LEDA ventilation control system
Safety device
for the joint operation of fireplaces
and ventilation systems

Operating Instruction Manual

LEDA Werk GmbH & Co KG
26789 Leer
Deutschland

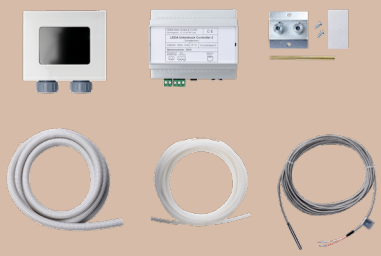
Z-85.1-16

LEDA
Guss ist Qualität

LEDA 6036-00577 V4 0919 LUC Operating Instruction Manual

LUC
Safety device

Electronic differential pressure safety device

LUC kit Basic version	Description	ID no.
	LUC kit, basic version	1003-01720

LUC Cavity wall kit		
	LUC Cavity wall kit	1003-01738

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Commissioning record

for the system owner - to be kept in this manual

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LEDA ventilation control system LUC

Execution ○ LUC kit (basic version) ○ LUC Cavity wall kit

Installation date _____ Serial number ___ ___ ___ ___ ___

Fireplace _____

Manufacturer _____

Type _____ Serial number _____

System owner _____

Street _____

Postcode / place _____ Phone, where applicable mobile phone _____

Possible questions - also in connection with warranty or guarantee claims - can only be discussed upon presentation of this commissioning record!

Type of fireplace

- ○ Woodburning stove, cooker, storage fireplace or fireplace with heating or chimney inserts (fireplace according to DIN EN 12815, DIN EN 13229, DIN EN 13240, DIN EN 15250)
- ○ Hot air stove with a heat insert and ceramic hot gas flue (fireplace according to DIN EN 13229)
- ○ Masonry heaters according to TROL

Parameter setting of the LUC

Starting parameters	Individually set		Setting range	Factory setting
Differential pressure threshold in the starting phase			Not variable	2 Pa
Temperature threshold in the starting phase			Not variable	35 °C
Operating parameters				
Differential pressure threshold in the heating phase			Not variable	4 Pa
Temperature threshold in the heating phase			Not variable	50 °C
Alarm delay time (seconds)	_____	s	40 s to 180 s	40 s
Cut-out time for a manual stop	_____	min	1 min to 20 min	6 min

IMPORTANT INFORMATION!

The logged settings must not be changed by the owner.
The owner must inform the authorised district chimney sweep about the installation and commissioning.
On request, the logged settings (this commissioning record) must be submitted to the authorised district chimney sweep (bBSF).
The technical documents and the commissioning record must be kept by the owner.

System owner	Installation company / Stamp
The owner has received the technical documentation. It has been made familiar with the safety instructions, operation and maintenance of the above system. Date and signature	Date and signature

Commissioning record

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LEDA ventilation control system LUC

Execution ○ LUC kit (basic version) ○ LUC Cavity wall kit

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○ Woodburning stove, cooker, storage fireplace or fireplace with heating or chimney inserts (fireplace according to DIN EN 12815, DIN EN 13229, DIN EN 13240, DIN EN 15250)

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○ Masonry heaters according to TROL

Parameter setting of the LUC

Starting parameters	Individually set		Setting range	Factory setting
Differential pressure threshold in the starting phase			Not variable	2 Pa
Temperature threshold in the starting phase			Not variable	35 °C
Operating parameters				
Differential pressure threshold in the heating phase			Not variable	4 Pa
Temperature threshold in the heating phase			Not variable	50 °C
Alarm delay time (seconds)		s	40 s to 180 s	40 s
Cut-out time for a manual stop		min	1 min to 20 min	6 min

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Contents

Important user information

Congratulations!

With the LEDA ventilation control system LUC you have opted for a high-quality product that offers you great benefits at a high standard of technology in terms of ecology, economy, comfort and above all safety.

The LEDA ventilation control system LUC has been tested as an independent safety device to ensure safe joint operation of ventilation systems and room-air-dependent fireplaces and has been approved by the German Institute for Building Technology (DIBt), Berlin.

generally approved by the building authorities, approval number: Z-85.1-16 and is marked accordingly with the conformity symbol.

Your solid fuel fireplace offers you a fully developed complete system that is approved under building law. In order to guarantee long-term operation over many years, it is necessary to carefully observe these operating instructions for the LUC, as well as the instructions for the fireplace. Regardless of the status of this documentation, we reserve the right to make changes and improvements to the product (within the scope of the general technical approval).

The technical documents and the commissioning report must be kept by the owner.

To protect the environment, electronic components must not be disposed of with unsorted municipal waste (household waste). These components must be disposed of according to local conditions.
These components consist of materials that can be reused by recycling centres. For this purpose, we have designed the electronic components of our products to be easy to separate and use recyclable materials. If you are unable to dispose of the components of the LUC properly, talk to your specialist company or to us about the options for waste disposal.

1. General instructions

These operating instructions and the assembly instructions must be observed and carefully executed by the installation firm as it is responsible for the safety and proper functioning of the system. The existing building regulations must be observed and adhered to during installation. Assembly and electrical installation may only be carried out by a specialist company.

The owner must inform the authorised district chimney sweep about the installation and commissioning.

Please complete the **commissioning report** in duplicate together with the installation firm. One copy will be retained in these operating instructions and will help you later if you have any questions about your electronic control system.

On request, the logged settings (this commissioning report) must be submitted to the authorised district chimney sweep.

The logged setting values may only be changed by the specialist company or the authorised district chimney sweep.

Failure to follow the installation and operating instructions will invalidate the warranty. Any structural modification of the LUC by the system operator is not permitted!

When setting up or assembling the fireplace, connecting this Safety device and operating it, existing laws, especially the state building regulations, the local building regulations and emissions protection requirements must be observed.

The service life and functionality of your LUC depends on the correct assembly, the appropriate operation and the correct care and maintenance.

The combustion air supply to the fireplace and the safe functioning of the chimney must be ensured independently of the operation of the LEDA ventilation control system!

The safe, permissible and intended operation of the LEDA ventilation control system requires that the combustion air supply of the fireplace is correctly dimensioned and ensured as well as the safe discharge of the flue gases from the fireplace.

It further presupposes that the fuel recommended by the manufacturer of the fireplace is used.

The installation or use of the LEDA ventilation control system does not replace the correct dimensioning and design of the ventilation and air conditioning system and the firing system with regard to the necessary combustion air supply and flue gas discharge in the indoor air intake.

Exhaust air discharge in a potentially hazardous volumes must be avoided independent of the operation and function of the LEDA ventilation control system - 30ppm CO must not be exceeded.

The operator must carry out a functional test at least once a month.

You can find the instructions on the functional tests in section "7.5 Maintenance and functional test" on page 34.

Take care when cleaning the exhaust pipes or heating gas flues in the course of pressure and temperature measurements.
To avoid damage, the sensors must be removed during cleaning.

Observe the safety instructions ("2. Safety instructions" on page 5) and follow these important guidelines when operating your fireplace!

