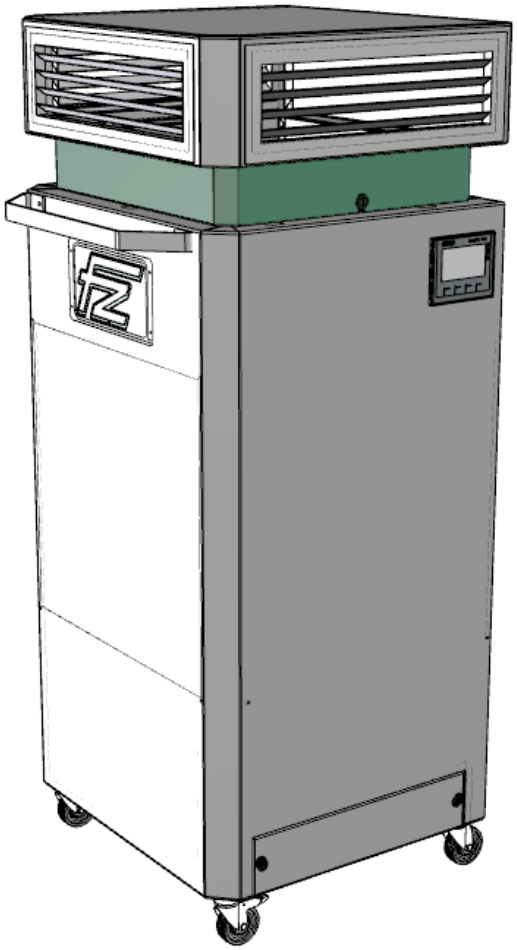
Franz Ziel

English

Operating and Maintenance Instructions

Air purifier Air **I**nfect **P**rotect **1.5T**



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a4bc94796f3deb6

English

Identification details

Tool / machines / system:	
Machine name:	Air purifier
Model	**A**ir **I**nfect **P**rotect 1.5T (AIP 1.5T)
Year built:	2020 onwards
Manufacturer:	
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Document details:	
Version:	V1.6
Date created:	5. Januar 2021
Authors:	Thomas Hecking / Frank Will
Document title:	Translation of original operating instructions

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Contents

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1 About these operating instructions

Safe and effective operation of the air purifier is guaranteed when all instructions in this guide are heeded. We recommend keeping the operating instructions near to the air purifier so that this information is close to hand for every life cycle of the device. Air purifier and “device” are used interchangeably in this guide.

1.1 Notes on copyright and patent rights

These Operating and Maintenance Instructions must be kept confidential. They may only be made accessible to authorised personnel and may only be given to third parties with the written consent of Franz Ziel GmbH.

All documents are protected by copyright law. The dissemination and duplication of documents, in whole or in part, and any use or communication of their content, are not permitted unless expressly authorised in writing.

Those infringing these stipulations are liable to prosecution. Claims to compensate damages might entail. Franz Ziel GmbH reserves all rights to exercise industrial property rights.

1.2 Sign and symbol information

It is essential that information and symbols attached directly to the device, such as warning signs, operation signs, component markings, etc., are observed. They must be kept in a fully legible condition and not removed.

The following terms, signs and symbols are used for particularly important information in these Operating and Maintenance Instructions:

	**DANGER** This is a warning about an immediately imminent hazardous situation, the inevitable consequence of which is highly severe injury or death if the instruction given is not followed.
	**WARNING** This is a warning about a hazardous situation, the potential consequence of which is highly severe injury or death if the instruction given is not followed.

	**CAUTION** This is a warning about a hazardous situation, the potential consequences of which are slight to semi-serious injury and material damage if the instruction given is not followed.
	NOTICE This is a warning about a situation, the potential consequences of which are minor damage to the machine or surrounding environment if the instruction given is not followed.
	**INFO** This contains information on safe and proper actions.
	**WEAR PROTECTIVE GOGGLES** This pictogram is used in the operating instructions when an eye shield must be worn for the work described.
	**WEAR PROTECTIVE GLOVES** This pictogram is used in the operating instructions when protective gloves must be worn for the work described.
	**WEAR A PROTECTIVE MASK** This pictogram is used in the operating instructions when an FFP-2 protective mask must be worn for the work described.
	**WEAR PROTECTIVE SHOES** This pictogram is used in the operating instructions when protective shoes must be worn for the work described.

