

↔ DOMETIC

AIR CONDITIONERS

FRESHLIGHT



FL1600, FL2200

EN	Air conditioning roof unit Installation Manual.....	3
DE	Dachklimaanlage Montageanleitung.....	22
FR	Climatiseur de toit Instructions de montage.....	42
ES	Aire acondicionado de techo Instrucciones de montaje.....	61
PT	Ar condicionado para tejadilho Instruções de montagem.....	81
IT	Climatizzatore a tetto Indicazioni di montaggio.....	101
NL	Airconditioning voor dakinbouw Montagehandleiding.....	120
DA	Klimaanlæg til tagmontering Monteringsvejledning.....	139
SV	Takmonterad klimatanläggning Monteringsanvisning.....	158
NO	Takmontert klimaanlegg Monteringsanvisning.....	176

FI	Kattoilmastointilaitteisto Asennusohje.....	194
RU	Накрышный кондиционер Инструкция по монтажу.....	212
PL	Klimatyzator dachowy Instrukcja montażu.....	233
SK	Strešné klimatizačné zariadenie Návod na montáž.....	252
CS	Střešní klimatizace Návod k montáži.....	271
HU	Tetőklíma-berendezés Szerelési útmutató.....	289

Please read this instruction manual carefully before installation and first use, and store it in a safe place. If you pass on the product to another person, hand over this instruction manual along with it.

Table of contents

1	Explanation of symbols	4
2	Safety and installation instructions	4
3	Target group for this instruction manual	6
4	Scope of delivery	7
5	Accessories	7
6	Intended use	8
7	Labels.	8
8	Installation	9
9	Troubleshooting	17
10	Disposal	18
11	Technical data	20

1 Explanation of symbols

**DANGER!**

Safety instruction: Failure to observe this instruction will cause fatal or serious injury.

**WARNING!**

Safety instruction: Failure to observe this instruction can cause fatal or serious injury.

**CAUTION!**

Safety instruction: Failure to observe this instruction can lead to injury.

**NOTICE!**

Failure to observe this instruction can cause material damage and impair the function of the product.

**NOTE**

Supplementary information for operating the product.

2 Safety and installation instructions

Please observe the prescribed safety instructions and stipulations from the vehicle manufacturer and service workshops.

The manufacturer accepts no liability for damage in the following cases:

- Faulty assembly or connection
- Damage to the product resulting from mechanical influences and excess voltage
- Alterations to the product without express permission from the manufacturer
- Use for purposes other than those described in the operating manual

Note the following basic safety information when using electrical devices to protect against:

- Electric shock
- Fire hazards
- Injury

2.1 Handling the device



WARNING!

- Installation and repair of the roof air conditioner may only be carried out by qualified personnel who are familiar with the risks involved and the relevant regulations. Inadequate repairs may cause serious hazards. For repair service, please contact the service centre in your country (addresses on the back page).
- **Electrical devices are not toys.**
Keep electrical devices out of reach of children or infirm persons. Do not allow them to use electrical devices without supervision.
- Persons (including children) whose physical, sensory or mental capabilities or whose lack of experience and knowledge prevent them from using the device safely should not use it without supervision or instruction by a responsible person.
- Do **not** undo the upper cover of the roof air conditioner in the event of a fire. Use approved extinguishing agents instead. Do not use water to extinguish fires.



CAUTION!

- The roof air conditioner must be installed securely so that it cannot fall down.
- Only operate the roof air conditioner if you are certain that the housing and the cables are not damaged.
- Do not use the roof air conditioner near flammable fluids or in closed rooms.
- Make sure no combustible objects are stored or installed near the air outlet. A distance of at least 50 cm must be kept.
- Do not reach into air outlets or insert any foreign objects in the device.



NOTICE!

- Only use the device as intended.
- The roof air conditioner is not suitable for use in agricultural or construction vehicles.
- Do not make any alterations or conversions to the device.
- Never drive through automatic car washes when the roof air conditioner is mounted.
- If faults occur in the refrigerant circuit, the system must be checked by a specialist company and repaired properly. The refrigerant must never be released into the air.