2. Safety instructions

2.1 Hazards due to insufficient combustion air

It must always be possible for sufficient combustion air to flow into the fireplace!

If fireplaces draw their combustion air from the living space or from the building, sufficient air must always be able to flow into these rooms at all times. Ventilation systems or other fireplaces must not disturb or impair the air supply.

During operation, the intended combustion air opening must not be closed, restricted, narrowed, concealed or closed (such as an air recirculation grille, air recirculation arches, etc.).

Air-extraction systems can disrupt the combustion air supply!

Air-suction systems (such as ventilation systems, extractor hoods, exhaust air/ laundry dryers, central vacuum cleaner systems) which are operated together with the fireplace in the same room or room air system can seriously disrupt the combustion air supply and flue gas discharge.

If appropriate modifications are planned and carried out in the building, the conditions for safe and planned operation of the existing fireplace can be disrupted considerably. The necessary prerequisites for permissible and trouble-free operation must therefore be checked again by an appropriate expert in the event of subsequent modifications.

Examples of these types of modifications:

- Installation of another fireplace on the same or another chimney,
- structural modifications to the chimney,
- Installation or conversion of ventilation equipment, e.g. extractor hoods, WC or bathroom ventilators, controlled aeration and ventilation systems,
- Installation or conversion of relevant household appliances, e.g. exhaust air tumble dryers, central vacuum system,
- Modifications to the permeability of the building, e.g. installation of new windows or doors, insulation of roof surfaces, fitting of full thermal insulation.

The LEDA ventilation control system cannot improve an inadequate supply of combustion air or supply combustion air.

2.2 Hazards due to the chimney functioning inadequately

In order to ensure the correct and safe operation of the fireplace, it is necessary to have suitable chimney delivery pressure. The chimney may not function properly, especially during transitional periods - autumn or spring - or in unfavourable weather conditions (e.g. strong winds, fog, adverse weather conditions, etc.). It is imperative that this is taken into consideration when a fireplace is in use.

During frost, very cold flue gases can condense and freeze at the opening of the chimney. This applies in particular to flue gases from gas fireplaces. When putting the fireplace into operation, make sure that the chimney opening is free and that the flue gases can be drawn off sufficiently well.

In the event of prolonged interruption of operation, blockages may have occurred in the chimney, in the heating gas flues, in the flue gas pipe or also in the combustion air pipe. When heating up, make sure that the usual good combustion and smoke venting are set from the start.

The LEDA ventilation control system cannot improve the poor functioning of the chimney or increase the low pressure of the chimney.

It is also essential that you observe the operating instructions for the fireplace and follow the instructions provided by the manufacturer of the fireplace.

2.3 Electrical hazards

The electrical connection of the LUC itself as well as the connection of the switching output takes place inside the switching unit of the LUC,

The electrical connection may only be carried out by a specialist. The relevant circuit must be interrupted before opening and working on the switching unit.

Attention - electrical voltage!

To protect the environment, electronic components must not be disposed of with unsorted municipal waste (household waste). These components must be disposed of according to local conditions.
These components consist of materials that can be reused by recycling centres. For this purpose, we have designed the electronic components of our products to be easy to separate and use recyclable materials. If you are unable to dispose of the components of the LUC properly, talk to your specialist company or to us about the options for waste disposal.

3. System description

3.1 Application and intended use

The LEDA ventilation control system LUC

The LUC is an electronically controlled safety device. It enables a room air-dependent fireplace for solid fuels to be operated together with a ventilation system, such as a home ventilation system, an extractor hood or other air extracting equipment. The joint operation of the ventilation system and the fireplace is made possible by the LUC, regardless of the airtightness of the building, regardless of the size of the room and regardless of the airtightness of the fireplace.

The situation

Under normal operating conditions, a fireplace generates a negative pressure in relation to the installation room due to the temperature of the flue gases in the chimney. This means, on the one hand, that the exhaust fumes are safely discharged via the chimney and, on the other hand, that the working pressure of the chimney also draws in sufficient combustion air via the fireplace.

In rooms from which ventilation units extract air, negative pressure can occur which counteracts the working pressure of the chimney. This can also happen if, for example, the balanced ratio of incoming and outgoing air in the home ventilation system is upset.
In this situation, proper operation of the fireplace is no longer possible. In addition, exhaust fumes can escape into the installation room as a result of the smallest leaks in the fireplace and the connecting pipes. This is a nuisance and can even be a health hazard.

In addition to these hazards, insufficient or disturbed low pressure (delivery pressure) in the chimney also means that low-emission and safe operation of the fireplace is not guaranteed.

In light of this problem, the joint operation of fireplaces and ventilation systems is only permitted in Germany (and some other European countries) if hazards are excluded by special safety devices approved by the building authorities.

Even specially tested and approved fireplaces that operate independently of the room air may not readily be operated together with ventilation systems.

Approved fireplaces that are independent of room air may also only be operated together with ventilation systems up to a limited, low interference pressure (usually currently 8 Pa). If this low-pressure limit is not maintained, the same hazards and problems cannot be excluded, even with fireplaces that are independent of room air.

The solution

The LUC set for the respective fireplace and connection situation constantly monitors the prevailing pressure conditions. If the measured pressure difference between the installation room and chimney rises above the set maximum value, the air-suction unit, the ventilation system etc. is switched off via the LUC.
This ensures safe operation of the fireplace, regardless of any unfavourable or dangerous pressure conditions that may be generated by ventilation devices.

The LUC monitors the temperature in the flue gas via a further sensor in order to determine whether the fireplace is in operation. The pressure situation is only actively monitored by the LUC when the fireplace is in operation, and the pressure difference between the fireplace (chimney) and the installation room is continuously determined. Thus, ventilation units are actually only monitored and, if necessary, switched off when the fireplace is also in operation.
This reliably prevents the ventilation system from being switched off incorrectly, such as during the summer months.

Thanks to comprehensive monitoring, the LUC ensures both the proper and safe functioning of the fireplace and, ultimately, the safe removal of exhaust fumes via the chimney - before exhaust fumes can enter the installation room.

Intelligent safety electronics filter out short-term pressure fluctuations, such as due to gusts of wind or by opening windows or doors, and have no influence. This prevents the ventilation system from being switched off more frequently than necessary. If, on the other hand, there is an actual problem in the pressure conditions, the ventilation system is switched off by the LUC.

If the ventilation units are actually switched off by the LUC due to dangerous pressure conditions, this state remains until the ventilation system is automatically switched on again by the LUC after a set time or the fireplace is no longer operated. The ventilation system can of course also be switched on again manually via the graphical display of the LUC.

3.2 Sphere of application

This LEDA ventilation control system LUC is the safety device for monitoring the differential pressure between the room where a fireplace is installed and the low pressure in the chimney or the connector to the chimney.

