



www.elpro.com

The Datalogger Company

HAMSTER-A and HOTDOG

ELPRO dataloggers for extreme conditions



ELPRO-BUCHS AG
CH-9471 Buchs SG
Switzerland
home: www.elpro.com



Electrolines Est.



HOTDOG and its enhanced and compatible companion HAMSTER-A are proven performers under harsh conditions. Watertight and virtually indestructible, HAMSTER-A and HOTDOG are the ideal instruments for documentation for applications in tough environments.

The dataloggers can be submerged to a maximum depth of 10 meters, or can also be buried directly into the soil. One application may be to leave the datalogger during the cleaning process of your cooling chamber using superheated steam.

The measurement values of the internal temperature sensor are stored in the memory and can be analysed and printed out at any time. Using the elproLOG software and PC interface, the data can be transferred easily to any PC using infrared communication.



HAMSTER-A AT1

Part no. 4500

- Large memory for 64'000 data points
- Operating temperature: -40°C... +70°C (data logging)
- Measuring clock: from 1 minute till 3 hours
- Washable, rugged and shock resistant housing
- Requires elproLOG version 3.31 or higher



HOTDOG DT1

Part no. 2201

- Memory for 16'000 data points
- Operating temperature: -40°C... +70°C (data logging)
- Measuring clock: from 2 seconds till 3 hours
- Washable, rugged and shock resistant housing



Part no.: 2302

PC-Interface for HAMSTER-A and HOTDOG datalogger
incl. elproLOG evaluation software and connection cable



Part no.: 2802

Security mounting bracket, for HAMSTER-A and HOTDOG, stainless steel, lockable, 4 snap locks included, with InPosition marking (shows the time, the datalogger was positioned in the bracket)



Part no.: 2816

Simple mounting bracket for HAMSTER-A and HOTDOG, stainless steel



Technical Data HAMSTER-A AT1

Time range: programmable, 1 min - 3 hrs
 Accuracy: see diagram
 Resolution: 0.1°C (-20°C... +70°C)
 Operating Temp.: -40°C... +70°C (data logging)
 0°C... +50°C (data transfer to PC)

Housing: ABS, SAN, welded
 Weight: 120g
 Sealed: IP68, watertight
 Battery life: 5 years, depending of use
 Battery changeable by ELPRO service only!
 Magnetic interference: Module is switched on for data transfer by a magnetic field.

Calibration certificate included

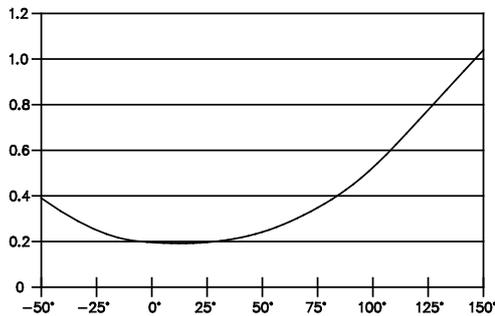
Technical Data HOTDOG DT1

Time range: programmable, 2 s - 3 hrs
 Accuracy: see diagram
 Resolution: 0.1°C (-20°C... +70°C)
 Operating Temp.: -40°C... +70°C (data logging)
 0°C... +50°C (data transfer to PC)

Housing: SAN welded
 Weight: 170g
 Sealed: IP68, watertight
 Battery life: 5 years, depending of use
 Battery changeable by ELPRO service only!
 Magnetic interference: Module is switched on for data transfer by a magnetic field.

Calibration certificate included

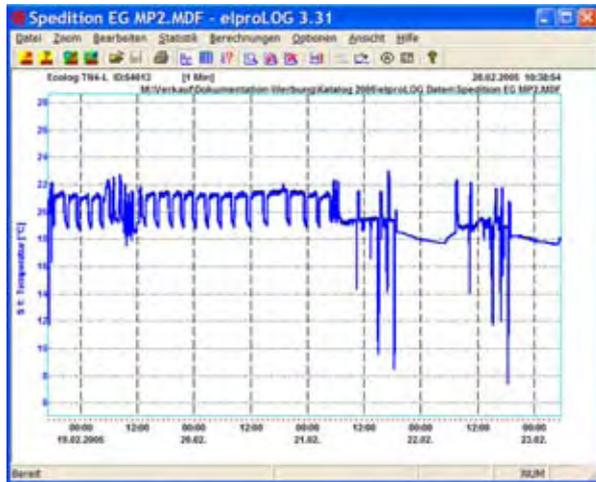
Accuracy of NTC temperature sensors



Inscription Area

Please attach no markings or labels outside of the designated inscription area as this may interfere with the infrared data communication.





elproLOG evaluation software functions

- Programming for all ELPRO dataloggers
- Data readout from datalogger
- Hardcopies of all screens with print preview
- Clearly laid-out graphs and tables
- Min, max values displayed
- Status printout with information about the datalogger
- Statistical data, histogram representation
- Data and graph export
- E-mail: send data file via e-mail to receiver

elproLOG, the PC software for all ELPRO dataloggers

elproLOG is an easy-to-use software for fast, efficient data evaluation and reporting.

Using elproLOG, the measured values can be transferred easily to the PC and displayed either in graphical or tabular form. The software helps you comply with the provisions of FDA 21 CFR Part 11, GMP, GAMP4 and GLP.

elproLOG software

Part No. 2338-CDV full version

Part No. 2338-CDU update

elproLOG QLS Software for FDA, GLP, GMP

Part No. 2339-BL, basic license

Part No. 2339-FL, follow license

for all Windows PCs:

W98, WNT4, W2000, XP

Automatic installation from the CD



Available as EEx models

ECOLOG allround datalogger

For temperatures (NTC and PT100) from -200°C .. +550°C, relative humidity 0%..100%, programmable alarm functions, one-year memory capacity (64,000 measured values), large display and multifunctional keypad.



The ECOLOG NET logger

LAN/WLAN datalogger for monitoring temperature, humidity and 4..20mA signals. Multi-channel logger system with high data security and alarm features. The ECOLOG-NET is the foundation of the ELPRO Central Monitoring System.



All-purpose datalogger HOTBOX-SE

Ideal for service technicians to use at locations where fast, uncomplicated logging of process data is required. The datalogger measures parameters as temperature, humidity CO2, differential pressure and various signals.



HOTBOX HTH

Humidity and temperature up to 105°C. Stand-alone datalogger for high temperatures, robust aluminum casing, memory capacity for 64,000 measured values.

Contact us for information about dataloggers, sensors, accessories and alarm devices.

