

Compact freely programmable automation unit

## USER MANUAL

- Application and user interface are freely programmable with Ouflex BA Tool
- DIN rail-mounted module casing (12M)
- Detachable strip connectors make installation easier



**Ouflex has SMS support.** Use of a GSM phone requires that the GSM modem (optional) is connected to the controller.

You can communicate with the controller by text message using key words.

### KEY WORDS

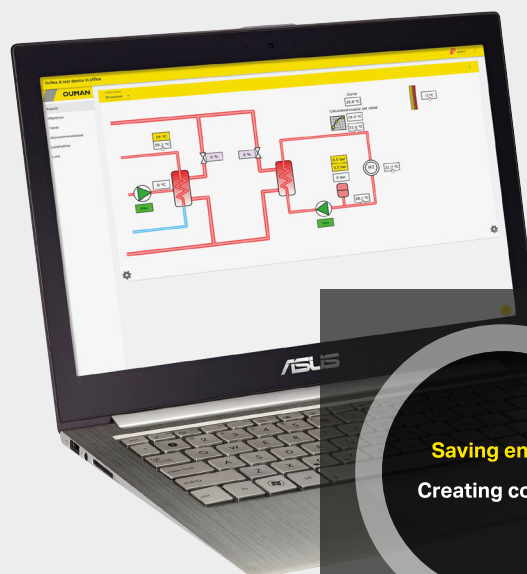
Key words:  
Active alarms  
Alarm history

There is a built in Web UI in the Ouflex. Connection to the Web UI can be done through LAN or internet. With remote controll you can use the device regardless of place and time.

Properties of the Web UI:

- easy-to-use drawing tool
- SMS alarm routing
- trends
- log files

Note! Ounet and Web UI can be used simultaneously.



Saving energy  
Creating comfort

REMOTE  
UPDATE

Web  
UI

Ouflex is a DIN-rail-attachable and freely programmable device designed for monitoring, controlling and regulating. The device is programmed with Ouflex BA Tool utility and the prepared program is loaded to the Ouflex device via Ethernet connection. It is possible to increase the number of I/O-points with external I/O-modules via Modbus RTU connections.

You can move from one function to another by turning the control knob of your Ouflex device. By pressing the control knob (= OK), you can enter any function to examine it in detail. This way you can see the related measurements, state information, settings, time programs, etc.

### Control knob and OK

Press the control knob to enter the menu and accept the changes.



Turn the control knob to navigate in the menu.



Info button

ESC button

Press 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 the keyboard locks if the locking function is in use.

### Hidden menus




Press OK for a few seconds

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 of seconds. Hiding information that you seldom need to change or look into makes the HMI simpler. When visible, this information is shown indented.

### Maintenance code



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.

### Lock code

If you take lock code into use, you can read Ouflex 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. (See more information page 10).

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# 1 System settings



System settings	
Time	17:01 >
Date	07.01.2025 >
Language	English/English >
Time settings	>
SMS settings	>
Network settings	>
Bus settings	>
Display settings	>
Type info	>
Lock code	Not in use >
Restore application settings	>
Restore backup	>
Do backup	>
Logi	>

System settings include setting the time, date and language, as well as text message (SMS) settings, network settings, bus settings, display settings, device type information and also locking the user interface, backups and reset measurement history.

## 1.1 Setting date, time and language

### System settings > Time

Time
Enter the hours
<b>19:44</b>
hh:mm

It is important that time and the date are correct. Alarm information, for instance, shows when an alarm has activated and inactivated. It is highly recommendable to ensure that time and date are correct when you are making time programs with the weekly program or special calendar. The device clock takes daylight savings and leap years into account automatically. The clock has a backup for power outages but for a couple of days.

Hours and minutes can be set separately.

1. Set hours and press OK to accept.
2. Set minutes and press OK to accept.
3. Press Esc to cancel and exit if needed.

### System settings > Date

Date
Enter the day:
<b>Tue 07.01.2025</b>
dd.mm.yyyy

1. Set day and press OK to accept (name of weekday is updated automatically).
2. Set month and press OK to accept.
3. Set year and press OK to accept.
4. Press Esc to exit.

### System settings > Language

Language
<input type="radio"/> Suomi/Finnish
<input checked="" type="radio"/> English/ English
<input type="radio"/> Svenska/ Swedish

You can change the HMI language here if device has more than one language.

## 1.2 Time settings

### 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	>

**You can change the time zone. In Finland, zone 2 (+ 2h) is used. 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.**

**Tip! You can also edit time settings through a browser.**

The screenshot shows the OUMAN web interface. On the left is a navigation menu with 'System settings' selected. The main content area shows 'DEVICE' settings: 'Current time' (10:43) with a 'SET TIME' button, 'Current date' (11.09.2020) with a 'SET DATE' button, 'Time zone' (+2) with a dropdown arrow, and a checked checkbox for 'DST in use (summer and winter time)'.

### System settings > Time settings > Daylight saving

Daylight saving
<input checked="" type="radio"/> On
<input type="radio"/> Off

You can hide/show this setting by pressing OK for a few seconds. By selecting Daylight Saving Time, Ouflex automatically goes into summer and winter time.



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

The Ouflex A XL device features a Clock Calibration function. If the Ouflex A XL 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 instrction
<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: $-100s/30days*365 = -1217 \text{ s/year}$ .

## 1.3 Text message (SMS) settings

System settings > SMS settings

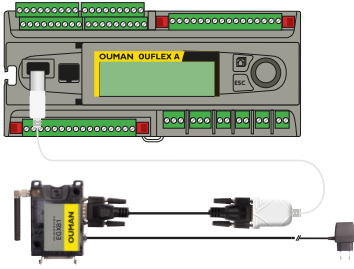
Use of text messaging requires that the Ouflex is connected to a GSM modem (additional equipment).

Take the GSM modem into use:

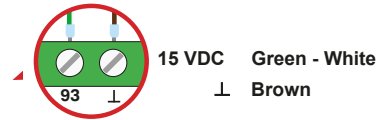
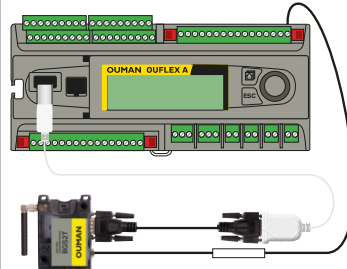
1. Enter your SIM card PIN code.
2. Switch the device off.
3. Connect the modem according to the instructions on the next page.
4. Switch the power on. The controller initializes the modem and detects the message center (the message not visible on the display).
5. Check the signal strength and status of the modem from the controller display.
6. Enter Device ID (optional).
7. Test the SMS communication. Send a message to Ouflex: Keywords. If the controller replies with a message containing a list of key words, text message communication is ok.
8. If the controller doesn't send a text message, make power cut and turn it back. Retest the text message communication. If communication fails to verify that the message center number has not been manually entered. Press and hold ok for the hidden menus to open.
9. If the messagecenter number is assigned, delete the number. The number can be removed most conveniently by placing the first character in place "blank" and then pressing for a long time OK. Then use the system as powerless and turn it on again, and the controller automatically retrieves the message center number (the number does not appear on the display).
10. Test for communication.

## Modem connection

Primary connection:



Secondary connection:



You can connect the modem to the control device's 15Vdc output, ensuring that the cumulative load does not exceed 750mA. Also, consider the power requirements when loading the 15Vdc output (see Technical data on the back side).

### SMS PIN:

If the SIM card has a PIN query enabled, enter to the Ouflex device the same PIN as as the GSM modem's SIM card PIN.

### Signal strength:

Signal strength is expressed with description: "Excellent", "Good", "Moderate", "Low", "Very low" and "Initialization failed". If signal strength is "Very low" or "No network", try changing the modem's location or use an external antenna. If the unit displays "Initialisation failed," check that the SIM card is correctly installed and the subscription agreement is valid.

### Modem status:

When Ouflex device starts up, it will automatically detect whether the modem is connected or not and then initializes modem.

Ouman GSM modem is connected to modem using an USB cable. The modem has a fixed antenna that can be replaced with an external antenna with a 2,5m cord (optional equipment) if needed.

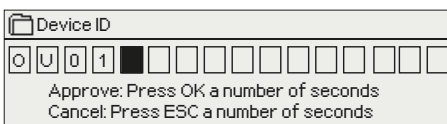
Mode	Explanation / Instructions
<b>Connected</b>	The modem is ready for use.
<b>Not connected</b>	The modem is not connected or the connection is incorrect

### SIM card status:

You can check the status of the modem also on the modemLED indicator light.

Mode	Explanation / Instructions
<b>Unregistered</b>	The subscription agreement is not valid.
<b>Registered</b>	The SIM card is ready for use.
<b>PIN error</b>	Incorrect PIN code. Enter the SIM card PIN code in Ouflex device.
<b>PUK</b>	The SIM card is locked (PUK code).

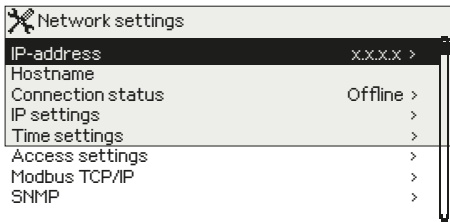
### Device ID:



You may give your Ouflex device a device ID. In SMS communication, always type the device ID in front of the keyword (e.g. OU01 MEASUREMENTS. Note the empty digit between device ID and the keyword.)

# 1.4 Network settings

## System settings > Network settings



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 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!**

### 1.4.1 IP settings

#### System settings > Network settings > IP settings



#### IP settings

##### Setting the IP address using DHCP function:

Go to DHCP and press OK.

Select "On" and press OK to accept selection.

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.

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:

Go to DHCP and press OK.

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. OBS. Never try to guess the correct settings. Incorrect settings cause problems, and the network is work properly.

Select "Update network settings".

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

You can make setting of the IP settings easier,

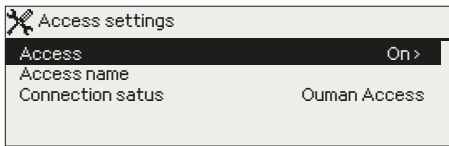
- if you know DHCP service exists in the network
- if you know the DHCP address range and fixed address range in the network
- if you wish to use a fixed IP address.

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 Oumani 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". The DHCP function assigns the IP address to a random value of 0.200.1.100. Turn off the DHCP service. Set the IP address to 10.200.1.1

## 1.4.2 Access settings

System settings > Network settings > 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 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.

**OUMAN ACCESS – service enables you to make a remote connection (useful with Ounet use) to Ouflex device from internet without any extra hardware. All you need is a normal internet-connected LAN with firewall and you have to ensure that certain ports to Internet are open.**

OUMAN ACCESS- device can be connected to LAN if 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.

