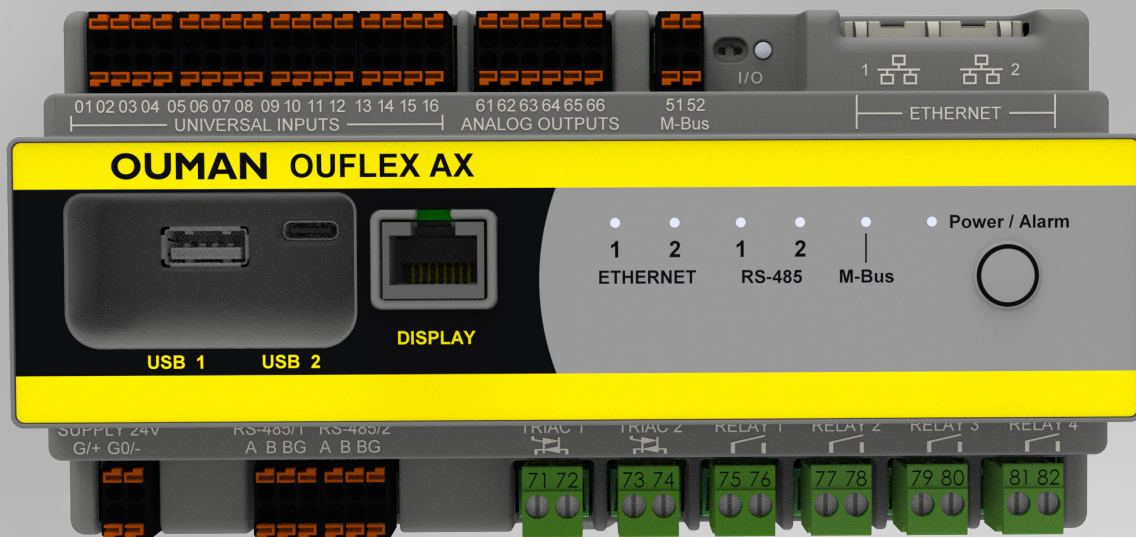


# OUMAN

## OUFLEX AX USER MANUAL

Compact freely programmable  
automation unit



Saving energy,  
creating comfort

<https://oumangroup.com/en>

YM0080 Ouflex AX v.1.0->



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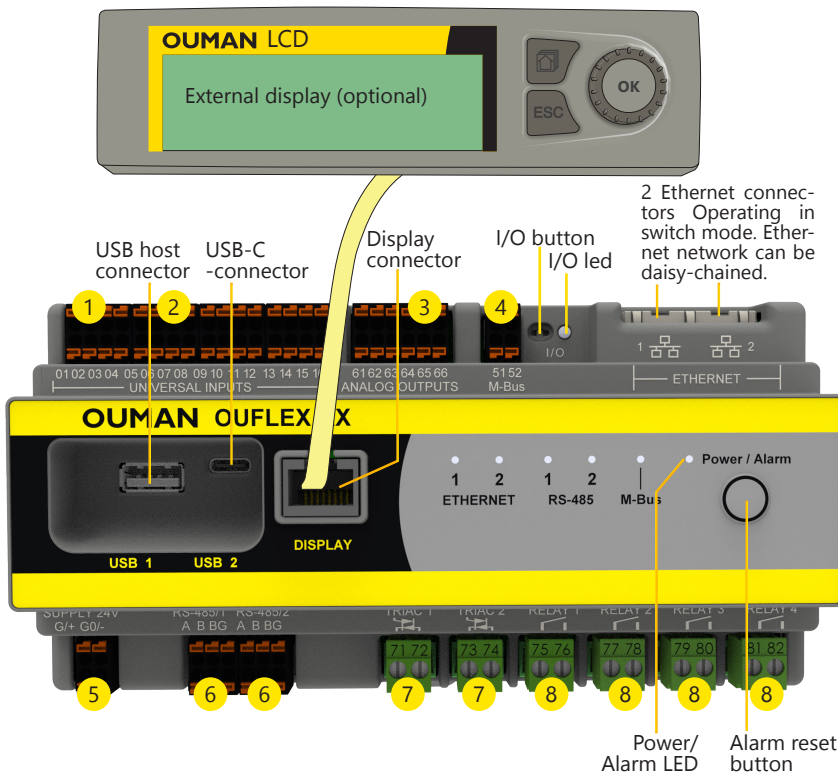
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# 1 Connections

Ouflex AX is a freely programmable and DIN-rail mountable building automation system for control and monitoring. The DIN-standard-compatible structure of the Ouflex AX device enables installation to most common cabinets. Detachable strip connectors make installation easier.

Ouflex AX includes 28 I/O-points, and also versatile data transfer and field bus connections. An external display module can be connected to the device. It is possible to increase the number of I/O-points with external I/O-modules via bus connections (Modbus RTU).

- > Ouflex AX is programmed with the Ouflex BA programming Tool, and the finished application is downloaded to the Ouflex AX device via ethernet or USB C (USB 2).
- > M-Bus Master max. 32 devices, expandable with e.g. Elvaco CMeX50
- > PWM inputs and outputs enable control and monitoring of PWM-controlled pumps (according to VDMA 24224 2014-03 standard).

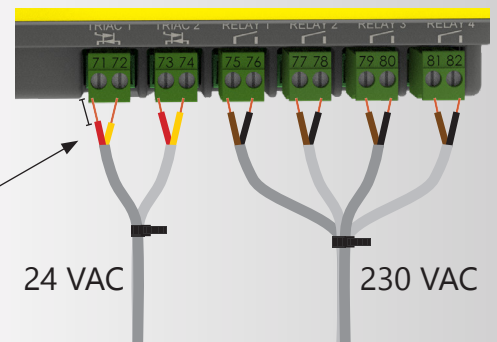


The external display is an optional accessory. The settings and functions related to the display are shown in the user manual on a yellow background.

The GSM modem is an optional accessory. The settings and functions related to the modem are presented in the user manual on a gray background.

- 1  $\perp \dots \perp$  Measurements' ground (16 pcs)
- 2 Universal measurement
  - 1...8 Passive measurement input  
Digital input  
Transmitter (current or voltage message)
  - 9...16 Passive measurement input  
Digital input  
Pulse counter input, PWM- input
- 3 Analog, digital or PWM output
  - 61 0...10 V / PWM output (AO1)
  - 62 0...10 V / PWM output (AO2)
  - 63 0...10 V / PWM output (AO3)
  - 64 0...10 V / PWM output (AO4)
  - 65 0...10 V / PWM output (AO5)
  - 66 0...10 V / PWM output (AO6)
- 4 M-Bus connection
  - 51 M-Bus (-)
  - 52 M-Bus (+)
- 5 24 V AC/DC power supply
  - 91 Power supply G/+
  - 92 G0/-
- 6 Modbus RTU connection
  - 31 A+ RS-485/1 -connection, isolated
  - 32 B- RS-485/1 -connection, isolated
  - 33 BG Isolated ground, RS-485 buses
  - 34 A+ RS-485/2 -connection, isolated
  - 35 B- RS-485/2 -connection, isolated
  - 36 BG Isolated ground, RS-485 buses
- 7 Triac AC switch 24 -230 VAC / 1A
  - 71 Triac 1
  - 72
  - 73 Triac 2
  - 74
- 8 Relays with normally open contact max. 230 VAC / resistive 5A / inductive 1A (cos  $\varnothing$  -0.8)
  - 75 Relay 1 NO
  - 76 Relay 1 C
  - 77 Relay 2 NO
  - 78 Relay 2 C
  - 79 Relay 3 NO
  - 80 Relay 3 C
  - 81 Relay 4 NO
  - 82 Relay 4 C

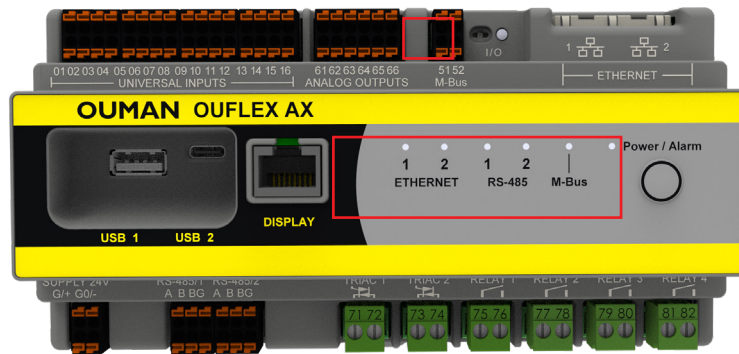
stripping length 10 mm



Ouman Oy recommends that 24 V and 230 V connections are not used in the adjacent outputs. If the same module includes 24 V and 230V connections, external cables must be installed in such way the loose cable doesn't cause a risk. ( E.g. the risk can be avoided by binding the cables or using cable duct near the terminals to ensure cables stay in the connector). Cable stripping length 10 mm.

The person doing the electrical work must have sufficient qualifications to do electrical work.

## 2 Indicator leds and buttons

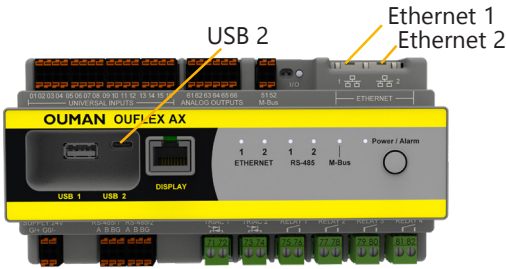


LED	Function description	Ethernet 1	Ethernet 2	RS-485 1 and RS-485 2	M-Bus	Power/ Alarm
○○○○	LED off	Offline	LED is not in use yet (reservation)	No communication		When starting up, approximately 2 seconds
●○○○	Flashes green every 5 s/1 s	Local network (5 s), Internet (1 s)	_____	Blinks green whenever message transmission or reception succeeds		_____
●●●●	The LED is green	Ouman Access connection	_____	_____		OK, no alarms, operational (power on)
●○○○	Blinks red	_____	_____	Blinks red whenever there is an error in message transmission or reception.		Unacknowledged alarm
●●●●	The LED is red	_____	_____	_____		Acknowledged active alarm
●○○○	Blinks yellow	_____	_____	_____	Scanning in progress	Blinks once on startup
●●●●	Blinks red and green	_____	_____	Updating of external Ouman IO modules in progress		_____

I/O LED	Function description	I/O (Internal baseboard)
○○●○○	Blinking green LED	OK message transmitted.
○○●○○	Blinking red LED	Error message transmitted.
●●●●●	The LED is red	Device is in safety mode because of bus error (the device will examine the bus and when error has disappeared, device automatically returns to normal mode).
●●●●●	Red and green flash alternately	The firmware update for the internal base board is currently in progress.

Button	Function description	Function
Alarm reset	Short press	The alarm reset button can be used to acknowledge all active alarms on the device.
I/O button	Short press	The base board (I/O board) will restart.
I/O button	Long press	Press the I/O button for a long time (about 5 seconds) until the LED changes color to red. The unit reboots and resets the factory settings.

# 3 Principles of using the controller



The Ouflex AX device features a web interface. If desired, you can acquire an external display for the Ouflex AX device (optional accessory). SMS functionality is also possible if a GSM modem provided by Ouman is connected to the controller.

## 3.1 Web UI

The Ouflex AX device has a built-in web server. The device can be connected to a network via either the Ethernet 1 or Ethernet 2 port. These ports operate in switch mode with each other. The web interface can be accessed using a web browser. The connection works with commonly used browsers (Firefox, Chrome, and Edge), and we recommend using Google Chrome. You can use a PC, smartphone, tablet, or a similar device for browser access, including a browser-based touchscreen available from Ouman.

The hostname (URL name) of the Ouflex AX device can be found on the label attached to the device or from the network settings on the external display of the Ouflex AX. When using the device's hostname to establish a connection, please note that if the connection is made remotely over the internet, the suffix of the hostname must be in the format ouman.net. You may also obtain the host address by scanning the QR code on the label. If the device connection is made locally using the hostname format ouman.local, the Ouflex BA Tool or Flexiot device scanner program must be installed on the computer. The program must also be started with administrator rights. Otherwise, the direct local IP address of the device is always used.

Another way to open a local device connection from BA Tool or a browser is to enter the device's local IP address in the address field. The Android operating system does not work in a local network with the .local address suffix. Therefore, on Android devices, the local IP address of the Ouflex device should always be used as the address.

In the Flexiot Device Scanner, the browser connection is opened by double-clicking the device entry in the list. The Flexiot Device Scanner always uses the device's local IP address to open the browser connection. As a result, the browser will display a security warning, which you must accept in order to proceed with the connection.

The device-specific password can be found on the Ouflex device label. By default, it is the same for all user accounts. We recommend changing the passwords. Enter the user account and password when you first log in. The device has three access levels. The user account can be "service", "user" or "viewer".

If you have Ouflex BA Tool, you can also use the "Find Device" function, which searches for devices on the same local network and displays them as a list. You will get a device connection when you select the device from the list of found devices and click "Open connection". You can download files, settings, diagrams from the tool to the device and vice versa. The device can also be connected to Ounet at the same time and several people can be connected to the device at the same time (tested with 4 people).

Ouflex BA Tool can also connect to the AX device via USB 2 by connecting the cable to the USB C connector. You do not need to make separate network settings in this case, but DHCP must be enabled on the PC. Use Ouflex BA Tool or Flexiot device scanner when searching for the device on the network.

The Service username has more extensive access rights. See the table below.

