



# WEATHER STATIONS

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**IM170-SD**  
WIND SPEED AND DIRECTION

**BUILD YOUR OWN SYSTEM**

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IM 170-SD  
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## PAPERLESS RECORDER

## DATALOGGER



### Paperless recorder

The Paperless Recorder (PR) is a data acquisition unit with a 5.6" TFT touch screen. It is designed for use with our range of meteorological sensors. The PR offers multiple real-time and historical views, as well as numerous archiving strategies to ensure data is never lost. Using the associated PC software, the user can view live data, generate reports, set alarms and configure the PR unit.

### PC Software

Powerful and versatile software allow the user to view and analyse data from the sensors. Configuration of the PR is also possible.

Key features: Live data monitoring (includes trending, with scalable time axis between 1 minute and 1 month). Historical review of data.

Customizable display screens: Configure the PR to display data in your chosen format. Choose from a variety of different display styles.

Configure alarms and relay outputs.

Download data for analysis offline.

Configuration wizards for easy set-up and troubleshooting.

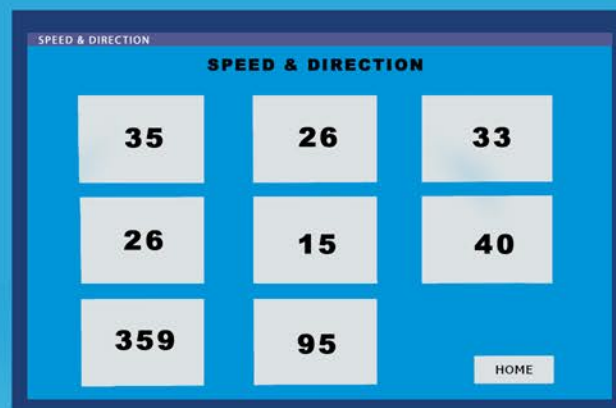
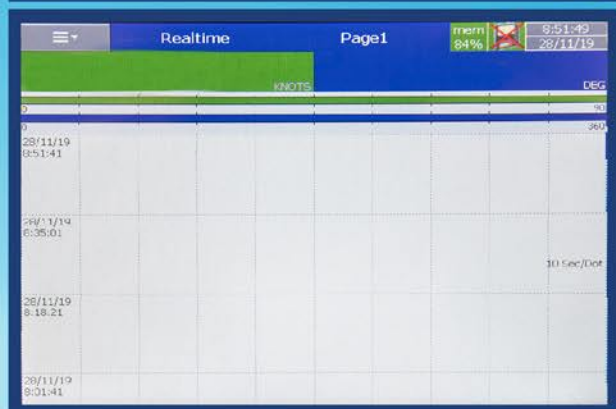
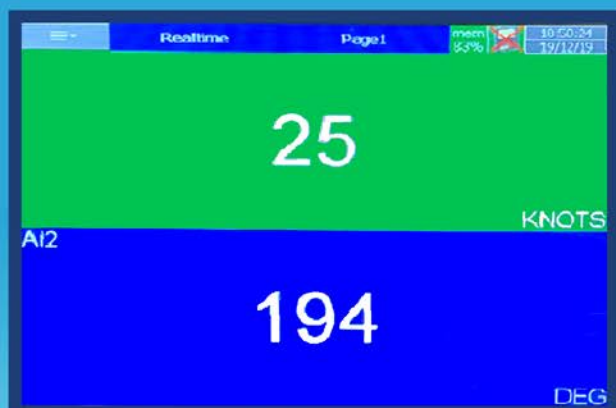




# IM170-SD

WIND SPEED & DIRECTION

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## Specification

## Description

Power	90-250VAC or 11-36VDC
Display	5.6" TFT touch screen
Resolution	640 x 480 pixel resolution, 65K colour
Internal Memory	256 MB
RAM	256 MB
External Memory	SD card, USB x 2
Ethernet	Modbus TCP/IP
Sampling Rate	100 ms max
Maths Channels	Yes
Protection	IP65 front, IP20 rear
Operating Temperature	0°C to 50°C



# IM124

## CUP GENERATOR

## ANEMOMETER



**Product description**

Requiring no external power source, the IM124 Cup Anemometer generates an output signal that is directly proportional to the wind speed. Each IM124 can drive up to six IM124A Wind Speed Dial Indicators. It can also be used as part of a complete IM147 system. Constructed from non-ferrous materials resistant to corrosion in salt-laden and high humidity atmospheres

**Technical Specifications**

Start Threshold	3±1 Knots
Speed Range	0-180 Knots
Speed Accuracy	Below 40 Knots ±1 Knot, Above 41
Knots	±2 Knots
Weight	4.2Kg

