
Biral

Ultrasonic Anemometers

for horizontal and vertical wind measurements



Biral for all your wind monitoring needs

Biral offers a wide and comprehensive range of wind measuring solutions. Every available measurement technique can be supplied from simple low cost cup and vane systems and sophisticated research quality ultrasonic anemometers to leading-edge solutions such as acoustic wind profilers or optical systems for studies involving path averaged wind measurements. This brochure provides an overview of the very popular range of ultrasonic anemometer.

For details on other wind monitoring solutions mentioned above please contact Biral. We will be pleased to help you select the best wind measuring equipment for your application in addition to offering free support for any Biral supplied sensor by phone, fax or email for the lifetime of the product.

most ultrasonic anemometers offer the following features:

- reliable measurement of horizontal wind speed and direction
- no moving parts
- no maintenance requirements
- excellent repeatability of data and error accuracy
- virtual temperature data output
- easy interface / connection to existing systems (digital and analogue outputs available)
- automatic, averaged or polled data output

benefits specific to the Biral range of ultrasonic anemometers:

- rugged stainless steel construction, suitable for use in harsh conditions or remote locations
- transducers housed within the stainless steel body, eliminating danger from birds or damage from salt spray
- user adjustable real-time data quality checks
- high heating efficiency with relatively low power input (only the key areas are heated as required which also avoids unnecessary power loss)
- all data is date / time stamped
- customer selectable features (Professional and Research ranges are flexible and can be customised incorporating features from more than one model)

Product summary

There are three ultrasonic anemometer ranges:

- Wind Horizon
- Wind Professional
- Wind Research

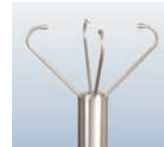
	Wind Horizon	Wind Professional	Wind Research
measures horizontal wind speed (0-45 m/s)	●	●	●
measures vertical wind speed (0-45 m/s)		●	●
measures wind speed 0-60 m/s	●	●*	
sampling rate (up to)	20 Hz	30 Hz	50 Hz
switchable outputs	●		●
mains as well as battery powered	●	●	●
analogue inputs			●
turbulence calculations			●
heating	●	●	●

Wind Horizon

2-axis ultrasonic anemometers for the measurement of horizontal wind speed and direction

The Wind Horizon provides an excellent cost / performance ratio for wind speed and direction measurements. With heating and digital or analogue outputs these sensors can be connected to any datalogger or monitoring equipment to monitor wind flow.

	Horizon 100	Horizon 200	Horizon 300	Horizon 400
digital output	●	●	●	●
analogue output			●	●
heating		●		●



Wind Professional

3-axis ultrasonic anemometers for the measurement of horizontal and vertical wind speed and direction

The Wind Professional range are rugged, reliable sensors for the measurement of both horizontal and vertical wind flow, with fast digital data output and the option to add four analogue output channels.

	Professional 100	Professional 200
30 Hz sampling rate	●	●
RS232 OR RS422	●	●
extended wind speed range to 60 m/s		● *
heated		●
field calibration kit		●
transport case		●
mains as well as battery powered		●
analogue output		● *



Wind Research

3-axis ultrasonic anemometers for the measurement of horizontal and vertical wind and turbulence parameters

The Wind Research anemometers are top of the range sensors ideal for serious wind and turbulence studies or as part of eddy-flux stations. This range offers the option to perform real-time calculations of turbulence parameters combined with the ability to connect additional sensors to produce a compact, portable station.

	Research 100	Research 200	Research 300	Research 400
50 Hz sampling rate	●	●	●	●
RS232 AND RS422	●	●	●	●
field calibration kit	●	●	●	●
separate head and electronics			●	●
analogue + TTL inputs			● *	●
on-line turbulence calculations			● *	●
increased input resolution				●
analogue signal output				●
mains as well as battery powered		●	●	●
heating		●		



Specifications

	Wind Horizon	Professional 100	Professional 200	Research 100	Research 200	Research 300	Research 400
Wind component measured	horizontal	horizontal and vertical	horizontal and vertical	horizontal and vertical	horizontal and vertical	horizontal and vertical	horizontal and vertical
Sampling rate (up to)	20 Hz	30 Hz	30 Hz	50 Hz	50 Hz	50 Hz	50 Hz
Wind direction:							
Range	0-359°	0-359° or 0-540°	0-359° or 0-540°	0-359° or 0-540°	0-359° or 0-540°	0-359° or 0-540°	0-359° or 0-540°
Wind speed:							
Range	0-60 m/s	0-45 m/s	* 0-60 m/s	0-45 m/s	0-45 m/s	0-45 m/s	0-45 m/s
Digital outputs:							
Type	RS232 OR RS422 OR RS485	RS232 OR RS422	RS232 OR RS422	RS232, RS422	RS232, RS422	RS232, RS422	RS232, RS422
Averaging times (up to)	3600 sec	1800 sec	1800 sec	3600 sec	3600 sec	3600 sec	3600 sec
Analogue outputs x 4:							
Type	* 0-10 V, 0-20 mA	-	* 0-5 V, 0-10 V	-	-	-	0-5 V, 0-10 V, 0-20mA, 4-20 mA
Scalable	* Yes	-	Yes	-	-	-	Yes
Analogue inputs x 6:							
Type	-	-	-	-	-	* +/- 2.5 V, 0-5 V, 0-10 V	+/- 2.5 V, 0-5 V, 0-10 V
Resolution	-	-	-	-	-	12 bit	16 bit
Sampling delay available	-	-	-	-	-	n/a	Yes
PT / TTL inputs	-	-	-	-	-	2 x TTL	2 x PT100, 2 x TTL
Heating (PTC, 2 levels):							
Power output	* 60 W	-	55 W	-	100 W	-	-
Power requirements:							
Range	* 9-36 VDC	9-36 VDC	24 VDC or 115-230 VAC	9-36 VDC	24 VDC or 115 / 230 VAC	9-36 VDC or 115 / 230 VAC	9-36 VDC or 115 / 230 VAC
Current draw (@24 VDC)	125 mA	180 mA	1180 mA (heated)	180 mA	400 mA (@ 230 VAC)	180 mA	180 mA
General:							
Dimensions (sensor head)	32 cm x 69 cm (approximate)						
Materials	All sensor heads are made from stainless steel (V4A), the electronics box is powder coated die-cast aluminium.						

For further information please contact Biral for individual data sheets.

* optional extra or certain models only

This range is in continuous development, therefore specifications may change without prior notice



built to ISO 9001:2000 standards
with market specific approvals

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