



Connect | Condition | Acquire

Key Features

- Rugged and Lightweight (< 2kg)
- 16/24 bit ADC, >114dB SNR, 5-256kHz Sample Rates
- Low power (6-36V d.c. 11W)
- Multi-unit Synchronisation (GPS, IRIG, LVDS, IEEE-1588)
- Modular Architecture, scalable to >1000 channels
- Voltage, IEPE, Bridge and Charge Conditioning
- Environmentally rated to IP54 (with IP68 option)

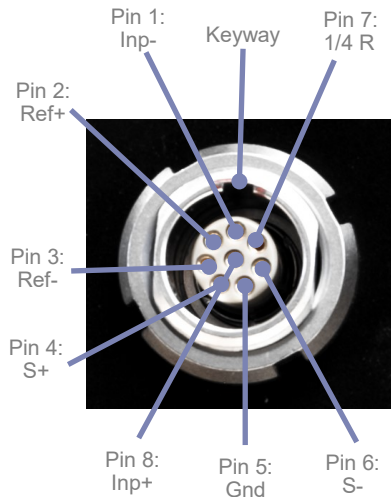
Dragonfly⁸



Data Acquisition Module

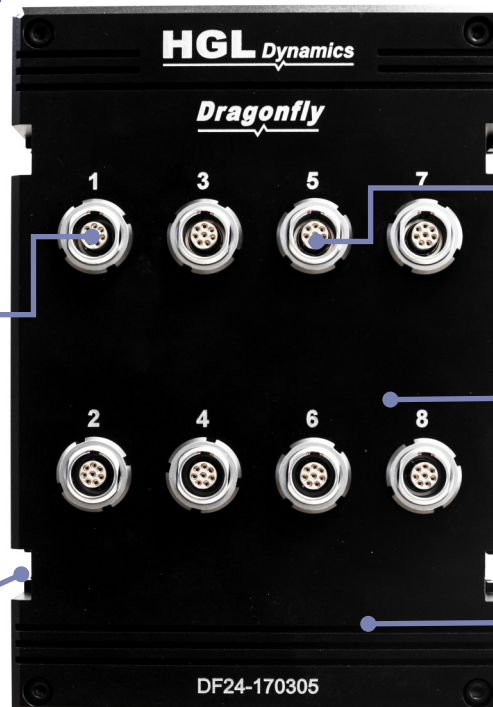


Connect



Multiple Module Connection

T Slots on each side of the module.
Two modules can be connected using simple H Bar and four screws.



Independent Inputs

One Σ ADC per Channel.
Simultaneous Sampling.
>114dB SNR.
All Purpose Conditioning.

Rugged Chassis

Extruded Aluminium shell.
Milled Aluminium end plates.

Scalable Channel Count

8-1024+ Channels.



Adaptable Network Topologies

IEEE1588 Synchronisation

Both ports and internal switch are IEEE1588 compatible.

Power over Ethernet (PoE)

Marked port is 802.3at Type 1 (<12.95W) compliant.

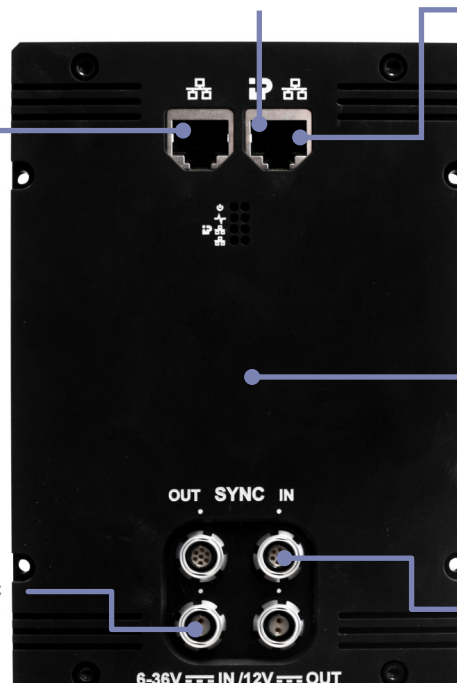
Custom Area

Options include:

- GPS (Location, Position & Sync)
- GPRS / 3G (Data Output)
- 1-8 Digital Inputs
- SD Card (Storage)

Flexible Power

- 6-36 V DC (fully automotive compatible)
- Two ports allow Daisy-Chain, Star or mixed power topologies
- Full range power adapter (100 - 240V AC 50/60Hz) supplied with each module
- Dragonfly^{BAT} 99 Whr rechargeable battery module available for UPS/ untethered operation



