Transient Capture

Mode	Continuous real-time data recording to memory.
Maximum Rate	262,144 samples/sec for both inputs
Max. Capture Length	2 Msamples (single input) 8 Msamples with optional memory

Octave Analysis

Standards	Conforms to ANSI standard S1.11-1986, Order 3, Type 1-D.
Frequency Range	Band centers: Single Channel 1/1 Octave 0.125 Hz - 32 kHz 1/3 Octaves 0.100 Hz - 40 kHz 1/12 Octaves 0.091 Hz - 12.34 kHz Two Channels 1/1 Octave 0.125 Hz - 16 kHz 1/3 Octaves 0.100 Hz - 20 kHz 1/12 Octaves 0.091 Hz - 6.17 kHz
Accuracy	<0.2 dB (one second stable average, single tone at band center)
Dynamic Range	80 dB (1/3 octave, two second stable average) per ANSI S1.11-1986
Sound Level	Impulse, Peak, Fast, Slow and Leq per IEC 651-1979 Type 0

Order Tracking

Resolution	Up to 400 lines
Amplitude Accuracy	±1 dB (typ.)
Displays	Order map (mag and phase), order track (mag and phase), orbit

Curve Fit and Synthesis

Type	20-pole/20-zero non-iterative rational fraction fit.
Output Format	Pole-zero, polynomial, or pole-residue

Source Output

Amplitude Range	0.1 mVpk to 5 Vpk
Amplitude Resolution	0.1 mVpk
Offset Adjust	±5 V
Output Impedance	<5 Ω, ±100 mA peak output current

Sine-Source

Amplitude Accuracy	±1% of setting, 0 Hz to 102.4 kHz 0.1 Vpk to 5.0 Vpk, high impedance load
Harmonics, SubHarm. and Spurious Signals	0.1 Vpk to 5 Vpk <-80 dBc (fundamental <30 kHz) <-75 dBc (fundamental <102 kHz)

Two Tone Source

Amplitude Accuracy	±1% of setting, 0 Hz to 102.4 kHz, 0.1 Vpk to 5 Vpk, high Z load
Harmonics, SubHarm.	<-80 dBc, 0.1 Vpk to 2.5 Vpk

White Noise Source

Time Record	Continuous or Burst
Bandwidth	DC to 102.4 kHz or limited to span
Flatness	<0.25 dB pk-pk (typical), <1.0 dB pk-pk (max), 5000 rms averages

Pink Noise Source

Bandwidth	DC to 102.4 kHz
Flatness	<2.0 dB pk-pk, 20 Hz - 20 kHz (measured using averaged 1/3 octave analysis)

Chirp Source

Time Record	Continuous or Burst
Output	Sine sweep across the FFT span
Flatness	±0.25 dB, 1.0 Vpk

Swept Sine Source

Auto Functions	Source level, input range and frequency resolution
Dynamic Range	145 dB

Arbitrary Source

Amplitude Range	±5 V
Record Length	2 Msamples (playback from arbitrary waveform memory or capture buffer). Variable output sample rate.

General

Monitor	Monochrome CRT, 800H by 600V resolution, 8.2 inch diagonal display
Interfaces	IEEE-488, RS-232 and Printer interfaces standard. All instrument functions can be controlled through the IEEE–488 and RS-232 interfaces. A PC (XT) keyboard input is provided for additional flexibility.
Hardcopy	Print to dot matrix and PCL compatible printers. Plot to HP-GL or Postscript plotters. Print/Plot to RS-232 or IEEE–488 interfaces or to disk file. Additional file formats include GIF, PCX and EPS.
Disk	3.5" DOS compatible format, 1.44 Mbytes capacity. Storage of displays, setups and hardcopy data.
Preamp Power	Power connector for SRS preamplifiers.
Power	70 Watts, 100/120/220/240 VAC, 50/60 Hz
Dimensions	17"W x 8.25"H x 24"D
Weight	56 lbs.
Warranty	One year parts and labor on materials and workmanship.

SR785 Specifications

Specifications apply after 30 minutes of warm-up and within two hours of last auto-offset. All specifications are with 400 line FFT resolution and anti-alias filters enabled unless stated otherwise.

