Installation and operating instructions

MES Heating circuit module UML C1

Please read these installation and operating instructions carefully. Your heating technician or Windhager Factory Customer Service would be glad to explain how to use the heating circuit module and how the system works.

All warranty claims shall not apply if you do not observe the installation and operating instructions.

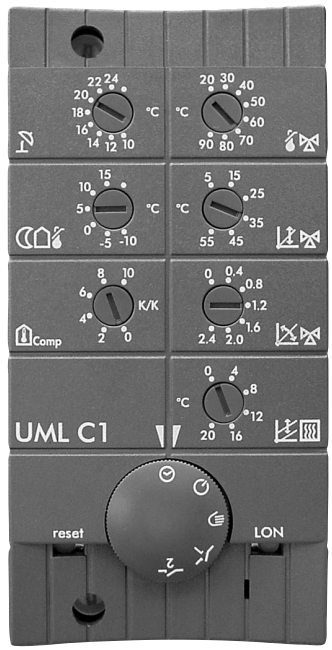

*Fig. 1 - **UML C1***

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11/02 091654/00

About these instructions

Dear reader,

This MES module is a modern device with a variety of functions that allow you to get the most from your heating system in the most convenient way possible.
Most of the required settings are carried out once on commissioning by either the installer or the Windhager Factory Customer Service.

So as a **user** of the heating system, there's no need to be intimidated by these comprehensive instructions. The information you need to operate the module is summarised on **three pages** of these instructions. You'll soon find out that operation is simple and logical.

The remaining pages, those with the words "For the heating technician" in the header, contain all the information that qualified technicians need to install and commission the heating system.

1. Safety information

1.1 Regulation compliance

This MES module is a modern electronic device.

CE It complies with the following EU directives:
- 73/23/EEC Low Voltage Directive
- 89/336/EEC EMC Directive as amended by 92/31/ECC

The MES module is intended for use with Windhager heat generators only. It is not permitted to use the MES module otherwise.

Please note the conditions of your local energy provider and ÖVE/VDE/SEV regulations. The MES module may only be installed by authorised qualified technicians.

1.2 Safety

This device reflects the current state of the art and meets the relevant safety regulations.

1.3 Danger ⚠

The MES module is powered by electric current. Improper installation or repair can pose the danger of life-threatening electrical shock. Installation and commissioning may be performed only by appropriately qualified technicians. Opening the MES module and accessory parts is generally forbidden.

Notes in the text with a warning symbol ⚠ must be observed under all circumstances.

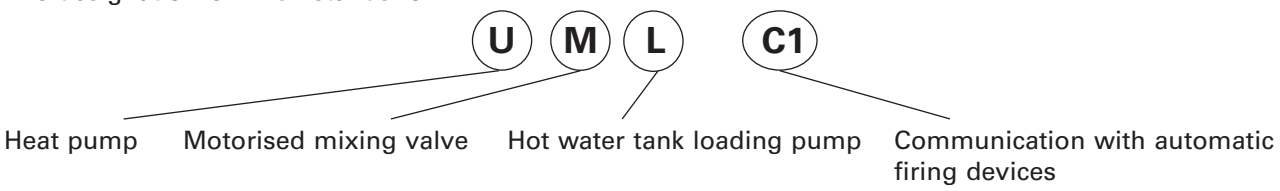
⚠ Only reconnect the power to the boiler when all wiring has been completed. Wait until the display on the analogue or digital user module appears before starting adjustment. Initialisation lasts a maximum of two minutes.

1.4 Warranty limitations

If the MES module was not professionally installed and started, the manufacturer is not liable. Malfunctions resulting from improper operation or adjustment are not covered by the warranty.

2. What the heating circuit module does and how it works

The designation UML C1 stands for:



The UML C1 heating circuit module uses an analogue or digital user module to regulate a heating circuit with or without a motorised mixing value and a hot water tank circuit on request in line with the outside temperature.

Information is exchanged via a data bus in conjunction with a firing module (e.g., pellet boiler, condensing gas boiler, modular wood boiler etc.) Based on the setpoints transferred, the firing module controls output-adjusted combustion in line with the heating requirements of the heating circuit (modulating operation of heat generator).

Heating circuit regulation

Depending on the outside temperature and the configured values (heating curve, heating curve origin, room temperature, etc.), the control system calculates a flow and boiler temperature. The burner and the motorised mixing valve are controlled in such a way that the setpoint is reached as precisely as possible. If the calculated flow temperature deviates from the measured flow temperature, the motorised mixing valve is electrically opened or closed and the heat generator and heat pumps switched on or off. The objective is to keep the desired room temperature as constant as possible regardless of the outside temperature.

The heating characteristic of the mixing valve circuit is configured using the adjusters (page 4). The analogue or digital user module influences this heating characteristic by means of the room temperature, operation mode and time programme.

Hot water tank loading, hot water tank loading pump lagtime

Hot water tank loading requires a hot water tank sensor. If the hot water tank sensor is connected to the heating circuit module, the measured hot water tank temperature, the hot water tank setpoint and the time programme are displayed on the user module (see the user module's operating instructions).

