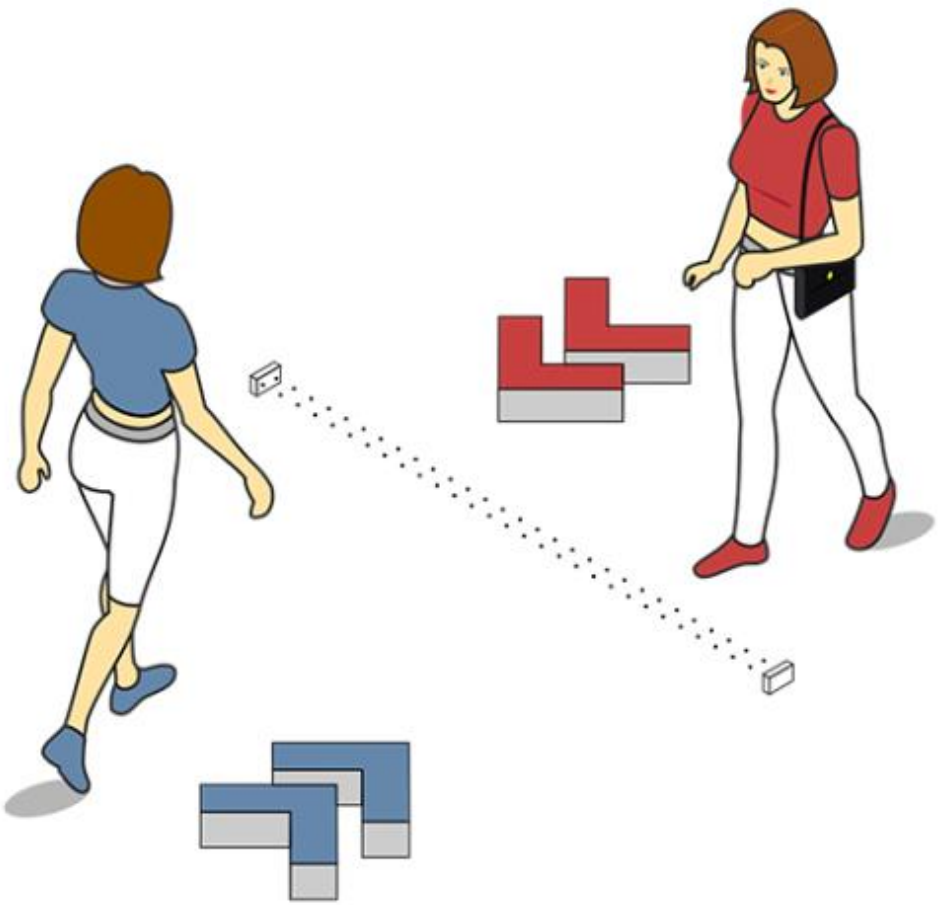
OMEGA-ETH

PEOPLE COUNTER

User Manual



megacount.io

Wireless People Counter OMEGA-ETH
User Manual

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1) Design and characteristics of the device can be changed without any prior notice.
2) Default password might be accessed by malicious users, so it is recommended to change the password after installation.
Please note that if the password is not changed, the user is responsible for all security related issues.

WARNING

THE COUNTERS REQUIRE 1.5 V AA BATTERIES. IT IS PROHIBITED TO USE ANY OTHER BATTERIES!

CHECK POLARITY WHEN INSTALLING BATTERIES! WRONG POLARITY CAN LEAD TO COUNTERS BREAKING AND BATTERIES OVERHEATING

TO AVOID DAMAGE THAT CAN CAUSE A FIRE OR ELECTROCUTION, KEEP THE DEVICE AWAY FROM WATER, RAIN AND HIGH HUMIDITY

IT IS PROHIBITED TO INSERT ANY METALLIC OBJECTS INTO THE CASING OF THE DEVICE OR ANY HOLES OR SOCKETS IN THE DEVICE CASING

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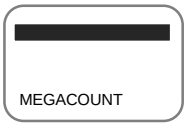
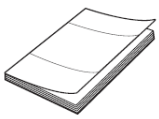
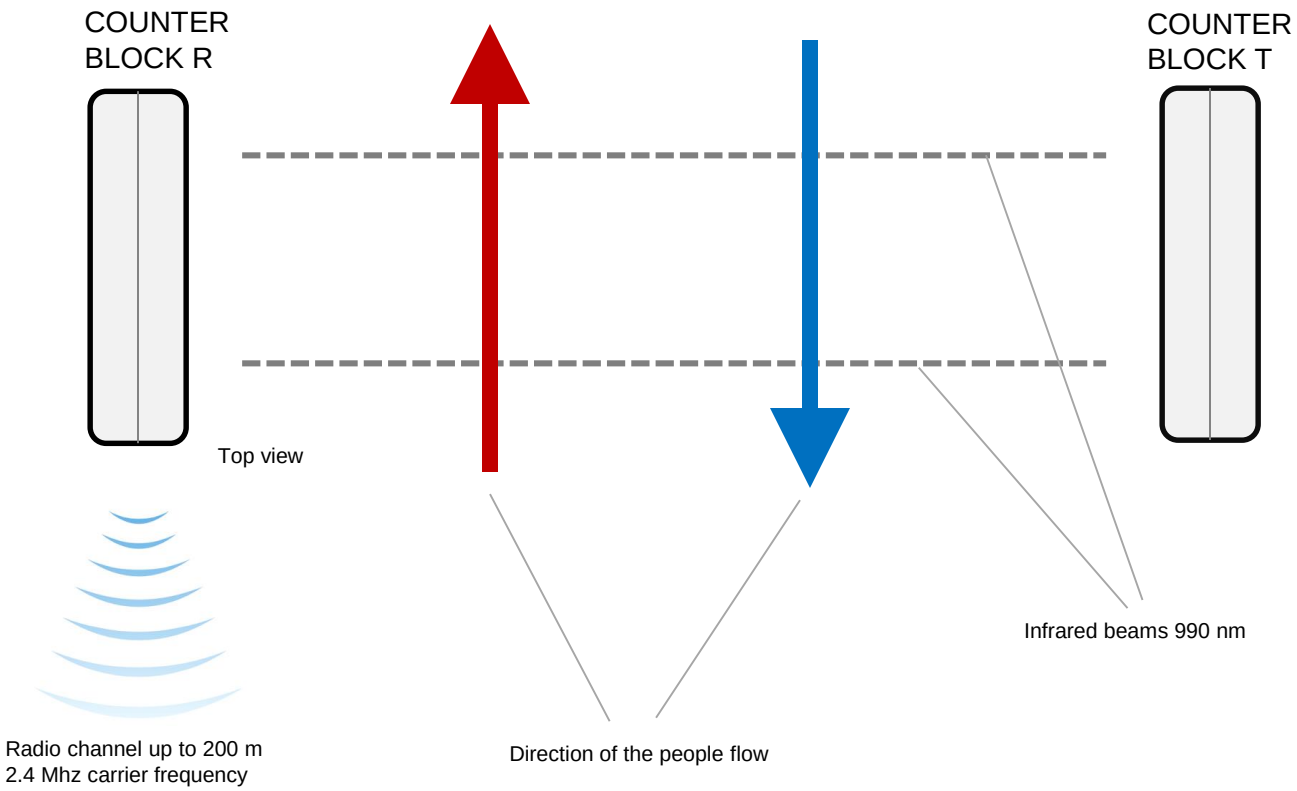
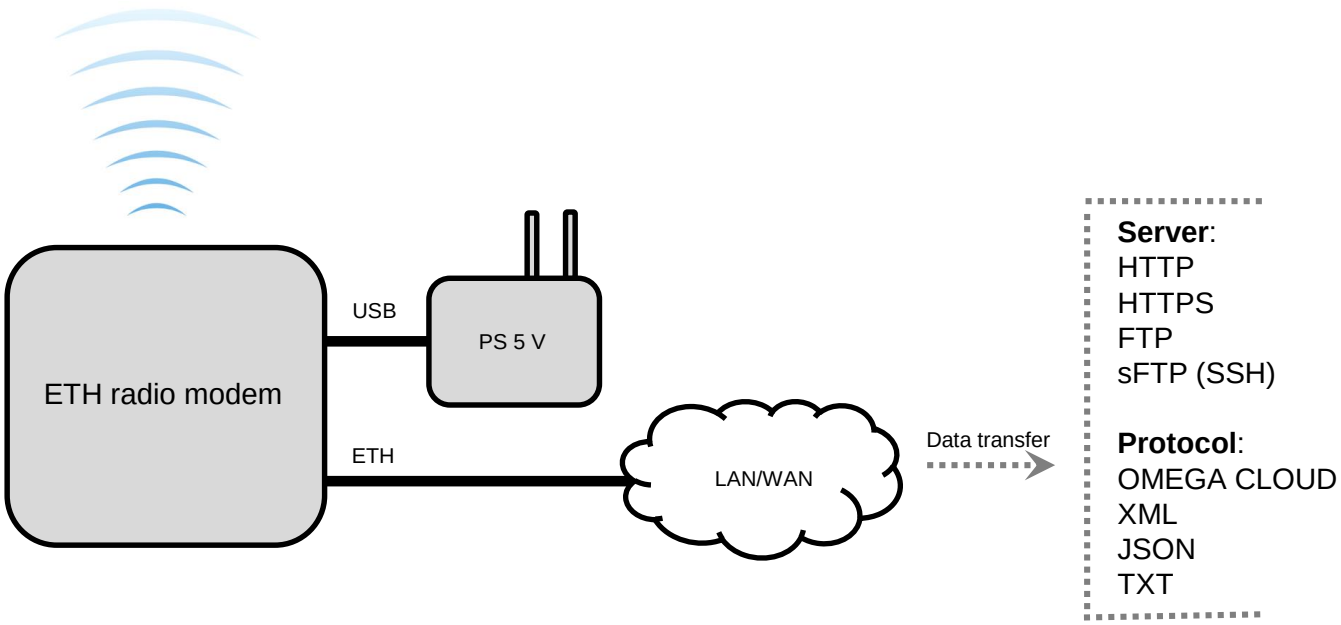
DELIVERY KIT

