EvolvePlus Pty Ltd

USB Stick People Counter

Installation Guide and Operating Instructions

Models: PRx20U2 - PTx20-1
PRx10U2 - PTx10-1

Version Date: March 2016

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Overview – PRx20U2 – PTx20-1(Bi-directional)

The PRx20U2 - PTx20-1 (USB Stick model) is a bi-directional people counter. The principle is based on the interruption of a horizontal infrared beam.

The transmitter PTx20-1 transmits the infrared beam to the receiver "PRx20U2". When this infrared beam is interrupted, e.g. by a person, the receiver detects this and will increase the internal counter.

The PRx20U2 is direction sensitive, which means that counts in both directions are captured and stored separately.

The counter can run for approximately up to 1 year on a set of batteries, without compromising the counting distance.

Overview – PRx10U2 – PTx10-1(Uni-directional)

The PRx10U2 – PTx10-1 (USB Stick model) is a uni-directional people counter. The principle is based on the interruption of a horizontal infrared beam.

The transmitter PTx10-1 transmits the infrared beam to the receiver "PRx10U2". When this infrared beam is interrupted, e.g. by a person, the receiver detects this and will increase the internal counter.

The PRx10U2 is not direction sensitive, which means that counts from both directions are captured and stored together.

The counter can run for approximately up to 3 years on a set of batteries, without compromising the counting distance.

Specifications

Mechanical

Dimensions	116.4 x 68.6 x 22.3 mm
Material	ABS black

Electrical

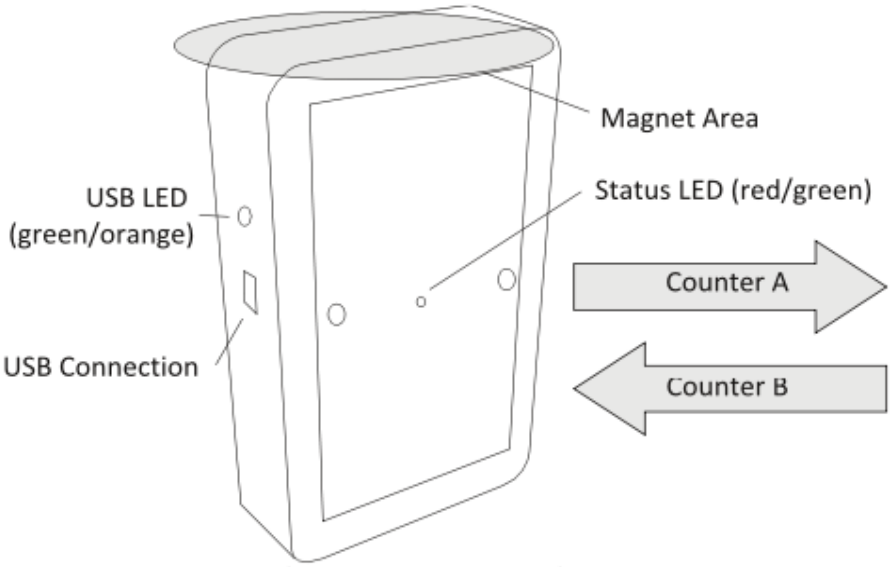
Power supply	2 x 1.5V AA
Battery life	
• PRx20U2 & PTx20-1	: 1 year
• PRx10U2 & PTx10-1	: up to 4 year
Measurement width	
• PRx20U2 & PTx20-1	: 6 metres
• PRx10U2 & PTx10-1	: 8 metres

Delivered content

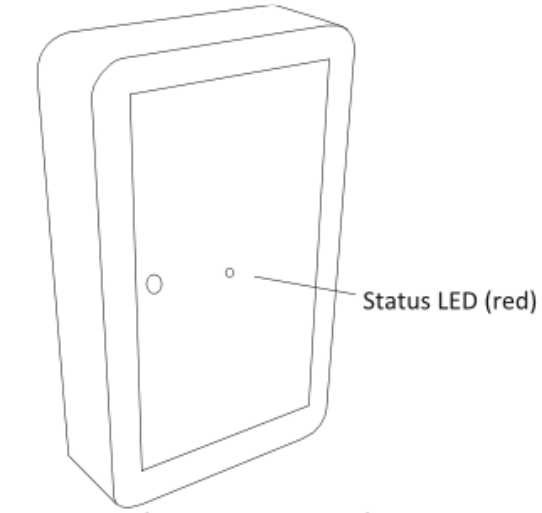
- Receiver with USB connection (PRx20U2 or PRx10U2)
- Transmitter (PTx20-1 or PTx10-1)
- Magnet key hanger
- Screwdriver
- 2x Screw to lock covers
- 4x AA Alkaline Batteries
- USB Cable
- USB Adapter cable
- USB Memory Stick (optional)
- Installation Guide

Additional content

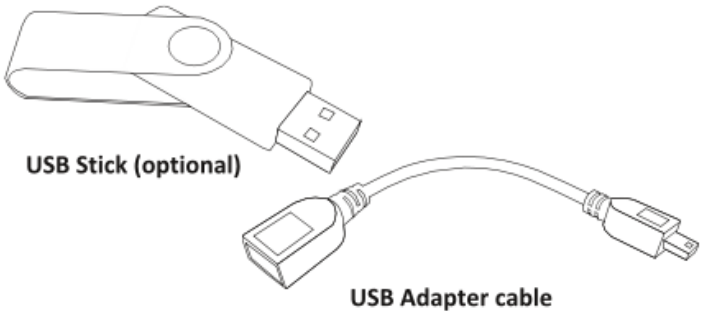
- Right angled metal mounting brackets



Receiver (PRx20U2 or PRx10U2)



Transmitter (PTx20-1 or PTx10-1)



USB Stick (optional)

USB Adapter cable

SensorServer Software Application

System requirements

- Microsoft Windows® 7, Server 2008R2 and above [1]
- Minimum of 1 Gb memory[2]

- 5 Gb Free disk space[3]
- USB port for configuring the SNG10E
- Microsoft .NET Framework 2.0, 3.5[4]
- Webbrowser[5]

The software is tested on different platforms and systems. When you having difficulties installing the software on your system please contact your local distributor for support.

