

EasySens airScan

USB Transceiver & Software – EnOcean Field Strength Test Tool

thermokon
Sensortechnik GmbH

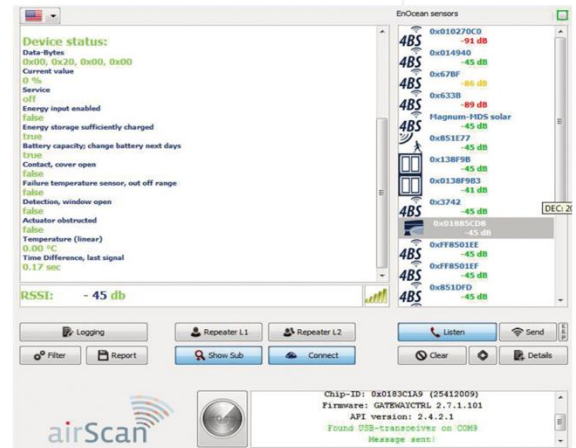
Data Sheet

Subject to technical alteration
Issue date: 27.06.2014

The efficient
planning tool



airScan



Application

Thermokon **airScan** consists of an EasySens USB transceiver and a software, that converts your notebook or Windows® tablet into a field strength test tool. It helps integrators to measure sufficient radio ranges and/or to find the right location for wireless EnOcean receivers. airScan is designed to give a quick overview of received EnOcean telegrams and to read status, ID, field strength and manufacturer of integrated products.

All EnOcean telegrams received will be shown in the airScan tool/USB, which should be mounted in the location of the existing or intended EnOcean receiver's antenna. We recommend using the 3m/10ft USB extension cable.

The software should be downloaded from Thermokon's web site www.thermokon.de/download-center/ which ensures that the newest version will be obtained.

Installation

System requirements:

Thermokon airScan is available for devices with operating system Microsoft® Windows XP or newer. For using the USB transceiver the device needs an USB 2.0 port.

Hardware:

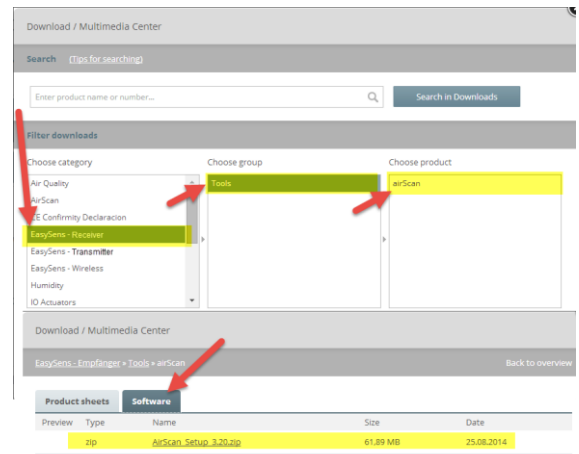
Plug Thermokon EasySens USB transceiver into USB port of you notebook/tablet. Follow the instructions to install the drivers.

If the driver cannot be found automatically, please download the latest driver from FTDI's website for your operating system <http://www.ftdichip.com/Drivers/VCP.htm>.

Make sure that you have administrative rights to complete the installation of the drivers.

Software:

1. Download the software from our Mediacenter at www.thermokon.de
2. Click on ,Downloads/Media'
3. Choose "EasySens - Receivers" in Category, "Tools" in Group and "airScan" in product
4. Use Software to download the latest version
5. Install the software following the installation instructions



Automatic query for available updates

In order to keep the software up-to-date, please open PORT 2016 to regularly let the software search for new updates. Once you bought airScan, those updates are free of charge!

Operating Thermokon airScan

Starting airScan will search for a USB transceiver with an airScan license.

