

HanTron

Model HT-3P

*Installation
Maintenance
Repair
Manual*



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FEATURES

- Accuracy is $\pm 1\%$ of reading
- $(50-20,000\mu\text{S}) \pm 1\%$ of scale.
- Rugged integral probe.
- Four-electrode cell technology.
- 5 digit LCD displays full $2000\mu\text{S}$ or PPM.
- Full auto ranging conductivity measurements from 0 to $20,000\mu\text{S/cm}$.
- Memory saves up to 20 readings.
- Calibrations protected from low battery loss (nonvolatile memory).

SPECIFICATIONS

Display	5 digit LCD
Dimension (LxWxH)	5.3 x 3.3 x 1.6 in. (136 x 84 x 39 mm) .
Conductivity Cell Capacity	0.1 oz. (3.2 ml).
Power	(2) AAA Alkaline Batteries
Battery Life	10,000 Readings.
Operating/Storage Temp	32-132°F / 0-55°C
Protection Rating	IP64

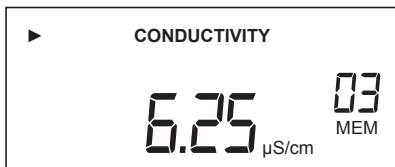
MEASURE

1. Rinse conductivity cell three times with sample.
2. Fill cup with sample. All four electrodes must be submerged. Make sure there are no bubbles in cell.
3. **READ/ENTER**: Measure conductivity of sample. Display stops flashing when measurement is stable.
4. **▲**: Displays temperature of sample.
5. Power turns off automatically after 30 seconds on inactivity.

MEMORY

The tester can save up to 20 readings.

1. **▼ / SAVE**: Displays next available memory location.
2. **▼ / SAVE** or **▲**: To select a specific memory location, if desired.
3. **READ/ENTER**: Stores conductivity and temperature data in location shown.



NOTE: Display shows -- when memory is full. Data cannot be overwritten, it must be erase via MENU commands.

MENU

MENU is used to:

- Recall stored measurements.
- Erase memory (individual records or all at once).
- Calibrate conductivity.
- Change conductivity unit of measure ($\mu\text{S}/\text{cm}$ or PPM).
- Change the temperature compensation.
- Calibrate temperature.
- Change temperature unit of measure ($^{\circ}\text{C}$ or $^{\circ}\text{F}$).

Press **MENU** at any time to go to reading without saving changes.

Recall Records Stored in Memory

1. **READ/ENTER**: Turns power on.
2. **MENU**: Displays menu items. (RECALL MEM flashes).
3. **READ/ENTER**: Displays memory locations.
4. **▼ / SAVE** or **▲**: To choose a record to view. Display will alternate between conductivity and temperature.

Erase Individual Records from Memory

1. **READ/ENTER**: Turns power on.
2. **MENU**: Displays menu items.
3. **▼ / SAVE** or **▲**: To display CLEAR MEM (flashing).
4. **READ/ENTER**: Selects clear memory function.
5. **▼ / SAVE** or **▲**: To choose record to clear.
6. **READ/ENTER**: Displays data that is to be cleared.
7. **READ/ENTER**: Clears data from selected memory location and returns to measurement mode.

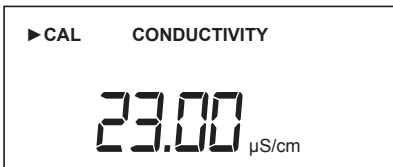
Erase All Records from Memory

1. **READ/ENTER**: Turns power on.
2. **MENU**: Displays menu items.
3. **▼ / SAVE** or **▲**: To display CLEAR MEM (flashing).
4. **READ/ENTER**: -- MEM flashes to indicate all records are about to be deleted.
5. **READ/ENTER**: Clears data from all memory locations and returns to measurement mode.

Calibrate Conductivity

Conductivity calibration should be performed monthly, or upon changing batteries.

1. Rinse conductivity cell three times with proper conductivity standard.
2. Refill conductivity cell with same standard.
3. **READ/ENTER**: Turns power on and measures conductivity.
4. **MENU**: Displays menu items.
5. **▼ / SAVE** or **▲**: To select CAL CONDUCTIVITY (flashing).
6. **READ/ENTER**: Displays conductivity of standard.



7. ▼ / SAVE or ▲: Change conductivity reading to match value of sample. Hold down key for rapid scrolling.
8. **READ/ENTER**: Stores new calibration factor and returns to measurement mode.

Change Conductivity Temperature Compensation

There is a direct relationship between the temperature of a solution and its conductivity. Temperature compensation is used to automatically adjust all readings to what they would be if the solution was measured at 25°C (77°F)

1. **READ/ENTER**: Turns power on.
2. **MENU**: Displays menu items.
3. ▼ / SAVE or ▲: To select CONDUCTIVITY TEMP (flashing).
4. **READ/ENTER**: Displays temperature compensation correction factor.
5. ▼ / SAVE or ▲: Changes temperature compensation correction factor. (From 0.0 to 9.9) default is 2.0.
6. **READ/ENTER**: Stores new temperature compensation factor and returns to measurement mode.

