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Quickly uncover potential faults – with the Bosch temperature measuring tools

www.bosch-professional.com/thermal

It's in your hands. Bosch Professional.

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A vehicle is a complex system: Not all faults that may occur can be detected using electronic diagnosis methods. But with the Bosch thermal trio in your workshop, you'll be prepared for anything.

Regardless of whether it concerns electronics, the engine compartment, heating functions, exhaust systems or air conditioning systems – thanks to our temperature measurement tools, you can quickly uncover potential faults and resolve them directly. Additionally, you can easily visualise the results of a successful repair and present them to the customer during the final consultation. Through this transparency, you'll earn the trust of your customers.

To ensure that repairs are documented in a way that is easy to understand, you can store the thermal images that indicate the cause of the fault together with those of the vehicle in its repaired condition in the customer's file. Not only is this helpful in case of any future repairs – it is also important should any claims or complaints arise.

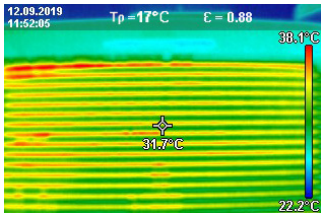
No matter whether you use the temperature measuring tools as a practical complement to a modern readout system or as an all-round assistant, they will allow you to work more efficiently and save time and money as a result.

Potential applications

1. Inspection of front and rear windscreen heating
It is crucial to be able to see clearly when driving. Whether wires or films, the heating functions of front and rear windscreens on all conventional systems can be quite easily checked for functionality with the thermal imaging cameras from Bosch, which allow failures in subsections or heating coils to be visualised. It is important that the windscreen heating elements work perfectly in order for them to be able to de-ice windscreens to provide a clear view, for instance – and on modern cars with an integrated driver assistance system in the front windscreen, it is also crucial to ensure the sensors are reliably de-iced at low temperatures. In the event of a fault, it is recommended to inspect the fuse box as well.

Even when replacing windscreens, the thermal imaging cameras continue to offer valuable assistance and save additional effort: They can be used to check that the heating elements on the replacement windscreen work properly before it is even installed, thereby precluding the risk of installing a defective windscreen in the first place.

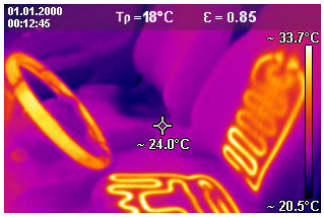
And once the windscreen has been successfully installed, the Bosch thermal imaging cameras will help you check that the heating elements continue to work as intended. This is particularly practical if the windscreens are replaced in the summer and the customer does not immediately require use of the heating functions. In this case, they would only notice a potential fault in winter, which by that point could then have further consequences. Thanks to the thermal image, they can see right away that the windscreen heating is functioning correctly.

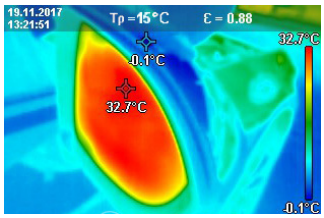


VEHICLES

Potential applications

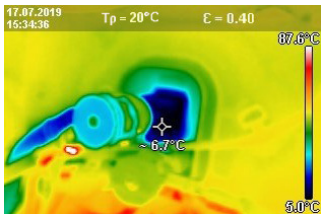
2. Monitoring of seat and exterior mirror heating
If drivers ever complain that their backs suddenly don't feel warm enough any more when they're out on the road, it may be worth taking a look at the car seat heating – namely, with a thermal imaging camera. This allows you to examine the seat heating system to ensure it distributes warmth evenly, or identify a potential fault if not.

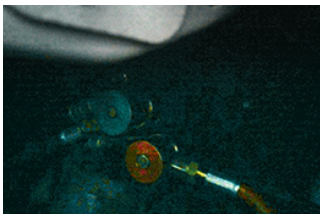




The thermal images visualise the routing of the heating wires between the cover and the foam core of the seat and backrest – allowing you to identify problems at first glance and then take the most appropriate measures. You can go about examining other heating systems, such as those of the exterior mirrors or the steering wheel, in a similar manner. This makes it much easier for you to carry out your daily work, since you can track down faults without any additional hassle.

3. Checking of the air conditioning system
It might be hot outside, but is it hot in your car as well? If so, there may be something wrong with the air conditioning system. The thermal imaging cameras from Bosch help you to quickly narrow down the causes of a fault in your vehicle's air conditioning system. The thermal images can be used to identity faults such as a frozen evaporator, which prevents the flow of air into the vehicle. With this knowledge, you can take the necessary specific measures and increase the concentration of coolant as required, or fit a new valve altogether.





