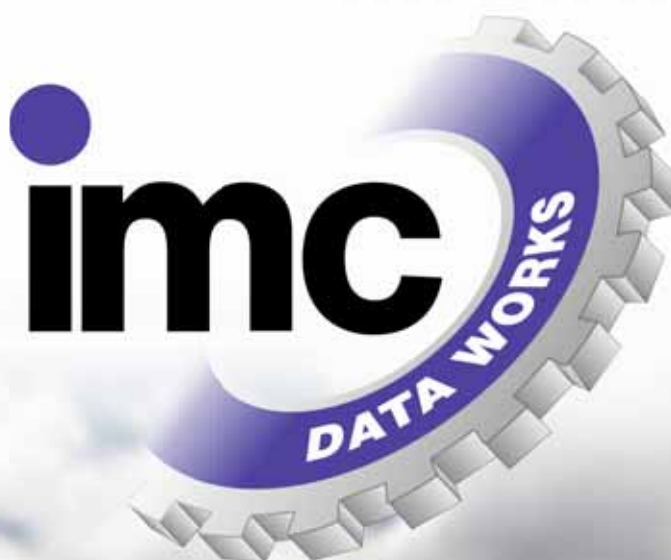


imc DataWorks Product Insights



Revolutionizing Data Acquisition...

- **Universal Amplifiers... one input does it all**
- **In-vehicle & Test Stand ready... one common platform**
- **Modular, Distributed Hardware... reusable, interchangeable**
- **Synchronize Multiple Sources:
analog, CAN/CCP, GPS, ... all at once**
- **Ready to use software, common
across all products... lower learning curve**
- **Full TEDS Support, including our add-on
TEDS for legacy sensors... efficient setup**

- **Integrated data analysis...
record information, not just data**

Enhancing your

Time to Test



Welcome to imc DataWorks!



Intelligent data acquisition instrumentation, integrated with industry leading technology, designed to save test time and resources...

Welcome to IMC!

Who is imc DataWorks?

imc DataWorks offers an extensive range of Integrated Measurement Engineering products incorporating dedicated hardware, powerful user friendly PC software... and the knowledge to support your data acquisition needs.

For electro-mechanical systems, such as temperature, pressure, acceleration, vibration, or any voltage, current, bridge, ICP sensor, encoder, or digital signal, imc DataWorks measurement systems have you covered.



Our analysis software **FAMOS** includes 3-D and X-Y plotting, and statistical analysis tools. Advanced capabilities, from input filtering and real time Digital Signal Processing, to Visual Basic/LabView, COM Controls, and Macro-Programming for analysis and automated report generation, all combine to allow detailed data selection and in-depth data analysis. Flexible file formats allow you to open and save ASCII, binary, Excel™, and many other popular formats.

imc History

imc Mess-Systeme GmbH was incorporated in Berlin, Germany in 1988 in response to its founders' vision of the dramatic changes PCs and graphical user interfaces would soon bring to instrumentation. As a pioneer in Windows-applications and a producer of PC-aided measurement technology, imc quickly became one of the leading firms in this field.

Since then, and despite an often difficult market, imc has gained a solid commercial position with growth exceeding the market average and healthy yields. The robust growth of imc's sales, comprised of 40% exports, underscore our competitiveness on the market world-wide.



imc DataWorks, LLC is a full service extension of imc into the North American market. Based in Madison, Wisconsin, imc DataWorks offers system sales, support, training, application development, and hardware calibration and repair services for the imc product line, and has done so since 2002.

CRONOS Platform: Key to Interoperability

Now in the third generation of data acquisition system design, imc has borrowed the shared component concept from the automotive industry. Known as the **CRONOS Platform**, this design allows the creation of systems tailored to specific end-user needs, while maintaining a larger scale, ease of service and support, and lower cost production.

As a design philosophy, we call this **Integrated Measurement Engineering**. In practice, our users can realize the ready-to-go functionality of a classic stand-alone instrument, with the flexibility, adaptability and expandability of PC-aided measurement systems. It is standalone *and* PC-aided at the same time.

