

imc busLOG / busDAQ-X / busDAQ-2

CAN-Datalogger datasheet version 1.3



imc busDAQ is a multi-bus data logger for LIN and CAN. Along with the CAN- and LIN-bus data streams, various other protocols such as CCP, KWP2000 etc. are supported. busDAQ works independently at very low power consumption and is secured against power failure by an uninterruptible power supply (UPS). A signal-controlled Sleep Mode makes busDAQ particularly well suited to vehicle fleet experiments, especially since it requires only 200ms to start up.

Any kind of CAN bus clients such as sensors, measurement amplifier modules (e.g. CANSAS) or electronic control units can be connected to busDAQ. Measurement data, status information etc. can be extracted by busDAQ.

busDAQ, like all imc measurement devices, is operated using the imc operating software imcDevices.

imcDevices enables complete manual and automatic setting of the measurement parameters, real-time functions, trigger machines and data saving modes. Display of measurement plots in the curve window and, as well as experiment documentation in the Report Generator, are integral elements of imcDevices.

Models

- **Order code: busLOG-ET**
Unventilated aluminum strand-cast housing
185 mm x 30 mm x 110 mm (L x B x H)
- **Order code: busDAQ-2-ET**
Unventilated aluminum strand-cast housing
185 mm x 51 mm x 110 mm (L x B x H)
- **Order code: busDAQ-X-ET**
Unventilated aluminum strand-cast housing
185 mm x 110 mm x 110 mm (L x B x H)

Interconnections

- PC-connection via 10/100 MBit Ethernet TCP/IP
- CAN-bus connection via 9-pin DSUB-connector at device (1 connector per node)
(equipped in accordance with Cia Draft Standard 102 Version 2.0, CAN Physical Layer for Industrial Applications)
- Modem connection via 9-pin DSUB-connector (not busLOG)
- Display connection via 9-pin DSUB-connector (not busLOG)
- GPS connection via 9-pin DSUB-connector (not busLOG)
- Connection for synchronization of multiple devices (see table below for terminal type)
Several number of imc devices can be run in parallel an fully synchronized in an Ethernet TCP/IP network.
- Control Socket, for remote activation/ deactivation and switching of the Suspend/Resume function

Power supply

- 10 – 50 V DC supply with battery buffering (UPS) or 110 V / 230 V via included power adapter or optional via CAN-connector (node 1 or 2)
- UPS buffer time: see table below
- Automatic measurement operation with auto-startup after power outage
- Automatic charging control
- Automatic data saving upon power outage
- Power consumption: see table below

Operating conditions

- Operating temperature: -40°C .. 85°C
- Storage temperature: -40°C .. 85°C
- Relative humidity up to 95 %, condensation allowed
- Operating altitude (standard) up to 2000 m

Included software

- Complete imc operating software imcDevices for parameterizing visualization and data saving. With curve window for online visualization and Report Generator for composition of measurement documentation.
For MS Windows 2000, -XP, Vista
- LabView[®] Vis interface, DIAdem[®] interface
- Supports direct configuration of imc CANSAS modules¹ using the CAN-Bus nodes

Operating software

Min. system requirements:

- for imc busDAQ devices starting from 2010 imcDevices Version 2.6 R3 SP12 is necessary

Shock and vibration testing

1. accordance with DIN EN 50115 / EN 61373 category 1B
 - broad-band random vibration 5...150 Hz at 7.9m/s² (life circle); 1m/s² (operating)
 - shock: pulse shape 30ms half sinus at 50m/s²
2. accordance with MIL-STD-810F
 - 5...350Hz at 0.48g (Rail Cargo Vibration Exposure)
 - 5...500Hz at 2.33g (Highway Truck Vibration Exposure)
 - shock: pulse shape 11ms half sinus at 20g
3. Vibration and impact testing in accordance with EN 50155
 - Test load: sweep sine, 10 to 55Hz with s= 0.15mm, from 35Hz on with s= 0.8 g
 - Frequency sweep speed 1oct/min.
 - Test load duration: 30min.

¹ requires CANSAS configuration software

Transient overvoltages:

- Category II

Included accessories

- 230/110 V power adapter (optionally with country-specific network cable)
- Supply plug for power supply at ESTO supply terminal RD03 712-Series 3-pin.
- imcDevices installation CD with manual (German or English) as PDF
- imc busDAQ guidebook First Steps
- Test certificate
- Ethernet cable 1 x STP 1.5 m, 1 x STPx 1.5m

Measurement properties

- The data collected from the CAN-bus can be recorded in either of two ways:
 - Each sample has a time stamp
Upon reception of a message, the measured values it contains receive a time stamp reflecting the message's arrival time (resolution: 100µs).
 - Sampled at constant rate
Since the messages can arrive at irregular intervals, busDAQ generates an equidistantly sampled channel from such messages by emitting the value most recently arrived via the CAN-Bus at regular intervals.
- Comprehensive, smart trigger functions
- Limit monitoring, min, max, mean value saving, and much more
- Sleep Mode: The imc busDAQ is able to start a measurement out of a sleep mode within an extremely short time. It is optimized for very low power consumption. Therefore it is especially suitable for recording CAN data of vehicles, as soon as they have been started. The device can wake up on
 - CAN messages or
 - the control connector at the device
- Switching from High-Speed- to Low-Speed-CAN via software
- Switching 120Ω termination for each CAN-BUS node (individual) via software
- Switching 1kΩ resistor for each LIN-BUS node (master / slave mode) (individual) via software
- Parameterization of CANSAS measurement modules via busDAQ's CAN-Bus interface; no PC CAN connection necessary. Therefore the configuration software CONsoft is required.

