

LIBERO CD

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



TECHNIK

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.

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

Additional information

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, Cluster, Origin, ... or any other information missing it is easier to automatically analyse recorded data can be added here.

LIBERO Configuration

Type	LIBERO CD VS 11 RCB	Current State	Shipped
Device ID	7406 0000 016	Start at	23 May 2016 18:00:12
Log Interval	1 min	End Measurement	23 May 2016 18:00:12
Report Time Base	UTC	Checksum	CD017
Configured by	ECTM / pharmanorm, 23 May 2016 12:12:59		

Alarm Zone

Allowed Time	Total Time	No. of Excursions	Longest Exc.	Status
H2 over -20.0°C	0 min (part)	0 min	0 min	OK
H2 over -40.0°C	15.5 min (part)	0 min	0 min	OK
H1 over -80.0°C	15.5 min (part)	0 min	0 min	OK
G1 below -80.0°C	unlimited	15.5 min	0 min	OK
L1 below -80.0°C	0 min (part)	0 min	0 min	OK
L2 below -80.0°C	0 min (part)	0 min	0 min	OK

WET Limits and Maximum Duration

WET	Alarm Conditions
15.5 min	none
-78.5°C	

Logging Results

Highest Temperature	Lowest Temperature	Average Temperature	Stop at	Alarm at	Fix created
-78.5°C	-78.5°C	-78.5°C	23 May 2016 18:00:12	none	24 May 2016 18:00:12
				Alarm at	24 May 2016 18:00:12

Temperature graph with alarm limits

Report created by ELPRO LIBERO

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we prove it.



- 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
- Unmatched accuracy, fully calibrated with traceable certificate
- Compatible with liberoMANAGER cold chain database

Technical Specifications LIBERO CD

Version 2018

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	24'200 measurements values (equals 168 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 - Started data logger runs until memory is full or data logger is stopped (max. expiry date +30 days) - Auto expiry date management: After expiry, display changes status and logger cannot be started anymore - Use below -80 °C for prolonged time can limit battery life 	
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)	
Certifications	CE EN12830 EMC RTCA DO-160 RoHS Safe Transport of Chemical Goods	
Data logger configuration and additional analysis software	<p>liberoCONFIG and SmartStart software to create, store and manage individual settings in a settings profile.</p> <p>liberoMANAGER database as cloud service to store shipment reports and results, analyze shipments, manage release status and trigger customer specific workflows in cold chain processes.</p> <p>elproVIEWER software to access and export embedded data of PDF report, for data analysis and comprehensive report features (for users not using liberoMANAGER).</p>	