Spider-SG/SGi

The Spider-80SG/SGi is an eight-channel strain/temperature sensor processing system module useful for a wide range of physical tests and measurements. Spider-80SG/SGi is a natural adjunct to Spider-80X systems for machinery monitoring and modal analysis applications. This is a flexible module appropriate for low frequency “static” stress/strain measurements and bearing temperature monitoring as well as rapid dynamic stress analysis in vibration studies and modal analysis. Though somewhat intricate to install, the tiny and nearly massless strain gage is a marvelous sensor for vibration studies. It provides low-frequency sensitivity unmatched by accelerometers and does so without mass loading the object under study. Proper strain gauge installations can provide much focused information, allowing you to separate tensile, bending and torsional effects in a structure’s responses. Integrating these benefits within a DSA system facilitates new levels of structural understanding.

The Spider-80SG/SGi module can be network-integrated or PC connected through its Ethernet connector. It will precisely measure strain, based upon detecting small changes in resistance when a wire or foil strain gage is stretched or compressed. In similar fashion, it will accurately measure temperature from resistance changes of a resistive temperature detector (RTD). It measures these with 24-bit digital precision. Use it at sample rates up to 102.4 kHz to track dynamic strain variations, or let it clock as slowly as o.48 Hz to trend near-DC temperature trends.

Each input channel is a dedicated DC-excited Wheatstone Bridge circuit with 24-bit digital output. Spider-80SG/SGi provides precision bridge-completion resistors for use with either 120Ω or 350Ω gages. A precision calibration shunt resistor is also provided, and shunt calibration is accomplished with a single command. The software also provides facility for physical input calibration. The module will auto-balance all channels upon command. There is no need to turn potentiometers or switch resistors into the circuit; all module controls are through software.

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