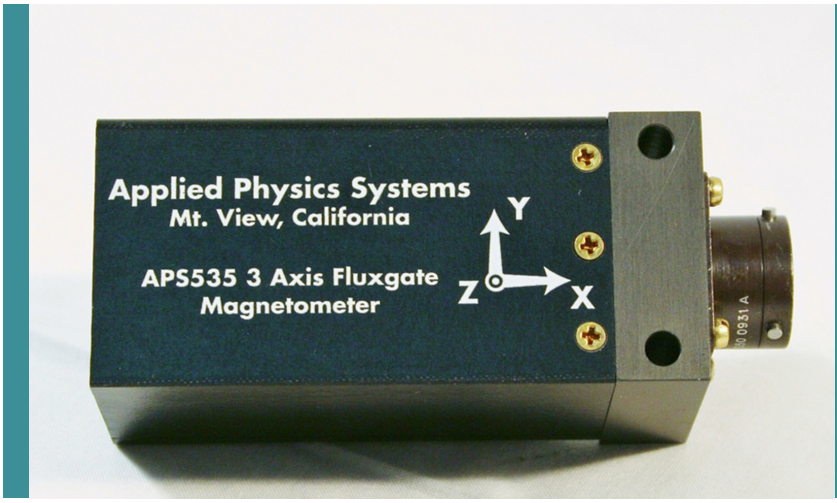
MODEL 535
MAGNETOMETER SENSOR

FEATURES

- Complete 3-axis system
- Operates from ± 15 VDC
- Low noise level
- Measures up to 5 Gauss
- Optional active monitor assures system operating fitness

APPLICATIONS

- Fluxgate compass systems
- Magnetic fuses
- Measurement of magnetic signatures and magnetic fields generated by power lines



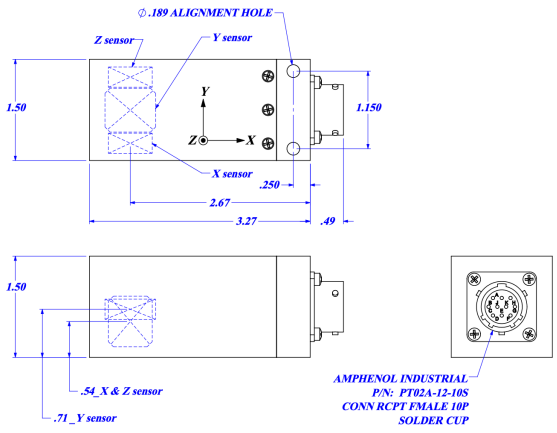
With its low noise and small size, the Model 535 is ideal for measuring magnetic fields up to 5 Gauss.

The Model 535 is powered from bipolar ±15 VDC supplies. Two internal regulators are present in the 535, which produce ±12 VDC for internal use.

Output from the sensor is 3 analog voltages, proportional to the magnetic field in three orthogonal directions. Full scale output is ±10 volts, which represents a magnetic field of ±5 Gauss.

The Model 535 system employs an optional active failure recognition system to detect when any of the three fluxgate sensors stops performing properly. The failure system functions by applying a low level magnetic signal (500 Hz) to each fluxgate sensor and then detecting the presence of the signal in each of the fluxgate output channels. The failure output is present on pin A of the Model 535 connector. This output is at a TTL high level when the fluxgate sensors are operating properly. This output goes to TTL low when any of the 3 fluxgate sensors fail. This feature is useful for applications such as magnetic guidance systems where correct operation of the sensors is critical.

For sensor alignment, the X axis is aligned parallel to the package long dimension. The Z axis is aligned with the two through holes in the aluminum connector mounts. The system Y axis is orthogonal to the X and Z directions. The system coordinate system is right handed. The output polarity sense of the axes is such that a field increase in the direction of the arrows produces an increase in the voltage output for that axis. In general, the magnetic axis of the 535 systems will be orthogonal and aligned to within ±0.2° of the right- handed coordinate system specified by the outer package alignment surface and alignment holes.



APPLIED PHYSICS
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ELECTRICAL

Power Input	±15 V
Power consumption	+55 mA at 15 V -43 mA at -15 V
Initial Offset	<± 0.020 V
Active Failure Tone	0.05 Gauss @ 1000Hz - the failure tone can be observed in the output of each channel as a 500 Hz 10 millivolt amplitude signal
Failure Tone Output	TTL high on pin A for OK

ENVIRONMENTAL

Operating Temperature Range	-25°C to +70°C
Storage Temperature Range	-55°C to +160°C

PERFORMANCE

Dynamic range	± $5.0x10^5$ nT (5.0 Gauss)
Noise Level	0.3 nT RMS/√Hz 3 µG RMS/√Hz
Sensitivity	2 V/G
Linearity @ full-scale	± 0.2%
Frequency Response	DC to 400 Hz (-3 db)
Temp. Coefficient Zero Output	<± 5 nT/°C (<± 50 µG /°C)
Temperature Scale Factor	<± 0.1% Full Scale/°C
Temperature Sensor Scale Factor	5 mv/ °K
Orthogonality of Axes	± 0.2°
Alignment of Axes with Package	± 0.2°

PHYSICAL

Width/Height	1.5" (38.1 mm)
Length (excluding connector)	3.275" (83.185 mm)
Weight	138 g
Connector	Bendix P/N PT02A-12-10S
Mating Connector	Bendix P/N PT02A-12-10S

WIRE COLOR	FUNCTION	PIN
RED	+15 VDC	H
BLUE	-15 VDC	K
GREEN	Failure tone (opt.)	A
ORANGE/WHITE	Y output	D
YELLOW/WHITE	Z output	F
RED/WHITE	X output	E
BLACK	Ground	B, G

Specifications are subject to change without notice.