



Technical leadership starts with ideas.

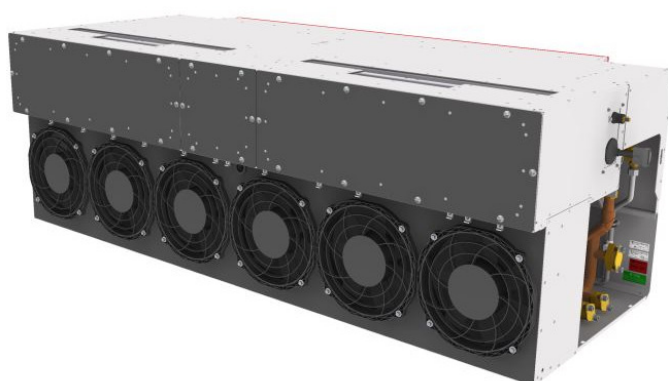
Operating instruction

for KONVEKTA

air conditioning unit

HLK1-12/4

MCV DD800



with control KR-323

Version:

- 24 Volt DC
- Fresh air

ID#: BBAKLC74802A
Version: A01

Konvekta AG

Am Nordbahnhof 5
34613 Schwalmstadt
Germany

📞 +49 (0) 66 91 / 76 – 0
📠 +49 (0) 66 91 / 76 - 200
✉ Info@konvekta.com
www.konvekta.com

Contents

Page:

• Introduction	3
• Information on the operating instructions.....	4
 1. Technical data.....	 4
1.1. Compressor	5
 2. Intended use.....	 5
 3. Generally information for a/c unit.....	 5
3.1. Operating conditions	5
 4. Operation.....	 6
4.1. Climate controller KR-323.....	6
4.2. Description of the keys.....	6
4.2.1. Ignition on (ZE)	6
4.2.2. Engine (ME) and active controller on	7
4.3. Display functions.....	7
4.4. Display.....	7
4.5. Room temperature control	7
4.6. Ventilation	7
4.7. Fresh-/recirculating air flaps.....	8
4.8. Temperature display	8
4.9. Error detection	8
4.10. Emergency operation.....	9
 5. Maintenance	 9
5.1. Hinweise auf Fehler und deren Behebung	10
 6. Warranty Conditions.....	 10
 7. Waste disposal in accordance with legal provisions	 11
 8. History of modification.....	 11

Appendix.:

- Maintenance schedule bus [WP07050618](#)

Introduction

These operating instructions have been written for drivers, operators and the maintenance staff of your air conditioning unit.

In this context, we refer implicitly to the compliance with our general installation guidelines. These can be obtained from the KONVEKTA technical after sales service:

TKD@konvekta.com.

Please observe our valid safety instructions, available under www.konvekta.de/asv.html. In case of order placement or any other conclusion of contract the safety instructions get integral part of the contract.

These operating instructions have to be read carefully and made use of before the first start-up and after that regularly by each person who is involved in handling the machine:

- Operation including troubleshooting and waste disposal of fuels and auxiliary agents.
- Service, inspection, repair
- Transport

This facilitates the handling and avoids trouble caused by improper operation. Working in compliance with these operating instructions increases operation reliability and service life of the air conditioning unit and reduces life cycle costs.

Please complete these instructions by adding the national provisions for prevention of accidents and environmental protection.

These instructions are part of the air conditioning unit. Always have a copy at hand in the driver's cabin.

You will certainly understand that we will not recognize any warranty claims due to improper handling, inadequate maintenance, applications that do not correspond with the determined use, utilization of unadmitted fuels or the non-observance of safety provisions.

KONVEKTA will annul without prenotice all obligations concerning guarantee, service contracts etc. regardless if granted by KONVEKTA or its distributors in case other than original KONVEKTA spare parts or parts bought from KONVEKTA AG have been used for maintenance and repair.