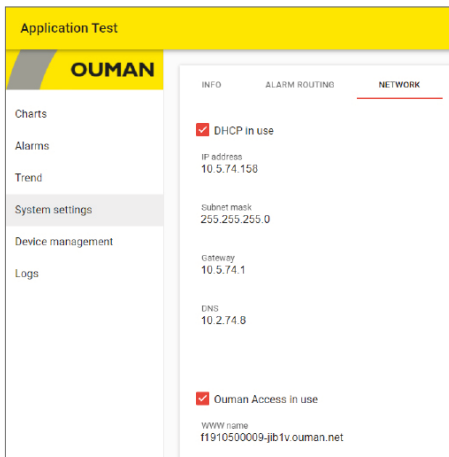
### 2. The VPN protocol used by Access service outwards is not blocked

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

The Access service works only when the clock in the Access device shows the correct time. The clock is set to the correct time automatically from the network using the NTP protocol.

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



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.

System settings > Network settings -> Modbus TCP/IP

Modbus TCP/IP	
Modbus TCP port (internal registers)	502 >
Max connections	5 >
Idle timeout	0 >
Function active	On >
Modbus TCP_IP_Gateway	>
Connection address	OuflexAXL>

Modbus TCP/IP gateway	
Modbus RTU master 1 (A1, B1)	504 >
Modbus RTU master 2 (A2, B2)	505 >
Modbus RTU master 3 (RJ45)	503 >

Modbus RTU master 1 (A1, B1)	
0 0 5 0 4	
Approve: Press OK for a number of seconds	
Cancel: Press ESC for a number of seconds	

**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.

**Modbus TCP 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.

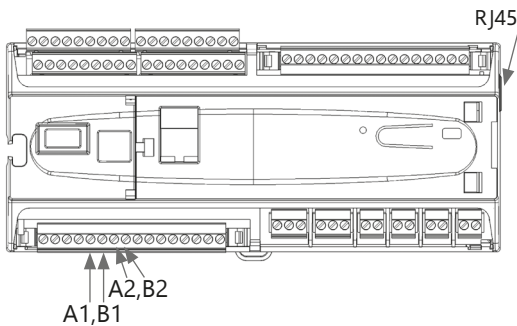
**Max connections:** It is possible to decrease server load by changing this setting that defines the maximum number of simultaneous connections from different IP addresses to the server. Recommendation is that the values should not be changed unless there is a compelling reason.

**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.

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

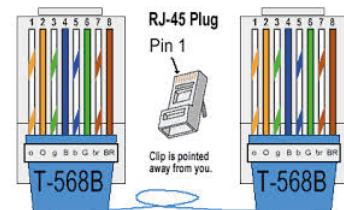
**Connection address:** Here you can see the Technical name given to the device (Ouflex BA Tool: Device/Properties/Technical name). The device will appear with this name when you search for the device on the local network. You can rename the device if you want (the name must not contain spaces). In this 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 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 connection address.



**Modbus TCP/IP gateway -> Modbus RTU master**

It is possible to connect three Modbus/RTU buses to an Ouflex device. Each bus has its own port address that is used to communicate with bus devices via Modbus/TCP interface. "Modbus RTU master 1 (A1, B1)" setting defines the TCP/IP port for Modbus 1. Similarly, Modbus RTU master 2 (A2, B2)" setting defines the TCP/IP port to Modbus 2. "Modbus RTU master (RJ45)" setting defines the TCP/IP port that functions as a gateway to Ouflex I/O extension bus. Gate addresses can be changed.

**The most common Ethernet B connection:**



The RJ45 connector at the end of the Ouflex A XL device has a new isolated, parameterizable RS-485 Modbus-Master bus (equivalent to the A1/B1 and A2/B2 buses). This isolated Modbus Master bus is the first pair of the end connector, i.e. for the time being only available with a straight Ethernet cable, the connector at the other end of which has been cut off and from which the or/ va A+ and orange B- are used. Both USB and +15 VDC have been completely disabled from the RJ45 connector on the end.

The last pair of the end RJ45 connector (br/wh and br) is an uninsulated Modbus-Master bus with fixed settings. In this bus, brown/white is connected to A+ and brown to B -. Both USB and +15 VDC have been completely disabled from the RJ45 connector on the end.

System settings > Network settings -> SNMP

SNMP	
IP address	xxx.xx.xx >
Function active	On >

**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.



## 1.5 Bus settings

### System settings -> Bus settings -> Modbus RTU slave (COM3 (A2/B2))

Modbus RTU slave (COM3 (A2/B2))	
A2/ B2	
Address	1 >
Baudrate	960 0 >
Data bits	8 >
Stop bits	1 >
Parity	None

Ouflex device can be connected to Modbus RTU bus as a master or a slave device. Bus settings are configurable. Every device connected to the same bus must have unique address and same baud rate, number of data bits, number of stop bits, and parity.

### System settings -> Network settings -> Modbus RTU master 1 (COM2 (A1,B1))

Modbus RTU master 1 (COM2 (A1/B1))	
A1/ B1	
Baudrate	960 0 >
Data bits	8 >
Stop bits	1 >
Parity	None >
Delay between packages	10 ms >

Ouflex device can be connected to Modbus RTU bus as a master or a slave device. Bus settings are configurable. Every device connected to the same bus must have unique address and same baud rate, number of data bits, number of stop bits, and parity.

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.

### System settings -> Network settings -> Modbus RTU master 3 (COM1 (RJ45 7:8))

Modbus RTU master 3 (COM1 (RJ45 7:8))	
RJ45 7:8	
Baudrate	1920 0 >
Data bits	8 >
Stop bits	1 >
Parity	None >
Delay between packages	1 ms >

There is the Non-galvanically isolated Modbus master RTU bus with fixed settings in Ouflex A and Ouflex A XL. Every device connected to the same bus must have unique address and same baud rate, number of data bits, number of stop bits, and parity.

### System settings -> Network settings -> Modbus RTU master 3 (COM1 (RJ45 in the end of device))

Modbus RTU master 3 (COM1 (RJ45 1:2))	
RJ45 1:2	
Baudrate	1920 0 >
Data bits	8 >
Stop bits	1 >
Parity	Non

There is the galvanically isolated Modbus master RTU bus in the Ouflex A XL device. Every device connected to the same bus must have unique address and same baud rate, number of data bits, number of stop bits, and parity.

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.

## 1.6 Display settings

### System settings > Display settings

Display settings	
Display version	xxxxx
Contrast	75 >

You can adjust contrast. If you wish the display to be brighter, set a smaller numerical value. The setting range is 50... 100. The display changes after you have confirmed the setting change.

## 1.7 Type info

### System settings > Type info

Type information	
Serial number	xxxxxxx
Application version	x.x.x
Ouman Ouflex	x.x.x
Display	x.x.x
Platform SW	x.x.x

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

## 1.8 Lock code

### System settings > Lock code

Lock code	
Display settings	>
Type information	>
Connections, meas. and states	>
Lock code	Not in use >

Lock code	
<input checked="" type="radio"/> In use	
<input type="radio"/> Not in use	

Enabling the lock code feature on the device ensures that no settings can be altered without entering the lock code.

It is recommended to enable the lock code when the device is located where anyone can access it and change settings, such as deactivating burglar monitoring.

By locking the device and changing the lock code, you can prevent unauthorized use of the device.

This enhances the security of the device and protects it from potential tampering or misuse.

#### Lock code function

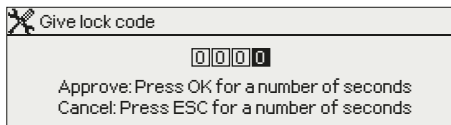
#### Description

**Not in use**  
**In use**

You can read Ouflex device information and change settings.

You can view the device information of Ouflex without entering the lock code, but you cannot change any settings. The default factory setting for the lock code is 0000. We highly recommend changing the lock code if taken into use.

## System settings > Change lock code



**If you have taken lock code into use, you may change the code.**

Ouflex device asks you to enter the current code. The factory setting of lock code is 0000.

Turn the control knob and press OK to accept each number.

Press ESC to return to the previous square.

To accept the code, press and hold the OK button for a few seconds. To cancel the operation, press and hold the ESC button for a few seconds.

## 1.9 Do backup and restore settings

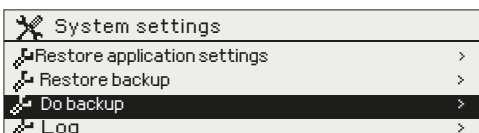
**It is recommended to make a backup as soon as Ouflex device has been taken into use and property-specific settings have been made. Backup requires that you have a service code.**

### System settings -> Restore application settings



Press OK for a number of seconds to show hidden settings. If you want to restore application settings, restore backup or do backup you have to enter the service code. You can also reset the measurement history.

### System settings -> Do backup



It is recommended to make a backup as soon as Ouflex has been taken into use and property-specific settings have been made. You may also restore application settings.

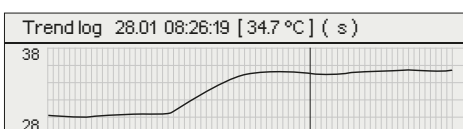
All the parameters which are saved in the non-volatile memory will be included in the backup. Such parameters are e.g. all the setting values, time programs and namings.

## 1.10 Log

### System settings -> Log



**Show measurement history on display.**



**To see trend line, select the wanted measurement and press Info button.**

**You can also rename the measurement.**

To delete log from device, select "Reset measure history".

## 2 Alarms



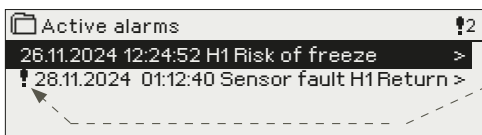
The alarm menu of the Ouflex device allows you to view both active alarms and previously active alarms. The number of active alarms is displayed in the top right corner of the main view.

In Ouflex BA Tool it is possible to specify if the alarm acknowledgement is required or not. If not required, the alarm will disappear of active alarms when the cause of the alarm has disappeared even if the alarm has not been acknowledged.

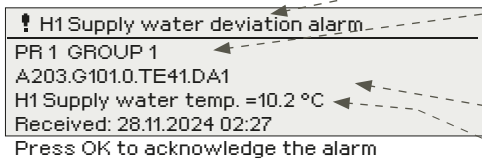
Ensure that the individual responsible for handling alarms has the necessary qualifications to perform required maintenance.

You can replace the alarm text generated by the Ouflex BA Tool with a freely named alarm text. The freely named alarm text cannot be translated into different languages, so it always appears in the user interfaces of the device in the language in which it is written.

### Alarms > Active alarms



Every active alarm is shown in a separate row, where you can see when the alarm has become active. Press OK to get more information about the alarm.



- 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.

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

**ACTIVE ALARMS**

**Send message: Active alarms**

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

### Alarms -> Alarm history



You can see the cause of the alarm, where the alarm has come from and when the alarm has become inactive. (e.g., 02.11.2024 at 10:11:42). The last 10 alarms can be seen in Alarm history.

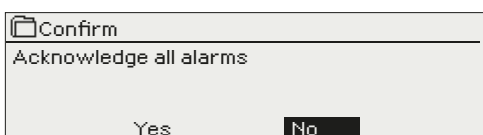
If Ouflex device is connected to a GSM modem, you can communicate with Ouflex device via text message.

**ALARM HISTORY**

**Send message: Alarm history**

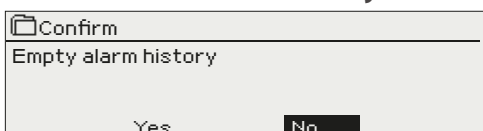
The controller sends a message showing the last alarms. Message is informational.

