Dwyer®

Model 471B Digital Thermo Anemometer

Specifications - Installation and Operating Instructions

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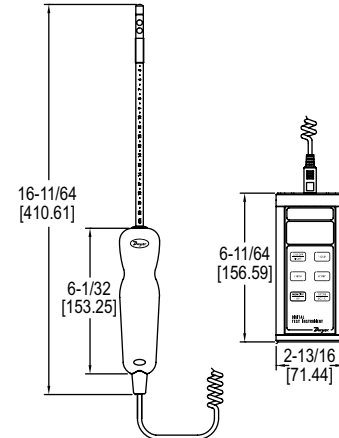
The **Model 471B Digital Thermo Anemometer** is a versatile dual function instrument that quickly and easily measures air velocity or volumetric flow plus air temperature in imperial or metric units. High contrast LCD display shows both selected readings simultaneously. Convenient backlight provides perfect visibility in low light conditions. Light automatically shuts off after 2-1/2 minutes to prolong battery life. Low battery warning is included. Stainless steel probe with comfortable hand grip is etched with insertion depth marks from 0 to 8 inches and 0 to 20 cm. Extruded aluminum housing fully protects electronics, yet is lightweight and comfortable to hold even when taking multiple readings as part of duct traverses. Up to 99 readings may be stored for later retrieval. An integral sliding cover protects sensors when not in use. Items included with the 471B are 9 V alkaline battery, sensing probe, wrist strap and custom carrying case.

Battery Installation

The unit is shipped with a separate 9 volt alkaline battery which must be installed before operation. Remove the two screws holding the bottom endcap in place and remove it. Connect the battery to the enclosed battery clip, observing correct polarity. Be careful not to trap the wires between the case or foam pad which retains the battery. This could make it difficult to install the battery or remove it later for replacement. Be sure the rubber gasket is properly seated in the gasket channel and replace the endcap. Note that the endcap will only fit one way because the holes are slightly off-center. Place the "Z" shaped wrist strap clip in one of the screw recesses and replace the screws. Do not overtighten. Attach the wrist strap to the clip.

When battery replacement becomes necessary, use only 9 volt alkaline type batteries such as a Duracell® MN1604, or Eveready® 522 or equivalent. Zinc-carbon types, often labeled Heavy-Duty, are not recommended because of their shorter life and an increased potential for leakage. Alkaline batteries are a better value because they last typically up to three times longer in this device.

Low Battery Indicator

A weak battery may cause improper operation or inaccurate measurements. A low battery indicator (▭) is provided on the display to show when the battery needs to be replaced. Although the unit may appear to function and read properly, the accuracy of the readings cannot be guaranteed when the (▭) indicator is empty of power segments. Replace the battery with a fresh one. Do not leave an exhausted battery in the unit due to potential battery leakage.

NOTICE	The side of the probe with dot should face the flow.

SPECIFICATIONS

Service: Air velocity and temperature of clean, dry air.
Temperature Limits: Process air velocity: -20 to 212°F (-29 to 100°C); Process temperature: -40 to 212°F (-40 to 100°C); Ambient: 5 to 125°F (-15 to 51°C).
Display: 4.5 digit LCD.
Resolution: 0.1%, 0.1°F/°C.
Air Velocity Range: 45 to 6000 FPM (0.23 to 30 m/s).
Air Velocity Accuracy: ±3% FS within temperature range of 40 to 90°F (4 to 32°C). -TAB option: ±5% of reading, not less than ±1.6 FPM (0.5 m).
Volumetric Air Flow Range: 19,999 in selected flow units.
Temperature Range: -40 to 212°F (-40 to 100°C).
Temperature Accuracy: ±0.5°F (±0.28°C) from 32 to 122°F (0 to 50°C); ±1.5°F (±0.83°C) from -40 to 32°F (-40 to 0°C) & 122 to 212°F (50 to 100°C).
Probe Length: 8″ (203 mm) insertion.
Cable Length: 28″ (71 cm) retracted, 6 ft (183 cm) extended.
Power Requirements: 9 V alkaline battery, installed non-functional, user replaceable.
Weight: 16 oz (454 g).
Agency Approvals: CE.

