

imc BUSDAQ

autonomous • intelligent • synchronized



Field bus data acquisition - from stationary to mobile

imc BUSDAQ/BUSLOG at a glance

- Processes multiple networks of all common vehicle, field and aviation busses, such as CAN, LIN, FlexRay, J1939 or ARINC
- Direct message decoding instead of simple "data dumping"
- Handles ECU protocols, such as CCP, XCP, DiagOnCAN, KWP 2000, OBD-2...
- Autonomous with self-starting capability (wake-up on CAN), PC-independent
- Intelligent trigger, real-time data analysis and reduction, redundant data storage within the system
- Suitable for extreme environments
- GPS positioning & remote device access (WLAN, 3G, 4G, ...)
- Automatic data upload via imc LINK
- Easy integration into decentralized measurement networks

3 6
2 5
1 4

ON/OFF

DISPLAY

MODEM

DISK

CONTROL

GPS

LAN

STATUS

imc



imc BUSDAQ / BUSLOG

Efficient data acquisition and real-time calculations

Thanks to its lightweight and compact design, imc BUSDAQ is ideal for vehicle and field testing. With advanced functions ranging from real-time calculations for data analysis and reduction, to a compound yet intuitive trigger engine and support of ECU protocols, imc BUSDAQ is much more than a simple data logger. While allowing wake up from low power standby to operation within milliseconds (both upon CAN traffic or trigger signal) this compact system also excels in robustness. With condensation protection and an extended temperature range, the imc BUSDAQ series can operate easily in extreme environments.

Specifically, this also includes shock resistance up to 30g as encountered in off-road testing.

For remote monitoring of vehicles, machinery and equipment, imc BUSDAQ allows the use of various wired and wireless data transfer methods. The system can independently report to remote offices, providing relevant measurement values, status information and notification of exceeding limits by SMS or e-mail. In addition, imc BUSDAQ can provide continuous online long-term monitoring and remote parameterization via internet.



imc BUSLOG, CAN bus data logger



imc BUSDAQ-2, intelligent, networkable measuring system



imc BUSDAQ-X, multi-bus/multi-protocol data acquisition system

Small sized, but high performance: imc BUSDAQ /imc BUSLOG



Beyond simple data logging

- Selective recording of decoded channels, plus additional log file
 - Support of complex ECU protocols (CCP, KWP2000,...)
 - Real-time analysis of bus data traffic instead of crude log file dump
 - GPS positioning and time synchronization
 - Synchronous acquisition of multiple field bus standards (CAN, LIN, FlexRay, J1939, ARINC)
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Simple set-up

- Wide variety of set-up parameters available as standard database information
 - Supporting formats such as DBC and A2L
 - User-friendly assistance in setting up bus parameters, as well as device configuration
 - Complete test and measurement software imc STUDIO for intuitive setup, data visualization and analysis, administration, reporting and even test automation
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Autonomous and mobile

- PC-independent "black box" operation, as well as interactive usage
 - Redundant or autarkic data storage onboard the system
 - Built-in backup battery (UPS) for bridging power supply outages
 - Decentralized networking and synchronization capability with all imc measurement systems
 - WLAN-, GPRS- / UMTS-capable: ideal for remote or inaccessible sites
 - Wake up on CAN within 200 milliseconds
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Immediate results and notifications in real time

- Real-time results and data reduction (imc Online FAMOS)
 - Broad selection of statistical and mathematical analysis functions
 - Threshold monitoring and user notification for measurement channels and real-time results
 - Powerful and selective trigger system
-



Robust and secure

- Compact and rugged design for use in space constrained environments
- Operating temperature range -40°C to +85°C, condensation allowed
- Complies with norms EN 50155 and MIL-STD 810-F - shock and vibration resistant
- Integrated UPS prevents any loss of measurement data during short power failure

In Practice

Fleet monitoring and vehicle testing

With fleet tracking and mobile testing, the vehicles are always at different locations. Measured data can be easily recorded via CAN with the data acquisition system imc BUSDAQ. If the vehicle is shut down, imc BUSDAQ automatically enters sleep mode. For example, starting data acquisition can be triggered by opening the door (wake up on CAN). Within 200 ms, this CAN message starts a pre-configured test. At the same time, imc BUSDAQ automatically connects via WLAN, 3G or 4G network to the imc internet platform for remote monitoring. Now, the test engineer is able to access any measurement system in the fleet from a PC.



Combining imc BUSDAQ and imc CANSAS

On large machinery, such as wind turbines, distributed measurement systems have a distinct advantage. They allow for the capture and digitizing of signals close to the sensor, thus reducing the amount of wiring and minimizing interference. This saves time and increases the quality of test results. Additional advantages become evident when imc BUSDAQ and imc CANSAS are used in combination. imc CANSAS modules convert analog sensor information into CAN signals, and output digitized data to imc BUSDAQ, for logging and storage. Absolute time synchronization between the channels of all connected imc CANSAS systems is ensured. This way the system easily scales with changing requirements for channels or sensor types.



