Dragonfly^8

Data Acquisition Module (FE-1412-DFY)

HGL Dynamics

Connect | Condition | Acquire

Key Features

- Rugged and Lightweight (< 1kg)
- 16/24 bit ADC, >114dB SNR, 5-256kHz Sample Rates
- Low power (6-36V d.c. 4-10W depending on conditioning)
- Multi-unit Synchronisation (LVDS, IGPS, IRIG, EEE-1588 options)
- Modular Architecture, scalable to >1000 channels
- Voltage, IEPE & Proximity Probe Conditioning
- Environmentally rated to IP54 (with IP68 option)

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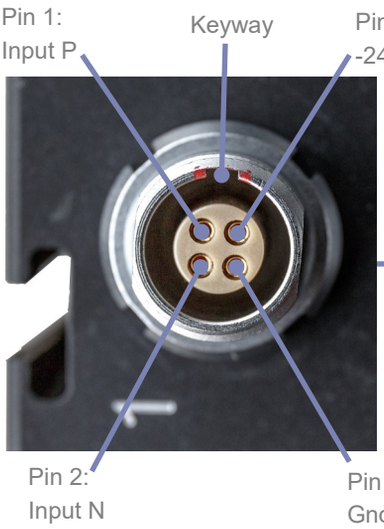
Connect



Independent Inputs

One ΣΔ ADC per Channel.
Simultaneous Sampling.
>120dB SNR.
Multiple Conditioning Options.

Rugged Chassis

Extruded Aluminium shell.
Milled Aluminium end plates.

Scalable Channel Count

8-1024+ Channels.

Multiple Module Connection

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

IEEE1588 Synchronisation

Both ports and internal switch are IEEE1588 compatible.

Adaptable Network Topologies

Internal Gigabit switch allows Daisy-Chain, Star or mixed topologies.

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

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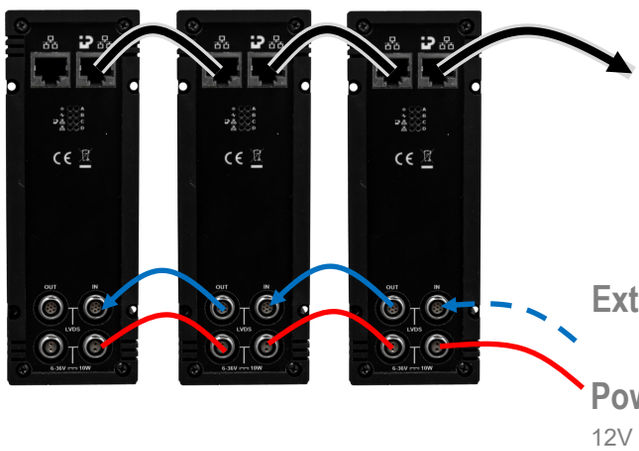
Multi-Connect

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



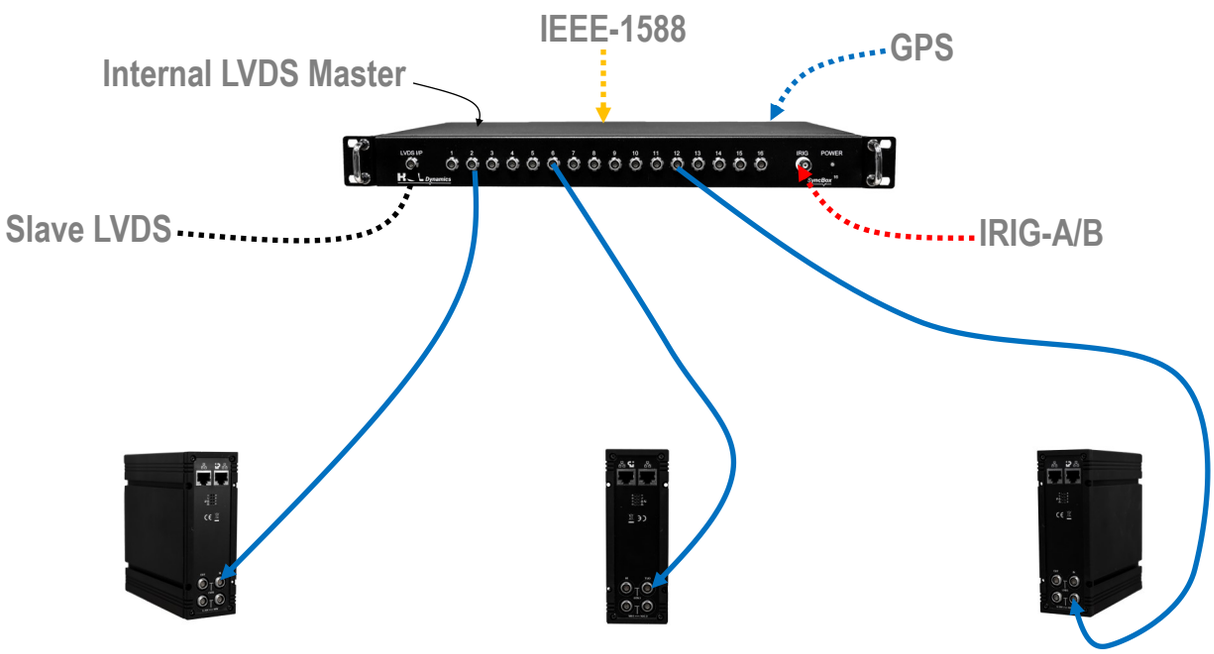
This mode allows Dragonfly Modules to be chained together for all three required connections (Ethernet, Power and Sync)