### 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.

### Alarms -> Reset alarm history



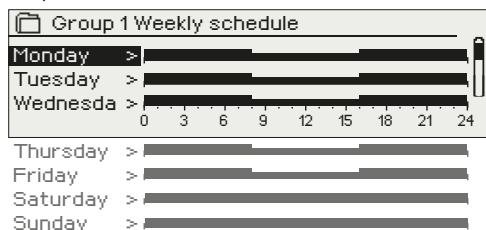
Ouflex requests confirmation before deleting alarm history.

## Alarms > Routing schedule (SMS use only)

Routing schedule	
Group 1 Weekly schedule	>
Group 1 Alarm routing now	Team 1 >
Group 2 Weekly schedule	>
Group 2 Alarm routing now	Team 1 >

In the routing schedule menu, you can view the current alarm routing settings and set up a schedule for each alarm group. The weekly schedule allows you to assign different alarm teams to specific times. In the graph, alarm teams are distinguished from each other by the bars with different thicknesses.

### Graph



This example shows that group 1 alarms are always forwarded. During business hours (Monday - Friday 8:00 a.m. - 4:00 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"/>

Turn the control knob to browse a weekly program. 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 program:

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.

#### 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"/>

### 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 selection means that alarms will not be forwarded.) Accept by pressing OK.
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.
6. 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 alarm team changes. Press OK to accept.
3. Press the OK button to change the day of the week.
4. Press Esc to exit.

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 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 type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
21:00	Delete switch time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input 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"/>

### 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 the selected alarm team and select "Delete switch time"
3. Press OK at the end of the row.
4. Press Esc to exit.

If the alarms are routed, they will be forwarded to the alarm team as text messages according to the routing schedule. To acknowledge an alarm, simply forward the same message back to the Ouflex

## Alarms > Alarm receivers

! Alarm receivers
Team 1 >
Team 2 >
Team 3 >

! Team 1
Phone number 1 >
Phone number 2 >
Phone number 3 >
Phone number 4 >

! Phone number 1
+ 3 5 8 4 0 8 4 0 0 0 0 0 0 0 0 0
Approve: Press OK for a number of seconds
Cancel: Press ESC for a number of seconds

! Phone number 1
3 5 8 4 0 8 4 0 0 0 0 0 0 0 0 0
Approve: Press OK for a number of seconds
Cancel: Press ESC for a number of seconds

In Ouflex, alarms are directed to alarm teams. A team may contain up to 5 phone numbers and another team as a backup user. An alarm is directed to the team that has been defined as its alarm group's recipient in the time program in question.

### Entering the telephone numbers:

Turn the control knob.  
Press OK to accept a number/sign.  
Press OK to move to the next square.

Press Esc to return to the previous square.  
Press OK for a number of seconds to accept the number.  
Press Esc for a number of seconds to cancel.



Deleting a telephone number: set the first character to "blank" and then press OK for a long time.

## Alarms > Alarm signal

! Alarm signal
On >
Off

Detachable display unit has its own alarm signal. Display alarm signal is off by default. If display is placed away from the controller, it may be good to activate alarm signal in display unit.

## Alarms > Alarm params

! Alarm signal
Noresponse alarms >
System error! Off >

You can determine whether the alarm is enabled and set the entry and exit delay, priority, alarm group and alarm limits and hysteresis for the alarms.

# 3 Point information

i Point info
Wiring info >
Bus points >
Time programs >

In the point info you can see wiring info, bus points and time programs.

## 3.1 Wiring info

Point info -> Wiring info

i Wiring info
INPUTS:
UI 1 -10.3 °C >
UI 2 23.5 °C >
UI 3 Off >

The Point Information section in Ouflex displays information about all the inputs and outputs, including their current state or measurement value, and their connections.

Press -button to see more detailed information, like name and point ID of the measurement point, You can also rename the measurement point, change device type and activate trend log.

i UI 1
Name Outdoor temp. >
Point ID 2TK1.2TK1.UI2.M.M
Device type NTC10 >
Trend log Off >

### 3.1.1 Measuring point control/manual control

AO 1
Automatic >
Manual control

Automatic control is the mode that is normally used. If your application allows the change of control mode, you may change automatic control to manual control here.

If an input or output is currently under manual control, a palm image will be displayed at the beginning of the row.

AO 1
Manual control >
Automatic

AO 1
0 %
min:0 max:100



## 3.2 Bus points

### Point info -> Bus points

Bus points	
Modbus RTU 1 (RJ45)	>
Modbus RTU 2 (A1,B1)	>
Modbus RTU 3 (A2,B2)	>
Modbus TCP Master	

Modbus RTU 1 (RJ45)	
FLEX COMBI 32	>
FLEX UI 12	>

Flex Combi 32	
Device information	>

Device information	
Device state	>
Address	1 >
Update device	>
IO SW	x.x

Device information	
Device state	>
Address	1 >
Ok messages	0
Timeouts	0
CRC errors	0
Error messages	0

In the bus points menu, you can view all the devices that are connected to the bus. If you press OK on a specific bus device, you can see the points that are associated with that bus device.

The points are organized in groups, starting with the universal inputs, followed by the analogue and digital outputs. You can change the analog and digital outputs from automatic to manual control.

You can update the software of Ouman Flex I/O extension device connected to the Modbus RTU bus or change the status of the device. The device may be active, passive, error, or update mode. You can also read and change the Modbus address of the device.

Device state	
<input checked="" type="radio"/> Active	
<input type="radio"/> Passive	
<input type="radio"/> Error	
<input type="radio"/> Updating	
<input type="radio"/> Device type error	

## 3.3 Time programs

### Point info -> Time programs


Time programs	
H1 Heating temperature drop	Off >
H2 Heating temperature drop	Off >
Light control	On >
El. group 1 control	On >

The Ouflex device allows you to set up weekly programs for various functions such as temperature control, car heating, light control, electric group control, and alarm routing. You can access the time programs either through the clock symbol or under the specific function for which a time program has been created.

### 3.3.1 Present value

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

Heating H1 Temperature drop	
Present value	Off >
weekly schedule	>
Exception schedule	>
Special days	>

Heating H1 Temperature drop	
 Present value	Off
Weekly schedule	>
Exception schedule	>
Special days	>

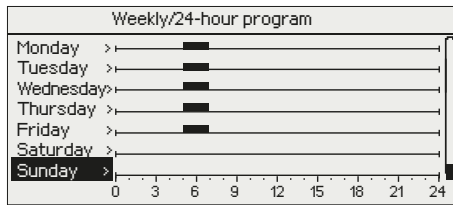
In the Ouflex device, the present value displays the current status of the control. If automatic control is being used, the display shows the state of the control according to the current time program. The control command can be set as a weekly schedule or an exception schedule.

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.

### 3.3.2 Weekly schedule

Point info -> Time programs -> Weekly schedule

Graph



Editing view

Time State	M	T	W	T	F	S	S
05:00 On	<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"/>
07:00 Off	<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"/> OK
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"/>

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

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.

#### Browsing a weekly program:

An editing view opens, and it shows all the switch times and also the states into which the function is driven at these times on the chosen days.

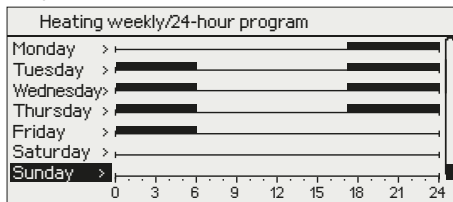
Editing view

1. Set switch time

- 2. Set state (=desired temp. level)
- 3. Select day(s)

Time	M	T	W	T	F	S	S
06:00 Normal temp.	<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"/>
17:00 Temp. drop	<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"/> OK
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"/>

Graph



In this example, you can see a weekly temperature drop program. Temperature drop is on from 5 pm to 6 am from Monday to Friday.

Time	M	T	W	T	F	S	S
21:00 Temp. drop	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
06:00 Delete switch time	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> OK
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"/>

#### 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 auto-matic (=normal). Press Esc to exit.

#### Editing a weekly program:

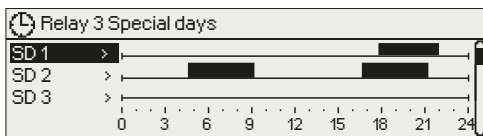
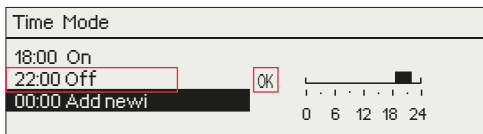
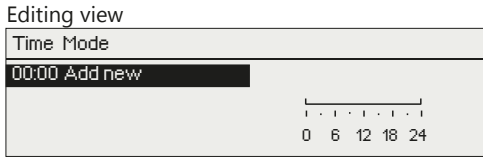
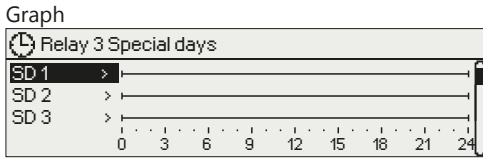
1. Turn the control knob to move to the value you wish to change and press OK.
2. Turn the control knob to make the time and control mode changes. Press OK to accept.
3. Press the OK button to change the day of the week.
4. Press Esc to exit.

#### 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.

### 3.3.3 Special days

Point info -> Time program > 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.

#### 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:

Select the switch moment to be deleted at mode "Delete switch time" and select "Ready" to confirm.

### 3.3.4 Exception schedule

Time program > Exception schedule

Date	Time	Mode
00.00.0000	00:00	Add new

Date	Time	Mode
21.12.2024	11:30	Off
03.01.2025	16:00	Automatic
00.00.0000	00:00	Add new

Add/change switch time	
Day:	21.12.2024
Time:	11:30
Mode:	Off
Repeat:	No
Accept:	Ready

In the example of relay 3 control has been done the exception schedule. Relay 3 is switched off (OFF) 21.12.2024 11:30 - 03.01.2025 16:00.

**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).

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.

#### 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. 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"

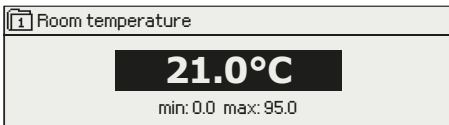
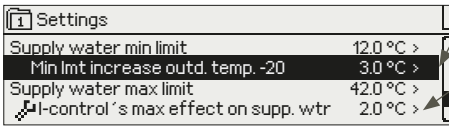
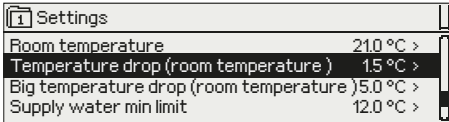
If you select a specific day of a week, it means that that day program is used during the set time period. You can also make special day programs (SD) in Ounet and take them into use in the exception calendar.

6. 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.
7. Accept the exception schedule you created by pressing "Ready."


#### Deleting a control from the exception schedule:

Select the switch moment to be deleted at mode "Delete switch time" and select "Ready" to confirm.

