OPERATING MANUAL

LM-XS Pro

LM-XS^Pro E006
Temperature Data Logger
Model No.: 9993x

Mother Nature tells you everything

g-tek
better by
performance

English/ 2025/ Rev.2.0

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1 SAFETY AND THE ENVIRONMENT

1.1. About this document

This instruction manual is an essential component of the product.

Please read this documentation carefully and pay attention to the safety instructions and warning notices to prevent injuries and damage to the product.

Keep this document handy so that you can refer to it when necessary.

1.2. Ensure Safety

➢ Operate the product properly, for its intended purpose and within the parameter specified in the technical data. Using it beyond the specified limit can cause the damage to the product and personnel also.
➢ Do not use the product if there are signs of damage to the housing.
➢ There are no user serviceable parts inside. For any defect, please consult the factory or the dealer from where you bought.

1.3. Protecting the Environment

➢ All the materials used in the data logger are RoHS and Reach compliant. There are no hazardous parts in the data logger.

➢ The Data logger has marking for RoHS and CE compliant.

➢ Disposal properly marking on the LM-XS^{Pro} E006 data logger indicates that data logger and its accessories should not be disposed of with other household or commercial waste at the end of their working life.
➢ Dispose of faulty batteries/spent batteries in accordance with the local regulations or valid legal specifications.

At the end of its useful life, send the product to a separate collection for electric and electronics devices (observe local regulations) or return the product to G-Tek for disposal. (Dispose or recycle the LM-XS^{Pro} E006 data logger in accordance with the WEEE 2012/19/EU guidelines or your local regulations. For the suitable recycling, the device may also be returned to the manufacturer.)

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2 SPECIFICATIONS

2.1. Use

LM-XS^{Pro} E006 Data logger is an External sensor data logger meeting the requirements of **WHO PQS E006/TR06.4.** It stores the data up to 60 days and user can see the history data up to last 30 days on display without downloading or connecting the device to the computer. All the parameters and alarm limits are pre-configured as per the requirement of guidelines, wherein there are two options available to choose from.

Type- 1: Capable to monitor and programmed with alarm settings suitable for monitoring vaccine refrigerators at +2 to +8 °C.
Type- 2: Capable to monitor and programmed with alarm settings suitable for monitoring vaccine freezers at -15 to -25 °C.

They have been specifically designed for monitoring the temperature during transportation, storage of vaccines and other medical products or the medical refrigerator products subject to cold chain requirements.

The temperature readings are monitored and saved throughout the entire duration of measurement program.

A Summary Report in PDF/CSV format for maximum 60 days can be directly generated by connecting the device with PC. LMViewXS-E006 software needs to be installed on the PC to analyze the downloaded log data file. The user can generate detailed data reports in PDF format and export the data in CSV format for further analysis.

2.2 Technical Data

Table 1 Technical Specifications

Model	LM-XS^{Pro} E006 9993x (Type-1, Type-2)
General	
Remote Sensor	Thermistor - 10K NTC; 3mm diameter, 2.5 meter-long Cable in a sealed cap.
Temperature Measurement Range	-40 °C to + 60 °C (-40 °F to +140 °F)
Accuracy	± 0.5 °C for the range -30 °C to + 30 °C ± 0.7 °C otherwise
Resolution	0.1 °C display and 0.01 °C storage
Unit of Measurement	Data in degree centigrade °C ; User has an option to view the data in degree Fahrenheit °F on LCD display.
Calibration	Each device accompanies NABL (ISO/IEC 17025) traceable certificate

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Alarm	Audio - Visual	
	Type-1	**Type-2**
Alarm Low Settings*	<= -0.5 °C for more than 60 minutes	<= -25 °C for more than 60 minutes
Alarm High Settings*	>= 8.0 °C for more than 10 hours	>= -15 °C for more than 60 minutes
Response Time	T90 < 20 minutes as per EN12830:1999	
Logging Interval*	Measurement interval 1 minute and Data store interval 5 minutes, pre-Fixed.	
Delayed Start Option	Yes. 30 minutes after start of the device	
Power Requirement		
Battery	Non-Replaceable 3.0 V 950 mAH; CR2477 Panasonic (or Equivalent) Coin Cell Battery;	
Battery Life[#]	Up to years 5 years useful life and 0.5 years storage life. The battery indicator on the display provides information on the remaining lifetime.	
Environmental Specification		
Temperature during Transportation and Storage – Device inactivated	-30 ˚C to 60 ˚C	
Temperature during operation	5 ˚C to 60 ˚C (EN 12830:1999 Table 3, Climatic Type A)	
Humidity During Transportation, Storage and usage	5 to 95% RH non-condensing	
PC Interface and Software		
PC Interface	History data of 30 days can be seen using device keyboard and display without attaching to PC. Direct PDF/CSV Summary Report of maximum 60 days can be generated by connecting the device with PC. Log data file of max 30 days can be extracted using LMViewXS-E006 software to analyze and generate the detailed data report in PDF/CSV format.	
Connectivity	USB 2.0 Type-C Compatible; Data Download Time: approx. 30 seconds for PDF/CSV report download.	
Software Compatibility	LMViewXS-E006 is compatible with Windows Operating System currently supported by Microsoft.	
Human Interface		
Display Type	Character LCD Display with Min, Max, Battery Level Indication, OK/Alarm, calendar, clock, duration, delay counter, Alarm high and Low, Alarm marker, Bell symbol, REC/Pause indication and Current reading with measurement unit.	
Memory Size	30 days overview on the display/ PDF report up to 60 days at store interval of 5 minutes.	

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Activation	Device activation by pressing "**Up**" key for about 2 seconds. Please refer to the operating manual for more details.
De-Activation	Cannot be manipulated, reset or deactivated without destroying it.
Status Indicator	LCD display is normally in auto off mode; Display Permanent ON option is also available**#** RUN: Red LED flashes while device is activated.
Alarm Visual	Temperature reading on LCD display along with ▲or ▼ arrow for high or low alarm with bell symbol. Alarm markers for last 30 days on LCD display
Alarm Audio	Buzzer Output > 65 dBA. Buzzer will beep in alarm high/low condition. For detailed buzzer functioning refer to operating manual.
Power ON Indication	"**RUN**" LED blinks in active mode; LCD shows temperature data along with "**REC**" and alarm indications if any.
Mounting Device	Two holes are provided for mounting. Refer to operating manual for details.
Material	Polycarbonate Plastic: non-breakable, non-corrodible housing
Warranty	12 months from the date of dispatch. Refer to warranty certificate for more details.
Service Provision	No user serviceable parts inside.
Physical Characteristics	
Overall Dimension (L x W x H) mm	128 x 60 x 22 mm
Weight	Approximate 120 gms
Standards	
Electromagnetic Compatibility	IEC 61000-6-3/4-3/4-4
Resistance to Electrical Storms	IEC 61000-4-2
IP Rating	IEC 60529: IP 64 (External Sensor not plugged in)
Impact Resistance	5 drops from 1 meter onto concrete floor with battery in place. Device does not get damaged and there is no loss of calibration.
Vibration	EN 12830:1999 Clause 4.9.3.2 and Test Method 5.6.6
RoHS	Compliant (EU directive 2011/65/EU)
Verification	In accordance with PQS verification protocol E006/TR06.VP.4

*: Current alarm settings are pre-fixed from factory as per requirements of WHO/PQS/E006/TR06.4. Other settings are available on request.

#: If data is stored at 5 minute store interval with storage and operation of the device remained inside the recommendations of the manufacturer.

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3 UNPACKING THE PRODUCT

3.1 Unpacking and Inspection of LM-XS^Pro E006 Data Logger

➢ LM-XS^Pro E006 data logger is dispatched in a recyclable, environment friendly package specially designed to give adequate protection during transit.

➢ If the outer box shows sign of damage, it should be opened immediately, and the device be examined. If the device is found damaged, it should not be operated, and the local representative contacted for instructions.

➢ Ensure that all accessories and documentation is removed from the box.

➢ If the LM-XS^Pro E006 data logger is for immediate use, you can start installing it as per Installation instructions.

➢ **Please preserve the original packaging along with all internal packing for future transport requirements.**
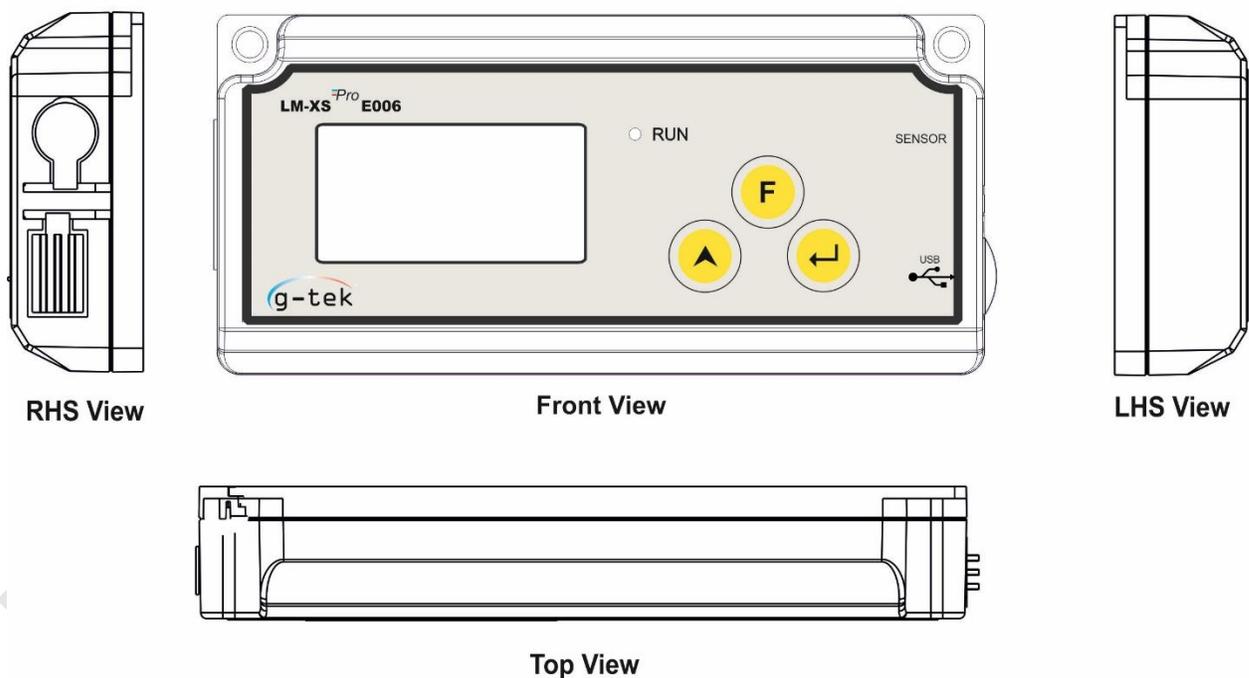
Figure 1 LM-XS^Pro E006 Data Logger