If the hot water tank temperature falls 5° C below the setpoint and the time programme releases hot water tank loading, the hot water tank starts loading. The burner and hot water pump are switched on. If the hot water tank temperature reaches or exceeds the setpoint, the burner is switched off immediately; the hot water pump is switched off after the lagtime has elapsed. The hot water pump lagtime is between one and ten minutes.

Boiler startup relief

Boiler startup relief depends on the material and design of the heat generator. It protects the boiler from corrosion and excessive dirt. If the current boiler temperature is greater than the value of boiler startup relief, the heat pump switches on and the mixing valve is adjusted in line with the heating characteristic.

Minimum heat decrease

The minimum heat decrease protects the boiler from excess temperature. If the boiler temperature exceeds +85 °C, the heat pumps are switched on and the motorised mixing value opened, thus diverting energy to the heating circuit(s). The maximum permissible flow temperature set in the heating circuit module is not exceeded however.

3. Operating controls and adjusters

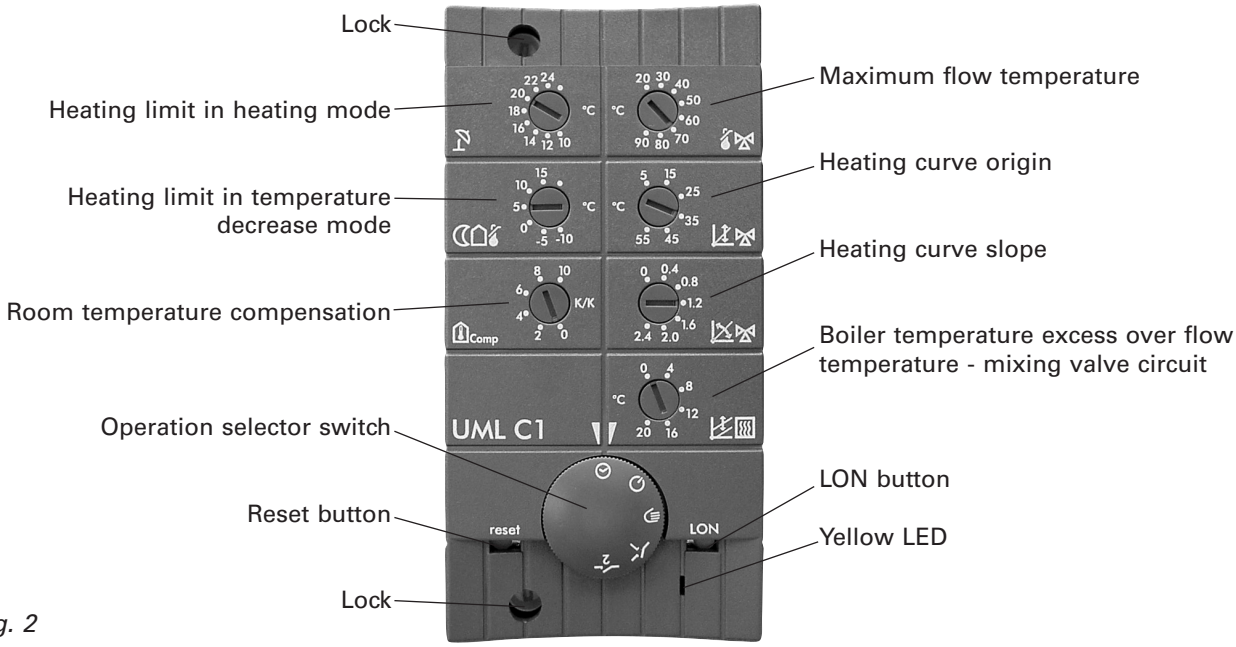


Fig. 2

4. Operating controls for the system user and heating technician

4.1 Operation selector switch

Symbol	Function	Description
	Automatic operation	Default operation mode Operate using the user module. Heating and temperature decrease mode and hot water tank loading are controlled in line with the set value and the respective programme.
	OFF (stand-by) Frost protection only, no hot water tank loading	The heating system remains switched off if the outside temperature is over +2 °C. If the temperature falls below this value, the boiler and flow temperature are operated in line with the frost protection function (see point 10.1). The user module has no function. The heat and hot water tank loading pump are switched on once a day for ten seconds (pump block protection).
	Manual operation, Emergency operation	The heat and hot water tank loading pump are switched on. If the hot water tank is loaded with a loading valve, then this valve is idle (= heating mode). The motorised mixing valve is not controlled and can be adjusted manually. The user module has no function. ⚠ The maximum permissible flow temperature is not monitored.
1	**Relay test 1**	Function test: All pumps on, mixing valve open.
2	**Relay test 2**	Function test: All pumps off, mixing valve closed.

5. Assembly

5.1 Installation

The MES modules are installed in the boiler control panel or in the wall-mount casing. The modules are connected in the boiler control panel (so they can communicate with one another) and wired ready for connection. If the MES modules come in a wall-mount casing, the customer is responsible for electrical wiring.

Sensor and data cables carry extra-low voltage (5 – 12 VDC) and must not under any circumstances be laid with low-voltage cables (230 VAC) in a pipe or cable channel. Otherwise, faults or malfunctions could result.

