Mosquito^4

Data Acquisition Module (V & IEPE)

HGL Dynamics

Connect | Condition | Acquire

Key Features

- Rugged and Lightweight (820g)
- 4 Analogue Inputs, 1 Digital Input, 1 Analogue Output
- 16/24 bit ADC, >114dB SNR, 5-256kHz Sample Rates
- Low power (6W—USB3.1, 9-36V dc, PoE)
- Multi-unit Synchronisation (IRIG, LVDS, Optional IEEE-1588)
- Modular Architecture, scalable to >64 channels
- Voltage & IEPE Conditioning

Mosquito^4

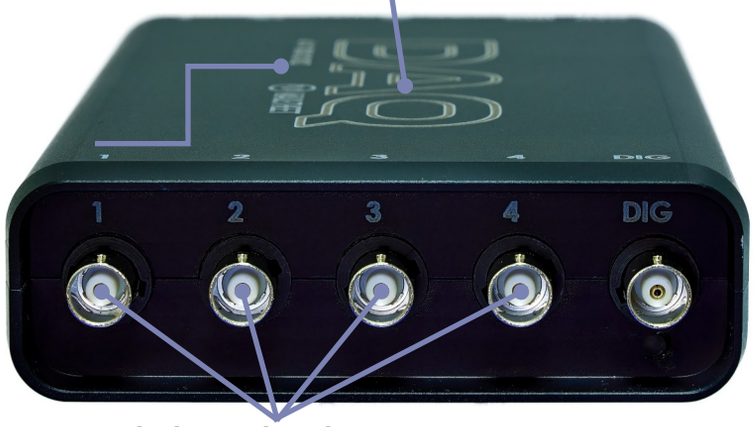
Data Acquisition Module (V & IEPE)

HGL Dynamics

Connect

Rugged Chassis

Hard Anodised Milled Aluminium Chassis



Scalable Channel Count

4-64+ Channels.

4 ••• 16 ••• 64 •••

Independent Inputs

One ΣΔ ADC per Channel.
Simultaneous Sampling.
>114dB SNR.
Voltage & IEPE Conditioning

Digital Input

TTL/CMOS Compatible
Trigger / Tacho

IIRIG A/B Synchronisation

(Standard)

IEEE1588 Synchronisation

(Build Option)

Control & Data

Ethernet 1Gbit/s
USB3.5GBit/s

Generator

+/-3V output
Sine, Sweep, Chirp

LVDS Synchronisation

- LVDS (Low Voltage Differential Signalling) Synchronisation Interface
- <10nS Unit to Unit
- 0-200m Unit to Unit cable lengths
- Daisy-Chain, Star or mixed topologies

Flexible Power

- 6-36 V DC (fully automotive compatible)
- USB3.1 Power Capable
- PoE IEEE 802.3at Type 1 (<12.95W) compliant.

Mosquito^4

Data Acquisition Module (V & IEPE)

Multi-Connect

Multiple Mosquito Systems

The Mosquito system is designed to allow easy connection of multiple modules to form larger channel count systems. Three connection configurations are supported, Daisy-chain and Star, and Mixed.

Daisy Chain

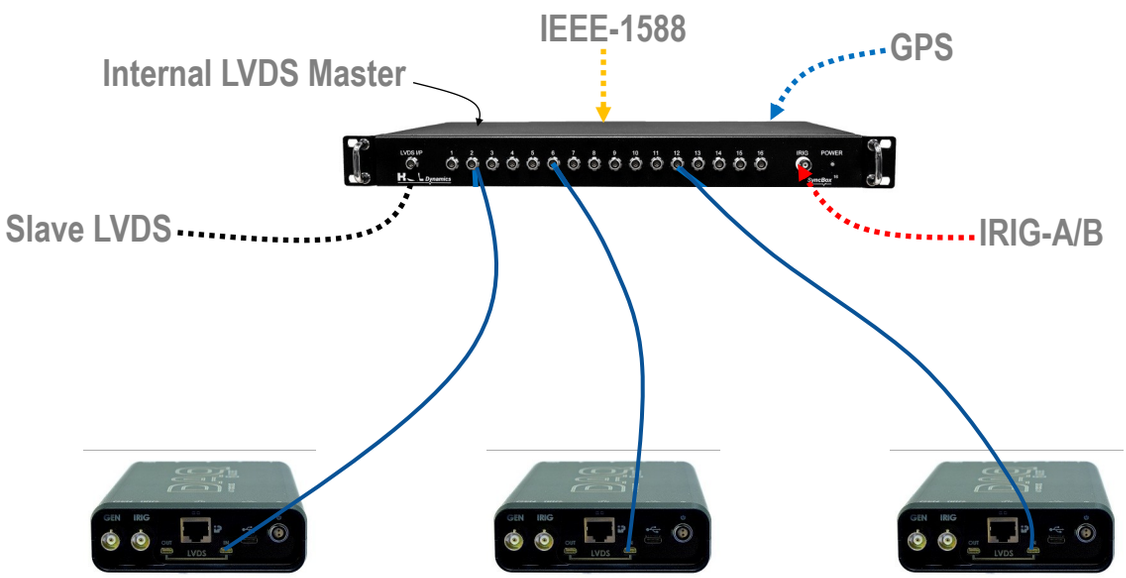
This mode allows Mosquito Modules to be chained together for synchronisation

Inter-node distances can be 100m or greater (using switches), although synchronisation delays can become an issue over long distances (5.6nS per meter).