Intuitive operating software: imc STUDIO

imc BUSDAQ is operated by imc STUDIO – the same intuitive software users know from all other imc data acquisition systems. imc STUDIO offers a complete test and measurement workflow environment with an emphasis on productivity in measurement configuration and test development. From quick and simple data capture tasks, to fully automated durability tests, imc STUDIO is based on over 20 years of experience, with one single goal in mind: improving your testing productivity.



imc BUSDAQ Details

imc BUSDAQ general specs and features

Key: ● Default, ○ Optional

| | BUSLOG | BUSDAQ-2S | BUSDAQ-2 | BUSDAQ-X |
|---|--|-------------|-------------|-------------|
| General | | | | |
| CAN nodes | 2 | 2 | 2 | 2 ... 8 |
| Additional Fieldbus types (CAN, LIN, FlexRay, ARINC, XCPoE) | | | | ○ |
| Housing type | alu profile | alu profile | alu profile | alu profile |
| Width | 30 mm | 30 mm | 51 mm | 110 mm |
| Weight | 650 g | 650 g | 850 g | 2000 g |
| Operating conditions | | | | |
| Extended temp. range (-40 .. +85°C, incl. condensation) | ● | ● | ● | ● |
| Shock vibration rating | 30g pk (3 ms), EN 50155 and MIL-STD-810F | | | |
| Connectivity | | | | |
| Ethernet (100 MBit) | ● | ● | ● | ● |
| W-LAN (WiFi) internal | | | | ○ |
| Wireless UMTS, 3G, 4G | | | ○ | ○ |
| GPS connection port | | | ● | ● |
| Display connection port | | | ● | ● |
| Remote controlled main switch | LEMO.0B | LEMO.0B | DSUB-9 | DSUB-9 |
| Synchronization signal | SMB | SMB | BNC | BNC |
| Programmable status feedback (LEDs) | | | | ● |
| Data storage | | | | |
| CF card slot (Compact Flash) | ● | ● | ● | ● |
| Storage on PC / network drive | ● | ● | ● | ● |
| Hard disk (internal) | | | | ○ |
| Stand-alone capabilities | | | | |
| PC independent complex trigger functionality | ● | ● | ● | ● |
| Onboard real-time data analysis (imc Online FAMOS) | | ○ | ○ | ○ |
| Autarkic PC-less operation, self start | ● | ● | ● | ● |
| Sleep mode (200 mW, wakeup 200 ms) | ● | ● | ● | ● |
| Wake up on CAN | ● | ● | ● | ● |
| Synchronization & clock | | | | |
| Master-Slave between different imc systems | ● | ● | ● | ● |
| Via external DCF-77 signal | ● | ● | ● | ● |
| Via external GPS signal | | | ● | ● |
| CAN | | | | |
| Max. Baud rate | 1 MBit/s | 1 MBit/s | 1 MBit/s | 1 MBit/s |
| Configurable CAN high speed /low speed | ● | ● | ● | ● |
| Individual galvanic isolation | ● | ● | ● | ● |
| Single-Wire CAN version available (per node) | ○ | ○ | ○ | ○ |
| Max. number of channels | 512 | 512 | 512 | 512 |
| Full CAN message decoding | ● | ● | ● | ● |
| J1939 protocol support | ● | ● | ● | ● |
| Process control (digital I/O) | | | | |
| 4 Bit digital input, isolated, TTL / 24V | | | | ● |
| 4 Bit digital output, 0.7 A | | | | ● |
| Power supply | | | | |
| DC input 10V to 50V | ● | ● | ● | ● |
| AC/DC adaptor (110 to 230VAC) | ● | ● | ● | ● |
| Data integrity upon power fail | ● | ● | ● | ● |
| UPS | ● | ● | ● | ● |
| Automatic shutdown after power failure | 10 s | 10 s | 10 s | 15 s |
| Operating power | < 3W | < 3W | < 8W | < 8W |
| Supply of connected imc CANSAS modules via CAN cable | ○ | ○ | ○ | ○ |
| Software | | | | |
| Vector database (DBC) | ● | ○ | ○ | ○ |
| ECU protocol support | | ○ | ○ | ○ |
| imc STUDIO Standard | ○ | ○ | ○ | ○ |
| imc REMOTE WebServer | ○ | ○ | ○ | ○ |



imc BUSLOG
CAN data logger
size (W x H x D): 185 mm x 30 mm x 110 mm
weight: ca. 650 g



imc BUSDAQ-2
Intelligent CAN data logger
size (W x H x D): 185 mm x 51 mm x 110 mm
weight: ca. 850 g



imc BUSDAQ-X
Multibus data acquisition system
size (W x H x D): 185 mm x 110 mm x 110 mm
weight: 2 kg with 8 nodes

imc BUSDAQ-X fieldbus options

| | CAN | LIN | FlexRay | ARINC | XCPoE |
|-------------------------------|------------------------|------------------------|-----------|-------------|---------------|
| Fieldbus interfaces | | | | | |
| Max. number of fieldbus nodes | 8 | 6 | 3 | 3*(8Rx+4Tx) | 3 |
| Max. channel number | 512 | 512 | 512 | 512 | 512 |
| Max. baud rate | 1 MBit/s | 20 kBit/s | 10 MBit/s | 100 kBit/s | 100 MBit/s |
| Individual galvanic Isolation | ● | ● | | | ● |
| Protocols | ISO 11898 ISO 11519 | LIN 2.1/2.0 LIN 1.3 | V 3.0 | ARINC 429 | V 1.0 ASAM |
| Supported import formats | DCB | | FIBEX | | A2L |
| Plugs | DSUB-9 | DSUB-9 | DSUB-9 | DSUB-15 | RJ-45 |

imc BUSDAQ software options

| Software product | Features | Licensing | |
|--|---|---------------|----------|
| | | 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 | ○ |
| imc CANSAS | In-situ configuration of imc CANSAS modules | | ● |
| Real-time data analysis | | | |
| imc Online FAMOS | Real-time calculations, immediate results | device | ○ |
| imc Online FAMOS Professional | Real-time control extensions, PID control etc. | device | ○ |
| imc Online FAMOS Kits | Class counting (fatigue 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 (KWP 2000, CCP, OBD-2) for CAN interface | device | ○ |
| Development | | | |
| LabView™ VI's | LabView VI components | | ● |
| imc COM | ActiveX programming interface (API) | PC | ○ |



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