The LEDA ventilation control system LUC can be used with the following types of fireplace:

- Heating inserts for tiled stoves for solid fuels according to DIN EN 13229 with metallic heating gas flues or heating boxes,
- Chimney inserts for tiled stoves for solid fuels according to DIN EN 13229,
- Handcrafted storage fireplaces with heating inserts or chimney inserts for solid fuels according to DIN EN 13229 with ceramic heating gas flues,
- Heating or chimney inserts for solid fuels according to DIN EN 13229 with a water heat exchanger,
- Standalone woodburning stoves or room heaters for solid fuels according to DIN EN 13240,
- Standalone woodburning stoves or room heaters for solid fuels according to DIN EN 13240 with a water heat exchanger,
- Residential cookers fired by solid fuel according to DIN EN 12815,
- Residential cookers (with a water heat exchanger) fired by solid fuel according to DIN EN 12815,
- Slow heat release appliances fired by solid fuel according to DIN EN 15250 and
- Masonry heaters according to TROL
- tested, room air-independent fireplaces in accordance with the above standards if the requirements of the approval for installation cannot be met.

The LEDA ventilation control system LUC can be used independently or in combination with other LEDA electronic control components:

- with LEDATRONIC LT3 combustion air control,
- with boiler circuit control and pump unit LEDATHERM KS04 Complete Station,
- with the KS04 complete station and the ZAE central connection unit.

Like any other corresponding safety device, the LEDA ventilation control system LUC may only be used for fireplaces connected to single-outlet chimneys.
The LUC can also be used with any chimney system.

The LEDA ventilation control system LUC can be used with fireplaces with or without combustion air pipes.

3.3 System view

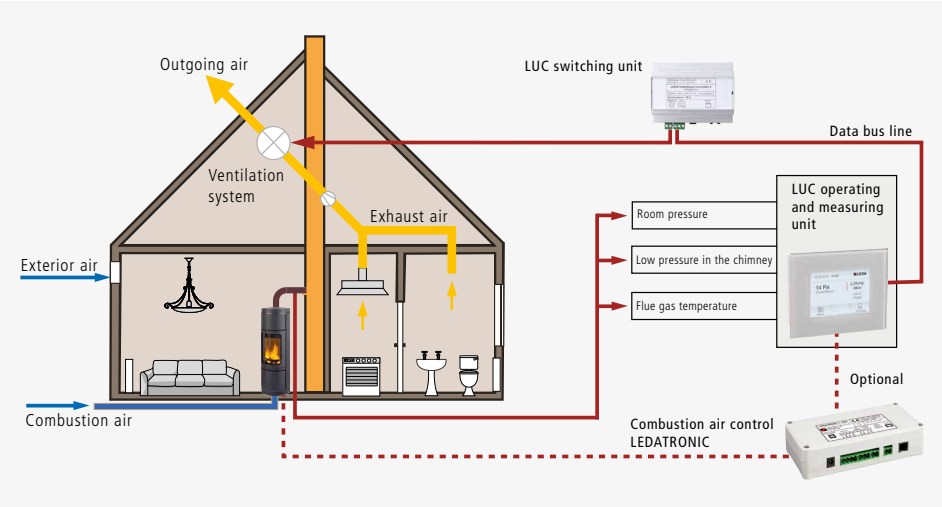


Fig. 3.1 System view, fireplace, ventilation system, optionally LT3 in association with LUC

3.4 How it works

Temperature monitoring

The LUC continuously monitors the temperature in the flue gas of the fireplace. Active monitoring of the fireplace only begins when operation of the fireplace is detected via the rising flue gas temperature. If the fireplace is not in operation, the ventilation units are not monitored or switched off via the LUC.

Monitoring in the heating-up phase

In the preheating phase of the fireplace, the LUC starts the monitoring of the differential pressure at a measured flue gas temperature of 35°C. If the measured differential pressure drops below the lower limit value of 2 Pa, the switching output is opened and the ventilation units are switched off.

Monitoring during operation of the fireplace

If the temperature limit of 50°C is exceeded, continuous monitoring of the differential pressure (active state) begins.
After a differential pressure of more than 4 Pa has been reached, the switching output of the LUC is closed again and the ventilation units are switched on.

If the measured differential pressure drops below the set limit value of 4 Pa, the switching output remains enabled for a fixed period of time (alarm delay time). This status is shown on the display; in addition, the LUC can also emit an acoustic signal.

The alarm delay time prevents the safety device from being triggered if the set differential pressure is briefly undershot (e.g. due to gusts of wind).

Safety cut-out

If low pressures are detected which are not only short-term, the switching output is interrupted after the set alarm delay time of the LUC has elapsed, the connected ventilation system is switched off and a corresponding message is shown on the display. If it is set accordingly, an acoustic signal can also be emitted.

Switching on again

When the switching output is automatically switched on again, the switching output is automatically enabled again after 20 min if a measured differential pressure of at least 4 Pa has been reached.

The switching output is also automatically enabled again when the fireplace is no longer in operation and the measured flue gas temperature has fallen below 50°C.

The switching output can also be enabled again manually by tapping the corresponding button on the graphical display unit.

The switching output can only be enabled manually when the measured differential pressure has reached at least 4 Pa.
In addition, the manual release can only be carried out after a waiting period of 1 minute.

Automatic calibration

The LUC tests and calibrates itself constantly in order to guarantee the desired level of reliability.

The pressure sensor is calibrated cyclically, several times per hour. This takes place dynamically, depending on the previous calibration deviations, the temperature fluctuations on the measuring board of the LUC and the significant differential pressure changes of the measuring section.
During this periodic calibration, slight clicking noises may occur when opening and closing a small air valve.

Automatic testing of the processor of the LUC, as well as of its hardware and the software is carried out directly after the supply voltage has been applied and then cyclically approximately every 24 hours.

The switching output remains enabled during these tests. If no errors are detected, the LUC automatically returns to the previous operating state after the test or calibration.

Any error within the control unit of the LUC, of the individual components or within the system structure is uniquely identified and leads to a safe state through safety cut-out. In order to guarantee a particularly high degree of measuring accuracy in the long term, the LUC is provided with an integrated automatic, cyclic calibration function in its pressure sensor technology.

4. Commissioning, start-up|

The LEDA ventilation control system is put into operation directly by applying the supply voltage (230 V).

Immediately after commissioning, the LUC is subjected to an independent check and initialisation phase, during which a self-test and the zero point calibration of the pressure sensor are carried out.

"Search modules" appears on the display during this check (Fig. 4.1).

After about 30s the self-test is complete, and the LUC is ready for operation.
If no errors occur during commissioning, the normal display appears after the initialisation phase (Fig. 4.2).

If the LUC detects problems, a corresponding error message is output, see also "7.6 Checklist in the event of faults" on page 35.

Other errors that may occur, especially during initial commissioning, are connection and cable problems.

The possible errors that may occur during commissioning and their causes are summarised in the following table.

