

SRT 334i User's Manual

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Contents

Introduction	5
Scope.....	5
General Characteristics	5
General.....	5
Electrical.....	5
Physical	5
Interfaces	5
Safety Precautions	7
RF Exposure.....	7
General Statement on RF Energy.....	7
Specific Absorption Rate (SAR)	7
Body Worn Operation.....	7
Product Handling	7
General Statement on Handling and Use	7
Small Children	7
Demagnetisation.....	7
Seizures/ Blackouts	8
Electrical Safety.....	8
Accessories.....	8
Faulty and Damaged Products	8
Interference	8
General Statement on Interference.....	8
Pacemakers.....	8
Hearing aids	8
Medical Devices	8
Hospitals.....	8
Aircraft	8
Interference in Cars	8
Explosive Environments.....	9
Petrol Stations and Explosive Atmospheres	9
Blasting Caps and Areas	9
Declaration of RoHS Compliance	10
WEEE Notice.....	11
EC DECLARATION OF CONFORMITY.....	12
Hardware	13
Installation	13
Battery, External Power and Charger	13
Battery.....	13
Charging	13
Battery Level Indicator.....	13
External Power Indicator	13
On/Off Button	14
Low Battery Voltage Mode	14
Shutdown Voltage Mode	14
Buzzer.....	14
Vibration Sensor.....	14
RF Transceivers	15
RF Tag Status Indicator	15
RF Router Status Indicator (<i>SRT334i2 only</i>)	15



Introduction

SRT 334i is a compact RF transceiver device designed to implement various accompanying features when installed or come within a certain range of compatible SRT products such as other SRT334i's or SRT306i, SRT326i, SRT346, SRT330i and SRT332.

SRT334i is primarily designed to be positioned indoor locations and powered via an external power source but thanks to the included back-up battery, operation may last for up to eight hours in case of power outage.

Scope

This document describes general hardware specifications.

The product is based on a Radiocrafts TinyMesh™ RF transceiver modules which use integrated antenna for bidirectional RF data transfer. Device hardware also includes a digital vibration sensor for tamper detection.

General Characteristics

General

- Operating Frequency Band: 2400 – 2483 MHz
- Number of Channels : 83
- Transmit Power Min/Max : -10/18 dBm
- Complies with EN 300 328 (Europe), FCC CFR 47 part 15 (US) and ARIB STD-T66 (Japan)
- OTA configuration via supplied configuration device
- Adjustable broadcast range
- Tamper detection circuitry
- Back-up battery
- Functions as a position broadcasting beacon (RF tag)
- Functions simultaneously as a network relay element (RF router) (*SRT334i2 only*)
- Compatible with RF supported SRT products

Electrical

- Integrated 3.7V Li-ion battery with 630 mAh minimum capacity
- 150 mA maximum charge current
- Power supply requirement: 5V DC / 500 mA

Physical

- 80x40x20 mm dimensions
- Weight 54 g (excluding power plug)
- Operating temperature: -40°C to +85°C
- Storage temperature: -50°C to +150°C

Interfaces

- Integrated antenna
- Network connection indicators
- Low battery detection indicator

- Power source fail indicator
- On/Off button
- Tamper button (optional)
- Build-in relay (optional)

Safety Precautions

RF Exposure

General Statement on RF Energy

Your device contains a transmitter and a receiver. When it is ON, it receives and transmits RF energy.

Specific Absorption Rate (SAR)

Your device is a radio transmitter and receiver. It is designed not to exceed the limits of exposure to radio waves recommended by international guidelines.

Body Worn Operation

Important safety information regarding radio frequency radiation (RF) exposure.

To ensure compliance with RF exposure guidelines the device must be used with a minimum of 15 mm separation from the body. Failure to observe these instructions could result in your RF exposure exceeding the relevant guideline limits.

Product Handling

General Statement on Handling and Use

- Always treat your device and its accessories with care and keep it in a clean and dust-free place.
- Do not expose your device or its accessories to open flames or lit tobacco products.
- Do not expose your device or its accessories to liquid, moisture or high humidity.
- Do not drop, throw or try to bend your device or its accessories.
- Do not use harsh chemicals, cleaning solvents, or aerosols to clean the device or its accessories.
- Do not paint your device or its accessories.
- Do not attempt to disassemble your device or its accessories, only authorized personnel must do so.
- Do not expose your device or its accessories to extreme temperatures.
- Please check local regulations for disposal of electronic products.

Small Children

Do not leave your device and its accessories within the reach of small children or allow them to play with it. They could hurt themselves or others, or could accidentally damage the device. Your device contains small parts with sharp edges that may cause an injury or which could become detached and create a choking hazard.

