Operating instructions

Control unit - CGL

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Table of contents

Safety instructions

Safety instructions

The following symbols are used in this instruction manual. This important information concerns personal as well as operational safety.

⚠ "Safety instructions" must be complied with to the letter, to prevent risks and injuries to individuals and material losses on the appliance.

⚡ Danger through 'live' electrical components!
Please note: Turn off the ON/OFF switch before removing the casing.

Never touch electrical components or contacts when the ON/OFF switch is in the ON position. This would lead to a risk of electrocution that may lead to injury or death.

Please note "Note" indicates technical instructions that must be observed to prevent material losses and equipment malfunctions.

⚡ Even when the unit has been shut down, voltage will still be present at terminals and connections of the EC fans. This means there is a risk of electric shock that could result in injury or death.
Never touch the EC fans until five minutes after disconnecting the power across all poles have elapsed.

Service / Repair

Service / Repair

- Regularly check the perfect function of all electrical equipment.

- Only qualified personnel may remove faults or repair damage.

- Only replace faulty components or equipment with original Wolf spare parts.

- Observe specified electrical fuse ratings (see specification).

Please note Any damage or loss resulting from technical modifications to Wolf control units is excluded from our warranty.

Standards / Regulations

Standards / Directives

The appliance and control unit accessories comply with the following regulations:

EC Directives
- 2006/95/EC   Low Voltage Directive
- 2004/108/EC   EMC Directive

EN Standards
- EN 60730-1 Automatic electrical controls for household and similar use
- EN 60730-2-11 Particular requirements for temperature sensing controls
- EN 61000-6-2 EMC Immunity for industrial environments
- EN 61000-6-3 EMC Emission standard for residential environments

Installation / Commissioning

- According to DIN EN 50110-1, only qualified electricians may carry out the installation and commissioning of the ventilation control unit and connected accessories.

- Observe all regulations stipulated by your local power supply utility and all VDE or local regulations.

- DIN VDE 0100 regulations regarding the installation of high voltage systems up to 1000 V

- DIN VDE 0105-100 Operation of electrical plants

- Use exclusively original Wolf accessories (electric heater coil, condensate pump, servomotors, etc.), otherwise the Wolf warranty will be void.

Only use cables that meet local wiring regulations with regard to voltage, current, insulation material, load etc. Always fit an earth conductor.
Power supply:
An externally accessible, omnipolar isolator must be installed with the appliance. Power cable, external: 3 x 2.5 mm².
Fuse/MCB protection: 230 V/16 A.
RCD
Only AC/DC-sensitive RCDs of type B with 300 mA rating are permissible.

Connect the power cable and accessories in accordance with the wiring diagram provided.
A high leakage current can be expected due to the EC motors. Ensure that a secure earth connection is in place before connecting the power supply and commencing commissioning.
For Austria, the ÖVE regulations and local building regulations apply.

Warnings

- Removing, bypassing or disabling of safety and monitoring equipment is not permissible.

- The system must only be operated if it is in perfect technical condition. Immediately have any faults and damage that may impact on safety removed.

Unit description

The control panel is designed for regulating large area ventilation units with variable speed EC motors.
Other functions
- HR control 0 - 10 V
- CO_2-based fan speed matching
- Electric reheater coil: variable control 0 - 10 V
- Room / supply air cascade control or supply air control
- Night ventilation
- Electric preheater coil:
  Switching ON/OFF by outside temperature

The control unit can be operated with the programming module for ventilation units (BML programming module, material number 2744634). The BML programming module can also be used to program switching times, to modify parameters and to display fault messages.
The control unit has an eBUS interface and can therefore be fully integrated into the Wolf control system.

Please note

There can only be one BML in any one system (eBUS).
Up to 7 CGL units can be operated with one programming unit.

Intended use

The ventilation unit is designed for air intake temperatures between -20 °C and +40 °C. Only store the ventilation unit in dry conditions at an ambient temperature between -25 °C and +55 °C.
Wolf CGL ventilation units are designed to heat and filter normal air. The use of these units in wet rooms or rooms with explosive atmospheres is not permissible. Handling very dusty or aggressive media is not permissible.
Any on-site modification or unintended use of the unit is not permissible and Wolf GmbH accepts no liability for any damage caused as a result.

Disposal and recycling

Observe the following information regarding the disposal of faulty system components or the system at the end of its service life:
Dispose of all components in accordance with applicable regulations, i.e. separate material groups correctly. The aim should be the maximum possible amount of basic materials recycled and the lowest possible environmental impact.
Never dispose of electrical or electronic scrap through household waste, but recycle it appropriately.

Generally, dispose of materials in the most environmentally responsible manner according to environmental, recycling and disposal standards.

Zoning

When more than one CGL is controlled with one programming unit, the zone for each appliance must be set using the DIP switches on the control PCB (in the control panel).

The PC-boards have to be connected to each other via eBus, as well (terminal strip X2, terminal 8/9, see wiring diagram).

If only one zone is to be connected, the following chapter can be skipped.

LEDs 1-6   DIP-switches 1-4   X1

LED 1 motor speed < 45%
LED 2 motor speed > 50%
LED 3 no display
LED 4 no display
LED 5 eBUS connection
LED 6 error message
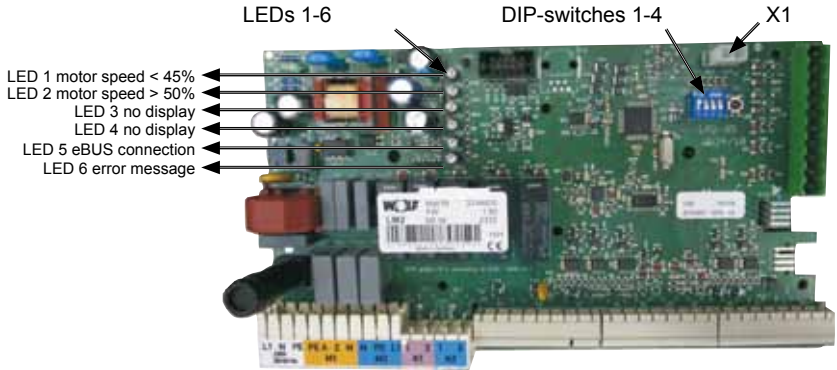
Please note

Never pull out the coding card X1, otherwise malfunctions may result.

Multiple zones in one system

The three switches on the left hand side of the 4-position DIP switch can be used to assign the ventilation unit to a zone.
Up to seven zones are possible in one system.

**Fig.:
DIP switches on the control PCB**

Zone setting	
	Zone 1
	Zone 2
	Zone 3
	Zone 4
	Zone 5
	Zone 6
	Zone 7

DIP switch 4 setting must not be changed. (Has no function for CGL configuration)

Notice:	**The wall socket with clipped-in BML control module and connected outside sensor (mounted in the device) is installed as standard.**

Wall mounting base installation

- Remove the wall mounting base from its packaging.
- Secure the wall mounting base on a flush-mounting box (Ø 55 mm) or directly on the wall.

Wall mounting base
Mat. no. 2744275
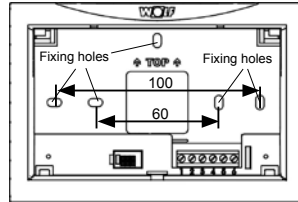
Wall mounting base
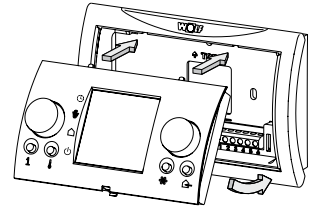
Installation of BML on wall mounting base

Electrical connection of remote control

- The electrical connection must be carried out only by a qualified electrician.
- Never route sensor leads alongside mains power cables.
- Use the repair switch to switch off the power supply
- Wire the wall mounting base with a four-core cable (minimum cross-section 0.5 mm²) in accordance with the diagram

X2 8 9

W18
2x1,0 mm²
24V+Schirm
LiYCY eBus

eBus

○ ○
+ -
e-Bus

Device networking
via eBus

Option

X2 10 11 12 13

W19
4x1,0 mm²
24V+Schirm
Programming unit

BML
Programming unit

1 2 5 6

Master control
unit Central (within zones 7)
1x only possible depending
entire system - account
controls in single units!

X2 14 15

W20
2x1,0 mm²
24V
Outside
temperature sensor

B5

1 2

Outside
temperature sensor

Installed in the device

Connection of external outside sensor in the CGL electrical switch cabinet

The external sensor can be connected directly to terminal strip X2 14/15 in the switch cabinet. To do this, disconnect the internal outside sensor from the wall socket, see circuit diagram.

Setting of eBus interface, BML control module

The BML control module is adjusted in the factory so that all connected components of the ventilation system can be operated from the control module.

A BML with address 1 must always be present.

No other DIP switches may be adjusted; they have no meaning for the control.

ON DIP

1 2 3 4

Dip 1-4

ON
OFF
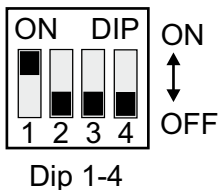
| Please note |

Do not change the factory settings!

