Micro Data Logger User Manual: TL520

Micro data logger with LED indication and free app for PDF reports

Note: All information in this document is correct at the time of publication. Due to continuous product development, we reserve the right to change this information. Major changes in functionality & technical specifications are communicated and described in release notifications.

Contents

Safety Information

The TL520 is designed to be safe in normal use if the following safeguards are followed.

  Devices contain a battery.

  The devices should not be taken apart. Discard if the product case is fractured.

  Do not dispose of in fire.

  Avoid exposing the device to direct sunlight, and do not use the product beyond its breach temperature range for a long period of time.

  Protect the product from moisture.

  Waste electrical products should not be disposed of with household waste. Please recycle where facilities exist.

In case of any concern, please contact Timestrip UK.

Overview and description of product

The eTimestrip® Micro Data Logger TL520 is a compact and economical data logger that can log and store up to 3800 temperature data points. It is capable of providing an immediate irreversible indication of over- and under-temperature conditions using the built-in LED lamps.

It can also relay the stored data wirelessly to an accompanying app (iOS or Android) for analysis and filing using built-in NFC technology.

The TL520 monitors ambient temperature, and compares the data with set threshold values. When the TL520 detects a breach of high or low temperature thresholds for a specified period, it shows an alarm condition using coloured LEDs mounted on its surface. The standard threshold temperature range is 2-8°C, and the set breach period is 30 minutes; custom indicators can be ordered for specific applications.

The standard settings make the TL520 ideal for monitoring cold chain (refrigerated) temperatures in the storage and transport of sensitive products. Fresh food, pharmaceuticals, vaccines and chemical products are typical end use applications.

The eTimestrip® TL520 Logger is part of the innovative eTimestrip range of temperature and time indicators.

Applying and activating the indicators

To activate the TL520 micrologger and start it monitoring, follow the procedure below.

How to use the indicators

1. Break the 'Break to Start' tab - the green LED will flash 5 times. There will then be a pre-set time delay (the start delay) of 30 minutes[1] to allow the device to be placed in the location to be monitored and to achieve temperature equilibration.

2. During this start delay, the green and red LEDs flash once every 30 seconds. Place the indicator with the goods to be monitored, or remove the adhesive backing sheet and stick the device to the packaging in an accessible location.

3. After the start delay, the device enters normal measuring status, signalled by the green LED indicator flashing once every 30 seconds.

4. When monitoring is complete, to stop the device, break the triangular 'Break to Stop' tab. The green, blue and/or red LED flashes twice.

Reading the indicators

There are several ways that the TL520 can be read.

1. **Alarm**: Should the temperature exceed the upper temperature limit for more than 30 minutes[2] (alarm delay), the red LED flashes at an interval of 30 seconds. Should the temperature drop below the lower temperature limit for more than 30 minutes (alarm delay), the blue LED flashes at an interval of 30 seconds.

2. At any time, the 'Read' button may be pressed to view the device status:

Status	LED Indication
Device is operating normally and no breach has occurred	Green LED flashes ●
Upper temperature limit has been breached for at least 30 minutes	Red LED flashes ●
Lower temperature limit has been breached for at least 30 minutes	Blue LED flashes ●
Device has failed	No LED lit

3. The logged data can be viewed on NFC-enabled phones and tablets using either Android and iOS, by using the free eTimestrip app. Links are available at: https://timestrip.com/timestrip-data-logger

Summary of status indicators

Status	LED Indication
Start	Green LED flashes 5 times ●●●●●
Start delay	Green and red LED flash once every 10 seconds ●●
Measuring without alarm	Green LED flashes once every 30 seconds ●
Above upper threshold for 30+ minutes	Red LED flashes once every 30 seconds ●
Below lower threshold for 30+ minutes	Blue LED flashes once every 30 seconds ●
Stop	Green, Blue and/or Red LED flashes 2 times ●● ●● ●●
Device failure	Button press without LED indication
Measurement read out	Button press with Green, Red or Blue LED flashes

[1] Devices with a custom start delay are available to order; consult your Timestrip supplier for details.

[2] Devices with a custom alarm delay are available to order; consult your Timestrip supplier for details.

Reading and interpreting the data via the eTimestrip app

1. Download the 'eTimestrip' app by scanning the QR code for your Android or iOS device. The app is compatible with a wide range of iPhone, iPad and Android devices (see Specification below).

2. Open the app and log in or register a new account if prompted.

3. Enable the mobile NFC function on your mobile phone or tablet.
   - From the menu on the upper left corner of the app, select the TL520, hold the phone or tablet above and close to the device. (fig. 1)

4. Synchronize time: When the mobile phone is actively reading the device, it will automatically synchronize the time. Alternatively, press the Sync Time button; the "Synchronization time succeeded, please rescan the device" message appears. Allow time for the App to sync before generating a report. (fig 2) (fig. 3)

5. When data is being downloaded, a progress indicator will be shown on the app display. Wait until 100% data transfer is complete before moving phone away.