Please note: Thermokon airScan software will work only with an original **EasySens** USB stick with an airScan licence. *3rd party devices are not supported.*

Main window of airScan

The screenshot shows the main window of the Thermokon airScan 3.00.10 software. The interface is divided into several sections:

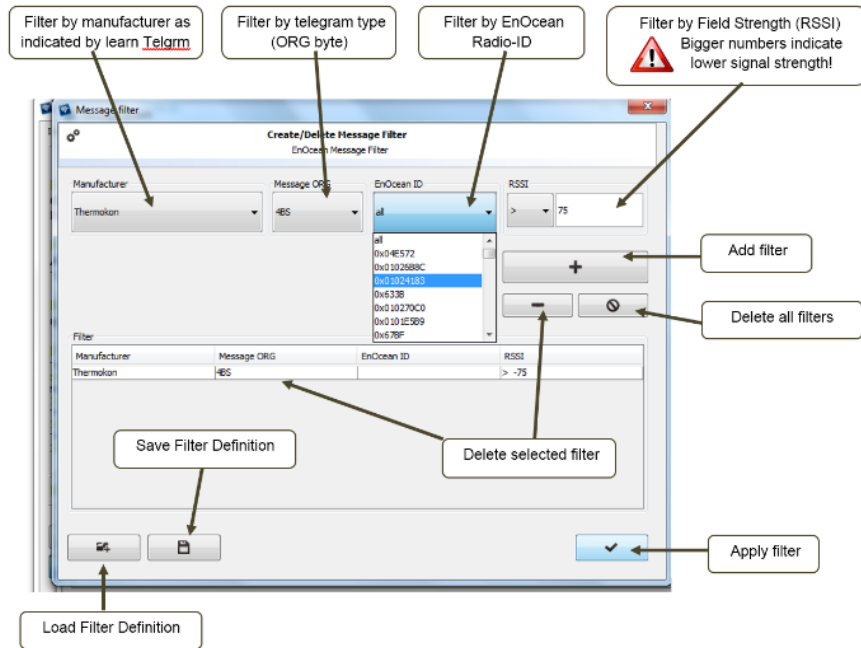
- Left Panel:** Contains buttons for 'Show EnOcean-ID', 'Show profile of the sensor', 'Show manufacturer', 'Current device status', 'Time elapsed since last telegram', 'Enable logging', and 'Create a report of received telegrams'.
- Main Display:** Shows sensor details for 'EnOcean-ID: 0x01026B8C (16935820) Room 42B'. It includes profile information (A5-10-04), manufacturer (unknown), device status (Temperature Sensor, Set Point and Fan Speed), and RSSI (-91 db).
- Right Panel:** Lists 'EnOcean sensors' with their IDs and signal strengths (e.g., 0x04E572 -91 db, 0x01024183 -91 db, etc.).
- Bottom Panel:** Includes buttons for 'Logging', 'Filter', 'Report', 'Repeater L1', 'Repeater L2', 'Show Sub', 'Connect', 'Listen', 'Clear', and 'Details'. It also displays chip and firmware information.

Callout boxes provide the following explanations:

- 'Show EnOcean-ID' points to the EnOcean-ID field.
- 'Show profile of the sensor' points to the Profile field.
- 'Show manufacturer' points to the Manufacturer field.
- 'Current device status' points to the Device status section.
- 'Time elapsed since last telegram' points to the 'Time Difference, last signal' field.
- 'Enable logging' points to the 'Logging' button.
- 'Create a report of received telegrams' points to the 'Report' button.
- 'Sensor list incl. dB attenuation' points to the list of sensors on the right.
- 'Listen to telegrams ON/OFF' points to the 'Listen' button.
- 'Show details' points to the 'Details' button.
- 'Clear sensor list' points to the 'Clear' button.
- 'USB works as a repeater L1/L2' points to the 'Repeater L1' and 'Repeater L2' buttons.

By clicking 'Filter', it is possible to set a filter on incoming telegrams. Only signals, that match the filter definition, will be shown in the main window, while active 'Logging' to the file logfile.txt is not affected by the filter. The signal can be filtered by manufacturer (if the manufacture ID is transmitted with the teaching telegram of the sensor; as long as no teaching telegram has been received for a particular EnOcean ID, "Unknown" will be displayed in the main window).

