Dawson DAM100B

Digital Anemometer

User Manual
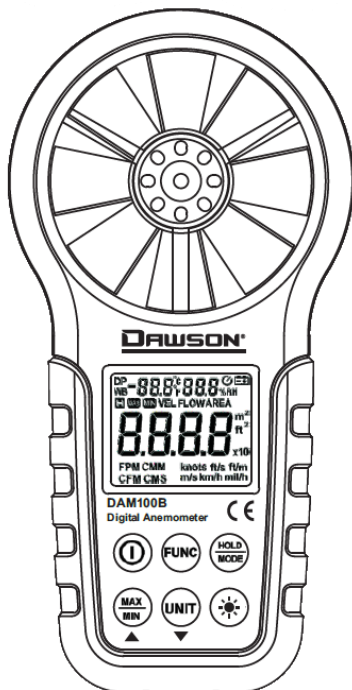
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LIMITED WARRANTY AND LIMITATION OF LIABILITY

This instrument from Dawson Tools Inc. will be free from defects in workmanship and material for three years from the date of original purchase. This warranty does not cover defects resulting from damage caused by the user such as drops, neglect, misuse, unauthorized alteration, usage outside of specified conditions, contamination, or improper repair/maintenance. To receive service on the instrument if it becomes necessary during the warranty period, contact your nearest Dawson authorized service center at (800) 898-6991 or visit www.DawsonTools.com to obtain a return authorization (within the US only). A return authorization is necessary before returning any instrument to Dawson; no service will be provided without a return authorization. The user is responsible for properly packing the unit and charges such as shipping, freight and insurance charges. The extent of Dawson's liability is limited solely to the repair/replacement of the instrument. The above warranty in its entirety is inclusive and no other warranties, written or oral, are expressed or implied.

Out of the Box

Check the Meter and accessories thoroughly before using the Meter. Contact your local distributor if the Meter or any of its components are damaged or malfunction.

Accessories

- 9V Battery   1pc
- Soft Case   1pc
- User Manual   1pc

Certification:

The $C\boldsymbol{\epsilon}$ mark indicates the Meter is compiled to EMC requirements.

Introduction
Overview

Dawson digital anemometer DAM100B is a professional instrument to measure ambient temperature, humidity, dew point temperature, wet bulb temperature, wind speed and air volume. The compact design enables the

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Meter to be hand-held or fixed. The large LCD screen with backlight provides easy-to-read testing results.

To ensure this anemometer performs properly and to avoid any damage from misuse, please follow these safety guidelines carefully.

Safety Information

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⚠ **WARNING**

TO REDUCE THE RISK OF FIRE, ELECTRICAL SHOCK, PRODUCT DAMAGE OR PERSONAL INJURY, PLEASE FOLLOW THE SAFETY INSTRUCTIONS DESCRIBED IN THE USER MANUAL. READ THE USER MANUAL BEFORE USING THE METER.

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⚠ **WARNING**

DO NOT PLACE THE METER IN ANY ENVIRONMENT WITH HIGH PRESSURE, HIGH TEMPERATURE, DUST, EXPLOSIVE GAS OR VAPOR. TO ENSURE SAFE OPERATION AND LIFE OF THE METER, FOLLOW THESE INSTRUCTIONS.

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- Avoid shaking, dropping or any kind of impacts when using or transporting the meter.
- To avoid possible electric shock or personal injury, repairs or servicing not covered in this manual should only be performed by qualified personnel.
- Avoid direct exposure to sunlight to ensure extended the life of the Meter.
- Do not place the Meter in a strong magnetic field; this may cause false readings.
- Use only the type of batteries indicated in the Technical Spec.
- Avoid exposing batteries to humidity. Replace batteries as soon as the low battery indicator appears.
- Sensitivity of the Meter to temperature and humidity will decrease over time. Please calibrate the Meter periodically for best performance.
- Please keep original packaging for future shipping purposes (ex. Calibration)
- After opening box, check for any damage during delivery.
- The Meter should only be used in the range of specified ambient temperature and humidity.

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- Do not touch the fan blades with excessive force.