6. View and export data: Place the mobile phone above and close to the device. The data will be displayed in the app. To export a data report, click on the upper right corner to select the desired report format: PDF or CSV. The reports can then be stored or shared, for example, by email or shared storage.

7. Choose the report format by clicking the 'up' arrow in the top right corner to select the desired report format for the data report. Export options are PDF or Excel format.
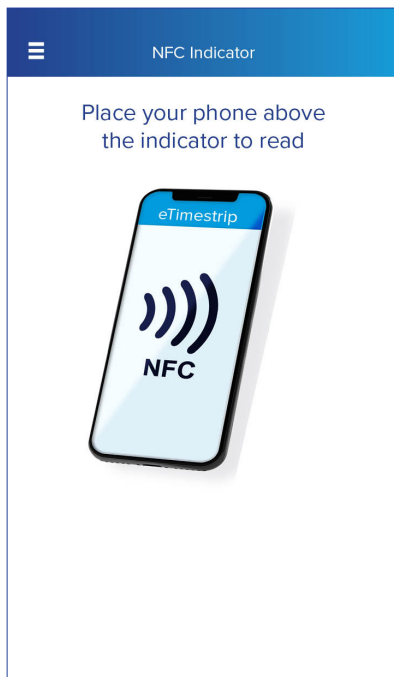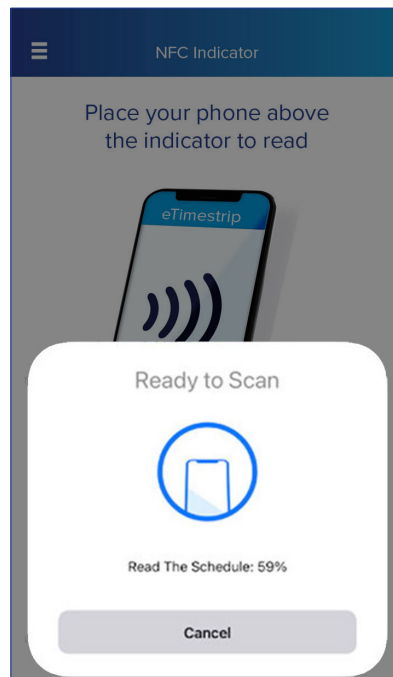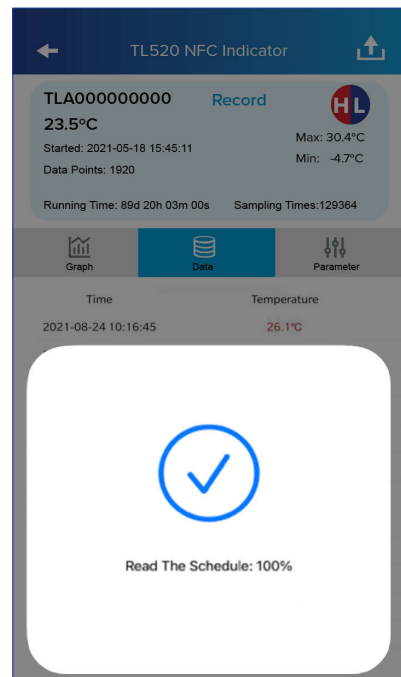

fig. 1

fig. 2

fig. 3

The status of the TL520 is shown on the app as follows:

OK represents no alarm

H represents an upper temperature breach over 30 minutes

HL represents both an upper & lower temperature breach

L represents a lower temperature breach over 30 minutes

A sample first page of a data report is shown below:

eTimestrip Report

Report Generated At: 11-Jan-2022 20:48:51

Device Infomation

Device Code:	TL520	Type:	Temperature
Serial Number:	TLA210800046	Version:	V2.0
Time Zone:	UTC +00:00	Working status:	Record

Trip Information

Description:

Configuration Infomation

Start Type:	Break Tab	Start Delay:	0H 30M
Sampling Interval:	0H 1M	Logging Interval:	0H 5M
Data categories:	Avg	Data Storage Type:	Statistical Data
Led Flashing:	30 Seconds		

Alarm Limit	Alarm Delay	Alarm Type	Total Time	Started	Violations	Status
T1 :Higher 8.0°C	0H 30M	Single	14D 14H 14M	14-Dec-2021 10:43:38	22	Alarm
T0 :Below 2.0°C	0H 30M	Single	2D 14H 24M	21-Dec-2021 21:32:38	37	Alarm

Alarm Zone	Duration Of The First Overtemper	Statistics Of The First Overtemper
T1 :Higher 8.0°C	14D 14H 14M	8.1°C(Avg)
T0 :Below 2.0°C	2D 14H 24M	1.8°C(Avg)