3.2 Mechanical Dimensions of LM-XS^{Pro} E006 Data Logger

RHS View

Front View

LHS View

Top View
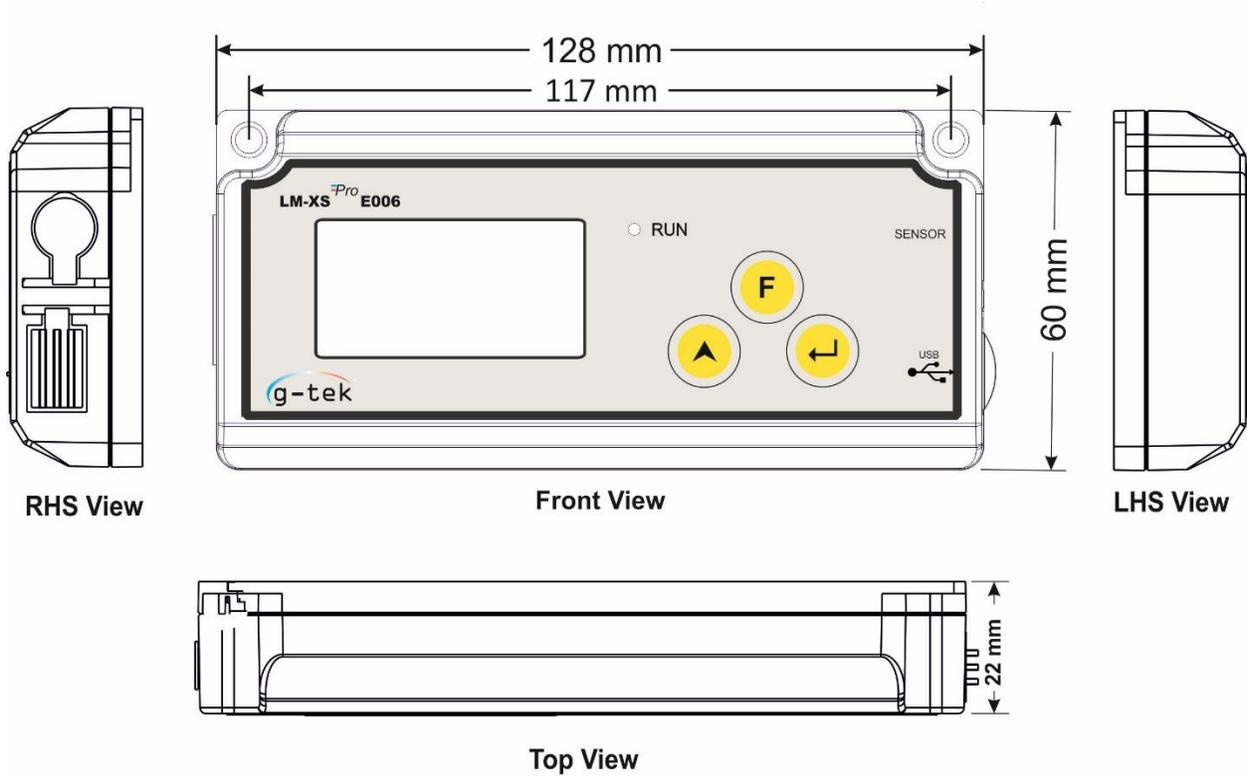
Figure 2 Overall dimensions of LM-XS^{Pro} E006 Data Logger

Overall Dimensions	
Dimension (L x W x H) mm	128 x 60 x 22 approx.
Mounting	Screw Mounted
Weight	Approx. 120 gms

3.3 Enclosure Wall Mounting of LM-XS^{Pro} E006 Data Logger
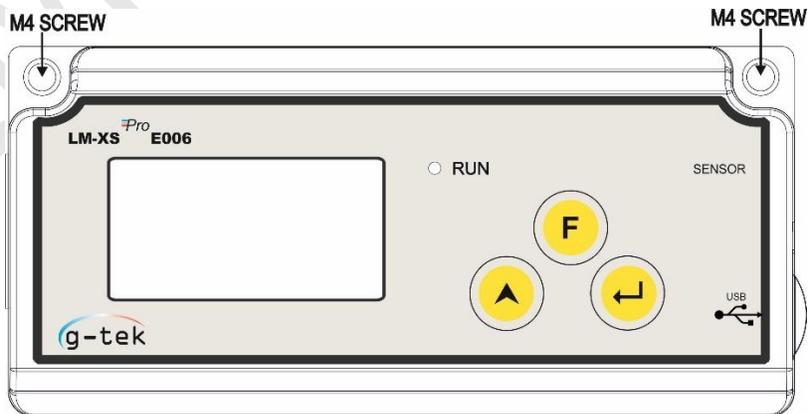
Figure 3 Screw mounting

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3.4 Sensor Connection of LM-XS^Pro E006 Data Logger
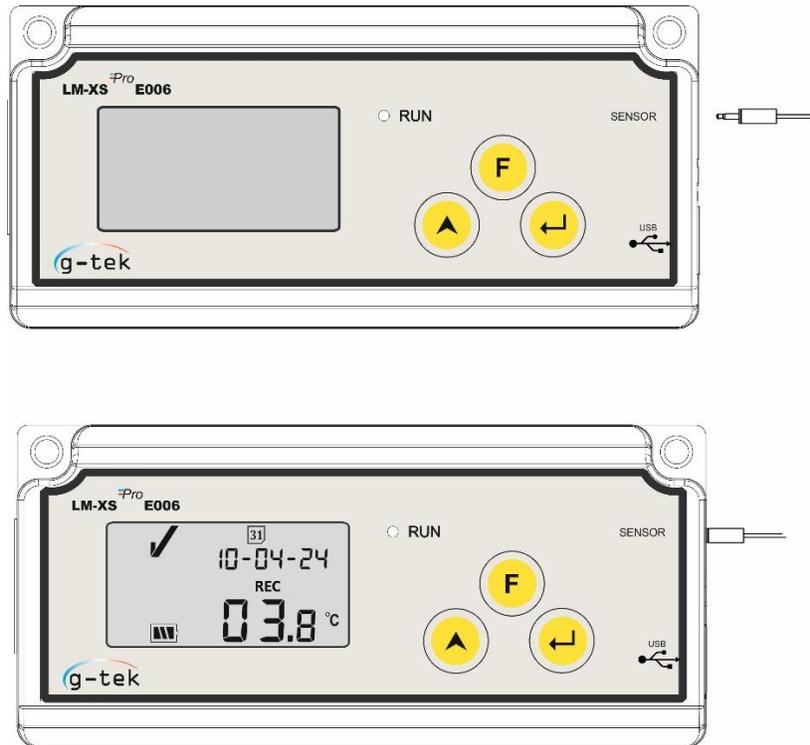
Figure 4 External Sensor jack Inserted

➢ Sensor will be inserted in the LM-XS^Pro E006 data logger using 4 contact 3.50 mm Stereo jack connector. Connect sensor cable as per figure 4.

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4 LIST OF ABBREVIATIONS

Table 2 Commonly used Abbreviations

Abbreviation	Description
dtF	Calendar format
dtE	Date setting
tME	Time setting
dSp	Display setting
dd	Date
MM	Month
YY	Year
Hr	Hour
Mn	Minute
ASH	Alarm Set Point High
ASL	Alarm Set Point Low
HSt	History
YES	Yes
ALH	Alarm History
dIF	Device Information
CrC	CRC checksum
Unt	Unit of temperature reading
CEL	Celsius
FAH	Fahrenheit
SAV	Save
Err	Error
Snc	Sensor not connected

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5 PRODUCT DESCRIPTION

5.1 Status LED

Table 3 Status LED indication

Indicator	Description
RUN	Device is activated and working Ok is indicated by "**RUN**" LED blinking.

5.2 Display (LCD)

The multi Character LCD Display consists of OK/Alarm, Bell, Min/Max, Battery Level Indication, Alarm high and Low, Rec/Pause, alarm day marker, day, calendar, clock, duration, delay counter, date/time/duration text and Current reading with measurement unit. The position and description of each segment is shown in figure 5.
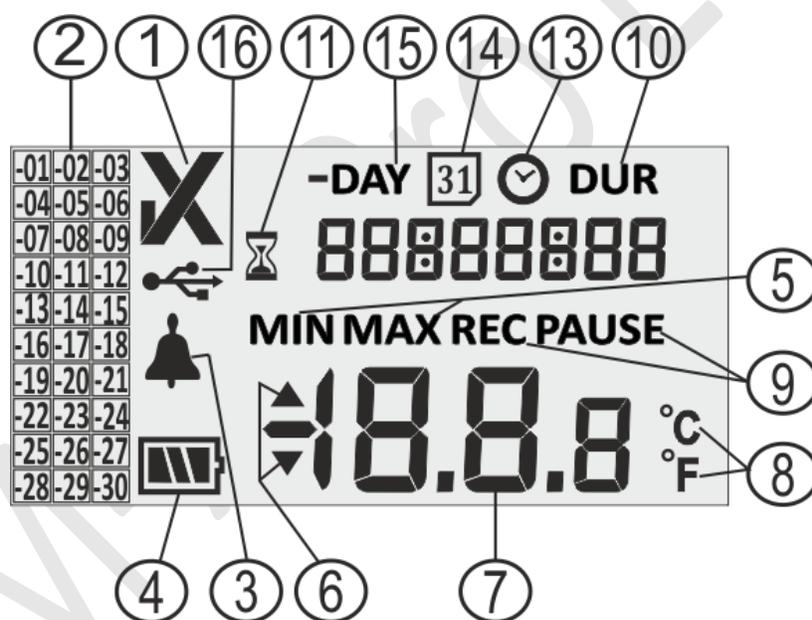
Figure 5 LCD Display format

1) OK ✓/ NOK X symbol:
   a. If any time in last 30 days, alarm limits are crossed, the symbol "X", **NOK will be turned on and will remain even if the alarm is acknowledged.**
   b. If any time in last 30 days, alarm limits are not crossed, the symbol " ✓" remains on the display.
2) Alarm indication marker for history of last 30 days;
   a. "-01" means the alarm was there on yesterday
   b. "-02" means the alarm was there on day before yesterday.

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    c. To understand better, let us assume today is 31-01-2024. Then "-01" will be 30-01-2024; "-02" will be 29-01-2024; "-10" will be 21-01-2024 and similarly "-30" will be 01-01-2024.

3) Bell symbol for alarm indication

4) Battery capacity: Sufficient ▮▮▮ ; Partly empty ▮▮ ; Low ▮ ; Empty ▯

5) Min: Minimum stored reading for the given day
   Max: Maximum stored reading for the given day

6) Upper ▲/ Lower ▼ limit if reading exceeded alarm limits.

7) Current temperature reading

8) Temperature Measurement unit (°C / °F)

9) Recording state indicators – REC - Recording; PAUSE – Recording Paused. When recording is paused, actually the data is recorded at the store interval but these data is not considered to calculate Min/ Max / Alarm duration. **PAUSE will be auto resumed to REC after 15 minutes.**

10) Digits used to display various parameters like Day, Date, time and duration.

11) Delayed start indicator: when first time logger is started by setting calendar, it will wait for 30 minutes to start logging the data. During these 30 minutes time only, this sand clock symbol will be on. This symbol will also come on during PAUSE mode.

