APPENDIX G: INSTRUMENT SPECIFICATIONS

REF TEK – 130 QUANTEC REV 2 DATA ACQUISITION SYSTEM

SPECIFICATIONS:

REVISION: QUANTEC REV. 2

Specification	Description
Mechanical - DAS	
Size:	5.3" (135mm) high x 7.3" (185mm) wide x 13.5" (343mm) long
Weight:	4.5 lbs (2 kg)
Watertight Integrity:	IP 67
Shock:	Survives a 1 meter drop on any axis
Operating Temperature:	-20°C to +60°C
Connectors	
Channel Input:	PTO7A14-19S (2 each for 6-Channel DAS)
Power:	PTO7A12-4S
NET:	PTO7A14-19P
Serial:	PTO7A12-10P
GPS Antenna:	PTO7A12-8S
Power	
Input Voltage:	10 to 16 VDC
Average Power:	~3 W (3 ch., no communications)
	~3.4 W (3 ch., with communications)
	~4 W (6 ch., no communications)
	~4.4 W (6 ch., with communications)
Communications	
NET Connector:	

Specification	Description
Ethernet:	10-BaseT, TCP/IP, UDP/IP, FTP, RTP
Serial:	Asynchronous, RS-232 , PPP, TCP/IP, UDP/IP, FTP, RTP
Serial Connector:	
Terminal:	Asynchronous, RS-232 , 130 Command
A/D Converter	
Type:	Δ–Σ modulation, 256 KHz base rate, 24-bit output resolution
Channels:	6
Input Impedance:	Filter A: 100 Mohms, 0.002 μFd, differential B: 100 Mohms, 0.002 μFd, differential C: 100 Mohms, 0.002 μFd, differential D: 100 Mohms, 0.002 μFd, differential
Common Mode Rejection:	Greater than 70 dB within +/-2.5VDC
Sensor Input Signal Range:	Gain / Input Full Scale (volts) / Bit Weight (Actual / Reported) 1 / +/- 10 V / 1.907μV / 62.50mV 4 / +/- 2.5 V / 476.8nV / 15.63mV 16 / +/- 625 mV / 119.2nV / 3.906mV 64 / +/- 156 mV / 29.80nV / 976.6μV 256 / +/- 39 mV / 7.45nV / 244.1μV
Noise Level:	~1 count RMS at 50 sps @x1
Sample Rates:	1000, 500, 250, 200, 125, 100, 50, 40, 25, 20, 10, 5, 1 sps
Time Base	
Type:	GPS Receiver/Clock plus a disciplined oscillator
Accuracy with GPS:	+/- 100 μsec after validated 3-D fix and locked
Free-Running Accuracy:	0.1 ppm over the temperature range of 0°C to 40°C, and 0.2 ppm from -20°C to 0°C
Recording Modes	
Continuous:	Record length
Recording Capacity	
Battery Backed SRAM:	5 Mbytes
Removable Storage:	up to 8 GB with two CF type II cards
Recording Format	
Format:	PASSCAL Recording Format
Compliance	CE

