

Top 10 Visual IR Thermometer Automotive Applications

Application Note

See what you've been missing.

Get a fresh look at automotive troubleshooting with a revolutionary new tool category that empowers you to go right to the hot or cold spots with blended visual and thermal heat map images.

With the VT02 Visual IR Thermometer, you can perform inspections significantly faster than with traditional IR thermometers and see what you are measuring.

Set yourself up for success. Follow a few simple steps that will help ensure a more accurate reading in these top 10 applications:

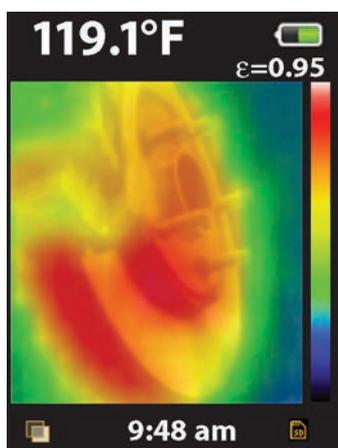
- Have direct access to the target you are measuring. Disassembly may be required around your target.
- When you've found a potential issue using the blended heat map, move closer to take a center-point temperature measurement. The exclusive Near/Far feature in the VT02 allows you to get as close as six inches with thermal heat map images that are accurately aligned.

- Establish baseline temperatures in your most common applications so that an unusual reading can help you predict that something may be wrong.
- Understand temperature characteristics such as emissivity which can influence your readings.

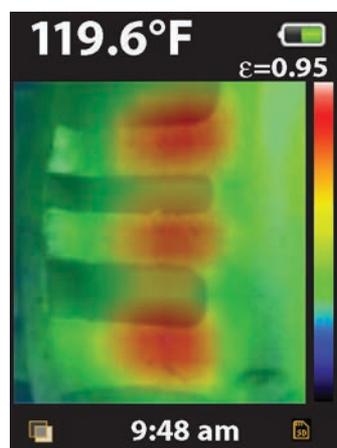
Proof is in the picture. The SmartView® software included with your VT02 purchase is a smart way to document both the diagnosis and repair as well as expand your business. It's important proof for customers and managers.

Eliminate the guesswork and get started today. The time savings will amaze you.

1. Brakes



Typical heat generated from the brake rotor.

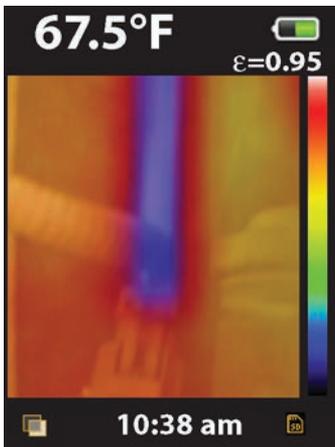


Heat generated from brake pads at the caliper area.

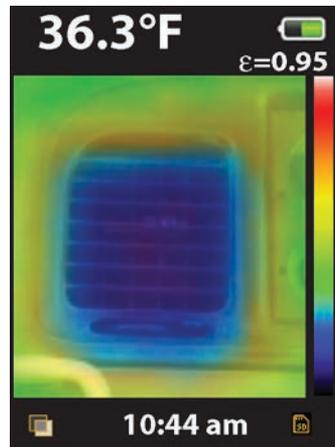
It's faster to isolate brake problems when you can see the caliper, hub, and rotor in a single picture. You could spot brake drag, for example. Establish baseline images for predictive maintenance by using the visual IR thermometer during routine road tests.

2. Air conditioning systems

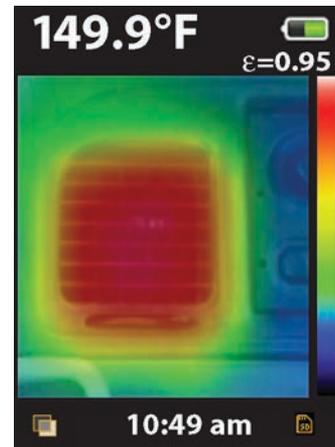
With the VT02, you can verify that an A/C line is functioning properly or diagnose the problem if the line is blocked. You can also easily compare register output to verify overall system performance.



Normally functioning A/C orifice.

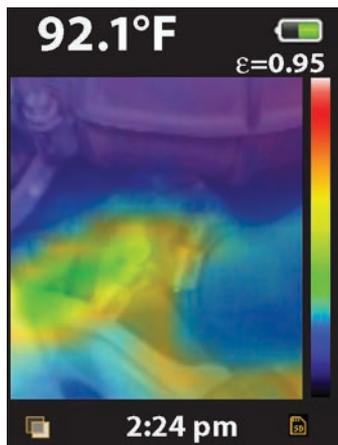


Cold register.