# 4 Settings



In Ouflex, settings can be classified into the following categories:

- **Main settings**
- **Hidden settings**  
You can hide/show these settings by pressing OK for a few seconds. When visible, these settings are shown slightly indented.
- **Settings that require maintenance code**  
There is a  symbol in front of these settings. If you try to change one of these settings, your Ouflex device asks you to enter the maintenance code.

### Changing a setting:

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

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.

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

### Locking the settings:

Lock the settings to prevent unauthorized persons from changing them. The device will then ask for lock code before it let's you change the settings. You can lock the settings in Ouflex device system settings.

**If a GSM modem is connected to Ouflex device and the setting values have been brought into SMS interface, you can edit settings by text message. Send a message "Key words". The reply message shows you which key words are in use in the application. The example below describes the communication principle.**

H1 SETTINGS

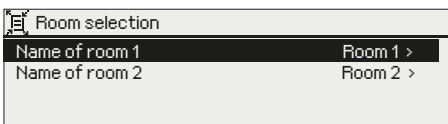
H1 Settings:  
Room temperature = 21.3°C/  
Temp.drop = 3.0°C/

H2 SETTINGS

### Send a message: H1 Settings.

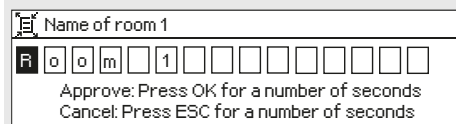
To edit the setting values using your mobile phone, the controller first sends the main settings to your phone. Then, you can write the new setting in place of the old setting and send a message back to the controller. The controller will then send the updated setting as a return message.

# 5 Naming

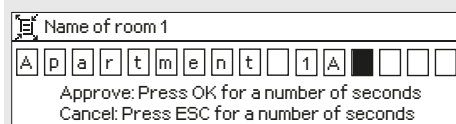


**There may be fields that you can rename in your Ouflex device. You often download an application where general names have been given to the controls, and you may want to rename them more accurately.**

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.

# 6 Communication via a mobile phone

KEY WORDS

Key words:  
Active alarms  
Alarm history

If a GSM modem is connected to the Ouflex you can communicate with the controller by text message using key words.

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

You can send the text message question mark to the controller to get a list of key words. 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 ?). **Capital and small 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.

## Informative messages

ACTIVE ALARMS

ALARM HISTORY

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

The reply message will show all active alarms.

The reply message will show information about the latest 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

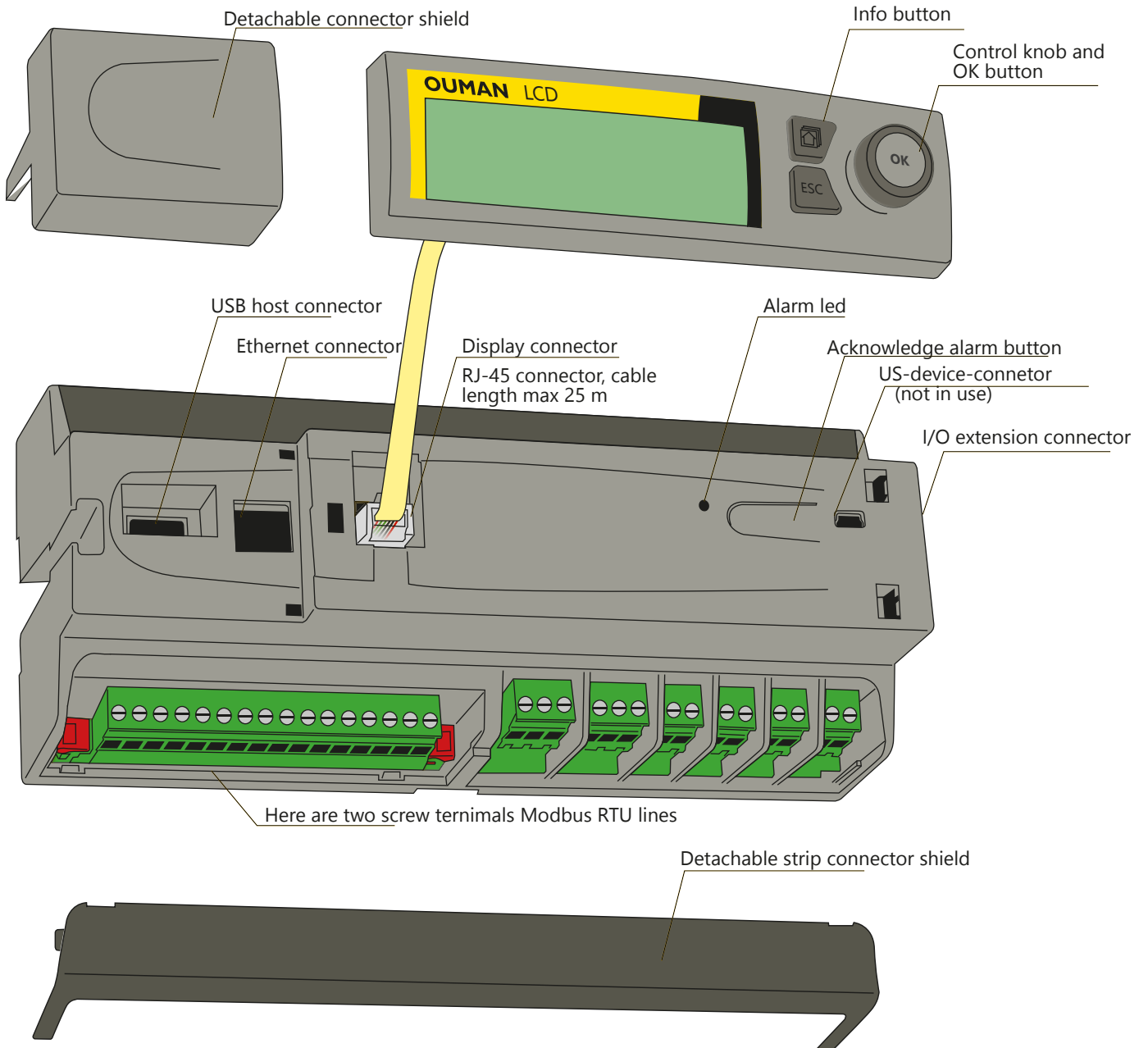
**Send a message with the correct key word.**

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.

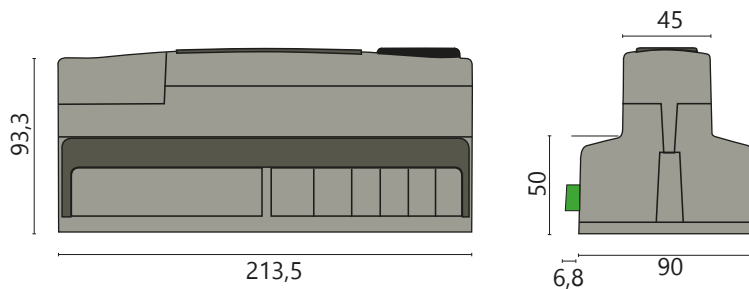


# 7 Ouflex device I/O connections and structure

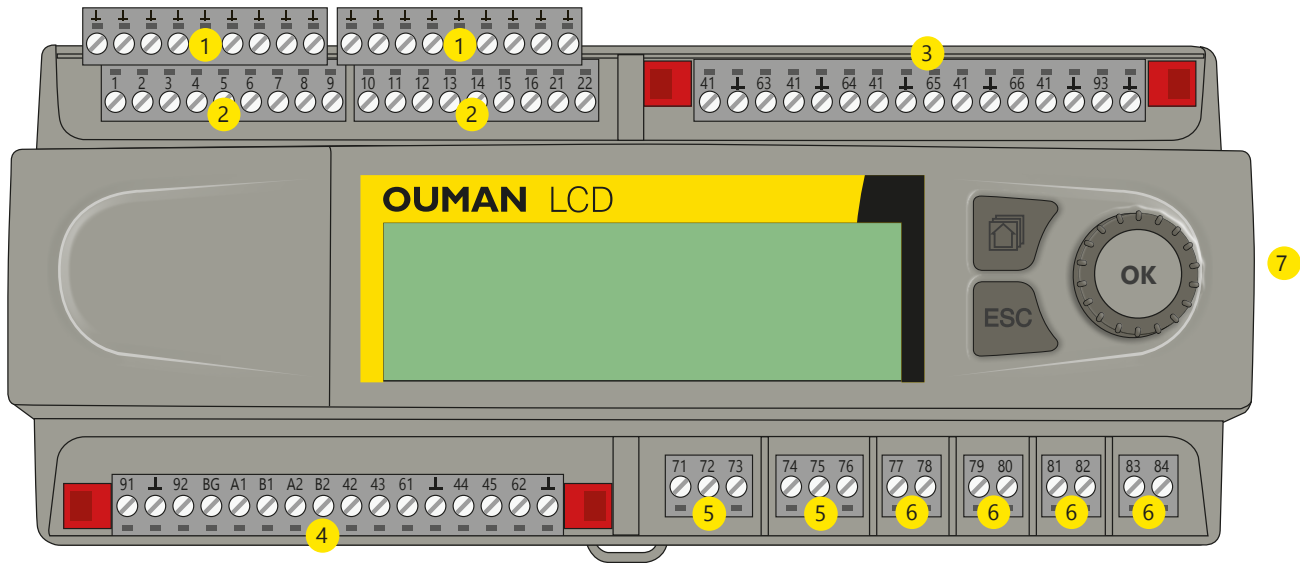
Ouflex is a freely programmable and DIN-rail-attachable building automation system for control and monitoring. The DIN-standard-compatible structure of the Ouflex device enables installation to most common cabinets. Detachable strip connectors make installation easier.



Dimensions:



**Ouflex includes 34 I/O-points, and also versatile data transfer and field bus connections. In addition, the device contains 24 Vac and 15 Vdc outputs. Display unit is detachable, and can be relocated. It is possible to increase the number of I/O-points with external I/O-modules via bus connections.**



**1** Detachable strip connectors (measurements' ground) Connector labels  $\perp$  Measurements' ground (16pcs)

**2** Detachable strip connectors (universal measurement, digital and pulse counter inputs)

The universal inputs are configured as NTC-10 measurements by default. If you want to connect a V or mA transmitter to the measurement channel, first configure the measurement channel as a transmitter measurement with the Ouflex BA Tool. If a transmitter measurement with a measurement signal higher than 3.3 Vdc is connected to a measurement channel that is configured for a passive sensor (NTC, Pt or Ni), the measurement may cause a measurement error in another measurement channel.

