

3M TL20 and TL20V - Frequent Asked Questions

1. Is the 3M Temperature Logger TL20 reusable?

- Yes, the 3M TL20 is designed to be a reusable device. It can be reused by re-programming it every time you start a new operation. This can be done as many times needed throughout the life of battery.

2. How long does the battery last?

- Battery life is estimated to last up to one year with normal usage. The battery electrical energy is consumed when the TL20 is activated by programming it and using it. The TL20 has an energy saving IC that puts it into a sleep mode after each programming cycle, even when it is collecting time and temperature data. The battery of the TL20 is expected to last several years in storage conditions, if not activated.

3. How can I find out if the battery is working OK and if it can be used for the next shipment?

- When the data are read from the TL20 in the "Set Up" Screen of the PC software, the battery status is also read and displayed as "HI" and a green battery symbol. This means that the battery is OK to use. If the "LO" and the red battery symbol is displayed, the battery is not working at an acceptable power level and the TL20 should be disposed accordingly.

4. Can the battery be replaced?

- It is not recommended to replace the battery when it stops working. The TL20 was designed to be a low cost device that can be disposed or sent to the appropriate recycling centers when the battery stops working. The battery could be replaced technically by a trained technician; however, when the battery is replaced the logger needs to be re-tested for temperature accuracy which has to be handled by an accredited laboratory.

5. How long can the TL20 be used when it shows "LOW" battery in the Set Up screen?

- When the "LOW" battery is shown at room temperature the TL20 should not be used any longer and should be disposed. The TL20 is still usable if the LOW battery signal is displayed when the TL20 is still "frozen" at very low temperature (less than or around -20C). The TL20 unit will show HIGH again when the temperature is raised above 0C or higher temperature.

6. Can the TL20 be in contact with water or high humidity? Can it be submerged in water?

- The TL20 meets the NEMA 3R requirements for water splash resistance. The regulations states the following:
 - i. "Type 3R: Enclosures constructed for either indoor or outdoor use to provide a degree of protection to personnel against access to hazardous parts; to provide a degree of protection of the equipment inside the enclosure against ingress of solid foreign objects (falling dirt); to provide a degree of protection with respect to harmful effects on the equipment due to the ingress of water (rain, sleet, snow); and that will be undamaged by the external formation of ice on the enclosure."
- It can be exposed to rain or be in contact with water and high humidity but it cannot be submerged in water. If it is accidentally dropped in water it will float for a short time, usually without damage.

7. How many units should be placed in a shipment?

- If the temperature control in each box of goods is critical, place one TL20 per box.
- For containers, 2 TL20 units are suggested to be installed in 20 ft x 3 ft containers, and 3 units in 40 ft x 3 ft containers, at a suggested distance of 3 to 6 ft between them, preferably one at the bottom and one at the top of the pallet.

8. Where should TL20 units be placed in a pallet or a container?

- It is recommended to place the TL20 units inside of the master pack, pallet or container, in order to obtain a better temperature reading as close as practical to the perishable goods to be monitored. It is recommended to place more than one TL20 in a pallet, for instance at the bottom and top of the pallet.
- It is recommended to set a delay time (usually one hour) for the first measurement to allow the TL20 to be conditioned at the internal temperature of the shipment. The first readings will already be within the set limits and the "red LED" alert will not be triggered.
- TL20 units placed close to the external walls of the pallets or containers may be affected by the external temperature, so in this case it is recommended to place units inside the package to verify the temperature excursion within the package itself.

9. What is the best way to attach the TL20 units to packages for shipment or to the shelves of the refrigerated rooms for storage?

- There are various ways the TL20 can be attached to substrates:
- Using 3M PLE specifically designed to be applied to the side of boxes for shipping.
- Using 3M Command Adhesive / Dual Lock strips which is the most practical solution for storage application because it allows the TL20 to be detached from the base location and re-attached after downloading the data numerous times very easily.
- Using a plastic zip tie inserted into the string hole of the side of the TL20 to securely attach it to a pallet, a container or a shelf.