These operating instructions contain all necessary information to operate your air conditioning unit. In case you need more explanations please contact the next KONVEKTA service station^①.

① On our website www.konvekta.com in category >service< you will find a survey of contact details of all our service partners close to your location

Information on the operating instructions

These operating instructions are valid for the a/c-units type:

- **HLK1-12/4**

☞ When taking the unit into operation we recommend adding the following data. This will also be important for your orders of spare parts, and in case of warranty.

Serial number of the unit:	
Order No:	
Year of construction:	/..... (MM/JJ)
Date of first operation:	/...../..... (TT/MM/JJ)

The machine is in accordance with the EC machinery directive 2006/42/EC.

The unit contains or needs fluorinated greenhouse gas for operation and is subject to identification requirements in accordance with F-Gas Regulation 517/2014.

Due to the fact that scope of supply depends on the individual order, equipment of your product may differ in some parts of description.

In case your product is equipped with details not shown or described in the operating instruction, your KONVEKTA -Service-Station will always be at disposal for informing you about correct operation.

In the course of further developments we reserve the right to technical modifications without prenotice. Guarantee and liability conditions of **KONVEKTA AG**'s general business conditions are not enlarged by the above notes.

Indications and photos should neither be copied and circulated nor used for competitor's purposes. All rights according to the copyright remain expressly reserved.

Manufacturer: KONVEKTA AG, P.O. Box 2280, D-34607 Schwalmstadt

1. Technical data

Type:		HLK1-12/4
Refrigerant:		R134a
GWP		1.430
Refrigerant quantity:	[kg] ca.	18
Operating voltage:	[Volt DC]	24
Current consumption:	[Ampere]	203
Cooling capacity for passenger compartment:	[W]	46.000
Evaporator – Air volume, free blowing:	[m ³ /h]	8.500
Weight of unit (fresh air):	[kg] ca.	266

* with standard fans and blowers

1.1. Compressor



Important to avoid leakages at the shaft seal of the compressor:

The compressor should be started every 4 weeks for approx. 15 minutes! This also applies when the vehicle was not in operation for a longer period or when the air conditioning unit is not used!

Compressor Type	KVX50/980-K
Weight approx. (kg)	41,8
Oil brand / - quantity (liter)	Esteröl SE55 / 2,0
Magnetic clutch ¹⁾ / - weight approx. (kg)	24V DC / 19,15

¹⁾ ø depending on vehicle type

2. Intended use

The **KONVEKTA** air conditioner represents an air conditioning system that works with the ozone friendly refrigerant R134a and which creates a pleasant and individually adjustable room temperature by means of forced convection. The determined use includes also the observance of the Operating instruction and the proof of regular inspections as well.

3. Generally information for a/c unit



Attention in case of roof top a/c units: Never switch on the a/c unit during car-wash!!!

- The a/c unit is operational requires running engine for operating.
- In cooling mode the humidity inside the vehicle is decreased, which avoids steamed up windows. The a/c unit works most effectively with windows and doors shut. If, however, the interior of the standing vehicle has been heated up severely by exposure to sunlight, a short-time opening of windows and doors may accelerate the cooling down process.
- At high outside temperature and humidity condensate might drip off the evaporator and make a puddle under the vehicle. This is quite normal and no sign for a leakage.
- The filter in the return air grid (optional) retains pollution. If the external air is contaminated with gas switch over to return air operation. The filter should be cleaned or replaced respectively on a regular basis so that the capacity of the a/c unit is not affected.
- **If you think that the a/c unit is damaged, switch it off immediately.** To avoid further damage let it be checked at a KONVEKTA Service Station. **Only after that you can take unit into operation.**

^① On our website www.konvekta.com in category >service< you will find a survey of contact details of all our service partners close to your location.

