

busDAQ / busLOG

CAN Data Logger



busDAQ / busLOG – CAN Datalogger

The busDAQ / busLOG family

The imc busDAQ/busLOG family of measurement equipment performs synchronized capture of CAN messages, particularly of measured data and status information. Some models can be connected to the LIN and ARINC busses, in addition to the CAN-bus. Up to 8 nodes as well as a variety of protocols such as CCP and KWP2000 are supported. A busDAQ unit can be connected with any standard CAN-bus devices such as sensors, measurement amplifiers or electronic control units.

Measured data transmitted via CAN-bus can be triggered, displayed and mathematically processed as necessary to study the process under inspection. The protocol parameters may be imported, or are configured by means of the user-friendly software imcDevices; all parameters are decoded and saved in their physical units.

Vector Database Linkage

In many cases, parameter settings are already available as a Vector database which can be imported by any busDAQ module. This makes it possible to set large amounts of parameters quickly and easily.

The internal data storage is either Compact Flash data carriers or optionally an IDE hard drive, having various data storage capacities depending on requirements. The standard equipped Ethernet TCP/IP interface enables easy connection to the PC or integration into decentralized measurement networks.

Robust System Architecture

Comprehensive system setting using imcDevices

busDAQ, like all other imc measurement devices, is operated by the imc user interface software imcDevices. This MS-Windows software is included standard, and enables quick and reliable measurement operation without the need for programming. imcDevices allows measurement parameters, real-time functions, trigger machines, and storage modes to be set either fully manually or automatically. Display of measurement data plots in the Curve Window, as well as report composition with the Report Generator, are integral components of imcDevices.

busDAQ – a Personal Analyzer

The most important of imcDevices' enhancements is the DSP computation tool Online FAMOS, which enables freely defined functions and virtual channels, transforming busDAQ from a simple data logger to a Personal Analyzer. The desired results are computed from the raw data and displayed. A wide range of math and statistics functions, FFT, class-counting etc. are available for the user.

busDAQ – Data analysis

The newest version of the signal analysis software imc FAMOS 5.0 offers extensive options for analysis, evaluation and documentation of measurement results. The busDAQ unit saves the data directly in imc FAMOS format.

Multiple Applications

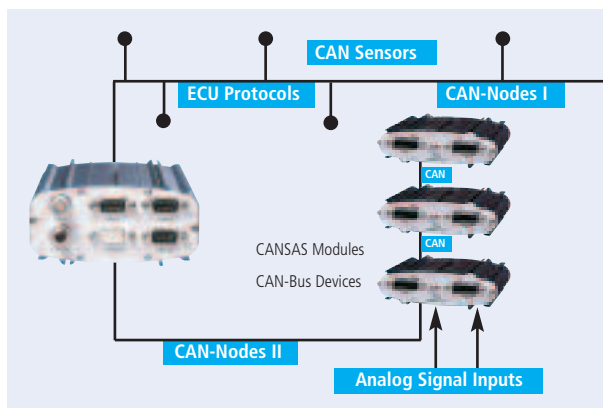
busLOG – Data collector

This affordable module is designed for basic functions with standard, clearly defined data logging tasks. Its low power consumption, signal-driven Sleep Mode, and its capacity for rapid resumption of measurement by means of "Wake up on CAN", in only 200 ms, means that busLOG is ideally suited for vehicle and fleet test applications. In such settings, the module's high degree of data integrity, its self-activation mode, and its remote monitoring capability via Internet are great assets.



busDAQ-2 – Intelligent Measurement Networks

busDAQ-2 with its two nodes and expanded capabilities, such as online functions, WLAN, modem, Display, and direct GPS connection is the standard module for measurement networks with decentralized CAN broadcasters, such as sensors, control units or CANSAS measurement modules.



busDAQ-X – Multi-bus / Multi-protocol Data Logger

busDAQ-X is the universal, configurable system which can be expanded with additional multi-bus interfaces to up to 8 nodes. With the extended functions, such as online-functions, WLAN, modem, Display, digital in- and outputs, as well as directly connectible GPS, even complex measurement networks and drive test applications are easily configured.



Reliable data acquisition under extreme conditions

High ambient temperatures and condensation due to temperature transitions can damage most other measurement electronics and the PC. For this reason, measurement conducted on or in the vicinity of large-scale machinery, plants, or especially on board test vehicles requires special properties.

Because of this possibility, the busDAQ family is equipped for extended temperature ranges and with condensation protection. This means that operation is assured with module interior temperatures ranging from -40°C up to $+85^{\circ}\text{C}$.

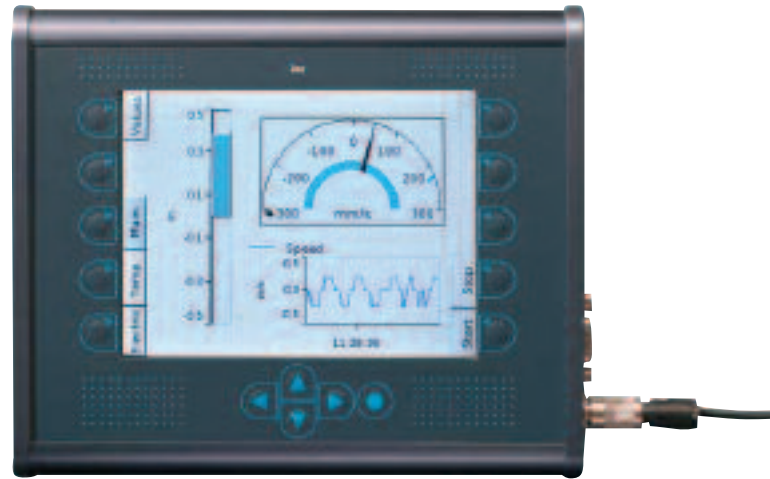
PC-independent operation – Autostart mode

Under such harsh conditions, PC-based operation is simply not possible. Therefore, modules belonging to the busDAQ family can work autonomously, as a "Black Box".

This autostart mode automatically recognizes saved setups and the device independently prepares itself to begin measurement within 200 ms. If a power outage occurs, the UPS kicks in and closes the onboard measurement files without losing any data.

Wireless measurement, data visualization and parameterization

In cases where busDAQ is installed at inaccessible sites, it's possible to perform parameterization and/or to display data of the running measurement via WLAN.



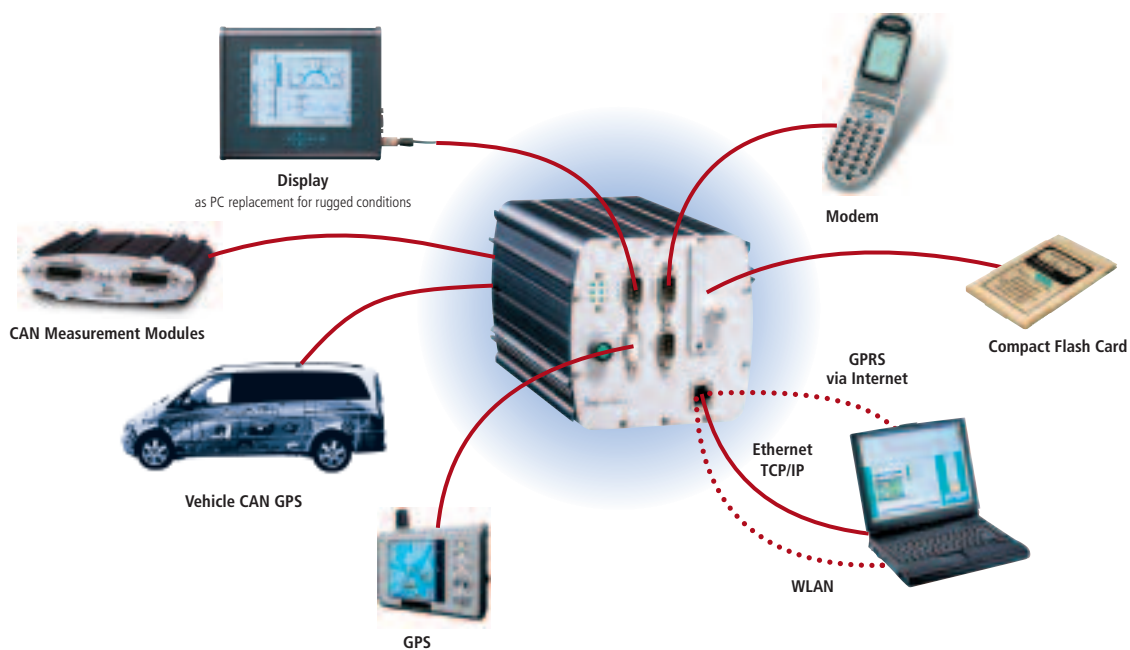
The operating and display interface is a sunlight readable graphical terminal which works down to -40°C .

