



IDEN TEC SOLUTIONS

Model IDS1000

**iQ355 XP
Personnel Tag (ATEX)**

HARDWARE USER MANUAL

Visibility Delivered.

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Radio Frequency Compliance Statement

IDENTEC SOLUTIONS is the responsible party for the compliance of the following devices:

MODEL:		iQ355 XP
Region/Country	Organization	Marking
EUROPE:	EU	CE
USA:	FCC	FCC ID OO4-IDS1000
CANADA:	IC	3538A-IDS1000

The user(s) of these products are cautioned to only use accessories and peripherals approved, in advance, by IDENTEC SOLUTIONS. The use of accessories and peripherals, other than those approved by IDENTEC SOLUTIONS, or unauthorized changes to approved products, may void the compliance of these products and result in the loss of the user(s) authority to operate the equipment.

European Declaration of Conformity according to RED Directive

IDENTEC SOLUTIONS AG hereby declares that the device iQ355 XP is in conformity with the essential requirements of Directive 2014/53/EU. The declaration of conformity can be found at: www.identecsolutions.com

USA Certification

FCC Part 15 compliance 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.

Canada Certification

Licence-Exempt Radio Apparatus (ISED)

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.

Appareils radio exempts de licence (ISDE)

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique 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;
2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Radio Frequency (RF) Exposure Compliance of Radiocommunication portable apparatus

This device complies with FCC and ISED Canada RF radiation exposure limits set forth for general population (uncontrolled exposure). This device must not be collocated or operating in conjunction with any other antenna or transmitter.

Conformité à l'exposition aux champs RF des équipements radio portables



Cet appareil est conforme aux limites FCC et ISDE Canada concernant l'exposition aux rayonnements RF établies pour le grand public. (Environnement non-contrôlé)

Cet émetteur ne doit pas être co-situé ou fonctionner conjointement avec une autre antenne ou un autre émetteur.

ATEX Certification

Equipment or protected system intended for use in potentially explosive atmosphere directive 2014/53/EU. Compliance with the essential health and safety Requirements has been assured by compliance with the following standards:


EN 60079-0, EN 60079-11

EPS 20 ATEX 1 028		iQ355 XP	
	II 1G Ex ia IIC T4 Ga -40°C ≤ Ta ≤ +70°C	Gas	
	I M1 Ex ia Ma -40°C ≤ Ta ≤ +70°C	Mining	

IECEX Certification

The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0:2017, IEC 60079-11:2011

IECEX EPS_20.0012_000		iQ355 XP	
	Type of Protection	Ex i	
	Marking	Ex ia IIC T4 Ga	Gas
		Ex ia Ma	Mining

Special conditions for safe use – ATEX and IECEX



WARNING – Maintenance is not permitted. Do not open the housing.



WARNING – **Electrostatic Hazard:** Clean only with a damp cloth.



WARNING - Electrostatic Hazard: Do not install in locations with increased electrostatic charge such as close to ventilations systems or electric drives.



WARNING - This product should be installed by personnel trained in installation of equipment in Hazardous Locations and meet the representative country's National Electrical Code.



WARNING - Not to be connected to equipment that uses or generates more than 250V with respect to earth ground



WARNING - This product contains components that are sensitive to electrostatic discharges. Please observe the special instructions for their protection. Incorrect handling can damage the unit and cause the invalidation of the warranty.

Minimum safety precautions against electrostatic discharge:

- Establish earth contact before you touch the unit. (For example, touch the earthing screw on the unit.) Best practice is to use an antistatic ribbon and earth yourself permanently for the time you handle the unit.
- Never open the unit – nothing inside for user interaction or maintenance.
- Use antistatic tools for the setting of the unit. (Warning: Do not touch life-threatening voltages with these tools).
- Do not store unit and components without protective packaging.
- Remove unit and components from the packaging only prior to installation.

These notes are not sufficient to guarantee complete protection from electrostatic discharges! We recommend the use of suitable protective equipment.