⚠ **Important Safety Information**

- Repair or maintenance should be implemented by trained personnel.
- If dust appears on the fan blades, blow on it with clean air or scrub gently with a damp cloth and mild detergent. Don't use abrasive materials or solvents.
- The Meter should be turned off when it is not in use.
- The Meter will consume a small current, about < 5μA, after shutdown. If the Meter is not being used for an extended period of time, batteries should be removed to prevent any damage to the Meter.

Using the Meter

## Figures and Components

Buttons and Components

(1) Fan blades
(2) LCD Screen
(3) "FUNC" — Function switching button
(4) " $\textcircled{\textbf{I}}$ "— Power switch
(5) "UNIT" —Switch between measurement units; Wind speed (m/s, km/h, mil/h, ft/m, ft/s, knots), Air volume (CMS, CMM, CFM). When in Area mode (m²/ft²), press to increase flashing place value. In Wind speed and Air volume, press 2-3 seconds to switch temperature unit (°C/°F).
(6) "Max/Min" — Maximum/Minimum/Normal mode.
(7) "HOLD/MODE" ; " Hold display. In Wind speed/Air volume modes, press and hold 2-3 seconds to switch temperature mode (ambient temp, dew point, wet bulb)

(8) " ☀ "— Back light
(9) Fan retaining bolt hole
(10) Connection hole for fixed measurement
(11) Battery housing cover screw
(12) Battery cover

Front Panel
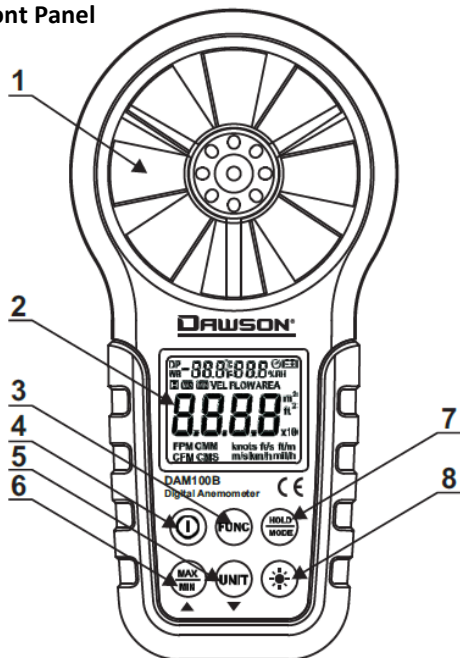
Back Panel
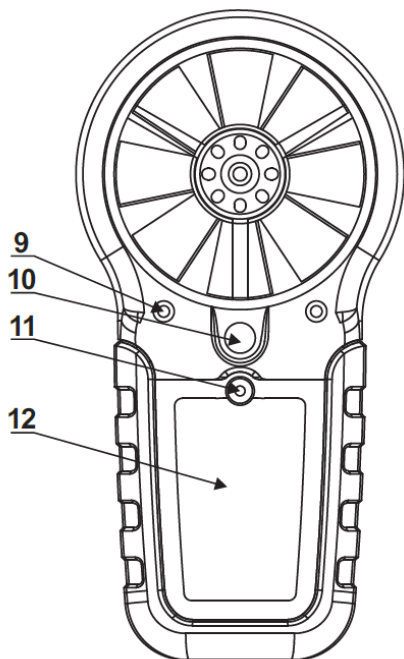
Buttons

Power On/Off   Press the " $\textcircled{1}$ " key to turn on/off
                     the Anemometer.

Reading hold   In the measuring process, press
                     "**HOLD**" key to lock the reading;
                     press it again to unlock.

Note: In the reading hold state, "**FUNC**", "**MAX/MIN**"
and "**UNIT**" buttons are not functional.

Backlight   In the measurement process, if the
                     display is too dark for reading,
                     press backlight button to turn on
                     LCD backlight. Backlight timer is set
                     for 15 seconds; during this period,
                     press the button again to turn off
                     backlight.

Note:

▪ Using the backlight will consume more power.
  Using backlight frequently will reduce battery
  life. Use backlight only when needed.

