WindMaster

3-Axis Ultrasonic Anemometer

Key Features

- **Precision 3-axis sonic anemometer**
- **20Hz output rate**
- **0-50m/s wind speed**
- **0-360° wind direction**
- **U, V, W vector outputs**
- **Sonic temperature output**
- **Aluminium/Carbon fibre construction**
- **Optional custom calibration**

The Gill WindMaster is a precision anemometer offering three-axis wind measurement data. This instrument will monitor wind speeds of 0-50m/s and provides sonic temperature, speed of sound and U, V & W vector outputs at 20Hz (32Hz optional). This anemometer is of aluminium/carbon fibre construction and is ideal for the understanding of turbulent flows, surface energy balance and scalar fluxes. Each WindMaster can be calibrated with an optional Gill wind tunnel test to provide optimum performance.

This 3D sonic anemometer is ideally suited to the measurement of air turbulence around bridges, buildings, wind turbine sites, building ventilation control systems, meteorological and flux measurement sites.

WIND SPEED

Range	0 - 50 m/s
Resolution	0.01 m/s
Accuracy*	<1.5% RMS @12 m/s
Accuracy*	<1% RMS @12 m/s (Custom)

DIRECTION

Range	0 - 360°
Resolution	0.1°
Accuracy	2° @12 m/s
Accuracy	0.5° @12 m/s (Custom)

SONIC TEMPERATURE

Range	-40°C to +70°C
Resolution	0.01°C
Accuracy	-20°C to +30°C within ±2°C of ambient temperature

SPEED OF SOUND

Range	300-370 m/s
Resolution	0.01 m/s
Accuracy	< ±0.5% @ 20°C

MEASUREMENT

Internal sample rate	20 Hz or 32 Hz
Output Parameters	1, 2, 4, 8, 10, 16, 20 & 32 (Option) Hz
Units of Measure	m/s, mph, kph, knots, ft/min
Formats	UVW or Polar

DIGITAL OUTPUT

Communication	RS232, 422, 485, Binary
Baud Rates	2400 - 57600[1]
Format	ASCII

ANALOGUE OUTPUTS - OPTIONAL

Resolution 12 bits or 14 bits	4 channels available
Selectable Range	User selectable full scale wind speed
Output type	0-20mA, 4-20mA, 0-5V, ±2.5V, ±5V

ANALOGUE INPUTS - OPTIONAL

Resolution 12 bits or 14 bits	Up to 4 single ended or 2 differential
Input Type	±5V

POWER REQUIREMENT

Anemometer	9-30 VDC (55mA @ 12 VDC)

MECHANICAL

Weight	1.0 kg
Size	750mm x 240mm

ENVIRONMENTAL

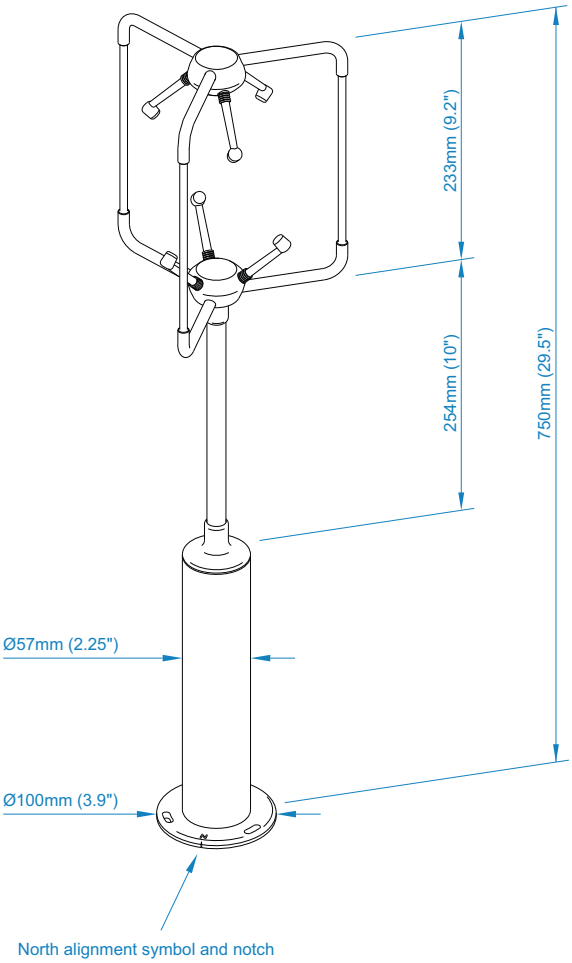
Protection Class	IP65
Operating Temp	-40°C to +70°C
Humidity	< 5% to 100% RH
Precipitation	300mm/hr
EMC	BS EN 61000 - 6 - 3 (Emissions) BS EN 61000 - 6 - 2 (Immunity)

