OUMAN   OUFLEX

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 A
OUFLEX A XL

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.

REMOTE UPDATE

Web UI

Saving energy
Creating comfort

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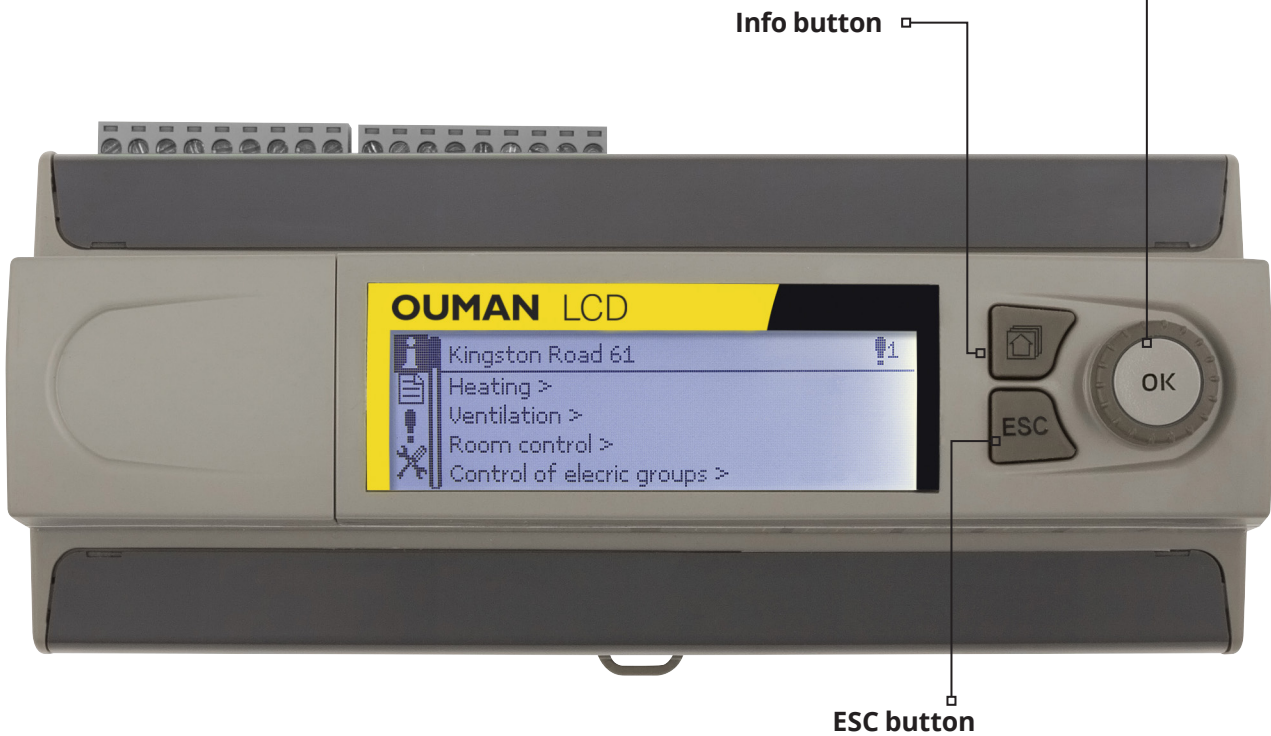
You can move from one function to another by turning the control knob of your Ouflex device. By pressing the control knob (= OK), you can enter any function to examine it in detail. This way you can see the related measurements, state information, settings, time programs, etc.

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

OUMAN LCD

Kingston Road 61   ▮1
Heating >
Ventilation >
Room control >
Control of elecric groups >

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 of 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.
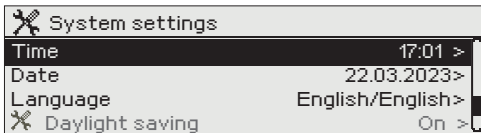
Maintenance code

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.

There is a ⚒ symbol in front of a setting that requires maintenance code.
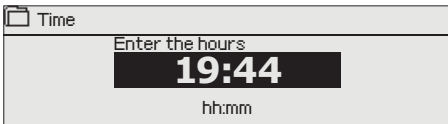
Contents

1 System settings ⚒

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

It is important that time and 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 lut for a couple of days.
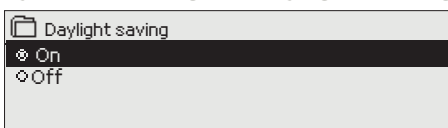
Hours and minutes can be set separately.
1. Set hours and press OK to accept.
2. Set minutes and press OK to accept.
3. Press Esc to cancel and exit if needed.
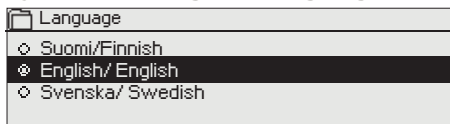
System settings > Date
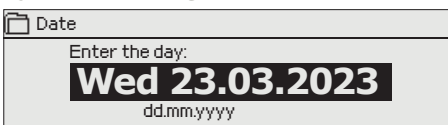
1. Set day and press OK to accept (name of weekday is updated automatically).
2. Set month and press OK to accept.
3. Set year and press OK to accept.
4. Press Esc to exit.

System settings > Daylight saving

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.

System settings > Language

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

1.2 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. Connect the modem USB connector to the device USB host connector. Connect the modem power supply to the device conectors 93 (+) and ⊥ .
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. 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. 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). Test for communication.

4

1. Connect the modem USB-connector to the device USB host connector.

2. Connect the modem power supply to the device conectors 93 (+) and ⊥. When connect modem supply to Ouflex connectors Ouflex reboot automatically.
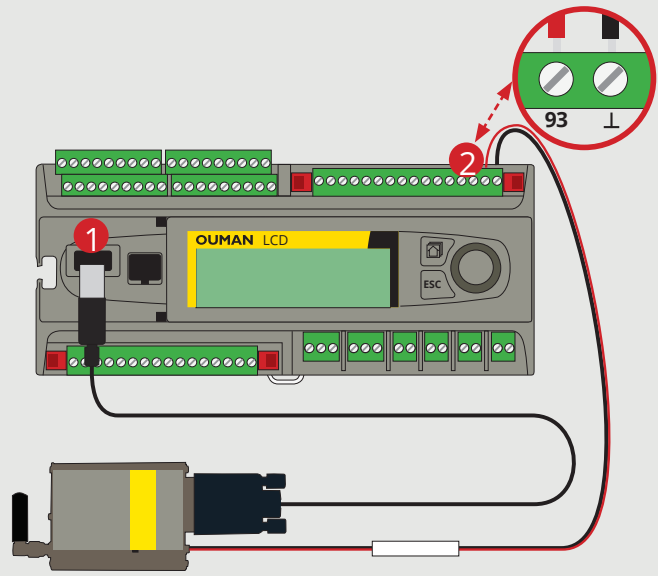
SMS PIN:

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 initialises modem.

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

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

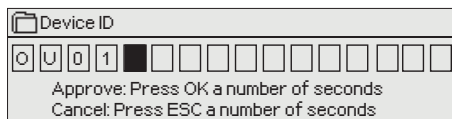You can check the status of the modem also on the modemLED indicator light.

SIM card status:
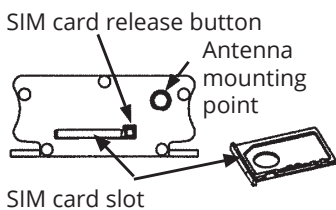
Press the small black SIM card release button with, for example, a pen tip. SIM card holder pops out. Pull out the SIM card holder. Do not try to remove SIM card holder without pressing the SIM card release button first! Insert SIM card into the slot and make sure it settles properly. Push the slot back to its place. Enter the SIM card PIN code in Ouflex device. Make sure PIN inquiry is in use in the SIM card.

SIM card release button

Antenna mounting point

SIM card slot

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

Device ID:

Device ID

O U 0 1 ■

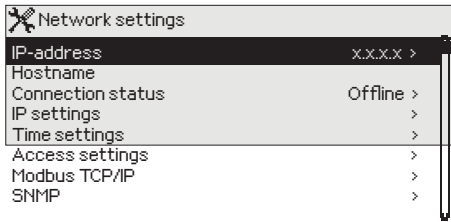Approve: Press OK a number of seconds
Cancel: Press ESC a number of seconds

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.)

1.3 Network settings

System settings > Network settings

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

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

Device has fixed Hostname. Hostname can be used to connect to device from Ouflex tool or Ounet.

Connection status indicates whether Ouflex A device is in the network or not. Ouflex A 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!
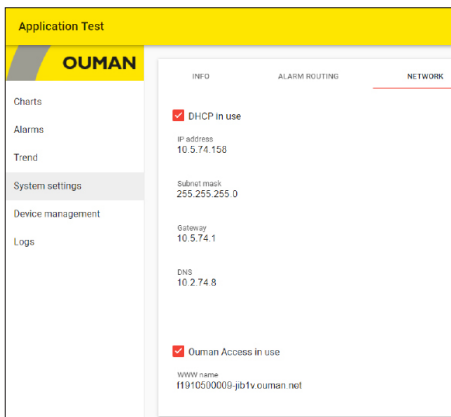
1.3.1 IP settings

System settings > Network settings > IP settings
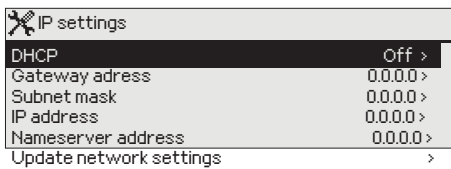
IP settings

Setting the IP address using DHCP function:

1. Go to DHCP and press OK.

2. Select "On" and press OK to accept selection.

3. 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.