BML overview

Room temperature / extract air temperature

L.h. rotary selector **Status indicator** **Display** **R.h. rotary selector**

Zone 1

20.0 °C
Friday
31/10/08
12 : 16

Info key

Temperature adjustment

Minimum fresh air proportion (no function)

Speed adjustment

Time alternating with outside temperature
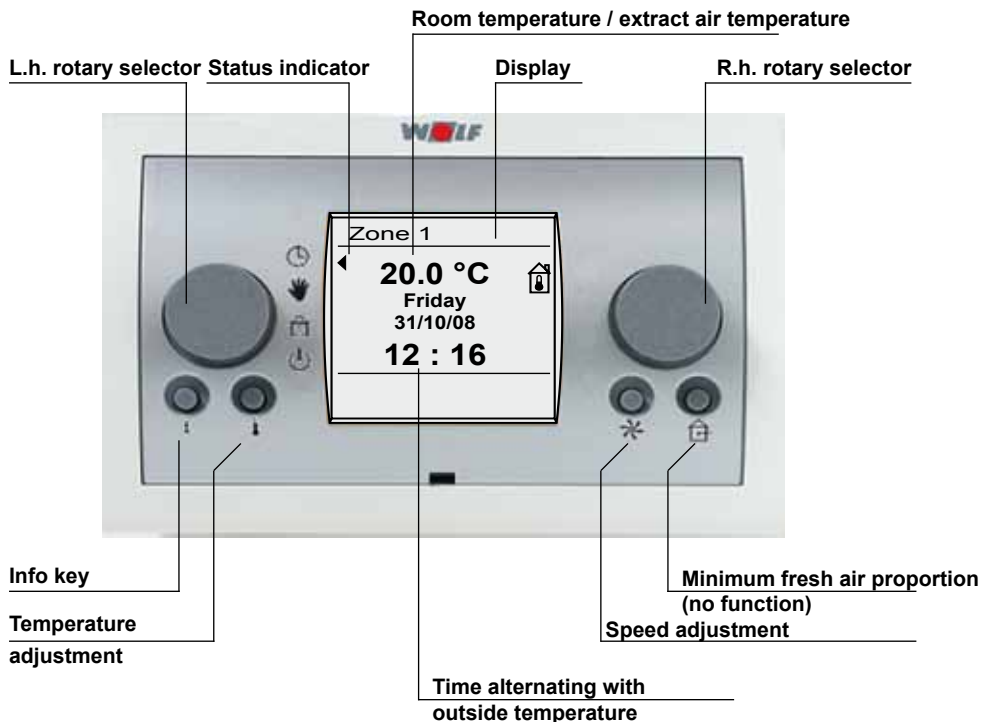
L.h. rotary selector, program selection
This rotary selector enables the program to be selected. The rotary selector can be rotated indefinitely, without an end stop. You will feel it click into each position as it rotates. The selected function is indicated by an arrow in the display.

R.h. rotary selector
The right hand rotary selector is used for all programming steps. Turning the rotary selector enables you to select the required menu item.
Pressing the r.h. rotary selector confirms the programming step.

Program selection

You can select the programs listed below by turning the l.h. rotary selector.
The arrow on the l.h. edge of the display points to the selected program.

Automatic mode
Ventilation according to a time switch program. Call-up of HR, reheater and fan according to demand.
As shown in the diagram, you can preselect the operating mode via the time program when the system has been switched off.

On
Off

"Day mode"

Backup mode

Backup mode

Time

07:00

14:00
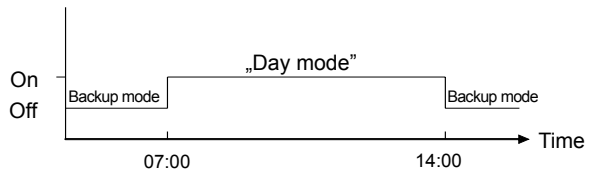
Setback mode program
Selection:
- Economy operation
- Backup mode (factory setting)
- Standby
- Summer ventilation

Manual mode

The ventilation time program is inactive. With this setting, ventilation is enabled 24 hours a day. The set value from day mode is active. The speed can be preselected manually or varied according to CO_2 content. Activation of HR and reheater according to demand.

Ventilation mode

Ventilation according to the time switch program.
Fans start, and the speed of the ventilation units can be preselected manually. This can be used to ensure an adequate air flow rate through the room during the warmer months.
HR and the reheater are switched off.
The outside air dampers are opened.
Ventilation is disabled below an outside temperature of 7 °C.

Standby mode

Fan and actuating signal are switched off; room frost protection remains active.
System start or stop is actuated via an air quality sensor (parameter LM163 must be set to ON).
The CO_2 sensor should be placed inside the room for this operating mode.

```
┌─────────────────────────┐
│ i  Zone 1               │
│ ◀ Back                  │
│ Operating mode          │
│ Curr program            │
│ Ex. air temp.           │
│ Set room htg.           │
│ Outside temp            │
│ Act. vent air t         │
└─────────────────────────┘
```
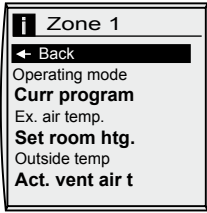
Info key

Please note: In the case of more than one zone (up to 7), first select the zone for which the values are to be scanned.

You can use the Info key to display current temperatures and system values. Turning the r.h. rotary selector displays the following values.

1	Operating mode
2	Current program
3	Extract air temp
4	Set room heating
5	Outside temperature
6	Actual vent air temperature

Fire alarm
Fault zone
Frost protection room
External ON/OFF
Filter check
Standby
Summer ventilation
VA min limit heating
Night ventilation
Room temperature reached
Outside temperature shutdn
Control operation

```
┌─────────────────────────┐
│ Zone 1                  │
│   Temperature           │
│     selection           │
│      0.0 K              │
│   ▓▓▓▓▓▓                │
│       0                 │
└─────────────────────────┘
```
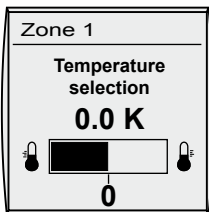
Temperature selection key
Please note:
Pressing the key enables quick correction of the set room temperature (or the supply/extract air temperature). You can turn the r.h. rotary selector to raise or lower the required temperature by up to 4 K. The bar on the display moves to the left or the right depending on the direction the selector is turned. Press the r.h. rotary selector to confirm the modified value.

```
┌─────────────────────────┐
│ Zone 1                  │
│   Speed adjust          │
│     30.0 %              │
└─────────────────────────┘
```
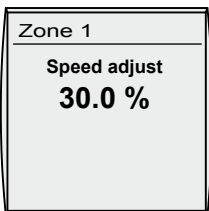
Speed adjustment key
Please note:
Pressing the key displays the current speed. You can then turn the r.h. rotary selector to modify the speed to a value between 30 and 100 %. Press the r.h. rotary selector to confirm the modified value. The speed preselected here (the base speed) cannot be reduced by the CO_2 sensor.
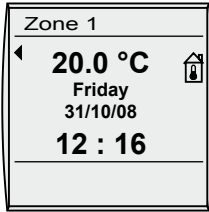
Room temperature, supply air temperature, extract air temperature

The temperature shown on the display depends on the temperature sensors connected. The sensor value displayed is as follows:

Only supply air sensor connected: display of supply air temperature
Only room sensor connected: display of room temperature
Supply air sensor + room sensor connected:
display of room temperature
Supply air sensor + extract air sensor connected:
display of extract air temperature
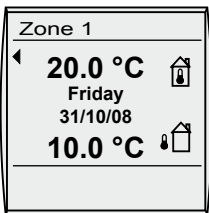
Time and outside temperature

The time and the outside temperature are displayed alternately (subject to an outside temperature sensor being installed).

Day / date

Display of the currently set day and date.

Status display

Symbols indicate the current operating state of your ventilation system.

⏰	Clock	=	ventilation mode (heating) with time program
✋	Manual	=	ventilation mode (heating) without time program
🏠	House	=	ventilation mode (summer mode) with time program
⏻	Standby	=	system off or ventilation (heating) ON/OFF via CO_2 sensor if parameter LM163 set to ON
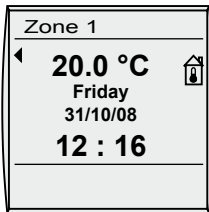
Indication of the current zone

If more than one zone is connected (up to 7) you can select the zone you want by turning the r.h. rotary selector.

Overview

```
┌─────────────────────────┐
│ 🗒 Main menu            │
├─────────────────────────┤
│ ← Back                  │
│ Displays                │
│ Fault ackn.             │
│ Basic settings          │
│ Time program            │
│ Holiday prog            │
│ Specialist              │
│ ← Back                  │
└─────────────────────────┘
```

Pressing the r.h. rotary selector calls up control level 2, where you can select the menu levels shown in the overview by turning the rotary selector clockwise. After selecting the parameter, you enter the submenu by pressing the r.h. rotary selector again.
Pressing the Info key takes you back to the default display, irrespective of which submenu is currently displayed.
The system also returns to the default display automatically when no adjustment is made for more than one minute.

Displays

All available set and actual temperatures, the operating mode and other system values can be displayed.
This is explained in the „**Displays**" chapter.

Acknowledge faults

Acknowledging (resetting) faults that have occurred.
This is explained in the „**Acknowledge faults.**" chapter.

Basic settings

Setting of the most important parameters in the ventilation system such as time, date, room temperature, night temperature, supply air minimum limit for heating, backup temperature, night setback, and night ventilation.
Setting options and explanations of the individual parameters are given in the **"Basic settings"** chapter.

Time programs

Modification of the time switch programs for heating operation.
Setting options and how to modify the individual time programs are explained in the **"Time programs"** chapter.

Holiday program

Five different holiday programs can be set. The holiday program takes precedence over the normal switching time.
When the holiday program ends, the system returns to the previously set time program automatically.

Specialist

Setting the specialist's parameters for the ventilation system.
Setting options and explanations of the individual parameters are given in the **"Specialist"** chapter.

Back to the default display

Displays
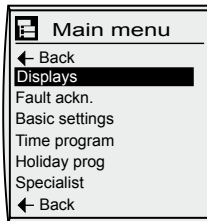
Main menu
← Back
Displays
Fault ackn.
Basic settings
Time program
Holiday prog
Specialist
← Back

Press the r.h. rotary selector to change to control level 2. Turn the r.h. rotary selector clockwise to select the „Displays" menu level and confirm the selection by pressing the r.h. rotary selector again.
You can now display the following values in sequence by turning the r.h. rotary selector.

Always select the zone first in order to scan its values.

1	Operating mode
2	Current program
3	Extract air temperature
4	Set room heating
5	Outside temperature
6	Actual vent air temperature
7	Set vent air temperature
8	Motor speed
9	Heating mixer
10	Heat recovery
11	Configuration
12	Softwareversion LM x Softwareversion LM y

Any sensors that are not connected are skipped, as only available values can be displayed.