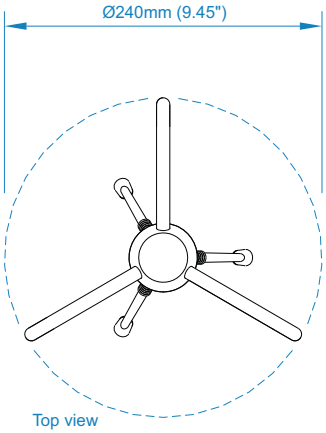
*Accuracy spec applies for wind speed, and for wind incidence up to ±30° from the horizontal

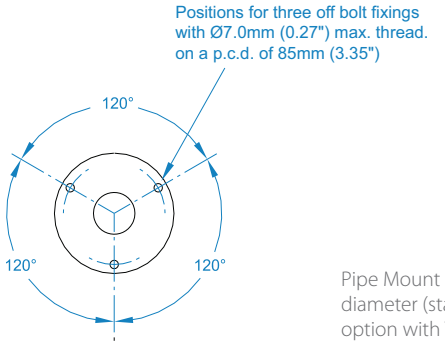
[1]Optional Power & Communications Interface (PCI) Baud rate to 115200

Typical Applications

- Power Lines
- Bridges
- Viaducts
- Building ventilation control systems
- Measurement Masts
- Skyscrapers
- Wind Turbine Test Sites
- Meteorological & Flux measurement sites







Pipe Mount 34 mm (1.34 in) diameter (standard 1 inch pipe) option with Terminal Strip Junction Box

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WindMaster PRO

3-Axis Ultrasonic Anemometer

GILL

Key Features

- **Precision 3-Axis sonic anemometer**
- **32Hz output rate**
- **0-65m/s wind speed**
- **0-360° wind direction**
- **U, V, W vector outputs**
- **Sonic temperature output**
- **Stainless steel construction**
- **Optional custom calibration**

The Gill WindMaster Pro is a precision anemometer offering three-axis wind measurement data. This instrument will monitor wind speeds of 0-65m/s and provides sonic temperature, speed of sound and U, V & W vector outputs at 32Hz as standard. The unit also features improved vertical (W) resolution and speed of sound accuracy and less distortion due to wind loading. Each WindMaster Pro can be calibrated with an optional Gill wind tunnel test to provide optimum performance. Optional analogue inputs and outputs plus a PRT are available with 14 bit resolution.

This anemometer is of stainless steel external construction and is particularly suitable for precision wind measurement applications requiring 3-axis data involving high wind speeds.

