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It shall be the responsibility of the buyer to read carefully and abide by all instructions provided to the buyer in the instruction manual or elsewhere. If the buyer, or the employees of the buyer, did not abide by such instructions, then the alleged defect shall not be deemed to have arisen under circumstances of proper use.

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FLEX-TEMP™

Flexible A/C System Temperature Probe

Operating Instructions


Please read and save these instructions. Read carefully before operating the ACTP. Protect yourself and others by observing all safety information. Failure to comply with instructions could result in personal injury and/or property damage. Retain instructions for future reference.

Description

The *Flex-Temp* was designed to accurately measure temperatures of A/C and Cooling System components for MVAC and HVAC applications. The *Flex-Temp's* patented infrared sensing design allows the user to measure both surface temperature and air temperatures with a single tool. The flexible probe can be easily molded to make temperature measurements in hard to reach areas.

Safety Guidelines


This manual contains information that is very important to know and understand. This information is provided for SAFETY and to PREVENT INSTRUMENT PROBLEMS. To help recognize this information, observe the following symbols.

 **NOTICE** Notice indicates important information that if not followed, **MAY** cause damage to equipment.

Unpacking and Contents

The A/C Temp Probe model ACTP comes complete with the probe, target tape and operating instructions. The unit requires a standard 9 volt battery which is **not** included. In case of questions, damaged or missing parts, please call 1-800-378-2287 for customer assistance. E-mail: Service@Neutronicsinc.com

General Safety Information

 **DANGER** This product is designed for use in and around an operating engine or MVAC system. Keep fingers and hands away from moving parts at all times.

1. Read and understand operating manuals prior to using the tool.
2. Observe all standard safety codes.
3. Wear safety glasses at all times.
4. Keep hands away from moving engine components.

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Operational Description

Temperature Probe

The ACTP uses patented infrared technology to accurately measure both air and surface temperatures between 0°F and 250°F. The system utilizes a flexible probe that can have several bends and turns allowing the technician to form the probe into a shape that will place the probe head (where the IR sensing device is located) directly on the component to be measured. This feature gives the technician access to hidden areas where a direct line of sight is not available or where other objects may cause inaccurate readings. Air measurements are made by changing the position of the probe tip from surface mode to air mode.

Target Tape

Utilizing an IR temperature probe requires that the probe tip be placed against a surface that provides proper "emissivity," or temperature radiation to the I/R sensor. As with all I/R thermometers, this is not possible with silver colored piping. Special infrared emitting tape is used to prepare the surface of the tube leading into and out of each air-conditioning component. This special tape assures the full accuracy of the probe. When encountering silver piping where I/R temperature measurements are required, simply place a piece of the BLUE Target Tape around the pipe and use that as the touch point for your temperature measurement. While Target Tape is not required for dark surfaces, it is still recommended that Target Tape be placed on any surface that is not black in color. This will provide the tool with the most accurate temperature measurements and thus, better diagnostics.

Operating the ACTP

1. Insert a 9-volt battery: Slide the battery cover toward the back of the unit to remove it. Insert a fresh 9-volt battery into the compartment and snap the battery connector onto the battery. Replace battery cover.
2. Place the Mode switch on the probe head in the "**Red**" position for surface measurements, and in the "**Green**" position for air measurements.
3. Place a single wrap of target tape on the surface to be measured.
4. Start the vehicle and place the A/C on "Max – Recirculate with the blower fan on high." Open all windows and let the system stabilize for 5 minutes.
5. Ensure that the probe head is in the "**Red**" position and place the probe head on the surface to be measured. For ambient air measurements place the probe head in the "**Green**" position.
6. Press the "PWR/MENU" button to activate the probe and press the "TEMP/SELECT" button to take a temperature reading.
7. The "Flex Temp" has three modes of operation: The factory setting is shown in "Figure 1". This setting displays the current temperature reading in a large number format. Pressing the "PWR/MENU" button will allow access to optional modes of operation. Once the desired mode is displayed, press the "TEMP/SELECT" button to select the mode. The currently selected mode will illuminate the display in green. When the desired modes are selected, press the "PWR/MENU" button until the "EXIT" option appears and then press the "TEMP/SELECT" button to return to operating status. Figure 2 displays the current temperature, the previous reading and the difference between them. The user can select to display temperatures in either °F or °C (figure 3) as well as the "MIN/MAX" mode by following the steps above. This mode (shown in figure 4) displays the current reading, the maximum temperature logged and the minimum temperature logged. To reset the Min and Max values, simply turn the probe off and back on again.

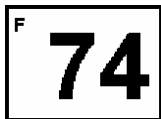


Figure 1

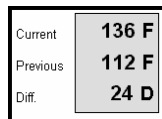


Figure 2

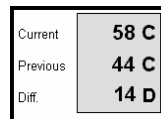


Figure 3

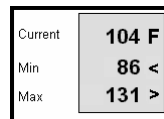


Figure 4

Tips for A/C Temperature Diagnostics

1. Test refrigerant for Purity, Air content and proper charge before proceeding.
2. Leak check the system and repair as required prior to taking temperature measurements.
3. All temperatures shown are in °F.

Component	Temperature Differential	Possible Cause
Condenser Inlet vs. Outlet	25 to 40 °F	Within typical range
	<25 °F	Poor air flow to condenser Malfunctioning cooling fan Internal condenser blockage Compressor discharge restriction
	>40 °F	Internal condenser blockage
Dashboard Vent Inlet vs. Outlet	20 to 40 °F	Within typical range
	<20 °F	Malfunctioning Blend Control if other measurements are within normal range
Orifice Tube Inlet vs. Outlet	20 to 60 °F	Within typical range
	<20 °F	Missing or defective Orifice Tube if other measurements are within normal range
Condenser/Orifice Tube Inlet vs. Outlet	45 to 85 °F	Within typical range
	<45 °F	Poor air flow to condenser Malfunctioning cooling fan Internal condenser blockage Compressor discharge restriction Missing or defective Orifice Tube
TXV Inlet vs. Outlet	20 to 60 °F	Within typical range
Evaporator/TXV Inlet vs. Outlet	<20 °F	Defective TXV if other measurements are within normal range
Evaporator Inlet vs. Outlet	(+/-) 10 °F	Within typical range
Accumulator Inlet vs. Outlet	(+/-) 10 °F	Within typical range
	> 10 °F	Possible Overcharge if all other measurements are within range
Receiver Dryer Inlet vs. Outlet	(+/-) 10 °F	Within typical range
	> 10 °F	Possible internal restriction if all other measurements are within range.

Notes:

1. Many TXV systems have the TXV and Evaporator arranged such that it is not possible to measure them independently. If this is the case, the temperature differential between the inlet of the Evaporator (where the TXV is usually located) and outlet of the Evaporator will normally be 20 to 60 degrees.
2. If any measured temperatures are below 32°F, a freeze over condition may exist. Check the refrigerant for an overcharge condition.
3. The unit will automatically power off after 60 seconds.