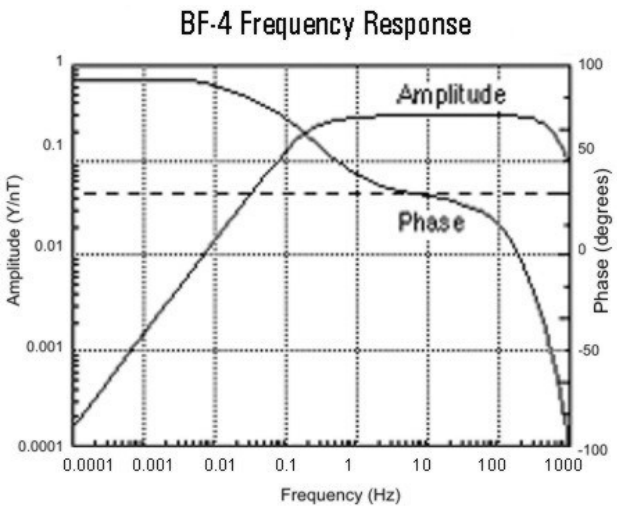
EMI – ELECTROMAGNETIC INSTRUMENTS INC

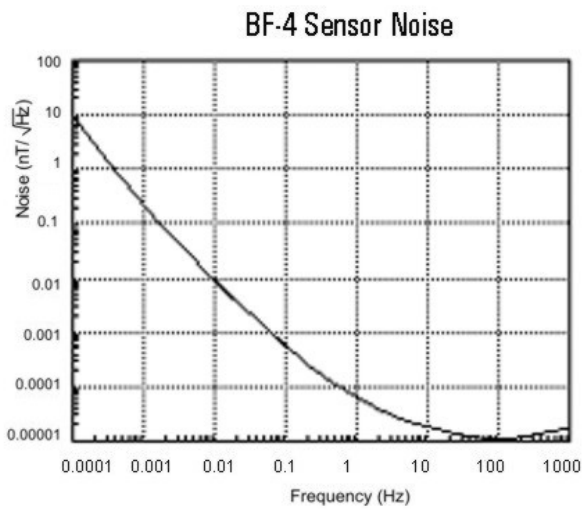
BF-4 Series Magnetic Sensors

SPECIFICATIONS:

BF-4 Magnetic Field Induction Sensor

The BF-4 sensor utilizes a magnetic feedback design to provide a stable flat response over several decades of frequency. The sensors respond as a B field detector over the flat band regions. Both the amplitude and phase responses are highly stable with variations of less than 0.1dB in amplitude and +/- one degree in phase between sensors. For the frequencies below the flat response region, the sensor response is proportional to signal frequency so that the sensor acts as a dB/dt detector. The coil is potted with epoxy and housed inside a rugged impact-resistant Nema G-10 fiberglass tube. A matched low noise preamplifier is connected to the coil in a waterproof case and powered by an external +/- 12V power supply.





Features

- High sensitivity
- Very low noise
- Magnetic feedback design
- Chopper stabilized amplifier for best low frequency performance
- Ruggedized and waterproof
- Light weight and compact
- Low power consumption
- Stable phase response

Applications

- Magnetotellurics
- Audiomagnetotellurics
- Controlled-source electromagnetics
- Magnetometric resistivity

Technical Specifications

Performance

- Frequency Range: 0.0001 to 1000 Hz
- 3 dB frequency corners: 0.2 Hz, 500 kHz
- Sensitivity (flat region): 0.3 V/nT (standard)
- Power consumption: 12mA at +/-12V

Physical

- Housing: Nema G-10 straight tube
- Length: 142 cm (56 inches)
- Diameter: 6 cm (2.4 inches)
- Weight: 7 kg (15 lbs)
- Connector: 8-pin Tajimi

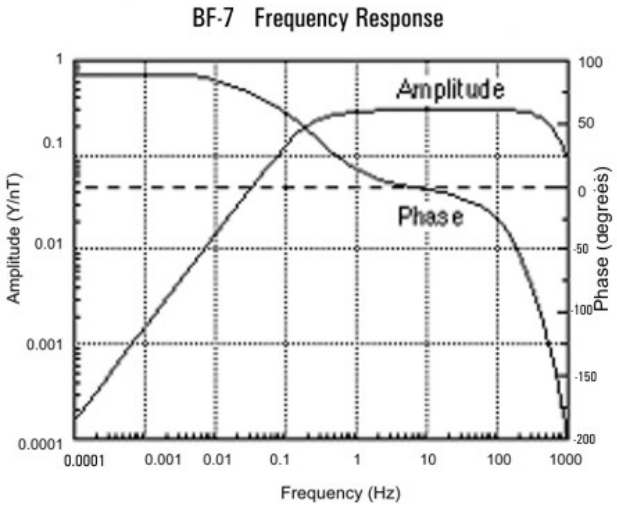
EMI – ELECTROMAGNETIC INSTRUMENTS INC

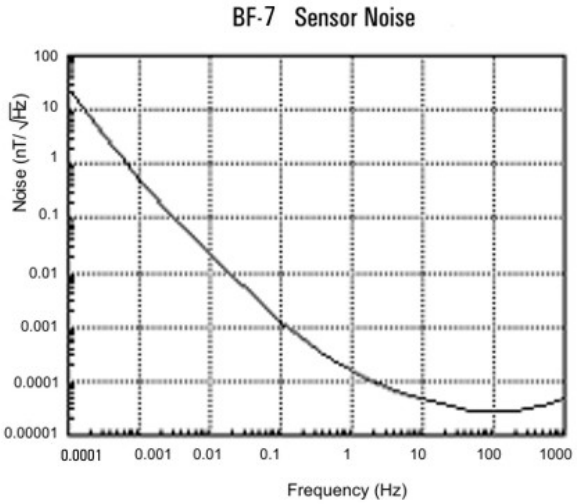
BF-7 Series Magnetic Sensors

SPECIFICATIONS:

BF-7 Magnetic Field Induction Sensor

The BF-7 sensor utilizes a magnetic feedback design to provide a stable flat response over several decades of frequency. The sensors respond as a B field detector over the flat band regions. Both the amplitude and phase responses are highly stable with variations of less than 0.1dB in amplitude and +/- one degree in phase between sensors. For the frequencies below the flat response region, the sensor response is proportional to signal frequency so that the sensor acts as a dB/dt detector. The coil is potted with epoxy and housed inside a rugged impact-resistant Nema G-10 fiberglass tube. A matched low noise preamplifier is connected to the coil in a waterproof case and powered by an external +/- 12V power supply. The BF-7 sensor is designed for monitoring vertical field applications.





Features

- High sensitivity
- Very low noise
- Magnetic feedback design
- Chopper stabilized amplifier for best low frequency performance
- Ruggedized and waterproof
- Light weight and compact
- Low power consumption (290 mW)
- Stable phase response

Applications

- Magnetotellurics
- Audiomagnetotellurics
- Controlled-source electromagnetics
- Magnetometric resistivity

Technical Specifications

Performance

- Frequency Range: 0.0001 to 1000Hz
- 3 dB frequency corners: 0.2 Hz, 500kHz
- Sensitivity (flat region): 0.3 V/nT (standard)
- Power consumption: 12mA at +/-12V

Physical

- Housing: Nema G-10
- Length: 104 cm (41 inches)
- Diameter: 6 cm (2.4 inches)
- Weight: 7 kg (15 lbs)
- Connector: 8-pin Tajimi

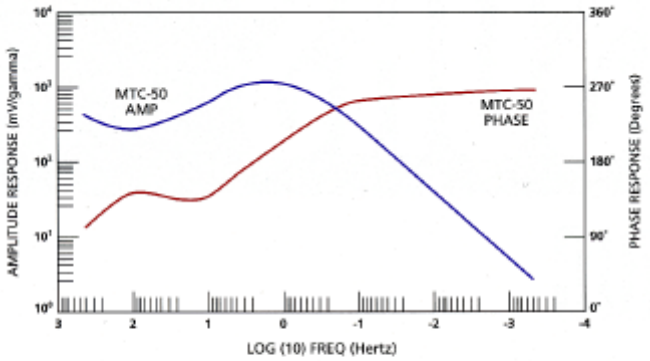
PHOENIX GEOPHYSICS LTD

MTC 50 (P50) Serie Magnetic Sensors

SPECIFICATIONS:

MTC-50 magnetic sensor coils weigh just over 10 kg, and measure only 141 cm. They provide magnetotelluric data at frequencies between 400 Hz to 0.0002 Hz.

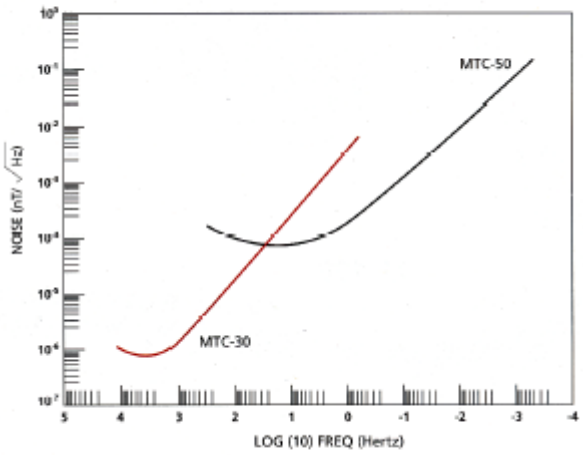
AMPLITUDE AND PHASE RESPONSE MTC-50 SENSOR



Coil model MTC-50

Overall Length	141 cm
Outside Diameter	6.0 cm
Weight	10.5 kg
Frequency Range (for MT)	400 Hz to 0.00002 Hz

TYPICAL SPECTRAL PLOT OF SENSOR NOISE



Technical Specifications

- Overall Length : 141 cm
- Outside Diameter : 6.0 cm
- Weight : 10.5 kg
- Frequency Range (for MT) : 400 Hz to 0.00002 Hz