

OUMAN OUFLEX

Freely programmable automation device

USER MANUAL

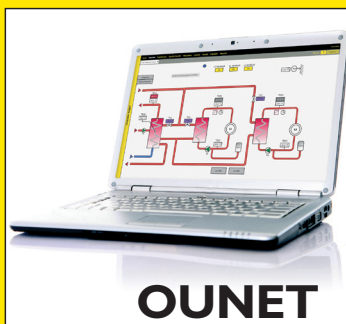


- Ouflex is a DIN-rail-attachable, monitoring-, controlling- and regulating device.
- The DIN-standard-compatible structure of the Ouflex device enables installation to most common cabinets.
- Detachable strip connectors make installation easier.

KEY WORDS

Key words:
Active alarms
Alarm history

Use of a GSM phone requires that the GSM modem (optional) is connected to the controller.



OUNET

Internet-based on-line control room for professional remote control and monitoring (optional).



EH-net

Local Web Server remote control and monitoring (optional).

Ouflex is a DIN-rail-attachable and freely programmable device designed for monitoring, controlling and regulating. The device is programmed with OuflexTool 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.



Meaning of this button can be different according to the application. Meaning is defined in programming Ouflex-Tool.



ESC button

ESC button can use cancel in settings and when want to go back to menus in one step. Holding the key down for an extended period of time returns the controller to its basic mode. The display shows the basic view, the background light of the display 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



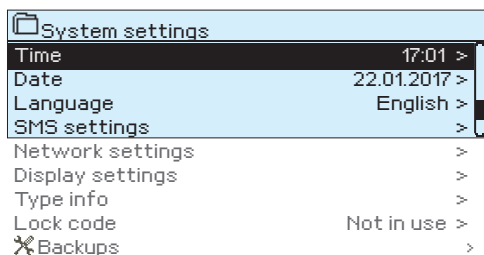
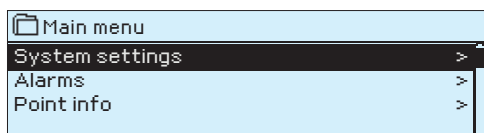
There may be a maintenance code in use in your Ouflex device. In this case, you can see the information even when it's locked, but you can't make changes to settings without entering the maintenance code. Normally, you lock the most critical settings behind the maintenance code, or settings the changing of which requires expertise.

There is a  symbol in front of a setting the changing of which requires maintenance code.

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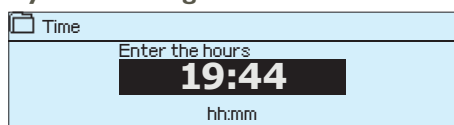
1 System settings



System settings include setting the time, date and language, as well as text message (SMS) settings, network settings, display settings and device type information.

1.1 Setting date, time and language

System settings > Time

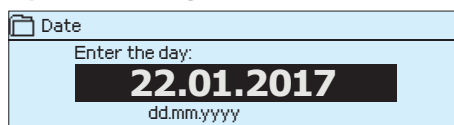


It is important that time and date are correct. Alarm information, for instance, shows when an alarm has activated and inactivated. It is highly recommendable to ensure that time and date are correct when you are making time programs with the weekly program or special calendar. The device clock takes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

Hours and minutes can be set separately.

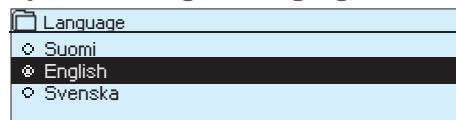
1. Set hours and press OK to accept.
2. Set minutes and press OK to accept.
3. Press Esc to cancel and exit if needed.

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 > Language



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

1.2 Text message (SMS) settings

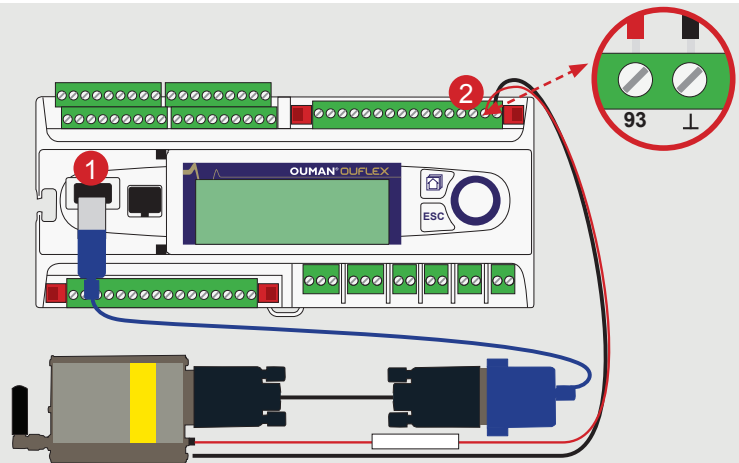
System settings > SMS settings

Use of text messaging requires that the Ouflex is connected to a GSM modem (GSMMOD6, additional equipment).