Module installation sequence:

- DIP switch position – see page 10 – check and adjust.
- Insert module on the guide rail into the section – Fig. 3.
- Push in the upper and lower lock gently with a screwdriver and turn ¼ rotation in a clockwise direction.
- When all electrical connections have been established, connect the modules – see page 14.

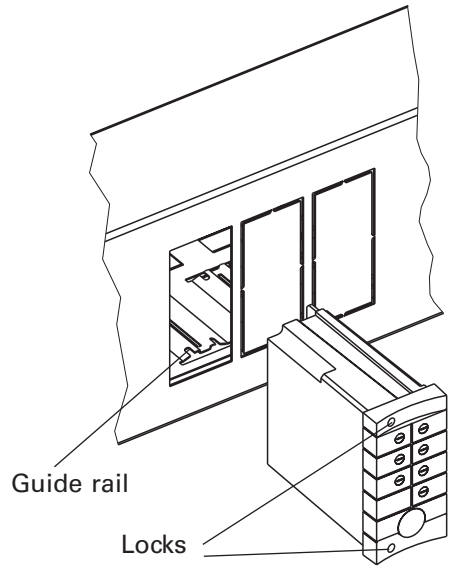


Fig. 3

5.2 External sensor

The outside temperature is required in order to calculate the flow and boiler temperature setpoints. For this reason, an external sensor must be connected to one heating circuit module.

If there are several heating circuit modules connected with the LON data bus in a system, then the data bus provides the other modules with the outside temperature value. It is also possible however to fit each module with its own external sensor if necessary.

Only one heating circuit module can send the outside temperature to the LON bus. The relevant DIP switch must therefore be switched on on one heating circuit module (see page 10).

If there is no external sensor or if it is damaged, a default outside temperature of 0° is used for control.

The outside temperature can be read from the digital user module. It is indicated in the display by the symbol .

Installation site:

- Preferably on the North or North-East wall behind a heated room.
- Approx. 2.5 m above the ground.
- Not over a window or a vent (extraneous heat sources).

Assembly:

- Lift cover up.
- Unscrew casing.
- Secure sensor to the wall.
- Connect cable wires (2 x 0.75 mm^2, max. 100 m long).
- Screw casing shut and replace lid.

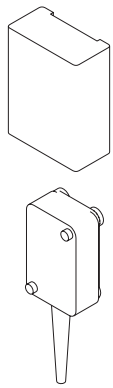


*Fig. 4 - **External sensor***

To be sure that the external sensor is watertight, it must be secured on a vertical wall with the cable entry downward. Dampness in the sensor casing causes incorrect temperature readings and damage to the sensor.

5.3 Feed sensor for the mixing valve

The flow temperature is required to calculate the control variable of the mixing valve. If this sensor is missing, the mixing valve is not controlled. The heating circuit module may then be used to control an unmixed heating circuit.

If a feed sensor has been connected, the flow temperature can be read from the digital user module. It is indicated in the display with the symbol .

Installation site:

- approx. 0.5 m towards the heat pump
  in the flow direction of the mixing valve circuit.

Assembly:

- Clean the flow pipe thoroughly
- Secure the sensor with a tightening strap.
- Perform electrical wiring.

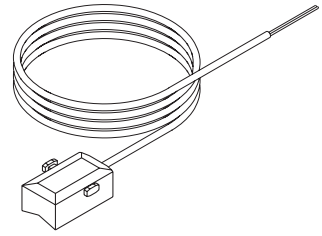


*Fig. 5 - **Feed sensor***

5.4 Hot water tank sensor

The hot water tank sensor is required for water heating.

The hot water tank temperature can be read from the digital user module. It is indicated in the display by the symbol .

If there is no hot water tank sensor connected or if it is damaged, the hot water tank feed functions are switched off. The corresponding symbols and the hot water tank temperature are no longer indicated on the user module. The hot water tank setpoint and the hot water tank programme cannot be adjusted.

Installation site:

- In the immersion sleeve of the hot water tank
  (see operating instructions for hot water tank)

Assembly:

- Insert the sensor as far as possible into the immersion sleeve.

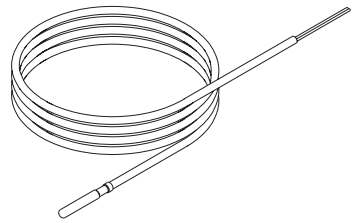


*Fig. 6 - **Hot water tank sensor***

The immersion sleeve must be dry. Remove any residual water before installing the sensor.

5.5 Mixing valve motor

The best operation time for the motor is approx. 150 seconds.
Motors with an operating time of 100 to 240 seconds can also be used.

- Manually set mixing value to “Closed”
- Attach the motor to the mixing valve.
- Check the direction of rotation with the function relay test
  on the operation selector switch (point 4.1).
- If the direction of rotation of the servo-motor is incorrect, swap
  the Y1 and Y2 motor clamp connections, or in the boiler
  control panel, the X6 and X9 cage clamp connections.

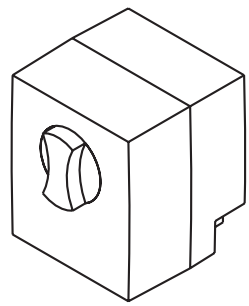


*Fig. 7 - **SKE010 motor***

5.6 Maximum limiter (feed control thermostat): required for an underfloor heating circuit

The maximum limiter is to be assembled by the customer. When the maximum temperature in the heating circuit is exceeded, it disconnects the power supply to the heat pump in question.

