

Operating and installation instructions

REMKO SLE series Swimming pool dehumidifiers

SLE 45, SLE 65, SLE 85



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Carefully read this Operating Manual prior to commissioning/ using the units.

This operating manual is a translation of the German original.

These instructions are an integral part of the unit and must always be kept in the vicinity of the installation location or on the unit itself.

Subject to modifications; no liability accepted for errors or misprints!

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Safety notes

The units have been subjected to extensive material, functional and quality inspections prior to delivery.

However, dangers can result from the units if they are used improperly or not as intended by untrained personnel.

The following notes must be observed in full:

- The units may not be installed or operated in explosive environments
- The units must not be installed or operated in atmospheres containing oil, sulphur or salt
- The units must not be exposed to direct jets of water
- An unobstructed air inlet and air outlet must be guaranteed at all times
- The air-inlet grill must always be kept free of dirt and loose objects
- The units must not be covered during operation
- Never stick foreign objects into the units
- All electrical cables on the outside of the units must be protected against damage (e.g. by animals etc.)
- The units are only permitted to be set up or installed in the intended position (upright)
- Unobstructed and frost-proof condensate drainage must be ensured at all times
- The unit connections must always be established according to the applicable installation regulations



CAUTION

The units must be set up and installed in such a way that they are easily accessible for monitoring, repair and maintenance work.

Air dehumidification

The correlations occurring when air is dehumidified are based on physical laws.

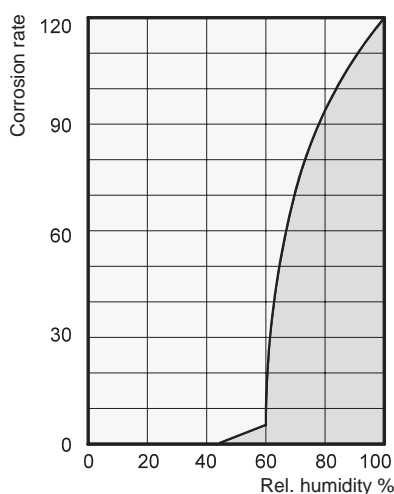
These are depicted here in graphical form in order to provide you with a brief overview of the principles of air dehumidification.

The use of REMKO air dehumidifiers

- Even if windows and doors are well insulated, water and moisture are still capable of penetrating thick concrete walls.
- The water required for setting in the production of concrete, mortar and plaster etc. may only be diffused after 1-2 months.
- Even moisture trapped in the masonry after high-water or a flood is released very slowly.
- The same is also true of moisture contained in stored materials for example.

The moisture (water vapour) released from parts of a building or materials is absorbed by the surrounding air. As a result, the moisture content increases, which ultimately gives rise to corrosion, mould, rot, peeling of paint and other unwanted damage.

By way of example, the diagram shows the corrosion rate of metal in different levels of humidity.



It is evident that the corrosion rate below 50 % relative humidity (RH) is low, and below 40 % is negligible.

The corrosion rate increases significantly above 60% RH. This threshold for damage as the result of humidity also applies to other materials, such as powdery substances, packaging, wood and electronic units.

Buildings may be dried in a variety of ways:

1. By heating and air exchange:

The air in the room is heated in order for moisture to be removed and then this air is fed outside. All of the energy that is involved is lost together with the moist air that is released.

2. By air dehumidification:

The moist air that is present within an enclosed space is continuously dehumidified according to the condensation principle.

With regard to energy consumption, air dehumidification has one distinct advantage:

Energy expenditure is limited exclusively to the air volumes present. The mechanical heat that is released by the dehumidification process is fed back into the room.

Under normal use, the air dehumidifier uses approximately 25 % of the energy that is required for the “heating and ventilating” principle.

Relative air humidity

Our ambient air is a gaseous mixture which always contains a certain volume of water in the form of water vapour. This volume of water is specified in g per kg of dry air (absolute moisture content).

1 m³ of air weighs approx. 1.2 kg at 20 °C

Depending on the temperature, each kg of air is only capable of absorbing a certain volume of water vapour. Once this capacity has been reached, the air is referred to as “saturated” and has a relative humidity (RH) of 100 %.

Relative humidity is understood to mean the ratio between the current quantity of water vapour in the air and the maximum possible quantity of water vapour at the same temperature.

The ability of the air to absorb water vapour increases as the temperature rises. I.e. the maximum possible (absolute) water content becomes greater as the temperature rises.

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Temp.	Water vapour content in g/m ³ at humidity of			
°C	40%	60%	80%	100%
-5	1.3	1.9	2.6	3.3
+10	3.8	5.6	7.5	9.4
+15	5.1	7.7	10.2	12.8
+20	6.9	10.4	13.8	17.3
+25	9.2	13.8	18.4	23.0
+30	12.9	18.2	24.3	30.3

Water vapour condensation

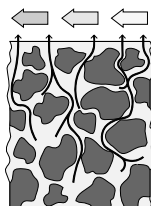
Because the capacity for the maximum possible volume of water vapour increases as the air is heated, the volume of water vapour contained remains constant and so relative humidity falls.

Drying materials

Building materials and structures are capable of absorbing considerable volumes of water, such as brick 90-190 l/m³, heavy concrete 140-190 l/m³ and limestone 180-270 l/m³.

The drying of moist materials such as masonry is effected as follows:

- The moisture moves from the inside of the material to its surface

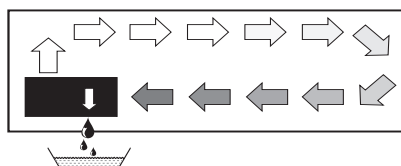


- Evaporation occurs on the surface = transfer of water vapour to the ambient air

- The air containing water vapour is constantly circulated through the REMKO air dehumidifier. The air is dehumidified and, slightly heated, leaves the unit in order to re-absorb water vapour

- In this way, the moisture contained in the material is reduced gradually
The material is dried!

The accumulated condensate is collected in the unit and drained off from there.



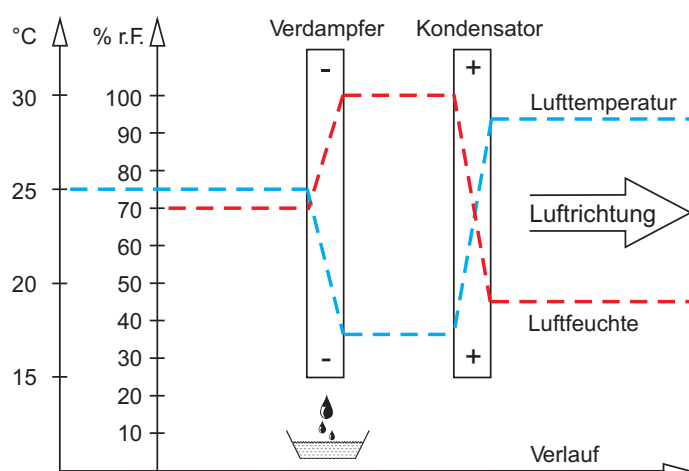
In contrast, because the capacity for the maximum possible volume of water vapour decreases as the air is cooled, the volume of water vapour contained remains constant and so relative humidity increases. If the temperature continues to fall, the capacity for the maximum possible volume of water vapour is reduced so much so that it is ultimately equal to the volume of water vapour contained in the air. This temperature is referred to as the dew point. If the air is cooled to below the dew point, the volume of water vapour in the air will become greater than the maximum possible volume of water vapour.

At this point, the water vapour begins to precipitate.

It then condenses to water.

Humidity is then removed from the air.

As it flows through or over the evaporator, the air stream is cooled to dew point. The water vapour condenses, and is collected in a condensate trap from where it is drained off.



Examples of condensation include steamed-up window panes in winter, or the moisture on the outside of a cold drinks bottle.



As the relative humidity of the air increases, so too does the dew point, making it easier for the temperature to fall below it.

Condensation heat

The Energy transferred to the air from the condenser consists of:

1. The amount of heat derived beforehand in the evaporator.
2. The electrical drive energy.
3. The condensation heat released by liquefying the water vapour.

Energy must be supplied when liquid is converted into a gas. This energy is designated as evaporation heat.

It does not cause any increase in temperature, but is required to convert a liquid into a gas.

Conversely, energy is released when gas is liquefied, this is designated as condensation heat.

The amount of energy from evaporation heat and condensation heat is the same.

For water, this is:

2250 kJ/kg (4.18 kJ = 1kcal)

From this it is evident that the condensation of water vapour causes a large quantity of energy to be released.

If the moisture that it is to be condensed is not introduced by evaporation in the room itself, but from outside, e.g. through ventilation, the condensation heat released contributes to the heating of the room.

When dehumidifying, a heat cycle is created, whereby heat is consumed for evaporation and released for condensation.

When dehumidifying fed air, a larger contribution of heat is created, which manifests itself as a temperature increase.

Generally speaking, the time required for the drying process is not only dependent on the output of the unit, but is determined to a greater extent by the speed at which the material or building section loses its moisture.

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Testing the water quality

Water quality

The correct combination of chemicals in swimming pools in indoor areas is of major importance to the health of the users and for systems in the vicinity of the swimming pool and its plant room.

Inadequately treated water leads to poor hygiene, whilst water that has been excessively treated gives off chlorine into the air, which can irritate the eyes and lead to respiratory problems. At the same time, an incorrect combination of chemicals in the water can lead within a very short time to the destruction of all systems - including the dehumidifier and other systems that have been installed for air treatment.

The following tables contain the limit values for swimming pools in indoor areas in accordance with EN/ISO 12944-2, corrosivity category C4.

These limit values must be observed, otherwise the guarantee is voided

When adding chemicals

The following guideline values apply to swimming pools when adding chemicals:

Chemical values	ppm
Free chlorine content	1,0 - 2,0
Combined chlorine content	max. 1/3 of the free chlorine content
pH value	7,2 - 7,6
Total alkalinity	80 - 150
Calcium hardness	250 - 450
Total dissolved solids	< 2000
Sulphates	< 360

With own production of chlorine

The following guideline values apply to swimming pools with own production of chlorine:

Chemical values	ppm
Salt (NaCl)	< 30000
Total dissolved solids	< 5 500
pH value	7,2 - 7,6
Total alkalinity	80 - 150
Calcium hardness	250 - 450
Sulphates	< 360

Langelier saturation index

To make sure the various water quality parameters remain within an acceptable range, the Langelier saturation index should be applied.

Unit description

The units have been designed for universal and straightforward air dehumidification.

Their compact dimensions allow the units to be transported and installed with ease in the adjacent room.

The units operate in accordance with the condensation principle and are equipped with a hermetically sealed refrigerant system and low-noise and low-maintenance fan(s).

The fully-automated electronic controller, an integrated hygostat and connection ports for condensate drainage provided by the customer ensure continuous fault-free operation.

The units are reliable, easy to use and conform to the fundamental health and safety requirements of the appropriate EU stipulations.

The units are used in all locations where dry air is a must and where economic consequential damage (such as that caused by mould) must be prevented.

The units may be used to dehumidify areas such as:

- Private swimming pools
- Spa areas
- Fitness centres
- Storage rooms
- Archives
- Museums

Operating sequence

The unit is switched on and off using the integrated hygostat.

The hygostat is set to 60 % RH in the factory.

The respective unit function is indicated by a multi-colour LED display on the front of the unit.

The fan extracts the moist room air via the lower part of the front panel.

Heat is removed from the room air on the cold *evaporator*. The air is then cooled to below dew point.

The water vapour contained in the room air is then deposited as condensate or rime on the evaporator fins.

On the *condenser*, the cold and dehumidified air is warmed up again and discharged back into the room via the top part of the front panel with a temperature increase of around 5 K above the room temperature.

The processed, dry air therefore continuously mixes with the room air.

Continuous circulation of the room air through the unit gradually reduces the relative humidity (% RH) in the room to the desired humidity level.

LED light function

If the unit was delivered with the LED light function, the light can be switched on and off using an operating switch at the top right corner of the panel. If designed as an RGB-LED, a remote control is also supplied.