Depiction	Element Name	Quantity	Description
	Counters	1 pair	Footfall counters, one pair: block T and block R
	Ethernet modem	1	Ethernet modem for collecting footfall data
	L-brackets	1 pair	Brackets for fixing the counters at the entrance
	Batteries	4	AA 1.5 V batteries: 2 per each counter block
	Adhesive pads, type 1	2	Pads for mounting the counter on a surface
	Adhesive pads, type 2	2	Pads for mounting the counter on a surface
	Screws	4	Screws for mounting the counter on a surface
	USB cable	1	USB cable for data transfer to the modem
	ETH power supply	1	5 V power supply for the Ethernet modem
	Patch-cord	1	Patch-cord for connecting the Ethernet modem
	Quick Guide	1	Online manual

HOW IT WORKS

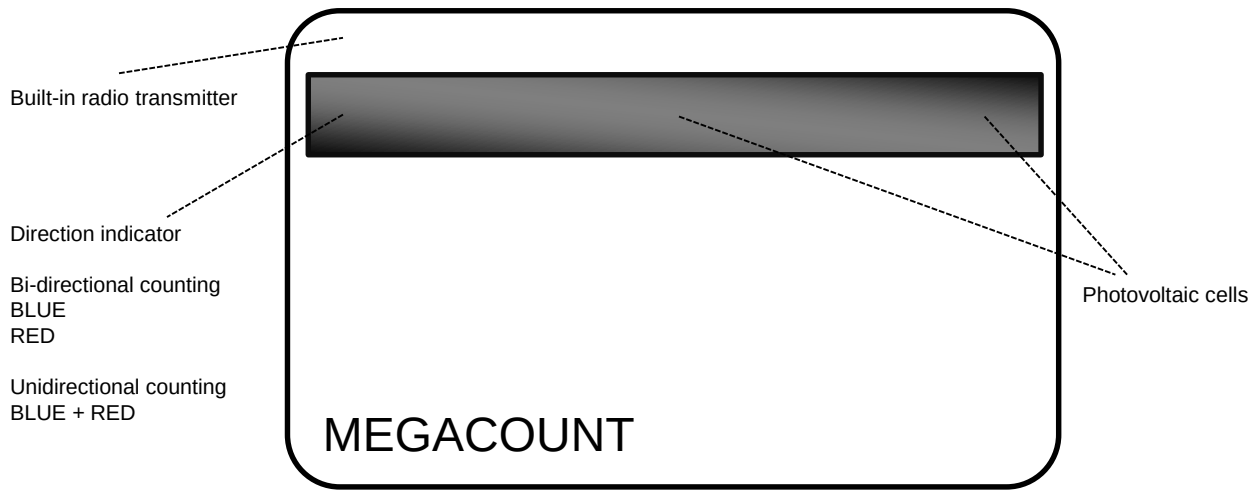
Operation of horizontal infrared OMEGA people counters is based on the principle of crossing two infrared beams and determining the direction of movement for both In and Out (bi-directional)
The main counting elements are two blocks — block T and block R: when directed at each other, they create two beams between them. Each time the beams are crossed, block R detects the fact of crossing and its direction, stores that data and later transfers it to the Ethernet modem as pictured below





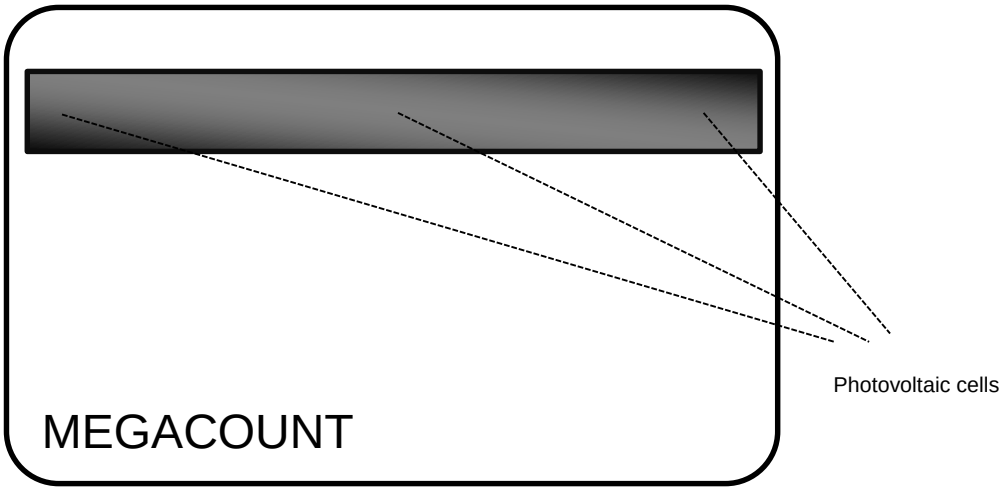
GENERAL DESCRIPTION OF A PAIR OF COUNTERS

COUNTER - BLOCK R



The main block R contains a beam-crossing analytics microprocessor and a radio-transmitting element. The microprocessor stores all events of beams crossing and transfers them to the ETH-modem via a radio channel with 2.4 MHz carrier frequency. Data that has not been transferred is stored on the counter for 14 days. Each R-block must be connected to the ETH-modem — see the manual. Infrared band 990 nm
Dimensions: 42 mm – height, 68 mm – length, 18 mm – width

COUNTER - BLOCK T



The supporting T-block enables infrared lighting and contains a microprocessor and a chain of photovoltaic cells that are needed for creating beams and for lighting objects. T-block is not connected to the R-block and can be used by any R-block without being connected to it. Infrared band 990 nm
Dimensions: 42 mm – height, 68 mm – length, 18 mm – width

