ABOUT US

DynamicSignals LLC is a customer oriented industry leader in high-performance, accurate, and reliable data acquisition solutions. Vertically integrated, our core competencies include engineering, manufacturing and integration of digitizers, signal conditioners, and arbitrary waveform generators into continuous signal recording, processing, and playback systems via our product brands of GaGe, Signatec, and KineticSystems.

APPLICATIONS

Wideband Signal Analysis

RADAR Design and Test

Signals Intelligence (SIGINT)

Ultrasonic Non-Destructive Testing

LIDAR Systems

Communications

Optical Coherence Tomography

Spectroscopy

High-Performance Imaging

Time of Flight

Life Sciences

Particle Physics

Ultra-Portable Spectrum Analysis Covering RF Frequencies up to 27 GHz with Real-Time Signal Recording Capabilities!

FEATURES

- 9 kHz to 8 GHz, 18 GHz, or 27 GHz RF Frequency Coverage

- Option 1 for 4 Selectable IF Bandwidths – 100 / 40 / 10 / 0.1 MHz

- Option 2 for 3 Selectable IF Bandwidths – 160 / 80 / 10 MHz

- Real-Time Signal Recording with Internal Digitizer via Gigabit Ethernet

- Real-Time Signal Recording with External Digitizer via Thunderbolt 3

- Windows Spectrum Analyzer with Real-Time Signal Recording & Monitoring

- Integrated Operational Control of Both Downconverter Receiver & Digitizer

- Analysis Displays Include: IQ Time Domain, I Spectrum, IQ Power Spectrum, Constellation Plot, Spectrogram Plot, Persistence Plot, and Histogram Plot

- Actively Monitor Displayed Snapshots During Real-Time Live Recordings

- Flexible Signal Recording Output Filename Management Parameters

- File Span Recording Splits Long Recordings into Multiple Size-Specified Files

- Signal Recording Duration by File Size, Elapsed Time, or Both

- Easy Import of Recording Files into 3rd Party Apps with Raw Binary Data

- Ability to Save and Load Specified Setup Configuration Settings

- Playback Monitoring Viewing of Entire Signal Recordings to Active Displays

- Programming-Free GUI Operation; No Programming Skills Required

System Overview

These Real-Time Spectrum Analyzer solutions feature ultra-portable configurations for real-time, long term recording of RF signals. Wideband signals up to 27 GHz can be viewed, analyzed, and recorded using system based packages that weigh less than 5.4 kg / 12 lb. to 10.8 kg / 24 lb. They can easily be transported on commercial airlines as carry-on luggage.

There are two primary configurations - The first one employs an ultra-portable measurement controller and an Ethernet connected tuner/digitizer/DDC processor. These 2 units weigh about 6 lb. each, for a total solution weight of 12 lb. Real-time signals up to 100 MHz bandwidth can be viewed, and time domain snapshots recorded and processed later.

Other capabilities include broadband (up to 27 GHz) spectrum viewing, waterfall displays, frequency domain triggering, and signal averaging, with many cursor and display options.

Once a signal of interest is identified, users can switch to real-time recording mode. By using DDC to narrow the bandwidth, the system enables long term gap-free continuous recording of signals up to 2.5 MHz bandwidth - for durations up to 71 hours.

These recordings can then be played back and analyzed on the display, with signal regions extracted, saved, and converted to other file formats for further post processing on other systems.

The next level configuration, which adds an external Thunderbolt hosted 16-bit digitizer, can be purchased as a total solution to start, or optionally purchased as an upgrade to the smaller configuration.

The Thunderbolt based 16-bit digitizer enables much wider bandwidth real-time recording. This adds about 12 lb., for a still very portable 24 lb. total solution.

All the capabilities described in the first configuration are still available. But now, the higher performance digitizer allows for real-time recordings up to 160 MHz in bandwidth, with selectable recorded bandwidths of 100, 80, 40, and 10 MHz, depending on configuration. With this solution, 160 MHz of bandwidth can be continuously recorded for up to 1 hour or 80 MHz of bandwidth can be continuously recorded for up to 2 hours.

Controller + Downconverter

- System Receiver Control via Gigabit Ethernet

- Internal Receiver **14-Bit** Digitizer for Capture

- Real-Time Signals up to **100 MHz Bandwidth**

- Gap-Free Continuous Recordings up to **2.5 MHz BW**

- Total Ultra-Portable System Solution Weight of **~12 lb.**

Controller + Downconverter + Thunderbolt Digitizer

- System Receiver Control via Gigabit Ethernet

- External Thunderbolt **16-Bit** Digitizer for Capture

- Real-Time Signals up to **160 MHz Bandwidth**

- Gap-Free Continuous Recordings up to **160 MHz BW**

- Total Ultra-Portable System Solution Weight of **~24 lb.**

SpectraScopeRT & SpectraViewRT – Real-Time Spectrum Analyzer & Playback Viewer

SpectraScopeRT is a Windows based spectrum analyzer application that requires no programming and allows for integrated operational control of both the downconverter receiver and the digitizer for signal capture, analysis, recordings.

