

- LIBERO CD**
- Put directly into dry ice
 - Measure as low as -95.0 °C



TECHNICAL SPECIFICATIONS LIBERO CD

LIBERO CD

PDF Logger for Direct Placement into Dry Ice

Dry ice is commonly known to reach temperatures of -78.5 °C, so most dry ice data loggers work to -80.0 °C. If you regularly have dry ice shipments, you might wonder why you reach temperatures below that limit. The fact is dry ice can reach temperatures far below -80.0 °C during a regular shipment. Temperatures colder than -80.0 °C in dry ice can occur because of vibration or pressure differences, both things that are likely to happen during your shipment. That's why we designed the LIBERO CD dry ice data logger to measure even the lowest temperature we have seen occurring in dry ice shipments and added on some extra to measure as low as -95.0 °C, so you can ship dry ice without needing to worry.

LIBERO CD PDF Logger

- USB Interface
- Internal temperature sensor
- Extra battery power
- Auto expiry date management
- LIBERO CD PDF Logger
- OK and ALARM indicator
- Shipment information
- Multi-level alarm statistics
- Logging results and statistics
- Temperature graph with alarm limits
- LIBERO CD PDF Report

LIBERO CD PDF Report with multi level alarm criteria

This is an example PDF report of the LIBERO CD dry ice temperature data logger:

In real shipments information for the recipient or shipment specific information e.g. Transportation Number, Counter, Origin, or any other information making it easier to systematically analyze recorded data can be added here.

LIBERO Configuration

Parameter	Value	Current State	Shipped
Device ID	7406 0000 016	Start at:	23 May 2016 18:30:12
Log Interval	1 min	First Measurement	23 May 2016 18:30:12
Report Time Base	UTC	Checksum	00011
Configured by	EC214 (Lithium-Ionen)	23 May 2016 13:12:59	

Alarm Zone

Alarm Zone	Allowed Time	Total Time	No. of Excursions	Longest Exc.	Status
H3 over -20.0 °C	0 min (0 min)	0 min	0 / unlimited	0 min	OK
H2 over -40.0 °C	0 min (0 min)	0 min	0 / unlimited	0 min	OK
H1 over -60.0 °C	0 min (0 min)	0 min	0 / unlimited	0 min	OK
CD -80.0 by -80.0 °C	unlimited	13 h 2 m	0 / unlimited	0 min	OK
L1 below -80.0 °C	0 min (0 min)	0 min	0 / unlimited	0 min	OK
L2 below -95.0 °C	0 min (0 min)	0 min	0 / unlimited	0 min	OK

MKT Limits and Maximum Duration

Duration	Limit	Alarm Conditions
OK	10.0 °C	none
MAINT	-78.0 °C	none

Logging Results

Parameter	Value	Stop at:	Alarm at:
Highest Temperature	-78.0 °C	23 May 2016 18:00:12	Stop at:
Lowest Temperature	-78.0 °C	24 May 2016 05:34:12	Alarm at:
Average Temperature	-78.0 °C	File created:	24 May 2016 10:07:24

Temperature graph with alarm limits

The graph shows temperature over time from 20:00:00 on 23 May 2016 to 00:00:00 on 24 May 2016. The temperature remains stable around -78.0 °C, with a slight dip to -80.0 °C. Horizontal lines indicate alarm limits at -80.0 °C and -95.0 °C.

we prove it.



HIGHLIGHTS

- Internal temperature sensor for placement directly into dry ice
- Covers all scenarios experienced in dry ice, also below -80 °C
- Fully functional immediately upon removing from dry ice
- No equipment or software required to start or for downloading data
- Unmatched accuracy, fully calibrated with traceable certificate
- Compatible with liberoMANAGER cold chain database

Technical Specifications LIBERO CD

Type	PDF Logger with multiple alarm levels for direct use in dry ice	
Application area	Cold Chain Monitoring – deep frozen or dry ice shipments	
Recording options and mode	Single use: start/stop mode	
Type of probe	Internal NTC probe	
Operating range	-95 °C..+50 °C	
Measurement accuracy	± 0.5 °C [-30.0 °C..+30.0 °C] ± 0.7 °C [-80.0 °C..-30.1 °C]	± 1.0 °C [+30.1 °C..+50.0 °C] ± 1.5 °C [-95.0 °C..-80.1 °C]
Resolution	0.1 °	
Measurement interval	1 to 60 minutes, user programmable	
Memory capacity	8'800 measurements values (equals 60 days run time with 10 min interval)	
Expiry date & battery life	<ul style="list-style-type: none"> - Data logger can be started any time during shelf life of 12 months - Started data logger runs until memory is full or data logger is stopped - Auto expiry date management: Expired data logger cannot be started anymore - Long time operating range: -80.0 °C..+40.0 °C for entire shelf life - Extended operating range: coverage of peak temperatures to -95.0 °C and +50.0 °C - Use beyond the extended operating range can limit the battery 	
Certificate	Ilac/NIST/ISO 17025 traceable production calibration certificate	
Programmable alarms	<ul style="list-style-type: none"> - 8 temperature alarm levels with single or cumulative delays - 2 temperature thresholds with alarm delay - Alarm on duration / run time 	
Start-up delay	0 minutes to 24 h	
Display	Multifunction LCD, size: 23.5 x 23.5 mm, with large OK and ALARM indicator	
Display functionality	<ul style="list-style-type: none"> - Status: Conf, Start, Run, Stop - OK, ALARM or blank 	<ul style="list-style-type: none"> - Current temperature measurement - Configuration profile identification
Report	<p>Built-in PDF file generator automatically establishes an evaluation report with embedded data upon connection to a USB port. Complies with the ISO standard 19005-1 Document Management for the long-term preservation of electronic documents (PDF/A) and FDA 21 CFR Part 11.</p> <ul style="list-style-type: none"> - Customizable report title and filename - Text area for additional information (e.g. shipment information, instructions for recipient, etc.) - Immediate release or quarantine based on alarm status - Statistics (min/max, average, alarm) and detailed data logger information (ID, configuration, etc.) - Chart visualizing the temperature curve and alarm limits 	
Traceability	ID number (traceable to component level)	
Case dimension weight	ABS plastic material 96 x 50 x 16 mm (3.8 x 2.0 x 0.6 inch) 50 g (1.8 oz)	
Data logger configuration and additional analysis software	liberoCONFIG software to create, store and manage individual settings in a logger profile as well as SmartStart, a liberoCONFIG component allowing a safe and quick application of profiles and shipment information to PDF Logger. elproVIEWER software to access and export embedded data of PDF report, for data analysis and comprehensive report features. Fully compatible with liberoMANAGER database.	