Ouflex AX \_mbus4
English
⋮

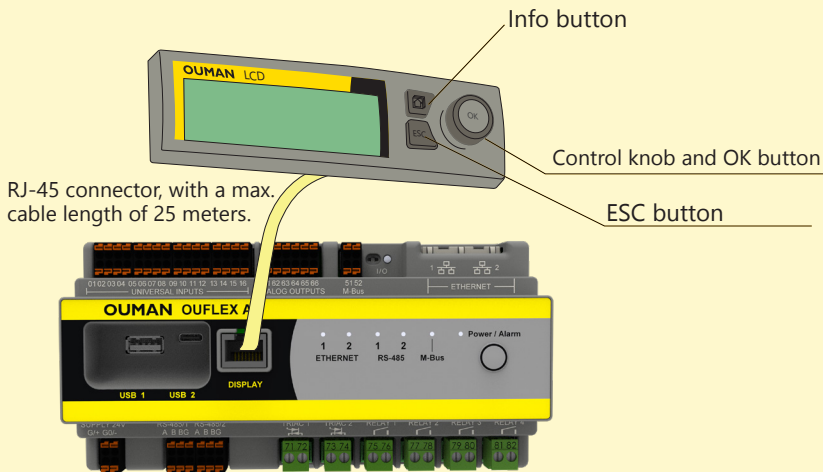
OUMAN

	Access to various functions	Service	User	Viewer
Charts	Changing the password: Which user password can be changed?	service, user and viewer	user	viewer
Alarms	To read charts and trends	X	X	X
Trend	To view and acknowledge alarms	X	X	X
M-Bus	To modify setting values and time programs	X	X	
Point info	To edit charts	X		
System settings	To create the trend groups and edit trends	X		
Device management	To view the status of the M-Bus network, read data from devices connected to the M-Bus network, and create M-Bus description information.	X		
Logs	To change the control mode: automatic - manual control	X	X	
	System settings	X		
	Device management	X		
	Log	X		

Change password
⋮

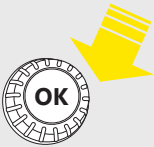





Version info  
Logout

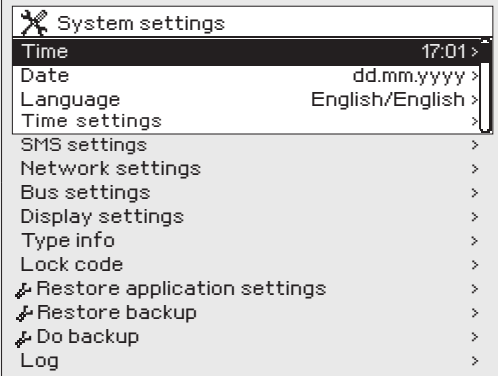
## 3.2 Using the Ouflex AX device with an external display



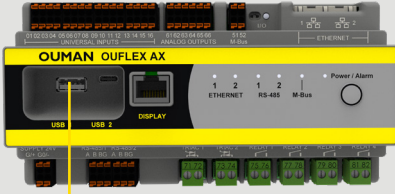
The Ouflex AX device can be equipped with an external OUMAN LCD display via the RJ45 connector.

The structure of the user interface varies depending on the application installed on the device, but by default, the interface includes System Settings, Alarms, and Point Info.

Buttons and symbols	Function Description
 	<p>The display has 4 lines. Pressing the control knob enters a function (the active line is highlighted against a dark background).</p> <p>Pressing the control knob confirms the selections made.</p> <p>Turning the control knob navigates between functions (scrolling) and makes changes to set values (increase/decrease) and default selections.</p>
<p><b>Hidden menus</b></p>  <p>Press OK for a few seconds</p>	<p>Some of the information in your Ouflex device may be hidden. You can see the hidden menus by pressing OK for a few seconds. Similarly, you can hide them again by pressing OK for a few seconds. Hiding information that you seldom need to change or look into makes the HMI simpler. When visible, this information is shown indented.</p>
<p><b>ESC button</b></p>	<p>Press the ESC button to cancel changes or move back to previous menu. Holding the key down for a few seconds of time returns the controller to its basic mode. The display shows the basic view, the background light dims and any lock code and service code entered will be forgotten.</p>
	<p>Info button. Behind the Info button, additional information about the displayed item may be provided.</p>
<p><b>Maintenance code</b></p> 	<p>There may be a maintenance code in use in your Ouflex device. In this case, you can see the information even when it's locked, but you can't make changes to settings without entering the maintenance code. Normally, you lock the most critical settings behind the maintenance code, or settings that require expertise. These settings will be indicated by a  symbol that shows they require the maintenance code. The entire menu can also be placed behind the service code. The service code is device-specific.</p>
<p><b>Lock code</b></p>	<p>If you take lock code into use, you can read Ouflex AX device information when the device is locked, but you can not change settings. It is recommended, for example, that you take lock code into use if the device is located so that anyone could reach it and change settings (e.g. deactivate burglar monitoring). Locking the device and changing the lock code prevents unauthorized use of the device.</p>



### 3.3 Communication via a mobile phone



Ouman GSM modem

If an external OUMAN GSM modem is connected to the Ouflex AX device, you can communicate with the controller by text message using key words.

Send the following text message to the controller: **KEY WORDS**.

You can also send a question mark as a text message to the controller to get a list of keywords. If the controller has a device ID in use, always write the device ID in front of the key word (example: Ou01 KEY WORDS or Ou01 ?). **Uppercase and lowercase letters are different characters in the device ID!**

The controller sends as a text message a list of keywords, that can be used to get information about the controller functions. Key words are separated by a /. You can write the key word using capital or small letters. Write only one key word/message. Store the key words into your phone's memory.

KEY WORDS

Key words:  
Active alarms  
Alarm history

By default, the Ouflex AX device includes keywords: "Active Alarms" and "Alarm History". Other keywords are defined in the Ouflex BA Tool when the control application is created. Typical keywords include Measurements, Settings, Inputs, Outputs, Info, etc.

**Informative messages:**

Informative messages can not be edited or sent back to the Ouflex AX. Informative messages are, for example: measurements, different types of information displayed, or the alarm queries.

ACTIVE ALARMS

**ACTIVE ALARMS:** The reply message will show all active alarms. Message is informational. The reason for the alarm is shown in the heading. You can also see, what is the alarm priority (1 = Emergency, 2=Danger, 3=Fault, 4= Service, 5=Info) and what alarm group it belongs to (Group 1 has urgent alarms and group 2 malfunction alarms), source of the alarm and time the alarm was received.

ALARM HISTORY

**ALARM HISTORY:** The device sends a message showing the last 10 alarms. The message is informational. The reason, source and inactivation time is shown for every alarm in alarm history. The last 10 alarms can be seen in inactive alarms.

**Change of the setting value by text message:**

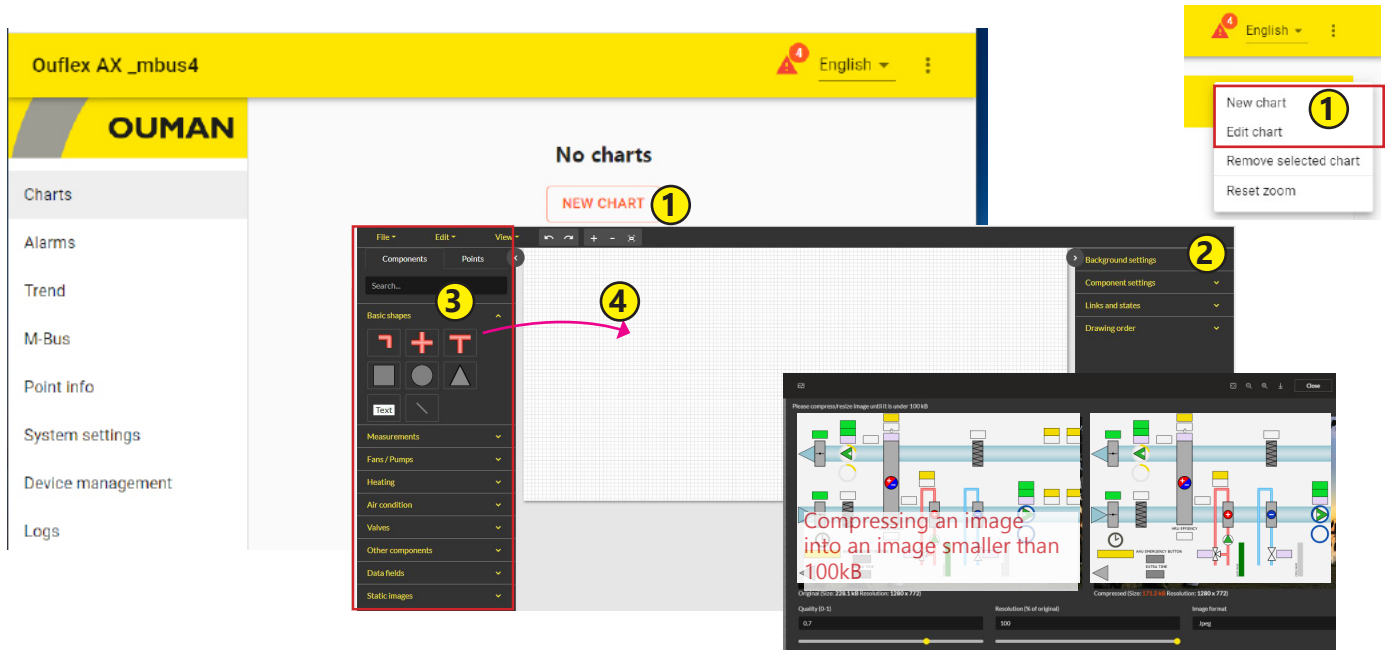
Send a message with the correct key word. The controller sends the settings to your mobile phone. Editing the setting values: write the new setting in place of the old setting and send a message back to the controller. The controller sends the setting as a return message.

**Change of the selection by text message:**

The controller sends a return message in which a \* appears in front of the control mode in use. If you want to change the control mode, move the \* in front of the desired control mode and send the message back to the controller. The controller will then send a return message showing that it has switched to the desired control mode.

# 4 Chart editor

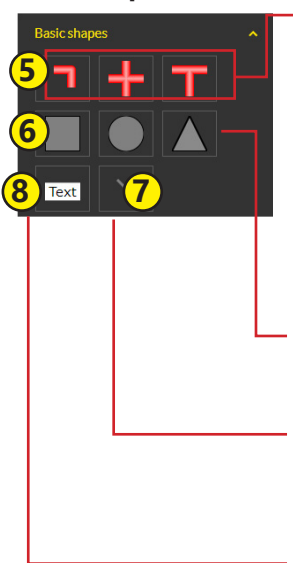
You can create dynamic charts via a web browser with an editor and save the chart directly to the device, or create it with the Ouflex BA Tool and download the charts to Ouflex AX. The maximum number of images is 30. Images cannot be converted to Ounet, but an existing chart can be saved as an image and used as a wallpaper in Ounet, and vice versa. You can upload an image file (eg svg, jpeg, png) as a background image to the chart. The maximum image size is 100 kB. You can compress the image using the compression tool. You can choose to reduce the image size, reduce the image quality, resolution, and / or change the image format.



## Adding a new chart

1. Select "New chart" and enter a name for the chart (File -> Save as").
2. You can define chart background settings. You can import an image as the chart background (max. image size 100 kB) or select the background colour and grid size. The graph includes a snap function, which helps to align components with grid lines. If you do not want to use the snap function, set 0 as the grid alignment distance value.
3. You can draw the chart by using common shapes, text fields, lines, symbols and pictograms.
4. Use the mouse to drag components from the "Components" tab to the drawing surface.

### Basic shapes



5. You can define the thickness and colour of pipes. Drag pipes to the drawing surface. When you hold number key 1, you can extend the pipe from its start point. You can also add angles. When you hold number key 2, you can extend the pipe from its end point. If you hold the Shift key, you can add 45 and 90 degree angles. If you click the right mouse button, you can add or remove points between the start and end points. You can create a circuit by connecting the start point with the end point. By adding a T-pipe-component, you can connect two circuits. The rotation of the component is done in the component settings by entering the degree. With the "Snap" function, the component can be aligned with the background grid. Use the + and - keys to zoom in on the image.
6. You can change the size or colour of shape components or rotate components. You can also add a link from a component to another chart.
7. If you add a line, you can define the thickness and colour of the line in component settings. If you want to add a point onto a line, use the right mouse button. You can bend the line next to the point and change the order of the components.
8. If you add a text field, go to component settings to define the content of the text field, the font type and size, and the colour of the text.

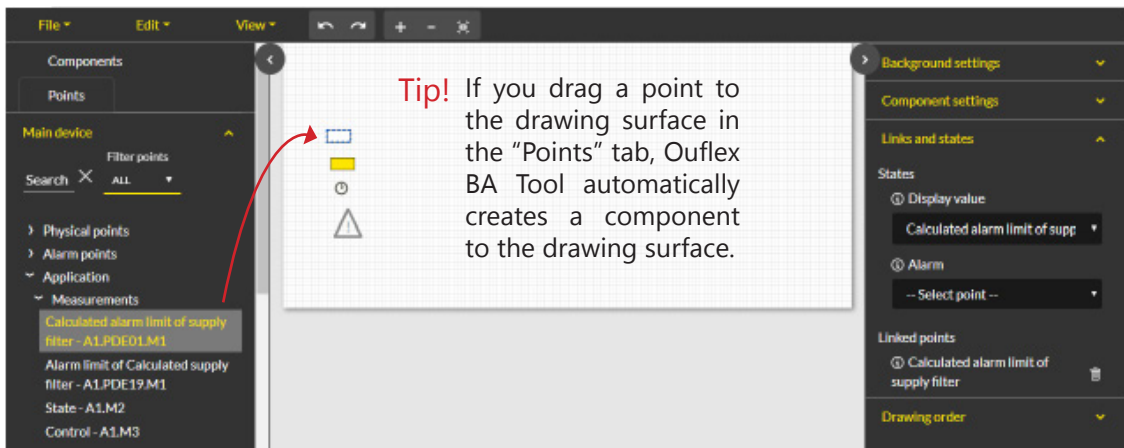
# 4.1 Measurements, settings and controls via browser

1. You can add any of the following points to the drawing surface in the "Components" tab: measurement, setting value, adjust value, control value, indication value, sensor or meter.
2. Activate the component. You can now edit component settings.
3. Activate the component and define what data is added to the specific field in the "Points" tab.
4. Drag point to the "Display value" field. If the point has an alarm, drag the point to "Alarm" field.
5. Hold down the shift key to select multiple individual points, or select the first and last point while holding down the ctrl key. Use your mouse to drag and drop the points onto the drawing surface so that the program makes a common component for the points. When you click on a box, the points appear in the "Linked points" list.