To measure the air conditioning system's airflow with even greater accuracy and within the system, you can use the GIS 1000 C infrared thermometer with a special temperature probe (type K). This probe delivers precise values for the air temperature and, unlike with infrared measurements, does not only measure the cooled surface temperature.

If you want to find out more about how to use the GIS 1000 C infrared thermometer with a temperature probe, take a look at our Thermal Campus here: https://www.bosch-professional.com/gb/en/temperature-measuring-tools/thermal-campus/

VEHICLES

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4. Checking of the car fuse box

Manually checking a car fuse box to see if it has overheated can be a time-consuming process. There are two options: One, locate the fuse box and examine both sides with a test lamp whilst they are energised. Two, first switch off the power supply system, then open the fuse box and carry out a visual inspection of the melted fuses. No matter which procedure you opt for, it's bound to take some time.

With our smart assistants, you'll be able to carry out this task far quicker. Not only will the thermal images immediately show you the active relays and clearly visualise any faults – you'll also be able to identify circuits that consume a particularly large amount of energy via the higher temperatures that are shown on the thermal image. This application is particularly useful when searching for the cause of an unusual battery discharge in the vehicle. The thermal imaging cameras help you to quickly narrow down and determine the cause of the problem.

5. Inspection of the engine compartment

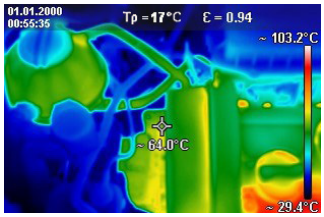
The most important part of any vehicle is its engine compartment. Here, a wide variety of problems can occur. Yet the components are often hidden away and the causes of any faults cannot be determined at first glance. Using the thermal imaging cameras from Bosch, you can quickly check the situation in the engine compartment and obtain reliable results. They allow you to determine if any parts have overheated, narrow down specific causes for an oil leak or an overheated engine and visualise cold spots in the engine radiator. This means you can know right away where you need to take action. Problems with engine ignition can also be determined using the thermal imaging cameras. With the aid of a thermal scan of the exhaust manifold, you can identify whether one cylinder is cooler than the other.

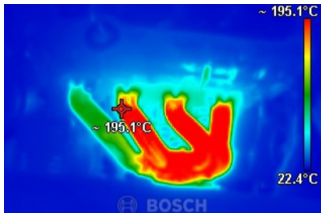
In short: The thermal imaging cameras provide the perfect complement to existing fault diagnosis procedures and make your work even more efficient.

Alternatively, using a temperature probe (type K) with the GIS 1000 C infrared thermometer can help. Using the temperature probe avoids any reflection and the temperature is directly measured by coming into contact with the object.

If you want to find out more about how to use the GIS 1000 C with a temperature probe, take a look at our Thermal Campus: https://www.bosch-professional.com/gb/en/temperature-measuring-tools/thermal-campus/

Note: Using a temperature probe means contact with the object measured. Therefore, watch out for potential dangers due to temperature, voltage or chemical reactions.





VEHICLES

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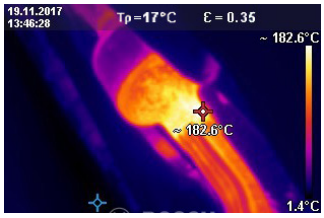
6. Examination of the exhaust system

A vehicle needs a perfectly functioning catalytic converter in order to adhere to legal emission limits. If the catalytic converter is faulty, power losses may occur during start-up. However, it is often not immediately evident when something has gone wrong. The flashing engine warning light may give an initial indication, yet it could naturally indicate a range of other faults as well. If you suspect there may be an issue with the catalytic converter, you can use the Bosch thermal imaging cameras to carry out a quick visual inspection and confirm whether your mechanic's intuition is on the mark. The core element of the catalytic converter is a fine honeycomb body that filters the exhaust gases. As a consequence of this, heat will accumulate upstream of the catalytic converter when it is operating normally. If the catalytic converter is defective, however, there will be no build-up of heat. The thermal image will consequently show the area upstream of the catalytic converter to be cool. In contrast to this, a blocked catalytic converter will lead to an excessive accumulation of heat.



7. Checking of the coolant cycle

Has the cooling water overheated? Is the vehicle losing coolant faster that it otherwise would? Using the thermal imaging cameras from Bosch, you can easily check the temperature of the cooling water or locate blockages in the cooling system. Faults such as out-of-date pipes or corroded sealing rings can also be identified. Thanks to this important information, you can swiftly carry out the necessary repairs. And with the aid of the conclusive thermal images, you can document everything in a clear and easily understandable manner for your customers.