Sunlight readable graphics terminal

A variety of setups, measurement start/stop, and graphical data output are possible by means of an external display unit. The imc Graphical Display enables high operating reliability in PC-independent mode. It's functionality is limited to the bare necessities and it thus simplifies operation of the system.

The bright, rugged Display functions across a wide temperature range of -40°C to $+70^{\circ}\text{C}$. Configuration, button assignment and display style are all set by means of the Display Editor, a part of imcDevices.

Wireless long-term monitoring and remote maintenance via modem, GPRS and the Internet



busDAQ enables long-term monitoring and wireless remote maintenance via modem, GPRS and the Internet.

Maintenance of system performance, localization of sporadic errors and long-term monitoring for the purpose of preemptive maintenance can all be substantially simplified by means of Internet-based remote monitoring. Unmanned monitoring of vehicles, machines or plants, as well as wireless transfer of measurement data all save time and money.

Ideally, a measurement / monitoring device would independently report to the technician, providing relevant measurement values and news of threshold violations by SMS, email or FAX. In addition, constant online long-term monitoring and remote parameterization via Internet would be available as well.

All busDAQ modules can be equipped with GPRS modems. imc additionally provides the Internet-based communication platform. You dial up the communication platform from the PC via the Internet, and from busDAQ via GPRS with any common GSM cellphone provider.

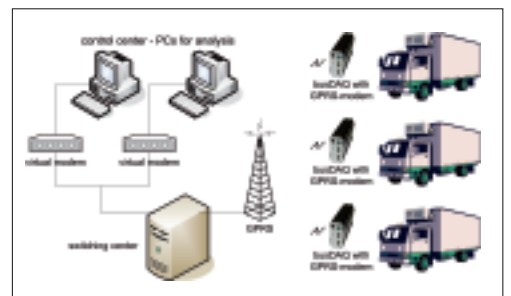
Global Positioning System

With the help of a GPS system, it is also possible to evaluate the measured data with regard to local circumstances and conditions.



Fleet Testing / Vehicle Testing

With fleet testing and in vehicle measurements, the vehicles are always at different locations. Measurement data are recorded via the CAN-bus with the data logger busDAQ. If the vehicle is switched off, the busDAQ unit is in Sleep mode.



Fleet management with GPRS

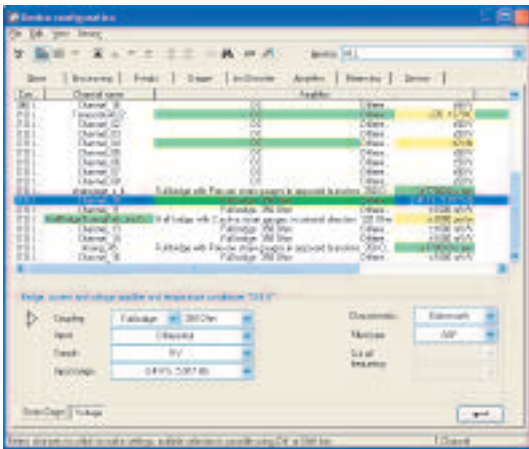
A start of the measurement is triggered by opening the door, for example. Within 200 ms, this CAN message starts a pre-configured measurement. At the same time, busDAQ automatically dials via the GPRS network into the switching center.

It is then possible to access any measurement devices in the fleet from a PC. Any threshold violations are automatically reported. Whole series of measurements can be quickly transferred to the home PC. And, last but not least, remote parameterization of measurement devices is possible without any difficulty.

Robust System Architecture

Total settings configuration using imcDevices

Along with all other Ethernet-capable measurement device from imc, the busDAQ family is operated with the same Graphical User Interface software, imcDevices. imcDevices enables complete manual or automated setting of all measurement parameters, real-time functions, channel trigger, and data saving modes. Display of measurement curves in the curve window, and documentation composition by the Report Generator are integral elements of imcDevices. These functions are naturally accomplished in a menu-driven manner in measurement engineering terminology.



imc Operating Software

- Network Client/Server
- Manual configuration of all measurement parameters

busDAQ Multi-Bus Data Logger – Key Features

- Vehicle busses such as CAN, LIN and ARINC
- Control unit protocols, such as CCP, KWP 2000
- Autonomous and self-activating
PC-independent, internal IDE hard drive or Compact Flash data storage, Sleep Mode, Wake up on CAN, startup time: 200ms
- GPS position detection
- Redundant data storage on device and/or PC
- Remote measurement operation (GPRS)
- WLAN-capable
- Real-time application of math operations, such as statistics, FFT, class-counting, freely defined virtual channels...
- Real-time data reduction
- Operating temperature -40°C - +85°C (condensation allowed)
- Export, display, processing of CAN-bus messages (measured data)
- Up to 8 CAN-nodes (depending on busDAQ model)
- Up to 512 field bus channels per experiment
- Initialization of CAN-bus sensors
- Easy parameterization via CAN-Bus Assistant
- Sending of CAN messages
- Logging of all messages with a time stamp
- Vector Database linkage

imc Measurement System Hardware

- busLOG
- busDAQ-2
- busDAQ-X



busLOG – Data Collector

Automation

- Class libraries
- LabView interface
- Independent COM interface
- Programming language-independent

imc Evaluation Software

- imc FAMOS signal analysis software
- LOOK Offline data visualization

Efficient System Integration with imc COM, LabVIEW

The imc COM development environment enables programming language-independent system integration.

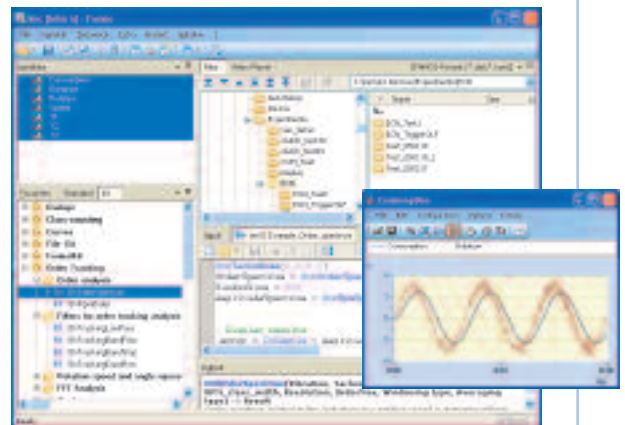
The class libraries can be integrated into all modern programming languages in accordance with the world-wide COM-software standard. They offer access to all functions of any imc hardware or software product families. In conjunction with the Ethernet TCP/IP and CAN interfaces, the imcDevices provide open interfaces and documented data formats for system integration tasks and integration capability with non-imc equipment.

busDAQ can also be easily integrated into existing LabVIEW system environments. imc offers a number of VIs™ and sample implementations which are directly accessible via the LabVIEW™ functions palette.

By means of these VIs™, imcDevices can be configured, started/stopped, controlled, and measurement data can be stored and retrieved.