5.7 Analogue or digital user module

A user module is necessary to adjust heating and domestic water heating. The user module is used to make all user-specific settings.

If the user module is missing, all heating circuit and domestic water functions are deactivated.

The user module's operating and installation instructions provide a more detailed description.

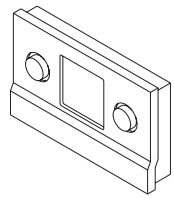


Fig. 8
Analogue user module

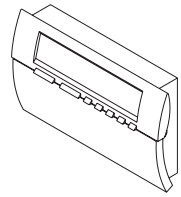


Fig. 9
Digital user module

5.8 Power supply

The power module is installed in the boiler control panel of the heat generator or the wall casing by the manufacturer. It supplies up to three heating circuit modules with 12VDC operating voltage.

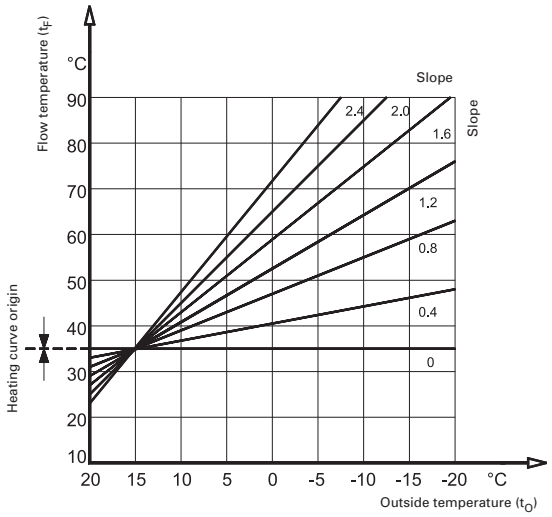
The power module is primarily designed for an operating voltage of 230 VAC ±10%, 50 Hz.

6. Adjusters

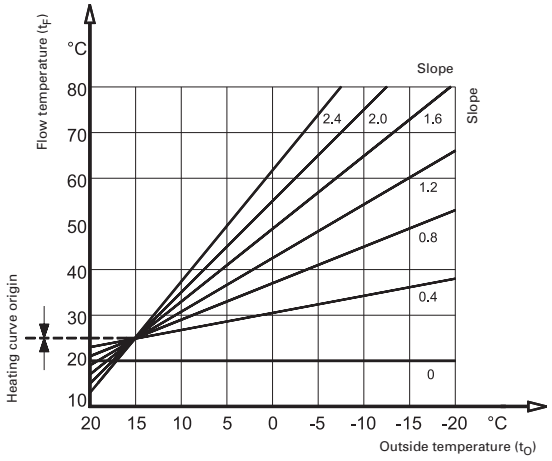
Symbol	Setting range:	Function
	10 °C to 24 °C Factory setting 20 °C	**Heating limit in heating mode:** If the outside temperature rises above the set value, the heating circuit (heating requirement and heat pump) is switched off. Domestic water heating continues to operate. The heat pump is switched on once a day for ten seconds (pump block protection). Heating mode restarts if the outside temperature falls 3 °C below the set value. Turning the adjuster fully to the right switches this function off.
	-10 °C to +15 °C Factory setting 5 °C	**Heating limit for temperature decrease mode:** If the outside temperature is higher than the set value, the heating circuit (heating requirement and heat pump) is switched off during temperature decrease mode. Domestic water heating continues to operate. If the outside temperature falls 3 °C below the set value, then the reduced temperature setting applies. If the adjuster is set to below +2 °C and the outside temperature is between +2 °C and the set value, the heat pump switches on for five minutes every hour. Turning the adjuster fully to the right switches this function off.
	0 to 10 Factory setting 0 K/K	**Room temperature compensation:** If you want the room temperature to affect control, then you must set the desired level of compensation (= room temperature influence). If the room temperature deviates from the setpoint, due, for instance, to extraneous heat, the controller corrects the flow temperature in line with the set value. e.g. Actual room temperature 22 °C Room temperature setpoint 20 °C Difference 2 °C Set value 4 K/K The difference is multiplied by the set value to produce the change in flow temperature: 2 °C x 4 = 8 °C <u>Setting recommendations:</u> No compensation 0 Underfloor heating 0 – max. 3 Radiator heating: weak influence 1 – 3 medium influence 4 – 6 strong influence 7 – 10

Symbol	Setting range:	Function
	20 °C to 90 °C Factory setting 70 °C	**Maximum flow temperature** The flow temperature is limited to the set value. ⚠ This setting is not a safety function! A control thermostat must be additionally fitted by the customer in the case of an underfloor heating circuit.
	5 °C to 55 °C Factory setting 35 °C	**Heating curve origin** Parallel heating curve shift. This setting depends on the design of the heating circuit. The value set here applies to the target flow temperature of the heating circuit at an outside temperature of 15 °C and a target room temperature of 20 °C.
	0 to 2.4 Factory setting 1.2	**Heating curve slope** The heating curve determines the heating flow temperature in line with the outside temperature.