12) DUR: Total alarm time duration symbol

13) Clock symbol: This symbol comes along with time displayed in digits

14) Calendar symbol: This symbol comes along with date displayed in digits

15) -DAY: Previous day(s) number indicator symbol for History data

16) USB connection symbol

Note: For Technical reasons, the display intensity of liquid crystal display becomes lower at temperatures below 0°C. This has no influence on the measuring accuracy. For technical Reasons, the battery performance decreases at lower temperatures. The device should not be subjected to temperature beyond the recommended range. In case the device is exposed to temperatures outside the specified range, the device may behave erratically and get reset.

5.3 Keys and their function

Function (Set) key: It is used to enter main menu or come out from the main menu/submenu.

UP Key: It is used to increment the parameter value or go to the next submenu and for activating device when device is in sleep mode.

Enter key: It is used to store the parameter value and to enter in menu for modification.

In addition to above functionality, keys are used for following functions:

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Device Activation

- ➢ LM-XS^{Pro} E006 data logger is dispatched in deep sleep mode.
- ➢ To activate the LM-XS^{Pro} E006 data logger, press "**Up" key** for about 2 seconds.
- ➢ Once the device is activated, all segments of display will turn ON for 5 seconds followed by calendar format selection and set RTC (Date and Time) of the data logger.
- ➢ **If RTC is not set, the data logger will go in deep sleep mode again within 1 minute.**
- ➢ After RTC is set, device batch will start after **30 minutes** of device activation.
- ➢ Once the recording of data is started, **"REC"** message is seen on display.

Min/Max

- ➢ Press "**Up**" and then "**Function**" keys, hold for approx. 1 sec, the display will start showing Current day Minimum and Maximum temperature value followed by current data.

Current Data

- ➢ Press **"Function"** key for 1 sec, the display will show current temperature data.

6 USING THE PRODUCT

6.1 Set RTC Menu

When the LM-XS^Pro E006 data logger is activated by pressing **"Up" key** for approx. 2 seconds and then release, the user must set the RTC first. The user can set the RTC in one of the available calendar formats: "dd-mm-yy" or "mm-dd-yy" by following the sequence as shown in figure 6. If the user has not set the RTC parameters, the device will go back in deep sleep mode.
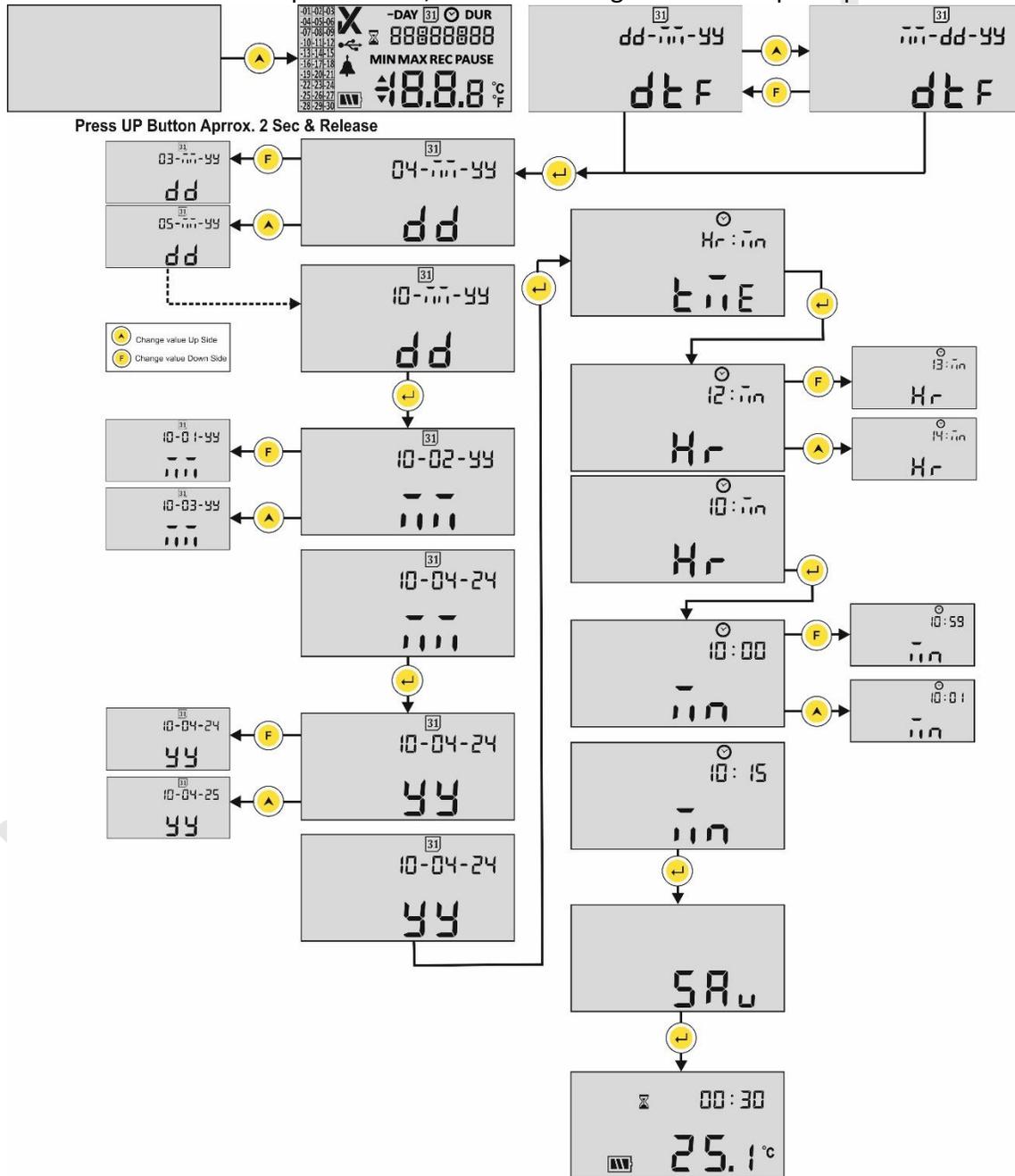

Figure 6 Set RTC Menu Sequence

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After setting the proper RTC, start delay counter (30 minutes) and sand clock symbol will be turned ON.

Note:
1. **Once selected, date format cannot be changed throughout the life of data logger.**
2. Calendar format is set as "dd-mm-yy" default. The calendar format followed throughout in the manual is "dd-mm-yy".
3. Date validation is done as per month and year entered in Set RTC and date setting menu. E.g.
   - If user has entered the value 31 in date, 06 in month and 24 in year, it will be autocorrected as 30-06-24 (dd-mm-yy).
   - If user has entered the value 29 in date, 02 in month and 25 in year, it will be autocorrected as 28-02-25 (dd-mm-yy).
4. The display is normally off to save the battery life when no activity on device.

6.2 Start Recording of Temperature Data

Once you have set the date and time, position the data logger in the preferred temperature environment. After a 30-minute of start delay, the data logger begins collecting data.

The display automatically turns off after 20 seconds of keyboard inactivity to preserve battery life. By pressing "**Function**" key for approx. 1 sec, the display will show current temperature reading along with unit and "**REC**" message as shown in figure 7.
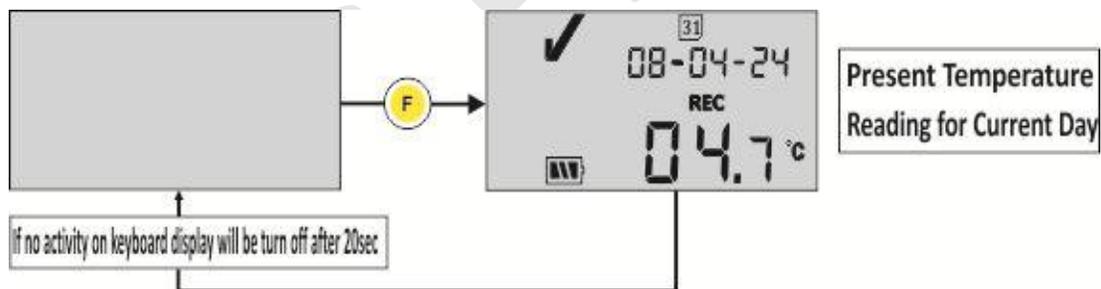
Figure 7 Temperature Recording Started in the Data logger

Note: The current date and time are displayed alternately every 3 seconds with an auto-off option. If the user selects the continuous "ON" option, the refresh rate is every 10 seconds.

6.3 Main Menu Sequence

The main menu of the LM-XS^Pro E006 data logger as shown in figure 8, consists of two sections:

1. **Parameter Viewing Menu:** Users can access alarm set points (high/low) with their respective durations, historical data, alarm history, and device information.
2. **Parameter Setting Menu:** Users can configure temperature unit preferences for display, adjust date and time settings, and select display auto off/continuous ON option.

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If no activity on keyboard display will turn off after 1min

If Display "ON" and no activity on keyboard display will return to current data after 1min

DUR
Hr:mn
ASH

DUR
Hr:mn
ASL

HSt

ALH

dIF

Unt

dd-mm-yy
dtE

Hr:mn
tiME

dSP

Figure 8 Main Menu Sequence

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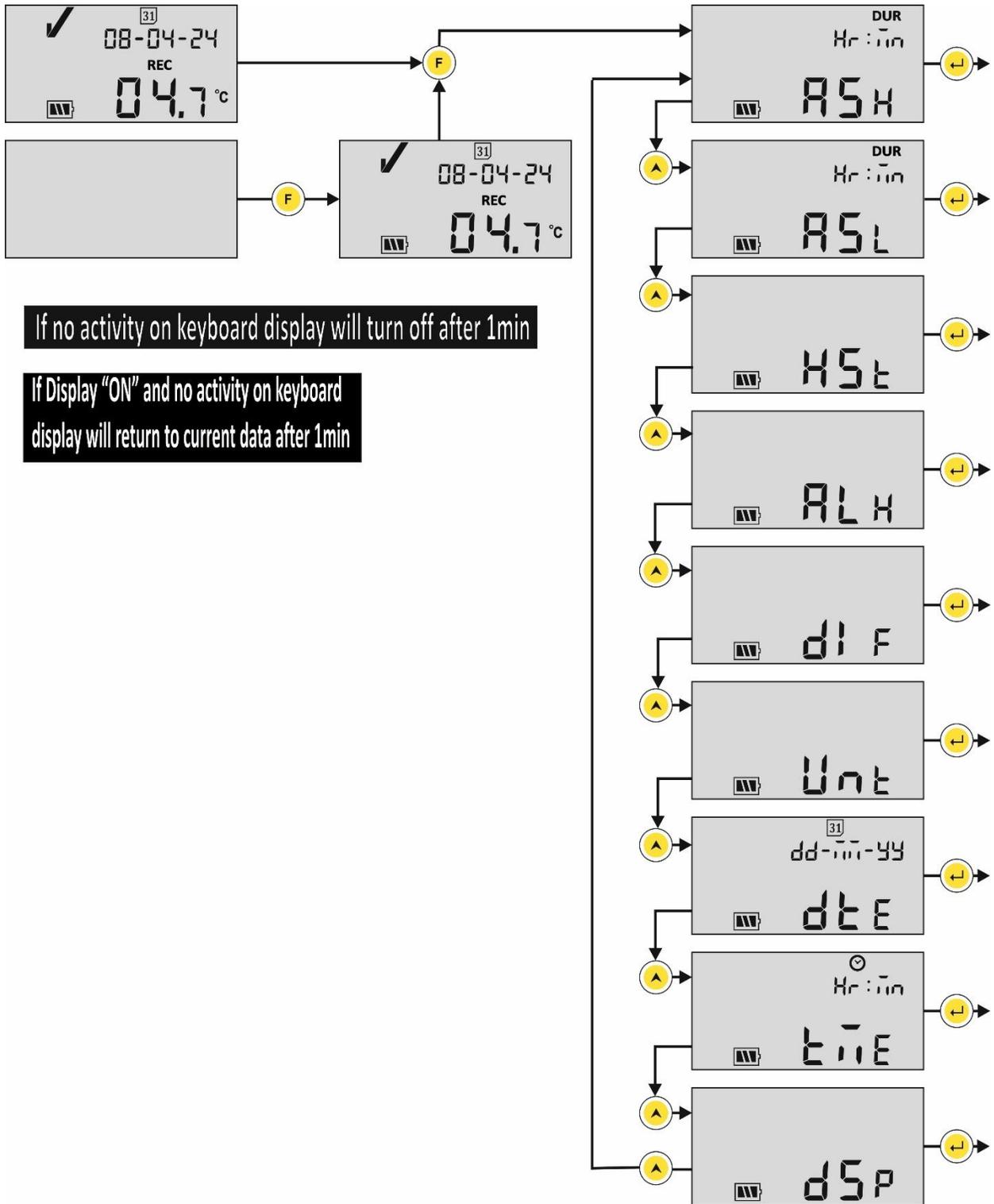### 6.3.1 ASH (Alarm Set Point High)