Data Evaluation with the Signal Analysis Software imc FAMOS

The quickest way to achieve usable results and to process measured data has a name: FAMOS. This signal analysis software which can be applied independent of the measurement hardware used, and is perfectly adapted to the requirements of everyday test and measurement. The curve window provides extensive possibilities for data display, while the Report Generator simplifies the documentation of measurement and analysis results. Besides the imc Data format, FAMOS supports a variety of other formats, with a File Assistant which can quickly import data from non-imc devices. The entire process can be automated by means of the Sequence Editor.



busDAQ-X – Multi-bus / Multi-protocol data logger

busDAQ-2 – Intelligent measurement network

Total Settings Configuration

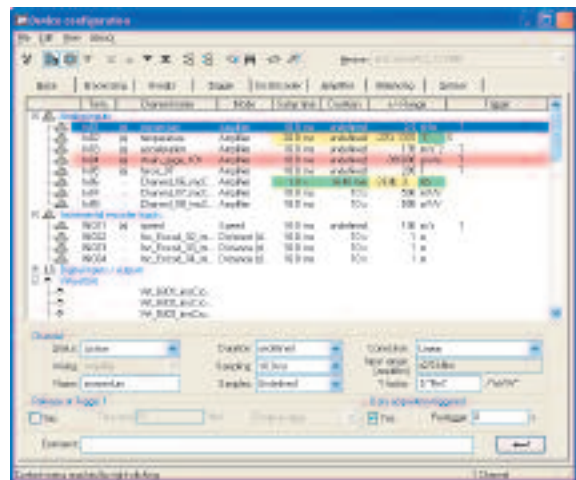
A uniform software package with open system architecture

Use of the imc operating software "imcDevices" is both intuitive and reliable. It recognizes a system's hardware configuration and can start taking measurements at a moment's notice. It enables complete interactive configuration of all measurement parameters such as channel settings, triggering, real-time functions, display of measured data, as well as composition of a measurement report and saving and archiving of data.

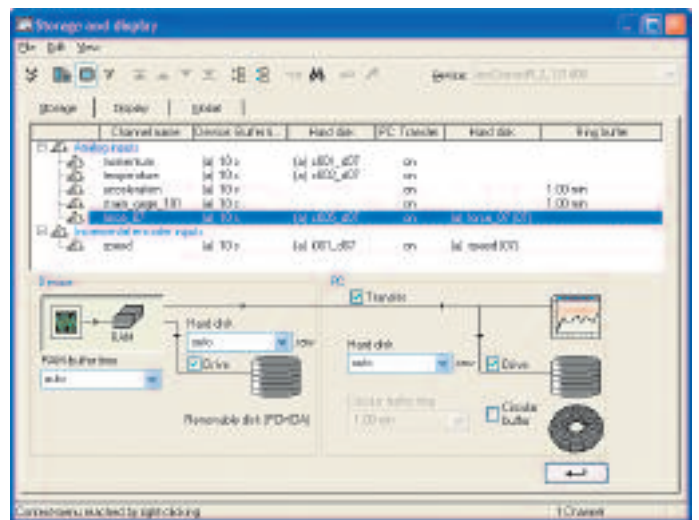
Setups and measured data can be recorded both on the PC and in internal device memory. This enables automated measurement with real-time analysis and response functions, as well as display, documentation and data storage.

Direct display of results

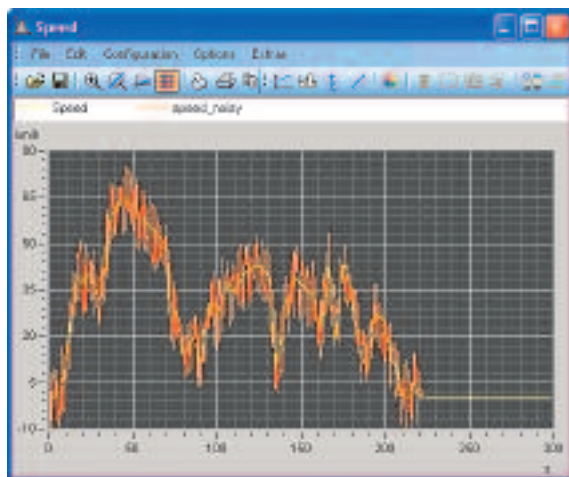
Whenever online display of measured data is desired, PC-aided application is possible. The PC doesn't actually perform any measurement work – it only serves the purpose of setting the measurement system's parameters and the online display of the measurement data.



Base menu: Definition of the main measurement parameters



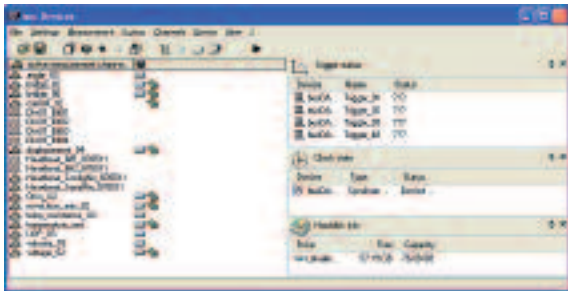
The data are stored on a hard drive in the measurement device and/or on the PC, in which a circular buffer memory can also be set up.



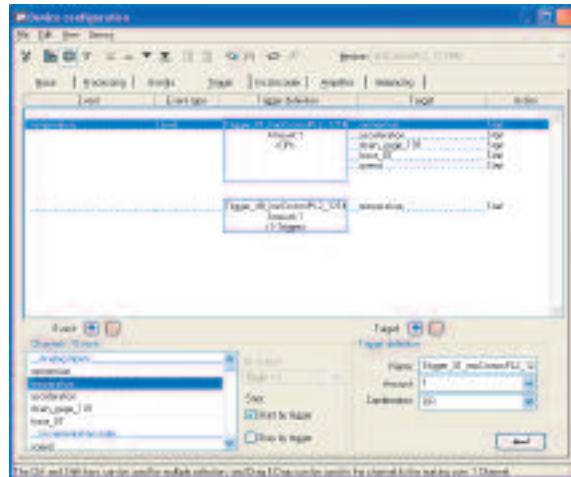
Current_Max = 1.4 A
Current_Min = 0.8 A

Protocol

- 3.3 Alarm 1 (stop)
- 4.5 Power Down-On
- 8.3 Acquisition started
- 15.4 Version DCI 00045-438860-3460
- 15.5 Temperature 0M-A-Cabled
- 15.6 Acquisition stopped
- 15.8 Single changed
- 15.9 Temperature = 20.3°C
- 20.4 Release stopped
- 20.4 Single stopped
- 20.6 Temperature = 26.3°C



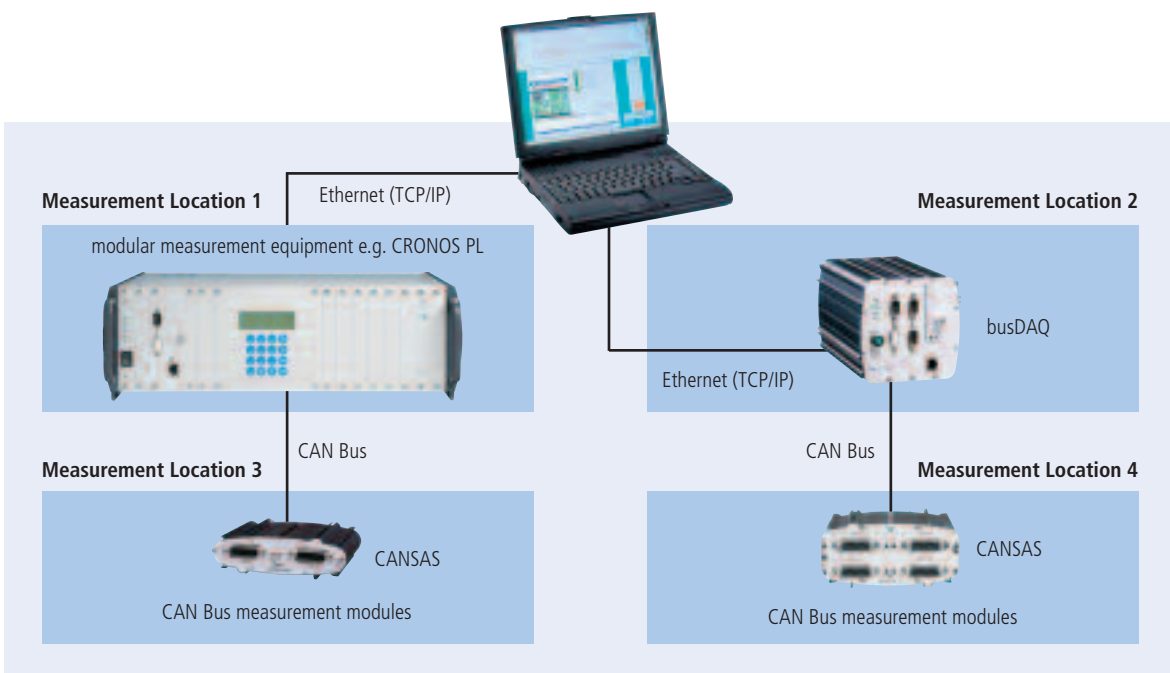
Multiple devices, even of different types can be networked



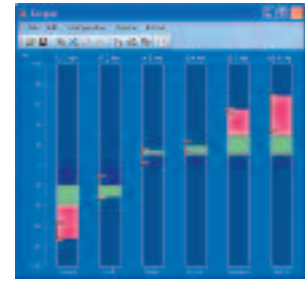
Assembly of decentralized measurement networks

Network-wide Client/Server operation of devices from the whole range of imc product families can be achieved without any problem using the integrating imcDevices user's interface. busDAQ is operated via an Ethernet TCP/IP network, or via a wireless WLAN network. Multiple busDAQ units, along with other imc measurement systems, can be joined via a uniform software to a measurement network. Assembling suitable decentralized measurement networks is possible without any trouble.