Filter definitions

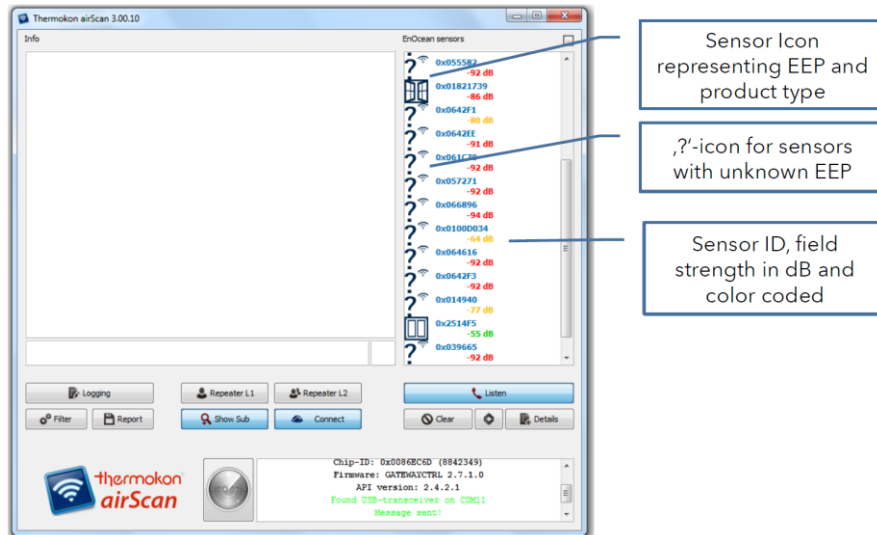


Filters can be set on the selected type of telegram being received. Only telegrams which are selected will be shown in the sensor list.

- RPS = switch signals, incl. keycard or remote
- 1BS = 1 Byte sensor (i.e. window contact, window handle),
- 4BS = 4-byte sensors, (i.e. Thermokon solar powered sensors)
- MSC = Manufacturer Specific Command (no standardized content, see product data sheet)
- VLD = Variable Length Data (no standardized content, see product data sheet)
- ADT = Addressed Data Telegram (no standardized content, see product data sheet)

A filter can be set on the EnOcean Radio-ID or the signal strength (RSSI) received by the USB transceiver.

Information shown in sensor list



Info window shows the information from the sensor marked in the sensor list.

Remark: RSSI levels are scaled in dB with higher numbers indicating weaker signals.



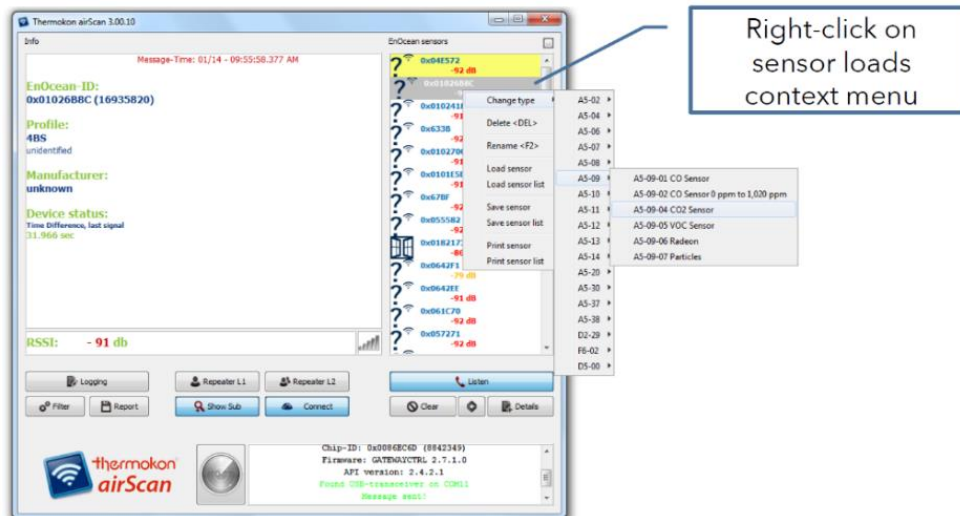
We recommend to use a USB extension cable (Art.-#574044) and place the USB transceiver at the position, where the signal strength shall be monitored.



