HEINRICH KIPP WERK

USER MANUAL

Universal transmitter

Status: 13.03.2023

1. Introduction

1.1. General

Please read these operating instructions carefully before using the universal transmitter K1831.01.

These operating instructions provide important information on the use of the device. A prerequisite for safe working is the observance of all specified safety and handling instructions.

The relevant regional accident prevention and general safety regulations for the area where the device is used must be observed.

These operating instructions are an integral part of the product and must be kept accessible to qualified personnel at all times.

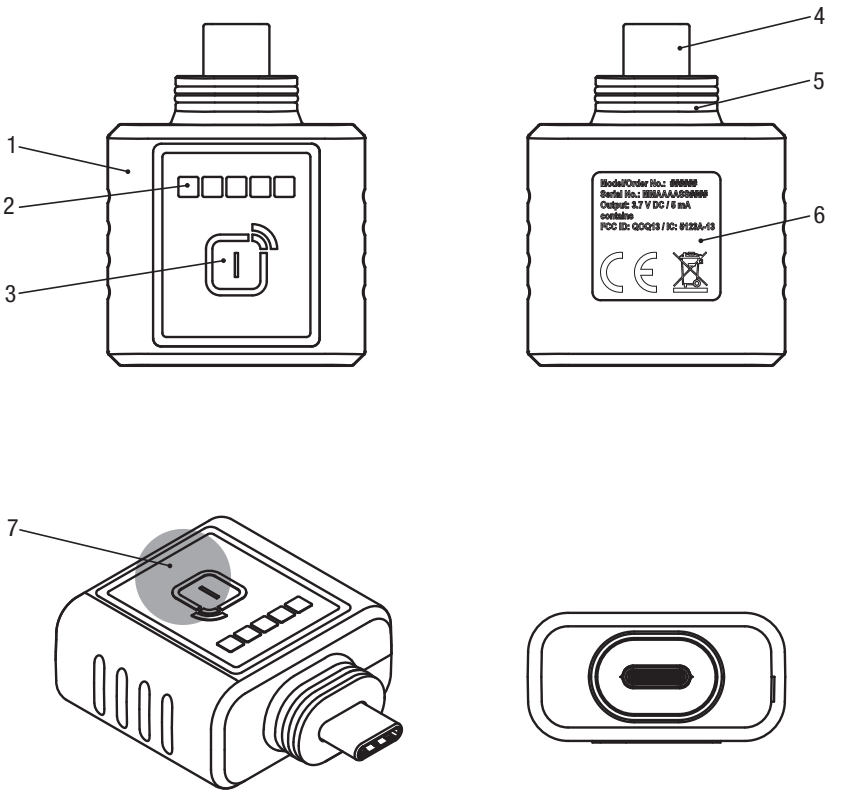
The general terms and conditions in the sales documents apply.

The use of the universal transmitter is the responsibility of the user.
NORELEM SAS is under no circumstances responsible for any kind of damage, however caused.

Subject to technical changes.

2. Design and function

2.1. Overview



1. Housing
2. LED Barograph
3. Button
4. USB-Type C connecting interface
5. Connector seal
6. Type plate
7. NFC tapping area

2.2. Description

Universal transmitters are used in combination with SMART Products. When plugging a universal transmitter on a SMART Product, the SMART Product is powered, and the sensor status can be read electronically and further processed.
Universal transmitters are inactive when not used in combination with SMART Products.

The sensor status can be read on the LED barograph or with a mobile terminal via an NFC application.

The sensor status can be transmitted wirelessly via Bluetooth to a mobile terminal or the Gateway K1794.

The combination of universal transmitter associated to a SMART Product and Gateway is used for further processing of the signal, e.g. in a machine control system.

The universal transmitter is powered by an integrated Li-ion Polymer battery which can be charged when necessary.

A universal transmitter is neutral to a SMART Product, any universal transmitter can be replaced by another one at any time without reconfiguration.

