

Diagnostic Hub with High Speed Data Acquisition Capability



- Three wired high speed data channels (500k (10-bit) samples/s).
- Three wireless channels via the Enhanced XT01 tag.
- 13.56 MHz wireless interface.
- Wired and wireless channels support pressure, strain and thermocouple inputs.
- Continuous capture modes via high-speed USB (6 Mbytes/s).
- 12 second data capture on external trigger.
- 1Gbytes of on-board memory (expandable using a uSD card).

Introduction

The Instrumentel Diagnostic Hub with high-speed acquisition offers the functionality of a high-speed data logger, supplemented by integrating high-speed communications using Ethernet or USB. In addition, extensive embedded processing capabilities and the trademark Instrumentel commitment to robust and cost effective product design, makes the diagnostic hub a reliable, high performance, cost effective solution for field deployable and industrial monitoring applications.

The High Speed Diagnostic Hub is capable of sampling data from a variety of sources, such as directly interfaced (wired) sensors as well as wireless sensors such as the tags based on the Instrumentel XT01 transponder.

The Diagnostic Hub also offers real-time data sampling and streaming capability; or it can be programmed to sample sensors in a controlled and predetermined

manner, allowing sensor data to be streamed, buffered or stored as required. The hub provides conditioning circuits for the direct attachment of thermocouples; pressure and strain gauges, as well as the facility to interface general purpose digital and analogue inputs and outputs. Standard wired interfaces, including but not limited to RS232, I2C, and SPI are available.

The Instrumentel Diagnostic Hub with high-speed acquisition has evolved from the use of Instrumentel's Diagnostic Hubs in the rail, nuclear and explosion metrology arenas. As such, Instrumentel Diagnostic Hub with high-speed acquisition is a high performance, cost effective and versatile electronic system capable of supporting customer's needs.

Specifications

LAN

Ethernet: 1 x 10/100 Mbps, RJ45

Protection: magnetic isolation

Protocols: TCP/IP, Telnet, HTTP, DHCP, UDP, TFTP

Processing Capability

Processing: Embedded 32bit ARM processor, 3 x FPGA's for parallel processing and DSP

Data Storage: 64 Mb volatile RAM for high speed data capture, solid state memory μ SD card 1GB as standard, fully expandable

Firmware: Upgradeable via Ethernet boot-loader

Interfacing: Ethernet and high speed USB

Additional Capability: Real Time Clock (RTC) with backup battery

Wired Sensor Interfaces

Sample rate: 500 K samples per second

(Oversampled at 3 M samples per second)

Resolution: 10-bit standalone capture, 8-bit continuous

Sensor excitation: 5V

Gain options: x1, x2, x5, x10, x20, x50, and x100

Channel 1: Pressure, strain, thermocouple, Semiconductor

Channel 2: Pressure, thermocouple, semiconductor

Channel 3: Pressure, thermocouple, semiconductor

Wireless Interface (via Enhanced XT01 tag)

Operation Frequency: 13.56 MHz

Sub-carrier Frequency: 847.5 KHz

Protocol: Instrumentel proprietary

Resolution: 8-bit

Channels: Temperature, pressure, strain

Power Requirements

Power: DC power connection

Power Input: 24 VDC nominal, 12-80 VDC

Environmental Limits

Operating Temperature: -25 to +65 °C

Storage Temperature: -40 to +85 °C

Ambient Relative Humidity: 5 -95% (non-condensing)

Product Family