Fig. 4.1 Display unit, display during commissioning

Fig. 4.2 Display unit, main display

Fault	Cause	Remedy
Completely black display	▪ No supply voltage,	▪ Check the electrical connection, ▪ Check the fuse, ▪ Have the power supply checked by a specialist
	▪ No or faulty cable connection to the display unit	▪ Check the data bus cable between the LUC switching unit and the display and measuring unit. ▪ Check the cable connection between the measuring board and the display unit
	▪ Defect in the display unit	▪ Replacement of the display unit
Display "stops" at the "search modules" message (see Fig. 4.1)	▪ No or insufficient connection between the components ▪ Cable lengths within the data bus too long	▪ In combination with the LT3: Checking the supply voltage of the LUC switching unit ▪ Check cables and cable lengths and use shorter cables, if necessary
	▪ Initialisation problems	▪ Disconnect LUC from supply voltage and then start up again
"Relay module" error message	▪ No or insufficient connection between the components ▪ Defective data bus line ▪ Cable lengths within the data bus too long ▪ Missing or insufficient supply voltage	▪ In combination with the LT3: Checking the supply voltage of the LUC switching unit ▪ Check cables and cable lengths and use shorter cables, if necessary

5. Operating the display unit

5.1 Operation via direct touch (touch screen)

Fig. 5.1 Display unit, main display

The screen of the display unit is both a display and a user interface. By lightly tapping with the fingers, the corresponding symbols or buttons are selected on the touch-sensitive screen (touch screen) of the LUC.

The screen can also be operated by other suitable means.

BUT: Pointed tips or sharp tools can scratch the screen.

5.2 Function elements

The main display is divided into two types of fields or different functional elements:

- **Selection field:** graphically marked area or field that can be touched to access further functions or views.
- **Info field:** Display for various operating states such as time, date, flue gas temperature, etc.

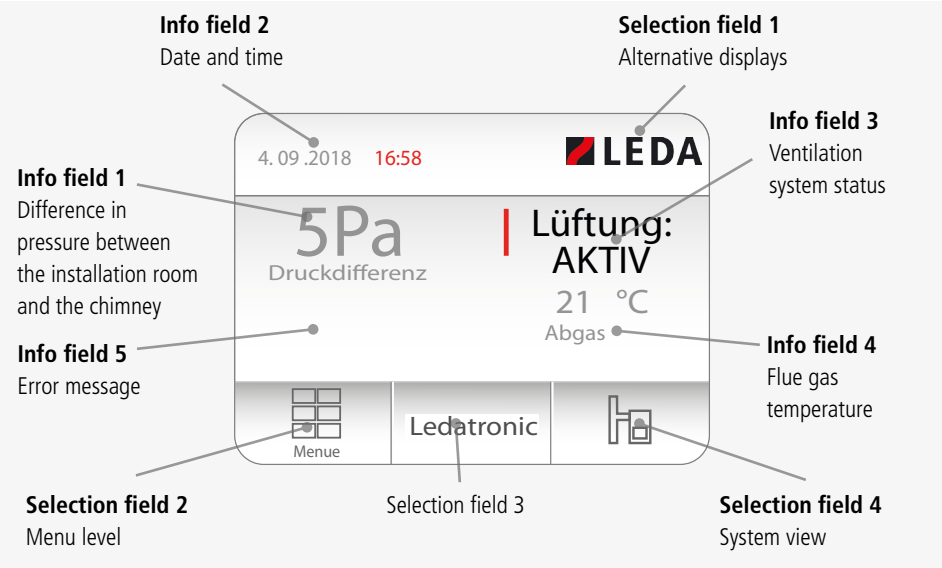


Fig. 5.2 Main display of the display unit

The pressure difference displayed ("Info field 1") always indicates the measured overpressure in the room where the fireplace is installed.
If the value is positive (no "-" sign in front of the number), there is low pressure in the chimney; flue gases can therefore be discharged in the direction of the chimney - normal operating conditions.
If the value is negative (with a "-" sign), the pressure in the chimney is greater than that in the room, and flue gases can escape into the room.

5.3 Selection fields, menu and display levels

Selection field 1 - Alternative displays

Switch to **Alternative display 1**
(The most important information about the current operating status is still displayed):

Alternative display 1: "LEDA shaft"

Switch to **Alternative display 2**

Alternative display 2: "Timer"

Switch to **Alternative display 3**

Alternative display 3: "Northern vision"

(Default panoramic image)

Back to the main display.

Fig. 5.3 Alternative displays

Selection field 2 - Menu levels

Fig. 5.4 Menu levels

Switch to the **menu level** where further submenus can be selected for the respective settings and information

Switching the various acoustic signal and warning tones on and off

Setting the date and time

Screen and standby behaviour setting

Switching off the ventilation manually

"Specialist" submenu is only available for service purposes and is password-protected for security.

Back to the **main display**

Selection field 4 - System

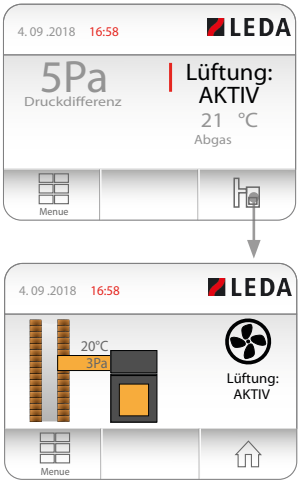


Fig. 5.5 System level

Switch to the **system level** where the system behaviour is shown graphically.
System level: The flue gas temperature, chimney installation room pressure difference and the operating situation of the ventilation system are displayed.

Back to the **main display**

6. Settings in the menu level

6.1 Setting the date and time

Fig. 6.1 Date/time submenu

Switch to **menu level**

Switch to the **DATE / TIME** submenu

For example, setting for the **day**

Changing the numerical values

Changed value is applied
Return to the **DATE / TIME** submenu without changing

Back to the **main display**

After a short time without pressing a key, the display automatically returns to the main display (or the selected alternative display).

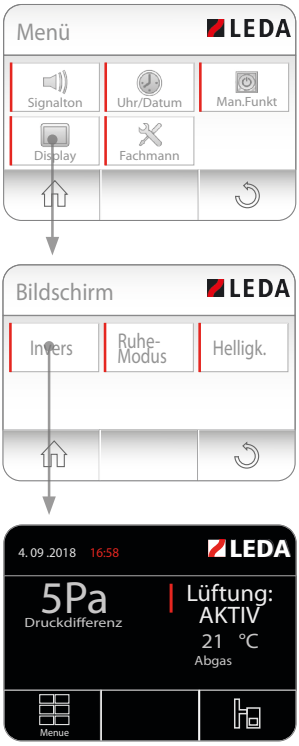
6.2 Select a screen view

Inverse setting

Switch to **menu level**

Switch to the **SCREEN** submenu

Setting for **Inverse**



No saving or confirmation is necessary for this selection.

Fig. 6.2 Screen - Inverse submenu

Sleep mode Settings

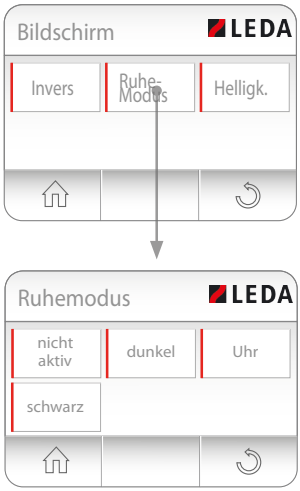


Fig. 6.3 Screen - Sleep mode submenu

Setting for **Sleep mode**

In standby mode the display remains unchanged, the **Ventilation Active** message is displayed.