Heating curves for radiator heating circuits:



Heating curves for underfloor heating circuits:



Symbol	Setting range:	Function
	0 °C to 20 °C Factory setting 0 °C	**Boiler temperature excess** over flow temperature of the mixing valve circuit The set value is added to the setpoint of the mixing valve and transferred to the heating generator as the setpoint. The setting depends on the system difference and hydraulic conditions in the system.

Setting for gas condensing boiler

System difference:	Heating circuit output		
	up to 10 kW	**10 - 20 kW**	**20 -30 kW**
20K	0	0	0
15K	0	0	3-5?
10K	0	3 - 5 °C	4 -8 °C
5K	3 - 5 °C	5 -10 °C	10 -15 °C

7. DIP switch

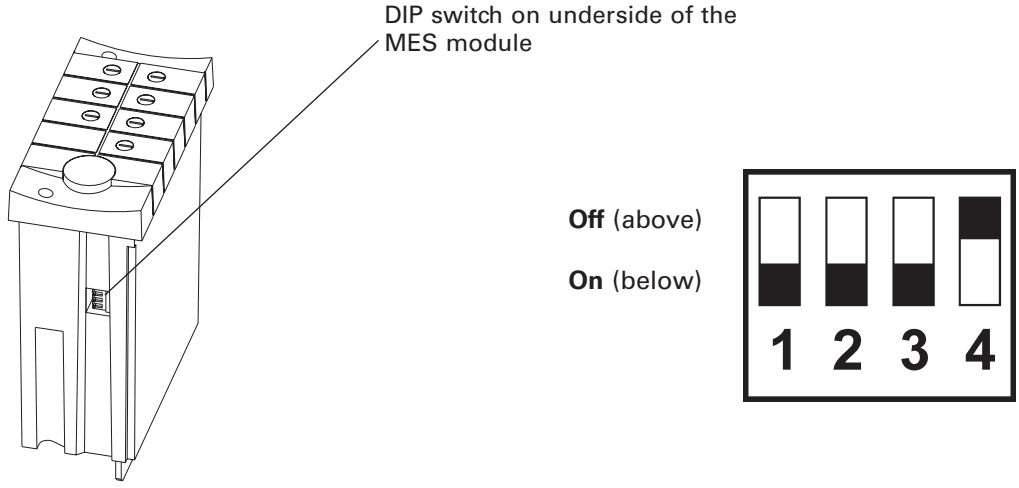


Fig. 10

Switch setting	S1	S2	S3*	S4
Off (above)	No function	Warm water parallel switching Heating circuit (pump and mixing valve) are **not** switched off when hot water tank is loading.	Outside temperature t_O and system time are **not** sent to LON data bus .	Water is heated with the hot water tank loading pump If the operation selector switch is set to manual, the hot water tank loading pump is controlled.
On (below)	No function	Warm water priority switching Heating circuit (pump and mixing valve) are switched off when hot water tank is loading.	Outside temperature t_O and system time are sent to the LON data bus .	Water is heated with loading valve If the operation selector switch is set to manual, the loading valve is **not** controlled.

* **S3** must be ON for any heating circuit module with an external sensor connected.
All other modules receive the outside temperature t_O from the LON data bus.

8. Function control and commissioning

Before the heat generator with control system is put into service, the electrical connections should be tested for accuracy.

a) Relay test 1 $\overset{\sim}{1}$ and relay test 2 $\overset{\sim}{2}$ (operation selector switch– page 4) can be used to check whether the pump and the user module on the associated heating circuit are connected.

b) The digital user module (see digital user module installation and operating instructions) can be used to check the bus connection and the connected sensor.
If a sensor value is not shown following a temperature request, you can assume that this sensor is either incorrectly connected or damaged.
The measured outside temperature is transferred to all the modules via the LON data bus. If there are several modules in one system, the same value should be read from each digital user module. If the temperatures are different or if 0 °C is indicated, then you can assume that the sensor is damaged or the bus connection defective.

9. Heat pump functions

The heat pumps operate if

- in heating operation the outside temperature is under the set "Heating limit in heating mode" – see page 8.
- in temperature decrease mode the outside temperature is under the set "Heating limit in temperature decrease mode" – see page 8.
- frost protection is active (outside temperature under +2 °C) – see point 10.1.
- "Manual operation" is the selected operation mode – see page 4

The pump lagtime of ten minutes comes into effect if

- in heating mode the outside temperature rises above the "Heating limit in heating mode" – see page 8.
- in temperature decrease mode the outside temperature rises above the "Heating limit in temperature decrease mode" – see page 8.
- the power is switched on after disruption (initiates reset) or on commissioning.

Pump block protection of ten seconds comes into effect

- daily at 12 pm if the operating mode "Off (Stand By)" or "Summer mode" is selected.

10. Frost protection functions

The frost protection functions do not provide 100 % protection from frost damage. The system should therefore never be operated unattended for a long period of time.

10.1 Frost protection in Off (Stand By) mode

Function:
If the outside temperature is over +2 °C, the heating system is switched off (boiler, heat pump and hot water tank loading pump). If the outside temperature falls below +2 °C, the heat pump is switched on and the boiler temperature is adjusted in line with the frost protection characteristic. If the outside temperature rises above +5 °C (switching hysteresis 3 K), the heating system is switched off again.