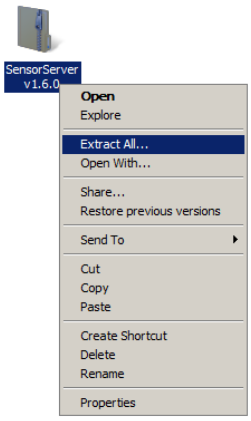
**1: Windows Windows 7, Windows 2008R2 all 32 bit and 64 bit versions*
**2: Depending on Windows® version and other services running on the system*
**3: Database can grow in to gigabytes depending on how many sensors are used*
**4: .NET Framework 2.0 must be installed prior to installing the SensorServer. Can be downloaded from www.microsoft.com*
**5: The software is tested on InternetExplorer v9+, Firefox v30+, and Chrome v30+*

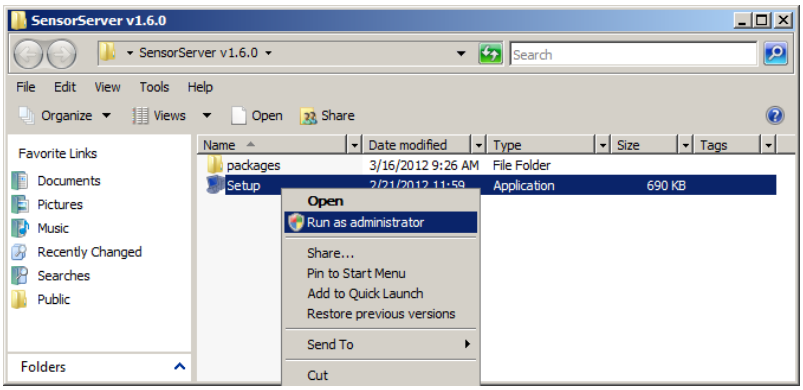
SensorServer installation

Download the latest version of the SensorServer software from the following webpage:

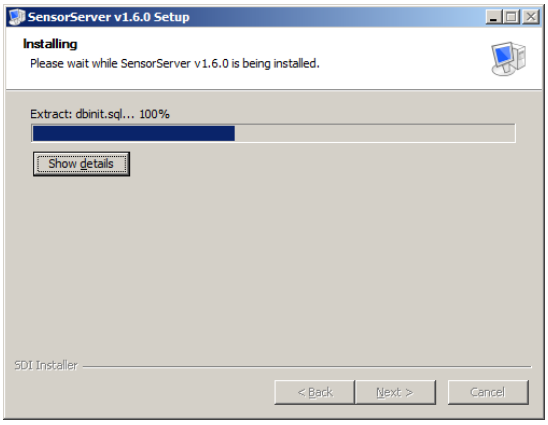
http://www.sdinternational.nl/support/downloads

Extract the contents of the zip file to a temporary folder on your system and run the Setup.exe.



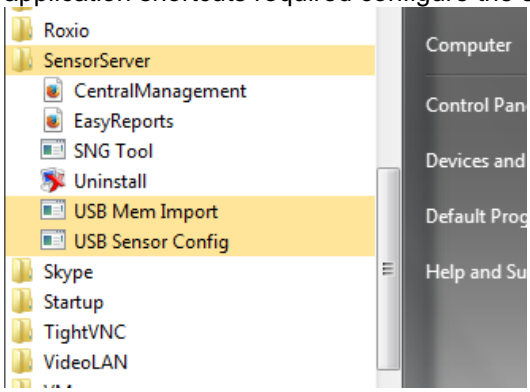


Follow the on-screen instructions to complete the installation.



Note: The version displayed on the screen shots can differ from the downloaded version.

After software installation, a Start Menu folder named SensorServer is created containing all the applicable application shortcuts required configure the sensors, data import and reporting.

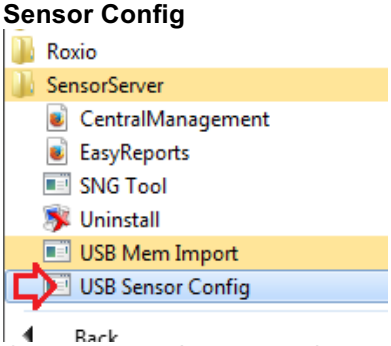


USB Sensor Configuration – First time setup

Use the **USB Sensor Config** Tool to configure and identify the USB Stick People Counters. The USB Sensor Config Tool will enable you to create names, positions, locations and allocate a timezone specific to your installation.

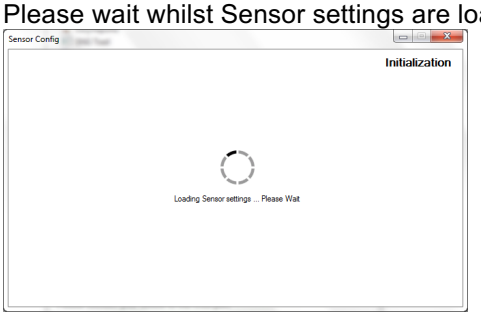
To start the USB Sensor Configuration

1. Select USB Sensor Config application from **Start → All Programs → SensorServer → USB Sensor Config**

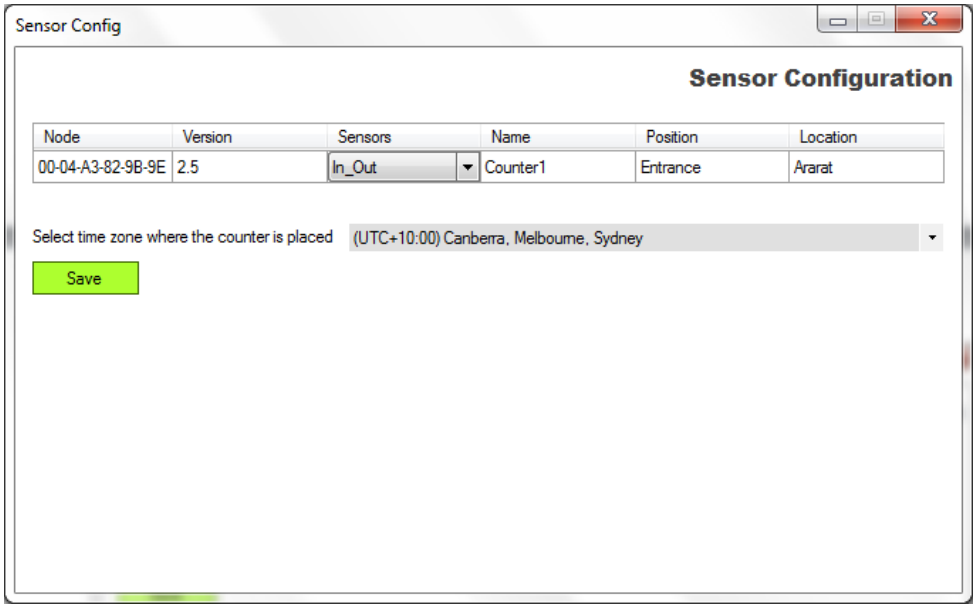


2. Connect the USB People Counter with the supplied USB cable.

3. Please wait whilst Sensor settings are loading.



4. In the Sensor Configuration screen, enter information to identify to proposed location of the people counter. For example: Name = Counter1, Position = Entrance, Location = Ararat. Ensure that the TimeZone setting is correct for your location