**NOTE**

- Please ask your vehicle manufacturer if a technical inspection is required after fitting an air conditioner and whether the height entered in the vehicle documents needs to be altered (increased height 210 mm).

2.2 Handling electrical cables

**WARNING!**

- The electrical power supply may only be connected by a qualified electrician (e.g. VDE 0100, Part 721 in Germany).

**CAUTION!**

- Attach and lay the cables so that they cannot be tripped over or damaged.

**NOTICE!**

- Use cable ducts to lay cables through walls with sharp edges.
- Do not lay loose or bent cables next to electrically conductive materials (metal).
- Do not pull on the cables.

3 Target group for this instruction manual

The instructions in this manual are intended for qualified personnel at workshops who are familiar with the guidelines and safety precautions to be applied.

4 Scope of delivery

No. in fig. 1	Number	Description
1	1	Roof air conditioner
2	1	Air outlet unit
3	3	Fastening brackets
4	4	Air filters
5	2	Filter covers
6	4	Seals
7	3	Cable connectors
8	6	Long fastening screws
9	6	Short fastening screws
10	4	Caps
11	1	Remote control

5 Accessories

Available as accessories (not included in the scope of delivery):

Part designation	Reference no.
DC extension kit DC-Kit 2	9100300001
DC extension kit DC-Kit 3	9100300002
DC extension kit DC-Kit 5	9100300073



NOTE

The DC extension kit (accessory) allows the Dometic FreshLight roof air conditioner to be used while in motion.

6 Intended use

The Dometic roof air conditioner FreshLight with integrated roof window can condition the interior of campers and caravans with cool or warm air.

The roof air conditioner is **not** suitable for installation in construction machines, agricultural machines or similar equipment. It will not work properly if exposed to strong vibrations.

Do **not** operate the roof air conditioner if the ambient temperature is above 52 °C.

Do **not** operate the roof air conditioner in the "Heating" air conditioning mode if the room temperature is above 30 °C.

The heating mode is recommended at ambient temperatures of +2 °C and above.



NOTE

You can find additional information on roof air conditioners in the operating manual, such as the technical description or the controls.

7 Labels

Labels are attached to the Dometic FreshLight roof air conditioners. These labels provide the user and fitter with information on specifications of the device.

8 Installation



CAUTION! Beware of injury

The roof air conditioner may only be installed by qualified personnel from a specialist company. The following information is intended for technicians who are familiar with the guidelines and safety precautions to be applied.

8.1 Note on installation

Read this installation manual completely before installing the roof air conditioner.

The following tips and instructions must be observed while installing the roof air conditioner:



DANGER! Danger of electrocution

Disconnect all power supplies when working on the roof air conditioner.



CAUTION! Beware of injury

- Improper installation of the roof air conditioner can result in irreparable damage to the device and put the safety of the user at risk.
- The manufacturer assumes no liability for malfunctions and for the safety of the roof air conditioner, especially for injury and/or damage to property, if the roof air conditioner is not fitted in accordance with these installation instructions.
- Always wear the recommended protective clothing (e.g. protective goggles, gloves).



NOTICE! Beware of damage

- Observe the structural engineering of the vehicle and seal of all openings made when installing the roof air conditioner.
- Check whether the roof of the vehicle is able to support the weight of a person before climbing onto it. Ask the vehicle manufacturer about the permissible roof loads.

Note on transport

- Always have someone help you carry the roof air conditioner.
- Always lift the roof air conditioner to move it and never drag it over the roof (fig. **2 A**).
- Do not use the rear ventilation slots to lift it (fig. **2 B**).

