IDENTEC SOLUTIONS

i-PORT F310
Hardware and
Installation Manual

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Copyright Notice

Radio Frequency Compliance Statement

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

MODEL:	i-PORT F310	
EUROPE:	CE	

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

Operation is subject to the following conditions: (1) these devices may not cause harmful interference, and (2) these devices must accept any interference, including interference that may cause undesired operation of the device.

European Notification according R&TTE Directive

This equipment complies to Art. 6.4 of R&TTE Directive (1999/5/EC). It is tested for compliance with the following standards:
EN 300 220-1 V1.3.1 (2000-09), EN 300 220-3 V1.3.1 (2000-09), ETSI EN 301 489 V1.4.1 (2002-08), ETSI EN 301 489 V1.4.1 (2002-08)

USA Notification

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.

FCC Registration Required for Operation under Rule 15.240

Radio transmissions from the i-Port F310 are governed in the US by FCC Part 15 rules, and in Canada by corresponding Industry Canada regulation RSS-210 . Still other regulations apply in Europe and other countries.

The i-Port F310 is shipped with the default mode of operation corresponding to FCC 15.231. All other Identec Solutions equipment complies with 15.231. Equipment operating under this rule does not require FCC Registration.

FCC Rule 15.240 offers some advantages in thru-put and flexibility for applications involving containerized cargo. I-Port F310 can be configured for operation under this rule only by a qualified technician downloading factory-supplied configuration files.

There are restrictions in the geographical locations where such equipment may be deployed so as to maintain a 40 km separation from five long-range radar sites in the US and Alaska. The FCC requires notification of the locations where 15.240 operating equipment is to be installed. Identec Solutions notifies the FCC of the initial shipping destination. However, it is the responsibility of the end user to mail a notification of installation to the FCC as described in the form provided below upon initial installation. It is also required that the user mail a new notification in the event the equipment is re-located.

The form is to be mailed to:

<div align="center">

Experimental Licensing Branch
Office of Engineering & Technology
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554
ATTN: RFID Registration

</div>

Selected text from FCC Rule 15.240 Operation in the band 433.5 – 434.5 MHz

(a) "Operation under this section is restricted to devices that use radio frequency energy to identify the contents of commercial shipping containers. Operations must be limited to commercial and industrial areas such as ports, rail terminals and warehouses."

(e) "To prevent interference to Federal Government radar systems, operation under the provisions of this section is not permitted within 40 kilometers of the following locations:"

DoD Radar Site	Latitude	Longitude
Beale Air Force Base	39°08'10"N	121°21'04"W
Cape Cod Air Force Station	41°45'07"N	070°32'17"W
Clear Air Force Station	64°55'16"N	143°05'02"W
Cavalier Air Force Station	48°43'12"	097°54'00"W
Eglin Air Force Base	30°43'12"	086°12'36"W

FCC RFID REGISTRATION FORM
FOR FCC RULE 15.240

To:

Experimental Licensing Branch, OET
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554
ATTN: RFID Registration

Subject: Registration for Savi Technology, Inc. Model SR-650-101 RFID Fixed Interrogator

The following information concerning the end user and installation location is hereby submitted as required by FCC Rule 15.240:

End User Company Name: _____

Individual to Contact: _____

Mailing Address of Contact: _____
_____
_____

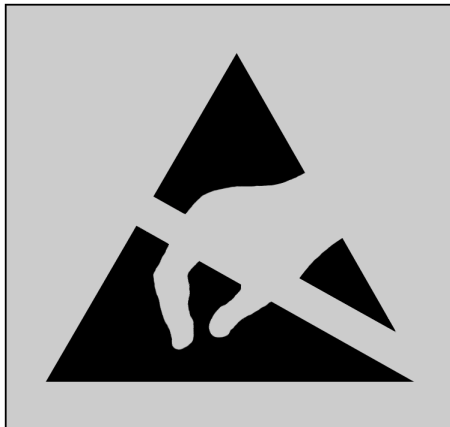**Street Address of Contact Office:** _____
_____
_____

Contact Telephone Number: _____

Contact E-Mail Address: _____

Street Address of Equipment Installation: _____
_____
_____

Latitude: _____ **Longitude:** _____

FCC ID of Equipment: KL7-650R-V2

_____   _____
        Contact Signature   **Date**

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. Even better: Use an antistatic ribbon and earth yourself permanently for the time you handle the unit.

