imc BUSDAQ*flex*

compact • mobile • expandable

Intelligent multi-bus data logger for field and vehicle buses

imc BUSDAQ*flex* – at a glance

- Provides 2 to 12 CAN nodes depending on selected housing size
- Expandable to include interfaces for all common vehicle, railway and aviation buses such as CAN FD, LIN, J1939, FlexRay, ARINC, MVB, XCPoE, ...
- Handles a variety of protocols such as CCP, XCP, KWP2000, OBD-2, UDS, DiagOnCAN, ...
- Autonomous operation with self-start capability (wake-up on CAN)
- Trigger, real-time data processing, internal data storage
- Wide operating temperature range from -40 °C to +85 °C
- GPS position detection

imc BUSDAQ*flex*

Efficient vehicle and measurement data acquisition

The imc BUSDAQ*flex* series is used to acquire measurement information from vehicle, railway and aviation buses. In the basic configuration, the system has two CAN nodes. Depending on the selected housing size, these can be extended up to twelve nodes for different field and vehicle buses. In addition to CAN, interfaces to LIN, FlexRay, ARINC, MVB, XCPoE and CAN FD are available. Furthermore, it is possible to connect additional protocols and buses via a programmable APPMOD interface with Ethernet or RS232 interface.

In addition to recording raw data streams and protocol channels, imc BUSDAQ*flex* also supports live decoding of individual channels as well as complex protocols such as CCP, KWP2000, XCP, OBD2, UDS, DiagOnCan, TP2.0 and GMLAN.

With versatile triggering possibilities as well as the internal real-time data processing, these compact systems prove to be much more than simple loggers. In addition to its low power consumption and fast measurement readiness (in the millisecond range), this compact device also excels in robustness. With condensation protection and an extended temperature range, the imc BUSDAQ*flex* series can operate easily in extreme environments. Specifically, this means that operation is assured with interior module temperatures ranging from -40 °C up to +85 °C and up to 50g shock resistance when used in off-road testing.

The new data logger is perfectly complemented by the imc CANSAS*flex* series measurement modules. Thanks to the click mechanism, the modules can be directly attached to the logger without tools and cables. In a very short time, a complete measurement system that can synchronously record and store all data can be made from a pure field bus logger.

Thanks to its lightweight, compact design, the imc BUSDAQ*flex* is ideal for vehicle testing.

In conjunction with imc CANSAS*flex*, distributed measurements can be carried out quickly and safely.

imc BUSDAQ*flex* – ideal for mobile applications

Your benefit – our goal

Increase productivity

- Acquisition of machine and vehicle data from various bus systems such as CAN, CAN FD, FlexRay, LIN, ARINC, MVB, XCPoE, ...
- Compressed recording of raw data streams (dumps)
- Acquire individual channels via live decoding of bus information
- Supports ECU protocols such as CCP, KWP200, XCP, OBD2, UDS, DiagOnCan, TP2.0, GMLAN
- GPS connection for synchronous acquisition of position and speed data

Easy set-up

- Support for common formats such as DBC and A2L
- User-friendly assistance in setting up bus parameters, as well as device configuration
- Redundant data storage within the device itself

Data analysis in real time

- Real-time analysis in the device – results already during the measurement
- Wide selection of statistical and mathematical analysis functions
- Limit monitoring with user notification for measurement channels and real-time results

Robust and compact

- Compact design for use in small spaces
- Operating temperature from -40 °C to +85 °C
- Device condensation in cold temperatures allowed
- EN 50155 and MIL-STD 810-F – shock and vibration resistant
- No loss of measurement data during power outage

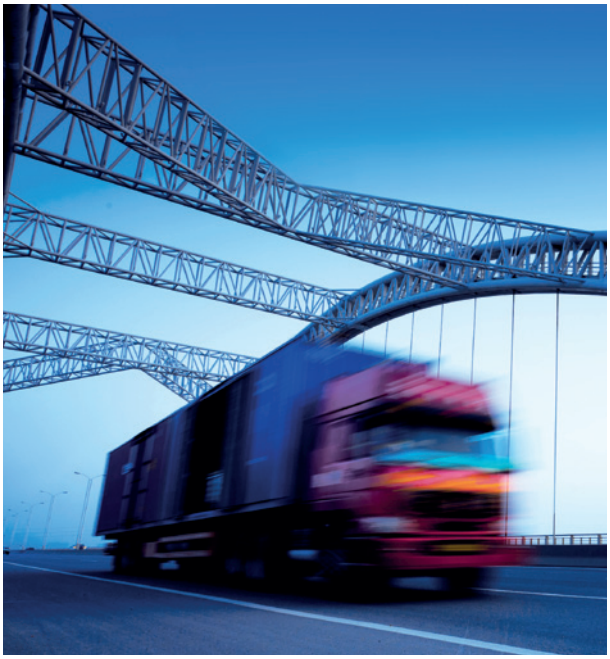
Autonomous and mobile

- PC-independent operation, as well as “black box“ functionality for long-term use
- Built-in UPS buffering for follow up (data backup during shutdown)
- Decentralized network and synchronization capability with all imc measurement systems
- WLAN-, GPRS- / UMTS-capable: ideal for remote or inaccessible areas

In Practice

Fleet and vehicle testing

With fleet testing and in-vehicle testing, the fleets are always at different locations. Measurement data are recorded via CAN, LIN, FlexRay or CAN FD with the imc BUSDAQ*flex* multi-bus data logger. If the vehicle is switched off, the imc BUSDAQ*flex* unit goes into sleep mode. Starting of the measurement is triggered by opening the door, for example (wake-up on CAN). Within 200 ms, this CAN message starts a pre-configured measurement. At the same time, the imc BUSDAQ*flex* automatically connects to the Internet via UMTS/LTE. It is then possible to access any measurement device in the fleet from a PC. Any threshold violations are automatically reported, and a complete series of measurements can be quickly transferred to the cloud. Last but not least, remote parameterization of measurement devices is possible without any difficulty.



