

## No phobias around this Spider!

A new breed of spider is on the loose, but it's not the kind conjures up fear and loathing. Crystal Instrument Corporation's new Spider-80 is a highly scalable network-based dynamic measurement system that can measure up to 1024 dynamic input channels with full data recording capability. It is ideal for a wide range of industries, including machine condition monitoring, automotive, aviation, aerospace, electronics and military that demand easy, quick and accurate data recording, real-time signal processing and vibration control.

The Spider-80 modules have voltage, charge and IEPE inputs that are ideal for shock, vibration and acoustic measurements or general-purpose voltage measurements. Each Spider-80 module is equipped with eight input channels and two output channels and can accurately measure and record both dynamic and static signals. Multiple Spider modules can be combined to form a single high-channel system. With multiple Spider-80 units, a Spider system can have four to 1024 input channels, all sampled simultaneously. Multiple Spider modules are accurately synchronized through the IEEE 1588 protocol. The data acquired by all the measurement channels are synchronized up to  $\pm 100$  ns. Accurate time synchronization results in excellent phase match in the frequency domain between all channels, either on the same Spider module or across different modules.

The Spider-80 module with SMB connectors is a small package designed for dynamic signal measurement and remote monitoring. It comes in an extremely compact form factor. Four Spider-80 modules can fit into a single 1-U, 19-inch, rack-mount slot. Each system can be powered by either external AC/DC power or Power-over-Ethernet (PoE). An internal backup battery is used to increase system reliability. PoE provides power from the switch to the Spider module through the Ethernet cable so that no additional power cables are required.

Spider-80 modules can be controlled by a host PC or run in "black-box" mode, where a preprogrammed schedule is uploaded to the unit. Data collection can be started manually or based on an event trigger. The ability to use any module in black box-mode or in a network distributed system means that you can place your modules close to the measurement object.

Each Spider module has its own mass storage media that keeps the operating software and stores measurement data. This distributed structure guarantees the signal recording at full speed without being subjected to network speed limitations. The Spider is designed to manage any connection failure without loss of data. An internal battery prevents power disruption or electrical interference. The software can safely recover normal running status in the

event that the connection to the host is lost. Sensor failure detection and input overload are continuously monitored.

All Spider hardware undergoes environmental tests including EMI, temperature, drop shock, sine and random vibration. The test-proven design is robust enough to withstand long-range transport damage and promises a longer operating life. Special thermal and low-power design eliminates the need for a cooling fan, reducing power consumption and noise. With patented technology, Spider-80 achieves 130 dB input dynamic range. Such high dynamic range eliminates the need for input range/gain settings of traditional data acquisition systems. A high-speed, floating-point DSP manages the data input/output and real-time processing.

Spider software comes with two flavors: EDM is the out-of-box solution and API (application programming interface) that supports VB, C# or LabView.

**About Crystal Instruments.** Located in Silicon Valley, CA, Crystal Instruments is an engineering firm focused on data acquisition, dynamic signal analysis and measurement data management. With strong experience creating embedded and DSP systems for structural testing, product evaluation, algorithm implementation and application software programming, CI's products and technology are in use today by many of the world's leading companies, industrial providers and government agencies.

Please visit [www.go-ci.com](http://www.go-ci.com) for more information on Spider-80 and other Crystal Instruments products.



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