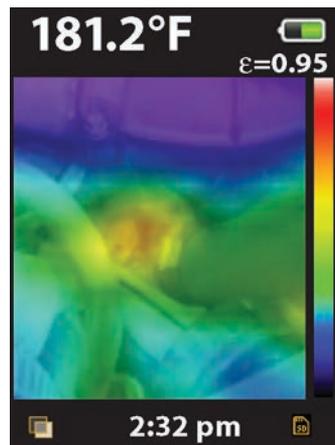


Hot register.

3. Thermostats



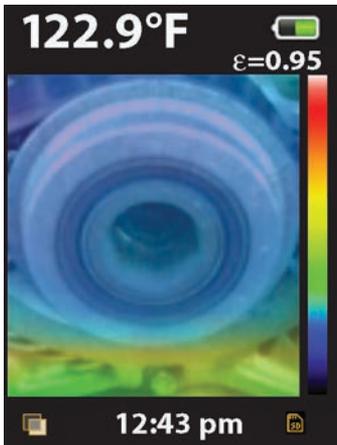
Thermostat during warm-up.



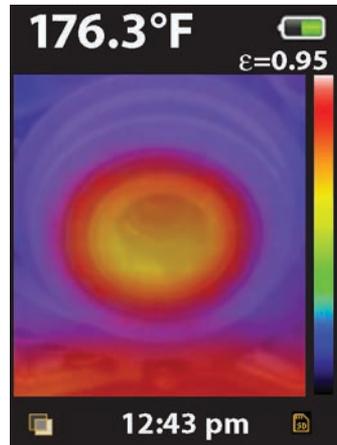
Thermostat just after opening.

By watching hose temperatures during warm-up, you can test whether the thermostat is working properly.

[4. Engine noise]



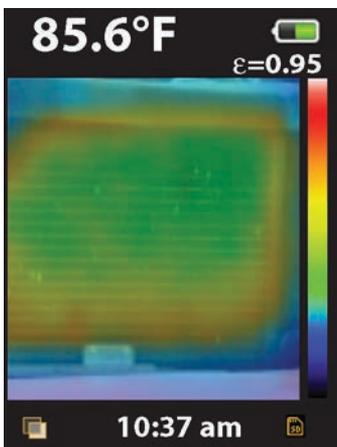
Normally functioning pulley.



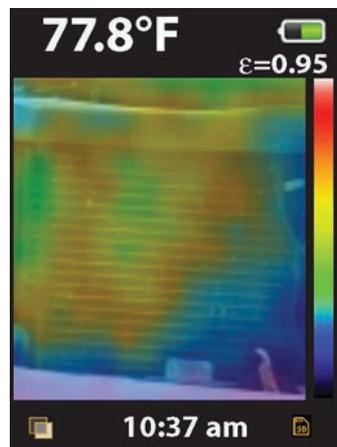
Pulley with abnormal friction.

A complaint of intermittent engine noise can be difficult to verify. As a part of routine predictive maintenance, you could determine that the perceived belt noise is actually a result of decoupler pulley slippage, and replace it before total decoupler failure occurs.

[5. Condensers]



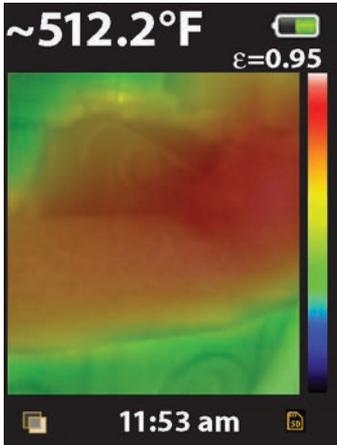
Functioning condenser.



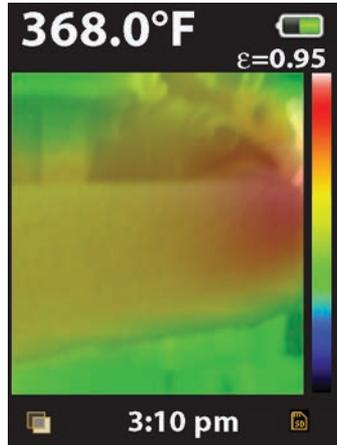
Malfunctioning condenser.

Measure the cooling capacity of the condenser, or quickly scan the whole condenser for hot or cold spots. You can use a similar method to diagnose radiators.

6. Diesel engine performance



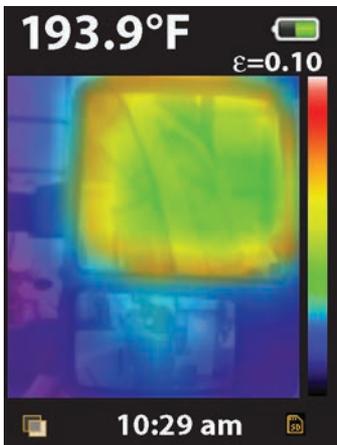
Output of 2 typical cylinders.