- Avoid unnecessary contact with the unit connectors and assemblies inside the unit.

- Only open the unit if the operational settings (as described in the manual) expressly require this.

- 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.

- Only remove unit and components from the packaging immediately prior to installation.

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

Contents

1 Introduction

1.1 Associated Documents

Manuals

IM.0780.EN	System Description, English
IM.0781.EN	i-PORT F310 Hardware and Installation Manual, English (this document)
IM.0782.EN	Tag Manual (Mounting, Use, and Maintenance), English
IM.0783.EN	Symbol Handheld Accessory—Portable Interrogator

Data Sheets

|	
ID.0680.EN	i-PORT F310, English
ID.0681.EN	i-Q310 ATN—Asset Tag, English
ID.0682.EN	i-Q310 ATR—Asset Tag, English
ID.0683.EN	i-Q310 DRT—Data Rich Tag, English
ID.0684.EN	i-Q310 SET—Sensor Tag, English
ID.0685.EN	i-Q310 LPT—License Plate Tag, English
ID.0686.EN	i-Q310 CST—Container Security Tag, English
ID.0689.EN	i-Port H310—Portable Interrogator

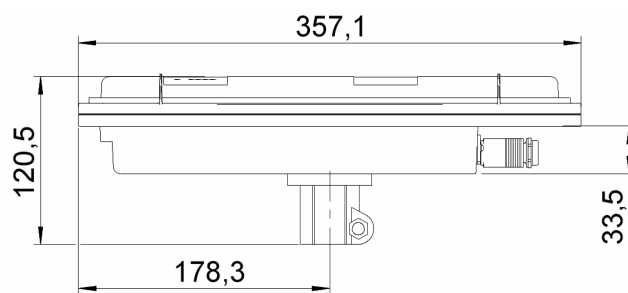# 2   Mechanical Installation

The unit comes with pre-installed mounting

2.1   Dimensional Drawings
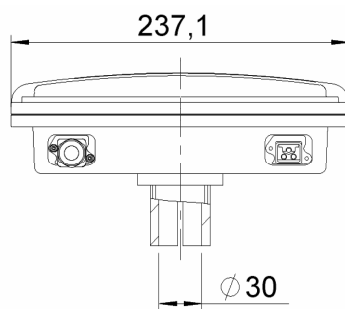
Bottom view

Side view

3 Electrical Installation

3.1 Safety Instructions

- The power supply circuit must comply with the requirements of the SELV circuits (see EN 60950).

- The signal circuits must comply with the requirements of the SELV circuits (see EN 60950).

Glossary

SELV   Safety Extra Low Voltage – Protective measure against dangerous body currents.
Protective first voltage, circuit not floating.

EMC   Electromagnetic Compatibility

RxD   Receive Data

TxD   Transmit Data

3.2 Position of Ports
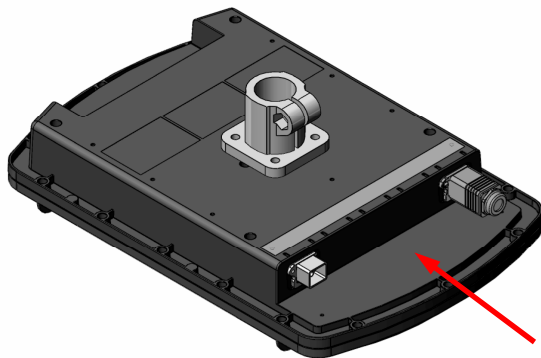
All connectors are at the bottom side of the unit.
The connectors are labeled on the read side of the unit.

