WISE-750

Intelligent Vibration Gateway

Features

- Configurable between machine learning algorithm and rule-based condition monitoring for PHM application
- Data logger through USB or Ethernet
- 4x Simultaneous Analog Inputs @ 200kS/s sampling rate
- Vibration sensor included
- Multiple selection of trigger type and sampling type
- LEDs for status indication
- 2x Ethernet port for daisy chain
- Alarm generation through digital output and Ethernet
- Low power consumption

Introduction

The WISE-750 is a direct solution, straight forward to the PHM for rotational machinery, i.e. motor actuated machinery such as machine tools, pumps and elevators … etc. It measures the vibration through the accelerometer PCL-M10 packed along with the WISE-750. After the measurement, it processes and gets the result then, telling the machine healthiness. The information can be sent through either Ethernet or the digital alarm signal. Combining DAQ, data processing, vibration sensor and Ethernet connectivity, the WISE-750 is ready for PHM application and serve the 7/24/365 healthiness monitoring work.

Specifications

Analog Input

- **Channels** 4-ch single ended
- **Resolution** 16 bits
- **Sample Rate** 200kS/s max., simultaneous
- **Trigger Reference** Digital and analog triggers
- **Trigger Mode** Start, Stop
- **Overvoltage Protection** 30 Vp-p
- **Input Impedance** 1 MΩ / 5 pF
- **Input Range** ±10 V
- **Accuracy**
  - **DC** INLE: ± 2 LSB
    DNLE: ± 1 LSB
    Offset error: ± 2 LSB
    Gain Error (%FSR): 0.02
  - **AC** SNR: 84 dB
    ENOB: 13.5 bits

Isolated Digital Input

- **Channels** 4, act as digital trigger
- **Input Voltage** Logic 0: 3 V max.
  Logic 1: 10 V min. (30 V max.)
- **Isolation Protection** 2,500 V DC
- **Opto-Isolator Response** 100 µs
- **Input Resistance** 3.2KΩ @1W

Isolated Digital Output

- **Channels** 4, act as alarm
- **Output Type** Sink (NPN)
- **Output Voltage** 5 ~ 40V_{DC}
- **Sink Current** 500mA max./channel
- **Isolation Protection** 2,500 V DC
- **Opto-Isolator Response** 100 µs

Operation

- **Rule-based Mode** User defined criteria for MAX, MIN, Peak, Peak to Peak, RMS
- **Intelligent Mode** Built-in machine learning algorithm base on frequency domain result
- **Datalogger Mode** Saving raw data and feature data to CSV files

General

- **Dimensions (W x H x D)** 133 x 40 x 98mm (5.24" x 1.57" x 3.86")
- **Power Consumption** Typical: 24V @ 70mA/Max.: 24V @ 130mA (without sensors connected)
  Each PCL-M10 connected: +24V @ 30mA
- **Power Inputs** 10 ~ 30 V_{DC}
- **Weight** 470g

System Hardware

- **MCU** Renesas RZ/T1 ARM® Cortex®-R4 Processor with FPU core. Renesas e-AI is embedded.
- **Indicators** LEDs for Power, Error and LAN (Active, Status)
- **LAN** 2 (1 MAC only for daisy-chain)

Environment

- **Storage Humidity** 5 ~ 95% RH, non-condensing
- **Operating Temperature** 0 ~ 60 °C (32 ~140 °F) @ 5 ~ 85% RH with 0.7m/s air flow (TBC)
- **Storage Temperature** -20 ~ 80 °C (-4 ~ 176 °F)

Ordering Information

- **WISE-750-02A1E** WISE-750 with 2x PCL-M10 Package

Optional Accessories

- **PCL-M10-3E** Industrial Accelerometer, 40mV/g, 3m