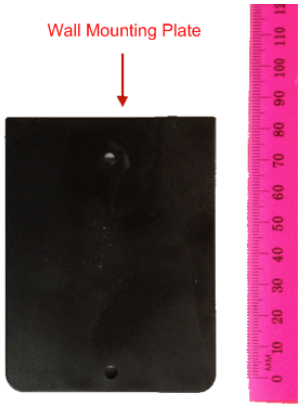
5. Click ‘Save’ to store the information into the people counter. Click the close button and disconnect the USB cable.
6. The people counters are now ready to be installed.

Install People Counters

When mounting the People Counters take care of the following:

- The maximum distance between the transmitter PTx10-1 and receiver PRx10U2 is 8 metres.
- The maximum distance between the transmitter PTx20-1 and receiver PRx20U2 is 6 metres.
- Use a wall or another steady object to mount People Counters (Metal brackets are available for purchase if required).

The units are supplied with a Mounting Plate.



Detach the mounting plate from the rear of the units by sliding the plate up.

The mounting plate can be attached to the fixed object using the supplied screws.

The units are then attached to the mount plates by sliding back of the units over the mount plates.
Note: in some cases organisations have used double sided Velcro tape to affix units to the fixed objects, which allows them to test the counting distance before attaching the units to the walls with screws.

An optional right metal bracket is available to suit the RF, USB and Display Only People Counters:

Additional information

The measurement width of 6 and 8 metres will decrease when the infrared signal goes through glass.

Note for the PRx20U2:
ENI (Enhanced Noise Immunity)
The PRx20U2 is featured with the Enhanced Noise Immunity. The ENI uses DSP technology to filter out disturbances received from the environment like AM anti-shoplifting systems and Infrared sources.
When there is too much noise the red led will light up. In this case find the cause of the disturbance and try to take it away.

Note for the PRx10U2:
Be aware of infrared light from other sources like bright lights and infrared devices. When the PRx10U2 receives infrared from other sources, instead of the PTx10-1, unexpected behaviour could be the result.

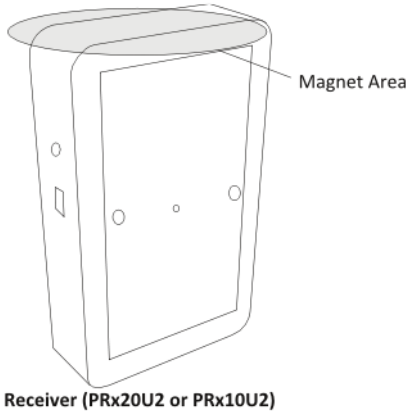
Due to the strong field of AM anti-shoplifting systems it is recommended to place the People Counter at least 1 metre away from an AM system.

The red led on the receiver will light up when noise is detected. In this case find the source of this disturbance and try to take it away.

Check Alignment

To have accurate counting the receiver needs to 'see' the transmitter.

The receiver contains an alignment feature which helps you to point the transmitter to the receiver. To enable the alignment mode slide the magnet on the top of the receiver (PRx20U2 or PRx10U2).



When the LED is blinking red you need to point the transmitter to the receiver until the led lights up green continuously. Please try to find the middle of the light beam during the alignment.

Accuracy of the People Counter
The accuracy of the counter will be higher when the distance between the transmitter and receiver gets smaller. When one or more pass the infrared beam at once, the People Counter will increase the count value by one.

Start Counting

The counter stores the count values including a timestamp in its memory. All the counts recorded within a minute will be stored into the memory. The green status led on the receiver will blink once when a count is created. The memory of the counter can store up to 40 days of minutely data.

Data Download

To read out the People Counter memory

1. Connect the adapter cable to the PRx20U2 or PRx10U2 receiver.
2. Check that an orange indicator light appears above the USB connection point.
3. Connect a USB stick to the adapter cable.
4. Check that a green indicator light blinks indicating that the memory dump is being copied onto the USB memory stick.
5. Wait for the green indicator light to stop blinking. The counter memory dump is complete once the green indicator is off. The memory dump data tranfer can take up to a couple of minutes depending on the file size.
6. Once the indicator light is off, remove the USB stick and adapter cable.

A complete memory of the counter is now stored on the USB stick and ready to be imported into the SensorServer software application.

Note

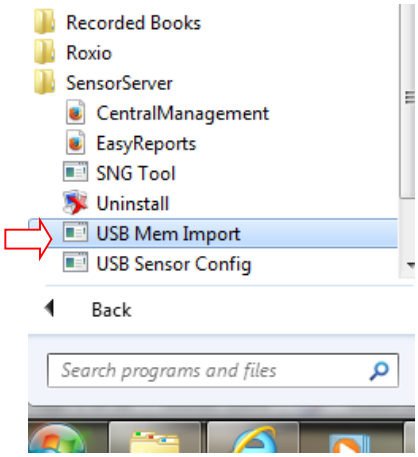
Multiple counters can be read out with a single USB stick since the counter is configured with Name, Position and Location information.

Data Import

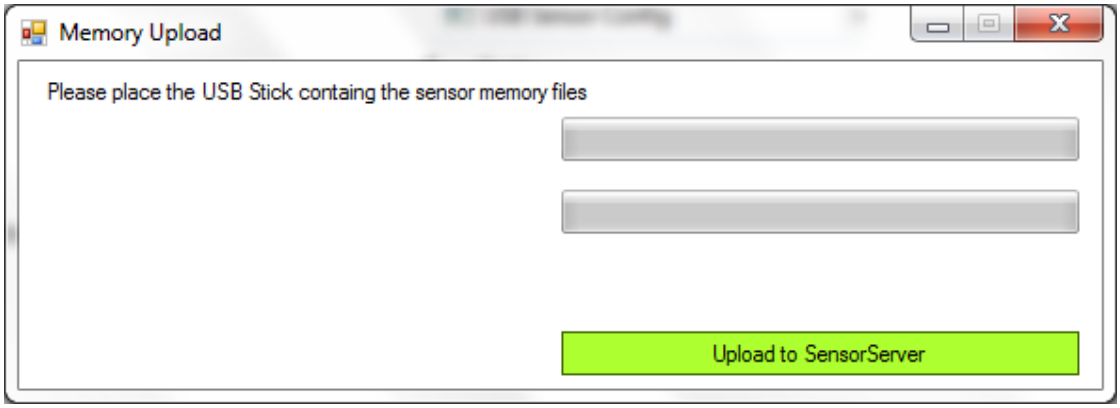
Use the USB MEM upload Application to upload the data from one or more counters to the SensorServer database. You will find the USB MEM upload tool via the Start Menu in a folder named SensorServer.

