



The eentec DR4050 ver. P is the latest version the rugged, *ultra low power, high-performance, versatile 24-bit seismic recorder line*. It is designed for the most demanding requirements in high performance seismic or strong motion research.

This state-of-the art seismic standard recorder features up to 12 external sensor inputs. Options include an internal accelerometer, a higher dynamic range internal accelerometer with 24-bit resolution or an external 24-bit triaxial sensor input with or without an internal standard accelerometer. Each channel has a high resolution ADC that ensures no channel to channel skew in any configuration, and a very low-power, high-performance 32 bit RISC that controls the data acquisition, real-time digitization and filtration. The standard unit is suitable for building and structural monitoring (optional internal high-resolution accelerometer available). The external 3-channel sensor input can be ordered with the internal accelerometer and be used with a broadband seismometer (EP or SP series), rotational seismometer (R-1), 6DOF sensor (R1-A3) or EA accelerometers

The powerful, full-featured single-board system is easy to use, install, and maintain. It is lightweight and robust for field deployment. It includes software for waveform analysis and manipulation.

Its full-featured communication capabilities such as VSAT, ADSL, and some radios allows easy configuration for telemetry networks. GSM, GPRS, CDMA, and PSTN communications are also supported. The included GPS can act as a network timeserver for synchronizing other NTPv4 enabled timing critical systems, or the unit can use an external NTP timeserver.

Other options include a serial port, modem, and external battery pack with charger.

DR4050 P SPECIFICATIONS:

INPUT CHANNELS

Type:	Differential
Data Channels:	6 external (optional to 12)
Resolution:	High resolution 24-bit ADC.
External Sensor Gain:	Software programmable: 1, 2, 4, 8, 16, 24, 32
Differential Input	±10V differential
Overvoltage Protection	500W per 10/10000us, steady state power dissipation 5W, surge current up to 40A.
Input Impedance	Data inputs 1M Ω
Dynamic Range: (rms to peak)	143 dB @ 100 sps, 130dB @ 2,000 sps

DIGITIZER

Type:	24-bit delta-sigma converter on each optional channel
Sampling Rates:	10, 20, 25, 50, 100, 200, 500, 1,000, and 2,000 sps
Digital Filter:	Permanent digital 5 th order sinc filter, at 100sps: DC to 44.2Hz, optional FIR filter, at 100sps: -3dB at 40.5Hz, -120dB attenuation
Phase	Linear within the passband
Channel to Channel Skew	None
Processor	ARM processor with 16 Mb SDRAM

TIMING SYSTEM

Type:	GPS
Maximum Accuracy (Software Selectable):	10 micro seconds
Crystal Oscillator	TCXO 1 ppm/year
Crystal Frequency Correction Resolution	0.016 ppm
Internal Battery Backup Clock	-100 to 10 ppm
GPS Receiver (integral with antenna):	Miniature; external; connects via a std 5m cable

TRIGGERING

Type:	STA/LTA, Level
Recording	Triggered and/or continuous up to 10 different processes
Pre-event/ Post-event shared buffer	1,000 seconds split anyway between pre-event and post-event
Calibration	IV step or sine wave
Calibration Duration	User selectable

Specifications subject to change without notice

1100 Forest Ave., Kirkwood, MO 63122

Telephone: 314-984-8282 Fax: 314-984-8292

e-mail: sales@eentec.com web-site: www.eentec.com

DR4050 SPECIFICATIONS (Con't):

POWER	
Voltage:	7 – 18 Vdc
Power Consumption	250mA at 12V
USER INTERFACE	
Display Type:	Internal LED std, optional LCD
User Control:	Menu-driven; state-of-health messaging
Setup	RJ45 plug on the plug panel to connect computer (via x-over cable) or to an Ethernet network
Main GUI	Any common web browser (MS Explorer, Firefox, Safari)
Console	Any common VT100 emulator (Hyper Terminal)
Data Transfer (remote)	Any common FTP client
Data Retrieval (local)	Copying removable USB card to PC using a USB reader, or via FTP
MASS STORAGE	
Compact flash memory card	Removable 4Gb std, up to 128Gb optional
File Compatibility:	Any PC
Data format	PC-SUDS
REMOTE COMMUNICATION	
Interface	Via web browser or Telenet over Ethernet or PPP
Data Transfer	Using HTTP or FTP
Compatibility	VSAT links, GSM and CDMA modems, spread spectrum radios links, and others
ENVIRONMENTAL PARAMETERS	
Housing	Reinforced Plastic
Waterproofing	IP67
Operating Temperature Range	-10 to +65°C
Humidity	100% RH
Size	260 x 230 x 130mm
Weight	2Kg

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DR4050 SPECIFICATIONS (Con't):

CONNECTORS: EXTERNAL, WATERPROOF

Power	2-pin Circular (bayonet)
External Sensor	19 pin Circular (bayonet)
Ethernet	RJ-45 10/100Mbit port for connection to PC, LAN, VSAT, Ethernet radio, etc.
Serial Port (OPTIONAL)	8-pin Circular (bayonet) RS-232 Port for GSM and CDMA modems,
GPS	SMA Circular, 5m cable, extensions optional

CONNECTORS: INTERNAL

Terminal Interface	DB-9 terminal interface mainly for factory use.
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DR4050 STANDARD ANALYSIS SOFTWARE

eqWave	Waveform analysis and manipulation. Operates under Windows, Unix, Linux, and MacOS
Functions	Reads and displays data files, zooming and scaling, bandpass filtering (3 custom bands for quick filtering), and arrival picking plus many other features.

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