COUNTER CHARACTERISTICS

- **Protection from dust/water, IP 60**
  The device is intended to be installed inside where water cannot reach it. The sensor is inside a dust-proof casing with IP 60 protection:
  6 – No ingress of dust; complete protection against contact
  0 – No protection against water

- **Dimensions**
  People counter: 42x68x18 mm
  Data-collecting ETH-modem: 66x66x28 mm

- **Data export, server**
  OMEGA CLOUD
  FTP
  SFTP (SSH File Transfer Protocol)
  HTTP
  HTTPS

- **Data export, protocol**
  OMEGA
  XML
  JSON
  TXT

- **Modem interface**
  ETH through operating systems WINDOWS, LINUX, iOS

- **Power supply**
  AA 1.5 V batteries: 2 per each counter block
  Battery change is carried out by the user
  Power consumption 60 μA

- **Delivery kit**
  People counters - 2 blocks, R-T
  ETH-modem - 1 pc
  Adhesive pads - 4 pcs
  L-brackets - 2 pcs
  Screws - 4 pcs
  USB cable - 1 pc
  AA 1.5 V batteries - 4 pcs
  ETH power supply - 1 pc
  Patch-cord - 1 pc

- **Operating time on a single battery set**
  Up to 1 year on one set of batteries, depending on device settings

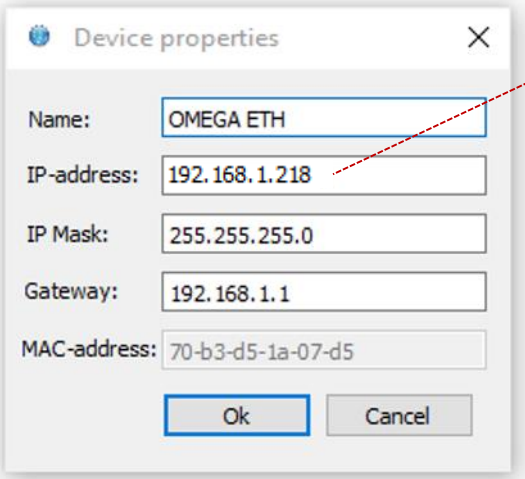
- **Distance between the modem and the counters. Radio channel**
  Counters can be up to 200m away from the modem, depending on radio broadcast and obstacles

STEP 1.
CONNECTING THE ETHERNET MODEM

Get power supply to the modem with a USB cable and connect it to the network with a patch-cord. Open the scanning program (VideoCountTool) and find the modem

	Name	IP	Mask	Gateway	MAC	Firmware Version
1	OMEGA ETH	192.168.1.218	255.255.255.0	192.168.1.1	70-b3-d5-1a-07-d5	BC v.1.0[4199]

Double-click to open settings window
Change to necessary settings



DEFAULT SETTINGS:
IP: 192.168.1.218
MASK: 255.255.255.0
GATEWAY: 192.168.1.1

LOGIN DETAILS:
LOGIN admin
PASSWORD 18318
To change the password, use the password changing option in Settings - Administration

To find out subnet settings MASK (Subnet Mask) and GATEWAY (Default Gateway) in Windows:
Start-Run – put in **cmd**
Type in **ipconfig** in the new window.

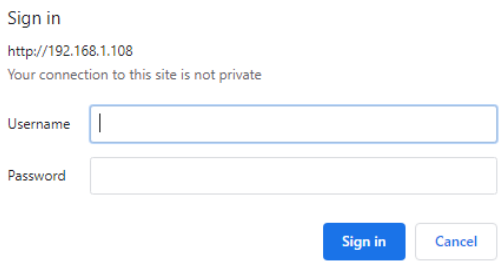
```
Connection-specific DNS Suffix  . :
Link-local IPv6 Address . . . . . : fe80::9522:fa05:1464:fe5f%2
IPv4 Address. . . . . . . . . . . : 192.168.1.106
Subnet Mask . . . . . . . . . . . : 255.255.255.0
Default Gateway . . . . . . . . . : 192.168.1.1
```

To find available IP addresses and subnet in Windows:
Start-Run – put in **cmd**
Type in **arp –a** in the new window.
Go through the list of taken IP addresses and choose the closest free one

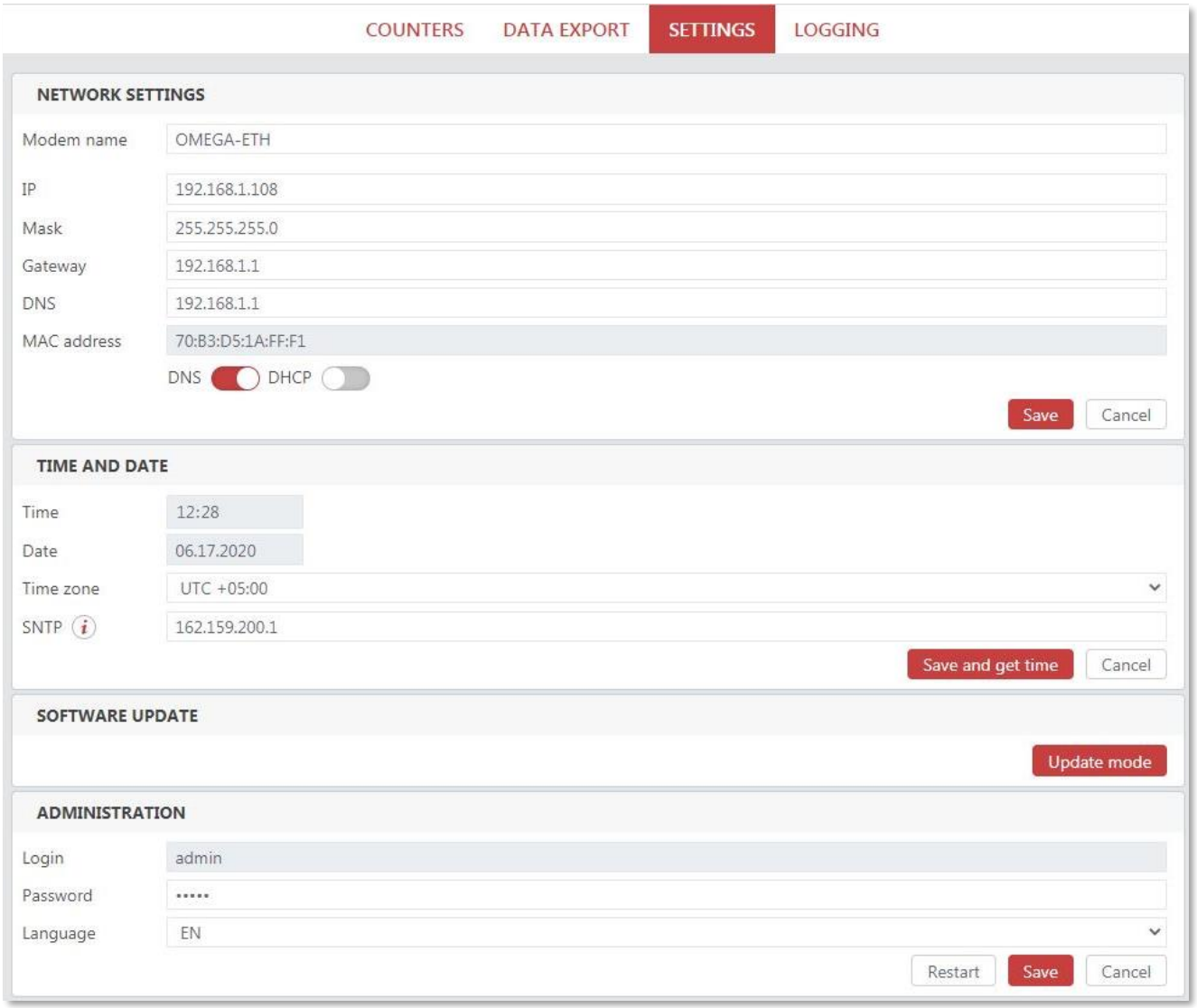
```
Interface: 192.168.1.106 --- 0x2
  Internet Address      Physical Address      Type
  192.168.1.1           60-e3-27-5b-2c-ea     dynamic
  192.168.1.108         70-b3-d5-1a-07-d5     dynamic
  192.168.1.255         ff-ff-ff-ff-ff-ff     static
  224.0.0.22            01-00-5e-00-00-16     static
  224.0.0.251           01-00-5e-00-00-fb     static
  224.0.0.252           01-00-5e-00-00-fc     static
  224.1.1.1             01-00-5e-01-01-01     static
  239.255.255.250       01-00-5e-7f-ff-fa     static
  255.255.255.255       ff-ff-ff-ff-ff-ff     static
```

