ECOLOG-PRO

Radio Modules

ECOLOG-PRO 2PTR
ECOLOG-PRO 1THR

Operation Manual

Contents

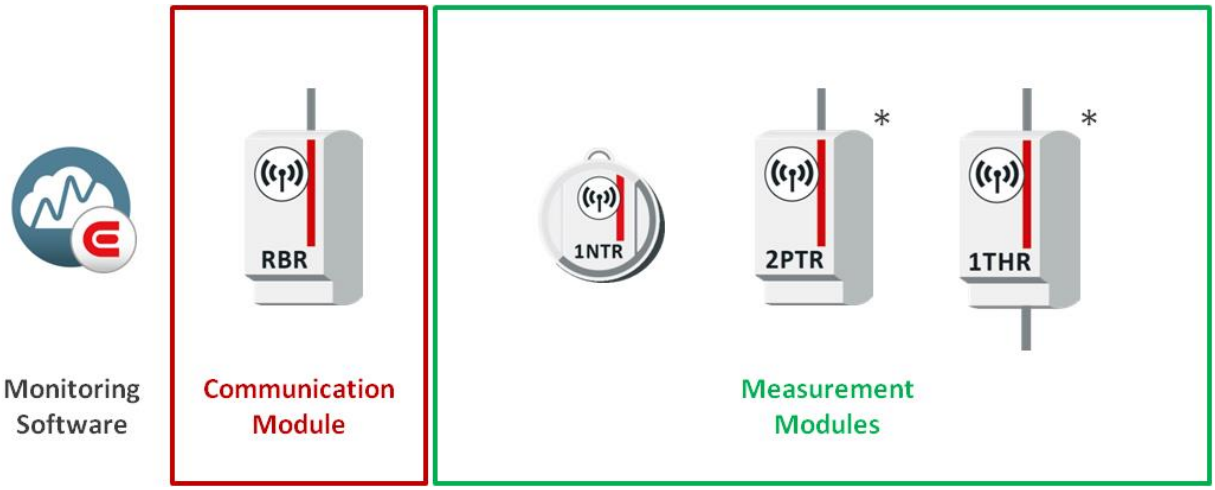
Conformity and Symbols Used

CE	Hereby, ELPRO-BUCHS AG declares that the radio equipment type **ECOLOG-PRO 2PTR 868 MHz** is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available in chapter 5 of this document or at the following internet address: https://www.elpro.com/fileadmin/Docs/Quality_Documents/ECOLOG-PRO_2PTR_DOC_Conformity_1000279V01.pdf Hereby, ELPRO-BUCHS AG declares that the radio equipment type **ECOLOG-PRO 1THR 868 MHz** is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available in chapter 5 of this document or at the following internet address: https://www.elpro.com/fileadmin/Docs/Quality_Documents/ECOLOG-PRO_1THR_DOC_Conformity_1000281V01.pdf Above mentioned products operate in the 863-870MHz band with a maximum radiated output power of +11.6dBm.
FC	**ECOLOG-PRO 2PTR 915 MHz and ECOLOG-PRO 1THR 915 MHz** Above mentioned devices comply with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. Above mentioned devices operate in the 902-928MHz band with a maximum radiated output power of +4dBm. **ECOLOG-PRO 2PTR 915 MHZ contains** FCC ID: S9NSPSGRFC IC: 8976C-SPSGRFC **ECOLOG-PRO 1THR 915 MHz contains** FCC-ID: S9NSPSGRFC IC: 8976C-SPSGRFC
	Devices have to be disposed of according to WEEE (Waste Electrical and Electronic Equipment, 2002/96/EC).

1. System Overview

The ECOLOG-PRO measurement and communication modules described in this document are used for temperature monitoring. The measured values are transmitted to a monitoring software, which stores and analyzes the data, provides alerts if alarm limits are violated, and generates reports. The system provides superior visibility and transparency in meeting GxP requirements. The sensor-based monitoring software is easily accessible via a web browser and is also used to configure the measurement modules and sensors.

The following pages contain key features and technical specifications of ECOLOG-PRO 2PTR and ECOLOG-PRO 1THR. In addition, you will find information on how to connect the modules.
For detailed software and connection support, please visit our online knowledge base at https://www.elpro.com/support/ and online manuals at https://elproag.atlassian.net/wiki/spaces/POM.



