

Halakhic background for the *ModChom Shabbat*

Introduction

The Shabbat infrared thermometer was created to enable infrared temperature readings in a manner consistent with the halakhic limitations on measuring, using electrical devices, and writing on Shabbat.

The three primary concerns that need to be addressed in any such device are:

- The permissibility of using a thermometer on Shabbat altogether, as measuring is generally prohibited on Shabbat.
- Is there a means of enabling an electrical infrared thermometer to operate in a manner that doesn't require closing circuits on Shabbat and electrically operating the device?
- Would a change in the temperature reading on the thermometer's display be defined as a prohibited form of *melechet ketiva*, a forbidden form of "writing" on Shabbat?

We will deal with each of these issues, one by one:

Measuring and Checking Temperature on Shabbat

All forms of measuring and weighing are generally rabbinically prohibited on Shabbat due to their extensive use in the marketplace and their various weekday usages (a probation known as *Uvadin DeChol*, weekday matters (see Mishna Berura 306, 34), often referred to as "non-*shabbosdik*").

Nevertheless, the Shulchan Aruch explicitly permits measuring for the ill or for the purpose of a mitzvah. Therefore, checking an ill person's temperature with a thermometer will be permitted as long as the use of the thermometer is permissible.

The Type of Thermometer Necessary

Once we understand that certain circumstances would allow for the use of a thermometer, the question is what type of thermometer can be used in public places?

Clearly, while a regular thermometer or even the classic mercury thermometer can be used for individuals, they are not options for public areas. The ideal form of thermometer for public domains would be a thermometer that can hygienically read temperatures from a distance without the need for it to be handled by one or more people. Infrared electronic thermometers can serve that purpose throughout the week, but can they be made in a manner that is permissible for Shabbat?

Since the thermometer is not actually being used to heal a sick individual, but rather to identify if someone has a fever, using a regular electronic or digital thermometer is not an option.

Coronavirus- Covid-19's Needs

The global corona crisis has been responsible for shuttering our synagogues, and has reminded us of the importance of safeguarding ourselves and our communities from germs that easily travel in public areas. As synagogues and other public centers reopen, even when not legally required, many have instituted compulsory temperature readings of all who wish to enter.

Understandably, all public places have opted for the use of an infrared thermometer that doesn't require disinfecting after each use.

This obviously poses a challenge on Shabbat, as even if taking a temperature is permitted for health reasons, doing so with a regular electronic infrared thermometer is not, as it requires operating the device, closing electric circuits, which is prohibited on Shabbat.

If only there were an infrared thermometer that wouldn't need to be operated on Shabbat and would function automatically... but if there were, would it be permitted for use on Shabbat? It certainly doesn't seem to exist, can it be created?

The Halakhic Technology behind the *ModChom Shabbat*

The Zomet Institute rose to the challenge, and developed an infrared thermometer that operates automatically; ensuring that no electrical circuits will be closed on Shabbat and no device will be turned on or operated. The automated Shabbat thermometer is programmed to check the temperature every 4 seconds whether or not anyone is standing in front of it. Every 4 seconds it automatically sends out an infrared temperature reading, showing the temperature on its little screen.

No Buttons Pressed on Shabbat- No Prohibited Closing of Circuits

Unlike a normal infrared thermometer which a press on its button closes an electric circuit and sends out an infrared ray, the *ModChom Shabbat* is preprogrammed to operate automatically. Much like a timer that is preset before Shabbat, the infrared rays sent out are not in response to a person's actions on Shabbat, and are thereby not a prohibited use of an electric device. (Even those who refrain from use of timers in general so as not to obstruct the spirit of Shabbat, recognize that this is being used for reasons of safety and health and should not be prohibited).

The Electric Output

The Zomet Institute abides by the rulings of Rav Shlomo Zalman Auerabach regarding electricity on Shabbat who saw no halakhic prohibitions involved with the changing of electric output in the manner it is performed in the device. Any change in electric output in the thermometer is done through *shinui zerem chashmali*, modifying of an existing current, which is permitted in these instances by *poskim* such as Rav Shlomo Zalman Auereabach and many others. (Rav Shlomo Zalman Auerabach also felt this would be permitted even according to the stringent outlook of the Chazon Ish regarding electrical devices).

Melechet Ketiva

An understanding of the *melacha* prohibition of *Ketiva*, writing on Shabbat, as well as the nature of the electronic display on the thermometer, will explain why the Shabbat thermometer operates in the way it does.

The 39 categories of prohibited activities on Shabbat are known as *melachot*, creative, transformative activities. Each *melacha* has its own set of *halakhot*.

The *melacha* of *ketiva*, writing, prohibits any form of writing that engenders a writing of one material on top of another material, just as the classical form of writing involves placing ink on a surface such as parchment (see *Mishnayot Shabbat*, chapter 12, 4-5). This can also be understood when analyzing the various *halakhot* of writing on Shabbat, which precludes any act of forming letters or the like with one material on top of another surface (such as writing with sand on top of a surface). On the other hand, Rav Shlomo Zalman Auerabach (see *Shemirat Shabbat KeHilchita* 16, 24) and Rav Moshe Feinstein (see *Iggerot Moshe* O.H. 1, 135) permit placing preformed letters on a surface when they are not connected to the surface, as they do not view that as an act of writing altogether.

The Number Reading on the LCD Display

Similarly, the number reading which appears on the LCD screen does not involve any act of writing numbers. In this thermometer, the numbers appear on the LCD display through changing the angle of the light molecules (see Wikipedia or elsewhere for a discussion of how an LCD screen works), and thereby involves no act of writing.

This is particularly true with the type of LCD display, a seven-segment display. This form of LCD display has fixed images, enabling preset digits and words to appear when the signals are sent. In the display, the seven segments are clearly visible even without the electrical power, and the automated infrared reading which will illuminate certain segments of the digits is done by merely altering the angles of the molecules through the selected signals of light.

(Some might even compare this to a cellulose film strip thermometer, which measures temperature when placed on a forehead with preexisting numbers, which numerous poskim permit (see *Shemirat Shabbat Kehilchita* 40, 2; *Chazon Ish Shabbat* 5, 9: *Yechave Da'at* 4, 29; *Tzitz Eliezer* 14, 31).

Furthermore, the images on the LCD display are not lasting images, a further reason to permit their usage (see *Shemirat Shabbat KeHilchita* 1,18).

Summary- Using the *ModChom Shabbat* for Health and Safety

- The Shabbat Infrared electric thermometer is used for the purpose of safeguarding the community from disease and infection, and is therefore, a permitted use of a thermometer on Shabbat.
- It is designed to operate automatically, ensuring that no circuits are closed and the electrical device is not operated on Shabbat.
- Any change in electrical output merely modifies the preexisting electric current and is permitted.
- The illuminating of the different segments of the digits on the LCD display do not involve a prohibited act of writing on Shabbat.

All these reasons should certainly allow for the use of this specially made thermometer for the benefit of the health and safety of our communities. Use in good health.