

IOM Rev. 1.2.4 Armadex Ex BT-Key-02

ATEX zone 2/22 Explosion Proof Bluetooth Keyboard



Equipment : ATEX zone 2/22 Explosion Proof Bluetooth Keyboard
OEM Manufacturer : Ikey Ltd.

Modified by : Armadex Explosion Protection B.V.
: Tinstraat 33, 2984 AN, Ridderkerk, The Netherlands
: Tel. +31 (0)180 472 880

Date : 03-25-2024

READ THIS DOCUMENT AND ALL DOCUMENTS THAT ARE REFERRED TO BEFORE OPERATION, START-UP OR TESTING OF THE KEYBOARD. THE DOCUMENTS CONTAIN IMPORTANT SAFETY INSTRUCTIONS.

KEEP THESE INSTRUCTIONS AT HAND SO THEY CAN BE REVIEWED LATER ON.

1 INTRODUCTION

1.1 **Thank you for purchasing the Armadex Ex BT-Key-02**

Thank you for purchasing the Armadex Ex BT-Key-02. It can be connected via Bluetooth® to any Windows or Android system. The Ex BT-Key-02 is based on a product of OEM Ikey Ltd. It is suitable for use in ATEX zones 2 (Category 3G) and 22 (Category 3D).

If you have any questions about our product, Armadex will be happy to assist you. Contact details: www.armadex.com or info@armadex.com

Address Europe: Armadex Explosion Protection B.V., Tinststraat 33, 2984 AN Ridderkerk, The Netherlands. Phone: +31 180 472880.

Address UK: Armadex Explosion Safety Ltd., 7 Albert Street, Aberdeen AB25 1XX, Scotland, UK. Phone: +44 1224 679258

1.2 **Notes on the IOM Manual**

The subject of this IOM Manual is the explosion proof Keyboard Ex BT-Key-02. This guide contains important safety notes, requirements, and measures for a safe use of Ex BT-Key-02 in ATEX zone 2 and 22

On the EU and UKCA declaration of conformity, an (X) is included in the document number, which means that special conditions apply. These special conditions are described in this document and are marked with an (X) sign.

1.3 **Symbols and labels used in this manual**



This label indicates an important safety warning. Ignoring these labels may cause an explosion hazard. Please review this document and all related documents prior to operating, initializing, or testing the system. These documents include critical safety guidelines.

2 SAFE OPERATION

2.1 **General**

Each individual using the Ex BT-Key-02 must thoroughly read and comprehend this manual prior to operating the keyboard. Familiarity with and comprehension of the manual's contents are essential for ensuring the safety of personnel against explosion hazards, avoiding improper usage, and ensuring safe and correct operation. It is mandatory to pay attention to all ideograms, symbols, signs, and markings on the keyboard and keep them clear and easy to read.

2.2 **Qualification of personnel**

The Ex BT-Key-02 should only be operated by individuals who are skilled and have sufficient understanding of explosion safety and the hazardous area classification of the plant or factory. The required minimum expertise is a basic level of knowledge, akin to what is outlined in the objectives of IECEx 005-001 or similar standards.

2.3 **Intended use**

The Ex BT-Key-02 is a Bluetooth® keyboard compatible with Windows and Android, suitable for ATEX zones 2 and 22. It uses a rechargeable battery that must be charged outside hazardous areas. It is meant for operation in a fixed position, on a desk or VESA mount for instance. It is *not* intended for portable use.



Only use the Ex BT-Key-02 keyboard in ATEX zone 2 or 22.

2.4 **Preventing unsafe operation**

Remarks on how to prevent unsafe operation of the keyboard are listed below.



The battery may only be charged in non-hazardous areas. The Micro USB Data cable may only be (dis)connected inside non-hazardous areas. The user must ensure that the area is non-hazardous.



If the Ex BT-Key-02 keyboard is dropped from over 1 meter or suffers any impact resulting in visible damage, it can no longer be deemed explosion-proof and should no longer be used in hazardous areas.



(X) The Ex BT-Key-02 has a non-metallic casing. The surface resistance of the non-metallic casing is greater than $10^9 \Omega/\text{Square}$. A warning is attached to the casing, drawing attention to the risk of electrostatic charge.

All individuals working with the Ex BT-Key-02 must report any and all alterations to the keyboard that may affect safety to the owner without delay.

2.5 Foreseeable misuse

To avoid foreseeable misuse of the Ex BT-Key-02, clear instructions should be given. The following are instances of what is considered foreseeable misuse.



Under NO circumstances may the Ex BT-Key-02 keyboard be used in ATEX zone 0. For example, the inside of a tanker wagon. Zone 0 areas are not limited to this example.

