

**iQ355 XW – IDS1010
HARDWARE USER MANUAL**

Variants:

iQ355 W
iQ355 XW
iQ355 W NFC
iQ355 XW NFC



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Radio Frequency Compliance Statement

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

MODEL:		iQ355 XW
Region/Country	Organization	Marking
EUROPE:	EU	CE
USA:	FCC	OO4-IDS1010
CANADA:	IC	3538A-IDS1010 HVIN without NFC option: IDS1010 HVIN with NFC option: IDS1013

The user(s) of these products are cautioned to only use accessories and peripherals approved, in advance, by IDENITEC SOLUTIONS. The use of accessories and peripherals, other than those approved by IDENITEC 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.

Note: IDS1010 and ISD1013 models share this same user's manual because these two models belong to the same hardware family of the iQ355 XW.

European Declaration of Conformity according to RED Directive

IDENITEC SOLUTIONS AG hereby declares that the device iQ355 XW 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 22 ATEX 1 264 X	iQ355 XW	
	II 1G Ex ia IIC T4 Ga -20°C ≤ Ta ≤ +70°C	Gas
	I M1 Ex ia Ma -20°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 22.0056X	iQ355 XW		
	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 – The transmitter shall be protected against electrostatic charging and shall not be used in direct ambient of high charging processes.



WARNING - The transmitter is allowed to be used in mining areas only if they are protected from mechanical impact.



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 - 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 IQ355XW 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.

1.0 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 XW. This document is intended only for mechanical and electrical installation of these units.

IDEN TEC 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 IDEN TEC SOLUTIONS should also be informed to facilitate the repair or exchange of the system.

Product Contents (deliverables):

- iQ355 XW Device
- Hardware User Manual

Associated Documents

SDK Online Help

i-SHARE Manual

Specific tag and reader manuals

2.0 INTRODUCTION

2.1. IQ355 XW TAG AND SYSTEM DESCRIPTION

The IQ355XW 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 wristband tag can be worn on the wrist, like a wristwatch, and has the following features:

- Ultra-low-power microcontroller and a non-replaceable, high-capacity coin cell battery.
- 3-Axis accelerometer for energy saving and movement detection, among other features.
- UHF interface for long-range communication with readers.
- 2D-LF receiver for marker detection, configuration, and zone locationing.
- NFC interface for configuration and access control features and mobile mustering (optional).

2.2. UHF INTERFACE

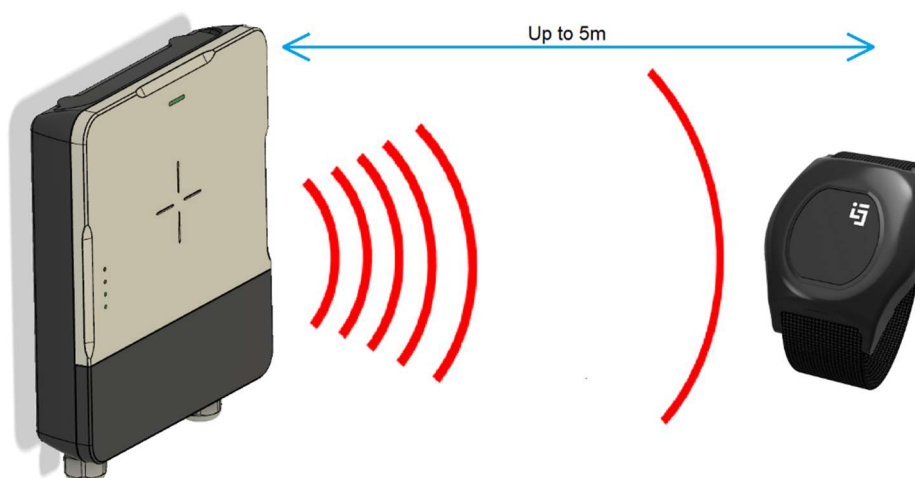
The UHF interface is a wireless communication interface using the UHF ISM frequency band and IDEN TEC’s protocols.

