The Model UHH Universal Handheld Test Instrument is a highly versatile instrument that offers the utmost flexibility and ease of user operation by having the capacity to work with a variety of Dwyer Instruments, Inc. compatible sensing modules and probes. Additional wired and wireless probes or modules are instantly recognized by the UHH without any user reprogramming or alteration. See the Dwyer Instruments, Inc. catalog or website www.dwyer-inst.com for available packages and sensors. The Universal Handheld offers a slew of features that enable a technician to quickly set up and intuitively navigate through their daily activities. Data is stored via the internal memory or separate SD card in various auto or manual logging operations. Logged files can be quickly transferred to a device through a USB cable or by a portable SD card. The display can operate in standard numerical meter mode, gauge mode with analog needle and bar graph, gauge mode with additional pass/fail operation zones, and strip chart mode which allows a simplified visual tracking of the process. The four button directional plus enter button combined with the three soft key buttons aligning to corresponding screen functions allow for quick navigation through the four main operation menus. The rugged plastic case with protective thermo-plastic over-mold along with the dust-shielding rubber caps permit the unit to handle abuse and properly withstand transportation of a module with the base instrument during testing. A flexible hand connected to a belt, pipe, ladder or similar structure freeing the user's hands to focus on the sampling test. A 6-pin connector enables one wired probe at a time long term operation to last through several days work. At just under 10 oz, the compact UHH base is lightweight. Included in the standard series kits is a soft carrying case which secures the provided accessories and test probe. The Pro-Series provides the addition of a rugged hard case with foam cut-outs that secures existing as well as additional test sensors and accessories.

*Wireless Guidelines in Accordance with FCC:
Changes not expressly approved by Dwyer Instruments Inc. could void the user’s authority to operate the equipment.

This product complies with FCC OET Bulletin 65 radiation exposure limits set forth for an uncontrolled environment.

Pursuant to FCC 15.21 of the FCC rules, changes not expressly approved by Dwyer Instruments, Inc. might cause harmful interference and void the FCC authorization to operate this product.

Canadian Government Guidelines:
Operation is subject to the following two conditions: (1) This device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.

**INFORMATION TO THE USER**

**Power Output:** 6 mW

**Operating Frequency:** 2.4 GHz

**Operating Channel:** 11

**Operating Mode:** IEEE 802.15.4, Zigbee, Direct Sequence Spread Spectrum

**Data Rate:** Up to 250 kbps

**Intended Use:** Industrial/commercial HVAC

**Antenna Connection:** Internal only, non-tunable

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** Bulletin TE-UHH**

**Model UHH - Universal Handheld Test Instrument**

**Specifications - Installation and Operating Instructions**

**UHH SPECIFICATIONS**

**Languages:** German, Spanish, Italian, English, Portuguese.

**Display:** OLED, color 240 x 320.

**Temperature Limits:** 5 to 125°F (-15 to 51°C).

**Note:** When using wireless function: 20 to 125°F (-6 to 51°C).

**Battery Charging Limits:** 32 to 113°F (0 to 45°C).

**Resolution:** 1 FPM, 0.1 MPS, 0.1 CFM & M/H, 0.1°F & °C, RH 0.1%.

**Units Air Velocity:** FPM, MPH, KN, M/S, KPH, FPS.

**Units Flow:** CFM, M/H, M/S, GPM, GPH, GPD, LPM, LPH.

**Units Temperature:** °F, °C.

**Handle Enclosure:** Thermoplastic elastomer over polycarbonate.

**Maximum Wireless Distance:** 50’ (15 m) typical.

**Power Requirements:** Rechargeable lithium ion polymer via USB.

**Weight:** 10 oz (283 g).

**Supplied With:**
- AQTI: Soft case; USB cable/charger; Hand strap;
- AGTP: Soft case; Hard case; USB cable/charger; Hand strap, 2GB SD card.
- Agency Approval: IEC 61000-4-2, IEC 61000-4-3, EN 55022, IEC 60601-1-2, EN 300 328, CE with approved charger, RoHS; Note: Intended to be operated with power cables less than 3 m in length, *FCC Compliance.