Distributed testing on machinery and in facilities

Within large facilities or machinery, such as wind turbines, the individual measuring points are often far apart. A spatially-distributed measurement system has the distinct advantage that it can be placed close to the sensor. This reduces the amount of wiring and minimizes interference. With the imc BUSDAQ*flex* and imc CANSAS*flex*, you can create multi-channel measurement networks, even over long distances.
The modules are placed close to the measurement point and digitize the analog information into CAN signals direct on site. A wide range of modules covers all typical signals and sensors – from the universal measurement amplifier to special measurement modules for complex tasks such as highly-isolated measurements on hybrid and electric vehicles. imc BUSDAQ*flex* captures CAN data from the individual modules in a time-synchronous manner and stores them on an internal CF card or transmits them directly to your PC via Ethernet, WLAN or UMTS.

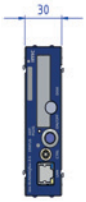
Technical Data

General facts & features

Key: ● default, ○ optional

	imc BUSLOG*flex* & imc BUSDAQ*flex*-2S	imc BUSDAQ*flex*-2	imc BUSDAQ*flex*-4,-6,-8,-12
Operating conditions			
Operating temperature	-40 to +85 °C	-40 to +85 °C	-40 to +85 °C
Shock vibration rating (pk over 5 ms)	50 g	50 g	50 g
Protection rating (with opt. protective cover)	IP40	IP40	IP40
Data storage			
Ring buffer memory	●	●	●
Hard disk (internal)			○
CF card slot (Compact Flash)	●	●	●
Stand-alone capabilities			
Autarkic PC-less operation, self-start	●	●	●
Sleep/Standby, Wake-up-on-CAN	●	●	● *1
Remote-controllable main switch	●	●	●
Programmable status display (LEDs)		●	●
Synchronization & clock			
Master-slave between different imc systems	●	●	●
Via external DCF-77 signal, IRIG-B signal	●	●	●
Via external NTP signal	●	●	●
Via external GPS		●	●
Power supply			
DC input	10 - 50 V DC	10 - 50 V DC	10 - 50 V DC
AC/DC adaptor (110 - 230V AC)	●	●	●
Data integrity upon power failure	●	●	●
UPS (Supercaps)	●	●	●
Power consumption in sleep-mode	200 mW	200 mW	200 mW
Connectivity			
Ethernet (100 MBit)	●	●	●
WiFi adapter internal			○
Wireless UMTS, 3G, 4G (external)	○	○	○

*1: only with pure CAN/LIN equipment



imc BUSLOG*flex*
imc BUSDAQ*flex*-2-S

imc BUSDAQ*flex*-2

imc BUSDAQ*flex*-4

imc BUSDAQ*flex*-6

imc BUSDAQ*flex*-8

imc BUSDAQ*flex*-12

Inputs and outputs

	imc BUSLOG*flex* & imc BUSDAQ*flex*-2S	imc BUSDAQ*flex*-2	imc BUSDAQ*flex*-4,-6,-8,-12
Bus interfaces			
CAN nodes	2	2	2 (max. 12)
Expandable	no	no	yes
Supported expansion modules			
CAN			○
CAN FD			○
LIN			○
FlexRay			○
J1587			○
ARINC			○
XCPoE (Master, Slave)			○
MVB			○
Kistler RoaDyn			○
APPMOD (Ethernet/RS232/RS485)			○
Inputs and outputs			
Digital inputs			4
Digital outputs			4
Analog / digital in and outputs (via imc CANSAS*flex*)	○	○	○
Additional connections			
GPS connection		●	●
Display connection		●	●

Software options

Software product	Functionality	License-model	Included
Operating software			
imc STUDIO Standard	Operating software, integrated test &measurement suite	PC	○
imc STUDIO Professional / Developer	Customized operation, scripting, application development	PC	○
Real-time data analysis			
imc Online FAMOS *2	Real-time calculations, immediate results	device	○
imc Online FAMOS Professional	Real-time control functions, PID controller, etc.	device	○
imc Online FAMOS Kits	Class counting (durability analysis), order tracking	device	○
Post Processing			
imc FAMOS Reader	Data visualization	PC	●
imc FAMOS Standard / Professional / Enterprise	Data visualization, analysis, reporting, scripting	PC	○
Remote Access			
imc LINK	Remote device access, automatic data transfer	PC	○
imc REMOTE	Web Server, secure https device access	device	
CAN			○
Vector database	Vector database interface	device	○
ECU protocols	ECU Protocol support for CAN interface (KWP 2000, CCP, XCP, OBD-2, UDS, GMLAN, TP 2.0, DiagOnCAN)	device	○
Applications development			
LabVIEW™ VI's	LabVIEW VI-components		●
imc COM	ActiveX programming interface (API)	PC	○
imc API	.NET Programmierschnittstelle (API)	PC	○

*2: not available for imc BUSLOG*flex*

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