Schematic depiction of the workings of the SLE 45-85 air dehumidifier



LED light function



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Set-up

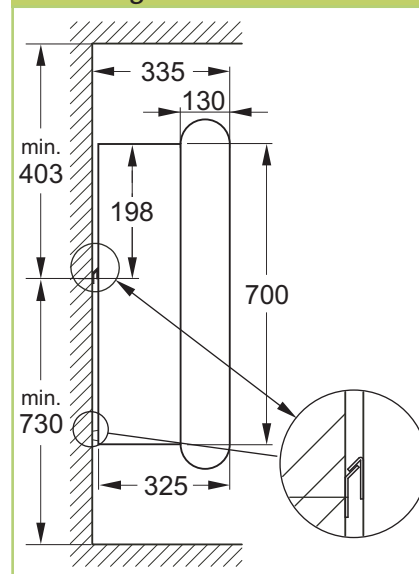
For optimum and safe use of the units, the following notes must be followed in full:

⚠ CAUTION

The units are set up in areas with a high potential for hazards. In addition to the local regulations, the VDE regulations relating to safety zones, local potential equalisation, equipment, safety measures and protection classes must be adhered to.

- Comply with all regulations governing structural, electrical and other building requirements and conditions with regard to the installation site
- Mount the wall console provided securely to the wall using suitable fastening fixtures (not included)
- The unit must be mounted or set up upright to ensure that the condensate can drain freely
- The unit's alignment must be adhered to exactly in order to prevent warpage on the housing and to ensure that the unit panel can be put on without hindrances
- The unit must be mounted or set up upright to ensure that air can be taken in and blown out freely
- Observe the illustrated minimum gaps between the unit and the ceiling and floor in the installation room to ensure safe operation
- The unit must never be mounted in the immediate vicinity of heaters or other sources of heat
- The room being dehumidified must be closed to the neighbouring atmosphere
- Avoid having opened windows and doors etc., and avoid frequent entry to or exit from the room as much as possible
- In order to achieve optimum room air circulation using the dehumidifier, the supply and exhaust air openings must remain clear
- Secure the wall spacers provided with the unit to the bottom corners of the unit using adhesive

Mounting the units on the wall



Access to the controller

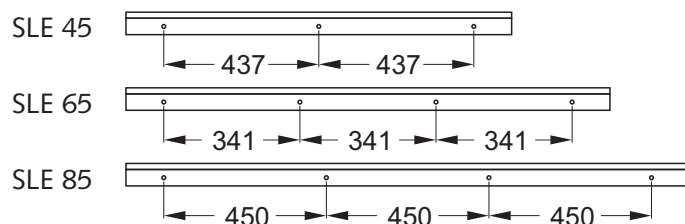
The unit panel must first be removed from the unit in order to access the controller. To do this, remove the bottom lock. Angle the front panel downwards and then lift up and off vertically.

The controller is located behind the top cover of the internal housing parts above the compressor.

Once the top two screws on the inner housing parts are removed, the top panel can be removed and access is free.

Once work is completed, re-install or lock the housing parts accordingly.

Wall-mounted bracket for the units

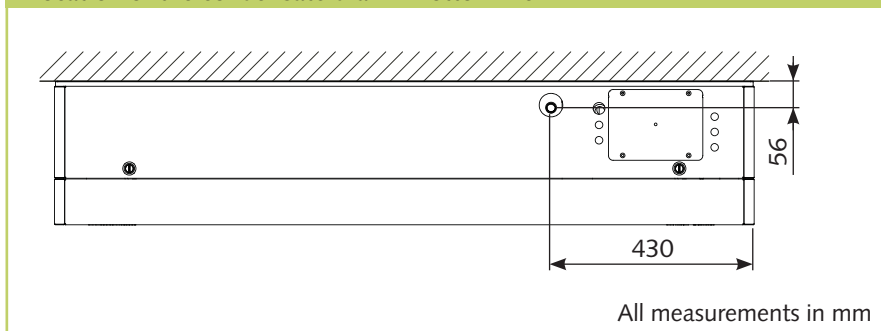


Condensate water drain

The condensate water drain is located on the unit's base. The condensate drain is connected to the discharge nozzle supplied. A solid or flexible 3/4" discharge connector can be installed on this.

- The discharge hose must always be laid at an incline of at least 2 % so that the water can flow unhindered from the drip tray.
- Alternatively, a condensate pump can be fitted to the unit in order to pump the condensate water to a drainage point located at a higher level.
- If drainage is to be carried out through the wall, the relevant measures such as holes for correct condensate drainage must be taken before installing the unit.
- See the diagram at the side for information on the location of the drainage connection.

Location of the condensate drain - Bottom view



Putting the panel on

The unit is supplied from the factory with a separate panel. This must therefore be put on properly before starting the unit. Follow one of the following two instructions depending on the unit equipment.

Installing the SLE panel without LED light function

To equip the unit with the panel, follow these instructions.

1. Open the connection flap on the bottom.
2. Guide the power cable through the cable gland and then onwards to the terminal block.
3. Then attach the cable for the power supply. Connect the L1 phase accordingly to the first grey terminal (L1) from the left. Connect the zero phase N to the first blue terminal (N) from the left and connect the earth conductor PE to the earth conductor terminal (PE) (also see the electrical wiring diagram).

4. Re-close and fasten the connection flap.
5. Connect the unit to the power supply.
6. Remove the control board cover.
7. Set the room humidity on the control board (see commissioning).
8. Re-attach the control board cover using the two screws.
9. Hang the SLE panel into the top edge, use the top guide pins to centre it and then let it rest gently.
10. Push the panel using the bottom guide pins.
11. Tighten the two locks clockwise so that the bottom of the panel can no longer be lifted.

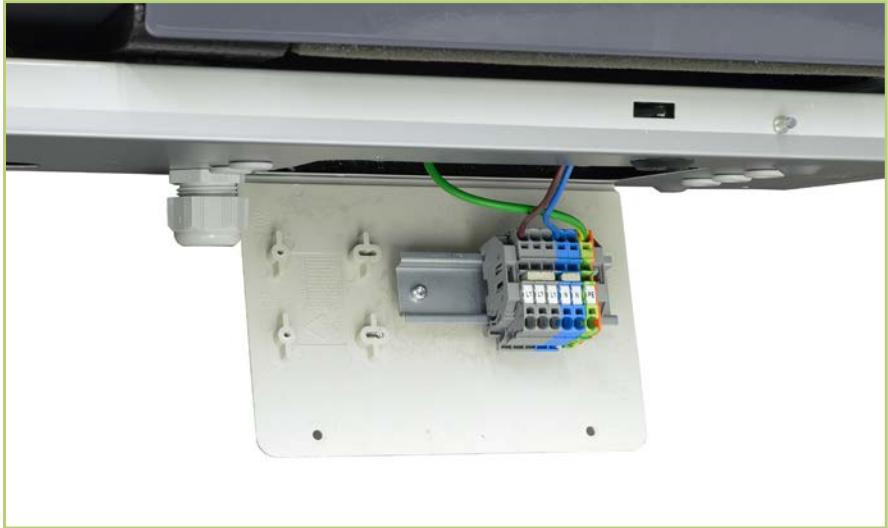
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Installing the SLE panel with LED light function

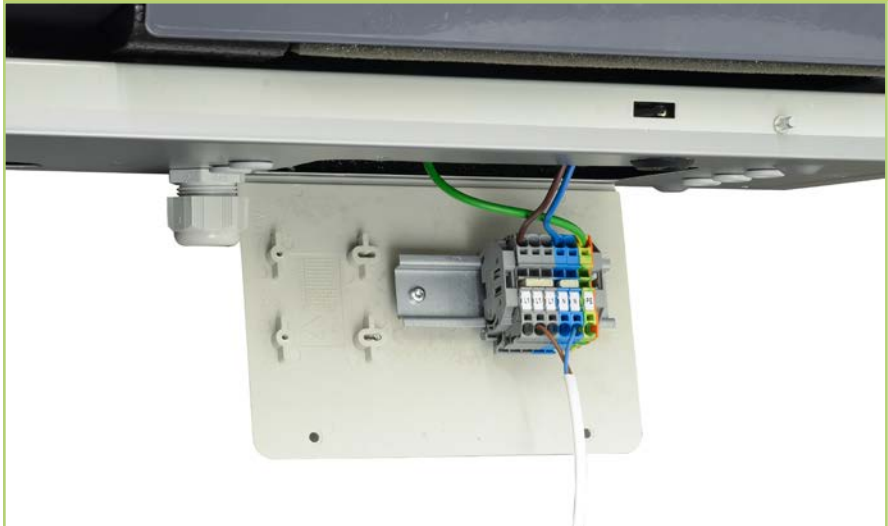
To equip the unit with a panel for the LED light function, follow these instructions.

1. Open the connection flap on the bottom.
2. Connect the supplied cable section (0.5 m) with plug contact. Connect the brown cable to the second grey terminal (L1) from the left. Connect the blue cable to the second blue terminal (N) from the left.
3. Push the strain relief onto the rail and push the two cable ties through the eyes.
4. Guide the cable end with the plug contact through the bottom gap. Attach the cable with the cable ties to the strain relief and shorten the ends of the cable ties accordingly.
5. Guide the power cable through the cable gland and then onwards to the terminal block.
6. Then attach the cable for the power supply. Connect the L1 phase accordingly to the first grey terminal (L1) from the left. Connect the zero phase N to the first blue terminal (N) from the left and connect the earth conductor PE to the earth conductor terminal (PE) (also see the electrical wiring diagram).

1. Opening the connection flap



2. Connecting the cable section



3.-6. Strain relief and power supply



7. Re-close and fasten the connection flap.
8. Connect the unit to the power supply.
9. Remove the control board cover.
10. Set the room humidity on the control board (see commissioning).
11. Re-attach the control board cover using the two screws.
12. Disconnect the unit from the power supply.
13. Hang the SLE panel with LED function into the top edge, use the top guide pins to centre it and then let it rest gently.
14. Angle the panel slightly downwards and connect the plug contact on the terminal block to the plug contact on the panel.
15. Stow the cable in the connection box.
16. Push the panel using the bottom guide pins.
17. Tighten the two locks clockwise so that the bottom of the panel can no longer be lifted.

7. Closing the connection flap



8.-12. Control board



13.-17. Putting the unit panel on



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Commissioning

Before commissioning the unit or if local requirements dictate, the air-inlet grill and air-outlet grill must be checked for contamination.

The units are operated using an integrated hygostat that is set to 60 % RH (default value for spas and indoor swimming pools). If the room humidity is below 60 % RH, the unit does not start. If the relative humidity is above 60 %, the unit starts the dehumidification process automatically.

If you would like to make changes to the hygostat settings, remove the front panel and the control board cover located in the upper section in order to access the control board.



NOTE

Interrupting the operation of the unit before the compressor has run for 6 minutes will activate a restart lock lasting approx. 4 minutes.



NOTE

If the air humidity is lower than the set value, the unit will not start up, even if the mains voltage is connected.



NOTE

When the unit is switched on or off using the main switch, a signal is issued upon startup and the operation LED display illuminates blue as soon as the unit is ready for operation. Once all conditions have been met, the dehumidifying process begins.

Control board

The units are equipped with an electronic controller. This features various interfaces and a display. The following section describes these features in detail.

USB interface

The information on the USB interface can be found further on in this manual.

RS-485 interface

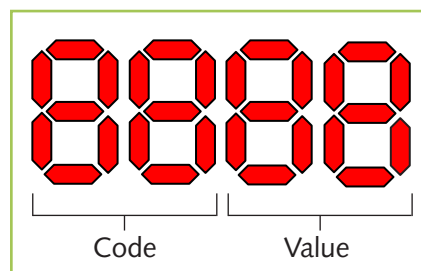
The information on the RS-485 interface can be found further on in this manual.

Control board, front



Display and operator panel

The display is a four-digit seven segment display. The first two digits are used to display the respective "code", e.g. rHXX, for setting the room humidity and the last two digits correspond to the value set.



In the standard view, no code is shown on the display. It is only the value of the humidity currently measured that is displayed.

The operator panel with the buttons "Up", "Down" and "OK" can be found on the right-hand side of the front of the control board. These can be used to navigate around the menu structure of the control board and to couple the control board with a wireless remote control.