The display is darkened.

In standby mode, the display is dimmed and lowered to the display of the timer (corresponding to the alternative display).

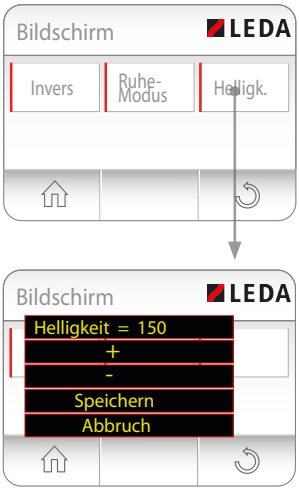
In standby mode, the display goes out completely.

The selected function (dark, timer or black) is retained during standby until the lower temperature threshold is exceeded. It can be interrupted by tapping the screen and then switches to the main display.

No saving or confirmation is necessary for this selection.

Back to the **main display**

Setting the brightness



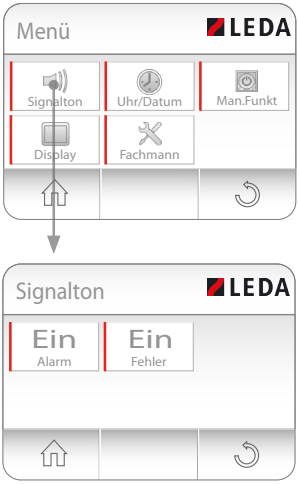
Settings for **Brightness**
The brightness of the display can be adjusted via this function.

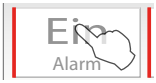
Fig. 6.4 Screen - Brightness submenu

6.3 Setting the signal tone

Switch to **menu level**

Switch to the **SIGNAL TONE** submenu

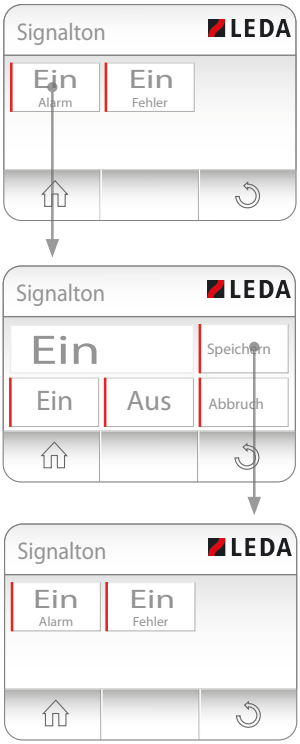




Signal tone for safety cut-out

Signal tone for error messages

Fig. 6.5 Signal tone sub-menu



for example, setting for the **Alarm** signal tone

Activating the signal tone

Deactivating the signal tone

Changed value is applied

Return to the **SIGNAL TONE** submenu without changing

Back to the **main display**

After a short time without pressing a key, the display automatically returns to the main display (or the selected alternative display).

Fig. 6.6 Selecting the signal tone submenu for the door

6.4 Interrupting ventilation manually

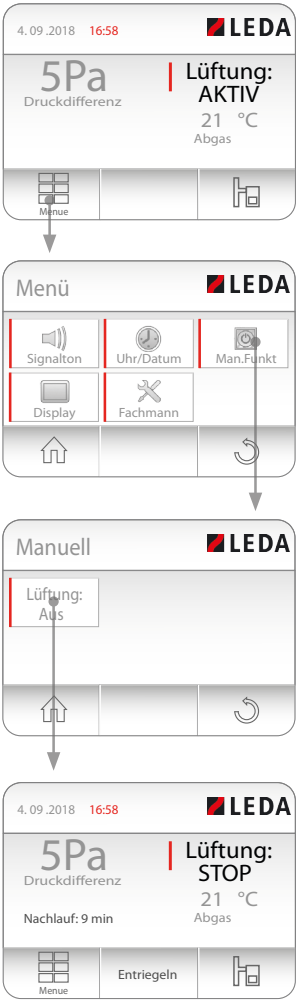


Fig. 6.7 Interrupt ventilation submenu

Switch to **menu level**

A **Ventilation off** function is provided in the menu level.
By selecting this function, the ventilation system is switched off for a set period of time. Once this time has elapsed, the ventilation system is automatically switched on again by the LUC.

Switch to the **Man / Start** submenu

The **executed** notification is displayed briefly.

Unlock LUC and switch on the ventilation again without waiting for the follow-on time.

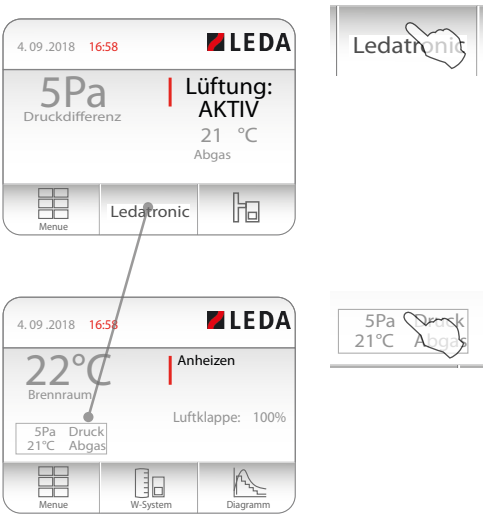
The display then automatically switches to the main view.

6.5 LEDATRONIC operation (optional)

If the LUC is connected to the LEDATRONIC, you can choose between the display for LUC or LEDATRONIC.

In the LUC display, a combined info selection field is also generated, which can be used to switch back to the display of the LEDATRONIC.

In the LEDATRONIC display, a combined info selection field is also generated, which can be used to switch back to the display of the LUC.

