Logmore Data Logger 1

Data Sheet

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Contents

Product summary

A Logmore data logger monitors conditions and provides supply chain visibility together with Logmore Cloud services. Logmore combines the world's first QR data logger with a scalable software service infrastructure. Upload the data stored in a data logger's QR code by scanning the QR code with any smartphone or QR scanner. The usability of Logmore's dynamic QR code and effortless data upload substantially reduce the workload and waste footprint in logistics condition monitoring.

Main features of the Logmore logger:

- Internal temperature sensor
- Sensor measurement data stored and encrypted locally
- Dynamic QR code for data upload
- Optimized power consumption to enable long lifetime
- Data collected with any smartphone or other QR code reader directly to a secure cloud

Example applications:

- Cold chain monitoring
- Fresh chain monitoring for perishables
- Parcel and product level temperature monitoring
- Supply chain visibility via secure cloud platform
- Data analytics and risk assessments
- User alerting for a resilient supply chain

Check the service information and demo at https://www.logmore.com. Essential information on data logger functionality and usage can be found in Logmore Data Logger User Manual and at https://help.logmore.com.

Logger 1

with 3-point calibrated temperature sensor

Product name	Model #	Calibration	Sensors
Logger 1 (Supported operating temperature -20...+60 °C) IP67	M103	**3-point calibration, internal temperature sensor** **Calibration points:** **-20 Celsius** **0 Celsius** **+20 Celsius**	Temperature Measurement interval: 15 min Temp measurement scale: -30...+60 °C Battery life: Typically 4 months (shelf life 1 year)*

*Dependent on device configuration and environment, read more in the Battery section