1.3 Denoting text elements

✧ Conditions that must be satisfied for the action described underneath are denoted by a diamond in these instructions.

Bullet points are used to denote work and/or operating steps. Steps are numbered and must be performed in the order specified.

1. First step
2. Second step

➢ The results of an action are indented and denoted by an arrow

- Bullet points are used to denote lists

1.4 Part number code

Specification	Explanation
Air **I**nfect **P**rotect **1.5** **T**	Model name
	Thermal decontamination
	Max. air flow (1.5 = 1500 m³/h, 0.5 = 500 m³/h)
	Product name

2 Safety

The air purifier has been developed and built in line with best available technology and recognised safety codes. Nevertheless, hazards for the user or third parties, or impairments of the device and other material assets, may arise during its use.

To guarantee safe operation of the device in each life cycle, and to minimise the residual risks potentially arising when the device is used, all specifications in these operating and maintenance instructions must be read, understood and heeded. This applies in particular for all instructions and specifications in Section 2, “Safety”, and for instructions and warnings in the individual sections in this guide.

2.1 General safety information

- The device may only be operated by specialist personnel trained by the operating company.
- Keep animals, children and unauthorised individuals away from the device.
- Do not tilt the device.
- Do not operate the device inside a room with a potentially explosive atmosphere, and do not set up the device in such an atmosphere.
- Do not store explosive or combustible materials in the direct vicinity of the device.
- Do not set up the device in an environment where there is too much exposure to dust. Otherwise premature clogging of the filters can result.
- Do not operator the device when your hands are wet or damp.
- Only perform work on the device when wearing corresponding personal protective equipment.
- Do not spray the device with water.
- Do not cover the device while it is running and do not put any objects on it.
- Do not transport or move the device while it is running. The device must be secure and stable when operating. The locks on the transport rollers must be applied.
- Do not poke any objects or limbs into the device (such as through the openings on the air inlet/outlet).
- After wiping the surfaces using a moist, lint-free cloth, allow the device to dry before using it again.
- Every time the device is used, check the accessory and connector parts for damage beforehand (such as electrical cable and connector plug). Operating a faulty device with defective components and connector parts is not permitted. If the device is damaged, immediately contact customer service at the manufacturer.

- Only use original parts for the device. For maintenance and repair work, contact customer service at the manufacturer.
- Always isolate the device from the power for maintenance, repair and cleaning work: Switch off from the main switch and unplug the connector from the mains socket. Note that electrical components can still be live even when switched off.
- The device becomes hot during the decontamination phase. Do not touch the air grill or air outlet.
- After decontamination, always allow the air purifier to cool before performing work on and with it.
- Warnings and stickers on the device must be kept legible and free of dirt. They must not be removed.
- Additional signs, stickers, paint and other materials may not be affixed or applied to the device.
- It might be the case that the filter elements have separated off harmful substances (such as paint, lacquer, mineral particles, and asbestos). The filter elements must therefore be removed and disposed of properly. Wear personal protective equipment (see Section 7.1, Page 38).

2.2 Safety instructions for setting up the device

- When setting up the device, ensure to maintain a minimum distance of 0.5 m to other structural (objects) at the front and sides. Maintain a minimum gap of 0.1 m at the back of the device.
- Only place the device on a cleaned, dust-free floor that is capable of supporting the weight. Ensure the device can not tip over.
- In rooms fitted with smoke detector systems (e.g. with infrared sensors), it is possible for an alarm to be triggered during a decontamination phase for the device. Open windows as required to prevent too high a temperature difference.
- Ensure that the air flow can not be interrupted by other objects.
- Ensure that the device can not be subjected to thermal interaction from other devices in the room.
- Ensure that the device is protected from direct sunlight.
- Only set up the device in rooms having permitted ambient temperatures as in Section 3.4, “Technical details”.
- Position the device such that the connector cable is not damaged or tensioned.
- The connector cable must not be a stumbling hazard. There must be unhindered access to the device and its surrounding area.