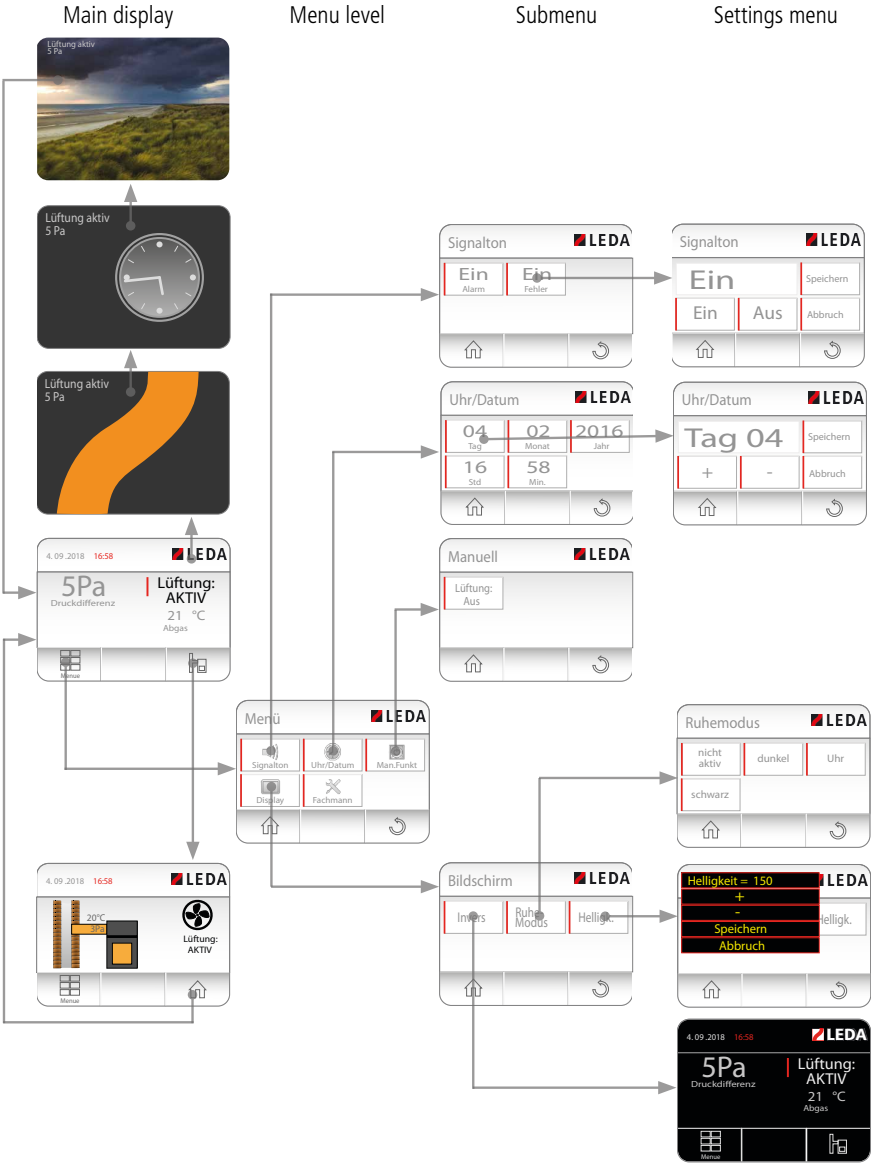


Switch to the **LEDATRONIC display**

Switch to the **LUC display**

Fig. 6.8 Toggle: LUC to the LT3 view

6.6 Overview of the menu level



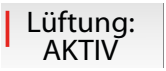
7. Heating operation with the LUC

7.1 Standby state

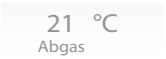
If the fireplace is **not in operation**, the control of the LUC is **inactive**. The ventilation system is switched on, even if the difference in pressure is below the limit set.

Fig. 7.1 Display in standby mode or if the fireplace is not in operation

Info field 1:
Current difference in pressure between the installation room and the chimney



Info field 3:
Ventilation is active



Info field 4:
Current flue gas temperature

7.2 Heating up and fireplace operation

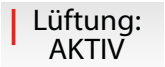
The LUC continuously monitors the temperature in the flue gas of the fireplace. Active monitoring of the fireplace only begins when operation of the fireplace is detected via the rising flue gas temperature. If the fireplace is not in operation, the ventilation units are not monitored or switched off via the LUC.

In the preheating phase of the fireplace, the LUC starts the monitoring of the differential pressure at a measured flue gas temperature of 35°C. If the measured differential pressure drops below the lower limit value of 2 Pa, the switching output is opened and the ventilation units are switched off. If there is massive disruption in the pressure situation during commissioning of the fireplace, there could be a flue gas leak without this being detected by the LUC. Therefore, the fireplace must be monitored during commissioning.

7.3 Heating operation

If the temperature limit of 50°C is exceeded, continuous monitoring of the differential pressure (active state) begins.
After a differential pressure of more than 4 Pa has been reached, the switching output of the LUC is closed again and the ventilation units are switched on.

Info field 1:
Current difference in pressure between the installation room and the chimney



Info field 3:
Ventilation is switched on

Info field 4:
Current flue gas temperature

Fig. 7.2 Display during heating operation

7.4 Operation in the event of a fault

Alarm delay

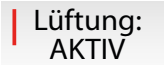
If the measured differential pressure drops below the set limit value of 4 Pa, the switching output remains enabled for a fixed period of time (alarm delay time). This status is shown on the display; in addition, the LUC can also emit an acoustic signal.

The alarm delay time prevents the safety device from being triggered if the set differential pressure is briefly undershot (e.g. due to gusts of wind).

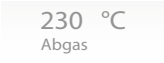
In the case of short-term faults that have returned to normal within the alarm delay, the LUC returns to normal mode without triggering a cut-out. However, each single fault duration within a period of 2 minutes is saved and added up. Therefore, a cut-out can also occur if very frequent short-term malfunctions have occurred.

Fig. 7.3 Display in the event of a fault

Info field 1:
Current difference in pressure between the installation room and the chimney (below the pre-set pressure difference, e.g. 4 Pa).



Info field 3:
Ventilation (still) active



Info field 4:
Current flue gas temperature

Info field 5:
Alarm delay: the ventilation is switched off in 42 seconds (example)

Safety cut-out

If low pressures are detected which are not only short-term, the switching output is interrupted after the set alarm delay time of the LUC has elapsed, the connected ventilation system is switched off and a corresponding message is shown on the display. If it is set accordingly, an acoustic signal can also be emitted.

Fig. 7.4 Display in the event of a fault

Info field 1:
Current difference in pressure between the installation room and the chimney (below the pre-set pressure difference, e.g. 4 Pa).

Info field 3:
Ventilation is switched off

If the ventilation system has been switched off for safety reasons, a signal tone sounds - the signal tone can be disabled in the menu settings (see "6.3 Setting the signal tone" on page 25).

Info field 4:
Current flue gas temperature

Switching on again

When the switching output is automatically switched on again, the switching output is automatically enabled again after 20 min if a measured differential pressure of at least 4 Pa has been reached.

The switching output is also automatically enabled again when the fireplace is no longer in operation and the measured flue gas temperature has fallen below 50°C.

Selection field 3:
Unlock LUC and switch the ventilation on again.

Fig. 7.5 Display in the event of a fault

The switching output can also be enabled again manually by tapping the corresponding button on the graphical display unit.

The switching output can only be enabled manually when the measured differential pressure has reached at least 4 Pa.
In addition, the manual release can only be carried out after a waiting period of 1 minute.

7.5 Maintenance and functional test

The LUC including the pressure and temperature measuring device must be maintained in accordance with the general requirements for electrical installation (DIN 31051 :2003-065, DIN EN 13306:2001-096).

Maintenance and a functional test must be carried out regularly by a specialist company or a chimney sweep in accordance with the assembly instructions:

- Check the pressure measuring opening in the exhaust pipe for dirt and blockage
- Checking the pressure compensation openings of the display unit

Take care when cleaning the exhaust pipes or heating gas flues in the course of pressure and temperature measurements.
To avoid damage, the sensors must be removed during cleaning.

