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› VIHELM /

› VIHELM DT-619 Digital Anemometer User Manual

## VIHELM DT-619

# VIHELM DT-619 Digital Anemometer User Manual

Comprehensive guide for operation, maintenance, and specifications.

## 1. INTRODUCTION

The VIHELM DT-619 Digital Anemometer is a precision instrument designed for measuring air velocity, air flow (CFM/CMM), and ambient temperature. This manual provides detailed instructions for the proper use, setup, and maintenance of your DT-619 anemometer to ensure accurate readings and long-term performance.



Image: The VIHELM DT-619 Digital Anemometer, showcasing its compact design and clear display.

## 2. WHAT'S IN THE BOX

Upon opening the package, please verify that all components are present and undamaged:

- DT-619 Digital Anemometer Unit (1)
- Vane Probe (integrated or separate)
- User Manual (this document)



Image: Retail packaging of the CFM Thermo-Anemometer, indicating its contents and features.



Image: The DT-619 main unit connected to its vane probe, ready for use.

## 3. SETUP

### 3.1 Battery Installation

The DT-619 anemometer requires a 9V battery for operation. Follow these steps to install the battery:

1. Locate the battery compartment cover on the back of the unit.
2. Slide the cover downwards or unclip it to open.
3. Insert a new 9V battery, ensuring correct polarity (+ and -).
4. Replace the battery compartment cover, ensuring it clicks securely into place.



Image: Rear view of the DT-619, illustrating the battery compartment with a 9V battery installed.

### 3.2 Connecting the Vane Probe

Ensure the vane probe is securely connected to the main unit via its cable. The connector is typically located at the top of the main unit.

## 4. OPERATING INSTRUCTIONS

### 4.1 Powering On/Off

- Press the **POWER** button (usually marked with a circle and vertical line) to turn the unit on.
- Press and hold the **POWER** button again to turn the unit off.

### 4.2 Taking Measurements

To take accurate air velocity or air flow measurements:

1. Ensure the vane probe is positioned directly in the airflow path.
2. The display will show real-time readings for air velocity (e.g., m/s, ft/min) and ambient temperature.
3. Use the **UNIT** button (if available) to cycle through different measurement units (e.g., m/s, ft/min, knots, km/h, MPH).
4. For air flow (CFM/CMM) measurements, you may need to input the area of the duct or vent. Refer to the "Useful Equations and Conversions" section for area calculations.
5. Press the **HOLD** button to freeze the current reading on the display. Press again to release.
6. Press the **MAX/MIN** button to view the maximum or minimum recorded values during a measurement session.



Image: A user holding the DT-619 anemometer and its vane probe, demonstrating its use in an outdoor setting.



Image: A user operating the DT-619 anemometer, showing the display and the vane probe in action.

### 4.3 Area Input for Air Flow (CFM/CMM)

The DT-619 allows for easy input of area dimensions (cm<sup>2</sup>) which are stored in the meter's internal memory for the next power on. This is crucial for accurate CFM/CMM calculations.

- Press the **AREA** button to enter area input mode.
- Use the arrow keys (**UP/DOWN/LEFT/RIGHT**) to adjust the dimensions.
- Confirm the area input to enable air flow calculations.

## 5. FEATURES

The VIHELM DT-619 Digital Anemometer boasts a range of features designed for precision and ease of use:

Feature	Description
Simultaneous Display	Displays Air Flow or Air Velocity plus Ambient Temperature (619/620 models).
Area Dimensions Storage	Easy to set Area dimensions (cm <sup>2</sup> ) are stored in the meter's internal memory for the next power on (619/620 models).
High Resolution	Resolution of 0.01m/sec (619/620 models).
20 Points Average	Provides a 20 points average for Air Flow (619/620 models).
Super Large LCD Backlit Display	Ensures clear readability in various lighting conditions (618/619/620 models).
High Accuracy Vane Wheel	3% velocity accuracy via low friction 2.83"D (72mm) ball bearing vane wheel on 3.9ft (120cm) cable (619/620 models).
Type K Sensor Support	Type K sensor for temperature measurements (618/618B models).
High Sensitive and Accurate	Overall high sensitivity and accuracy for reliable measurements.