Demagnetisation

To avoid the risk of demagnetization, do not allow electronic devices or magnetic media close to your device for a long time.

Seizures/ Blackouts

The device can produce a bright or a flashing light.

Electrical Safety

Accessories

Use only approved accessories. Do not connect with incompatible products or accessories.

Faulty and Damaged Products

Do not attempt to disassemble the equipment or its accessory. Only qualified personnel must service or repair the equipment or its accessory. If your equipment or its accessory has been submerged in water, punctured, or subjected to a severe fall, do not use it until you have taken it to be checked at an authorized service center.

Interference

General Statement on Interference

Care must be taken when using the device in close proximity to personal medical devices, such as pacemakers and hearing aids.

Pacemakers

Pacemaker manufactures recommend that a minimum separation of 15 cm be maintained between a wireless device and a pacemaker to avoid potential interference with the pacemaker.

Hearing aids

People with hearing aids or other cochlear implants may experience interfering noises when using wireless devices or when one is nearby. The level of interference will depend on the type of hearing device and the distance from the interference source, increasing the separation between them may reduce the interference. You may also consult your hearing aid manufacturer to discuss alternatives.

Medical Devices

Please consult your doctor and the device manufacturer to determine if operation of your equipment may interfere with the operation of your medical device.

Hospitals

Switch off your wireless device when requested to do so in hospitals, clinics or health care facilities. These requests are designed to prevent possible interference with sensitive medical equipment.

Aircraft

Switch off your wireless device whenever you are instructed to do so by airport or airline staff.

Interference in Cars

Please note that because of possible interference to electronic equipment, some vehicle manufactures forbid the use of wireless devices in their vehicles.

Explosive Environments

Petrol Stations and Explosive Atmospheres

In locations with potentially explosive atmospheres, obey all posted signs to turn off wireless devices.

Areas with potentially explosive atmospheres include fuelling areas, below decks on boats, fuel or chemical transfer or storage facilities, areas where the air contains chemicals or particles, such as grain, dust or metal powders.

Blasting Caps and Areas

Turn off your wireless device when in a blasting area or in areas posted turn off "two-way radios" or "electronic devices" to avoid interfering with blasting operations.

Declaration of RoHS Compliance

To minimize the environmental impact and take more responsibility to the earth we live in, this document shall serve as formal declaration that the SRT 334i manufactured by SCANDINAVIAN RADIO TECHNOLOGY AB is in compliance with the Directive 2002/95/EC of the European Parliament – RoHS (Restriction of Hazardous Substances) with respect to the following substances:

- (1) Lead (Pb)
- (2) Mercury (Hg)
- (3) Cadmium (Cd)
- (4) Hexavalent Chromium (Cr (VI))
- (5) Polybrominated biphenyls (PBB's)
- (6) Polybrominated diphenyl ethers (PBDE's)

(Compliance is evidenced by written declaration from our suppliers, assuring that any potential trace contamination levels of the substances listed above are below the maximum level set by EU 2002/95/EC, or are exempt due to their application.)

The SRT 334i manufactured by SCANDINAVIAN RADIO TECHNOLOGY AB, meets the requirements of EU 2002/95/EC.

WEEE Notice

The Directive on Waste Electrical and Electronic Equipment (WEEE), which entered into force as European law on 13th February 2003, resulted in a major change in the treatment of electrical equipment at end-of-life. The purpose of this Directive is, as a first priority, the prevention of WEEE, and in addition, to promote the reuse, recycling and other forms of recovery of such wastes so as to reduce disposal.



1. When this crossed-out wheeled bin symbol (WEEE logo) is attached to a product it means the product is covered by the European Directive 2002/96/CE.
2. All electrical and electronic products should be disposed of separately from the municipal waste stream via appointed by the government or the local authorities.
3. The correct disposal of your old appliance will help prevent negative consequences for the environment and human health.

For more information about electronic and electrical waste equipment disposal, recovery, and collection points, please contact your local city centre, household waste disposal service, shop from where you purchased the equipment, or manufacturer of the equipment.