Head Office:

ELPRO-BUCHS AG
Langäulistrasse 62
CH-9471 Buchs SG
Switzerland

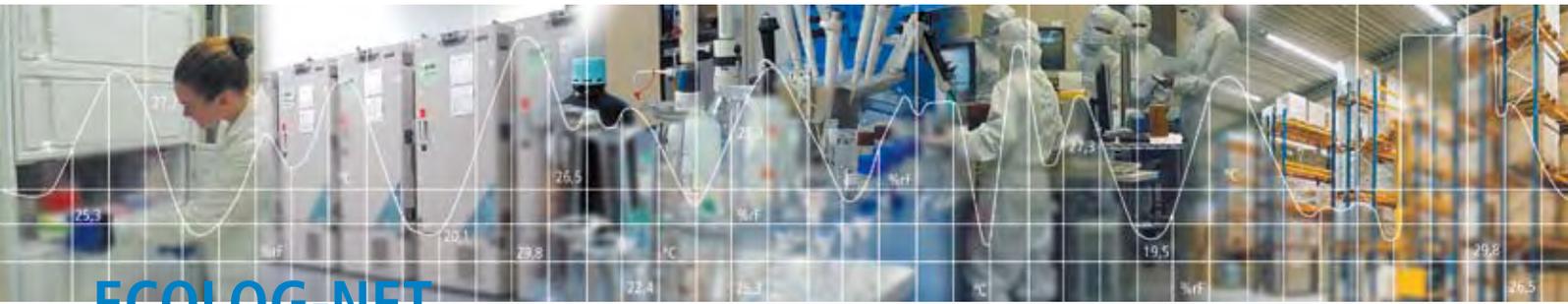
Tel: +41 81 750 03 11
Fax: +41 81 750 03 17
email: swiss@elpro.com
home: www.elpro.com

ELPRO MESSTECHNIK GmbH
Baumwasenstrasse 20/1
DE-73614 Schorndorf
Germany

Tel: +49 7181 97 94 80
Fax: +49 7181 97 94 85
email: brd@elpro.com
home: www.elpro.com

Elpro-Buchs AG, CB1001Ba, 01.2006

Electrolines Est.



ECOLOG-NET

Network Dataloggers for Central Monitoring Systems



ELPRO™ Datalogging Company

Electrolines Est.

ECOLOG-NET NETWORK-COMPATIBLE DATALOGGERS FROM ELPRO

COMMUNICATION TALENT

WITH HIGH DATA SAFETY

ECOLOG-NET dataloggers combine the assets of autonomous and safe data logging with the advantages of modern network technology. From the real time display of data points on each PC in your company to fully automated data saves, the new generation of network-compatible dataloggers opens fascinating possibilities for simplifying your workflows in the field of process and quality monitoring.

Safety and convenience

ECOLOG-NET dataloggers are the ideal units for logging temperature, relative air humidity or 4-20mA signals. The dataloggers store the recorded data in their internal memory. This data can be loaded to the PC via the network. The system offers the highest level of data safety as the datalogger continues data point logging even in the event of a power failure or network interruption by running from its own internal battery.

Perfect and wireless integration

To make integrating the units in your network as easy as possible, ECOLOG-NET dataloggers are available with a LAN or Wireless LAN interface. On request, the units can also be fitted with PoE modules (Power over Ethernet). PoE allows the units to be supplied directly on the same cable used for the network connection, thereby eliminating the need for additional supply cables.

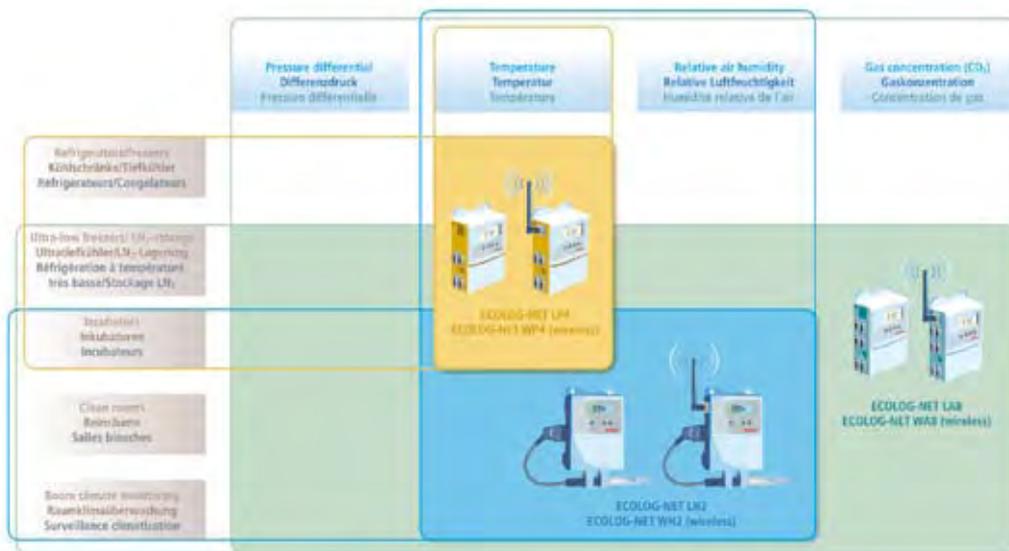
THE ECOLOG-NET FAMILY

- 4 and 8 channel dataloggers with LAN or Wireless LAN connection (external 10-30VDC voltage supply required for network communication)
- Wireless LAN standard: 802.11b
- PoE support available (spare pairs)
- USB connection for local communication with datalogger
- Large memory capacity for 64,000 data points
- Data safety even in event of power failure due to integrated backup battery
- Large display showing currently measured values and alarm information
- Keypad
- Evaluation on the PC with elproLOG software
- Inputs for recording digital states
- Multifunctional alarm output (break/make contact)
- Measuring interval and alarm thresholds defined by user
- Versatile alarming capabilities:
 - via network (together with optional elproLOG MONITOR)
 - local via integrated alarm contacts
 - alarms shown on display
 - via integrated alarm buzzer
- Open interface for communication with other units and systems
- Robust metal housing

APPLICATIONS AREAS

AND USES

- Warehouses and cold storage warehouses
- Cold storage areas for pharmaceutical products
- Chilled showcases and storage areas for food products
- Museums and galleries
- Technical processes
- Air-conditioned areas



ECOLOG-NET LA8/WA8



Part No. 2720 LA8
Part No. 2722 WA8 (wireless LAN)

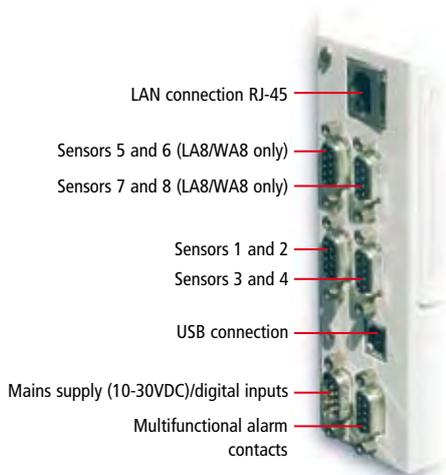


The 8 channel ECOLOG-NET LA8/WA8 is designed for **logging any transmitter signals on the basis of the 4-20mA standard**. The LA8/WA8 can be used, in conjunction with the large range of transducers, for a multitude of applications and industries.