Note on installation location

- Before installing the roof air conditioner, check whether any vehicle components could be damaged by the installation of the roof air conditioner (such as lamps, cupboards, doors).
- Before installation, find out (by consulting the manufacturer of the vehicle) whether the construction is designed for the static weight and the loads of the air conditioner when the vehicle is in motion. The manufacturer of the roof air conditioner assumes no liability whatsoever.
- The vehicle manufacturer may have already provided points where the opening for the installation of the roof air conditioner can be made without any risk of weakening the construction or cutting power cables.
- Select a flat and sufficiently level area at the centre of the vehicle roof between two longitudinal sections for installation.
- The roof inclination of the installation surface may not exceed 10°.
- The roof air conditioner must be installed above 2 meters.
- Make sure no combustible objects are stored or installed near the air outlet. A distance of at least 50 cm should be kept.
- Make sure that there are no objects within the vehicle which could obstruct the attachment of the air outlet unit or the cooled air from flowing through the swivelling air distribution nozzles.
- For safety reasons, note the location of existing wiring harnesses, wires and other components within the installation area, in particular those which are not visible, when installing the roof air conditioner (when drilling or screwing etc.).

Note on electrical system

- Only a qualified electrician should connect the roof air conditioner to the electrical power.
- Check that the voltage specification on the type plate is the same as that of the power supply.
- If the lighting should also be switched on without a 230 V voltage supply, make sure that there is a 12 VDC power supply line from the battery to the roof air conditioner.
- Do not lay the 230 V mains cable and the 12/24 VDC cable together in the same cable duct.
- Do not lay cables which are loose or bent next to electrically conductive material (metal).
- Install an all-pole switch with a contact opening width of at least 3 mm on the installation side.

There are two ways of installing the air conditioner:

- Making a new opening (chapter “Making a new opening” on page 11). In this case the opening must be reinforced by an appropriate frame.
- Using the existing roof hatch openings (ventilation hatch) in the vehicle (chapter “Installing in a roof hatch opening already provided” on page 12).

8.2 Making a new opening

See fig. 3

- Select an area at the centre on the roof between two longitudinal supports.
- Mark the position and size of the opening using the template included in the packaging (**A** and **B**).

Alternatively, you could create two small openings (**C**).

See fig. 4

- Drill out the corners (**A**).
- Carefully cut out the opening on the roof using a keyhole saw or a similar tool (**B**). Make sure no electrical power cables are damaged.

See fig. 5

- Before installation, check whether the roof hole needs reinforcing.
- Remove the foam according to the width of your reinforcing rails (not in scope of delivery) **(A)**.
- Fit the reinforcing rails **(B)**.

8.3 Installing in a roof hatch opening already provided

**NOTE**

- Existing roof hatch openings in accordance with fig. 3 are suitable for installing the roof air conditioner.
- Dispose of all waste material, glue, silicone and seals separately. Observe the disposal guidelines.
- The manufacturer only assumes liability for parts included in the scope of delivery. The validity of the warranty expires if the device is installed together with third-party parts.

See fig. 6

- Remove all screws and fixtures of the existing roof hatch.
- Take out the roof hatch.

See fig. 7

- Remove the sealant around the opening using a scraper or similar tool.

See fig. 8**NOTICE!**

Observe the sealant manufacturer's instructions.

- Seal the screw holes and recesses with a flexible non-hardening butyl sealing compound (e.g. SikaLastomer-710).

8.4 Laying the connecting cables



DANGER! Danger of electrocution

Make sure there is no voltage at electrically operated components before carrying out work on them!

The roof air conditioner must be connected to an electric circuit which is able to supply the required current (see chapter "Technical data" on page 20).

- Select the cross-section of the cable corresponding to the length:
 - Length < 7.5 m: 1.5 mm²
 - Length > 7.5 m: 2.5 mm²

See fig. 9

- Make an opening on one side in order to feed through the electrical power supply cable.
- Feed the 230 V~ cable through the opening into the vehicle interior.

If the lighting should be switched on without the use of a 230 V~ voltage supply:

- Connect the cable with the positive terminal and the negative terminal of the vehicle battery.
- Feed the 12 V== cable through the opening into the vehicle interior.

8.5 Installing the roof air conditioner



NOTICE! Risk of damage

Observe the structural strength of the roof of the vehicle. The roof of the vehicle must be able to bear the weight of the roof air conditioner. The roof must not be indented or deformed by the weight of the unit, even over a longer period of time.

See fig. 10

- Lift the roof air conditioner onto the roof of the vehicle.
- Position the roof air conditioner over the installation opening.
Observe the direction of travel.