3. Activate the component and define what data is added to the specific field in the "Points" tab.
4. Drag point to the "Display value" field.
5. Hold down the shift key to select multiple individual points, or select the first and last point while holding down the ctrl key. Use your mouse to drag and drop the points onto the drawing surface so that the program makes a common component for the points. When you click on a box, the points appear in the "Linked points" list.

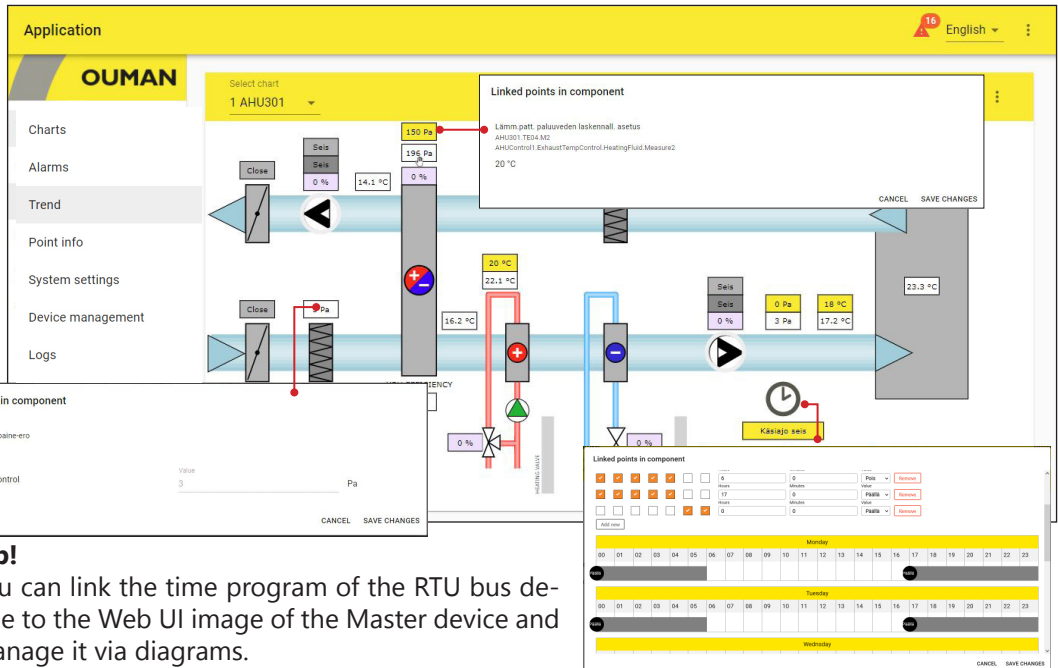
4. Drag point to the "Display value" field.
5. Hold down the shift key to select multiple individual points, or select the first and last point while holding down the ctrl key. Use your mouse to drag and drop the points onto the drawing surface so that the program makes a common component for the points. When you click on a box, the points appear in the "Linked points" list.

The measurement data is displayed on the "Charts" tab of your browser. Clicking on the "point" box will display a list of the data linked to the point.



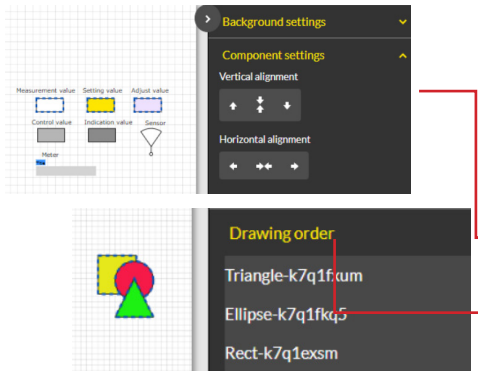
File

The points do not appear in the browser's viewport until you have saved the chart on the "Editor" view.



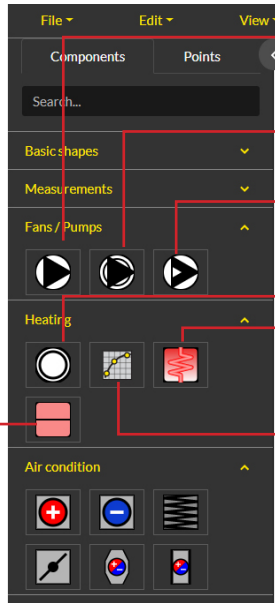
Tips!

- You can cut (Ctrl + X), copy (Ctrl + C), select all (Ctrl + A) or remove components (Del) by using shortcuts or by selecting "Edit".
- You can select several components by holding the Ctrl key or by holding the right mouse button while painting the area in which components are located. Then, you can process the components as a group.
- You can place a component on the X or Y axis.
- You can change the order of components by clicking the right mouse button and selecting forward, backward, etc.
- You can also change the order of components by changing the place of the components in the "Drawing order" menu.



In the web view, measurement data and setting values are often placed either on top of each other or side by side. The color of the box indicates which is the measurement and which is the setting value. You can conveniently change the set value by typing the new value over the old one.

## Basic shapes



Expansion tank

You can use ready-made drawings.

The same icon is used for different purposes in different sizes. The smaller icon symbolizes the pump and bigger symbolizes the fan.

The two-speed fan. There are indication points and alarm points for both speeds.

Variable-speed fan

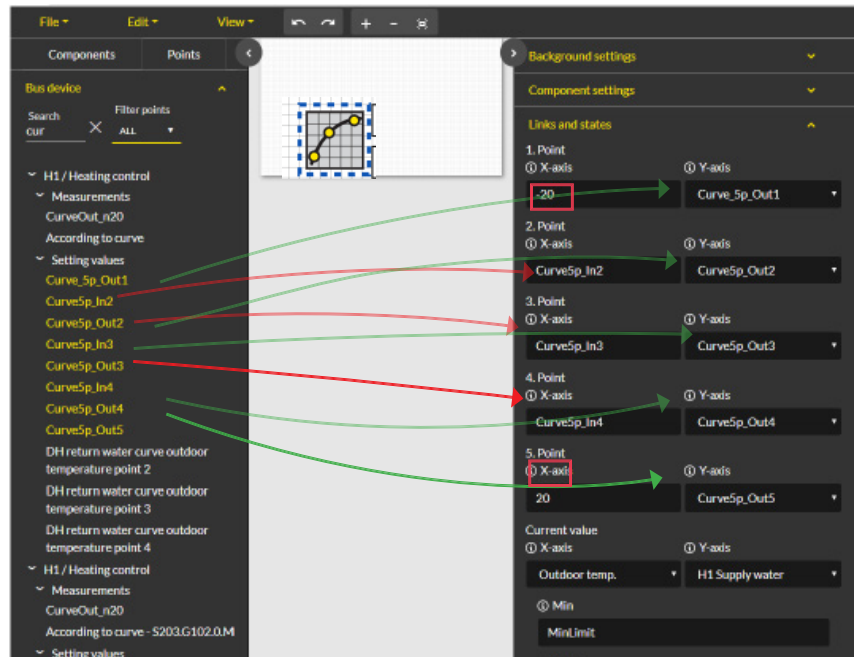
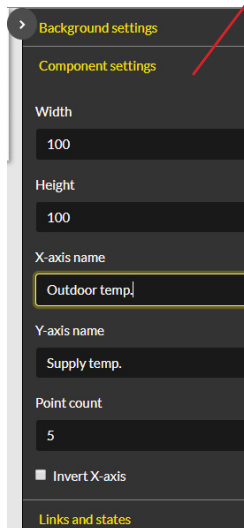
Heating circuit. Change the ID. It is L1 as a default.

Heat exchanger: Select "component settings" and you can customize the size and color of the exchanger and even the size and color of the pipes.

Curve component:

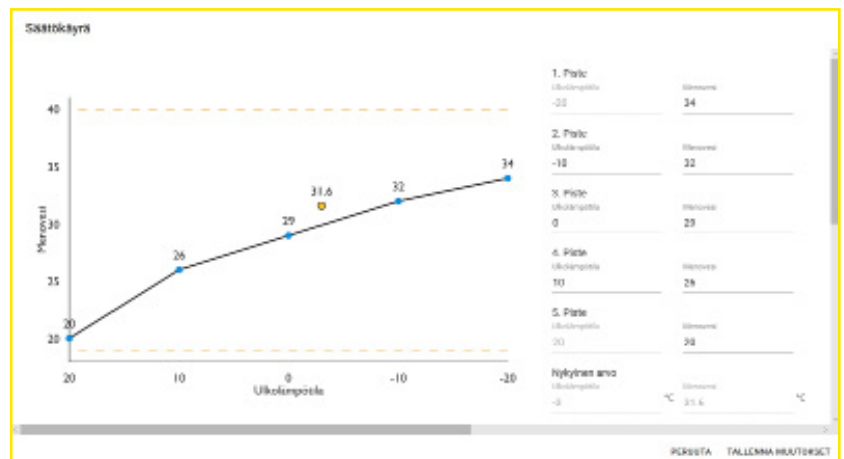
In the component settings, specify the size (width and height) of the table. The curve is displayed graphically. You can name the x and y axes of the curve and determine how many points (pairs of x and y values) there are on the curve.

Drag the curve score to the fields in the "Links and states" section. In this example, the outdoor temperatures -20 and 20 are fixed, so you can pre-enter numerical values in those fields (1.Point axis and 5.Point axis). Note! +20 ° C must be entered without a sign (without a + sign).

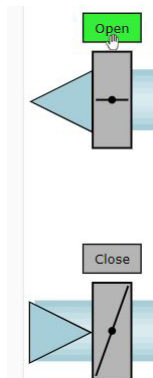


**Tip:** You can use the "search" function when searching for information to link to.

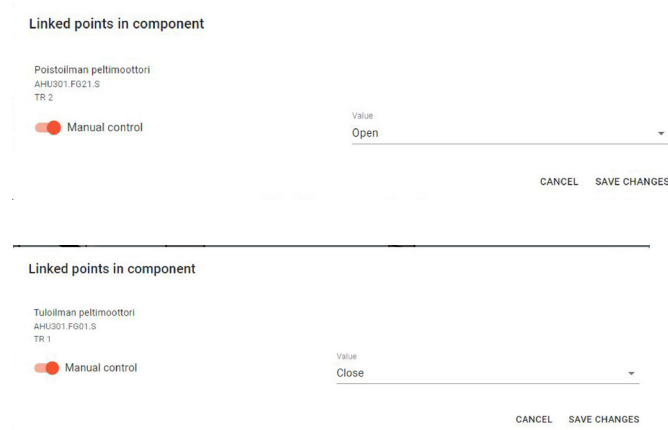
## Heating curve browser view:



## Manual control



You can switch individual points to manual control and select the control mode. A hand icon is shown when manual control is on. The hand symbol and icon will also be shown when manual control is switched on.



## 4.2 Measurements, settings and controls via external display

The Ouflex AX device interface is typically structured so that measurements, setting values, and controls are found in separate menus.

### Changing a setting:

1. Choose the desired setting by turning the control knob. Press OK to go to the view where editing is possible. Change the setting.
2. Press OK to accept the change.
3. Press Esc to exit the editing view.

Settings	
Supply water min limit	12.0 °C >
Min lmt increase outd. temp. -20	3.0 °C >
Supply water max limit	42.0 °C >
I-control's max effect on supp. wtr	2.0 °C >

Room temperature	
<b>21.0°C</b>	
min: 0.0 max: 95.0	

The controller has a protection mechanism for non-volatile memory. For example, when a setting value is changed, the controller checks when it was last saved. If more than a minute has passed since the saving, the change is saved immediately. If less than a minute has passed since the last change, the change will only be saved within the next minute. Do not turn off the device immediately after changing the settings.

You can see the setting range (minimum and maximum value), if there is one, in the editing view.

### KEY WORDS

Key words:  
Setting values/  
Control mode/  
Active alarms/  
Alarm history

### SETTING VALUES

Setting values:  
Room temperature = 21.5°C/  
Temp.drop = 3.0°C/

### CONTROL MODE

Control:  
\* Automatic/  
Manual 20%

If a GSM modem is connected to the Ouflex AX you can communicate with the controller by text message using key words. If a GSM modem is connected to the Ouflex AX device and the set values have been elevated to the SMS interface, you can modify the set values via text message.

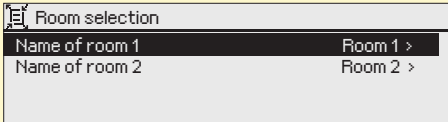
### Send a message: Setting values.

The Ouflex AX sends a message displaying the most important setting values, which have been elevated to the SMS interface. Then, you can write the new setting in place of the old setting and send a message back to the controller. The controller will then send the updated setting as a return message.

### Send a message: Control mode.

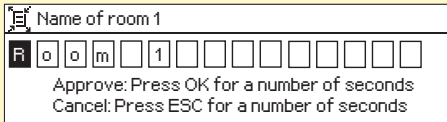
The controller sends a return message in which a \* appears in front of the control mode in use. If you want to change the control mode, move the \* in front of the desired control mode and send the message back to the controller. The controller will then send a return message showing that it has switched to the desired control mode.

## 4.3 Naming via the external display of the controller

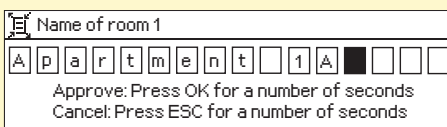


There may be fields that you can rename in your Ouflex device. You often download an application where general names have been given to the controls, and you may want to rename them more accurately.

In heating control, for example, the rooms have typically been named "Room 1", "Room 2", etc. You may want to give them more accurate names. In control of electric groups, you may want to rename "Electric group 1" and "Electric group 2" more accurately, depending on what you actually control with the relay in question.



Move to the title you wish to rename and press OK. A naming view opens. Turn the control knob and accept each letter by pressing OK. Move to the next square by pressing OK.



Return to the previous square by pressing ESC. Accept the name by pressing OK for a number of seconds. Cancel by pressing ESC for a number of seconds.