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

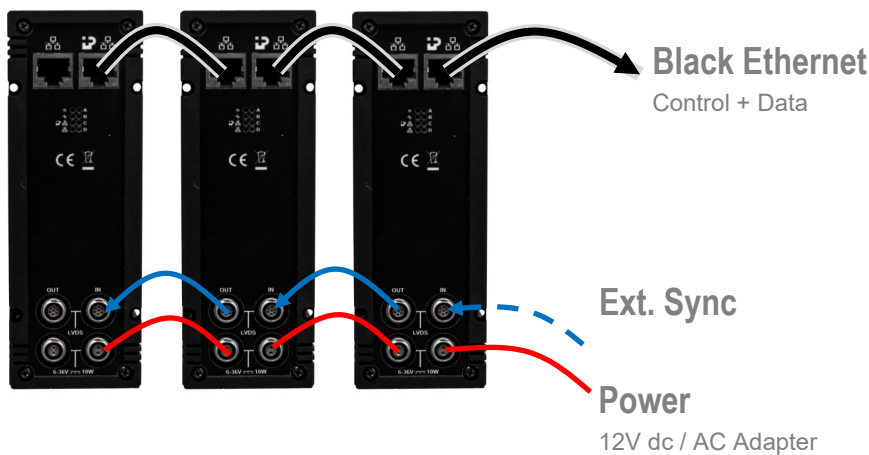


Multi-Connect

Multiple Dragonfly Systems

The Dragonfly 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



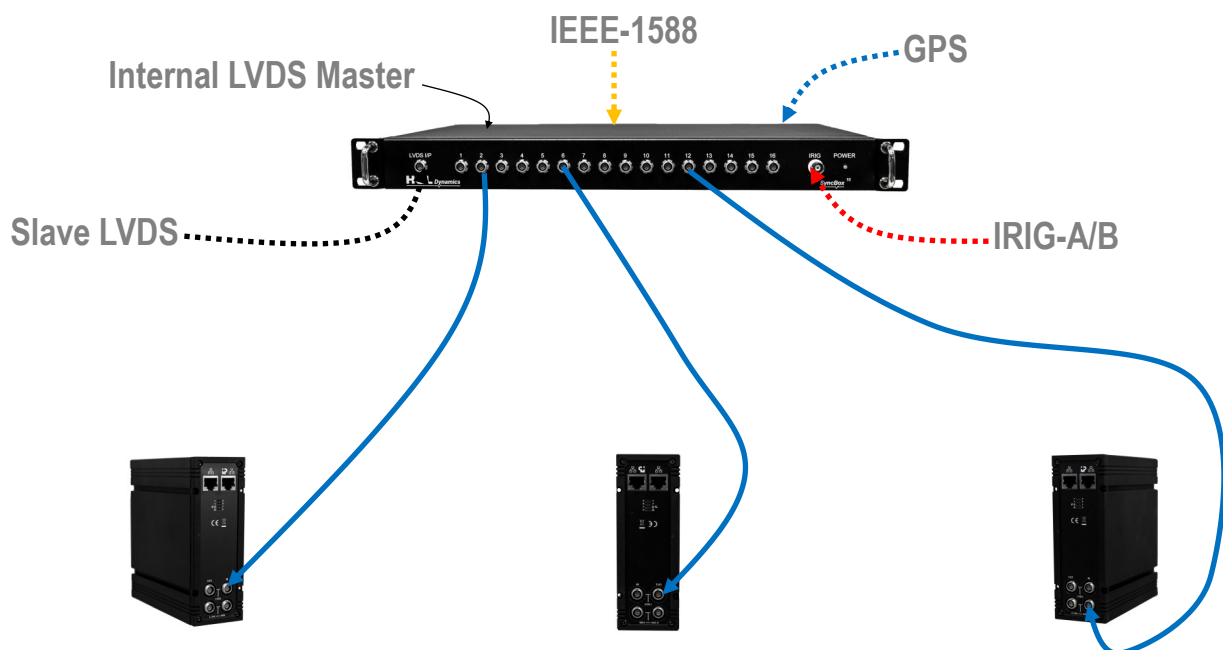
This mode allows Dragonfly Modules to be chained together for all three required connections (Ethernet, Power and Sync)

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.