Acknowledge faults

Main menu
← Back
Displays
Fault ackn.
Basic settings
Time program
Holiday prog
Specialist
← Back

Press the r.h. rotary selector to change to control level 2. Turn the r.h. rotary selector clockwise to select the „Acknowledge faults" menu level and acknowledge faults by pressing the r.h. rotary selector again.

After acknowledging faults, the display returns to the standard mask immediately.

Parameter overview, default settings
(settings and functions on the following pages)

```
📖 Main menu
← Back
Displays
Fault ackn.
Basic settings
Time program
Holiday prog
Specialist
← Back
```

Parameter	Setting range	Factory setting	Individual settings
Language	German / English French / Dutch	German	
Date	--.--.--		
Time	0 to 24 h		
Automatic summer / winter time changeover	AUTO / OFF	AUTO	
Key lock	ON/OFF	OFF	
Z1 Zone 1 . . Z7 Zone 7			
Setpoint temperature for day mode	5 °C – 50 °C	20 °C	
Economy temperature for heating	5 °C – 30 °C	16 °C	
Backup temperature for heating	5 °C – 30 °C	12 °C	
Speed adjustment	30 - 70 %	40 %	
Setback program	Econ. operation Backup mode Standby Hols summer vent	Backup mode	
VA min limit	5 °C – 30 °C	16 °C	
Night ventilation enable	ON/OFF	ON	

WOLF

Language

Basic settings
← Back
Language
Date
Time
Autom. summert.
Key lock
Z1 Hall1
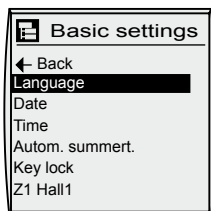
Factory setting: German
Options: German / English
French / Dutch

Press the r.h. rotary selector to change to control level 2.
Turn the r.h. rotary selector clockwise to select the "Default settings" menu level and confirm the selection by pressing the r.h. rotary selector again.
Select the Language parameter by turning the rotary selector further clockwise, and confirm your selection by pressing the selector again.
The language is changed by turning the r.h. rotary selector and pressing to confirm.

You can cancel your input by pressing the „Speed adjustment key ".

Date

Basic settings
← Back
Language
Date
Time
Autom. summert.
Key lock
Z1 Hall1

Press the r.h. rotary selector to change to control level 2.

Turn the r.h. rotary selector clockwise to select the "Default settings" menu level and confirm the selection by pressing the r.h. rotary selector again. Select the Date parameter by turning the rotary selector further clockwise, and press selector to confirm.

Turn the r.h. rotary selector to change the date.

Enter the day, month and year one after the other, pressing the r.h. rotary selector each time to confirm.

You can cancel your input by pressing the „Speed adjustment key".

The date will be displayed automatically if a radio clock module is connected. However, the date cannot then be changed.

Time
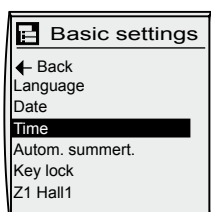
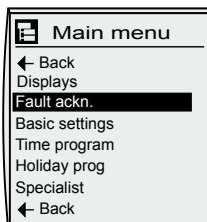| Basic settings |
| :--- |
| ← Back |
| Language |
| Date |
| **Time** |
| Autom. summert. |
| Key lock |
| Z1 Hall1 |

Press the r.h. rotary selector to change to control level 2. Turn the r.h. rotary selector clockwise to select the "Default settings" menu and confirm the selection by pressing the r.h. rotary selector again.

Select the Time parameter by turning the rotary selector further clockwise, and press selector to confirm.

Then turn the r.h. rotary selector to change the time.

Enter the hours, minutes and seconds one after the other, pressing the r.h. rotary selector each time to confirm.

You can cancel your input by pressing the „Speed adjustment key".
You must set the time again if the control unit has been disconnected from the power supply longer than 48 hours.
The time will be displayed automatically if a radio clock module is connected. However, the time cannot then be changed.

Control level 2 - Default settings

Automatic summer time

```
🔲 Basic settings
← Back
Language
Date
Time
Autom. summert.
Key lock
Z1 Hall1
```
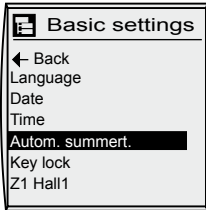
Factory setting: auto.
Options: auto / off

Key lock

```
🔲 Basic settings
← Back
Language
Date
Time
Autom. summert.
Key lock
Z1 Hall1
```

Factory setting: off
Options: on / off

Turn the r.h. rotary selector further clockwise to select the „Autom. summert." parameter and confirm the selection by pressing the r.h. rotary selector again.

„Automatic summertime" is disabled by turning the r.h. rotary selector and by pressing to confirm.
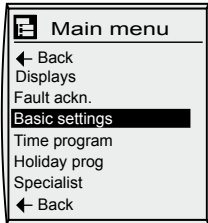
Press the r.h. rotary selector to change to control level 2. Turn the r.h. rotary selector clockwise to select the "Default settings" menu level and confirm the selection by pressing the r.h. rotary selector again. Select the "Key lock" parameter by turning the rotary selector further clockwise, and press selector to confirm.

The key lock is activated by turning the r.h. rotary selector and by pressing to confirm.

You can cancel your input by pressing the „Speed adjustment key".

Note:
The key lock parameter is intended to prevent unintentional adjustment of the ventilation system.

If the key lock parameter is set to "ON", the key lock will be activated automatically one minute after the last adjustment.
No adjustments or scans can be implemented when the key lock is enabled. If, nevertheless, a key or rotary selector is activated, then the display shows KEY LOCK.

The key lock can be lifted for a single adjustment or to display the set/actual values by holding down the r.h. rotary selector for approx. three seconds.
To disable the key lock permanently, the "Key lock" parameter must be set to "Off" again.

Please note

Function keys remain active
Speed adjust , fresh air proportion adjustment and temperature correction).

Z1 Zone 1

📋 Basic settings
← Back
Language
Date
Time
Autom. summert.
Key lock
Z1 Zone 1
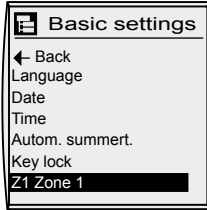
Select "Z1 Zone 1". If there is more than one zone in the system, select the zone for which you want to change values (max. 1-7) and confirm your selection by pressing the r.h. rotary selector again. You can now modify the following values for the selected zone one after the other by turning the r.h. rotary selector.

Tagtemperatur [Day temperature]

📋 Basic settings
← Back
Day temperature
Econ temp htg
Backup temp htg
Speed adjust
Setback prog
← Back

Factory setting: 20 °C
Range: 5 - 50 °C
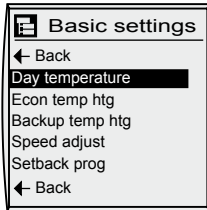
Select and confirm Day temperature using the r.h. rotary selector. Turn the r.h. rotary selector to set the required temperature and then press to confirm.

Economy temperature Heating

📋 Basic settings
← Back
Day temperature
Econ temp htg
Backup temp htg
Speed adjust
Setback prog
← Back

Factory setting: 16 °C
Range: 5 - 30 °C
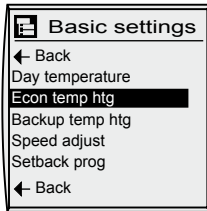
Select and confirm Economy temperature heating using the r.h. rotary selector. Turn the r.h. rotary selector to set the required economy temperature and press selector to confirm.

Backup temperature Heating

📋 Basic settings
← Back
Day temperature
Econ temp htg
Backup temp htg
Speed adjust
Setback prog
← Back

Factory setting: 12 °C
Range: 5 - 30 °C
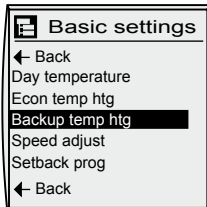
Select and confirm Backup temperature heating using the r.h. rotary selector. Turn the r.h. rotary selector to set the required backup temperature for heating and press selector to confirm (see "Standard functions" - "Central heating backup mode").

Speed adjustment

```
┌─────────────────────────┐
│ 🔲 Basic settings        │
│ ← Back                   │
│ Day temperature          │
│ Econ temp htg            │
│ Backup temp htg          │
│ ▐Speed adjust▌           │
│ Setback prog             │
│ ← Back                   │
└─────────────────────────┘
```

Factory setting: 40 %
Range: 30 - 70 %

Select and confirm Speed adjustment using the r.h. rotary selector. Turn the r.h. rotary selector to set the required speed (30-70 %) and press selector to confirm.

Function:
The speed preselected here applies during day temperature, backup mode, Summer ventilation and night ventilation and cannot be reduced by the CO_2 sensor.

Setback program

```
┌─────────────────────────┐
│ 🔲 Basic settings        │
│ ← Back                   │
│ Day temperature          │
│ Econ temp htg            │
│ Backup temp htg          │
│ Speed adjust             │
│ ▐Setback prog▌           │
│ ← Back                   │
└─────────────────────────┘
```
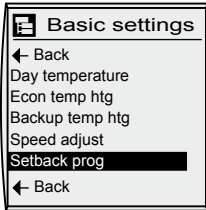
Factory setting: Backup mode
Range: Backup mode
        Econ.operation
        Standby
        Summer ventil.

Select and confirm Setback prog. using the r.h. rotary selector. Turn the r.h. rotary selector to set the required operating mode, and press selector to confirm:
- Backup mode
- Economy operation (setback mode)
- Standby
- Summer ventilation
.
You can preselect the above operating modes when the time program has switched off the system.

Backup mode function:
Backup mode can become active when the time program switches the system off (this is the factory setting). If the temperature in the room falls below the set backup temperature, the fan, HR and reheater are activated until the backup temperature is reached (+/- 1 K).
Backup mode = Economy mode: In the periods when the system is not switched on by the time program, the fan is only activated if the temperature falls below the backup temperature.