Inter-node distancs 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.



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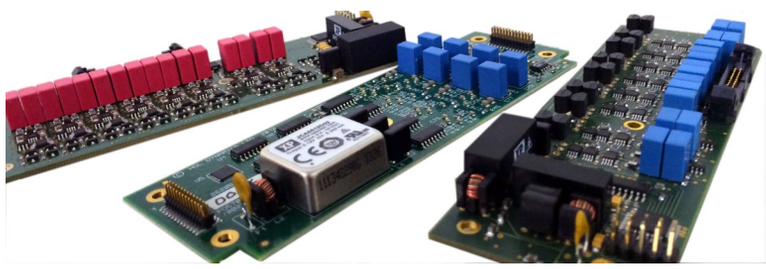
Condition

Signal Conditioning—FE-1412-DFY

The Fylde FE-1412-DFY is the follow -up to the popular FE-1404-DFY Voltage, IEPE and Proximity Probe Conditioner Card.

The card has been upgraded to provide an additional gain range (100x) and additional voltage offset controls (-20V to +20V in 2V programmable steps).



The card is fully compatible with all HGL Dragonfly cards (from V2 to present) and is compatible with HGL Hawk software from V3.9 onwards.

Description

A mezzanine signal conditioning card for Dragonfly. Specifically designed for conditioning Bently Nevada 'Proximitor' devices and also IEPE transducers and head amplifiers. A programmable offset feature allows the standing voltage of Bently Nevada transducers to be brought into range. Differential AC/DC input allows general application with low voltage sources. A - 24V power supply output provides transducer power.

Specification

IEPE Supply	8 identical IEPE Power Supplies	
Current Source	Level	Off, 4mA, 8mA (programmable)
	Compliance	23V Typical
TEDS	Compatible	Yes
Proximitor Supply	Only available when IEPE Supply is Off	
	Voltage	-24V dc +/-5% (not available in IEPE mode)
	Current	Max 12mA per channel (8 channels)
Amplifier Section	8 Identical amplifiers	
Input	Impedance	1MΩ differential (including when off)
	Protection	+/-30V continuous either input to ground
	Coupling	Programmable AC/DC
	Ground	Differential or Single Ended
	Offset	Bipolar –20V to +20 in 0.2V steps (1% accuracy)
	Monitoring	Bias voltage monitoring to local ADC at input
	CMR/CMV	>50dB / +20V –12V
Gain	Programmable	x1, x10, x100
	Accuracy	+/-0.25%, T/C 25ppm
	Linearity	Better that 0.01%
Frequency Range	Bandwidth	DC or 0.7Hz to >30kHz –3dB
		DC or 5Hz to 10kHz –0.1dB
Noise	Output (Gain x1)	<1mV pk-pk 0.5Hz—30kHz (meas. Bandwidth)
	Output (Gain x10)	<3mV pk-pk 0.5Hz—30kHz (meas. Bandwidth)
	Output (Gain x100)	<30mV pk-pk 0.5Hz—30kHz (meas. Bandwidth)
Output	Voltage	Capability +/-10V into 2kΩ , 2000pF
System		
Supply	+12V	6W maximum
Environment	Temperature Range	-20°C to +70°C operating

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Specification

General

Dimensions (W x H x D):	140 x 50 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 no conditioning card)

Input Channels:	8
ADC Type:	Sigma-Delta
Quantization:	24-bit / 16-bit*
Input Ranges:	±10 V, ±1 V, ±0.1 V *
DC Offset:	±0.15 mV
Input Coupling:	AC, DC *
Input Impedance:	>100 kΩ
SNR:	>120 dB
Anti-aliasing:	<-100 dB
Sample Rate:	5 - 256 kHz *
Frequency Response:	DC to >100 kHz ±0.017 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:	< 0.01%
Drift:	< 100 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

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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 Dragonfly[8] 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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