



Calibrated
precision
instruments



ECOLOG Data logger series

we prove it.

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 data loggers 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 at PC with elproLOG ANALYZE software
- Programmable recording interval
- One-year memory capacity for 64'000 measured values
- Keypad on data logger (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 Ex approval (details on page 8)

Optional with ATEX:



ECOLOG TN4



Part No. 2421
TN4, red housing

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

Part No. 2421-W
TN4, white housing

- 4 channel data logger (NTC) for external sensors
- Measuring range: -50 °C..+140 °C
- Programmable alarm functions with alarm output
- Keypad for data logger control and configuration
- 2 digital inputs
- Direct printout of measured values and alarm data at protocol printer
- Protection class IP52

ECOLOG TN2



Part No. 2420
TN2, red housing

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

Part No. 2420-W
TN2, white housing

- 2 channel data logger (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
 - Protection class IP54

ECOLOG TN3-P

- 3 channel data logger (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
- Protection class IP54

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


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

- 4 channel data logger (NTC) for external sensors, with LEMO connector
- Measuring range: -50 °C..+140 °C
- Programmable alarm functions with alarm output
- Keypad for data logger control and configuration
- 2 digital inputs
- Direct printout of measured values and alarm data at protocol printer
- Protection class IP52

Mounting brackets



Part No. 2804-C
Mounting bracket with terminals

Part No. 2804-C-Ex
with Ex 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
Protection class IP62

Couplers



Art.-Nr. 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 = 4mm



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 °C..+105 °C, with flat cable, LS = 20 mm, D = 5 mm



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



Part No. 3025-L00
Submersible probe with immersion sleeve

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

Applications

ECOLOG data loggers can be used for a wide variety of applications:



Documenting pharmaceutical product storage
Documenting storage conditions of temperature-sensitive pharmaceutical products. ELPRO systems are qualified 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 data logger 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 data logger, makes complete, on-location transport documentation possible.



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

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 combined sensors
- Large display for current measured values and alarm information
- Inputs for recording digital states
- Evaluation at PC with elproLOG ANALYZE software
- Programmable recording interval
- One-year memory capacity for 64'000 measured values
- Keypad at data logger:
 - 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 Ex approval (details on page 8)

Optional with ATEX:



ECOLOG TH2



Part No. 2426
TH2, red housing



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

Part No. 2426-W
TH2, white housing

- 4 channel data logger for twice temperature and rel. humidity
- Two external combined sensors can be connected
- Input for external temperature sensor (NTC)
- Measurement range:
 - External combined 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 data logger control and configuration
- Alarm reset via key pad
- 1 digital input
- Direct printout of measured values and alarm data at protocol printer
- Protection class IP52

ECOLOG TH1



Part No. 2423
TH1, red housing with standard sensor

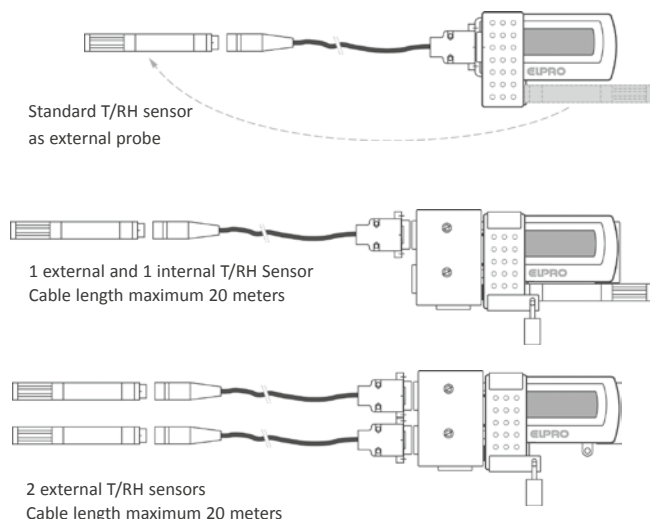


Part No. 2423-W
TH1, white housing with standard sensor

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

- 4 channel data logger for twice temperature and rel. humidity
- Integrated combined sensor for temperature and rel. humidity
- External temperature sensor (NTC) can be connected
- Measurement range:
 - Internal combined sensor: -35 °C..+55 °C, 0 %..100 % RH
 - External combined 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 data logger control and configuration
- 1 digital input
- Direct printout of measured values and alarm data at protocol printer
- Protection class IP50