Functional test

- Putting the heating appliance into operation
- After exceeding the threshold temperature, pull the pressure measuring tube out of the adapter
- The pressure difference must then drop below the set threshold value
- After the alarm delay has elapsed, the safety cut-out must be triggered
- Check that the ventilation system is switched off
- Reassemble the pressure measuring tube correctly and unlock the LUC
- Check that the ventilation system is switched on

The operator must carry out a functional test at least once a month.

7.6 Checklist in the event of faults

If a problem or error occurs on a component of the LUC, the operation of the connected devices is interrupted for safety reasons and a corresponding error message is shown in the display. This is to be reported to the responsible specialist company or the system manufacturer. Work and settings may only be carried out by a specialist.

Fault	Cause	Remedy
VENTILATION STOP error message Safety cut-out No LUC error 	▪ When the fireplace is in operation, the pressure difference has dropped below the limit value ▪ Ventilation system defect ▪ High-performance extractor hood switched on ▪ Inadequate operating conditions in the chimney ▪ Unfavourable weather conditions	▪ Rectify a ventilation system fault ▪ Switch off the extractor hood or open the window
Pressure error message Pressure measurement error 	▪ Measured differential pressure value does not provide a plausible result ▪ Possible cause: Pressure measuring tube blocked Measuring cell defective Electronics defective	▪ Check the pressure hoses for bends or blockages ▪ Remove hoses in the LUC if necessary; error message must disappear ▪ Notify the specialist company

Fault	Cause	Remedy
Temperature error message Temperature measurement error 	▪ Measured temperature value does not provide a plausible result ▪ Possible cause: ▪ Temperature sensor or cable defective ▪ Electronics defective	▪ Replace the temperature sensor ▪ Notify the specialist company
No error message, nevertheless no operation of the connected ventilation unit is possible	▪ Ventilation unit power supply interrupted	▪ Have the power supply, fuses, lines, connections, etc. of the ventilation unit checked ▪ Have the fuse of the ventilation unit checked
	▪ The pre-fuse of the switching output of the LUC has tripped	▪ Have the fuse of the LUC checked, ▪ Have the switching capacity of the connected devices checked - max. switching capacity 10A, see "12. Technical data" on page 44

Also refer to the checklist in the event of faults during commissioning (see section "4. Commissioning, start-up|" on page 14).

8. Guarantee and warranty

This information applies in addition to our "General Terms and Conditions" dated 2007-01-01.
Our products and accessories are quality products which are certified by independent testing laboratories. They are designed in accordance with current technical knowledge. They are carefully built using high-quality materials.

As these are technical devices, special expertise is required for their sale, installation, connection and commissioning. Therefore, it is assumed that the manufacturer's specifications and the applicable building regulations and technical rules have been observed during installation and initial commissioning by the specialist company. By paying careful attention to the operating instructions, you will enjoy incomparable heating pleasure for many years to come. Specific parts or components must be regularly checked and, if necessary, replaced or repaired.

Defects in newly manufactured products within the statutory warranty period must be clarified directly with the system manufacturer / specialist company. Due to their nature, wearing parts only have a limited service life for their planned use. Wearing parts are especially parts that come into direct contact with the fire, e.g. temperature sensors or seals. Please note that the limited service life of wearing parts can also have an effect on the warranty. Wear caused by operation is not an initial material defect and, therefore, does not constitute a warranty claim.

All damage and defects to devices or their parts caused by external chemical or physical influences during transport, storage, improper installation and use, operation errors, use of unsuitable fuels and mechanical, chemical, thermal and electrical overload are also excluded.

The manufacturer is not liable under the warranty for direct or indirect damage caused by the appliance. There shall be no right to rescind the contract or to claim a price reduction unless the manufacturer is unable to remedy the defect or damage within a reasonable period of time. If a warranty claim occurs, please contact the system manufacturer in writing.

!

Failure to observe the operating and assembly instructions will void the warranty and the general technical approval.
Any structural modification of the LUC is not permitted.

9. EU declaration of conformity

9.1 Declaration of conformity

Eindeutiger Kenncode des Produkttyps Unique identification code of the product type	**LEDA ventilation control system, LUC** Independent safety device to ensure safe joint operation of ventilation systems and room air-dependent fireplaces
Typen-, Chargen- oder Seriennummer Type, batch or serial Number	**LUC 2** ID nos. 1003-01720, 1003-01724, 1003-01738
Verwendungszweck Intended use	Independent safety device to ensure safe joint operation of ventilation systems and room air-dependent fireplaces
Hersteller, Marke Manufacturer, trade mark	LEDA Werk GmbH & Co.KG Groninger Straße 10, 26789 Leer, Germany Tel. +49 491 6099-0, Fax +49 491 6099-290, www.leda.de, info@www.leda.de
Gegebenenfalls Bevollmächtigter Authorised representative	
First test	
Prüflabor Notified body	TÜV SÜD Produkt Service GmbH Certifying Body, Ridlerstraße 65, 80339 Munich, Germany
Prüflabor Nr. Notified body no.	No. 0123
Prüfbericht Nr. Test report no.	Test report C 1514-00/13, Test report C 1225-01/09
Proof of usability by the building authority	
General technical approval for Germany	Z-85.1-16
Approving body	German Institute for Building Technology (DIBt), Kolonnenstraße 30B, 10829 Berlin

Extract from: LEDA 6036-00577 V4 0919 LUC Operating Instruction Manual

Essential characteristics	
Harmonised technical specifications or EU directives	EMC directive 2014/30/EU
Essential characteristics	Electromagnetic compatibility (EMC)

Further characteristics	
Assessment of the function principle	Met, Test by TÜV SÜD
Test of the general building requirements	
Testing of electrical safety in accordance with the requirements of DIN EN 60730-1: 2012-10	
Testing the function requirements	
Testing the protection against internal errors: Testing the complex electronics and software, as well as the behaviour in the event of faults in the complex electronics and software in accordance with the requirements of DIN EN 60730-1: 2012-10, Appendix H.11.12	
Testing the protection against internal errors: Testing the behaviour in the event of faults occurring in electrical or electronic components in accordance with the requirements of DIN EN 60730-1: 2012-10, Appendix H.27	
Testing the protection against internal errors: Testing the reliability of the data exchange between measuring and display unit and switching unit in accordance with the requirements of DIN EN 14459: 2008-02, Appendix 7.13	
Test of the general building requirements	
The characteristics of this product correspond to the stated performance Only the manufacturer indicated here is responsible for the preparation of this declaration of performance.	