4. If DHCP is "On", network settings were successfully chanced and the device now functions in the network. Device IP address is shown on display.

Setting the IP address manually:

1. Go to DHCP and press OK.

2. Select "**Off**" and press OK to accept selection. If DHCP function is on, manual changes in "Subnet mask", "Gateway address", "Name server address" and "IP address" will be ignored. When set IP-settings manually you need to ask correct settings in that LAN admimistarator. OBS. Never try to guess the correct settings. Incorrect settings cause problems, and the network is work properly.

3. Select "Update network settings".

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

You can make setting of the IP settings easier,
- if you know DHCP service exists in the network

- if you know the DHCP address range and fixed address range in the network

- if you wish to use a fixed IP address.

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 3G/4G solution is used, with an Ouflex device connected to it. The network uses a DHCP service that distributes addresses between 10.200.1.100 and 10.200.1.149. The range 10.200.1.1 to 10.200.1.99 is reserved for fixed addresses, and from this range IP address 10.200.1.1 is reserved for the Ouflex device. Proceed as follows: Set the DHCP function to "On". 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

1.3.2 Time settings

System settings > Network settings > Time settings

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.

1.3.3 Access settings

System settings > Network settings > Access settings

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- service is "off" by default in Ouflex A. OUMAN ACCESS- service is taken in use in following way: Ouman salesperson feeds in the target and billing information to the Ouman system and activates the service based on the serial number of the Ouflex A device. After that, you have to activate the ACCESS service from the device.

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.

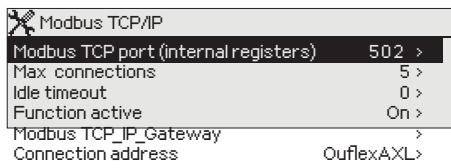Note! If you disable Ouman Access, you will lose your Internet connection to your device. You can connect to the device from a local area network with an IP address or a direct cable connection.

7
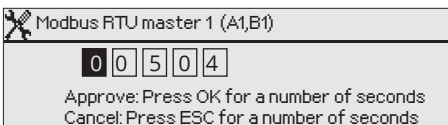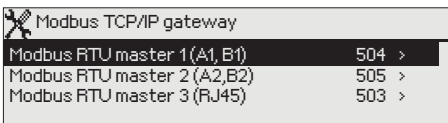
Modbus TCP/IP settings

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 are 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 address 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.

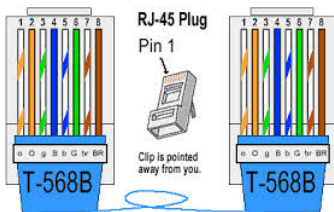**Function active:** This selection either enables or disables the entire Modbus/TCP communication.

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.
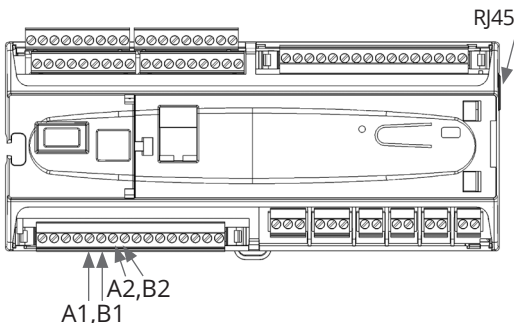
## Modbus TCP/IP gateway -> Modbus RTU master

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.

RJ45

A2,B2
A1,B1

Ouflex A XL : 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. The last pair of the end RJ45 connector (ru/va and ru) 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.

The most common Ethernet B connection:
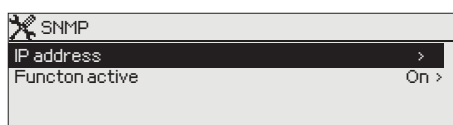
SNMP settings: SNMP function can be used to send notifications about alarms activating, inactivating and being acknowledged via SNMP protocol to a desired server.

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 is disabled.

1.4 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 in the end of device))

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

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.

1.5 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.

1.6 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
                75 >
```

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 case of maintenance or upgrade.
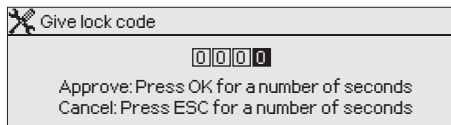
1.7 Lock code

System settings > Lock code

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

```
Lock code
⊙ In use
○ Not in use
```

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.

Lock code function	Description
Not in use	You can read Ouflex device information and change settings.
In use	You can read Ouflex device information but you can not change settings without entering the lock code. The factory setting of lock code is 0000. If you take lock code into use, change the code for security reasons.

System settings > Change lock code

Give lock code

0 0 0 0

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

**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.
Press OK for a number of seconds to accept the code.
Press ESC for a number of seconds to cancel
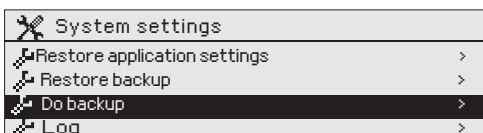
1.8 Do backup and restore settings

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

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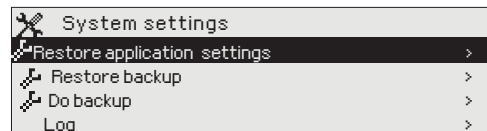
Press OK for a number of seconds to show hidden settings. If you want to restore application settings, restore backup or do backup you have to enter the service code. You can also reset the measurement history.

System settings -> Do backup

System settings
Restore application settings >
Restore backup >
Do backup >
Log >

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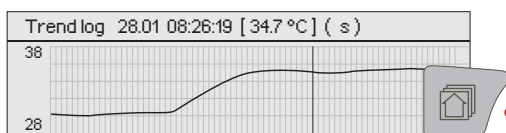
All the parameters which are saved in the non-volatile memory will be included in the backup. Such parameters are e.g. all the setting values, time programs and namings.

1.9 Log

System settings -> Log

System settings
Restore factory settings >
Restore backup >
Do baciup >
Log >
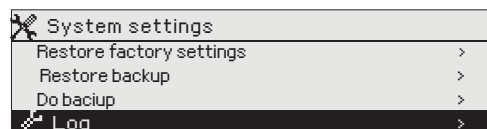
Show measurement history on display.

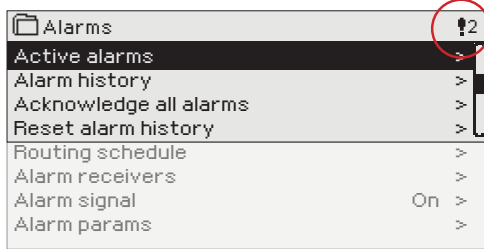Trend log 28.01 08:26:19 [34.7 °C] (s)

38

28

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

In the alarm menu of Ouflex device, you can check the active alarms and what alarms have been active. The number of active alarms will is shown in the 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 disppear of active alarms when the cause of the alarm has disappeared even if the alarm has not been acknowledged.

Alarms > Active alarms
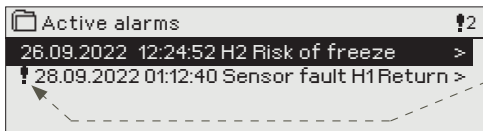
Every active alarm is shown in a separate row, where you can see when the alarm has become active. Press OK to get more information about the alarm.
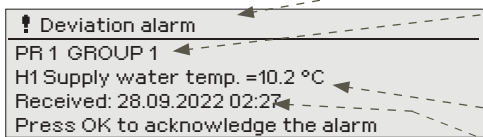
- An exclamation mark in front of the date shows that the alarm has been silenced by pressing Esc.

- 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
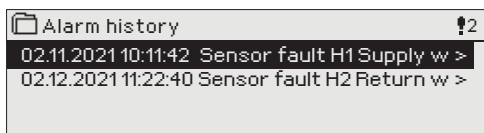
- The time, when the alarm was activated.

If Ouflex device is connected to a GSM modem, you can communicate with Ouflex A 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., 02.11.2017 at 10:11:42). The last 10 alarms can be seen in Alarm history.
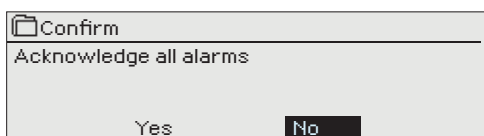
If Ouflex device is connected to a GSM modem, you can communicate with Ouflex A device via text message.

ALARM HISTORY

Send message: Alarm history
The controller sends a message showing the last alarms. Message is informational.


Alarms -> Acknowledge all alarms

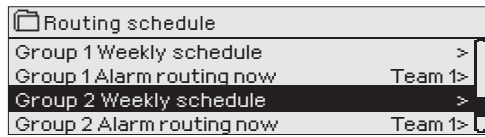Ouflex requests confirmation before acknowledging all alarms.

There is an "Acknowledge all alarms" register (fixed register 13) in the Modbus interface template. By entering a value of one (1) in the register, all alarms on the controller are acknowledged. The value of the register automatically returns to zero.
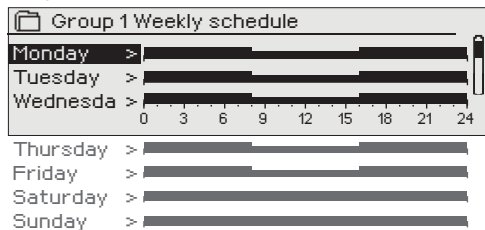

Alarms -> Reset alarm history
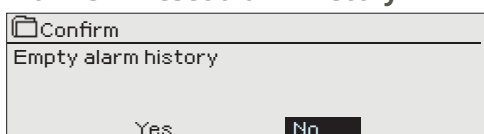
Ouflex requests confirmation before deleting alarm history.

11

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>
```