If the scanning program cannot find the modem, connect the modem directly to a PC or a laptop with a correctly set subnet. Then open a browser, go to 192.168.1.218 and change network settings there [Settings – Network settings], reboot.

If everything is done correctly, a log in window will appear after going to the modem IP address in the browser. Put in login – admin, password – 18318



After accessing the web-interface, it is necessary to set the time



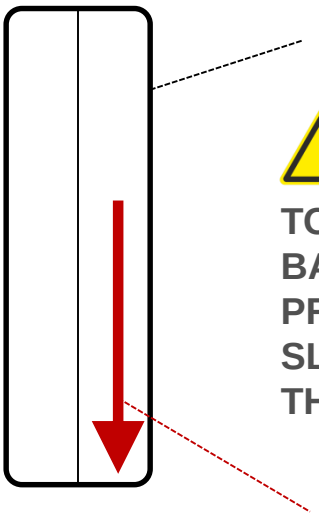
TIME SETTING IS A REQUIRED STEP FOR THE OPERATION OF THE MODEM. THE TIME IS SET FROM SNTP TIME SERVERS
IF THE NETWORK IS CLOSED, SET UP A SEPARATE TIME SERVER AND PUT ITS DETAILS IN THE SETTINGS

TIME ZONE IS TO BE CHOSEN CORRECTLY, TIME IS TO BE SET

IF THERE IS AN ERROR WHEN SETTING THE TIME, CHECK PORT 123 AND MODEM ACCESS TO THE TIME SERVER OR SET UP YOUR OWN TIME SERVER

STEP 2.
INSTALLING BATTERIES INTO THE COUNTERS

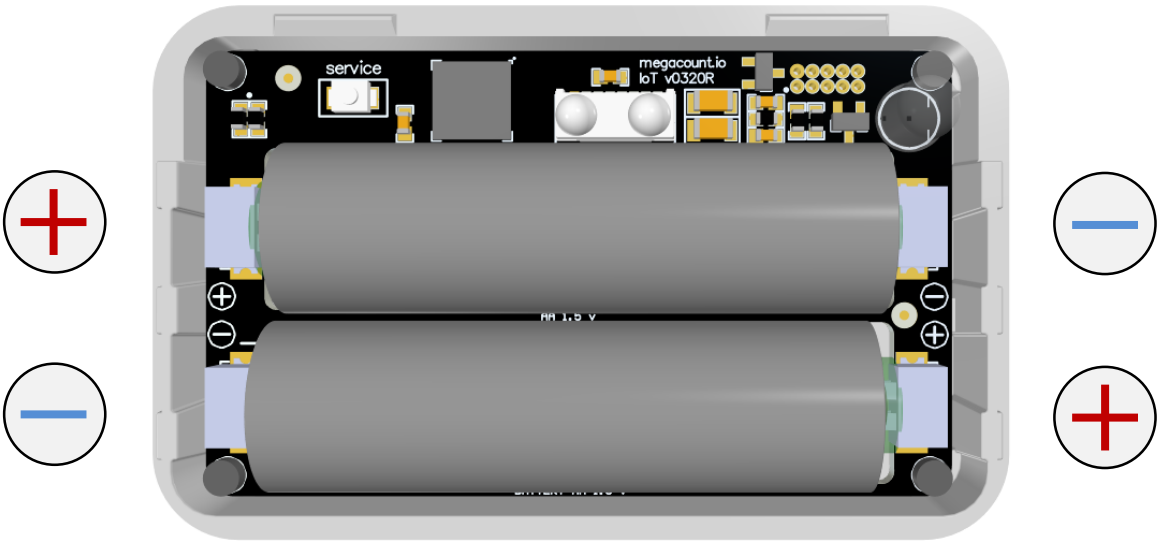
Opening the casing



TO OPEN THE CASING FOR INSTALLING OR CHANGING BATTERIES, HOLD THE CASING SO THAT THE PROTECTIVE BLACK SCREEN IS FACING UPWARDS AND SLIDE DOWN ONE HALF OF THE CASING AS SHOWN ON THE PICTURE

Installing batteries in blocks R and T

Install batteries into holders with correct polarity as shown on the picture below



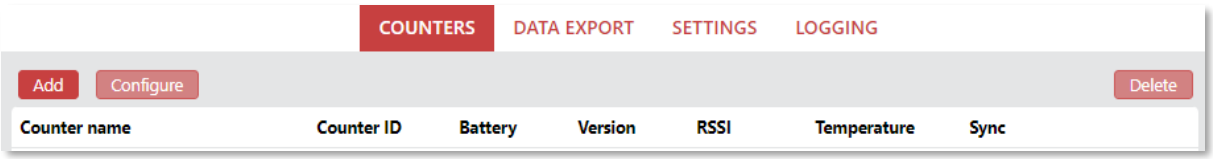
If everything is installed correctly, the indicator on the counter will blink. If the indicator is not lighting up, take out the batteries right away and check polarity

POLARITY MUST BE FOLLOWED CORRECTLY!
IF IT IS WRONG, DEVICE OVERHEATING AND LOSS OF FUNCTION ARE POSSIBLE, WHICH ARE NOT COVERED BY WARRANTY

STEP 3.
CONNECTING THE COUNTER TO THE ETH-MODEM

Software preparations

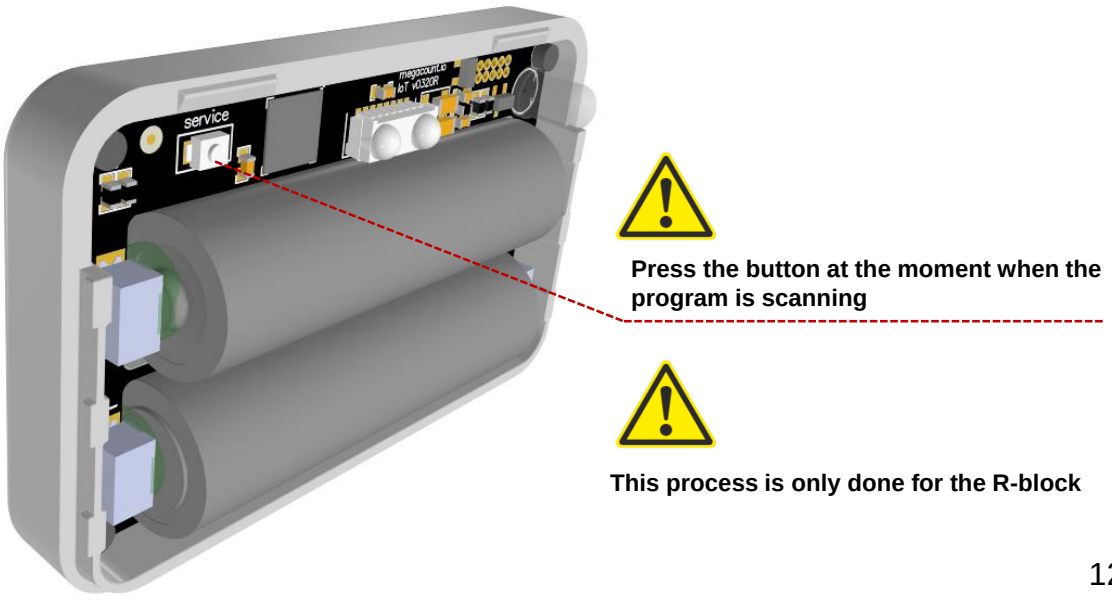
Open modem's web-interface, go to the COUNTING tab and click the ADD button