Under NO circumstances may the Ex BT-Key-02 keyboard be used in ATEX zone 1. For example, the direct vicinity of a pump or hose connection. Zone 1 areas are not limited to this example.



Under NO circumstance may the Ex BT-Key-02 keyboard be used in ATEX zone 20. For example, inside a silo. Zone 20 situations are not limited to this example.

Under NO circumstances may the Ex BT-Key-02 keyboard be used in ATEX zone 21. For example, the direct vicinity of a belt conveyor transfer point. Zone 21 areas are not limited to this example.



Under NO circumstance may the keyboard be carried by a person while it is in operation. It is not intended for portable use

2.6 Prohibited modifications of the Keyboard

Repair, maintenance and/or modification of the keyboard shall only be conducted by Armadex Explosion Protection B.V. or by a repair company qualified or authorized by Armadex Explosion Protection B.V. The battery may not be replaced. Do not open the keyboard







Do not open the keyboard. The equipment provided by Armadex, including the unit itself, should not undergo any modifications. Altering the equipment will invalidate its ATEX EU Declaration or UKEX Conformity. This unit is not designed with parts that can be serviced and must be entirely replaced when it reaches the end of its technical service life.

3 IMPORTANT NOTES BEFORE USE

3.1 Inspection of the delivery

Open the keyboard packaging and inspect for any damages. If you find any damage, do not use the keyboard and promptly contact both the shipping company and the seller.

Inspect the ATEX label (see below) on the backside of the keyboard and check if it suitable for the hazardous area it is planned to be used in. Check the equipment category, gas- and dust group, temperature and temperature class. Check if the special conditions are met.

 ARMADEX	
Armadex Explosion Protection B.V. www.armadex.com Tinststraat 33, 2984 AN, Ridderkerk, The Netherlands	
Armadex Explosion Safety Ltd. www.armadex.com 7 Albert Street, Aberdeen AB25 1XX, Scotland, UK	
Model	Armadex Ex BT-Key-02
Rechargeable Battery Supply	3.7 VDC, capacity 3,000 mAh Rated discharge current 30 mA
Year	2024
Serial	AM-X.....
OEM Serial	IKEY.....
  	II 3G Ex ic IIC T6 Gc II 3D Ex ic IIIB T85°C Dc KSCP 24ATEX0009X
IECEX	Ex ic IIC T6 Gc Ex ic IIIB T85°C Dc IECEX KSCP 24.0011X
WARNING – POTENTIAL ELECTROSTATIC CHARGING HAZARD – SEE INSTRUCTIONS WARNING – DO NOT CHARGE THE BATTERY IN THE HAZARDOUS AREA – SEE INSTRUCTIONS	
<small>FCC ID: XA9-BT-870-TP 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 that may cause undesired operation</small>	

3.2 Special Conditions ATEX / IECEx

The following special conditions apply:

(X) i. The product shall only be charged using a charger specifically supplied for use with the unit, approved as SELV or Class 2 equipment against IEC 62368-1 or an equivalent standard.

(X) ii. Battery shall be charged in a non-hazardous location only.

(X) iii. **WARNING – POTENTIAL ELECTROSTATIC CHARGING HAZARD –**
 Under certain extreme circumstances, the non-metallic parts incorporated in the enclosure of this equipment may generate an ignition-capable level of electrostatic charge. Therefore, the equipment shall not be installed in a location where the external conditions are conducive to the build-up of electrostatic charge on such surfaces. In addition, the equipment shall only be cleaned with a damp cloth.

4 TECHNICAL SPECIFICATIONS

The Keyboard is modified to ATEX Zone 2/22 by applying various explosion protection methods, these can be found in the (EU/UKEX) Declaration of Conformity. Harmonised standards of the ATEX EU directive 2014/34/EU and UKCA Statutory Instruments 2016 No. 1107 are applied to realise these explosion protection methods. The applied harmonised standards can be found on the EU / UKCA declaration of conformity in chapter 8.

Model Number: BT-Key-02
Compatibility: All Windows Operating Systems and Android
Dimensions: 7.75" x 11.58" x 0.71..2.03" (197 mm x 305 mm x 18..52 mm)
Weight: 1.2 +/- 0.10 lbs (0.54 +/- 0.05kg)
Power: Rechargeable Lithium Ion Battery, 3000 mAh, 3.7 VDC, 30 mA

EU Directive: 2014/34/EU (ATEX 114)
UKCA: 2016 No. 1107
ATEX Marking Gas: II 3G Ex ic IIC T6 Gc
ATEX Marking Dust: II 3D Ex ic IIIB T85°C Dc
ATEX Zones: 2 & 22
Applied standards: EN 60079-0:2018, EN 60079-11:2012, IEC 60079-11:2023

Key Switch: Industrial Silicone Rubber LIFE: Greater than 10 million cycles.
Key Actuation: 7.05 oz +/- 1.06 oz (200g +/- 30g)
Feedback: Tactile with Mechanical Snap

Storage Temp.: -40F to +158F (-40°C to +70°C)
Operating Temp.: 32F to +140F (0°C to +60°C)
Humidity: 100% Humidity Resistant

Max. input voltage: $U_m = 253 \text{ V}$ (This voltage is not the nominal or operating voltage. Up to this voltage the device remains intrinsically safe, but it is likely to be destroyed.)