AC SUPPLY	RS 485	RS 485	RS 232	ETH
47 ... 63 Hz	DC SUPPLY OUT	DC SUPPLY IN	USB	10 / 100
90 ... 260 VAC	10 ... 30 VDC	10 ... 30 VDC		

3.3 Power Supply

The i-PORT F310 can be powered parallel in two ways:
- Mains voltage applied to the connector labeled "AC SUPPLY, 47 … 63 Hz, 90 … 260 VAC"

- DC voltage of 10 to 30 VDC applied to the bus connector labeled "RS 485, DC SUPPLY IN, 10 … 30 VDC".

So it is easy to have the mains supply as standard plus a backup battery for uninterrupted operation during power failures. Necessary decoupling circuitry is built-in.

Warning

Do not apply supply voltage to the connector labeled "RS 485, DC SUPPLY OUT, 10 … 30 VDC".

3.4 RS 485 Bus Connectors

Warning

Do not apply supply voltage to the connector labeled "RS 485, DC SUPPLY OUT, 10 … 30 VDC".

3.5 RS232/USB Connector

This connector is intended for service and set-up during initial operation. In standard operation this connector is unused. Always use the cap to protect the connector.

Please pay attention to the limitations of cable runs of RS232 (max. 15 m) and USB (max 5 m).

Adapter cables to a PC

3.6 Ethernet Connector

Warning

Do not connect any device to your network before it has been configured. Before connecting to your network, check that the desired IP address has been set. A not-configured device may have any IP address. A device with the wrong settings may impede the functioning of your network.

Ethernet interface with 10 or 100Mbit/s. Connect the central unit to your network with a wired 1:1 network cable. The host connection is a RJ45 socket. Use a regular Ethernet cable here.
The allocation corresponds to that of simple network adapters in PCs (10/100-Base T). Therefore, to connect to the network or the hub, a simple 1:1 network cable is required.
If you want to connect directly to a computer you must use a so-called crossed cable.

4 Initial Operation

4.1 Checking the Installation

After completing the installation the operation must be systematically checked.
The installation check can be divided into three sections:

- Visual test

- Basic operational check

- Detailed operational check

If the basic check of the operational behavior is to be carried out using a (portable) PC a final check via the intended user control system should also be carried out.

4.2 Configuration

4.2.1 Tools Needed

4.3 Configuration of the Ethernet Interface

Tools needed
- PC with working Ethernet NIC running MS Windows for configuration software

- Software "Device Discovery Utility"

- Crossover Ethernet cable

- Power supply (24 VDC) for the i-PORT

- Network settings from your network administrator

Prepare the PC
- Disconnect the PC from the network

- Set the Ethernet connection of the PC to DHCP (described below)

- Switch off the proxy settings of the standard web browser

After finishing the configuration of all i-PORTs restore the previous settings of the PC.

4.4   Status Display (LEDs)
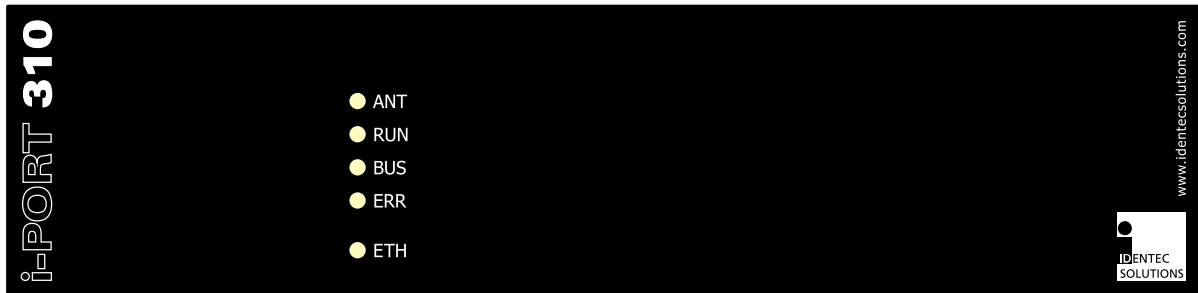
ANT   lights green when transmitting RF to a tag, lights orange when receiving data from a tag

RUN   Device is running properly (LED blinks at approx 1 Hz).

