CRYSTAL INSTRUMENTS

New Spider-20HE and Spider-20i with 256 kHz Sampling Rate

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Featuring the highest sampling rate provided in the industry at 256 kHz. Handheld battery powered system with wired network options and 20 V input range. Sync between multiple devices. Choose the convenient portable model or industrial model for permanent mounting.

In June 2020 Crystal Instruments announced the release of EDM 9.0 and the Spider-20HE and Spider-20i, the newest editions of the Spider-20 series. These new models are designed for users requiring dynamic signal analyzers and recorders with uncompromising performance and portability.

The Spider-20HE and Spider-20i received a hardware upgrade to support an impressive 256 kHz sampling rate on all 4 input channels. It is the highest sampling rate offered in the market of compact analyzers. The high sampling rate is especially beneficial for measuring high orders and transient capture in blast tests, pyroshock events, drop shock tests, crash tests, etc.

In addition to the high sampling rate, the input range is expanded to 20 V to capture larger signals.

The battery power feature provides users with maximum portability. Besides a sensor cable, the analyzer can be moved around without an attached power source and computer.

The **auto-wake feature** provided in EDM 10.0 software allows users to set up a wake-up alarm for Spiders to power on, perform a test, and power off. Users can upload up to 8 predefined tests and run these in Black Box mode (without a connection to a computer or network to run). This convenient mode allows users to acquire data autonomously or with little user intervention.

EDM 10.0 also provides **circular recording** which allows the Spider units to constantly record all data, but save only the triggered events. In scenarios such as the recording of ground vibrations over a long period of time, enabling circular recording significantly reduces the amount of memory required to store data.

With IEEE 1588 support, the Spider-20HE and Spider-20i can synchronize with multiple devices to form a large channel system that can be distributed over the same network in a large space, such as an airplane or a large industrial plant. (https://www.crystalinstruments.com/blog/2017/6/27/synchronous-data-acquisition-across-a-plant)

The Spider-20i features a rugged industrial design, mounting holes, more robust and secure connectors, and a dust-proof, all aluminum chassis to facilitate heat dissipation. Without a battery included, the system is lighter and smaller.

With the combination of the above features, the Spider-20HE and Spider-20i are the perfect solutions for many applications including:

- Machinery Diagnosis
- Machine/Process Monitoring
- Modal Analysis
- Vehicle Dynamics
- Production Testing
- Temporary Monitor
- Acoustic Studies
- Transient Capture

Components included in rockets and space vehicles are subject to severe shock vibrations. To ensure reliability during missions, testing is undertaken using controlled explosives. A high sampling rate data acquisition device to acquire data from the shock sensors can reliably measure the high frequency content during these tests. Shock Response Spectrum (SRS) calculations need sampling rates

that are at least 10 times the maximum frequency of interest. With a limitation of 102.4 kHz, frequencies of up to only 10 kHz can be analyzed. With the new generation of Spiders, the SRS spectrum for maximum frequencies of 25 kHz can be acquired and analyzed. In addition, by capturing the data at the maximum possible sampling rate, all the time domain features are effectively captured and preserved. Users can process the acquired data in real time or post process with different settings to completely analyze the data.

References:

https://jscfeatures.jsc.nasa.gov/pages.ashx/383/Pyroshock

For more details regarding the complete system, view the brochure online at: https://www.crystalinstruments.com/spider-20-dynamic-signal-analyzer

	Spider-20HE	Spider-20i
Max Sampling Rate	256 kHz	
Analog Input Channels		
Input Channels	4	
Coupling	AC, DC, IEPE (ICP®)	
Input Dynamic Range	120 dBFS	
Input Range	±0.2 V, ±2 V, ±20 V	
Max Useful Bandwidth	115.2 kHz	
Tachometer Input Channel		
Tachometer Input Channel	1	
Connector Type	Isolated BNC (shared with analog output)	
Configuration	tachometer or output, selected by software	
Shaft RPM Range	3/N ~ 300000/N RPM	
Analog Output Channel		
Output Channels	1	
Output Range	±10 V	
DC Power Input		
Connector Type	4 pin LEMO connector (on rear panel)	3-pin DIN connector
Voltage	15 VDC (±10%)	12-24 VDC (±10%)
Indicating LEDs	Power, start/stop, battery, and charging	Power
Network Communication		
Type	100Base-T, RJ45	
Power Specifications		
Power Supply	Interchangeable battery with DC charger interface	External DC power
Battery Hours	6 hours or longer in full operation	N/A
Power Consumption	Less than 6 W	
Environmental Specifications		
Dimension	135 x 109 x 32.5 mm	155 x 109.6 x 30.7 mm
Weight	0.56 kg	0.52 kg
On-board Flash Memory	4 GB	

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