



User Manual

TMDL20

Single Use Dry Ice Temperature Datalogger

CE EN12830:2018, RTCA DO-160G

QUICK GUIDE

Step 1:

Plug Logger into USB port of Windows computer to config the logger



Step 2:

Long press "GO" till red LED flashes in sequence 3 times.

Step 3:

Put the logger into dry ice transportation box.

Step 4:

Take out the logger from box while reaching destination.

Step 5:

Plug logger into computer to get report.

The recording function of this logger is also ended at this moment.

Introduction

Congratulations on your purchase of the Triplet

TMDL20 single use dry ice temperature datalogger.

This datalogger is designed for monitoring temperature subject to quality control requirement in transportation and storage.

Temperature measurements are saved throughout the duration of the measurement period.

This datalogger is equipped with a user defined programming function. The measurement report output is implemented using a PDF file, no unique software, and no USB driver is required.

Read through the instruction manual before using this logger. The logger is calibrated before shipment.

Product Description



① USB2.0 plug & play connector. USB driver is not required. PC software is also not required.

② LED indicator:

Status	LED indication
Power OFF	All LEDs are OFF.
Standby	<u>OK</u> Green LED blinks triple every 5 seconds when logger is programmed to standy but not yet start to log.
Activate recording	Red LEDs flash in sequence 3 times to indicate you are activating a logger.
Recording	<u>OK</u> Green LED blinks every 10 seconds when logging function is under going.
Marking	Red/Red/Red LEDs flash in sequence to indicate you are marking the time stamp into logger.
Stop recording	Red LEDs flash in sequence to indicate you are stopping a logger
Recording is	<u>OK</u> Green LED blinks every 5 seconds after logging function

completed	is ended automatically or manually.
Low power	<u>OK</u> RED LED blinks every 5 seconds to indicate the battery power is below 3.0V
Over alarm threshold	<u>Low/High</u> Red LED blinks every 10 seconds when the measuring set limit value is exceeded during record.

③ GO (START/STOP) key:

This logger can only be turned ON and OFF through PC. Plug into PC to execute configuration may turn it on and it will be turned off automatically after the report is generated. After the logger is programmed, press the GO key for 5 seconds to start logging. To stop logging, press the GO key again for 5 seconds. In the logging mode, short press key won't power off or stop the logger.

④ MARK key:

To mark an event manually during the measurement period, press the MARK key for 5 seconds until the red LEDs flash in sequence. This MARK function is usually used when there is a transition, from one location to another. At most 8 marks can be identified in the PDF report.

⑤ High accuracy built in PT1000 sensor for temperature measuring.

⑥ Built in Battery. This logger is operated by 1 pc 3.6V built in lithium battery. The battery is not replaceable or re-chargeable. Suggest on-shelf storage time is no more than 1 year time.

⑦ Hanger

⑧ Waterproof USB plug cover:

To provide the logger with water proof feature, wear on this plug cover before logging trip.

Operation

NOTE:

1. Adobe Reader software is required.
2. Program the logger and generate the PDF report at room temperature. For example: if the logger is removed from a freezer, it should be allowed to return to the ambient room temperature before generating the PDF report.

3. The executable file for programming the logger is named: PDF Logger Configuration Tool

Step1 Configuring the data logger

It is possible to make configuration changes at anytime before the logging function is started. Once the logger is started, configuration changes cannot be made anymore. If the logger is locked with a Password, the Password is required to make configuration changes.

- First, connect the data logger to a PC via the

USB port. The green LED is on while the connection with computer is built.

- Windows file management window will appear.
- If the correct file folder is not open, click on Folder to view files.

- Open the file " PDF Logger Configuration Tool.exe".

- The default language is English. The user may change it to one of six alternate languages. There are English, German, French, Italian, Spanish, and Portuguese.

- User programmable parameters are as follows:

★Sampling rate

Select the sampling interval you need from 30 seconds to 2 hours.

★Start delay

Select the start delay from 0 min to 24 hours. For example: If the delay is 5 minutes, and the sampling rate is 10 minutes, the real time to log the first temperature measurement is 5 minutes after the GO key is pressed. All measurements after the first measurement will be at a 10 minute (or selected) interval.

★Unit of Measurement (UoM)

Select the unit that will be displayed on the report. The selections are Celsius or Fahrenheit

★Password

The Password function is default OFF. The user

may enable it to prevent unauthorized reprogramming prior to pressing the logger starting key. A Password may have up to 16 alpha or numeric characters.

