FLUKE®

Twenty ways the Fluke 62 MAX+ Infrared Thermometer can save you energy and time

Application Note

You might find it indispensable

Are you looking for a diagnostic tool that can save you money out of the box? A tool that can help you troubleshoot malfunctioning HVAC mechanical systems? One that is literally a "'point and shoot" device? The Fluke 62 MAX+ Infrared (IR) Thermometer is just that tool! In fact, once you begin to use it you might find it indispensable. It has become the first tool out of my tool bag (I'm a senior HVAC technician and troubleshooter). In just a few weeks of using my Fluke 62 MAX+ IR Thermometer I found a large number of ways it could help me. Here are some of the ways.

1. Check discharge air temperature

You can check the discharge air temperature of an HVAC unit with a ceiling discharge while standing on the ground. Not only is this safer than using a ladder; the values can be used to adjust the control system and reduce energy waste. Many air handling units produce a 55 °F (12.7 °C) discharge temperature.

2. Check thermostat accuracy

Occupants often complain about being too hot or cold. You can check the accuracy of the room thermostat very quickly with the Fluke 62 MAX+ IR Thermometer. Then you can make adjustments to the thermostat or replace the thermostat if necessary.

3. Check inlet and outlet water temperatures

Water coils in HVAC systems typically use hot or chilled water. You can quickly check the water temperatures at the inlet and the outlet of the coil with the Fluke 62 MAX+ IR Thermometer. This will indicate proper water temperatures, heat transfer, and valve operation. A check can also indicate if there are any water balance problems.

4. Check air handler coil temperatures

HVAC air handling units are designed with specific coil temperatures. You can use the Fluke 62 MAX+ IR Thermometer to quickly check the coil temperatures. This will reduce energy waste and increase comfort.

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5. Check boiler hot water temperatures

Many buildings use a hot water heating system. You can check the hot water boiler temperatures easily, quickly, and safely with the Fluke 62 MAX+ IR Thermometer. You can then adjust the water temperature controls to save energy and money. A system that is even a few degrees off over the course of a heating season can result in expensive energy expenditures.

6. Check steam traps

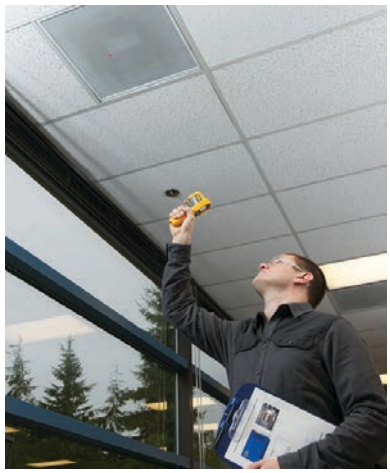
Steam trap failure can waste energy and cause improper HVAC system operation, resulting in a system freeze-up. With the Fluke 62 MAX+ IR Thermometer you can quickly identify a steam trap that has failed either open or closed.

Viewing the temperature of the condensate line from a steam trap, to make sure it is functioning properly.

Testing the steam trap to see whether the trap has failed open and is wasting steam.

7. Check air distribution

A room or space may have several air distribution ducts. One or more of them may be shut off. With the Fluke 62 MAX+ IR Thermometer you can identify those discharge ducts that are shut off, by checking the discharge temperatures of the different ducts and noting those that do not show the correct discharge temperature.



Checking the discharge temperature at air distribution ducts.

8. Check for hot and cold spots

A large room or area may have hot or cold spots due to system design or installation. With the Fluke 62 MAX+ IR Thermometer you can easily identify these sources of discomfort and complaints.

9. Check power supplies in a panel

Many HVAC control panels have multiple power supplies. You can use the Fluke 62 MAX+ IR Thermometer to quickly identify the power supply that has failed and is causing improper system operation.

10. Check humidifier operation

Many HVAC systems have a humidifier installed. With the Fluke 62 MAX+ IR Thermometer you can quickly determine if water or steam is present at the humidifier and if it is operating properly. This increases safety because you do not need to touch the humidifier.

Measuring the steam temperature at the inlet to the humidifier valve.

11. Check chiller set points

Many commercial buildings use chilled water to cool the building. The chillers usually provide water at 42 to 44 °F (5.5 to 6.6 °C). Energy will be wasted if the chilled water temperature set point is incorrect. You can use the Fluke 62 MAX+ IR Thermometer to make sure the chilled water temperature provided to the building matches the set point.

12. Check low temperature limits

Almost all commercial air handling units provide a low temperature limit switch. To prevent the freeze-up of a water coil, the low temperature limit will stop the supply fan. In some cases the low temperature limit may be adjusted incorrectly. You can use the Fluke 62 MAX+ IR Thermometer to check the calibration of the low temperature limit and adjust as needed.

Looking at the water temperature at the inlet to an air handling unit coil.

13. Safe checking of ceiling-mount equipment

A large amount of HVAC equipment is mounted above the floor in hard to reach areas, which can cause a safety hazard. You can use the Fluke 62 MAX+ IR Thermometer to easily check the temperature without exposing yourself to any safety issues.

Identifying the temperature of ceiling-mount equipment.

14. Check operation of VAV box hot water reheat

Variable air volume (VAV) systems are the most common type of HVAC system installed today. The VAV terminal boxes control airflow and temperature in the building spaces. Many VAV terminal boxes are located at the perimeter of the building and include hot water reheat coils. These reheat coils have automatic valves. You can use the Fluke 62 MAX+ IR Thermometer to check the discharge air temperature of the VAV box as well as the reheat coil inlet and outlet water temperatures. These temperatures will indicate whether the hot water valve is opening and closing properly.

15. Check return air temperatures

In addition to checking the supply air temperatures of a terminal or air handling unit, it is often necessary to check the temperature of the return air from the room. The Fluke 62 MAX+ IR Thermometer is an ideal instrument to use to check the return air temperature.

16. Check electric heating coil operation

Many buildings use air handling or terminal units with electric heating elements. These include heat pumps, VAV terminal boxes, and air handling units. If the controls are not functioning properly, a large energy waste can occur which can lead to very high energy bills. You can use the Fluke 62 MAX+ IR Thermometer to check the correct temperature set points of the electric heating coils.

17. Check compressor temperature

Air conditioning and refrigeration compressor failures are a source of very high repair bills. They also cause product loss and system downtime. This can be very expensive. You can use the Fluke 62 MAX+ IR Thermometer to check the compressor temperatures and detect problems before they lead to expensive failures.

18. Check cooler and freezer temperatures

It is absolutely critical that products in coolers and freezers are maintained at the correct temperature. The Fluke 62 MAX+ IR Thermometer can quickly show that the products in a cooler or freezer are stored under the proper conditions. Since you can point the Fluke 62 MAX+ IR Thermometer at any products in the refrigerated space, it is superior to simple fixed location thermometers. And at the same time you check the product temperatures, you can check the evaporator coil and discharge air temperatures as well.

19. Check for defrost temperatures

Ice build-up on low temperature coils will reduce equipment efficiency. Defrost systems are provided to melt the ice when needed. If the defrost system operates improperly, the refrigeration system may ice up and fail, which will cause product loss. You can easily check the defrost system operation with the Fluke 62 MAX+ IR Thermometer.

20. Check refrigerant coil surface temperatures and condenser temperatures

Taking the temperature of condensate as it goes into the drain.

Another use of the Fluke 62 MAX+ IR Thermometer is to check the actual coil temperatures of refrigeration system evaporators and condensers. These temperatures indicate proper system operation and efficiency. Improper coil temperatures can help identify problems while they are small and easily correctable.

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