SpectraScopeRT provides the ability to save established settings to a configuration file that can later be opened and applied, thus saving time from manually re-applying settings for repetitive configurations.

Analysis displays include IQ Time Domain, Frequency Domain, I Spectrum, IQ Power Spectrum, Constellation Plot, Spectrogram Plot, Persistence Plot, and Histogram Plot. Multiple display type windows can be opened and shown simultaneously with auto tile and cascade options or manually sized and placed as desired.

Display windows include support for scope cursors to navigate through the display and obtain measurements. Cursor Track Mode can be enabled to lock the position of the two placed cursors. When locked, the spacing between cursors remains constant as they are moved through the display of data.

SpectraScopeRT supports both an On-Board Memory Mode and a Streaming Mode of operation.

Using the On-Board Memory mode supports all the full bandwidth modes of the receiver. The On-Board Memory mode takes snapshots of data during execution, not all the real-time data is collected. The rate at which the snapshots are taken depends on the number of active display plots, the number of acquisition samples for each snapshot, the performance of the graphics subsystem and the processing power of the local processor. Typical update rates are from 10 to 30 captures per second.

During On-Board Memory modes of operation the process starts by triggering an acquisition. The trigger options include forcing a trigger for each collection or to trigger when the RF input exceeds a predetermined level threshold.

Once triggered the selected number of samples are collected. The sample count is determined by the Resolution Bandwidth specified. After the samples are received from the downconverter the required calculations are performed and the visible displays updated. This process is repeated until requested to cease. If recording to disk is enabled, the raw count data is written to the specified file after the displays are updated.

The primary advantage of SpectraScopeRT is the ability to conduct real-time streaming signal recordings to drive storage with provided monitoring capability to ensure the recording process is operating with expected signal data and without errors.

The non-proprietary file format of the raw binary data file allows for other 3rd party software applications to import and utilize the data easily, with associated separate XML-based header files that contain the context information on the data file.

The lossless Streaming Mode collects all real-time data digitized from the downconverter. For narrow bandwidth applications, where data is captured using either one of the two onboard internal ADCs on the downconverter, a minimum DDC decimation rate of 16 must be utilized. This restriction is due to the transfer rates that can be sustained for streaming data to the controller across a Gigabit Ethernet connection.

For wider bandwidth applications, where data is captured by using an external digitizer connected to the IF analog I and Q outputs of the downconverter, all of the full bandwidth modes of the receiver data can be captured in real-time. This is due to the faster transfer rates that can be sustained for streaming data to the controller across a Thunderbolt 3 PCIe based connection.

The recording control section of the application is utilized to establish and conduct real-time signal recording operations with various option settings that include flexible output filename management parameters, custom user text information, file span recording that splits long recordings into multiple size-specified files, and recording duration by file size, elapsed time, or both.

The SpectraViewRT application allows an operator to open/view and conduct playback of previous signal recordings to the display monitor for analysis.

Viewing file details will display the details of the opened signal recording present in the header file associated with the recording data file for review. It includes basic information about the recording, applied digitizer model information, applied receiver model information, and settings utilized for the recording with total elapsed time duration of the recording file.

The various display types for Time Domain, Frequency Domain, Spectrogram, Persistence, and Histogram can all be effectively utilized for playback operations.
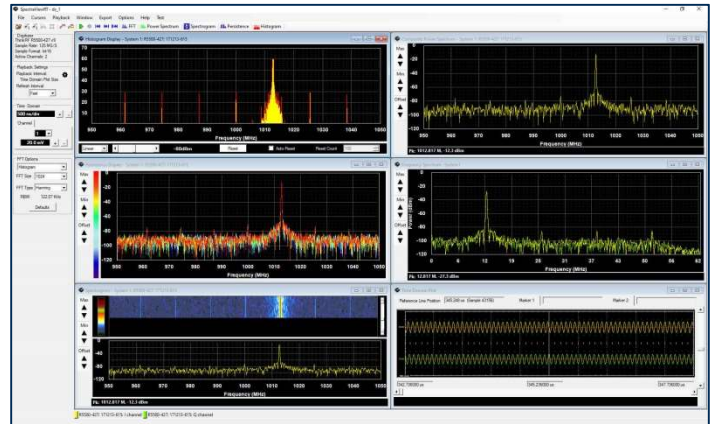
Playback operations utilize familiar navigation toolbar buttons for starting playback, stopping playback, stepping backwards and forwards, and moving back to start.

Selecting Start will initiate the playback through the entire signal recording data file to the active displays on the monitor. The playback operation can be manually stopped at any time by selecting Stop.