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



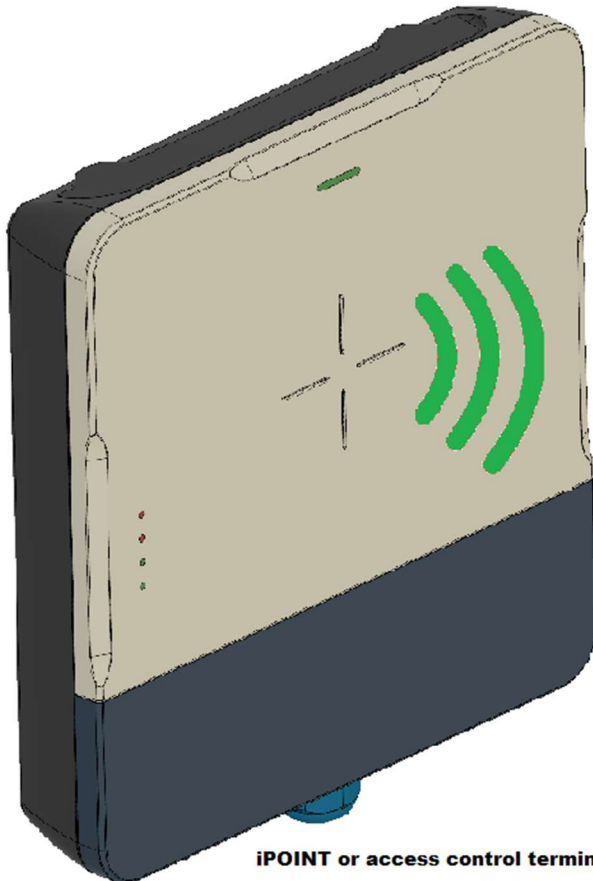
2.3. LF INTERFACE

The LF Interface uses IDEN TEC’s LF 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.



2.4. 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 5cm.



iQ355 XW Tag

3.0 SYSTEM COMPONENTS AND MARKERS

Identec offers a range of readers and markers that can be used together with the iQ355 XW 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.

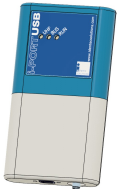
i-PORT M352 Readers



Using advanced UHF radio frequency technology, i-PORT-M352 Reader series can communicate with iQ355 XW 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 XW tags

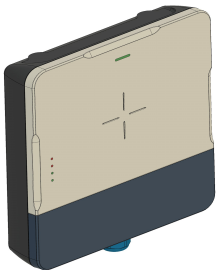
i-PORT-BT-USB Mobile readers



Using advanced UHF radio frequency technology, i-PORT-BT-USB Readers can communicate with iQ355 XW 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 XW 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 XW 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 locationing system, configurable up to 5 m) and NFC (access control) functionality in a single rugged unit.

i-MARK S350

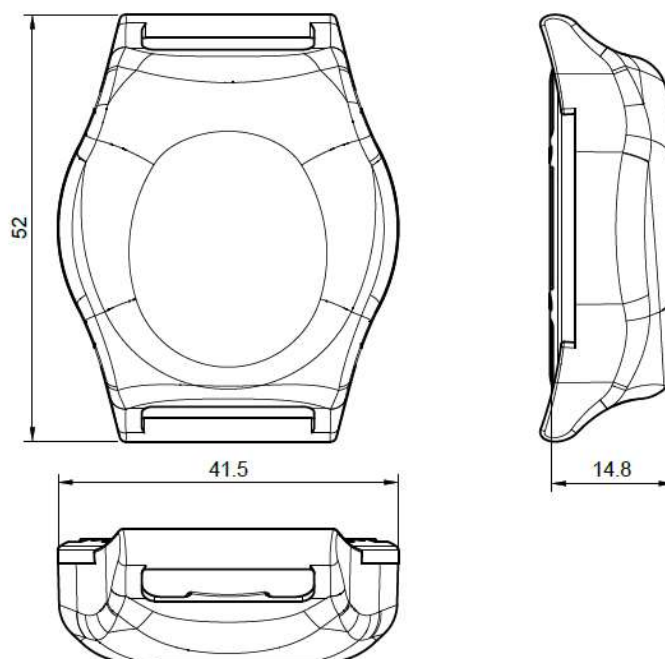


The i-MARK S350 stand-alone device provides spot or zone location by triggering a compatible tag with an inductive 125 kHz field containing the unique marker ID.