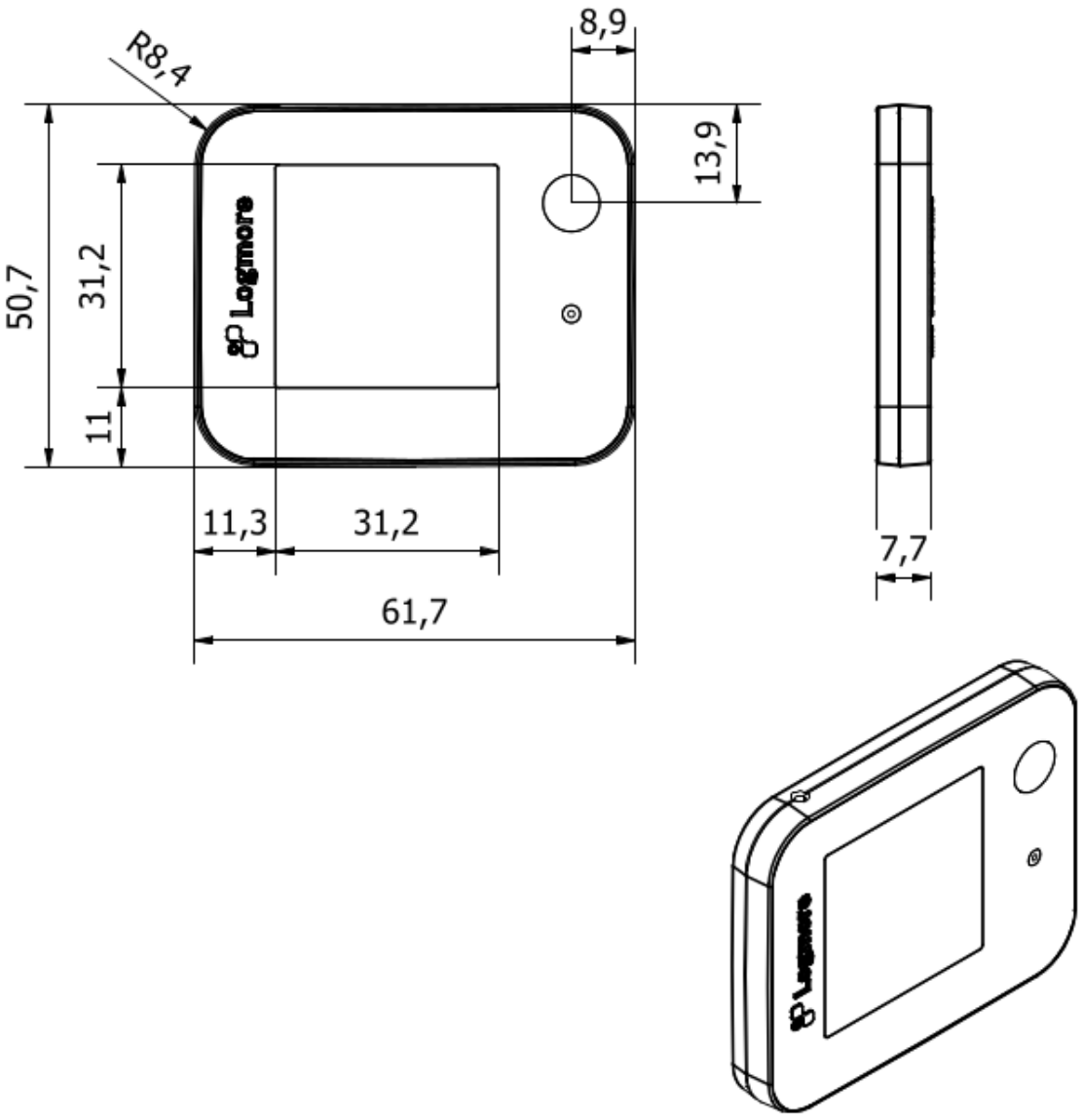
Specification summary

Specifications summarized – **for full information check the dedicated datasheet section.**

Dimensions	61.7mm x 50.7mm x 7.7mm
Weight	24g
Available sensors	Temperature
Sensor specifications	**Temperature**: Full measurement range of the sensor is -30.0...+60.0 °C accuracy is typically +/-0.3 °C, maximum error +/-0.4 °C.
Battery specification	170mAh CR2025 Lithium Coin
Internal memory capacity	Over 50 000 measurement slots
Measurement data in single QR-code	Typically thousands of measurements, depending on configuration. Rest of data on History pages, available through the device user interface
Measuring interval	10 sec ... >1 year Default: 15min
Display resolution	152 x 152 square pixels
Display technology	e-Paper
Real time clock accuracy	20 PPM
QR-code reading distance	Depends on the reading device. Typically 25cm (Smartphone, Normal laser scanner) Max 100cm (Tested with Galaxy S8, Camera zoomed, Bright environment)
Enclosure and external sensor protection class	IP67
Supported operating temperature of the device	-20.0 °C to +60 °C,
Temperature measurement range	-30.0 °C to +60 °C
Display update ambient temperature	+2 °C to +50.0 °C (can be manually updated until 0 °C by the user, but this consumes more battery)
Certifications and calibration	CE, FCC, UK, NIST traceable, Sensor calibrations available in the Cloud service.

Device dimensions

QR Logger enclosure



Sensor specifications

Temperature sensor inside the Logger

Sensor: High accuracy digital temperature sensor

Measurement range of temperature: -30.0 °C to +60.0 °C
Absolute accuracy: Typical ±0.3 °C, maximum error ±0.4 °C (at range -20.0 °C to +60.0 °C)

Calibration: Pass criteria for the sensor maximum error is ±0.4 °C

Default display resolution for Temperature

Range	Resolution
-31.0 °C to -15.0 °C	1 °C
-15.0 °C to -2.0 °C	0.5 °C
-2.0 °C to +27.0 °C	0.2 °C
+27.0 °C to +38.0 °C	0.5 °C
+38.0 °C to +42.0 °C	0.2 °C
+42.0 °C to +61.0 °C	1 °C

3-point Calibration

For the calibration, Logmore uses transfer standards, which are subject to a scheduled calibration procedure. The calibration of the reference, used for the calibration of the transfer standards, is NIST traceable through an ISO/IEC 17025 accredited laboratory. Maximum uncertainty of the Calibration reference equipment according of EN12830 on class 0.5 is +/-0.25K

Default calibration points

Calibration point	Sensor maximum error value to pass calibration
-20.0 °C	+/- 0.4 °C
0 °C	+/- 0.4 °C
+20 °C	+/- 0.4 °C

Based on the calibration pass criteria and measurement uncertainty all Logmore loggers are calibrated as EN12830 standard class 0.5 compliant devices.