Selecting Step Backward causes the time domain display to step one interval backward, while selecting Step Forward causes the time domain display to step one interval forward. The amount of interval movement is dependent on the setting in the Playback Interval setting in the Playback Settings group. The step backward and step forward can either be by number of samples, time or time domain plot size.

Selecting Move to Start rewinds the playback to the start of the recording. If the playback is not actively running when this selection is made, the file pointer is reset to the beginning of the file but the display is not updated. You must continue playback or perform a step operation for a display update.

When the Enable Playback Looping option is enabled, the time domain data will loop from the end of the file back to the beginning when the end of file is reached. If the option is disabled the playback ceases once the end of the file has been reached.

RF Downconverter: A-Series

The A-Series RF Downconverter models features breakthrough input frequency and bandwidth coverage for their size. Its width and length is less than a sheet of paper, weighing only 2.7 kg / 6 lbs. and consuming only 19 to 25 W of power.

Three RF frequency ranges from 9 kHz to 8 GHz, 18 GHz, or 27 GHz are available with two optional bandwidth configurations that each supply four software selectable bandwidth modes: Zero IF (ZIF), Super-Heterodyne (SH), Super-Heterodyne Narrow (SHN), or High Dynamic Range (HDR):

Bandwidth Mode	Option 1 Bandwidth	Option 2 Bandwidth
ZIF (Zero IF)	100 MHz @ 0 Hz IF	160 MHz @ 0 Hz IF
SH (Super-Heterodyne)	40 MHz @ 35 MHz IF	80 MHz @ 55 MHz IF
SHN (Super-Heterodyne Narrow)	10 MHz @ 35 MHz IF	10 MHz @ 35 MHz IF
HDR (High Dynamic Range)	0.1 MHz @ 81.66 kHz IF	Not Appplicable

The ZIF, SH and SHN modes support a tuning resolution of 10 Hz. Digital frequency shifting is then used to enhance the tuning resolution to the nearest 1 Hz (±0.23 Hz) with an embedded Numerically Controlled Oscillator (NCO). The HDR mode also supports a tuning resolution of 10 Hz with no further fine tuning.

The downconverter's front-end processing blocks utilize up to 21 pre-select filters to mitigate input-related spurs and image responses and a pre-amplifier feature for the higher 18 and 27 GHz models:

Downconverter Model	Pre-Select Filter Bank	Pre-Amplifier Feature
DCA08G (9 kHz to 8 GHz RF Input)	9-Channel Switchable	No
DCA18G (9 kHz to 18 GHz RF Input)	18-Channel Switchable	Yes
DCA27G (9 kHz to 27 GHz RF Input)	21-Channel Switchable	Yes

User configurable sophisticated capture control combined with fast deep caching enables fast signal searches, sweeps, triggering and captures of only the signals of interest.

For narrow bandwidth applications, the IF analog outputs can be internally digitized using either one of two onboard digitizers:

Bandwidth Mode Use	Digitizer Resolution	Digitizer Sample Rate	Digital Down Conversion Modes
ZIF (Opt 1), SH (Opt 1), SHN	14-bit	125 MS/s	x1, x4, x8, x16, x32 x64, x128, x256
HDR	24-bit	325 kS/s	Not Applicable

Captured data is optionally stored in fast local memory for subsequent forwarding or can be streamed to the controller across a Gigabit Ethernet connection.

For wider bandwidth applications, the IF analog outputs can be externally digitized utilizing the downconverter's I and Q outputs. The use of an external digitizer is required for the Option 2 bandwidths of 160 MHz (ZIF) and 80 MHz (SH) as the internal 125 MS/s ADC is not sufficiently fast enough to handle these higher modes.

An external digitizer is also desirable for applications that require higher ADC resolution and sampling rates for wider operational bandwidth capture and signal recording capability than is possible with the internal digitizers and Gigabit Ethernet connection.

External Thunderbolt 3 Digitizers

For such wideband use cases, an external high-speed digitizer is optionally supplied within an expansion box that is then connected to the controller via a high-speed Thunderbolt 3 based PCIe interface.

External multi-channel digitizers with 16-bit A/D sampling rates up to 500 MS/s are available. The large onboard FIFO memory of the external digitizers allow for real-time streaming of I and Q baseband signals over the Thunderbolt 3 interface via PCI Express to the controller's memory for post processing, display, and storage.