The trigger machine serves the purpose of intelligent data capture as well as of data reduction. 48 trigger levels are available. Channel associated events can be combined in logical expressions and cause a defined response on the target channels.



Viewing measurement data live



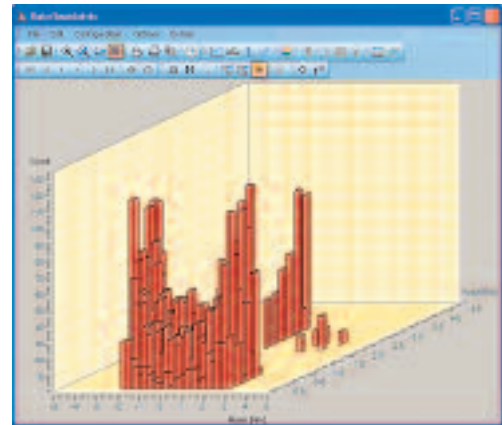
Bar meter with slave pointers

Integral elements of imcDevices: The Curve Window and the Report Generator

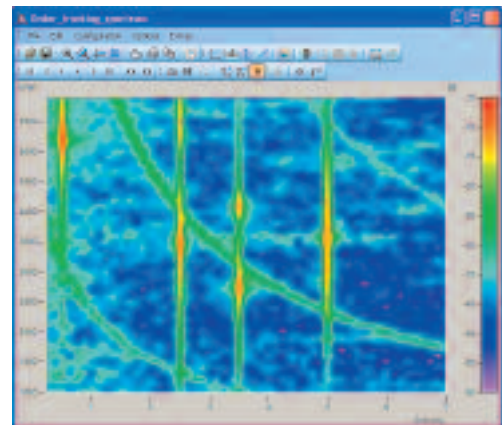
During a measurement all captured data can be displayed at a single click of the mouse. The curve window automatically opens with appropriate scaling, displaying the optimum value range. Subsequent customized re-scaling of the axes and of the display can be performed without interfering with the ongoing measurement.

A wide variety of display types, which can be freely configured and applied after the measurement's conclusion, are available. Standard (Y/t) display or with stacked Y-axes, single values, measurement value tables, bar meters, and a range of 3-D displays such as Waterfall, color map etc. The display range can be resized and zoomed to any desired view.

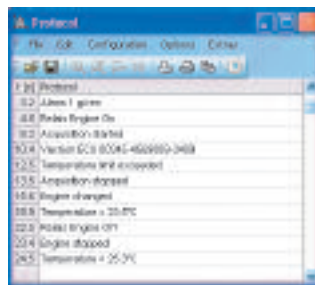
The data can also be immediately transferred and subjected to offline processing (e.g. FAMOS 5.0).



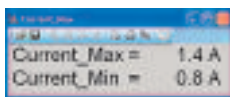
3-D class-counting representation



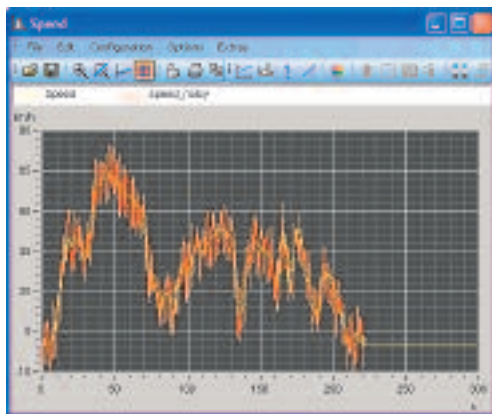
Order line representation of a measurement plotted over the angle



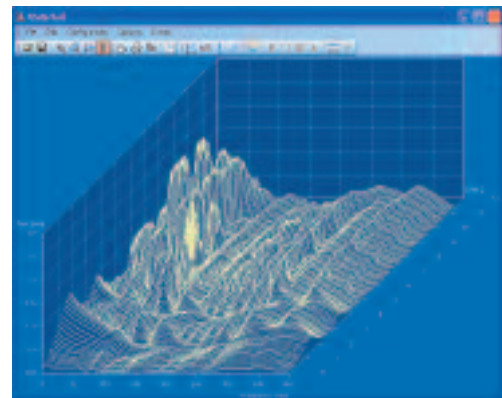
List of time-stamped protocol entries



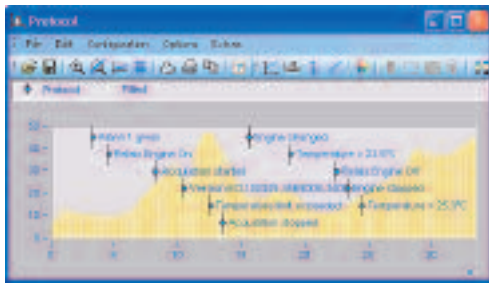
Single values



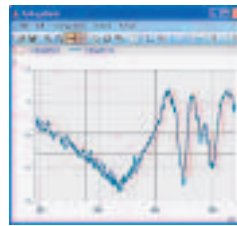
Automatically scaled



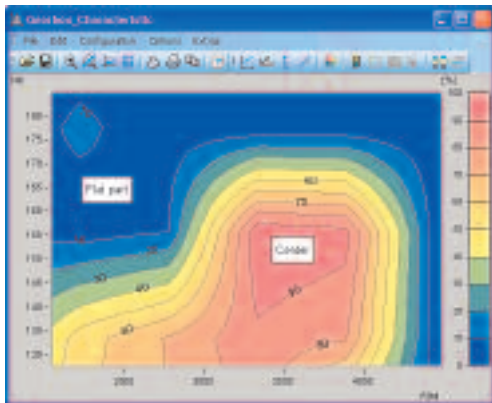
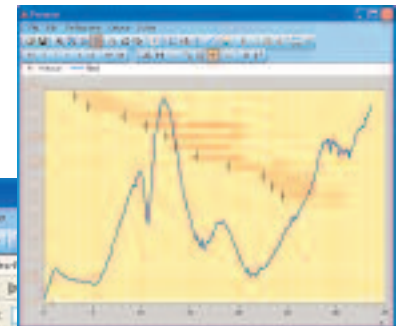
Waterfall display



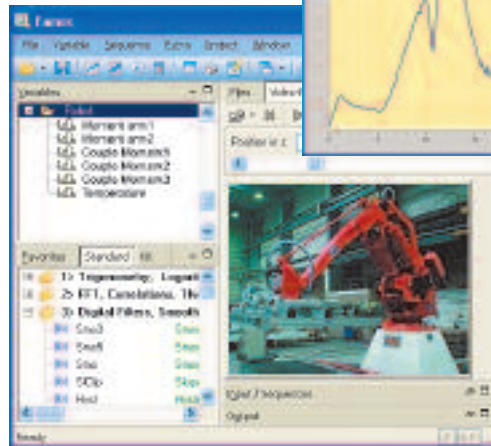
Measurement curve with automatically set time-correct report data



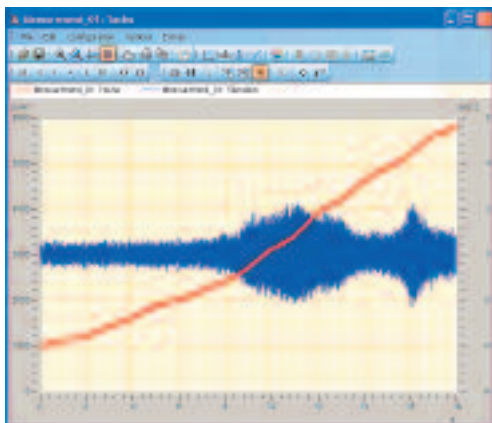
Zoomed signal segment with measurement cursors