Attaching the roof air conditioner

See fig. 11

- Mount the fastening bracket with the two long fastening screws.
Start with the two fastening brackets on the outside.

See fig. 12



NOTICE! Risk of damage

Tighten to the specified torque.

- Tighten the screws using a torque spanner and a fastening torque of 2.5 Nm.

Electrical connection

See fig. 13

230 V~ cable

- Connect the roof air conditioner with the 230 V~ voltage supply.
Connect the cables (1) to a cable connector (2).

Remote light switch (not included in the scope of delivery)

You can connect the lighting to a remote light switch. This enables you to switch on the lighting remotely.

To do this, proceed as follows:

- Disconnect the 2-pin plug (3) from the socket on the circuit board of the air outlet unit.
- Connect the two cables of the remote light switch to the 2-pin plug (3).
- Insert the 2-pin plug (3) into socket on the circuit board.

12 V== cable

You can connect the lighting to the battery. This enables you to switch on the lighting even if the 230 V~ voltage supply is not connected.

To do this, proceed as follows:

- Disconnect the 2-pin plug (4) from the socket on the main board.
- Connect the positive cable (5) with the plug.
- Connect the negative cable (6) with the plug.

Connecting the air outlet unit with the roof air conditioner

See fig. 14

- Remove the premounted filter covers (1).
- Remove the premounted air filter (2).

Fitting the seals

See fig. 15

- Fit the seals (1).

Determine the thickness by referring to the following table:

Ceiling thickness	Seal thickness
25 mm	20 mm
25 – 30 mm	25 mm
30 – 35 mm	30 mm
35 – 40 mm	35 mm
40 – 45 mm	40 mm
45 – 50 mm	45 mm
50 – 55 mm	50 mm
55 – 60 mm	55 mm

Connecting the circuit board

See fig. 16

- Insert the 12-pin plug (1) in the socket (4) on the circuit board of the air outlet unit.
- Insert the 2-pin plug (2) in the socket (3) on the circuit board.

8.6 Installing the air outlet unit

See fig. 17

- Attach the air outlet unit to the (1) fastening brackets using the short fastening screws.
- Insert the caps (2) in the holes over the fastening screws.

See fig. 18

- Install the air filter in the specified sequence.

See fig. 19

- Fit the filter covers.
- Enter the new vehicle height and weight in the vehicle documents.

9 Troubleshooting

Problem	Cause	Remedy
Roof air conditioner constantly switches itself off.	Icing sensor has tripped.	Outer temperature is too low or all air nozzles are closed.
No cooling capacity	The roof air conditioner is not set to cooling.	➤ Set the roof air conditioner to cooling.
	The ambient temperature is above 52 °C.	The roof air conditioner is only designed for ambient temperatures of up to 52 °C.
	The temperature set is higher than the room temperature.	➤ Select a lower temperature.
	The ambient temperature is below 16 °C.	The roof air conditioner is only designed for ambient temperatures above 16 °C.
	One of the temperature sensors is defective.	➤ Contact an authorised workshop.
	The vaporiser fan is damaged.	
	The condenser fan is damaged.	
No heating capacity	The ambient temperature is above 30 °C.	➤ Only use the heating function of the roof air conditioner at temperatures below 30 °C.
	The ambient temperature is below 2 °C.	The heating function of the roof air conditioner is only designed for ambient temperatures of up to 2 °C.
	The temperature set is above 30 °C.	➤ Select a lower temperature.
	The roof air conditioner is not set to heating.	➤ Set the roof air conditioning to heating.
	One of the temperature sensors is defective.	➤ Contact an authorised workshop.

Problem	Cause	Remedy
Low air output	The air intake section is clogged up.	➤ Remove any leaves and other dirt from the ventilation grilles of the roof air conditioner.
	The blower is defective.	➤ Contact an authorised workshop.
Water enters the vehicle	The condensation water drainage openings are clogged up.	➤ Clean the drainage openings for condensation water.
	The seals are damaged.	➤ Contact an authorised workshop.
Roof air conditioner does not switch on.	No supply voltage (230 V~) connected.	➤ Check the power supply.
	The voltage is too low (under 200 V). The voltage converter is defective.	➤ Contact an authorised workshop.
	One of the temperature sensors is defective.	
	The electrical fuse of the power supply is too low.	➤ Check the electrical fuse of the power supply.
Roof air conditioner does not switch off.	One of the temperature sensors is defective.	➤ Contact an authorised workshop.
	The electrical fuse of the power supply is too low.	➤ Check the electrical fuse of the power supply.