* module covered in this document

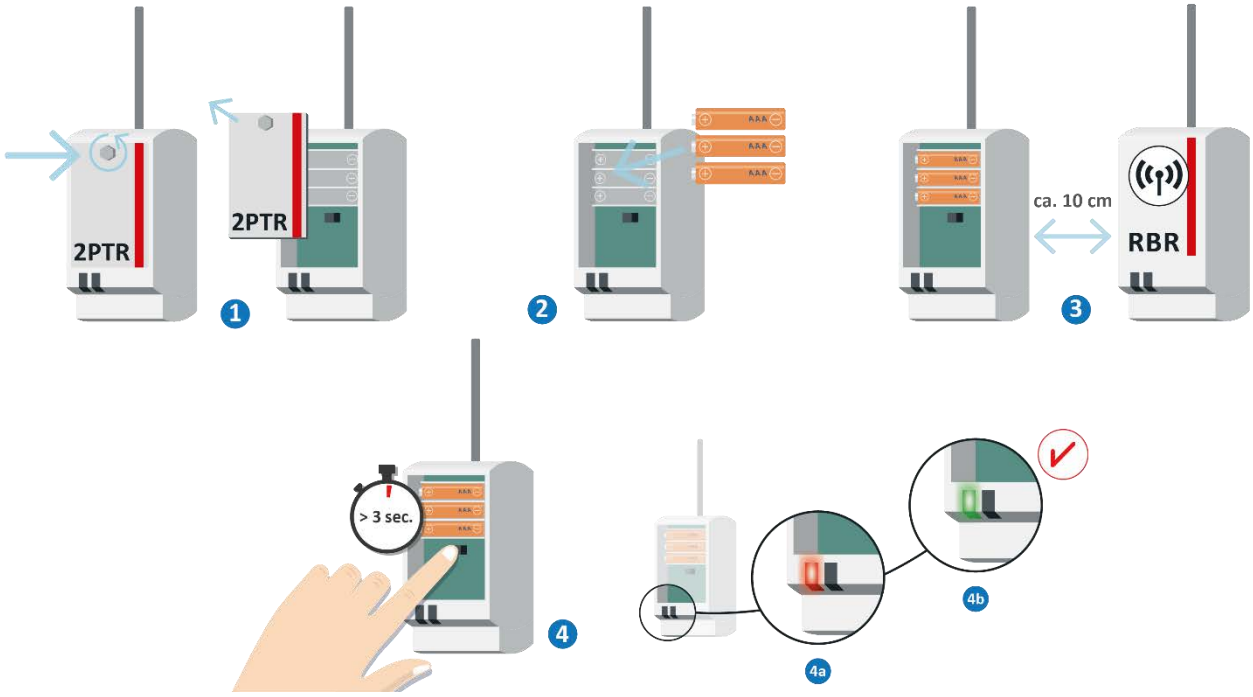
2. Measurement Module ECOLOG-PRO 2PTR

Functional characteristics:
ECOLOG-PRO 2PTR is a measurement module with two external temperature sensors. Communication from this module with the ECOLOG-PRO RBR is via radio signal.

Power supply	3 AA Alkaline batteries SAFETY INSTRUCTIONS! Improper use or misuse of batteries may result in leakage of battery fluid or, in the worst case, explosion and/or fire. Please note: ▪ Always choose the correct type of battery that best suits your intended use (see 'Measurement range'). ▪ So that battery status can be determined correctly, always insert new, unused batteries when changing batteries. ▪ Never insert different types of batteries into the device at the same time. ▪ All batteries should be replaced at the same time. Mixing old and new batteries may cause the batteries to leak and damage the product. ▪ Make sure that the battery contacts and mating contacts in the device are clean before inserting the batteries. ▪ Make sure that the batteries are inserted properly i.e. observe polarity (+ and -). ▪ Remove the batteries if you are not going to use the product for a longer period of time to avoid damage from leakage. Leaking or damaged batteries can cause acid burns on skin contact. When handling damaged batteries, you should wear protective gloves. ▪ Remove expired batteries immediately from the device. ▪ Do not disassemble batteries, do not short-circuit them and do not throw them into fire. Never try to charge non-rechargeable batteries. There is a danger of explosion! ▪ Keep batteries out of reach of children. Do not leave batteries lying around as they may be swallowed by children or pets.
Battery life	14 months (provided that the module's radio connection is stable and that the defined temperature range (see below) is maintained)
Case / Dimensions	ABS plastic material; 137 mm (5.39 inch) x 70 mm (2.76 inch) x 57 mm (2.24 inch)
Measurement range	-200 °C..+200 °C
Measurement resolution	0.1 °C
Measurement accuracy	±0.2 °C
Logging and communication interval	1, 2, 3, 5, 10, 15, 20, 30, 60 minutes; user programmable via software NOTE: Logging interval will impact battery life
Channels	2 independent temperature channels with separately connected sensors
Probe type	External 4-wire Pt100 probe

