4500 Series Monitoring System

General Overview

The 4500 series monitoring system is based upon a 19 inch 3U high rack assembly which can contain a mixture of different modules to achieve particular monitoring functions. The system is powered by a 4508 power supply module fed by either 110 or 240v AC.

The 4508 power supply is a single card construction with a 96 way multiple connector. This mates with a similar socket on the backplane PCB assembly which is mounted across the rear of the rack system. Various connection options are available to use with the basic rack system and they are explained more fully in the section dealing with the model 4524 rack assembly. The connections from the 4500 Series system to the outside world are via ribbon cable connectors mounted on the rack assembly backplane PCB.

Module Fitting

When manufactured systems are to be supplied with monitors dedicated to particular slot position in the rack assembly, this is achieved by using a red keyed connector which ensures that a module cannot be placed in the wrong slot. In the general case, any type of module except for a power supply or a serial interface module can be inserted into position 1-13. Slot 14 is reserved for a 4506 serial interface module (if required) and the 4508 power supply will always occupy the extreme right hand position, slot 15.

System Configuration

In normal circumstances a 4500 series system will be assembled to suit a particular customer's requirement and will have the appropriate modules fitted prior to shipment. Of the various modules available. All are separately described within this instruction manual. Each is described as through it were a standalone product, but of course it cannot be used on its own without the connection capability of the module 4524 rack assembly.

Selection of Filter Components

Some of the 4500 series of monitors have internal filters which restrict their measurement band width to frequencies are of interest.

Scaling

Modules are scaled to suit the customer's specific requirements.

Linking Table

Modules in the 4501, 4502,4509,4510,4515 ranges have links fitted to the boards which are specific to the type of the module.

Module Address Codes (where fitted)

When assembled as a system, modules are assigned address of 1 to 13.numbering from left to right when viewed from the front. Users may set internal switches to other addresses, but must take care to ensure that no two modules are set to the same address. Where no serial interface module is specified for the system, the address code switches and associated components may not be fitted.

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4501 Vibration Modules

General Overview

This module is designed for operation in a model 4524 rack assembly and can be fitted in any of the positions 1-13. It will normally have a dedicated position in the rack, reserved by the keying system associated with the rear connectors.

The 4501 is a dual channel vibration module which accepts signals from two accelerometers with input sensitivities of 10mV/g or 100mV/g. the output from the module is a module is a 4-20mA current signal which is proportional to velocity. The actual scale of the instrument is determined by changing the scaling components.

Each channel has a 4 pol Butterworth band pass filter which can restrict the frequency response of the module, and these filter frequencies are set during manufacture to sult customer requirements.

The 4-20mA signals are electrically isolated from the rack assembly and its associated power supplies and can be connected to remote equipment's without causing "ground loops" .The resistance into which the 4-20mA signal will operate is a maximum of 1000 ohms.

Transducer status is continuously monitored in the module by comparing the DC bias voltage of the transducer with a windows voltage. In the event that the transducer bias voltage lies outside of the windows the front panel LED will be extinguished and the signals inhibited through the module.

A test point is provided on the front panel in order that the input signal can be monitored with a vibration analyzer, oscilloscope or digital volt meter. Reference should be made to the positioning of links internally in the unit to ensure that the correct signal is selected for the front panel BNC connector.

Power supplies are available on the rear panel connector for powering a variety of transducers and it is important that the linking arrangement for selecting transducer power supplies is suitable for type of transducer used. Generally, accelerometers are powered from a positive 24v supply and eddy current probe drivers from a negative 24v supply.

4501 Dual Vibration Monitor-Circuit Description

The input signal which enters the module on pin 22b is split three ways:

1. Via link 4 to the front panel test point.
2. Via c18, to the monitoring circuit.
3. Via the potential divider R1 and R2 to the window comparator.