Star

Star configurations are ideal for situations where Power Over Ethernet (POE) can be used and where close synchronisation over large distances are required.

Networks are simple to configure for Star operation by simply using any (POE capable) Gigabit Network Switch. The LVDS Sync (if IEEE-1588 is not used) requires the use of the HGL Dragonfly Sync Box (pictured below) which can provide up to 16 precisely synchronised LVDS outputs from a single GPS, IRIG, IEEE-1588 or Internal LVDS source.



Mosquito^4

Data Acquisition Module (V & IEPE)

HGL Dynamics

Specification

General

Dimensions (W x H x D):	190 x 110 x 35 mm
Weight:	0.82 kg (typical)
Supply Voltage:	6 - 36 V DC PoE USB 3.1 (5V)
Power:	5.0 W (typical)

Environmental

Operating Temp.:	-25 to 70°C
Storage Temp:	-40 to 85°C
Relative Humidity:	< 90% RH non condensing

Input Configuration (with FE-1408-APC conditioning card)

Input Channels:	4 + 1 Digital
ADC Type:	Sigma-Delta
Quantization:	24-bit / 16-bit*
Input Ranges:	±100, 10, 1, 0.1, 0.01V*
DC Offset:	±0.15 mV
Input Coupling:	AC, DC* Single Ended / Differential*
Input Impedance:	>2 MΩ Differential
SNR:	>111 dB
Anti-aliasing:	<-100 dB
Sample Rate:	7 - 256 kHz *
Frequency Response:	DC to >100 kHz ±0.1 dB
Dynamic Range:	140 dBFS / √Hz, 114 dB (broadband)
Inter-Channel Δ Phase:	< 20 nS (< 0.36° @ 10 kHz output signal)
Crosstalk:	< 100 dB @ 5 kHz, < 95 dB @ 10 kHz, < 87 dB @ 20 kHz, < 82 dB @ 40 kHz, < 70 dB @ 100 kHz
Distortion:	< -80 dB, 0 to 80 kHz
DC Linearity:	< 0.075%
Drift:	< 100 ppm/°C (with no correction applied)

*Software configurable parameter

Conditioning

IEPE Supply	Up to 4 channels	4mA nom. @24V Compliance TEDS Compatible
AMPLIFIER	4 identical amplifiers	Low Noise differential AC/DC switchable
Input	Impedance	2MOhm differential
	Coupling	DC or AC 0.16Hz (-3dB)
	Signal / Protection	+/-10V max / +/-30V max continuous input / ground
	Calibration	Individual inputs selectable onto common Internal Cal Bus
	CMR	>70dB AC Coupled, >100dB DC coupled (@ 1000x gain)
	Noise	<15uV pk-pk DC-100kHz Measurement Bandwidth
Gain	Programmable	x0.1, x1, x10, x100, x1000
	Accuracy	+/-0.25% T.C. <25ppm/°C, G>100 –50ppm +/-25ppm
	Linearity	Better than 0.01% (to +/-10V / 1kHz)
ENVIRONMENT	Temp. Range	-25°C to 70°C operating

Synchronisation

LVDS (via uHDMI):	10 ns per unit
LVDS (max distance)	200 m # (node to node)
IRIG A/B:	±100 ns
GPS:	< 5 ns

#If longer distances are require please contact HGL

Other Inputs

IRIG-A/B
Digital Input (TTL/CMOS Compatible)

Generator Output

Max Output:	+/-3V peak
Signals:	DC, Sine, Sweep, Chirp

Mosquito^4

Data Acquisition Module (V & IEPE)

Training

Training

HGL Dynamics offers a wide variety of training workshops and courses. Workshops are conducted at one of our global offices or at the client's site by our training team, all of whom have many years' of industry experience and knowledge.

Typical training courses include: Vibration Fundamentals, Signal Processing, Rotating Machinery, Advanced use of HGL Software and Analysing Large Datasets.

Information

About HGL Dynamics

HGL Dynamics is a world-leading supplier of services and high specification equipment for the integrated capture, monitoring, analysis, storage and management of high bandwidth data.

Purchasing & Availability

The HGL Dynamics Mosquito^4 Data Acquisition Module is now available for purchase or lease. Please contact one of our HGL Dynamics offices below for further information or to request a quote.

UK & International

HGL Dynamics Ltd
Hamilton Barr House
Bridge Mews
Godalming
GU7 1HZ
UK
Tel +44 1483 415177

France

HGL Dynamics France
Pl. du Renard
79700 Mauleon
France
Tel +33 1 75 93 80 20

Germany

ErTeMes GmbH
Brandenburger Str. 3
15738 Zeuthen
Germany
Tel +49 (0) 162 3313078

North America

HGL Dynamics Inc
6989 Corporate Circle
Indianapolis
IN 46278
USA
Tel +1 317 782 3500

South Korea

HGL Dynamics South Korea
768 Posvill Officetel
Gumi-dong, Bundang-gu
Seongnam-si
Gyeonggi-do
Korea
483-861
Tel +82 109 052 2638

FS72209

Company registered in England No. 3844513