

High Dynamic Range Data Logger and Analyzer

(DLA-01-07/02-09)

High Dynamic Range Data Logger and Analyzer (DLA-01-07) uses 24 bit high performance ADCs operating at speeds of up to 500 KSPS. DLA-02-09 allows a sampling rate up to 2.5 MSPS. It provides direct spurious free dynamic range (SFDR) of greater than 110 dB. The effective dynamic range for narrow band signals can be much larger depending on the signal processing parameters.

The unit is available in rack-mountable or table top enclosures and can have 2 to 12 independent sampling channels. All the channels are time synchronized; although the sampling rates can be varied from one channel to the next. All the outputs are logged in a removable hard-disk (or flash card) inside the enclosure. The data can also be remotely logged through the Ethernet.

The unit has self-test and self-diagnosis capability and can be invoked from remote terminals. These units are made for continuous ruggedized operation in remote locations and are powered by 115/220 V AC or 24 V batteries (optional).

Besides logging of the raw data samples, the units are equipped with initial online analysis common for many data products. Typically, they utilize I&Q generation, matched filtering, decimation, digital filtering, spectral analysis, time series histogram, and correlation. The schematic based analysis tool IMPULSE™ can be used to develop additional analysis if necessary. Visualization tools available with IMPULSE™ can be used either locally or remotely. The units may also provide additional digital I/Os and signal generation capability (optional).

These high performance data loggers and analyzers are ideal for relatively low frequency signals (bandwidth less than 200 KHz) and outperforms any other data logger in this range.

Some applications include:

- Low frequency electromagnetic signals, LF, VLF, ELF, whistler, lightning, LF sounding
- Electric and Magnetic fields

⊕ Magnetotellurics, geomagnetism, electric field, meters, induction coil and fluxgate, magnetometers, E and H field surveillance, magnetic sounding

- Sonic and subsonic fields

⊕ High performance audio and ultra sound, seismic field, acoustic sounding, non destructive testing

SPECIFICATIONS

- No. of channels: 2, 4, 8
- Bit Depth/channel: 24 bits
- Sampling rate/channel: 500 KSPS; up to 2.5 MBPS
- SFDR/channel: 110 dB (direct, instantaneous)
- Input Voltage Range: ± 1 V
- Input Configuration: Differential or single ended
- Signal Processing:
 - ⊕ Matched Filtering: user selectable
 - ⊕ Decimation: user selectable
 - ⊕ Digital Filtering: user selectable (1 Hz to 250 KHz; 1 MHz)
 - ⊕ Spectral Analysis: up to 4096 points after decimation
 - ⊕ Time series histogram: up to 4096 points
 - ⊕ Correlation: both auto and cross-correlation between different channels
 - ⊕ Several other modules using C++
- Logging:
 - ⊕ Both Local and Remote
 - ⊕ Both Raw Data and Processed Data
- Remote Control and Operation: TCP/IP Ethernet
- Power: 115/230 V or 24 V battery
- Operating Temperature: -20 C to +55 C
- Humidity: 95% non condensing
- Altitude: 3,000 m