- Ensure that the device at the location intended can not be moved by those without authorisation.

2.3 Intended use

The device is used solely for the purification of atmospheric air in enclosed spaces where multiple people are situated, and where the room air can not be exchanged to an adequate level.

The device is also used to purify air in enclosed work areas that are contaminated by airborne micro-particles, paper and textile micro-fibres, spores, bacteria, viruses, aerosols and/or fine dust.

The device may only be used in the commercial sector. When using the device, always adhere to the technical details given in Section 3.4, Page 19.

For the intended use and proper operation of the device, all safety information, warnings and residual risks in this operating guide must be read, understood and heeded.

The device may only be operated from a properly fused socket. Any extension to the mains cable must satisfy the general regulations.

2.4 Use contrary to that intended

	**DANGER**
	Risk to life. Not operating the air purifier as intended poses a fire hazard and a risk to life.
	**INFO**
	Franz Ziel GmbH assumes no responsibility for accidents or damage resulting from misuse of the air purifier or modifications made to it by the customer.

- Never use the air purifier when the device or its individual components are defective or fitted incorrectly.
- Do not use the device in rooms with increased moisture or aggressive atmosphere (such as slaughterhouses and meat processing plants).
- Do not use the device outdoors.
- Do not use the device as a radiator or dryer.
- Do not use the device to draw in liquids or vapour.
- When using the device, adhere to the technical details given in Section 3.4, Page 19.

- Only use the device when the air inlet and outlet are not dirty, and when unobstructed air flow is guaranteed.
- Do not make any design changes to the device.
- Only grant access to the device to authorised and trained personnel having the relevant skill set.
- Children and those unable to assess the risks of electrically operated equipment may not operate the air purifier. Position the device such that this is the case, or put other measures into place such that these people are unable to reach the air purifier.

2.5 Qualification of personnel

The company operating the device must ensure that those operating the device and entrusted with servicing or maintenance work have the relevant professional skills and have undergone training in all hazards that can occur when working with electrically operated equipment. These people must have fully read and understood the operating instructions, in particular the advisories on safety, intended use, warnings and residual risks.

Service and repair work is performed by the manufacturer's customer service team. When faults occur that can not be rectified by the actions given in Section 6, "Faults and malfunctions", always contact customer service at the manufacturer.

2.6 Residual risks

Although the machine guarantees a high level of operational reliability, risks can arise when the device is being used:

DANGER

Danger to life from electric shock

Live components in the cabinet pose a risk to life from electric shock.

- Isolate the device from the power by switching off from the main switch and unplugging the connector from the socket.
- Only authorised personnel may carry out work on electrical components.
- Never expose the device to direct jets of water or clean it with a high-pressure cleaner.

DANGER

Danger to life from electric shock

There is a danger to life from electric shock if the housing of the air outlet element (Page 43, Fig. 7-4, (3)) is not grounded.

The make contacts of the toggle fasteners of the air outlet element must be kept electrically conductive.

- Ensure that no substances, paint, lacquer or other materials have an adverse effect on the conductivity of the make contacts.

WARNING

Risks from incorrect operation

Placing flammable objects on or right next to the air purifier represents a fire hazard.

- Never use the air purifier as a storage area.

Misusing the device for other purposes poses a crushing hazard.

- Do not sit on the device.
- Never use the device as a step.
- Do not move the device while it is operational.

WARNING

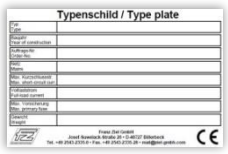
Harmful materials pose hazards.

Improper disposal of the filter elements represents a contamination risk.

- Dispose properly of dirty filters, especially when harmful substances from the air are filtered.

	CAUTION
	An incorrect set-up can pose a crushing hazard and cause material damage. The device can tip over if positioned on an incline. - The device may only be operated when horizontal.

2.7 Markings and signs on the air purifier



Nameplate (affixed to the housing)

Warning about electrical voltage (affixed on the housing)

Note: Before using the air purifier, read the operating and maintenance instructions.

2.8 Description of protective equipment

DANGER

Defective protectors pose a risk to life.

- Never operate the air purifier when protectors are damaged, installed incorrectly or not in position.

