The Leader in Automated Test, Data Acquisition and Control Systems

FADEC/EEC Test Platform

APPLICATIONS

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

FEATURES

- Simulation environment for comprehensive engine control 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

Real-time HIL test of engine control units for rotary- and fixed-wing aircraft

The FADEC/EEC Test Platform provides a hardware in-the-loop (HIL) closed-loop test environment for dynamic and maintenance testing of full-authority digital engine control (FADEC) and electronic engine control (EEC) units of both rotary- and fixed-wing airframes. The system simulates one or more turbofan engines, including its sensors and actuators for use with the most sophisticated FADECs and EECs on the market. The system delivers repeatable, cost-effective testing in a fraction of the time needed with typical in-house simulation test systems.

The test system is based upon the Bloomy Simulation Reference System, which reduces overall lifecycle costs and creates a common test platform for HIL test systems in a System Integration Laboratory (SIL). The reference system includes industry-standard components from National Instruments, The MathWorks, Virginia Panel Corporation, and Bloomy. These components are used in other Bloomy Test Platforms including the Environmental Control System Test Platform and the Flight Control System Test Platform.
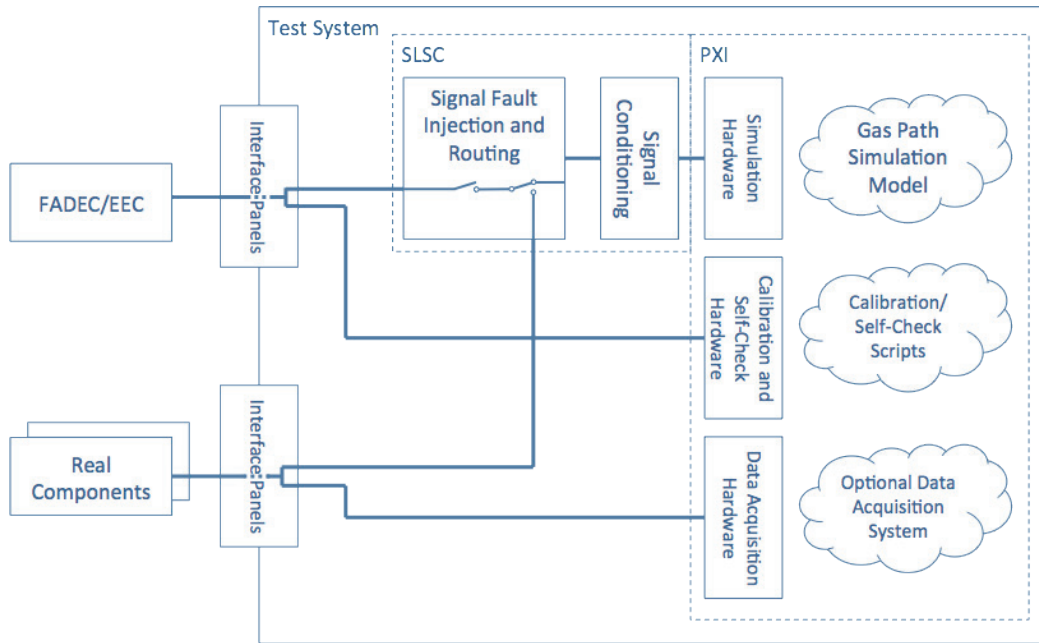
SYSTEM BLOCK DIAGRAM

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+	0
Strain Gauge simulation+	8
Loads (torque motors, solenoid, lamp, etc.)*+	16 (8x <5W, 8x >5W)
Discretes (one-wire and two-wire)+	32
Differential analog outputs to UUT+	8
Potentiometer/variable resistor simulation	8
RS-422	2
ARINC-429	Optional
AFDX/ARINC-664	Optional
MIL-STD-1553B	Optional
IRIG B	1
Ethernet Test Bus	Optional
DC Power	2
AC Power	Optional

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	PXIe-based, RTOS, up to 8-Core Xeon
Instrumentation and System Management	PXIe-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 warranties available

3-year software service plan on all National Instruments software products

Call 860-298-9925 or visit
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