

# Test Cell Integration Solutions...

Dynamometers • Controls  
Data Acquisition • Automation



INTEGRATION

# Companion II™

## Data Acquisition System



Rear view of the Companion II Master (upper) and SCU (lower)

The Companion II Data Acquisition System is specifically designed to acquire analog signal data for Cell Assistant™ for Windows, Dyne Systems' dynamometer test data acquisition and control software. Once paired with the Companion II, Cell Assistant can measure most types of analog signals, including high level voltage, current, and frequency signals - plus signals from thermocouples, thermistors, RTDs, and strain-gages.

### Companion II™ Master Control Unit

The rack mounted Master Control Unit (MCU), the upper unit shown above, performs data acquisition, multiplexing, and analog to digital conversion of all signals from each connected Signal Conditioning Unit (see below). The Companion II MCU includes power supplies for external transducer excitation. This unit uses only 3.5" of standard rack space., and is also available in a panel mounted option. See test cell photo below, and further specifications on our website.

### Companion II™ Signal Conditioning Unit

*(Pictured above with 12 type K thermocouple & 12 voltage inputs)*

Signal Conditioning Units (SCU) are easily customized for each application because they utilize industry standard 5B signal conditioning modules for each specific channel. Due to their flexibility, 5B Modules allow a wide variety of different types of signals to be connected. Analog inputs (in blocks of 6) are easily wired with Sub-D connectors, while thermocouples (also in blocks of 6) are connected with quick disconnect connectors. Cold junction compensation is included for each thermocouple channel. Available in either rack mounted or panel mounted configuration. See our website for further specifications.



Standard 5B Conditioning Modules

### Mounting Options

Panel-mounted Signal Conditioning Unit:

- Requires 3.5" x 14" of panel space for each unit.
- Each SCU provides connection for up to 12 channels of analog data from the Device Under Test (DUT).
- Up to 10 SCUs can be panel-mounted for each Master Control Unit, providing 120 channels of DUT data.

Rack-mounted Signal Conditioning Unit:

- Requires only 3.5" of standard 19" rack space for each unit.
- Each SCU provides connection for up to 24 channels of analog data from the DUT
- Up to 5 SCUs can be rack-mounted for each Master Control Unit, providing 120 channels of DUT data.



I/O Box on Remote Throttle Actuator Stand

(Right) Wall-mounted Companion II, with remote I/O box on the optional boom swing arm

(Left) I/O box mounted on Remote Throttle Actuator Stand, with the actuator stand's standard components, which include:

- 12 Thermocouple Inputs
- 8 Voltage Inputs
- 4 Transducer Inputs
- Emergency Stop
- Throttle Remote



Configure components of Companion II to fit your test cell and your application

[www.dynesystems.com](http://www.dynesystems.com)

# XM-1000™

## Portable Exhaust Gas Analyzer



### Moves Between Test Cells With Ease

The Dyne Systems XM-1000 Exhaust Measurement System provides a low cost, tool for continuous analysis of engine exhaust gas components (HC, CO, CO<sub>2</sub>, NO, O<sub>2</sub>). This non-certified system wraps a robust, continuous sampling, conditioning and calibration system around an ANDROS 6600 5-gas analyzer, and provides the features of a raw-gas emissions bench at a fraction of the cost of full scale, certified equipment.

The ANDROS 6600 analyzer is used extensively in emissions-checking stations. It is usually packaged as a hand-held, non-continuous sampling system. The analyzer is highly repeatable, utilizing NDIR and Electro-Chem sampling methods, making it an excellent diagnostic tool when packaged and integrated in a solid system such as XM-1000.

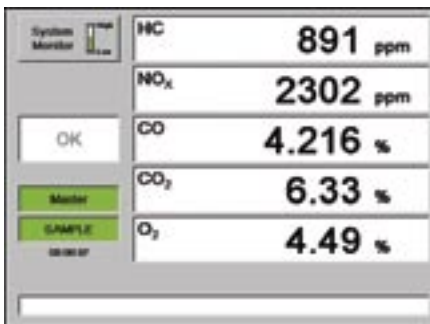
XM-1000 includes a touch-screen interface for manual operation, calibration and operator data viewing, and offers a serial port that can be connected to Dyne Systems' Cell Assistant™ for Windows® data acquisition software. A heated pre-filter, heated sample line, and heated filter with temperature controls provide sample gas conditioning.