Overview for Narrow Bandwidth Applications

RF Input
9 kHz to
8, 18, or 27 GHz

Windows Spectrum Analyzer with
Real-Time Signal Recording & Monitoring,
Integrated Receiver/Digitizer Control

Gigabit Ethernet Interface
for Control & Capture via
Memory or Streaming Mode

Controller with Dedicated Recording Storage
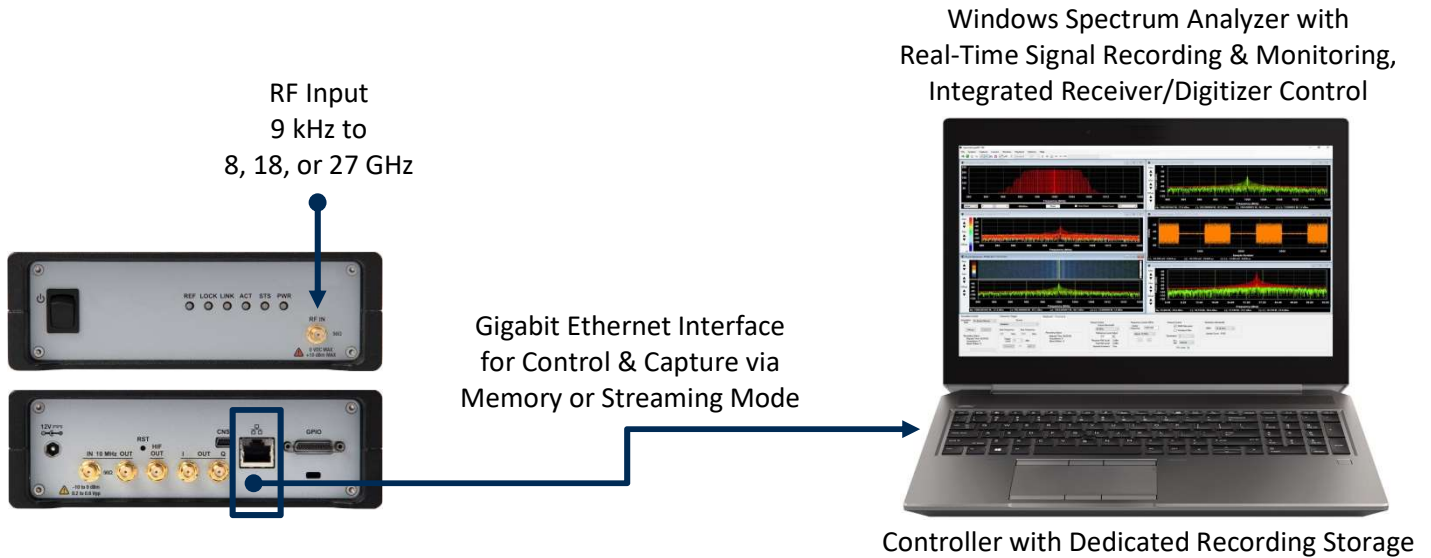
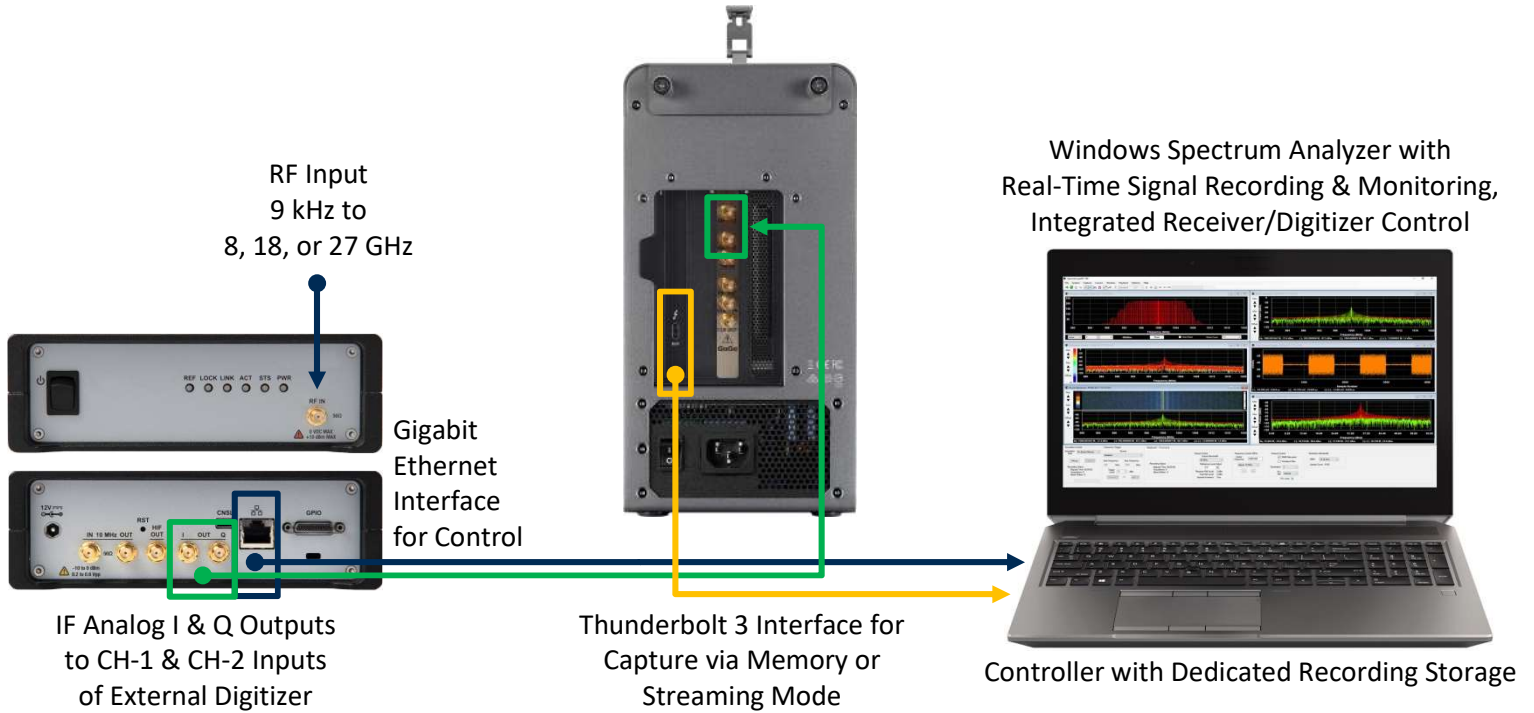| Downconverter Internal ADC Operational Rates and Modes										
Operating ADC DDC Mode	Operating ADC Sample Resolution	Operating ADC Sample Rate (MS/s)	Operating Bandwidth ZIF Mode (MHz)	Operating Bandwidth SH Mode (MHz)	Operating Bandwidth SHN Mode (MHz)	Operating Bandwidth HDR Mode (MHz)	Operating Transfer Modes Supported	Operating Transfer Data Rate (MB/s)	Streaming Mode Continuous Samples Collected Duration Time (512 GB SSD *)
x 1	14-Bit	125.000	100.000	40.000	10.000	N/A	Memory	250.000	N/A
x 4	14-Bit	31.250	10.000	10.000	10.000	N/A	Memory	62.500	N/A
x 8	14-Bit	15.625	5.000	5.000	5.000	N/A	Memory	31.250	N/A
x 16	14-Bit	7.813	2.500	2.500	2.500	N/A	Memory or Streaming	15.625	9 h, 06 m, 08 s
x 32	14-Bit	3.906	1.250	1.250	1.250	N/A	Memory or Streaming	7.813	18 h, 12 m, 16 s
x 64	14-Bit	1.953	0.625	0.625	0.625	N/A	Memory or Streaming	3.906	1 d, 12 h, 24 m, 32 s
x 128	14-Bit	0.977	0.313	0.313	0.313	N/A	Memory or Streaming	1.953	3 d, 00 h, 49 m, 04 s
x 256	14-Bit	0.488	0.156	0.156	0.156	N/A	Memory or Streaming	0.977	6 d, 01 h, 38 m, 08 s
N/A	24-Bit	0.325	N/A	N/A	N/A	0.100	Memory or Streaming	0.975	6 d, 01 h, 52 m, 08 s