- 8 channel datalogger with 4-20mA inputs for logging differential pressure, CO₂, particle concentrations, etc.
- Direct display of sensor units
- Special functions for connecting particle counters (whole-number display and limit values)
- Data protection even in event of power failure (for uninterrupted logging; in the event of malfunctioning, an UPS is required to support the sensor supply)

CONNECTIONS

ECOLOG-NET offers versatile communication capabilities. In addition to the LAN connection, there is a USB socket for local communication in the event of a network error. Two digital inputs (D1 and D2) can also be logged.



ECOLOG-NET LP4/WP4



Part No. 2701 LP4
Part No. 2703 WP4 (wireless LAN)



The ECOLOG-NET LP4/WP4 is a 4 channel datalogger designed for **logging and monitoring temperatures**. Standardized PT100 measuring technology allows the unit to be used for a multitude of various applications, from monitoring low temperatures to documenting drying procedures.

- 4 channel datalogger
- Principle of measurement: 3 or 4 wire PT100 in accordance with EC751/EN60751
- Autonomous data logging even in event of network and power failures
- State-of-the-art measurement technology allows cable lengths of up to 70m (in the case of weak electromagnetic interference)

ECOLOG-NET LH2/WH2



Part No. 2706
Set: ECOLOG-NET LH2 with external T/RH probe (Part No. 3087) and probe holder
Part No. 2705 LH2
Part No. 2707 WH2 (wireless LAN)



The ECOLOG-NET LH2 is ELPRO's network-compatible datalogger designed for **logging temperature and relative air humidity** with two T/rH probes. Its wide measuring range, high accuracy and reliability make the LH2 the ideal unit for the demanding user.

- Temperature and relative air humidity logging with internal and external sensors
- Principle of measurement:
T: Resistance measuring (NTC)
rH: Capacitive
- Use of calibrated and replaceable universal probes
- Large display showing currently measured values and alarm information
- Inputs for logging digital states

PT100 PROBES (SELECTION)



Part No. 3188-L0
PT100 4 wire, class A temperature probe, -90°..+350°C; SL=100mm, D=3mm stainless steel, bendable



Part No. 3167-SL02
PT100 4 wire, class A temperature probe, -80°..+105°C; 3167-Lxx SL=20mm, D=5mm molded plastic



Part No. 3163-L04
PT100 4 wire, class A temperature probe, -90°..+260°C; 3163-Lxx SL=100mm, D=4mm stainless steel, teflon cable



Part No. 3181-L05
PT100 4 wire, class A temperature probe, -200°..+220°C; 3181-Lxx SL=100mm, D=5mm steam-resistant, Autoclave

T/rH PROBES (LH2/WH2)

Standard ELPRO humidity/temperature probe



Part No. 3087
Universal probe: humidity and temperature, range: T: -35°..+70°C, rH: 0%..100%

Part No. 3087-B
Extended temperature range: T: -35°..+110°C

TRANSMITTERS (SELECTION)



Part No. 3260-L
Differential pressure transmitter, range: -50..+50Pa; further measuring ranges on request



Part No. 3271-F
CO₂ transmitter for wall-mounting, range: 0..2000ppm



Part No. 3271-M
CO₂ transmitter with external probe, range: 0..10% CO₂



Part No. 3310-T02
T/rH transmitter, wall-mounting, range: T: -40..+60°C, rH: 0..100%; also available as model for high frequency applications (3310-T02H)



Part No. 3315-T02
T/rH transmitter, ductmounting, range: T: -40..+60°C, rH: 0..100%



Part No. 3350-A
PT100 transmitter, programmable measuring range -200°..+600°C

ALARM LIGHT



Part No. 2311-B
Flasher lamp, xenon flash light, red

VOLTAGE SUPPLY

Part No. 2750-V24
Power supply unit for ECOLOG-NET 24VDC, 0.35A

Part No. 2751-V24
Power supply unit for ECOLOG-NET 24VDC, 1.6A and transmitter

Part No. 2730-A
Mounting set, PoE splitter for ECOLOG-NET 24VDC, 1.6A

EXTENSION CABLES

Extension cables are available in various lengths. When ordering, replace the «x» in the Part No. with the required cable length.

We recommend the use of shielded cables when the cable is longer than 30 meters.

Part No. 3205-Lxx
Extension cable for LP4/WP4. M12 coupling/open ends

Part No. 3206-Lxx
Extension cable for LA8/WA8. M12 coupling/open ends

Part No. 3218-Sxx
Extension cable for LH2/WH2. DB9/plugon

SERVICE & QUALITY

- ISO 9001 quality system
- Vendor and internal audits
- Expert systems
- Own production and development
- Own calibration laboratory
- Modern facilities
- Datalogger service since 1989
- Calibration according to all standards
- Repair service for all products
- Customer calibration service
- IQ/OQ qualifications
- Temperature mapping
- Worldwide distributors
- Return of ELPRO units and batteries for eco-friendly disposal

DIRECTIVES & STANDARDS

ISO 9001: 2000
SGS certificate no. CH98/0013
ATEX
SNCH 01 ATEX 3280/Directive 94/9/EC
EX1, CE1258
Approval for EX protection zone 1 (EN50014:1997 +A1 +A2, EN50020:2002 and EN1127-1:1997)
CE
EN61000-6-2:2001 und EN61000-6-4:2001
EN12830/EN13485/EN13486
Temperature recorder for transport, storage and distribution of foodstuffs

GZ1480
Exceptional approval for calibration GZ1480/2000 from 10.4.2000, BEV, Austria

INTEGRATED REGULATIONS AND RECOMMENDATIONS

GMP/GLP/GAMP 4
Software validation in accordance with 21 CFR Part 820, Electronic Records 21 CFR Part 11, 21 CFR Part 210/211, 21 CFR Part 110, 21 CFR Part 58
EG/EU
Regulation (EC) 37/2005
Directive 2002/95/EC (RoHS)
HACCP
Hazard Analysis Critical Control Points

EXPLANATION OF ICONS



Temperature / humidity / pressure measurement



Networks



Display alarm / alarm output / central alarming



Universal 4-20 mA inputs / 21 CFR Part 11



ECOLOG Datalogger Series



ELPRO™ Datalogging Company

Electrolines Est.