Graph

```
Group 1 Weekly schedule
Monday    >
Tuesday   >
Wednesda  >
          0   3   6   9   12  15  18  21  24
Thursday  >
Friday    >
Saturday  >
Sunday    >
```

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           ☑  ☑  ☑  ☑  ☑  ☐  ☐
16:00 Team 2           ☑  ☑  ☑  ☑  ☑  ☐  ☐
00:00 Add new          ☐  ☐  ☐  ☐  ☐  ☐  ☐
```

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           ☑  ☑  ☑  ☑  ☑  ☐  ☐
16:00 Team 2           ☑  ☑  ☑  ☑  ☑  ☐  ☐
00:00 Add new          ☐  ☐  ☐  ☐  ☐  ☐  ☐
```

```
Time Mode              M  T  W  T  F  S  S
08:00 Team 1           ☑  ☑  ☑  ☑  ☑  ☐  ☐
16:00 No routing       ☑  ☑  ☑  ☑  ☑  ☐  ☐  OK
00:00 Add new          ☐  ☐  ☐  ☐  ☐  ☐  ☐
```

```
Time Mode              M  T  W  T  F  S  S
08:00 Team 1           ☐  ☐  ☐  ☐  ☐  ☑  ☑
21:00 Delete switch time ☐ ☐ ☐ ☐ ☐ ☑  ☑  OK
00:00 Add new          ☐  ☐  ☐  ☐  ☐  ☐  ☐
```

You can see where alarms are currently being routed in the routing time schelude display. You can also set up a routing schedule for each alarm group.

You can create a weekly schedule for each alarm group. Weekly schedule has a general graphic view and an editing view, where you can see to which alarm team each alarm is directed at different points of time. In the graph, alarm teams are distinguished from each other by the thickness of the black bar.

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.

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.

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 alarms are routed, alarm information is sent to the alarm team by text message. Alarms are relayed according to the alarm routing time schedule. You can acknowledge an alarm by sending 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
Approve: Press OK for a number of seconds
Cancel: Press ESC for a number of seconds

🔔 Phone number 1
■ 5 8 4 0 8 4 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.

OK

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

ℹ️ 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

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

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

Point information shows all the inputs and outputs of the Ouflex A device and display names. It also shows the measurement value or state of the point.

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.

3.1.1 Measuring point control/manual control

AO 1
◉ Automatic
○ 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.

🖐 When you are in the manual control mode, the hand symbol appears.

AO 1
0 %
min:0   max:100

3.2 Bus points

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

In the bus points menu, you can see those devices which are connected to the bus. By pressing OK in the row of a specific bus device, you will see those points which has been taken into use of the bus device.

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

```
ℹ Flex Combi 32
Device information                     >
```

Points are grouped by first displaying universal inputs and then analog and digital outputs. You can change the analog and digital outputs from automatic to manual control.

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

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.

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

```
ℹ Device state
⊙ Active
○ Passive
○ Error
○ Updating
○ Device type error
```

3.3 Time programs

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

In Ouflex, weekly programs can be added to different functions - such as temperature drops, car heating and control of lights. In your Ouflex device, you can find time programs under the clock symbol and/or under the function that a time program has been made for (e.g. heating control, car heating, control of lights, control of electric groups, routing of alarms).

3.3.1 Present value

```
ℹ Heating H1 Temperature drop
Present value                        Off>
weekly schedule                        >
Exception schedule                     >
Special days                           >
```
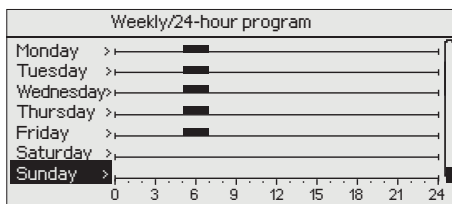
The present value shows what is the status of the control just now. When the automatic control is in use, it is shown in the display, what is state of the control according to the time program at the moment. Control command can be either a weekly schedule or exception schedule.

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

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

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.
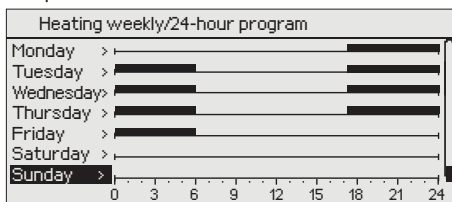
Weekly programs have a general graphic view and an editing view, where you can see when the control is activated. (e.g., temperature drop, car heating on, lights on).

Turn the control knob to browse a weekly program. If you wish to see the exact switch times or you wish to change, delete 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 the states into which the function is driven at these times on the chosen days.

Editing view

1. Set switch time

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.

Adding a new switch time:

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

Editing a weekly program:

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

Deleting a switch time:

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

3.3.3 Special days

Point info -> Time program > Special days

Graph

Editing view
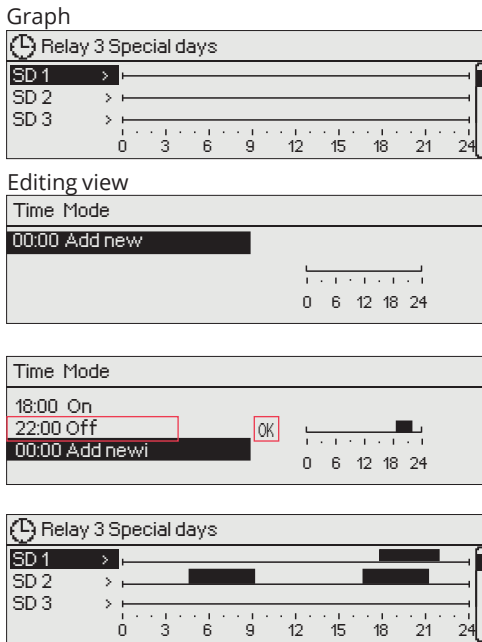
You can enter special day programs as exceptions to normal weekly programs. You can designate a maximum of 7 special day pograms (SD). A special day program is typically created for each holiday. When the special day program will be applied it is set in the exception calendar.

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

In the example of relay 3 control has been done the exception schedule. Relay 3 is switched off (OFF) 21.12.2022 11:30 - 03.01.2023 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).

The controls that differ from the normal week schedule will be done with the exception schedule. The exception schedule is stronger than the week schedule. The date, time and mode to which control mode will be changed in the period in question are entered in the exception calendar. To switch from an exception schedule to weekly schedule mode, select 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.
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.

Send a message: H1 Settings.
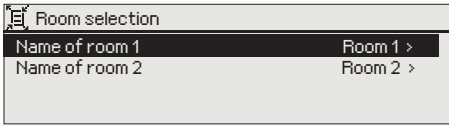The controller sends the main settings to your mobile phone. Editing the setting values: write the new setting in place of the old setting and send a message
back to the controller. The controller sends the setting as a return message.

5 Naming

Room selection	
Name of room 1	Room 1 >
Name of room 2	Room 2 >

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 re-name "Electric group 1" and "Electric group 2" more accurately, depending on what you actually control with the relay in question.

Name of room 1

R o o m _ 1 _ _ _ _ _ _ _ _ _ _

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

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.

Name of room 1

A p a r t m e n t _ _ 1 A ■ _ _ _

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

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:
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

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

ACTIVE ALARMS

The reply message will show all active alarms.

ALARM HISTORY

The reply message will show information about the latest alarms.

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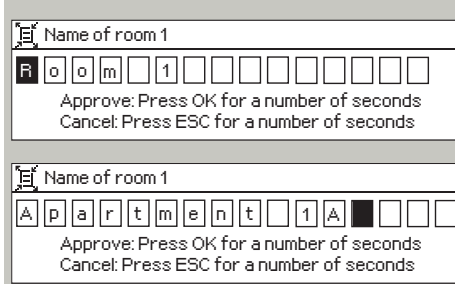
Send a message with the correct key word.
The controller sends the settings to your mobile phone. Editing the setting values: write the new setting in place of the old setting and send a message back to the controller. The controller sends the setting as a return message.