IDENTEC SOLUTIONS does not accept the return of products where the regulations concerning the ESD precautions and protective packaging materials were not followed.

Safety Instructions

The equipment can be installed in restricted areas.

The system described in this manual is for exclusive operation of trained employees. Only qualified personnel that have knowledge of the potential dangers involved should perform the installation, settings, maintenance and repair of the units used.

Operational Safety

The correct and safe use of these systems assumes that operating and service personnel follow the safety measures described in the manual alongside the generally acceptable safety procedures.

If there is a possibility that safe operations cannot be guaranteed, the system must be switched off, secured against accidental use and the service unit responsible immediately informed.

Safety Documents

The iQ355 XP was designed, tested and supplied in perfect condition, according to document IEC/EN 60950-1 Safety Requirements.

Condensate / Change of Temperature

To avoid condensation in the system, the unit must be allowed to slowly adjust itself to warmer temperatures after removal from cold and cool environments.

Do not open the housing

There is no need to open the housing. The unit does not have any internal setting elements or displays.

Spare Parts

We recommend that only personnel, original products, spare and replacement parts authorized by IDENTEC SOLUTIONS be used for installation, service and repair. IDENTEC SOLUTIONS does not accept any responsibility for materials used, work carried out or possible consequences from unauthorized third party vendors.

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1. Preface

This installation manual must be read carefully prior to starting the installation. The described installation works assuming that installation materials like cables, antennas and any mechanical parts are available.

This document is the hardware description of the iQ355 XP. This document is intended only for mechanical and electrical installation of these units.

IDENTEC SOLUTIONS reserves the right to make changes and updates to the content contained herein. It is the user's responsibility to contact the service department for any possible changes or updates to operating and maintenance procedures.

Updates will be provided upon request. The information in this document may be subjected to changes without prior notice.

Check whether delivery is complete and for any damages. If the delivery is not complete or damaged immediately inform the carrier. The dispatch and service organization of IDENTEC SOLUTIONS should also be informed to facilitate the repair or exchange of the system.

Product Contents (deliverables):

- iQ355 XP Device
- ID Card holder (optional)
- Safe-Strap Basic Black 3mm ATEX w/o knob (optional)
- Hardware User Manual