WIND SPEED

Range	0 - 65 m/s
Resolution	0.01 m/s
Accuracy*	<1.5% RMS @12 m/s
Accuracy*	<1% RMS @12 m/s (Custom)

DIRECTION

Range	0 - 360°
Resolution	0.1°
Accuracy	2° @12 m/s
Accuracy	0.5° @12 m/s (Custom)

SONIC TEMPERATURE

Range	-40°C to +70°C
Resolution	0.01°C
Accuracy	-20°C to +30°C within ±2°C of ambient temperature

SPEED OF SOUND

Range	300-370 m/s
Resolution	0.01 m/s
Accuracy	< ±0.5% @ 20°C

MEASUREMENT

Internal sample rate	32 Hz
Output parameters	1, 2, 4, 8, 10, 16, 20 & 32 Hz
Units of measure	m/s, mph, kph, knots, ft/min
Formats	UVW or Polar

*Accuracy spec applies for wind speed, and for wind incidence up to ±30° from the horizontal

DIGITAL OUTPUT

Communication	RS232, 422, 485 Binary
Baud rates	2400 - 57600
Format	ASCII

ANALOGUE OUTPUTS - OPTIONAL

Resolution 14 bits	4 channels available
Selectable range	User selectable full scale wind speed
Output type	0-20mA, 4-20mA, 0-5V, ±2.5V, ±5V

ANALOGUE INPUTS - OPTIONAL

Resolution 14 bits	Up to 4 single ended or 2 differential plus PRT 100 input
Input type	±5V

POWER REQUIREMENT

Anemometer	9-30 VDC (55mA @ 12 VDC)