Standard Features of imc Measurement Systems

Each system based on the CRONOS Platform includes a solid core set of features which combine to create a versatile foundation for your measurements, no matter where you are measuring – in-vehicle, bench top, test stand, or remote monitoring site.

- Networking: built-in TCP/IP Ethernet (RJ45 10/100 MBit/s) LAN
 - o Also supports WLAN, and WWAN networking, as well as classic modem communications, with appropriate additional hardware
- Onboard removable flash storage for data, supporting extended size storage cards (32 GB, and beyond)
- Start unattended (i.e. "Black Box" mode), or with operator intervention ("Disk Start"), without the need for a PC
 - o Smart Power Supply uses 9 - 36 VDC, and includes a built in stand-by power system ("UPS"), and soft shutdown
- GPS Position and Velocity (5 Hz rate), via remote receiver antenna
 - o Synchronization of multiple systems to one another, or of separate systems to external timing signal, such as GPS.
- CAN Bus available for all systems, and standard on many. In addition to imc's standard independent dual-node CAN interface, busDAQ-X and CRONOS-PL systems can be extended up to 8 independent nodes, including CAN, LIN, J1587, and/or ARINC busses.
- Optional COM Development Kit, or LabView VI's for custom user interface development and system integration.

Learn more: the **back page** lists all imc systems and configuration options, or browse **www.imcDataWorks.com** for more information.

Integrated: Hardware, Software, and Support

The founding principle, and indeed the imc namesake, is **integrated measurement and control**. Since 1988, imc has offered leading edge products integrating stand alone measurement and control systems with versatile PC based user interface and analysis software.

Distributed, Modular, Decentralized: CANSAS

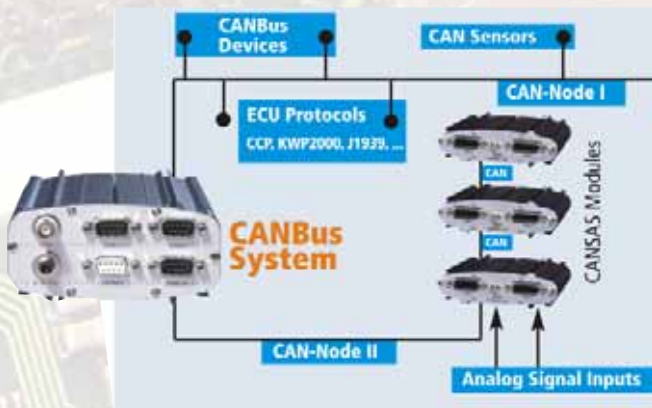
Combining the best of decentralized and modular instrumentation design for the acquisition of physical measurement data, CANSAS finds a home in the test engineer's toolbox for tackling a wide variety of measurement challenges.



In-vehicle, CANSAS can be combined with existing vehicle bus systems to provide supplemental information to the same data path as already exists for vehicle & ECU information.

CANSAS-SL and the μ-CANSAS modules (pictured above) are ideally suited for measurements of more extreme environments, from under hood to stationary outdoor installations.

When combined with imc CANBus equipped data acquisition systems, CANSAS provides a complete, decentralized measurement system which may extend up to 1 km from end-to-end, yet provide synchronous data collection of up to 512 channels.



Owing to CANSAS' reconfigurability and modularity, high channel count, centralized systems also benefit from the CANSAS design: rack mountable, parallel acquisition, easy module interchangeability, and CANOpen support are key features which make CANSAS popular for system integrators and test cell automation system development.

To accommodate the wide variety of uses, CANSAS is available in 4 basic packages allowing deployment in virtually any test environment, from test bench, test cell, to in-vehicle and outdoor environments.