* Larger storage drive capacity options of 1 TB, 2 TB, or 4 TB are available to support even longer recording durations.

Overview for Wide Bandwidth Applications

External High-Speed Digitizer
in Thunderbolt 3 PCIe Expansion Box

RF Input
9 kHz to
8, 18, or 27 GHz

Gigabit
Ethernet
Interface
for Control

Windows Spectrum Analyzer with
Real-Time Signal Recording & Monitoring,
Integrated Receiver/Digitizer Control

IF Analog I & Q Outputs
to CH-1 & CH-2 Inputs
of External Digitizer

Thunderbolt 3 Interface for
Capture via Memory or
Streaming Mode

Controller with Dedicated Recording Storage

Downconverter with External Digitizer ADC Operational Rates and Modes										
Operating Receiver Bandwidth Mode	Operating Receiver Bandwidth (MHz)	Operating Receiver Center IF (MHz)	Operating Receiver IF Analog Outputs	Operating Digitizer Analog Inputs	Operating Digitizer Sample Resolution	Operating Digitizer ADC Rate (MS/s)	Operating Transfer Modes Supported	Operating Transfer Data Rate (MB/s)	Streaming Mode Continuous Samples Recording Maximum Duration Time
SHN: Option 1 & Option 2	10	35	I Only	CH-1	16-Bit	100	Memory or Streaming	200	512 GB: 42 m, 40 s 1 TB: 1 h, 23 m, 20 s 2 TB: 2 h, 46 m, 40 s 4 TB: 5 h, 33 m, 20 s
SH: Option 1	40	35	I Only	CH-1	16-Bit	200	Memory or Streaming	400	512 GB: 21 m, 20 s 1 TB: 41 m, 40 s 2 TB: 1 h, 23 m, 20 s 4 TB: 2 h, 46 m, 40 s
SH: Option 2	80	55	I Only	CH-1	16-Bit	250	Memory or Streaming	500	512 GB: 17 m, 04 s 1 TB: 33 m, 20 s 2 TB: 1 h, 06 m, 40 s 4 TB: 2 h, 13 m, 20 s
ZIF: Option 1	100	0	I & Q	CH-1 & CH-2	16-Bit	200	Memory or Streaming	800	512 GB: 10 m, 40 s 1 TB: 20 m, 50 s 2 TB: 41 m, 40 s 4 TB: 1 h, 23 m, 20 s
ZIF: Option 2	160	0	I & Q	CH-1 & CH-2	16-Bit	250	Memory or Streaming	1,000	512 GB: 08 m, 32 s 1 TB: 16 m, 40 s 2 TB: 33 m, 20 s 4 TB: 1 h, 06 m, 40 s