In this menu, Alarm set point High along with its alarm delay can be seen, **which is preset at +8°C and 10 hours. User can only view this parameter.**
Alarm ON Time duration for Set point High is in HR:MN[#]. This is the time required for the reading to remain more than Set point High, to be treated as alarm.
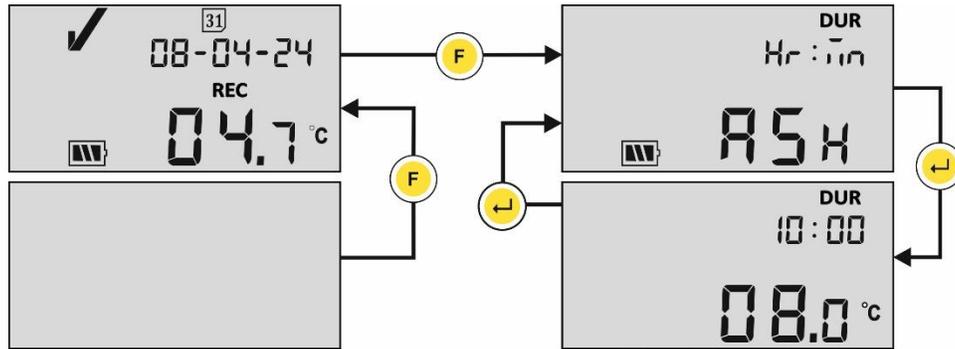
Figure 9 Alarm Set Point High

6.3.2 ASL (Alarm Set Point Low)

In this menu, Alarm set point Low along with its alarm delay can be seen, which is **preset at -0.5 °C and 1 hour. User can only view this parameter.**
Alarm ON Time duration for set point Low is in HR:MN[#]. This is the time required for the reading to remain more than ASL, to be treated as alarm.

Figure 10 Alarm Set Point Low

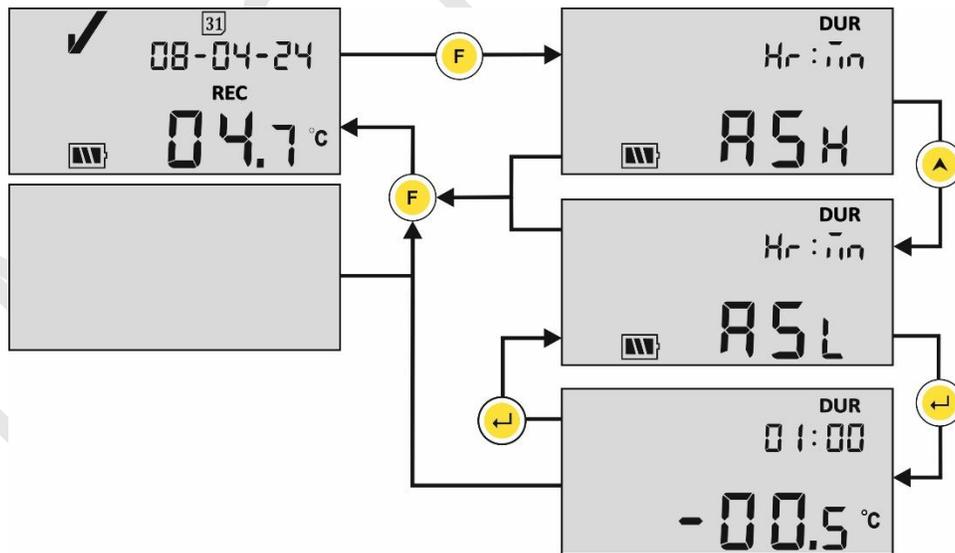In alarm high/low condition after Alarm ON High/ Low delay, the Bell and NOK symbol will be appeared on display and the buzzer will be activated for 1 sec at every 1 hour interval. For detailed alarm operation refer section 6.7.

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Note: The preset alarm settings in the manual are shown for the Type-1 model. For the Type-2 model, refer to the specifications.

 # ASH and ASL are Preset and range for HR and MN is 00 to 23 and 00 to 59, respectively.

6.3.3 HST (History Menu)

The user can see the history data of min/max values for last 30 days using history menu. In this menu, the user can choose the history days option from 01 - 10, 11 - 20 and 21 - 30 days as shown in figure 11.
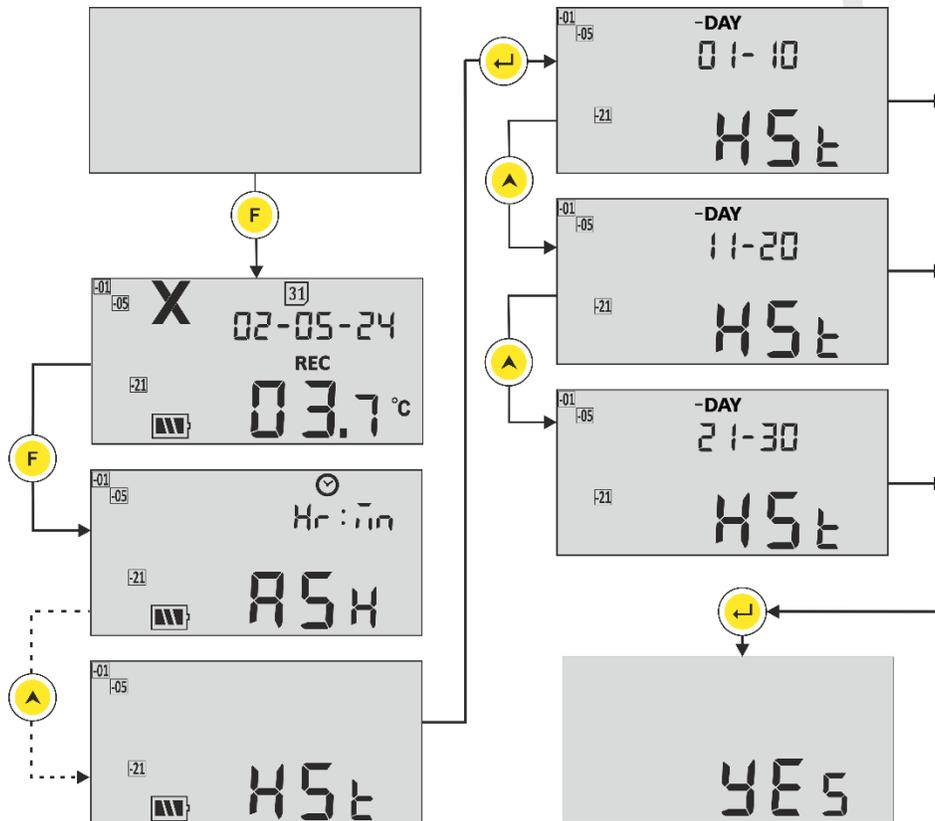
Figure 11 History Menu to view Temperature Min/Max History

Note:
- ➢ History menu terminates automatically if the data is not available to display.
- ➢ E.g., If we started the data logger just 3 days before, then history data should be shown only for last 3 days and History menu terminates followed by showing current temperature.
- ➢ If the data logger is started less than 24 hours back, History menu gets terminated without showing any min/max data, as there is no history data to be displayed.

Example: If the user chose 01 - 10 days option, then the display will be showing the date of "-01" day, alarm trigger time (In case of alarm), history data for Min & Max values along with its duration and sensor failure condition duration (if any) in sequence up to last 10 days with approx. 3 sec time intervals as follows:

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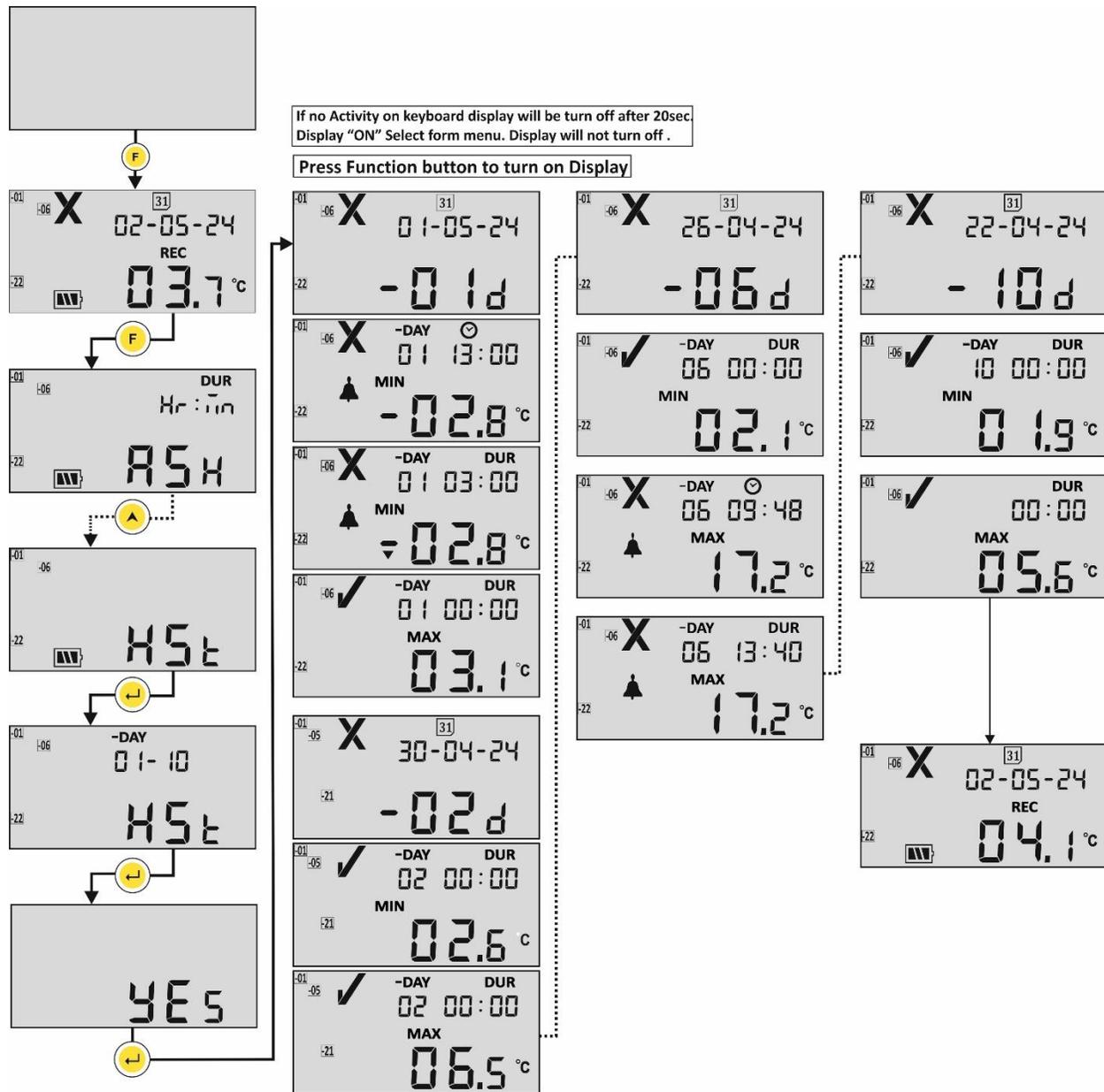
Figure 12 View History data Sequence for 01 to 10 days

