Rockwell Enwatch

Rockwell Enwatch - Machine Surveillance

16 Channel Ethernet Data Acquisition Node

Features

- Sixteen 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

General Description

The ITA 1 is a 16 Channel Ethernet Data Acquisition Node designed for vibration-related measurement applications. The node features 16 individual ICP accelerometer supplied, 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 preformed. Gated acquisition is available ensuring that readings are taken when a machine is running.

The node communicates via a standard 10BaseT ethenet interface and supports UDP/IP and TCP/IP protocols. It comes in an IP66/NEMA4X enclosure with power supply.

Technical Specifications

Analogue Inputs:

No of Channels:	16
Ranges:	+-10mV to+-10V. 7 ranges (programmable)
ICP Interface	3.6mA @24Vdc, configurable per channel
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 frquencies 0.5, 2, 10 and 100 Hz

Channel Crosstalk:	-75dB (typ.)
Amplitude Accuracy:	+-2% typical 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:	4th order HP filter + envelopr + averager (HP filter settable, factory default 600 Hz)

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
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-20kHz
Dynamic Range:	96dB (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 diagnosis

Storage:

Memory Buffer:	0.5 Mbyte free space

Mechanical:

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

Environmental:

Temperature:	-20 C to 70 C

Power:

Power Supply:	7-12Vdc or 24Vdc, or 85-260V ac power supply (optional)
Power Consumption:	450mA approx plus 20mA per transducer when powered from 7-12Vdc, or130mA plus 5mA per transducer when supplied from 24Vdc

Communications:

Network:	Ethernet
Medium:	10Base-T
Cable:	CAT5 recommended
Connectors:	Weidmuller terminal connectors
Speed:	10Mbits/sec
Isolation:	1000Vrms