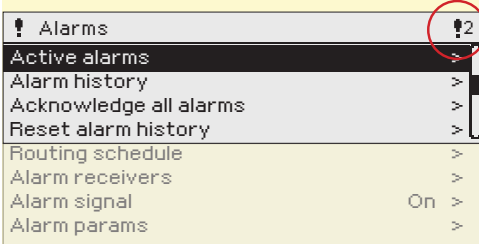
## 5 Alarms



When the device has an active alarm, the Power/Alarm LED on the front cover of the controller is either solid red or flashing red. Additionally, an alarm symbol and the number of alarms will be displayed in the upper corner of the browser screen. If an external display is connected to the controller, an exclamation mark and the number of active alarms will appear in the upper corner of the external display.

In Ouflex AX, Active Alarms and Alarm History are provided as separate views. If alarms need to be forwarded from the device via SMS, a GSM modem must be connected to the device. Alarms can be routed to alarm teams according to a desired weekly schedule. In the Alarm Recipients view, you can enter the phone numbers of the individuals assigned to each team. When connected to Ounet, the device sends all alarms to Ounet using the SNMP protocol. In this case, you must ensure that SNMP is enabled on the device (see page 27). Ounet provides extensive routing options for alarms, either via SMS and/or email.

### External display:



- A blinking exclamation point means the unit has active alarms.
- The number indicates the number of active alarms.

When the controller is configured, it's possible to disable alarms. When the alarms are disabled, the symbol will be displayed in the main menu. Alarms are enabled in the Alarm menu -> Alarm signal: Disabled/Enabled.

## 5.1 Active alarms

### Active alarms in the browser view and Alarm acknowledgment

Time stamps ↑	Name	PeerId	Device info	Priority	State	Action
25.03.2024 12:04:51	Laite MBUS.ElsterF4KamstrupSVMF22_HeatOutlet osoitteessa 1 ei vastaa	MBUS_ADDR1_ElsterF4KamstrupSVMF22_HeatOutlet_Error.A	Ouflex AX	1	Active	INFO ACKNOWLEDGE
22.03.2024 13:53:53	Laite MBUS.KAM.Coldwater osoitteessa 6 ei vastaa	MBUS_ADDR6_KAM_Coldwater_Error.A	Ouflex AX	1	Active	INFO ACKNOWLEDGE
22.03.2024 13:50:39	Laite MB1_FLEXA08_1 osoitteessa 1 ei vastaa	MB1_ADDR1_FLEXA08_1_Error.A	Ouflex AX	1	Active	INFO ACKNOWLEDGE
18.04.2024 10:51:47	Laite MB2_FLEXA08_2 osoitteessa 1 ei vastaa	MB2_ADDR1_FLEXA08_2_Error.A	Ouflex AX	1	Active	INFO ACKNOWLEDGE

Laite  
 MBUS.ElsterF4KamstrupSVMF22\_HeatOutlet  
 osoitteessa 1 ei vastaa -  
 MBUS\_ADDR1\_ElsterF4KamstrupSVMF22\_Hei

PR 1 RYHMA 1  
 MBUS\_ADDR1\_ElsterF4KamstrupSVMF22\_HeatOutlet\_Error.A

Tuloaika 25.03.2024 12:04:51

OK

In the upper right corner of the browser view, an alarm icon and the number of active alarms are displayed. Detailed information about the alarms can be found on the "Active Alarms" tab.

- When you click the icon, the Active Alarms tab will be displayed regardless of which view you are in.
- By clicking the "Info" button, you can view more details about the alarm. You can also acknowledge the alarm from the browser.
- You can acknowledge all alarms at once by clicking "Acknowledge all."

### Viewing Active Alarms on an External Display and Acknowledging Alarms

Alarms -> Active alarms

**The Ouflex AX device can be connected to an external display, allowing alarms to be viewed and acknowledged from the external display.**

Active alarms
02.02.2025 10:11:42 Sensor fault H1 Supply w >
28.01.2025 11:22:40 Sensor fault H1 return w >

- An exclamation mark in front of the date shows that the alarm has been silenced by pressing Esc.
- The heading of the alarm view shows the reason for the alarm.
- You can also see, what is the alarm priority (1 ...5 ) and what alarm group it belongs to (1...10)
- What location the alarm is coming from.
- The time, when the alarm was activated.
- An exclamation mark in front of the date indicates that the alarm has been muted with the ESC key.

Alarms -> Acknowledge all alarms

To acknowledge all alarms on the Ouflex device, simply press OK. A fixed register 13 called "Acknowledge all alarms" has been added to the Modbus interface template. You can enter a value of one (1) in the register to acknowledge all alarms on the controller. The register value will automatically return to zero after acknowledgement.

### Information about active alarms via text message

ACTIVE ALARMS

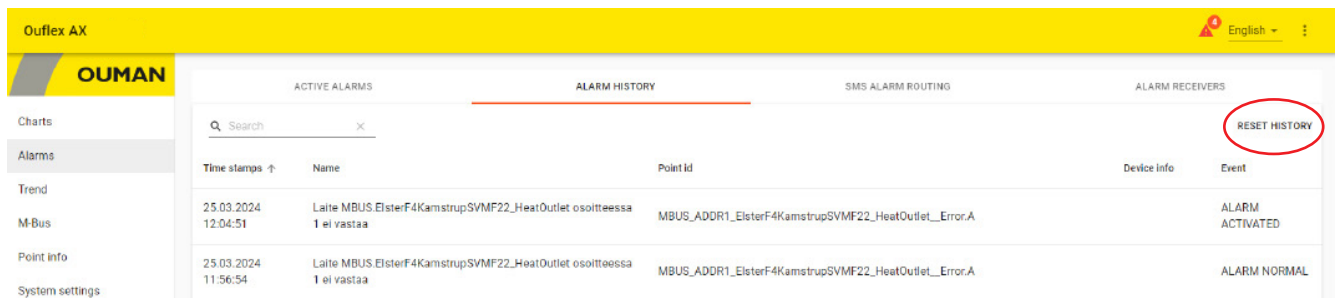
If Ouflex AX device is connected to a GSM modem, you can communicate with Ouflex device via text message.

#### Send message: Active alarms

The controller sends a message showing all active alarms. Message is informational.

## 5.2 Alarm history

### Alarm history in the browser view and Reset the alarm history



In the upper right corner of the browser view, you can see an alarm icon and the number of active alarms.

On the "Alarm History" tab, you can see:

- whether the alarm is active but acknowledged (alarm acked)
- whether the alarm is unacknowledged and still active (alarm activated)
- whether the alarm has cleared after the reason for the alarm has ceased (alarm normal)

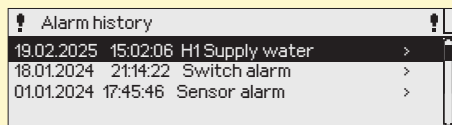
By clicking "Reset history," you can delete the alarm history from the browser.

You can refresh the view by clicking the  icon.

### Viewing Alarm history on an external display and Reset the alarm history

Alarms -> Alarm history

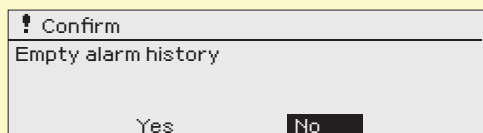
An external display can be connected to the Ouflex AX device, allowing alarms to be viewed on the external screen.



You can see the cause of the alarm, where the alarm has come from and when the alarm has become inactive. The last 10 alarms can be seen in Alarm history.

Alarms -> Reset alarm history

Ouflex AX requests confirmation before deleting alarm history.



### Information about Alarm history via text message

ALARM HISTORY

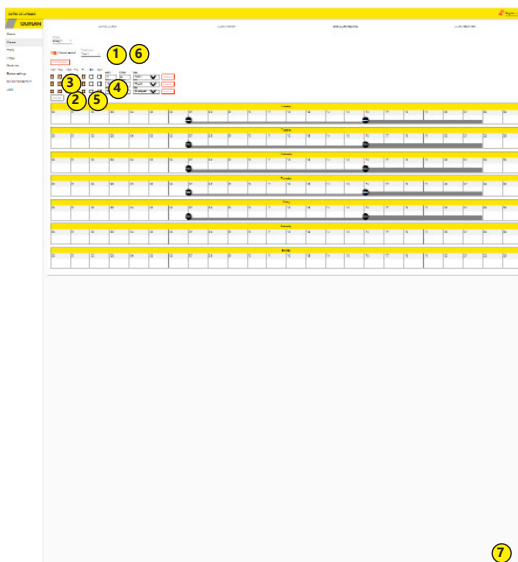
If Ouflex AX device is connected to a GSM modem, you can communicate with Ouflex AX device via text message.

#### Send message: Alarm history

The controller sends a message showing the last alarms. Message is informational.

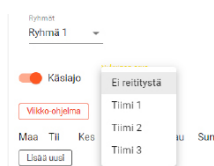
## 5.3 SMS alarm routing

### Alarm routing in the browser



Select the "Alarm routing" tab

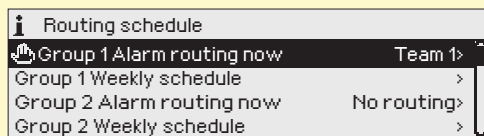
1. Select an alarm group to be routed.
2. Select "Add new".
3. Select the days of the week when routing is activated.
4. Set the start time and select the team as the value to which the alarm is routed, e.g. "Team 1" (you can define the team's telephone numbers in the "Alarm receivers" tab).
5. Select "Add new".
6. Define when alarms are not routed to this team (select another team or no routing).
7. Finally, save by clicking "Add new".



Alarms can be routed according to the weekly schedule. For periods that deviate from the normal weekly schedule, an exception can be made using the "Manual control" function. Select "Manual control" and specify whether the alarms should be forced to a specific team or left unrouted.

## Alarm routing from an external display

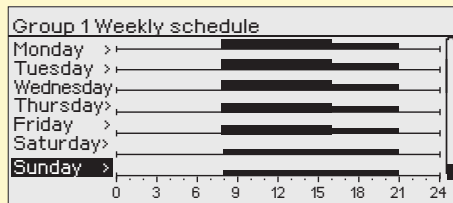
Alarms -> Routing schedule -> Group 1 (2...10) Alarm routing now



You can create a separate weekly schedule for each alert group. The current value indicates who is currently receiving the alerts. Typically, alerts are routed according to the time schedule (automatic). If you have the device's maintenance code, you can manually override the routing and specify the alert recipient team yourself. If the routing is set to manual, a hand icon will appear at the beginning of the current value line.

Alarms -> Routing schedule -> Group 1 (2 ... 10) weekly schedule

### Graph



This example shows that group 1 alarms are forwarded. During business hours (Monday - Friday 8:00 a.m. - 16:00 p.m.) alarms are forwarded to different teams than during evenings and weekends. More detailed information is shown in the "Editing view".

### Editing view

Time	Mode	M	T	W	T	F	S	S
08:00	Team 1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16:00	Team 2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
00:00	Add new	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1. Set switch time

2. Set alarm team | 3. Select day(s)

Time	Mode	M	T	W	T	F	S	S
08:00	Team 1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16:00	Team 2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
00:00	Add new	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Time	Mode	M	T	W	T	F	S	S
08:00	Team 1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16:00	No routing	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
00:00	Add new	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Time	Mode	M	T	W	T	F	S	S
08:00	Team 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
21:00	Delete switch time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
00:00	Add new	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

You can create a weekly schedule for each alarm group. Weekly schedules have a general graphic view and an editing view, where you can see to which alarm team each alarm is sent at different times. In the graph, alarm teams are distinguished from each other by the bars with different thickness.

Turn the control knob to browse a weekly schedule. If you wish to see the exact switch times and names of alarm teams, or if you wish to edit, remove or add switch times, press OK at any weekday.

### Browsing a weekly schedule:

An editing view opens, and it shows all the switch times and also to which alarm teams alarms are routed at these times on the chosen days.

### Adding a new switch time:

1. Press OK at the "Add new" row.
2. Press OK. Set the switch time for alarm routing (set hours and minutes separately) and press OK.
3. Press OK and then turn the control knob to set the alarm team or the "No routing" option. (No routing option means that alarms will not be sent.) Accept by pressing OK.
4. Press OK at desired weekdays you wish to choose.
5. Press OK at the end of the row to accept the created schedule.
6. Press Esc to exit.

### Editing a weekly schedule:

1. Turn the control knob to navigate to the value you wish to change and press OK.
2. Turn the control knob to make the time and alarm team changes. Press OK to accept.
3. Press the OK button to change the day of the week.
4. Press Esc to exit.

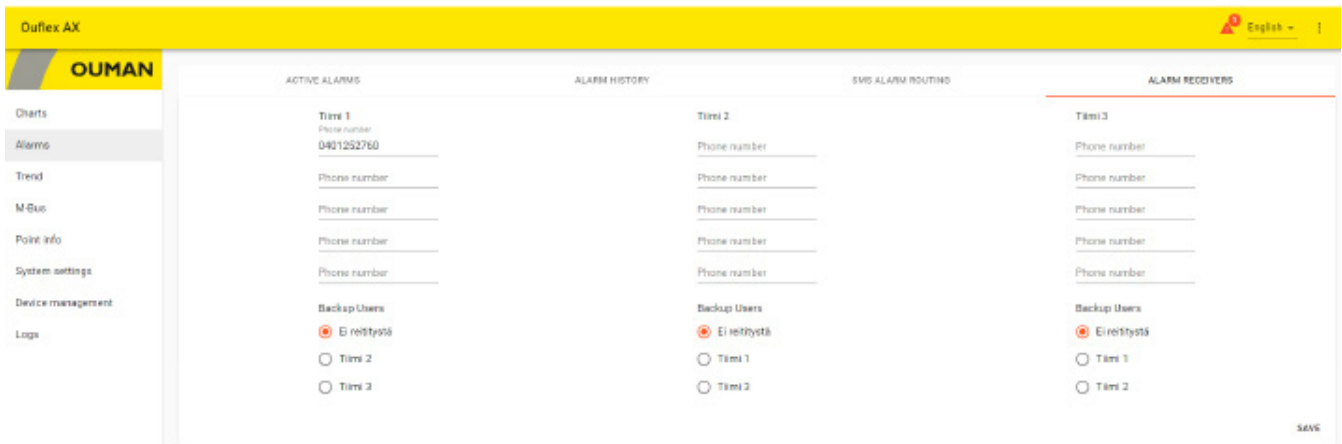
### Deleting a switch time:

1. Turn the control knob to navigate to the switch time you wish to delete and press OK.
2. Press OK at the alarm team and select "Delete switch time".
3. Press OK at the end of the row.
4. To exit edit mode, press ESC.