Measurement Groups

Standard Groups	FFT analysis, Correlation, Time Histogram, Swept Sine
Optional Group	Order Tracking

Frequency

Range	102.4 kHz or 100 kHz (both displays have the same range).
FFT Spans	195.3 mHz to 102.4 kHz or 191 mHz to 100 kHz. The two displays can have different spans and start frequencies.
FFT Resolution	100, 200, 400 or 800 lines
Real-Time Bandwidth	102.4 kHz (highest FFT span with continuous data acquisition and averaging).
Accuracy	25 ppm from 20 ˚C to 40 ˚C

Dynamic Range

Dynamic Range	-90 dBfs typical, -80 dBfs guaranteed (FFT and Octave) -145 dBfs typical (Swept-Sine) Includes spurs, harmonics, intermodulation distortion and alias products. Excludes alias responses at extremes of span.
Harmonic Distortion	<-80 dB (single tone in band)
Intermod. Distortion	<-80 dB (two tones in band, each less than -6.02 dBfs)
Spurious	<-80 dBfs
Alias Responses	<-80 dBfs (single tone outside of span, less than 0 dBfs, less than 1 MHz)
Full Span FFT Noise Floor	100 dBfs typical (input grounded, input range >-30 dBV, Hanning window, 64 RMS averages)
Residual DC Response	<-30 dBfs (FFT with Auto Cal on)

Amplitude Accuracy

Single Channel	±0.2 dB (excluding window effects)
Cross Channel	±0.05 dB (dc to 102.4 kHz) (frequency response measurement, both inputs on the same input range, RMS averaged)

Phase Accuracy

Single Channel	±3.0 deg relative to External TTL trigger (-50 dBfs to 0 dBfs, freq <10.24 kHz, center of frequency bin, DC coupled). For Blackman-Harris, Hanning, Flattop and Kaiser windows, phase is relative to a cosine wave at the center of the time record. For Uniform, Force and Exponential windows, phase is relative to a cosine wave at the beginning of the time record.
Cross Channel	±0.5 deg (dc to 51.2 kHz) ±1.0 deg (dc to 102.4 kHz) (frequency response measurement, both inputs on the same input range, vector averaged)

Signal Inputs

Number of Inputs	2
Full Scale Input Range	-50 dBV (3.16 mVpk) to +34 dBV (50 Vpk) in 2 dB steps
Maximum Input Level	57 Vpk
Input Configuration	Single-ended (A) or true differential (A-B)
Input Impedance	1 MΩ + 50 pF
Shield to Chassis	Floating mode: 1 MΩ + 0.01 mF Grounded mode: 50 Ω Shields are always grounded in differential input (A-B)
Maximum Shield Voltage	4 Vpk
AC Coupling	-3 dB rolloff at 0.16 Hz
CMRR	90 dB at 1 kHz (in. range <0 dBV) 80 dB at 1 kHz (in. range <10 dBV) 50 dB at 1 kHz (in. range ≥10 dBV)
ICP Signal Conditioning	Current Source: 4.8 mA Open Circuit Voltage: +26 V
A-Weight Filter	Type 0 Tolerance, ANSI Standard S1.4-1983; 10 Hz to 25.6 kHz
Crosstalk	<-145 dB below signal (input to input and source to inputs, 50 Ω receiving input source impedance)
Input Noise	<10 nVrms/√Hz (<-160 dBVrms/√Hz) above 200 Hz

Trigger Input

Modes	Free run, Internal, External, or External TTL
Internal	Level adjustable to ±100% of input scale, positive or negative slope. Minimum Trigger Amplitude: 5% of input range
External	Level adjustable to ±5 V in 40 mV steps, positive or negative slope. Input impedance: 1 MΩ Max input: ±5 V Minimum trigger amplitude: 100 mV
External TTL	Requires TTL level to trigger (low <0.7 V, high >3.0 V)
Post-Trigger	Measurement record is delayed up to 100,000 samples after the trigger.
Pre-Trigger	Measurement record starts up to 8000 samples prior to the trigger.

Tachometer Input

Pulses Per Revolution	1 to 2048
RPM Accuracy	±50 ppm (typical)
Tach Level Range	±25 V, ±5V, TTL
Tach Level Resolution	20 mV @ ±25 V, 4 mV @ ±5 V
Max. Tach Input Level	±40 Vpk
Min. Tach Pulse Width	100 nSec
Max. Tach Pulse Rate	750 kHz (typical)