SOMAT®

Go anywhere, test anything with eDAQ ...

... the rugged DAQ system for mobile, stand-alone measurement

SOMAT®
DataModes™
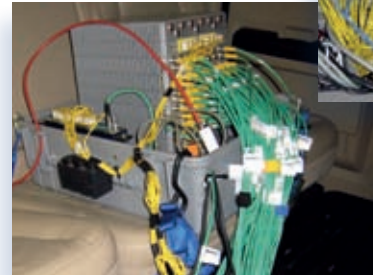*Intelligent Data Storage*

HBM
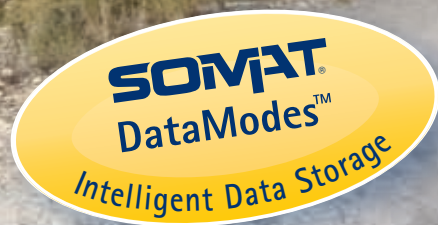
SOMAT
e⏐DAQ

Rugged, mobile data acquisition

The SoMat eDAQ sets the standard for rugged, mobile data acquisition; a stand-alone sealed system designed for testing in the harshest of environments. The eDAQ is engineered to be rugged and mobile by a team with over 25 years of mobile data acquisition expertise. From this experience comes leading-edge signal conditioning and a capacity to perform a broad range of on-board data processing, triggering, intelligent data storage, and complex computations.

The eDAQ was designed from the ground up as a mobile data acquisition system. It is far more than a laboratory system mounted in a semi-rugged case and relabelled as a mobile system. It is specifically engineered to leave the laboratory behind.

The eDAQ leads the way in the correlation of physical data, vehicle bus, and GPS. It is easy to communicate both wired and wirelessly as the system utilizes Ethernet communications and hosts its own web server. No PC software is required to start/stop tests or upload data.

Acquiring field test data is a critical part in your development process – you need specialized instrumentation... you need the eDAQ.

Features	
___ Stand-alone data acquisition	___ Synchronous data (parallel)
___ Intelligent data storage	___ Sample rates up to 100 kHz
___ Sealed system for extreme environments	___ Max. analog channels per system: 64-96*
___ Temperature specification: -20°C to 65°C (-4°F to 150°F)	___ Networking of multiple systems: Infinite synchronous channel counts
___ Wide range of signal conditioning:	___ Wide range input power: 10-55 V DC
· Analog　　　　· Pulse counter · Strain gage　　· GPS · Thermocouple　· Vehicle bus. · Digital I/O	___ Ethernet communications ___ World-wide connectivity.

* Depending on layer configuration

SOMAT
eDAQ

eDAQ: Flexibility via modular construction

ENTB
Non-isolated thermocouple layer

- 32 channels
- Non-isolated thermocouple
- J, K, T, E thermocouple calibrations

EITB
Isolated thermocouple layer

- 8 channels
- Isolated thermocouple
- J, K, T, E thermocouple calibrations

EDIO
Digital I/O layer

- 24 channels digital I/O
- 12 high-range digital inputs
- 18 pulse counters

EBRG
Bridge layer

- 16 channels
- Low-level analog
- Analog out option

EHLS
High-level analog layer

- 16 channels
- High-level analog
- Analog out option

ECOM
Vehicle network communications layer

- 3 CAN
- 1 VBM interface
- 1 GPS interface

ECPU-PLUS
Main processor layer

- 10 digital I/O
- 8 pulse counters

More information: www.hbm.com/eDAQ

Go anywhere – test anything

The eDAQ*lite* is the go anywhere, test anything compact version of the SoMat eDAQ. Engineered using the same technology, the eDAQ*lite* has similar leading-edge signal conditioning and a capacity to perform a broad range of on-board data processing, triggering, intelligent data storage, and complex computations.

Not every test utilizes hundreds of channels. eDAQ / eDAQ*lite* customers can accomplish tests with both small and high channel counts using a single family of products. There is no learning curve, new software, or file formats; and systems can be seamlessly networked together.

The compact eDAQ*lite* can be installed inconspicuously to collect data under discrete conditions; for example, behind a dashboard panel (see photo). Intelligent data storage collects relevant measurement data in condensed, manageable form - rather than gigabytes of results.

For customers just starting in testing, the eDAQ*lite* has lower start-up costs, and can easily be expanded as your needs change and grow. Since all HBM SoMat systems are easy-to-use, set-up and operate, you will be up and running fast, successfully collecting data in the most challenging of environments.

The eDAQ*lite* is the ideal choice for small channel count applications where compactness and ruggedness are essential.

Features

___ Compact size	___ Synchronous data (parallel)
___ Stand-alone data acquisition	___ Sample rates up to 100 kHz
___ Intelligent data storage	___ Max. analog channels per system: 32
___ Sealed system for extreme environments	___ Networking of multiple systems: Infinite synchronous channel counts
___ Temperature specification: -20°C to 65°C (-4°F to 150°F)	___ Wide range input power: 10-55 V DC*
___ Wide range of signal conditioning:	___ Stand-alone battery layer option
	___ Ethernet connectivity.