Signed on behalf of the manufacturer and on behalf of the manufacturer by

Tobe Hinrichs, Head of the Heating Technology Service Centre

(Name and position)

2019-09-02, Leer

(Date and place) (Signature)

Extract from: LEDA 6036-00577 V4 0919 LUC Operating Instruction Manual

9.2 EU declaration of conformity

1. Product model/product (product, batch, type or serial number)

LEDA ventilation control system, LUC as a kit with the requisite components, indication of the names of the individual kits - ID number:

LEDA ventilation control system, LUC kit - 1003-01720,

LEDA ventilation control system, LUC cavity wall kit - 1003-01738,

2. Name and address of the manufacturer or its representative

LEDA WERK GMBH & CO. KG BOEKHOFF & CO
P.O. Box 1160 · 26761 Leer
Telephone 0491 6099-0 · Telefax 0491 6099-290
info@www.leda.de · www.leda.de

3. Sole responsibility for issuing this declaration of conformity rests with the manufacturer.

4. Subject of the declaration

(Designation of the electrical equipment for traceability purposes; it may contain a sufficiently clear colour image if necessary to identify the electrical equipment.):

LEDA ventilation control system, LUC as a kit, with the necessary components, as described in the assembly instructions, see section "2.1 Scope of delivery" there.

5. The subject matter of the declaration described above complies with the relevant EU harmonisation legislation

6. Indication of the relevant harmonised standards used or of the other technical specifications in relation to which conformity is declared:

The LUC meets the requirements of the Low Voltage Directive 2006/95/EC (valid until 19 April 2016), the LUC meets the requirements of the Low Voltage Directive 2014/35/EU (valid from 20 April 2016), the LUC meets the requirements of the EMC Directive, Electromagnetic Compatibility, 2014/30/EU.

7. Additional details:

The LUC as a safety device for the joint operation of fireplaces and air extracting devices for fireplaces according to DIN EN 13229, DIN EN 13240, DIN EN 12815, DIN EN 15250 and masonry heaters according to ZV SHK TROL 2006:2010 (see "3.2 Sphere of application" on page 10).

Signed for and on behalf of:

LEDA WERK GMBH & CO. KG BOEKHOFF & CO, Leer

Leer, 2019-09-02,	Tobe Hinrichs, Head of the Heating Technology Service Centre
(Place and date of issue)	(Signature) (Name, position)

10. Identification and equipment plate

The CE marking of the LUC is affixed to the equipment plate.

The corresponding directives are complied with:

- EMC directive, electromagnetic compatibility, 2014/30/EU
- LV Directive, Low Voltage Directive 2014/35/EU

In addition, the conformity marking of the LUC is affixed to the equipment plate. The LUC is generally approved by the building authorities.

The equipment plate with serial number and marking is located on the front of the switching unit (see Fig. 10.1), marking and serial number of the measuring unit/display unit is located on the measuring board, in the flush-mounted housing of the graphical display unit.

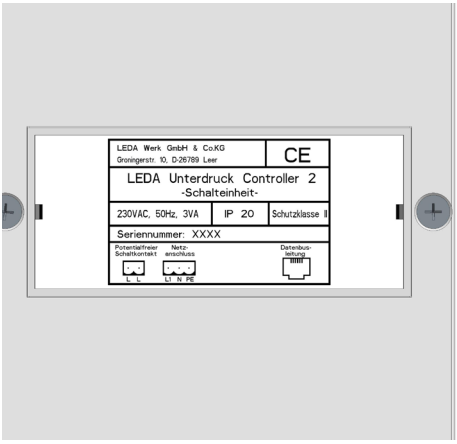


Fig. 10.1 Equipment marking on the switching unit of the LUC

Depending on the circumstances, the switching unit can be installed either in the house distribution / fuse cabinet or in a separate housing.

If necessary, have the installation company show you the installation location.

11. Spare and wearing parts

Only original spare parts made by the manufacturer may be used!
Spare parts can be obtained from your specialist dealer or system manufacturer.

Designation	ID numbers
LUC Operating and measuring unit	1005-03907
LUC Switching unit	1005-03908
Resistance thermometer (temperature sensor)	1005-02508
Silicone tube	1004-00447
Data bus line 15m	1004-00546

To protect the environment, electronic components must not be disposed of with unsorted municipal waste (household waste). These components must be disposed of according to local conditions.
These components consist of materials that can be reused by recycling centres. For this purpose, we have designed the electronic components of our products to be easy to separate and use recyclable materials. If you are unable to dispose of the components of the LUC properly, talk to your specialist company or to us about the options for waste disposal.

12. Technical data

LEDA ventilation control system, LUC (Version LUC 2, with a graphical display)	
Operating and measuring unit	
Operating voltage	15 V DC
Power consumption	1.5 W
Degree of protection	IP 20 / safety class III
Permissible operating and ambient temperature	0°C to 60°C
Differential pressure measuring range	-100 Pa to +100 Pa
Resolution	1 Pa
Overload limit	at 1 kPa
Electrical connection	2 x spring terminals D=1.5mm for temperature sensor 2 x RJ12 socket for a data bus line
Pneumatic connection	2 x cable grommets D=5mm for a silicone tube with a nominal width of 4mm
Display unit	TFT display 3.5" with a resistive touch function Resolution: 320 x 240
Housing	Flush-mounted housing, wall-mounted housing 2 x DN20 screwed hose connections or cavity-wall housing
Switching unit	
Input voltage	230 V AC, 50 Hz +/- 10%
Power consumption	maximum 3 VA
Degree of protection	IP 20 / safety class II
Appliance fuse	Subminiature fuse
Permissible operating and ambient temperature	0°C to 60°C
Switch output	1 x floating changeover contact 230 V / 10A, open in a de-energised state
Maximum switch-on current	25 A
Fuse protection of the relays	Miniature fuse 5x20, 10A T (slow-blowing)
(further...) Switching unit	
Electrical connection	3-pin screw terminal for a mains connection 2-pin screw terminal for an air-extraction system 1 x RJ12 socket for a data bus line

LEDA ventilation control system, LUC (Version LUC 2, with a graphical display)	
Housing	according to DIN 43880, snap-in mounting on a TH35-type DIN rail Dimensions: 105x86x59 (LxWxH)
Temperature sensor	
Sensor type	PT100 resistance thermometer according to DIN EN 60751 class B
Connecting cable	Glass fibre with a wire mesh 2 x 0.3 mm², with a length of 7m or 5m (depending on the version)
Max. length of the connecting cable	10 m
Permissible ambient temperature of the connecting cable	0°C to 300°C
Permissible measuring range temperature	0°C to 400°C
Pressure measuring tube	
Supplied pressure measuring tube	Silicone tube, with a length of 7m or 5m, outer Ø of 7mm, inner Ø of 4mm
Max. length of the pressure measuring tube	10 m
Permissible ambient temperature of the pressure measuring tube	0°C to 180°C
Data bus line	
Data bus line	Flat ribbon cable 6 x 0.14 mm², with a length of 15m or 25m (depending on the version)
Connection	on both side with a Western-type plug (type: 6/6, RJ 12)
Recommended length	max. 30m with a data line of 6 x 0.14mm² max. 15 Ω cable resistance per wire in the case of other cabling materials, e.g., NYM cables
Permissible cable temperature	60°C
Requisite empty tube for installation	Inner Ø of at least 20mm

LEDA 6036-00577 V4 0919 LUC Operating Instruction Manual

Contact us.

Your LEDA dealer/trade partner

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LEDA
Guss ist Qualität