- When the battery voltage drops below 7V, the "🔋" (low battery) symbol will show on the display. However, if the battery voltage is greater than 7V, the low battery will still show up when requiring large operating current. When the "🔋" (low battery) symbol appears, the accuracy of the measurement is not guaranteed.
- Replacement of the battery is only necessary when the "🔋" (low battery) symbol appears again under regular operating condition (ex. without LCD backlight).

Symbols

The following symbols are found on the Meter or in this manual.

⊘	Auto Off On
⏸	Reading Hold
VEL	Wind Speed Measurement
Flow	Air Volume Measurement
Area	Area Setting (Required For Air Volume)
DP	"Dew Point" Temperature Mode
WB	"Wet Bulb" Temperature Mode
°C, °F	Temperature Unit

%RH	Relative Humidity
MAX	Displays Maximum
MUN	Displays Minimum
M²	Square Meter
Ft²	Square Foot
CMM	Cubic Meters per Minute
CMS	Cubic Meters per Second
CFM	Cubic Feet per Minute
Knots	Nautical Miles per Hour (1850 Meters per Hour)
ft/s	Feet per Second
ft/m	Feet per Minute
m/s	Meters per Second
Km/h	Kilometers per Hour
Mil/h	Miles per Hour
🔋	Low Battery Indicator

Measurement

Wind Speed and Air Velocity Measurement (VEL)

Place the Meter in the test environment. Turn on power switch, "**VEL**" is displayed on the screen. Speed/velocity will be measured in the direction of the wind perpendicular to the fan surface. Point the white arrow on the top of the Meter at the incoming wind.

Note:

- If the Meter is not aiming in the direction of the wind, measurements may not be accurate.
- When in steady wind the Meter will only acquire the maximum speed when the fan surface is perpendicular to the wind direction.

When using the Meter to measure air speed, press "**UNIT**" key to select the measurement unit (m/s, km/h, mil/h, ft/m, ft/s, knots).

Air Volume Area Setting

To measure air volume, first determine the area of air. Area input steps are shown as follow:

1. Press "**FUNC**" key to enter "**AREA**" mode.
2. Use the "**MAX/MIN**" and "**UNIT**" keys to adjust value and place, and area unit (m², ft²). Press "**MAX/MIN**" key again after area unit adjustment to confirm the input. Two beeps will indicate that area input is completed and settings are saved.
3. To change the area setting, please repeat step 2 under "**AREA**" mode.

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Air Volume Measurement

Place the Meter in the test environment. Use the "**FUNC**" key to set the Meter to the Air Volume Measurement mode; the "**FLOW**" symbol should display on the screen. The fan surface should be placed perpendicular to the wind direction.

Note:
- If the Meter is not perpendicular to the wind direction, the measurement is not guaranteed.
- When in steady wind the Meter will only acquire the maximum speed when the fan surface is perpendicular to the wind direction.

Air Volume Unit Selection

When the Meter is used to measure air volume, press "**UNIT**" key to select the desire measurement unit (CMS, CMM, CFM).

Maximum/Minimum
- To show the maximum value of the readings, press "MAX/MIN" button till "MAX" is displayed.

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- To show the minimum of the readings, press "MAX/MIN" button till "MIN" is displayed.
- To show current readings, press "MAX/MIN" button till the LCD does not display "MAX" or "MIN".

Temperature Unit Selection

Press and hold "**UNIT**" key for 3 seconds to switch between temperature units (°F, °C).

Temperature Mode Selection

Press the "**HOLD/MODE**" key for 3 seconds to switch temperature modes (Default - Ambient Temp, DP -Dew Point Temperature, and WB -Wet Bulb Temperature).

Note:
Temperature Mode Selection is disabled when MAX/MIN is in use.

Auto Off

When not in use, the Meter will automatically turn off in 30 seconds. To disable Auto Off, hold "**FUNC**" till "⬤" symbol disappears; hold "FUNC" again to turn Auto off back on.

Specifications

General Specifications

The Meter's accuracy is guaranteed between 64°F to 82°F (18°C~28°C),relative humidity < 75% within one year. Recalibrating annually is recommended.