The novel LF Marker technology describes a well-defined area with a configurable range of up to 0.5-5 m where tags are triggered.

For more information on the types and configurations of readers available, please visit www.identecsolutions.com

4.0 MECHANICAL INFORMATION AND INSTALLATION



All Dimensions in Millimeters (mm)

4.1. MOUNTING OPTIONS

The tag is fitted with a snag-safe wristband for comfortable use on the wrist.
For ATEX and IECEx, certified wristbands must be used!

5.0 TROUBLESHOOTING AND MAINTAINANCE

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 screws still tight?
- Is there a sudden malfunction at a specific unit?

5.1. MAINTENANCE

When installed correctly the iQ355 XW 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.

5.2. 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
Millennium Park 2
6890 Lustenau
AUSTRIA

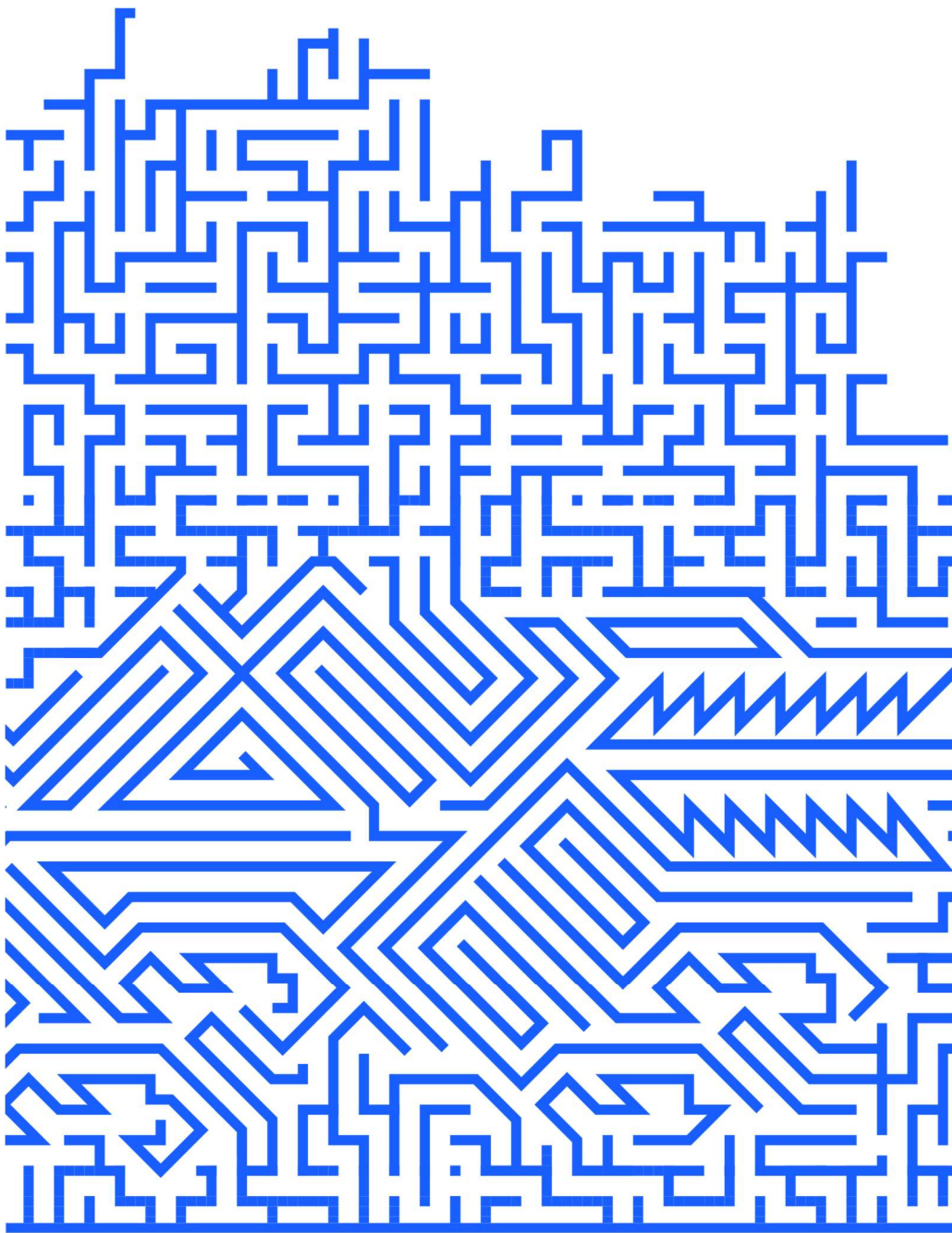
6.0 TECHNICAL SPECIFICATIONS

Communication Broadcast & Response 355	
Operation Mode	Transmits ID and monitoring data at a pre-defined interval
Read Range	Up to 150m (500 ft) ¹ (integrated Antenna) ¹
Compatibility	i-PORT, iPOINT
Operating Frequency	868 MHz (EU) or 920 MHz (NA) or 865-868 MHz (India) ²
Transmit Power	<1 mW (optional up to 10mW depending on national regulations – factory configuration only)
Communication Marker	
Operation Mode	Receives Marker ID and transmits marker information several times via Broadcast 350 telegrams
Read Range	Up to 5m (16ft) ¹
Compatibility	i-MARK, iPOINT
Operating Frequency	125kHz
Communication NFC (optional)	
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-replaceable)
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 ³	-20°C to + 70°C (-4°F to + 158 °F)
Storage Temperature	-40°C to + 85°C (-40°F to + 185 °F)
Humidity	10% to 100% relative humidity @ 40 °C