Supply air minimum limit

```
┌─────────────────────────┐
│ 🔲 Basic settings        │
│ ← Back                   │
│ Econ temp htg            │
│ Backup temp htg          │
│ Speed adjust             │
│ Setback prog             │
│ ▐VA min limit▌           │
│ Nght vent enable         │
└─────────────────────────┘
```
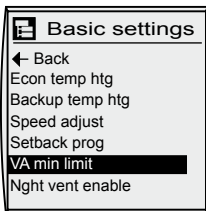
Factory setting: 16 K
Range: 5 - 30 K

Select and confirm VA min limit using the r.h. rotary selector. Turn the r.h. rotary selector to set the required supply air minimum temperature and press selector to confirm.

Function:
The air blown into the room must be at or above this temperature at all times. If the temperature falls below the set value by the set hysteresis (2 K), HR and the reheater are activated.

Please note:
The set temperature (for day, economy temperature) cannot be set below the value of the minimum limit.

Night ventilation enable

```
📋 Basic settings
← Back
Econ temp htg
Backup temp htg
Speed adjust
Setback prog
VA min limit
Nght vent enable
```
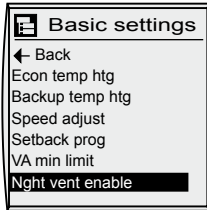
Factory setting: off
Options: off / on

Select and confirm Night ventilation enable using the r.h. rotary selector. Turn the r.h. rotary selector to set the required control type (ON / OFF) and press selector to confirm.

Function:
This function is used in summer to supply the room with cool outdoor air during periods when the system is not switched on by the time program.
If the room temperature exceeds a certain value, the system is switched on until the room temperature returns to the set value.
For a more detailed description, see "Additional functions".
This only works in backup mode
This function requires an outside temperature sensor and a room sensor/extract air sensor.

Time program

```
Time program
Zonenübersicht
← Back
Z1 Zone 1
Z2 Zone 2
← Back
```

```
Time program
Zone 1
Thursday
Friday
Saturday
Sunday
Copy day
← Back
```

```
Zone 1
Monday
← Back
Start time    07 : 00
End time      14 : 00
Start time    07 : 00
End time      14 : 00
Start time    07 : 00
End time      14 : 00
```

Press the r.h. rotary selector to change to control level 2.

Turn the r.h. rotary selector clockwise to select the

"Time program" menu and confirm the selection by pressing

 the r.h. rotary selector again.

Select the zone for which you want to program the switching times and confirm by pressing.

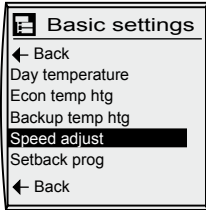Select the day for which you want to program the switching times and confirm your selection by pressing the r.h. rotary selector again.

Turn the r.h. rotary selector to select the start time and press selector to confirm.

Turn to set the required switching time and press selector to confirm.

Follow the same procedure for the end time.

You can then turn the r.h. rotary selector further to program switching times 2-8 in the same way as described above.

When you have programmed all switching times for the selected day, you can exit the menu with "Back".
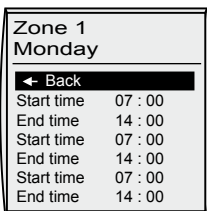
Turn the r.h. rotary selector further to select „Copy day" and confirm the selection by pressing the selector again. You are automatically taken to the copy area.

The source day of the week is displayed.

Turn the r.h. rotary selector to select the day you programmed previously and press selector to confirm.

The target day of the week is displayed.

Select the day or block of days to which you want to copy the switching times and press selector to confirm.

Copy selection: Mo, Tu, We, Th, Fr, Sa, Su

Mo - Th

Mo - Fr

Sa - Su

Time program for zone 1 - factory setting

Zone 1

	Time program 1	Time program 2	Time program 3	Time program 4	Time program 5	Time program 6	Time program 7	Time program 8
Monday								
On	07:00							
Off	14:00							
Tuesday								
On	07:00							
Off	14:00							
Wednesday								
On	07:00							
Off	14:00							
Thursday								
On	07:00							
Off	14:00							
Friday								
On	07:00							
Off	14:00							
Saturday								
On	--:--							
Off	--:--							
Sunday								
On	--:--							
Off	--:--							

If no switching time is entered, that means the system is shut down.
Each day of the week begins at 0:00 h and ends at 23:59 h.

Holiday prog
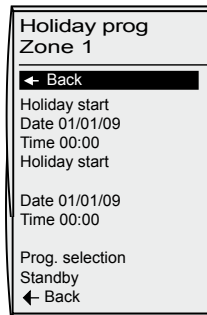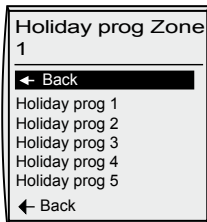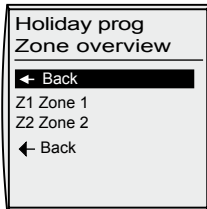
```
Holiday prog
Zone overview
─────────────────
← Back
Z1 Zone 1
Z2 Zone 2
← Back
```

```
Holiday prog Zone
1
─────────────────
← Back
Holiday prog 1
Holiday prog 2
Holiday prog 3
Holiday prog 4
Holiday prog 5
← Back
```

```
Holiday prog
Zone 1
─────────────────
← Back
Holiday start
Date 01/01/09
Time 00:00
Holiday start

Date 01/01/09
Time 00:00

Prog. selection
Standby
← Back
```

Press the r.h. rotary selector to change to control level 2.

Turn the r.h. rotary selector clockwise to select the „Holiday program" [Holiday program] menu and confirm the selection by pressing the r.h. rotary selector again.

Select the zone for which you want to program the holiday times and confirm by pressing the selector.

Select the holiday program (from 1 to 5) for which you want to program the holiday times and confirm your selection by pressing the r.h. rotary selector again.

Turn the r.h. rotary selector to select the date for holiday start and press selector to confirm.

Turn to set the required date and press selector to confirm.

Follow the same procedure to set the time.

Then set the date and time for holiday end.

Next, under Prog. selection, select "Standby" and confirm by pressing the selector.

You can select from the following:

- Standby (factory setting)
- Backup mode
- Econ.operation
- Hols day mode
- Summer ventil.

Follow the same procedure for holiday programs 2 to 5.

Password requirement

User password
authorisation
required.

🔑 🔲———

Cancel = ▥
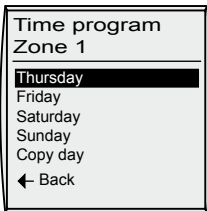
Press the r.h. rotary selector to change to control level 2. Turn the r.h. rotary selector clockwise to select the "Specialist" menu level and confirm the selection by pressing the r.h. rotary selector again.

Turn the r.h. rotary selector to enter the digit 1 and confirm it. Repeat this three times (to enter password 1111).

After entering this code, you will be in specialist level 3.

🔲 Specialist

← Back
System
Z1 Zone 1
Z2 Zone 2
← Back
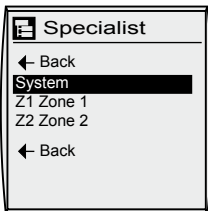
You can use the BML programming module to set the parameters of the ventilation units.

Setting options and explanations of the individual parameters are given in chapter
Control level 3 - Specialist - System parameters.
After selecting the zone and confirming the selection, the data is retrieved from the ventilation appliance control unit and displayed approx. 5 seconds later.
If the parameter is present in the ventilation appliance control unit, the
value currently set for it will be shown in the display and can be modified.
If modules are removed from the system or existing systems are extended or modified with modules, a re-configuration must be carried out.
The re-configuration process is completed when „New configurat" is selected and confirmed.

**New configurat /
Sensor check**

🔲 System

← Back

New configurat
Sensor check

← Back
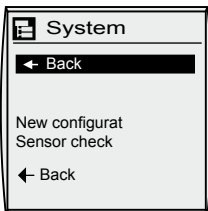
If a temperature sensor is removed from the system or one is retrofitted after commissioning, sensor detection must be carried out.
The sensor detection process is completed when „Sensor check" is selected and confirmed.

Zone designat

🖉 Zone 1

Zone designat
Restaurant

Cancel

= ✳
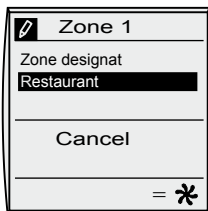
Any text can be entered as the Zone designat for the zone, e.g. Restaurant.

With the r.h. rotary selector, select the required zone (from zones 1 to 7) in the "Specialist" menu level (after entering the code) and press selector to confirm.
Select the Zone designat parameter and press selector to confirm.

Use the r.h. rotary selector to enter your selection (letters, numbers, symbols, etc.).
Confirm the selected character with the r.h. rotary selector.
You can then enter the next character.
You can enter up to 16 characters.

Ventilation unit parameters

```
 Specialist
← Back
Zone designat
LM001    K20
LM015    25 %
LM016    70 %
LM017    10 K
LM018    93
LM023    ON
```
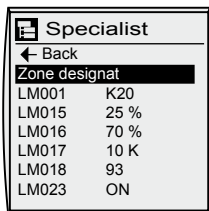
The settings can be modified for LM001 to LM204.

See **"Specialist parameter list - Overview"**

Relay test

```
 Specialist
LM203    1000
Relay test
Off
Zone designat
← Back
```

Relay test can be used to activate the outputs for particular modules.

With the r.h. rotary selector, select the required zone (from zones 1 to 7) in the "Specialist" menu level (after entering the code) and press selector to confirm.
Select the "Relay test" parameter and press selector to confirm.

Use the r.h. rotary selector to make your selection (see below) and press selector to confirm (for relay assignment, see terminal assignments).

- Rel o.air open
- Rel o.air cl.
- Frequency converter relay
- Analogue Y1
- Analogue Y2
- Analogue Y3
- Analogue T1

This function can be used to activate the individual outputs in sequence. When you exit the menu, relay test is disabled automatically and the system returns to the previously selected operating mode.

Zone reset

```
 Specialist
LM203    1000
Relay test
Off
Zone reset
← Back
```

You can use Zone reset to reset all the parameters saved on a module to their factory settings.