10. Can the 3 M Temperature Loggers TL20 be supplied pre-configured to a customer's preferred settings?

- The TL20 Logger can be supplied pre-configured to customer specifications only as special order with a minimum quantity of 1000 unit at an additional cost per unit to be defined case by case.

11. What about the temperature accuracy and reliability of the 3M TL20 Temperature Logger?

- The performance, quality and conformance statement for the TL20 is available to customers upon request.

12. Is it possible to start or stop the TL20 just by pressing a button?

- Yes, it is very easy to start logging by pressing the red Start/Stop button on the TL20 once it is programmed to be started manually. (Automatic/Manual Start and Stop selection in the Advanced Configuration)
- If it was programmed for Automatic + Manual Stop Mode, by pushing the red Start/Stop button, the red LED will blink six times to confirm that the TL20 was stopped.

13. What feedback is there that the unit is working and that logging has started?

- Once the 3M TL20 has started logging, press the "Check" button. You will three options:

- **No LED** light indicates that it is not reading or it is in the delay time period before starting collecting the data.
- **Green LED** light indicates it is working and all the data points are within the set temperature limits
- **Red LED** light indicates it is working and at least one data point is outside the set temperature limits

14. Can 3M TL20 be supplied with a temperature accuracy certificate?

- Yes, the **TL20V** is a version of the TL20 that carries an additional label with the month and year of temperature accuracy verification. Each unit is individually tested for temperature accuracy at -10C, +10C and +50C and an additional label placed with the date of certification. The certificate will be available either as a PDF file or downloaded directly from the 3M temperature logger website. This product is certified only on demand when a purchase order is placed so the customer will have the full 12 months of "certified use".

15. How many data points and how long can the TL20 collect data continuously?

- The TL20 can collect up to 12000 data points of time and temperature, keeping track of the time zones of the shipper and of the receiver of the goods.
- The data collection frequency can be set from 1 minute to 120 minute interval with one minute increment
- The TL20 can collect data continuously for up to 255 days if the logging frequency is longer than 26 minutes. The ability to collect data points for more than six months is particularly useful for monitoring the temperature of cold storage facilities.
- The TL20 will stop collecting data point when the memory is full with 12000 data points or when it reaches the total time set, whichever come first

16. How long would take to download the data from the TL20 to the computer?

- The time of downloading the data from the TL20 depends on the total number of data collected and the computer set up. A set of 1000 data points the average time required is less than 30 seconds and a full set of 12000 data points may take less than 90 seconds on average.

17. Can the TL20 configuration settings be saved?

- Yes, once the TL20 is configured, you can save a specific setting with the product or customer name for use with the next logger. It is very quick and easy to load this setting in the next logger in a few seconds

18. It says on the back of the device that it needs to be sealed in food grade bag when in contact with food, how does that affect temperature reading?

- The food grade bag does not impact the temperature reading in any significant way. Response time is slowed only by a small fraction. The bag should be used when placed in directly contact with food to meet Food Safety Regulations.

19. Is there anyway to have the shipping information attached to the device?

- It is possible to store the detailed shipping information data including the company logo electronically in the TL20 logger itself when you load the new configuration. This can be done in the Advanced Configuration window. This is the most practical and safe way to have

this information encrypted in the memory chip of the TL20. This information can be also protected with a password.

20.

21. What is the function of the wake up button?

- Pushing the “Wake Up” button the TL20 will flash both LEDs six times signaling that the electronic circuitry in the TL20 is energized to allow the transfer of information between the TL20 and the PC via the USB cable, to accept new configurations and to download data. The electronic circuitry is energized for about two minutes and then it return to the sleep mode to save battery life. It is also useful to push the “Wake Up” button any time is needed to verify that the TL20 is working properly. If there is no LED flashing, the unit is not working properly or the battery is dead.

22. Can 3M provide assistance to customers world-wide?

- Yes, 3M can provide assistance to customers in more than fifty countries world-wide and the information is readily available at the 3M website.