Data Acquisition Module

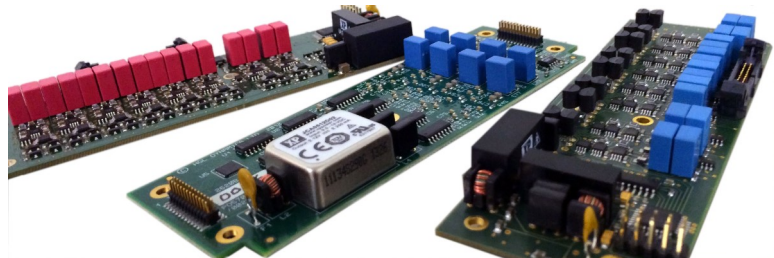
Condition

Signal Conditioning—FE-1408-APC

The Fylde FE-1408-APC is the follow-up to the popular FE-1403-DFY All Purpose Conditioner Card.

The card provides Voltage, IEPE, Bridge and Dynamic Strain, SE and Diff Charge conditioning in one compact package.

The card is fully compatible with V4 and later HGL Dragonfly cards and is compatible with HGL Hawk software from V3.8 onwards.



Description

A highly integrated multi-use board set comprising FE-1408-DFY, FE-1408-PSU and FE-1408-HDD. The card includes Differential and Single Ended Charge capability, Dynamic Constant Current with selectable compliance, Remote Sensing Constant Voltage Supply and IEPE conditioning with TEST capability to a complete measurement solution to suit a wide range of transducer and gauge applications.

Specification

IEPE Supply CHARGE	Up to 8 channels	4mA nom. @20V Compliance TEDS Compatible
	Up to 8 channels	Differential and Single Ended
Differential Charge	Level max	25,000pC pk
	Protection	+/-20V continuous, 100V transient
	Frequency Response	1Hz to >20kHz -3dB
Single Ended Charge	Sensitivity	0.2mV/pC +/-1% (programmable to 200mV/pC)
	Noise	<40uV pk rto
CONSTANCE VOLTAGE	Sensitivity	0.0mV/pC +/-1% (programmable to 0.00mV/pC)
	Noise	<20uV pk rto
DYNAMIC CONSTANT CURRENT	Up to 8 Channels	Programmable: OFF, 0.1V-10V (0.1V steps) 30mA
	Accuracy	+/-2% of setting +/-1mV TC +/-0.005%/°C
	Remote Sense	Via additional bridge connections
	Bridge Modes	Full, 1/2, 1/4—120, 350 & 1000Ohm programmable
	Auto Balance	Digital Potentiometer with Coarse, Fine or OFF
	Shunt Calibration	2 selections and OFF
	Up to 8 Channels	Programmable together : OFF, 1-25mA (1mA step)
AMPLIFIER Input	Accuracy	+/-0.2% of setting +/-10uA TC +/-0.01%/°C
	Compliance	Programmable together 10V max or 22V max
	Impedance	>250kOhm
	Noise	<15nA RMS 100kHz (equiv. to 1.5uE p-p in 350Ω)
	8 identical amplifiers	Low Noise differential AC/DC switchable
	Impedance	2MOhm differential
	Coupling	DC or AC 0.16Hz (-3dB)
Gain	Signal / Protection	+/-10V max / +/-30V max continuous input / ground
	Calibration	Individual inputs selectable onto common Cal Bus
	Monitor	Differential Reporting of up to +/-24V input levels
	CMR	>70dB AC Coupled, >100dB DC coupled (@ 1000x gain)
	Noise	<15uV pk-pk DC-100kHz Measurement Bandwidth
	Programmable	x1, x2, x5, x10, x20, x50, x100, x200, x500 & x1000
	Accuracy	+/-0.25% T.C. <25ppm/°C, G>100 -50ppm +/-25ppm
ENVIRONMENT	Linearity	Better than 0.01% (to +/-10V / 1kHz)
	Supply	12V DC 10W Max
	Temp. Range	-25°C to 70°C operating

Specification

General

Dimensions (W x H x D):	140 x 100 x 150 mm
Weight:	0.8 kg (typical)
Supply Voltage:	6 - 36 V DC
Power:	9.0 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:	8
ADC Type:	Sigma-Delta
Quantization:	24-bit / 16-bit*
Input Ranges:	±10, 5, 2, 1, 0.5, 0.2, 0.1, 0.05, 0.02, 0.01V*
DC Offset:	±0.15 mV
Input Coupling:	AC, DC *
Input Impedance:	>2 MΩ Differential
SNR:	>114 dB
Anti-aliasing:	<-100 dB
Sample Rate:	5 - 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:	< 125 ppm/°C (with no correction applied)



*Software configurable parameter

Synchronisation

LVDS:	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 (using any standard input)

IRIG-A and IRIG-B
Audio Voice Annotation
Tachometer

Package Details



Portable Acquisition Module
(8, 16, 32, 48+ Channels)



ACE-1 & ACE-3 Cables
(Power & Sync)



Full Range Power Supply



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 Dragonfly⁸ 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.

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