In specific demand of ISO/IEC 17025 accredited laboratory calibration for each device, please contact sales@logmore.com.

Standard configuration

The standard configuration is factory set.

Setting	Value
Base time unit, all models	15 minutes
Temperature logging interval	1 (1 x 15 minutes)
Temperature sensor resolution	See sensor specification
Display update interval	1 (1 x 15 minutes)
Display full draw	Every 200th draw

Display

Technology: e-Paper

Resolution: 152 x 152 square pixels

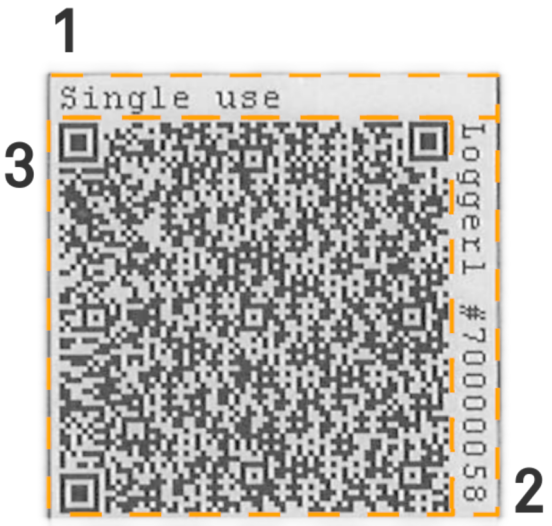
Active area: 27.51 mm x 27.51 mm (1.54” diagonal)

Display refresh interval: configurable 10 seconds ... >1 year

Display working temperature: 2 °C to 50.0 °C (refreshing is blocked when outside of this temperature range, display automatically continues refreshing once the temperature is within the

range)

Display areas



Text area (1)

Physical area: 28.0 mm x 2.2 mm

Max length 19 characters.

If longer 20th and next characters are dropped from the displayed text.

Logger serial number and sensor types (2)

Physical area: 25.1 mm x 2.2 mm

Sensor types: Icons to indicate what kind of sensors include on device
Serial number: #<serial 8 digits> (eg. #00123456)

Dynamic QR code (3)

Physical area: 25.3 mm x 25.3 mm

Dynamically changing QR code containing measurement and meta data.

Battery

Each QR Logger uses an internal coin cell battery as its energy source.

Low battery

When the battery runs out (voltage limit of 2.0 V) QR Logger will stop logging and updating the screen. Latest screen stays visible as the e-paper screen doesn't require any power when not being refreshed. Some energy is preserved in the battery so in warm conditions (~ 20 °C) reading the full history is possible (using the multi-use button and history mode) as long as there is enough energy left in the battery.

Battery specification

Battery used in the Logger is a normal widely used "Lithium Coin" battery with the

following specifications:

Battery type	CR2025 Lithium
Chemical system	Lithium Manganese Dioxide (Li/MnO2)
Nominal Voltage	3.0 V
Energy capacity*	170 mAh
Typical Li Content*	0.055 grams
Allowed ambient temperature	-20.0 °C to +60.0 °C

Battery cannot be changed nor charged. More information about the battery lifetime available in the Logmore data logger user manual.

Casing material

The material name: CYCOLOYTM FR RESIN C6600.
The material is a blend of polycarbonate and acrylonitrile butadiene styrene (PC+ABS).

The case window is made of polycarbonate.

The button and the sealing material: Kraiburg THERMOLAST® K TPU.

Serial Number

Each data logger device has a unique serial number that cannot be changed. Serial number is also visible on the display.

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