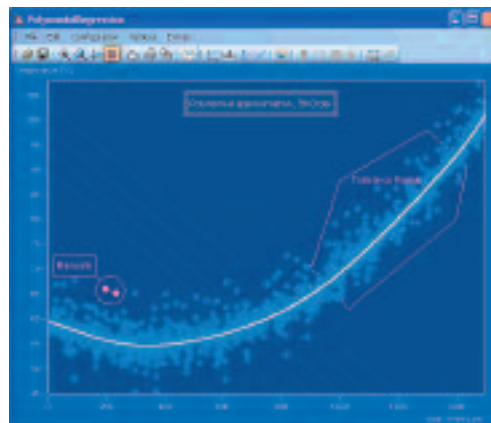
Characteristic curve field in isoline display



Synchronized display of measurement curves and video data



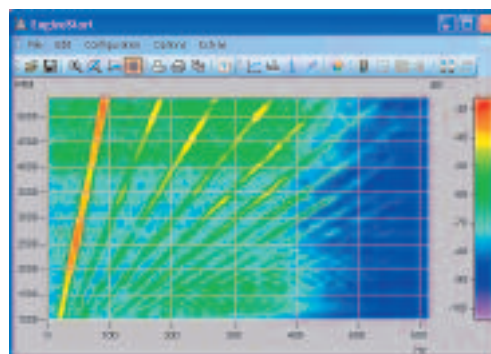
Different line thicknesses



Approximation polynomial

Time	Torque	Speed	Psi	Psi
0.00	0.00000	0.00000	0.00	0.00
0.01	0.00000	0.00000	0.00	0.00
0.02	0.00000	0.00000	0.00	0.00
0.03	0.00000	0.00000	0.00	0.00
0.04	0.00000	0.00000	0.00	0.00
0.05	0.00000	0.00000	0.00	0.00
0.06	0.00000	0.00000	0.00	0.00
0.07	0.00000	0.00000	0.00	0.00
0.08	0.00000	0.00000	0.00	0.00
0.09	0.00000	0.00000	0.00	0.00
0.10	0.00000	0.00000	0.00	0.00
0.11	0.00000	0.00000	0.00	0.00
0.12	0.00000	0.00000	0.00	0.00
0.13	0.00000	0.00000	0.00	0.00
0.14	0.00000	0.00000	0.00	0.00
0.15	0.00000	0.00000	0.00	0.00
0.16	0.00000	0.00000	0.00	0.00
0.17	0.00000	0.00000	0.00	0.00
0.18	0.00000	0.00000	0.00	0.00
0.19	0.00000	0.00000	0.00	0.00
0.20	0.00000	0.00000	0.00	0.00
0.21	0.00000	0.00000	0.00	0.00
0.22	0.00000	0.00000	0.00	0.00
0.23	0.00000	0.00000	0.00	0.00
0.24	0.00000	0.00000	0.00	0.00
0.25	0.00000	0.00000	0.00	0.00
0.26	0.00000	0.00000	0.00	0.00
0.27	0.00000	0.00000	0.00	0.00
0.28	0.00000	0.00000	0.00	0.00
0.29	0.00000	0.00000	0.00	0.00
0.30	0.00000	0.00000	0.00	0.00

Display of data with different sampling rates in tabular form



3-D spectral display

Professional report composition

Every test technician's wish is for a measurement report to simply write itself at the push of a button.

imcDevices includes the Report Generator which, with imc FAMOS 5.0, perfectly implements this dream.

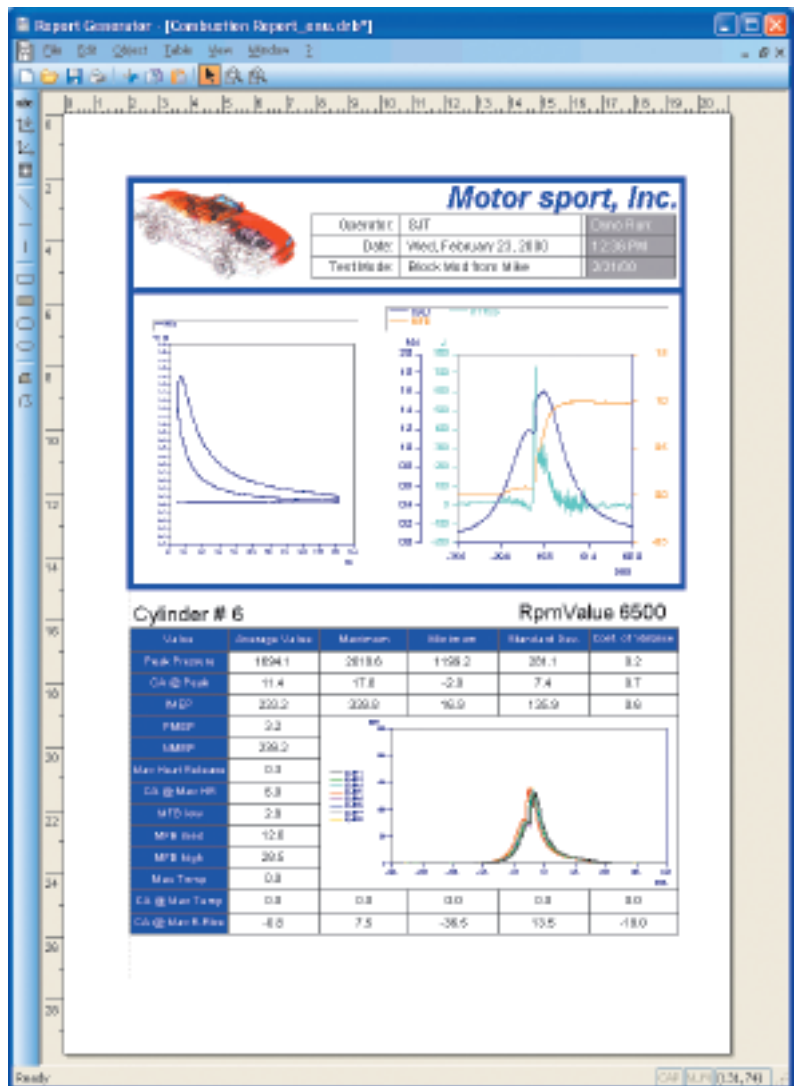
Measurement reports are quick and easy to make, directly printable, and can be transferred and printed out by other programs.

Any measurement signals which can be displayed can also be added to a report at a single click of the mouse – just captured live signals, or previously saved data. The size of the vector graphic can be subsequently changed.

Graphics can be shifted around and snapped to precise grid coordinates.

Text insertions and graphical structure elements such as lines, arrows, company logos etc., are available in a variety of colors, sized and orientation angles.

For especially quick results, you can use the signal analysis software FAMOS 5.0 to create a template to save time and effort in making routine reports.



Manual, partially, or fully-automated creation of measurement reports

Online FAMOS makes busDAQ a Personal Analyzer

Real-time calculations, open- and closed-loop control – Online FAMOS

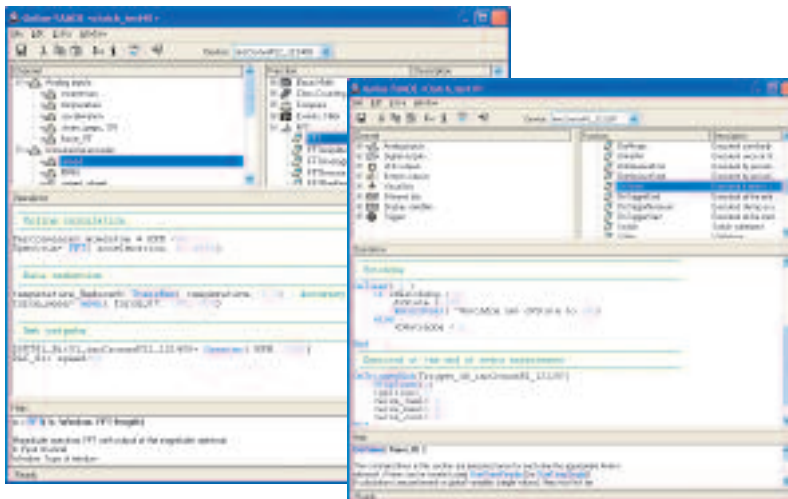
Beyond simple configuration of digitizer parameters, the most important enhancement for imcDevices is the DSP computing unit Online FAMOS, which provides a host of real-time functions.