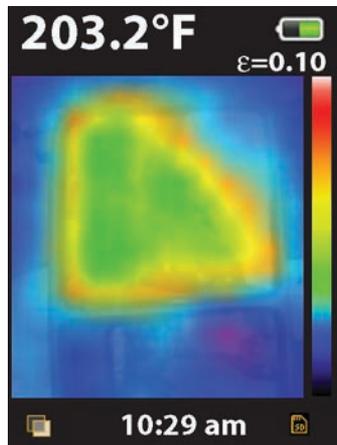
Output of 1 typical and 1 potentially weak cylinder.

Monitor diesel engine performance with the VT02 by checking exhaust manifold temperatures to help determine cylinder efficiency. For example, in these images, one cylinder is not generating as much heat through the exhaust port as the other three. This could indicate a potential problem with that cylinder, which merits further inspection.

7. Heated mirrors



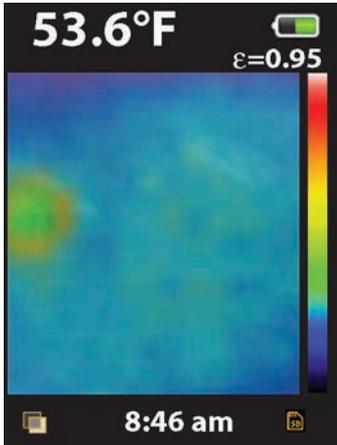
Normal mirror.



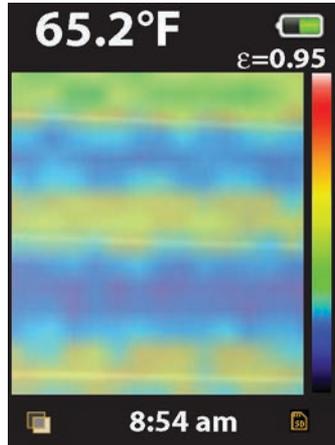
Mirror with cold corner.

The VT02 makes it easy to test for cold spots on a heated mirror. A picture here is worth a thousand words, and it clearly shows the cold corner.

8. Rear defrosters



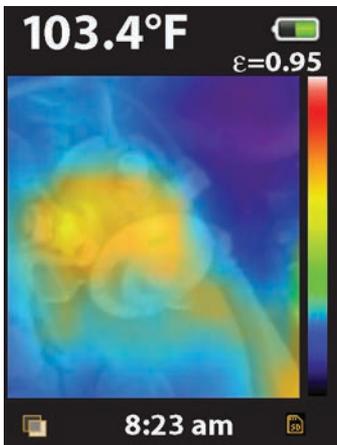
Defroster warming up.



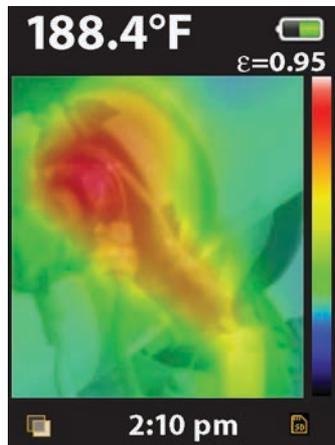
Normally functioning defroster grid.

With a quick scan of the rear window, you can verify that the entire defroster grid works properly.

9. Solenoids



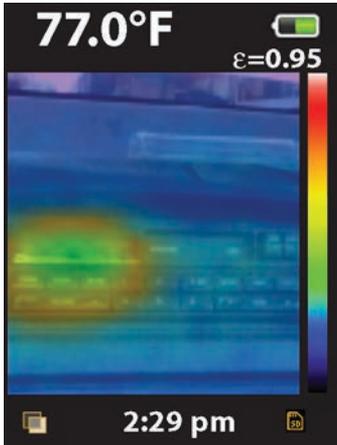
Auxiliary solenoid with loose lug crimp.



Corroded starter solenoid terminal.

For a solenoid that controls auxiliary equipment, you can see at a glance whether it's on, and if there's any heat build up where there shouldn't be. For example, the heat at this output terminal where a crimp lug was installed could indicate a loose connection that is worth investigating.

[10. Parasitic draw]



This radio was diagnosed without pulling it out of the dash. With the key turned-off, the left side indicated current draw draining the battery, warranting further investigation with a current clamp. The diagnosis proved to be a defective radio.

Malfunctioning radio.

For product specifications and more information about the VT02 visit www.fluke.com/VT02

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