The frost protection characteristic specifies the boiler temperature setpoint during frost protection mode. It is calculated from the set slope of the heating curve in the heating module and the set heating curve origin.

Example of frost protection characteristic:
Factory setting: Heating curve origin 35 °C, heating curve slope 1.2; if the outside temperature falls below +2 °C, the heating curve is regulated in line with the frost protection characteristic – Fig. 11.

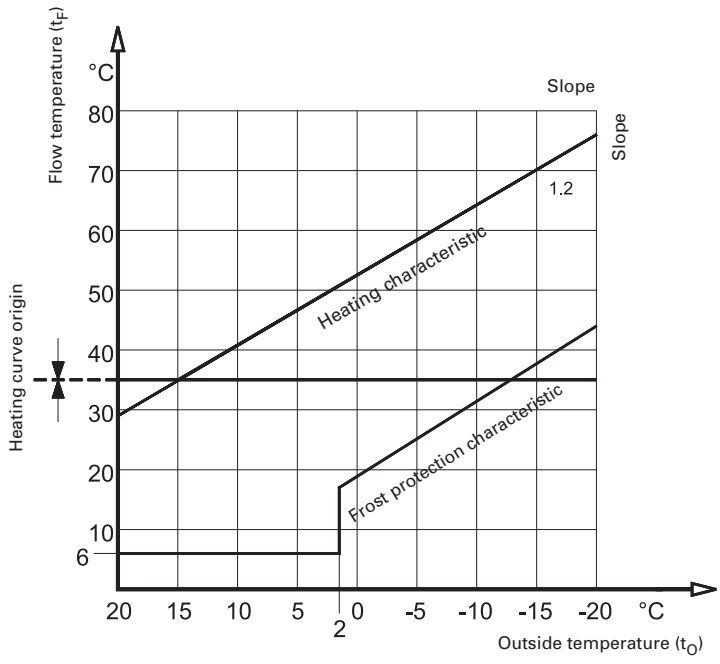


Fig. 11

10.2 Frost protection in temperature decrease mode

Function: This function is only active if a feed sensor (mixing valve circuit) is connected.

If the outside temperature is greater than the temperature set on the adjuster (heating limit in temperature decrease mode ☾⌂) and if the flow temperature (feed sensor) is over +10 °C, the heating circuit is switched off (boiler and heat pump). The heat pump is switched on for five minutes every hour if the outside temperature is below +2 °C in order to determine the current flow temperature in the heating circuit system.

If the flow temperature falls below +10 °C or if the outside temperature falls 3 °C under the temperature set on the adjuster (heating limit in temperature decrease mode ☾⌂), the heat pump is switched on and the boiler temperature is regulated in line with the heating characteristic of temperature decrease mode. This operating status is retained until heating mode starts (in line with the clock programme setting).

10.3 Frost protection boiler

If the flow or boiler temperature falls below +10 °C, the heat pump is switched on. The burner is also switched on under +6 °C and the system heated up. If the flow or boiler temperature rises above 12 °C, the burner and heat pump are switched off.

⚠ This function cannot provide the system with total protection from frost damage. This function cannot cover radiators or parts of the system that are not connected.

10.4 Hot water tank frost protection (domestic water)

If the hot water tank temperature falls below +5 °C, the hot water tank starts loading. When the hot water tank temperature reaches +10 °C, the hot water tank loading is finished. The burner is switched off immediately; the pump switches off when the lagtime has elapsed.

11. Technical data

Operating voltage:	12 VDC ± 5 %
Current consumption:	max. 180 mA
Ambient temperature:	
- operation:	0 °C - + 50 °C
- storage temperature:	- 20 °C - + 70 °C
Inspection:	CE conformity
Protection class:	II, EN60730
Degree of protection:	IP 40, EN60529
EMV:	EN50082-1 EN50081-1
Cable length sensor:	max. 100 m, min. 2 x 0.75 mm^2 (fine wire)
Cable length LON:	max. 1.200 m, 3 x 0.6 mm^2, twisted cable
Cable length application bus:	max. 100 m, min. 2 x 0.75 mm^2 (fine wire)
Relay breaking capacity:	230 VAC, 6 A (2 A inductive), 50 Hz
Weight:	185 g

Switchpoints:

Maximum boiler temperature	+85 °C
System frost protection	+2 °C
Boiler frost protection	+6 °C
Hot water tank frost protection	+5 °C