**THERMO ANEMOMETER PROBE SPECIFICATIONS**

**Service:** Air velocity and temperature detection in clean 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).

**Wireless Probe Battery Charging Limits:** 32 to 113°F (0 to 45°C).

**Range Air Velocity:** 0 to 6000 FPM (0 to 30 m/s).

**Accuracy Air Velocity:** ±3% FS within temperature range of 40 to 90°F (4 to 32°C).

**Range Volumetric Air Flow:** 999,999 in selected flow units.

**Range Temperature:** -40 to 212°F (-40 to 100°C).

**Accuracy Temperature:** ±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) and 122 to 212°F (50 to 100°C).

**Handle Enclosure:** Thermoplastic elastomer over polycarbonate.

**Probe Length:** 8” (203 mm) insertion.

**Cable Length:** 28” (71 cm) retracted, 6 ft (183 cm) extended.

**Supplied With:** Wrist strap.

**Agency Approval:** EN 55011, EN 61326-1, IEC 61000-4-2, IEC 61000-4-3, EN 55022, RoHS, *FCC Compliance.

**HUMIDITY/TEMPERATURE PROBE SPECIFICATIONS**

**Service:** Humidity and temperature detection in clean air.

**Temperature Limits:**
- Process: -22 to 176°F (-30 to 80°C);
- Ambient: 5 to 125°F (-15 to 51°C).

**Wireless Probe Battery Charging Limits:** 32 to 113°F (0 to 45°C).

**Range Relative Humidity:** 0 to 100%

**Accuracy Relative Humidity:** ±2% FS over 10 to 90% @ 77°F (25°C).

**Range Temperature:** -22 to 140°F (-30 to 60°C).

**Accuracy Temperature:** ±0.9°F @ 72°F (±0.5°C) @ 25°C.

**Handle Enclosure:** Thermoplastic elastomer over polycarbonate.

**Probe Length:** 8” (203 mm) insertion.

**Cable Length:** 28” (71 cm) retracted, 6 ft (183 cm) extended.

**Supplied With:** Wrist strap.

**Agency Approval:** EN 61000-6-2, EN 61000-6-4, IEC 61000-4-2, IEC 61000-4-3, EN 55011, EN 61326-1, RoHS, *FCC Compliance.
UHH FEATURE OUTLINE

SD MEMORY CARD SLOT

PROTECTIVE RUBBER CAPS

INDUSTRIAL 6-PIN PROBE CONNECTION

HAND STRAP TOP CLIPS

SENSOR AND LOGGING ICON LOCATION

MAIN MENUS

BATTERY INDICATOR

LARGE BACKLIT COLOR OLED

3 SOFT KEYS CORRESPOND TO APPLICABLE ON-SCREEN FUNCTIONS

ACTIVE PROBE NUMBER INDICATOR

LED INDICATES CHARGING STATUS AND DATA STORAGE
GREEN: INDICATES CHARGING. NOTE: TURNS OFF WHEN FULLY CHARGED. YELLOW:
INDICATES A DATA POINT STORAGE OR THAT UNIT IS IN SLEEP MODE.

4 DIRECTIONAL ARROWS WITH ON/OFF/ENTER BUTTON ALLOW QUICK NAVIGATION

4 DIRECTIONAL ARROWS WITH ON/OFF/ENTER BUTTON ALLOW QUICK NAVIGATION

POWER BUTTON: Hold for 5 seconds until LED turns RED and then release to power OFF.

LED INDICATES STATUS:
- Solid Green: Battery charging
- Blinking Green: Communicating with UHH
- Blinking Amber (short): Waiting for communications with handheld
- Blinking Amber (long): Probe initializing
- Solid Red: Low battery

USB CONNECTION FOR DATA TRANSFER OR RECHARGING WITH INTEGRAL PROTECTIVE RUBBER CAP

USB CONNECTION FOR RECHARGING WITH INTEGRAL PROTECTIVE RUBBER CAP
Probes Menu

- Press the \[ \text{ } \] to scroll through the top main menus.
- When \text{PROBE} is highlighted, hit the enter key.
- The currently active probe connected will appear as well as the parameter types being provided to the UHH. \text{ACTIVE} will detail the active probe’s description, model code and corresponding serial number.
- Select the primary measurement of the home screen under the \text{MAJOR} setting.
- To alter the potential modes of the measurements, scroll down to any of the \text{TYPE} sub-menus to select and adjust.

- In this example, the \text{Anemometer} can be changed from either \text{Velocity} mode or \text{Vol. Flow} mode.
- Change the engineering units to be displayed under the \text{UNITS} section.
  \text{Note}: Some probes or modules may provide a selectable range which can be adjusted here.

- Similarly to when \text{Velocity} is selected, applicable engineering units can be chosen in the \text{UNITS} category for \text{Vol. Flow}.
- Note an area must be entered.