Then click the SEARCH button and at the same time press the SERVICE button on the R-block (see below)

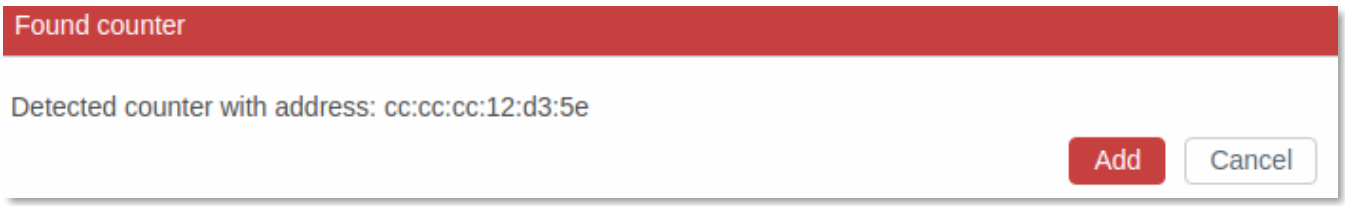
Preparing the R-block for connection to the ETH-modem

Open the counter casing and press the button **Service** while the program is scanning, as shown on the picture below

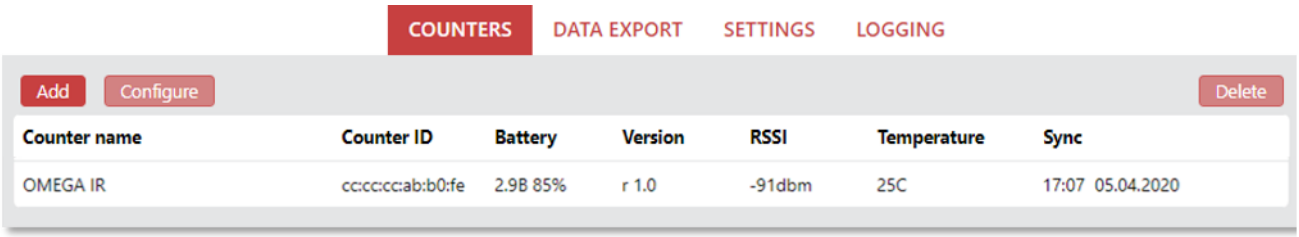


Connecting the counter and adding it to OMEGA-ETH program

If all previous steps are done correctly, the program will show the found counter and will suggest to add it. Click the **[Add]** button



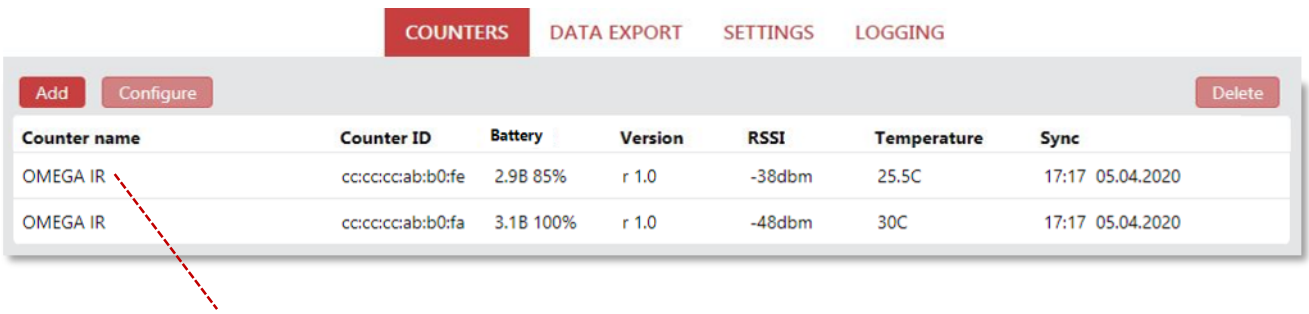
Counter that is found and connected to the ETH-modem:



Process of connecting to the modem is only necessary for the R-block, it is not needed for the T-block!

Connecting additional counters and adding them to OMEGA-ETH program

If there are additional pairs of counters, follow the same connection process (as described before for the R-blocks) for the additional pairs and rename them in the program according to their location



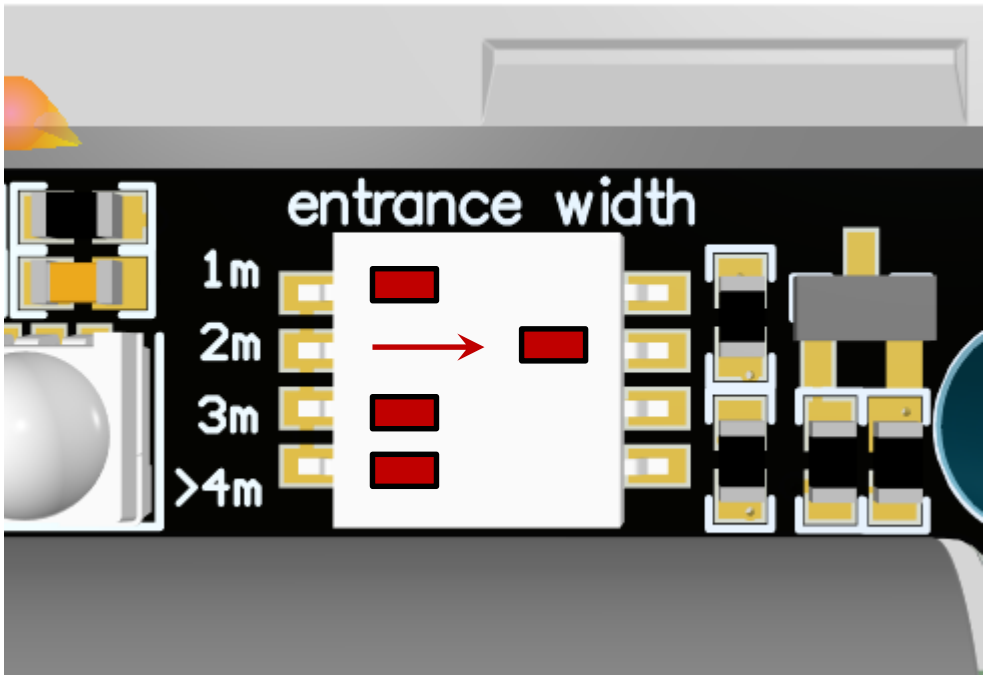
One entry indicates one pair of counters: R-block and T-block
Example:
One entrance with one pair (two blocks) – there will be one entry in the program
Two entrances with two pairs (four blocks) – there will be two entries in the program