Alarms are routed according to the routing schedule. You can acknowledge an alarm by forwarding the same message to the Ouflex AX.

## 5.4 Alarm receivers and alarm signal

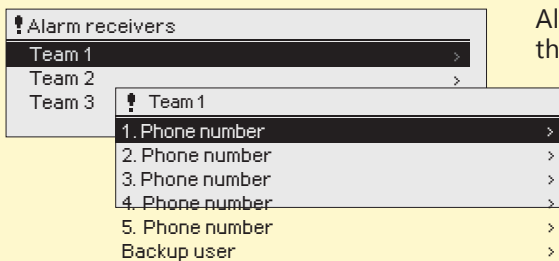
Setting alarm receivers via the browser



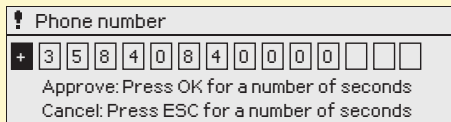
Alarms are directed to alarm teams, of which there can be up to three. Each team can have a maximum of 5 phone numbers. The alarm is directed to the team set as the recipient for the relevant alarm group in the alarm routing schedule. Save the phone numbers by clicking "Save".

Setting alarm receivers from the external display of the controller

Alarms -> Alarm receivers

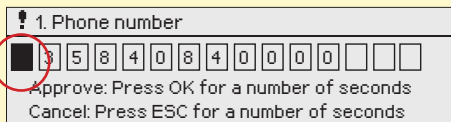


Alarms are directed to alarm teams, of which there can be up to three. Each team can have a maximum of 5 phone numbers.



### Entering the telephone numbers:

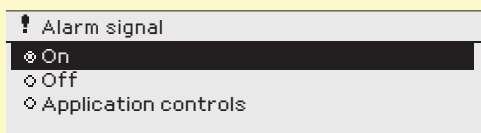
1. Turn the control knob. Press OK to accept a number/sign.
2. Press OK to move to the next square.
3. Press Esc to return to the previous square. OK
4. Press OK for a number of seconds to accept the number.
5. Press Esc for a number of seconds to cancel.



### To delete a phone number:

Set the first character to "blank" and then press OK for a long time.

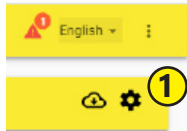
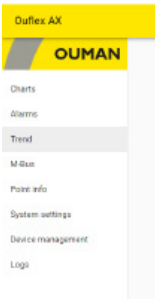
Alarms -> Alarm signal



The Alarm signal setting controls the device's internal alarm buzzer. You can mute the alarm sound if you want.



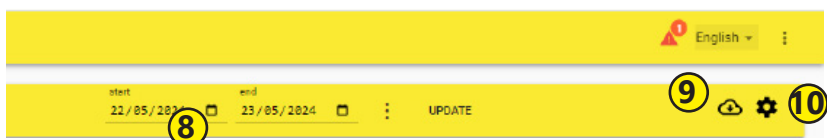
# 6 Trends



Ouflex uses a local trend. A single trend group can consist of at most 30 trend points. The device includes 200 objects, each of which can collect 10,000 samples. The sampling interval defined determines the period, over which the device obtains trend data. For example, if the sampling interval is 10 seconds, trend data is collected over approximately one day. If the sampling interval is 60 minutes, trend data is collected over more than one year.



1. Select "Trend" tab and then "Create". If you already have a trend created, you can create a new one by first clicking the gear icon in the top right corner.
2. Select "new group- 1". You can rename the trend group by entering a new name over the current name.
3. Drag the points you want to add to the trend group using the mouse. A single trend group can consist of at most 30 trend points. The points selected for trend data collection are highlighted in green.
4. You can edit trend data collection settings by clicking the arrow (>) in front of the point. By default, the device collects trend data using a sampling interval of 60 seconds.
5. Trend collection settings show what points have been connected to the trend group.
6. In Y axis settings, you can enter a name for the Y axis and scale the Y axis by giving the axis a minimum and maximum value. If you do not give a minimum and maximum value for the axis, it will always be scaled in accordance with default values. You can also select whether the graph is shown as a line or area and what trend points use the Y axis in question. Accept changes by clicking OK. You can create four Y axes.
7. Remember to save the settings.
8. Define the period, over which you want to view trend data, by setting a start and end time or by selecting a day, week or month.
9. Click the icon to save trend data in a CSV file. The file can be edited in Excel.
10. Click the wheel icon to access the trend editing mode.



# 7 M-Bus

You can perform a scan of M-Bus network devices and manage the network devices in the M-Bus view. When the Ouflex AX device operates as the Master device in the M-Bus network, up to 32 slave devices can be directly connected to the network. The network can be expanded, for example, using the Elvaco CMeX50 device or with the Ouman M-Bus module.



Työkälistä ladattu konfiguraatio					Skannauksen tulos		
<input type="checkbox"/>	↑ Primary address	Object name	Secondary address	Yhteystyyppi	Primary address	Secondary address	Tila
<input type="checkbox"/>	9	EngelmannElsterSensoStar2_Hea	25180078C5140004	Secondary			⚠ Ei löydetty laitetta
<input type="checkbox"/>	10	ABB_Electricity	0183909442042002	Secondary	10	0183909442042002	✓ OK

1. By clicking the “SCAN M-BUS NETWORK” icon, all devices on the M-Bus bus will be searched.
2. The search can be done either by primary address or secondary address. The primary address can be set between 1 and 250. The secondary address is the serial number related to the device’s manufacturer. If a device needs to be replaced, the primary address can remain the same, but the secondary address will change.
3. You can limit the address range to be scanned if desired.\*)
4. From the window behind the pencil icon, you can view device information and change the device’s primary address.



If the device status is “! No tool configuration,” the device has not been added in Ouflex BA Tool. Scan and upload the M-Bus templates to Ouflex BA Tool on the “Device Connection” tab. Add all scanned devices to the M-Bus master bus on the “Devices” tab (right-click).

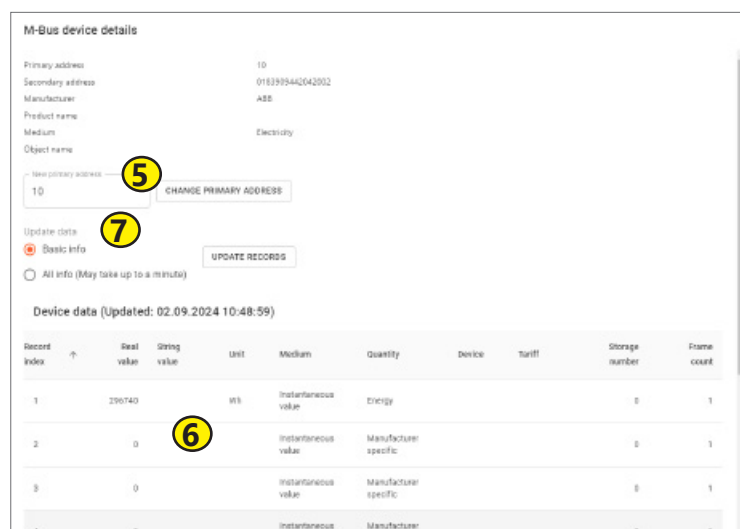
Configuration loaded from Tool					Scan result			
<input checked="" type="checkbox"/>	↑ Primary address	Object name	Secondary address	Connection type	Primary address	Secondary address	Status	Edit
<input checked="" type="checkbox"/>					10	0183909442042002	! No tool configuration	

## Creating a template

You can create a template file by selecting the device for which you want to create the template and clicking the “GENERATE TEMPLATES” icon. The template can be found under the “TEMPLATES” icon. Save the template and upload it to the tool. This method is used if you want to limit the addition of only specific metrics to the tool or if you also want historical data to be polled for the device. Typically, network scanning and the creation of all templates are done using the Ouflex BA Tool.

5. You can change the device’s primary address.
6. Below, you can see the points and values displayed on the device. The visible points are saved in the template.
7. If “All info” is selected and the list is updated, it’s possible to include all the meter’s points in the template, including historical data, if needed.

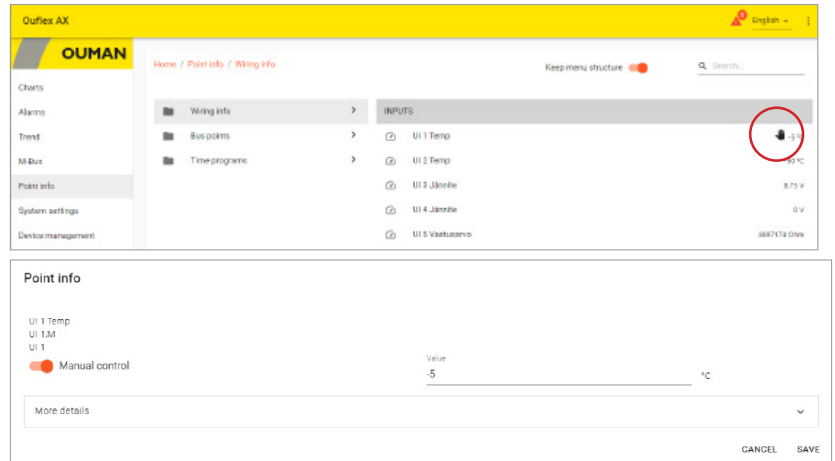
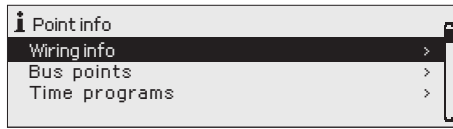
\*) Limiting the Scannable Address Range  
For example, a default scan mask with the secondary address FFFFFN-FFFF-FF-FF means that all digits from 0 to 9 are used in place of NN, in sequence. The scan therefore begins by searching where each F may be any digit, but N must match the exact specified digit.



# 8 Point info

In the point info, all inputs and outputs of the Ouflex device and bus devices are displayed. The progress path is visible at the top of the page. You can return to your desired level by clicking the point in the path you want to go back to.

If you have sufficient permissions, you can manually control a measurement point. Activate the row you want to set to manual control. Click the toggle switch to change the mode and enter the desired value. If a point is set to manual control, a palm icon appears in front of the measurement value.



## 8.1 Time program

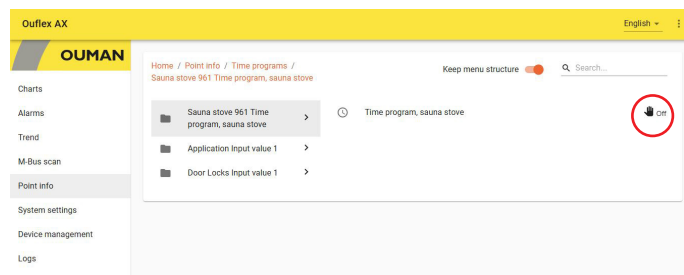
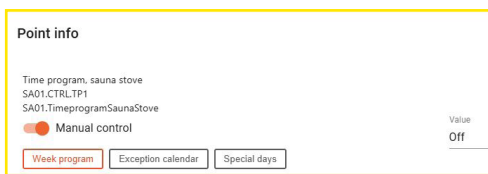
A time program consists of weekly, special day, and exception calendar programs. The time schedule can be used for tasks such as turning relays ON and OFF, adjusting temperatures in heating control applications, or changing the speed of an HVAC unit. Time schedules can be found in the Ouflex device under Point Info. They may also be located under the clock symbol or the specific application for which the time schedule was created (e.g., heating control, car heating, lighting control, power outlet control, alarm routing).

### 8.1.1 Present value

In the Ouflex device, the present value displays the current status of the control. If automatic control is being used, the display shows the state of the control according to the current time program. The control command can be set as a weekly schedule or an exception schedule. Control can also be manually set to the desired state.

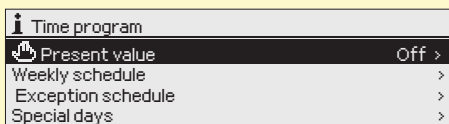
#### Current control status viewed from the browser

You can see the current status of the control when you activate the time schedule. The control can be forced to manual mode using the toggle switch, and you can select the state for the control.



#### Current control status viewed from the external display of the controller

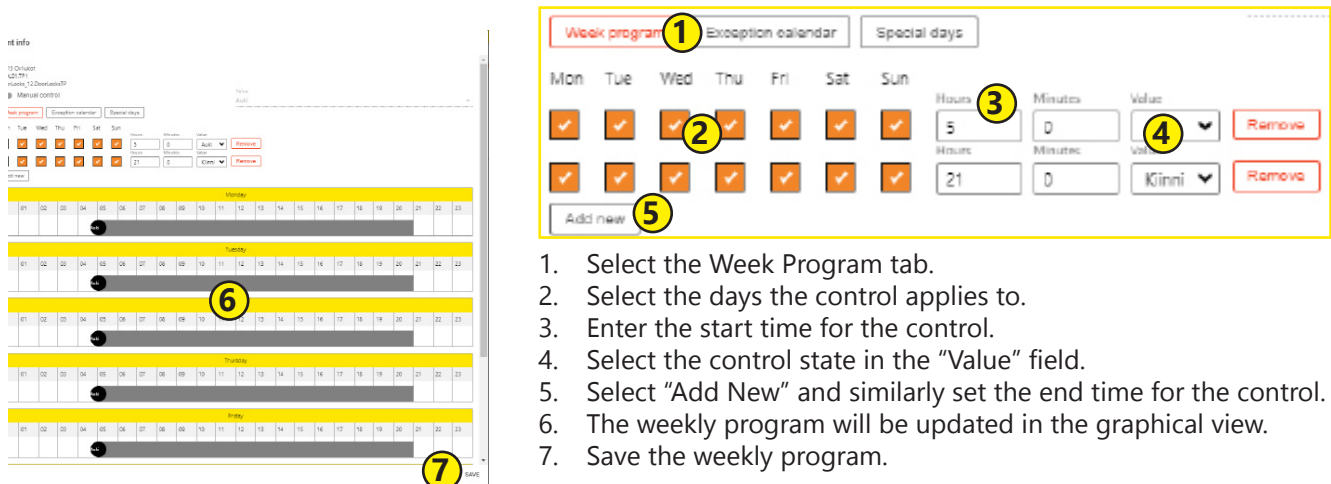
##### Point info -> Time programs-> ... -> Present value



When you press the "Present value" line OK, Ouflex device asks for a service code. After entering the service code, you can change the control mode (automatic/ manual). This way you bypass time program and force the control to the desired mode. When the manual control is in use, the hand symbol appears on the front of the line.