Change of the selection by text message
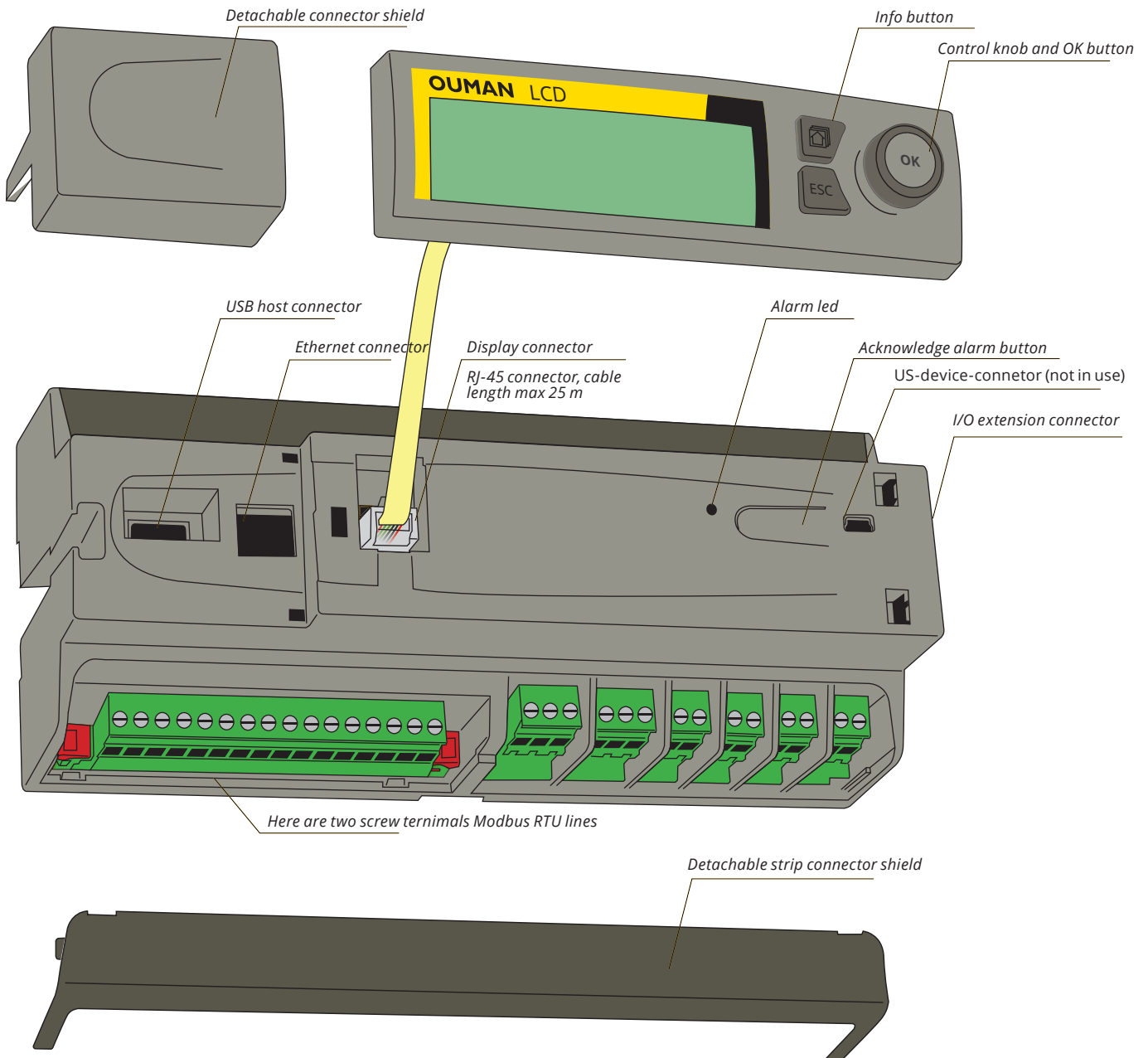
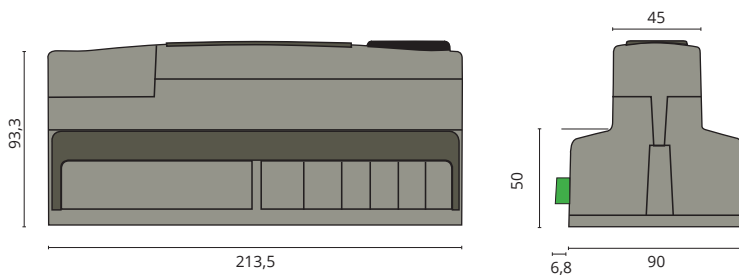**Send a message with the correct key word.**
The controller sends a return message in which a * appears in front of the control mode in use. If you want to change the control mode, move the * in front of the desired control mode and send the message back to the controller. The controller will then send 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.

Detachable connector shield

Info button

Control knob and OK button

OUMAN LCD

USB host connector

Alarm led

Ethernet connector

Display connector

Acknowledge alarm button

RJ-45 connector, cable length max 25 m

US-device-connetor (not in use)

I/O extension connector

Here are two screw ternimals Modbus RTU lines

Detachable strip connector shield

Dimensions:

93,3

213,5

45

50

6,8   90

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.
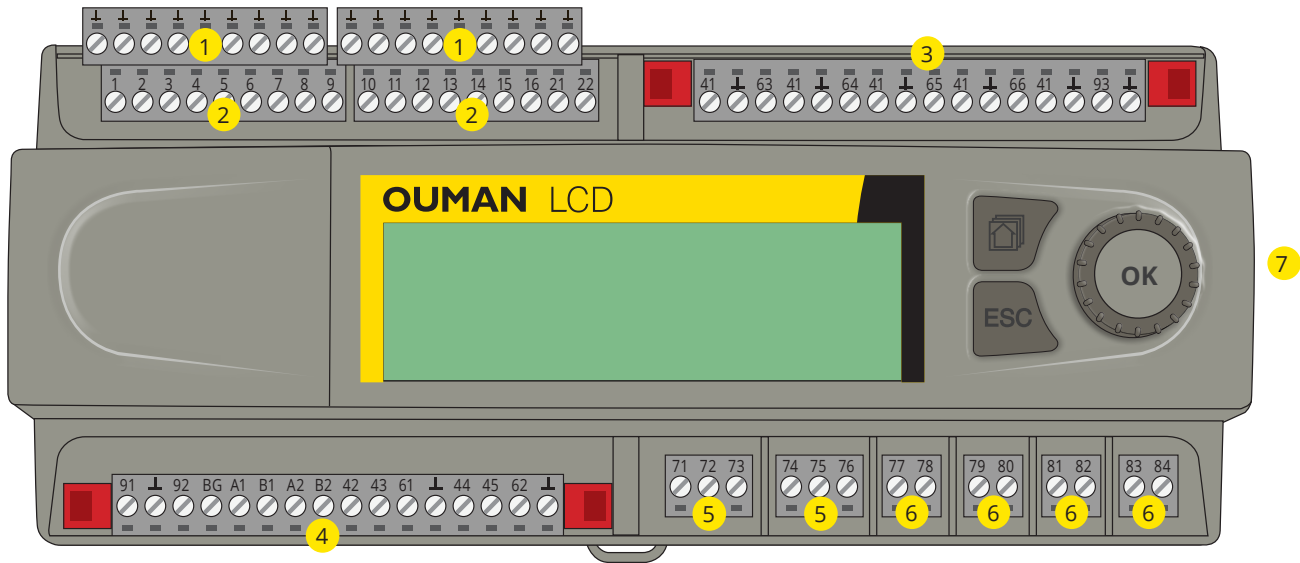
1 Detachable strip connectors (measurements' ground)
Connector labels
⊥...⊥ Measurements' ground (16pcs)

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

Universal inputs are configured NTC-10 measurements by default.

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
⊥	GND
63	0...10 V output
41	24 Vac operating voltage output
⊥	GND
64	0...10 V output
41	24 Vac operating voltage output
⊥	GND
65	0...10 V output
41	24 Vac operating voltage output
⊥	GND
66	0...10 V output
41	24 Vac operating voltage output
⊥	GND
93	15 Vdc operating voltage output
⊥	GND

4 Detachable strip connectors (power supply, battery backup, RS-485 bus connections, outputs)
Connector markings:
91	24 Vac power supply
⊥	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
⊥	GND
44 and 45	24 Vac output (Triac or continuous 24 Vac)
62	0...10 V output
⊥	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. Connect a straight Ethernet cable with an RJ45 connector to the controller. Cut the cable and use the first pair of wires (1,2). Make bus connections: connect 1 (orange/white) to A+ and 2 (orange) to B-.

Ouflex A and Ouflex A XL has a nonisolated Modbus RTU master bus with fixed settings. Connect a straight Ethernet cable with an RJ45 connector to the controller. Cut the cable and use the last pair of wires (7, 8). Make bus connections: connect 7 (brown/white) to A+ and 8 (brown) to B-. This isolated bus has fixed bus settings: baud rate 19200, data bit 8, stop bit 1 and parity None.

8 WEB UI

Ouflex includes an internal web server. You can access it using a browser. As all functions have been tested using Google Chrome, we recommend that you also use Chrome. You can use the browser on a PC, smartphone, tablet or a browser touch screen purchased from Ouman.

Check the Ouflex device's host name from the label (next to the device's Ethernet port) or from the device's network settings. When you use the host name to establish a device connection, remember that, if you establish the connection remotely across the internet, the final part of the name is ouman.net. If you establish a connection through a LAN from a device, featuring the Apple, Microsoft or Linux operating system, the final part of the host name is ouman.local. The Android operating system does not recognise addresses ending in "local". This is why you need to use the IP address when logging in from Android devices to LANs.

Enter the user ID and password. The device has three user ID levels: "service", "user" or "viewer". "Service" level users have the most extensive rights. This section presents the user rights assigned to "service" level users. "User" level users can edit settings and time programs. "Viewer" level users only have viewing rights, and a user ID-specific password can be changed for these users. The device-specific password can be found from the Ouflex A device's label. By default, all user IDs have the same password. Change the password.