Features
Simultaneous display of Air Flow or Air Velocity plus Ambient Temperature(619/620)
Easy to set Area dimensions (cm <sup>2</sup> ) are stored in the meter 's internal memory for the next power on(619/620)
Resolution of 0.01m/sec (619/620)
20 points average for Air Flow (619/620)
Super large LCD Backlit Display(618/619/620)
3% velocity accuracy via low friction 2.83"D (72mm) ball bearing vane wheel on 3.9ft (120cm) cable(619/620)
Type K sensor for temperature measurements (618/618B)
High Sensitive and Accurate

Specifications						
Air Velocity	Range	Accuracy	618	618B	619	620
m/s(meter per second)	0.40~30.00	±3% ±0.20m/s	*	*	*	*
ft/min(feet per minute)	80~5900	±3% ±40ft/min		*	*	*
km/h(kilometers per hour)	1.4~108.0	±3% ±0.8km/h	*	*	*	*
MPH(miles per hour)	0.9~67.0	±3% ±0.4MPH			*	*
Knots(nautical miles per hour)	0.8~58.0	±3% ±0.4knots	*	*	*	*
Air Temperature	-10-60°C(14-140°F)	± 2.0°C(4.0°F)	*	*	*	*
InfraRed Temperature	-50 to -20°C(-58 to -4°F)	± 5.0°C(9.0°F)				*
	-20 to 260°C(-4 to 500°F)	±2% reading or ± 2°C(4°F)				*
Air Flow	Range	Area				
CFM	0-999900	0-999.9 ft <sup>2</sup>			*	*
CMM	0-999900	0-999.9 m <sup>2</sup>			*	*

**Meter Size(HxWxD):** 150mm x 72mm x 35mm  
**Weight:** 210g (618/618B)

Image: A detailed table outlining the key features of the DT-619 and related models.

## 6. SPECIFICATIONS

Detailed technical specifications for the VIHELM DT-619 Digital Anemometer:

Parameter	Range	Accuracy	618	618B	619	620
<b>Air Velocity</b>						
m/s (meter per second)	0.40-30.00	±3% ±0.20m/s	*	*	*	*
ft/min (feet per minute)	80-5900	±3% ±40ft/min	*	*	*	*
km/h (kilometers per hour)	1.4-108.0	±3% ±0.8km/h	*	*	*	*
MPH (miles per hour)	0.9-67.0	±3% ±0.4MPH	*	*	*	*
Knots (nautical miles per hour)	0.8-58.0	±3% ±0.4knots	*	*	*	*
<b>Air Temperature</b>						
	-10-60°C (14-140°F)	±2.0°C (4.0°F)	*	*	*	*
<b>InfraRed Temperature</b>						
	-50 to 20°C (-58 to -4°F)	±5.0°C (9.0°F)				*
	-20 to 260°C (-4 to 500°F)	±2% reading or ±2°C (4°F)				*
<b>Air Flow</b>						
CFM	0-999900	0-999.9 ft <sup>2</sup> (Area)	*	*	*	*
CMM	0-999900	0-999.9 m <sup>2</sup> (Area)	*	*	*	*