Configuration examples for ECOLOG TH



T/RH Sensors



Part No. 3087
 Combined plug-in sensor
 temperature/humidity
 T -35 °C...+70 °C, RH 0 %..100 %

Part No. 3087-B
 Combined plug-in 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
 combined sensors T/RH

Part No. 2805-C-Ex
 with Ex approval



Extension cable



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

Protective Housing



Part No. 2352-A
 Protective housing for steam cleaning



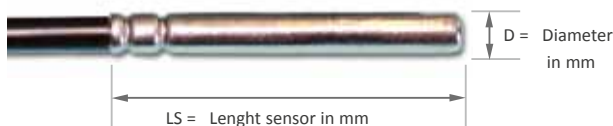
Part No. 2804-F
 Protective cage for transport mounting



Part No. 2804-G
 Protective lid

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

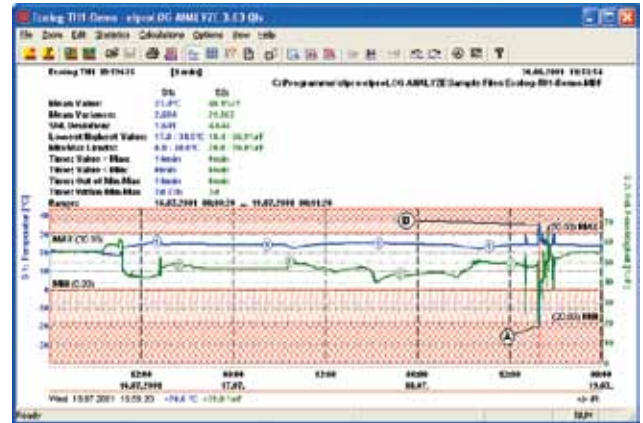
Sensor lengths and diameters



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 ANALYZE Software

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



Data with marked threshold values and statistic information.

While observing regulatory compliance to FDA 21 CFR Part 11,
 GMP, GAMP5 and GLP, the validated **elproLOG ANALYZE 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 data loggers as well as sample SOPs.

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

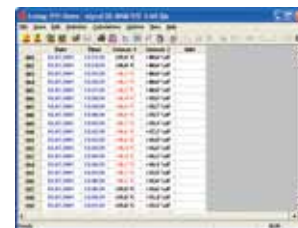
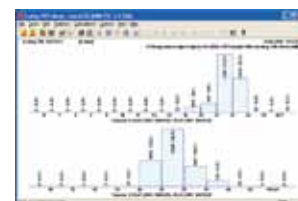


Table with colored markings showing
 threshold violations.



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



Histogram with manual or automatic
 grouping.

The ECOLOG TP stands for precision measuring and evaluating of temperatures in the $-200\text{ }^{\circ}\text{C}..+550\text{ }^{\circ}\text{C}$ range. This universal data logger, 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 data loggers
- Measurement principle: 4-wire Pt100 in accordance with IEC751 / EN60751
- Digital inputs and evaluation at PC with elproLOG ANALYZE software
- Large display for current measured values and alarm information
- Programmable recording interval
- One-year memory capacity for 64'000 measured values
- Keypad at data logger:
 - 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 Ex approval (details on page 8)

Optional with ATEX:



Couplers



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

Mounting brackets



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

Pt100 Temperature probes

Resistor probes EN60751; temperature range type-dependent from $-200\text{ }^{\circ}\text{C}..+550\text{ }^{\circ}\text{C}$
Contact us for information about additional Pt100 temperature probes or visit www.elpro.com.