The button allows different interactions with the universal transmitter and/or the Smart product associated that will be described in the section Technical data.

2.3. Package content

1. Universal transmitter
2. Charging cable
3. User manual
4. Packaging

3. Safety and warning notes

3.1. Explanation of symbols

WARNING!

… indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

TAKE CARE!

… indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or damage to property and the environment.

INFO!

… highlights useful tips, recommendations and information for efficient and trouble-free operation.

3.2. Appropriate use

Universal transmitters are for powering and reading SMART Products. They detect their sensor status and display an instant reading to operator and/or transmit it wirelessly to a receiver.

The trouble-free function and operational safety can only be guaranteed if the information in this operating manual is observed. During use, the legal and safety regulations required for the respective application must also be observed. This also applies analogously to the use of accessories.

Universal transmitters are not intended for safety relevant functions.
Correct and safe operation of the device requires proper transport, storage, installation and mounting, as well as careful operation and maintenance.

The device is designed and constructed exclusively for the intended use described here and may only be used in accordance with this. The technical specifications in this manual must be observed.

Improper handling or operation of the equipment beyond the technical specifications may cause damage and malfunction.

3.3. Operator responsibility

The device is intended for use in the commercial sector. The operator is therefore subject to the legal obligations for industrial safety.

The safety instructions in this user manual as well as the safety, accident prevention and environmental regulations valid for the application area of the device must be observed.

To work safely with the device, the operator must ensure:

- that the qualified electricians are regularly instructed in all applicable questions of work safety, first aid and environmental protection, and that they are familiar with the operating instructions and especially the safety instructions contained therein.
- that the device is suitable for the intended use

3.4. Personnel qualifications

WARNING!
Risk of injury in the event of inadequate qualifications
Improper handling can lead to serious personal injury and property damage.

- The activities described in this operating manual may only be carried out by qualified personnel with the following qualifications.

Qualified electricians

Due to their technical training, knowledge and experience as well as their knowledge of country-specific regulations, applicable standards and directives, qualified electricians are able to carry out work on electrical installations and to independently identify and avoid possible hazards.

Qualified electricians are specially trained for the working environment in which they operate and know the relevant standards and regulations.

Qualified electricians must comply with the provisions of the applicable statutory accident prevention regulations.

Maintenance staff / service personnel

The maintenance and service personnel are authorized and instructed in the operation, maintenance and repair of the product. They may carry out service measures such as connector seal replacement.

Operating personnel

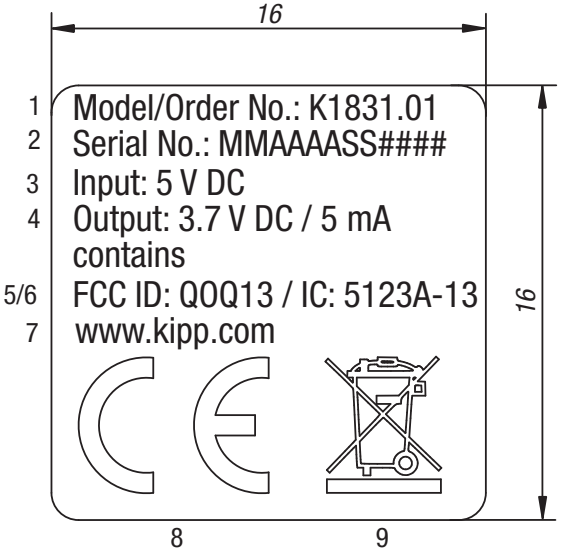
The operating personnel must never carry out any work on the universal transmitter unless they are qualified electricians or service personnel. The permitted activity of the operating personnel consists of manually operating the universal transmitter for production purposes and monitoring its function or recharge its battery.

3.5. Personal protective equipment

Requirements for the necessary protective equipment result from the environmental and application conditions at the place of use, other products, or their combination with other products.

3.6. Type plate, safety markings

The type plate is situated on the bottom face.