Take the GSM modem into use:

1. Enter your PIN. Wait as long as the notice: "Modem ok" appear in the display.
2. Switch the controller power off.
3. Connect the modem.
4. Switch the power on and the controller initializes the modem and detects the message center (the message center number is not visible on the display).
5. Check the signal strength and status of modem from Ouflex display
6. Enter Device ID, if you want.
7. Test the sms communication. Send to Ouflex a message: Key words. If the controller sends a message where is a list of key words, text message communication is ok. If the controller doesn't send a text message, enter the message center number, make power cut and turn it back. Retest the text message communication.

1. Connect the modem USB-connector to the device USB host connector.
2. Connect the modem power supply to the device connectors 93 (+) and \perp . When connect modem supply to Ouflex connectors Ouflex reboot automatically.



Signal strength:

Signal strength is expressed with description: "Excellent", "Good", "Moderate", "Low", "Very low" and "Initialization failed". If signal strength indicates "No network," try changing the modem's location or use an additional antenna. If the signal strength is "Very low" you should also move the modem to another location to try to improve signal strength. If the unit displays "Initialisation failed," check that the SIM card is correctly installed.

Modem status:

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

Mode	Explanation / Instructions
Ok	The modem is ready for use.
Not connected	The modem is not connected or the connection is incorrect. Connect the modem to the communication USB-host-connector of Ouflex. The power supply for modem can be taken from the controller strip connector 93(red) and GND (black) or or straight to modem own transformer
Error	Use the SIM card in your phone and check if the SIM card is locked (PUK code).
PIN error	Enter Ouflex controller the same PIN as as the GSM modem's SIM card PIN.

Device ID:

Device ID

0

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).

1.3 Network settings

System settings > Network settings

Network settings

IP-address

x.x.x.x >

Connection status

Offline >

IP settings

>

Access settings

>

Modbus TCP/IP

>

SNMP

>

FTP

On >

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.

Both ways the set IP address are presented on the following page in IP settings.

A network connection mode it is shown 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 via OUMAN Access service, the controller displays the network mode OUMAN Access.

1.3.1 IP settings

System settings > Network settings > IP settings

IP settings	
DHCP	Off >
Gateway address	0.0.0.0 >
Subnet mask	0.0.0.0 >
IP address	0.0.0.0 >
Nameserver address	0.0.0.0 >

IP settings

Setting the IP address via 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", device give notification to display it's new IP-address. Then IP address and other network settings was change successful. The device now functions in the network.

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.
3. 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.
4. Enter the gateway IP-address first
5. Enter the subnet mask address
6. Enter the IP-address
7. Enter the name server IP-address

Access-settings	
Access	Off >
Access IP	0.0.0.0 >
Access name	- >
Connection status	Offline >

Access-settings

OUMAN ACCESS – service enables you to make a remote connection (useful with Ounet and Ouflex Tool 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. OUMAN ACCESS- service is taken in use in following way: Ouman support feeds in the target and billing information to the Ouman system and activates the service based on the serial number of the Ouflex 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 to internet
2. The VPN ports used by ACCESS are not blocked

1. LAN is routed to internet

Access –service uses internet. Therefore it is available only if the local LAN has connection to internet. ACCESS-device examines the availability internet connection once per minute by sending a ping-package to a server in internet.

Network has to allow ICMP towards internet and also allow the response message to come back to Ouflex.

2. The VPN ports used by ACCESS are not blocked

ACCESS-service is using VPN to the internet connection.

Network has to allow UDP communication from any port towards port 1194 in internet and the responses from that port back to Ouflex device.

System settings > Network settings -> Modbus TCP/IP

Modbus TCP/IP	
Modbus TCP port (internal registers)	502 >
Max connections	5 >
Idle timeout	0 >
Allowed address	0.0.0.0 >
Function active	On >
Modbus TCP_IP_Gateway	>

Modbus TCP/IP settings

Modbus TCP slave (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 they should not be changed unless there is a compelling reason.

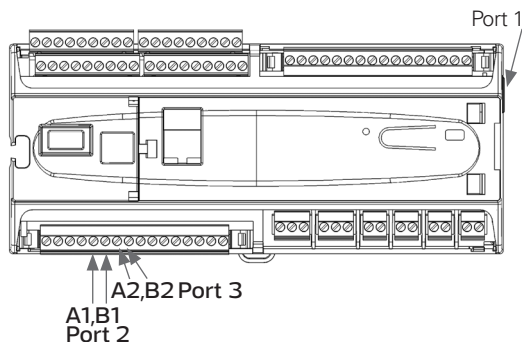
Max connections: It is possible to decrease server load by changing this setting that defines the maximum number of simultaneous connections from different IP addresses to the server. Recommendation is that they should not be changed unless there is a compelling reason.