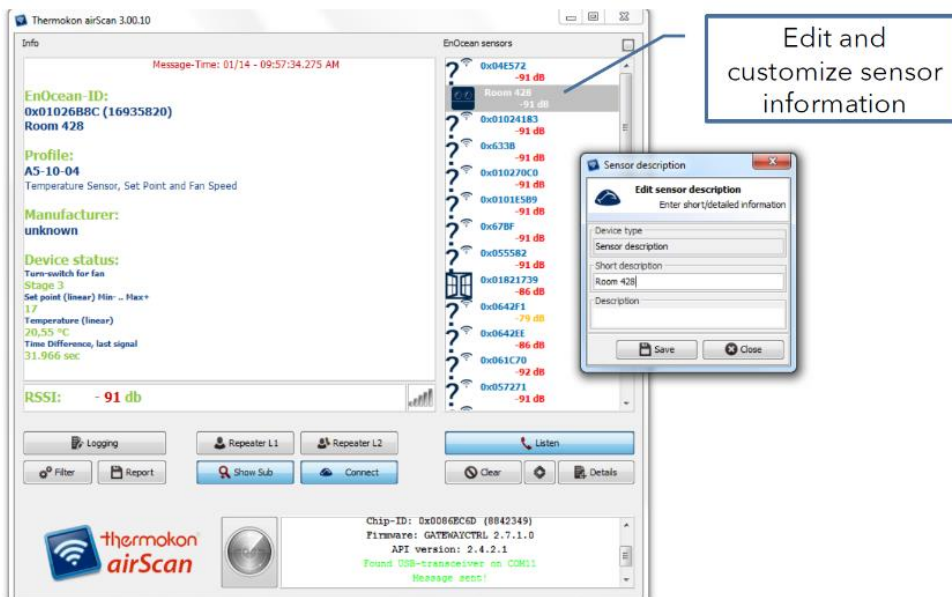
Defining the EEP (EnOcean Equipment Profile)

Using right mouse click will open a context menu.

The EEPs are intellectual property of the EnOcean Alliance. The latest version of the EEP-list can be obtained from the website of the EnOcean-Alliance: http://www.enocean-alliance.org/en/enocean_standard/



A renaming functionality has been integrated to be able to individualize sensor information in sensor list e.g. "living room light".



Details functionality

By clicking on the 'Details' button, a window containing all telegrams, that have been received and selected according to the filter setting, will be shown. The window shows data and time of the telegram, Radio-ID, type of Telegram (ORG) and EnOcean telegram in raw format.

Status column indicates whether a L1 or L2 repeater has been forwarding the signal.

Solar powered sensors send 3 sub-telegrams, sensors with mechanical harvester send 3 or more telegrams depending on the amount of energy harvested. Less than 3 sub-telegrams indicate a collision or a weak signal with range problems (See RSSI)

When a repeater is involved more than 3 sub-telegrams indicate that the original signal has been received as well as the repeated signal (totals 3+3).

The signal strength limit of EnOcean receivers typically is -90..-95 dB. Signals lower than this cannot be differentiated from the background noise. Because damping of signals will vary over time, a safety margin of 15..20 dB is strongly advised to ensure reliable communication.



Note about sensors with external antenna

Sensors with external antenna have a better transmission quality by approx.. 15 dB, as will be shown in the airScan software.