Connector markings:  
 1...12 Universal input  
 13...16 Universal input, pulse counter input  
 21...22 Digital input, pulse counter input

**3** Detachable strip connector (operation voltage and outputs)  
 Connector markings:  
 41 24 Vac operating voltage output  
 $\perp$  GND  
 63 0...10 V output  
  
 41 24 Vac operating voltage output  
 $\perp$  GND  
 64 0...10 V output  
  
 41 24 Vac operating voltage output  
 $\perp$  GND  
 65 0...10 V output  
  
 41 24 Vac operating voltage output  
 $\perp$  GND  
 66 0...10 V output  
  
 41 24 Vac operating voltage output  
 $\perp$  GND  
  
 93 15 Vdc operating voltage output  
 $\perp$  GND

**4** Detachable strip connectors (power supply, battery backup, RS-485 bus connections, outputs)  
 Connector markings:  
 91 24 Vac power supply  
 $\perp$  GND  
 92 12 Vdc backup voltage input  
 BG RS-485 bus isolated ground  
 A1 and B1 RS-485 bus connection, isolated  
 A2 and B2 RS-485 bus connection, isolated  
 42 and 43 24 Vac output (Triac or continuous 24 Vac)  
 61 0...10 V output  
 $\perp$  GND  
 44 and 45 24 Vac output (Triac or continuous 24 Vac)  
 62 0...10 V output  
 $\perp$  GND

**5** Detachable strip connectors (Change-over contact relays max 230 Vac, 5 A resistive, 1 A inductive. Connector markings:  
 71 Relay 1 NO  
 72 Relay 1 C  
 73 Relay 1 NC  
  
 74 Relay 2 NO  
 75 Relay 2 C  
 76 Relay 2 NC

**6** Detachable strip connectors (relays with normally open contact max 230 Vac, 5 A resistive, 1 A inductive. Connector markings:  
 77 Relay 3 NO  
 78 Relay 3 C  
  
 79 Relay 4 NO  
 80 Relay 4 C  
  
 81 Relay 5 NO  
 82 Relay 5 C  
  
 83 Relay 6 NO  
 84 Relay 6 C

**7 I/O extension: third Modbus RTU master bus via RJ45 connector**  
 Ouflex A XL has a galvanically isolated parameterizable Modbus RTU master bus. Cut the Ethernet cable, peel the first pair of wires (1 and 2). Connect 1 (orange/white) to A+ and 2 (orange) to B-. Connect a straight Ethernet cable with an RJ45 connection to the controller. Note! When making bus connections, at least either one of the devices must be without electricity.

Ouflex A XL also has a nonisolated Modbus RTU master bus with fixed settings. Cut the Ethernet cable, peel the last pair of wires (7 and 8). Connect 7 (brown/white) to A+ and 8 (brown) to B-. Connect a straight Ethernet cable with an RJ45 connection to the controller. Note! When making bus connections, at least either one of the devices must be without electricity. This bus has fixed bus settings: baud rate 19200, data bit 8, stop bit 1 and parity None.

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

# 8 WEB UI

The Ouflex A XL device has an internal web server. You can log in to the web interface using a browser. The connection works with commonly used browsers (Firefox, Chrome, and Edge; we recommend Google Chrome). You can access the web interface using a PC, smartphone, tablet, or similar device, such as the browser touch screen available from Ouman.

Check the Ouflex device's Host name on the sticker next to the Ethernet connector or in the Ouflex device's network settings. When using the Host name to connect to the device, remember that if the connection is made remotely over the internet, the Host name suffix must be in the form of **ouman.net**.

If the device connection is made locally using the BA Tool programming tool—either with a direct network cable or via a local network—and you use the Host name in the form of **ouman.local**, the user must be an "admin" user in the Ouflex BA Tool, and either the Flexiot device scanner (DiscoveryTool) or the Ouflex BA Tool program must be installed on the PC.

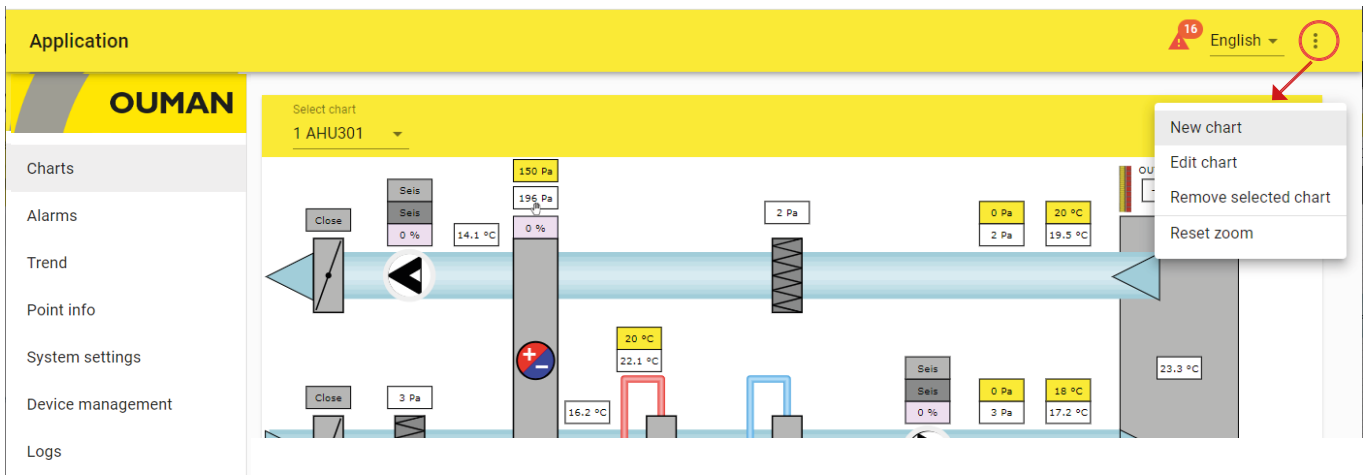
You can use the "Find device" function in the Tool or "Scan" in the Flexiot device scanner, which searches for devices on the same local network and displays them as a list. If you are an "admin" user in the Ouflex BA Tool, you can connect to the device using the .local address by selecting the device from the BA Tool SCAN list and clicking "Open connection."

In the Flexiot device scanner, the browser connection opens by double-clicking the device row. The Flexiot device scanner always uses the local IP address to open the browser connection, so the browser will display a security warning that you must accept and proceed despite the warning.

Another way to open a local device connection from the BA Tool or browser is to enter the device's local IP address into the address bar. The Android operating system does not recognize addresses with the "local" suffix. Therefore, on Android devices, you must always use the Ouflex device's local IP address as the address.

When logging in, enter the username and password. The device has three fixed access levels. The usernames are "service," "user," and "viewer." The service username has the most extensive access rights. This section presents the service level access rights. The user username can modify setpoints and time programs, while the viewer user only has viewing rights. Passwords can be individually changed for all user levels. The default device password can be found on the Ouflex device sticker, and in factory settings, it is the same for all usernames. We recommend changing the passwords.

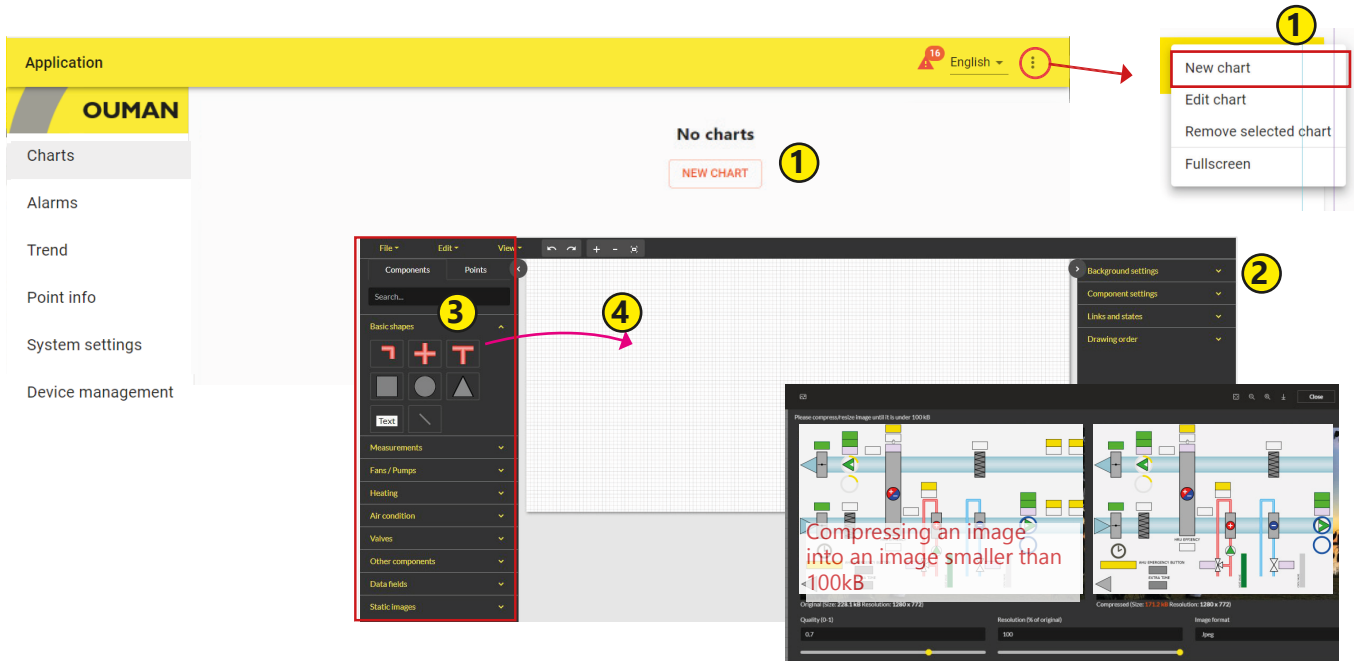
The device can also be connected to Ounet simultaneously, and multiple people can connect to the device at the same time (tested with 4 users).



Access to various functions	Service	User	Viewer
Changing the password: Which user password can be changed?	service, user and viewer	user	viewer
To read charts and trends	X	X	X
To view and acknowledge alarms	X	X	X
To modify setting values and time programs	X	X	
To edit charts	X		
To create the trend groups and edit trends	X		
To change the control mode: automatic - manual control	X	X	
System settings	X		
Device management	X		
Log	X		
Automatically generated Point info view, which shows all the own points of the Ouflex device.	X		

## 8.1 Chart editor

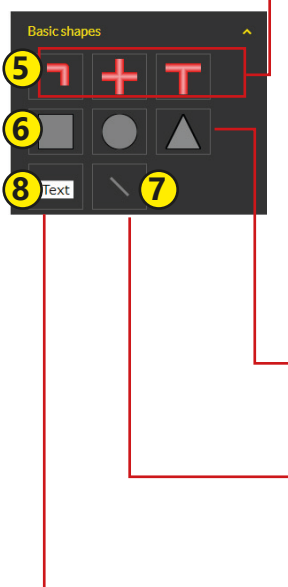
You can create dynamic charts via a web browser with an editor and save the chart directly to the device, or create it with the Ouflex BA Tool and download the charts to Ouflex. The maximum number of images is 30 in Ouflex A XL. Images cannot be converted to Ounet, but an existing chart can be saved as an image and used as a wallpaper in Ounet, and vice versa. You can upload an image file (eg Svg, jpeg, png) to 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. The compression tool forces the jpeg and png image to be less than 100 kB in size.



### 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.

### Basic shapes



4. Use the mouse to drag components from the "Components" tab to the drawing surface.
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.