To start the data import

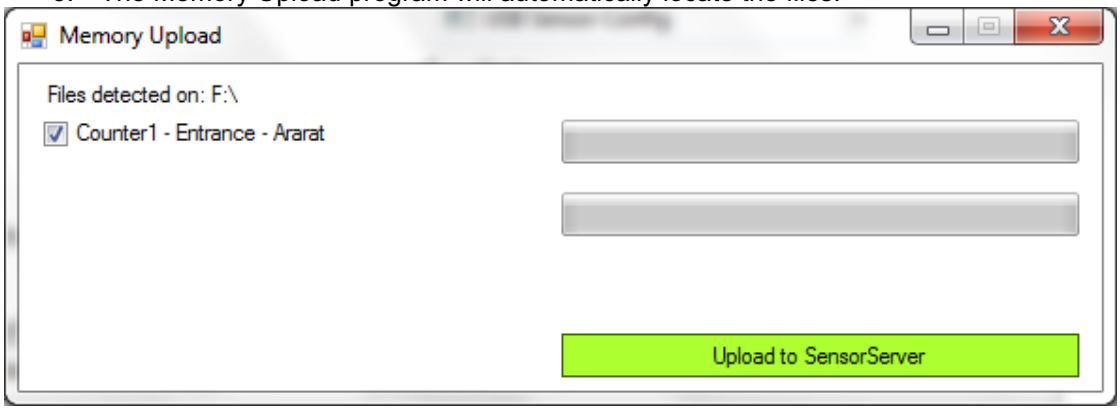
1. Select **USB Mem Import** application from Start → All Programs → SensorServer → USB Mem Import



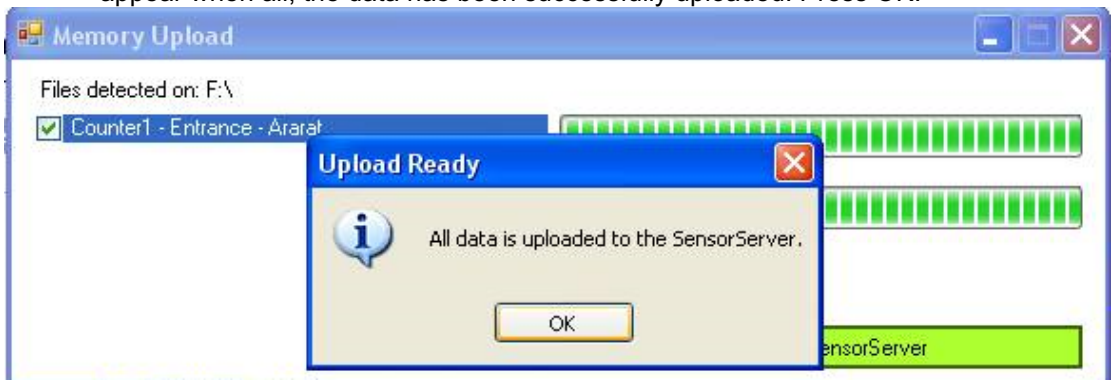
2. Once the USB MEM upload Application is started it will search for memory files containing the counter data. Insert the USB Stick containing the sensor memory files into a USB port on your computer.



3. The Memory Upload program will automatically locate the files.



4. Press **Upload to SensorServer** button – a upload progress bar will display – a pop-up message will appear when all, the data has been successfully uploaded. Press OK.



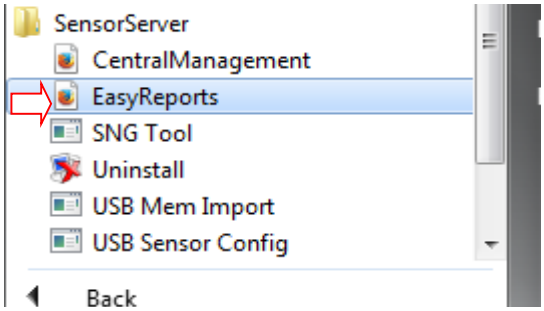
Close application.
Once the import process is complete, the data can be displayed using the SensorServer's EasyReports.

Note: *It is possible to place the MEM upload application on the USB stick. The SensorServer can be installed on a different PC than from where you upload the memory files.*

