GENERAL®

MINI ANEMOMETER-PSYCHROMETER WITH COMPASS AND MEMORY

USER'S MANUAL

DAF3012M

Please read this manual carefully and thoroughly before using this product.

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INTRODUCTION

Thank you for purchasing General Tools & Instruments' DAF3012M Mini Anemometer-Psychrometer with Compass and Memory. Please read this user's manual carefully and thoroughly before using the product.

The DAF3012M is a one-piece vane anemometer-psychrometer that can measure all parameters needed to monitor environmental conditions indoors or track weather conditions outdoors.

KEY FEATURES

- Measures:
  - ○ Ambient temperature
  - ○ Dew Point and Wet Bulb temperatures
  - ○ Wind Chill Index (WCI)
  - ○ Air/wind speed and direction
  - ○ Relative humidity (RH)
  - ○ Barometric pressure
- Stores/recalls 20 pairs of readings
- All temperatures displayable in °F (default) or °C
- Five available air/wind speed units: ft./min, mph, m/sec, km/hr, knots
- Min, Max and Avg session values for air/wind speed
- Barometric pressure readings available in kPa or mbar
- Large backlit dual readout LCD
- 5-minute Auto Power Off
- Small and light enough for one-handed operation
- Includes vane and sensor cap with wrist strap
- Tripod mount
- CE and RoHS approved
- 1 year limited warranty

WHAT'S IN THE PACKAGE

The meter comes in a blister pack with a "CR2032" button cell pre-installed in the battery compartment. A hard copy of this user's manual is inside the blister card.

PRODUCT OVERVIEW

Fig. 1 below shows all controls, indicators and physical structures of the DAF3012M, as well as the location of the battery compartment. Fig. 2 shows all possible indications on the meter's LCD.

Fig. 1. The controls, indicators and physical structures of the DAF3012M

A. Vane and sensor protection cap

B. Vane

C. Temperature-humidity sensor

D. LCD

E. Keypad

F. Battery compartment

G. Wrist strap

H. Threaded tripod mounting hole

Fig. 2.
All possible display indications

A. Air/wind speed mode indicator

B. RH mode indicator

C. Barometric pressure mode indicator

D. Air/wind speed session value indicators

E. Air/wind speed units

F. Barometric pressure units

G. RH unit

H. Temperature units

I. Lower readout

J. Wind Chill Index, Dew Point and Wet Bulb indicators

K. Measurement HOLD indicator

L. Memory pointer

M. Memory counter

N. Memory recall mode indicator

O. Low battery indicator

P. Compass

Q. Bearing readout

R. Upper readout

SETUP INSTRUCTIONS

ACTIVATE BATTERY

1. Turn the meter over and use your thumbs or a coin to turn the battery compartment cover (Fig. 1, Callout F) clockwise 30 degrees, in the direction marked **OPEN**.
2. Pull and discard the tab under the pre-installed battery.
3. Replace the battery compartment cover and turn it counterclockwise 30 degrees until it snaps shut.

Complete Setup by carefully removing the plastic film protecting the LCD.

OPERATING INSTRUCTIONS

To power on the DAF3012M, press the red ⏻ button. The LCD will illuminate with the backlight on and show all possible display indications for 2 seconds. The unit will then automatically enter the measurement mode in which it was operating when it powered off. The backlight will turn off after 15 seconds if no front-panel button is pressed during that period. Pressing any button begins another 15 seconds of backlight.

To power off the DAF3012M, press and hold the ⏻ button for at least 2 seconds.

To change measurement mode, start by pressing the **MODE** button. This will cause the icon of the current mode to begin flashing on the top line. Then press the **SET** button once or twice, until the icon of the mode you want begins flashing on the top line.

The figure below shows the three measurement modes in their sequence of selection using the **SET** button.

When the icon of the mode you want appears, flashing, on the top line, press the **MODE** button once to stop it from flashing. Doing this will cause one or more measurement unit icons below to begin flashing. Press the **MODE** button again to stop those icons from flashing. This causes the meter to enter real-time measurement mode for the chosen parameter (air/wind speed, RH or barometric pressure).

To hold any pair of measurements ("freeze" the readouts), briefly press (but do not hold) the ⏻ button (which has **HOLD** stenciled above it). To release the hold and resume displaying real-time values, briefly press the button again. This function is very useful for making measurements in low light or when the source of air or wind is above your head, below your knees, or around a corner. You can make a measurement, hold it, and then read the display up to 5 minutes later after positioning the LCD at eye level.

Why do you have only 5 minutes? To extend battery life, the DAF3012M automatically powers itself off following any 5-minute period in which no front-panel button is pressed.