With the r.h. rotary selector, select the required zone (from zones 1 to 7) in the "Specialist" menu level (after entering the code) and press selector to confirm.
Select the Zone reset parameter and press selector to confirm.

The following values are reset to their factory settings:
- Zone parameters
- Time program
- Default settings
- Holiday prog

Setting parameters

```
 Specialist
← Back
Zone designat
LM001    K20
LM015    25 %
LM016    70 %
LM017    10 K
LM018    93
LM023    ON
```

With the r.h. rotary selector, select the required zone (from zone 1 to 7) in the "Specialist" menu level (after entering a password) and press selector to confirm.

Select the ventilation unit parameter (LM...) you want to modify, confirm by pressing the selector and then modify it by turning the r.h. rotary selector. Once you have set the ventilation unit parameter (LM...) you wanted to modify, press the r.h. rotary selector again to confirm the setting.

Specialist parameter list - Overview

Parameter		Setting range	Factory setting	Individual settings
LM001	Configuration	–	K20	
LM013	Hysteresis OFF	0-3 K	1 K	
LM015	Minimum fan speed	5 % - 60 %	30 %	
LM016	Maximum fan speed	25 % - 100 %	70 %	
LM017	P component for speed control	1 - 20	10	
LM018	Ratio of extract air to supply air fan speed	50 - 150	93	
LM020	Weather-compensated winter/summer changeover	ON/OFF	OFF	
LM021	Differential for heating	1 K – 20 K	1 K	
LM023	Room frost protection	ON/OFF	ON	
LM024	Room frost protection temperature	0 °C – 30 °C	5 °C	
LM060	Fan speed for Economy operation, speed control pre-selection for backup mode, night ventilation, summer mode, room frost protection	40 % - 100 %	70 %	
LM080	P component for heating circuit mixer	5 - 20	12	
LM081	Integral action time for heating circuit mixer	0 - 25 min	2 min	

Parameter		Setting range	Factory setting	Individual settings
LM100	Cascade effect	0 - 20	2	
LM101	Integral action time for cascade	0 - 25 min	2 min	
LM102	Supply air maximum limit	20 - 60 °C	50 °C	
LM103	Control type	Supply air control, cascade control	Supply air control	
LM114	Damper lead time	0 - 150 s	120 s	
LM130	Night ventilation limit	10 - 30 °C	22 °C	
LM131	Night ventilation start condition differential TR > TA	2 K - 20 K	5 K	
LM132	Night ventilation, minimum outside temperature	5 - 20 °C	12 °C	
LM150	P component for HR	5 - 20	12	
LM151	Integral action time for HR	0 - 25 min	2 min	
LM160	Air quality control	OFF/ON	ON	
LM161	Air quality, start	0 - 10 V	4 V	
LM162	Air quality, maximum	0 - 10 V	8 V	
LM163	System OFF/ON via air quality	OFF/ON	OFF	
LM180	Alarm function, fire dampers	(OFF) System Off (ON) Message only	System OFF	
LM190	Delay for air flow fault	5 - 600 s	60 s	
LM200	Active filter monitor	ON/OFF	OFF	
LM201	Filter check interval	1 -10 weeks	1 week	
LM202	Service message via hours run	ON/OFF	OFF	
LM203	Fan hours run	100 - 8000	1000	
LM204	Filter check	ON/OFF	OFF	

Parameter description

The specialist parameters listed in the table in the last section are described in detail below.
The column on the left shows the designation of each parameter and its number.
Not all parameters listed in the table will be present in every system configuration.

**Hysteresis OFF
LM013**

Factory setting: 1 K
Range: 0 - 3 K

The heating control by temperature stops if the currently actual room temperature or extract air temperature exceeds the set temperature by the Hysteresis OFF value.

**Minimum fan speed
LM015**

Factory setting: 30 %
Range: 5 - 60 %

Min. speed "n-min" (minimum output voltage)
Setting (if required) of a minimum output voltage, i.e. a base speed (minimum air change) for the connected fans which must be maintained during temperature control and CO_2 control.
Never set below 30 %!

**Maximum fan speed
LM016**

Factory setting: 70 %
Range: 25 - 100 %

Max. speed "n-max" (maximum output voltage)
Setting (if required) of a maximum output voltage, i.e. a speed limit (to prevent excessive air noise) for the connected fans which must not be exceeded during temperature control and CO_2 control.

**P component
for speed control
LM017**

Factory setting: 10
Range: 1 - 20

The P component for speed control determines how sharply the output signal of the Analogue output is modified in proportion to a control deviation. (0-100 %)
If the P component is set low, the control unit responds more quickly.
If the P component is set high, the control unit responds more slowly.

**Ratio of extract air/
supply air fan speed
LM018**

Factory setting: 93
Range: 50 - 150

In order to run air handling systems so that positive or negative pressure is created in the room, the speeds of the supply air and extract air fans must be set differently.

Setting   LM018 at 100 → parallel operation

LM018 at > 100 → negative pressure

LM018 at < 100 → positive pressure

**Weather-compensated
summer shutdown
LM020**

Factory setting: OFF
Range: ON/OFF

By enabling this parameter, the system can be switched on and off according to the outside temperature.
The system must be connected to an outside temperature sensor for this function to be available (see "Additional functions"). In the control panel, disconnect the internal wires across terminals X2 21/22 and connect the external outside temperature sensor.
Enable this parameter only if you are replacing an internal temperature sensor with an outside temperature sensor one.

Differential for heating LM021

Factory setting: 1
Range: 1 - 10 K

This parameter defines the outside temperature, relative to the set room temperature, at which the ventilation unit stops.
Example:
Set room temperature 20 °C, parameter LM021 set to 5.
If the outside temperature is > 25 °C the ventilation unit will be switched off. At 1 kelvin below that, the unit will be enabled again.

Room frost protection LM023

Factory setting: ON
Range: ON/OFF

Activating this parameter allows the system to be switched on when the room temperature falls below the room frost protection limit.

Room frost protection temperature LM024

Factory setting: 5
Range: 0 - 30 °C

If the room temperature falls below the set value, the reheater and the fan are activated. Once the temperature rises 2 K above the set temperature, the system stops again.
The fan speed can be preselected manually.

Fan speed for Econ.operation LM060

Factory setting: 70 %
Range: 40 - 100 %

When Economy operation is active, the fan is operated at the speed preselected here. The set speed applies to backup mode, night ventilation, summer mode and peak ventilation.

P component for heating circuit mixer LM080

Factory setting: 12
Range: 5 - 20

The P component for the heating circuit mixer (HR) determines how sharply the output signal of the heating circuit mixer is modified in proportion to a control deviation.
If the P component is set low, the control unit responds more quickly.
If the P component is set high, the control unit responds more slowly.

Integral action time for heating circuit mixer LM081

Factory setting: 2 min.
Range: 0 - 25 min.

The integral action time for the heating circuit mixer (HR) determines how great the time effect is on the output signal of the heating circuit mixer due to a control deviation.
If the integral action time is set low (high time effect), short correction times result. However, so do greater fluctuations around the set value. If the integral action time is set high, longer correction times result. This also means lesser fluctuations around the set value.

Cascade effect LM100

Factory setting: 2
Range: 0 - 20

The cascade effect determines how sharply the set temperature for supply air is modified in proportion to a control deviation in the room temperature.
If the P component is set low (low gain), longer correction times result, whilst fluctuations around the set value will be minor. If the P component is set high, shorter correction times result. However, so do greater fluctuations around the set value.

WOLF

Parameters / Function description

Integral action time for cascade LM101

Factory setting: 2 min.
Range: 0 - 25 min.

The cascade integral action time determines how great the time effect is on the set temperature for supply air due to a control deviation in the room temperature.
If the integral action time is set low (high time effect), shorter correction times result. However, this also means greater fluctuations around the set value. If the integral action time is set high, longer correction times result. This also means lesser fluctuations around the set value.

Supply air maximum limit LM102

Factory setting: 50 °C
Range: 20 - 60 °C

The supply air maximum limit determines the maximum temperature at which supply air can be blown into the room. If the differential in temperature between the set temperature and the actual temperature is high, control based on room temperature could lead to very warm air being conveyed into the room. This high supply air temperature would cause the air quality in the room to worsen. To prevent that, the supply air temperature is limited to a maximum value in the case of heating.

Temperature - control type LM103

Factory setting:
Supply air temperature control

This parameter sets the type of temperature control.
- Auto
- Supply air temperature control
- Extract air:supply air cascade
For a detailed description of the control functions, see BML.

Damper lead time LM114

Factory setting: 0 s
Range: 0 - 150 s

To prevent whistling noises occurring on the dampers when the fan is switched on, the outside air dampers are opened first, with the fans being switched on after this time (60 s) has elapsed.

Night ventilation limit LM130

Factory setting: 22 °C
Range: 10 - 30 °C

If night ventilation is activated (DEFAULT SETTING), this parameter is used to determine the room temperature or extract air temperature at which night ventilation starts or stops (±1 K).
Night ventilation starts if the room or extract air temperature is higher than the set value ± 1 K.
Night ventilation stops if the room or extract air temperature is lower than the set value.

Night ventilation start condition LM131

Factory setting: 5 K
Range: 2 - 20 K

If night ventilation is activated (DEFAULT SETTING), this parameter sets the outside temperature, relative to room temperature, at which night ventilation starts.
Night ventilation starts when the outside temperature is lower than the room temperature minus the "Night ventilation start condition" parameter.

Night ventilation, minimum outside temperature LM132

Factory setting: 12 °C
Range: 5 - 20 °C

The "Night ventilation minimum outside temperature" parameter sets the minimum outside temperature below which night ventilation is disabled.

P component for HR LM150

Factory setting: 12
Range: 5 - 20

The P component for HR determines how sharply the output signal of the HR damper is modified in proportion to a control deviation.
If the P component is set low, the control unit responds more quickly.
If the P component is set high, the control unit responds more slowly.