6.3.4 ALH (Alarm History View)

If the user wants to view only alarm data in last 30 days history, it can be seen using Alarm History View (ALH) option by following the sequence shown in figure 13. Here, the parameters display sequence is same as history data view menu, except that its only showing history with alarms. Alarm History view terminates automatically if there is no alarm data to show in last 30 days.
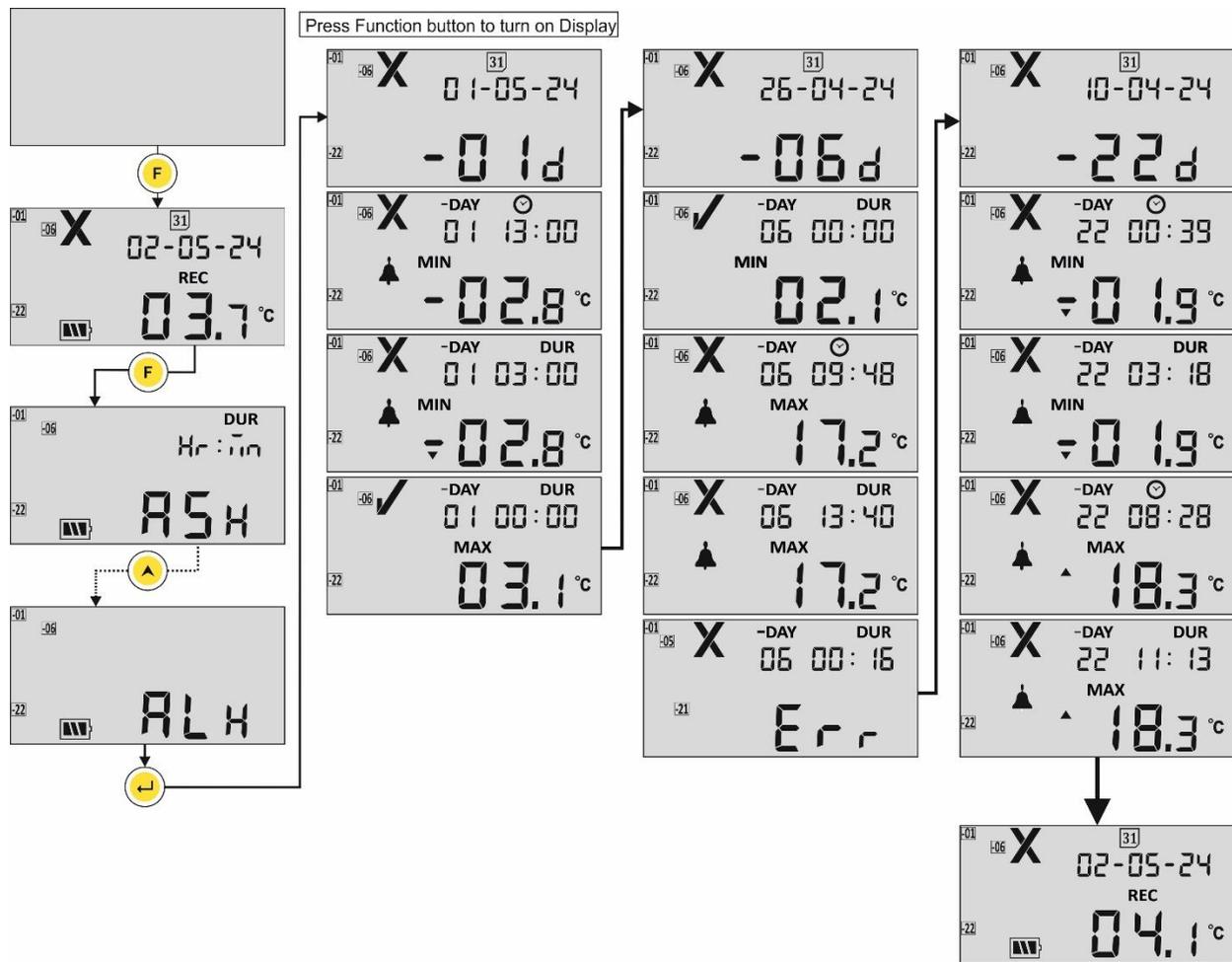
Figure 13 View Alarm History data in last 30 days

Note: Normal history and Alarm history viewing can be terminated manually by pressing **"Up"** and **"Enter"** keys simultaneously.

6.3.5 DIF (Device Information)

The user can view device information using this option in menu. The device information consists of serial number, version number and CRC checksum for the LM-XS^Pro E006 data logger, which can be read as shown in figure 14 (The numbers shown here are for example purpose only).

LM-XS ^Pro E006
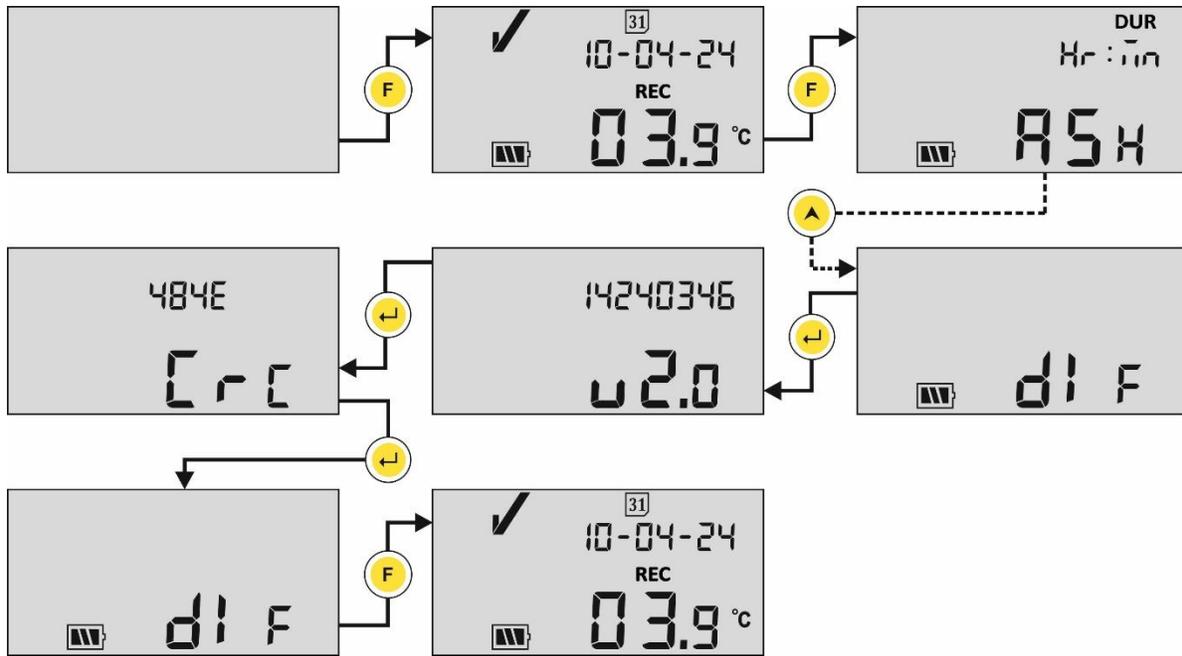
Figure 14 View Serial No., Version No. and CRC

6.3.6 UNT (Unit)

In this menu, user can select Temperature unit – "CEL" (°C) / "FAH" (°F) for viewing by following the steps shown in figure 15. User can view the data on LCD display in degree Fahrenheit, but data is stored in degree Celsius only.
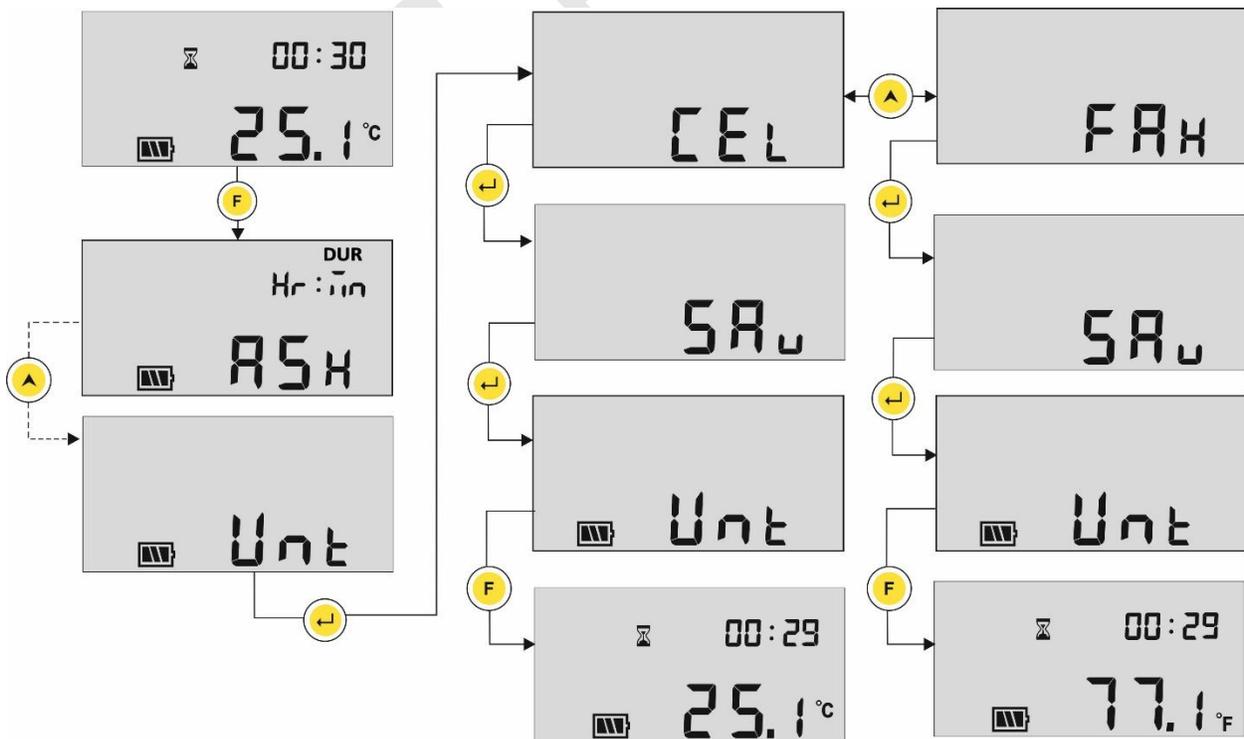
Figure 15 Select Unit for Temperature reading

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Note: The report will show the data in degree Celsius only.