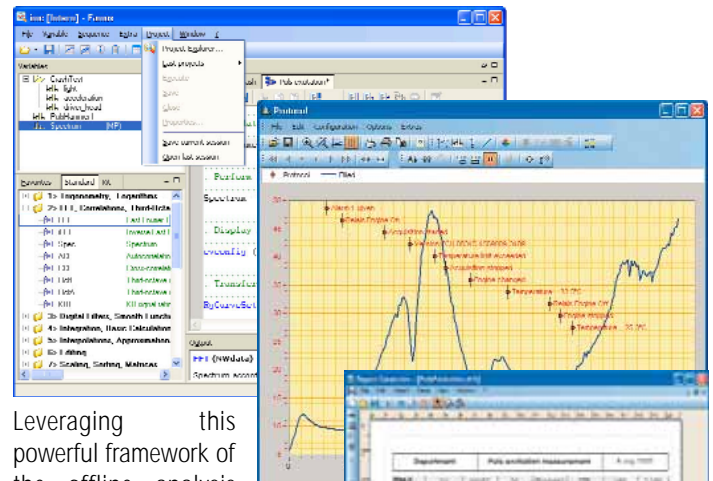
- CANSAS-SL: IP65 sealed CANSAS for harsh environments
- CANSAS-K: Modular rack mounted cassette System
- μ-CANSAS: Extreme environment, IP65/67 & MIL-STD810F
- CANSAS-Standard: General purpose, multi-environment

Learn more online: www.imcDataWorks.com/cansas/

FAMOS and Online FAMOS: Results at your Fingertips

FAMOS, now in it's sixth version since first released in 1989, represents the single most versatile data analysis tool in the physical test world.

Combining the simplicity of drag & drop calculations with a powerful, yet intuitive, scripting language, FAMOS can be used for the simplest visualization needs of the casual observer, to the complete automated analysis, reduction, and reporting of test results.



Leveraging this powerful framework of the offline analysis features of FAMOS, Online FAMOS represents the real time counterpart, which is an optional feature of all CRONOS Platform Systems.






Based on a powerful DSP system, Online FAMOS uses the same intuitive scripting language of FAMOS to go beyond basic data logging to real time analysis and test control, allowing versatile adaptations to test requirements not possible with conventional loggers.

With Online FAMOS, you can retask your data logger to really shine:

- Spectral Analysis: realtime filtering and FFT calculation
- Signal integration for speed / distance determinations
- Signal Classification (Rainflow analysis) in realtime
- Order Analysis for RPM independent rotational analysis
- CAN Output (systems equipped with CAN)
- Online FAMOS Professional – direct process vector access, hard realtime synchronous operations, PID Loops, ...