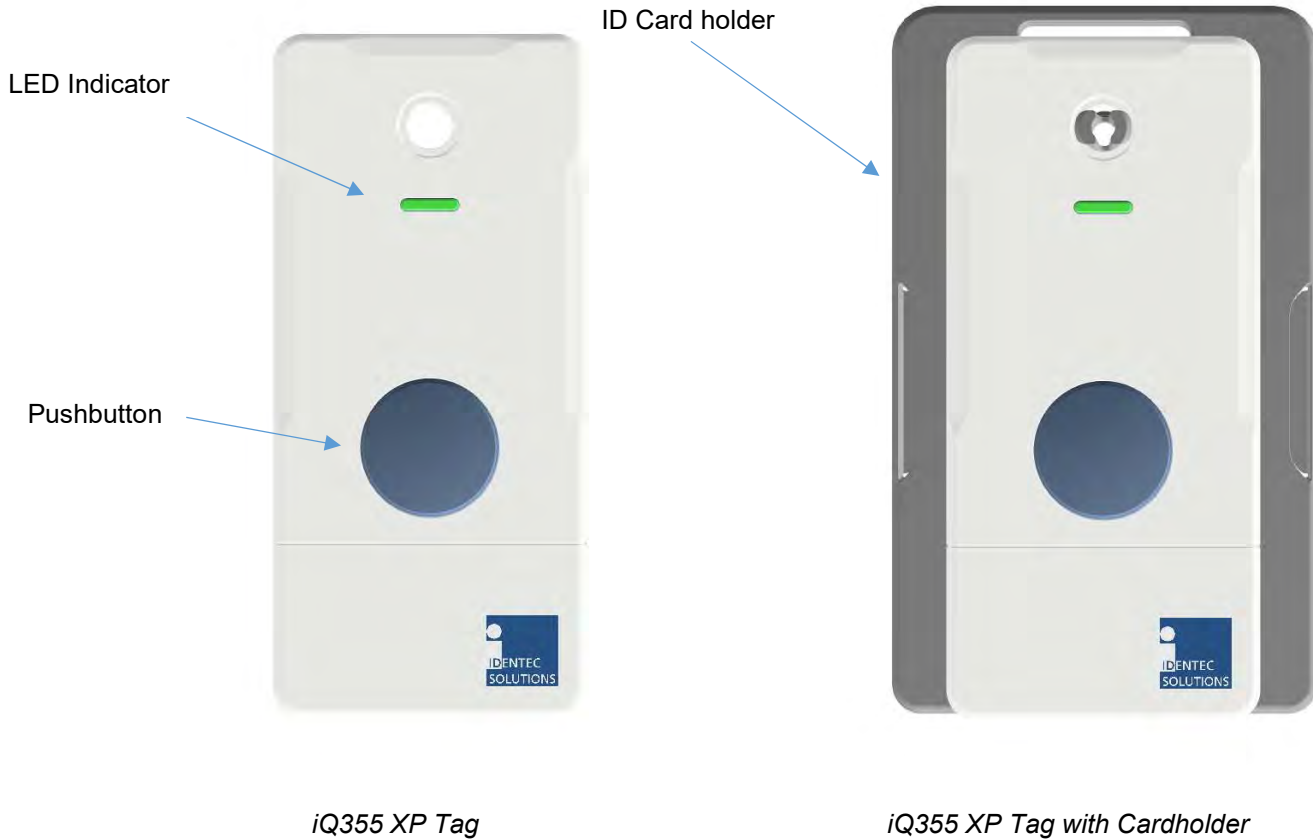
Associated Documents

- SDK Online Help
- i-SHARE Manual
- Specific tag and reader manuals

2. Introduction

2.1 iQ355 XP Tag and System Description

The iQ355 XP tag is an ATEX-Certified Personnel tag, designed for use with all personnel safety, real-time location and access control applications. The robust tag is especially suited to harsh environments, in industries such as Oil & Gas or mining.



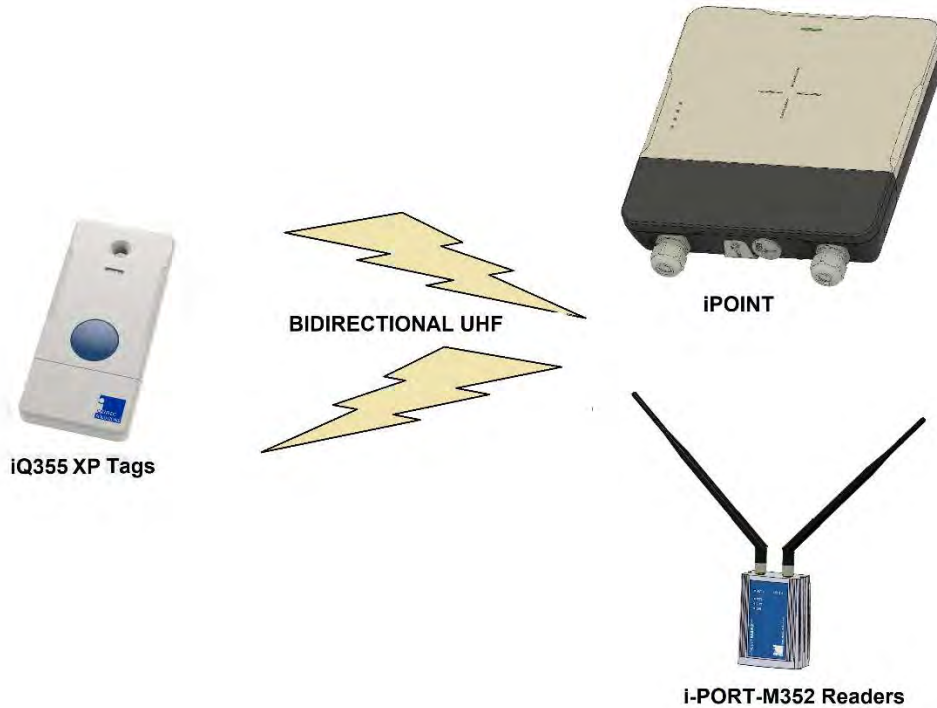
The slimline, IP67 tag can be carried in the pocket, on a keyring or with a neck strap, and has the following features:

- Ultra low-power microcontroller and a non-replaceable, high-capacity coin cell battery.
- Pushbutton for alarm generation, battery status or general debugging.
- Configurable Bi-color LED for Alarm indication, battery status or other functions.
- 3-Axis accelerometer for energy saving and movement detection, among other features.
- UHF interface for long-range communication with readers.
- 3D-LF receiver for marker detection, configuration, zone location, direction detection.
- NFC interface for configuration and access control features and mobile mustering.
- There is an additional photo card ID holder that can be snapped on to the main unit.

2.1.1 UHF Interface

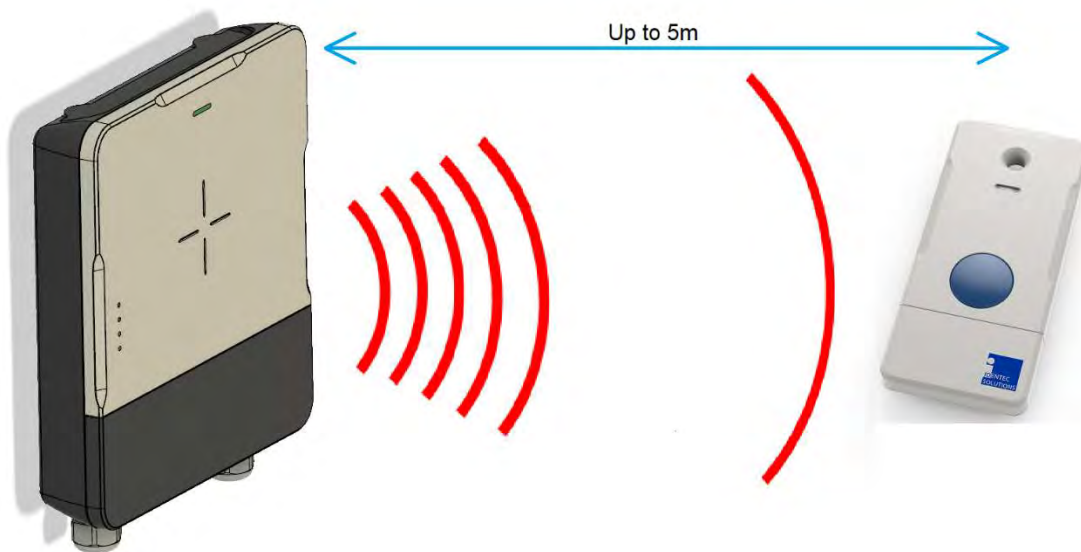
The UHF interface is a wireless communication interface using the UHF ISM frequency band and IDENTEC's protocols.

The iQ355 XP has an internal UHF antenna and can communicate up to a range of 500 meters with a reader or iPOINT device.



2.1.2 LF Interface

The LF Interface uses IDENTEC's LF^{BOOST} Marker technology. Zone location at Low Frequency can be achieved with a configurable field range up to 5 Meters. This allows Tag detection in a specific area.



2.1.3 NFC Interface (optional)

The NFC Interface is a Near Field Communication interface. The iPOINT can be used as an entry terminal. Alternatively the tag can communicate with access control system over standard NFC interfaces. The range from the iPOINT to the Tag is up to 10cm.



2.2 System Components – Readers and Markers

Identec offers a range of readers and markers that can be used together with the iQ355 XP tag in the system. The tags provide long range communication with the readers/Markers of up to 500 m (1640 ft), using advanced UHF radio frequency technology.

i-PORT M352 Readers



Using advanced UHF radio frequency technology, i-PORT-M352 Reader series can communicate with iQ355 XP tags in bidirectional mode at distances of up to 250 m (820 feet). In addition, the tags can be configured to beacon data at a configurable ping rate to a range of up to 500 m (1640 ft).

