ICONET ON ETHERNET

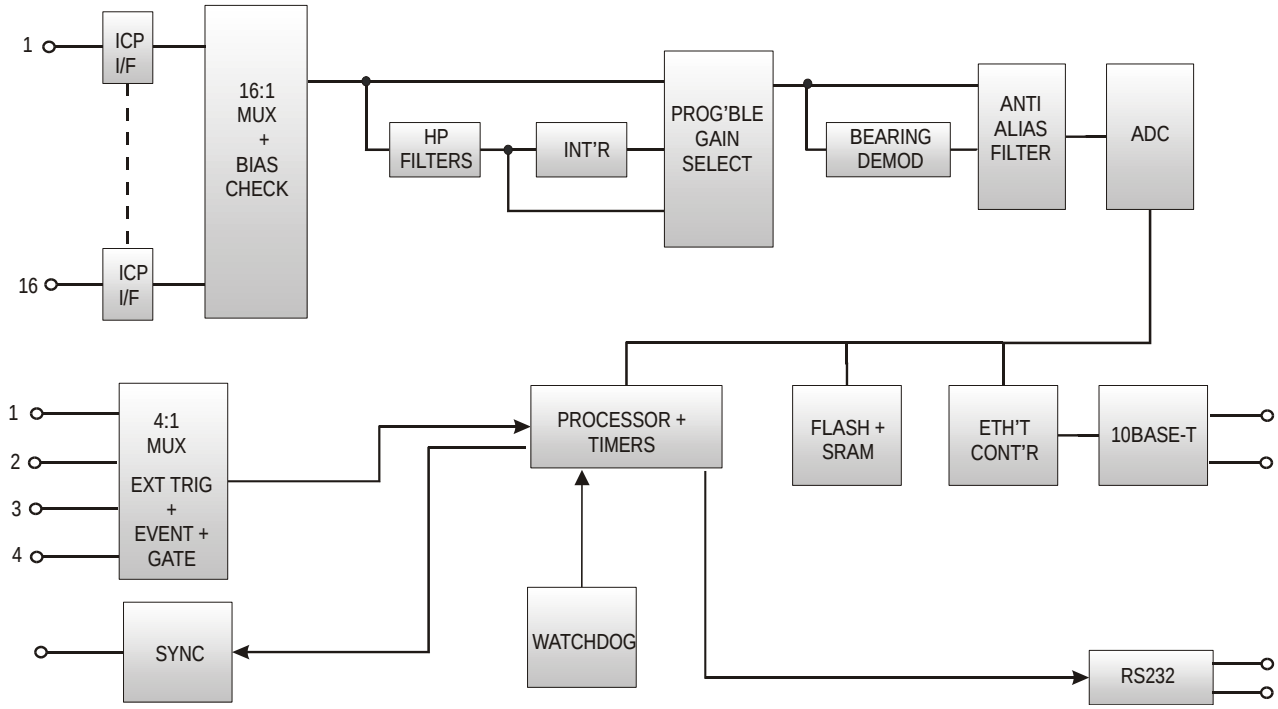
ICON RESEARCH

FEATURES

- 16 Multiplexed Analog Inputs
- Accel ICP Interface per Channel
- Bearing Condition Measurement
- Bias Voltage Check
- Programmable Gain and Filters
- Flexible Trigger/Tacho Functions
- 10BaseT Ethernet Interface

ITA-1

16-Channel Ethernet Data Acquisition Node



GENERAL DESCRIPTION

The ITA-1 is a 16-channel ethernet acquisition node designed for vibration-related measurement applications. The node features 16 individual ICP accelerometer supplies, as well as AC/DC coupling options. Four programmable HP filters and hardware integrator are incorporated, as well as full anti-aliasing filters. Bearing condition can be measured using the onboard demodulator function. Accelerometer integrity can be verified on demand using the bias voltage check feature.

Flexible trigger and tacho functions are available, enabling pre and post trigger and order analysis to be performed. Gated acquisition is available ensuring that readings are taken only when a machine is running.

The node communicates via a standard 10BaseT ethernet interface and supports UDP/IP protocol. It comes in an IP66/NEMA4 enclosure with power supply.

TECHNICAL SPECIFICATION

ANALOG INPUTS

No. of Channels:	16
Ranges:	±10mV to ±10V, 7 ranges (programmable)
ICP Interface:	3.6mA at 24Vdc nominal
Other Coupling:	AC or DC, configurable per channel (with optional DC offset removal)
Voltage Protection:	Protects against overvoltage and up to 2000V ESD
Transducer Bias Check:	Direct reading of ICP transducer bias voltage
Anti-alias Filter:	Compound analog filter with roll-off better than 20th order filter with cut-off frequency related to sample rate
High Pass Filters:	Programmable 4th order with corner frequencies 0.5, 2, 10 and 100 Hz
Channel Crosstalk:	-75dB (typ.)
Amplitude Accuracy:	±2% typical in passband
Harmonic Distortions:	-75dB (typ.)
Integration:	One level of hardware integration, stopband edge at 0.5Hz
Acquisition Modes:	Mode 1 – Data on demand Mode 2 – Data ready flag Mode 3 – Data broadcast
Demodulation Function:	8th order bandpass filter + enveloper + averager (factory settable, factory default 600Hz to 2kHz)

TRIGGERS

No. of Channels:	4
Coupling:	5-24 Vdc, isolated or non-isolated
Tacho Speed Range:	0.01Hz-10kHz using once-per-rev (divide-by-N up to 255 available)
Order Analysis:	Phase-lock-loop for order analysis function
Averaging:	1, 2, 4, … 32768 programmable
Trigger Delays:	Pre-trigger delay up to 16384 and post-trigger up to 32768 samples
Event Trigger:	2 trigger inputs can be used as event inputs to synchronise sampling
Gated Acquisition:	2 trigger inputs can be used to enable and disable sampling
Event Sync Out:	1 high drive output to synchronise event inputs on other nodes

PROCESSING

ADC:	16 bit
Sampling Rate:	64Hz to 51.2kHz
Effective Frequency Bandwidth Ranges:	0.15Hz–25Hz to 0.15Hz–20 kHz
Dynamic Range:	96 dB (theoretical)
Block Lengths:	256, 512, 1024, 2048, 4096, 8192, 16384 or 32768 (max length 16384 with pre-trigger)
Watchdog Function:	Automatic recovery on power interruption or similar

OUTPUTS

Status:	4 LED's indicate system communication status
Interface Port:	RS232, 9600 baud for diagnostics

STORAGE

Memory Buffer:	0.5 Mbyte free space

MECHANICAL

Protection:	NEMA 4, IP66
Enclosure:	Powder coated mild steel standard, or stainless steel optional
Node Dimensions:	400 mm x 300 mm x 155 mm

ENVIRONMENTAL

Temperature:	-10º C to 70º C

POWER

Power Supply:	24Vdc (+/-10%), or 100-240Vac power supply (in enclosure)
Power Consumption:	100mA plus 5mA per transducer when supplied from 24Vdc

COMMUNICATIONS

Network:	Ethernet
Medium:	10Base-T
Cable:	CAT5 recommended
Connector:	RJ45 socket
Speed:	10 Mbits/sec
Isolation:	1000 Vrms

Specification subject to change without notice

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