## Measurements

9. 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

10. Activate the component. You can now edit component settings.

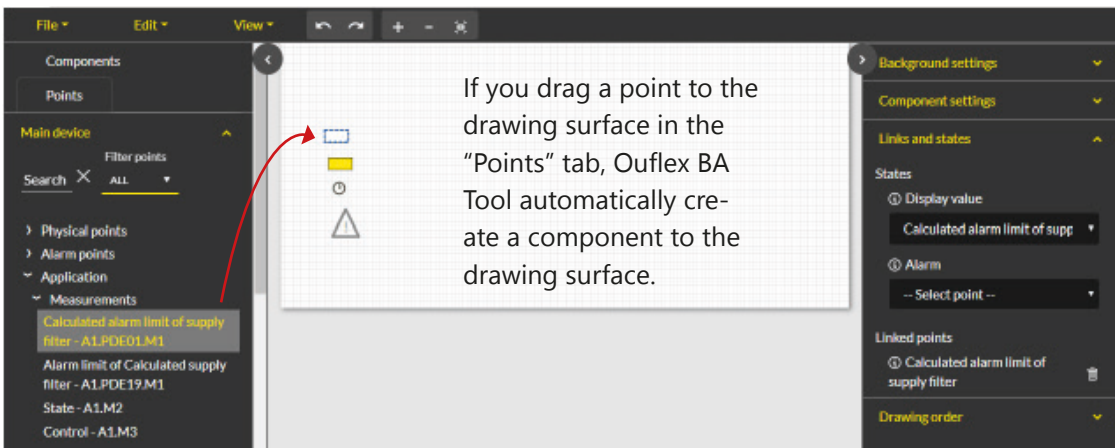
11. Activate the component and define what data is added to the specific field in the "Points" tab.

12. Drag point to the "Display value" field. If the point has an alarm, drag the point to "Alarm" field.

13. 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 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.

**Application**

**OUMAN**

Select chart: 1 AHU301

Linked points in component

Charts, Alarms, Trend, Point info, System settings, Device management, Logs

Manual control

Linked points in component

Value	Unit	Pa
3	Pa	

Linked points in component

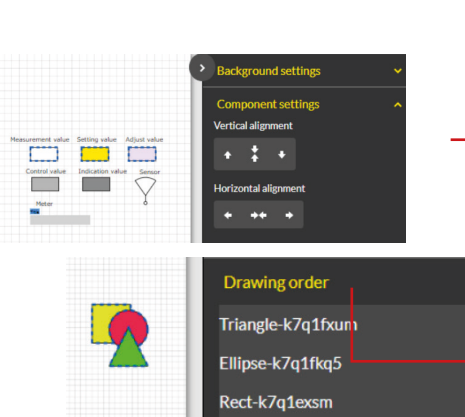
Point	Value	Unit	Point	Value	Unit
1	0	%	17	0	%
2	0	%	18	0	%
3	0	%	19	0	%
4	0	%	20	0	%
5	0	%	21	0	%
6	0	%	22	0	%
7	0	%	23	0	%

Monday, Tuesday, Wednesday

**Tip!**  
 You can linked the time program of the RTU-bus device to the WEB UI image of the Master device and manage it via diagrams.

By default, the device's WEB interface is automatically logged out after 15 minutes. If you edit the chart without saving in the editor tab for more than 15 min, then the device will log out the session and then the editing tab in the editor will not work. Do not close the Editor tab, just follow these steps:

1. Open a new graph from the right top corner and select: "New chart".
2. You do not need to do anything for this new graph (you do not need to save it).
3. Select the "Editor" tab, in which the graph you need to save is located, and select "Save". The device will show the following message: "Chart saved".
4. Close the new graph without saving it. Continue to draw the original graph.



- 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.

## Basic shapes

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.

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

Continuously adjustable frequency converter

Heating curve. 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:

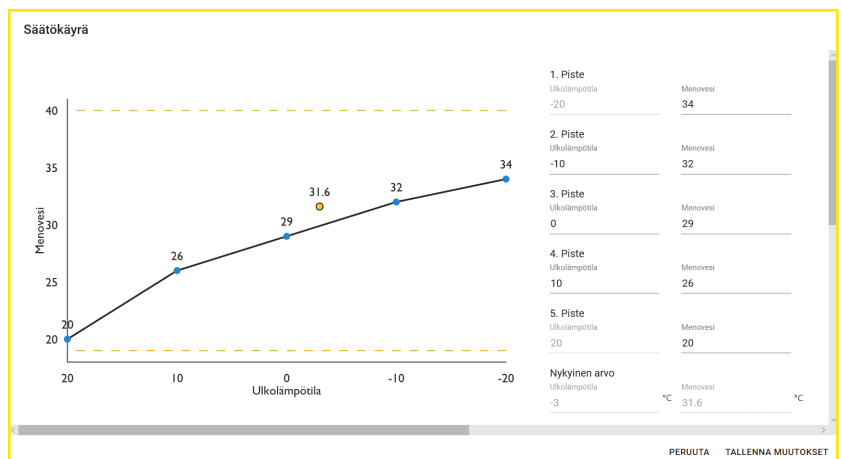
In the component settings, specify the size (width and height) of the table. The curve is displayed graphically. You can name the x and y axes of the curve and determine how many points (pairs of x and y values) there are on the curve.

Expansion tank

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).

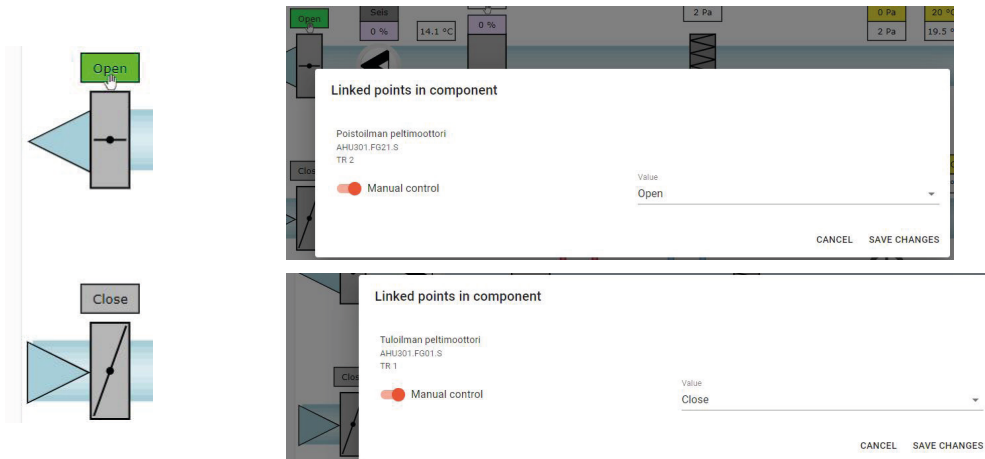
**Tip:** You can use the "search" function when searching for information to link to.

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.



## 8.2 Alarms

The alarm icon and the number of active alarms are shown in the top right corner of the browser window. More detailed information about alarms can be found from the "Active alarms" tab. For further information about alarms, see pages 12–14.

The screenshot shows the OUMAN 'ACTIVE ALARMS' interface. In the top right corner, there is a red alarm icon with the number '2' next to it, and a language dropdown menu set to 'English'. The main area contains a table of active alarms. A modal dialog box is open over the table, displaying details for an alarm: 'Laite MB1.FLEXUI8 osoitteessa 2 ei vastaa - MB1\_ADDR2\_FLEXUI8\_Error.A'. The dialog text includes: 'KeKen sivupöytä', 'PR 1 RYHMÄ 1', 'MB1\_ADDR2\_FLEXUI8\_Error.A', and 'Tuloaika 18.08.2022 15:59:39'. The dialog has an 'OK' button at the bottom. In the background table, the 'Action' column for the active alarm shows 'INFO' and 'ACKNOWLEDGE' buttons, with the 'INFO' button circled in red. The table also has an 'ACKNOWLEDGE ALL' button at the top right.

Time stamps ↑	Name	Priority	State	Action
18.08.2022 16:00:14	Laite MB1.WL_Base osoitteessa 1 ei vastaa	1	Active	INFO ACKNOWLEDGE
18.08.2022 15:59:39	Laite MB1.FLEXUI8 osoitteessa 2 ei vastaa	1	Active	INFO ACKNOWLEDGE

## Alarm routing

Alarms can be routed in accordance with a weekly schedule. An irregular calendar can be created for any periods deviating from a normal weekly schedule. You can ignore the weekly schedule and exception schedule by selecting "Manual control".

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 recipients" tab).
5. Select "Add new".
6. Define when alarms are not routed to this team (select another team).
7. If necessary, you can ignore the routing programme by selecting manual control.
8. Finally, click "Save".
9. You can also ignore the weekly programme using an irregular calendar (see next page).

● Manual control
 Present value  
No routing ▼

The screenshot displays the 'SMS ALARM ROUTING' configuration page in the OUMAN system. The interface is organized into a sidebar and a main content area. The sidebar on the left contains navigation links: 'Charts', 'Alarms', 'Trend', 'Point info', 'System settings', 'Device management', and 'Logs'. The main content area is divided into several sections: 'ACTIVE ALARMS', 'ALARM HISTORY', 'SMS ALARM ROUTING' (the active tab), and 'ALARM RECEIVERS'. In the 'SMS ALARM ROUTING' section, there is a 'Groups' dropdown menu (labeled 1) set to 'Group 1'. Below it is a 'Manual control' toggle switch (labeled 7) currently turned off, and a 'Present value' dropdown menu set to 'Ei reititystä'. A 'Week program' section features a table with columns for days of the week (Mon-Sat) and checkboxes (labeled 3, 4, 5, 6) to indicate routing activation. Below the table are three rows for defining routing times: 'Timi 1' (7:00), 'Timi 2' (16:00), and 'Ei reititystä' (22:00). Each row includes input fields for hours and minutes, and a 'Value' dropdown menu. A red 'Save' button is located at the bottom right of the interface.

## Alarm receivers

A team may contain up to 5 phone numbers and another team as a backup user. An alarm is directed to the team that has been defined as its alarm group's recipient in the time program in question. Save phone numbers.