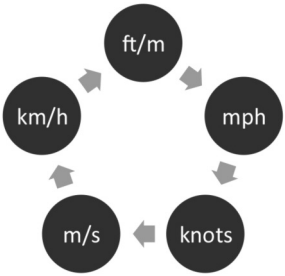
MEASURING AIR/WIND SPEED AND TEMPERATURES

To make an air/wind speed measurement, unsnap the vane and sensor protection cap (Fig. 1, Callout A) and let it hang from the unit by the wrist strap. Turn the vane at the top of the unit perpendicular to the source of air or wind. It makes no difference whether the front of back of the vane faces the flow. The measured air/wind speed value will appear on the upper readout. Allow a few seconds for the reading to stabilize.

The DAF3012M's factory default air/wind speed measurement unit is feet/minute (ft/m). **To change the air speed unit**, begin by pressing the **UNIT** button. This will cause **ft/m** to begin flashing on the right side of the upper readout (Fig. 2, Callout E). Then, within 15 seconds (before the backlight extinguishes), press the **SET**

button. This will change the flashing **ft/m** term to **mph**, also flashing. Press the **SET** button again and **mph** will turn to knots. Press it again to change **knots** to **m/s**.

Press the **SET** button as many times as necessary until the air/wind speed unit you prefer appears, flashing, at the right of the upper readout. To save this unit, press the **UNIT** button. The figure at right shows the five available air/wind speed units in their selection sequence.



When you press the **UNIT** button to save your preferred air/wind speed unit, **°F**—the DAF3012M's factory default temperature measurement unit—will begin flashing in the lower right corner of the LCD. To keep **°F** as the temperature measurement unit, begin by pressing the **UNIT** button. This will cause **°F** to stop flashing and the meter to resume displaying real-time air/wind speed and temperature measurements. To change the temperature unit to **°C**, press the **SET** button, followed by the **UNIT** button to save the selection.

The DAF3012M will "remember" the air/wind speed and temperature units (as well as its operating mode and other selected units and parameters) in use each time it powers off and will resume operating in that mode and with those units upon restart. So if you always use ft/m and °F for air/wind speed and temperature measurements, you need not perform any of the above steps. And if you always use the same air/wind speed and temperature units (other than ft/m and °F), you need only perform the above procedure once. Unlike many instruments, changing the battery does *not* reset all units to their factory default.

As mentioned earlier, the DAF3012M automatically begins measuring and displaying ambient temperature upon startup. **To display other temperatures whose calculation includes the**

effect of wind speed or humidity (Wind Chill Index, or Wet Bulb and Dew Point temperatures, respectively), begin by pressing the **MODE** button with the meter operating in air/wind speed mode (with **VEL** appearing on the top line of the LCD). This will cause **VEL** to begin flashing. Then press the **MODE** button again. On meters that have come fresh from the factory, this will cause the three terms **WCI**, **DEW** and **WET** to appear, flashing, above the lower readout (Fig. 2, Callout J). Within 15 seconds (before the backlight turns off), press the **SET** button as many times as necessary until the temperature you want appears by itself, flashing, above the lower readout. Note that the temperature below changes with each press of the **SET** button. To save the temperature you want, press the **MODE** button while its abbreviated term (**WCI**, **DEW** or **WET**) is flashing.

As with air/wind speed units, the type of temperature you select and save becomes the display default until you change it.

When operating in Wind Chill Index mode, make sure the vane is perpendicular to the wind direction.

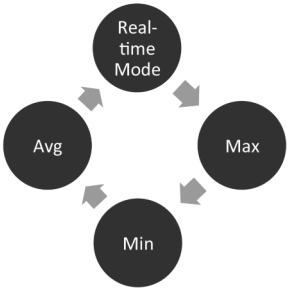
DISPLAYING MIN/MAX/AVG AIR AND WIND SPEEDS

The DAF3012M keeps track of the maximum and minimum (fastest and slowest) and average air speed values recorded over a measurement "session"—the period of time during which you measure speeds at multiple locations and/or speeds of multiple devices. The session begins when you power on the DAF3012M; it typically ends 5 minutes after you finish making measurements with the activation of the APO function.

The value of being able to quickly determine, for example, the fastest and slowest fans of a group should be obvious.

To display the maximum, minimum or average air/wind speed during a measurement session, press the **DISP** button as many times as necessary until the label of the desired value (**Max**, **Min**

or **Avg**) appears above the upper readout (Fig. 2, Callout D). The figure at right shows the three available session parameters in their selection sequence relative to real-time measurement mode.