**Meter Size (HxWxD):** 150mm x 72mm x 35mm

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Features	
Simultaneous display of Air Flow or Air Velocity plus Ambient Temperature(619/620)	
Easy to set Area dimensions (cm <sup>2</sup> ) are stored in the meter 's internal memory for the next power on(619/620)	
Resolution of 0.01m/sec (619/620)	
20 points average for Air Flow (619/620)	
Super large LCD Backlit Display(618/619/620)	
3% velocity accuracy via low friction 2.83"D (72mm) ball bearing vane wheel on 3.9ft (120cm) cable(619/620)	
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ft/min(feet per minute)	80~5900	±3% ±40ft/min		*	*	*
km/h(kilometers per hour)	1.4~108.0	±3% ±0.8km/h	*	*	*	*
MPH(miles per hour)	0.9~67.0	±3% ±0.4MPH			*	*
Knots(nautical miles per hour)	0.8~58.0	±3% ±0.4knots	*	*	*	*
Air Temperature	-10-60°C(14-140°F)	± 2.0°C(4.0°F)	*	*	*	*
InfraRed Temperature	-50 to -20°C(-58 to -4°F)	± 5.0°C(9.0°F)				*
	-20 to 260°C(-4 to 500°F)	±2% reading or ± 2°C(4°F)				*
Air Flow	Range	Area				
CFM	0-999900	0-999.9 ft <sup>2</sup>			*	*
CMM	0-999900	0-999.9 m <sup>2</sup>			*	*

**Meter Size(HxWxD):** 150mm x 72mm x 35mm  
**Weight:** 210g (618/618B)

Image: A detailed table outlining the technical specifications for the DT-619 and related models, including measurement ranges and accuracies.

## 7. USEFUL EQUATIONS AND CONVERSIONS

### 7.1 Air Flow Equations

- **CFM (ft<sup>3</sup>/min)** = Air Velocity (ft/min) x Area (ft<sup>2</sup>)
- **CMM (m<sup>3</sup>/min)** = Air Velocity (m/sec) x Area (m<sup>2</sup>) x 60

### 7.2 Area Equations

**For rectangular or square ducts:**

$$\text{Area (A)} = \text{Width (W)} \times \text{Height (H)}$$

**For circular ducts:**

$$\text{Area (A)} = 3.14 \times r^2 \text{ (Radius x Radius)}$$

<b>Features</b>	
Simultaneous display of Air Flow or Air Velocity plus Ambient Temperature(619/620)	
Easy to set Area dimensions (cm <sup>2</sup> ) are stored in the meter 's internal memory for the next power on(619/620)	
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Air Temperature	-10-60°C(14-140°F)	± 2.0°C(4.0°F)	*	*	*	*
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CFM	0-999900	0-999.9 ft <sup>2</sup>			*	*
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**Meter Size(HxWxD):** 150mm x 72mm x 35mm  
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Image: Visual representation of equations for calculating area for rectangular/square and circular ducts, essential for air flow measurements.

### 7.3 Unit of Measure Conversion Table

	<b>m/s</b>	<b>ft/min</b>	<b>knots</b>	<b>km/h</b>	<b>MPH</b>
1 m/s	1	196.87	1.944	3.6	2.24
1 ft/min	0.00508	1	0.00987	0.01829	0.01138
1 knot	0.5144	101.27	1	1.8519	1.1523
1 km/h	0.2778	54.69	0.54	1	0.6222
1 MPH	0.4464	87.89	0.8679	1.6071	1

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Simultaneous display of Air Flow or Air Velocity plus Ambient Temperature(619/620)
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**Weight:** 210g (618/618B)

Image: A comprehensive conversion table for various units of air velocity, aiding in data interpretation.

## 8. APPLICATIONS

The VIHELM DT-619 Digital Anemometer is suitable for a wide range of applications requiring accurate air velocity and flow measurements:

- HVAC system testing and balancing
- Environmental monitoring
- Wind power studies
- Industrial ventilation analysis
- Outdoor sports and weather monitoring