Integral action time for HR LM151

Factory setting: 2 min
Range: 0 - 25 min

The integral action time for HR determines how great the time effect is on the output signal of the HR damper due to a control deviation.
If the integral action time is set low (high time effect), shorter correction times result. However, this also means greater fluctuations around the set value. If the integral action time is set high, longer correction times result This also means lesser fluctuations around the set value.

Air quality control / CO2 LM160

Factory setting: ON
Options: OFF - ON

If the system is equipped with an air quality sensor / CO_2 sensor, this parameter must be set to ON in order to make this function available.

Air quality / CO2 start LM161

Factory setting: 4 V
Range: 0 - 10 V

If air quality control is enabled, this parameter defines the default value from which the speed is increased.

Air quality / CO2 maximum LM162

Factory setting: 8 V
Range: 0 - 10 V

If air quality control is enabled, this parameter defines the default value at which the maximum speed is reached.
Observe compliance with the limits set by parameters LM015, LM016.

**System OFF/ON
via air quality / CO_2
LM163**

Factory setting: OFF
Options: OFF - ON

If you want the system to be switched on an off according to the air quality (CO_2 content), this parameter must be set to ON.
In order to use this function, the operating mode selector must be set to standby or setback mode with standby must be preselected.
This function is only possible in the standby mode.
The CO_2 sensor should be located inside the room.

**Alarm function,
fire dampers
LM180**

Factory setting: OFF
Options: ON/OFF

There are different possible responses when a fire alarm damper responds.
<u>Setting OFF:</u> The fans are switched off and all outputs are set to 0. A fault message is displayed on the BML programming module.
<u>Setting ON:</u> The system continues running in control mode; only a fault message is displayed on the BML programming module.

**Delay for
air flow monitor
LM190**

Factory setting: 60 s
Range: 5 - 600 s

If the differential pressure cell for air flow monitoring responds, the system stops after the delay time set here (fans off, all outputs set to 0).
A fault message appears on the BML programming module.

**Active filter monitor
LM200**

Factory setting: OFF
Options: ON/OFF

If there is a filter monitor (differential pressure cell) installed in the ventilation unit, this parameter must be set to ON. If set to OFF, filters will not be monitored.

**Filter check interval
LM201**

Factory setting: 1 week
Range:1 -10 weeks

Subject to setting, the process is as follows:
After the motor starts, filters are checked after the test interval has elapsed. Fan runs at 100 % speed, and after a delay of 60 s a fault message is issued on the BML programming module if filters are dirty. The system resumes its control mode and the fan speed is reset again. If the system continues running day and night, a filter check will be carried out after the test interval has elapsed plus 24 hours.

**Filter service message
LM202**

Factory setting: OFF
Options: ON/OFF

If there is no active filter monitoring input, this parameter can be used to enable the filters to be reported as dirty according to the number of hours that the fans have been running.

**Fan hours run
LM203**

Factory setting: 1000 h
Range: 100 - 8000 h

Here you can set the number of hours of fan operation after which the filters should be reported as dirty.

**Filter check
LM204**

Factory setting: OFF
Options: ON/OFF

If set to "ON" a filter check can be carried out immediately (checking of cable/differential pressure cell), otherwise test procedure as described under LM201
Please note: Parameter LM200 must be set to "ON" to be able to activate a filter check.

Master reset

Take the programming module (BML) in the ventilation unit out of its wall mounting base and clip it back in again while holding down the r.h. selector.

Hold the selector down until Parameter reset appears on the display.

The following values are reset to their factory settings:

- Zone designat
- Language
- Key lock
- Automatic summer / winter time changeover
- System parameters

Please note

Also carry out a master reset if an eBUS error occurs when the system is first switched on.

Standard functions

The standard functions of the controller are described below.

Motor protection

The motor winding temperature is monitored with the aid of thermistors set into the motor windings or PTC thermistor pellets.
If the winding temperature rises above the defined value, the motor and all outputs are switched off. A fault message is displayed on the programming module. The motor will only restart once the fault is removed (motor cooled down) and the fault message is reset.
The fault is reset by acknowledging the fault on the BML programming module.
Relevant parameters: none

Room frost protection
(room sensor)

The room frost protection function prevents the room from cooling down too much, thereby preventing damage to the building that might otherwise result
(moisture damage, mould growth, etc.).
Relevant parameters:
Room frost protection on (LM023),
Room frost protection temperature (LM024)

Pre-requisites:
Room sensor / extract air sensor
If the room temperature falls below the set value, HR, the reheater and the fan are activated and the outside air dampers are opened. Once the temperature rises 1 K above the set temperature, the system stops again.
This works in all operating modes

Backup mode, heating	If backup mode is enabled, and the current room temperature falls below the backup temperature (DEFAULT SETTING), the fan is run at the preselected speed and HR and the reheater are activated. Once the current room temperature rises 1 K above the backup temperature, everything stops again. Relevant parameters: Program selector, time program, in OFF mode, backup temperature, night mode
Supply air minimum limit for heating	If the supply air temperature (temperature of air blown in) falls below the set minimum limit value, the heating mixer is activated (100 %) (HR and reheater coil). The heating modules are not switched off again until the temperature has risen above the set value. In addition, if the supply air temperature falls below the minimum limit, the current fan speed is set to the minimum speed (parameter LM 015) after 900 s have elapsed. If the supply air minimum limit then ceases to be active, the fan speed is returned to its nominal speed. If the supply air minimum limit is still active after 5 minutes despite the speed reduction, a fault message is issued (and the system shuts down). This will be reset automatically once 5 hours have elapsed or when the fault is acknowledged on the BML.
Filter contamination fault trigger	Parameters LM202 and LM203 can be used to activate a filter fault by means of the number of hours of fan operation.
Active filter monitor	A differential pressure cell can be used to trigger a fault message when the filter is dirty; see parameter LM200.
Fan run-on time	To prevent re-heating by the electric heater coil, the fan stops only after a run-on time of 45 seconds after system shutdown.
External ON/OFF	An on-site contact can be used to switch the system on and off within the time program. Contact closed: System runs according to the time program Contact open: System switched off by time program If the system is always going to be operated via the external switch, the time program must be enabled 24 hours a day
Additional functions	The additional functions of the controller are described below.

Room/supply air cascade control	With room/supply air cascade control, the set supply air temperature is corrected according to the control deviation of the room temperature. Relevant parameters: Cascade effect LM100, integral action time for cascade LM101, supply air minimum limit (default setting), supply air minimum limit LM102 Pre-requisites: Room sensor (extract air sensor) and supply air sensor The set supply air temperature is dependent on the load conditions in the room. The actuating variable from the room temperature control is transferred as set value to the supply air temperature control. This results in the set supply air temperature being varied according to the deviation in room temperature.
Night ventilation	In summer, night ventilation pre-cools the room for the following day with cool outdoor air. Relevant parameters: Night ventilation limit LM130; start condition Tr > Ta LM131; permissible outside temperature LM132 Pre-requisites: - Room sensor (extract air sensor) and outside temperature sensor are installed - Time program set to "OFF" - Outside temperature > minimum outside temperature (LM132) - Outside temperature < room temperature + delta (LM131) - Room temperature > set room temperature (LM130) - Works only when backup mode is selected - Enabled from 1 March to 31 October - Enabled from 20:00 to 07:00 h Effects: - Fans are switched on - Speed according to parameter LM060 - HR heater coil is switched off - Outside air dampers are opened - Set temperatures for switching night ventilation on and off are defined by parameter LM130. When night ventilation is activated, sensor values are checked for the first 7 minutes. (Fan speed according to parameter LM 060; checking outdoor air, extract air/room air temperatures.) If the conditions defined by parameters LM 130 - LM 132 are met, night ventilation continues. If the conditions are not met, night ventilation stops again. If, during the time in which night ventilation is enabled, a shutdown occurs (temperature below threshold in parameter LM 130), another sensor check is activated after 125 minutes and runs for 7 minutes. In order to use night ventilation efficiently, the outside temperature sensor in the appliance should be disabled and shifted outside.

![WOLF]

Additional functions

Preheater coil for HR Ice guard, Filter drying	When the outside temperature is below 0 °C, the preheater coil is activated. Once the temperature rises to the set temperature + hysteresis, the preheater coil is switched off again.
Condensate overflow	When a condensate pump is connected, the amount of condensate is monitored. If the limit is exceeded, the ventilation unit stops and a fault message is issued on the BML (active only with cooling configurations).
Summer shutdown	With parameters LM020 / LM021, ventilation can be switched off automatically in the event of very high outside temperatures to prevent the interior getting too hot. When summer shutdown is activated, the outside temperature sensor in the appliance must be disabled and an external outside temperature sensor used.
Heat recovery	In many industrial plants, waste heat from cooling circuits/ lighting is available. Heat recovery allows the utilisation of this free heat source for heating purposes. With a crossflow heat exchanger, energy costs can be drastically reduced in this way. Heat recovery is actuated by an Analogue control signal (0-10 V). Heat recovery is applied for heating and cooling purposes by capturing and comparing the room (extract air) temperature, the outside temperature and the supply air temperature. HR actuation takes priority over the actuating signal for heating. The **reheater coil** is not activated unless and until the HR control signal is at 10 V and the set temperature has still not been reached. Relevant parameters: P band for HR LM150, integral action time for HR LM151 The parameters are switched to active only in accordance with the configuration Function is only supported in conjunction with an outside temperature sensor/room sensor or extract air sensor.
HR ice guard	To prevent frost forming on the extract air side of the HR system, the extract air temperature is captured by an ice guard sensor and if the temperature falls below +6 °C, the HR system is steadily closed. At 1 °C the HR system is closed completely. The heating valve continues to be controlled towards its set value independently. If the temperature stays below the icing-up temperature for more than 2 minutes, a fault message is issued. The fault message automatically extinguishes when the temperature rises above the limit temperature. Ice guard function does not become active until the fan has been running for at least 5 minutes.

