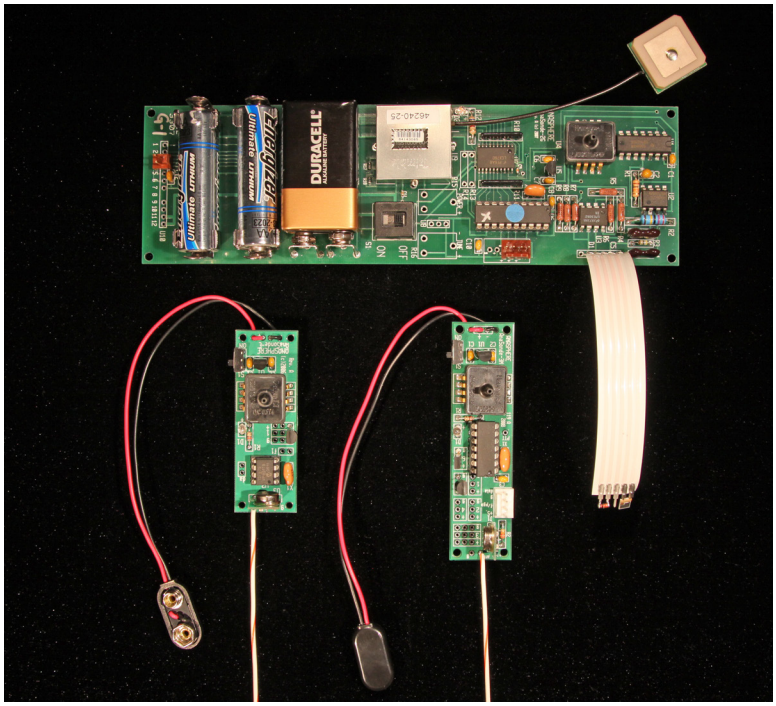
anasphere

Analytical and Atmospheric Instrumentation

AnaSonde Comparison

The AnaSonde-3M and the AnaSonde-E have been developed as a user-friendly and low cost method for gathering scientific measurements. They are ideal for introductory students to atmospheric structure and measurements.

The AnaSonde-2 family includes Anasphere's research-grade radiosondes, and also forms the basis for many custom radiosonde designs. The AnaSonde-2 radiosondes (in contrast to our educational AnaSonde-1 and –3 versions) feature high-speed, research-grade temperature and humidity sensors which are individually calibrated, pressure sensors which may be individually calibrated as applications dictate, and an option for a GPS receiver for wind measurements.



Top: AnaSonde-2G Bottom (L to R): AnaSonde-E and -3M

AnaSonde Model Chart

Model	Number of Analog Channels	Measurement Precision (pressure, temperature, humidity)	Sensor Accuracy	Number of Frequency Inputs	Transmitter Modulation	Other Features
AnaSonde-E	2[a]	±1mb, ±1˚C, ±1%RH	†	1	AM	
AnaSonde-3M	7[a]	±1mb, ±1˚C, ±1%RH	†	1	AM	user-reconfigurable
AnaSonde-2A	5[b]	±1mb, ±0.01˚C, ±0.01%RH	††	0[c]	[d]	
AnaSonde-2G	3[b]	±1mb, ±0.01˚C, ±0.01%RH	††	0[c]	[d]	GPS-based wind data

[a] Channel count includes basic pressure, temperature and humidity sensor
[b] Channel count is extra channels above and beyond basic pressure, temperature and humidity
[c] Standard configuration; frequencies can replace analog inputs
[d] Transmitter customized for users - options include spread spectrum modem or 403 MHz FM
† Sensors use manufacturer's calibration from part data sheet; AnaSonde-3M can be custom calibrated by the user
†† Sensors are individually calibrated with NIST-traaceable instruments

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Additional Specifications:

Sensor Options:
Pressure, temperature and humidity sensors are offered as standard options. The analog channels may also be used with off-board sensors (0-5 volt DC signals are accepted) or with resistive sensors such as CdS photoresistors in a voltage-divider configuration. The frequency inputs accept a 5-volt square wave.

Data Format:
Digital data is processed into plain text measurements for transmission to the ground as Morse code. To comply with FCC regulations for transmissions in the amateur radio band, the operator's call sign is periodically transmitted in Morse code. The use of Morse code for telemetry is unique among today's radiosondes and leads to the results that users can decode their telemetry by ear, as well as presenting a unique learning opportunity for students.

Data Transmission:
Presently, all AnaSondes operate in the 70-cm amateur radio band and an amateur radio license is required to use them. The AM transmitters have nominal power outputs of 10 milliwatts.

Receiver Systems:
The typical receiver steup recommended by Anasphere is an amateur radio receiver paired with a directional antenna such as a Yagi. The receiver should be capable of AM reception in the 70-cm band to ensure compatibility with all AnaSonde models. The receiver combination most often used at Anasphere is a Yaesu VR-120D receiver coupled with a Cushcraft A430-11S Yagi antenna. The complete receiver kit including these components are the cables are available from Anasphere.
The balance of the receiving system can be as simple as your ear, a pencil and paper. Yes, users with Morse code skills can receive telemetry by ear. Alternatively, a shareware program can be downloaded to decode the transmissions. A companion piece of software developed by Anasphere allows the user to seamlessy process the data as it is received.

About Anasphere:
Anasphere was founded in 2002 to pursue the development of miniature instruments for atmospheric research. Trace gas sensors and meteorological sensor systems are major areas of company activity. Many of Anasphere's sensors are designed for use on sounding balloons and small UAVs.
Anasphere's customers include the federal government, the private sector and educational institutions. Revenues come from a combination of R & D and instrument sales.