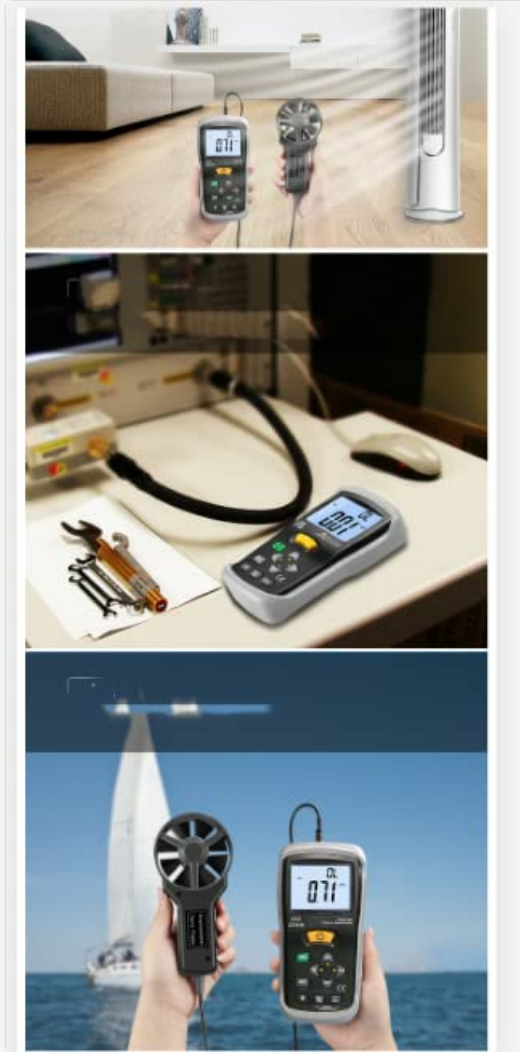


Image: The DT-619 anemometer being used in industrial settings, such as near windmills and jet engines, for air flow measurement.

## Useful Equations and Conversions

$$\text{CFM (ft}^3/\text{min)} = \text{Air Velocity (ft/min)} \times \text{Area (ft}^2\text{)}$$

$$\text{CMM (m}^3/\text{min)} = \text{Air Velocity (m/sec)} \times \text{Area (m}^2\text{)} \times 60$$

Area equation for rectangular or square ducts



Height (H)

$$\text{Area (A)} = \text{Width (W)} \times \text{Height (H)}$$

Width (W)

Area equation for circular ducts



$$\text{Area (A)} = 3.14 \times r^2 \text{ (Radius} \times \text{Radius)}$$

## Unit of Measure Conversion Table

	m/s	ft/min	knots	km/h	MPH
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1 km/h	0.2778	54.69	0.54	1	0.6222
1 MPH	0.4464	87.89	0.8679	1.6071	1

Image: The DT-619 anemometer demonstrating its versatility in various environments, including home use with a fan, laboratory settings, and marine applications.

## 9. MAINTENANCE

Proper maintenance ensures the longevity and accuracy of your DT-619 anemometer:

- **Cleaning:** Wipe the unit and vane probe with a soft, dry cloth. Do not use abrasive cleaners or solvents.
- **Storage:** When not in use for extended periods, remove the battery to prevent leakage. Store the unit in a cool, dry place away from direct sunlight and extreme temperatures.
- **Vane Probe Care:** The vane wheel is a precision component. Avoid dropping it or exposing it to excessive dust or debris, which can affect its rotation and accuracy.
- **Battery Replacement:** Replace the 9V battery when the low battery indicator appears on the display.

## 10. TROUBLESHOOTING

If you encounter issues with your DT-619, refer to the following common problems and solutions:

Problem	Possible Cause	Solution
Unit does not power on.	Dead or incorrectly installed battery.	Check battery polarity; replace with a new 9V battery.
Inaccurate readings.	Vane probe obstructed or damaged; incorrect area input for CFM/CMM.	Ensure vane spins freely; clean probe; verify area settings.
Display is dim or flickering.	Low battery.	Replace the 9V battery.
No air flow/velocity reading.	Vane probe not connected or damaged; no actual airflow.	Check probe connection; ensure probe is in active airflow.

## 11. WARRANTY AND SUPPORT

For warranty information or technical support regarding your VIHELM DT-619 Digital Anemometer, please refer to the warranty card included with your purchase or contact VIHELM customer service through their official website or the retailer where the product was purchased.

Please have your product model (DT-619) and purchase details ready when contacting support.