Idle timeout: This setting defines the time after which the server closes an inactive connection. Recommendation is that they 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.

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



Port 1 (2,3) number: 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. Port 1 setting defines the TCP/IP port that functions as a gateway to Ouflex I/O extension bus. Ouflex device is located in Modbus 1 in address 1.

Port 2 defines the TCP/IP port for Modbus 2 (A1,B1). Similarly, port 3 defines the TCP/IP port for Modbus 3 (A2,B2).

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

Devices	
Ouflex 2	
IP address	>
Port	502 >

Two Ouflex devices can communicate with each other at the level of IP by using Modbus TCP protocol. In this case, two Ouflex device may have common points. For example, the outside temperature measurement, or the emergency stop switch can be common. Here you can see what is in the name of the device, IP address and port number.

System settings > Network settings -> SNMP

SNMP	
IP address	>
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. If the SNMP trap reception does not ack back from Ounet to device, Ouflex sends SNMP messages again. The retransmission is limited to max 240 pieces. By setting a setting value of RetryDelay to 0, the retransmission is not performed.

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

Active: This selection either enables or disables the entire SNMP function.

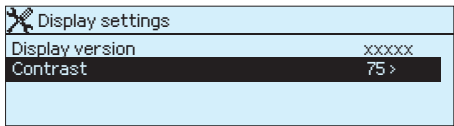
System settings > Network settings -> Modbus TCP/IP-> FTP

FTP

Ouflex device support also FTP but read only mode. So cases this can be use to read Modbus template files from device to Ounet.

1.4 Display settings

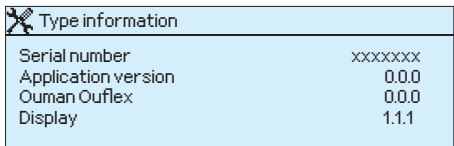
System settings > Display settings



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.

1.5 Type info

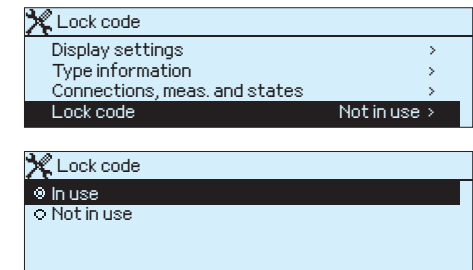
System settings > Type info



Type information shows the hardware configuration, the device platform version and application version which is determined by the user of Tool. This information is useful especially in case of maintenance or upgrade.

1.6 Lock code

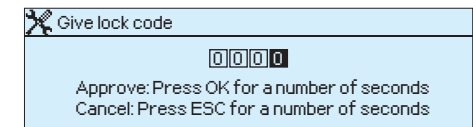
System settings > Lock code



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.

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



If you have taken lock code into use, you may change the code. The factory setting of lock code is 0000.

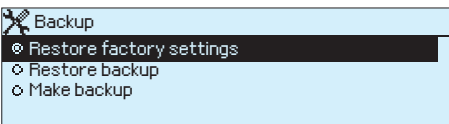
Ouflex device asks you to enter the current code. The factory setting of lock code is 0000.

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

After entering the original lock code (0000), you may change it to a lock code of your choice.

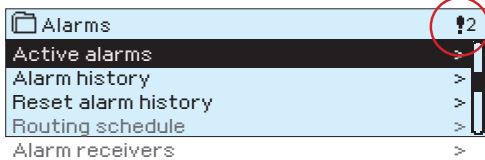
1.7 Backup

System settings > Backup



It is recommended to make a backup as soon as Ouflex has been taken into use and property-specific settings have been made. Five latest backups can be restored to the device. You may also restore factory settings.

2 Alarms



Ouflex can send an alarm for a number of different reasons. Information about the alarm is shown on the display. The alarm also sounds a beeping noise.

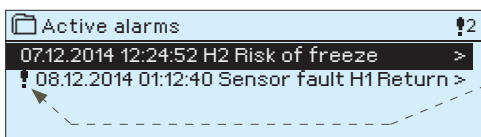
If the regulator has a number of unacknowledged alarms and you acknowledge the last one, the one before it will appear on the monitor. When all active alarms have been acknowledged, the alarm window closes and the alarm sound stops.

All active alarms can also be quiet by pressing the Esc key. The alarm windows close when you press the Esc key only once.

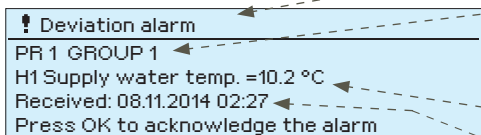
OBS. Notice at this is not same as acknowledgement of alarm.

2.1 Active alarms

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 quiet by pressing Esc.