- If \text{Vol. Flow} is chosen, select the \text{AREA} category to adjust the \text{DUCT} style, the \text{AREA UNITS}, \text{HEIGHT} and \text{WIDTH} dimensions.

- In this example, the \text{Temperature} range is set and cannot be changed as it is green and unselectable, however the units may be adjusted.

- After placing the UHH into \text{Pairing Mode}, turn on one wireless probe. After a period of up to 15 to 20 seconds, the UHH screen will update with the information about the wireless probe just turned on.
  \text{Note}: If probe does not appear, power probe down, then power back on.
• To confirm a proper pairing, select that probe on the list. That probe’s details will disappear, meaning that probe has been paired. The details of paired probes will now be visible in the Paired sub-menu. Once paired, no other UHH can pair with that probe as long as your UHH is communicating with that probe.

• In Paired sub-menu you can see probes that are paired with the UHH. You may delete probes from being paired by selecting. Once deleted, any UHH can pair with that probe.

SYS Menu

• Press the to scroll through the top main menus.
• When SYS is highlighted, push the enter key.
• The STATUS will show how many probes are currently paired.
• The WIRELESS feature may be turned on or off and the display CONTRAST adjusted here as well.
• If desired, a RESTORE DEFAULT feature is available from this screen.
• Note: FILE displays remaining available memory. If INT is selected in the LOG main menu the maximum memory is 4 MB. A 2 GB memory card is the maximum memory the UHH can utilize if SD is selected.

Status Sub Menu

• If you select the STATUS sub menu you can view the firmware edition as well as the UHH device handle.

VIEW Menu

• Press the to scroll through the top main menus.
• When VIEW is highlighted, select with the enter key.
• Several viewing modes are available on the home screen from the selections in this menu.
• The default is METER which displays numerical values.
• The AVERAGE setting calculation is programmed in this menu.
• AVERAGE values may be altered from 1 to 60 seconds.

PAIRING Mode Sub-Menu (cont’d)

• Click on the SETTINGS sub menu for language selection as well as the default engineering units. The DATE and TIME can be entered, as well as power management inactivity time delays for SLEEP and SHUTDOWN.
• The user can program in their name, an identification code or their company name into the SETTINGS sub menu under OWNER.
Home Displays Under Standard METER Mode

- On the home display, multiple values may be viewed at the same time if a sensor offers.
- If two are present the reading at the top, or MAJOR reading, may be switched. See the Probe main menu for details.
- Press the soft key on the left aligned with the HOLD function to freeze the reading at that instant. The RUN function will then appear on the left.
- To resume reading the live process press the left soft key aligned with the RUN function.

- Press the soft key in the middle aligned with the CURR function so that the AVG function is on top. Press the soft key on the right aligned with the CLEAR function to reset the average readings.
- See the VIEW main menu to adjust the average function time period.
  **Note**: The current process reading will remain visible at the top of the display.

- To see the average reading instead of the current process reading press the soft key in the middle aligned with the CURR function so that the AVG function is on top. Press the soft key on the right aligned with the CLEAR function to reset the average readings.
- See the VIEW main menu to adjust the average function time period.
  **Note**: The current process reading will remain visible at the top of the display.

- To view the peak and valley values, press the middle soft key one more time to scroll from TOTAL to P/V.
- Hit the CLEAR soft key on the right to instantly reset the peak and valley values and recalculate new peak and valley values.
  **Note**: The current process reading will remain visible at the top of the display.

- Choose GAUGE mode to display a digital analog gauge like one similar to a speedometer. The available range will be adjustable with min and max scale feature.
- Adjust both the min and max for the associated values that will correspond to the 0° value for min and the 180° value for the max or full scale reading.
  **Note**: Some probes or modules may have selectable ranges that are programmed in the PROBE menu under RANGE. You cannot go above this chosen full scale RANGE in the GAUGE setting in the VIEW menu.

- In this example, the min is zero and the max is 500. The live process value is shown under the gauge dial.
- The mid point will always show at the 90° point on the gauge dial.
• An extension from the GAUGE mode is the RANGE mode.
• Select RANGE in the VIEW category.
• Two sets of min and max will appear listed as GAUGE and RANGE.
• The GAUGE settings are just as in the previous GAUGE view mode and show the zero and full scale points of the dial.
• The RANGE low and high settings provide a different color green zone to appear on the dial of the digital gauge. This two color band dial provides a quick determination during a test if the reading is in the pass or fail zone.

- In this example, the GAUGE has a min of 0 and a max of 500. The RANGE low is 100 while the high is 400.
- A green zone on the dial corresponding to the RANGE low/high settings will appear on the home screen.