- Operating Altitude: Maximum 7000 ft (2000 m)
- Calculation Principle: Speed measured by RPM of the fan.
- Display: LCD
- Maximum value: 9999
- Sampling time: ~ 0.4s/time.
- Low Battery Indicator: Sign displays on LCD
- Battery: 1×9V battery.
- Operation environment:
    - Relative humidity–0~85%RH, no moisture condensation
    - Temperature 32°F to 104°F (0°C~40°C), no moisture condensation
- Detector (fan) operation environment:
    - Relative humidity– 0~95%RH, no moisture condensation;

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- o Temperature -4°F to 176°F (-20°C~80°C), no moisture condensation.
- Storage environment:
  - o Relative humidity0~80%RH, no moisture condensation
  - o Temperature: 14°F to 122°F (-10°C~50°C), no moisture condensation
- Dimension(L x W x H):6.5"x3.3"x1.5" (165 x 85 x 38 mm)
- Weight: 0.4lb(200gm)

Technical Specifications

Air Velocity

Units	Measuring Range	Accuracy*	Resolutions
ft/s	1.30 ~ 98.50 ft/s	±(2.0% reading + 50 counts)	0.01 ft/s
	98.50 ~ 131.20 ft/s	For reference only	
ft/m	78 ~ 5900 ft/m	±(2.0% reading + 5 counts)	1ft/m

	5900 ~ 7874 ft/m	For reference only	
mil/h	0.90 ~ 70.00 mil/h	±(2.0% reading + 50 counts)	0.01mil/h
	70.00~90.00 mil/h	For reference only	
m/s	0.80 ~ 30.00 m/s	±(2.0% reading + 50 counts)	0.01 m/s
	30.00 ~ 40.00 m/s	For reference only	
km/h	1.40~108.00 km/h	±(2.0% reading + 50 counts)	0.01km/h
	108 ~ 144 km/h	For reference only	
Knots	0.80 - 58.30 knots	0.01knots ±(2.0% reading+ 50 characters)	0.01mil/h
	58.30 - 77.70 knots	For reference only	

Ambient temperature, dew point temperature, web bulb temperature

Units	Measuring Range	Accuracy*	Resolutions
°F	14°F ~ 140°F	±2.7°F	0.1°F
°C	-10°C ~ 60°C	±1.5°C	0.1°C

Air volume unit

Unit	Range	Area
CFM	0- 99990	0 - 9.999 ft²
CMM	0- 99990	0 - 9.999 m²
CMS	0- 9999	0 - 9.999 m²

Relative Humidity

Units	Measuring Range	Accuracy*	Resolutions
RH	(20 ~ 80)%RH	±3%RH @25°C	0.1%RH
	(<20 or >80)%RH	±5%RH @25°C	0.1%RH

*All accuracies indicated in this document were stated in laboratory condition and can be guaranteed for measurements carried out in the same conditions, or in required conditions.

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Maintenance and Repair

Repair

Please follow these steps closely if the Meter is not functioning properly:

- Check the batteries, replace new batteries if low battery indicator "⊡" appears.
- Follow User Manual to confirm all procedures.
- Before sending Meter back for repair, include a description of the problems encountered. Remove the batteries and pack the Meter well to avoid possible damage by the delivery; Dawson does not cover the damage due to delivery.
- Repairs or servicing not covered in this manual should be performed only by the authorized service center or qualified personnel.

Replacing Batteries

Follow these steps to replace batteries:

- Turn off the Meter.
- Loosen the battery compartment door screw and remove the door from case bottom.
- Remove the batteries and replace with new ones.
- Re-attach the battery compartment door to the case bottom and tighten the screw.

Contact Dawson

Dawson Tools, Inc.
1142 S. Diamond Bar Blvd., #858
Diamond Bar, CA 91765
Phone: (310) 728-6220
www.DawsonTools.com

Do not recycle

Features

- LCD Display
- Auto and Manual Range
- Auto Power Off
- Dew Point
- Wet Bulb
- MAX/MIN Display
- Back Light
- Data Hold
- Low Battery Indicator