Part No. 3163-Lxx
DIN A probe, $-90\text{ }^{\circ}\text{C}..+260\text{ }^{\circ}\text{C}$, stainless steel, LS = 100 mm, D = 4 mm

Part No. 3181-Lxx
DIN A probe, steam resistant, autoclavable, $-200\text{ }^{\circ}\text{C}..+180\text{ }^{\circ}\text{C}$, LS = 100 mm, D = 5 mm

Part No. 3165-Lxx
DIN A ML probe, $-200\text{ }^{\circ}\text{C}..+500\text{ }^{\circ}\text{C}$, stainless steel, bendable, LS = 350 mm, D = 3 mm

Part No. 3164-Lxx
DIN A probe, $-50\text{ }^{\circ}\text{C}..+260\text{ }^{\circ}\text{C}$, stainless steel, pointed, LS = 100 mm, D = 4 mm

Part No. 3167-Lxx
DIN B Fühler, $-80\text{ }^{\circ}\text{C}..+105\text{ }^{\circ}\text{C}$, synthetic molded, LS = 20 mm, D = 5 mm

Part No. 3174-Lxx
ML probe, $-80\text{ }^{\circ}\text{C}..+350\text{ }^{\circ}\text{C}$, stainless steel, bendable, LS = 50 mm, D = 2 mm

Part No. 3169-Lxx DIN A probe, $0\text{ }^{\circ}\text{C}..+500\text{ }^{\circ}\text{C}$, stainless steel with glass fiber cable, LS = 50 mm, D = 6 mm

Part No. 3173-Lxx
DIN A screw-in probe, $-50\text{ }^{\circ}\text{C}..+120\text{ }^{\circ}\text{C}$, R1/8", stainless steel, LS = 24 mm, D = 3 mm

Part No. 3160
DIN A plug-in probe, $-35\text{ }^{\circ}\text{C}..+55\text{ }^{\circ}\text{C}$, LS = 30 mm, D = 10 mm

Part No. 3171-Lxx
Surface probe, $0\text{ }^{\circ}\text{C}..+180\text{ }^{\circ}\text{C}$, 6 x 10 x 35 mm, can be screwed down with bonding foil (up to $+80\text{ }^{\circ}\text{C}$)

Part No. 3159-Lxx
Foil probe, class 0.5, $0\text{ }^{\circ}\text{C}..+180\text{ }^{\circ}\text{C}$

Part No. 3168-Lxx
Tight foodstuff probe, DIN A, $-50\text{ }^{\circ}\text{C}..+180\text{ }^{\circ}\text{C}$, synthetic, LS = 120 mm, D = 4 mm

ECOLOG TP2



Part No. 2425-2T
TP2, red housing

Art.-Nr. 2425-2TEx
TP2, with Ex approval in accordance with ATEX (details on page 8)



Art.-Nr. 2425-2TW
TP2, white housing

- 2 channel data logger (Pt100) for external sensors
- Measuring range: $-200\text{ }^{\circ}\text{C}..+550\text{ }^{\circ}\text{C}$
- Programmable alarm functions with alarm output
- Keypad for data logger control and configuration
- 1 digital input
- Direct printout of measured values and alarm data at protocol printer
- Protection class IP52

ECOLOG TP4-L



Art.-Nr. 2425
TP4-L, red housing


















Art.-Nr. 2425-Ex
TP4-L, with Ex approval in accordance with ATEX (details on page 8)



Art.-Nr. 2425-W
TP4-L, white housing

- 4 channel data logger (Pt100) for external sensors, with LEMO connector
- Measuring range: $-200\text{ }^{\circ}\text{C}..+550\text{ }^{\circ}\text{C}$
- Programmable alarm functions with alarm output
- Keypad for data logger control and configuration
- 1 digital input
- Direct printout of measured values and alarm data at protocol printer
- Protection class IP52