EXT RH/T

These terminals allow you to connect up an external electronic humidity and temperature probe. The temperature probe must be an NTC probe with 10 k Ω at 25 °C and a B25/85 of 3969 K. The humidity probe must be designed for a voltage supply of 12 V DC and feature an analogue voltage output of 0-10 V with max. 10 mA.

ALARM

The alarm contacts are two potential-free contacts that are open in an unswitched state. The RUN contact is closed when the compressor is in operation. The FAIL contact is closed when there is a malfunction in the unit.

12VDC

Relays can be controlled via the HEAT contacts in order to switch the external heating on and off. They are active when the °C option in the menu is set to a value.

Menu structure (from software version 1.47)

To define the setpoints using the integrated operator panel, hold down the "OK" key for 5 seconds so that the display switches from the humidity currently measured to the menu item rHXX.

If you would like to exit the menu, do not press any keys on the operator panel for 10 seconds.

Menu items

Code: RH

The code "RH" stands for the relative air humidity that the unit should reach. The value can be set between 40 and 99 % RH. The default value is 60.

Code: °C

The code "°C" stands for external heating control with the aim of reaching a defined setpoint. The value can be set to between 05 and 34. This value is set to "OF" by default.

Code: EF

The code "EF" stands for external heating control with the aim of reaching the specified air humidity more quickly. The set value may differ from the setpoint humidity so that the external heating can either operate permanently or merely provide a support function. The value can be set between 40 and 99 % RH. The default value is set to "OF".

Code: SI

The code "SI" stands for the maintenance interval that the operator or fitter requires. This value is indicated in weeks and can be set from 01 to 99. The default value is "OF."

Code: tE

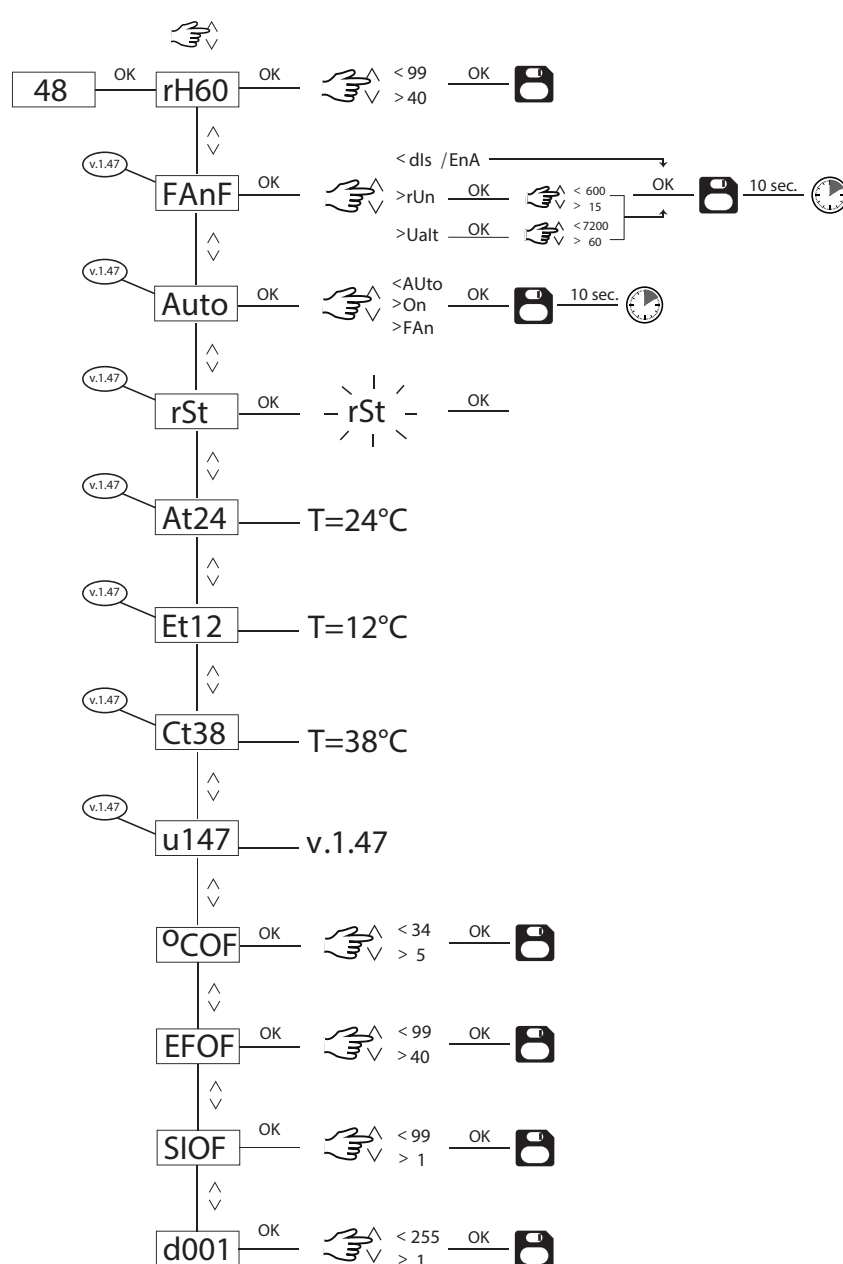
The code "tE" stands for testing and the value "St" for self-test. To start the self-test, press "OK" and to cancel it, hold the down key down for 5 seconds.



NOTE

The corresponding terminals for these options are located on the control board of the unit.

Menu structure of the SLE air dehumidifier



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Menu description

Press and hold the "OK" key for three seconds to enter menu mode.

If you would like to exit the menu, do not press any keys on the operator panel for 10 seconds.

Code	Sub-menu	Function	Default value	Value range	Description
rH	-	Relative humidity (%)	-	-	Dehumidification setpoint. Hysteresis approx. +/- 2%
FanF	-	Fan function	-	-	
	diS	Deactivate/ Activate	diS	diS/enA	Activate or deactivate the fan function. When the function is activated, the fan runs continuously to take air samples for humidity measurement
	Run	Operating time (s)	60	15-600	Fan running time in seconds
	wait	Waiting time (s)	3600	60-7200	Fan waiting time in seconds
Auto	AUTO	Mode selection	AUTO	AUTO	Automatic operation of fan and compressor based on rH setpoint
	On			On	Fan and compressor always active when power is connected (manual mode)
	Fan			Fan	Fan always active. Automatic operation of the compressor based on the rH setpoint
rSt	-	Reset	-	rSt	Resetting the unit, corresponds to unplugging and plugging in the mains connection. Confirm with OK.
At XX	-	Temperature (°C)	-	-	Ambient temperature at the humidity sensor
Et XX	-	Temperature (°C)	-	-	Evaporator temperature
Ct XX	-	Temperature (°C)	-	-	Condenser temperature
U147	-	SW edition	-	-	Current edition of the application software
°C	-	Temperature electr. auxiliary heater (°C)	Of	5-34	Setpoint of an external auxiliary heater in °C. Hysteresis approx. +/-2°C
EF	-	Exhaust air fan (% r.H.)	Of	40-99	Setpoint of an external extract air fan in % r.h. Hysteresis approx. +/- 2%
SI	-	Service interval (Weeks)	Of	1-99	Setting of a service interval. If active, the unit shows SEr in the display after the set weeks.
d001	-	Modbus Slave ID	1	1-125	Setting the Modbus ID.

Unit function

Fan control

When the control board puts the dehumidifier into operation, the fan(s) switch on together with the compressor.

Defrosting

The units feature an intelligent and active defrosting function. If the room temperature is below 20 °C, the evaporator will start to ice up after a short time.

If the evaporator probe registers a temperature of less than 5 °C on the evaporator surface, the unit only continues to run in dehumidification mode for a further 30 minutes.

Once this time has expired, the fans stop and the solenoid valve for hot-gas defrosting opens. When the evaporator probe registers a temperature higher than 5 °C again, the solenoid valve closes and the unit resumes dehumidification.

Safety circuit

If the temperature exceeds 55 °C on the condenser (e.g. due to a fan failure or an overly high room

temperature (higher than 36 °C)), the compressor stops automatically to prevent an overload.

As soon as the temperature on the condenser permits dehumidification again, the unit starts up automatically.

Compressor control

The compressor has a 6 minute restart delay. The delay period must elapse before it is possible to restart the compressor.

This safety function protects the compressor against an overload caused by overly high pressure in the cooling cycle.

In order to prevent damage to the condenser, the units are equipped with a mechanism that prevents the compressor being immediately switched back on after it is switched off via the mains power supply.

The compressor does not switch back on until after a waiting time of approx. 30 seconds!

LED light function

If the unit was delivered with the LED light function, the light can be switched on and off using an operating switch at the top right corner of the panel. If designed as an RGB-LED, a remote control is also supplied.

LED light function



Operating LED

The multi-colour LED display is in the background of the top grille on the front panel. It indicates the current operating state of the unit.

LED		Acoustical alarm	Cause
OFF	-	-	No power supply
Blue	Signal sequence	Single beep (1 second)	Switch-on sequence
	Slow flashing	-	Self-test sequence
Green/yellow	Flashing	-	Unit searches for wireless remote control
Green	Permanent	-	The unit operates normally
Yellow	Permanent	-	Service interval elapsed. Perform maintenance and set a new interval.
Red	2x flashing	Single beep (3 seconds)	LP alarm, see chapter "Troubleshooting"
	4x flashing		HP alarm, see chapter "Troubleshooting"
	6x flashing		Probe alarm, see chapter "Troubleshooting"

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Wireless remote control

The wireless remote control allows an SLE unit to be operated and adjusted in a simple and convenient manner. The current humidity and temperature can be viewed on the wireless remote control and the setpoint humidity can be adjusted.

The wireless remote control is intended for use with the SLE 45-65-85 dehumidifier models.

The wireless remote control has a coverage distance of up to 50 metres from the installation location of the unit.

Design of the wireless remote control

The wireless remote control is equipped with a large, clear display and has operating buttons for the different options Up, Down, Left, Right and Enter.

The display values and the air humidity scale have a value range of 0 to 99 % RH.

The display values and the air temperature scale have a value range of 0 °C to 40 °C.

Information display

The information display shows the setpoint values for the unit. Fault messages together with the fault symbols are also displayed here.

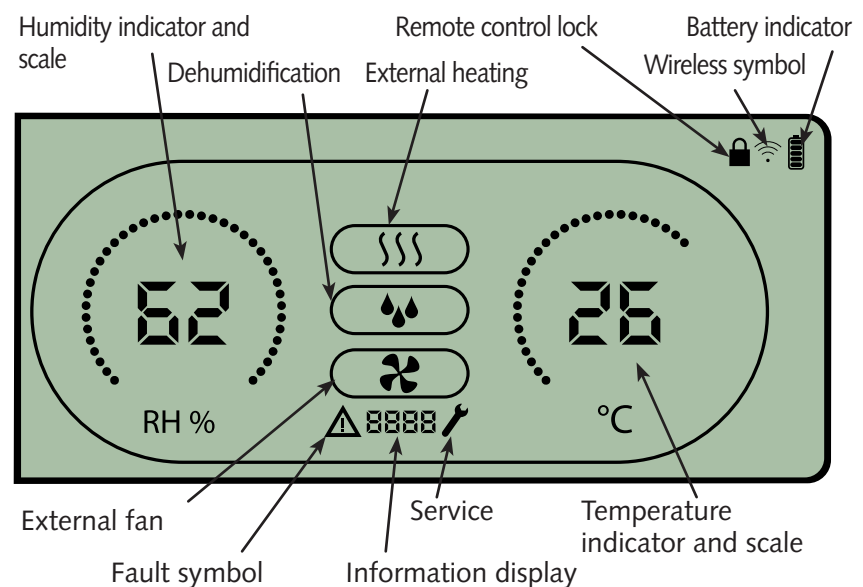
Power supply

The wireless remote control can be powered using 2 AAA batteries with 1.5 V each or can be powered externally using the USB cable provided.