Measurement channels

- Up to 512 CAN-channels can be acquired

Data storage

- Choice of removable drive (optional) and/ or on PC
- Any desired memory depth achievable, limited only by hard drive capacity, by means of pre- and post triggers
- Circular buffer memory
- Synchronized, repeatedly triggered data capture with different sampling rates for each channel
- Optional Compact Flash removable drive internal
- Optional IDE hard drive for busDAQ-X-ET

Miscellaneous

- PC-independent measurement operation

Optional expansions:

- Removable PCMCIA storage media
Shock protection during operation: 1000 g, also available in extended temperature range upon request.
For use of storage media from third parties, please consult with our Hotline first.

Optional expansions for busDAQ-2-ET and busDAQ-X-ET:

- Personal Analyzer with internal signal processor; not with busLOG (Online FAMOS) providing comprehensive real-time computation and control functions
 - Online class-counting package including histogram and rainflow analysis
 - Online order tracking analysis for analyzing rotating machinery
 - Online FAMOS Professional for higher online processing performance
- Field bus option
 - Vector Data Import
Linkage of the Vector database (included with busLOG)
Import of .DBC files from Vector databases
 - J1587 interface with two nodes
 - LIN-Bus interface with two nodes
 - ECU-protocols (KWP 2000, CCP other on request)
- External power supply for CANSAS modules via CAN nodes 1 and 2.
- WLAN card: 802.11b / 11 MBit with integrated antenna. Installable in the Compact Flash data carrier slot, only in the temperature range 0 °C to 50 °C
- Internal Wireless-LAN device expansion ET with external antenna (no condensation)
- Internal modem
 - Analog-, ISDN- or GSM modem for remote data transfer and remote control
- External displays

Technical data imc busLOG, busDAQ

General technical data version 1.3

parameter	busLOG	imc busDAQ-2	imc busDAQ-X	remark
PC connector: Ethernet TCP/IP	10/100 MBit, approvable cable length for 100MBit Ethernet max. 100m according IEEE 802			
CAN-nodes	2	2	2 –6, 8 on request (extendable with up to 3 MBUS cards: CAN, LIN)	isolated
baud rate	max 1 Mbit/s	max 1 Mbit/s	max 1 Mbit/s	
channels	<512	<512	<512	per device
digital inputs	-	-	4 (DSUB15)	opto coupler
digital outputs	-	-	4 (DSUB15)	TTL / 24V isolated
LAN-interface	TCP/IP	TCP/IP	TCP/IP	10/100 Mbit/s, RJ45
modem external	-	DSUB9	DSUB9	analog, ISDN, GSM radio modem
modem internal	-	optional	optional	
WLAN-Adapter internal	-	-	optional	
display	-	extern	extern	DSUB9
GPS	-	extern	extern	
sync. plug	SMB	BNC	BNC	DCF
CTRL plug	Lemo type 0B	DSUB9	DSUB9	
Vector database	yes	optional	optional	
storage				the storage medium's temp- erature range applies
compactFlash	optional	optional	optional	
IDE hard disk	-	-	optional	
online-processing	-	optional	optional	Online-FAMOS
surge protection	60 V	60 V	60 V	
supply	10 V to 50 V _{DC}	10 V to 50 V _{DC}	10 V to 50 V _{DC}	Default up to 55 V _{DC} some early modules only up to 32 V _{DC} follow identification plate.
supply connector	Binder: ESTO RD03 series 712 3-poles			
supply for CAN	< 1 A	< 1 A	< 1 A	option for node 1 and 2
power consumption	200 mW < 3 W	200 mW < 3 W	200 mW / slot < 8 W (for 8 nodes)	sleep-,ode @25°C meas.-mode
USV	10s	10s	15s	
start time	0,2 s 30 s	0,2 s 30 s	0,2 s 30 s	after sleep-mode after power on
transfer into/ out of sleep-mode	external signal or switch to jumper + switch or Wake up on CAN-Bus			5 V to 55 V
temperature range	-40..+85°C	-40..+85°C	-40..+85°C	operating temperature
dimensions in mm	185 x 30 x 110	185 x 51 x 110	185 x 110 x 110	L x W x H
weight	650 g	850 g	2 kg (8 nodes)	