3.1. Operating conditions

NOTE: KONVEKTA uses components made of copper and aluminium, which last a whole unit life-time under normal environmental conditions. Should the units be operated under aggressive environmental conditions, i.e. air containing salt-, phosphate- or ammoniac extremely, a corrosion of the copper- and aluminium components cannot be ruled out. The copper- and aluminium components of the KONVEKTA systems are not suitable for such extreme application conditions. We indicate emphatically, that corrosion is not subject to warranties for defects. KONVEKTA does not take over any warranties for defect, neither for corrosion nor for consequential damage resulting there from, nor for damages caused by cleaning the systems with highly compressed or corrosion advancing substances.

4. Operation



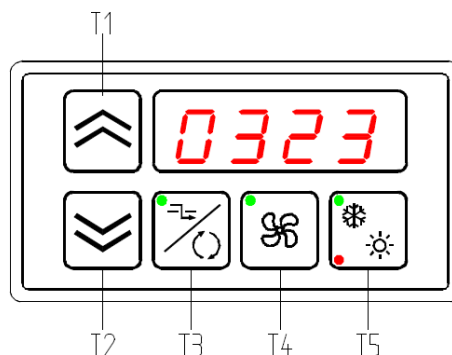
Danger of accidents!

- Focussing your attention on the road traffic is of top priority.
- Only operate your air conditioning unit when the traffic situation allows it!
- Make sure you can clearly recognize and read all operation- and display-elements at any time.
- Protect all displays against irritating sun glare and any other optical disturbances.
- Please note that the control panel keys have not been designed for heavy stressing.
- Excessive or fast pressing of the keys for adjusting the set temperature does not accelerate the cooling down process. It possibly damages the control panel and so affects the general performance of the air conditioning unit.

4.1. Climate controller KR-323

This short guide provides an overview of the individual functions of the climate control system KR-323rd.

4.2. Description of the keys



4.2.1. Ignition on (ZE)

Key	Description	Function
T1	plus-key	without function
T2	minus-key	without function
T3	fresh air / recirculating air	without function
T4	fan control	without function
T5	automatic mode	without function
T1+T2	test mode	Starts code query for test mode.

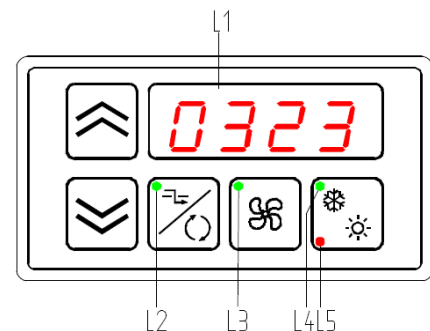
4.2.2. Engine (ME) and active controller on

Key	Description	Function
T1	plus-key	Depending on the display, increase the desired temperature room by 1K per keypress or increase the blower speed manually.
T2	minus-key	Reducing the desired temperature room by 1K per key press or decrease the blower speed manually.
T3	fresh air / recirculating air	Manual set of fresh air circulation
T4	fan control	Starting manual blower control. Following Plus / Minus settings are available: OFF AUTO 1 * -2-3-4-5 1 * to 5: fixes the blowers on the steps 20%, 40%, 60%, 80%, 100%. Off *: Turns the blowers off or on automatic level. Automatic: The blowers are controlled automatically depending on the temperature.
T5	temperature inquiry	Displays for 10 seconds, the internal temperatures or the outside-temperature.
T3+T4	controller off	Turns off all controller functions and the display.

* During active cooling automatic, blower levels are OFF and 1 is blocked.

4.3. Display functions

LED-field	Description
L1	standard display set temperature
L2	recirculation mode (green)
L3	manual fan control „ON“ (green)
L4	automatic mode (green)
L5	error message (red)



4.4. Display

The desired room temperature is always shown during active device. During ignition or in case of inactive device the display is dark with flashing point.

When calling up certain functions corresponding information appears briefly.

During certain operating modes as test mode and programming mode, the display is used for information output.

4.5. Room temperature control

With an active device, room temperature control starts 5 seconds after starting the engine.