Learn more online: www.imcDataWorks.com/famos/

Platform Based Measurement Systems

	DAX	CRONOS-PL	CRONOS-SL	SPARTAN	busDAQ
Product Family					
Packages	DAX DAX-CS DAX-CL (DAX-CX)	PL-4 PL-8 PL-16 PL-13/15	SL-2 SL-4	T-16 / U-16 T-32 / U-32 T-64 / U-64 T-128 / U-128	busLOG busDAQ-2-S busDAQ-2 busDAQ-X
Web Info	www.imcDataWorks.com				
	/dax/	/cronos-pl/		/spartan/	/busDAQ/
Power	10 - 36 VDC (AC Adapter Included) Battery backup ("UPS") for temporary power interruptions	PL-4, 8, 15, 16: 10 - 36 VDC (AC Adapter Included) Battery backup ("UPS") for temporary power interruptions PL-13: 120/230 VAC	10 - 36 VDC (AC Adapter Included) Battery backup ("UPS") for temporary power interruptions Optional Battery Operation	10 - 36 VDC (AC Adapter Included) Battery backup ("UPS") for temporary power interruptions	10 - 50 VDC (AC Adapter Included) Battery backup ("UPS") for temporary power interruptions
Environment	Standard: -10 to +55 °C Optional: -20 to +85°C, with condensation protection	Standard: -10 to +55 °C Optional: -20 to +60°C, with condensation protection (higher limit special request)	Standard: -40 to +85°C, with condensation protection IP65 Waterproof MIL-STD810F Shock Rating	Standard: -10 to +55 °C Optional: -40 to +85°C, with condensation protection	Standard: -40 to +85°C, with condensation protection
Data Storage	PCMCIA onboard storage/WLAN, network storage, optional internal HD (DAX-CL only) or secondary CF Slot (DAX / DAX-CS)	PCMCIA onboard storage (optional WLAN) network storage, optional internal HD			CF onboard storage/ WLAN, network storage, optional internal HD (-X model only)
Connectivity	10/100 Mbit Ethernet; optional WLAN (via PCMCIA/CF Slot) external serial modem (most models); optional internal wireless modem (some models)				
Operating Modes	1) Interactive via included PC Software 2) Interactive Manual start from PC, then disconnect for PC-less operation 3) Diskstart Operator selection using the graphical display for PC-less operation (display required) 4) Autostart "Black Box" mode, for unattended start/stop PC-less operation				
Digital Signal Processing	Online FAMOS Realtime processing standard	Online FAMOS Realtime processing optional, but recommended	Online FAMOS Realtime processing optional, but recommended	Online FAMOS Realtime processing optional, but recommended	busLOG: No OFA Possible busDAQ: Online FAMOS Realtime processing recommended
DSP Optional Enhancements	* Online FAMOS Pro (enhanced operation, process vectors, PID loop) * Online Classification Kit (Rainflow, fatigue, etc.) * Online Order Tracking Kit (Rotational, angle based, analysis)				
Data Analysis	FAMOS Offline Data Analysis; data export to ASCII/Excel included; Data Export utility optionally available				
Analog Inputs	8 - 16 ch. typical	4 - 128 ch.	8 - 32 ch.	16 - 128 ch.	external CANSAS only
Analog Signal Types	direct input channels, includes a variety of signal conditioning options (UNI8, ISO8, Audio4, ICPU8, ...) for voltage, high voltage isolation, current, temperature (thermocouples and/or RTD), bridge/strain gauge, ICP, Microphone, for virtually any type of sensor or transducer.				n/a
Total Ch. Max	512, including field bus channels				
Counters (freq., encoder, mag. pickup, ...)	DIOENC Standard: 4 x 1	Optional DIOENC, ENC4, or HRENC	Optional DIOENC, ENC4, or HRENC	DIOENC Standard: 4 x 1	external CANSAS only
Digital Inputs	DAX: 16 DAX-C: 8	Optional DIOENC, or DI16	Optional DIOENC, or DI16	DIOENC Standard: 16	4 standard (-X model only)
Digital Outputs	DAX: 4 DO-Relay Standard DAX-C: 8 DO Standard	Optional DO16	Optional DO16	DIOENC Standard: 8	4 standard (-X model only)
Analog Out.	DAX-C: 4 standard	Optional DAC8, Synthesizer	Optional DAC8, Synthesizer	external CANSAS only	external CANSAS only
CAN/FieldBus	2 independent networks	optional 2, 4, 6, or 8 networks	optional 2 independent networks		2 networks; -X up to 8
Compatibility	Standard CAN 2.0A, 2.0B high speed / low speed. Optional format extension for DBC Import and MDF Log Data Files (Requires CAN interface)				
ECU Kit	Optional: supports CCP, KWP2000, XCP (in preparation); requires CAN interface; includes A2L import				
Bus Options	Optional: LIN, J1587, ARINC; Profibus (in preparation)				
Expansion	Data Systems may be expanded via CANSAS modules to include up to 512 input channels, and additional digital input, digital output, and analog output. Systems may also be networked & synchronized to create extended with parallel systems of up to 12 chassis, for a maximum of over 6,000 channels.				
GPS Interface	Optional external receiver, for system synchronization and/or 5 Hz heading, speed, and position information Also accepts CAN Data stream inputs from 3rd party GPS/Inertial systems, such as the RaceLogic VBox and Oxford RT3000 systems.				
Synchronization	Built-in Realtime Master/Slave mode on all system. Optional support for external GPS or IRIG-B synchronization				
Display	Optional color graphical external display unit for driver/operator display and simple manual control. Some systems (DAX-CS, CRONOS-PL) optionally include an internal greyscale graphical display. All systems include 6 user configurable LEDs and an internal Beeper for simple user interactions (Online FAMOS recommended)				
Modem / Remote	Optional connectivity for an external (serial) modem -- landline or wireless options available. Internal UMTS, GSM/EDGE, ISDN, or Analog Modem options on some CRONOS-PL, CRONOS-SL, and BusDAQ-X systems				