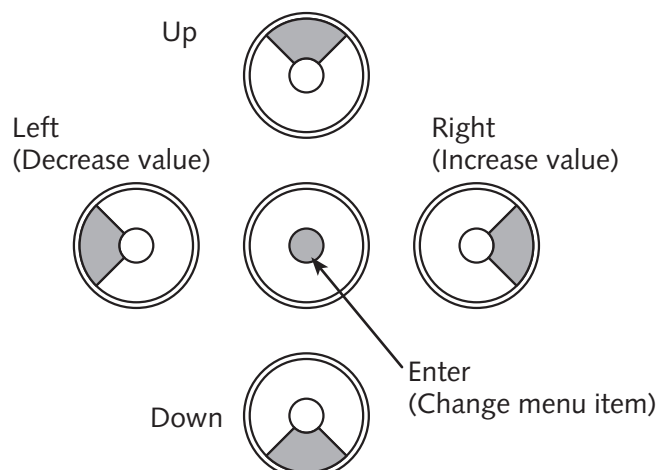
Wireless remote control



Overview of the display



Operating button control options



Coupling

Connecting the antenna

The antenna is located on the control board inside the unit or can be fitted there.

Before fitting the antenna, disconnect the unit from the power supply. Then loosen the two locks on the bottom of the unit by turning them anticlockwise, tilt the front cover of the unit and lift it up. In the upper right area, remove the two screws on the board cover and remove the cover. Pull the control board forwards, screw the antenna into place and bend it forwards. Once the antenna is screwed in place and the board has been returned to the previous position, the unit can now be provided with power in order to couple it with the wireless remote control. Then screw the housing parts back into place.

Switching on and coupling the remote control

The wireless remote control must be coupled with the unit before it can be used. To do so, carry out the following steps.

1. Insert the batteries provided into the battery compartment on the rear of the wireless remote control.
- 2a. The remote control will search for the unit for two minutes. During this time, the remote control display flashes every 2 seconds.
- 2b. During the search phase, hold down the Up and Down keys on the operator panel of the control board at the same time for 5 seconds.

Location of the control board



Connecting the antenna



3. If coupling was successful, the unit sends a serial number to the wireless remote control and the wireless symbol is displayed.
4. The swimming pool dehumidifier confirms the connection by displaying the code "Conn" for a period of 3 seconds.

This procedure can also be carried out using several remote controls so that an air dehumidifier can be controlled by several remote controls.

Coupling failure

If the wireless remote control fails to couple with the unit, the fault symbol becomes visible, "Conn" is shown permanently on the display and the wireless symbol flashes.

The wireless remote control needs to be reset before a new coupling attempt can be made. To do so, hold the Left key on the wireless remote control down for 10 seconds.

REMKO SLE series

General

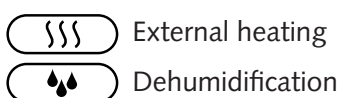
The wireless remote control displays the values for humidity and temperature at all times. The values only disappear when a malfunction arises. Depending on which function is currently active, one or more of the symbols appear in the centre of the display.

User setup menu

Hold down the Enter key for 3 seconds to open the user setup menu.

In this menu it is possible to switch between the wireless remote control symbols using the Up and Down keys provided the corresponding option of "OF" has been set to a value on the control board itself. Please read pages 12 and 13 to set these values.

User setup menu symbols

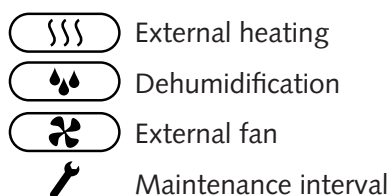


The Left and Right keys can be used to set these parameter values. The parameter is confirmed as a new setpoint using the Enter key. When this is confirmed, the remote control switches back to the symbol and exits the menu. If you would like to exit the user setup menu, do not press any keys on the remote control for 10 seconds.

Fitter setup menu

Hold down the Right key for 5 seconds to open the fitter setup menu. At this point it is possible to access all four menu items. It is also necessary to set the respective "OF" option on the control board to a specific value to enable access.

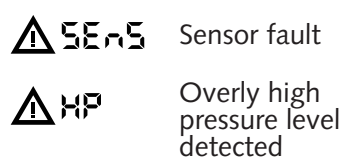
Fitter setup menu symbols



Fault messages

The fault messages correspond to the alarm messages which can also be shown on the unit's control board display. To make the alarm message recognizable, the fault symbol is also displayed on the wireless remote control.

Examples of fault messages



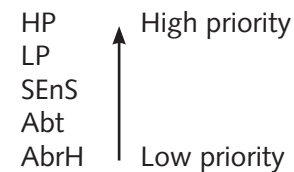
Generally speaking, the fault messages can only be reset on the display panel of the control board. The unit must be thoroughly inspected and the fault reset following rectification each and every time.

No changes can be made to the setpoints in the setup menus while there is an active fault.

Fault priority

In the event that several faults occur at the same time, only the fault with the highest priority is displayed.

Fault priority



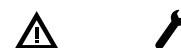
NOTE

Do not simply reset the fault messages without establishing the cause first.

Maintenance message

Unlike the other fault messages, the maintenance message can be acknowledged or reset via the wireless remote control. This is due to the fact that it is a purely informative message.

Maintenance message



Proceed as follows to set up the new maintenance interval.

1. Hold down the Right key for 5 seconds to open the fitter menu.
2. Use the Up and Down keys to navigate to the maintenance symbol.
3. Use the Right and Left keys to change the 0 value to the required maintenance interval.
4. Confirm the new maintenance interval by pressing the Enter key.

LED wireless remote control

The LED wireless remote control is used to set the colour modes.

The LED wireless remote control is intended for use with SLE 45-65-85 dehumidifier models that are equipped with the RGB LED light function.

The LED wireless remote control has a coverage distance of up to 50 metres from the installation location of the unit.

Sleep mode

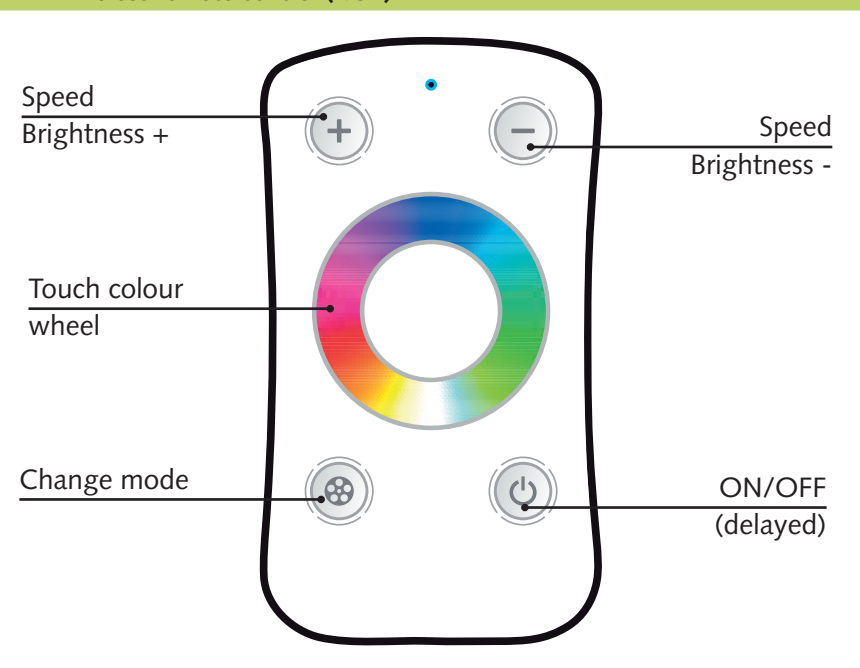
If the LED wireless remote control is not used for more than 30 seconds, it switches to sleep mode in order to save battery power. Pressing any key deactivates sleep mode and the LED wireless remote control can be used for setting again.

Using the LED remote control to change modes

You can use the "Change mode" key to select from 11 different programs.

1. Solid colour, red
2. Solid colour, green
3. Solid colour, blue
4. Solid colour, yellow
5. Solid colour, violet
6. Solid colour, turquoise
7. Solid colour, white
8. RGB alternating (jumping)
9. Seven alternating colours (jumping)
10. RGB alternating (cross-fading)
11. All colour alternating (cross-fading)

LED wireless remote control (RGB)



Changing the battery

The battery compartment is located on the bottom of the remote control. 1x CR2032 is inserted here. The battery compartment must be closed completely.



NOTE

Pay attention to the polarity when inserting the battery.



CAUTION

The fast light changes and light intensity changes can affect cognition, cause complaints and trigger epileptic fits in people prone to them.



CAUTION

If damage results in the LEDs being directly visible, avoid looking into the LEDs. The high light intensity can cause damage to the retina.

REMKO SLE series

Care and maintenance



NOTE

Regular care and maintenance is fundamental to a long service life and fault-free operation of the unit.

All moving parts have a low-maintenance permanent coat of lubricant. The refrigerant system is designed as a hermetically sealed system and may only be repaired by a specialist.

- Observe the regular care and maintenance intervals
- In accordance with the operating conditions, the units must be checked as and when required, but at least once per year, by a specialist to ensure that they are in a condition that is safe to use
- Keep the units free of dust and other debris
- If the unit is contaminated, it can be cleaned using a vacuum cleaner. The condenser in particular must be vacuumed thoroughly
- If the evaporator's fins are heavily soiled, they can be cleaned carefully with soapy water
- Never subject to direct jets of water **e.g. pressure washers etc.**
- Never use abrasive or solvent-based cleaners
- Use only suitable cleaners, even for heavy contamination

Cleaning the suction filter

Check the suction filter at regular intervals and clean if necessary. The filter is secured in the intake grille on the front panel.



CAUTION

Check the intake and outlet openings, as well as filters, regularly for contamination.

- Light filter contamination can be remedied with careful blowing or suction
- Heavier contamination may be remedied by rinsing the filter in a lukewarm (max. 40 °C) soap solution. Finally, always rinse the filter carefully with clear water and allow to dry
- Before refitting the filter, ensure that it's fully dry and that no damage has been sustained
- The units may only be operated with the filter in place



NOTE

Heavily contaminated filters must be replaced with new parts. Only original REMKO spare parts may be used.

Cleaning the condensate water collection tray

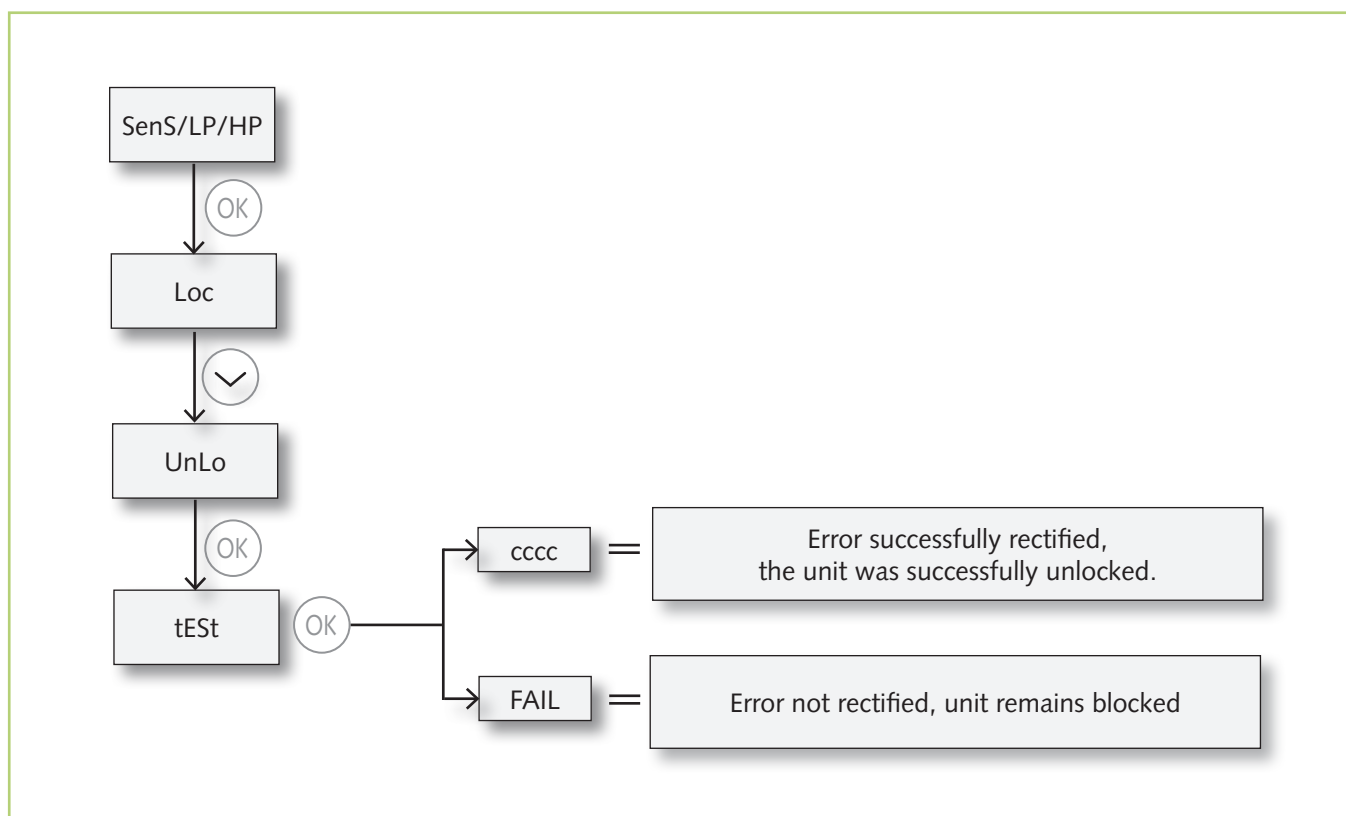
To ensure that the condensate water that accumulates can always drain freely, the collection tray for the condensate and the drain must be cleaned regularly.