6.3.7 DTE (Date setting)

The date can be adjusted using date setting menu as shown in figure 16. Date can be set/changed while data logger is in running or stop mode. **Date can be changed as many times in a day as user wants but the last date changed will only be stored.**

In history data also the last date changed will be displayed. Every time date is changed a date change Tag is logged and it can be seen by downloading Report.
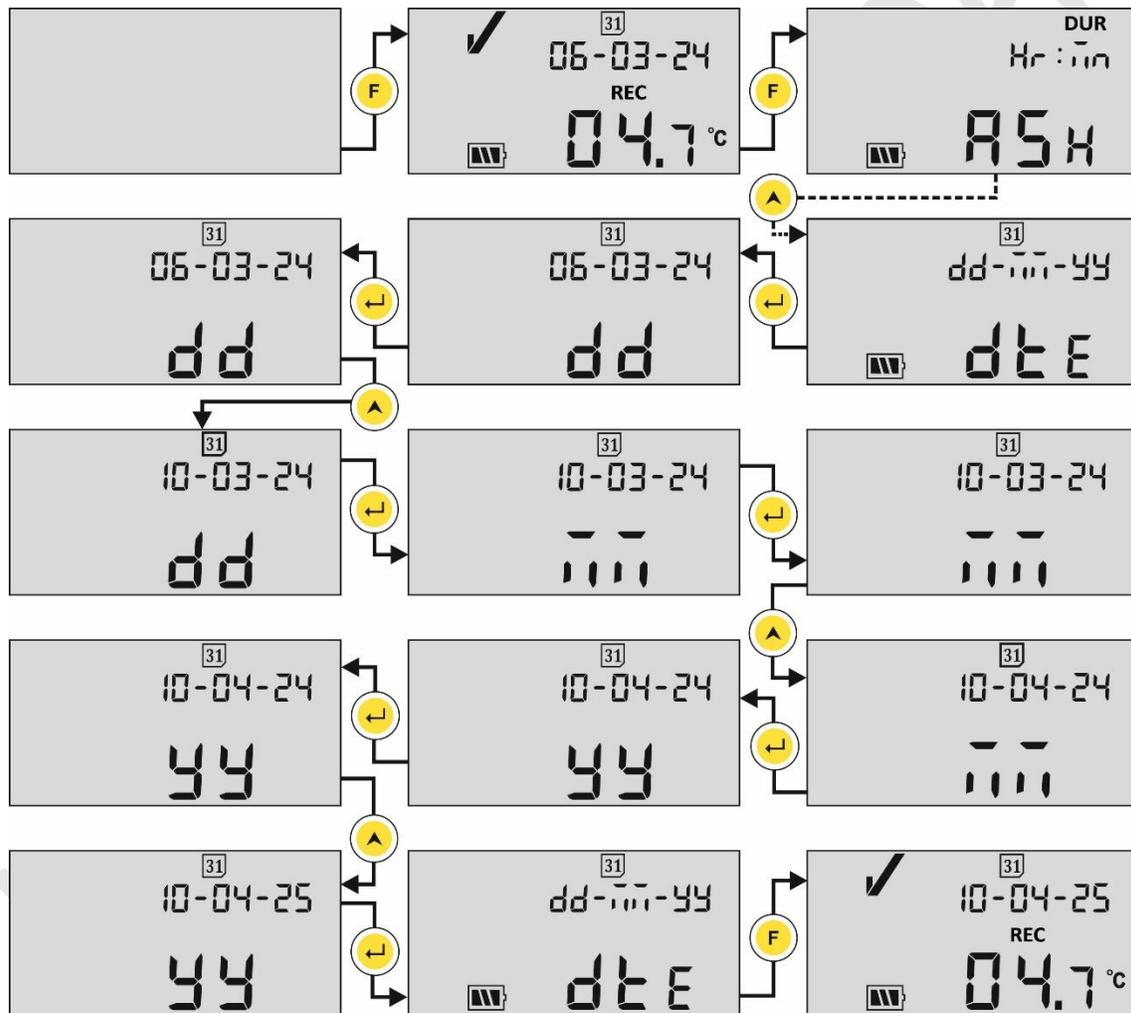
Figure 16 Date setting menu in dd-mm-yy format

6.3.8 TME (Time setting)

The device time can be adjusted using time setting menu as shown in figure 17. Time can be set/changed while data logger is in running or stop mode. All changes in time are logged in memory as Tag and it can be seen by downloading the report.

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Figure 17 Time setting menu

6.3.9 DSP (Display setting)

If the user wants to keep display continuously ON, it can be done by following the steps in the display setting menu as shown in figure 18.

If Select Display off then display will turn off after 20sec
If Select Display "On" then display will be refresh every 10 sec.

Figure 18 Display setting menu

In case display is continuously ON option is selected, the refresh rate for the display will be 10 seconds instead of 3 seconds (for display auto off option).

Note: The user can change the selected option for display, whenever required.

6.4 Measurement

With Default Configuration of the LM-XS^Pro E006 data logger, the measurement program will be started automatically after 30 minutes of device RTC set on power up. The Configuration parameters are prefixed as per **WHO Specification reference E006/TR06.4 (Revised date January 10, 2022)** and user cannot change them from device menu.

➢ The data logger switches to recording mode showing **"REC"** message on display.
➢ Temperature Data is logged at prefixed logging interval of 5 minutes.

Tag Events

➢ When alarm high / low condition occurs in temperature measurement, a special Tag event with time stamp is logged in data records.
➢ Tag event is logged again when alarm high/low condition is restored in temperature measurement.
➢ When Date is set a special tag event with time stamp is logged in data records.
➢ Time setting Tag event is logged when the user adjusts the time in device running condition.
➢ In case of Sensor failure, tag event is logged as sensor open.
➢ When the user has paused the data logging, pause event is logged and after 15 minutes Start after pause event is logged.

Tag ID	Tag Event	Description
D	Date Set	User has set the date.
E	Sensor Open	Sensor open or broken (Reading goes beyond specified temperature range for the sensor)
A	Alarm Triggered	Alarm high/low condition has occurred.
R	Alarm Reset	Alarm high/low condition is restored.
T	Time set: old time Hr: Mn	User has updated the current time.
P	Pause Data	User has paused data statistics of alarm, min/max for 15 minutes.
S	Resume From Pause	Normal recording is resumed after 15 minutes.

Note: Number of data records get reduced according to number of Tag data events. Tag Event(s) can be seen in the data log and generated Data PDF/CSV report after downloading.

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6.5 View Min/Max and Current Data

As described in key functions (section 5.3), Press "**Up**" and then "**Function**" keys, hold for approx. 1 sec. The display will start showing Current day Minimum and Maximum temperature value followed by current temperature data as shown in figure 19.
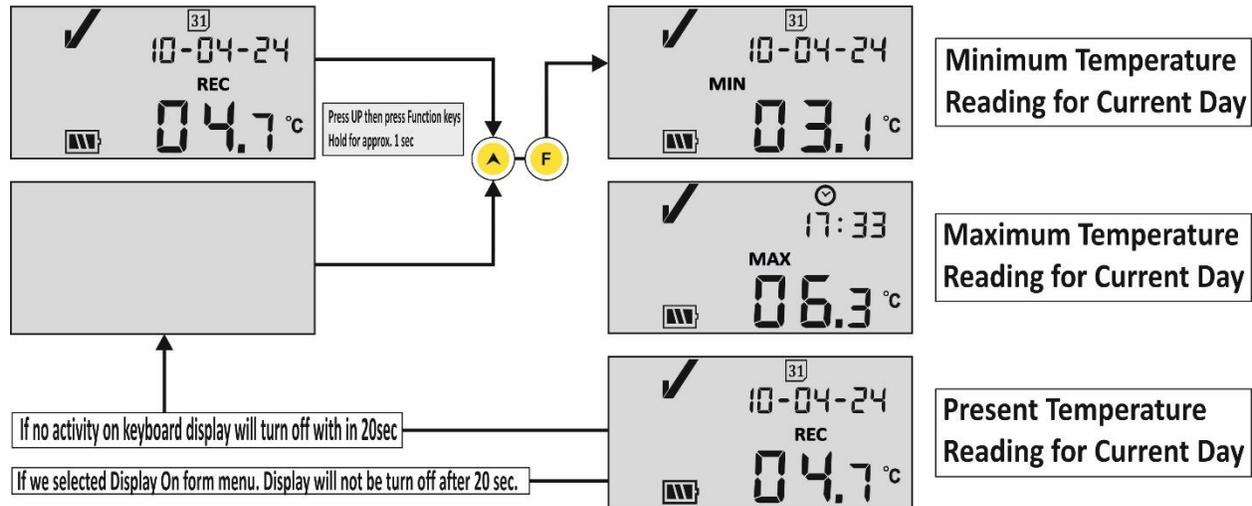
Figure 19 View Min/Max and current Temperature

6.6 Displaying of Reading in Normal and Alarm Condition

There are three possible circumstances of displaying temperature reading for data logger:

1) Reading is within the set point high/ low.
   - OK sign, battery, reading and unit will be seen on display.
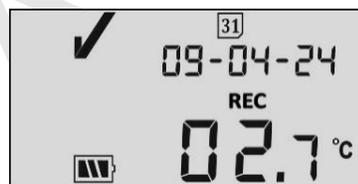
2) Reading is outside the set point high/ low for time less than alarm high/low delay.
   - OK sign, battery, reading with UP/ Down arrow and unit will be seen on display.
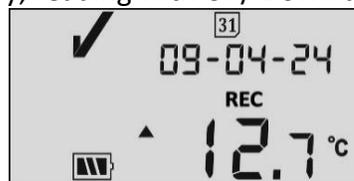
3) Reading is outside the set point high/low for time greater than alarm high/low delay.
   - Alarm sign, bell sign, battery, reading with UP/ Down arrow and unit will be seen on display.