Application 16 English ▾

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**OU MAN**

Charts  
Alarms  
Trend  
Point info  
System settings  
Device management  
Logs

ACTIVE ALARMS	ALARM HISTORY	SMS ALARM ROUTING	ALARM RECEIVERS
<b>Team1</b>	<b>Team2</b>	<b>Team3</b>	
Phone number _____	Phone number _____	Phone number _____	
Phone number _____	Phone number _____	Phone number _____	
Phone number _____	Phone number _____	Phone number _____	
Phone number _____	Phone number _____	Phone number _____	
Phone number _____	Phone number _____	Phone number _____	
<b>Backup Users</b>	<b>Backup Users</b>	<b>Backup Users</b>	
<input checked="" type="radio"/> Not in use	<input checked="" type="radio"/> Not in use	<input checked="" type="radio"/> Not in use	
<input type="radio"/> Team2	<input type="radio"/> Team1	<input type="radio"/> Team1	
<input type="radio"/> Team3	<input type="radio"/> Team3	<input type="radio"/> Team2	
			CANCEL SAVE

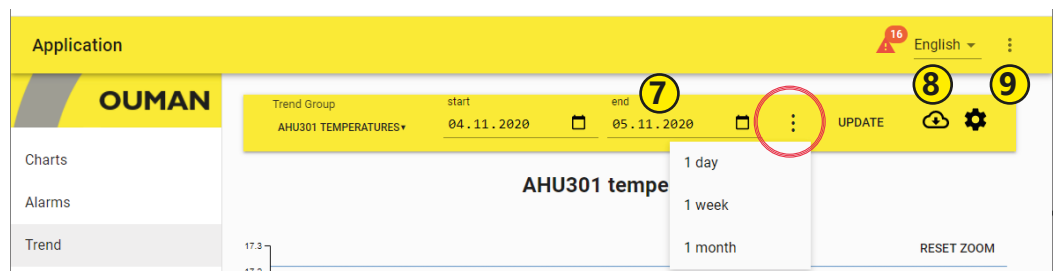
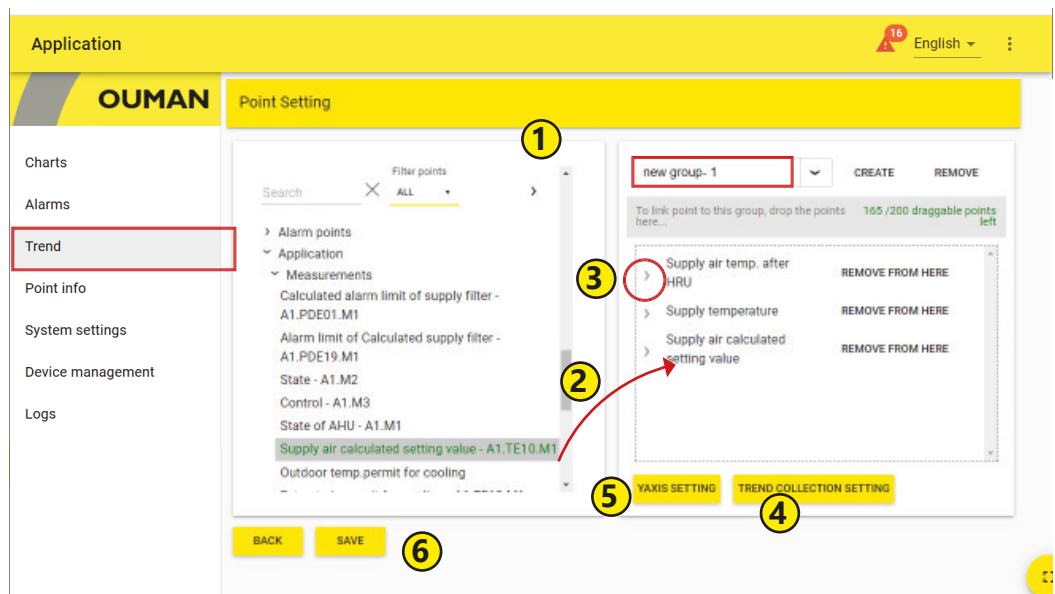
## 8.3 Trends

Sampling interval	Trend stored on the device
10 s	ca. 1 day
30 s	3,5 day
1 min.	6 day
5 min	30 day
15 min	100 day
60 min	416 day

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.

Select "Create trend" in the "Trends" tab.

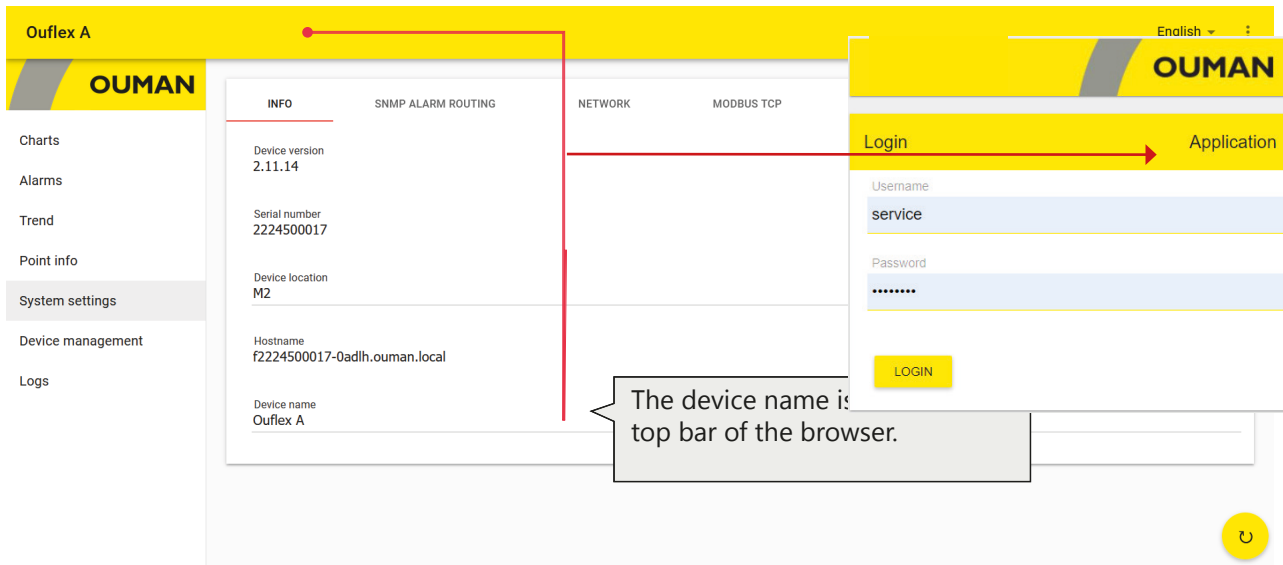
1. Select "new group- 1". You can rename the trend group by entering a new name over the current name.
2. Drag the points you want to add to the trend group using the mouse. A single trend group can consist of at most 30 trend points. The points selected for trend data collection are highlighted in green.
3. 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.
4. Trend collection settings show what points have been connected to the trend group.
5. 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.
6. Remember to save the settings.



7. 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.
8. Click the icon to save trend data in a CSV file. The file can be edited in Excel.
9. Click the wheel icon to access the trend editing mode.



## 8.4 System settings



The device name is shown in the top bar of the browser.

- System settings are presented in more detail in a separate section in this manual.
- The "Info" view shows the device version and host name.
- Alarm routing, SNMP settings, see p. 9 (SNMP needs to be enabled if alarms are to be sent to Ounet)
- Network connection, see pp. 7-8. If you disable Ouman Access, no connection can be established to the device through the internet using a browser. Ouman Access can be enabled in the device's network settings.
- Modbus TCP, see p. 9. Do not change any port settings, unless it is absolutely necessary.
- Modbus RTU, see p. 9. You can see from the WEB UI the information if the Modbus RTU is slave or not. If there are any bus problems, try to change the baud rate to test what rate is the best for the bus.
- Device, see p. 8. By default, the expansion bus is enabled. If no device is connected to the C bus, disable the bus, so that the red alarm light is not on unnecessarily. (The LED will also blink if there is an alarm in an RTU bus device.) Controller time synchronisation synchronises the time of a controller connected to the C bus (in other words, it does not synchronise the time of a controller connected to the RTU bus).

## 8.5 Device management

- In device management, you can update the device's firmware and control application. After software updates, reboot the device. In the Ouflex BA tool is first selected download to a zip file and this zip file is then selected from the WEB UI.
- 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.

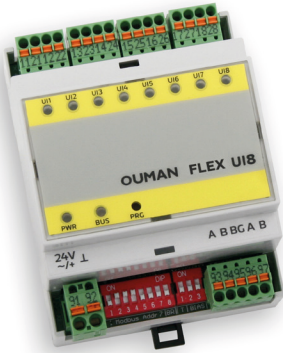
## 8.6 Log

- You can view the Modbus error log and device log, as well as Modbus diagnostics. In the Modbus diagnostics view, you can view the device-specific status. You can clear the log.
- Click the "🔄" icon to refresh the screen.

## 8.7 Point info

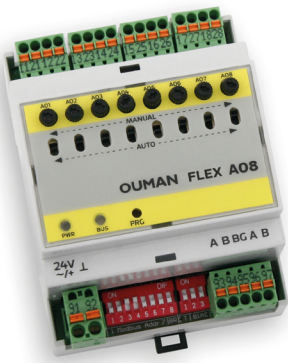
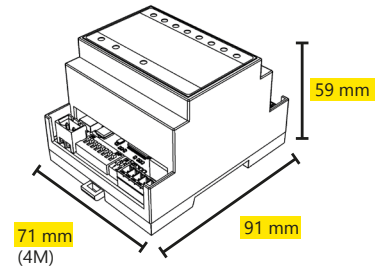
- Automatically generated Point info view, which shows all the own points of the Ouflex device. Point info is visible to a person with service-level access rights.

# Extension units



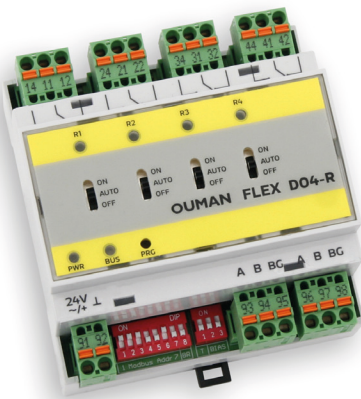
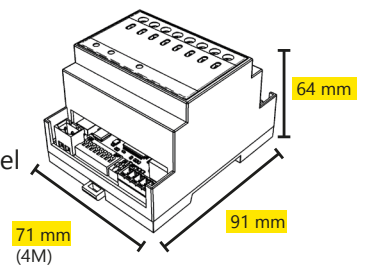
## FLEX UI8

FLEX UI8 device has 8 universal inputs.  
Supported signals and sensor types are:  
transmitters 0-10V  
transmitters 0/4-20mA  
digital contact input  
potential free pulse counter  
first supported passive sensors:  
- NTC10, NTC1.8, NTC2.2 and NTC20  
- Ni 1000 LG, Ni 1000 DIN 43760  
- Pt 1000



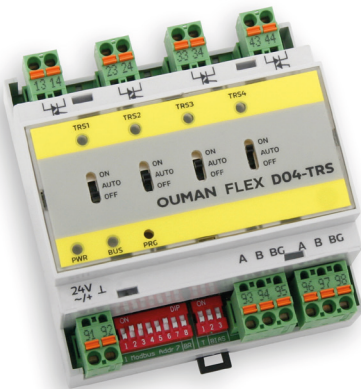
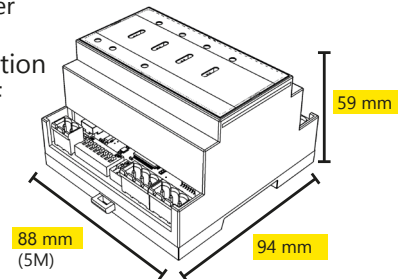
## FLEX AO8

FLEX AO8 has 8 analog outputs.  
Output voltage range 0-10 V  
Output current 7 mA/output  
Each output has Auto-Manual switch.  
In manual mode the output voltage of each channel is adjusted via potentiometer



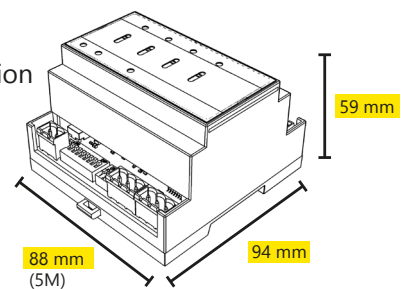
## FLEX DO4-R

FLEX DO4-R relay module consists of 4 change-over contact relays.  
Each relay control has 3 stage switch for selection between automatic control, forced ON or OFF (ON-AUTO-OFF).  
Change-over contact relay 230 Vac/ 4A or 24Vdc/4A  
Easy to install in electrical cabinet



## FLEX DO4-TRS

FLEX DO4-TRS module consists of 4 triac outputs  
Each triac control has 3 stage switch for selection between automatic control, forced ON or OFF (AUTO-ON-OFF).  
24...230Vac, max 1A/output  
Potential-free AC switch  
DC controls require a supplementary relay in installation



## FLEX UI16



**Flex UI 16 is a DIN-rail-attachable and RS-485-connected universal I/O extension unit. It has on 16 universal measurement inputs (UI) that can read the following types of data:**

- Passive sensors
- Transmitters
- Digital inputs
- Pulse information 4pcs. (inputs 13...16)

## FLEX COMBI 21



Flex Combi 21 is a DIN-rail-attachable and RS-485-connected universal I/O extension unit. It has 21 I/O points.