Fault messages

Code	Cause	Remedial measures
LP	Low pressure level detected	The unit reboots and returns to the default view if the problem is rectified after the reboot. If the error persists, a low-pressure malfunction is triggered (see chapter "Troubleshooting")
HP	High pressure level detected	Malfunction must be established and rectified by specialist personnel. Acknowledgement possible only by way of unlocking sequence. Initiate the sequence by pressing the "OK" key (see chapter "Troubleshooting")
SenS	Sensor fault	Press the Up or Down key to see which probe is affected. Exchange the probe if necessary. COnd - condenser probe EUAP - evaporator probe rH°t - humidity and thermo sensor acknowledgement only possible by unlocking sequence. Initiate the sequence by pressing the "OK" key.

Unlocking sequence/Fault reset

If the error is SenS, LP or HP, a self-test of the system must be carried out after rectifying the problem. This self-test is carried out according to the following scheme:



REMKO SLE series

Information messages

Code	Cause	Remedial measures
Abrh	Air humidity is not within the permissible range	Acknowledgement not possible. Automatic reset as soon as the air humidity has returned to the permissible range.
Abt	Ambient temperature is not within the permissible range	Acknowledgement not possible. Automatic reset as soon as the temperature has returned to the permissible range.
Loc	Unit locked after error	Perform the unlocking sequence: Press the down key so that UnLo is displayed, confirm with "OK". tESt is shown in the display, start the test with "OK". If the test was successful, cccc is displayed and the unit is unlocked. If the test was not successful, FAIL appears on the display and the unit remains locked
Log	After inserting a USB memory stick into the USB interface	Once the USB stick has been inserted, the process of copying the log data from the internal memory to the USB memory stick is initiated and declared as finished by the information "Log"
LOSS	The connection to the remote control has been lost	When the connection is restored, acknowledge by clicking "OK"
Ser	Maintenance due (service interval set in the menu)	As soon as a new service interval has been entered, the#standard view reappears on the display
PAIr	Pairing Mode - An attempt is made by the unit to connect to the wireless remote control	The display automatically returns to the default view after a few seconds
LPCo	Temporary low pressure warning	The unit reboots and returns to the default view if the problem is rectified after the reboot. If the error persists, a low-pressure malfunction is triggered (see chapter "Troubleshooting")

Troubleshooting



NOTE

If it is not possible to determine the cause of the fault, switch off the unit immediately and disconnect it from the mains power supply to prevent further damage.



CAUTION

Work on the refrigerant system and on the electrical equipment must only be conducted by a specially-authorized specialist!



CAUTION

Prior to maintenance or repair work, the unit must be disconnected from the mains power supply.



NOTE

If all of the functional checks have been carried out without any findings, please contact an authorised service station.

Troubleshooting (continued)

Display text	Type	Error	Possible cause	Behaviour of the unit	Trouble shooting	Solution
-	-	-	Power supply interrupted	LED + indicator off	Check 230V supply	Restore power supply
-	-	-	Fuse "F1" blown on the circuit board	-	Check fuse	Replace fuse
Abt	Info	-	Outside temperature is outside the operating range	Unit in standby	-	Comply with operating limits
AbRh		-	Ambient humidity is outside the operating range	Unit in standby	-	Comply with operating limits
LPCo	Info	Temporary low pressure warning	Leakage in the refrigeration circuit	Unit tries to restart 3 times and then switches to LP error	Check compressor, fan and solenoid valve	Leak in the refrigeration circuit
			Expansion valve (TEV) defective		Check the TEV for visible damage	Replace TEV
			Compressor defective	Unit tries to restart 3 times and then switches to LP error. No or irregular noise from the compressor housing	Check the power supply of the compressor (230V +/- 10%) Check operating capacitor	Replace compressor or operating condenser
			Evaporator or capacitor sensor: - defective - is not properly in place - defective plugs - Cable break - Circuit board fault	Apparently normal operation without malfunction. Evaporator cold, condenser warm. Low pressure fault intermittent or permanent	Check the resistance of the probes, visual inspection of the plugs and cables	Replace probes, clean board connections, reset board, replace board
			Insufficient temperature difference between condenser and evaporator (low ambient temperature and air humidity)	No or little condensate, LPCo occurs regularly, self-test resets the error	Check compressor, fan and solenoid valve	Perform self-test, ensure higher ambient temperatures
			Solenoid valve leaking or circuit board fault leads to faulty defrosting	No condensate, LPCo occurs regularly	Check solenoid valve, voltage at coil when evaporator is ice-free	Check the function of the valve, replace the valve, reset the board, replace the board

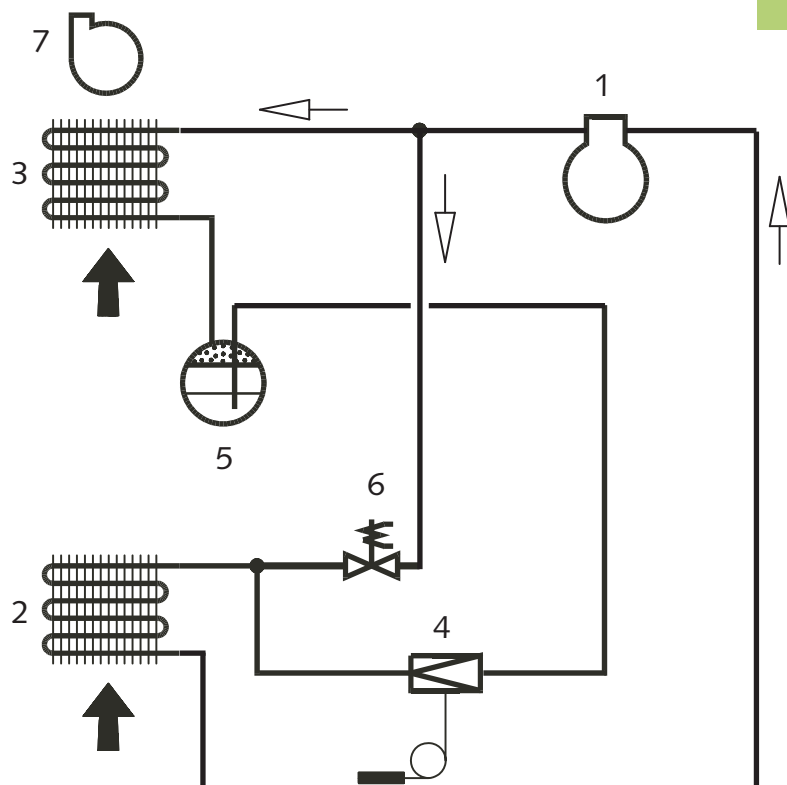
REMKO SLE series

Troubleshooting (continued)

Display text	Type	Error	Possible cause	Behaviour of the unit	Troubleshooting	Solution
LP	Alarm	Low pressure	LPCo error was triggered too often in succession	Low pressure error is triggered	see LPCo	see LPCo
HP	Alarm	High pressure	Defective high pressure temperature probe	High pressure error is triggered. No self-reset	Measure the resistance of the probe between the "cond" and "gnd" terminals in the "temp" section of the circuit board. The value should be between 190 kOhm and 0.14 kOhm (corresponding to a temperature of -50°C to 98°C). If the value is outside the range, the probe or the cable is defective	Replace the eperature sensor
			Clogged condenser		Check the fins of the condenser for deposits (e.g. dust) and impurities	Clean the condenser
SENS	Alarm	Probe error	Probe defective	Display shows SENS, after pressing the arrow key EVAP (evaporator sensor) or COND (condenser sensor) is displayed	Measure the resistance of the probe between the "cond" and "gnd" terminals in the "temp" section of the circuit board. The value should be between 190 kOhm and 0.14 kOhm (corresponding to a temperature of -50°C to 98°C). If the value is outside the range, the probe or the cable is defective	Replace the eperature sensor
				The display shows SENS, after pressing the arrow key Rh°t (combined temperature and humidity sensor) is displayed.	Check probe and cable for visible damage	Replace probe
LOOS	Info	-	Loss of communication with paired wireless remote control	-	Check the function of the wireless remote control, check the batteries	Reduce distance between unit and wireless remote control, change batteries

Cooling cycle

SLE 45 - 85

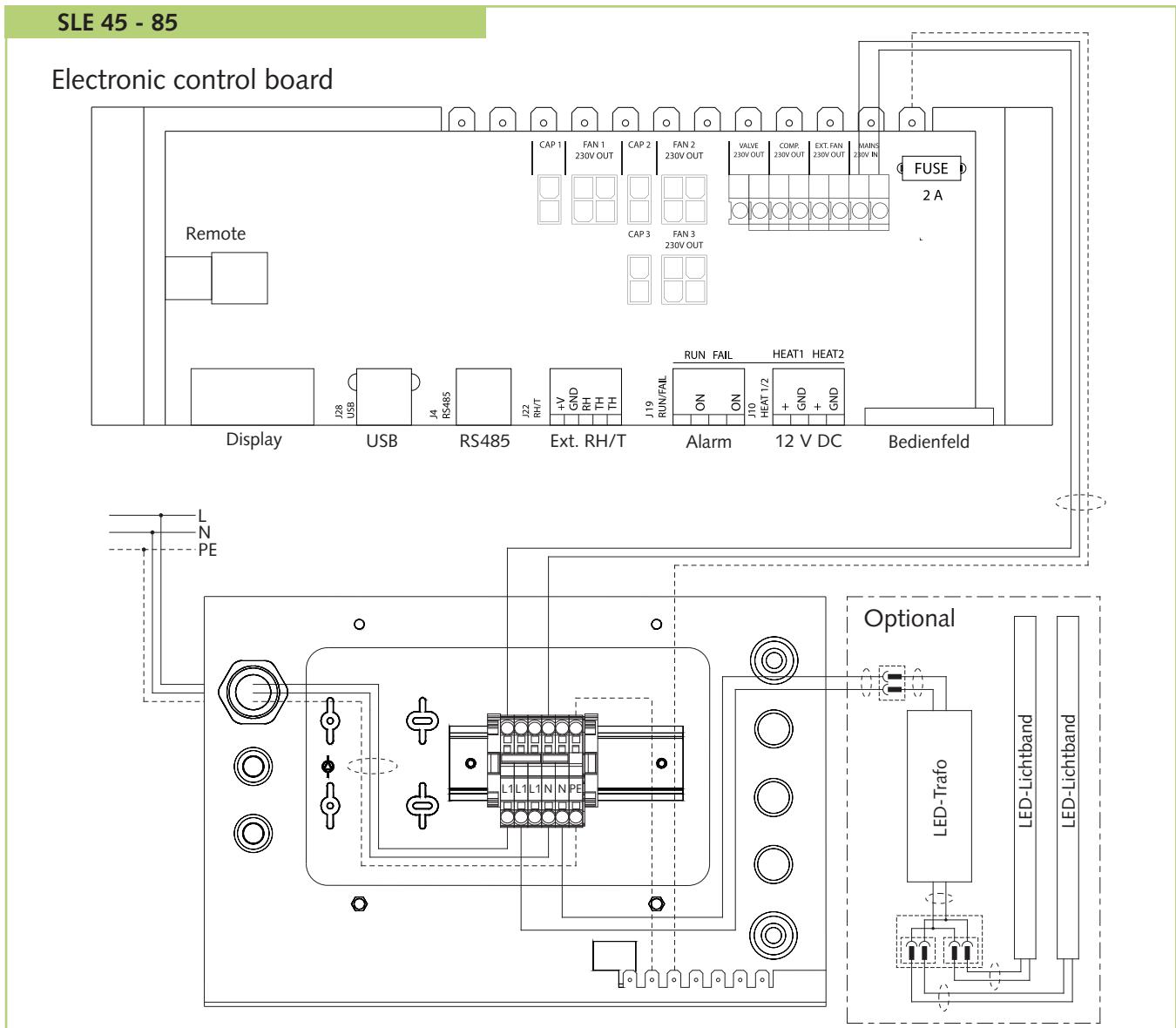


Legend:

- 1. Compressor
- 2. Evaporator
- 3. Condenser
- 4. Thermal expansion valve
- 5. Dry filter
- 6. Solenoid valve
- 7. Fan

REMKO SLE series

Electrical wiring diagram



Legend:

FAN 1 = fan motor 1
 FAN 2 = fan motor 2
 FAN 3 = fan motor 3
 CAP 1 = capacitor 1
 CAP 2 = capacitor 2
 CAP 3 = capacitor 3

COMP. = compressor
 VALVE = solenoid valve
 RUN = potential-free contact
 FAIL = potential-free contact
 HEAT 1/2 = 12 V supply voltage for controlling relays

Fan motors:

SLE 45 = FAN 1
 SLE 65 = FAN 1 and FAN 2
 SLE 85 = FAN 1, FAN 2 and FAN 3

CAUTION

Prior to maintenance or assembly work, the unit must be disconnected from the mains power supply.



NOTE

A main switch should be installed at a suitable and easily accessible point in the power supply. We recommend using a mains supply line of 2.5 mm² for the units.



NOTE

Assembly and maintenance work on the units may only be carried out by authorised and qualified technicians.

We reserve the right to modify the dimensions and design as part of the ongoing technical development process.

Intended use

The units are designed exclusively for dehumidification purposes on the basis of their structural design and equipment.

The manufacturer shall not be liable for damage resulting from non-observance of the manufacturer's specifications, the respective local legal requirements or from arbitrary alterations to the units.



NOTE

Operation other than the types listed in this operating manual is prohibited.

With non-observance, any manufacturer liability or guarantee claims are voided.



CAUTION

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REMKO GmbH & Co. KG.*

Customer service and Guarantee

As a prerequisite for any guarantee claims to be considered, it is essential that the ordering party or its representative completes and returns the **"Certificate of guarantee"** to REMKO GmbH & Co. KG at the time when the units are purchased and commissioned.

The units were tested at the factory several times to verify their correct function.

However, if malfunctions should arise that cannot be remedied by the operator with the assistance of the troubleshooting section, please contact your specialist dealer or contractual partner.



NOTE

Adjustment and maintenance work may only be carried out by authorised and qualified technicians.



Important information concerning recycling

The units are operated with environmentally-friendly and ozone-neutral R407C refrigerant. The mixture of refrigerant and oil within the unit must be disposed of properly in accordance with the statutory or locally-applicable regulations.



Environmental protection and recycling

Disposing of packaging

When disposing of packaging material, please consider our environment.

Our units are carefully packed and delivered in stable cardboard transport packaging and, if applicable, on a wooden pallet. The packaging materials are environmentally-friendly and can be recycled.

By recycling packaging materials, you make a valuable contribution to the reduction of waste and conservation of raw materials.

Therefore, only dispose of packaging material at appropriate collection points.

Disposal of the old unit

The manufacturing process for the units is subject to continuous quality control.

Only high-grade materials are processed, the majority of which are recyclable.

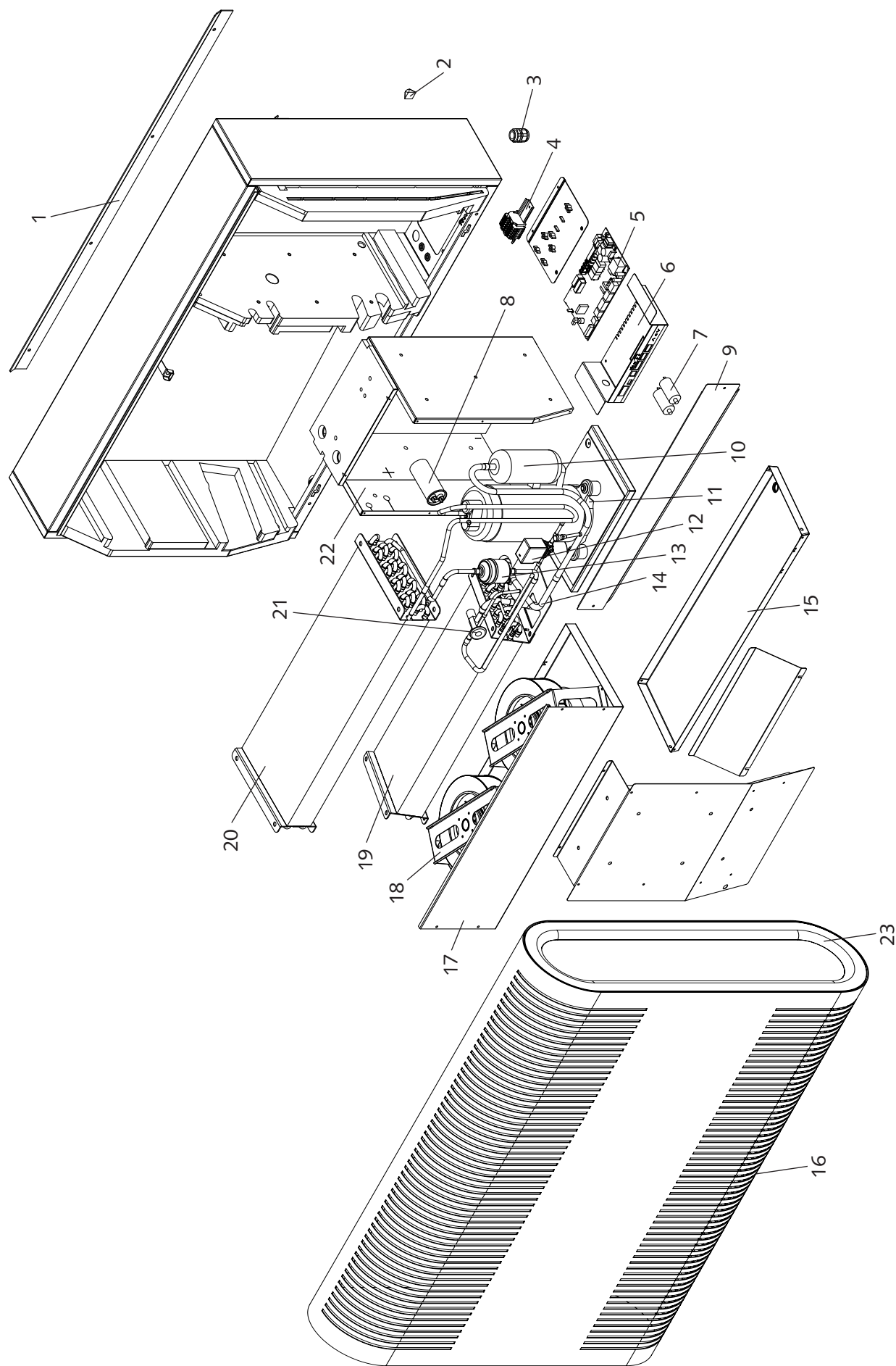
You also contribute to environmental protection by ensuring that your old equipment is only disposed of in an environment friendly manner.

Therefore, only bring the old unit to an authorised recycling business or to an appropriate collection point.



REMKO SLE series

Exploded view of the unit



Spare parts list


No.	Designation	SLE 45	SLE 65	SLE 85
		EDP no. on request		
1	Wall-mounted bracket			
2	Wall spacer			
3	Cable gland			
4	Series terminals on DIN rail			
5	Control board			
6	Holder for control board with operator panel			
7	Condenser fan			
8	Compressor capacitor			
9	Spatter guard			
10	Compressor			
11	Compressor accessories			
12	Solenoid valve			
13	Dry filter			
14	Copper piping set			
15	Condensate tray			
16	Unit panel			
16a	Unit panel (white LED)			
16b	Unit panel (RGB LED)			
17	Fan module			
18	Fan			
19	Evaporator			
20	Condenser			
21	Temperature valve			
22	Compressor insulation			
23	Side panel			
23a	White LED side panel			
23b	RGB LED side panel			
Not illustrated	White LED transformer			
Not illustrated	RGB LED transformer			
Not illustrated	RGB LED control unit			
Not illustrated	LED wireless remote control			
Not illustrated	LED operating switch			
Not illustrated	Cable with plug contact (unit side)			
Not illustrated	Strain relief			
Not illustrated	Suction filter			

When ordering spare parts, please always state the EDP no. and unit number (see name plate)!

REMKO SLE series

RS-485 interface

The RS-485 interface uses the Modbus RTU protocol as a slave unit. The unit has the address 1. From software version 1.45, the address can be changed if necessary. Settings: 115200, N, 8, 1

Code functions		 CAUTION
0x06	write single register	<i>The parameters marked with "L" must not be overwritten.</i>
0x10	write multiple register	
0x03	read holding register	

Software version older than 1.45

Register	Byte	Database parameters	Read (L) Write (S)	Min	Max	Hr.	Description
1	high	Comp_state	L/S	0	1	0	Compressor status: 0 – Compressor stopped 1 – Compressor running
	low	Fan_state	L/S	0	1	0	Fan status: 0 – Fan stopped 1 – Fan running
2	high	Sole_state	L/S	0	1	0	Solenoid valve: 0 – closed 1 – open
	low	ExFan_state	L/S	0	1	0	Extractor fan status: 0 – Fan stopped 1 – Fan running
3	high	Heat1_state	L/S	0	1	0	Status HEAT 1: 0 – HEAT 1 off 1 – HEAT 1 on
	low	Heat2_state	L/S	0	1	0	Status HEAT 2: 0 – HEAT 2 off 1 – HEAT 2 on
4	high	Alarm1_state	L/S	0	1	0	Output alarm 1: 0 – Alarm output off 1 – Alarm output on
	low	Alarm2_state	L/S	0	1	0	Output alarm 2: 0 – Alarm output off 1 – Alarm output on
5	high	Evap_temp1 (decimal)	L	-40	100	0	Temperature of evaporator 1: Decimal: Can be used as an integer value for temperature. Fraction: Can be converted to a decimal value. To obtain the total value, use the equation for floating-point numbers: "Value = decimal + (fraction/256)"
	low	Evap_temp1 (fraction)	L	-40	100	0	
6	high	Evap_temp2 (decimal)	L	-40	100	0	Temperature of evaporator 2: Use as described above
	low	Evap_temp2 (fraction)	L	-40	100	0	

Register	Byte	Database parameters	Read (L) Write (S)	Min	Max	Hr.	Description
7	high	Cond_temp1 (decimal)	L	-40	100	0	Condenser temperature: Use as described above
	low	Cond_temp1 (fraction)	L	-40	100	0	
8	high	Aux_temp (fraction)	L	-40	100	0	Auxiliary probe temperature: Use as described above
	low	Aux_temp (fraction)	L	-40	100	0	
9	high	Amb_temp (decimal)	L	-40	100	0	Ambient air temperature: Use as described above
	low	Amb_temp (fraction)	L	-40	100	0	
10	high	Amb_hum (High byte)	L	0	100	0	Ambient air humidity: High byte is insignificant and always contains zero. Only low byte can be used
	low	Amb_hum (Low byte)	L				
11	high	RH_set	L/S	40	95	40	Humidity setpoint
	low	RH_Fan	L/S	40	95	40	Humidity setpoint for extractor fan start
12	high	Temp_set (decimal)	L	0	36	0	Temperature setpoint: Used in the same way as Evap_temp1
	low	Temp_set (fraction)	L				
15	high	Fail_start	L	0	1	0	Status of Fail_start mode
	low	SB_mode	L	0	1	0	Standby mode status
16	high	DEH_mode	L	0	1	0	Dehumidification status
	low	Ice_mode	L	0	1	0	Defrosting mode
17	high	LP_mode	L/S	0	1	0	LP fault mode status
	low	Sens_mode	L	0	1	0	Sensor fault mode status
18	high	HP_mode	L	0	1	0	HP fault mode status
	low	Amb_mode	L	0	1	0	Ambient fault mode status
19	high	AmbT_mode	L	0	1	0	Ambient temperature fault mode status
	low	AmbRH_mode	L	0	1	0	Ambient humidity fault mode status

