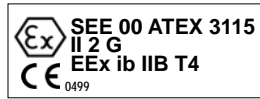


# EX-marking for ECOLOG dataloggers

EX-casing sticker



## EC Directive: ATEX

The commonly used abbreviation ATEX derives from the French expression **A**tmosphère **E**xplosible. New systems (from 1st July, 2003) in potentially explosive atmospheres may exclusively use equipment complying with the minimum requirements of Directive 94/9/EC.

Explosion protection is designed to ensure the safety and health of persons as well as the safety of systems and products. Potentially explosive atmospheres are defined as areas where an explosive atmosphere can arise. An explosive atmosphere is a mixture with air, under atmospheric conditions, of flammable substances in the form of gases, vapors, mists, and dusts.

Two directives apply throughout the European Community:

Directive 99/92/EC "on minimum requirements for improving the safety and health protection of workers potentially at risk from explosive atmospheres". This directive has been written for the employer in his capacity as system end user. It is also known as "ATEX 137".

Directive 94/9/EC "on the approximation of the laws ... concerning equipment and protective systems intended for use in potentially explosive atmospheres", has been written for the equipment manufacturer. It is also known as "ATEX 100".

The present harmonization removed the barriers to trade within the European Community in the area of protection against explosions. To users of potentially explosive systems outside the EC, the respective local regulations apply. Concerning deliveries to countries outside the EC, the suppliers respect the regulations contractually agreed on with the customer.

## Explosion protection priorities

1. Prevention of the formation of explosive atmospheres
2. Avoidance of ignition sources
3. Mitigation of the detrimental effects of an explosion

## Classification into zones

The employer/system end user classifies the areas where explosive atmospheres may occur into zones. The different zones are assigned to defined equipment categories.

## Key to the Intrinsically Safe EEx - Type

Type	Function	Part No	Measurement Range
TN2	2 x Temperature NTC	2420-EX	int. -35°C.. 55°C or ext. -50°C.. 140°C
TN3-P	3 x Temperature NTC	2420-PEX	int. -35°C.. 55°C or ext. -50°C.. 140°C
TN4	4 x Temperature NTC	2421-EX	-50°C.. 140°C
TN4-L	4 x Temperature NTC	2422-EX	-50°C.. 140°C
TP2	2 x Temperature PT100	2425-2TEX	-200°C.. 550°C
TP4-L	4 x Temperature PT100	2425-EX	-200°C.. 550°C
TH1	2 x Temperature and r.H.	2423-EX	-35°C.. 55°C / 110°C and 0%r.H... 100%r.H.
TH2	2 x Temperature and r.H.	2426-EX	-35°C.. 55°C / 110°C and 0%r.H... 100%r.H.



## Symbols



Marking for approval according to the European regulations on explosion-protection.



Marking for approval according to the European regulations on product liability with the additional quality assurance audit for products which are subjected to labeling under the EX-regulation. The CE-marking must be accompanied by the identification number (0499) of the notified body responsible for EC surveillance.

## Certificate

**SEE 00 ATEX 3115**

Certification authority in Luxembourg which certifies the EEx examination carried out by the "electrosuisse".

**SEE 00 ATEX 3115**

Year of issue of certificate 2000.

**SEE 00 ATEX 3115**

Identifies the use of council Directive 94/9/EC (ATEX 100a).

**SEE 00 ATEX 3115**

Number of inspection document for the ECOLOG datalogger family manufactured by Elpro-Buchs AG.

The device categories are certified according to Directive 94/9/EC and characterize the range of industrial application for explosion-protected, electrical operating devices as follows:

Device category I comprises the operating devices used for underground work in mines and their surface installations liable to be endangered by firedamp or combustible dust.

**Device category II** comprises the operating devices used in all non-mining areas liable to be endangered by explosive atmospheres, i.e.chemical, petrochemical applications, etc.

Following the device category marking, a supplementary marking, in accordance with the ATEX Directive, describes the area of application (**Category 2**), indicating the permitted environmental atmosphere; gas (**G**) or dust (**D**).