12. Contact assignment

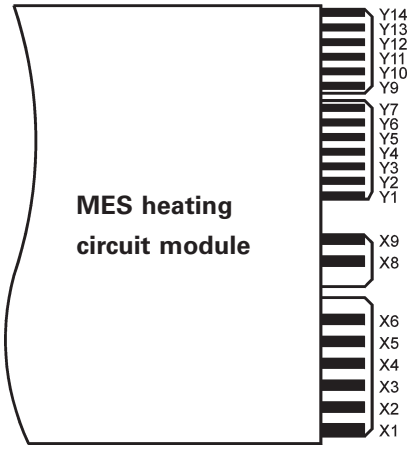


Fig. 12

Contact:	Assignment:
Y14	Power supply +12 VDC
Y13	Power supply – GND mass
Y12	not assigned
Y11	LON GND mass
Y10	LON Data +
Y9	LON Data –
Y7	Application bus +signal (voltage range 9-12 V)
Y6	Application bus – GND mass
Y5	Outside temperature sensor
Y4	Hot water tank temperature sensor
Y3	not assigned
Y2	Flow temperature sensor
Y1	Sensor – GND mass
X8 / X9	Motorised mixing valve - closed
X5 / X6	Motorised mixing valve - open
X3 / X4	Hot water tank loading pump/valve
X1 / X2	Heat pump

13. Sensors

External sensor (type ZAF 200)

Sensor element: NTC, 5000 Ω at 25°C
Measuring range: -40 °C to 50 °C
Measuring accuracy: -20 °C to 50 °C ± 2 K
Ambient temperature: -50 °C to 70 °C

Feed sensor (type ZVF 210), boiler and hot water tank sensor (type ZTF 222)

Sensor element: NTC, 5000 Ω at 25°C
Measuring range: 0 °C to 90 °C
Measuring accuracy: 0 °C to 70 °C ± 0.5 K
Ambient temperature: -50 °C to 130 °C

Sensor values for external sensor, feed sensor, boiler and hot water tank sensor

Temperature	Resistance
-20 °C	48.5 kΩ
-15 °C	36.5 kΩ
-10 °C	27.6 kΩ
-5 °C	21.2 kΩ
0 °C	16.3 kΩ
5 °C	12.7 kΩ
10 °C	9.9 kΩ
15 °C	7.85 kΩ

Temperature	Resistance
20 °C	6.25 kΩ
25 °C	5.00 kΩ
30 °C	4.03 kΩ
35 °C	3.27 kΩ
40 °C	2.66 kΩ
45 °C	2.19 kΩ
50 °C	1.80 kΩ
55 °C	1.49 kΩ

Temperature	Resistance
60 °C	1.24 kΩ
65 °C	1.04 kΩ
70 °C	876 Ω
75 °C	739 Ω
80 °C	627 Ω
85 °C	535 Ω
90 °C	458 Ω
95 °C	393 Ω

14. Connecting the modules (establishing communication)

The heating circuit module can be operated independently or together with other MES modules. The heating circuit module communicates with other modules via the LON data bus. The LON button triggers communication set-up, which then automatically proceeds.
If a module is added, communication with the new module must also be established. When installing several modules, start with the one to which the external sensor is connected.

14.1 Installation – Connect

- Set the DIP switch (page 10)
- Install the module (page 5) and connect power supply.
- The yellow LED lights up on the module (if it doesn't, disconnect (point 14.2) and then reconnect (point 14.1))
- Press the LON button with a small screwdriver for about three seconds. When you are pressing the button, the yellow LED lights up. When you release the button, the LED starts to flash (communication is being established) and goes out after about five seconds.
- Then an automatic reset takes place. The yellow LED does not flash during restart. This process lasts about 30 seconds. The module is communicating correctly if the yellow LED remains unlit after restart.
- The module is "connected".
- Install further modules as described.

Do not start installing the next module until you have fully finished installing the previous one, in other words when the automatic reset has completed after approx. 30 sec.

14.2 Uninstalling a module – Disconnect

If you are uninstalling a module and replacing it with another one, you must first diconnect the connection. If you do not do so, you may not be able to use the module again and the remaining modules may not work correctly.

You do not have to diconnect modules if you are only uninstalling them briefly (e.g., to check the DIP switch) and are then reinstalling them in the same system.

- You can only disconnect a module that was correctly installed. The yellow LED must not be lit.
- Press the LON button for about three seconds. The LED lights up for this period of time.
- Once you have released the button, the module starts disconnecting. The yellow LED flashes during this process.
- When the LED remains lit, the process has been completed. You can now disconnect the power supply and uninstall the module.
- Disconnect further modules as described.

Do not start uninstalling the next module until you have fully finished uninstalling the other module.

14.3 What do I do if ...

.... the power supply has been connected but the yellow LED does not light up although the module has not been connected yet?

- Try disconnecting the module (see point 14.2).

.... after pressing and releasing the LON button the yellow LED doesn't start to flash or doesn't change?

- Press the button again for a few seconds.

.... communication doesn't work even though connection was successful?

- Disconnect and then reconnect the modules one after the other as described above (see point 14).

If another fault occurs, please contact Windhager Factory Customer Service.

15. Glossary of terms

Analogue user module

This is the system operator's control panel. It is used to configure and change temperatures, heating and hot water tank loading times. It features knobs for inputting values, a simple display and a clock with analogue display.

Feed sensor

or flow sensor measures the temperature at the installation site.

Hot water tank loading pump

The hot water pump or loading pump is used to transport energy from the heat generator to the hot water tank/domestic water storage tank.

Operation mode

This refers to the various types of functional control. The following types of operating modes exist: automatic, heating, temperature decrease, frost protection, summer, test and manual operation mode.

Data bus

Digital information transfer between transmitter and receiver.

Digital user module

This is the system operator's control panel. It is used to configure and change temperatures, heating and hot water tank loading times.