1. Model / Material number
2. Serial number
3. Input voltage
4. Output voltage and nominal current
5. FCC ID
6. IC number
7. Manufacturers website
8. CE marking
9. DEEE marking

4. Transport, Packaging and Storage

4.1. Transport

Inspect the universal transmitter and the supplied accessories for any damage caused during transport before use. Report any obvious damage immediately.

TAKE CARE!
Damage due to improper transport

- When unloading the packages upon delivery and during internal transport, proceed with care and observe the symbols on the packaging.
- For internal transport, follow the instructions in the section “Packaging and Storage”.

The universal transmitter requires careful handling. Hard impacts to the device during transport can cause permanent damage.

4.2. Packaging and Storage

The packaging offers optimum protection for the device. Do not remove the universal transmitter from the packaging until immediately before installation. It is also recommended to keep the packaging for e.g. location changes or repair shipments.
The permissible ambient conditions can be found in the section Technical Data.

WARNING!
Damage due to improper storage

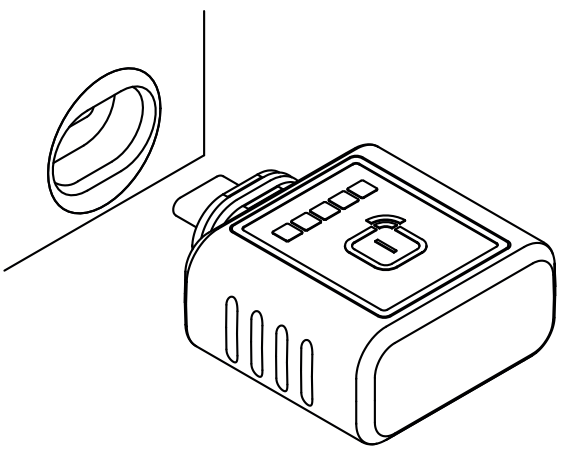
Maintain the battery in a very high temperature environment may cause an explosion or leakage of flammable liquid or gases.

Battery subjected to extremely low air pressure which may cause explosion or leakage of flammable liquid or gases.

5. Commissioning, Operation

5.1. Installation

The universal transmitter can be plugged into any kind of SMART Product providing a connector adapted by pressing in the USB Type-C. USB Type-C is reversible so there is no wrong sense to plug-in



Further information can be found in the respective data sheets.

5.2. Energy management

The universal transmitter has an intelligent energy management system to increase battery life.

A distinction is made between three operating modes:

1. Inactive mode
   Universal transmitter is unplugged from SMART Product. It is turned off and all device functions are inactive. Energy consumption is null.

2. Visual mode
   Universal transmitter is plugged into a SMART Product. It is automatically turned on and all device functions are active except for radio communication. Energy consumption is minimal.

3. Wireless mode
   By establishing the operating status, the device is switched from the visual mode to the wireless mode.

If the universal transmitter is connected to a receiver, such as a Gateway, the wireless mode remains permanently active. If the universal transmitter is not connected to a receiver, the device switches back to the visual mode after 30 seconds.

5.3. Commissioning

5.3.1. Establishing the sensor visual control

To visualize SMART Product sensor status with universal transmitter, proceed as follows:

1. Plug in the universal transmitter into a SMART Product
   ➔ The SMART Product sensor and universal transmitter are active.

2. Press the button to establish the sensor status reading on LEDs barograph.
   ➔ A second press will switch off LEDs barograph.

5.3.2. Establishing the sensor NFC control

To read a SMART Product sensor status with universal transmitter and NFC reading device, proceed as follows:

1. Plug in the universal transmitter into a SMART Product
    ➔ The SMART Product sensor and universal transmitter are active.

2. Tap the NFC area with an NFC reading device and norelem application.

5.3.3. Establishing the radio link

To link a SMART Product in combination with a universal transmitter to a receiver (pairing), proceed as follows:

1. Plug in the universal transmitter into a SMART Product

2. Press the button more than 5 seconds to establish the wireless status.

3. The LEDs on the universal transmitter begins to blink (2x per second)
    ➔ The device sends a signal and attempts to link with a receiver.