Identec's i-PORT M352 series of readers can be installed at fixed locations to provide seamless communication with the iQ355 XP tags

i-PORT-BT-USB Mobile readers



Using advanced UHF radio frequency technology, i-PORT-BT-USB Readers can communicate with iQ355 XP tags in bidirectional mode at distances of up to 250 m (820 feet). In addition, the tags can be configured to beacon data at a configurable ping rate to a range of up to 500 m (1640 ft).

Identec's i-PORT BT USB readers can be installed at fixed locations or used as a mobile reader to provide seamless communication with the iQ355 XP tags. The mobile reader can then communicate with the host device over Bluetooth or USB connection.

iPOINT



Using advanced UHF radio frequency technology, iPOINT devices can communicate with iQ355 XP tags in bidirectional mode at distances of up to 250 m (820 feet). In addition, the tags can be configured to beacon data at a configurable ping rate to a range of up to 500 m (1640 ft).

Identec's multi-purpose iPOINT device combines the functionality of a standard reader, an LF Marker (gate and Zone locating system, configurable up to 5 m) and NFC (access control) functionality in a single rugged unit.

i-MARK S350

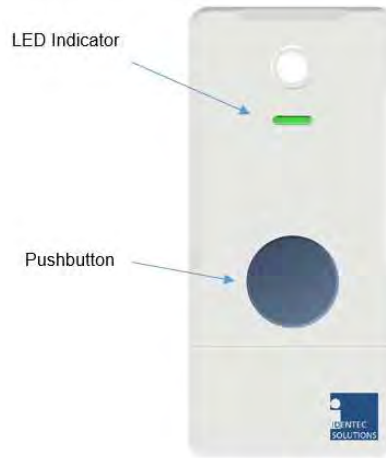


The i-MARK S350 stand-alone device provides spot or zone location by triggering a compatible tag with an inductive 125 kHz field containing the unique marker ID.

The novel LFboost technology describes a well-defined area with a configurable range of up to 1.5/3 m where tags are triggered

2.3 Tag Functions

The iQ355 XP tag can be configured in the host software provided by Identec Solutions. Additionally, the tag has a user pushbutton and a dual color LED indicator.



2.3.1 Pushbutton

Button Push action	Tag response	Additional Information
Short push	Sign of life / Battery status	
Double short push	t.b.d	
Long hold (5 seconds)	t.b.d	

2.3.2 LED Indicators

LED Indication	Information	Additional Information
Green - Blinking	t.b.d	
Green - Solid	t.b.d	
Red - Blinking	t.b.d	
Red - Solid	t.b.d	
Orange - Blinking	t.b.d	
Orange - Solid	t.b.d	