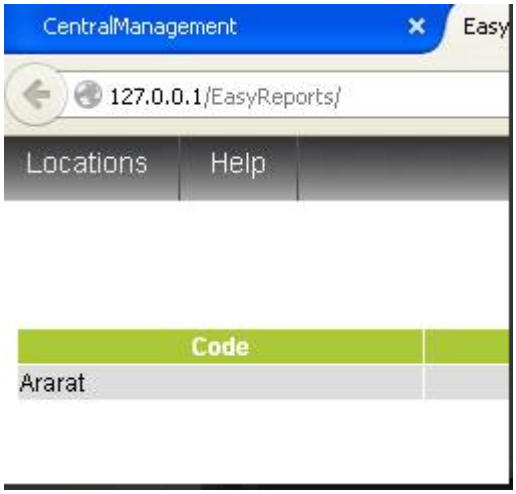
Display Data

EasyReports application

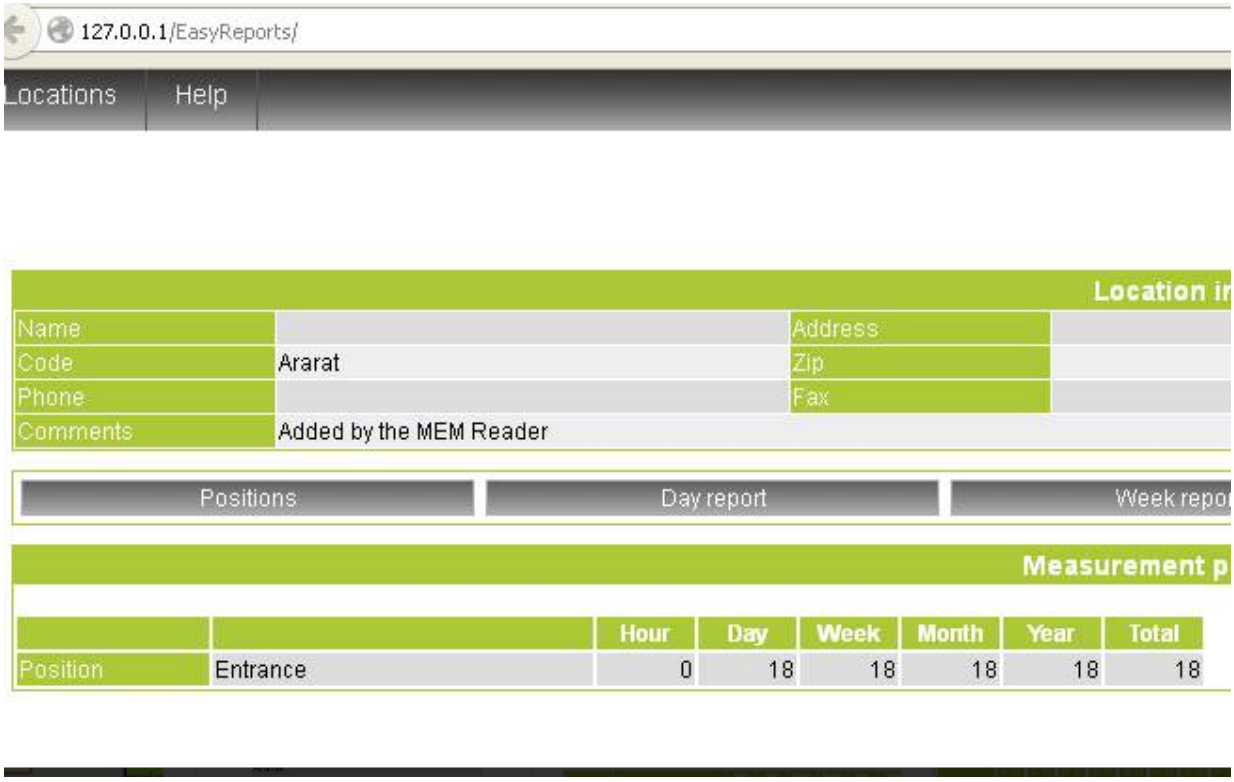
1. Select EasyReports from Start → All Programs → SensorServer → EasyReports



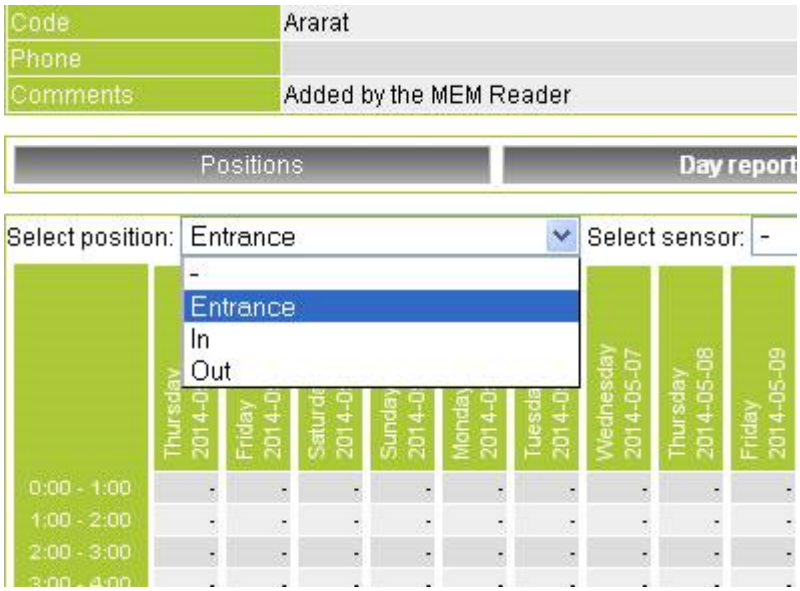
2. The EasyReports application will load displaying the location name in the 'Code' column. Click the location name to retrieve more information.



3. Select the headings 'Day Report' , 'Week Report' , 'Month Report' , 'Year Report' to retrieve the different types of reports.



4. Select a position to select the type of count. The bi-directional USB Stick Counter will have separate In & Out counts along with a consolidated count. The Uni-directional USB Stick Counter will only contain one set of count figures.



Reports

Reports can be displayed using the Day, Week, Month and Year report buttons. Each report shows count values with different time intervals.

Day Report

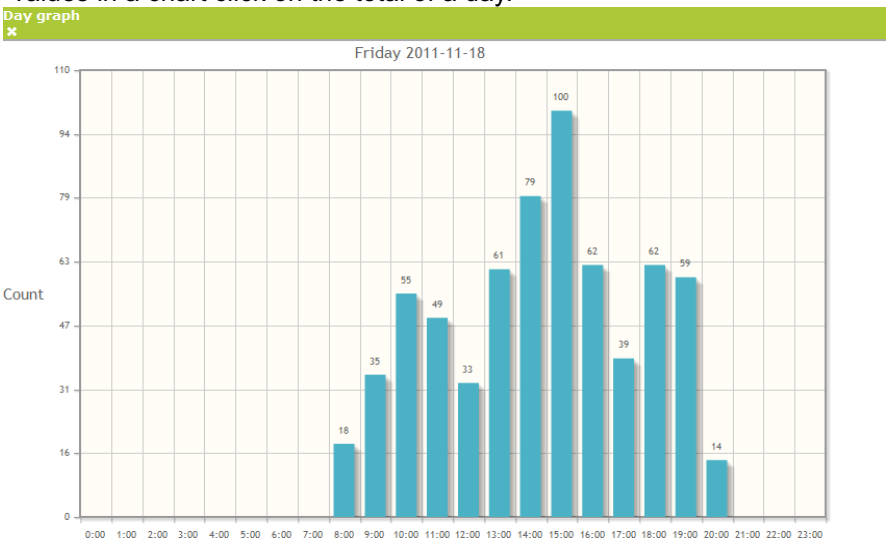
With the Day Report you can see the hourly values per day of a complete month.
Before you see the count values you need to select a Position and optionally a Sensor.