CO_2 control
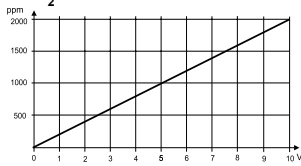
CO_2 sensor diagram

An external contact can be used to switch the system off or simply issue a fault; see parameter LM180.

The fan speed is adjusted according to the CO_2 content of the room air.
Relevant parameters: LM015, LM016, LM160, LM161, LM162
This function is only supported in conjunction with a CO_2 sensor.

Peak ventilation:

Connect external floating contact to input B5. The speed is ramped up as set in parameter LM060. The speed is not ramped down again (control operation) until the contact switches off. This works in all operating modes (On/Off switch function).

NTC sensor resistances

Outside temperature sensor, room sensor, supply air sensor, extract air sensor

Temp. °C	Resist. Ω	Temp. °C	Resist. Ω	Temp. °C	Resist. Ω	Temp. °C	Resist. Ω
-21	51393	14	8233	49	1870	84	552
-20	48487	15	7857	50	1800	85	535
-19	45762	16	7501	51	1733	86	519
-18	43207	17	7162	52	1669	87	503
-17	40810	18	6841	53	1608	88	487
-16	38560	19	6536	54	1549	89	472
-15	36447	20	6247	55	1493	90	458
-14	34463	21	5972	56	1438	91	444
-13	32599	22	5710	57	1387	92	431
-12	30846	23	5461	58	1337	93	418
-11	29198	24	5225	59	1289	94	406
-10	27648	25	5000	60	1244	95	393
-9	26189	26	4786	61	1200	96	382
-8	24816	27	4582	62	1158	97	371
-7	23523	28	4388	63	1117	98	360
-6	22305	29	4204	64	1078	99	349
-5	21157	30	4028	65	1041	100	339
-4	20075	31	3860	66	1005	101	330
-3	19054	32	3701	67	971	102	320
-2	18091	33	3549	68	938	103	311
-1	17183	34	3403	69	906	104	302
0	16325	35	3265	70	876	105	294
1	15515	36	3133	71	846	106	285
2	14750	37	3007	72	818	107	277
3	14027	38	2887	73	791	108	270
4	13344	39	2772	74	765	109	262
5	12697	40	2662	75	740	110	255
6	12086	41	2558	76	716	111	248
7	11508	42	2458	77	693	112	241
8	10961	43	2362	78	670	113	235
9	10442	44	2271	79	670	114	228
10	9952	45	2183	80	628	115	222
11	9487	46	2100	81	608	116	216
12	9046	47	2020	82	589	117	211
13	8629	48	1944	83	570	118	205

Specification, CGL control unit

Supply voltage:	230 V
Power consumption:	max. 3 W
IP rating:	IP54 control panel
Ambient temp.:	0....50 °C
Storage temperature:	-20....+60 °C
Data memory:	EEPROM (non-volatile)
Relay contact breaking capacity (servomotor):	230 V/1 A/0.5 A
Max. power consumption, Actuators X1 - X3 (Y1 - Y3)	10 VA

Specification, BML

Supply voltage:	eBUS 15-24 V
Power consumption:	max. 3 W
IP rating:	IP30 wall mounting base
Battery backup:	> 48 h
Ambient temp.:	0....50 °C
Storage temperature:	-20....+60 °C
Data memory:	EEPROM (non-volatile)
Dimensions:	H/W/D 100 x 145 x 45 mm

System configuration

LM001 configuration K20 — **Ventilation unit with room or extract air temperature control, variable fan motor control via 0-10 V signal (EC motors). Plus installed heat recovery systems CO_2-dependent speed adjustment**

Description: This configuration is used for the ventilation of buildings. The room/extract air temperature is captured by a sensor, with HR and the reheater coil being switched on and off according to demand. The fan speed is adjusted via a CO_2 sensor (accessory).

System layout:

3063527_201509

39
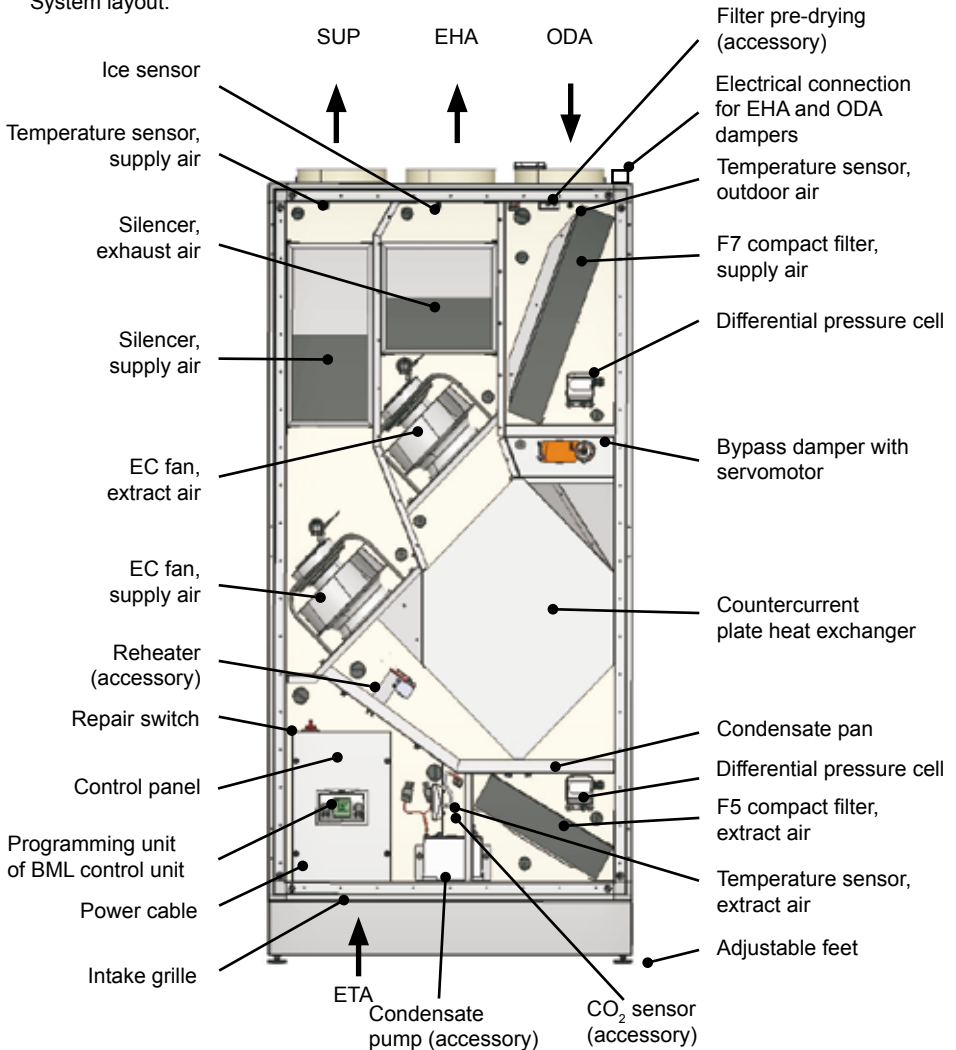
Terminal assignments: Module address 1

| L1 N PE 230V 50/60 Hz | PE A Z N M1 | N PE L1 M2 | 1 2 K1 | 1 2 K2 | | G0 Y G X1/Y1 | ⊥ Y + X2/Y2 | ⊥ Y + X3/Y3 | 1 2 B1 | 1 2 B2 | 1 2 B3 | 1 2 B4 | 1 2 B5 | 1 2 T1 | 1 2 T2 | + - eBus |

```
Mains
230 V AC

Servomotor,
EHA and ODA
dampers
230 V/0.5 A
Open-Close

Switching filter
pre-drying

SS
Central
fault message
24 V DC

B
24 V DC operating
message

Control signal,
reheater
0-10 V DC

Servomotor,
bypass damper
24 V / 0-10 V DC

Supply air
sensor

CO₂ sensor

Fault input
- motors

Room
sensor/
extract air
sensor

External
contact
(switch)
for peak
ventilation

BML
as RC

Control signal,
0-10 V
Extract air motor

Control signal,
0-10 V
Supply air motor
```

| 1 2 B6 | 1 2 B7 | 1 2 B8 | 1 2 B9 | 1 2 B10 |

```
Condensate   Ice sensor

Fire 1      Filters    External
                       On/Off
```

Standard functions: Motor protection
Room frost protection
Central heating backup mode
External ON/OFF
Filter monitor
Fire alarm
Operating message
Central fault message

Additional functions: Night ventilation
Supply air control or
extract/supply air cascade
HR control
CO_2 control

![WOLF]

Fault messages

```
┌─────────────────────┐
│ Zone 1          ⚠  │
│◄ 20.0 °C        🏠 │
│     Friday          │
│    31/10/08         │
│    12 : 16          │
│ Fault zone          │
│ 254 - General fault │
└─────────────────────┘
```
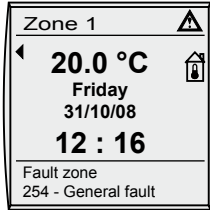
Fault messages are issued to the programming unit with plain text, info no. and a symbol ⚠

The display shows:
(e.g. "Fault zone, 207 - motor protection")

Troubleshooting:

1. Check whether the motor protection on the supply/extract air fan has responded. Do so by measuring across the NC/COM terminals whether the contact has closed (using an ohmmeter or continuity tester).
   If the contact is closed, the motor protection has responded. **After remedying the fault, press "Acknowledge faults" on the BML. The system will resume operation.**

Fault acknowledge
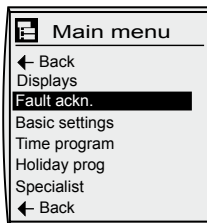
```
┌─────────────────────┐
│ 📋 Main menu        │
│ ← Back              │
│ Displays            │
│ ▓Fault ackn.▓       │
│ Basic settings      │
│ Time program        │
│ Holiday prog         │
│ Specialist          │
│ ← Back              │
└─────────────────────┘
```

Press the r.h. rotary selector to change to control level 2.
Turn the r.h. rotary selector clockwise to select the „Fault acknowledge" menu level and acknowledge by pressing the r.h. rotary selector again.