ECOLOG TN & SPECIAL ACCESSORIES



ECOLOG TN are universal, multi-purpose instruments for monitoring and documenting temperatures. The possible applications for these measuring instruments are practically limitless, ranging from monitoring rooms or production processes to documenting transport conditions.

Versatile configuration possibilities, sensors for various applications and a comprehensive assortment of accessories ensure reliable solutions for every requirement.

- 2 - 4 channel dataloggers with internal and external sensors
- Principle of measurement: resistance measuring (NTC)
- Large display for current measured values and alarm information
- Inputs for recording digital states
- Evaluation with elproLOG software at PC
- Programmable recording interval
- One-year memory capacity for 64'000 measured values
- Keypad on datalogger (TN4, TN4-L):
 - Displays measured values and alarms
 - Controls printing functions
 - Tests alarm output
 - Resets alarm output
 - Starts logging
- Open interface for communication with other devices (TN3-P, TN4, TN4-L)
- Low energy consumption due to power-save mode
- Also available with EEx approval (details on page 8)

ECOLOG TN4



Part No. 2421
TN4, red housing

Part No. 2421-Ex
TN4, with EEx approval in accordance with ATEX (details on page 8)



Part No. 2421-W
TN4, white housing



- 4 channel datalogger (NTC) for external sensors
- Measuring range: -50°C..140°C
- Programmable alarm functions with alarm output
- Keypad for datalogger control and configuration
- 2 digital inputs
- Direct printout of measured values and alarm data at protocol printer

ECOLOG TN2



Part No. 2420
TN2, red housing

Part No. 2420-Ex
TN2, with EEx approval in accordance with ATEX (details on page 8)



Part No. 2420-W
TN2, white housing



- 2 channel datalogger (NTC) with internal sensor
- Measuring range:
 - External sensor: -50°C..140°C
 - Internal sensor: -35°C..55°C
- Programmable alarm functions with alarm output

- Special functions via multifunction connector:
 - External measuring start
 - Alarm reset
 - 1 digital input

ECOLOG TN3-P

- 3 channel datalogger (NTC) with internal sensor
- Measuring range:
 - External sensor: -50°C..140°C
 - Internal sensor: -35°C..55°C
- Programmable alarm functions with alarm output
- Special functions via multifunction connector:
 - External measuring start
 - Alarm reset

- 1 digital input
- Direct printout of measured values and alarm data at protocol printer

Part No. 2420-P TN3-P, red housing
Part No. 2420-PW TN3-P, white housing
Part No. 2420-PEx TN3-P, with EEx approval in accordance with ATEX (details on page 8)



ECOLOG TN4-L



Part No. 2422
TN4-L, red housing

Part No. 2422-Ex
TN4-L, with EEx approval in accordance with ATEX (details on page 8)



Part No. 2422-W
TN4-L, white housing



- 4 channel datalogger (NTC) for external sensors, with LEMO connector
- Measuring range: -50°C..140°C
- Programmable alarm functions with alarm output
- Keypad for datalogger control and configuration

- 2 digital inputs
- Direct printout of measured values and alarm data at protocol printer

MOUNTING BRACKETS



Part No. 2804-C
Mounting bracket with terminals
Part No. 2804-C-Ex with EEx approval



Part No. 2804-CR
Mounting bracket with terminals and RS232 interface

LOGGING



Part No. 2315-B
Built-in printer with bracket



Part No. 2560-A
Set for cooling transporter ECOLOG TN3-P with printer in watertight box



COUPLERS



Part No. 3032-IS
Multifunction connector for external start and for setting the digital input for TN2/TN3-P



Part No. 3032-VN
Coupler DB15 LEMO

NTC TEMPERATURE PROBES

Resistor probe 3K3A1B for temperature range -50°C..140°C:



Part No. 3090-Lxx
Universal sensor, LS = 50 mm, D = 6 mm
Part No. 3091-Lxx
Universal sensor, LS = 150 mm, D = 6 mm



Part No. 3095-Lxx
Sensor for Twinlock measuring nipple, LS = 70 mm, D = 3.4 mm



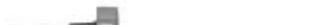
Part No. 3010-Lxx
Needle probe, LS = 100 mm, D = 4 mm



Part No. 3021-Lxx
Needle probe with handle, LS = 100 mm, D = 4 mm



Part No. 3041-Lxx
Surface probe, Sensor surface area 6 x 30 mm



Part No. 3050-Lxx
Magnet temperature probe, D = 22 mm, H = 12 mm



Part No. 3055-Lxx
Drop probe, D = 2.5 mm



Part No. 3060
Plug-in probe



Part No. 3093-Lxx
Temperature range -50°..105°C, with flat cable, LS = 20 mm, D = 5 mm



Part No. 3094-Lxx
Temperature range -50°..105°C, with round cable, LS = 20 mm, D = 5 mm



Part No. 3025-L00
Submergible probe with immersion sleeve

See page 7 for additional accessories that can be used for the entire ECOLOG family.

Applications

ECOLOG dataloggers can be used for a wide variety of applications:



Documenting pharmaceutical product storage

Documenting storage conditions of temperature-sensitive pharmaceutical products. ELPRO systems are qualifiable and are a valuable tool when it comes to fulfilling GMP/GLP regulations.



Recording clean room conditions

Using ELPRO systems to provide documented evidence of the specified climatic conditions in clean rooms and laboratories.



Monitoring museum climate

Controlling and documenting climatic storage conditions for valuable, antique objects.



Monitoring food industry processes

Using ELPRO datalogger systems as tools to document temperatures in HACCP processes.



Documenting transport conditions

Logging temperatures during low-temperature and refrigerated transports. A printer, connected directly at the ECOLOG datalogger, makes complete, on-location transport documentation possible.



Analyzing environmental data

Using robust ECOLOG dataloggers with their versatile accessories are used for long-term analysis of environmental data.

ECOLOG TH & SPECIAL ACCESSORIES



For users who set high standards, the ECOLOG TH is the ideal instrument for logging temperature and relative humidity. High reliability and a proven measuring technique, versatile configuration possibilities and the comprehensive assortment of accessories are some of the reasons for the success of the ECOLOG TH in a multitude of industries and applications.