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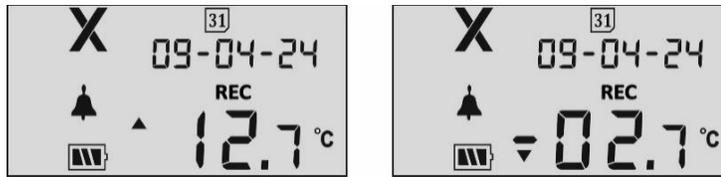
6.7 Alarm Operation

➢ Alarm will be activated in following conditions:

1. **Alarm High/Low:** In case, temperature goes beyond alarm set point high/low, after alarm delay high/low, buzzer will be activated for 1 sec at every 1 hour interval. If alarm condition persists buzzer activation will continue for 15 hours, after that buzzer will be deactivated until temperature gets restored in normal range and alarm condition occurs again.
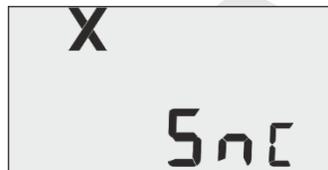
2. **Sensor Open:** When sensor is open or not inserted properly, device display will show "**Snc**" message and NOK symbol, when LCD turned ON. Once the Sensor failure condition gets resolved, "**Snc**" message will disappear and actual temperature reading will be seen on the display.

3. **Sensor Failure:** When sensor failure occurs or reading goes out of device temperature range, device display will show **"Err"** message and NOK symbol, when LCD turned ON. Once the Sensor failure condition gets resolved, "Err" message will disappear and actual temperature reading will be seen on the display.

6.8 Pause Function

➢ The Pause function is useful, for example, when you wish to temporarily remove the device from the monitored location to inspect goods, but you do not wish to trigger an alarm due to your handling.
➢ This allows the user to review the current statistics or clear an alarm without causing a false alarm or statistic while handling the data logger.
➢ The data logger is configured to halt processing of temperature data for alarms and min/max statistics for a period of two/ three temperature reading after paused function is activated by pressing **"Up"** and then **"Function"** key, holding for approx. 6 seconds. This will be indicated by **"PAUSE"** message along with pause time counter and sand clock on the display.

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- Prefixed Pause time for the data logger is 15 minutes. After pause time out, the data logger will resume to normal operation, **"PAUSE"** message will disappear and **"REC"** will be displayed.
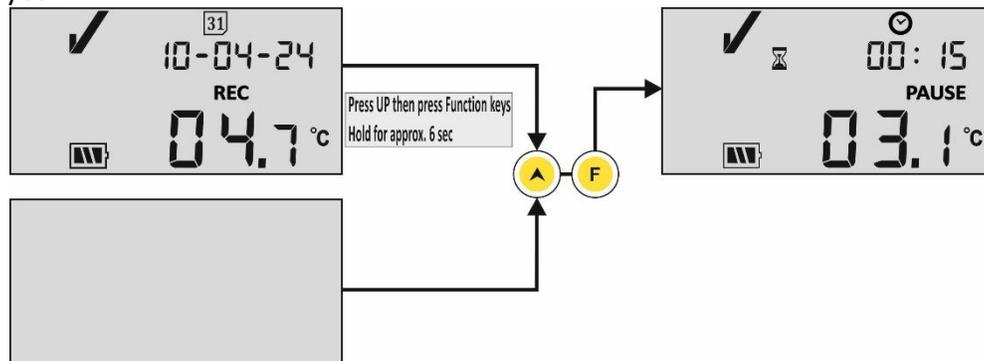
Figure 20 Activate Pause Function

- If the sensor is open/broken condition occurred during the pause delay, the last temperature reading will remain on the display until this condition is resolved.
- **If the data logger is in alarm condition and user has paused the logging, then the pause time is excluded from the alarm trigger time and duration calculation.**

Note: The Pause function cannot be activated if the sensor open/broken condition has occurred already.

6.9 Reading out Data

6.9.1 Connecting the Data logger with PC

- Connect the LM-XS^Pro E006 data logger to PC via the USB cable, as shown in figure 21.
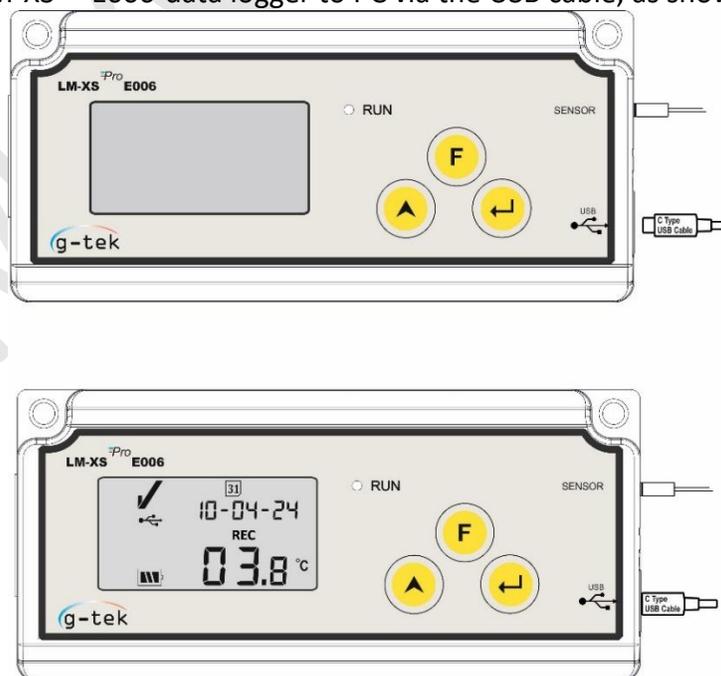
Figure 21 Micro USB Attachment

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- ➤ The data logger has USB Type-C port, so USB cable with either Type-C to C or Type-A to C connector will work for downloading the PDF/CSV report.
- ➤ After connecting the data logger with PC, display remains ON and it shows USB port symbol along with the other values.

6.9.2 Generating PDF/CSV report

- ➤ Once the data logger is connected with the PC, USB Mass storage drive window will pop up as shown in figure 22, showing PDF/CSV report and Log data bin file within approx. 30 seconds.
- ➤ It consists of
  - ○ Summary report of the data logger for max 60 days in PDF and CSV format
  - ○ Log data bin file for max 30 days
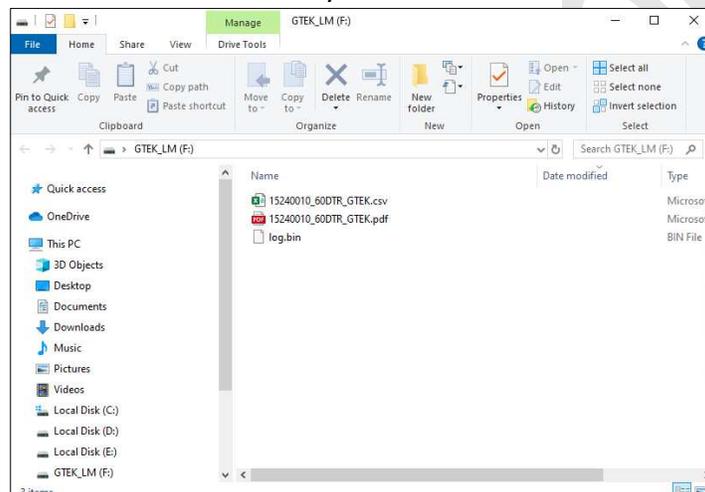
Figure 22 Detected as USB Mass Storage drive

- ➤ Copy these files from the USB drive to the appropriate file location in the PC as shown in the figure 23.

Figure 23 Save PDF/CSV report in selected file location

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- To disconnect the device properly, please always use the function "Safely Remove Hardware" on your PC.
- Right-click the icon "Safely Remove Hardware and Eject Media" in the Windows taskbar (lower right corner).

Figure 24 Safely Remove the Data logger

- Do not disconnect the device before you see the message for safely remove the device, otherwise the device can be damaged.
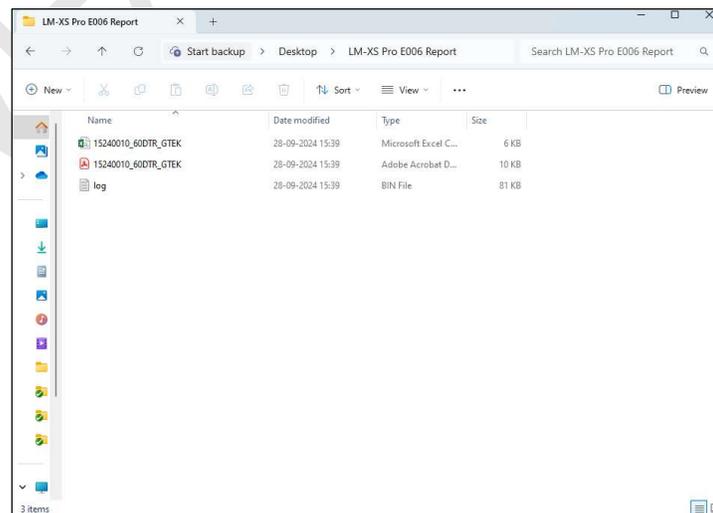
6.9.3 Summary PDF Report Explanation

- Sample PDF report generated from LM-XS^{Pro} E006 Data logger for 3 days recorded data including the today's data is shown in figure 25. This report consists of following data:

60 DAY PERFORMANCE REPORT

Logger Serial Number: 15240010   Upper Alarm Limit: Above +8.0 Deg C for 10h   Activation Date: 25-05-24 11:59h   Measurement Interval: 1-Minute(Fixed)
Date Format: DD-MM-YY   Lower Alarm Limit: Below -0.5 Deg C for 01h   Report Creation Time: 28-05-24 18:28h

Sr.No	Date	Event	Average temp. (Deg C)	Lower Alarm Limit				Upper Alarm Limit				Ext. Sensor Connection Error			Signature/ Notes
				Min. temp. (Deg C)	Cumulative Time (hh:mm)	Alarm Trigger Time (hh:mm)	Alarm Status	Max. temp. (Deg C)	Cumulative Time (hh:mm)	Alarm Trigger Time (hh:mm)	Alarm Status	Cumulative Time (hh:mm)	Alarm Trigger Time (hh:mm)	Alarm Status	
1	Today		5.86	3.23	00:00		OK	7.63	00:00		OK	00:00		OK	
2	27-05-24	DT 27-05-24 13:50	20.84	8.63	00:00		OK	25.43	10:19	23:15	ALARM	00:35	20:15	ALARM	
3	26-05-24	T 00:42, 23:59	7.78	3.58	00:00		OK	10.56	00:30		OK	00:00		OK	
4	25-05-24	T 15:54, 23:59	5.63	0.19	00:00		OK	9.88	00:11		OK	00:00		OK	

D = date changed;   T = time changed,hh:mm(old,new time);   DT = date/time changed

Date and Place: _____   Signature: _____

Figure 25 Sample PDF report

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1. Title of the report generated: Prefixed title "60 DAY PERFORMANCE REPORT"
2. Logger Serial Number: 8-digit unique number
3. Date format: selected date format of the data logger i.e., DD-MM-YY or MM-DD-YY
4. Upper Alarm Limit: Above +8.0 °C for 10h
5. Lower Alarm Limit: Below -0.5 °C for 01h
6. Activation Date: It is the time when the data logger is activated in DD-MM-YY Hr:Mn format
7. Report Creation Time: It is the time when data logger is connected with PC in DD-MM-YY Hr:Mn format
8. Data Summary Table: Shows max 60 days' summary in table; Each row consists of a day summary:
   - Date: Entry of date is in **descending order**
   - Event: Date set, time set, Date & time set
     D - date changed
     e.g. D 27-05-24 indicates that changed date is 27-05-24
     T - time changed, hh:mm (old, new time)
     e.g. T 15:54, 23:59 indicates old time is 15:54 and new time is 23:59
     DT- date/time changed
     e.g. DT 27-05-24 13:50 indicates that during the day date and time both are changed, where 27-05-24 and 13:50 are new date and time respectively.
   - Average Temperature for the day
   - Lower Alarm Limit: Min Temperature with its alarm low trigger time, cumulative time and Alarm Status
   - Upper Alarm Limit: Max Temperature with its alarm high trigger time, cumulative time and Alarm Status
   - Ext. Sensor Connection Error: Alarm trigger time, cumulative time and Alarm Status for the sensor connection error
   - Signature/Notes

➢ The CSV report format is similar to the sample PDF report.