The display returns to the default mask immediately after acknowledgement.

No.	Faults	Effect	Cause / Remedy
15	Outside temp sensor (value is no longer shown on display)	Control functions depending on outdoor sensor are no longer supported (night ventilation, natural cooling, etc.).	Sensor or lead faulty. Carry out sensor detection.
112 111	E112 / E111 EEPROM-Sys Syspar - Chksum (Fault message on starting)	System fails to start	Initialisation failed Press ⬆ key 3 x
200	Fire alarm	Depending on parameter settings, the system stops or only a fault message is issued. Once the fault is remedied and the fault message is acknowledged, the system starts again.	Fire alarm, fire damper has responded.
204	Ice sensor	HR shuts down and/or is no longer controlled. Analogue output Y3 is set to "0". Temperature control via the heating valve continues as normal.	Faulty sensor or sensor lead, or temperature fallen below the sensor's limit temperature
205	Condensate	The affected fan stops. All outputs are set to "0". **Function only available in active cooling mode**. Once the fault is remedied and the fault message is acknowledged, the system starts again.	Condensate hoses contaminated or kinked. The condensate is no longer being pumped away.
207	Motor protection	The affected fan stops. All outputs are set to "0". Once the fault is remedied and the fault message is acknowledged on the BML, the system starts again.	Temperature in the fan motor has exceeded the permissible range. With EC fans, the motor must be switched off for about 1 min. in order to reset the fault.
209	Supply air sensor	The ventilation unit for the affected zone stops. All outputs are set to "0".	Sensor or lead faulty.
210	Room sensor (extract air sensor)	The ventilation unit for the affected zone stops. All outputs are set to "0".	Sensor or lead faulty.

No.	Faults	Effect	Cause / Remedy
220	Air flow	Both fans are switched off. All outputs are set to "0". Once the fault is remedied and the fault message is acknowledged, the system starts again.	V-belt torn. Outside air dampers fail to open Replace V-belts.
222	Filters	If the differential pressure falls below the set differential pressure, a fault message is issued. The entire system continues running as normal. Fault message must be acknowledged.	Filter is contaminated. Replace filter.
251	eBUS fault	System fails to start	Power failure; supply to eBUS interrupted. The affected zone continues running in day mode. Remove the BML and clip it back in again while holding down the r.h. selector (master reset).
255	VAmin limit	The system stops after 5 min. and will not be enabled again until 6 hours later, or automatically reset when the fault is acknowledged on the BML.	Outside temperature too cold to maintain the supply air minimum limit. **Check whether the high limit safety cut-out has responded on the filter pre-dryer and reheater coils. If so, reset the high limit safety cut-out.**

EC-MOTOR 1x230V

EC-MOTOR 1x230V

68-34-007-001

	EPLAN P8 2.0.5	
Dept. TAK		Art.Nr. 6800953

CONDENSATE
PUMP FEED FANS

03	21.06.2012	KUER		device	CGL
04	19.10.2012	KUER			
05	12.03.2013	KUER			68-34-007-001
Modification	Date	Name		origin	

LM2
N1
2.2

K1
230AC
2W
A1
A2

48, 52.8, 230.0 ... 4.2 / L...
4.1 / L...
2.9 / N
2.9 / PE

Open Close N
W8
4x1,5 mm²
230V
Servomotore
outdoor / exhaust air
X1
M3
SN230A
0 2269523
Accessories

Servomotor
outdoor / exhaust air
Open - Close
230 V

Diversi off-site motore
di controllo in parallelo

WRG
X3
W9
3x1,0 mm²
24V
PHE bypass
servomotor
M4
SN24A SR
0 2269521

Damper
servomotor PHE
bypass,
variable 24
V

B1
W10
2x1,0 mm²
24V
Supply
air temperature sensor
B1

Supply
air temperature sensor
Minimum limiter

X2
W11
3x1,0 mm²
24V
CO2
sensor
X2
B2
0-10
UB+
0

CO_2
sensor

Accessories

B4
W12
2x1,0 mm²
24V
Extract
air temperature sensor
B4
B3

Extract
air temperature sensor

S1
B5
I3
I4

Contact externally
for forced
ventilation (floating)

B9
W13
2x1,0 mm²
24V
Ice-up
sensor
B9
B4

Ice-up
sensor

(installed on the exhaust
air side acc. to the HR system)

24 / 4.0
24 / 4.0
N / 4.0
PE / 4.0

ACTUATORS
SENSOR FAILURES

WOLF

68-34-007-001

Modification	03	21.06.2012	KUER		
	04	19.10.2012	KUER		
	05	12.03.2013	KUER		
Date		Date	Name		

device CGL
Replaced by
Date 01.08.2013
Ed. by kuer
Appr.
origin 68-34-007-001
Replaced by

Dept. TAK EPLAN P8 2.0.5
Art.Nr. 6800953
Page 3
from 5 Pages

N1 LM2
2.2

** Remove the external drive at Gilder bridge!

W21
2x1,0 mm²
24V
On-site contact system
"Off/On"

J3

B10 NO
B10 C

On-site contact system
"Off/On"

NC contact

Option

B8 2
B8 1

W22
2x1,0 mm²
24V
Outdoor air filter

X2 16
X2 17

B6
30.
500Pa

0 2744243

JDW 5

Differential
pressure switch
Filter
monitoring
Outdoor air

W23
2x1,0 mm²
24V
Extract air filter

X2 18
X2 19

B7
30.
500Pa

0 2744243

JDW 5

Differential
pressure switch
Filter
monitoring
Extract air

4.4 / ST
4.6 / 0V
4.6 / BT

W24
2x1,0 mm²
24V
Operating message

X2 20
X2 21
X2 22

br
gn

H1

Operating message
white

03	21.06.2012	KÜR		Date	01.08.2013	device	CGL	REQUEST FILTER	68-34-007-001	=
04	19.10.2012	KÜR		Ed. by	kuer			MONITORING		+
05	12.03.2013	KÜR		Appr.				RELEASES	EPLAN P8	Page	5
Modification	Date	Name		origin	68-34-007-001	Replaced by	Replaced by		Dept. TAK 2,0,5	from 5 Pages

Art.Nr. 6800953

WOLF

```
┌─────────────────────────┐
│      Default mask       │
└─────────────────────────┘
              │
              ▼              ◯  Press r.h. rotary selector
┌─────────────────────────┐
│       Main menu         │
├─────────────────────────┤
│         Back            │
├─────────────────────────┤
│       Displays          │
├─────────────────────────┤
│    Fault acknowledge    │
├─────────────────────────┤
│    Default settings     │
├─────────────────────────┤
│      Time program       │
├─────────────────────────┤
│     Holiday program     │
├─────────────────────────┤
│       Specialist        │
├─────────────────────────┤
│         Back            │
└─────────────────────────┘
```

See following pages

See following pages

Displays

Back
Operating mode
Current programm
Current room temperature
Set room heating
Outside temp
Act. vent air temperature
Set vent air temperature
Motor speed
Heating mixer
Heat recovery
Configuration
Softwareversion LM x
Back

Password 1111

Back
System (Parameter)
Z1 Zone 1
⋮
Z7 Zone 7
Back

Default settings

Back
Language
Date
Time
Automatic summer / winter time changeover
Key lock
Z1 Zone1
⋮
Z7 Zone 7
Back

Back
New configurat
Sensor check
Back

Back
Zone designat
LM001
⋮
LM203
Relay test
Zone reset
Back

Back
Day temperature
Economy temperature heating
Backup temperature heating
Speed adjust
Setback mode
Back

Off
Rel o.air open
Rel o.air close
Inverter relay
Analogue Y1
Analogue Y2
Analogue Y3
Analogue T1

Backup mode
Economy operation
Hols day mode
Summer ventilation
Standby

Press r.h. rotary selector

Default mask

Main menu
Back
Displays
Fault acknnowledge
Default settings
Time program
Holiday program
Specialist
Back

Back
Z1 Zone 1
⋮
Z7 Zone 7
Back

Back
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
Copy day
Back

Back
1 Start time
1 End time
⋮
8 Start time
8 End time
Back

WOLF

Press r.h. rotary selector

Default mask

Main menu
Back
Displays
Fault acknowledge
Default settings
Time program
Holiday program
Specialist
Back

Back
Z1 Zone 1
⋮
Z7 Zone 7
Back

Back
Holiday program 1
Holiday program 2
Holiday program 3
Holiday program 4
Holiday program 5
Back

Back
Holiday start
Date 01/01/09
Time 00:00
Holiday end
Date 01/01/09
Time 00:00
Prog. selection
Standby
Back

Standby (factory setting)
Backup mode
Economy operation
Day mode
Summer ventilation

Operating modes menu structure

```
┌─────────────────────────┐
│      Default mask       │
└─────────────────────────┘
            │
            ▼        ◯   Press r.h. rotary selector
┌─────────────────────────┐
│       Main menu         │
├─────────────────────────┤
│         Back            │
│       Displays          │──────────┐
│   Fault acknowledge     │          │
│    Default settings     │          │
│     Time program        │          │
│    Holiday program      │          │
│       Specialist        │          │
│         Back            │          │
└─────────────────────────┘          │
                                      ▼
                        ┌─────────────────────────┐
                        │         Back            │
                        ├─────────────────────────┤
                        │     Operating mode      │──────┐
                        │    Current program      │      │
                        └─────────────────────────┘      │
                                                          ▼
                                        ┌─────────────────────────────┐
                                        │        Fire alarm           │
                                        │        Fault zone           │
                                        │      External ON/OFF        │
                                        │       Filter check          │
                                        │         Standby             │
                                        │    Summer ventilation       │
                                        │       VA min limit          │
                                        │     Night ventilation       │
                                        │  Room temperature reached   │
                                        │ Outside temperature shutdn  │
                                        │     Control operation       │
                                        └─────────────────────────────┘
```