## 8.1.2 Week program

### Weekly program in the webbrowser



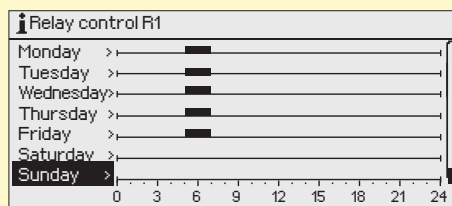
1. Select the Week Program tab.
2. Select the days the control applies to.
3. Enter the start time for the control.
4. Select the control state in the "Value" field.
5. Select "Add New" and similarly set the end time for the control.
6. The weekly program will be updated in the graphical view.
7. Save the weekly program.

### Weekly program viewed from the external display of the controller

Point info -> Time programs -> Weekly schedule

Time programs	
Relay control R1	Off >
Relay control R2	Off >
Car heating	Off >
Light control	On >

Graph



Editing view

Time	State	M	T	W	T	F	S	S
05:00	On	☑	☑	☑	☑	☑	☑	☑
07:00	Off	☑	☑	☑	☑	☑	☑	☑
00:00	Add new	☐	☐	☐	☐	☐	☐	☐

In this example, you can see a weekly relay control program. According to the program, relay is on from 5 am to 7 am on working days.

Time	State	M	T	W	T	F	S	S
21:00	Temp. drop	☑	☑	☑	☑	☑	☑	☑
06:00	Delete switch time	☑	☑	☑	☑	☑	☑	☑
00:00	Add new	☐	☐	☐	☐	☐	☐	☐

**In the weekly schedules menu, you can access graphic views in both general and edit modes that display the specific times when new control commands are received. The graphical representation consists of columns of varying heights that correspond to different control modes.**

To view the graphical representation of the weekly program, simply press the OK button on the corresponding day of the week. This will display a detailed view of the activation times for the different control modes. From this view, you can also edit, delete, or add new switch time values as needed.

#### Adding a new switch time:

1. Press OK at the "Add new" row.
2. Press OK. Set the switch time (set hours and minutes separately). Press OK to accept.
3. Press OK and then turn the control knob to set the control state (temperature drop weekly program) or ON/OFF state (electric controls). Press OK to accept.
4. Press OK at each weekday you wish to choose.
5. Press OK at the end of the row to accept the new time program. Note! Also remember to define when the control returns to automatic (=normal). Press Esc to exit.

#### Editing a weekly program:

1. Turn the control knob to move to the value you wish to change and press OK.
2. Turn the control knob to make the time and control mode changes. Press OK to accept.
3. Press the OK button to change the day of the week.
4. Press Esc to exit.

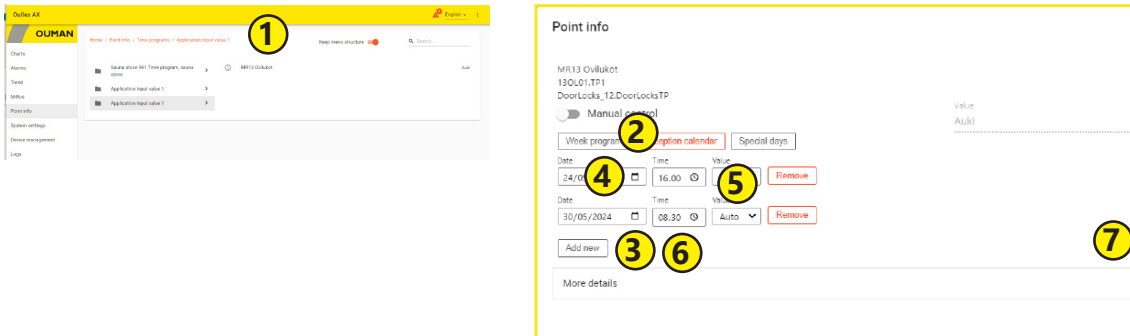
#### Deleting a switch time:

1. Turn the control knob to move to the switch time you wish to delete and press OK.
2. Press OK at control state and select "Delete switch time".
3. Press OK at the end of the row.

## 8.1.3 Exception calendar

If you need to make changes to the control mode that deviates from the regular weekly schedule, you can use the exception schedule. This allows you to enter specific dates, times, and control modes for a certain period. To return to the regular weekly schedule, simply switch back to automatic mode.

Exception calendar in the web browser



### Adding a new switch time:

1. Select Point Info/Time Programs and the desired time program.
2. Navigate to "Exception schedule" and press OK.
3. The display will read "Add new." Press OK
4. Press OK and set the start date for the program. Press OK
5. Press OK and set the mode for the program. Press OK. You can select from the following:
  - one day schedule from the weekly schedule (Monday - Sunday)
  - a special day from a special day program (SD1 - SD7)
  - one of the following modes: "on," "off" or "automatic"

If you select a specific day of a week, it means that that day program is used during the set time period. You can also make special day programs (SD) and take them into use in the exception calendar.
6. Select "Add New" and similarly set the end time for the control. In this case, select "auto" in the "Value" field.
7. Save the weekly program.

## Exception calendar viewed from the external display of the controller

Point info -> Time programs -> Exception schedule

Päivä	Aika	
00.00.0000	00:00	Lisää uusi >

Lisää/muokkaa kytkentähetki		
Päivä:	21.12.2025	
Aika:	11:30	
Tila:	Pois	
Toista:	Ei	
Hyväksy:	Valmis	

Päivä	Aika	
21.12.2025	11:30	Pois >
03.01.2026	16:00	Automaatti >
00.00.0000	00:00	Lisää uusi >

In the example of relay 1 control has been done the exception schedule. Relay 1 is switched off (OFF) 21.12.2025 11:30 - 03.01.2025 16:00.

### Adding a new switch time:

1. Navigate to "Exception schedule" and press OK.
2. The display will read "Add new." Press OK
3. Press OK and set the start date for the program. Press OK
4. Press OK and set the start time for the program. Press OK
5. Press OK and set the mode for the program. Press OK.
6. You can select from the following:
  - one day schedule from the weekly schedule (Monday - Sunday),
  - a special day from a special day program (SD1 - SD7)
  - or one of the following modes: "on," "off" or "automatic".

If you select a specific day of a week, it means that that day program is used during the set time period. You can also make special day programs (SD) and take them into use in the exception calendar.
7. Select, if the exception schedule repeats or not. If you select repeat, it can be repeated every month same time or every year same time.
8. Accept the exception schedule you created by pressing "Ready."

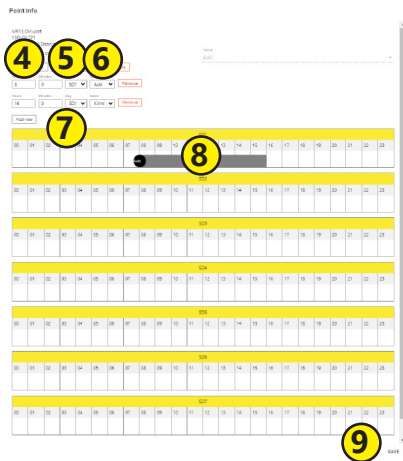
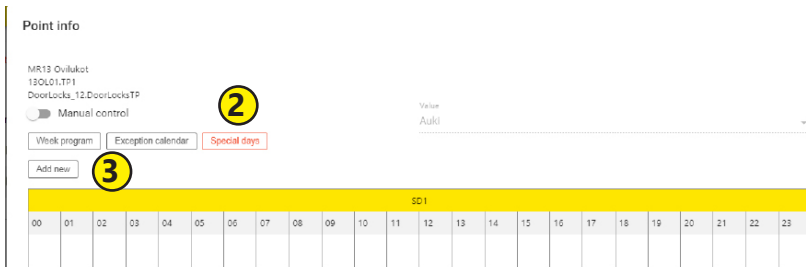
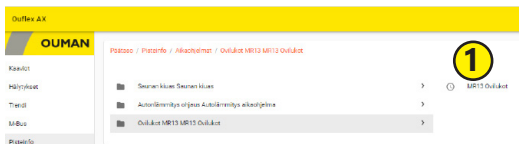
NOTE! Be sure to set the end time to the control according to the exception schedule! Set the date and time at which the control goes to "Automatic". In this case, the control returns back to the weekly schedule.

Do same kind of selection to "Repeat" field as you did at the start time (for example, if you chose the start time period that repeats monthly, also select the end time repeats monthly).

## 8.1.4 Special days

To accommodate special occasions like holidays or other events, Ouflex allows you to create special day programs as exceptions to your normal weekly schedule. You can create up to 7 special day programs and assign them to specific dates in the exception schedule. This way, you can easily make changes to your usual schedule for special events without having to manually override the weekly program.

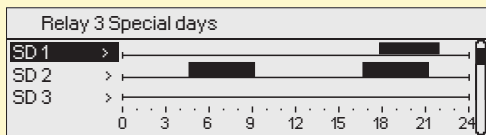
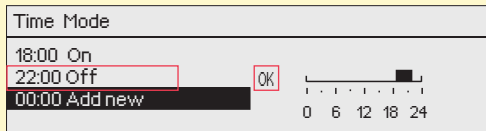
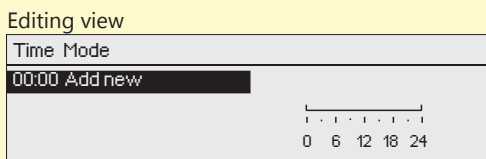
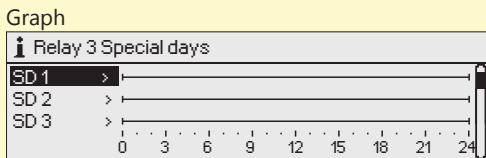
### Special days in the web browser



1. Select Point Info/Time Programs and the desired time program.
2. Select the "Special Days" tab.
3. Select "Add New."
4. Enter the start time for the control.
5. You can create up to seven different special day programs. Choose the special day program you want to edit.
6. Select the control state in the "Value" field.
7. Select "Add New" and similarly set the end time for the control.
8. The special day program will be updated in the graphical view in real-time.
9. Save the program.

### Special days viewed from the external display of the controller

Point info -> Time program -> Special days



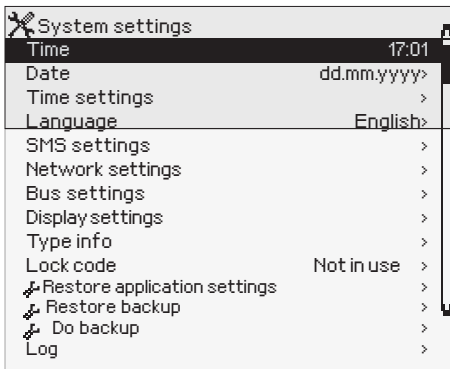
#### Adding a new switch time:

1. Navigate to "Special days" and press OK.
2. Select an unused special day and press OK.
3. Place the cursor on "Add new" and press OK. Set the time for the program (hours and minutes are set separately). Select the control mode to be switched to at the time specified. Accept the program by pressing OK when the cursor is on OK.
4. Navigate to the "Add new" row. Set the time when the mode will change from selected mode back to normal mode. Accept the program by pressing OK. You can set several different control periods for the same special day.

#### Deleting a control from the special day program:

1. Select the switch moment to be deleted at mode "Delete switch time".
2. Select "Ready" to confirm.

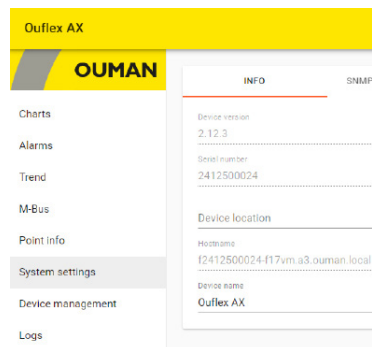
# 9 System settings



In the system settings, you can find:

- Information about the Ouflex AX device
- Configuration of SNMP alarm routing
- Network connection settings
- Bus settings (Modbus TCP, Modbus RTU, and M-Bus)
- SMS settings
- Device settings (setting the time and date), settings related to SMS traffic, network settings, bus settings, device type information, backup, and resetting the measurement history in the log file.
- Lock code, see page 5

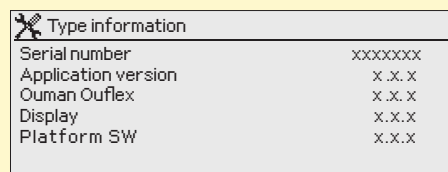
## 9.1 Info / Type info



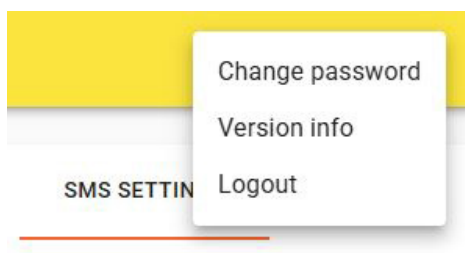
The info displays the device version, serial number, device hostname, as well as text fields where you can enter the device location and device name. The device name appears at the top of the display and on the login window.

By clicking the “...” in the top right corner, you can change the password, view version information, and log out.

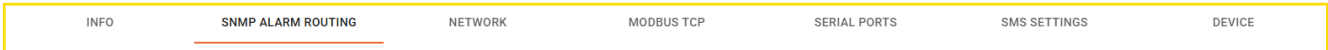
### System settings -> Type info



Type information shows the device platform version and application version. The name of application and version is determined by the user of Ouflex BA Tool. This information is useful especially in the case of maintenance or upgrade. On the top of the device, there is a type label and device address. By pressing and holding OK, the Platform SW will also be displayed.



