

SENSECOM-IC1, IDH

Communication devices with RFID and BARC readers

Purpose

The **SENSECOM-IC1** is designed for intermittent RFID (input card) and barcode (BARC) reading with sending this data via the SIGFOX IoT network. The **SENSECOM-IC1** requires a power supply from the network.

Typical use: monitoring the work of workers and work crews at the entrances of selected workplaces.

The **SENSECOM-IDH** is designed for occasional reading of RFID (input cards) using either 1 (IDH1) or 2 (IDH2) activation buttons.

Typical use: monitoring the work of workers or workers running errands in remote locations. The **SENSECOM-IDH** does not require an external power supply.

The device is not intended for the entrance gates of companies with a large number of employees. Message transmission is limited by the use of the 868MHz band and the small message datagram capacity of the SIGFOX network.

Description of equipment:

The **SENSECOM-IC1, IDH1, IDH2** devices can read RFID code (typically an access card) and barcode (IC1 type only) and send the read data via the SIGFOX IoT network to cloud storage for further processing. It can transmit 1-2 BARCs or one full RFID code per message, or 5 RFID card indexes/message. The index is usable unless the corresponding card sector is blocked for reading and writing the index. The device stores the index on the card when it is first read. The IDH2 has 2 activation buttons (differentiation of reading purpose, e.g. arrival/departure).

Data processing

In the SIGFOX cloud, the measured values are available for processing typically within 7 seconds of being sent. Data can be retrieved using a call-back mechanism (push method), REST-API, or by downloading to a CSV file (manually).

Device security

The device includes an accelerometer that indicates tampering/manipulation of the device. In the event of an intrusion, it sends an alarm message. The device also sends a 1x/day system Keep-Alive message on battery voltage and processor temperature. There is also a temperature and humidity sensor inside the device. The message transmission has integrity assured via the AES-128 algorithm (to prevent message spoofing).



Types of messages

Types of transmitted messages from SENSECOM-IC1, -IDH to (from) the cloud:

- **Readout message** - a message containing read RFID or BARC codes, or RFID card indexes, sensor values and temperature, humidity, accelerometer values of the communication unit.
- **Alarm message** - a message generated when accelerometer thresholds in the device are exceeded or when temperature and humidity changes inside the device.
- **Keep-Alive message** - system periodic message sent by the device every 24 hours.
- **Downlink acknowledge message** - system response to a received downlink.
- **Downlink message** - a message received by the device from the SIGFOX back-end as part of sending the first message following each Keep-Alive message. It is used to reconfigure the device or assign an additional RFID card index pool, if applicable.

Remote reconfiguration and FW upgrade

The sensitivity of the accelerometer or T/RH sensor can be remotely overridden once per day, at the end of the first message after the system Keep-Alive message. Contact the manufacturer for remote resetting. In locations with poor SIGFOX network coverage, the device may not be able to receive a downlink message even though the uplink messages have been received by the network from the device. Upgrading the device FW cannot be done remotely.

Device design:

The device is designed to be mounted on a wall or structure. The device is in a plastic housing (ABS material) with protection rating IP60 (IC1), IP65 (IDH), mounting of the housing is possible in 4 corners. The device has a hole at the bottom for reading the barcode (IC1). The antenna is integrated inside.

Technical parameters

Parameter	SENSECOM-IC1	SENSECOM-IDH1	SENSECOM-IDH2
Type and number of readers	1x RFID 1x BARC	1xRFID	-
RFID/BARC reading activation	Directly by attaching an RFID card or barcode	Button	Button (1 of 2 possible)
Max number of codes in the message	2xBARC or 1xRFID or 5 RFID indexes (if the card has an index stored)		
Max number of messages	6 per hour, 140 per day (messages are sent no sooner than 10min after the previous message)		
Writing the index to the card	Yes - automatically, if a) writing to the selected card sector is enabled, b) the card does not yet contain an index, and c) the device has an index pool assigned (the next pool is automatically assigned to the device via a downlink from the back-end)		
Network for data transmission	SIGFOX (ISM band 868MHz)		
Types of uplink messages	Value with BARC/RFID codes Initiation Alarm - device manipulation (accelerometer), sudden temperature/humidity changes Keep-Alive (24h)		
Access to data	SIGFOX back-end (12 Bytes message payload) or SmartImp NDB (with data normalization), data transfer variants: Call-back (push) REST-API Email CSV download		
Internal device sensors	Accelerometer, thermometer, hygrometer - adjustable sensitivity for alarms ¹		
Antenna	Internal (868MHz)		
Power	From 240V mains (high consumption of the BARC reader does not allow to use the battery for a long time).	Battery - lithium (non-rechargeable) 3,6V, size D, type SAFT LS 33600.	
LED signalling	Successful/failed RFID/BARC read. Transmission (typically 6s, rarely 60s) to SIGFOX (the device does not read codes during transmission).		
Expected battery life without battery replacement	N/A	> 5 years at 4 messages/day	
Coverage	IP60 - indoor	IP65 (IP67 with silicone) - outdoor	
Weight	300g	150g	
Operating temperature	-25° to +75°C and at relative humidity up to 85%	-25° to +75°C	
Housing dimensions	240x190x95mm	160x80x60mm	
SIGFOX certificate	P_00B4_FE9C_01		

¹Remotely adjustable - contact the manufacturer to reconfigure

Device housing SENSECOM-IC1

Housing: material ABS, protection IP60, dimensions without external handles 240x190x95mm (with handles 270mm)



SENSECOM-IDH1, IDH2

Housing: material ABS, protection IP67 (with silicone), dimensions without external handles 160x80x60mm

IDH1 - 1x button, IDH2 - 2x buttons