5 OPERATION

The Keyboard in its modified and evaluated configuration is designed to be suitable for use in ATEX zone 2/22 classified hazardous locations. As the (EU/UKEX) Declaration of Conformity is marked with an (X), special conditions apply. These special instructions for safe use, described in this document must be carefully adhered to.

5.1 **Power the keyboard on and off**

- **POWER ON:** Press and hold the Power Button for 3 seconds. The Caps/Scroll/Num Lock Indicators will flash twice, and the Power indicator will illuminate.
- **POWER OFF:** Press and hold the Power Button for 3 second. All LED indicators will turn off.

5.2 **Backlight Function of Keys**

Backlight functionality has been removed as part of the hazardous area design.

5.3 **Pairing Instructions**

The Armadex Ex BT-Key-02 keyboard is compatible with any Windows or Android Operating System device that has built in Bluetooth® functionality. For connecting, see the pairing instructions below:

1. Power the keyboard ON.
2. Press and hold the Bluetooth button until the BT Link indicator begins to rapidly flash. The Ex BT-Key-02 is now search mode.
3. Follow the Bluetooth pairing instructions provided by your host device.
4. The BT Link will illuminate for 30 seconds once the connection is established.

NOTE: A slow flashing BT Link indicates the keyboard is attempting to re-pair to the last connected Bluetooth host device.

5.4 **Sleep Mode**

The Ex BT-Key-02 will go into sleep mode after 30 minutes of inactivity. To wake simply press on / off key. The Ex BT-Key-02 will automatically re-pair to the last connected Bluetooth host device.

5.5 Charging Instructions

When charging, the location must be known as a non-hazardous area to the user. To charge the keyboard, insert the provided Micro USB charging cable into the back of the keyboard and plug the other end of the cable into a powered USB port on any charger or computer. The Charging LED indicator will illuminate orange when charging and will turn off when fully charged. In a fully discharged state, the battery takes 5-6 hours to completely recharge.



Ex BT-Key-02 Micro USB Charging Port



Warning - Do not charge the battery in a hazardous area.

With average usage of the keyboard, the anticipated battery life is three to four weeks.

5.6 Additional Features

- **Switching to wired USB:** In the event the Bluetooth connection is disrupted by interference, the Ex BT-Key-02 can switch to being a wired USB keyboard by connecting the keyboard to the computer via the supplied MicroUSB cable. When connected via USB the keyboard will begin to charge and communicate over USB.
- **Switching from USB to Bluetooth:** Once the MicroUSB cable is removed, the keyboard will attempt to re-pair to the last connected Bluetooth host computer.

NOTE: Plugging the keyboard in via USB will not establish a Bluetooth connection. The Bluetooth menu on the host computer must be used to establish a Bluetooth connection.



The Micro USB charging and data cable may only be connected inside a non-hazardous area. The area must be known to be non-hazardous to the user.

- **10-Key:** A 10-key number pad is located on the right-hand side of the keyboard, indicated by the yellow secondary legend. To enable or disable these secondary keys press "Num Lock".

5.7 Cleaning

- Clean Mode: In order to facilitate easy cleaning, a Clean Mode can be enabled allowing the user to clean the keyboard without powering down or disconnecting it. To enter and exit Clean Mode press <FN>+<C>, the Scroll Lock indicator will begin to flash to indicate mode is active.



(X) WARNING – POTENTIAL ELECTROSTATIC CHARGING HAZARD –

This equipment includes external non-metallic parts. The user shall therefore ensure that the equipment is not installed in a location where it may be subjected to external conditions which might cause a build-up of electrostatic charges on non-conducting surfaces. Additionally, cleaning of the equipment shall be done only with a damp cloth.

Changes or modifications not expressly approved by the party responsible for compliance will void the user's authority to operate the equipment.

5.8 Product description

The Ex BT-Key-02 Keyboard consists of the following parts:

- 5.8.1 Main PCB
- 5.8.2 Rechargeable Lithium-Ion battery
- 5.8.3 ABS Polycarbonate casing
- 5.8.4 Industrial Silicone Keypad
- 5.8.5 Touchpad
- 5.8.6 Micro USB Port and cable

6 FCC INFORMATION

The Federal Communication Commission Radio Frequency Interference Statement includes the following paragraph:

The equipment has been tested and found to comply with the limits for a Class B Digital Device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction, may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
4. Consult the dealer or an experienced radio/TV technician for help.

