CEDAR Giga-tronics

Call (925) 328-4650 or email
inquiries@gigatronics.com

Coherent Electromagnetic Data Analysis and Recording System

COTS Fully Integrated RF Receiver plus Signal Capture, Storage & Analysis System for Comms, Radar and EW System Test & Evaluation

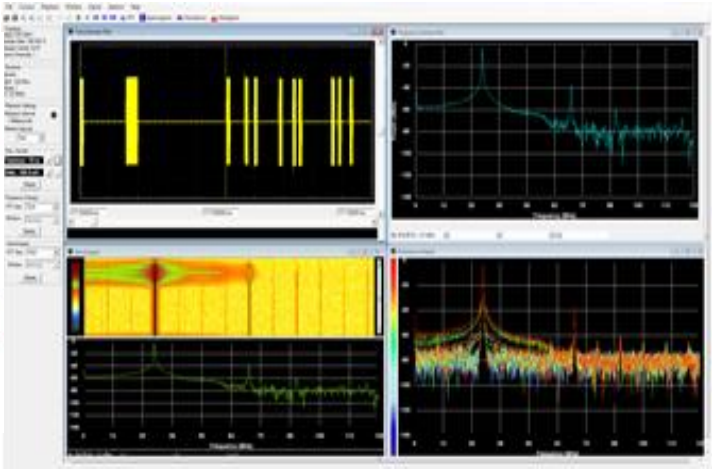
Fully Compatible with the Giga-tronics "RPG" RF Playback & Generation System

AGILE WIDEBAND RF RECEIVER

- RF-to-IF Downconverter w/ 500 MHz-20 GHz Operating Band
- Phase Coherent IF Outputs Across Multiple RF Channels
- Fast Switching < 1µSec (Freq/Phase/Amplitude settling)
- 1 GHz RF & IF Instantaneous Bandwidth
- 0-60dB Gain Control/Dynamic Range
- Superior Phase Noise and Noise Figure

REAL-TIME STREAMING DIGITIZED DATA STORAGE, ANALYSIS, PLAYBACK

- 6 GSpS 12-Bit ADC w/ selectable full-scale input voltage range, superior ENOB
- Approx. 96dB total selectable Dynamic Range and 1.75GHz Instantaneous Bandwidth
- Multiple Parallel Phase Coherent and Time Synchronous Data Channels
- 4.8 GBytes/Sec Streaming Storage Bandwidth/Channel (5.5GB/S custom config avail)
- 24 to 192 TB Solid State Drive RAID Array (192 TB = 12+ hours continuous capture)
- Captured Signal Digital Playback Capability (real time to slower user-selectable rates)
- Both Continuous Streaming (gapless) and Snapshot Modes of Operation
- Inline DSP for Real Time Analysis and Display of Signal Parameters in both Time and Frequency Domains



POST RUN / MISSION DATA ANALYSIS

- Turnkey Software Utility with Graphical User Interface
- Received Waveform Pulse Parameter PDW Extraction/Storage SW Utility Available

COTS and Custom Configurations Available

- Standard Item COTS configs for 1 to 4 Channels
- 2U or 4U height 19" width rack mount configs
- Custom configs for 5 to 16 Channels available – contact Us

Giga-tronics

Solutions for Next Gen EW / Radar Test & Deployment

https://www.gigatronics.com/

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Coherent Electromagnetic Data Analysis and Recording System

"RF Guru": Optional Advanced Received Signal Analysis Software Utility

For Both Time and Frequency Domains

RF Signal Received Pulse Parameter (RPP) Analysis with Pulse Descriptor Word (PDW) Extraction & Storage Software

Captured RF Signal Characterizations/IDs - Parameters and Limits:

- **Continuous Wave (CW)**
  - Center Frequency (Fctr)
  - Power/Amplitude (dBm, Vpk-pk)
- **Pulsed CW**
  - Center Frequency (Fctr)
  - Pulsewidth (PW)
  - Period/Pulse Repetition Interval (PRI)
  - Frequency/Pulse Repetition Frequency (PRF)
  - Duty Cycle
  - Rise Time/Fall Time
  - Power/Amplitude (dBm, Vpk-pk)
  - Received Time (IRIG time)
- **Noise**
  - Continuous/Pulsed/Spot/Blinking
  - Type: Barrage, Gaussian, Swept, etc
  - PW, PRI, PRF, Received Time, etc
  - Center Frequency (Fctr)
  - Noise Bandwidth
  - Average Power/Amplitude (dBm, Vpk-pk)

Parameter Limits (all signals):

- ***Frequency Coverage (RF Rcvr): 500MHz-18GHz***
- ***Timing Resolution: 0.2nSec***
- ***RF Instantaneous Bandwidth (IBW): 1.0GHz***
- ***IF Instantaneous Bandwidth (IBW): 1.75GHz***
- ***Resolution Bandwidth (displays): 500Hz***
- ***Frequency/Doppler Resolution: User-Controlled Sample Rate & FFT Size***

Modulation On Pulse (MOP) Type:

- **Frequency Modulation (FM)**
  - *Linear FM "Chirp"*
    - Start Freq (Fstart), Stop Freq (Fstop)
    - Center Freq (Fctr)
    - Chirp Bandwidth (BW = Fstop - Fstart)
    - Chirp Rate (MHz/µS)
    - PW, PRI, PRF, Amplitude, Received Time, etc
  - *Non-Linear FM "Chirp"*
    - Parabolic Sweep Rate
    - Exponential Sweep Rate
    - Start Freq, Stop Freq, Fctr, BW
    - PW, PRI, PRF, Amplitude, Received Time, etc
- **Phase Modulation (PM)**
  - *Binary-Phase Shift Keying (BPSK)*
    - Center Freq (Fctr)
    - Phase Shift Period/Chip Interval, Rate (µS, MHz)
    - # of Shifts ("Code Length")
    - BPSK Code Content (Decoded Bit-by-Bit 0°/180° Phase Controls)
    - PW, PRI, PRF, Received Time, etc
  - *Quadrature Phase Shift Keying (QPSK)*
    - Same Parameters as BPSK (incl all Decoded Phase Controls)
  - *Poly-Phase Shift Keying (PPSK)*
    - Same Parameters as QPSK
- **Amplitude Modulation (AM)**
  - Type (Single Sideband, Double Sideband, Quadrature-QAM, etc)
  - Modulation Index (%)

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