If you log in to the device locally, DiscoveryTool or Ouflex BA Tool must be installed on your PC. If you are using Ouflex BA Tool, you can also use the SCAN function, which detects other devices connected to the same LAN and shows them in a list. You can establish a device connection by selecting a device from the SCAN list and clicking "Open connection". You can load files, settings and graphs from the tool to the device, or vice versa. The device can also be simultaneously connected to Ounet, and more than one person can be connected simultaneously to the device (tested with four people).
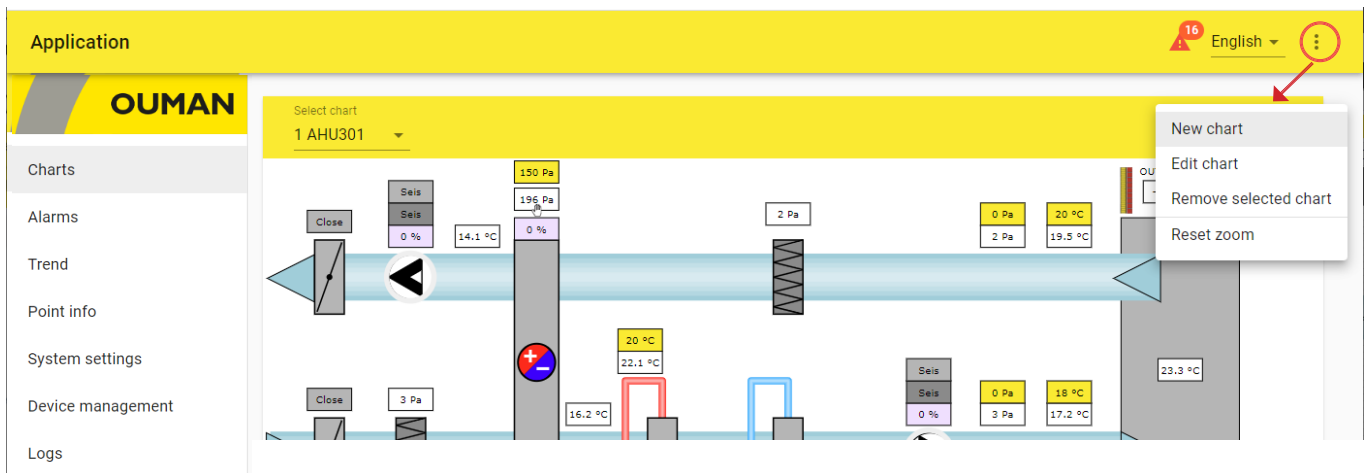
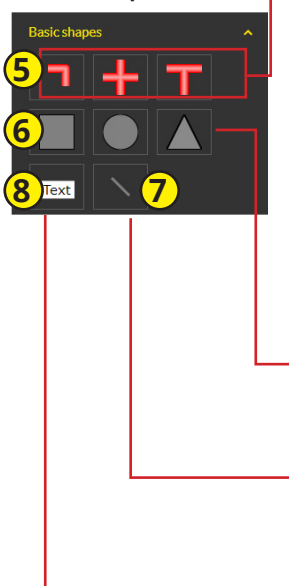| Access to various functions	Service	User	Viewer
Changing the password: Which user password can be changed?	service, user and viewer	user	viewer
To read charts and trends	X	X	X
To view and acknowledge alarms	X	X	X
To modify setting valueas and time programs	X	X	
To edit charts	X		
To create the trend gropus 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		