Coloured information in telegrams

Show current attenuation

Update window with new signals

View data or export to XML, XLS or CSV format

ID in Hex or Decimal

Scroll down window with new signals

Time	ID	ORIG	Data	Status	Repeated	RSSI	Sub	Security	Destination
06/11 - 04:04:34.563 PM	0xFFFF4000	HEBS	A5-32-80-00-08-FF-F5-40-00-00-02-FF-FF-FF-FF-5C-00	0x00	nr	-92	2	0x00	0xFFFFFFFF
06/11 - 04:04:37.610 PM	0xFFFF4000	HEBS	A5-32-80-00-08-FF-F5-40-00-00-01-FF-FF-FF-FF-5C-00	0x00	nr	-92	1	0x00	0xFFFFFFFF
06/11 - 04:04:38.500 PM	0x014940	HEBS	A5-00-41-41-0F-00-01-49-40-00-03-FF-FF-FF-FF-46-00	0x00	nr	-70	3	0x00	0xFFFFFFFF
06/11 - 04:04:39.094 PM	0x0642EE	HEBS	A5-09-2C-00-00-06-42-EE-00-03-FF-FF-FF-FF-50-00	0x00	nr	-80	3	0x00	0xFFFFFFFF
06/11 - 04:04:40.485 PM	0x01821739	HEBS	D5-09-01-82-17-39-00-03-FF-FF-FF-FF-50-00	0x00	nr	-80	3	0x00	0xFFFFFFFF
06/11 - 04:04:42.782 PM	0x05AA28	HEBS	A5-E1-FF-65-0F-00-05-AA-28-00-02-FF-FF-FF-FF-46-00	0x00	nr	-70	2	0x00	0xFFFFFFFF
06/11 - 04:04:48.298 PM	0x0642EB	HEBS	A5-D7-F9-00-00-06-42-EB-00-01-FF-FF-FF-FF-5F-00	0x00	nr	-95	1	0x00	0xFFFFFFFF
06/11 - 04:04:48.532 PM	0x0100D034	HEBS	A5-FA-00-FF-0F-01-00-D0-34-00-03-FF-FF-FF-FF-58-00	0x00	nr	-88	3	0x00	0xFFFFFFFF
06/11 - 04:04:48.563 PM	0x014940	HEBS	A5-00-3C-3C-0F-00-01-49-40-00-03-FF-FF-FF-FF-47-00	0x00	nr	-71	3	0x00	0xFFFFFFFF
06/11 - 04:04:49.235 PM	0x0642EE	HEBS	A5-DA-27-00-00-06-42-EE-00-03-FF-FF-FF-FF-52-00	0x00	nr	-82	3	0x00	0xFFFFFFFF
06/11 - 04:04:51.048 PM	0xFFFF5400	HEBS	A5-32-80-00-08-FF-F5-40-00-00-01-FF-FF-FF-FF-5C-00	0x00	nr	-92	1	0x00	0xFFFFFFFF
06/11 - 04:04:52.267 PM	0x05AA28	HEBS	A5-E1-FF-65-0F-00-05-AA-28-00-03-FF-FF-FF-FF-49-00	0x00	nr	-73	3	0x00	0xFFFFFFFF
06/11 - 04:05:00.361 PM	0xFFFF5400	HEBS	A5-32-80-00-08-FF-F5-40-00-00-01-FF-FF-FF-FF-58-00	0x00	nr	-91	1	0x00	0xFFFFFFFF
06/11 - 04:05:00.376 PM	0x03230E	HEBS	A5-FF-03-6E-08-00-03-23-0E-00-03-FF-FF-FF-FF-50-00	0x00	nr	-80	3	0x00	0xFFFFFFFF
06/11 - 04:05:01.767 PM	0x05AA28	HEBS	A5-E1-FF-65-0F-00-05-AA-28-00-03-FF-FF-FF-FF-53-00	0x00	nr	-83	3	0x00	0xFFFFFFFF
06/11 - 04:05:02.392 PM	0xFFFF5400	HEBS	A5-32-80-00-08-FF-F5-40-00-00-01-FF-FF-FF-FF-58-00	0x00	nr	-91	1	0x00	0xFFFFFFFF
06/11 - 04:05:11.252 PM	0x05AA28	HEBS	A5-E1-FF-65-0F-00-05-AA-28-00-01-FF-FF-FF-FF-47-00	0x00	nr	-71	3	0x00	0xFFFFFFFF
06/11 - 04:05:16.689 PM	0x0642EB	HEBS	A5-D7-F9-00-00-06-42-EB-00-01-FF-FF-FF-FF-5F-00	0x00	nr	-91	1	0x00	0xFFFFFFFF
06/11 - 04:05:18.721 PM	0x014940	HEBS	A5-00-34-35-0F-00-01-49-40-00-03-FF-FF-FF-FF-4A-00	0x00	nr	-68	3	0x00	0xFFFFFFFF
06/11 - 04:05:20.502 PM	0xFFFF5400	HEBS	A5-32-80-00-08-FF-F5-40-00-00-01-FF-FF-FF-FF-58-00	0x00	nr	-91	1	0x00	0xFFFFFFFF
06/11 - 04:05:20.752 PM	0xFFFF5400	HEBS	A5-32-80-00-08-FF-F5-40-00-00-01-FF-FF-FF-FF-58-00	0x00	nr	-91	1	0x00	0xFFFFFFFF
06/11 - 04:05:26.158 PM	0xFFFF5400	HEBS	06-42-EB-00-02-FF-FF-FF-FF-5E-00	0x00	nr	-94	2	0x00	0xFFFFFFFF
06/11 - 04:05:30.252 PM	0xFFFF5400	HEBS	A5-32-80-00-08-FF-F5-40-00-00-01-FF-FF-FF-FF-58-00	0x00	nr	-74	3	0x00	0xFFFFFFFF
06/11 - 04:05:30.471 PM	0xFFFF5400	HEBS	75-4D-00-00-01-FF-FF-FF-FF-58-00	0x00	nr	-91	1	0x00	0xFFFFFFFF