MECHANICAL

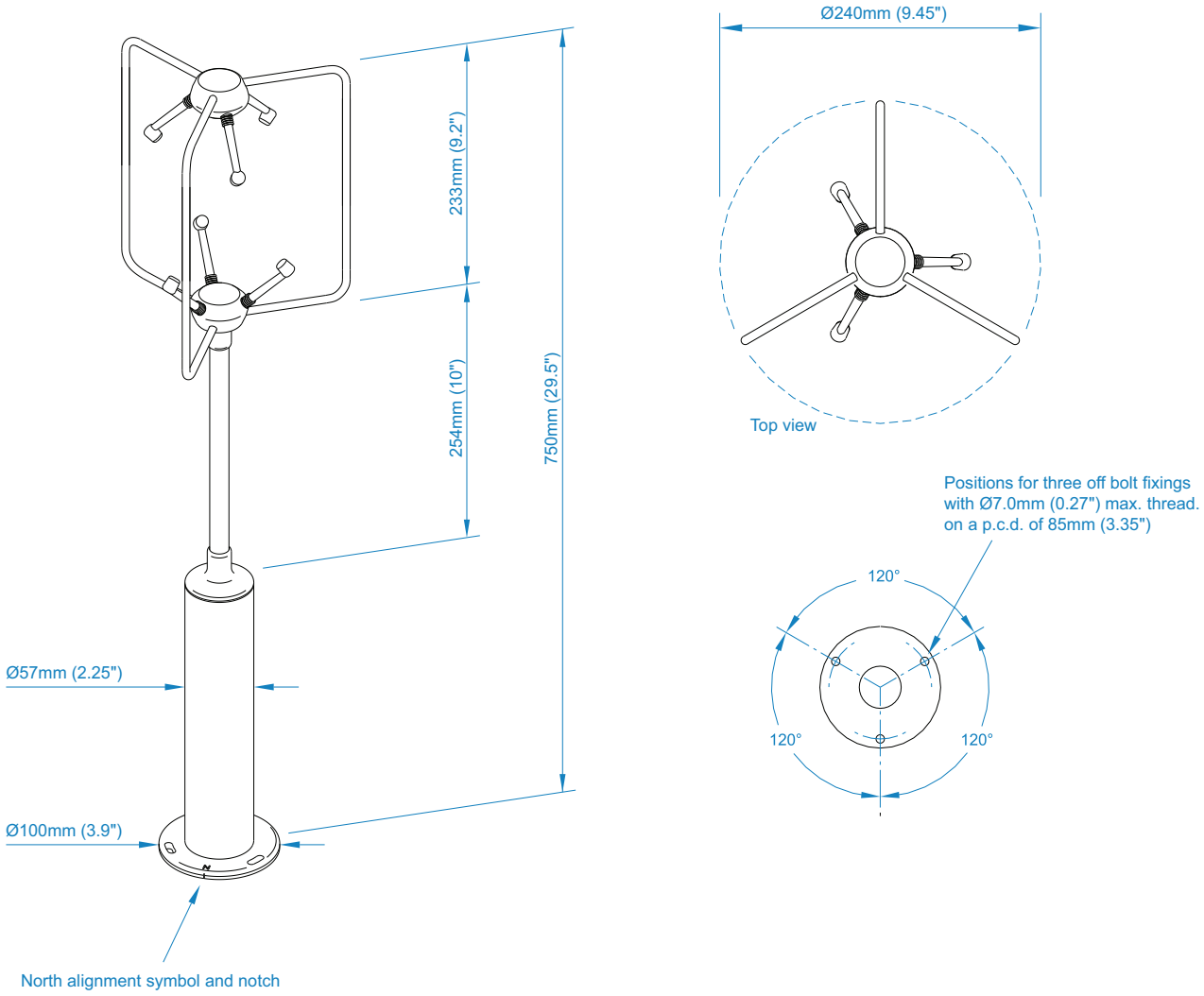
Weight	1.7 kg
Size	750mm x 240mm

ENVIRONMENTAL

Protection class	IP65
Operating temp	-40°C to +70°C
Humidity	< 5% to 100% RH
Precipitation	300mm/hr
EMC	BS EN 61000 - 6 - 3 (Emissions) BS EN 61000 - 6 - 2 (Immunity)

Typical Applications

- Meteorological Systems
- Flux Systems
- Structural Safety
- Wind Profiling
- Marine Research
- Wind Turbine Site Survey



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WindMaster RA

3-Axis Right Angled Ultrasonic Anemometer

Key Features

- **Precision 3-axis sonic anemometer**
- **20Hz output rate**
- **0-50m/s wind speed**
- **0-360° wind direction**
- **U, V, W vector outputs**
- **Sonic temperature output**
- **Aluminium/Carbon fibre construction**
- **Optional custom calibration**

The Gill WindMaster RA is a right angled precision anemometer offering three-axis wind measurement data. This instrument will monitor wind speeds of 0-50m/s and provides sonic temperature, speed of sound and U, V & W vector outputs at 20Hz (32Hz optional). This anemometer is of aluminium/carbon fibre construction and is ideal for the understanding of turbulent flows, surface energy balance and scalar fluxes. Each WindMaster RA can be calibrated with an optional Gill wind tunnel test to provide optimum performance.

This 3D sonic anemometer is ideally suited to the measurement of air turbulence around bridges, buildings, wind turbine sites, building ventilation control systems, meteorological and flux measurement sites.

WIND SPEED

Range	0 - 50 m/s
Resolution	0.01 m/s
Accuracy*	<1.5% RMS @12 m/s
Accuracy*	<1% RMS @12 m/s (Custom)

DIRECTION

Range	0 - 360°
Resolution	0.1°
Accuracy	2° @12 m/s
Accuracy	0.5° @12 m/s (Custom)

SONIC TEMPERATURE

Range	-40°C to +70°C
Resolution	0.01°C
Accuracy	-20°C to +30°C within ±2°C of ambient temperature

SPEED OF SOUND

Range	300-370 m/s
Resolution	0.01 m/s
Accuracy	< ±0.5% @ 20°C

MEASUREMENT

Internal sample rate	20 Hz or 32 Hz
Output Parameters	1, 2, 4, 8, 10, 16, 20 & 32 (Option) Hz
Units of Measure	m/s, mph, kph, knots, ft/min
Formats	UVW or Polar

*Accuracy spec applies for wind speed, and for wind incidence up to ±30° from the horizontal

DIGITAL OUTPUT

Communication	RS232, 422, 485, Binary
Baud Rates	2400 - 57600
Format	ASCII

ANALOGUE OUTPUTS - OPTIONAL

Resolution 12 bits or 14 bits	4 channels available
Selectable Range	User selectable full scale wind speed
Output type	0-20mA, 4-20mA, 0-5V, ±2.5V, ±5V