# IM145

## WIND DIRECTION

## VANE ENCODER

**Product description**

The IM145 Wind Direction Vane is a sensitive, reliable unit of robust construction, which transmits wind direction measurements to a high degree of accuracy. It can drive up to six IM125A Wind Direction Dial Indicators using an external AC supply. It can also be used as part of a complete IM147 system. Constructed from non-ferrous materials resistant to corrosion in salt-laden and high humidity atmospheres able to withstand a near-miss lighting strike



Start Threshold	3±1 Knots
Direction Range	0- 360°
Direction Accuracy	±1°
Weight	12 kg





# 150/IM147 IN-LINE CUP ANEMOMETER AND VANE



## Product Description

Munro's flagship wind speed & direction sensor is a dual in-line unit, comprising an IM124 Cup Anemometer and an IM145 Wind Direction Vane. By virtue of its accuracy and durability, it has become one of the world's most widely distributed wind sensors, having served meteorological offices, airports, offshore rigs, power stations, ports and harbours worldwide for over fifty years.

Its rugged, corrosion-resistant design means that it is fully operable even in the most adverse of environments, including heavily salt-laden atmospheres and lightning-prone areas. The system requires little to no maintenance and can be powered independently using sustainable methods. This means the sensor can be deployed remotely and left completely unattended.

## Wind Speed Sensor

The IM124 Cup Anemometer is a self-powered, electro-mechanical unit, capable of measuring wind speeds of up to 180 Knots (equivalent to 200 mph, 90 m/s and 320 km/h). The rotor turns within a fixed stator coil assembly, producing an AC current which varies with the speed of the rotor. This generates an output voltage which is proportional to the wind speed. The unit is non-directional. The IM124 is available as a stand-alone unit.

## Wind Direction Sensor

The IM145 Wind Direction Vane is a sensitive yet robust element, employing a magnetic encoder to give high accuracy wind direction measurements.

## Technical Specifications

Specification	Description
Wind Speed Range	0-90 knots / 0-180 knots Full Scale Range (F.S.)
Wind Speed Accuracy	$\pm 1$ knot < 40 knots, $\pm 2$ knots > 41 knots
Wind Speed Resolution	1 knot
Wind Speed Start Threshold	$4 \pm 1$ knots
Anemometer Dimensions	267 mm (Height), 228 mm (Axis to Outer Cup Edge), 127 mm (Cup Diameter)
Anemometer Weight	4.2 kg
Wind Direction Range	0-360°
Wind Direction Accuracy	$\pm 1^\circ$
Wind Direction Resolution	1°
Wind Direction Start Threshold	$3 \pm 1$ knots
Wind Vane Dimensions	585 mm (Height), 790 mm (Axis to Fin Tip), 375 mm (Axis to Balance Weight)
Wind Vane Weight	12 kg
Operating Temperature	-40°C to +100°C
Power Consumption (wind direction)	10 mA
Power Supply	Mains or 16/32/64 Ah Lithium Ion Battery 3.6 V or 50/100/200 Ah Rechargeable Battery or External Sustainable Energy Supply



# 150/W20 2-AXIS ULTRASONIC ANEMOMETER (0-60 M/S)



## Product Description

This durable 2-Axis Anemometer facilitates the measurement of wind speed & direction and the U-V Cartesian components of wind speed. Operating according to the ultrasonic principle, it is unaffected by inertia and can therefore detect extremely low wind speeds to a high degree of accuracy.

The sensor requires a 10-30 VDC power supply, making it particularly suitable for remote applications. As it contains no moving parts, this ultrasonic anemometer can be left for up to two years without the need for maintenance or re-calibration. Furthermore, the sensor has a very small power draw. It is therefore ideal for remote solar-powered or wind-powered systems.

This lightweight sensor can be fitted to any 40 mm diameter pole/mast. The inbuilt compass makes installation and alignment quick and easy.

The sensor has a temperature operating range of -40°C to +60°C. Optionally, it can be fitted with a heater to prevent the accumulation of ice and snow in low temperatures.

The sensor outputs can either be analogue 0-1 V, 0-5 V, 4-20 mA. Alternatively, the serial outputs are RS232 and RS 485 following communication protocols SDI-12, MODBUS or NMEA.

This instrument can also be supplied with integrated sensors to measure temperature, relative humidity, barometric pressure and solar radiation (please state if this functionality is required when requesting a quotation).

## Technical Specifications

Specification	Description
Wind Speed Range	0-60 m/s
Wind Speed Resolution	0.01 m/s
Wind Speed Accuracy	±2% (<35 m/s), ±3% (>35 m/s)
Wind Direction Range	0-359.9°
Wind Direction Resolution	0.1°
Wind Direction Accuracy	±2°
Power Supply	10-30 VDC
Power Consumption	26 mA @ 12 VDC
Analogue Outputs	0-1 V, 0-5 V, 4-20 mA
Digital Outputs	RS232, RS485, SDI-12, MODBUS-RTU
Operating Temperature	-40°C to +60°C
Environmental Protection Rating	IP66

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