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ZEROKEY ISRL10 Spatial Intelligence User Manual

Contents

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ZKISAN10-UG Edition V1.1 May 2021

Safety Notice, please read before using device.

The ISAN10 is designed to be operated in hazardous areas where flammable vapours and gases may be present.

- Read this user manual before use.
- Do NOT expose the device to temperatures above 60 c (140 F)
- Do NOT disassemble, modify, or attempt to repair this device.

- Do NOT open this device under any circumstances.
- Do NOT immerse in liquid(s).
- No serviceable parts inside.
- Clean only with a damp cloth to prevent static build up.

Certification and Compliance

The ISAN10 and ISRL10 are certified through SGS Group for use in hazardous locations.
Rated as Class 1 Division 1, IP65,
The radio used in this device has been certified for use according to Federal Communications Commission (FCC), Industry Canada (IC) and Conformitè Europëenne (CE) rules and regulations.
NOTE: Any changes or modifications to this device, not expressly approved by Zerokey, could void the user's authority to operate the equipment.

FCC Part 15 Regulatory Statement

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.

RSS Regulatory Statement

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

RF Exposure Statement

This device has been evaluated to, and shown to be compliant with, the FCC, IC, CE Radio Frequency (RF) exposure limits.

1 PREFACE

1.1 ABOUT THIS GUIDE

This guide contains the information you will need to operate the ZeroKey Safe Space system.

1.2 WHERE TO FIND MORE INFORMATION

Refer to the following sources for additional information and for product and software updates.

- ISAN10 & ISRL10 Resources

  For more information and the most up to date user manual please visit our website (https://zerokey.com) which

  contains additional product specifications, user documentation and notices.

- Included product documentation Your product package includes documentation detailing the setup and operation of the ISAN10 & ISRL10 units.

2 OVERVIEW

ZeroKey Smart Space is an indoor positioning system that is capable of real-time positional tracking in three-dimensional space. The system is composed of multiple clip-on mobile units and fixed anchor units. The mobile units are designed to be worn or attached to people or equipment that can move about within the defined workspace. The anchor units are fixed in place and are used to assist in the determination of the mobile unit's position.
The mobile and anchor units exchange various signals, radio frequency and ultrasonic pulses, and then use the collected information to determine the mobile unit's position in 3D.

3 UNIT

The ISAN10 Anchor and ISRL10 Relay units are part of the Smart Space positioning system. These units are the listening nodes that monitor transmissions from the mobile units in the area and send the information back to the gateway units so the server can determine distance and position. The Anchor units listen for mobile units while Relay units, which have two separate radios, can also retransmit data from distant nodes to the gateway. Should the Anchor be too far from the gateway, it can send its data through a Relay node or a series of Relay units back to the server.

3.1 PHYSICAL CHARACTERISTICS

3.1.1 SIZE

Without mount: 5.6 inches long, 3.8 inches wide, 2.2 inches deep
With clip: 6 inches long, 3.8 inches wide, 1.3 inches deep

3.1.2 WEIGHT

500 grams (17.6 ounces)

3.1.3 IP RATING

IP65, rated for water jets and splashing.

3.1.4 POWER

The mobile device is battery powered by two, long lasting, lithium thionyl chloride internal batteries. This device and its batteries have been tested and certified to be intrinsically safe.

3.2 FEATURES

- Tough, light-weight, engineered plastic case.
- Sealed against water, dust, and chemicals.
- Long lasting batteries.
- Battery and status indicators.
- Secure mount for walls or ceiling.

3.3 INDICATORS

3.3.1 STATUS LED
A multicolored LED is used to signal the current status of the Anchor or Relay unit. The Status LED will blink its status every 2 to 5 seconds in order to conserve power.

COLOUR & PATTERN	MEANING
Blinking blue	DFU mode – receiving firmware update
Blinking green	On, normal operation
Blinking red	On, with low battery level
Solid white	Pairing – unit is waiting for a firmware update

4 INSTALLATION

The Anchor and Relay devices have been designed to be clipped into a wall / ceiling mount. Do not obstruct the front face of the device and always have it facing outwards to achieve optimal performance. The system works best when there is an unobstructed view of the mobile device but will still work well if the sound can travel around those objects. Objects closer to the unit will have a more significant impact on performance. As a rule of thumb, it is best to have at least 10 (3 meters) feet of unobstructed view from the device.