Shock	EN 60068-2-32: Multiple drops to concrete from 1m (3 ft), 5 times EN 60068-2-29: 50G on all 3 axis, 3 times per axis
Vibrations	EN 60068-2-6: 5G, 20s in wave cycles per axis, 5-500 Hz EN 60068-2-64: noise 5 to 1,000 Hz, 90 minutes per axis
Standards / Certifications	
Europe	CE (EN 300 220-1, -3; EN 301 489-1,-3; EN 60950-1; EN62368-1)
North America	FCC Part 15 (US); ISED RSS210
ATEX / IECEx	Gas: II 1G Ex ia IIC T4 Ga Mining: I M1 Ex ia I Ma
Mechanical Data	
Dimensions	52 x 41.5 x 14.8 mm (2.05 x 1.63 x 0.58 inches)
Enclosure Material	Plastic (ZISAMIDE Polyamide6 TP-4208)
Enclosure Rating	IP65 / IP66 / IP67
Weight	40g (1.41 Oz)
Ordering Information	
iQ355 W	456260
iQ355 W NFC	456281
iQ355 XW (ATEX)	456250
iQ355 XW NFC (ATEX)	456282
Wristband 20mmx300mm black X (ATEX)	455752

¹ The communication range depends on the antenna type, the antenna cable runs and the environmental conditions.

² Other country frequencies are available, please contact IDENTEC SOLUTIONS

³ Do not update firmware or transfer a high amount of data below a temperature of 0°C



CONTACT US

HEAD OFFICE

IDENTEC SOLUTIONS AG

Millennium Park 2
6890 Lustenau
Austria
T +43 5577 87387 0
F +43 5577 87387 15

GERMANY

IDENTEC SOLUTIONS DEUTSCHLAND GMBH

Hongkongstraße 3
20457 Hamburg
Germany
T +43 5577 87387 0
F +43 5577 87387 15

USA

IDENTEC SOLUTIONS, INC

15150 Preston Rd
Suite 300
Dallas, Texas 75248
USA
T +1 972 535 4144

NORWAY

IDENTEC SOLUTIONS NORWAY AS

Andøyfaret 15
4623 Kristiansand
Norway
T +47 38 00 35 30

AUSTRALIA

IDENTEC SOLUTIONS AUSTRALIA AND NEW ZEALAND P/L

Riverview Business Park 72
Maribyrnong St, Footscray,
3011 Australia
T +61 3 9396 8900

EUROPE

T +43 5577 87387 0
E sales@identecsolutions.com

NORTH AMERICA

T +1 972 535 4144
E sales@identecsolutions.com