· Analog   · Pulse counter
· Strain gage   · GPS
· Thermocouple · Vehicle bus.
· Digital I/O

* ELCPU–PLUS processor

SOMAT
e*DAQ*
lite

eDAQ *lite*: Compact with countless configuration options

ELNTB
Non-isolated
thermocouple layer

TCB
A01-A16

- 16 channels
- Non-isolated thermocouple
- J, K, T, E thermocouple calibrations

ELDIO
Digital I/O layer

DIO
1-4   5-8   9-12   GPS   SYNC   SYNC

- 8 channels digital I/O
- 4 high-range digital inputs
- 6 pulse counters

ELBRG
Bridge layer

BRG
1   2   3   4

- 4 channels
- Low-level analog

ELHLS
High level
analog layer

HLS
1   2   3   4

- 4 channels
- High-level analog

ELCOM
Vehicle network
communications layer

COM
CAN 1   CAN 2   CAN 3   VBM   GPS

- 3 CAN
- 1 VBM interface
- 1 GPS interface

ELCPU
Main processor
layer

COMM   HSS   POWER

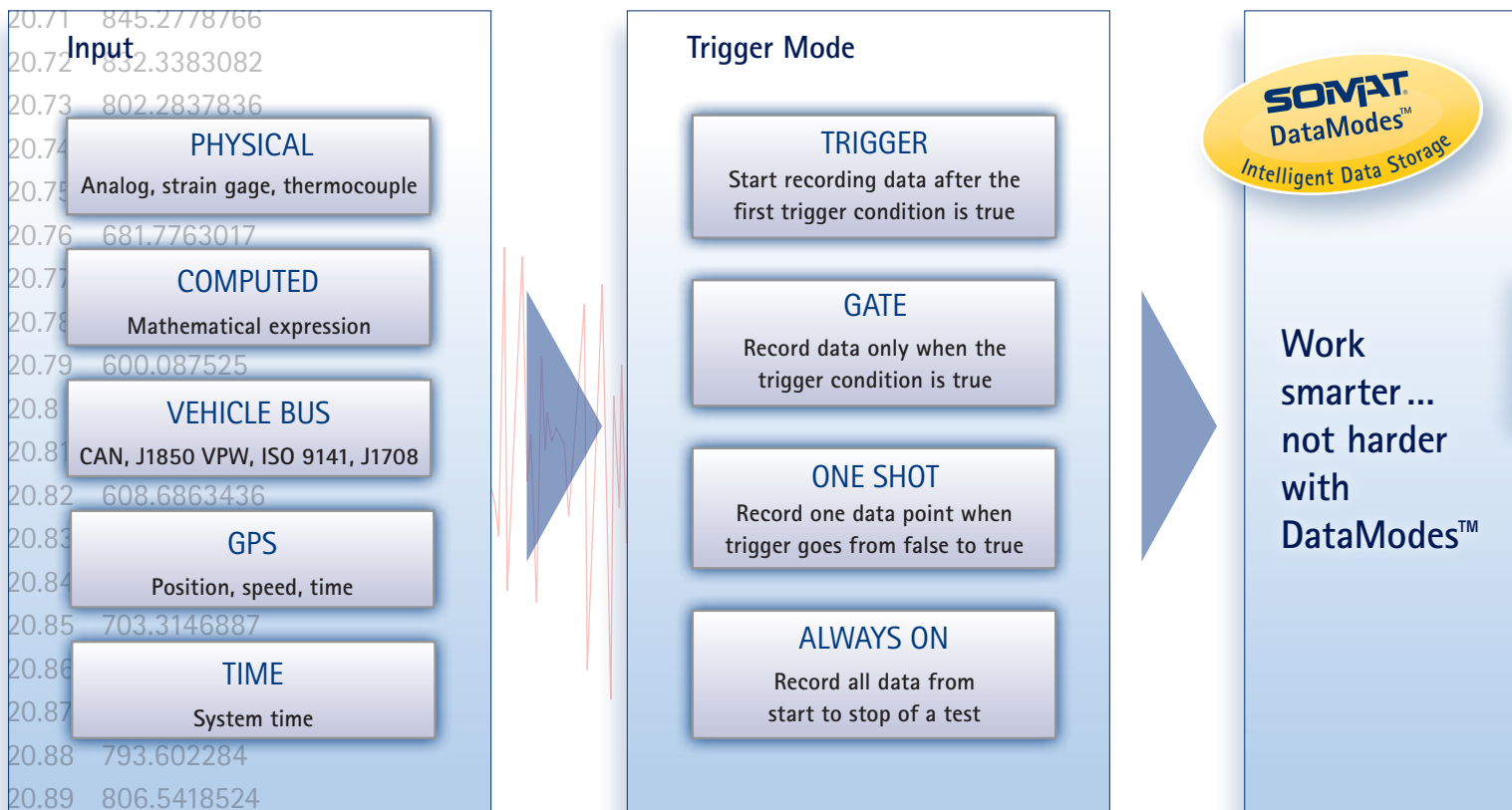- Main processor
- Memory options: 1 GB, 4 GB, 8 GB, 16 GB

ELBAT
Battery layer

- Stand-alone operations
- 4000 mAh battery

More information: www.hbm.com/eDAQ »

SoMat DataModes™ – Intelligent data storage

Any data logger can collect a time series data, but the eDAQ can do far more! It is a stand-alone data acquisition system with a capacity to perform a broad range of on-board data processing. This real-time data processing is achieved utilizing SoMat DataModes™ technology.