MEASURING RELATIVE HUMIDITY (RH)

To enter RH mode, press the **SET** button with **VEL** flashing on the top line of the LCD. This will change the flashing term to **RH**. To stop **RH** from flashing, press the **MODE** button.

The DAF3012M will now display real-time RH values on the upper readout and the current Wind Chill Index or Dew Point or Wet Bulb temperature on the lower readout. To change the unit of temperature measurement to or from °F or °C, press the **SET** button, followed by the **UNIT** button to save the selection. To leave the unit unchanged, press the **UNIT** button.

MEASURING BAROMETRIC PRESSURE

To enter barometric pressure mode, press the **SET** button with **RH** flashing on the top line of the LCD. This will change the flashing term to **BP**. To stop **BP** from flashing, press the **MODE** button.

You can now enter your preference for using the metric or Imperial unit for barometric pressure—the kilopascal (**kPa**) or millibar (**mBAR**), respectively. To change kPa to mBAR, begin by pressing the **UNIT** button. This will cause **kPa** to begin flashing between the upper and lower readouts (Fig. 2, Callout F). Then press the **SET** button, followed by the **UNIT** button to save the selection.

Saving the selected barometric pressure unit will cause the default temperature unit at the right of the lower readout to begin flashing. To change the unit, press the **SET** button, followed by the **UNIT** button to save the selection. To leave the unit unchanged, press the **UNIT** button.

STORING AND RECALLING RECORDS

The DAF3012M can store up to 20 pairs of the measurements shown on the upper and lower readouts for later recall in chronological order (the order in which they were stored).

To store the pair of readings currently on-screen, press the **REC** button. The readings will be stored at the location indicated by the memory counter (Fig. 2, Callout M) above the memory pointer **JOB** (Callout L). Note that each press of the **REC** button increments the memory counter by 1. The DAF3012M's memory is nonvolatile, so stored pairs of readings (collectively called a Record) are retained when the meter powers off, and also after the battery is changed.

To recall one or more readings, make sure the meter is operating in one of the three real-time measurement modes (air/wind speed, RH or barometric pressure), with no terms flashing on screen. Then press the **RCL/DEL** button once. This will replace the term **JOB** by the memory recall mode indicator **Rec** (Fig. 2, Callout N) above. Both readouts will switch to displaying the oldest record saved (the pair of readings in memory location **01**).

To display the next-newest record, press the **SET** button. Continue pressing the **SET** button to sequentially display all stored records in the order in which they were saved. Pressing the **SET** button with the newest record on-screen resets the memory counter to **01**. To exit memory recall mode, briefly press (but do not hold) the **RCL/DEL** button. This will replace the term **Rec** above the storage location number by the term **JOB** below it.

When the DAF3012M's 20-record memory is full, pressing the **REC** button will not store the current pair of readings—in other words, the memory is not over-writing. To store readings with a full memory, you must delete one or more records manually.

To delete an individual record, first make sure the meter is operating in one of the three real-time measurement modes. Then,

1. Press the **RCL/DEL** button to enter memory recall mode, with Rec replacing **JOB** at the lower left of the LCD.
2. Press the **SET** button repeatedly until the record to be deleted is on-screen, with its memory location number shown below **Rec**.
3. Briefly press (but do not hold) the **REC** button to delete the record. This will change **Rec** to **JOB** (indicating exit from memory recall mode) and change the readouts to the next-newest pair of stored readings. If no newer readings have been stored, the readouts will switch to the next-oldest pair of readings.

To bulk-erase the memory (delete all records), press and hold the **REC** button for at least 2 seconds with the meter operating in one of its three real-time measurement modes. This will reset the memory counter to **01**.

USING AND CALIBRATING THE COMPASS

The DAF3012M is equipped with a magnetometer (electronic compass) capable of displaying direction within 45 degrees using the standard terms N, NE, E, SE, S, SW, W and NW. Bearings are simultaneously shown in two places: in the upper left corner of the LCD (Fig. 2, Callout Q), and below it at the end of an arrow pointing in that direction (Callout P).

To provide accurate readings, the compass should be calibrated after each battery replacement. **To begin the calibration process**, take the meter outdoors to minimize the effects of indoor electromagnetic interference (EMI). Then:

1. Use the **MODE** and **SET** buttons to place the meter in air/wind speed measurement mode, with **VEL** visible but not flashing on the top line of the LCD.

2. Press and hold the **RCL/DEL** button until **OH** appears on the upper readout and **OL** appears on the lower readout.
3. Holding the meter facing up in front of you, rotate your body through three full 360° turns.
4. Press and hold the **RCL/DEL** button until **OH** and **OL** are replaced by real-time air/wind speed and temperature readings on the upper and lower readouts.