- Temperature and rel. humidity logging- with internal and external sensors
- Principle of measurement: T: resistance measuring (NTC), rH: capacitive
- Implementation of calibrated and replaceable combi-sensors
- Large display for current measured values and alarm information
- Inputs for recording digital states
- Evaluation with elproLOG software at PC
- Programmable recording interval
- One-year memory capacity for 64'000 measured values
- Keypad at datalogger:
 - Displays measured values and alarms
 - Controls printing functions
 - Tests alarm output
 - Resets alarm output
 - Starts logging
 - Measured value marking
- Open interface for communication with other devices
- Low energy consumption due to power-save mode
- Also available with EEx approval (details on page 8)

ECOLOG TH2



Part No. 2426
TH2, red housing

Part No. 2426-Ex
TH2, with EEx approval in accordance with ATEX (details on page 8)



Part No. 2426-W
TH2, white housing

- 4 channel datalogger for 2 x temperature and rel. humidity
- Two external combi-sensors can be connected
- Input for external temperature sensor (NTC)
- Measurement range:
 - External combi-sensor: -35°C..70°C, 0..100%rH (Part. No. 3087)
 - -35°C..110°C, 0..100%rH (Part No. 3087-B)
 - External temperature sensor NTC -55°C..140°C
- Programmable alarm functions with alarm output
- Keypad for datalogger control and configuration
- Alarm reset via key pad
- 1 digital input
- Direct printout of measured values and alarm data at protocol printer

ECOLOG TH1



Part No. 2423
TH1, red housing with standard sensor

Part No. 2423-Ex
TH1, with EEx approval in accordance with ATEX (details on page 8)



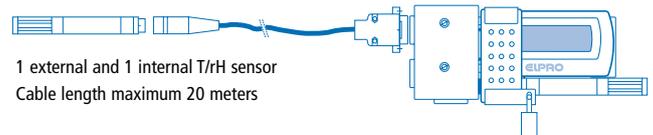
Part No. 2423-W
TH1, white housing with standard sensor

- 4 channel datalogger for 2 x temperature and rel. humidity
- Integrated combi-sensor for temperature and rel. humidity
- External temperature sensor (NTC) can be connected
- Measurement range:
 - Internal combi-sensor: -35°C..55°C, 0..100%rH
 - External combi-sensor: -35°C..70°C, 0..100%rH (Part No. 3087)
 - -35°C..110°C, 0..100%rH (Part No. 3087-B)
 - External temperature sensor: -55°C..140°C
- Programmable alarm functions with alarm output
- Keypad for datalogger control and configuration
- 1 digital input
- Direct printout of measured values and alarm data at protocol printer

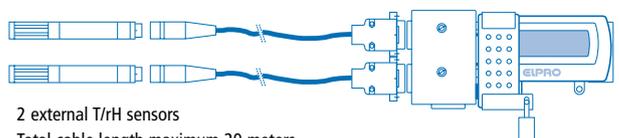
CONFIGURATION EXAMPLES FOR ECOLOG TH



Standard T/rH sensor as external probe



1 external and 1 internal T/rH sensor
Cable length maximum 20 meters



2 external T/rH sensors
Total cable length maximum 20 meters

T / rH SENSORS



Part No. 3087
Plug-in combi-sensor temperature/
humidity
T -35°C..+70°C, rH 0%..100%
Part No. 3087-B
Plug-in combi-sensor temperature/
humidity
T -35°C ..+110°C, rH 0%..100%

NTC TEMPERATURE PROBE

Resistor probe 3K3A1B for temperature
range -50°C..140°C:
See ECOLOG TN on page 3.

MOUNTING BRACKET



Part No. 2805-CR
Mounting bracket with RS232 interface
and connections for 2 external
combi-sensors T/rH
Part No. 2805-C-Ex
with EEx approval



EXTENSION CABLE



Part No. 3215-Sxx
Extension cable for ECOLOG TH1, TH2

HOUSING



Part No. 2352-A
Protective housing for steam cleaning



Part No. 2804-G
Protective lid



Part No. 2804-F
Protective cage for transport monitoring

See page 7 for additional accessories that
can be used for the entire ECOLOG family.

SENSOR LENGTHS AND DIAMETERS



Temperature sensors (NTC and PT100) are usually available in various lengths or with various diameters. When an order is made, the 'x' in the respective part number is replaced with the relative cable length in meters.

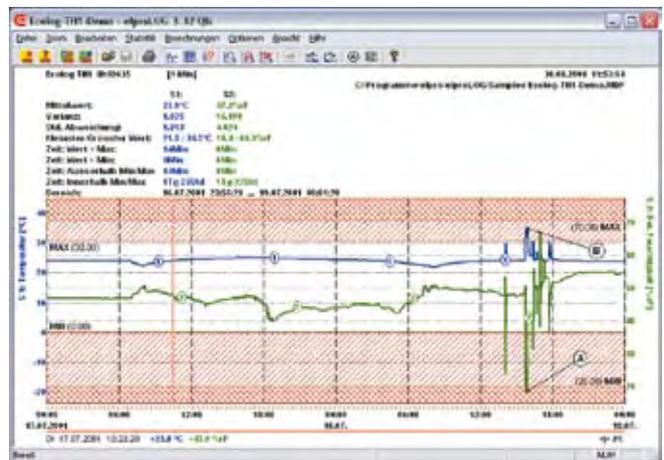
elproLOG software



The **elproLOG** software can be used for all ELPRO datalogger models, allowing fast and efficient evaluation of logged data. With **elproLOG** and a few mouse clicks, you can create meaningful and clearly laid out documentation of your climatic values in graph or table format.

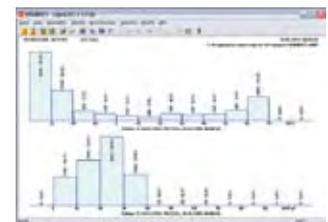


Table with colored markings showing threshold violations.



Data with marked threshold values and statistic information.

While observing regulatory compliance to FDA 21 CFR Part 11, GMP, GAMP4 and GLP, the validated **elproLOG QLS** software offers you all the security you need for monitoring your regulated environments. The detailed validation manual contains IQ/OQ templates for software and dataloggers as well as sample SOPs.



Histogram with manual or automatic grouping.

elproLOG is multilingual, supporting German, English, French, Spanish and Italian.



Extensive qualification and validation manual with templates for IQ/OQ and sample SOPs.

ECOLOG TP & SPECIAL ACCESSORIES



The ECOLOG TP stands for precision measuring and evaluating of temperatures in the -200°C..550°C range. This universal datalogger, based on the standardized PT100 measuring technique and with a comprehensive assortment of sensors and accessories, can be used for widespread applications ranging from monitoring low temperature to documenting drying processes.