Sample graphical output:
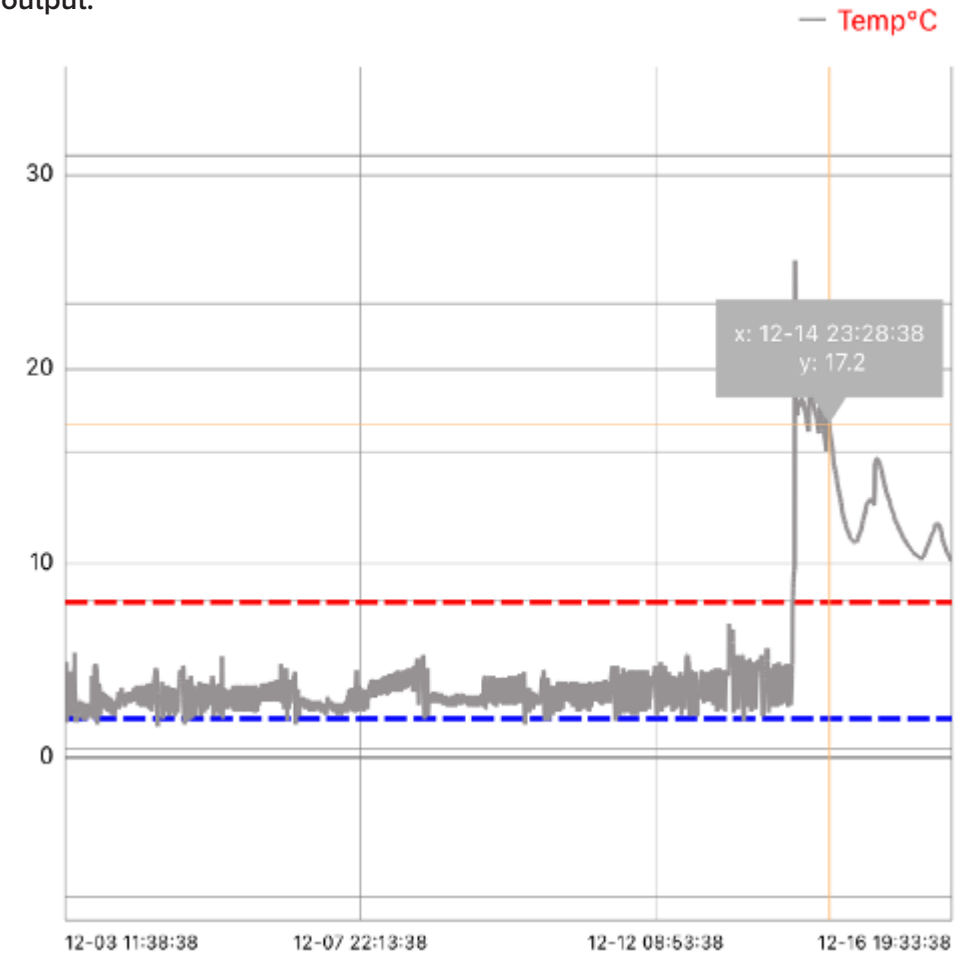
Sample data table (red figures show breach conditions):

09:18:38	4.7	15:13:38	17.4	21:08:38	17.3	03:03:38	13.6
09:23:38	4.3	15:18:38	17.3	21:13:38	17.2	03:08:38	13.5
09:28:38	3.3	15:23:38	17.2	21:18:38	17.2	03:13:38	13.5
09:33:38	2.7	15:28:38	17.2	21:23:38	17.0	03:18:38	13.4
09:38:38	2.9	15:33:38	17.1	21:28:38	16.9	03:23:38	13.4
09:43:38	3.3	15:38:38	17.0	21:33:38	16.8	03:28:38	13.3
09:48:38	3.6	15:43:38	16.9	21:38:38	16.7	03:33:38	13.2
09:53:38	4.3	15:48:38	16.8	21:43:38	16.5	03:38:38	13.1
09:58:38	4.8	15:53:38	16.8	21:48:38	16.4	03:43:38	13.1
10:03:38	4.8	15:58:38	17.5	21:53:38	16.3	03:48:38	13.0
10:08:38	8.0	16:03:38	18.2	21:58:38	16.2	03:53:38	12.9
10:13:38	8.0	16:08:38	18.5	22:03:38	16.1	03:58:38	12.8
10:18:38	8.3	16:13:38	18.3	22:08:38	16.0	04:03:38	12.7
10:23:38	8.7	16:18:38	18.2	22:13:38	15.9	04:08:38	12.7
10:28:38	9.0	16:23:38	18.2	22:18:38	15.8	04:13:38	12.6
10:33:38	9.2	16:28:38	18.3	22:23:38	16.1	04:18:38	12.6
10:38:38	9.3	16:33:38	18.3	22:28:38	17.6	04:23:38	12.5
10:43:38	9.5	16:38:38	18.5	22:33:38	18.2	04:28:38	12.4
10:48:38	9.6	16:43:38	18.6	22:38:38	18.5	04:33:38	12.4
10:53:38	9.7	16:48:38	18.7	22:43:38	18.2	04:38:38	12.4

