Anemometers

Our **A100 Series Anemometers** are robustly constructed using weather resisting plastics, anodised aluminium and stainless steels enabling them to withstand continuous exposure to the weather, including marine environments, making them suitable for a wide range of applications where accuracy and sensitivity are important.

The A100 series anemometers all share the same basic construction and use the same R30 series 3-cup Rotors. Different internal modules and components are used to provide various output signals. The use of a precision ball-race mounted shaft ensures the essential low threshold speed and good repeatability. The outline and mechanical design, common to all the A100 series, remains largely unchanged since the introduction of the original Porton™ Anemometer in 1972, the electronics modules being continuously developed during this time to provide a well tried, durable and reliable product.

Anemometers have, until recent years, only been calibrated/evaluated in wind tunnels. Investigation by the wind power industry has found that various anemometer designs behave differently in field conditions where there is considerable turbulence. The Vector Instruments A100 design is one of a very few which has been subjected to field trials, and these have shown that Vector Instruments' A100L2, A100LK, A100K and A100LM anemometers (using the R30/K2, R30/K and R30/M3 rotors) are amongst the very few cup anemometer designs which can be classified as having "First Class" performance according to the requirements of the IEC61400-12-1 when suitably sited and operated. This high performance classification means that measurements are accurate in the actual wind conditions experienced in the field (as opposed to just being accurate in the artificial conditions of a low-turbulence wind tunnel) making them the clear choice for wind assessment applications.

In operation, the wind causes the rotor to rotate at a speed proportional to the wind speed. This rotation is sensed in our optoelectronic anemometers using a slotted disk and an optical beam. In the case of the switching anemometer the rotation is sensed using a balanced system of magnets and a reed-switch.

Options common to all the **anemometers** include anti-icing heaters, marine versions/rotors and mounting adaptors and anti-surge protection.

See also:

- Anemometers for Wind Turbine Testing and Wind Farm Site Assessment.
- additional information regarding obtaining the highest accuracy measurements with our instruments.
- MEASNET calibrations and IEC classification/standards.

- What is the difference between "M" and "K" type instruments (e.g. A100LM and A100LK) ?
- Do I have to use a "K" instrument to measure the wind speed in knots and a "M" instrument to measure in m/s ?

- What is the A100R/K variant and why/when should it be used?
- What is the "K" in A100R/K for?

First Class Anemometers for Wind Turbine Testing and Wind Farm Site Assessment (Wind Assessment):

Type	*Output Signal Type/Range*	*Resolution*	*Power Supply Required*	*Additional Features*	*Typical Applications*
A100L2	0..1500Hz = 0..150Knots (10Hz per Knot nominal)	0.05m	*6.5 to 28V DC powered (@1.5mA typical)*	***First Class**, Low power, Analog/Voltage Output: 0..2.5v = 0..150Knots nominal [for higher output voltage/signal, see Porton A100 & A100H models below]*	Datalogger/AWS/**WindAssessment**
A100LK	0..1500Hz = 0..150Knots (10Hz per Knot nominal)	0.05m	*4.75 to 28V DC powered (@1mA typical)*	***First Class**, Low power*	Datalogger/AWS/**WindAssessment**
A100LM	0..750Hz = 0..75m/s (10Hz per m/s nominal)	0.1m	*4.75 to 28V DC powered (@1mA typical)*	***First Class**, Low power*	Datalogger/AWS/**WindAssessment**
A100AC	*2 pulses per revolution (1.554Hz per m/s nominal)*	0.625m	*No power required*	***First Class**, low-level AC output signal, optimal cosine response*	Datalogger/AWS/**WindAssessment**
A100R/K	*1 pulse per revolution (1.287m wind-run = 0.777Hz per m/s nominal)*	1.25m	*No power required*	***First Class**, bounce-free mercury-wetted reed switch, optimal cosine response*	Datalogger/AWS/**WindAssessment**

Other Anemometers:

Type	*Output Signal Type/Range*	*Resolution*	*Power Supply Required*	*Additional Features*	*Typical Applications*
A100 Porton	analog/voltage signal 0..10V = 0..100Knots (nominal)	0.05m	*10 to 30V DC powered*	*High-Level Analog/Voltage Output: 0..10v = 0..100Knots nominal (NO pulse/frequency output signal)*	Datalogger/AWS/PLC/**Industrial**
A100H Porton	analog/voltage signal 0..7.5V = 0..75m/s (nominal)	0.1m	*10 to 30V DC powered*	*High-Level Analog/Voltage Output: 0..7.5v = 0..75m/s nominal (NO pulse/frequency output signal)*	Datalogger/AWS/PLC/**Industrial**
A100M	0..750Hz = 0..75m/s (10Hz per m/s nominal)	0.1m	*10 to 30V DC powered (@35mA max)*	Anti-Surge	Industrial/control/PLC
A100K	0..1500Hz = 0..150Knots (10Hz per Knot nominal)	0.05m	*10 to 30V DC powered (@35mA max)*	Anti-Surge	Industrial/control/PLC
A100S	*1 pulse per revolution (1.25m wind-run = 0.8Hz per m/s nominal)*	1.25m	*10 to 30V DC powered (@35mA max)*	Anti-Surge	Industrial/control/PLC
A100R	*1 pulse per revolution (1.25m wind-run = 0.8Hz per m/s nominal)*	1.25m	*No power required*	*bounce-free mercury-wetted reed switch*	Datalogger/AWS/PLC

A100 Series Anemometers - *First Choice for First Class*

Vector Instruments' A100 Series Anemometers are among the very few available having Class 1 performance ("First Class") according to the requirements of IEC and MEASNET standards.

Available **anemometer** types include:

- **Low-Power Optoelectronic, Analog/Voltage AND Pulse/Frequency Output**
  - A100L2 Anemometer
  (ideal for most data-loggers)

- **Low-Power Optoelectronic, Pulse/Frequency Output**
  - A100LM and A100LK Anemometers
  (also ideal for most data-loggers)

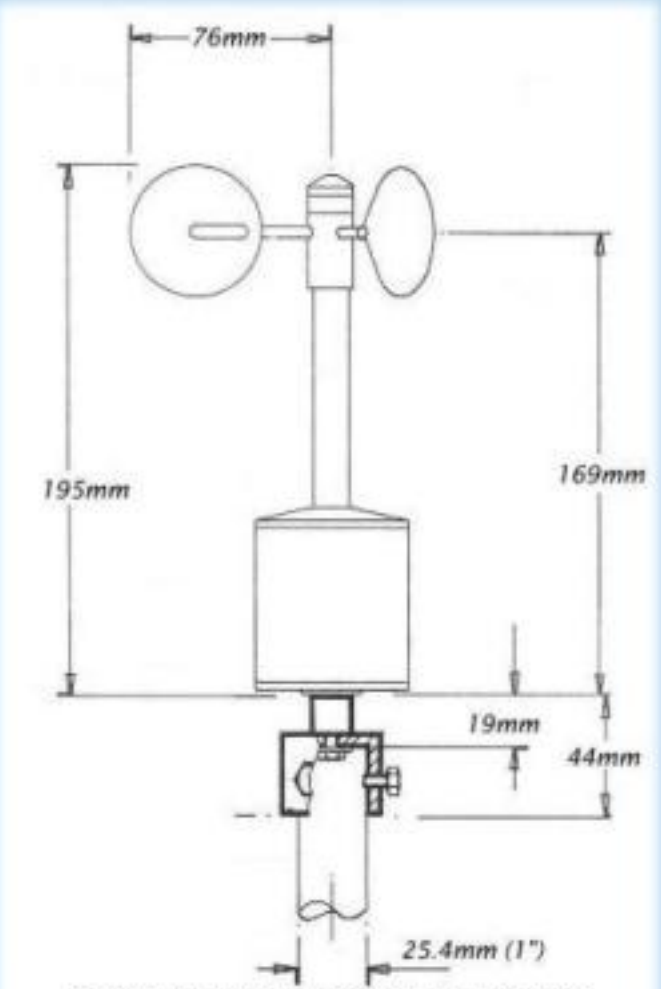
- **Zero-Power, Contact-Closure (Reed Switch)**
  - A100R Anemometer
  (lowest power of all, suitable for most dataloggers)

- **Optoelectronic, Pulse/Frequency Output**
  - A100M and A100K and A100S Anemometers
  (suited for connection to PLCs)

- **Low-Power, Low-Level AC Output**
  - A100AC Anemometers
  (suited for replacement of other manufacturers non-First Class low-level AC output anemometers, as used with many dataloggers)

- **Analogue/Voltage Output**
  - Porton A100L4K and A100L4M Anemometers
  (suited for Industrial Applications, e.g. connection to PLCs, loggers etc)

- **Models with High-Level Analogue/Voltage Output**
  - Porton A100 and A100H Anemometers [Note: soon to be replaced with new A100L4K & A100L4M models]



(Shown with optional 405 mounting adaptor)