STEP 4.
SETTING THE DISTANCE BETWEEN THE COUNTERS

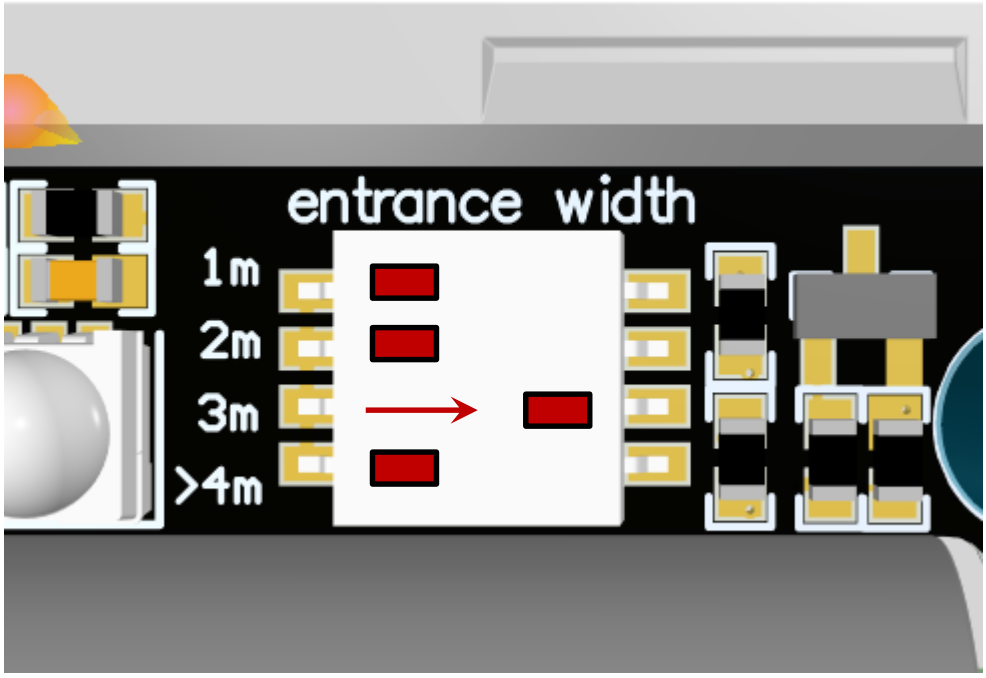
After the R-block is added to the program, it is necessary to configure the T-block by setting the correct distance between the blocks

Open the casing of the T-block and set the distance on it by moving the correct switch to the right as shown on the pictures below

Example for installation with a 2m distance



Example for installation with a 3m distance



STEP 5.
MOUNTING THE COUNTERS TO THE SUFRFACE

After the R-block is connected to the ETH-modem and the entrance width (distance between blocks) is set on the T-block, the counters can be mounted at the entrance with brackets or adhesive pads. Check detection after mounting

Main recommendation when mounting counters (blocks) – fix the counters so that the R-block is facing the ETH-modem

Installation height

Optimum installation height is so that the counters are on shoulder level of a person with the height that is slightly lower than average. It should be as displayed on the picture below:

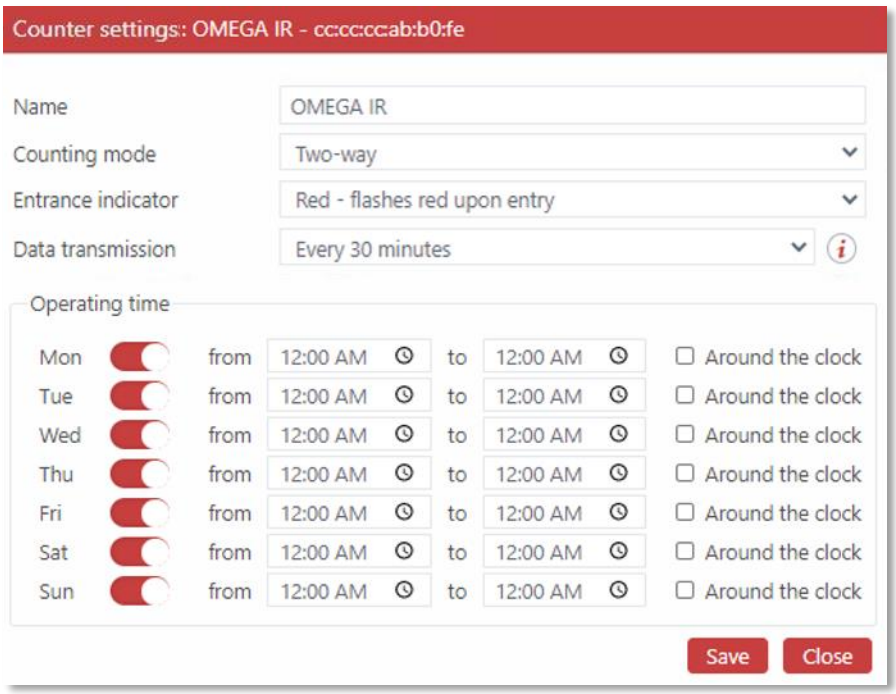
After the counters are fixed, be sure to walk by them a few times to check detection: when someone enters, the R-block will be blinking with blue or red. Walk 20-30 times observing the indicators and making sure the counters work properly

When mounting the counters, mind the door handles: they should not be in the counters' operating field

When mounting the counters, mind the daylight: it is not recommended to install counters under direct sunlight at any time of the day. It is recommended to install the counters further inside if possible

STEP 6.
COUNTER CONFIGURATION

To configure the counter, double-click on the name of the counter or choose [Counter configuration] in the context menu



[Name] Counter ID – for example, Left entrance, Main entrance, Right entrance, etc.
[Counting mode] Bi-directional – sensor counts for both In and Out and the indicator lights up with blue or red depending on the direction. Unidirectional – sensor counts only in one direction and logically divides the data by two, both indicators blink simultaneously; ⚠ no need to additionally divide end values by two
[Entrance indicator] If the indicator is red when someone enters – put in RED, if the indicator is blue when someone enters – put in BLUE. Important! ⚠
[Data transmission] Optimal interval is every 5-8 hours. The bigger the interval, the more battery is saved
[Operating time] The counter is set up to work around the clock by default. It is necessary to set up proper operating time and exclude non-operating days and time

Operating time of the counter and the [Data transmission] parameter directly affect battery life. Set up correct operating and non-operating days and time and a reasonable data transfer interval. Important!!!

STEP 7.
DATA EXPORT

When the counters are mounted and are counting, set up data export in the OMEGA-ETH interface **[EXPORT]**, **Add**

This will open the panel with server types for data export:

3 server types are available for data export:

OMEGA CLOUD – connecting the counter to cloud analytics with the possibility to view data via any browser and smartphone

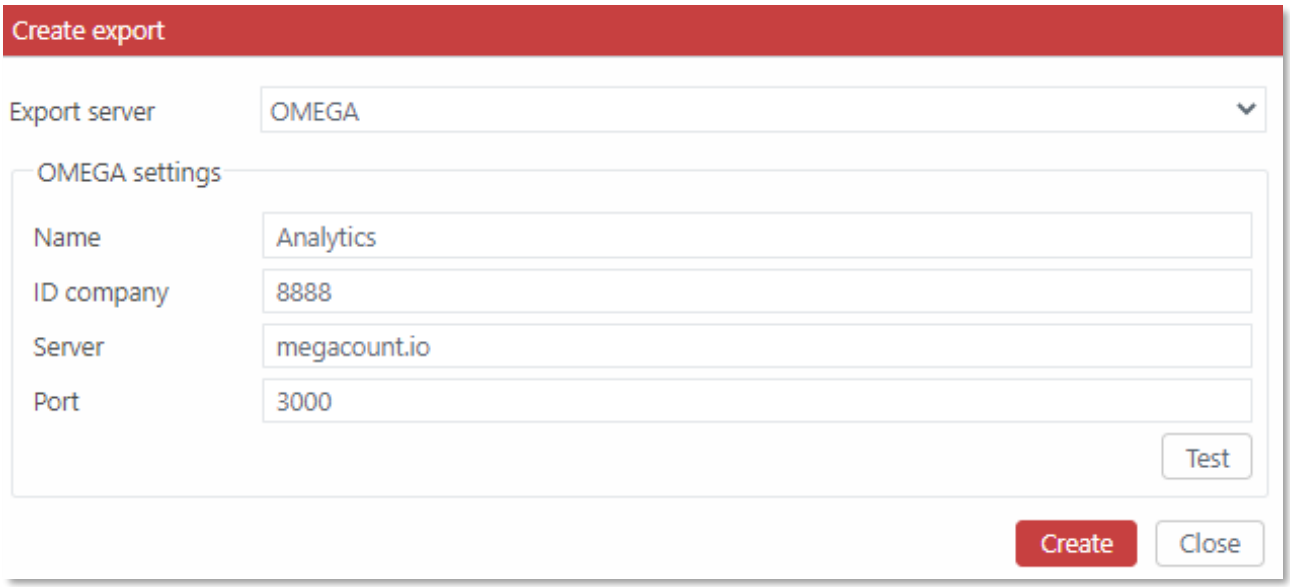
HTTP(S) – packet data transfer in JSON or XML format to a server that supports TLS encryption