Downconverter Specifications

Tuning and Bandwidth

Input Frequency Range	Model DCA08G: 9 kHz to 8 GHz Model DCA18G: 9 kHz to 18 GHz Model DCA27G: 9 kHz to 27 GHz
Tuning Resolution with Analog IF Outputs	10 Hz
Option 1 Instantaneous Bandwidth Modes (software selectable)	ZIF: 100 MHz @ 0 Hz IF SH: 40 MHz @ 35 MHz IF SHN: 10 MHz @ 35 MHz IF HDR: 0.1 MHz @ 81.66 kHz IF
Option 2 Instantaneous Bandwidth Modes (software selectable)	ZIF: 160 MHz @ 0 Hz IF SH: 80 MHz @ 55 MHz IF SHN: 10 MHz @ 35 MHz IF

Spurious Free Dynamic Range (SFDR)

@ 100 MHz Bandwidth	60 dBc (typical)
@ 10 / 40 MHz Bandwidth	70 dBc (typical)

Frequency Reference

Internal/External	10 MHz
Internal 10 MHz Oscillator Stability	±1 ppm

Amplitude

Accuracy from 50 MHz to 27 GHz, at 25 °C ± 5 °C	± 2.00 dB (typical)
Measurement Range	DANL to max. safe input level
Attenuator Range – 8 GHz Model – 18 or 27 GHz Models	0 to 30 dB in 10 dB steps (at input) 0 to 30 dB in 10 dB steps (IF attenuation)
Max. Safe RF Input Level	+10 dBm, 0 V DC

Third Order Intercept (TOI)

At 1 GHz	+12 dBm (typical)

Pre-Selection Filter Bank

8 GHz Model – DCA08G	9-Channel Switched
18 GHz Model – DCA18G	18-Channel Switched
27 GHz Model – DCA27G	21-Channel Switched

Panel Connectors

RF Input	SMA Female, 50 Ω
10 MHz Reference In & Out	SMA Female, 50 Ω
Analog I and Q Out	SMA Female, 50 Ω
10/100/1000 Ethernet	RJ-45
USB 2.0 Console	Type B Mini
GPIO	25-pin Male D-Subminiature
Coaxial Power	Type A: 5.5 mm OD, 2.5 mm ID

RF PLL Phase Noise at 1 GHz (using internal 10 MHz reference)

Frequency Offset	1 kHz	10 kHz	100 kHz	1 MHz
RF PLL Phase Noise Typical	-92 dBc/Hz	-99 dBc/Hz	-109 dBc/Hz	-118 dBc/Hz

Displayed Average Noise Level (DANL) at 25 °C ± 5 °C

Frequency	8 GHz (typical)	18 GHz (typical)	27 GHz (typical)
100 MHz	-157 dBm/Hz	-161 dBm/Hz	-160 dBm/Hz
500 MHz	-155 dBm/Hz	-160 dBm/Hz	-159 dBm/Hz
1 GHz	-156 dBm/Hz	-160 dBm/Hz	-159 dBm/Hz
2 GHz	-154 dBm/Hz	-154 dBm/Hz	-153 dBm/Hz
3 GHz	-152 dBm/Hz	-158 dBm/Hz	-157 dBm/Hz
4 GHz	-151 dBm/Hz	-162 dBm/Hz	-162 dBm/Hz
5 GHz	-150 dBm/Hz	-158 dBm/Hz	-158 dBm/Hz
6 GHz	-149 dBm/Hz	-157 dBm/Hz	-157 dBm/Hz
7 GHz	-150 dBm/Hz	-153 dBm/Hz	-155 dBm/Hz
8 GHz	-144 dBm/Hz	-160 dBm/Hz	-161 dBm/Hz
9 GHz	N/A	-158 dBm/Hz	-161 dBm/Hz
10 GHz	N/A	-160 dBm/Hz	-161 dBm/Hz
11 GHz	N/A	-156 dBm/Hz	-160 dBm/Hz
12 GHz	N/A	-158 dBm/Hz	-157 dBm/Hz
13 GHz	N/A	-151 dBm/Hz	-157 dBm/Hz
14 GHz	N/A	-154 dBm/Hz	-154 dBm/Hz
15 GHz	N/A	-160 dBm/Hz	-157 dBm/Hz
16 GHz	N/A	-157 dBm/Hz	-157 dBm/Hz
17 GHz	N/A	-150 dBm/Hz	-156 dBm/Hz
18 GHz	N/A	-144 dBm/Hz	-156 dBm/Hz
19 GHz	N/A	N/A	-149 dBm/Hz
20 GHz	N/A	N/A	-154 dBm/Hz
21 GHz	N/A	N/A	-153 dBm/Hz
22 GHz	N/A	N/A	-152 dBm/Hz
23 GHz	N/A	N/A	-153 dBm/Hz
24 GHz	N/A	N/A	-155 dBm/Hz
25 GHz	N/A	N/A	-153 dBm/Hz
26 GHz	N/A	N/A	-150 dBm/Hz
27 GHz	N/A	N/A	-148 dBm/Hz