Probe connection	Standard probe: Pt100 temperature sensor, 3m cable, no shielding Extension: maximum 17 meters, no shielding
Memory capacity	43'000 measurement values
Environmental storage temperature / humidity	-10 °C..+50 °C 10 %RH..90 %RH, non-condensing
Environmental operating temperature / humidity	0 °C..+40 °C 10 %RH..90 %RH, non-condensing
Operating altitude	This device must not be used at altitudes higher than 2000 meters above sea level.
ID number	"Q" followed by a 6-digit number; the ID number is used to identify the module in the software.
Radio connection to communication module	Available in two versions: 868 MHz (Europe) or 915 MHz (US) Note: Only the supplied antenna may be used.
Left LED (Link):	Red flashing light (10s flashing interval): ECOLOG-PRO 2PTR is active but is not connected to a communication module ECOLOG-PRO RBR. Yellow flashing light (1s flashing interval): ECOLOG-PRO 2PTR is currently receiving its registration information. Please wait for green light. Green flashing light (10s flashing interval): ECOLOG-PRO 2PTR is active and connected to a communication module ECOLOG-PRO RBR. Everything is OK. Yellow flashing light (10s flashing interval): ECOLOG-PRO 2PTR is active but registration was not successful and has to be started again by pressing the pairing button shorty (for less than 1s).
Right LED (Data):	Red flashing light (10s flashing interval): Measurement on one or both channels has started. There are one or more failures in measurement. Green flashing light (10s flashing interval): Measurement on one or both channels has started. Everything is OK.

How to connect



When using the software ELPRO Cloud: Make sure that you have defined the sensor's settings in the software and that the sensor configuration shows the image displayed above. This gives you a 10 minutes time frame to connect your module via the following steps:

1. Remove the screw on the front and open the measurement module's cover.
2. Insert the three AA batteries.
3. Bring the measurement module ECOLOG-PRO 2PTR in close proximity (approximately 10 cm) to an ECOLOG-PRO RBR connected to the monitoring software.
4. Press and hold the "Connect" button inside the measurement module for more than 3 seconds. The left LED will blink red 3 times.
    4a. Wait until the left LED starts flashing red (once per second).
    4b. A successful connection will be indicated by the left LED illuminating in green for 10 seconds. Afterwards, the left LED will be flashing green every 10 seconds.
5. Close the communication module's cover and tighten the screw. Place the module in its intended location (e.g. storage room, next to your ultra-freezer or cryo container, etc.).

When using the software elproMONITOR: You can connect the sensor to the communication module before or after parameterization in elproMONITOR. The monitoring software suggests already connected measuring modules or saves the data of parameterized measuring modules until the connection is made.