Plus / Minus buttons  and  are used to set the desired room temperature.

The adjustable temperature range is between 18 ° and 26 ° C. Air conditioning, fresh air / recirculation flaps and roof duct blowers are controlled automatically by the respective room temperature.

At temperatures below 7 ° C (adjustable) the cooling function remains disabled.

4.6. Ventilation

In automatic mode, the roof duct blowers are automatically controlled depending on the room temperature. Nevertheless, they can be switched to manual operation via blower button.

Using the plus / minus keys  and , 5 different blower speed settings for both floors can be fixed firmly. Turning off the blowers, stops the automatic control system.

4.7. Fresh-/recirculating air flaps

Pressing the button  switches the systems to recirculation. The LED button is turned ON for recirculation.

If the ventilation flaps are not set to recirculation via button , they operate automatically depending on the outside temperature.

Calibration of fresh air flaps: After turning on the device, the fresh air flaps are calibrated with position feedback. The two end positions of the flaps are moved to-and measured. Thereafter, the flaps can be positioned as required between these end positions.

The recirculated air flaps without feedback are energized during changeover for 4 seconds. Thereafter, the current is switched off to conserve the engine.

For the fresh air flap a central position is defined when the fresh air flap OD exceeds the learned threshold. (Hysteresis 5%) The flap remains in the center position.

4.8. Temperature display

By pressing button  several times the room temperature lower deck e.g. "L 22", the room temperature upper deck as "U 22" (upper deck) and the outdoor temperature as "O 16" (outside) appear.

After 5 seconds, standard display is shown. A sensor error is displayed accordingly: for example, "L - - -" or "O - - -"

4.9. Error detection

The CAN connection to node U2, all connected sensors, flaps with feedback, and the feedback of the cooling system are monitored. If there is an error, this will illuminate the red buttons LED displays in key T5.

If there is an error, by pressing T5 a message appears:

Display	Error	Description	Connection
o - - -	Outdoor sensor	Short circuit or cable break outside sensor	U1/X1.3,7
E1 - -	Icing UD	Short circuit or cable break ice sensor UD	U1/X1.11,15
u - - -	Room sensor OD	Short circuit or cable break room sensor OD	U2/X1.3,7
E2 - -	Icing OD	Short circuit or cable break ice sensor OD	U12X1.11,15
L - - -	Room sensor UD	Short circuit or cable break room sensor UD	U2/X1.19,23
F1	FLRUD flap-potentiometer	Feedback error fresh air flap on the right UD	U1/X1.12,16,20
F2	FLLUD flap-potentiometer	Feedback error fresh air flap on the left UD	U1/X1.12,19,20
F3	FLOD flap-potentiometer	Feedback error fresh air flap OD	U2/X1.12,16,20
HP	Climate high-pressure	Feedback high pressure is missing	U2/X1.13
LP	Climate low-pressure	Feedback low pressure is missing	U2/X1.9
C F1	Calibration FLRUD	Error calibration fresh air flap on the right UD	U1 / X1.4,6,(18); RM: X1.12,16,20
C F2	Calibration FLLUD	Error calibration fresh air flap on the left UD	U1 / X1.4,18,(6); RM: X1.12,19,20
C F3	Calibration FLOD	Error calibration fresh air flap OD	U2 / X1.4,6,(18); RM: X1.12,16,20
CAN	CAN-Bus U2	General error roof node U2	

4.10. Emergency operation

If the CAN bus connection between the control panel and the roof node U2 is disturbed, this will be recognized by the roof node and it automatically switches into emergency operation. This means during power supply, the roof duct blowers OD change to emergency ventilation (control voltage 4V, approx. 40% speed) if the measured supply voltage is > 26.5V (corresponding to the voltage with engine running).

5. Maintenance

Please arrange regular dates for maintenance works and services with a KONVEKTA service station, as indicated in maintenance schedule bus no.: [WP07050618](#). On our website www.konvekta.com in category >service< you will find a survey of contact details of all our service partners close to your location.