BUS   Blinks GREEN when data is transferred on any of the interfaces

ERR   Blinks RED when an error occurs

ETH   Ethernet connector plugged in (Link)

5 Maintenance

5.1 General

In principle, the ILR system is maintenance-free. When correctly installed it operates for many years without any problems.

5.2 Precautionary Maintenance

Regular checking of all ports and cables belonging to the system is recommended. Unstable connections could lead to damage and malfunctions of the system and therefore should be repaired as soon as possible.

A Brief Checklist

- Are all casing intact?
- Are all cables intact?
- Are all connectors intact?
- Are all connectors securely fastened?
- Are all screws still tight?
- Is there suddenly a malfunction at a specific unit?

5.3 Spare Parts

5.3.1 Recommended spare parts stock

In order to keep the down time of the system during malfunctions as short as possible it is recommended to have certain spare parts in stock. At least one central unit, one antenna and one antenna cable should be available. With larger systems with more than approx. 15 i-PORTs the doubling of the recommended stock quantity should be considered.
Furthermore, it is recommended to have several spare tags in stock,
corresponding to approx. 0.5 – 1 % of the total number of tags.

5.3.2 Preparing the spare parts

In general all spare parts can be used immediately after delivery from IDENTEC SOLUTIONS. However, for the compact communicator there are various settings of the communication parameters. In order to keep the down times short it is recommended to set these parameters before the component is entered into the spare part stock system. In most cases all units within an identification system are used in the same way so that only one setting is required.

5.3.3 Examination and repair of exchanged parts

The data tags and compact communicators 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 carried out.

5.4 Returns

Parts or main components returned for repair or exchange must be handled with great care. PC cards must be returned in the appropriate ESD-protecting packaging material.
All returns should include a completed returns form (see appendix) and be sent to the local distributor or to:

      IDENTEC SOLUTIONS AG
      Service Department
      Millenium Park 2
      6890 Lustenau
      AUSTRIA / AUTRICHE

6   Technical Data

Compatibility   ILR® i-Q310 ISO 18000-7 Tags

Performance
Write range	Up to 100 m (300 ft)
Read range	Up to 100 m (300 ft)
Read rate identification	100 tags/s

Communication
Frequency	433.92 MHz
Certification	ISO/IEC 18000-7
Data rate up/download	27.778 kbits/s
Number of antennas	1 (Embedded)
Antenna connection	internal
Transmit power	≤ 0 dBm, digitally adjustable
Transmission safeguard	16 bit CRC
Sensitivity	-85 dBm/ high sensitivity
(digitally adjustable)	-55 dBm/ normal sensitivity

CPU
Program memory	2 MBytes Flash
Configuration memory	Up to 128 kBytes

Interfaces
Host interface	Ethernet, RS232, RS485 (IN and OUT), USB
Status display	5 LEDs (ANT1, ANT2, RUN, BUS, ERR)

Electrical
Power source	10 – 30 VDC, 100 – 240 VAC, 50 – 60 Hz AC
Input power	< 0.5 W

Environmental
Operating temperature	–30 °C to +60 °C (–22 °F to +140 °F)
Storage temperature	–40 °C to +70 °C (–40 °F to +158 °F)
Humidity	90 % non-condensing

Physical
Dimensions	285 mm × 202 mm × 60 mm (11.2 in. × 7.95 in. × 2.36 in.)
Case material	Plastic/Aluminum
Weight	800 g
Package rating	IP64