3. Measurement Module ECOLOG-PRO 1THR

front view

bottom view

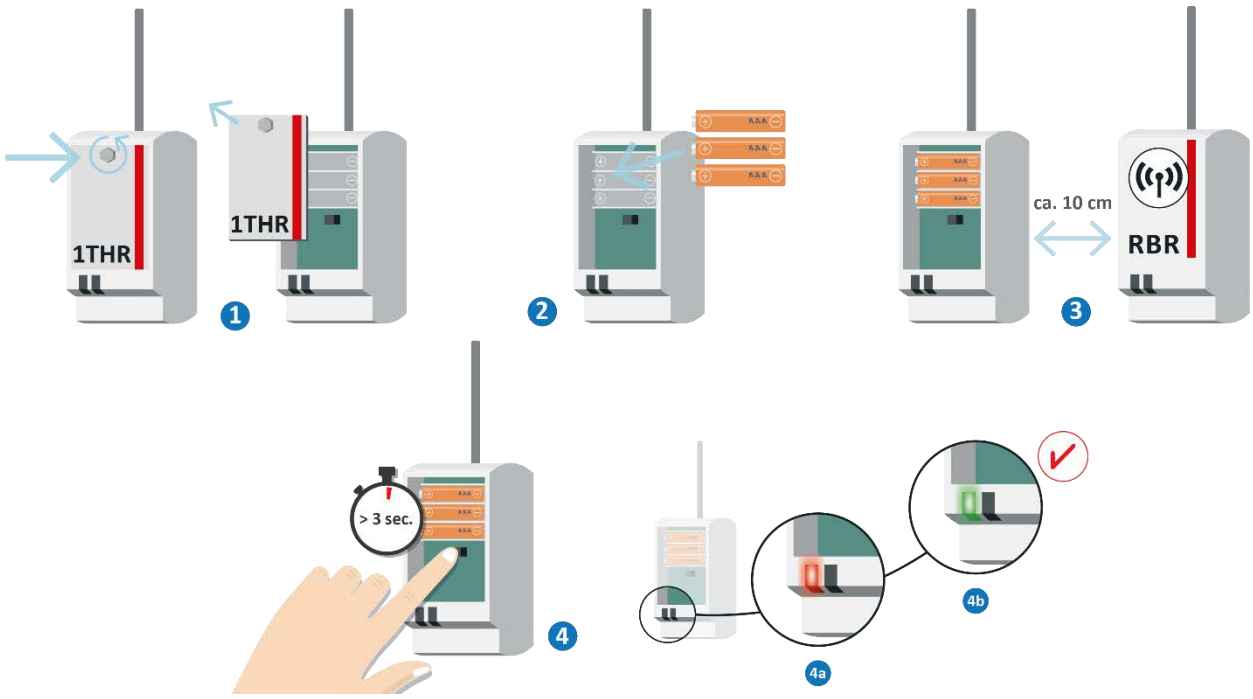
Functional characteristics:

ECOLOG-PRO 1THR is a measurement module with one external combination probe for temperature and relative humidity. Communication from this module with the ECOLOG-PRO RBR is via radio signal.

Power supply	3 AA Alkaline batteries SAFETY INSTRUCTIONS! Improper use or misuse of batteries may result in leakage of battery fluid or, in the worst case, explosion and/or fire. Please note: ▪ Always choose the correct type of battery that best suits your intended use (see 'Measurement range'). ▪ So that battery status can be determined correctly, always insert new, unused batteries when changing batteries. ▪ Never insert different types of batteries into the device at the same time. ▪ All batteries should be replaced at the same time. Mixing old and new batteries may cause the batteries to leak and damage the product. ▪ Make sure that the battery contacts and mating contacts in the device are clean before inserting the batteries. ▪ Make sure that the batteries are inserted properly i.e. observe polarity (+ and -). ▪ Remove the batteries if you are not going to use the product for a longer period of time to avoid damage from leakage. Leaking or damaged batteries can cause acid burns on skin contact. When handling damaged batteries, you should wear protective gloves. ▪ Remove expired batteries immediately from the device. ▪ Do not disassemble batteries, do not short-circuit them and do not throw them into fire. Never try to charge non-rechargeable batteries. There is a danger of explosion! Keep batteries out of reach of children. Do not leave batteries lying around as they may be swallowed by children or pets.
Battery life	14 months (provided that the module's radio connection is stable and that the defined temperature range (see below) is maintained)

Case / Dimensions	ABS plastic material; 137 mm (5.39 inch) x 70 mm (2.76 inch) x 57 mm (2.24 inch)
Measurement range and accuracy	⇨ Sensor data (page 11)
Measurement resolution	0.1 °C
Logging and communication interval	1, 2, 3, 5, 10, 15, 20, 30, 60 minutes; user programmable via software NOTE: Logging interval will impact battery life
Channels	2 channels (1x temperature / 1x humidity)
Probe type	Digital probe
Probe connection	Digital 3-PIN combination probe Extension: maximum 10 meter cable, no shielding
Memory capacity	43'000 measurement values
Environmental storage temperature / humidity	-10 °C..+50 °C 10 %RH..90 %RH, non-condensing
Environmental operating temperature / humidity	0 °C..+40 °C 10 %RH..90 %RH, non-condensing
Operating altitude	This device must not be used at altitudes higher than 2000 meters above sea level.
ID number	"R" followed by a 6-digit number; the ID number is used to identify the module in the software.
Radio connection to communication module	Available in two versions: 868 MHz (Europe) or 915 MHz (US) Note: Only the supplied antenna may be used.
Left LED (Link):	Red flashing light (10s flashing interval): ECOLOG-PRO 1THR is active but is not connected to a communication module ECOLOG-PRO RBR. Yellow flashing light (1s flashing interval): ECOLOG-PRO 1THR is currently receiving its registration information. Please wait for green light. Green flashing light (10s flashing interval): ECOLOG-PRO 1THR is active and connected to a communication module ECOLOG-PRO RBR. Everything is OK. Yellow flashing light (10s flashing interval): ECOLOG-PRO 1THR is active but registration was not successful and must be restarted by pressing the pairing button shorty (for less than 1s).
Right LED (Data):	Red flashing light (10s flashing interval): Measurement on one or both channels has started. There are one or more failures in measurement. Green flashing light (10s flashing interval): Measurement on one or both channels has started. Everything is OK.