## 9.2 SNMP alarm routing



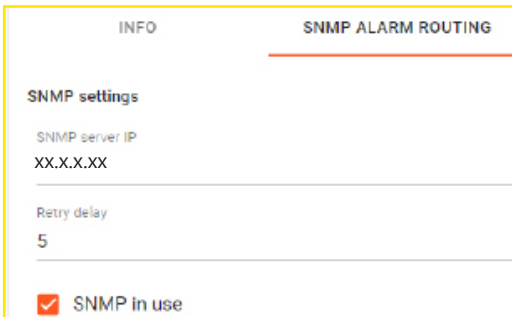
**SNMP settings:** SNMP function can be used to send notifications about alarms activating, inactivating and being acknowledged via SNMP protocol to a desired server.

**IP address:** The IP address of the target server to which messages are sent.

**Function active:** This selection either enables or disables the entire SNMP function.

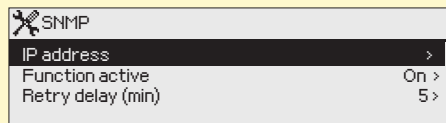
**Retry delay (min):** If the alarm is not acknowledged in Ounet, Ouflex sends SNMP messages again. The retransmission is limited to max 240 minutes. By setting the Retry delay to 0, the retransmission is disabled.

### Web interface

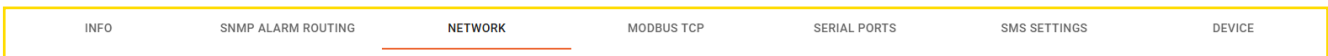


### External display

System settings -> Network settings -> SNMP



## 9.3 Network



There are two alternative ways to set the Ouflex device IP address and network settings:

1. Network settings are retrieved via DHCP function. This requires that DHCP service is in use in the network and network cables have been connected.
2. Network settings are set manually.

The device has a fixed Hostname. The hostname can be used to connect to the device from Ouflex BA Tool or Ounet. The end of the address is **.net**.

Connection status indicates whether Ouflex device is in the network or not. Ouflex device can be connected to a local network or the Internet. If you use a protected VPN connection using OUMAN Access service, the controller displays the network mode OUMAN Access. **The Ouflex device should not be connected to a public Internet network without a firewall!**

With this Access service, the Ouflex device can be remotely operated without a separate device solution. All that is required is an internet connection protected by a firewall, implemented with standard local network technology, and that there are no restrictions defined in the connection that would prevent the service from functioning.

## 9.3.1 DHCP/IP settings

### Web interface

**NETWORK**

DHCP in use

IP address  
10.3.74.13

Subnet mask  
255.255.255.0

Gateway  
10.3.74.1

DNS  
8.8.8.8

Ouman Access in use

WWW name  
f2412500024-f17vm.a3.ouman.net

### External display

System settings -> Network settings -> IP settings

✂ IP settings

DHCP	On >
Gateway address	0.0.0.0 >
Subnet mask	0.0.0.0 >
IP address	0.0.0.0 >
Nameserver address	0.0.0.0 >
Update network settings	>

### IP settings

#### Setting the IP address using DHCP function: (enabled by default)

1. Go to DHCP and press OK.
2. Select "On" and press OK to accept selection.
3. Select "Update network settings".
4. Wait approximately one minute. If DHCP is still "Off" after one minute, setting the IP address and network settings was not successful. Either the settings used previously or factory settings have been taken in use. In this case, the device does not necessarily function in the network. The reason for this is usually that the required DHCP service is not in use in the network, or it is out of order, or the network cables have not been connected properly. Check the network cable connections and/or make sure DHCP service is in use.
5. If DHCP is "On", network settings were successfully changed and the device now functions in the network. Device IP address is shown on display.

#### Setting the IP address manually:

1. Go to IP Settings and there to DHCP and press OK.
2. Select "Off" and press OK to accept selection. If DHCP function is on, manual changes in "Subnet mask", "Gateway address", "Name server address" and "IP address" will be ignored. When set IP-settings manually you need to ask correct settings in that LAN administrator. Note! Never try to guess the correct settings. Incorrect settings cause problems, and the network is works properly.
3. Select "Update network settings".

#### A tip! How to set the network settings easier and faster

You can make setting of the IP settings easier,

- if you know DHCP service exists in the network
- if you know the DHCP address range and fixed address range in the network
- if you wish to use a fixed IP address.

NOTE: Ouflex A XL and Ouflex AX support point transfers using either the device hostname or a user-defined alias in the configuration tool, eliminating the need for a fixed IP address.

1. First, set DHCP function On. After the settings have been set successfully, set DHCP Off.
2. Change only IP address manually. (A fixed IP address must fit the fixed address range. Ask this information from administrator).

An example. An Ouman 3G/4G solution is used, with an Ouflex device connected to it. The network uses a DHCP service that distributes addresses between 10.200.1.100 and 10.200.1.149. The range 10.200.1.1 to 10.200.1.99 is reserved for fixed addresses, and from this range IP address 10.200.1.1 is reserved for the Ouflex device. Proceed as follows: Set the DHCP function to "On". Wait until the DHCP function assigns the IP address to a random value of 10.200.1.100-149. Turn off the DHCP service. Set the IP address to 10.200.1.1.

## 9.3.2 Access service/ Access settings

### Things to consider when using Access:

- 10.10.128.0/17 and 10.11.0.0/16 are reserved for "Access 2 devices" (Ouflex A)
- 10.20.0.0/16 is reserved for "Access 3 devices" (Ouflex AX, Ouflex A XL, M-LINK and WL-Base).
- These addresses cannot be used in the local area network.
- The possible routing 10.10.0.0/16 also disturbs "Access 2" connections.

**With the Access service, the device establishes a secure connection over the internet.**

OUMAN ACCESS- device can be connected to LAN if the following conditions are fulfilled:

#### 1. LAN is routed via Internet

The Access service operates on the Internet so the Access service is not available if the device is not connected to the Internet. The Access device examines the availability of Internet connection by sending a Ping packet to the Internet server at 3-minute intervals.

The network must allow the ICMP outwards from any port and the receipt of the reply message to the same port.

#### 2. The VPN protocol used by Access service outwards is not blocked

The Access service is based on the VPN connection which the Access device creates to the Access server.

The network must allow the UDP outwards from any port to the port 1194 and the receipt of the reply message to this port.

#### 3. Time service protocol outwards is not blocked

Access requires correct time settings to function properly. The device retrieves the correct time and date from the network using an NTP server. The time settings also include local clock calibration for situations where using a time server is not possible.

The network must allow the UDP outwards from any port to the port 123 and the receipt of the reply message to this port.

### Web interface

**NETWORK**

DHCP in use

IP address  
10.3.74.13

Subnet mask  
255.255.255.0

Gateway  
10.3.74.1

DNS  
8.8.8.8

Ouman Access in use

WWW name  
f2412500024-f17vm.a3.ouman.net

Note! If you disable Ouman Access, you will lose your Internet connection to your device. You can connect to the device from a local area network with an IP address or a direct cable connection.

### External display

System settings -> Network settings -> Access settings

Access settings

Access On >

Access name

Connection status Ouman Access

# 9.4 Modbus TCP

## Modbus TCP/IP settings:

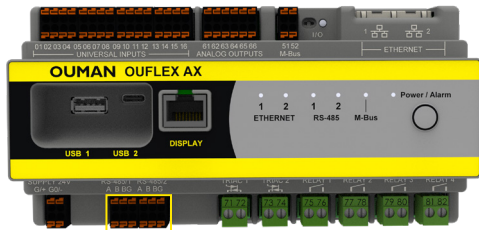
Modbus TCP server settings are changed via Modbus TCP/IP settings. It is possible to communicate with an Ouflex device and the Modbus/RTU slave devices connected to it via Modbus TCP/IP interface.

### Port for internal registers/ Modbus TCP/IP port (internal registers)

Port number 502 is reserved for communication of Ouflex device. Information of Modbus registers of Ouflex device is read through this port. Recommendation is that the value should not be changed unless there is a compelling reason.

### Gateway port 1: RS-485/1 Gateway port 2: RS-485/2

It is possible to connect two Modbus/RTU buses to an Ouflex AX device. Each bus has its own port address that is used to communicate with bus devices via Modbus/TCP interface. "Gateway port 1:RS-485/1" defines the TCP/IP port for the Modbus 1 bus, and "Gateway port 1:RS-485/2" for the Modbus 2 bus. Gate addresses can be changed.



### Modbus RTU bus connections

- 31 A+ RS-485/1 bus connection, isolated
- 32 B-
- 33 BG
- 34 A+ RS-485/2 -bus connection, isolated
- 35 B-
- 36 BG

### Slave address for internal registers:

Slave address is 1 as a default. This is shown only in web interface.

### Max connections:

It is possible to decrease server load by changing this setting that defines the maximum number of simultaneous connections from different IP addresses to the server. **Recommendation is that the values should not be changed unless there is a compelling reason.**

### Size of request buffer:

The default buffering size for Modbus TCP packets is 50. This is shown only in web interface.

### Idle timeout before connection close/ Idle timeout:

This setting defines the time after which the server closes an inactive connection. Recommendation is that the value should not be changed unless there is a compelling reason.

### Allowed address:

It is possible to improve the information security of the system by taking permitted connection addresses into use. If the value is 0.0.0.0, connections to the server are permitted from any IP address. If you define one permitted connection address, connections to the server are not permitted from any other IP address.

### Connection address (In the controller interface):

Here you can see the Technical name given to the device (Ouflex BA Tool: Device/Properties/Technical name). The device will appear with this name when you search for the device on the local network. You can rename the device if you want (the name must not contain spaces). In this case, you should download the device Ouflex BA Tool and after that the device can be found on the local network with this new name. Ouflex AX, Ouflex A XL and M-LINK can transfer points between devices using the IP address or the device's fixed Host -name (name on the label next to the Ethernet connector) or the access point name.

## Web interface      External display

Port for internal registers: 502

Gateway port 1: RS-485/1: 504

Gateway port 2: RS-485/2: 505

Gateway port 3: Basecard: 503

Slave address for internal registers: 1

Maximum number of connections: 20

Size of request buffer: 50

Idle timeout before connection close: 300

Allowed client address: 0.0.0.0

System settings -> Network settings -> Modbus TCP/IP

Modbus TCP/IP

- Modbus TCP port (internal registers) 502 >
- Connection address Ouflex AX >
- Max connections 20 >
- Idle timeout 300 >
- Allowed address 0.0.0.0 >
- Function active On >
- Modbus TCP\_IP\_Gateway >

**Function active:** This selection either enables or disables the entire Modbus/TCP communication.

Modbus TCP/IP gateway

- Gateway port 1: RS-485/1 504 >
- Gateway port 2: RS-485/2 505 >

Modbus RTU master 1(RS-485/1)

0 0 5 0 4

Approve: Press OK for a number of seconds  
Cancel: Press ESC for a number of seconds

# 9.5 Serial ports

## Modbus master 1 settings: RS485/1 and Modbus master 2 settings: RS485/2

- Modbus slave timeout:** The time that the Master -device waits for a response from the Slave -device.
- Min delay between packets:** If a device on the bus is malfunctioning and errors appear on the bus, increasing the delay between packets can improve bus traffic performance.
- Timeouts to fault state:** The signal alert is activated when the number of consecutive errors exceeds this set value. This setting is only in web interface.

## Modbus RTU slave settings RS485/2

**Slave address for internal registers:** The slave address of the device can be set within the range 1 to 250 (default setting: 1).

## Serialport RS-485/1 settings and Serialport RS-485/2 settings

- Port baudrate** Every device connected to the same bus must have same baud rate.
- Databits:** Every device connected to the same bus must have same number of data bits, number of stop bits, and parity.
- Parity:**
- Stop bits:**

## Web interface      External display

**Serialport RS-485/1 settings**

Port baudrate: 9600

Databits: 8

Parity: None

Stop bits: 1

**Serialport RS-485/2 settings**

Port baudrate: 9600

Databits: 8

Parity: None

Stop bits: 1

System settings -> Bus settings

- ✕ Bus settings
  - Modbus RTU slave (RS-485/2) >
  - Modbus RTU master (RS-485/1) >
  - M-Bus Master (M-Bus) >
  - ✕ Modbus RTU slave (RS-485/2)
    - RS-485/2
    - Baudrate: 9600 >
    - Data bits: 8 >
    - Stop bits: 1 >
    - Parity: None >
    - Delay between packages: 10 ms >
  - ✕ Modbus RTU master 1 (RS-485/1)
    - RS-485/1
    - Baudrate: 9600 >
    - Data bits: 8 >
    - Stop bits: 1 >
    - Parity: None >
    - Idle timeout: 1000 ms >
    - Delay between packages: 10 ms >

**M-Bus master settings:**

- Charts
- Alarms
- Trend
- M-Bus scan
- Point info
- System settings
- Device management
- Logs

A maximum of 32 wired M-Bus devices can be connected to the Ouflex AX device. Scanning the M-Bus devices on the bus and adding them is done in the Ouflex BA Tool or in the web interface.

<b>Modbus slave timeout:</b>	The time that the Master -device waits for a response from the Slave -device.
<b>Min delay between packets</b>	If a device is unstable on the bus, it may be possible to get the bus traffic stable by increasing the delay between the packets.
<b>Timeouts to fault state</b>	This settings is shown only in web interface.