4. The link must be confirmed at the receiver.
    ➔ When the link is established and confirmed at the receiver, the green LEDs blink three times and go out.

5. Immediately after link is established, the actuation status is teached and transmitted to the receiver.

INFO!
Ensure clear identification

For clear identification, make sure that only the SMART product and universal transmitter to be linked are in pairing mode (blinking LEDs).

5.3.4. Disconnecting the radio link

The universal transmitter does not have its own disconnecting device.
The radio link is always disconnected at the receiver end. The procedure can be found in the respective operating instructions.

INFO!
Disconnecting linked devices

If linked receivers are not disconnected, the secure link prevents the SMART Product being reconnected to another receiver. If it is not possible to disconnect the receiver e.g. due to a defect, this can be done by unplug the universal transmitter from the SMART Product.

5.4. Operation

5.4.1. Visual control

A short press on the universal transmitter button active or inactive the LED barograph for sensor visual control.

5.4.2. NFC control

Some SMART Product parameters (e.g. LED barograph activation time) can be configured via NFC norelem application. Follow the instructions from application.

5.4.3. Radio link

After successful commissioning, the linked universal transmitter sends the product status and the battery charge level to the receiver at a transmission rate of 10 1/s.

INFO!

Secure radio communication

The communication between the universal transmitter and the Gateway receiver is encrypted.

5.4.4. Recharging battery

Universal transmitter must be disconnected from SMART Product and plugged on an appropriate charging cable. Recharging requirements are specified in the section Technical data or one the type plate.

Battery life is about 120 hours and 500 cycle charging/discharging.
A high number of actuations, temperature fluctuations or other external influences can reduce the battery life.

A battery recharging required is indicated by slow blinking of the red LEDs (1x per second).

If a Gateway K1794 is used, a required battery recharging is also indicated on the Gateway.

INFO!

Universal transmitter interchangeable

A universal transmitter is neutral to a SMART Product and can be replaced by another one at any time without reconfiguration. Only the radio link needs to be reestablished.

6. Care and maintenance

6.1. Maintenance / Connector seal replacement

Except for connector seal replacement, the universal transmitter with status sensor is maintenance-free.

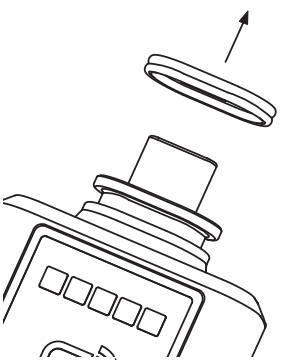
A high number of connection/disconnections, temperature fluctuations or other external influences can reduce the connector seal life.

Spare parts designation for connector seal: K1831.901.

To change the connector seal, proceed as follows:

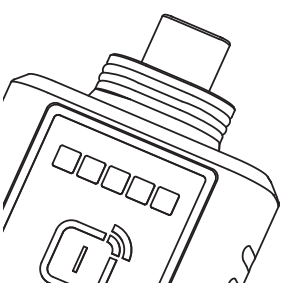
1. Remove any dirt from the connector

2. Remove the old connector seal



A plastic pointed object can be used to do this.

3. Set up the new connector seal



TAKE CARE!

Damage due to incorrectly placed connector seal

The connector seal must be set up without any twisting to ensure proper IP protection.

6.2. Cleaning

The universal transmitter can be cleaned with a dry cloth.

7. Dismantling, Returning, Disposal

7.1. Dismantling

1. Disconnect the universal transmitter from the linked receiver

2. Disconnect the universal transmitter from the SMART Product

7.2. Returning

When shipping the device, please note the following:

All equipment sent to NORELEM SAS must be free of hazardous substances (acids, alkalis, solutions, etc.) and must therefore be cleaned before returning.

It is recommended that the original packaging be used when returning the device. Alternative suitable transport packaging may be used.