The User should not modify or change this equipment without written approval from Armadex Explosion Protection B.V and Ikey, Ltd. Modification could void authority to use this equipment.

7 INSPECTION



The equipment, must be included in the inspection requirements according to EN 60079-17 to stay in compliance with the ATEX regulations during its technical life.


8 EU AND UKEX DECLARATION OF CONFORMITY**EU Declaration of Conformity****No. AM-X23ATEX2500X**

In accordance with EN ISO/IEC 17060-1:2010

1. *Product model / product:*

Product	Explosion Proof Bluetooth Keyboard
Model/type	Armadex Ex BT-Key-02
2. *Manufacturer:*

Name	Armadex Explosion Protection B.V.
Address	Tinstraat 33, 2984 AN, Ridderkerk, The Netherlands
Telephone / Web	+31 180 472880 / www.ex-machinery.com
3. *This declaration of conformity is issued under the sole responsibility of the manufacturer.*
4. *Object of the declaration:*


Product	Explosion Explosion Proof Bluetooth Keyboard for zone 2 / 22
Specification	Battery Supply; Rechargeable battery 3.7 VDC, capacity 3,000 mAh Rated discharge current 30 mA
ATEX Marking	 II 3G Ex ic IIC T6 Gc / II 3D Ex ic IIIB T85°C Dc
5. *The object of the declaration described above is in conformity with the relevant EU harmonization legislation:*

ATEX DIRECTIVE 2014/34/EU	"Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres"
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6. *References to the relevant harmonized standards used or references to the other technical specifications in relation to which conformity is declared:*

Reference & Date	Title
EN IEC 60079-0: 2018	Explosive atmospheres – Part 0: Equipment – General requirements
EN 60079-11: 2012	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "I"
IEC 60079-11: 2023	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "I"
7. *Additional information:*

On the equipment also a voluntary assessment was carried out by ATEX Notified Body KSC Co., Ltd. Result of this assessment can be found in the document KSCP 24ATEX0009X.
(X) Specific conditions of use are specified in the accompanying user manual of the equipment

THIS DECLARATION IS NOT A WARRANTY OF ATTRIBUTES WITHIN THE MEANING OF THE LAW CONCERNING PRODUCT LIABILITY. THE SAFETY INSTRUCTIONS GIVEN IN THE INSTALLATION MANUAL MUST BE OBSERVED. THE APPARATUS SHALL ONLY BE OPERATED UNDER THE CONDITIONS AS DESCRIBED IN THE USER MANUAL.

Signed for and on behalf of:	Armadex Explosion Protection B.V.
Place of issue:	Ridderkerk, The Netherlands
Date of issue:	25-03-2024
Name:	G. A. van Tienhoven, MSc. of Engineering
Function:	Managing Director, IECEx Certified Person
Signature:	



Declaration of Conformity

No. AM-X23UKEX2500X

In accordance with EN ISO/IEC 17060-1:2010

1. *Product model / product:*


Product Explosion Proof Bluetooth Keyboard
Model/type Armadex Ex BT-Key-02

2. *Manufacturer:*

Name Armadex Explosion Protection Ltd.
Address 7 Albert Street, Aberdeen AB25 1XX, Scotland, UK
Telephone / Web +44 1224 679258 / www.armadex.com

3. *This declaration is issued under the sole responsibility of the manufacturer.*

4. *Object of the declaration:*

Product Explosion Explosion Proof Bluetooth Keyboard for zone 2 / 22
Specification Battery Supply: Rechargeable battery 3.7 VDC, capacity 3,000 mAh
Rated discharge current 30 mA
ATEX Marking  II 3G Ex ic IIC T6 Gc / II 3D Ex ic IIIB T85°C Dc

5. *The object of the declaration described above is in conformity with the relevant UK Statutory Instruments:*

2016 No. 1107 Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations

6. *References to the relevant designated standards used or references to the other technical specifications in relation to which conformity is declared:*

Reference & Date	Title
EN IEC 60079-0: 2018	Explosive atmospheres – Part 0: Equipment – General requirements
EN 60079-11: 2012	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "I"
IEC 60079-11: 2023	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "I"

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Signed for and on behalf of: Armadex Explosion Protection Ltd.
Place of issue: Aberdeen, UK
Date of issue: 25-03-2024
Name: G. A. van Tienhoven, MSc. of Engineering
Function: Managing Director, IECEx Certified Person
Signature: 