The heading of the alarm view shows the reason for the alarm.

You can also see where the source of the alarm is located, what is the alarm priority (1 ...5) and what alarm group it belongs to (1...10)

What location the alarm is coming from
time the alarm was activated.

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

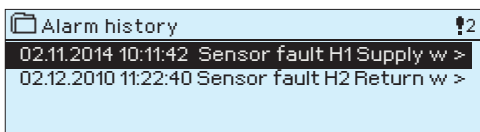
ACTIVE ALARMS

Send message: Active alarms

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

2.2 Alarm history

Alarms -> Alarm history



From alarms you can see the cause of the alarm, where the alarm has come from and when the alarm has become inactive. (e.g., 02.11.2014 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.

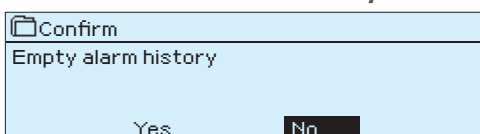
ALARM HISTORY

Send message: Alarm history

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

2.3 Reset alarm history

Alarms -> Reset alarm history



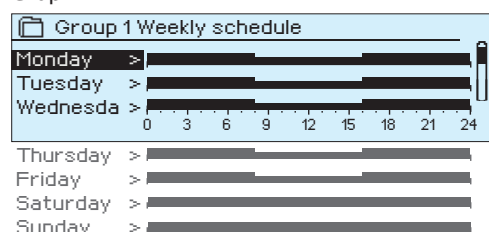
Ouflex requests confirmation before deleting alarm history.

2.4 Routing schedule

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



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 schedule display. You can also set up a routing schedule for each alarm group.

You can create a weekly schedule for each alarm group. Weekly schedules have a general graphic view and an editing view, where you can see to which alarm team each alarm is 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 team 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.

2.5 Alarm parameters

Alarms > Alarm parameters

! Alarm parameters	
Burglar monitoring	>
Fire monitoring	>
Heating control	>
Domestic hot water control	>

! Burglar monitoring	
Enable	Enable >
Entry delay	30 s >
Exit delay	30 s >
Priority	1 >

All the alarms can be found there. Each application has its own "alarm parameter"-folder. A person who knows the service code can change the alarm parameters.

Typical alarm parameters are:

- is alarm enabled/disabled
- alarm entry delay
- alarm exit delay
- alarm priority
- alarm group (You can create a alarm group specific alarm routing weekly program)
- Lower limit alarm
- Upper limit alarm
- Hysteresis: A **lower alarm** is given if the measured temperature goes under the lower limit set value. Lower limit alarm disappear, when the measured temperature rise above the value of "the lower limit alarm set value + hysteresis".
Upper limit alarm is given if the measured temperature goes above the upper limit set value. Upper limit alarm disappear, when the measured temperature drop under the value of "the upper limit alarm set value - hysteresis".

2.6 Alarm receivers

Alarms > Alarm receivers

! Alarm receivers	
Fire monitoring	>
Burglar monitoring	>
Maintenance	>
HVAC maintenance	>

! Fire monitoring	
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	

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




3 Point information

 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


 Wiring info	
INPUTS:	
U1: Outdoor temperature	-10.3 °C >
U2: H1 Supply water temperature	23.5 °C >
U3: H1 Pump	Off >

Point information shows all the inputs and outputs of the Ouflex device and where the inputs and outputs have been connected. It also shows the measurement value or state of the point.

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 21	>
FLEX UI 12	>

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.

Points are grouped in such a way that the first sample of a universal inputs, followed by the analog and digital outputs.

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 >

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

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	>

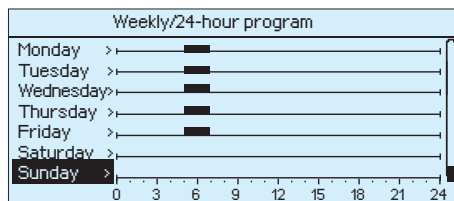
The present value shows what is the status of the control just now. When the automatic control is in use, it is shown in the display, what is state of the control according to the time program at the moment. Control command can be either a weekly schedule or exception schedule.

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

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"/>
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.

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

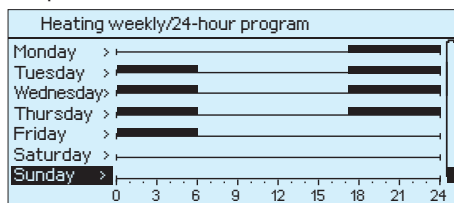
1. Set switch time

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"/>
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.

Adding a new switch time:

Press OK at the "Add new" row.

Press OK. Set the switch time (set hours and minutes separately). Press OK to accept.