Select position: Main Entrance | Select sensor: - | Select month: November | Select year: 2011 | Refresh

Selecting only a Position will display a table containing the total count value of all the sensors on that position.
Selecting a Sensor will display the count values of the Sensor.

	Tuesday 2011-11-01	Wednesday 2011-11-02	Thursday 2011-11-03	Friday 2011-11-04	Saturday 2011-11-05	Sunday 2011-11-06	Monday 2011-11-07	Tuesday 2011-11-08	Wednesday 2011-11-09	Thursday 2011-11-10	Friday 2011-11-11	Saturday 2011-11-12	Sunday 2011-11-13	Monday 2011-11-14	Tuesday 2011-11-15	Wednesday 2011-11-16	Thursday 2011-11-17	Friday 2011-11-18	Saturday 2011-11-19	Sunday 2011-11-20	Monday 2011-11-21	Tuesday 2011-11-22	Wednesday 2011-11-23	Thursday 2011-11-24	Friday 2011-11-25	Saturday 2011-11-26	Sunday 2011-11-27	Monday 2011-11-28	Tuesday 2011-11-29	Wednesday 2011-11-30
0:00 - 1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 - 2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 - 3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 - 4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 - 5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 - 6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 - 7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 - 8:00	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
8:00 - 9:00	0	16	17	0	18	0	0	19	6	19	26	17	0	26	22	24	27	18	17	0	0	26	13	25	5	0	0	28	25	24
9:00 - 10:00	0	81	42	87	86	0	47	77	80	47	40	78	0	20	38	37	44	35	67	0	60	28	42	25	50	98	0	31	51	40
10:00 - 11:00	0	55	50	53	116	0	33	71	54	79	63	110	0	36	47	46	74	55	93	0	41	46	44	59	44	81	0	49	37	56
11:00 - 12:00	0	49	43	75	133	0	38	69	73	63	54	88	0	31	36	40	45	49	142	0	44	30	29	45	60	165	0	35	41	35
12:00 - 13:00	0	58	37	53	112	0	24	41	36	35	42	57	0	39	36	33	54	33	131	0	21	34	26	38	47	122	0	40	41	33
13:00 - 14:00	0	24	41	56	126	0	24	70	79	43	55	86	0	52	42	75	56	61	141	0	32	36	46	60	59	166	0	37	45	60
14:00 - 15:00	0	92	60	98	136	0	88	101	94	76	80	139	0	72	57	118	79	79	167	0	51	57	61	52	67	194	0	84	72	85
15:00 - 16:00	0	117	83	64	149	0	94	98	91	64	59	109	0	71	100	88	69	100	202	0	63	42	71	83	51	134	0	65	65	100
16:00 - 17:00	0	66	37	83	146	0	75	51	65	63	63	98	0	49	50	61	65	62	111	0	77	59	57	53	66	98	0	38	45	42
17:00 - 18:00	0	35	41	48	4	0	34	42	56	34	63	10	0	49	41	65	31	39	7	0	32	41	43	23	49	6	0	30	15	39
18:00 - 19:00	0	41	27	50	0	0	58	37	45	43	44	0	0	49	33	35	47	62	0	0	45	50	45	42	39	0	0	43	47	43
19:00 - 20:00	0	0	7	46	0	0	3	20	3	3	43	0	0	0	12	10	4	59	0	0	3	1	6	3	71	0	0	3	0	2
20:00 - 21:00	0	0	0	1	0	0	0	0	0	0	20	0	0	0	0	0	0	14	0	0	0	0	0	0	3	0	0	0	0	0
21:00 - 22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00 - 23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00 - 0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	634	485	714	1026	0	518	696	682	569	652	794	0	494	514	632	595	666	1079	0	469	450	483	508	611	1064	0	483	484	559

To see the hourly values in a chart click on the total of a day.



Week Report

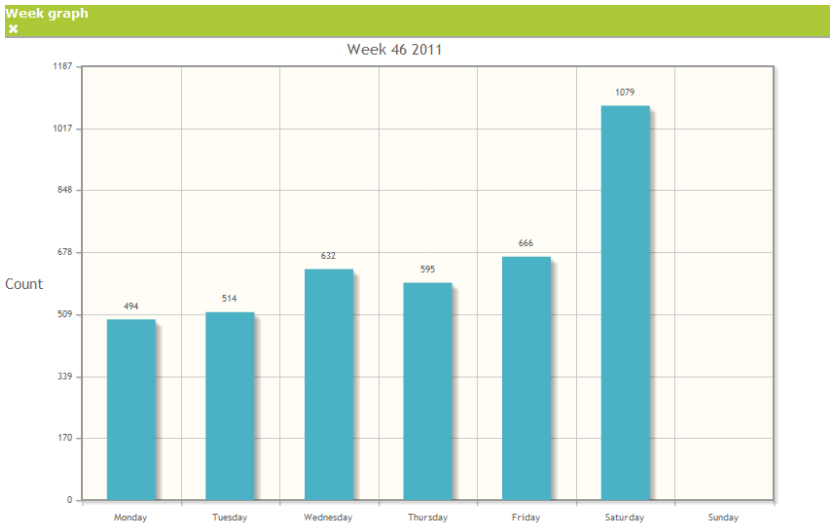
On the Week Report you see the daily totals for every week.

Select position: Main Entrance | Select sensor: - | Select month: November | Select year: 2011 | Refresh

By default the table shows all the weeks of the current month and the weeks before. When selecting a different month the table will again show the weeks of the selected month and the weeks before.

	Week 27 2011	Week 28 2011	Week 29 2011	Week 30 2011	Week 31 2011	Week 32 2011	Week 33 2011	Week 34 2011	Week 35 2011	Week 36 2011	Week 37 2011	Week 38 2011	Week 39 2011	Week 40 2011	Week 41 2011	Week 42 2011	Week 43 2011	Week 44 2011	Week 45 2011	Week 46 2011	Week 47 2011	Week 48 2011	Week 49 2011	Week 50 2011	Week 51 2011	Week 52 2012
Monday	-	-	-	-	0	582	0	518	405	447	460	532	745	469	661	564	542	730	518	494	469	483	544	-	-	-
Tuesday	-	-	-	137	376	461	610	491	444	516	414	556	470	514	599	605	633	0	696	514	450	484	560	-	-	-
Wednesday	-	-	-	476	537	487	585	526	502	610	567	578	516	491	572	816	747	634	682	632	483	559	114	-	-	-
Thursday	-	-	-	420	467	467	470	488	492	528	455	414	465	601	577	805	661	485	569	595	508	565	-	-	-	-
Friday	-	-	-	547	573	495	621	614	538	609	609	719	678	849	625	920	916	714	652	666	611	565	-	-	-	-
Saturday	-	-	-	619	559	421	737	850	800	585	868	953	1035	1080	925	992	1058	1026	794	1079	1064	938	-	-	-	-
Sunday	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-
Total	0	0	0	2199	2512	2913	3023	3487	3181	3295	3373	3752	3909	4004	3959	4702	4557	3589	3911	3980	3585	3594	1218	0	0	0

Click on the Total value of a week to show the chart of that week.