ANALOGUE INPUTS - OPTIONAL

Resolution 12 bits or 14 bits	Up to 4 single ended or 2 differential
Input Type	±5V

POWER REQUIREMENT

Anemometer	9-30 VDC (55mA @ 12 VDC)

MECHANICAL

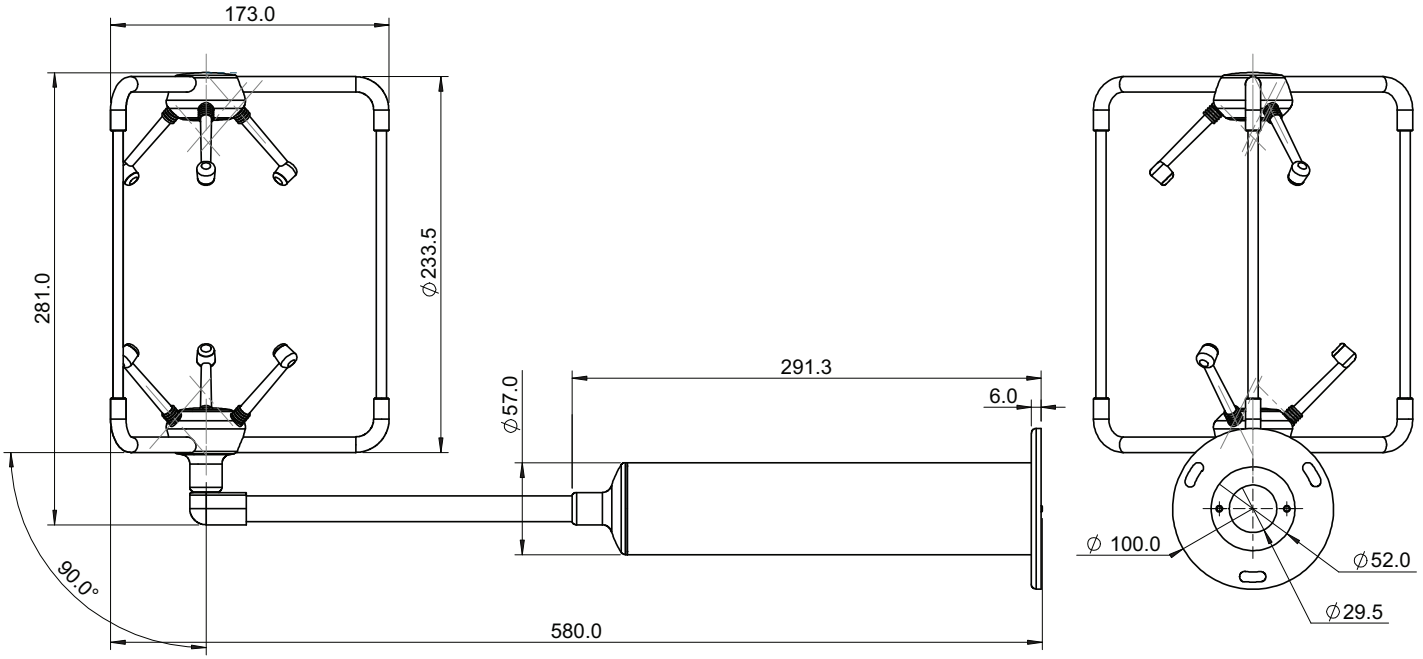
Weight	1.0 kg
Size	580mm x 323 mm x 228mm

ENVIRONMENTAL

Protection Class	IP65
Operating Temp	-40°C to +70°C
Humidity	< 5% to 100% RH
Precipitation	300mm/hr
EMC	BS EN 61000 - 6 - 3 (Emissions) BS EN 61000 - 6 - 2 (Immunity)