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. Press OK at each weekday you wish to choose. 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:

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

Deleting a switch time:

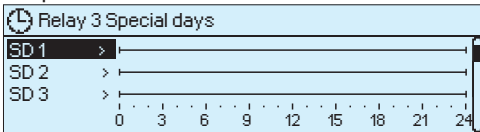
Turn the control knob to move to the switch time you wish to delete and press OK. Press OK at control state and select "Delete switch time" and press OK at the end of the row.

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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
06:00	Delete switch time	<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"/>

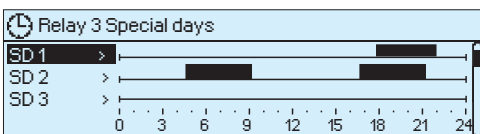
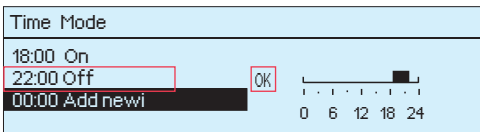
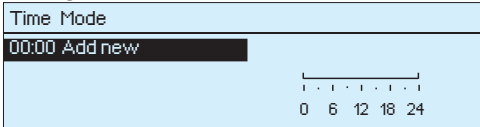
3.3.3 Special days

Time program > Special days

Graph



Editing view



3.3.4 Exception schedule

Time program > Exception schedule

Date	Time	Mode
00.00.0000	00:00	Add new

Date	Time	Mode
21.12.2016	11:30	Off
03.01.2017	16:00	Automatic
00.00.0000	00:00	Add new

Add/change switch time	
Day:	21.12.2016
Time:	11:30
Mode:	Off
Accept:	Ready

In the example of relay 3 control has been done the exception schedule. Relay 3 is switched off (OFF) 21.12.2016 11:30 - 03.01.2017 16:00.

You can enter special day programs as exceptions to normal weekly programs. You can designate a maximum of 7 special day programs (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. Select an unused special day and press OK.
2. 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.
3. 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.

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. The display will read "Add new." Press OK
2. Press OK and set the start date for the program, then the time and mode. You can select from the following:
3. 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.
 - 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"
4. Accept the exception schedule you created by pressing "Ready."

NOTE! Be sure to set the end time to the control according to the exception schedule! Set the date and time at which the control goes to "Automatic". In this case, the control returns back to the weekly schedule. In this case, the control returns back to the weekly schedule. (If the exception schedule control is repetitive, select the same repeat to the calendar as it was in the start.)

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

1 Settings	
Room temperature	21.0 °C >
Temperature drop (room temperature)	1.5 °C >
Big temperature drop (room temperature)	5.0 °C >
Supply water min limit	12.0 °C >

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

1 Room temperature	
21.0°C	
min: 0.0 max: 95.0	

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.

H1 SETTINGS

H1 Settings:
Room temperature = 21.5°C/
Temp.drop = 3.0°C/

H2 SETTINGS

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 Measuring point control/manual control

Relay control	
❖ Automatic	
❖ Manual control	

H1 Control mode	
H1 valve control	25 % >

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.

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.

Esimerkki

R1 relay control

R1 RELAY CONTROL:
*Automatic / ON /OFF

Send a message: R1 Relay control

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.

6 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 rename "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.