Gas, vapor, mist	Dust	EX-atmosphere is existen:	Device safety must be guaranteed:
Zone 0 Category 1G	Zone 20 Category 1D	Continuously, during long periods or frequently	Even for infrequent device malfunctions
Zone 1 Category 2G	Zone 21 Category 2D	Occasionally	For expected device malfunctions
Zone 2 Category 3G	Zone 22 Category 3D	Infrequently and during short periods	During normal operation

**II 2 G**

Device category II intended for use in all potentially explosive atmospheres apart from mines

**II 2 G**

Category 2, suitable for use in zone 1 (occasional explosion hazard) as well as in zone 2 (rare explosion hazard)

**II 2 G**

Atmosphere with explosion hazard arising from gases and vapors but not from dust



## Ignition protection types

In areas where the occurrence of a dangerous, explosive atmosphere cannot be prevented by applying primary explosion protection, special secondary protective measures are to be taken. These measures prevent the ignition of explosive atmosphere in different ways; e.g. separation (o, q, m), exclusion (p), special mechanical construction (d, e), **intrinsic safety** (ia, **ib**) or other methods (s).

For "intrinsic safety" against ignition the device category II has been split into IIA, **IIB**, and IIC. The strength of explosion protection goes up with higher order.

## Intrinsic device categories

Marking	Typical gases	Ignition energy in [uJ] according to EN 50200
I	Methane	max. 525
IIA	Propane	< 320
IIB	Ethylene	< 160
IIC	Hydrogen	< 40

## Temperature classes

Group II electrical operating devices are split into temperature classes according to their maximum surface temperatures. This maximum temperature refers to any one part in the operating device and not to the casing. In the case of ECOLOG dataloggers, the maximum temperature refers to the temperature of the battery in continuous short-circuiting.

Temperature classes	T1	T2	T3	T4	T5	T6
Max. surface temperature	450°C	300°C	200°C	135°C	100°C	85°C
Examples	Propane Methane Ammonia	Ethylene Alcohole Acetylene	Benzine Solvent	Ethylether	-	Carbonbi-sulphide

### EEx ib IIB T4

Explosion protection type according to European directives: EN 50014: 1997 +A1 +A2 and the directives for special types of protection against ignition

### EEx ib IIB T4

Type of protection for intrinsic safety against ignition: category ib with 1 failure according to EN 50020:1994.

### EEx ib IIB T4

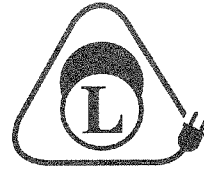
Use in all potentially explosive atmospheres apart from mines: group II sub-clause B

### EEx ib IIB T4

Temperature class T4: max. surface temperature 135°C with a safety margin of 5 Kelvin for permanently hot surfaces T4 applies for compound materials with an ignition temperature of  $t > 135^{\circ}\text{C}$ , essentially ethyl ether and ethanal, which are used for industrial production of synthetics and solvents.



GRAND-DUCHE DE LUXEMBOURG



**Société Nationale de  
Certification et d'Homologation S.à r.l.**



**EC-TYPE EXAMINATION CERTIFICATE**

Equipment or Protective System Intended for use  
in Potentially explosive atmospheres  
Directive 94/9/EC

EC-Type Examination Certificate Number: **SEE 00 ATEX 3115**

Equipment or Protective System: **Datalogger ECOLOG Txx-x**

Manufacturer: **ELPRO-BUCHS AG  
Langäulistraße 62  
CH - 9470 Buchs**

This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

*Société Nationale de Certification et d'Homologation S.à r.l.*, notified body no. 0499, in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment or protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential report n° **00-IK-0419.01 incl. Extensions No. 1 to 3.**

Compliance with the Essential Health and Safety Requirements has been assured by compliance with:  
**EN 50014 : 1997+A1+A2 - General requirements**  
**EN 50020 : 2002 - Intrinsic safety "i"**  
**EN 1127-1 : 1997**

If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

This EC Type examination certificate relates only to the design, examination and tests of the specified equipment or protective system in accordance to the directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

The marking of the equipment or protective system shall include the following:

II 2G EEx ib IIB T4

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*This certificate may only be reproduced in its entirety and without any change, schedule included.*

Luxembourg, 25.02.2005

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