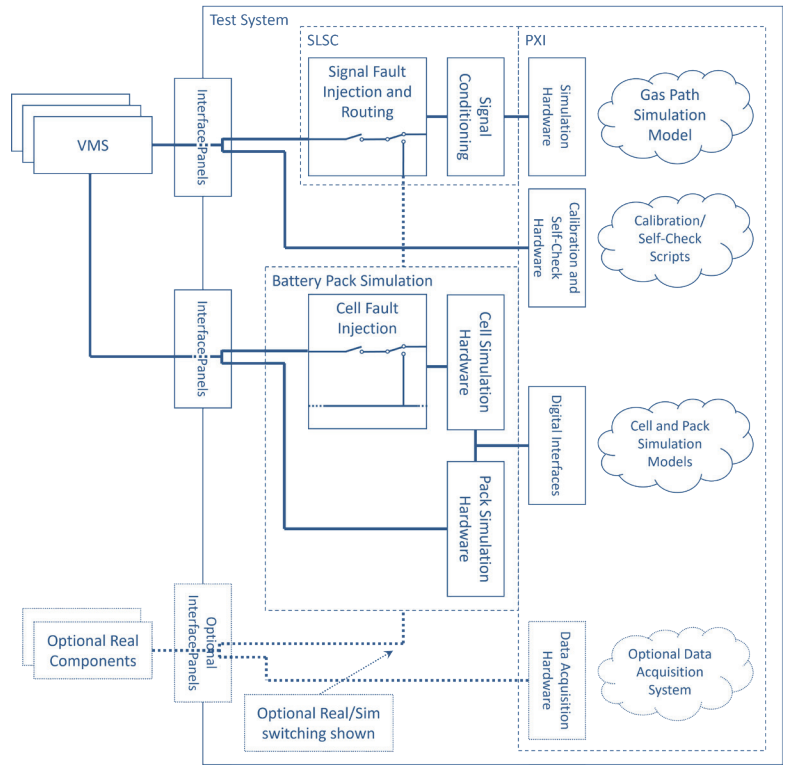
SYSTEM DIMENSIONS AND POWER

System Chassis	1- or 2-bay 40U equipment racks
	1-bay: approx. 78"H (w/locking castors) x 23"W x 36"D
	2-bay: approx. 78"H (w/locking castors) x 46"W x 36"D
Weight	Configuration dependent
Power Requirements	Power requirements vary with selected AC and DC power supply options
Emergency Power Off	Standard
Uninterruptible Power Source	Standard for all computing resources

WARRANTY

1-year warranty on all hardware components, optional extended available
3-year software service plan on all National Instruments software products

SYSTEM BLOCK DIAGRAM



Call 860-298-9925 or visit
www.bloomy.com