2.3.3 Configuration

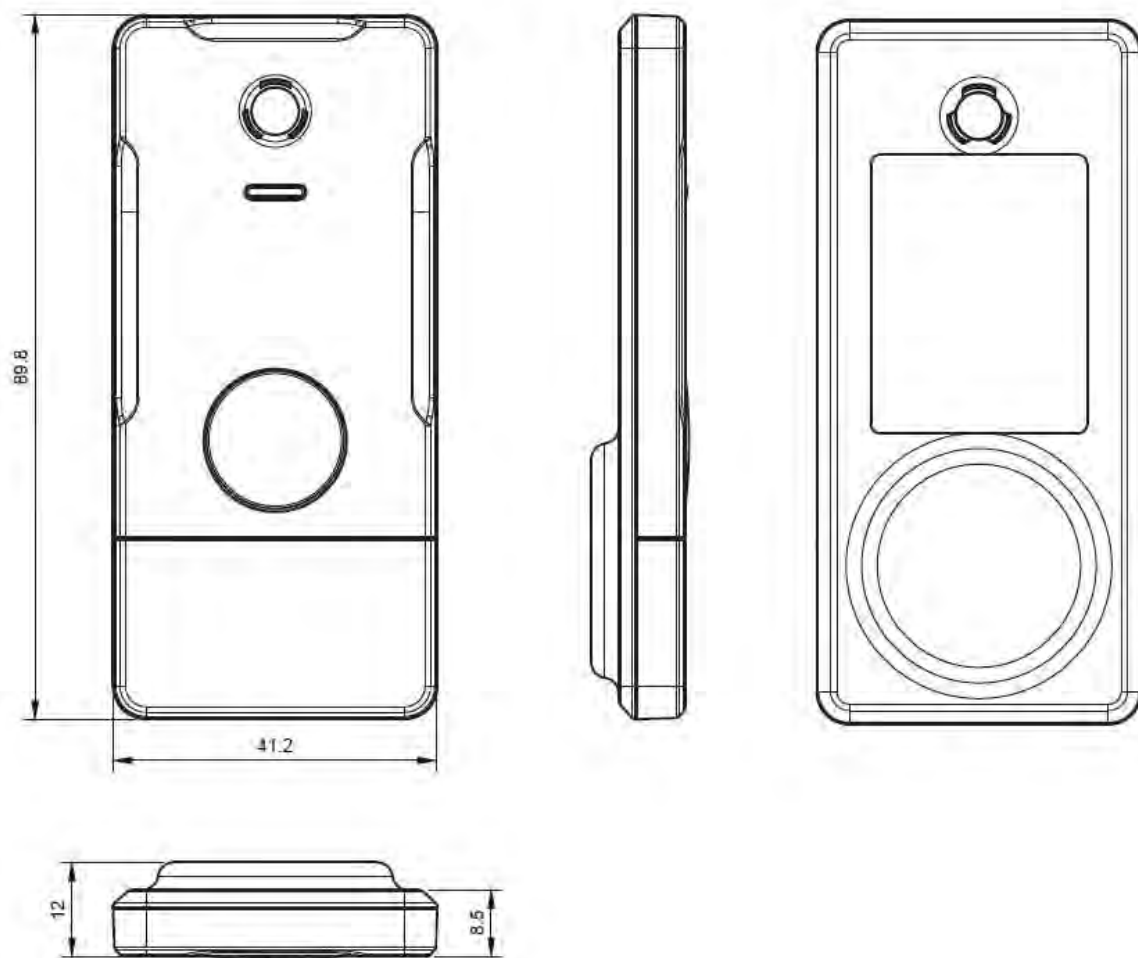
Configuration of the tag can be updated or changed within the host software. An appropriate Reader device should be connected for configuration.

Available Identec Solutions Software

- Setup Scout
- i-Share
- Crew Companion

Please refer to the relevant software User Manuals for details.

3. Mechanical Information & Installation



Housing Dimensions

3.1 Mounting Options

The tag can be mounted in the following ways:

- Carried in a pocket
- used with a keyring
- used with a neck strap

All ways of wearing the tag can also be done with the additional ID card holder

4. Troubleshooting

This chapter covers how faults can be recognized and rectified. There are some common problem sources:

- The environment including large objects between antenna and ILR® Tags, electrical disturbance sources, intervention by persons, etc.
- The quality of the technical design, including alignment between antenna, data, ratio of task requirements/available communication time etc. The information about system performance is contained in the relevant datasheets.

When planning the total system, do not overlook the problem sources and “Fault finding procedures on system level” should be included in the host system. How this could look in detail depends on the relevant system concept and very likely varies from one system to another.

A Brief Checklist

- Are all housings intact?
- Are all cables intact?
- Are all connectors intact?
- Are all connectors securely fastened?
- Are all screws still tight?
- Is there a sudden malfunction at a specific unit?
- What are the status of the LEDs? is the ‘RUN’ LED flashing?

5. Maintenance

When installed correctly the iQ355 XP tag will operate virtually maintenance free for many years. However, in the event maintenance is required, only trained and authorized personnel are permitted to perform the updates, changes and necessary maintenance.