10 Disposal

Regulations for environmental safety and correct disposal

All organisations must apply a set of procedures to identify, evaluate and control the influence that their activities (manufacturing, products, services, etc.) have on the environment.

The procedures to be followed to identify significant environmental impact must take the following factors into account:

- use of raw materials and natural resources
- atmospheric emissions
- discharge of liquids
- waste management and recycling
- contamination of the soil

In order to minimise environmental impact, the manufacturer provides a series of indications here below that should be taken into account by all those who, for whatever reason, interact with the appliance during its working life.

- All packing components must be disposed of (preferably recycled) in compliance with statutory legislation in the country in which disposal takes place.
- All product components must be disposed of (preferably recycled) in compliance with statutory legislation in the country in which disposal takes place.
- For correct disposal, the appliance must be consigned to an authorised waste disposal company to ensure that all recyclable components are reused and the remaining materials are processed properly.
- During installation ensure the room has adequate ventilation to prevent the build-up of stale air that might be harmful to the health of the operators.
- During operation and maintenance ensure that any waste pollutant products (oil, grease, etc.) are disposed of correctly.
- Keep noise levels down to reduce noise pollution.

For more information on correct dismantling of our products please refer to the recycling handbooks at www.dometic.com.

- Place the packaging material in the appropriate recycling waste bins wherever possible.
- When in operation or undergoing repairs and maintenance work, make sure that the refrigerant circuit is not damaged and refrigerant cannot escape. It acts as a greenhouse gas and should not be allowed into the environment.



If you wish to finally dispose of the product, ask your local recycling centre or specialist dealer for details about how to do this in accordance with the applicable disposal regulations.

- Dispose of the product at an official waste disposal facility in accordance with the applicable recycling or disposal guidelines.

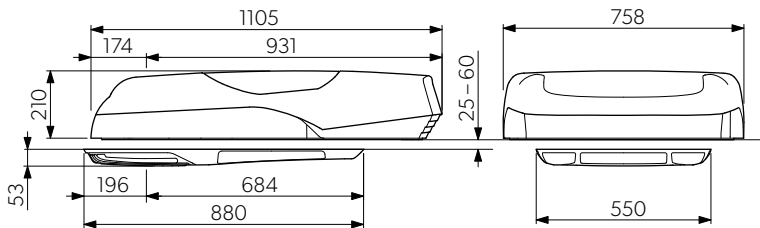



Protect the environment!

Do not dispose of any batteries with general household waste. Return defective or used batteries to your retailer or dispose of them at collection points.

11 Technical data

	Dometic FreshLight	
	1600	2200
Ref. no.:	9102900207	9102900165
Cooling capacity based on ISO 5151:	1500 W	2050 W
Heating capacity:	max. 2050 W	max. 2700 W
Rated input voltage:	230 V~/50 Hz	
Power consumption in cooling mode:	2.7 A	4.1 A
Required fuse:	3 A	5 A
Power consumption in heating mode:	3.5 A	5.2 A
Required fuse:	4 A	6 A
Operating temperature range:	0 °C to +52 °C	
Refrigerant:	R407c	
Refrigerant quantity:	0.41 kg	0.56 kg
CO ₂ equivalent:	0.7273 t	0.9934 t
Global warming potential (GWP):	1774	
Blower:	4 blower levels 1 automatic mode	
Protection class:	IP X4	
Max. volume of space in the vehicle (with insulated walls):	20 m ³	25 m ³
Dimensions L x W x H (mm):	1105 x 758 x 210 (height above vehicle roof)	



	Dometic FreshLight	
	1600	2200
Weight:	approx. 40 kg	approx. 42 kg
Inspection/certification:		

Contains fluorinated greenhouse gases

Hermetically sealed equipment