20.71	845.2778766
20.72	832.3383082
20.73	802.2837836
20.74	
20.75	
20.76	681.7763017
20.77	
20.78	
20.79	600.087525
20.8	
20.81	
20.82	608.6863436
20.83	
20.84	
20.85	703.3146887
20.86	
20.87	
20.88	793.602284
20.89	806.5418524

Input

PHYSICAL
Analog, strain gage, thermocouple

COMPUTED
Mathematical expression

VEHICLE BUS
CAN, J1850 VPW, ISO 9141, J1708

GPS
Position, speed, time

TIME
System time

Trigger Mode

TRIGGER
Start recording data after the first trigger condition is true

GATE
Record data only when the trigger condition is true

ONE SHOT
Record one data point when trigger goes from false to true

ALWAYS ON
Record all data from start to stop of a test

SOMAT DataModes™
Intelligent Data Storage

Work smarter...
not harder
with
DataModes™

SoMat Vehicle Bus Modules

The SoMat Vehicle Bus Modules condition vehicle network parameters to be synchronously measured by eDAQ and eDAQ*lite* systems. Supported parameters include:

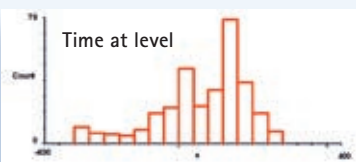| ___ CAN (J1939) | ___ J1850-VPW |
| ___ SWC (Single Wire CAN) | ___ ISO-9141 (KWP-2000) |
| ___ J1708 (J1587) | ___ MIL-STD-1553 |

This offers a direct correlation between vehicle bus channels with physical data (including analog, thermocouple, frequency) as well as GPS. Up to 254 channels can be recorded per module.

Developed with over 25 years of mobile data acquisition expertise, DataModes™ allow you to save data in multiple, easy-to-manage formats for analysis. DataModes™ preserve memory, provide instant analysis to the data, transfer effortlessly by wireless, and easily manage long-term tests. Various triggering options make sure you not only get your data in the format you want, but also when you want it.
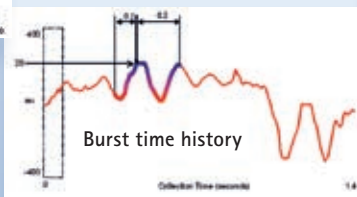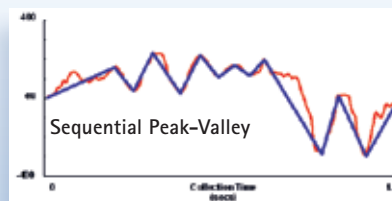
TIME HISTORY	TIME BURST HISTORY	SEQUENTIAL PEAK-VALLEY	PEAK-VALLEY MATRIX
Sequential storage of all data values	Sequential lone transient recordings based on pre- and post-triggers times	Sequential storage of signal reversal points removing insignificant data	Histogram categorizes load histories to successive peak-valley transitions

Time at level

Burst time history

Sequential Peak–Valley

Rainflow histogram
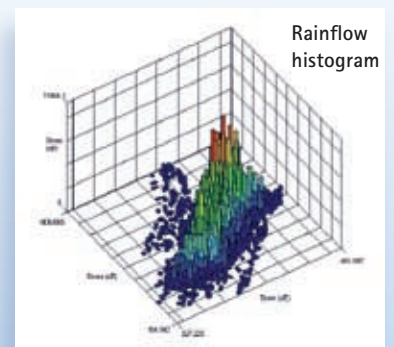
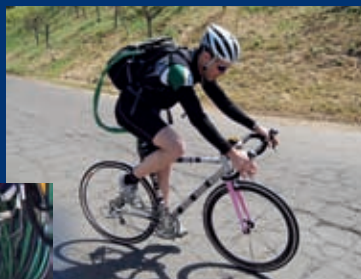| Histogram categorizes load histories according to fatigue damage	Histogram records discrete values (bins) of single channel over time	Histogram records statistical correlation with up to 7 inputs	Sequential storage of all channels based on master channel(s) trigger
RAINFLOW HISTOGRAM	TIME AT LEVEL (SINGLE DIMENSION)	TIME AT LEVEL (MULTI-DIMENSION)	EVENT SLICE

Wireless synchronization via GPS

eDAQ and eDAQ*lite* systems can be integrated with GPS receivers. A unique feature of eDAQ is its ability to synchronize using the GPS timing signal. You can configure the eDAQ to generate the Master Sample Rate clock in synchronization with GPS time. This mode of operation allows multiple eDAQs to be wirelessly synchronized. For example, an eDAQ*lite* on a moving truck can be synchronously collecting data with the eDAQ on a fixed bridge, or a high-speed train can be synchronously measured together with a rail-mounted system.

More information: www.hbm.com/eDAQ