Physical

Power Supply	Input AC 120V-240V / Output +12V
Power Consumption	19 W (8 GHz) / 25 W (18 & 27 GHz)
Operating Temperature Range	0°C to +50°C / 32° to 122° F
Storage Temperature Range	-40°C to +85°C / -40° to 185° F
Enclosure Dimensions	269 (L) x 173 (W) x 61 (H) mm 10.58 (L) x 6.81 (W) x 2.40 (H) inches
Weight	2.7 kg / 6 lb.

Measurement Controller Base Specifications

Processor	Intel 9th Gen Core i5 9300H, 2.4 GHz 4-Cores / 8-Threads, Max Turbo 4.1 GHz, 8 MB Cache
Memory	Default: 16 GB Total: 2 x 8 GB DDR4 2666 MHz Option: 32 GB Total: 2 x 16 GB DDR4 2666 MHz Option: 64 GB Total: 2 x 32 GB DDR4 2666 MHz Option: 128 GB Total: 4 x 32 GB DDR4 2666 MHz
Operating System	Windows 10 Professional 64-bit
OS Drive	Default: 1 TB SATA-3 SSD (Fully Accessible via Removable Service Panel)
Recording Drive	Default: 512 GB PCIe NVMe M.2 SSD Volume Option: 1 TB PCIe NVMe M.2 SSD Volume Option: 2 TB PCIe NVMe M.2 SSD Volume Option: 4 TB PCIe NVME M.2 SSD Volume (Fully Accessible via Removable Service Panel)
Graphics	Integrated Intel UHD 630
Display	15.6" Diagonal 1920 x 1080 FHD LED UWVA Anti-Glare
Webcam	Integrated HD 720p Triple Microphone
Keyboard	Full Size, Backlit, Spill-Resistant
Trackpad	6-Button Pad with Multi-Touch Gestures & Taps
HD Audio	Dual Stereo Speakers, Dual Array Digital Microphone
LAN	Intel I219-V Gigabit Ethernet
Wi-Fi	Intel Dual Band Wi-Fi 6 AX200 (2x2)
Bluetooth	Intel Bluetooth 5
Left Side Ports & Connectors	Security Cable Slot, RJ-45 Gigabit Ethernet, USB 3.1 Gen1 Type-A Charging, USB 3.1 Gen1 Type-A, SD Media Card Reader
Right Side Ports & Connectors	Smart Card Reader, Stereo Microphone-In / Headphone-Out Combo Jack, USB 3.1 Gen1 Type-A, HDMI 2.0b, 2 x Thunderbolt 3 Type-C (with Pass-Through Support of DisplayPort 1.4, USB 3.1 Gen2, PCIe Gen3 x4), Power Connector
Power	150 W Slim Smart External AC Power Adapter
Battery	Long Life 4-Cell 90 Wh Li-Ion Polymer (Fully Accessible via Removable Service Panel)
Dimensions	Width: 376 mm / 14.8 in. Depth: 264 mm / 10.4 in. Height: 26 mm / 1.0 in.
Weight	2.6 kg / 5.7 lb.

Additional options and configurations are available.