Regular Cleaning of the Surface

If the device needs cleaning, use a soft cloth moistened with a mild rinsing agent. Do not use cleaning products containing chemical additives.

Precautionary Maintenance

A regular check of the system is recommended. Unstable connections could lead to damage and malfunctions of the system and should therefore be repaired as soon as possible.

5.1 Firmware Update

The firmware is stored in a FLASH memory and can be updated if needed.

5.2 Spare Parts

Recommended spare parts stock

In order to minimize the downtime in the event of a malfunction, it is recommended to have certain spare parts on stock. For larger systems, doubling of the recommended stock quantity is recommended.

It is advised to have several spare ILR® Tags in stock, corresponding to approx. 0.5 – 1 % of the total number of ILR® Tags.

Examination and repair of exchanged parts

The data ILR® Tags and other devices are complex electronic power units on which the customer can carry out only very limited repairs. Normally the repairs are carried out at IDENTEC SOLUTIONS or possibly at a distributor. Before a part is sent in for repair a short examination should be conducted.

5.3 Returns

Parts or main components returned for repair or exchange must be handled with great care. All returns should include an error description and a short application overview and be sent to the local distributor or to:

IDENTEC SOLUTIONS AG
Service Department
Millennium Park 2
6890 Lustenau
AUSTRIA

For full details, refer to our "Return and Repair Policy" on our website.

6. Technical Specifications

Communication ILR³⁵⁰ technology

Operation Mode	UHF Broadcast or response communication
Read Range	up to 500 m ¹
Compatibility	i-PORT M352, i-MARK S350, iPOINT, i-PORT BT USB
Operating Frequency	UHF ISM Band: 868 MHz (EU) or 920 MHz (NA) ²
Antenna / Transmit Power	1x Internal Antennas / <1mW

Communication LF^{boost} Marker

Operation Mode	Receives Marker ID at a predefined interval, transmits over UHF
Exciter Range	up to 5m (adjustable) ¹
Compatibility	i-MARK S350, iPOINT
Operating Frequency	125kHz

Communication NFC

Antenna	Integrated 13.56MHz coil (read/write)
Standards	ISO/IEC 15693, ISO/IEC 14443A&B, Sony FeliCa
Usage	Programmable functionality

Electrical

Battery	CR2477 Coin Cell (non-replacable)
Battery Lifetime expectancy	Up to 10 years (depending on use case) e.g. up to 7 years with 2 sec. ping rate & 8 hrs/day working

Environmental Conditions

Operating Temperature	-40°C to +70°C (-40°F to +158 °F)
Storage Temperature	-40°C to +85°C (-40°F to +185°F)
Humidity	Up to 100%
Shock:	EN 60068-2-32: Multiple drops to concrete from 1m (3ft), 5 times
Vibrations	EN 60068-2-29: 50G on all 3 axis, 3 times per axis EN 60068-2-64: noise 5 to 1000Hz, 90 minutes per axis EN 60068-2-6: 5G, 20 sin wave cycles per axis, 5-500Hz

Standard/Certification

ATEX/IECEX	EN/IECEX 60079-0, EN/IECEX 60079-11
Europe	CE (EN 300 220-1, -2, -3; EN 301 489-1,-3; EN 62368-1)
North America	FCC Part 15 (US); IC RSS210

Mechanical Data

Push Button	Event Generation
Status Display	Bi-Color LED
Dimensions	(L) 90 x (W) 41 x (T) 12 mm
Housing Colours	<i>Front/back</i> : RAL 9002 Light Grey, <i>Button</i> : RAL 5003 Sapphire Blue
Enclosure Material	Plastic (PC-ASA)
Enclosure Rating	IP67
Weight	40g

Order Code

iQ355LX P	456010
ID Cardholder (ATEX)	456045
Safe-Strap Basic Black 3 mm ATEX w/o knob	711828

¹ The communication range depends on environmental conditions and national regulation limits

² Other country frequencies are available, please contact IDENTEC SOLUTIONS



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