



## Triton<sup>®</sup> Ops

### Meteorological Station for Wind Farm Operations



#### Features

- Configured to measure wind and serve data to your ISO database at required heights and time intervals.
- Integration with mains power supply with 14-day UPS backup. Solar-powered installation optional.
- Integration of data feed to on-site SCADA, protected communications relays, or data archiving systems.
- Optional propane-fueled heating system for snow and ice removal.
- Installation, commissioning, and engineering integration to ensure seamless and successful data flow to your ISO's reporting system.

Triton Ops incorporates the Vaisala Triton Wind Profiler, a field-proven, state-of-the-art remote sensing system relied upon by the world's leading wind developers. Triton is a next-generation sodar that measures rotor sweep wind speed and direction and can be deployed and commissioned in a matter of hours.

#### Data at Specific Heights and Intervals

Triton Ops data meets the requirements of the major independent system operators (ISOs) in North America and Triton data are used in forecasts in several regions. The Vaisala Triton Ops

system includes custom firmware to deliver met data at the specific heights and time intervals required by the ISO and forecast service providers.

#### Rapid Deployment

Vaisala's technical team will deliver custom hardware solutions and coordinate with the project owner, EPC contractor, the ISO, and other stakeholders to integrate the Triton data into the wind farm's data feed and ensure project success.

Measurement Type	Unit of Measure	Measurement Height	Precision
Horizontal wind speed	Meters per second (m/s)	Up to 3 selectable heights	0.01 m/s
Wind direction	Degrees from true north	Up to 3 selectable heights	0.1 degree
Ambient air temperature	Degrees Celsius (°C)	Ground level	0.1 °C
Barometric pressure	Hectopascals (hPa)	Ground level	0.1 hPa
Relative humidity	Percentage (%)	Ground level	1%

# Technical Data

## Data Capture

Maximum height	200 m
Data recovery rate (unfiltered)	> 98 % (at all heights)
SCADA data reporting frequency	4 seconds
Observational data reporting frequency	10 minutes
Data delivery	Via direct Ethernet/fiber/radio link and/or satellite/cellular modem
Onboard memory	2 GB SD card buffers a minimum of 2 years of 10 minute data.

## Power Supply

Power consumption	7 W (average)
Line in power	Option to power from on-site electricity supply
Solar panels	Option to power from 2 panels, each rated at 85 W
UPS battery backup	AGM 12 V, 92 Ah batteries, for 20 days of backup operation

## Installation

Footprint	2 × 3 m (6 × 9 ft) with solar panels fitted
Orientation	Dual-axis accelerometer for automatic correction for out-of-level. Site location determined by GPS.
Leveling of base	Within 3° of level in x and y axes

## Operation

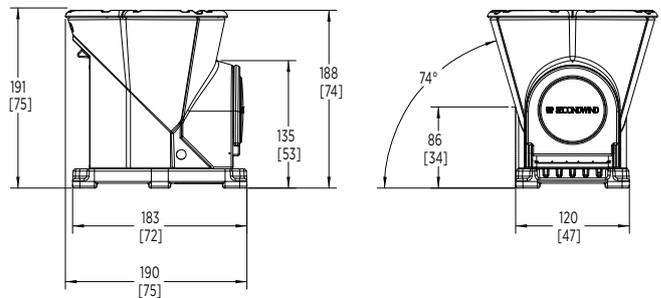
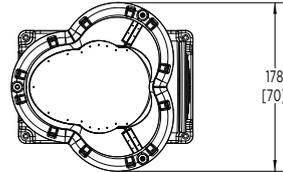
Ambient temperature	-40 ... +65 °C (-40 ... +150 °F)
Frequency of sound beams	4500 Hz (nominal), with automatic temperature correction
Number of sound beams	3
Duration of sound 'chirp'	60 ... 100 milliseconds
Sound level at ear level	87 dBA at 0 m; 63 dBA at 50 m (intermittent sound source)

## Transportation

Dimensions	2 × 2 × 2 m (6 × 6 × 6 ft) 1.2 m (3 ft 11 in) wide base fits pick-up truck bed or trailer
Weight	400 ... 450 kg (875 ... 1000 lb) depending on configuration
Integrated shipping	Triton and all accessories ship as one unit

## Snow Removal Package

Energy source	LPG (propane)
Storage capacity (to be provided by the customer)	Triton enclosure has nesting locations for (1) 18 kg (40 lb) and (1) 14 kg (30 lb) LPG bottles with a combined capacity of 32 kg (70 lb). Optional external LPG connection available.
Run time	Up to 200 hours of snow melting with 32 kg (70 lb) internal propane supply.



Dimensions in cm (inches), rounded to the nearest unit (solar panels and mounting hardware not shown).



**VAISALA**

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