



iMet-4-AB Radiosonde

403 MHz GPS Synoptic Technical Data Sheet

Temperature and Humidity

The iMet-4-AB's air temperature is measured by a small glass bead thermistor. Its small size minimizes effects caused by solar and infra-red radiation and ensures fast response times.

The humidity sensor is a thin film capacitive polymer that responds directly to relative humidity. The sensor incorporates a temperature sensor to minimize errors caused by solar heating.

Pressure and Height

The iMet-4-AB is equipped with a pressure sensor for use in locations where a calibrated barometer is not available to establish an accurate ground observation for GPS-derived pressure. The sensor is bias adjusted at ground level and used in the lower levels of the atmosphere to calculate height.

Once the radiosonde reaches the optimal height, pressure is derived using GPS altitude combined with temperature and humidity data.

Wind Data

GPS data from the radiosonde is used to calculate wind speed and direction.

Radiosonde Transmission

The iMet-4-AB radiosonde can transmit to an effective range of over 250 km*.

A 6 kHz narrow-band transmission maximizes efficiency and makes more channels available for operational use. Four frequency selections are pre-programmed - with custom programming available.

Calibration

The iMet-4-AB's temperature and humidity sensors are calibrated using NIST traceable references to yield the highest data quality.

Benefits

- Superior PTU performance
- Simple and compact design
- Light weight
- No assembly required
- GRUAN qualified (pending)
- Status LED indicates the frequency selection and 3-D GPS solution

* Subject to ground station, balloon size and atmospheric conditions

¹ All uncertainties expressed at a 95% confidence level

² Primary atmospheric pressure derived by GPS altitude
Specifications subject to change without notice



iMet-4-AB Radiosonde

MEASUREMENTS			
Measurement cycle	1-4 Hz	GEOPOTENTIAL HEIGHT	Pressure derived
		Measurement range	SFC to 40 km
		Resolution	0.1 m
TEMPERATURE SENSORS	Glass Bead	Accuracy	
Manufacturer	Shibaura	Combined Uncertainty/Reproducibility ¹	
Measurement range	+60°C to -90°C	1080 - 500 hPa	30 m / 20 m
Resolution	0.01°C	500 - 10 hPa	200 m / 150 m
Response time in still air	2 seconds	< 10 hPa	400 m / 300 m
Accuracy			
Repeatability in Calibration	0.2 C	GEOPOTENTIAL HEIGHT	GPS derived
Combined Uncertainty/Reproducibility ¹		Measurement range	SFC to 40 km
> 100 mb	0.5 C / 0.3 C	Resolution	0.1 m
< 100 mb	1.25 C / 1.0 C	Accuracy	
Night flight	0.3 C / 0.3 C	Combined Uncertainty/Reproducibility ¹	
Solar correction	≤ 1.2 C	1080 - 400 mb	30 m / 10 m
		400 - 3 mb	60 m / 20 m
HUMIDITY SENSOR	Capacitive Polymer		
Manufacturer	IST	WIND SPEED AND DIRECTION	
Measurement range	0-100 % RH	Resolution	0.1 m/s / 1 degree
Resolution	0.1%	Accuracy	
Response time		<i>Speed</i>	
@ 25C	1.3 seconds	Combined Uncertainty/Reproducibility ¹	0.5 / 0.25 m/s
@ -10C	22 seconds	<i>Direction</i>	
@ -40C	120 seconds	Combined Uncertainty/Reproducibility ¹	1 degree
Accuracy			
Repeatability in Calibration	5 %	TELEMETRY	
Uncertainty/Reproducibility ¹		Transmission type	Synthesized
> 0 C	5% / 3%	Maximum Range	> 250 km
-40 to 0 C	5% / 5%	Frequency stability	± 2 kHz
		Deviation, peak to peak	6 kHz
PRESSURE ²	Sensor	Emission Bandwidth	According to EN 302 054
Manufacturer	MEAS	Output Power	60 – 300 mW
Measurement range	1200 hPa - 4 hPa	Modulation	GFSK
Resolution	0.01 hPa	Data Rate	1920 Baud
Response time	0.5 milliseconds	Selectable Frequencies	402, 403, 404, 405 MHz
Accuracy		Custom Frequencies	Optional
Uncertainty/Reproducibility ¹			
Whole range	2.5 / 2.0 hPa	GPS RECEIVER	
1200 - 500mb	1.5 / 1.0 hPa	Manufacturer	U-Blox CAM-M8
500 mb - 10 mb	2.5 / 2.0 hPa	Cold Start Time	< 60 seconds (typical)
PRESSURE	GPS derived		
		OPERATIONAL DATA	
Measurement range	SFC to 3 hPa	Battery	2 pcs Lithium AA size
Resolution	0.1 hPa	Operating time	> 135 minutes
Accuracy		Weight	120 grams
Uncertainty/Reproducibility ¹		Dimensions	Body (LWH): 140x67x32
1080 - 400mb	1.5 / 0.5 hPa		With boom (LWH): 235x67x32
400 mb - 3 mb	0.5 / 0.25 hPa	Calibration Stability	2 years

* Subject to ground station, balloon size and atmospheric conditions

¹ All uncertainties expressed at a 95% confidence level

² Primary atmospheric pressure derived by GPS altitude

Specifications subject to change without notice