Typical Applications

- Power Lines
- Bridges
- Viaducts
- Building ventilation control systems
- Measurement Masts
- Skyscrapers
- Wind Turbine Test Sites
- Meteorological & Flux measurement sites



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WindMaster HS

3-Axis Horizontal-Head Anemometer

GILL

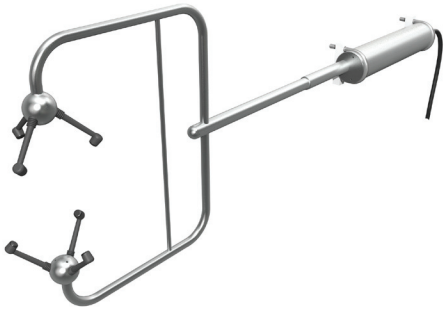
Key Features

- **Precision 3-axis sonic anemometer**
- **Horizontal head for minimal flow disturbance**
- **Integral electronics**
- **0-45m/s wind speed**
- **Stainless steel construction**
- **32Hz output rate**
- **Sonic temperature output**
- **U, V, W Vector outputs**

The WindMaster HS anemometer has been designed for scientific research applications requiring accurate 3-axis wind speed and direction and sonic temperature data.

This instrument utilises advanced ultrasonic measurement technology, with a unique horizontal head design which allows for accurate measurement of high angles of attack with minimum flow interruption from the anemometer geometry.

The Integral electronics unit provides four optional analogue inputs and outputs.



WIND SPEED

Range	0 - 45 m/s
Resolution	0.01 m/s or 0.001 m/s
Accuracy*	<1.5% RMS @12 m/s
Accuracy*	<1% RMS @12 m/s (Custom)

DIRECTION

Range	0 - 359.9°
Resolution	0.1°
Accuracy	2° @12 m/s
Accuracy	0.5° @12 m/s (Custom)

SONIC TEMPERATURE

Range	-40°C to +70°C
Resolution	0.01°C
Accuracy	-20°C to +30°C within ±2°C of ambient temperature

SPEED OF SOUND

Range	300-370 m/s
Resolution	0.01 m/s
Accuracy	< ±0.5% @ 20°C

MEASUREMENT

Internal sample rate	20Hz / 32 Hz or sync to user poll
Output rate	1, 2, 4, 5, 8, 10, 16, 20 & 32 Hz
Units of measure	m/s, mph, kph, knots, ft/min
Formats	UVW or Polar

POWER REQUIREMENT

Anemometer	9-30 VDC (55mA @12 VDC)

*Accuracy specification applies for wind speeds <32m/s and for wind incidence <±150° in the horizontal plane and up to ±30° from the horizontal.

DIGITAL OUTPUT

Communication	RS232, 422, 485* * 2 wire point to point
Baud rates	2400 - 57600
Format	ASCII or Binary

ANALOGUE OUTPUTS - OPTIONAL

Resolution 14 bits	4 channels available
Selectable range	User selectable full scale wind speed
Output type	0-20mA, 4-20mA, 0-5V, ±2.5V, ±5V

ANALOGUE INPUTS - OPTIONAL

Resolution 14 bits	Up to 4 single ended or 2 differential
Input type	±5V

POWER REQUIREMENT

Anemometer	9-30 VDC (55mA @ 12 VDC)