• Besides the time setting shown on the graph, you can program the graph to show full scale of the range of the sensor, half scale where the top of the Y axis is half of the full scale, or mid-scale where half the full scale value is displayed in the middle of the Y axis.

LOG Main Menu

- Press the to scroll through the top main menus.
- When LOG is highlighted, push the enter key.
- Here you can program the sampling rate of the logging. The sampling RATE may be adjusted from 1 to 3600 seconds between recordings.
- The FILE FORMAT can be altered from CSV to a TSV downloadable file type.
- You can program the TRIGGER to be a manual trigger, a trigger begun by a programmed event or a single trigger which manually logs a single point by the push of a button.
- Select the LOG to START and STOP the logging function. The LED will flash when the data sample is stored in any logging mode. A log status icon will also appear at the top to acknowledge a logging session is active.
- After the log session has begun, the file name will appear on the FILE row.
- You may select under MEDIA to either store data logged files to an SD card if one is inserted or to INT which is the internal memory.
- Select LOG FILES to view all saved files. See view of saved files section for more details.
• If the trigger has been selected to be Manual from the LOG main menu, the screen will show the three following selections.
• You can change the ending of the log to be either a manual end under STOP, or you can set the STOP to end after a duration.
• If DURATION is chosen the programmed duration determines how long the log session will last. It may be set from 1 to 1,440 minutes.

• If the trigger has been selected to be Event from the LOG main menu, the screen will appear as shown.
• LEVELS provides initiation points where the trigger will begin a log operation.
• The auto trigger EVENT settings can begin INSIDE or OUTSIDE the LEVELS trigger band.
• Setting a PRE-TRIG setting to anything other than 0 will provide data recorded to the file for that time period prior to the event trigger initiation.
• POST-TRIG sets the duration after the auto trigger event of the log session.
• If the MIN UPDATE is set to anything other than 0, a data point will be captured at the time of the MIN UPDATE even if the TRIGGER threshold has not been reached.
• The PRE-TRIG and POST-TRIG can be adjusted over a time period, dependent on the sample rate, while the MIN UPDATE can be set from 0 to 60 minutes.

If Single is chosen, no other parameters are necessary to be programmed. This mode will allow with the right soft key located under STORE a single data point to be entered into a file. Each subsequent data point will continue to be stored in that same file until the NEW soft key is pressed. After NEW is pressed, the next set of data points will be stored in a new file.
Low Battery Warning
The low battery level screen will appear when the UHH detects its charge to be nearing an end. The lithium ion polymer battery is expected to provide approximately 1000 full charge cycles over its lifespan. Once the battery has exceeded its useful lifespan, due to varying regulations regarding shipping lithium batteries, please contact Dwyer Instruments Inc. for details.

Note: It is required on the initial usages to fully charge and use until the low battery level screen appears before a second power charge. This will enable the battery icon to properly calculate and display the battery charge level.

WARNING Lithium ion polymer batteries are very volatile and can cause a fire if punctured or severely damaged. Only use a Dwyer Instruments, Inc. approved charging device in a well ventilated area away from any flammable materials or gases. Do not incinerate. Only charge between 32 to 113°F (0 to 45°C).

MAINTENANCE/REPAIR
Upon final installation of the Series UHH, no routine maintenance is required. The Series UHH is not field serviceable. Contact Dwyer Instruments Inc. for return details (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.

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>AP1</td>
<td>Thermo anemometer air velocity &amp; temperature probe with coiled cable</td>
</tr>
<tr>
<td>RP1</td>
<td>Thermo hygrometer &amp; temperature probe with coiled cable</td>
</tr>
<tr>
<td>AP2</td>
<td>Wireless thermo anemometer air velocity &amp; temperature probe</td>
</tr>
<tr>
<td>RP2</td>
<td>Wireless thermo hygrometer humidity &amp; temperature probe</td>
</tr>
<tr>
<td>UHH-STRAP</td>
<td>UHH hand strap</td>
</tr>
<tr>
<td>UHH-ICHRG</td>
<td>UHH charger with international adapters</td>
</tr>
<tr>
<td>UHH-CBL</td>
<td>USB cable</td>
</tr>
<tr>
<td>UHH-SD</td>
<td>2GB SD card</td>
</tr>
<tr>
<td>UHH-C1</td>
<td>Soft carrying case</td>
</tr>
</tbody>
</table>
| UHH-C2      | Heavy duty hard case with pre-cut foam inserts for additional sensor storage.

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