Diagnostic Hub, with Expandable IO

Ethernet enabled Diagnostic Hub, with expandable IO

- Up to 16 Digital input channels
- Up to 16 Analogue inputs
- Choice of isolated RS-232 or RS-485 serial inputs
  24V dc power supply or 802.3af Power Over Ethernet
- Remote firmware upgrades over Ethernet
- 1Gb expandable solid state memory (micro SD Card)
- Real-time clock, with backup battery
- 32-bit ARM processor

Introduction

The Instrumentel Diagnostic Hub integrates the functionality of a data logger with that of a communications bridge and embedded processor to provide a compact, rugged and cost effective solution to industrial monitoring activities. As such it can not only sample data from a variety of sources but can also store and process data; thus enabling users to more effectively control and manage data distribution. As would be expected, the Diagnostic Hub is capable of acquiring and analysing, on-board, typical parameters such as stress, strain, displacement, temperature and humidity.Other application specific, analogue or digital signals can be sampled or controlled viageneralpurpose inputs and outputs (GPIO) respectively.

The Diagnostic Hub has been deployed systematicallyin a the Automotive, Nuclear and Defence industries;which use the Diagnostics Hub not only to sample data, but to control and process the transmission of data over various network infrastructures. A recent addition to the portfolio is the Rail industry where the Diagnostic Hub has been used to acquire data pertaining to the condition of automated doors, as well as data associated with passenger comfort, i.e. HVAC system monitoring.

The Diagnostic Hub is a versatile electronic system allowing access to a range of customer specific modules and devices designed by Instrumentel. Importantly the Diagnostic Hub also provides a cost effective means of networking third party products and instrumentation. The Diagnostic hub is offered as an expandable system, which the user can configure, with or without Instrumentels' help, to achieve the desired functionality.

The Diagnostic hub is available as an expandable system, configured depending on the number of IOs required. The hub can later be expanded to provide capability up to the maximum of 32IOs.

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, FPGA for parallel processing and DSP
Program Memory:32kb Programmable Flash, 8kb Program RAM
Data Storage: Solid state Memory, µSD card 1Gb as standard, fully expandable
Firmware: Upgradeable via Ethernet Boot-loader
Interfacing: Serial, SPI, Analogue to Digital converters, Event Triggered IO and Programmable Hardware counters.
Expandability: Expansion header for extended capability available via personality boards
Additional Capability: Real Time Clock (RTC) with backup battery

Serial Interface

Interface:RS-485, RS-232, Data+, Data- or RX, TX
Serial Line Protection: 1.5K VDC
Parity: None
Data Bits: 8
Stop Bits: 1
Hardware Flow Control: None
Baud rate:1200 to 11520

Digital Inputs

Channels:16
Channel Voltage Rating:24 VDC, 74 VDC, 110 VDC
Channel Types: Wet
IO Modes: Line Sample (Digital Input), Event Trigger, Edge Counter
Common Type: Banks of 4-6 inputs per COM
Isolation: 2K VDC, 1K rms
Over Voltage Protection:36 VDC

Analogue Inputs

Channels:18 Total
Channel types:8 Current Sense Inputs, 8 Low Voltage Analogue, 2 High Voltage Inputs
Resolution: 10-bits
Input Range:4-20mA, 0-5V dc, +/- 5v dc, 0-5v ac, 110V dc, 240V ac
Sample Rate: Up to 50 samples a second, Up to 64x Over-sampling/averaging per sample
Common: Negative feeds connected in banks of 4
Isolation:2K VDC isolation, 1K rms
Over Voltage Protection:36 VDC

Power Requirements

Power: DC Power Connection or ISO 802.11afPOE (Power over Ethernet)
Power Input: 24 VDC nominal, 12-80 VDC

Environmental Limits

Operating Temperature: -25 to + 65 ^{0}C
Storage Temperature: -40 to +85 ^{0}C
Ambient Relative Humidity: 5 -95% (non-condensing)

Product Family