2.8.1 Air grills on the air outlet

The device has air grills on the air outlet. They prevent burns should somebody reach into the device during the decontamination phase.

2.8.2 Safety temperature limiter

The air purifier is fitted with a safety temperature limiter. It switches the device off as soon as too high a temperature is measured inside.

2.8.3 Differential pressure monitor

The air purifier is also fitted with differential pressure monitors. As soon as the pre-filter or HEPA filter becomes clogged, a corresponding alarm is shown on the display and the logo lights orange. In such a case, operation continues to be possible but the filter in question needs to be replaced immediately (refer to Section 7.5, Page 43).

2.9 Actions to take in an emergency

DANGER

Danger to life from electric shock

- Never switch off from the main switch when your hands are wet.
- Never unplug the connector from the socket when your hands are wet.

- Switch the device off (refer to Section 5.10, Page 35).
- Isolate the device from the power by unplugging the mains connector from the socket.
- Never reconnect faulty devices to the mains supply.

English

3 About the air purifier

3.1 Description of functions and specifications

Franz Ziel GmbH is a company based in Billerbeck (Westphalia) and that has more than 40 years' experience in ensuring virus and germ sterility in pharmaceutical systems. We developed the air purifier on this basis, whilst placing special focus on flexible and mobile deployment.

Fig. 3-1: Air routing for air purifier

Air contaminated with aerosols, viruses and micro-particles is drawn in from below (grey arrows) and first cleaned by a pre-filter (ISO ePM1 55%). The pre-filter ensures that coarse dirt particles do not pollute the HEPA filter (H14), thereby enabling prolonged life of the HEPA filter - that separates off significant amounts of germs, micro-particles, viruses, aerosols and fine dust from the ambient air. Operating the device with filters that have reached or exceeded their load limits is only possible for a transition period (see Section 6, Page 36).

The filtered air (green arrows) is fed back to the surrounding area through the air grills.

The bacteria, germs and viruses filtered by the HEPA filter are reliably deactivated by regular and long-lasting heat treatment. For this decontamination, two infrared emitters generate the temperature necessary. The fan “presses” the hot air through the HEPA filter using a specially tuned pulse method.

Differential pressure sensors check the pollution levels of the filters and indicate when they need to be change. This way, consistent qualities of filtering and deactivation of germs, bacteria and viruses are guaranteed.

The power setting for the device can be adjusted according to room size.