SPECIFICATIONS

Air/Wind Speed Measurement Range:
80 to 5910 ft./min (0.4 to 30 m/s)

Air/Wind Speed Measurement Accuracy:
±(3% of full-scale value + 40 ft./min (0.2 m/s))

Air/Wind Speed Measurement Resolution: 1 ft./min (0.1 m/s)

Temperature Measurement Range: -4° to 158°F (-20° to 70°C)

Temperature Measurement Accuracy: ±1.8°F (1°C) from 14° to 104°F (-10° to 40°C); ±3.6°F (2°C) elsewhere in range

Temperature Measurement Resolution: 0.1°

Relative Humidity (RH) Measurement Range: 0 to 100%

RH Measurement Accuracy/Resolution: ±3% from 20 to 80%RH; ±5% elsewhere/ 0.1%RH

Dew Point Measurement Range: -67° to 122°F (-55° to 50°C)

Wet Bulb Measurement Range: -31° to 122°F (-35° to 50°C)

Barometric Pressure Measurement Range:
30 to 120 kPa (300 to 1200 mbar)

Barometric Pressure Measurement Accuracy/Resolution:
±1 kPa (0.1 mbar), from 70 to 115 kPa (700 to 1150 mbar);
±2 kPa (0.2 mbar) elsewhere in range

Response Time: <2 seconds for air/wind speed

Display Size: 1.34 x 0.94 in. (34 x 24mm)

Auto Power Off Trigger: 5 minutes of front-panel inactivity

Backlight Duration: 15 seconds (without front-panel activity)

Current Consumption: <3 mA with backlight off,
<10 mA with backlight on

Operating Temperature: -4°to 158°F (-20° to 70°C)
@ 5 to 95%RH, non-condensing

Storage Temperature (without battery): -22° to 140°F
(-30° to 60°C) @ <85%RH

Dimensions: 5.83 x 2.08 x 0.87 in. (148 x 53 x 22mm)

Weight (without battery): 2.93 oz. (83g)

Power Source: (1) "CR2032" battery (pre-installed)

MAINTENANCE TIPS

When the ▬▭ icon appears on the left side of the LCD (Fig. 2, Callout O), it's time to change the anemometer's "CR2032" battery (although measurements will remain valid for several hours after the icon first appears). To change the battery, follow the Setup Instructions on p. 6.

Remove the battery if you do not expect to use the DAF3012M for an extended period of time (months or years).

Replace the vane and sensor protection cap (Fig. 1, Callout A) following each measurement session.

Do not drop or disassemble the unit or immerse it in water.

Do not operate the DAF3012M:

- Near a magnet
- Near equipment like arc welders and induction heaters that generate an electromagnetic field

• In environments full of water vapor, dust or static electricity

To clean the housing or LCD, use a dry or damp cloth. Avoid using chemical cleaners.

WARRANTY INFORMATION

General Tools & Instruments' (General's) DAF3012M Mini Anemometer-Psychrometer with Compass and Memory is warranted to the original purchaser to be free from defects in material and workmanship for a period of one year. Subject to certain restrictions, General will repair or replace this instrument if, after examination, the company determines it to be defective in material or workmanship. The warranty period begins on the date of purchase. You are encouraged to register your product online. General will extend your warranty an additional 60 days if you register at www.generaltools.com/ProductRegistry.

This limited warranty does not apply to damages that General determines to be from an attempted repair by non-authorized personnel or misuse, alterations, normal wear and tear, or accidental damage. The defective unit must be returned to General Tools & Instruments or to a General-authorized service center, freight prepaid and insured.

Acceptance of the exclusive repair and replacement remedies described herein is a condition of the contract for purchase of this product. In no event shall General be liable for any incidental, special, consequential or punitive damages, or for any cost, attorneys' fees, expenses, or losses alleged to be a consequence of any damage due to failure of, or defect in any product including, but not limited to, any claims for loss of profits.

Register now at www.generaltools.com/ProductRegistry to receive a 60-day extension to your warranty.

RETURN FOR REPAIR POLICY

Every effort has been made to provide you with a reliable product of superior quality. However, in the event your instrument requires repair, please contact our Customer Service to obtain an RGA (Return Goods Authorization) number before forwarding the unit via prepaid freight to the attention of our Service Center at this address:

General Tools & Instruments
80 White Street New York, NY 10013 212-431-6100

Remember to include a copy of your proof of purchase, your return address, and your phone number and/or e-mail address.

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DAF3012M User's Manual
Specifications subject to change without notice

MAN# DAF3012M
9/2/14

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