★Company Name

A user defined name, location or descriptor, can be input under Company Name. It will be displayed on the PDF report as the Title, with a maximum of 20 characters.

★Alarm types

Regardless of the Alarm Type, if the red LED is triggered, it won't stop even the reading return to normal range or logging is stopped. The way to stop red alarm LED is to plug logger into computer to generate report.

Single: an alarm is triggered immediately when the measured value exceeds the alarm threshold.

Cumulative: an alarm is not triggered when the measured value exceeds the alarm threshold, but only once the overall average value during alarm delay duration exceeds the alarm threshold.

Disable: No alarm function during the logging process

★Alarm delay

The preset alarm delay interval for a single alarm type is always ZERO.

The adjustable alarm delay interval for a cumulative alarm type can be 5 minutes to 2

hours.

★Alarm Limits

Select the alarm threshold values. For example: if 2 - 8 deg C is selected, it means that an alarm condition will occur below 2 deg C, or above 8 deg C. The programmable alarm limit of each parameter is limited to one decimal. To summarize, to activate a alarm when 30 min average value of hazardous alarm delay period is higher than 8°C, please program the alarm delay as 30 mins, alarm type as cumulative and range as 2~8°C

★Time zone

Before programming the logger the user must assure that the PC is set for the correct time zone. The logger will auto synchronize to the time zone of the PC, when Save is pressed. Time zone changes over the transit distance are not adjusted in the logged data.

The default value of above parameters are:

Sampling rate: 5 min Alarm Type: Disable

Start delay: 0 min Alarm delay: 0 min

Temp. Unit: °C Alarm Limits: blank

Password: disable

Company Name: blank Language: English

Once all the programming is done, press "Save" to confirm the setting and then you may close the setup window and remove the logger from PC

USB port.

Step2 Start logging

-When logger is successfully programmed, the green LED blinks triple every 5 seconds to indicate the logger is in standby mode.

-Put on the USB plug cover and then press "GO" key for five seconds to start the logging.

-Red LEDs will flash in sequence 3 times to indicate the logging is activated.

-During the logging, the green LED will blink

every ten seconds. If battery power is too low to maintain a normal operation, red LED blinks.

- To place a bookmark manually during the delivery transition, press MARK key for 5 seconds till the Red LEDs flash in sequence.

Step3 Download data

-Press "GO" key for 5 seconds till red LEDs flash in sequence to stop the logging.

-Plug logger into PC USB port can also stop the logging

- The PDF report will be generated automatically upon the logging is plugged into computer. The report contains statistics report, diagram and all detail data. The language of the report is identical to the language you used to do setting.

- The generated PDF report will be kept in logger. You may copy and paste it to any file folder you need.

- The recording function of this logger is ended while you plug it into computer or press key to stop it.

Specifications

Model	Single Use Dry Ice Temp. Logger
Temp. & Ext.	By PT1000 sensor
measurement	-80.0~70.0°C (-112.0~158.0°F)
Temp. resolution	0.1°C (0.1°F)
Temp. accuracy	+/-0.5°C
T90 Response	Within 20 mins
Logging Type	Multiple use
Sampling points	8192 points
On-shelf Life	Best to use within one year

Operating temp.	-80~70°C (Logging status); room temp.(PC status)
Operating RH%	Humidity < 80%
Storage temp.	-40~85°C
Storage RH%	Humidity <90%
Weight	~20g
Battery	Built in 1 PC 3.6V Lithium battery
Sampling interval	30 seconds, 5, 10, 30, 60, 90, 120 minutes
Start delay	0, 5, 30, 45, 60, 90, 120 minutes, 24 hours
Alarm range	Temp: -80.0~70.0°C
Alarm delay	0, 5, 30, 45, 60, 90, 120 minutes
Alarm type	Single, Cumulative, Disable
Operation keys	2 Keys, GO & Mark
LED indicator	REC, Low battery, High /Low alarm
Protection class	IP67
Directives	EN12830:2018, RTCA DO-160G
Operating System	Windows only

Warranty

Triplet / Jewell Instruments extends the following warranty to the original purchaser of these goods for use. Triplet warrants to the original purchaser for use that the products sold by it will be free from defects in workmanship and material for a period of (1) one year from the date of purchase. This warranty does not apply to any of our products which have been repaired or altered by unauthorized persons in any way or purchased from unauthorized distributors so as, in our sole judgment, to injure their stability or reliability, or which have been subject to misuse, abuse, misapplication, negligence, accident or which have had the serial numbers altered, defaced, or removed. Accessories, including batteries are not covered by this warranty.

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