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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 20. The maximum number of diagrams is 20 in Ouflex A and 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) tos a background image to the chart. The maximum image size is 100 kT. 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 kT in size.
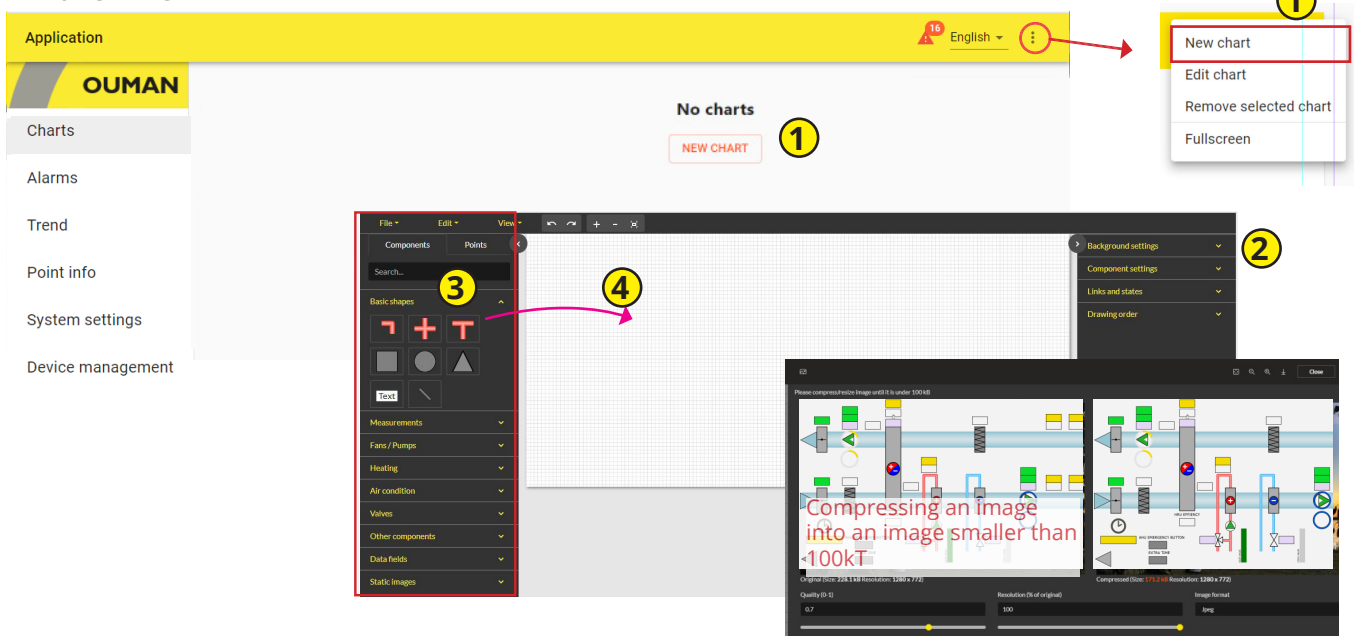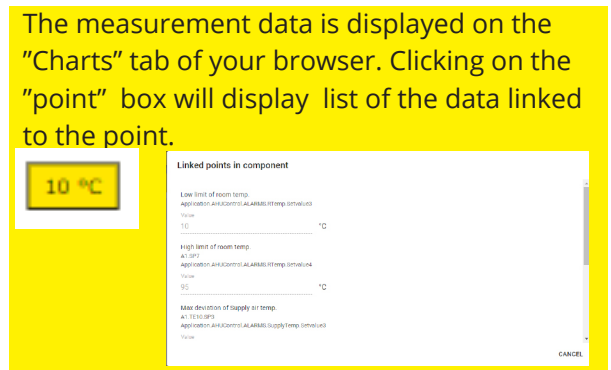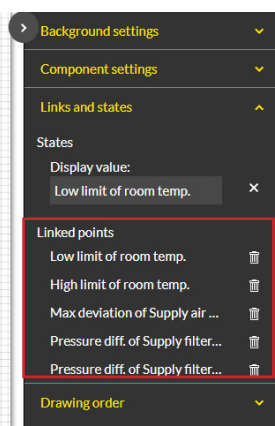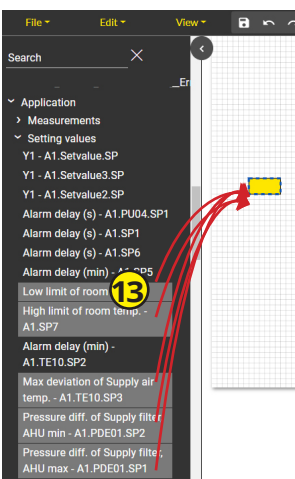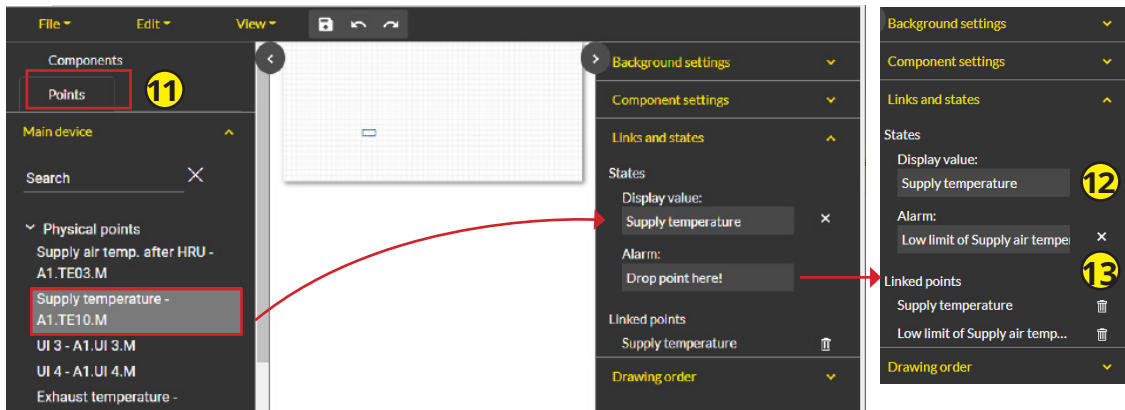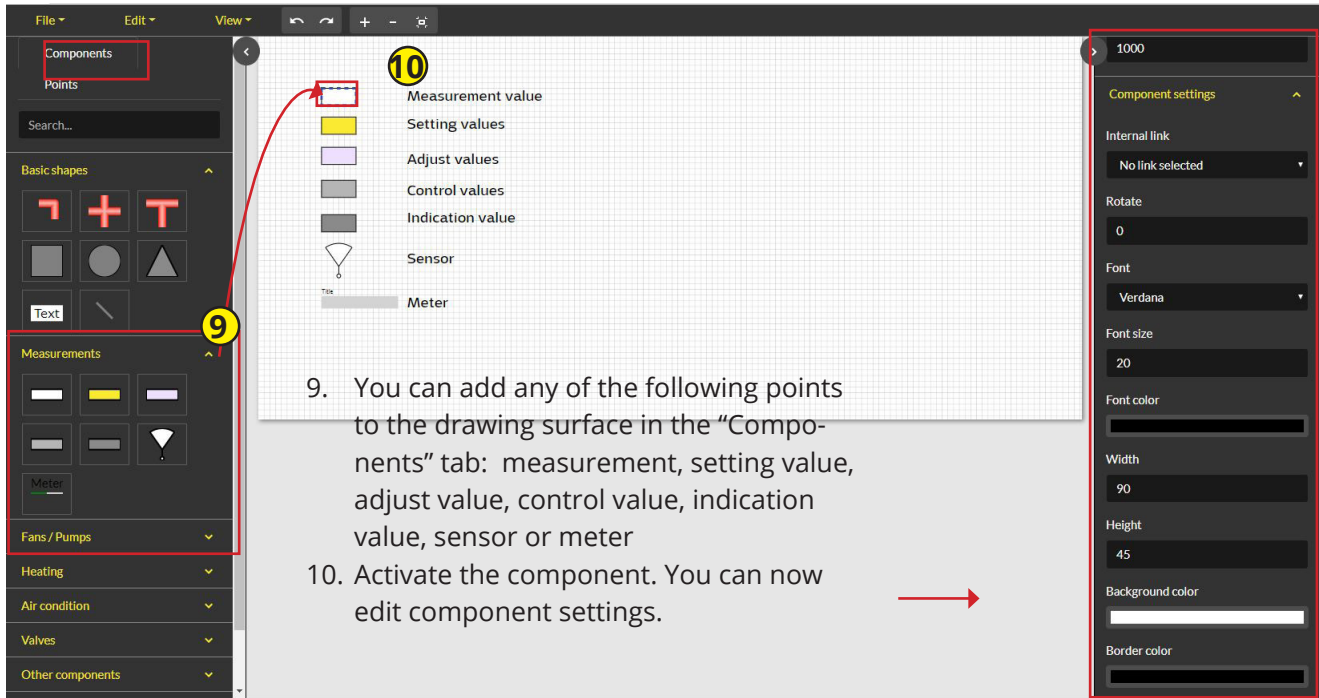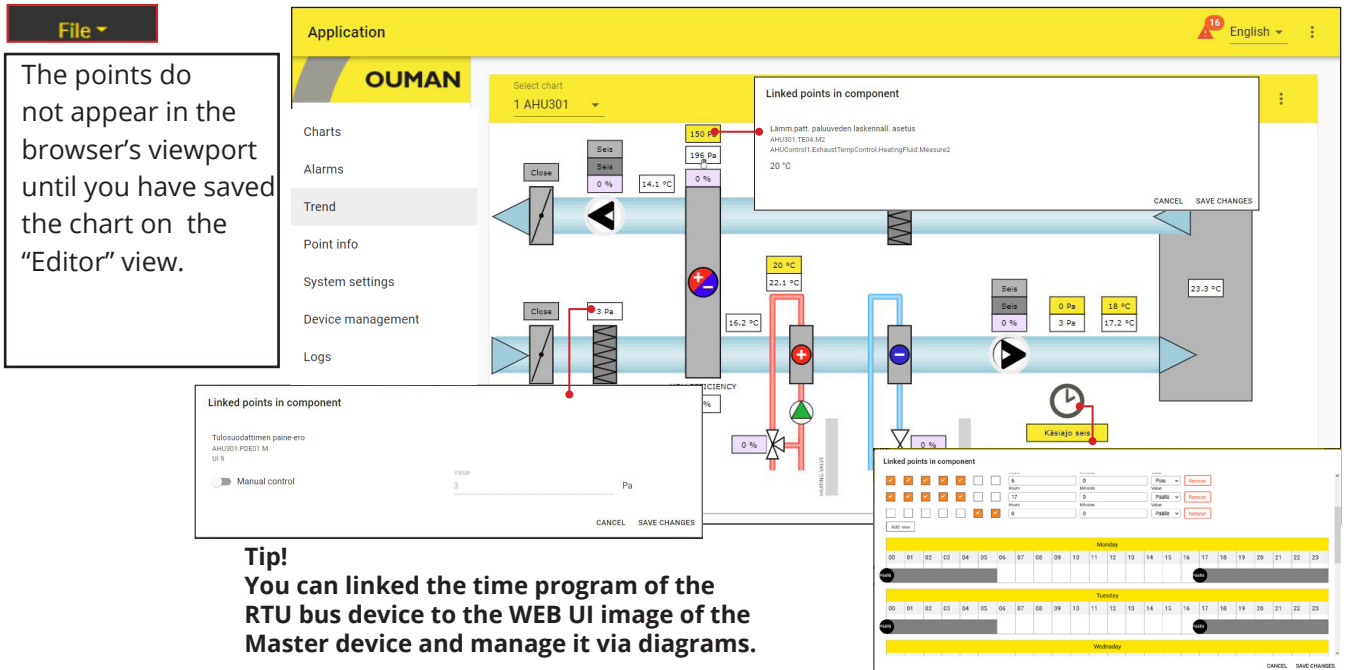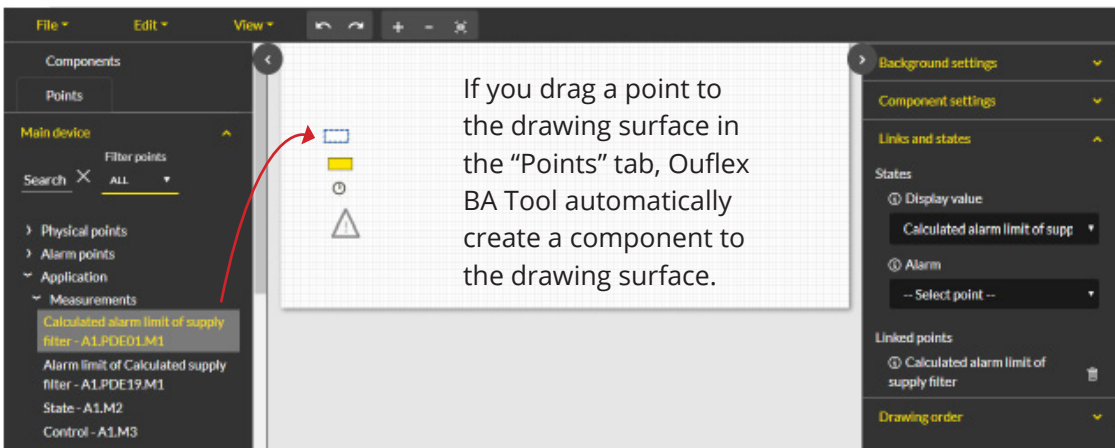

Adding a new chart

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.
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.
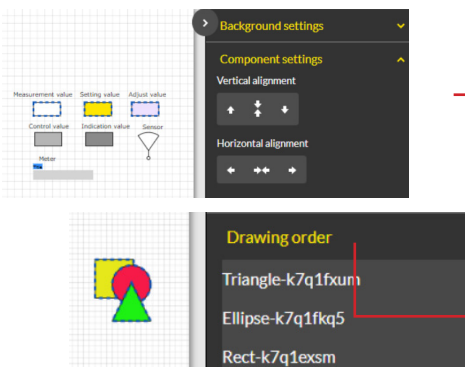
Basic shapes

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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.

If you drag a point to the drawing surface in the "Points" tab, Ouflex BA Tool automatically create a component to the drawing surface.

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

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
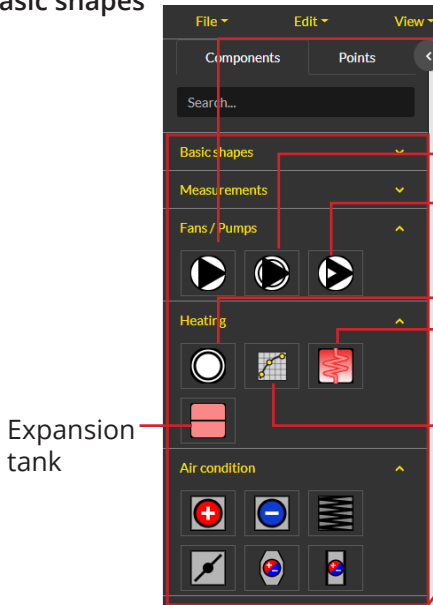
You can use ready-made drawings.

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.