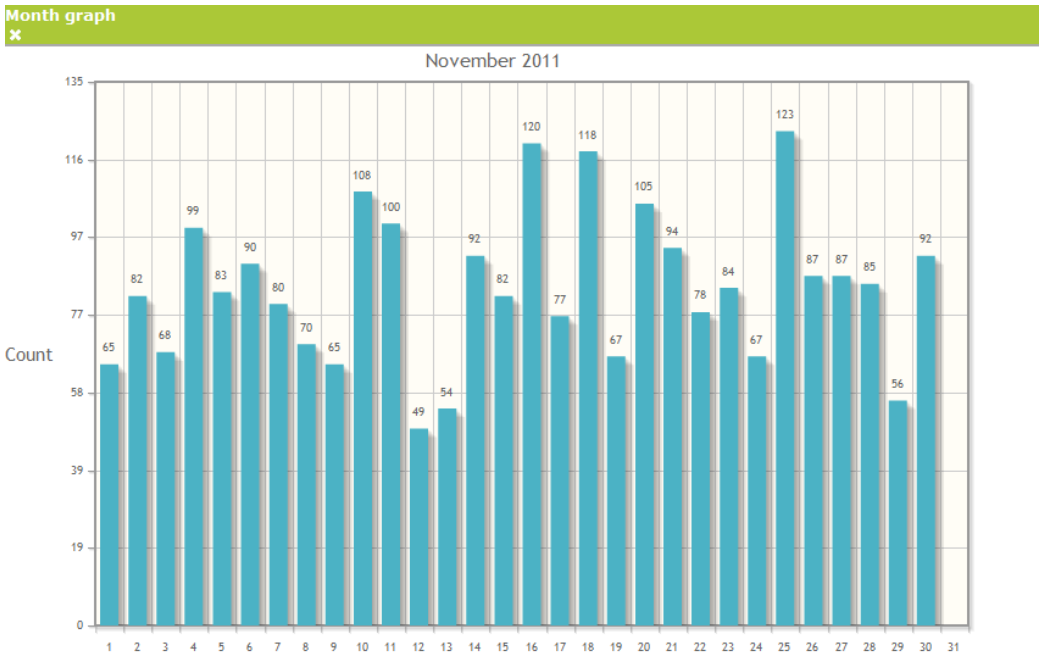
Month Report

The Month Report gives an overview of the daily count values of complete months.

Select position: Main Entrance | Select sensor: - | Select month: November | Select year: 2011 | Refresh

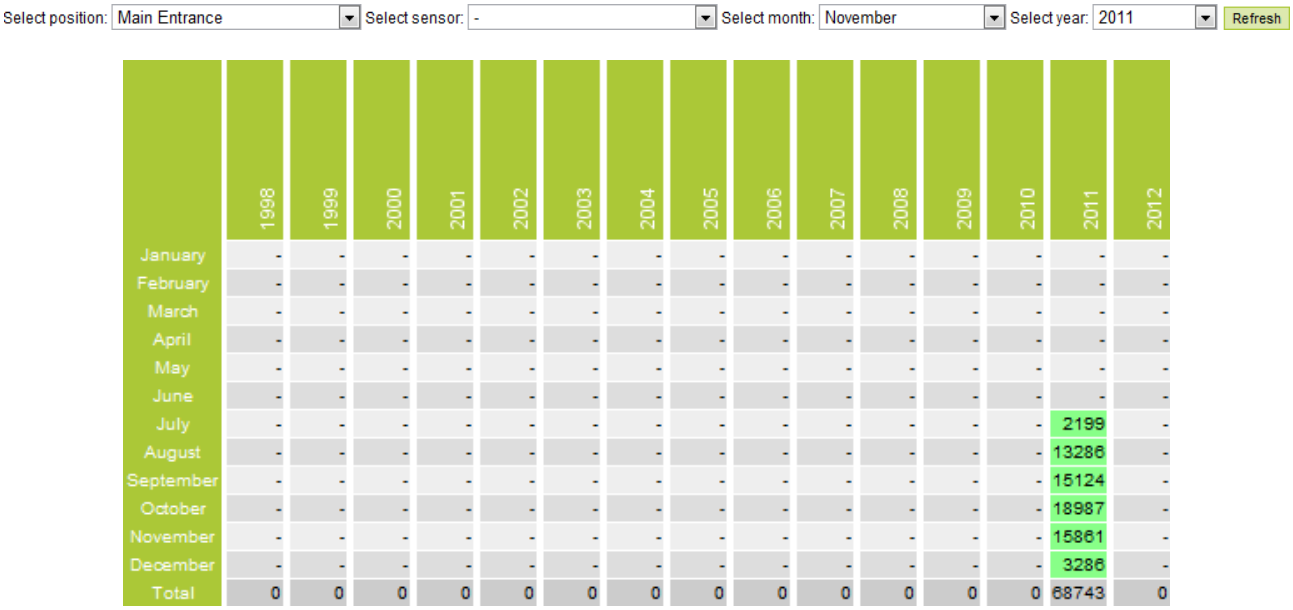
	March 2010	April 2010	May 2010	June 2010	July 2010	August 2010	September 2010	October 2010	November 2010	December 2010	January 2011	February 2011	March 2011	April 2011	May 2011	June 2011	July 2011	August 2011	September 2011	October 2011	November 2011	December 2011	January 2012	February 2012	March 2012
1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	77	73	65	95	136	105	77
2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	61	43	82	134	88	70	132
3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	53	57	68	79	137	103	80
4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74	80	99	80	97	77	99
5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	46	91	83	65	99	111	90
6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	98	93	90	81	91	54	68
7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	64	127	80	75	60	99	84
8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	93	85	70	92	64	73	61
9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	98	99	65	105	75	110	201
10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	45	57	93	108	143	83	98	117
11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	136	53	99	100	76	75	67	70
12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	70	68	80	49	65	107	87	130
13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	88	316	54	70	94	77	106
14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	28	77	113	92	129	62	81	99
15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23	79	123	82	77	75	70	105
16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17	104	71	120	113	66	68	189
17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	66	62	77	109	79	112	91
18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23	99	78	118	184	65	81	68
19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	113	85	89	67	109	80	125	23
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	66	60	51	105	86	115	88	-
21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	76	74	140	94	114	84	74	-
22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	68	75	70	78	90	117	86	-
23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	76	104	113	84	118	87	76	-
24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	69	240	95	67	127	79	129	-
25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	84	98	123	322	99	326	-
26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	72	49	75	87	94	90	162	-
27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	89	61	97	87	101	131	67	-
28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	63	58	110	85	97	76	89	-
29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74	76	79	56	88	84	90	-
30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	65	98	93	92	102	93	-	-
31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	75	-	93	-	91	66	-	-
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1321	2419	2986	2527	3311	2754	2855	1890