4.1 INSTALLING THE MOUNT

Once the site layout has been created and the location for each Anchor and Relay node chosen, (See "Safe Space Site Design Considerations"), the mount can be installed to almost any wall or ceiling surface either using two self-tapping screws or by welding the mount in place.

4.2 INSTALLING THE DEVICE

The Anchor or Relay unit can be clipped into the mount by inserting one tab in the lower mounting arm and then pushing the unit into the upper mounting arm. There are three tabs at either end of the unit allowing the device to be angled to a better position to cover the area.

4.3 SECURING THE DEVICE TO THE MOUNT

Once the Anchor or Relay unit is installed in the proper orientation in the mount the two mount securing screws can be tightened to ensure the mounting tabs cannot accidentally come out of the mount. A cable connected the device can now be secured to the mount to stop the device from falling should it be dislodged from the mount.

4.4 ACTIVATING THE DEVICE

Now that the Anchor or Relay unit is secured to its location, the device can be activated by placing the magnetic wand in the area shown to the right. This will wake the unit and cause it to power up, connect to the system and commence listening for mobile units. The LED indicator will flash red once the unit is awake and then go to the 2 to 5 second green flash interval once it is fully operational. Should a fault occur, the unit will either continue to blink red or issue a series of blinks, long and short to define an error code.

5 OPERATION

5.1 SMART SPACE CONFIGURATION

Once the unit is operating, it will continue to operate until it has exhausted its batteries. The unit should be checked weekly to make sure that the device is still operating normally, and the batteries are not running critically low.

5.2 BATTERY SERVICING

Both Anchor and Relay units use long lasting lithium thionyl chloride primary batteries which CANNOT be recharged. The batteries are designed to completely deplete the lithium metal and are single use only. Once depleted, the batteries are inert and can be disposed of in a similar manner to regular alkaline batteries. Battery servicing should be performed by a trained technician and both batteries MUST be replaced at the same time with fresh batteries.

6 MAINTENANCE AND PRODUCT CARE

6.1 MAINTENANCE

6.2 GENERAL CARE

While the device has been rigorously tested and certified for use in hazardous environments, this is still an electronic device and as such, needs to be handled in a reasonable manner to ensure reliable and continued use.

6.3 CLEANING

The device can be cleaned using a moistened soft cloth and nonabrasive hand/dish soap. Wipe dry to prevent any moisture build up.
WARNING DO NOT IMMERSE

6.4 OPERATING TEMPERATURE

This device is designed to operate from -40 C to +60 C ambient. Do not place unit in direct sun for extended periods without proper ventilation as the unit may exceed the +60 C temperature.

7 REPAIRS AND DISPOSAL

7.1 FIRMWARE UPDATES

The ISAN10 and ISRL10 can be updated with new firmware through our over-the-air reprogramming application to correct, improve, or add new features to enhance the unit's performance. Details on how to perform these updates is included with each update installation package.

7.2 OPERATION LOGS

The ISAN10 and ISRL10 updates and maintains information concerning its operation and activities as it is being used around the site. This information is used to monitor the health of the unit and improve the device performance. The information collected does not contain any personal information from the user.

7.3 REPAIRING DAMAGED DEVICE

Units that have been damaged or have failed to operate in the field must be returned for repair or replacement with a few exceptions. If the battery has been physically compromised or has been found to be defective, the unit can NOT be legally shipped by any carrier. If the unit is intact but has ceased to operate, it can be returned via an RMA request to our repair center. Please contact your plan administrator for more information and an RMA form.
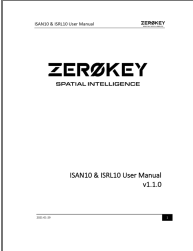
7.4 DISPOSAL OF DEVICE

Should the ISAN10 or ISRL10 become damaged beyond servicing or repair, please contact your nearest electronics recycling company for details on their collection requirements.
The units contain two lithium metal batteries and once depleted, the batteries are inert and can be disposed of in a similar manner to regular alkaline batteries. Please contact your nearest electronics recycling company for details

on their collection requirements.

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