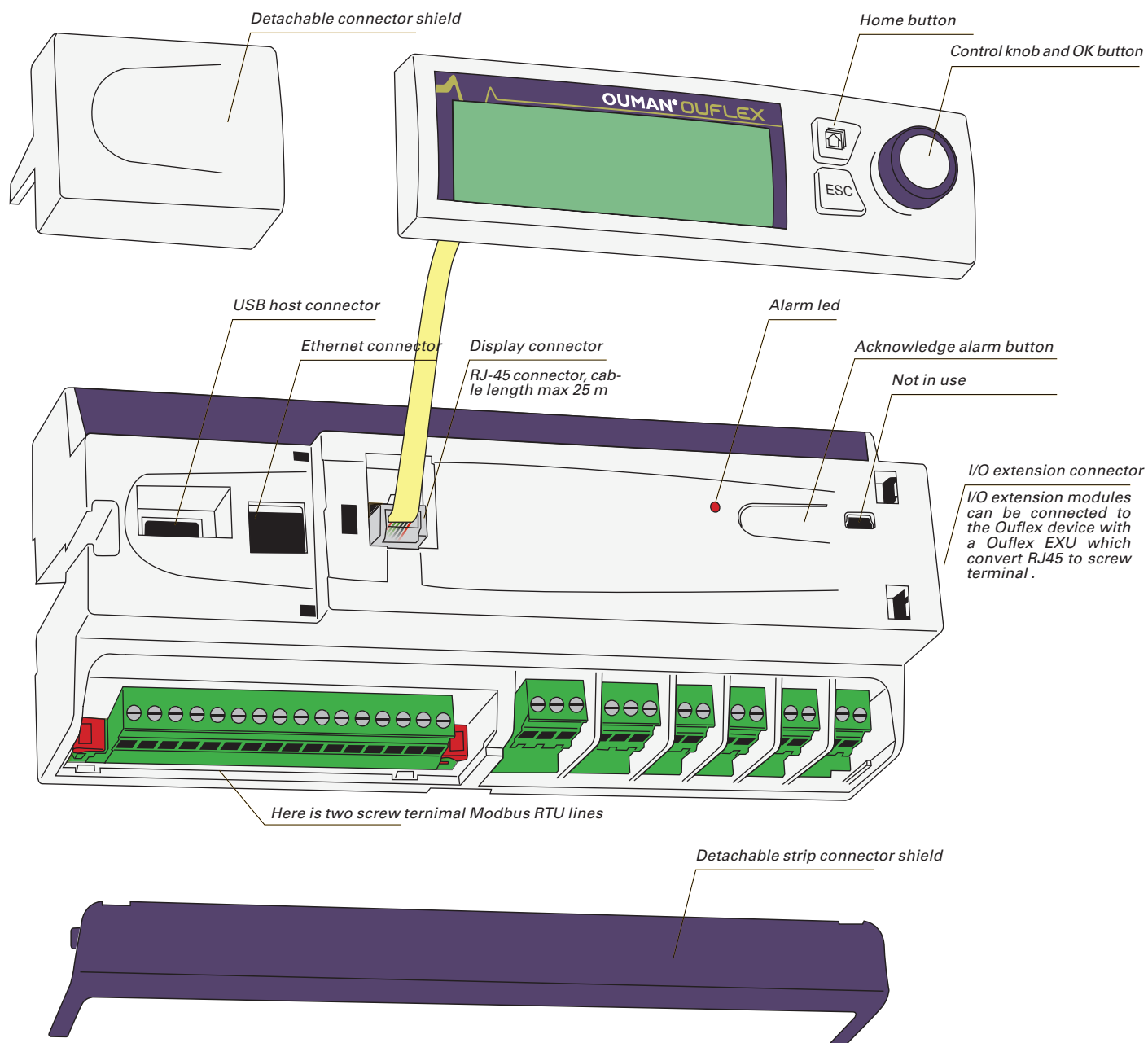
Name of room 1														
A	p	a	r	t	m	e	n	t	1	A				
Approve: Press OK for a number of seconds Cancel: Press ESC for a number of seconds														

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.

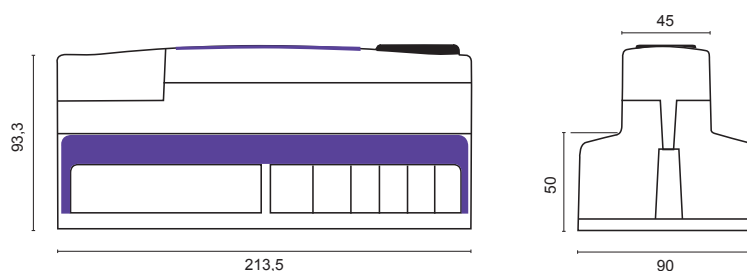


7 Ouflex device I/O connections and structure

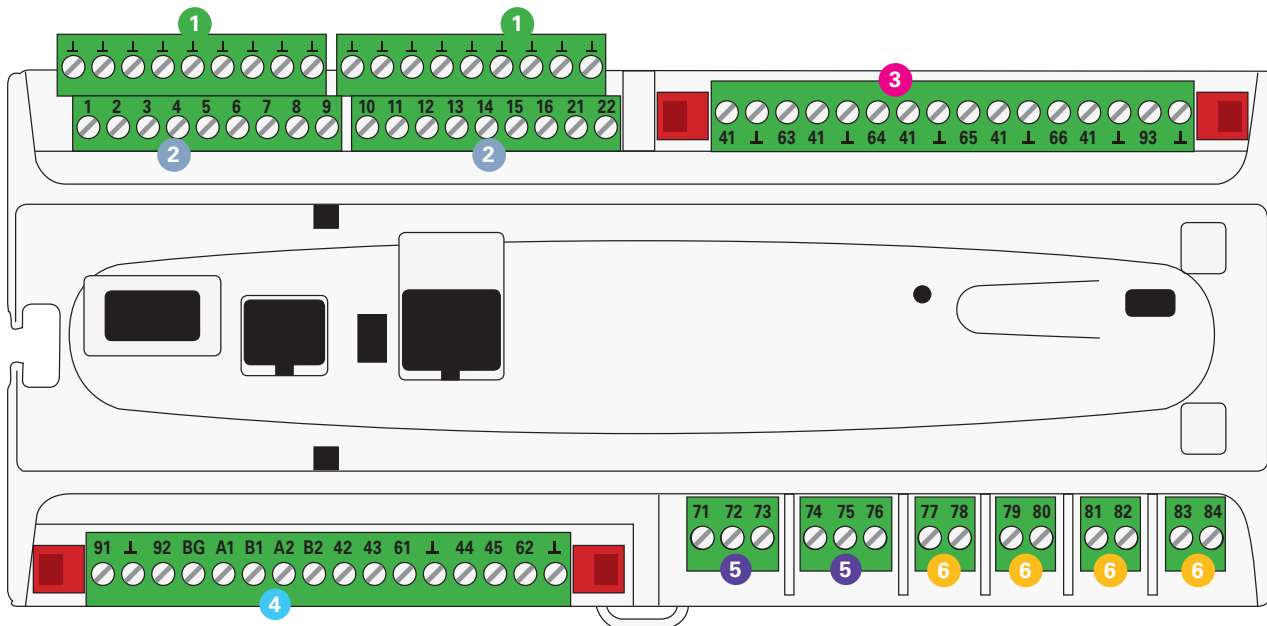
Ouflex is a freely programmable and DIN-rail-attachable building automation system for control and monitoring. The DIN-standard-compatible structure of the Ouflex device enables installation to most common cabinets. Detachable strip connectors make installation easier.



