

FEATURES

- 24-bit delta sigma ADC's
- 1 or 3 channels
- Field upgradable

The DB-24 is a low-power analog-to-digital converter system designed to process high quality data in borehole installations. The DB-24 is ideally suited for seismic monitoring or general purpose data acquisition at permanent borehole remote locations where data is transmitted back to a central data collection site in real time. The DB-24 auto-detects installed hardware at power up, performs diagnostics and provides state-of-health information. A GPS receiver can be used to synchronize data samples to UTC. Utility software is provided for system setup and data retrieval, and real-time display, either locally or remotely. FLASH and FPGA technology is used to allow for easy field upgrades to the operating firmware. Optionally, data blocks are authenticated utilizing a Fortezza card inside the housing.

BOREHOLE DIGITIZER

MODEL DB-24



BOREHOLE DIGITIZER MODEL DB-24 SPECIFICATIONS

DATA ACQUISITION

Number of inputs	1 or 3 channels
Input type	Balanced differential with transient protection suitable for both passive and active sensors
Input range	40 volts p-p bipolar differential, software controlled input impedance
Gain	User selectable 1 to 256
Common mode rejection	Greater than 80 dB
Digitizer	Over sampled 24-bit Delta Sigma ADC with digital signal processing, 1 per channel
Anti-alias filter	Brickwall digital FIR filter, cutoff at 80% of and 130 dB down at output Nyquist
Dynamic range	130 dB at 40 sps typical
Intermodulation distortion	Less than -100 dB
Sample rates	1, 4, 10, 20, 40, 50, 60, 80, 100, 120, 200, 240 sps
Noise	3.95 microvolts RMS typical at 40 sps, x1 gain
Calibration	Calibration module provides pulse, sine wave, pseudo-random wide band noise, and step functions

POWER

Input	24 Vdc nominal (19 to 32Vdc)
Power consumption	4 watts average (1 channel) 5 watts average (3 channels)

TIMING

Type	Voltage controlled TCXO with optional external GPS synchronization
Accuracy	± 5 microseconds of UTC with GPS lock
Stability (unlocked)	0.5 ppm
GPS duty cycle	User programmable GPS power on/off cycle times to conserve power

INTERFACES

Communications	One RS-232 serial port with full modem control interface (up to 115.2 Kbaud, asynchronous or synchronous) for data telemetry (modem, radio, etc.) One RS-232 for local user interface (up to 115.2 Kbaud)
GPS	Dedicated RS-232 serial port for GPS interface
Power	Main power input
Analog	Up to 3 sensor input channels
Other I/O	Auxiliary state-of-health analog input, 1 PPS in/out

PHYSICAL

Construction	Rugged aluminum housing with O ring seals
Size	Diameter 3.5 in (88.9 mm) Length 27.0 in (68.6 cm)
Weight	6 lbs (2.73 kg)
Operating temperature	-20°C to +65°C
Humidity	0 to 100%