How to connect



When using the software ELPRO Cloud: Make sure that you have defined the sensor's settings in the software and that the sensor configuration shows the image displayed above. This gives you a 10 minutes time frame to connect your module via the following steps:

1. Remove the screw on the front and open the measurement module's cover.
2. Insert the three AA batteries.
3. Bring the measurement module ECOLOG-PRO 1THR in close proximity (approximately 10 cm) to an ECOLOG-PRO RBR connected to the monitoring software.
4. Press and hold the "Connect" button inside the measurement module for more than 3 seconds. The left LED will blink red 3 times.
    4a. Wait until the left LED starts flashing red (once per second).
    4b. A successful connection will be indicated by the left LED illuminating in green for 10 seconds. Afterwards, the left LED will be flashing green every 10 seconds.
5. Close the communication module's cover and tighten the screw. Place the module in its intended location (e.g. laboratory, storage room, etc.).

When using the software elproMONITOR: You can connect the sensor to the communication module before or after parameterization in elproMONITOR. The monitoring software suggests already connected measuring modules or saves the data of parameterized measuring modules until the connection is made.

Sensor data

Dimensional view of the two variants: temperature / humidity sensor

Part. No. 802209

Temperature & humidity sensor, capacitive

This sensor is designed to monitor storage rooms, laboratories or for general room-climate monitoring.

Specifications

Measurement range	Humidity: 20 %RH..80 %RH Temperature: -20 °C..80 °C	
Humidity accuracy	15.0 °C..30.0 °C	±2.0 %RH
Temperature accuracy	65.0 °C..80.0 °C	±0.5 C
	0.0 °C..64.9 °C	±0.3 C
	-20.0 °C..-0.1 °C	±0.5 C
Drift Humidity sensor	Typically 3 %RH / year	

Part. No. 802363

Temperature & humidity sensor, electrolytic

This sensor is designed for:

- Environments with aggressive gases at high temperature and air humidity (stability chambers, incubators)
- Low-temperature environments (refrigerator)
- High-precision measurements of ±0.5 %RH

Specifications

Measurement range	Humidity: 0 %RH..100 %RH Temperature: -20 °C..80 °C	
Humidity accuracy	50.0 °C..80.0 °C	±2.5 %RH
	30.0 °C..49.9 °C	±0.8 %RH
	15.0 °C..29.9 °C	±0.4 %RH
	0.0 °C..14.9 °C	±0.8 %RH
	-20.0 °C..-0.1 °C	±2.5 %RH
Temperature accuracy	65.0 °C..80.0 °C	±0.2 C
	0.0 °C..64.9 °C	±0.1 C
	-20.0 °C..-0.1 °C	±0.2 C
Drift Humidity sensor	Typically < 1 %RH / year	

4. Disposal

a) Product

Electronic devices are recyclable and do not belong in the household waste. Dispose of the product at the end of its service life in accordance with applicable laws. Remove any batteries and dispose of them separately from the product.

b) Batteries

You are legally obliged to dispose of all used batteries according to applicable laws; disposal via household waste is prohibited. Batteries categorized as containing hazardous material are marked with the adjacent symbol, under which is printed the chemical symbol for the heavy metal (Cd = cadmium, Hg = mercury, Pb = lead) used. You can dispose of used batteries at collection points in your local community. Please help protect our environment and dispose of batteries properly.

