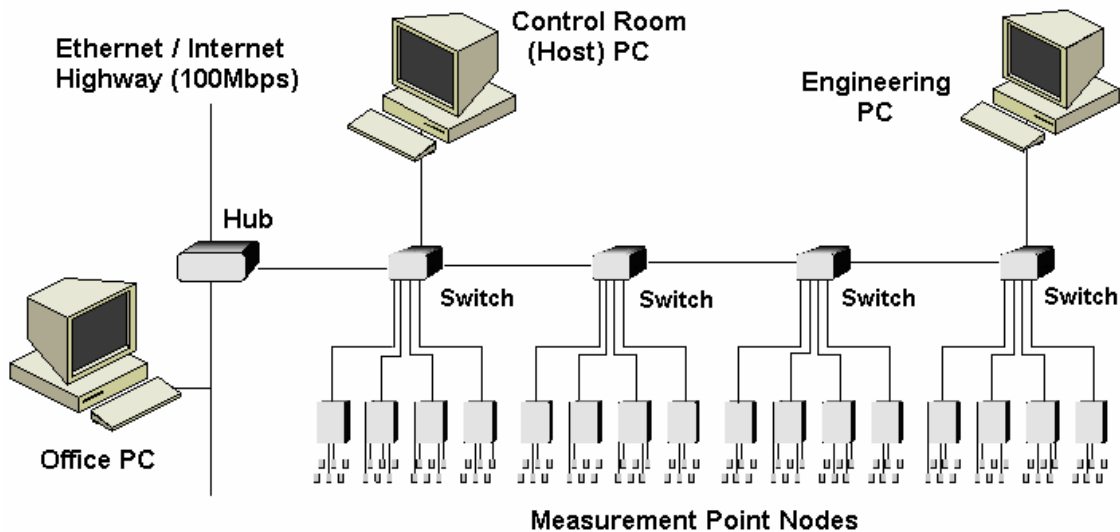


# IMPACT / GUARDIAN "On-Line" Monitoring System

## ICONET ON ETHERNET



*for Local ... Plant Wide ... Global ...  
Machinery Condition Monitoring Applications*

Imagine a flexible network system that can be used to gather vital information on your machinery. One which can be incorporated into your existing Ethernet networks in the plant and which can be accessed locally or remotely. Imagine this can be set up by anyone who knows how to set up an Ethernet system and imagine it is so affordable that it can fit into your budget with ease.

You are now thinking of ICONET with IMPACT / GUARDIAN "On-Line" Machinery Monitoring on Ethernet.

But don't let your imagination stop there. Think what you could do if you could access data directly from your machine's measurement points anywhere in the world via the Internet.

Now you can realise how ICONET on Ethernet captures the power of the global communications revolution and enables you to call up real time measurement data on-line, absolutely anywhere.

You are now thinking: LOCAL ... PLANT-WIDE ... GLOBAL ...



## **WIDE CHOICE OF INPUTS**

*ICONET on Ethernet* sets out to interface to almost any sensor type that is encountered in the field of machinery monitoring. Typical transducers for vibration measurement are accelerometers and eddy current probes, and these are two of the types that can be used for so-called "dynamic" measurements. Often, process measurements such as temperatures and pressures need to be monitored. These so-called "static" parameters can also be accommodated.

There are three types of node in the *ICONET on Ethernet* series, called Type 1, Type 2 and Type 3. The types of signal input that each can accommodate are summarized below:

### **Type 1 Node (16 Channel)**

- Sixteen multiplexed analog inputs
- Sixteen ICP supplies for accelerometer interfacing
- Accelerometer bias voltage check
- Bearing condition measurement

### **Type 2 Node (16 Channel)**

- Sixteen analog inputs, multiplexed in pairs for simultaneous acquisition (X-Y, orbit etc)
- Standard interface to eddy current probes

### **Type 3 Node (22 Channel)**

- Twenty multiplexed process measurement inputs
- Modules available to interface to thermocouples, RTD's, pressure sensors (bridge type), 4-20mA etc

## ***Speed and Trigger Channels***

Each node type is fitted with a trigger/ tach interface. This comprises digital inputs that can be set as isolated or non-isolated. Any trigger input can be tagged to any of the analog input channels allowing maximum triggering flexibility. The trigger input can measure machine speed (also incorporating a divide-by-N Counter for taking inputs from gear teeth, etc).

## ***Bearing Condition Measurement***

The Type 1 node incorporates an on-board hardware demodulator for the detection of bearing defect signals. These are sent over the network as either an overall value of bearing condition or as a spectrum highlighting actual bearing defect frequencies. In this way, bearing problems are differentiated from other shaft related problems (alignment, imbalance, etc.).

## ***Watchdog Function***

A watchdog function is incorporated that monitors the operation of the nodes. If, for example, the supply voltage drops, the watchdog will automatically reset the node when power is restored. No user intervention is needed.

## ***Fast Node Control***

In order to obtain maximum data throughput, channel configurations (and sequence in which they are called) are downloaded to the node and stored in flash memory. The node is then instructed to execute a stored sequence of measurements, (and keeps rotating through *as* required).

## **STANDARD ETHERNET**

*ICONET on Ethernet* uses the latest ethernet technology ensuring compatibility with existing ethernet systems. Communication is possible within the system's own environment, across switches, routers, and even across the Internet. Standard off-the-shelf hubs and PC adapters can be used throughout. Each node has a unique MAC/IP address. Physical connection is 10Base-T using the standard RJ45 connections.

For optimum performance, it is recommended to use a dedicated local Ethernet network to connect the nodes to the PC. The *ICONET* part of the network can then be linked into 100Base-T ethernet networks through standard switches or can be linked to the PC running *GUARDIAN* or other compatible software. For larger ethernet applications, routers can allow global access to the system. In effect, three levels of access are possible: Local, Plant Wide and Global. Both UDP/IP and TCP/IP protocols are supported.

## ***Wireless Operation and Internet***

Being fully ethernet compatible, *ICONET on Ethernet* can be connected in to standard wireless LAN's (including the IEEE 802.11 standard). In addition, the nodes can communicate live over the internet anywhere in the world.

## ***Low System Cost***

*ICONET* is purely a data capture system. It does not attempt to analyze data in the field at each node – the power of the modern PC is used to do this at a fraction of the cost. This keeps the hardware cost to a minimum.

Installation costs are also low. The small number of points per node minimizes sensor wiring costs while network wiring uses low cost CAT5 Ethernet cables and standard Ethernet components. It may even be possible to use existing ethernet network cabling at effectively no cost.

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