MECHANICAL

Weight	2.96 kg
Size	956 x 347 x 120mm

ENVIRONMENTAL

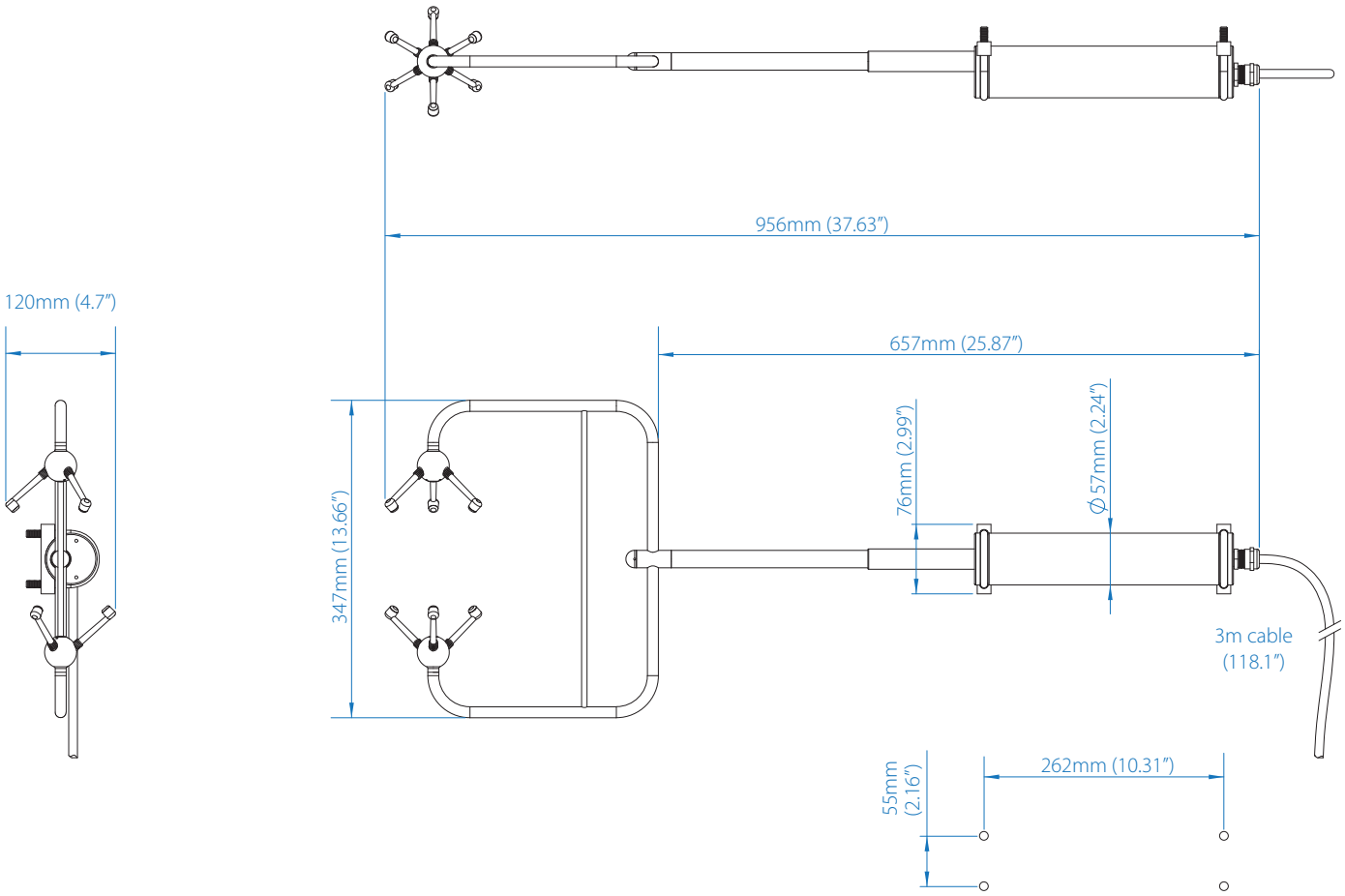
Protection class	IP65
Operating temp	-40°C to +70°C
Humidity	< 5% to 100% RH
Precipitation	300mm/hr
EMC	BS EN 61000 - 6 - 3 (Emissions) BS EN 61000 - 6 - 2 (Immunity)

OPTIONAL

Junction box	
Custom calibration	

Typical Applications

- Eddy Covariance Systems
- Offshore Installations
- Structural Monitoring
- Wind Profiling



Mounting hole template for WindMaster HS 'U' Bolts
4 holes Ø9.5mm (0.37")
Max mounting plate thickness 5mm (0.19")

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