5. Declaration of Conformity

EU Konformitätserklärung
Déclaration UE de conformité
EU Declaration of conformity

Hersteller | Fabricant | Manufacturer	**ELPRO-BUCHS AG**
Adresse | Adresse postale | Postal address	**Langäulistrasse 45**
PLZ | Code postal | Postcode	**9470**
Stadt | Ville | City	**Buchs**
Land | Pays | Country	**Schweiz** | Suisse | Switzerland
Telefon | Téléphone | Phone	**T +41 81 552 08 08**
E-Mail | E-mail | E-mail	**swiss@elpro.com**

Produktname | Nom du produit | Product name	**ECOLOG-PRO 2PTR 868**
Produkt Nr. | No de produit | Product no.	**801427**

Beschreibung | Description | Description:

Das Modul ECOLOG-PRO 2PTR ist ein batteriebetriebenes Funk-Messmodul für zwei Pt100-Temperaturfühler. | Le module ECOLOG-PRO 2PTR est un module de mesure radio alimenté par batterie pour deux sondes de température Pt100. | The ECOLOG-PRO 2PTR module is a battery-operated radio measuring module for two Pt100 temperature sensors.

Der oben beschriebene Gegenstand der Erklärung erfüllt die einschlägigen Harmonisierungsrechtsvorschriften der Union. | L'objet de la déclaration décrit ci-dessus est conforme à la législation d'harmonisation de l'Union applicable. | The object of the declaration described above is in conformity with the relevant Union harmonisation legislation:

Funkanlagen Richtlinie 2014/53/EU | Directive sur l'équipement radio 2014/53/UE |Radio Equipment Directive 2014/53/EU
RoHS - Richtlinie 2011/65/EU | Directive RoHS 2011/65/UE | RoHS Directive 2011/65/EU

Harmonisierte Normen und Spezifikationen | Normes harmonisées et spécifications | Harmonized standards and specifications:

EMV | Compatibilité électromagnétique | Electromagnetic compatibility	EN 301 489-1 V2.1.1: 2017 EN 301 489-3 V1.6.1: 2013 EN 61326-1: 2013
Funk | Radio | Radio	EN 300 220-2 V3.1.1: 2017
Elektrische Sicherheit | Sécurité électrique | Electrical safety	EN 62368-1: 2014
Elektrische und magnetische Felder | Champs électriques et magnétiques | electrical and magnetic fields	EN 62479: 2010

Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller. | La présente déclaration de conformité est établie sous la seule responsabilité du fabricant. | This declaration of conformity is issued under the sole responsibility of the manufacturer.

Zubehör für den bestimmungsgemässen Betrieb | Accessoires pour l'usage prévu | Accessories for the intended use:

Antennentyp | Type d'antenne | Antenna type	ANT-868-CW-HW
Antennenhersteller | Fabricant d'antennes | Antenna manufacturer	Linx Technologies

Buchs, den 17. Dezember 2019
Buchs, le 17 décembre 2019
Buchs, December 17th, 2019

ELPRO-BUCHS AG
Dirk Neumann
Leiter der Entwicklung
Chef du développement
Head of Development

we prove it

CE

EU Konformitätserklärung
Déclaration UE de conformité
EU Declaration of conformity

Hersteller | Fabricant | Manufacturer	**ELPRO-BUCHS AG**
Adresse | Adresse postale | Postal address	**Langäulistrasse 45**
PLZ | Code postal | Postcode	**9470**
Stadt | Ville | City	**Buchs**
Land | Pays | Country	**Schweiz** | Suisse | Switzerland
Telefon | Téléphone | Phone	**T +41 81 552 08 08**
E-Mail | E-mail | E-mail	**swiss@elpro.com**

Produktname | Nom du produit | Product name	**ECOLOG-PRO 1THR 868MHz**
Produkt Nr. | No de produit | Product no.	**802268**

Beschreibung | Description | Description:

Das Modul ECOLOG-PRO 1THR ist ein batteriebetriebenes Funk-Messmodul für Temperatur und relative Luftfeuchtigkeit. | Le module ECOLOG-PRO 1THR est un module de mesure radio alimenté par batterie pour la température et l'humidité relative. | The ECOLOG-PRO 1THR module is a battery-operated radio measuring module for temperature and relative humidity.

Der oben beschriebene Gegenstand der Erklärung erfüllt die einschlägigen Harmonisierungsrechtsvorschriften der Union. | L'objet de la déclaration décrit ci-dessus est conforme à la législation d'harmonisation de l'Union applicable. | The object of the declaration described above is in conformity with the relevant Union harmonisation legislation:

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CE

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