- Only qualified staff is allowed to carry out these works! -

For general instructions on repair – and maintenance works please contact via email:

TKD@konvekta.com



Danger of accidents!

Qualified staff in charge of installation and maintenance have to be trained in accordance with EN 378-Part 4 and (EC) No.307/2008 and must strictly follow the legal provisions.

Any works or modifications at the air conditioner which are carried out improperly can lead to malfunction and so endanger operational reliability. We recommend having all works and modifications carried out at an authorized KONVEKTA Service Station.

Before carrying out any maintenance works at your air conditioning unit, carefully read the KONVEKTA safety provisions (TD00052A) in order to avoid any dangers and accidents!

5.1. Hinweise auf Fehler und deren Behebung

Trouble	Cause	Repair by authorized Service Station only
a/c is not running	thermostat open	– check inside temperature ^① – re-adjust thermostat ^①
	electric connection disconnected	– check electric connections at switch-board
	relay defective	– check relay, replace if necessary
	defrost thermostat has switched off	– check evaporator blower, replace if necessary
	outside temperature too low (possible icing of evaporator)	– switch on „ventilation“ only
	evaporator coil dirty	– clean evaporator coil with compressed air
	magnetic clutch	– check connections at magnetic clutch
	compressor does not compress	– check high and low pressure, replace compressor if necessary
	excess pressure (pressure too high)	– check axial fans – check fuses at switchboard – clean condenser coil with compressed air
	excess pressure caused by high outside temperature	– run unit until pressure has stabilized ^①
	leakage in a/c unit, lack of refrigerant	– check a/c unit for leakages – refill refrigerant
	low pressure, screen of expansion valve clogged	– clean screen; replace dryer
Loud noise at compressor	defective bearing at compressor	– replace either bearing or entire compressor
	slack V-belt	– check V-belt at compressor drive

^① Auf unserer Homepage www.konvekta.com haben wir unter der Rubrik >Service< die Kontaktdaten der Servicestellen in Ihrer Nähe zusammengestellt

^② Durch Betreiber

6. Warranty Conditions

The current „General Warranty Conditions KONVEKTA AG“ will apply. A copy will be furnished by the warranty department. Please contact: gwl@konvekta.com.

7. Waste disposal in accordance with legal provisions

After the phase of use the last proprietor is responsible for the adequate waste management. The environmental regulations in the exporting country must be observed.

The following list contains the most important regulating literature, valid for the *Federal Rep. of Germany*:

- Resolution for dangerous substances
- Law for waste circulation (KRW/AfgG))
- Resolution for the proofs of utilization and removal
- Criminal Code (StGB) 28th section „criminal acts against the environment“ §326 - Environment jeopardizing waste management
- Law of chemicals § 27 - penal prescriptions
- Resolution for used oil
- Law of water balance
- Resolution for the waste management of old cars and the adaptation of road prescriptions
- Resolution (EC) No. 2037/2000 of the European Parliament and of the Council for materials that affect the ozone layer
- Resolution to prohibit certain ozone destroying halogen hydrocarbons.

The used refrigerant endangers the environment. When dealing with refrigerants the existing prescriptions and regulations are to be followed. **Only qualified staff is allowed to carry out these works!**

Water endangering substances - acc. to §§19g-19l - are solid, liquid, and gaseous substances. e.g.: mineral and tar oils (cooling oils), halogen containing organic combinations (refrigerants).

- ® Source of supply:
- Bundesanzeiger
 - Beuth Verlag
 - dtv (Deutscher Taschenbuch Verlag)

8. History of modification

Version	Datum	Name	Bemerkung	Datei
A00	23.08.2016	B. Keßler	Source file	BAKLC74802A
A01	27.02.2017	B. Keßler	Information on the operating instructions and technical data expanded with F-gas-regulation	BAKLC74802A