Customisation

The following parameters are set as standard on the TL520. Custom parameter settings are available, contact Timestrip UK before ordering.
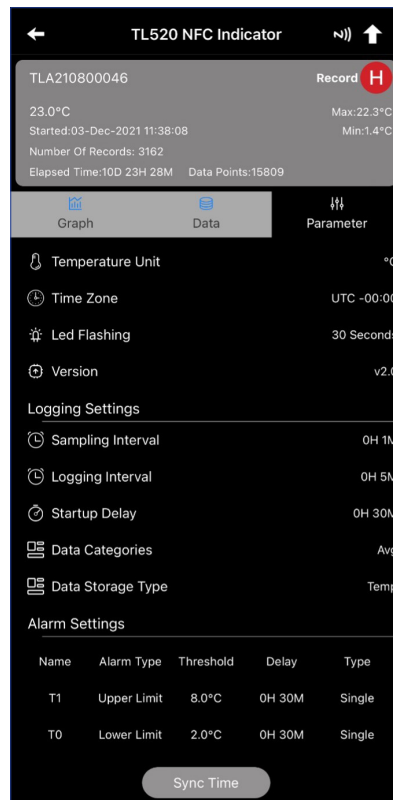
Full Specification

Micro Data Logger Specifications

Type	Single use, disposable, data logging
Activation Type	Break square tab to activate, triangle tab to stop
Status Display	**LEDs**
Data Retrieval	Via NFC, using iOS or Android app
Data Points	Stores up to 3800 data points
Temperature Accuracy	± 0.5 °C (-20°C~40°C), ± 1 °C (others).
Sensor	Built in NTC
Button Type	Single button design, query the status of temperature indicator
Shelf Life	2 years
Battery Life in Use	1 year
Battery Type	Button cell CR1620 lithium
Case, Dimension, Weight	Rigid plastic, 40mm x 54mm x 5.5mm, 6g
Environmental Protection	IP54
Certifications	CE / EN certificates available

TL520

Alarm Type	Single event
Start Delay	30 minutes
Alarm Delay	30 minutes
Measurement Sampling	Every 1 minute
Logging interval	Every 6 minutes unless otherwise specified
Monitoring Duration	13 days
Calibration Points	-20°C, +2°C, +8°C, +20°C, +40°C, +60°C

Compatible NFC devices are as follows:

See the lists below to check if your iPhone or Android has NFC capability.

The following update iOS14 iPhone models that enable NFC function control support etimestrip IOS version:

iPhone 12

iPhone 12 mini

iPhone 12 Pro

iPhone 12 Pro Max

iPhone 11

iPhone 11 Pro

iPhone 11 Pro Max

iPhone XS

iPhone XS Max

iPhone XR

iPhone X

iPhone 8

iPhone 8 Plus

iPhone 7

iPhone 7 Plus

The following Android phones that enable NFC function control support etimestrip Google Play version:

Google Pixel 2

HTC U11 Life

HTC U11 Plus

Huawei Honor 7x

Huawei Honor Mate 20 lite / Pro

Huawei Honor P20 20 lite / Pro

LG G6

LG G7

Nexus 6P

Nokia 6.1 (Plus)

Nokia 7 (Plus)

Nokia 8

OnePlus 6 (T)

Samsung Galaxy A5(2017)

Samsung Note 7 / 8 / 9

Samsung Galaxy 6 (Edge(+))

Samsung Galaxy 7 (Edge(+))

Samsung Galaxy 8 (Edge(+))

Samsung Galaxy 9 (Edge(+))

Samsung Galaxy 10

Sony Xperia z5 (Compact)

Troubleshooting

Loading data points: When using the app to read a Timestrip data logger, you will see a loading screen showing the percentage of data that has been loaded to the report.

In case of a problem reading a Timestrip data logger:

- Make sure to place the mobile phone close to the device.

- Check to see if NFC is enabled in your Connection Preferences (Android users).

- If issues persist, restart app and phone and retry the above steps.

Warranty

TL520 data loggers carry a one-year warranty.

During the warranty period, the company will provide replacements for faulty products.

All warranty and support issues will be handled via our support level process please contact: support@timestrip.com

The following situations are not covered by the warranty:

    a. Damage caused by force majeure, such as earthquake, fire, flood, typhoon, etc.

    b. Damage caused by human factors such as improper use, maintenance and storage.

    c. Damage caused by unauthorized overhaul or disassembly.

    d. Exceeding the warranty period and warranty scope.