OPERATING INSTRUCTIONS

ON/OFF/LIGHT

A single press turns unit on, and a second press turns unit off. While unit is on, hold for 2 seconds to turn on the backlight. If the light is active, press once to turn the light off and another to turn the unit off.

HOLD

A single press freezes the current reading and a second press resumes live process reading.

MENU

A single press will display the menu. Hit MENU while in the main menu to go back to the home screen or while in the sub-menus to back up one level.

ENTER

When in the home screen, press to cycle through displayed values. While in the menu, press to enter sub-menus or values. Press and hold for 4 seconds to clear MAX, MIN, or MEM in their respective menus.

MEMORY/UP

A singles press will retrieve stored data points in the memory. Each successive press will scroll to the next saved memory location ST01, ST02, etc. While in the menu, it becomes the UP button.

STORE/DOWN

A single press will store the current reading on the screen. ST01, ST02, etc. shows in the display to indicate the memory location where the reading was saved. While in the menu, it becomes the DOWN button.

HOLD

HOLD will appear on the home screen when the **HOLD** button is pressed, indicating the process reading has been frozen.

Memory Storage and Retrieval

From the home screen, push **MEMORY/UP** to view all previously stored values. Cycle up or down through the stored data with the **MEMORY/UP** or **STORE/DOWN** buttons. From the home screen, press **STORE/DOWN** to store data points to memory. For both data storage and data memory retrieval, press **MENU** to return to the home screen.

MENUS
Maximum

Push **ENTER** to see the maximum recorded reading. When viewing the maximum recorded reading, hold **ENTER** for 4 seconds to clear. Press **MEMORY/UP** or **STORE/DOWN** to cycle through parameters.

Minimum

Push **ENTER** to see the minimum recorded reading. When viewing the minimum recorded reading, hold **ENTER** for 4 seconds to clear. Press **MEMORY/UP** or **STORE/DOWN** to cycle through parameters.

Average

Press **ENTER** to view the AVG function. This function will adjust the process reading on the home screen to report the average reading over the period of selected time. Press **MEMORY/UP** or **STORE/DOWN** to select between 0, 30, or 60 second values. Push **ENTER** to store the desired value.

Memory

Press **ENTER** to see CLr. Hold **ENTER** for 4 seconds to clear all stored memory locations.

Engineering Units

Press **ENTER** to see current engineering units. Press **MEMORY/UP** or **STORE/DOWN** to select another unit.

Area

Press **ENTER** to view the current duct shape setting. rEC for rectangular or CIrCL for circular will appear. To alter between the two, push the **MEMORY/UP** button or **STORE/DOWN** buttons. If a circle duct shape is selected, press **ENTER** to see DIAM the diameter value. If rectangle is chosen, **ENTER** will allow adjustment of the XdIM and YdIM of the duct. A numeral position will blink indicating it can be adjusted with the **MEMORY/UP** or **STORE/DOWN** buttons. Hit **ENTER** to store a value.
Note: In metric mode dimensions will be displayed in mm. Inches will be the value when using imperial units.

Power Management

Push **ENTER** to see current time off setting. Select 30 or 10 values indicating minutes for power to automatically shut-off. By selecting 0, the auto shut-off is disengaged and the unit will only turn off manually by the **ON/OFF/LIGHT** button.

Factory Restore

This function allows the user to restore the unit to factory settings. Press **ENTER** to view the restore function. CLr will be shown on the display. Press and hold **ENTER** for 4 seconds until CLrd is displayed. The unit will then be restored to factory defaults.

MAINTENANCE/REPAIR
Upon final installation of the Model 471B, no routine maintenance is required. The Model 471B is not field serviceable and should be returned if repair is needed. Field repair should not be attempted and may void warranty.

WARRANTY/RETURN
Refer to "Terms and Conditions of Sales" in our catalog and on our website. Contact customer service to receive a Return Goods Authorization number before shipping the product back for repair. Be sure to include a brief description of the problem plus any additional application notes.

This product uses FreeRTOS (www.FreeRTOS.org) version 7.0.1. A copy of the original Free RTOS source shall be provided upon request.

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