FTP/sFTP-SSH – file data transfer in JSON, XML, TXT formats to a server that supports safe sFTP

STEP 7
7.1 SETTING UP OMEGA CLOUD ANALYTICS

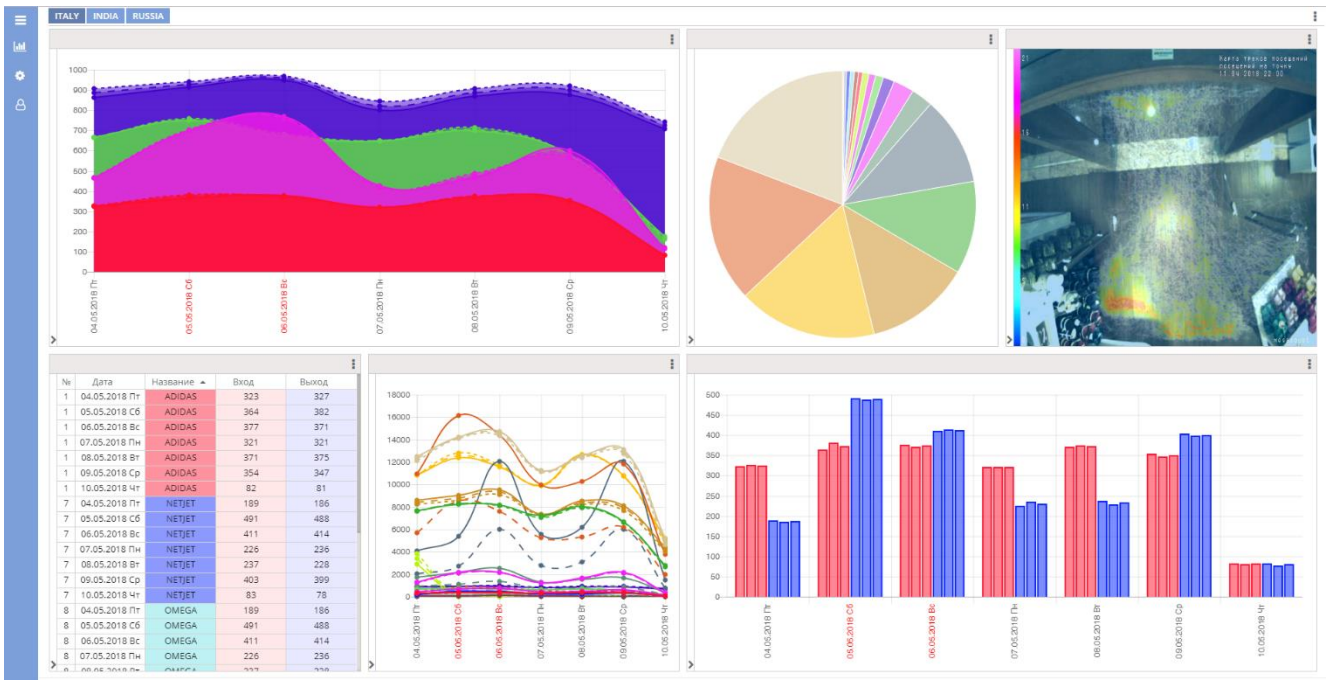
To connect to OMEGA analytics, open OMEGA-ETH interface and then tabs
[Menu – Data export – Create an export – OMEGA server type]

TO GET CONNECTED TO WEB-ANALYTICS, SEND A REQUEST TO info@megacount.io



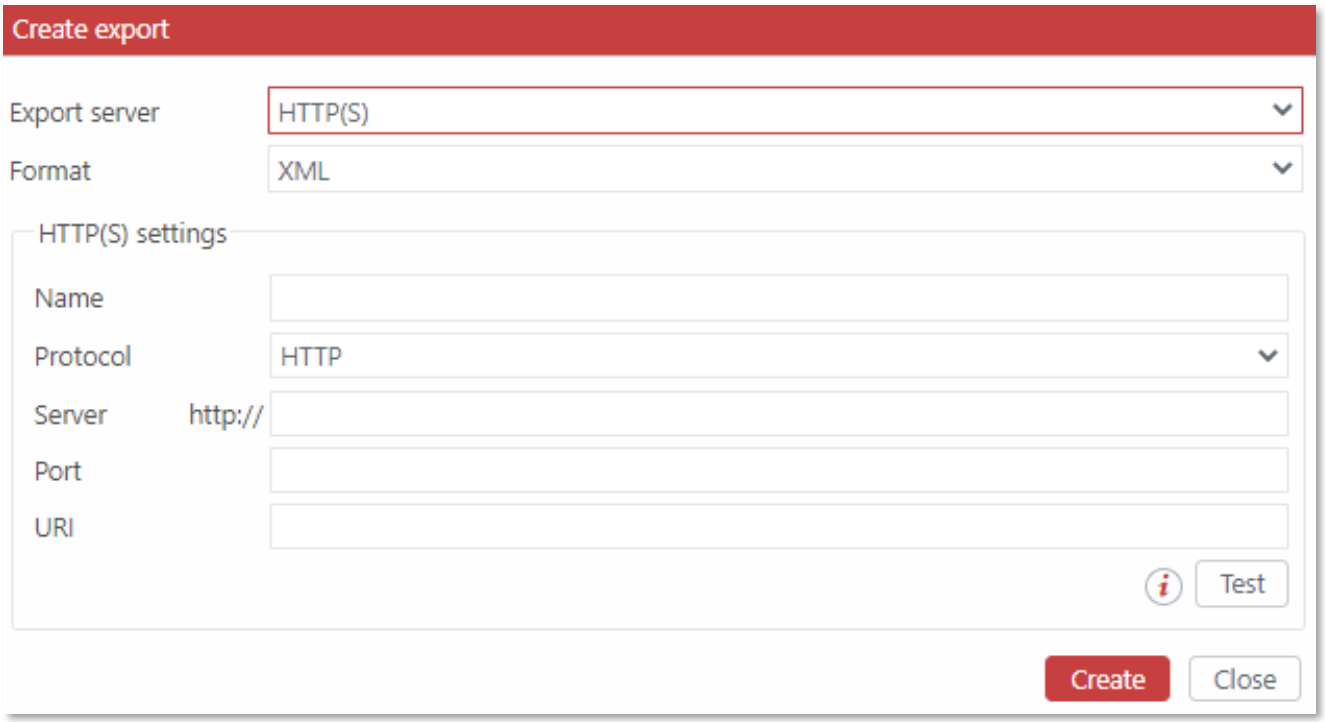
[Name] Any name/ID for the data export, e.g. Analytics, My data export, etc.
[Server] Will be provided with the response to your request
[Port] Will be provided with the response to your request
[ID] Will be provided with the response to your request

When you are connected to the analytics program, it will be possible to view data with a browser on any PC, laptop or smartphone



STEP 7
7.2 SETTING HTTP(S) DATA TRANSFER

To set up data transfer to the server, open OMEGA-ETH interface and then tabs
[Menu – Data export – Create an export – HTTP(S) server type]