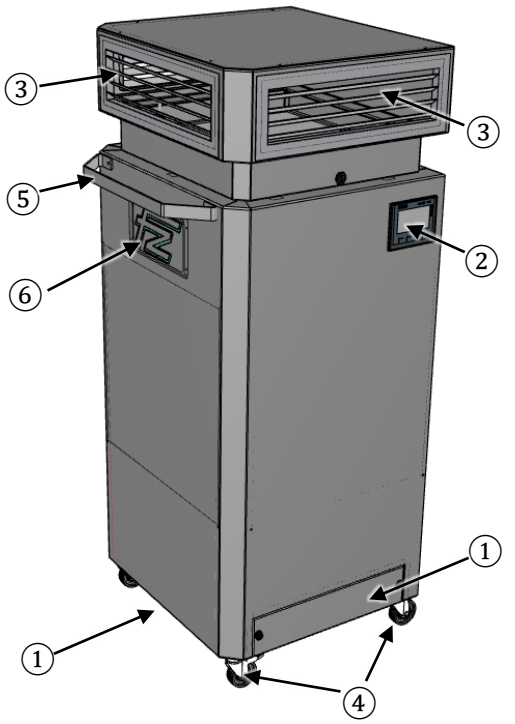
3.2 Power settings

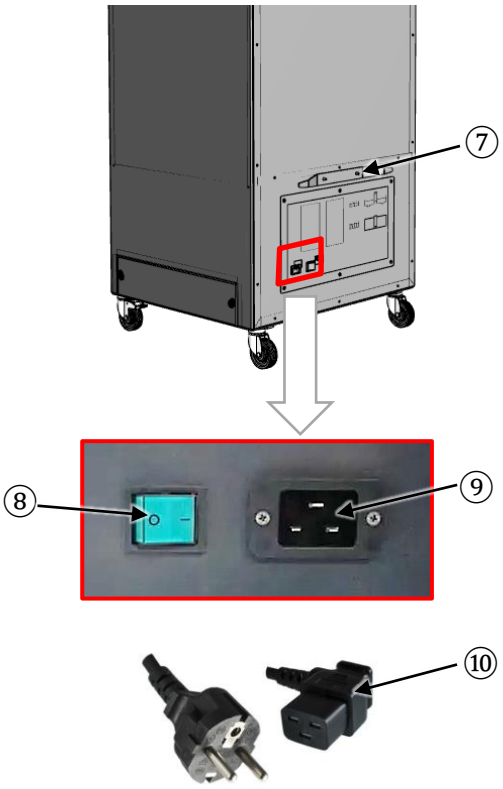
The device can be adjusted to the room size using 6 power settings. The values for the specific air flow (m³/h) per power setting are listed in the following table. The “For room volume” columns show which setting is required for which room volume to attain the relevant air exchange rate per hour.

Power setting	**Air flow (m³/h)**	**For room volume** at 6x air exchange rate*****	**Approx. room size (example)**	**For room volume** at 5x air exchange rate	**Approx. room size (example)**
1	250 m³/h	42 m³	3.5 x 4 x 3 m	50 m³	3.5 x 5 x 3 m
2	500 m³/h	83 m³	5.0 x 5.5 x 3 m	100 m³	6.5 x 5 x 3 m
3	750 m³/h	125 m³	7 x 6 x 3 m	150 m³	6.5 x 8 x 3 m
4	1,000 m³/h	167 m³	8 x 7 x 3 m	200 m³	7 x 9 x 3 m
5	1,250 m³/h	210 m³	10 x 7 x 3 m	250 m³	8.3 x 10 x 3 m
6	1,500 m³/h	250 m³	12 x 7 x 3 m	300 m³	8.5 x 12 x 3 m

* *6x air exchange rate as per recommendation from the Bundeswehr University in Munich, Institute of Fluid Mechanics and Aerodynamics*

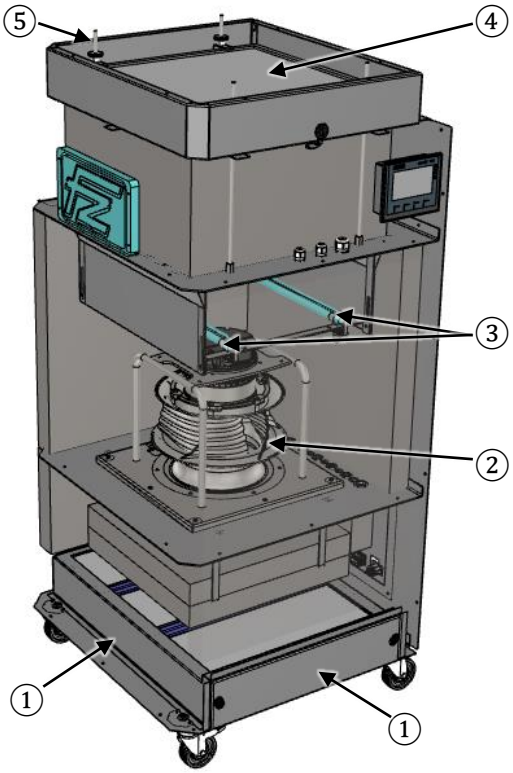
3.3 Component descriptions





Pos.	Name
1	Air inlet (base) with pre-filter tray and pre-filter
2	Touch panel (user interface)
3	Air outlet with HEPA filter
4	Transport rollers (4x) with locks (2x)
5	Handle for moving
6	FZ logo, indicator of operating states
7	Bracket for cable (at back)
8	Main switch (at back)
9	IEC socket (at back)
10	IEC supply with angle junction box (1.8 m)

Fig. 3-2: Air purifier components



Pos.	Name
1	Pre-filter (ISO ePM1 55%) in tray
2	Fan
3	Infrared heating element
4	HEPA filter (H14)
5	Tensioning element for HEPA filter (4x)