**M-Bus serialport settings:**

<b>Port baudrate/ Baudrate:</b>	Every device connected to the same bus must have same baud rate. As a default baudrate is 2400.
<b>Databits:</b>	Every device connected to the same bus must have same number of data bits, number of stop bits, and parity. As a default parity is Even.
<b>Parity:</b>	
<b>Stop bits:</b>	

**Web interface**

**M-Bus master settings**

Function in use

Modbus slave timeout  
1000

Min delay between packets  
100

Timeouts to fault state  
5

**M-Bus serialport settings**

Port baudrate  
2400

Databits  
8

Parity  
Even

Stop bits  
1

**External display**

System settings -> Network settings -> M-Bus master

**Bus settings**

Modbus RTU slave (RS-485/2)	>
Modbus RTU master (RS-485/1)	>
M-Bus Master (M-Bus)	>

**M-Bus master (M-Bus)**

<b>M-BUS</b>	
Baudrate	2400 >
Data bits	8 >
Stop bits	1 >
Parity	Even >
Idle timeout	200 ms >
Delay between packages	100 ms >



# 9.8 Device/Time settings

INFO    SNMP ALARM ROUTING    NETWORK    MODBUS TCP    SERIAL PORTS    SMS SETTINGS    **DEVICE**

- Charts
- Alarms
- Trend
- M-Bus
- Point Info
- System settings**
- Device management
- Logs

In the device settings, there are time settings which include the clock, date, time server settings, daylight saving time, and time zone configuration. In web usage, the logout delay can also be configured.

## Time settings:

<b>Current time:</b>	Setting the time is done by clicking on the clock icon. After setting the time, click "Set time".
<b>Current date:</b>	The date can be changed by clicking on the calendar icon. After setting the date, click "Set date".
<b>NTP server:</b>	Primary time server address.
<b>Secondary NTP server/ NTP server 2:</b>	If the primary time server address is unreachable, the device will use the secondary time server.
<b>Auto logout interval:</b>	The default delay is 15 minutes, but you can change the delay. You can disable automatic logout by setting the value to 0.
<b>Time zone:</b>	You can change the time zone. In Finland, zone +2 ((+02:00) Helsinki, Kyiv, Riga, Sofia, Tallinn, Vilnius) is used.
<b>DST in use (summer and winter time)/ Daylight saving</b>	The daylight saving is as a default on the device. In this case, the device will automatically switch from normal to summer time according to calendar. When you select "DST in use" using the browser or "Daylight Saving Time On" from the external display, Ouflex AX automatically switches to Daylight Saving Time mode. On the external display, the option for Daylight Saving Time is hidden in the settings, which you can access by pressing OK for an extended period.

**Language**  
You can select the browser interface language from the drop-down menu located in the top right corner in any view. Language selection on the external display is done in the System settings.

## Web interface      External display

System settings -> Time

- System settings
- Time 07:33 >
- Date dd.mm.yyyy >
- Language English >

System settings -> Time settings

- Time settings
- NTP server time.google.com >
- NTP server 2 time1.google.com >
- Time zone 2 >
- Daylight saving On >
- Clock calibration >

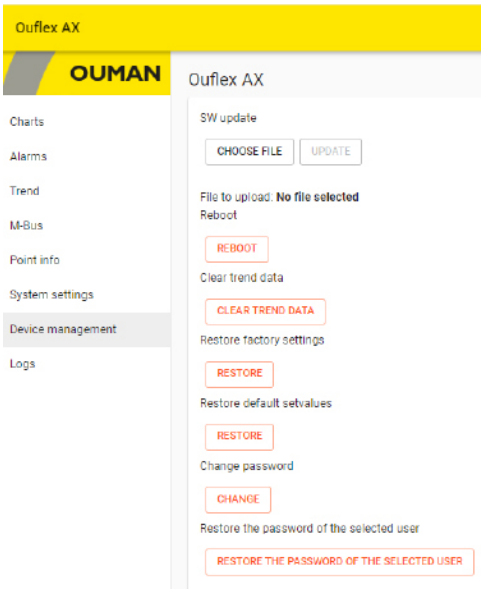
Clock calibration	
Time last changed(d/ago)	xx
Status	Ready for auto-calibration >
Calibrate clock by setting time	>
Calibration value (s/year)	>

The Ouflex AX device features a Clock Calibration function. If the Ouflex AX device is used for an extended period without an internet connection, and there is an error detected in the clock operation, the clock can be calibrated. Calibration occurs automatically by entering the new clock time through the Clock Calibration menu.

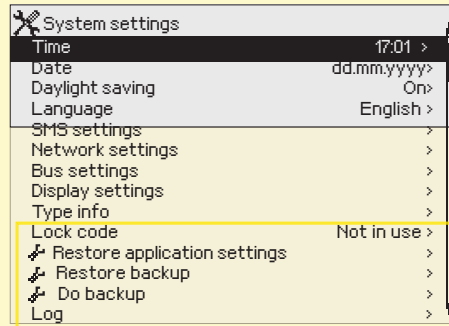
Automatic calibration requires that the device clock has been set correctly at least 14 days earlier (e.g., during the initial setup). Alternatively, manual calibration can be performed by entering the calculated calibration value (s/year). The display shows how many days ago the clock was last set. The time is obtained from the network or set manually.

Clock calibration states	Explanation	Operating instruction
<b>Ready for auto-calibration</b>	The device is in "Ready for auto-calibration" mode when at least 14 days have passed since setting the device clock. The clock can be calibrated by entering a new time from this point	If you want to calibrate the clock, go to the line "Calibrate clock by setting time". Then enter the new time with second accuracy (the time is saved when you press the OK button after setting the seconds). After this, the clock is calibrated, and the automatically calculated value is saved as the calibration value. If needed, the calibration can be repeated later.
<b>Error</b>	The device has detected a deviation during the calibration period.	Start a new calibration period by setting the device clock manually, or calibrate the clock manually if necessary.
<b>Using NTP</b>	Automatic time update from two different time servers.	If the primary NTP server cannot be reached, the device uses NTP server 2 as the time server.
<b>Wait autocalib. period</b>	The 14-day calibration period has not yet elapsed.	For automatic calibration, the clock must be monitored for at least 14 days.
<b>Manual calibration</b>	If the clock error is known (or if automatic calibration fails), the calibration value can be manually entered under "Calibration value (s/year)".	If the clock lags, enter a negative value, or if the clock advances, enter a positive value. For example, if the clock lags 100 seconds in 30 days: $-100s/30days*365 = -1217 \text{ s/year}$ .

# 10 Device management



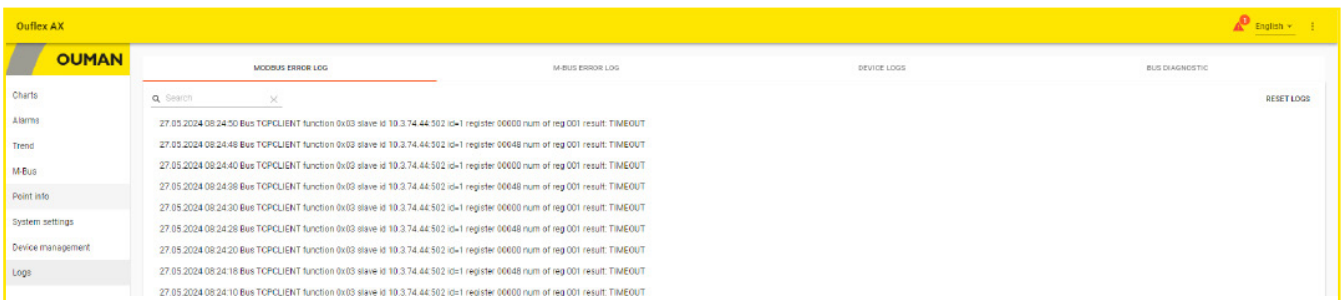
## System settings ->



You can access these menus by pressing and holding the OK button and entering the service code.

Function	
<b>SW update/</b>	You can update the device's firmware and control application. In the Ouflex BA tool is first selected download to a zip file and this zip file is then selected from the Web UI.
<b>Reboot</b>	After the software update, restart the device.
<b>Clear trend data/ Log</b>	You can clear the measurement history (trends) stored by the device.
<b>Restore default setvalues/ application settings</b>	The function restores all device settings to their values at the time the app was loaded.
<b>Make/Restore backup:</b>	You can back up the device's current settings to internal memory and restore them later if needed.
<b>Change password</b>	The default password can be found on the label of the Ouflex device. For security reasons, we recommend changing the password for different user levels.
<b>Restore the password of the selected user</b>	Ouflex has three user levels: viewer, user, and service. The password is specific to each user level and by default the same for everyone. You can also change or reset the password. After resetting, the default password defined in factory settings will be set as the password. It is displayed on the label attached to the side of the device. "Service" level users can reset "service", "user" and "viewer" passwords as selected. Enter the current password of the logged-in user in the field, even if you are resetting the password of another user, such as a "user" level user.

# 11 Log



The Logs view allows you to check the log information of various device functions. The 'RESET LOGS' option allows you to clear the Modbus and M-Bus error logs (both are cleared at the same time).



Click the icon to refresh the display.

# Product information

<b>Product</b>	Control and monitoring device for building automation system
<b>Manufacturer</b>	Ouman Oy Sinkokatu 11 26100 RAUMA FINLAND +358 2 8387 4400 <a href="https://oumangroup.com/en">https://oumangroup.com/en</a>
<b>Model</b>	Ouman Ouflex AX
<b>Product name</b>	Ouflex AX
<b>Version</b>	CPU HW version 1.0.0.
<b>Valid</b>	2026/04

**There is a type label on the end of the device**

Product name — **OUFLEX AX** — HW version

Serial number — **00000000**

Bar code —

Made in Finland 20xx/xx

Year/week of manufacture

Type labels for the CPU and I/O cards can also be found on the ends of the device.

**Information related to browser usage:**

Browser connection also possible via QR code —

Pwd: XXXXXXXX

https://f.....  
..... ouman.net

secure, encrypted browser connection

Ouflex AX includes open source software using the following licenses: AFL, AGPLv3 with OpenSSL exception, BSD-2c, BSD-3c, GPLv2, GPLv3, LGPLv2.1, MIT, MIT with advertising clause, NTP license, OpenSSL License, pkgconf license, The "Artistic License", zlib license. The open source software in this product is distributed in the hope that it will be useful, but without any warranty, without even the implied warranty of merchantability or fitness for a particular purpose, see the applicable licenses for more details.



## Product disposal

The enclosed marking on the additional material of the product indicates that this product must not be disposed of together with household waste at the end of its life span. The product must be processed separately from other waste to prevent damage caused by uncontrolled waste disposal to the environment and the health of fellow human beings. The users must contact the retailer responsible for having sold the product, the supplier or a local environmental authority, who will provide additional information on safe recycling opportunities of the product. This product must not be disposed of together with other commercial waste.

# Technical information

<b>Dimension</b>	width 175 mm, height 93,6 mm, depth 72,1 mm
<b>Weight</b>	400 g
<b>Protection class</b>	IP 20
<b>Operating temperature</b>	0 °C...+50 °C
<b>Storing temperature</b>	-20 °C...+70 °C
<b>Power supply</b>	
Operating voltage AC	24 VAC (22-28 V, 50 Hz): M-Bus not connected: 14 VA, with maximum M-Bus load: 20 VA
Operating voltage DC	24 VDC (22-28 V) : M-Bus not connected: 7 W, with maximum M-Bus load: 10 W
<b>Universal measurement input (can be configured) measurement types and typical measurement accuracies:</b>	
Passive sensors (inputs 1-16), supported sensor types	NTC 10: ±0,1 °C between -30 °C...+100 °C (below -30 °C / over 100 °C ±0,3 °C) NTC 1.8: ±0,1 °C between -30 °C...+100 °C (below -30 °C / over 100 °C ±0,3 °C) NTC 2.2: ±0,1 °C between -30 °C...+100 °C (below -30 °C / over 100 °C ±0,3 °C) NTC 20: ±0,1 °C between -30 °C...+100 °C (below -30 °C / over 100 °C ±0,3 °C) Ni1000LG, Ni1000/DIN and Pt1000: ±0,2 °C between -50 °C...+130 °C Free sensor table (accuracy depends on the linearization used).
Active sensors (inputs 1...8)	0/2 -10V voltage message, meas.accuracy ±0.1 V. Milliamp signal 0/4 to 20 mA (built-in 250 Ω shunt resistor): ±0,1mA
Contact information (inputs 1...16)	Contact voltage 3,3 VDC, Contact current 1 mA. Contact resistance max 500 Ω (closed), min 2 kΩ (open)
Counter / PWM / RPM inputs (inputs 9...16)	Contact voltage 3,3 VDC, Contact current 1 mA. Counter / pulse input, minimum pulse length 2 ms. PWM inputs (20-400 Hz, according VDMA 24224 2014-03 standard) Rpm input (e.g. EC fan), measurement range: 40-6000 rpm (50/50% pulse ratio)
<b>Analog outputs (61...66)</b>	Configurable 0...10V output or at PWM output frequency (16-200 Hz, according VDMA 24224 2014-03 standard). Output current max. 10 mA.
<b>Relay output (4 pcs)</b>	
Normally open contact relay (75...82)	Max. 230 V, resistive 5 A/ inductive 1A (cos Ø -0.8)
<b>Triac AC switches</b>	
Triac 1 (71 ... 72 )	24/230VAC / max. 1A
Triac 2 (73 ... 74)	24/230VAC / max. 1A
<b>Data transfer connections</b>	
M-Bus master (51, 52)	Max. 32 pcs M-Bus unit loads (1,5mA), 300/2400/9600 baud, maximum bus length 350 m (from IO HW 2.0 onwards, in accordance with EN 13757-2)
RS-485/1 bus 1 (31 ... 33)	Galvanically isolated, supported protocols Modbus-RTU
RS-485/2 bus2 (34 ... 36)	Galvanically isolated, supported protocols Modbus-RTU
USB-host connection (USB 1)	Ouman GSM modem
USB C connection (USB 2)	Local programming with Ouflex BA Tool programming tool or via Web UI.
Ethernet 2 pcs	2 Ethernet connectors operating in switch mode. An ethernet network can be daisy-chained.
Ouman Access	Full-duplex 10/100 Mbit/s, supported protocols Modbus-TCP/IP. Intelligent remote connection built-in for use with Ounet and Ouflex Tool
<b>Processor</b>	Cortex-A7 528 MHz
<b>SDRAM</b>	512 MB
<b>FLASH</b>	512 MB

We reserve the right to make changes to our products without a special notice.



Ouman products do not contain harmful substances defined in the REACH regulation, excluding the products that are listed on the website behind the attached QR code.



CE Declaration of Conformity



Warranty