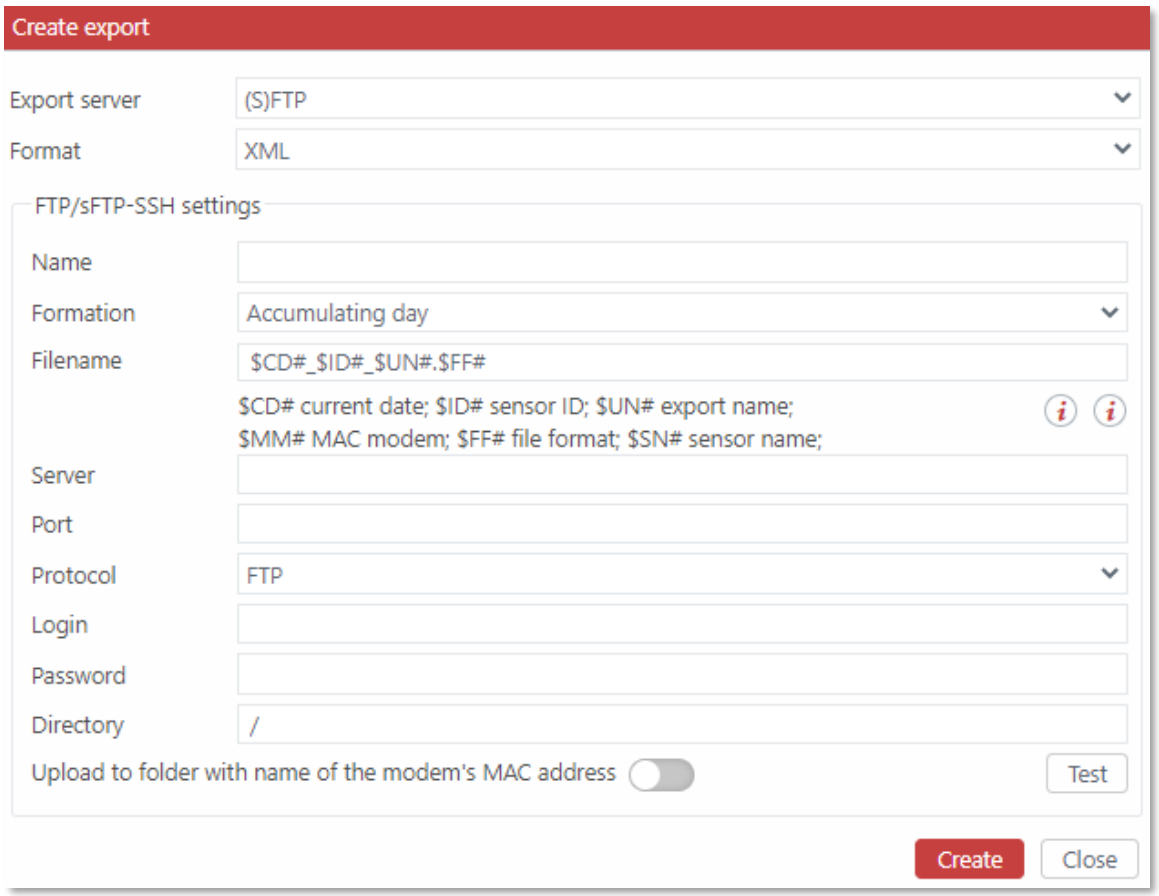
Data export format:
[JSON] transferred data will be in JSON format
[XML] transferred data will be in XML format

HTTP(S) settings:
[Name] Any name/ID for the data export, e.g. Analytics, My data export, etc.
[Protocol] http or https with TLS encryption support
[Server] Server address for receiving packets; supports DNS
[Port] Port address of the server to which the data will be pushed
[URI] Receiving script resource ID

DATA IS TRANSFERRED IN PACKETS! TO RECEIVE THE NEXT PACKET, THE SERVER MUST REPONSE WITH THE CODE 202 OR AN “ACCEPTED” TEXT MESSAGE — ONLY THEN WILL THE PROGRAM SEND THE NEXT DATA PACKET

STEP 7
7.3 SETTING FTP/sFTP-SSH DATA TRANSFER

To set up data transfer to the server, open OMEGA-ETH interface and then tabs
[Menu – Data export – Create an export – FTP/sFTP-SSH server type]



Data export format:
[JSON] transferred data will be in JSON format
[XML] transferred data will be in XML format
[TXT] transferred data will be in TXT format

FTP/sFTP-SSH settings:
[Name] Any name/ID for the data export, e.g. Analytics, My data export, etc.
[Formation]
Day – there will be one single file created on FTP; it will contain all the data for the whole day (one day – one file)
Accumulating day – there will be a new file created on FTP each time with a growing end value (one day – many files)
[File name] Compound file name format. ⚠ $ID# and $CD# tags are obligatory
[Port] Port address of the server to which the data will be pushed
[URI] Receiving script resource ID
[Server], [Port], [Protocol], [Login], [Password], [Directory] FTP Settings
[Upload to folder with name of the modem's MAC address] The program will create a folder with the modem's MAC-address on the FTP server and will export the data there

Data is exported each time any of the counters is connected to the ETH-modem via the radio channel

RECOMMENDATIONS AND TROUBLESHOOTING

Issue/Question	Solution
Scanning program cannot find the modem	Check ETH-modem's cable connection to the network, make sure that power supply cable is connected. The modem needs to be connected to a router-switch. Make sure that the scanning program is not blocked by anti-virus software
Counter indicator does not blink when someone walks through	Change batteries. Direct counter blocks to face each other. Set the correct distance on the T-block
Data is not transferred, FTP test fails	Allow the program in Windows Firewall settings. Allow reading, writing, deleting files and directories on the FTP server. Check if the FTP port is open
Counters do not export data for a long time	Check connection of the ETH-modem to the PC and counter program synchronization. If the batteries are low in power, change the batteries. Check anti-virus software for possible blocking
Instead of In the counter indicates Out, and vice versa	When walking in, check which indicator blinks on the counter: for example, if the red indicator blinks – set red as In indicator, if the blue indicator blinks – set blue as In indicator
The counter confuses In and Out directions at a large distance	It is recommended to switch the counter to the unilateral counting mode: choose unilateral counting mode in the counter settings, wait for synchronization and check counter performance. Both red and blue indicators will be blinking simultaneously. There is no need to divide the values by two – the counters do all the calculations
In values are bigger than Out values, and vice versa	Check that there are no doors, door handles or other objects that can hinder counting. If a visitor reaches for the door with their hand to open it, it can also get into the counter detection field. In that case it is necessary to move the counter to a more suitable location and walk through to check indication. If necessary, switch the counter to unilateral counting mode and check its performance afterwards
How to transfer data if the ETH-modem or PC have been turned off for a long time	The counter stores data for 14 days with cycle overwrite. Connect the ETH-modem or turn on the PC and wait for data transfer
How to find errors in log files	The program lists all operations; access via Menu-Logging
Shorter people are not counted	Check counter detection field: if it is at the level of a person's head or higher, then it is likely that the counter will not count that person

MEGACOUNT is committed to managing environmental impact, and it is our policy to assure the environmental integrity of our processes and facilities at all times and to provide environmentally safe products

Correct disposal of the device
(Waste Electrical and Electronic Equipment)

(Applies to all Eurasian Economic Union, European Union countries and other Europe countries that have accepted the recycling system)
This marking implies prohibition of disposing of the equipment together with other household waste. Device contains batteries.
If disposed of incorrectly, batteries can harm a person's health and the environment. To protect environmental resources and support recycling of materials, it is recommended to store batteries separately from other waste and dispose of them through a local battery return system. Change of batteries in the device by the user is allowed. Information on battery change can be received from the service company.

MEGACOUNT

Use as intended indoors under normal conditions
Service life: 7 years
Warranty: 1 year

EAC

MANUFACTURER

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