External Thunderbolt 3 Digitizer Base Specifications

Connecting Interface	1 x Thunderbolt 3 Type-C Port
Connecting Cable	1 x Thunderbolt 3 Type-C Cable, 0.5m / 19.68 in. Length
Data Transfer	PCIe Mode up to 4 GB/s Max. (Dependent on Installed Digitizer Card Model)
PCIe Slot	1 x PCIe Gen3 x4 (x16 mechanical), Supports Full-Height Full-Length (320 mm / 12.6 in.) Single or Double Width PCIe Cards, Backwards Compatible with PCIe Gen1 and Gen2 Cards
Integrated Digitizer for use with A-Series Option 1 Bandwidth Downconverters	1 x GaGe Razor Express CSE1622: 16-Bit, 2-CH, 200 MS/s per CH Max., 125 MHz BW, 4 GS (8 GB) Onboard Memory, PCIe Gen2 x8, Connectors: • Channel 1 Input (CH1) : SMA • Channel 2 Input (CH2) : SMA • Trigger In (TI) : SMA • Trigger Out (TO) : SMA • Clock In (CI) : SMA • Clock Out (CO) : SMA
Integrated Digitizer for use with A-Series Option 2 Bandwidth Downconverters	1 x GaGe RazorPlus Express CSE50216: 16-Bit, 2-CH, 500 MS/s per CH Max., 300 MHz BW, 4 GS (8 GB) Onboard Memory, PCIe Gen3 x8, Connectors: • Channel 1 Input (CH1) : SMA • Channel 2 Input (CH2) : SMA • Trigger In (TI) : SMA • Trigger Out (TO) : SMA • Clock In (CI) : SMA • Clock Out (CO) : SMA
Cooling	1 x Internal Bottom Exhaust 120 mm High CFM Case Fan 1 x Internal Bottom Intake Power Supply Fan Side Mesh Panel for Cooling Air Intake/Exhaust
Power	650 W Internal Power Supply Unit
Dimensions	Width: 135 mm / 5.31 in. Depth: 357 mm / 14.06 in. Height: 266 mm / 10.47 in.
Weight	5.44 kg / 12 lb.

Additional options and configurations are available.

ORDERING INFORMATION

Order Part # Key:	#1	–	#2	#3	–	#4	#5	#6	–	#7	#8	#9
Order Part # Example:	UDA	–	08	1	–	A	A	A	–	A	0	0

Select for #1	Base System Series
UDA	Ultra-Portable Downconverter A-Series System

Select for #2	Downconverter RF Input Frequency Coverage
08	9 kHz to 8 GHz	with 9-CH Pre-Select Filter Bank, No Pre-Amplifier
18	9 kHz to 18 GHz	with 18-CH Pre-Select Filter Bank & Pre-Amplifier
27	9 kHz to 27 GHz	with 21-CH Pre-Select Filter Bank & Pre-Amplifier

Select for #3	Downconverter Bandwidth Modes Configuration
1	Option 1: 100 MHz @ 0 Hz IF, 40 MHz @ 35 MHz IF, 10 MHz @ 35 MHz IF, 0.1 MHz @ 81.66 kHz IF
2	Option 2*: 160 MHz @ 0 Hz IF, 80 MHz @ 55 MHz IF, 10 MHz @ 35 MHz IF *Requires Selection for #8 to be set to External (1) Digitizer

Select for #4	Controller System Processor Configuration
A	Intel 9th Gen Core i5 9300H, 2.4 GHz 4-Cores / 8-Threads, Max Turbo 4.1 GHz, 8 MB Cache

Select for #5	Controller System Memory Configuration
A	16 GB Total: 2 x 8 GB DDR4 2666 MHz SO-DIMMs
B	32 GB Total: 2 x 16 GB DDR4 2666 MHz SO-DIMMs
C	64 GB Total: 2 x 32 GB DDR4 2666 MHz SO-DIMMs
D	128 GB Total: 4 x 32 GB DDR4 2666 MHz SO-DIMMs

Select for #6	Controller System OS Drive Configuration
A	1 TB SATA-3 SSD

Select for #7	Controller System Recording Drive Configuration
A	512 GB PCIe NVMe M.2 SSD Volume
B	1 TB PCIe NVMe M.2 SSD Volume
C	2 TB PCIe NVMe M.2 SSD Volume
D	4 TB PCIe NVMe M.2 SSD Volume

Select for #8	Digitizer Configuration
0	Internal: Downconverter 14-bit 125 MS/s ADC & 24-bit 325 kS/s ADC* *24-bit ADC Requires BW Selection for #3 to be set to Option 1 (1)
A	External: Thunderbolt 3 Digitizer Expansion Box

Select for #9	Digitizer External ADC Configuration
0	No External Digitizer* *Requires Digitizer Selection for #8 to be set to Internal (0)
A	GaGe Razor Express CSE1622	16-Bit, 2-CH, 200 MS/s per CH Max. *Requires Digitizer Selection for #8 to be set to External (1)
B	GaGe RazorPlus Express CSE50216	16-Bit, 2-CH, 500 MS/s per CH Max. *Requires Digitizer Selection for #8 to be set to External (1)

WARRANTY

Standard two years parts and labor.

Unless otherwise specified, all dynamic performance specs have been qualified on engineering samples. All specifications are subject to change without notice.

Data Sheet Revision 1 – 06/29/2020

Signatec, GaGe, and KineticSystems are product brands of DynamicSignals LLC, an ISO 9001:2015 Certified Company