Click on the Total of a month to display the chart of that month.



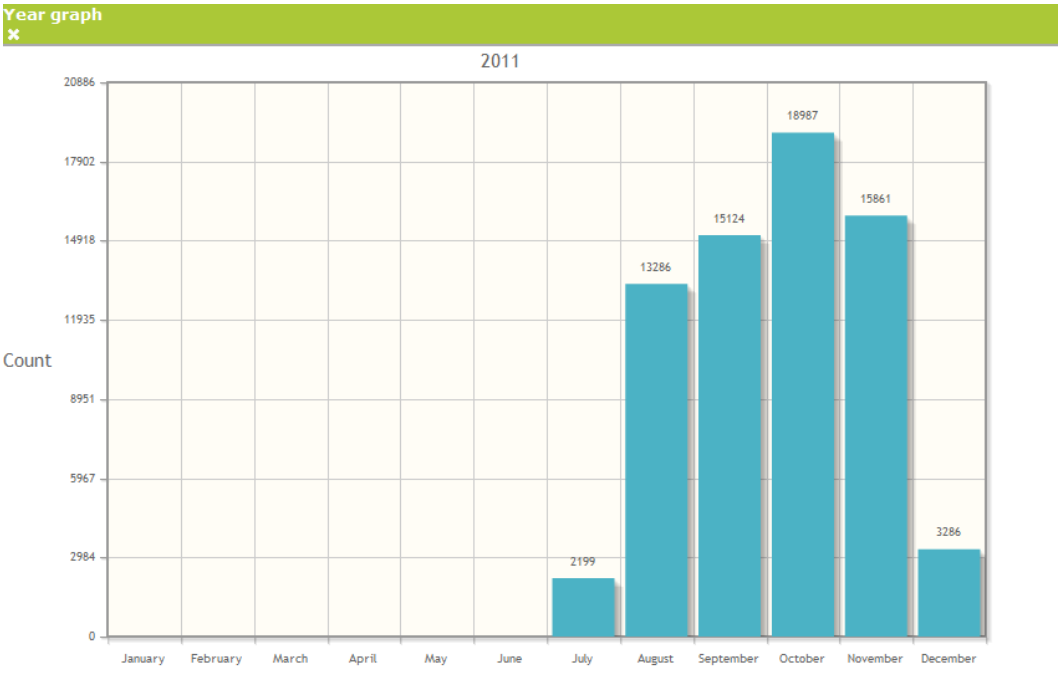
Year Report

The Year Report displays the total monthly values.



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
January	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
February	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
March	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
April	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
May	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
June	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
July	-	-	-	-	-	-	-	-	-	-	-	-	-	2199	-
August	-	-	-	-	-	-	-	-	-	-	-	-	-	13286	-
September	-	-	-	-	-	-	-	-	-	-	-	-	-	15124	-
October	-	-	-	-	-	-	-	-	-	-	-	-	-	18987	-
November	-	-	-	-	-	-	-	-	-	-	-	-	-	15861	-
December	-	-	-	-	-	-	-	-	-	-	-	-	-	3286	-
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	68743	0

To see the monthly values of a year in a chart click on the total of a year.



CSV Export

To integrate the collected data into a 3rd party application like Microsoft Excel or into your own business application a CSV Export feature is included with the SensorServer.

Multiple exports can be created which can be configured via the Modules->CSV Export menu item.

Click on the Add new CSV export button to create a new CSV Export configuration

An export configuration stores information about the export which will be used by the CSV Export application.

Below the description of each field:

- **Name**: The name of the export configuration. This name is used for executing the export.
- **Header**: This is the first line in the export file.
- **Path**: Location on the PC where the CSV export file needs to be stored for example: C:\Export
- **Filename**: The filename of the CSV Export
- **Append**: When not checked every time the export is executed the existing file will be overwritten.
- **Separator**: The separator to used to separate each column in the export
- **Quoted string**: When checked all text fields will be surrounded with the " character.

To execute the export run the following command:

C:\Program Files\SensorServer\Apps\CSVExport.exe export_name

or on 64bit operating systems:

C:\Program Files (x86)\SensorServer\Apps\CSVExport.exe export_name

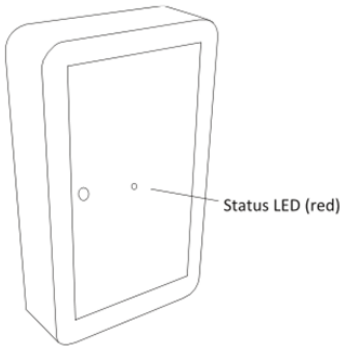
Where export_name is the name of an export configuration.

To schedule the export you can make use of the Scheduling features of Microsoft Windows.
Note: By default the configured export configurations will create an hourly export of the current day when the export is executed.

Additional Information

Low battery detection

The receiver and transmitter are both equipped with a low battery alert. When low battery power is detected, the status LED red light will blink every 2.5 seconds to indicate a low battery state. During the period of low battery state the 2 AA batteries should be replaced.



Internal clock

The receiver contains an internal clock to keep track of the current date and time. It is recommended to connect the receiver at least once a year with the USB Sensor Config Tool *(See: USB Sensor Configuration – First time setup)* to synchronize the clock.

Counter memory

The internal memory of the receiver counter can store up to approximately 40 days of minutely data. It is recommended that data is read out from the memory at least once a month.