Fig. 3-3: Inside the air purifier

3.4 Technical details

Outer dimensions (W x H x D):	657.5 x 1590 x 702.5 mm (including handle)	
Material:	Steel ST1203 powder-coated or stainless steel 1.4301	
Connected voltage:	230	V AC
Frequency:	50	Hz
Max. nominal power:	2.81	kW
Max. nominal current:	13	A
Max. short circuit current:	6	kA
Max. pre-fusing:	16	A
Protection class:	11	IP
Weight:	160	kg
Max. air flow	1,500	m³/h
Sound:		
Level 1 (250 m³/h):	30.6	dB(A)
Level 6 (1,500 m³/h):	52.7	dB(A)
Heating power for decontamination	2	kW
Ambient temperature at place of installation	15 - 24	°C
Minimum distance to other objects (at front and sides)	0.5	m
Minimum distance to other objects (at back)	0.10	m

4 Prior to initial use

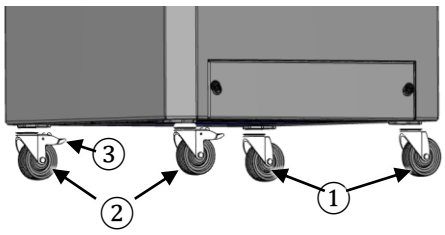
4.1 Removing the packaging

To prevent damage during transit, the air purifier is delivered in packaging. This packaging is raw material and so can be reused. Return the packaging to the raw material cycle.

4.2 Transporting the device

	CAUTION
	Material damage. The controller for the device can be damaged beyond repair when voltage is being applied to it and it is dropped. - If the requirement is to lift the device for transportation, the device must be set down beforehand and the mains connector unplugged. The pre-filter can suffer damage during transportation. - Before transportation, clear out the way all obstructions that could damage the pre-filter.

The air purifier has 4 transport rollers for easy movability. Two of them have locking devices.



Pos.	Name
1	Steerable transport rollers
2	Steerable and lockable transport rollers
3	Lock

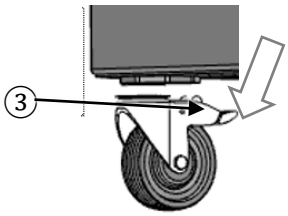
Fig. 4-1: *Transport rollers on the air purifier*

1. Release the brakes of the lockable transport rollers and carefully push the air purifier out of its packaging (over a ramp affixed).
2. Only use the handle at the front for pushing.
3. All movements must be slow and controlled.

4.3 Setting up the device

	CAUTION
	An incorrect set-up can pose a crushing hazard and cause material damage. The device can tip over if not positioned correctly or on a flat surface. - The device may only be operated when horizontal. - For choosing a suitable installation location, please also heed the specifications in Section 2, “Safety”.

	INFO
	Our recommendation is not to position the device directly near open windows or ceiling lights.



Pos.	Name
3	Lock

Fig. 4-2: Lock

1. Secure the device on the floor.
2. Press down the lock (3) for the two transport rollers in the direction of the arrow.

5 Operating the air purifier

English

	DANGER
	Danger to life from electric shock A defective power cord can cause short circuits and so result in fire and injuries. - Never operate the device with a damaged power cord. - Only provide power to the air purifier from a residual current protector switch with a maximum tripping current of 30mA. - The mains voltage must match the voltage specified on the nameplate. - Do not touch the mains connector when your hands are wet.

✧ The connector cable is suitable and not damaged.

✧ All safety devices are installed properly and are not damaged.

✧ All filters are installed properly.

✧ The air purifier is not dirty.

1. Secure the power cord provided into the IEC socket on the back of the device, and the Schuko plug of the power cord into a suitable mains socket.
2. Switch on the device from the main switch.

➢ The main switch lights.

➢ The device is in Standby mode

	INFO
	In Standby mode, the current supply is on, the main switch on the back lights and the FZ logo on the front has no colour (also refer to Section 5.4, Page 26, “Colour depiction of the operating states”). The start screen is shown on the display.

➢ The display shows the following start screen (Fig. 5-1, Page 23):

5.1 Start screen

- ✧ The main menu is displayed.
- ✧ The air purifier works in Automatic mode.

ℹ	Switching from Automatic to Manual mode (and vice versa) is only possible here in the main menu.