Please consult your contact person before returning the goods. The address for returning goods can be found in the Service section.

7.3. Disposal

Incorrect disposal can pose risks to the environment. Dispose of equipment components and packaging materials in an environmentally friendly manner in accordance with the country-specific waste treatment and disposal regulations.

Do not dispose of in household waste. Ensure separate disposal according to national regulations.

WARNING!

Damage due to improper disposal

Disposal of battery in a fire or hot oven, or mechanical crushing or cutting of battery, may cause an explosion.

8. Technical data

Power supply		
Battery		Input: 5 Vdc Output: 3.7 Vdc / 5 mA
Battery life		ca. 120 hours per cycle Cycle life (0.5 C5A): carry out 500 cycle charging/discharging
Physical connection		
Type of connector		USB - Type C
Transfer protocol		Proprietary protocol when connected to SMART Product HID protocol when connected to standard peripheric
Wireless transfer		
Transfer protocol		Bluetooth low energy
Transmission frequency	[GHz]	2,4
Range	[m]	about 10
Transfer rate	[1/s]	10
RFID		
Transfer protocol		Near field communication
Transmission frequency	[MHz]	13,56
Read distance	[mm]	ca. 17

Displays / control elements		
LED Barograph		All LEDs blinking (2x per second): operating status established. Green LEDs blinking 3 times: pairing successful. Red LEDs blinking 3 times: pairing failed / unpairing successful. Red LEDs blinking slowly (1x per second): battery needs to be recharged. All LEDs successively blinking: entering configuration mode.
Button		Short press: Active or inactive the LED barograph for sensor visual control. Long press > 2 seconds: Establish the configuration status. Long press > 5 seconds: Establish the operating status.
Environmental conditions		
Application location		For use indoors
Altitude		up to 2000m
Operating temperature	[°C]	0 bis 65

Storage temperature	[°C]	-10 to 65
Maximum relative humidity	[%]	80 (without condensation)
Safety rating		IP64 as defined in DIN EN 60529 when connected to a SMART Product
Mechanical properties		
Weight	[g]	17
Approval / inspections		
Radio licenses		Europe, USA, Canada
Electrical safety		EN 61010-1 / EN 61010-2-201
EMV		EN 301 489-1 / EN 301 489-3 / EN 301 489-17
Wireless		EN 300 328 / EN 300 330
Vibration resistance		EN 60068-2-6
Shock resistance		EN 60068-2-27

Subject to change without notice.

9. Declaration of conformity / Compliance Statements

The Bluetooth module used is certified for the following countries:

Europe	RED 2014/53/EU		
USA	FCC Part 15.247	FCC ID:	QOQ13
Canada	RSS 247	IC:	5123A-13

EC Declaration of Conformity

NORELEM SAS hereby declares that the wireless system type universal transmitter complies with the 2011/65/EU and 2014/53/EU directives.

The full text of the EU Declaration of Conformity is available on our website.

Supplier‘s Declaration of Conformity.

This device complies 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.

product description:	Universal Transmitter
type designation / model:	302045,
product number:	85876-01/K1831.01
Manufacturer:	norelem SAS 5 rue des Libellules FR-10280 Fontaine les Grès

Supplier‘s Declaration of Conformity

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) This device may not interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d‘Industrie Canada applicables aux appareils radio exempts de licence. L‘exploitation est autorisée aux deux conditions suivantes : (1) l‘appareil ne doit pas produire de brouillage, et (2) l‘utilisateur de l‘appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d‘en compromettre le fonctionnement.

product description:	Universal Transmitter
type designation / model:	302045,
product number:	85876-01/K1831.01
Manufacturer:	norelem SAS 5 rue des Libellules FR-10280 Fontaine les Grès

10. Service

NORELEM SAS
5, rue des Libellules
F-10280 FONTAINE LES GRES
Tél. +33 3 25 71 89 30
Fax: +33 3 25 71 89 40
info@norelem.fr
www.norelem.com