Expansion tank

Curve component:

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

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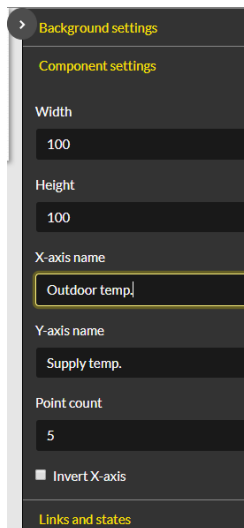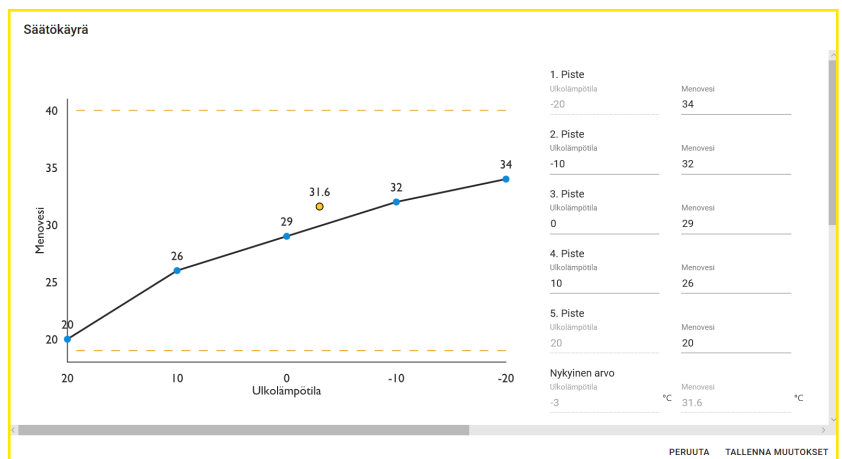

Tip: You can use the "search" function when searching for information to link to.
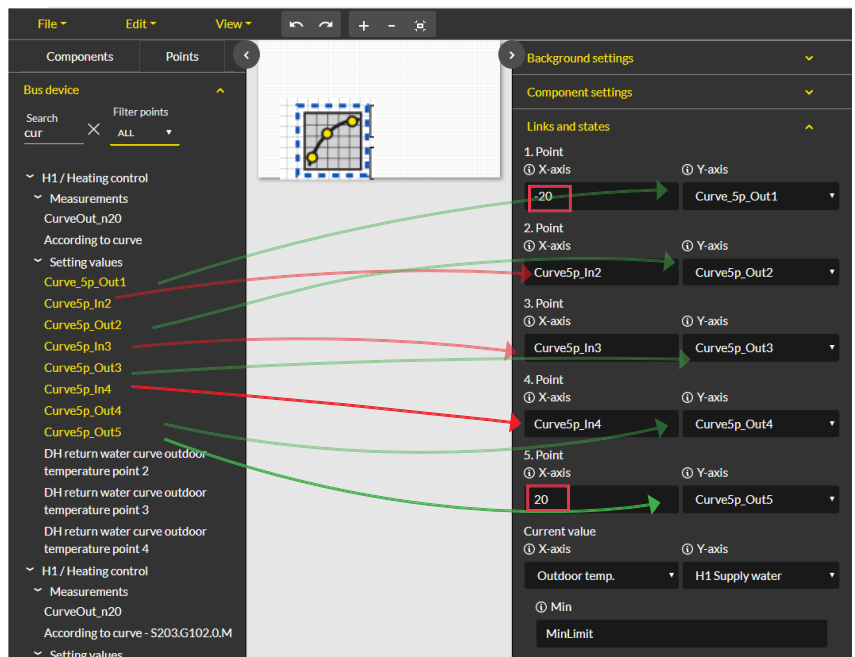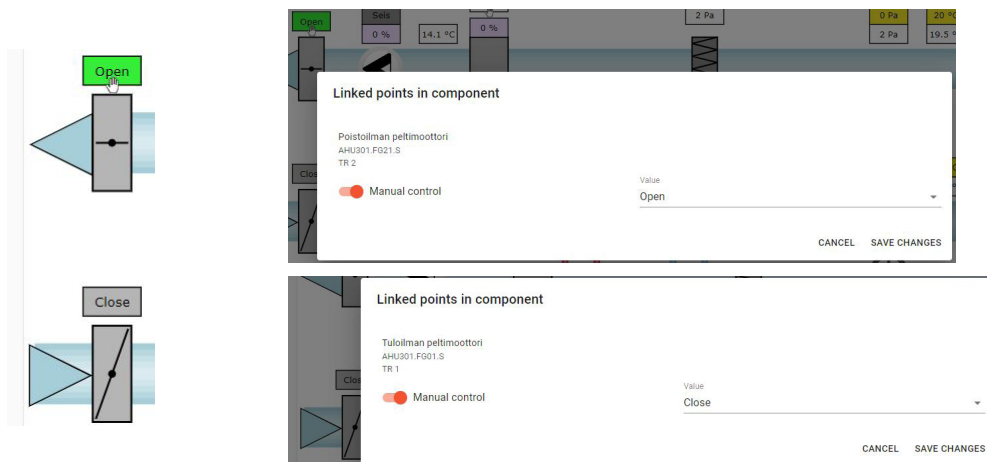

Heating curve browser view:

Manual control

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

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.

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 schdule. 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).

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.

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.
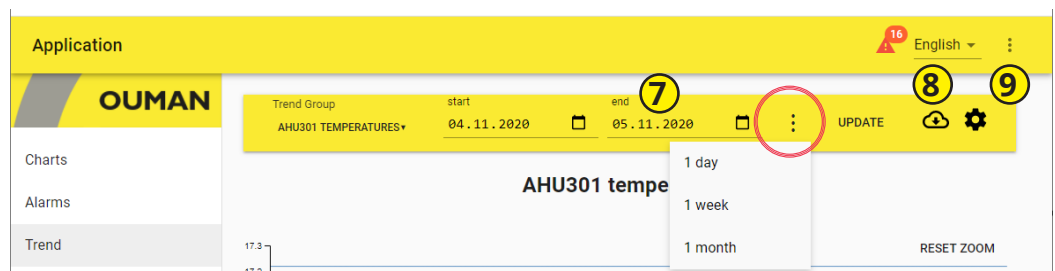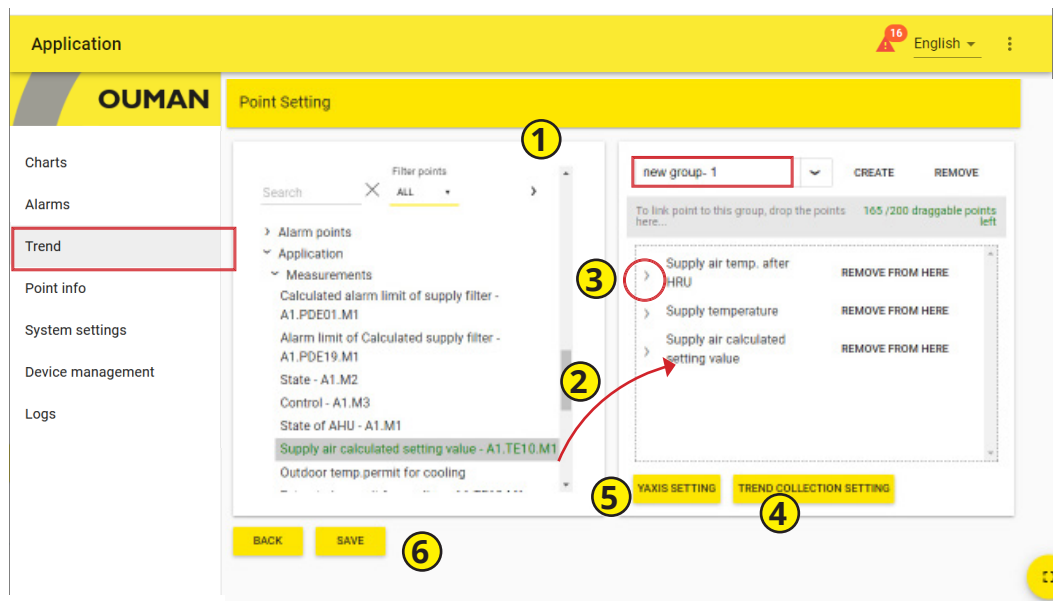
7. Define the period, over which you want to view trend data, by setting a start and end time or by selecting a day, week or month.
8. Click the icon to save trend data in a CSV file. The file can be edited in Excel.
9. Click the wheel icon to access the trend editing mode.