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
┴...┴ Measurements' ground (16pcs)
- 2** Detachable strip connectors (universal measurement, digital and pulse counter inputs)
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
A2 and B2 RS-485 bus connection
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, 6 A)
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, 6 A)
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

8 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 regulator 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 a list of key words as a text message that gives you information about the controllers' function. The key word is 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's. 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.

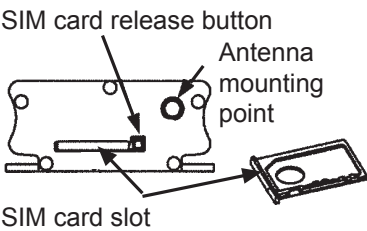
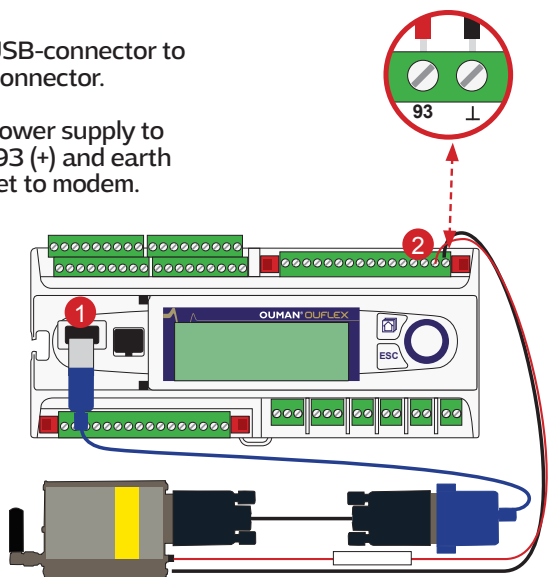
Change of the selection by text message

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.

Ouman GSM modem (GSMMOD6) can be connected to the straight to controller. The modem has a fixed antenna that can be changed to an external antenna with a 2,5m cord (optional equipment) if needed. The modem's indicator light shows what mode it is in.

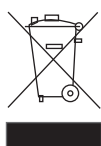
1. Connect the modem USB-connector to the device USB host connector.
2. Connect the modem power supply to the device connectors 93 (+) and earth or use own transformet to modem.



LED indicator light	Modem mode/instructions
LED is not lit:	Modem is not on. Connect network device to modem.
LED is lit:	Modem is on, but it is not ready for use. Make sure that Ouflex and GSM modem SIM card have the same PIN code, if PIN inquiry is in use.
LED is blinking slowly:	Modem is ready for use.
LED is blinking rapidly:	Modem is either sending or receiving a message. If you do not receive an SMS from Ouflex, check the SMS you sent to see if device ID and keyword were spelt correctly. Device ID is case sensitive. Ouflexan identify the operator in use from the modem's SIM card. Identification does not occur until PIN code has been entered. If Ouflex does not identify the operator even though PIN is correct, enter message center number. You can find message centre number, PIN code and device ID in "System settings" > "SMS settings" in your Ouflex device.

Inserting the SIM card

Press the small black SIM card release button with, for example, a pen tip. Part of the SIM card slot will stick out of the modem. Pull the slot out of the modem. Do not pull the slot out of the modem 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. Set the SIM card PIN code as Ouflex device PIN code. Make sure PIN inquiry is in use in the SIM card.

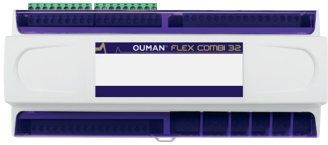
**Product disposal:**

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.