NOTE: Press **MENU** to exit without changing temperature compensation..

Calibrate Temperature

1. **READ/ENTER:** Turns power on.
2. **MENU:** Displays menu items.
3. **▼ / SAVE or ▲:** To select CAL TEMP (flashing)
4. **READ/ENTER:** Display current temperature.
5. **▼ / SAVE or ▲:** Change temperature to desired value.
($\pm 18^{\circ}\text{F}$, $\pm 10^{\circ}\text{C}$ from current reading)
6. **READ/ENTER:** Stores calibrated temperature and returns to measurement mode.

Select Fahrenheit or Celsius

1. **READ/ENTER:** Turns power on.
2. **MENU:** Displays menu items.
3. **▼ / SAVE or ▲:** To select TEMP °F (or °C) (flashing)
4. **READ/ENTER:** Enables unit of measure selection.
5. **▼ / SAVE or ▲:** Select °F or °C.
6. **READ/ENTER:** Stores unit of measure and returns to measurement mode.

Replace Batteries

BATT will display constantly when batteries are low. The batteries should last for several years.

1. Dry the instrument thoroughly.
2. Remove battery cover screw from bottom of tester.
Note: Do not remove the four corner screws.
3. Lift battery cover starting at screw end.
4. Replace with two of the same kind AAA alkaline batteries.
5. Replace battery cover starting at non-screw end.
6. Re-install battery cover screw.
Note: Battery panel needs to be flush for a water-tight seal.

NOTE: Stored measurement records will be lost without battery power. Removing the batteries will not affect the calibration values and other menu settings. However, a monthly conductivity calibration is recommended at this time.

Troubleshooting

To reset all menu items to the factory settings:

1. **READ/ENTER**: Turns power on.
2. Press and hold all four buttons for five seconds.
3. Display shows the firmware version and flashes “rESt”
4. **READ/ENTER**: Reset to factory defaults.

NOTE: Press **MENU** to exit without resetting the meter.

5. Factory defaults are not calibrated. Follow Calibrate Conductivity instructions in this manual to recalibrate.

If display reads “tEst 02” the HanTron is in “test stand” mode and the EEPROM has been corrupted. To solve follow these steps:

1. Press and hold all four buttons. Number counts up (3, 4, 5, 6)
2. When the count gets to 6 the display will turn off.
3. **READ/ENTER**: Turns power on. Display reads “tEst 07”
4. **▲ / SAVE**: The display will sample the conductivity.

Note: If the Hantron is reading “tEst” the power will NOT shut off automatically. If the Hantron is reading “Err0r” the power WILL shut off automatically

Errors codes (unit reads “Err0r”)

- 01 - Thermistor shorted** or temperature higher than expected.
- 02 - Thermistor broken** or temperature lower than expected.
- 03 - Conductivity** lower than expected.
- 04 - Conductivity** higher than expected.

Care and Maintenance

- Keep conductivity cell as clean as possible.
- Flush conductivity cell with clean water after use to prevent buildup on electrodes.
- Clean oily films or organic material from conductivity cell with foaming non-abrasive household cleaner. Do not scrub inside cell. Avoid solvents.
- Take care not to drop the tester. Shock may damage components.
- Do not place solutions hotter than 160°F (71°C) in conductivity cell.
- Do not exceed rated operating temperature. Take care not to leave tester in a vehicle or unairconditioned building on a hot day as temperatures may surpass 150°F.

Manufacturer's Product Warranty

Advantage Controls warrants units of its manufacture to be free of defects in material or workmanship. Liability under this policy extends for 24 months from date of installation. Liability is limited to repair or replacement of any failed equipment or part proven defective in material or workmanship upon manufacturer's examination. Removal and installation costs are not included under this warranty. Manufacturer's liability shall never exceed the selling price of equipment or part in question.

Advantage disclaims all liability for damage caused by its products by improper installation, maintenance, use or attempts to operate products beyond their intended functionality, intentionally or otherwise, or any unauthorized repair. Advantage is not responsible for damages, injuries or expense incurred through the use of its products. The above warranty is in lieu of other warranties, either expressed or implied. No agent of ours is authorized to provide any warranty other than the above.

Opening the meter is discouraged. Doing so may increase your chance of damaging the meter and may void your warranty.

30 Day Billing Memo Policy

Advantage Controls maintains a unique factory exchange program to ensure uninterrupted service with minimum downtime. If your unit malfunctions, call 1-800-743-7431, and provide our technician with Model and Serial Number information. If we are unable to diagnose and solve your problem over the phone, a fully warranted replacement unit will be shipped, usually within 48 hours, on a 30 Day Billing Memo.

This service requires a purchase order and the replacement unit is billed to your regular account for payment. The replacement unit will be billed at current list price for that model less any applicable resale discount. Upon return of your old unit, credit will be issued to your account if the unit is in warranty. If the unit is out of warranty or the damage not covered, a partial credit will be applied based upon a prorated replacement price schedule dependent on the age of the unit. Any exchange covers only the pen tester electronics. Electrode tips are consumable and are not included under the factory warranty.