- 2 - 4 channel dataloggers
- Principle of measurement:
4-wire PT100 in accordance with IEC751 / EN60751
- Digital inputs and evaluation with elproLOG software at PC
- Large display for current measured values and alarm information
- Programmable recording interval
- One-year memory capacity for 64'000 measured values
- Keypad at datalogger:
- Displays measured values and alarms
- Controls printing functions
- Resets alarm output
- Starts logging
- Open interface for communication with other devices
- Low energy consumption due to power-save mode
- Also available with EEx approval (details on page 8)

COUPLERS



Part No. 3032-VNP
DB15 LEMO connector for simple temperature probe replacing

MOUNTING BRACKETS



Part No. 2801-CR
Mounting bracket with terminals
Part No. 2801-C-Ex with EEx approval

PT100 TEMPERATURE PROBES

Resistor probes EN60751; temperature range type-depending from -200°C..550°C
Contact us for information about additional PT100 temperature probes or visit www.elpro.com.

Part No. 3163-Lxx
DIN A probe, -90°C..260°C, stainless steel, LS = 100 mm, D = 4 mm



Part No. 3181-Lxx
DIN A probe, steam-resistant, autoclavable, -200°C..180°C, LS = 100 mm, D = 5 mm



Part No. 3165-Lxx
DIN A ML probe, -200°C..500°C, stainless steel, bendable, LS = 350 mm, D = 3 mm



Part No. 3164-Lxx
DIN A probe, -50°C..260°C, stainless steel, pointed, LS = 100 mm, D = 4 mm



Part No. 3167-Lxx
DIN B probe, -80°C..105°C, synthetic, molded, LS = 20 mm, D = 5 mm



Part No. 3174-Lxx
ML probe, -80°C..350°C, stainless steel, bendable, LS = 50 mm, D = 2 mm



Part No. 3169-Lxx
DIN A probe, 0°C..500°C, stainless steel, glass fiber cable, LS = 50 mm, D = 6 mm



Part No. 3173-Lxx
DIN A screw-in probe, -50°C..120°C, R1/8", LS = 24 mm, D = 3 mm



Part No. 3160
DIN A plug-on probe, -35°C..55°C, LS = 30 mm, D = 10 mm



Part No. 3171-Lxx
Surface probe, 0°C..180°C, 6x10x35 mm, can be screwed down with bonding foil (up to +80°C)



Part No. 3159-Lxx
Foil probe, class 0.5, 0°C..180°C



Part No. 3168-Lxx
Tight foodstuff probe, DIN A, -50°C..180°C, synthetic, LS = 120 mm, D = 4 mm

ECOLOG TP2



Part No. 2425-2T
TP2, red housing

Part No. 2425-2TEx
TP2, with EEx approval in accordance with ATEX (details on page 8)



Part No. 2425-2TW
TP2, white housing



- 2 channel datalogger (PT100) for external sensors
- Measuring range: -200°C..550°C
- Programmable alarm functions with alarm output

- Keypad for datalogger control and configuration
- 1 digital input
- Direct printout of measured values and alarm data at protocol printer

ECOLOG TP4-L



Part No. 2425
TP4-L, red housing

Part No. 2425-Ex
TP4-L, with EEx approval in accordance with ATEX (details on page 8)



Part No. 2425-W
TP4-L, white housing



- 4 channel datalogger (PT100) for external sensors, with LEMO connector
- Measuring range: -200°C..550°C
- Programmable alarm functions with alarm output

- Keypad for datalogger control and configuration
- 1 digital input
- Direct printout of measured values and alarm data at protocol printer

ECOLOG Accessories for all models

ALARMING



Part No. 2311-B
Alarm flash xenon flash red



Part No. 2311-C
Alarm flash with siren



Part No. 2312
Alarm flash for logger and bracket with EEx approval



Part No. 2340-T
Sender for radio alarm



Part No. 2340-R
Receiver for radio alarm



Part No. 2341-B
Automatic telephone dial unit (example)

MOUNTING BRACKETS



Part No. 2804-A
Mounting plate



Part No. 2804-E
Holding plate padlockable (lock not included)



Part No. 2804-B
Holding plate with bracket for connector

HOUSING



Part No. 2350-x
Casing IP66

CONNECTORS



Part No. 3202-2PB / Part No. 3202-4PB
LEMO connector, 2-pin or 4-pin mounting



Part No. 3032-B
DB15 connector, incl. customer-specific assembly, number of cables is limited



Part No. 3034
DB15 connector for self-mounting

TEMPERATURE SENSORS ACCESSORIES



Part No. 3211-y
Mounting flange



Part No. 3211-Byy
Screw clamp



Part No. 3095-T
Measuring nipple TWINLOK

ADAPTERS



Part No. 2317-USB
USB-RS232 adapter for connecting datalogger to PC USB port



Part No. 2318
PC data cable for PC evaluation

BATTERY



Part No. 2820
Replacement battery for ECOLOG datalogger, set with 2 batteries, storable for at least 5 years

Temperature measurement TPx

(only datalogger at room temperature)

Measurement range	Resolution	Linearity
-200°C .. -101°C	0.2°C	±0.3°C
-100°C .. 399°C	0.1°C	±0.2°C
400°C .. 499°C	0.1°C	±0.3°C
500°C .. 550°C	0.2°C	±0.5°C

Temperature measurement TNx and THx

(datalogger with temperature sensor, logger at room temperature)

Measurement range	Resolution	Typical accuracy (U95)
-50.0°C .. -25.0°C	0.1°C	±0.4°C
-24.9°C .. 0.0°C	0.1°C	±0.3°C
0.1°C .. 70.0°C	0.1°C	±0.2°C
70.1°C .. 100°C	0.1°C	±0.4°C
100.1°C .. 140.0°C	0.1°C	±0.7°C

Accuracy of measurement rel. humidity

At room temperature	23°C	±1.5% rH
Hysteresis	10-90-10% rH	<1% rH

Made in Switzerland – for 20 years 



EEX APPROVAL

All ECOLOG dataloggers are available with EEx approval.