EC DECLARATION OF CONFORMITY

The undersigned, representing the following manufacturer

Name:	Scandinavian Radio Technology AB
Address:	Box 23 162 11 Vällingby, Sweden
Telephone:	+46 8 620 2960
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herewith declares that the product

Type of equipment:	<i>RF transceiver operating in 2400-2483 MHz</i>
Brand name/trade mark:	SRT 334i
Model/type:	SRT 334i

complies with the essential requirements of Article 3 of the R&TTE 1999/5/EC directive. The following standards have been applied:

<i>Reference no</i>	<i>Title</i>
EN 60 950-1	<i>R&TTE Directive related to safety</i>
EN 301 489-1 V1.9.2 EN 301 489-17 V2.2.1	<i>R&TTE Directive related to electromagnetic compatibility</i>

Vällingby 2015-06-01



Tahir Albayrak
Managing Director of Scandinavian Radio Technology AB

Hardware

Installation

Multiple SRT334i devices form a wireless mesh network by communicating with each other given that they are positioned within the broadcast range. It is for this reason that proper placement and installation are critical for efficient and accurate functioning of the system.

Battery, External Power and Charger

Battery

SRT334i runs connected to an external power source (power outlet). To be able to get undesirable situations (e.g. power outage) covered, the product includes an integrated rechargeable Li-Ion battery with a nominal voltage of 3.7V and minimum capacity of 630mAh. The included battery satisfies all the requirements regarding ripple, internal resistance and peak current capacity.

The battery in SRT334i may not be changed or replaced by a user.

Charging

When the device is connected to external power and the charging process is started automatically if the battery needs to be charged. It stops when the battery is fully charged and starts again when the level drops under a certain level. The charge current is maximum 150 mA.

Battery Level Indicator

The Battery Level Indicator is a green LED that indicates whether the battery level is good or low.

Battery Level Indication

When the device is OFF, the LED will be off.

When the device is ON and connected to external power, the LED will be solid green light.

When the device is ON and not connected to external power, the LED indicates the current battery level by solid or blinking green light:

Solid: Battery level is good

Blinking: Battery level is low

External Power Indicator

When the device is OFF, the LED will be off.

When the device is ON, the LED indicates whether a power source is connected or not by solid or blinking green light:

Solid: Power source detected

Blinking: Power source fail

Power source detection also starts charging process automatically.

On/Off Button

When On/Off button is pressed and hold for 5 seconds while the unit is off, the unit will turn on. If On/Off button is not disabled for turning the unit off, pressing it and holding for 5 seconds will turn the unit off.

Low Battery Voltage Mode

SRT 334i enters the Low Battery Voltage Mode when the battery level has been below 3.7V while the device is not connected to an external power source. Low Battery Voltage status is indicated in broadcast messages and by LED.

For the Low Battery Voltage Mode to be cleared, the device must be connected to an external power source.

While the unit is in Low Battery Mode, all functions work as normal.

Shutdown Voltage Mode

SRT 334i enters the Shutdown Voltage Mode when the battery level has been below 3.5V while the device is not connected to an external power source.

While the unit is in Shutdown Voltage Mode, no functions work as normal and all LEDs are off although the unit is on.

For the Shutdown Voltage Mode to be cleared, the device must be connected to an external power source. As soon as this occurs, all functions will start working as normal again including the LED status indications.

Buzzer

When an alarm message is repeated and broadcasted by an Alarm receiver (e.g. SRT330i) SRT334i sounds a signal via the internal buzzer. This is used to indicate the event of alarm reception for those SRT334i's which have successfully received and relayed the signal further on.

Vibration Sensor

The Vibration Sensor can be optionally enabled to detect and notify unwanted movement of the device. Detection sensitivity and related parameters can be adjusted easily over the air if necessary, during or before the installation.

RF Transceivers

SRT334i includes a single RF transceiver whereas *SRT334i2* variant includes two.

SRT334i can only operate as a dedicated RF tag. (Position broadcasting beacon)

SRT334i2 can operate both as a RF tag and a RF router simultaneously. Each RF transceiver operates on a dedicated RF network.

RF Tag does not require any additional network node to be operational. A device configured as a RF tag simply broadcasts a user defined text message to be received and processed by portable SRT products which are configured to operate on the same local network and close enough to be in a certain predefined range.

RF Router is a basic network relay element to pass on data packets through nodes of a wireless network which contains one or more interconnected RF routers and at least one terminal node (gateway) where all relayed data packets are collected.

RF Tag Status Indicator

The RF Tag Status Indicator is a green LED that indicates if the RF Tag is in contact with network.

When the device is OFF, the LED will be off.

When the LED is solid, the unit is on but has no connection to a network.

When the LED is flashing, the unit is effectively in contact with a network.

RF Router Status Indicator (*SRT334i2* only)

The RF Router Status Indicator is a green LED that indicates if the RF Router is in contact with network.

When the device is OFF, the LED will be off.

When the LED is solid, the unit is on but has no connection to a network.

When the LED is flashing, the unit is effectively in contact with a network.