Adjusters

These refer to knobs/potentiometers and buttons on the MES modules.

Firing module

The firing module regulates all combustion processes of a heat generator and controls the associated input and output components/assemblies.

Heating circuit

The heating circuit includes all components and assemblies necessary for generating, transporting and supplying heat.

Heating circuit module

This is also generally called an MES module. It regulates and controls all components and assemblies required for operation.

Heating curve

The heating curve is used to determine the boiler and/or flow setpoint temperature of the system in line with the outside temperature. The heating curve is set with the heating curve origin and heating curve slope adjusters.

Heat pump

The heating circuit or circulation pump is used to transfer energy between the heat generator (boiler) and heat consumers (radiators, underfloor heating etc.)

Initialisation

This loads the default values.

Actual value/Actual temperature

This is the temperature currently being measured (flow, domestic water, room temperature etc.) or switching state of pumps, motors, valves etc.

Boiler startup relief

Energy supply is only permitted from a certain heat generator temperature in order to avoid possible corrosion. This temperature depends on the material and design of the heat generator.

Loading valve/reversing valve

This is a usually motor-controlled hydraulic change-over for different heat consumers or generators.

LON data bus

Data bus or transfer protocol for MES and firing modules.

Pump lagtime

Once the control system switches off the need for the pump, the pump remains electrically switched on for another few minutes to use the existing energy.

MES modules

This is the overall term for all assemblies in the **M**odular **E**nergy **S**ystem such as heating circuit, heat distribution, supply and user modules, as well as firing modules.

Modulating operation

A heat generator (boiler) has a variable output range; in other words, boiler output is continually increased or decreased (from min. to max.) depending on heating requirements.

Setpoint/Target temperature

This is the calculated or desired temperature to which the heat generator, flow, domestic water and room temperatures are heated; in other words, the desired switching status of pumps, motors and valves etc.

Flow temperature

This is the temperature of the heating water in a heating circuit.

Heat generator

This refers to any boiler in general, regardless of the fuel.

16. What do I do if...

...the heating or hot water pump doesn't switch on or off?

- Check sensors or sensor values (temperatures), the current operating mode and the set heating limits (heating, temperature decrease, frost protection, summer or manual operation) – see page 4.
- Remember the pump lagtime – see page 11.

...the room temperature is too high or too low?

- Correct the heating curve and/or the heating curve origin – see page 9.
- Correct the room temperature setpoint (see user module operating instructions)

...the room temperature is too high or too low at night during the change of seasons?

- Increase or decrease the heat limit in decreased temperature mode – see page 8.
- Correct the room temperature setpoint (see user module operating instructions)

...the yellow LED underneath the LON button is permanently on?

- The module is not communicating. It must be connected – see page 14.

17. Reactions in the event of sensor short circuit or line disconnection

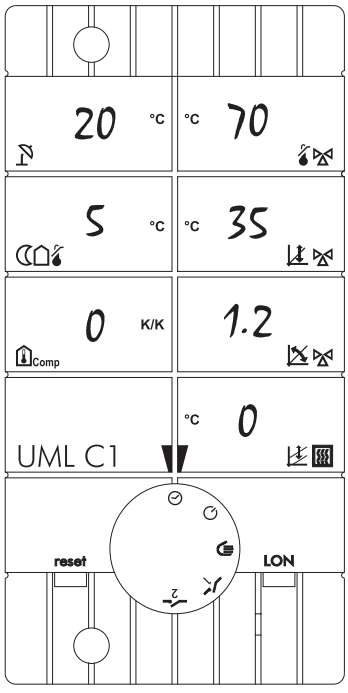
External sensor: The temperature is set to 0°C and heating continues to operate in line with this temperature.

Hot water tank sensor: It is not possible to load the hot water tank. The corresponding symbols and values are no longer shown on the display.

Boiler sensor: The heat generator is not controlled, in other words, the heat generator is not switched on.

18. Individual settings

Please enter:
individual values



DIP switch

Off (above)
On (below)

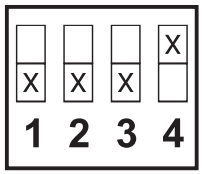
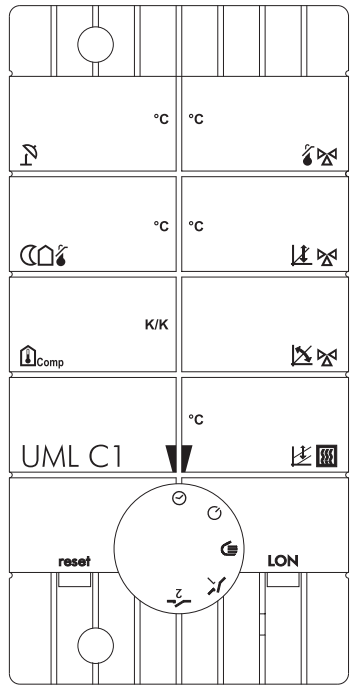


Fig. 12



DIP switch

Off (above)
On (below)

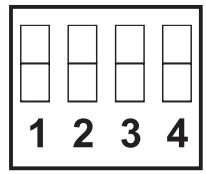


Fig. 13