### Features

- Heated Pre-Filter to remove large particulates from the sample
- Heated sample line to keep the sample temperature above the dew point
- Heated filter to remove smaller particulates from the sample
- Two-stage chiller to remove moisture from the sample
- HC Hangup Test and Leak Check
- Calibration (Zero and Span)
- Zero Calibration with “Zero” calibration gas or with ambient air
- System Purge feature
- Simplified Maintenance - filters are easily replaced in the field
- Portability - can easily be moved from one test cell to another (58 in. H x 21 in. W x 26 in. D)



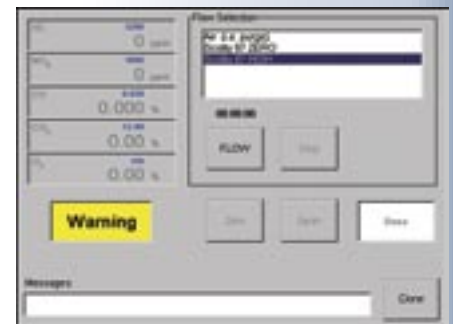
XM-1000 can be used to “pre-certify” engines at a fraction of the cost of full scale, certified equipment



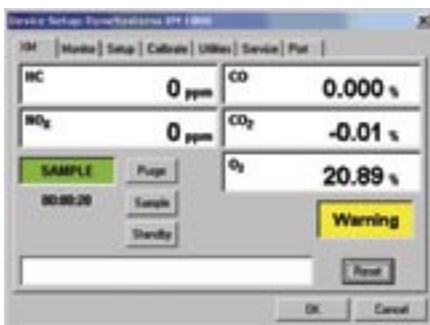
Main Screen while sampling



Leak Check utility



Calibration Screen



Cell Assistant™ driver interface



On-line maintenance instructions



Calibration gas management

**Precise • Stable • Repeatable**

# Cell Interface Assistant™

## CIA-2 Digital Touchscreen and Push-button PLC

Introduced in 2007, the 7" rack-mounted enclosure GE-Fanuc Horner PLC and touchscreen can be used to monitor IO and turn on/off relays for limits, safeties and cell operation hardware. The unit can be used as a process controller with PID functionality for engine cooling and other ancillary function control.

The PLC system has the following IO for safety and digital data acquisition monitoring, as well as operator interface and troubleshooting:

- 12 Customizable Manual Push-buttons
- 32 Solid State Digital Inputs
- 16 Solid State Digital Outputs
- 12 Relay Outputs
- 8 Process Control Loops or Limits, displayed on touchscreen
- Color touchscreen for viewing alarm history, error codes, data limit events and tuning PID functions
- Communication through Cell Assistant™ for Windows®



CIA-2 Digital Touchscreen and Push-button PLC

## CIA-1 Push-button PLC

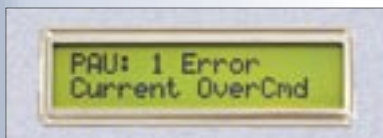
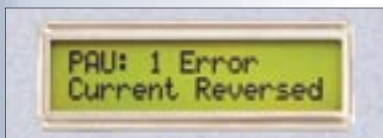
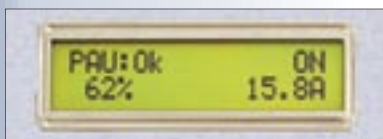


The CIA-1 PLC-based interface allows the manual and automated operation of test cell functions, and monitoring of facility safeties. The CIA-1 has 24 discrete inputs and outputs, and 12 enunciator LEDs for power and fault verification. In addition to the typical configuration listed at right, numerous other functions are available, configured according to the requirements of the application.

Typical CIA-1 PLC configuration for monitoring cell safety and logistic functions:

- 2 analog outputs and 2 analog inputs
- Watchdog Fault pilot light and Watchdog Bypass
- Fault Beeper and Fault Reset lighted push-button
- Power On/Off
- Cooling Water On/Off
- Cell Vent On/Off
- Exhaust Air On/Off
- Ignition On/Off
- Panel Auto/Manual
- Fault Reset
- Starter and Starter Disable
- Alarm Silence
- Other Customized Functions

## DS820 Universal PAU Standalone Eddy Current Power Amplifier Unit



Introduced in 2007, the DS820 Universal Remote Power Amplifier Unit uses single-phase regenerative control with additional field forcing functionality, to provide ultra-fast response.

- Interfaces with all existing DyneSystems dynamometer controllers (Inter-Loc V and Dyn-Loc IV)
- LCD diagnostic readouts display field current, input command, and PAU status and faults (examples, left)
- 0 to +10 VDC control input
- Dry contact and PLC-Level I/O
- Rack-mount units up to 30A and 277 VAC
- Wall-mount units up to 200A and 480 VAC
- Advanced fault detection (e.g. blown fuse, incorrect transformer phasing)
- Integral safety inputs included
- Simple setup and calibration

### The Intelligent PAU Solution



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