Anschlussdaten des eigensicheren Steckers siehe Manual EZ-70032B
Sécurité intrinsèque interface: voir manual EZ-7003B
For el. data of the intrinsically safe interface see manual EZ-70032B

II 2 G

- II Device category II intended for use in all potentially explosive atmospheres apart from mines.
- 2 Category 2, suitable for use in zone 1 (occasional explosion hazard) as well as in zone 2 (rare explosion hazard)
- G Atmosphere with explosion hazard arising from gases and vapors but not from dust

EEx ib IIB T4

- EEx Explosion protection type according to European directives: EN 50014 : 1997 +A1 +A2 and the directives for special types of protection against ignition
- ib Type of protection for intrinsic safety against ignition: category ib with 1 failure according to EN 50020:1994
- IIB Use in all potentially explosive atmospheres apart from mines: group II subclause B
- T4 Temperature class T4: max. surface temperature 135° with a safety margin of 5 Kelvin for permanently hot surfaces
T4 applies for compound materials with an ignition temperature $t > 135^{\circ}\text{C}$, essentially ethyl ether and ethanol, which are used for industrial production of synthetics and solvents

EXPLANATION OF ICONS



Temperature / humidity / pressure measurement



Gas / wind / comfort measurement



RFID / networks



Display alarm / alarm output / central alarming



IP protective class



EEx-approved



Universal 4-20 mA inputs / 21 CFR Part 11

DIRECTIVES & STANDARDS

ISO 9001: 2000
SGS certificate no. CH98/0013
ATEX
SNCH 01 ATEX 3280/Directive 94/9/EC
EX1, CE 0499
Approval for EX protection zone 1 (EN 50014 and EN 50020)
CE
EN 50081-2 and EN 50082-2
EN12830/EN13485/EN13486
Temperature recorder for transport, storage and distribution of foodstuffs

GZ1480

Exceptional approval for calibration GZ1480/2000 from 10.4.2000, BEV, Austria

INTEGRATED REGULATIONS

AND RECOMMENDATIONS

GMP/GLP/GAMP 4

Software validation in accordance with 21 CFR Part 820, Electronic Records 21 CFR Part 11, 21 CFR Part 210/211, 21 CFR Part 110, 21 CFR Part 58

EG/EU

Regulation (EC) 37/2005
Directive 2002/95/EC (RoHS)

HACCP

Hazard Analysis Critical Control Points

SERVICE & QUALITY

- ISO 9001 quality system
- Vendor and internal audits
- Expert systems
- Own production and development
- Own calibration laboratory
- Modern facilities
- Datalogger service since 1989
- Calibration according to all standards
- Repair service for all products
- Customer calibration service
- IQ/OQ qualifications
- Temperature mapping
- Worldwide distributors
- Return of ELPRO units and batteries for eco-friendly disposal

ELPRO-BUCHS AG

(head office)

CH - 9470 Buchs SG

Switzerland

web www.elpro.com



Contact us
for additional information
about ELPRO dataloggers
and systems or visit us at

www.elpro.com.

Electrolines Est.

We care for your temperature monitoring.
 Libero PDF Logger® – uniquely by ELPRO.



Libero. old Chain Monitoring:
 No software at destination



ELPRO-BUCHS AG
 (head office)
 Langäulistrasse 62
 CH 9470 Buchs SG
 Switzerland
 T +41 (0)81 750 03 11
 F +41 (0)81 750 03 17
 E swiss@elpro.com

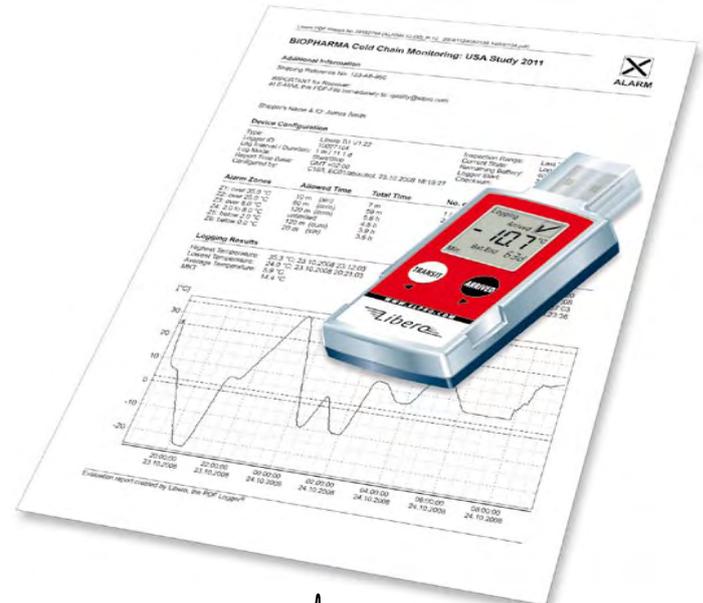


ELPRO Messtechnik GmbH
 Baumwasenstrasse 20/1
 DE 73614 Schorndorf
 Deutschland
 T +49 (0)7181 97 94 80
 F +49 (0)7181 97 94 85
 E brd@elpro.com



ELPRO Services, Inc.
 210 Millcreek Road
 Marietta, OH 45750
 USA
 T +1 740 568.9900
 F +1 740 569.9399
 E usa@elpro.com

ELPRO UK Ltd
 Unit 1, Allen's Yard
 Nyton Road
 Aldingbourne, Chichester
 West Sussex PO20 3UA
 United Kingdom
 T +44 (0)1243 544 545
 F +44 (0)1243 210 132
 E uk@elpro.com



The ultimate solution for cold chain monitoring

No software required at destination

- ➔ **Libero reduces costs**
as shown with the
phenomenon of the iceberg

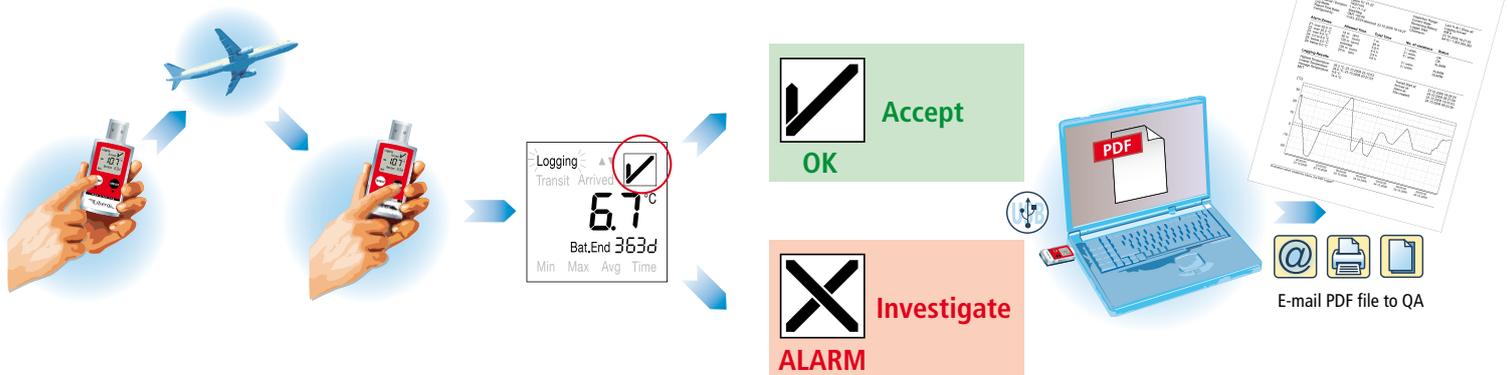
Evaluation report without any software:

- Automatically created when plugging LIBERO into the USB port of any PC worldwide

This report in PDF/A format contains:

- Detailed sender/shipment information
- Go/No-Go information, also on display
- Statistics (min/max/average/MKT)
- Chart visualizing measured temperatures
- And in a hidden part, all raw data for any further analysis

COLD CHAIN MONITORING WITH LIBERO PDF LOGGER®



LIBERO PDF Logger®

A most cost efficient solution!