Note: If the user has changed the date and/or time multiple times, the last changed will be reflected in the PDF/CSV report.

6.9.4 Download the Log data file for Data Analysis

➢ Open LMViewXS-E006 software Application to carry out analysis for data readings from the data logger.

➢ Click on the "**Open Downloaded Bat**ch" 📂 Button to open the copied Log data file of the data logger from stored location as shown in figure 26.

➢ Select the log data file with extension as "**bin file**" and click on the "**Open**" Open button.
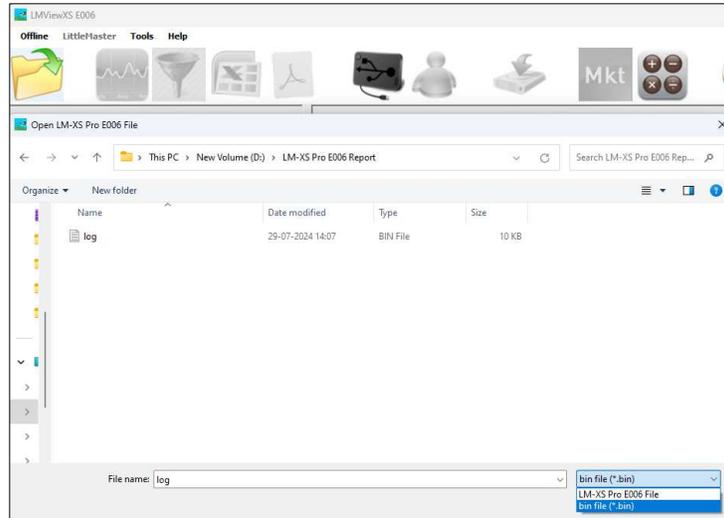
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Figure 26 Open the downloaded log data

➢ Most recent 30 days data can be seen in tabular form as shown in figure 27, new data entry after 30 days will overwrite the old data in first in first out manner.

Figure 27 Downloaded Data table of the device

➢ The data analysis can be done by exploring the various options in the software applications for the downloaded data as below:

1. Min, Max, Average and MKT for the downloaded data
2. Filtering the time period for which measurement data review is required
3. View the graph to observe the trend of measured data

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4. Generate csv file of the measured readings

5. Generate PDF report

➢ To generate the PDF report, click on the [icon] icon and fill up the details to be included in the PDF data report as shown in figure 28.
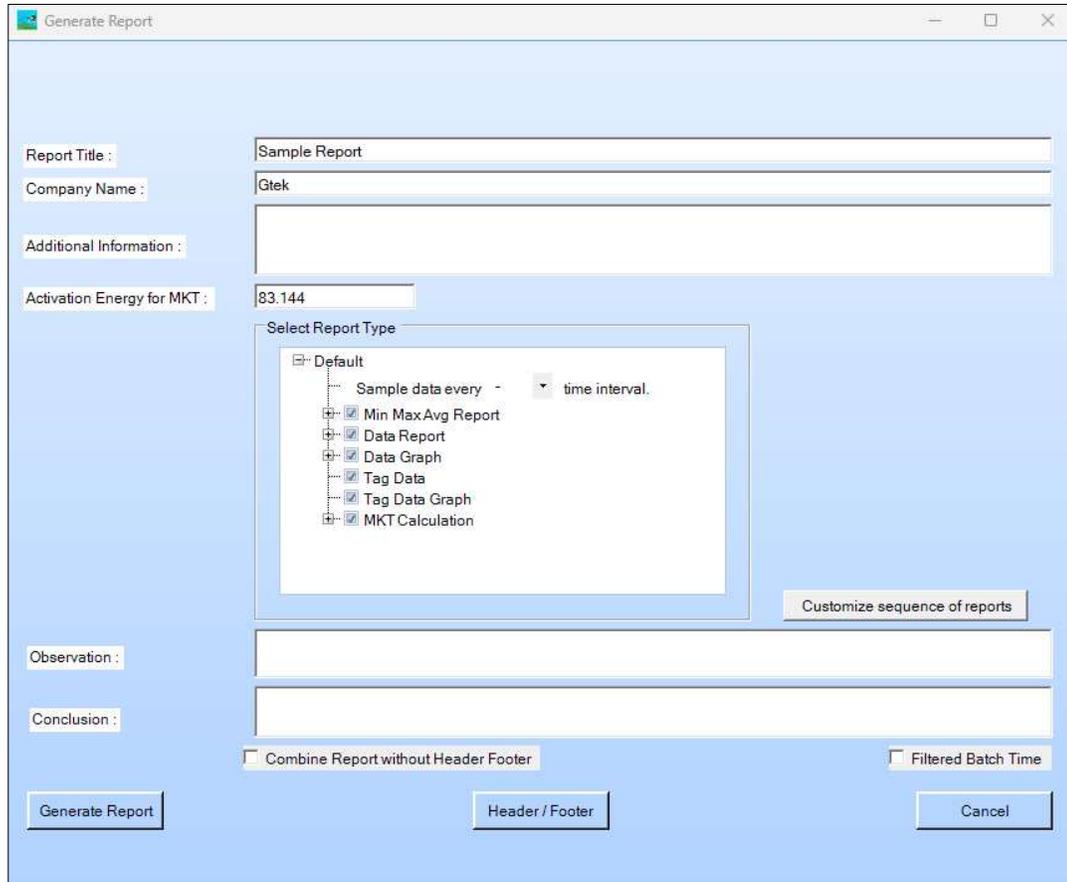

Figure 28 Fill up the options to generate the PDF Data report

➢ By default, all the options are selected, if user wants any specific type of report only, it can be selected individually.

➢ User can also choose the different data time other than the store interval for the data report.

➢ For more details on the **LMViewXSE006** software application, please refer help menu of the software.

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7 MAINTAINING THE PRODUCT

7.1 Accessories

➢ USB cable
➢ Sensor cable
➢ Device and Sensor calibration certificate

7.2 Cleaning the Data Logger

Ensure that no liquid enters inside the housing.

➢ If the housing of Data logger gets dirty, clean it with damp cloth.
➢ Do not use any aggressive cleaning agents or solvents.
➢ When USB port is not in use, cover the USB port properly.

7.3 Battery

➢ The LM-XS^{Pro} E006 data logger contains a Lithium Battery. The end of the battery life is indicated by a low battery symbol; the data logger should be replaced within 30 days when this symbol appears.
➢ Dispose or recycle the battery in accordance with your local regulations.
➢ Do not expose the Data Logger to extreme temperatures as it may lead to the destruction of the battery and may cause injuries.

"Warning, Battery may explode if mistreated. Do not recharge, disassemble or dispose of in fire."

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8 TIPS AND ASSISTANCE

Table 4 Frequent Asked Questions (FAQs)

Questions	Possible Cause/ Solution
"RUN" LED does not Flash.	▪ Device might be in Sleep Mode.
How to change the date format?	▪ On power up condition, user can select the date format. After selection **it cannot be altered in data logger.** ▪ The default format is dd-mm-yy.
When to set the RTC in Device?	▪ After device activation, at power up condition it is required to set the RTC. ▪ User can also adjust the RTC from main menu options.
Device is not connected with PC.	▪ USB Symbol must be shown on Display. ▪ Try to reconnect USB data cable. ▪ USB cable might be faulty. Replace the cable. ▪ In case of USB Type C port, use USB Type C to Type C female cable for connecting the device.
Can we download the Download the PDF/CSV report using mobile?	▪ Yes, the PDF/CSV reports can be downloaded on android OS based mobile device. ▪ In case, mobile with some restrictions are in Operating system level, downloading the PDF report is not possible.
Display Shows "Snc" message.	▪ Sensor cable might not be inserted properly. ▪ Sensor cable might be disconnected from the device.
Display Shows "Err" message.	▪ Sensor might be broken/temperature is beyond measuring temperature range.
What happens if Sensor is not connected after device wake up?	▪ Recording of temperature will be delayed by the time for which sensor is not connected. ▪ E.g., Once device wake up and RTC set, delay counter starts. If sensor is removed from data logger, within 5 min "**Snc**" message is displayed and delay counter shows 00:25(Hr: Mn). If sensor is connected after 10 minutes, then delay counter resumes from the last count and the recording is delayed by 10 minutes.
For how much time, the display remains ON after device activation?	▪ Once the device is activated, the display gets auto off after 20 seconds, when no activity on keyboard. Display can be turned ON by pressing "**Function**" key.
How to make the display continuously ON?	▪ User can select the display ON option using "**dSp**" menu (section 6.3.9).

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How to set the time of device if it has offset from local time?	• User can adjust the time using "**tME**" menu (section 6.3.8).
How to set the date of device if it has offset from local date?	• User can adjust the time using "**dtE**" menu (section 6.3.7).
What are the conditions for alarm activation?	• Please refer the Alarm operation conditions in section 6.7 .
How to activate pause function?	• Press "**Up**" and then "**Function**", hold for approx. 6 secs to activate the pause function. (Refer section 6.8 for details)

9 Revision History

Revision History:			
Date:	Revision No.	Change Summary	Reason for Change
26-04-2021	Rev 1.0	-	Initial Version
28-02-2025	Rev 2.0	1. The product has been upgraded as per the revised Specification Protocol WHO/PQS/E006/ TR06.4, dated January 10, 2022. 2. The upgraded product now has two versions: Type-1 and Type-2. 3. Additionally, it features a USB 2.0 connector Type-C port with a direct PDF summary report for the last 60 days. 4. Battery life of the product has been increased from 3.5 to 5.5 years.	1. To comply with updated WHO/PQS/E006/TR06.4 protocol (January 10, 2022). 2. Support for external sensor configuration with Type-1 and Type-2 options. 3. Enable direct PDF reporting without software dependency, ensuring ease of access via Type-C port. 4. Enhance product longevity through improved battery performance.

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