REMKO SLE series

Register	Byte	Database parameters	Read (L) Write (S)	Min	Max	Hr.	Description
20	high	SW build number (high)	L	0	65535	x	Software build number
	low	SW build number (low)	L	0			
21	high	SW version (Main version)	L	0	255	x	Main version number of the software
	low	SW version (Minor version)	L	0	255	x	Minor version number of the software
22	high	HP alarm Temp. (decimal)	L	0	99	60	HP faults occur when Cond_temp1 is greater than this value. Used in the same way as Evap_temp1
	low	HP alarm Temp. (fraction)	L				
40	high	Fan_function	L/S	0	1	0	Activate fan function in standby mode
	low						
41	high	Time_wait_fan	L/S	60	7200	3600	Waiting time until fan starts up in standby mode, if activated (seconds)
	low						
42	high	Time_run_fan	L/S	15	600	60	Fan operating time in standby mode, if activated (seconds)
	low						
43	high	RH_Fen	L/S	0	1	0	Activate/deactivate extractor fan function
	low	Service_ena	L/S	0	1	0	Activate/deactivate maintenance interval function

Software version 1.45 or newer

Address	Database parameters	Read (L) Write (S)	Min	Max	De- fault	Scaling	Description
1002	Comp_state	L	0	1	0		Compressor status: 0 – Compressor stopped 1 – Compressor running
1003	Fan_state	L	0	1	0		Fan status: 0 – Fan stopped 1 – Fan running
1004	Sole_state	L	0	1	0		Solenoid valve: 0 – closed 1 – open
1005	ExFan_state	L	0	1	0		Extractor fan status: 0 – Fan stopped 1 – Fan running
1006	Heat1_state	L	0	1	0		Status HEAT 1: 0 – HEAT 1 off 1 – HEAT 1 on
1007	Heat2_state	L	0	1	0		Status HEAT 2: 0 – HEAT 2 off 1 – HEAT 2 on
1008	Alarm1_state	L	0	1	0		Output alarm 1: 0 – Alarm output off 1 – Unit running
1009	Alarm2_state	L	0	1	0		Output alarm 2: 0 – Alarm output off 1 – Alarm output on
1010	Evap_temp1 (dezimal)	L	-400	1000	0	/10	Temperature of evaporator 1: Decimal number with 1:10 scaling. Example: Output of 250 corresponds to the value 25.0
1011	Evap_temp2 (Bruchteil)	L	-400	1000	0	/10	Temperature of evaporator 2: Use as described above
1012	Cond_temp1 (dezimal)	L	-400	1000	0	/10	Temperature of evaporator 2: Use as described above
1013	Aux_temp		-400	1000	0	/10	Temperature of evaporator 2: Use as described above
1014	Aumb_temp	L	-400	1000	0	/10	Temperature of evaporator 2: Use as described above

REMKO SLE series

Address	Database parameters	Read (L) Write (S)	Min	Max	Default	Scaling	Description
1015	Amb_hum	L	-0	1000	0	/10	Condenser temperature: Use as described above
1016	RH_set	L/S	40	95	40	/1	Humidity setpoint
1017	RH_Fan	L/S	40	95	40	/1	Humidity setpoint for extractor fan start
1018	Temp_set	L/S	0	36	0	/1	Temperature setpoint: Used in the same way as Evap_temp1
1019	Fail_start	L	0	1	0		Status of Fail_start mode
1020	SB_mode	L	0	1	0		Standby mode status
1021	DEH_mode	L	0	1	0		Dehumidification status
1022	Ice_mode	L	0	1	0		Defrosting mode
1023	LP_mode	L	0	1	0		LP fault mode status
1024	Sens_mode	L	0	1	0		Sensor fault mode status
1025	HP_mode	L	0	1	0		HP fault mode status
1030	Amb_mode	L	0	1	0		Ambient fault mode status
1031	AmbT_mode	L	0	1	0		Ambient temperature fault mode status
1032	AmbRH_mode	L	0	1	0		Ambient humidity fault mode status
1033	SW Build number	L	0		0		Software build number
1034	SW Version (Hauptversion)	L	0	255	0		Main version number of the software
1035	SW Version (Nebenversion)	L	0	255	0		Minor version number of the software
1036	HP Alarm Temp.	L/S	0	99	60	/1	HP malfunctions occur when Cond_temp1 is greater than this value. Used in the same way as Evap_temp1
1037	Fan_function	L/S	0	1	0	/1	Activate fan function in standby mode
1038	Time_wait_fan	L/S	60	7200	3600		Waiting time until fan starts up in standby mode, if activated (seconds)

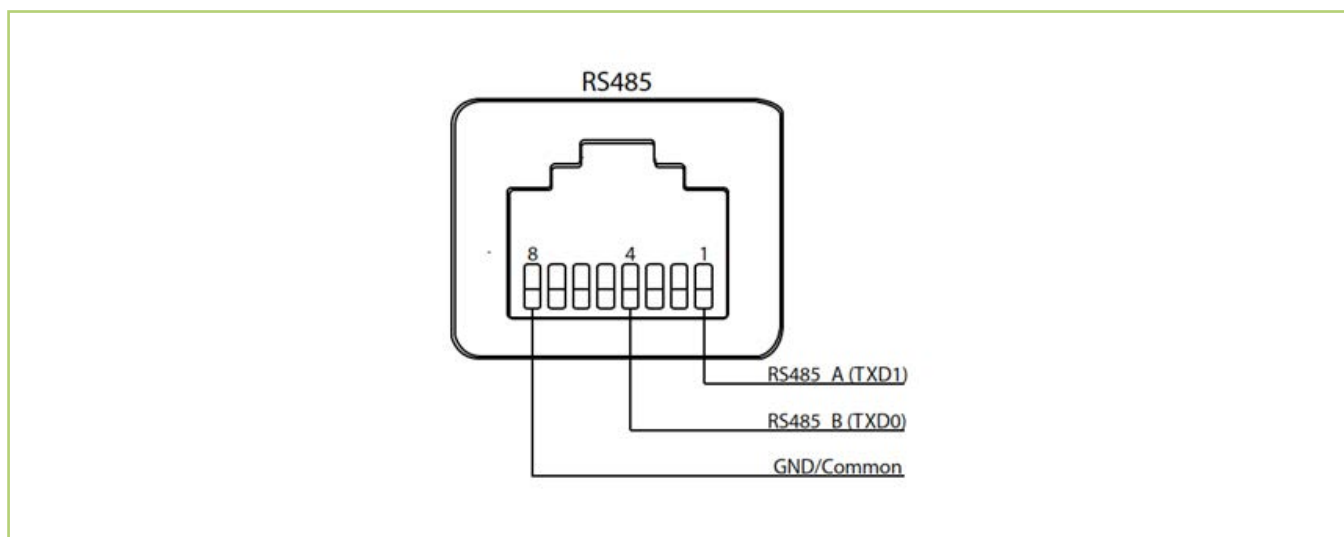
Address	Database parameters	Read (L) Write (S)	Min	Max	Default	Scaling	Description
1039	Time_run_fan	L/S	15	600	60		Fan operating time in standby mode, if activated (seconds)
1040	RH_Fen	L/S	0	1	0		Activate/deactivate extractor fan function
1041	Service_ena	L/S	0	1	0		Activate/deactivate maintenance interval function
1042	Service_int	L/S	1	99	0	/1	Maintenance interval value in weeks
1043	Modbus slave ID	L/S	1	255	1	/1	Setting the modbus slave ID

There are 2 different types of addressing in modbus. With some manufacturers, the first register address is "1". This is therefore referred to as 1-based addressing.

Other manufacturers adopt the "0" as the first register address. Thus, this is referred to as 0-based addressing.

Due to these two different based start addresses, you may have to take an offset in the addressing into account when using devices from two different manufacturers.

PIN assignment RS485



REMKO SLE series

USB interface

The USB interface is used for transferring data logs from the unit to a USB stick.

The unit data is saved every three hours and stored in the internal memory. Switching the status to fault mode also triggers the storage of data.

If the memory is completely full, the oldest logs are overwritten by the newest logs.

When a USB stick is inserted into the USB interface, all of the logs that have been recorded are saved in the CSV file "data_log.csv". The data in the internal memory is not deleted as a result of this process and can therefore be transferred to several USB sticks.

The data log is saved in the form of the following parameters:

Database parameters	Size (bits)	Output text	CSV column
Work_time	32	<dd:mm:hh:ss>	Time stamp
Amb_temp	8	<Value>	T_amb
Amb_int_temp	8	<Value>	T_amb_int
Amb_ext_temp	8	<Value>	T_amb_ext
Aux_temp	8	<Value>	T_aux
Cond_temp1	8	<Value>	T_cond
Evap_temp1	8	<Value>	T_evap1
Evap_temp2	8	<Value>	T_evap2
Temp_set	8	<Value>	T_set
Amb_hum	8	<Value>	RH_amb
Amb_int_hum	8	<Value>	RH_amb_int
Amb_ext_hum	8	<Value>	RH_amb_ext
RH_set	8	<Value>	RH_set
RH_Fan	8	<Value>	ExtFanSet
Evap_temp_err	1	EVAP	Error
Cond_temp_err	1	COND	Error
Aux_temp_err	1	AUX	Error
Amb_int_err	1	AMB_INT	Error
Amb_ext_err	1	AMB_EXT	Error
SB_mode	1	SB	Mode
Startup_mode	1	STARTUP	Mode
DEH_mode	1	DEH	Mode
Ice_mode	1	ICE	Mode
LP_mode	1	LP	Mode
HP_mode	1	HP	Mode
Sens_mode	1	SENS	Mode
AmbT_mode	1	AMBT	Mode
AmbRH_mode	1	AMBRH	Mode
Service_ena	1	ENABLED	Mode

Maintenance log

Unit type: Unit number:

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Unit cleaned - outside -																				
Unit cleaned - inside -																				
Condenser cleaned																				
Evaporator cleaned																				
Fan function checked																				
Unit checked for damage																				
Safety devices checked																				
All fastening screws checked																				
Electrical safety check																				
Test run																				

Comments:

1. Date: Signature	2. Date: Signature	3. Date: Signature	4. Date: Signature	5. Date: Signature
6. Date: Signature	7. Date: Signature	8. Date: Signature	9. Date: Signature	10. Date: Signature
11. Date: Signature	12. Date: Signature	13. Date: Signature	14. Date: Signature	15. Date: Signature
16. Date: Signature	17. Date: Signature	18. Date: Signature	19. Date: Signature	20. Date: Signature

REMKO SLE series

Technical data

Series		SLE 45	SLE 65	SLE 85
Daily dehumidification capacity at 30 and 80 % RH	Litres/day	47	78	104
Daily dehumidification capacity at 30 and 60% RH	Litres/day	35.5	56.2	78.8
Operational temperature range	°C	10 to 36		
Usable humidity range	% RH	40 to 100		
Air volume	m³/h	400	680	900
Power supply	V/Hz	230/1~/50		
Max. power consumption	kW	0.9	1.5	1.8
Max. rated current consumption	A	3.8	6.6	8
Max. switching voltage from RUN and FAIL contact	V	50	50	50
Max. switching current from RUN and FAIL contact	A	0.5	0.5	0.5
HEAT contact voltage	V	12	12	12
Maximum current limit of a HEAT contact	mA	60	60	60
Refrigerant ¹⁾		R407C		
Refrigerant quantity	kg	0.7	0.9	1.2
Sound pressure level L _{pA} 1m ²⁾	dB (A)	46	47	50
Depth	mm	335	335	335
Width	mm	1015	1165	1500
Height	mm	816	816	816
Weight	kg	62	76	103
IP enclosure class		X4	X4	X4
EDP no.		616450	616650	616850

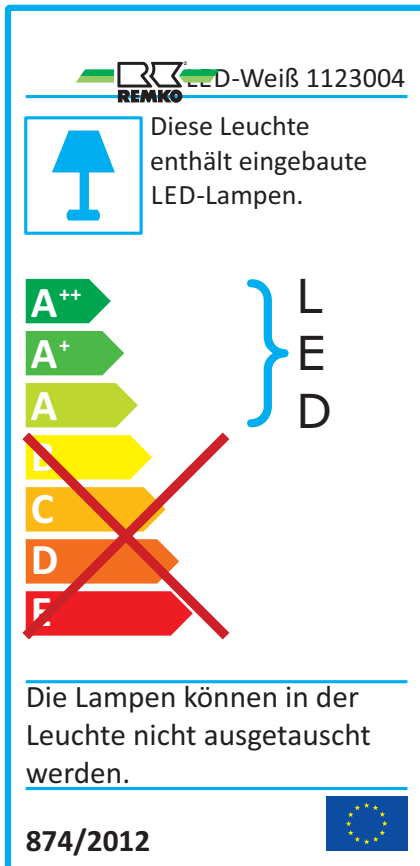
1) Contains greenhouse gas according to Kyoto protocol

2) Sound pressure measurement according to DIN EN ISO 3744.