Real-time execution of the functions is quick and independent of the PC. Online FAMOS enables "free" definition of one's own functions and virtual channels, and transforms busDAQ from a mere data logger, into a Personal Analyzer.

Any or all channels can be subjected to real-time analysis calculations. Data reduction, Transitional Recording, digital filters, frequency, responses, and signal limit violations, for example, are all easily defined by simply entering formulas in "Pocket Calculator" notation into the Formula Editor, and setting function parameters with the help of the Function Assistant's online instructions.

"Result on Demand"

- Freely defined computation of results from the measurement channels
- Limit monitoring of all measurement channels, with alarm / response triggering
- Control commands for measurement process control and communication with other devices
- Closed-loop control algorithms
- Logbook with event-record function

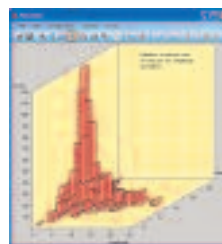


Arbitrary definition of calculation and control instructions in simple notation. Real-time, PC-independent execution with simultaneous display of results.

Durability and material fatigue testing

Online FAMOS can be expanded with the optional Class-counting Kit for the special applications involved in material strength testing.

These include the standard procedures per DIN 45667:



- Rainflow-procedure with numerous options
- 1- and 2-dimensional histograms
- Revolution class-counting

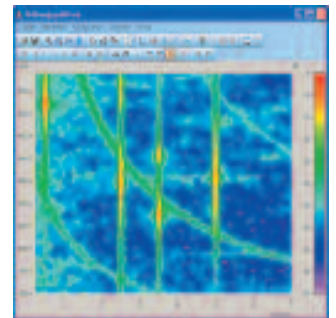
The TrueMax procedure ensures that important minima and maxima are correctly accounted even at low sampling rates.

Order tracking analysis of rotating parts

This Online FAMOS Kit contains an extensive set of mathematics functions and examples for the analysis of signals associated with rotating machinery.

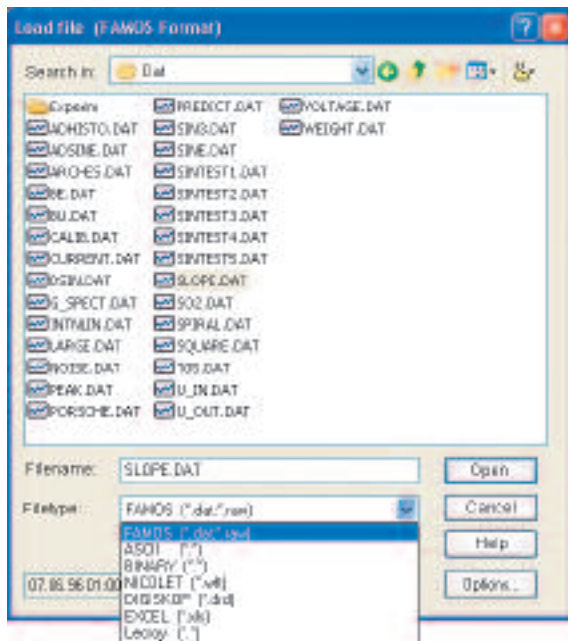
The order spectrum of a machine's run-up or run-down, the RPM-dependent frequency spectrum or even the 1/3-octave spectrum can be calculated in real-time.

The measurement signals or individual order lines can be plotted not only over time, but alternatively over the angle or RPMs.



Signal analysis software imc FAMOS

The quickest way to process measured data and achieve refined results has a name: FAMOS. Instrument independent, this signal analysis software is perfectly adapted to the needs of measurement engineers and technicians. The curve window provides extensive possibilities for data display. The Report Generator simplifies the documentation of measurement and analysis results. Besides the imc Data format, imc FAMOS supports a variety of other formats, and includes the File Assistant, which can quickly import data from non-imc devices. The entire process can be automated by means of the Sequence Editor.

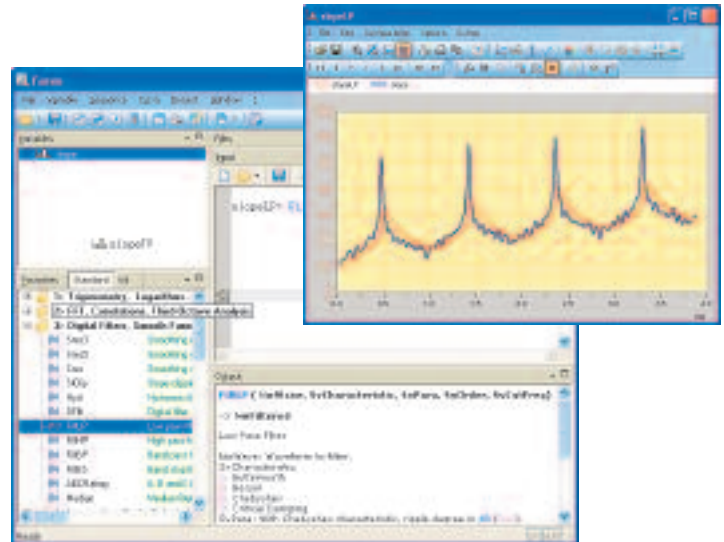


Data exchange

Handling a wide variety of data formats

For trouble-free import and export of non-imc data formats, FAMOS 5.0 includes the a File Assistant, and a number of pre-defined import filters. For the purpose of freely defining specialized import and export formats, a .dll based import, and a stand-alone file conversion utility, ImExport, is also available.

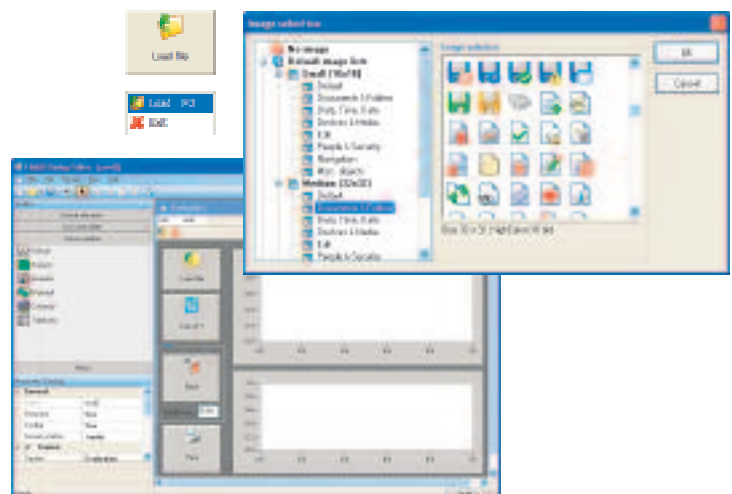
With the new FAMOS 5.0 visualization interface implementing new data formats is fast and easy.



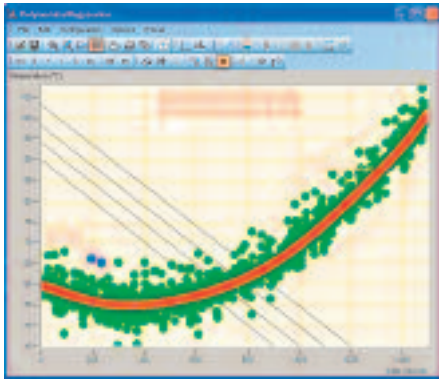
Data Analysis

Optimized interface for quick results

To actually understand measured signals, offline analysis is often necessary. FAMOS, the signal analysis system, provides a well-balanced combination of user-friendliness and versatility. With FAMOS 5.0, you can process data sets of any length and generate computation algorithms using normal mathematical notation. Advanced capabilities for displaying data either graphically or in tabular form are provided.