Accessories for all ECOLOG models

Alarming	Mounting brackets	Connectors	Accessories
 <p>Part No. 2311-B Alarm flash light red</p>	 <p>Part No. 2804-A Mounting plate</p>	 <p>Part No. 3202-2PB / 3202-4PB LEMO connector, 2-pin or 4-pin mounting</p>	 <p>Part No. 3211-X Mounting flange</p>
 <p>Part No. 2311-C Alarm flash light with siren</p>	 <p>Part No. 2804-B Holding plate with bracket for connector</p>	 <p>Part No. 3032-B DB15 connector incl. customer- specific assembly, number of cables is limited</p>	 <p>Part No. 3211-BX Screw clamp</p>
 <p>Part No. 2312 Alarm flash light for logger bracket with Ex approval</p>	 <p>Part No. 2804-E Holding plate padlockable (lock not included)</p>	 <p>Part No. 3034 DB15 connector for self-mounting</p>	 <p>Part No. 3095-T Measuring nipple TWINLOK</p>
 <p>Part No. 2341-B Automatic telephone dial unit (example)</p>	<p>Protective Housing</p>  <p>Part No. 2350-x Protection class IP66</p>	<p>Readout cable</p>  <p>Part No. 2318-USB Data cable for PC evaluation</p>	<p>Battery</p>  <p>Part No. 2820 Replacement battery for ECOLOG data logger, set with 2 batteries, storable for at least 5 years</p>
 <p>Part No. 1120 GSM interface with 4 alarm inputs</p>			

Temperature measurement TPx

(only data logger at room temperature)

Measurement range	Resolution	Linearity (k=1)
-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

(data logger with temperature sensor, logger at room temperature)

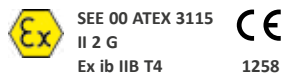
Measurement range	Resolution	Accuracy (U95; k=2)
-50 °C .. -31 °C	0.1 °C	±0.6 °C
-30 °C .. -16 °C	0.1 °C	±0.4 °C
-15 °C .. -1 °C	0.1 °C	±0.3 °C
0 °C .. 49 °C	0.1 °C	±0.2 °C
50 °C .. 99 °C	0.1 °C	±0.3 °C
100 °C .. 125 °C	0.1 °C	±0.6 °C
126 °C .. 140 °C	0.1 °C	±0.9 °C

Measurement relative humidity

Accuracy (@ 23 °C)	Hysteresis (10-90-10 % RH)
±1.5 % RH	<1 % RH

Ex Approval

All ECOLOG data loggers are available with Ex approval for zone 1.



Connectivity data of the intrinsically safe interface:

Manual EZ-7003B

SEE 00 ATEX 3115

SEE Certification authority in Luxembourg with certifies the Ex examination carried out by Electrosuisse

00 Year of issue of certificate 2000

ATEX Identifies the use of council directive 94/9/EC

3115 Certification number for this group of ELPRO products

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

Ex ib IIB T4

Ex Explosion protection type according to European directives:

EN 60079-0:2009 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 60079-11:2007, EN 1127-1:2011

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

Service & Quality

- ISO 9001 Quality System
- Qualified systems
- Own production and development
- Data logger service since 1989
- Calibration according to all standards
- Repair service for all products
- IQ/OQ qualification
- Temperature mapping
- Calibration laboratory accredited to ISO 17025
- Worldwide distributors
- Return of ELPRO units and batteries for environmentally friendly disposal

Directives & Standards

ISO 9001: 2008

SGS certificate no. CH98/0013

ATEX

Approval for EX protection zone 1

EN 60079-0:2009, EN 60079-11:2007, EN 1127-1:20011

CE

EN 61000-6-2:2006 and EN 61000-6-4:2006

EN12830, EN13485, EN13486

Temperature recorder for transport, storage and distribution of foodstuffs and products

GZ1480

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

Integrated regulations and recommendations

GMP, GLP, GAMP 5

Software validation in compliance 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

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

HACCP

Hazard Analysis Critical Control Points

**Contact us for additional information
about ELPRO data loggers and systems or
visit us at www.elpro.com.**