DIRECT COST – visible

- Monitoring device / Datalogger
- Software
- Interface and data cable

INDIRECT COST – hidden

- Software installation support, IQ/OQ, user training
- Stock keeping of various logger types
- Time lost until monitoring device is back for evaluation
- Read-out and creation of evaluation report and readable back-up standard
- Exception handling and approval process



Benefits



User:

Ease of use and productivity

- Easy handling, no specific procedures needed, no wrong manipulations possible
- Clearly structured display for immediate visibility of any temperature deviations during transportation
- Shortened workflow thanks to the unique feature of the automatically generated analysis and compound report

Supply Chain Manager:

Productivity and Flexibility

- Quick and easy availability of supply chain history
- Straightforward transmission of complete reports (data and graphics) thanks to PDF/A format
- Parameters can be set according to your requirements in order to follow your SOP's
- Detailed evaluation of raw data possible with elproLOG ANALYZE Software
- Problems within the cold chain can rapidly be isolated, illustrated and then definitively be solved
- Full control thanks to worldwide standardized reports (PDF/A file format)
- No specific training required

Purchase Manager:

Cost efficiency

- Excellent price/performance ratio
- No cost for worldwide software training, SW validation, SW support, software upgrading activities or user training
- Swiss quality product – life time warranty

Quality Manager:

Assured quality

- PDF/A file format is an approved ISO standard
- Alarm indicators according to WHO standards
- Helps to be compliant with the provision of GMP/GLP/FDA (21CFR11), USP 1079
- 5 programmable alarm ranges according to PDA Technical Report No 39 (cold chain guidance for medical products: maintaining the quality of temperature-sensitive medicinal products through the transportation environment)
- Validation certificate inclusive, optional multi point calibration
- IQ/OQ documentation is made available

IT Manager:

Reliability and seamless integration

- No specific evaluation software necessary (Adobe®Reader®)
- No additional hardware required (USB port/PC)
- No additional infrastructure cost for software validation, upgrade policy and end user support
- No user training necessary

Financial Director:

Cost savings

- Cost effective solution for total cold chain monitoring
- Safe investment thanks to proven technology, ELPRO's compatibility strategy and the long-term experience of ELPRO in providing professional data logging solutions

Electrolines Est.

P. O. Box. 942 Yanbu Saudi Arabia Tel: +966 4 3225418 Fax: +966 4 322213 Al-Jubail: Tel: +966 3 3632967 Fax: +966 3 3612967



Technical Data

- **Record options:**
Multiple use (Ti1) or single use (Ti1-S)
- **Record mode:**
Start/stop and loop (Ti1)
- **Temperature measurement range:**
-35°C to +70°C
- **Temperature accuracy:**
± 0.2 °C (-10 °C to 25 °C)
± 0.5 °C for the ranges of -35 °C to -10 °C and 25 °C to 70 °C
- **Resolution:**
1/10 °C
- **Memory capacity:**
16'000 measuring data points
- **Measurement interval and display renewal:**
1 minute or more, programmable
- **Programmable temperature alarms:**
 - a) 2 limits or
 - b) 5 multiple alarm ranges, conform wit PDA Technical Report No 39 (Cold Chain Guidance for Medical Products: Maintaining the Quality of Temperature-sensitive Medicinal Products through the Transportation Environment)
- **Start-up delay:**
0 minutes to 1 day
- **Battery life:**
3.6V Lithium Battery
Ti1: 400 days / Ti1-S: 100 days
- **Display:**
Multifunction LCD, size: 23.5 x 23.5 mm, statistics functionality

- **Evaluation report (Adobe®PDF/A):**
Includes a text area, a chart visualizing the temperature curve of the current transport section and the raw data of all transport sections. There are 8 lines at 80 characters available for sender-specific information.
- **Supported operating systems:**
Windows, Mac, Linux
- **Datalogger configuration:**
Libero confi guration utility & Libero SmartStart downloadable free of charge from www.pdf-logger.com
- **PDF Data Logger:**
Built-in PDF file generator that automatically establishes a complete evaluation report including all raw data
- **Display functionality:**
 - Start and end marking with TRANSIT and ARRIVED buttons
 - Current temperature measurement (last stored value)
 - Status OK or ALARM
 - Indicator whether limit value has been exceeded
 - Remaining battery life in days
- **Software (at sender):**
 - Libero Confi guration Utility
 - Libero SmartStart
- **Interface:** USB – Universal Serial Bus
- **Case:** ABS plastic material
- **Protective Class:** IP 54
- **Dimensions:** 95 x 40 x 12 mm
- **Weight:** 40 g
- **Application area:**
Supply chain temperature monitoring



Team Libero



Temperature and humidity data evaluation without any software, PDF/A report inclusive, via USB port anywhere in the world:
ELPRO presents its team of independent specialists with specific qualities.



LIBERO Ti1 & Ti1-S

- Team leader of Libero PDF Logger®
- Internal temperature sensor for -35°C..+70°C
- Application area: Transport monitoring of temperature sensitive products



LIBERO Ti1-D (DRY ICE)

- Libero PDF Logger® with internal temperature sensor
- Temperature range: -80°C..+70°C
- Battery life: 100 days or 20 days at -80°C (dry ice)
- Application areas: Monitoring of dry ice shipments



LIBERO Te1-N & Te1-P* (EXTERNAL SENSORS)

- Libero PDF Logger® with an external sensor connected to the USB port (patent solution)
- Te1-N with NTC sensor for temperatures of -80°C..+85°C
- Te1-P with PT100 sensor for temperatures of -200°C..+200°C
- Battery life: 3 years
- Application areas: Monitoring of cryo and dry ice shipments, liquid nitrogen and cooling cabinets, temperature monitoring



LIBERO Thi1* (TEMPERATURE & HUMIDITY)

- Libero PDF Logger® with internal temperature and humidity sensor
- Temperature range: -35°C..+70°C
- Humidity range: 0..100 %
- Battery life: 3 years
- Application areas: Transport monitoring for temperature and humidity sensitive products

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