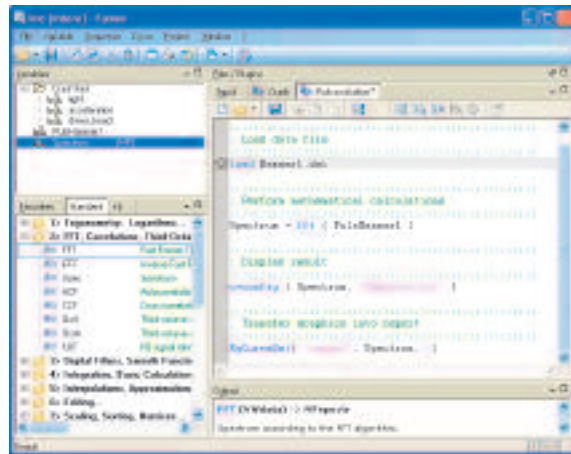
imc FAMOS 5.0 includes the Dialog Editor. With this tool, it is possible to quickly define settings, control, and user interface dialogs which are tailored to operator's needs.



Data Display

Visualization with the Curve Window

Visual representation and display of measured data is one of the outstanding elements of FAMOS 5.0. The built-in Curve Manager makes it possible to freely configure curve windows, 2D- and 3D-, alphanumeric and tabular displays and bar graphs. Adding channels to curve windows is easy with Drag & Drop. Cursor functions and unlimited zooming, with an overview window, are standard, as is the creation and labeling of curve markers and text.

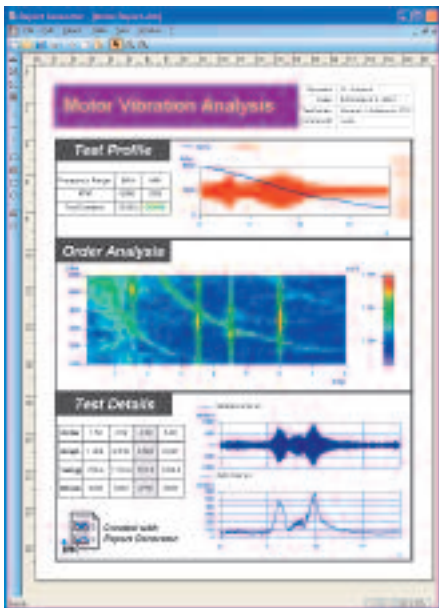


Automation

Gain efficiency – automate routines

FAMOS 5.0 includes the Sequence Editor for automated data analysis, including the capability of loops and decision branches within the calculation procedures.

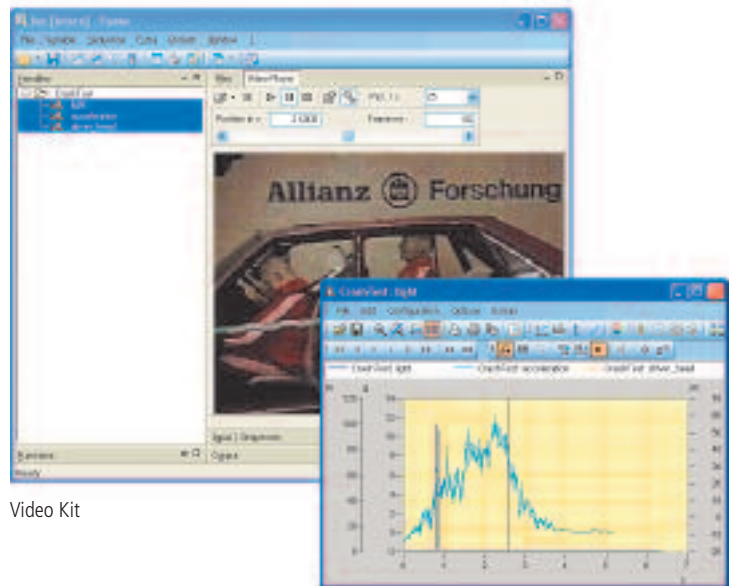
Any commands which can be executed in the Formula Editor can also be applied in the Sequence Editor by means of Drag & Drop significantly simplifying the creation of macros. Because programming skills are not required, creating macros is made easy, so that complex analyses can be carried out at the push of a button.



Documentation

Presentations created using the Report Generator

As every engineer knows, performing the measurement may be the most challenging part of a test, but composing the documentation is the one that takes the most time. That's why all imc software includes the powerful Report Generator, a built-in desktop publisher for the special requirements of a measurement engineering professional. Any graphical representation of the measured signals, as well as tables, pictures and texts, can be pasted into a document by means of Drag & Drop, or automated through the FAMOS 5.0 macro language.



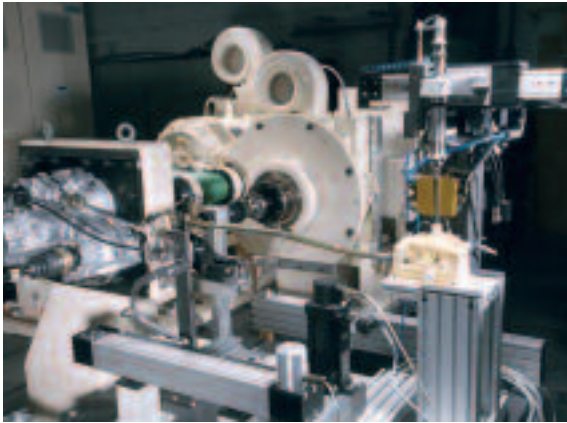
Video Kit

imc FAMOS Expansion Kits

For imc FAMOS, a number of enhancement kits are available for special tasks:

- Class-counting analysis
- Order tracking analysis
- Digital filter design
- Enhanced spectral analysis
- Video (picture data and measurement data synchronization)
- ASAM-ODS
- COM class library

Efficient programming environment with COM™ or LabVIEW™



busDAQ in test stands

Test rig and specialized measurement applications require an adapted user interface. Thus the system integrator requires special measurement properties, measurement process control, communication with external devices, such as an automation system, other measurement devices and sensor systems. The solution for such cases is to develop custom test rig or device software.

The efficiency of the programming and the speed at which a software project proceeds are the main issues affecting time and cost of implementation. System maintenance updates and expansions should be made available at a rapid pace and low cost.

The programming interfaces of busDAQ make it possible to easily and efficiently apply imc hardware and software in the system integrator's choice of programming language.

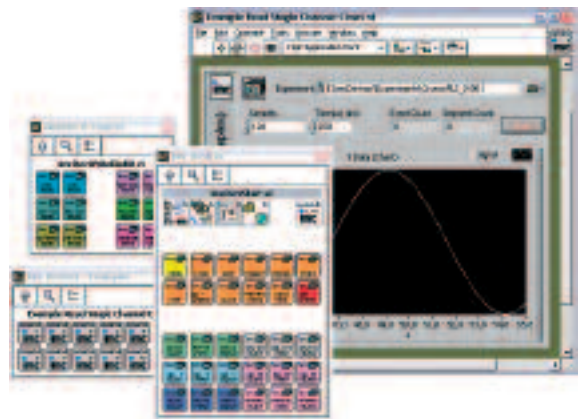
Function calls in a test rig program with only a few lines of code

By means of imcDevices, the entire measurement, including all real-time functions, displays of measured values, online and offline computations, data storage and generation of measurement reports can be set and tested down to the last detail. Then, all the settings can be quickly and easily loaded with just a few lines of code.

The main tasks left for individual programming are just in the measurement process control, communication with other devices and creating a custom user interface.

COM Interface

For professional software developers, all functions for configuration, mathematics, and graphics are available as COM™ libraries. The programmer has a choice of COM™-capable programming languages, including Visual Basic™, C++™, Delphi™ and many more.



LabVIEW™ Interface

LabVIEW™ is also a widely prevalent programming environment in measurement engineering. The user can appreciate the graphical programming language, because it uses syntax similar to circuit diagrams as well as functions packaged in Virtual Instruments (VIs™).

imc offers a number of VIs and sample implementations which are directly accessible via the LabVIEW™ functions palette. With these VIs™, devices can be configured, started/ stopped, controlled (e.g. DAC, DO,...), and measurement data can be acquired.

Support – Training – Special Assistance

High operational availability through adapted system maintenance

The purpose of our customer support is to optimize your operation with our products, and thus to protect the value of your investment for years to come. Tailored system maintenance enables ongoing trouble-free operation while minimizing total cost.