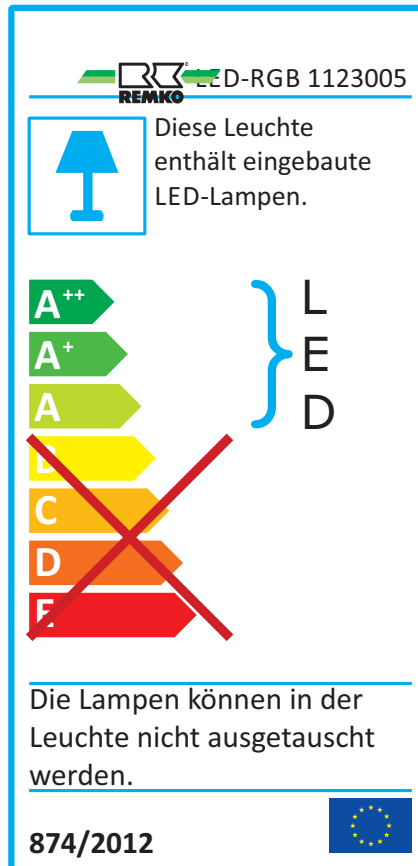
Light equipment		White LED	RGB LED
Operating voltage	V DC	12	12
Power	W	28	28
Average service life	h	25,000	
Lumen	Lumen	approx. 400 - 2150	
Lamp		White LED	RGB LED

Energy label

White LED

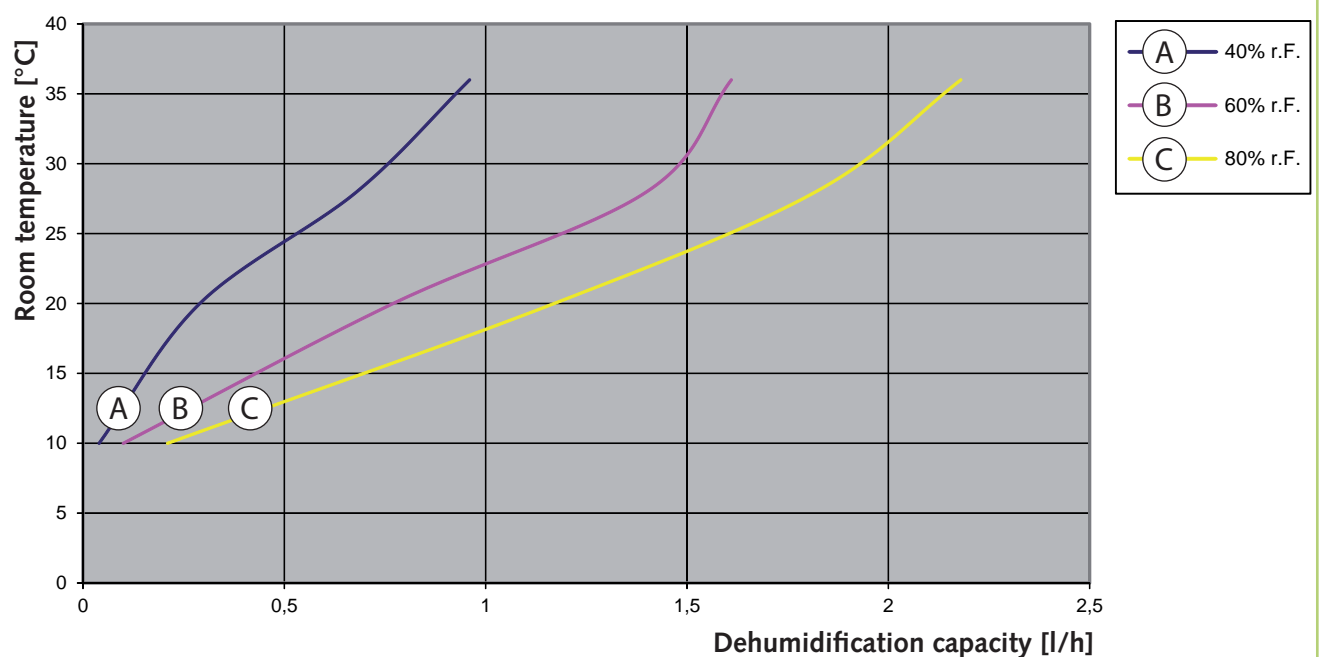


RGB LED



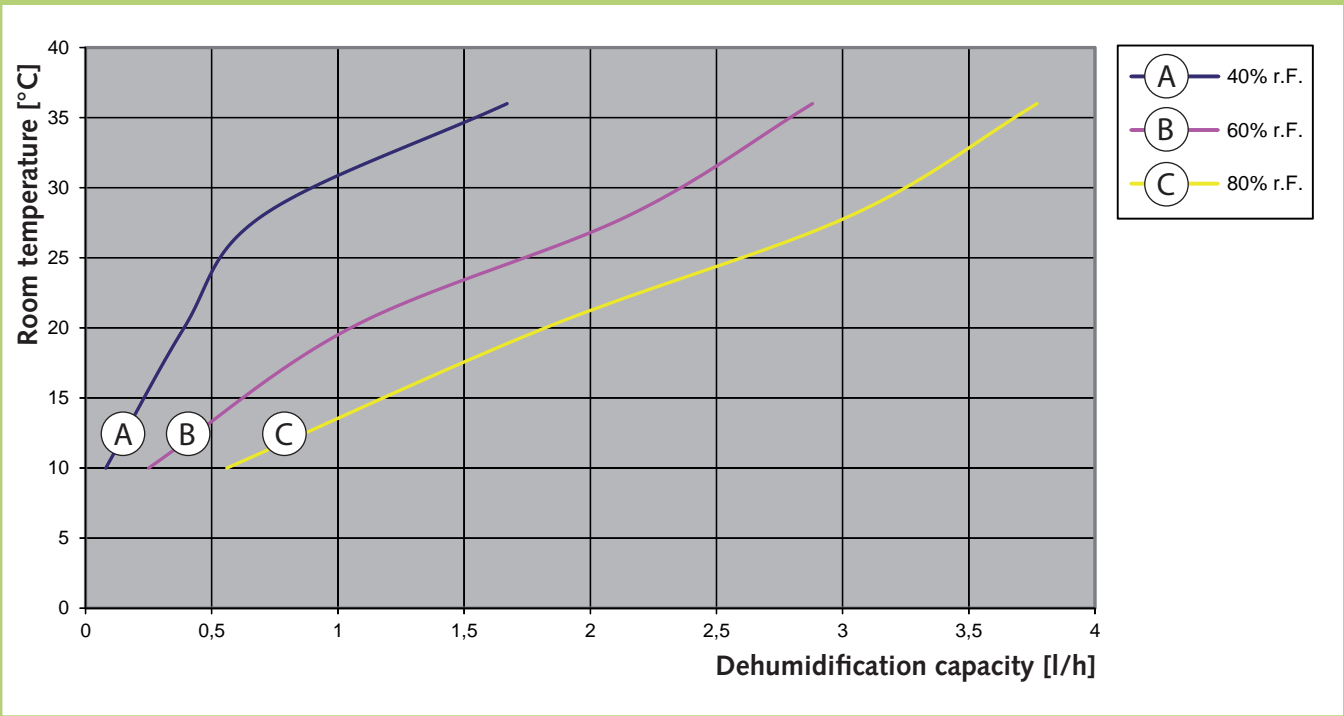
Characteristic curves

Capacity diagram SLE 45

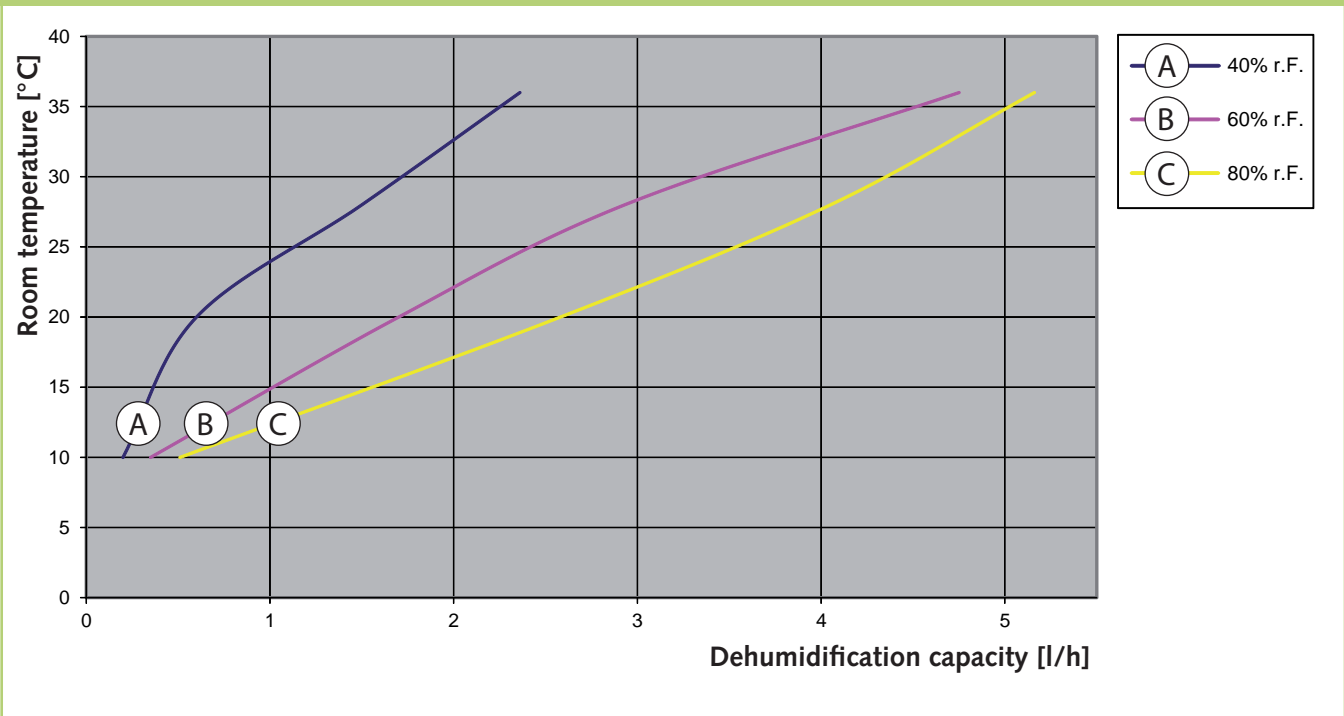


REMKO SLE series

Capacity diagram SLE 65



Capacity diagram SLE 85



REMKO QUALITY WITH SYSTEMS

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