Extension units

FLEX COMBI 32



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

The device has:

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

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

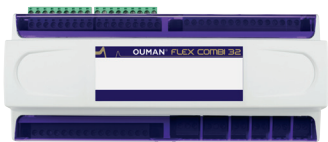
6 pcs. 0...10 V universal outputs (AO)

2 pcs. relay outputs with change-over contact

4 pcs. relay outputs with normally open contact

4 pcs. 24 Vac Triac outputs

FLEX COMBI 21



Flex Combi 21 is a DIN-rail-attachable and RS-485-connected universal I/O extension unit. It has comprehensive I/O space, and 24Vac and 15Vdc outputs.

The device has:

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

- Passive sensors
- Transmitters
- Digital inputs
- Pulse information

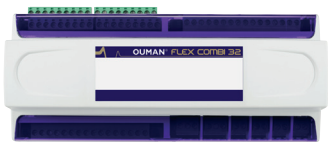
2 pcs. 0...10 V universal outputs (AO)

2 pcs. relay outputs with change-over contact

4 pcs. relay outputs with normally open contact

4 pcs. 24 Vac Triac outputs

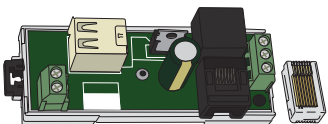
FLEX UI 16



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 EXU



Interface card for modem and local I/O extension

- unisolated RS-485 bus, supported protocols Modbus-RTU
- USB host connection for GSMMOD6 modem
- 15 Vdc voltage output, max 750 mA (total capacity together with the Ouflex device 15 Vdc voltage output (strip connector 93))

OUMAN OUFLEX

Freely programmable automation system

Technical information

Protection class	IP20
Operating temperature	0 °C...+40 °C
Storing temperature	-20 °C...+70 °C
Power supply	
Operating voltage	24 Vac, 50 Hz (22 Vac - 33 Vac)
Power required	(15 Vdc output = 0 A) 13 VA (15 Vdc output = 750 mA) 34 VA Notice! Please consider 24 Vac operating voltage and power required for Triac outputs.
Backup input	12 Vdc
Current consumption	300 mA/3,6W (relays not in use), 400mA /4,8W (relays in use)
Universal measurement input (can be configured) measurement types:	
Passive sensors (inputs 1...16)	Measurement channel accuracy: - NTC10 element: +0,1 °C between -50 °C...+100 °C, 0,25 °C between +100 °C...+130 °C - Ni1000 element: +1,0 °C between -50 °C...+130 °C - PT1000 element: +1,0 °C between -50 °C...+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 1 mV Milliampere signal with shunt resistor 0/4-20 mA
Contact information (inputs 1...16)	Contact voltage 5 Vdc Contact current 0,5 mA Contact resistance max 1,9 kΩ (closed), min 11 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 1,6 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 10 mA/output
Relay outputs	
Change-over contact relay (71...76)	2 pcs 230 V, 6 A
Normally open contact relay(77...84)	4 pcs 230 V, 6 A
Triac outputs	
24 Vac (42 and 43)	Output current together max 1 A
24 Vac (44 and 45)	Output current together max 1 A
Operating voltage outputs	
5 pcs 24 Vac outputs (41)	Output current max 1 A/output
15 Vdc output	Output current max 750 mA
Data transfer connections	
RS-485 bus (A1 and B1)	Galvanically isolated, supported protocols Modbus-RTU
RS-485 bus (A2 and B2)	Galvanically isolated, supported protocols Modbus-RTU
USB host connection	RS-232-modem (GSMMOD6)
USB device connection	
Ethernet	Full-duplex 10/100 Mbit/s, supported protocols Modbus-TCP/IP
Extension units	
FLEX COMBI 32	32 I/O points: - 16 pcs universal measurement inputs - 6 pcs 0-10 V universal outputs - 6 pcs relay outputs (2 with change-over contact, 4 with normally open contact) - 4 pcs 24 Vac Triac outputs Operating voltage outputs: - 5 pcs 24Vac outputs and a 15 Vdc output
FLEX COMBI 21	21 I/O points: - 9 pcs universal measurement inputs - 2 pcs 0-10 V universal outputs - 6 pcs relay outputs (2 with change-over contact, 4 with normally open contact) - 4 pcs 24 Vac Triac outputs
FLEX UI-16	16 universal measurement inputs Operating voltage outputs: - 5 pcs 24Vac outputs and a 15 Vdc output
FLEX-EXU	Interface card for modem and local I/O extension - unisolated RS-485 bus, supported protocols Modbus-RTU - USB host connection for GSMMOD6 modem - 15 Vdc voltage output, max 750 mA (total capacity together with the Ouflex device) - 15 Vdc voltage output (strip connector 93)

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



Saving energy, creating comfort

OUMAN

XV1102_Ouflex_User manual_ENG_v2.3_3_20170327