Best Utilization

To obtain the best equipment utilization, it is necessary to be well versed in all of the measurement system's functions. The quickest way to achieve this is to order system training and commissioning along with your system purchase.

Standard, customized and topical training sessions

New customers value our intensive introductory training sessions, and use them to save both time and money. Experienced users appreciate our customized training sessions and specialized workshops on a wide range of measurement engineering topics.

And when you are short handed, or for tricky jobs...

Just call us and we will arrange to send an experienced measurement technician to you.

Problems with the hardware, software, or the testing application?

We maintain a competent and reliable Hotline for addressing your concerns. And if the problem can't be solved over the phone, we can attempt remote maintenance over the Internet, or will arrange an in-person service call.



Selectable system maintenance options

- Commissioning
- Extended guarantee
- System instruction
- Express service
- System inspection
- Remote maintenance
- System revision
- On-site support
- System update
- Technical support
- Training, and much more

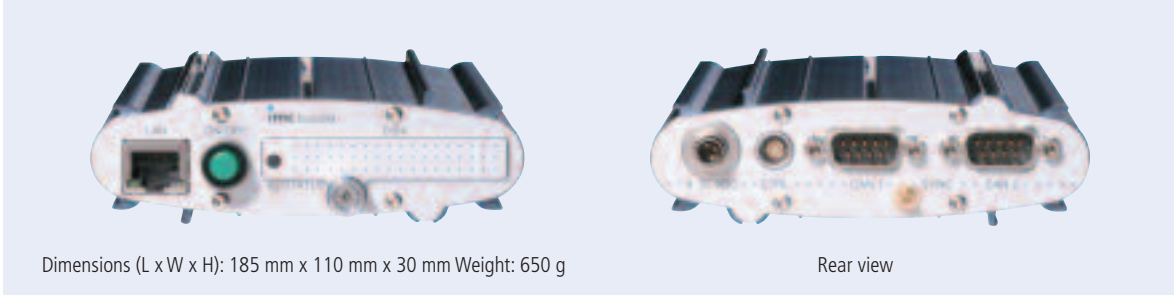
“First Aid” required?

For quick help, please visit the imc web site.

The answers for frequently asked questions, tips and tricks, measurement hints and solutions for general problems can be found there. To get instant information simply visit our web site under www.imc-berlin.com and click on 'Customer Support'. Sorted by diverse topics, products and problem, you'll find the assistance you need.

Package Options

busLOG – Data Collector



Dimensions (L x W x H): 185 mm x 110 mm x 30 mm Weight: 650 g

Rear view

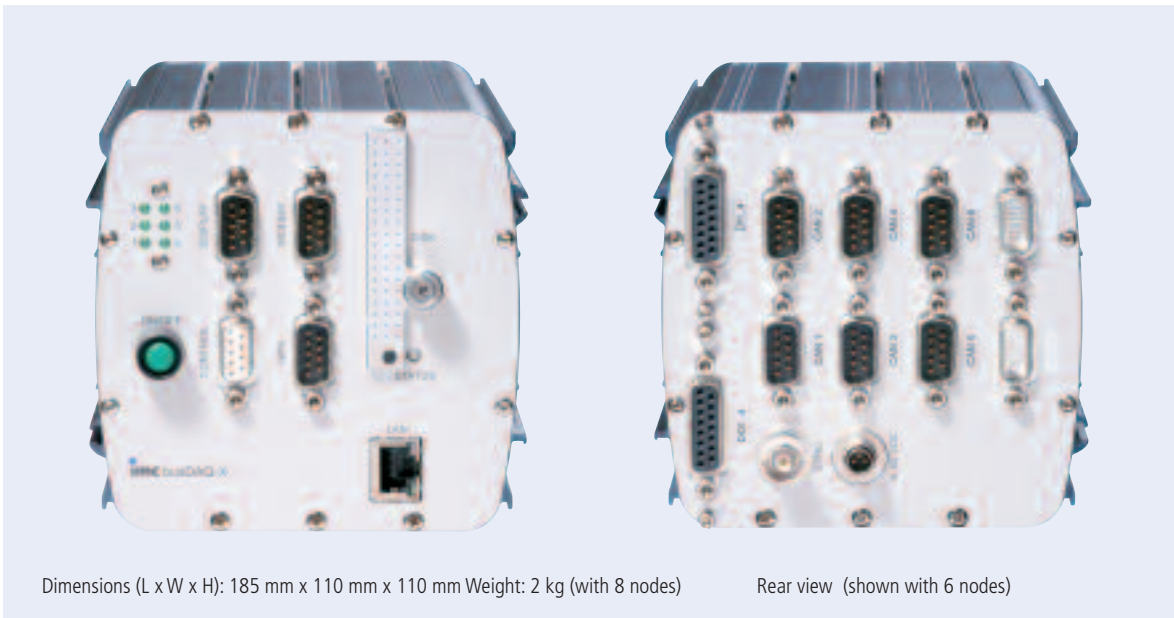
busDAQ-2 – Intelligent Measurement Network



Dimensions (L x W x H): 185 mm x 110 mm x 51 mm Weight: 850 g

Rear view

busDAQ-X – Multi-bus/Multi-protocol Data Logger



Dimensions (L x W x H): 185 mm x 110 mm x 110 mm Weight: 2 kg (with 8 nodes)

Rear view (shown with 6 nodes)

busDAQ / busLOG hardware configuration

	busLOG	busDAQ-2	busDAQ-X
Housing models	Fanless extruded aluminum	Fanless extruded aluminum	Fanless extruded aluminum
Power supply	10-50 VDC	10-50 VDC	10-50 VDC
Power consumption (sleep mode / operating status)	200mW, < 3 W	200mW, < 3 W	200mW, < 8 W
Isolation barrier (to Power Supply)	60 V	60 V	60 V
UPS	15 s	15 s	15 s
Network interface Protocol	TCP/IP	TCP/IP	TCP/IP
Startup time	0.2 s	0.2 s	0.2 s
Operating temperature -40°C to +85°C	✓	✓	✓
Condensation allowed	✓	✓	✓
CAN-Bus Interface 2 nodes	✓	✓	✓ (expandable to up to 8)
Vector database import	✓	○	○
Remote activation/deactivation	✓	✓	✓
Sleep-Mode/Wake up on CAN	✓	✓	✓
Synchronization of multiple devices	✓	✓	✓
CANSAS measurement module connection	✓	✓	✓
Compact Flash data storage	○	○	○
Display terminal connection	–	✓	✓
GPS mouse terminal connection	–	✓	✓
Modem connection for external modem	–	✓	✓
Online functions (Online FAMOS)	–	○	○
4 digital inputs	–	–	✓
4 digital outputs	–	–	✓
IDE hard drive	–	–	○

Accessories

External Graphic Displays			
Color Display	–	○	○
B&W Display	–	○	○
Data Transfer, Remote Control			
Internal analog modem	–	○	○
Internal ISDN modem	–	○	○
Internal GSM radio modem	–	○	○
WLAN Adapter, internal	–	○	○
Device synchronization, Radio Clock			
External DCF 77 real-time clock	○	○	○
External GPS real-time clock	–	○	○
GPS-Signal Converter			
GPS-Signal Receiver	–	○	○
GPS Mouse	–	○	○

Software Configuration

imcDevices	✓	✓	✓
Parameterization of CANSAS modules	–	✓	✓
Online software options for imcDevices			
Online FAMOS	–	○	○
Online Class-counting package	–	○	○
Online Order Tracking Analysis	–	○	○
ECU protocols for CAN interface	–	○	○
PC Software			
imc FAMOS signal analysis software	○	○	○
imc Sensors sensor database	○	○	○
imc COM basic package	○	○	○
LabVIEW™ interface, VI's	○	○	○
imc LOOK data viewing software	○	○	○
imc Filter Design	○	○	○

✓ = standard included
 ○ = optional
 – = not available



Learn more at www.imc-berlin.com

Errors and changes excepted. All registered trademarks are the property of their respective firms.

imc
 Meßsysteme GmbH
 Voltastraße 5
 D-13355 Berlin
 Phone +49 (0) 30-46 70 90-0
 Fax +49 (0) 30-4 63 15 76
 E-Mail: hotline@imc-berlin.de
www.imc-berlin.com
 International: www.imc-berlin.de/international



• • • • Integrated measurement & control • • • •