8.4 System settings

The device name is shown in the top bar of the browser.
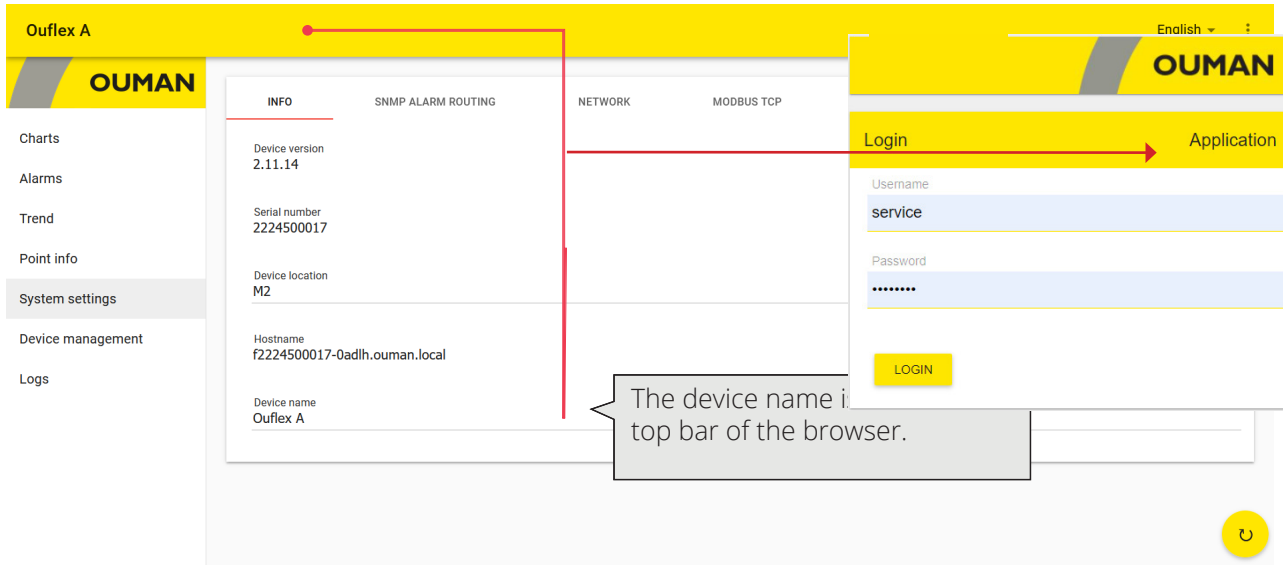
The device name is shown in the top bar of the browser.
- System settings are presented in more detail in a separate section in this manual.
- The "Info" view shows the device version and host name.
- Alarm routing, SNMP settings, see p. 8 (SNMP needs to be enabled if alarms are to be sent to Ounet)
- Network connection, see pp. 6–7. 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. 8. Do not change any port settings, unless it is absolutely necessary.
- Modbus RTU, see p. 8. 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. 7. 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.
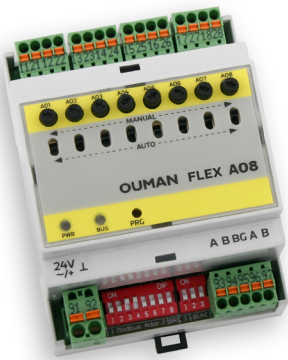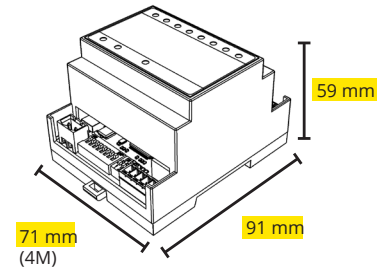
Extension units
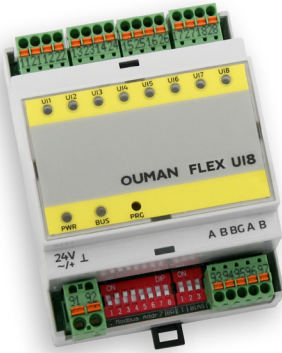
FLEX UI8

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

59 mm
71 mm
(4M)
91 mm

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

64 mm
71 mm
(4M)
91 mm
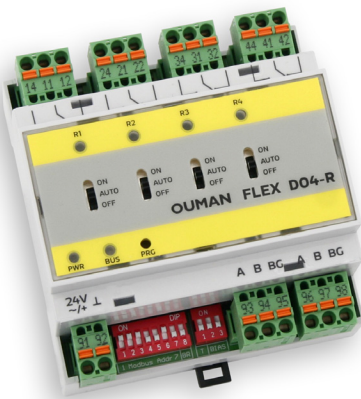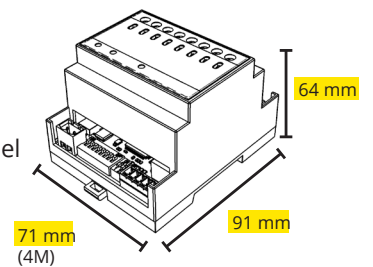
FLEX DO4-R

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

59 mm
88 mm
(5M)
94 mm
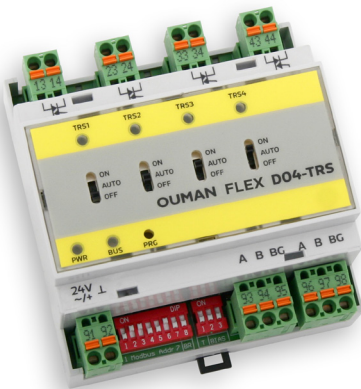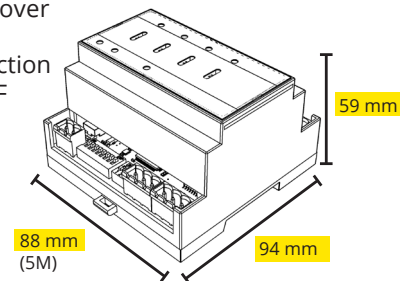
FLEX DO4-TRS

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 installaion

59 mm
88 mm
(5M)
94 mm
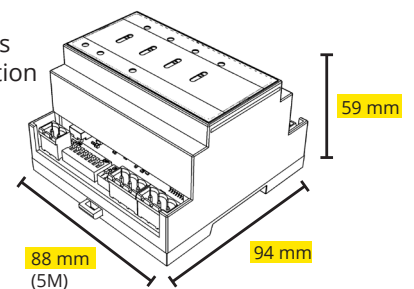
FLEX UI16

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, FLECX COMBI 21and FLEX UI116
dimensions (mm)

93,3

213,5

45

50

6,8   90
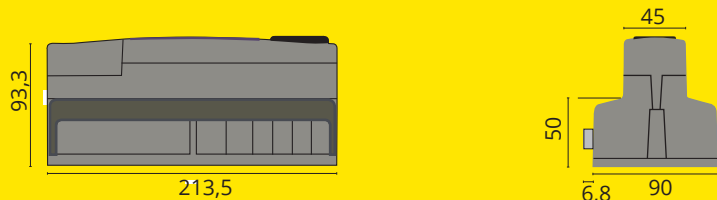
FLEX EXU
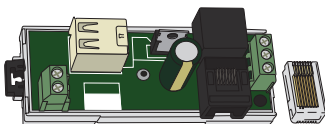
Interface card for modem and local I/O extension
- unisolated RS-485 bus, supported protocols Modbus-RTU
- USB host connection (not in use)
- 15 Vdc voltage output, max 750 mA (total capacity together with the Ouflex A device 15 Vdc voltage output (strip connector 93)

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.
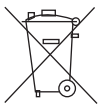
Product disposal:

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.

Dimensions	width 213,5 mm, height 93,3 mm, depth 96,8 mm
Weight	0,7 kg
Protection class	IP 20
Operating temperature	0 ℃...+40 ℃
Storing temperature	-20 ℃...+70 ℃
Power supply	
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)
Universal measurement input (can be configured) measurement types and measurements accuracy:	
Passive sensors (inputs 1...16)	NTC10: ±0,3 ℃ between -20 ℃...+130 ℃, ±1,0 ℃ between -50℃...-20 ℃.
	NTC 1.8 and NTC 2.2: ± 0,4 ℃ between -50 ℃...+100 ℃, ±0,6 ℃ between +100℃...+130 ℃ (IO HW 1.x: ±0,6°C between-50...70°C and ±2,0°C between 70...130°C)
	NTC 20: ±2,0 ℃ between -50℃...-20 ℃, ±0,6 ℃ between -20 ℃...+130 ℃
	Ni1000LG, Ni1000/DIN and Pt1000: ±0,3 ℃ between -50 ℃...+130 ℃ (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 mV
	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
Digital input measurement types:	
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
Analog outputs (61...66)	Output voltage range 0...10 V. Output current max 9 mA/output

Relay output
    Change-over contact relay (71...76)
    Normally open contact relay (77...84)
	
	2 pcs, 230 V, resistive 5 A/ inductive 1A (cos Ø -0.8)
	4 pcs, 230 V, resistive 5 A/ inductive 1A (cos Ø -0.8)

Triac outputs
    24 Vac (42 ... 43 and ⊥)
    24 Vac (44 ... 45 and ⊥)
	
	Output current max 0,75 A per triac par
	Output current max 0,75 A per triac par

Operating voltage outputs
    5 pcs 24 Vac outputs (41 and ⊥)
    15 Vdc output
	
	Output current max 0,75 A/output
	Output current max 600 mA

Data transfer connections	
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 RS-485 bus (RJ45 in the end of device) COM5	In Ouflex A and Ouflex A XL: Non-isolated Modbus-RTU-master bus with fixed settings. Compatible with FLEX EXU: A3/B3. In Ouflex A XL: Galvanically isolated parameterizable Modbus-RTU-master bus.

USB-host connection
    Ethernet
    Ouman Access
	RS-232-modem, Ouman GSM modem
	Full-duplex 10/100 Mbit/s, supported protocols Modbus-TCP/IP
	Intelligent remote connection built-in for use with Ounet and Ouflex Tool

Processor	Ouflex A: Atmel ARM920T /180MHz	Ouflex A XL: Cortex-At 528 MHZ
SDRAM	Ouflex A: 32 MB	Ouflex A XL: 512 MB
FLASH	Ouflex A: 256 MB	Ouflex A XL: 512 MB

APPROVALS	

EMC-directive
    Interference tolerance
    Interference emissions
	2014/30/EU
	EN 61000-6-1
	EN 61000-6-3

CE

QUALITY SYSTEM CERTIFICATION
DNV·GL
ISO 9001