The device has:

9 pcs. universal measurement inputs (UI) that can read:

- Passive sensors
- Transmitters
- Digital inputs
- Pulse information

2 pcs. 0...10 V universal outputs (AO)

2 pcs. relay outputs with change-over contact

4 pcs. relay outputs with normally open contact

4 pcs. 24 Vac Triac outputs

## FLEX COMBI 32



Flex Combi 32 is a DIN-rail-attachable and RS-485-connected universal I/O extension unit. It has 31 pcs I/O points, and 5 pcs 24Vac outputs and 15Vdc output.

The device has:

16 pcs. universal measurement inputs (UI) that can read:

- Passive sensors
- Transmitters
- Digital inputs
- Pulse information 4 pcs. (inputs 13...16)

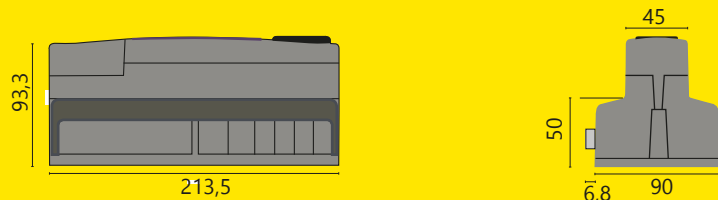
6 pcs. 0...10 V universal outputs (AO)

2 pcs. relay outputs with change-over contact

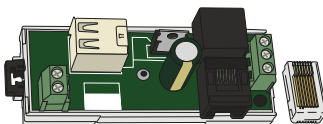
4 pcs. relay outputs with normally open contact

4 pcs. 24 Vac Triac outputs

### FLEX COMBI 32, FLEX COMBI 21 and FLEX UI116 dimensions (mm)



## FLEX EXU



**Interface card for modem and local I/O extension**

- unisolated RS-485 bus, supported protocols Modbus-RTU
- USB host connection (not in use)
- 15 Vdc voltage output, max 750 mA (total capacity together with the Ouflex A device 15 Vdc voltage output (strip connector 93)

# Product information, warranty and product disposal

<b>Product:</b>	Building automation control unit
<b>Manufacturer:</b>	Ouman Oy Linnunrata 14 FI-90440 Kempele FINLAND tel. +358 424 840 1 <a href="https://ouman.fi">https://ouman.fi</a>
<b>Product name:</b>	Ouflex A XL
<b>Models:</b>	Ouflex A XL
<b>Version:</b>	2.11.48
<b>Valid:</b>	2025/01



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

Ouflex 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.

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

Product name —  
Software version —  
Serial number —  
Bar code —

HW version

Made in Finland 20XX/XX

Year/month of manufacture

## WARRANTY

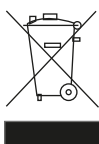
The seller provides a 24-month warranty for the quality of the materials and workmanship of all delivered goods. The warranty period begins on the date of purchase. In the event that material or workmanship defects are detected and the goods are sent, without delay or no later than by the end of the warranty period, back to the seller, the seller agrees to address the defect at their own discretion either by repairing the damaged goods or by delivering a new, defect-free goods, free of charge, to the buyer.

The buyer is responsible for the costs resulting from delivering the goods to the seller for warranty repairs, while the seller is responsible for the costs resulting from returning the goods to the buyer.

The warranty shall not cover damages resulting from accidents, lightning, floods or other natural events, normal wear and tear, inappropriate, negligent or unusual use of the goods, overloading, incorrect maintenance, or reconstruction, alteration and installation work which is not carried out by the seller (or their authorised representative).

The buyer shall be responsible for selecting material of equipment susceptible to corrosion, unless other agreements are signed. In the event that the seller alters the structure of their equipment, they shall not be obligated to make similar changes to previously procured equipment. The validity of the warranty requires that the buyer has fulfilled their contractual obligations related to the delivery.

The seller shall provide a new warranty for goods replaced or repaired under the original warranty. However, the new warranty shall only be valid until the expiration of the warranty period of the original goods. For any repairs not covered by the warranty shall be subject to a 3-month maintenance warranty covering the material and workmanship.



## 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.

# EU Declaration of Conformity

## EU DECLARATION OF CONFORMITY

**Product:** Building automation control unit OUFLEX A XL

**Manufacturer:**

Ouman Oy  
Linnunrata 14  
FI-90440 Kempele  
FINLAND

This declaration is issued under the sole responsibility of the manufacturer.

**Object of the declaration:**

Equipment: Freely programmable automation device  
Brand name: OUMAN  
Model / type: Ouflex A XL

The object of the declaration is in conformity with the relevant Union harmonisation legislation:

**EMC: Emission:**

EN 61000-6-3:2020 (EN55022B)

**Immunity:**

EN 61000-6-1:2016 (IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-11)

**Safety:** EN 60730-1:2011

This product herewith complies with the requirements of the

EMC Directive 2014/30/EU and the amending CE Directive 93/68/EEC  
Low Voltage Directive 2014/35/EU and the amending CE Directive

93/68/EEC

RoHS Directive 2011/65/EU and 2015/863/EU

DIRECTIVE 2012/19/EU Waste Electrical and Electronic Equipment

Kempele, Finland, 10. 11. 2022



Matti Lipsanen  
Managing director



<b>Dimensions</b>	width 213,5 mm, height 93,3 mm, depth 96,8 mm
<b>Weight</b>	0,7 kg
<b>Protection class</b>	IP 20
<b>Operating temperature</b>	0 °C...+40 °C. Attention! The maximum ambient temperature for Ouflex A XL can be +50°C, but in that case, Triac (42...44), as well as power supply outputs (41 and 93), can only be loaded with 50% of the maximum current.
<b>Storing temperature</b>	-20 °C...+70 °C
<b>Power supply</b>	
Operating voltage	24 Vac, 50 Hz (22 Vac - 33 Vac)
Power required	(15 Vdc output =if not connected) 13 VA (15 Vdc output = 600 mA) 34 VA Notice! Please consider power required for 24 Vac and Triac outputs.
Backup input (92 and ⊥)	12 Vdc
Current consumption	370 mA / 4,5 W (relays not in use) 500 mA / 6 W (relays in use) (in addition, the load of the 15 vdc output and the voltage drop must be taken into account)
<b>Universal measurement input (can be configured) measurement types and measurements accuracy:</b>	
Passive sensors (inputs 1...16)	NTC10: ±0,3 °C between -20 °C...+130 °C, ±1,0 °C between -50°C...-20 °C. NTC 1.8 and NTC 2.2: ± 0,4 °C between -50 °C...+100 °C, ±0,6 °C between +100°C...+130 °C (IO HW 1.x: ±0,6°C between-50...70°C and ±2,0°C between 70...130°C) NTC 20: ±0,6 °C between -20 °C...+130 °C, ±2,0 °C between -50°C...-20 °C Ni1000LG, Ni1000/DIN and Pt1000: ±0,3 °C between -50 °C...+130 °C (IO HW 1.x: ±1,0°C between -50 ...130°C) Also sensor tolerances and the effect of cables must be considered when calculating total accuracy.
Active sensors (inputs 1...16)	0...10 V voltage message, meas. accuracy ±0,1 V Milliamp signal 0/4 to 20 mA with 250 Ω or 500 Ω shunt resistor. Accuracy 250 Ω: ±0,2 mA (measuring range 0/1 to 5 Vdc). Accuracy 500 Ω ±1,3 mA (measuring range 0/2 - 10 Vdc) In addition, the parallel resistance tolerance must be taken into account
Contact information (inputs 1...16)	Contact voltage 3,3 Vdc. (IO HW 1.x: Contact voltage 5,0 Vdc) Contact current 1 mA. Contact resistance max 1,9 kΩ (closed), min 50 kΩ (open)
Counter inputs (inputs 13...16)	Minimum pulse length 30 ms
<b>Digital input measurement types:</b>	
Contact information (inputs 21 and 22)	Contact voltage 15 Vdc. Contact current 1,5 mA Contact resistance max 500 Ω (closed), min 2 kΩ (open)
Counter inputs (inputs 21...22)	Minimum pulse length 30 ms
<b>Analog outputs (61...66)</b>	Output voltage range 0...10 V. Output current max 9 mA/output
<b>Relay output</b>	
Change-over contact relay (71...76)	2 pcs, 230 V, resistive 5 A/ inductive 1A (cos Ø -0.8)
Normally open contact relay (77...84)	4 pcs, 230 V, resistive 5 A/ inductive 1A (cos Ø -0.8)
<b>Triac outputs</b>	
24 Vac (42 ... 43 and ⊥)	Output current max 0,75 A per triac par
24 Vac (44 ... 45 and ⊥)	Output current max 0,75 A per triac par
<b>Operating voltage outputs</b>	
5 pcs 24 Vac outputs (41 and ⊥)	Output current max 0,75 A/output
15 VDC output (93 and ⊥)	Output current max 600 mA
<b>Data transfer connections</b>	
RS-485 bus (A1 and B1) COM2	Galvanically isolated, supported protocols Modbus-RTU
RS-485 bus (A2 and B2) COM3	Galvanically isolated, supported protocols Modbus-RTU
RS-485 bus (RJ45 in the end of device) COM1	Non-isolated Modbus-RTU-master bus with fixed settings. Compatible with FLEX EXU: A3/B3.
RS-485 bus (RJ45 in the end of device) COM5	Galvanically isolated parameterizable Modbus-RTU-master bus.
USB-host connection	RS-232-modem, Ouman GSM modem
Ethernet	Full-duplex 10/100 Mbit/s, supported protocols Modbus-TCP/IP
Ouman Access	Intelligent remote connection built-in for use with Ounet and Ouflex Tool
<b>Processor</b>	Cortex-At 528 MHZ
<b>SDRAM</b>	512 MB
<b>FLASH</b>	512 MB

IO card hw-version 2.0 forward

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



YM0084 Ouflex A XL\_User manual\_ENG\_20250110