



ECOLOG Datalogger Series





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 ANALYZE 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 Ex approval (details on page 8)

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 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 Ex 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 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 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 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



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°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
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.



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 ANALYZE 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 Ex approval (details on page 8)

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 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 Ex approval in accordance with ATEX (details on page 8)



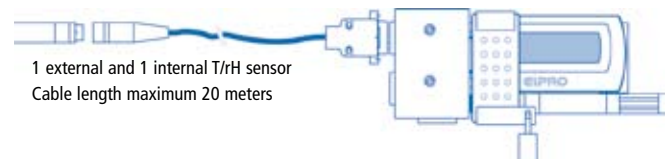
Part No. 2423-W TH1, white housing with standard sensor

- 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

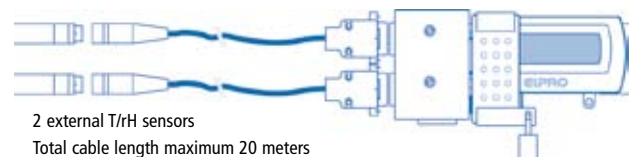
Configuration examples for ECOLOG TH



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
 combisensors T/rH
 Part No. 2805-C-Ex
 with Ex approval



EXTENSION CABLE



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

HOUSING



Part No. 2352-A
 Protective housing for steam cleaning



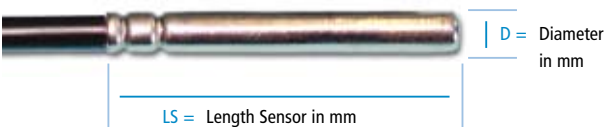
Part No. 2804-G
 Protective lid



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



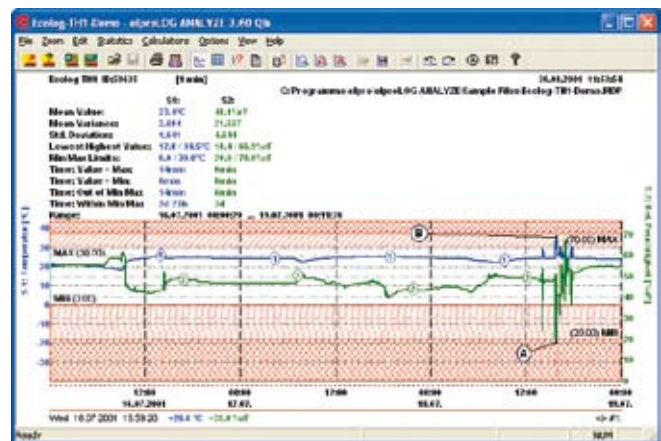
Temperature sensors (NTC and PT100) are usually available in various lengths or with various diameters. When an order is made, the 'x' in the respective part number is replaced with the relative cable length in meters.

elproLOG ANALYZE software



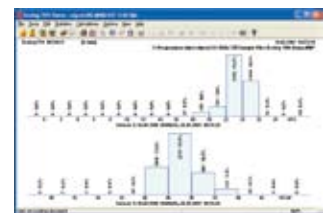
The elproLOG ANALYZE software can be used for all ELPRO datalogger models, allowing fast and efficient evaluation of logged data. With elproLOG ANALYZE and a few mouse clicks, you can create meaningful and clearly laid out documentation of your climatic values in graph or table format.

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, 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 dataloggers as well as sample SOPs.



Histogram with manual or automatic grouping.

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



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



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 ANALYZE 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 Ex 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 Ex approval

PT100 TEMPERATURE PROBES

Resistor probes EN60751; temperature range type-dependng 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 Ex 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 Ex 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

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 Ex approval



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

ADAPTERS



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



Part No. 2318
PC data cable for PC evaluation

TEMPERATURE SENSORS ACCESSORIES



Part No. 3211-y
Mounting flange



Part No. 3211-Byy
Screw clamp



Part No. 3095-T
Measuring nipple TWINLOK

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 (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

(datalogger 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 |

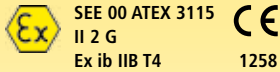
Measurement relative humidity

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



EX APPROVAL

All ECOLOG dataloggers are available with Ex approval.



Anschlussdaten des eigen. Steckers:
Sécurité intrinsèque interface:
Con data of the int. safe interface:
Manual EZ-7003B

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 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 50020:2002
- 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 | Universal 4-20 mA inputs



Networks | Bluetooth



Display alarm | alarm output | central alarming



IP protective class



Ex-approved



xxx | xxx



21 CFR Part 11

DIRECTIVES & STANDARDS

ISO 9001: 2000

SGS certificate no. CH98/0013

ATEX

Approval for EX protection zone 1

EN 60079-0:2006

EN 60079-11:2007, EN 1127-1:2007

CE

EN 61000-6-2:2006 and

EN 61000-6-4:2006

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 5

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

Contact us

for additional information about ELPRO dataloggers and systems or visit us at www.elpro.com.

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