Reporting functionality

The Report feature can be used to define automatic saving of the log file containing the telegrams that matched the filter settings and can be sent via email or uploaded to a specified FTP-Server. The format can be chosen from XML, CSV or XLS (Microsoft® Excel).

Send reports via mail or upload to an FTP

Select your file-format

Define the report time period

Enter sender and recipient for the reports

Generating and sending telegrams

You also have the option to send out your set values (e.g. set temperature, status etc.) and let them be generated just by entering your desired value either in °C/°F, OPEN/CLOSE, LEARN and more. Via a drop-down menu at the top, you can select the EEPProfile of the sensor. (You may also download the EEP list here:

http://www.enocean.com/fileadmin/redaktion/enocean_alliance/pdf/EnOcean_Equipment_Profiles_EEP_V2.6_public.pdf

After that, all your data-bytes and the information contained will be shown, both in decimal and in units.

Under the menu 'Control', you are also able to send LEARN-telegrams. First you select the manufacturer and then how many sub-telegrams (1x, 3x, UTE) shall be sent. Click on LRN and the LEARN-telegram for this specific device (defined by the profile) is sent.

The screenshot shows a software window with the following sections:

- Profile:** A dropdown menu showing 'A5-02-01' and a label 'Temperature Sensor Range -40°C to 0°C'.
- 4BS data:**
 - Data-Byte 0: Two empty input boxes, with 'Byte: 0 - 255' above them.
 - Data-Byte 1: Two input boxes. The first contains '46' and the second contains '-7.2'. Above them is 'Byte: 0 - 255' and 'degrees celsius'. Below the first box is the text '*Temperature (linear)*'.
 - Data-Byte 2: Two empty input boxes, with 'Byte: 0 - 255' above them.
 - Data-Byte 3: Two empty input boxes, with 'Byte: 0 - 255' above them.
- Control:**
 - A dropdown menu showing '0x02 - Thermokon'.
 - A dropdown menu showing '1x'.
 - A button with a chain link icon and the text 'LRN'.
 - A button with a Wi-Fi icon and the text 'Send'.
 - A button with a red 'X' icon and the text 'Cancel'.
- Output:** A table showing the resulting telegram data:

RORG	DB 6	DB 5	DB 4	DB 3	DB 2	DB 1	DB 0	Status
A5				00	00	2E	08	80

Accessories

USB extension 3m/10",

Art.-Nr.: 574044