✧

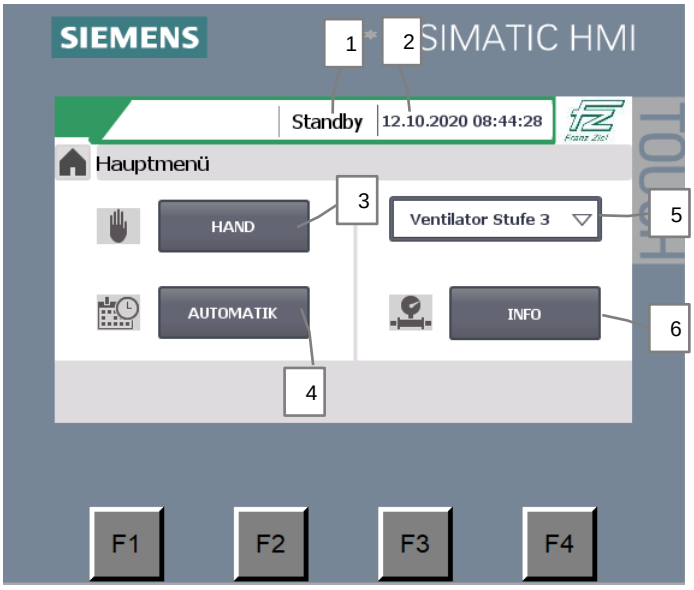


Fig. 5-1: Start screen after the air purifier is turned on

No.	Name	Meaning
1	Display field	Shows the current operating mode
2	Display field	Shows the current date and time
3	MANUAL button	Press it to switch to Manual mode (refer to Section 5.5, Page 24)
4	AUTOMATIC button	Press it to start Automatic mode (refer to Section 5.7, Page 32). ➢ In Automatic mode, the individual operating times for the weekdays are programmed. ℹ Before Automatic mode is started, programming of the weekdays should be complete (see Page 30).
5	Selection field Fan setting	Press this to set the required power level from a selection list. Fan settings available are from 1 (low) to 6 (high). The power setting selected from the main menu applies for all operating modes programmed
6	INFO button	Press this for more information on operating states. See Section 5.8, Page 33.

5.2 Removing access protection on the operator panel

To configure settings on the device, access protection must be removed on the operator panel by entering a password in the login window. The login window is shown as soon as a button other than “Info” is pressed or a screen is accessed.

✧ From the main menu, the “Manual” or “Automatic” button is pressed.

➢ The login window (1) is shown on the display.

1. Tap the entry field (2).

➢ The screen keypad (4) is shown (Fig. 5-3)

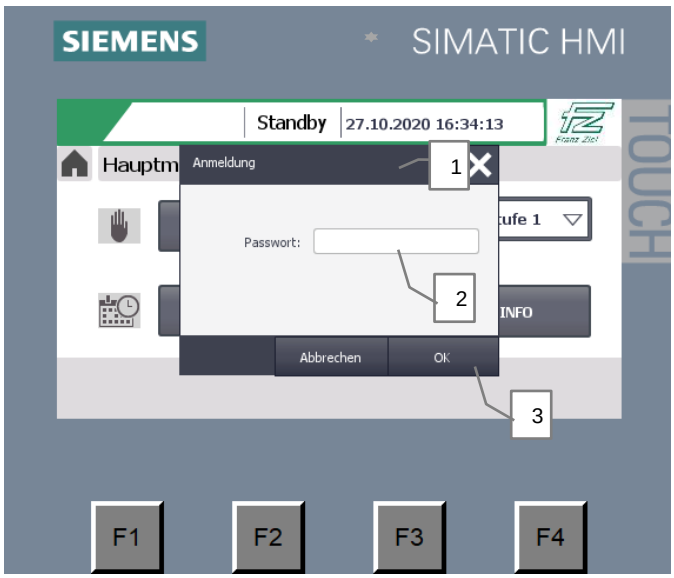


Fig. 5-2: Password entry

2. Enter the password.

3. Press “Enter” (5)

➢ The password is entered.

4. Confirm the input by clicking “OK” (3) in the login window (Fig. 5-2).

➢ Access protection is removed

➢ Settings can be changed.

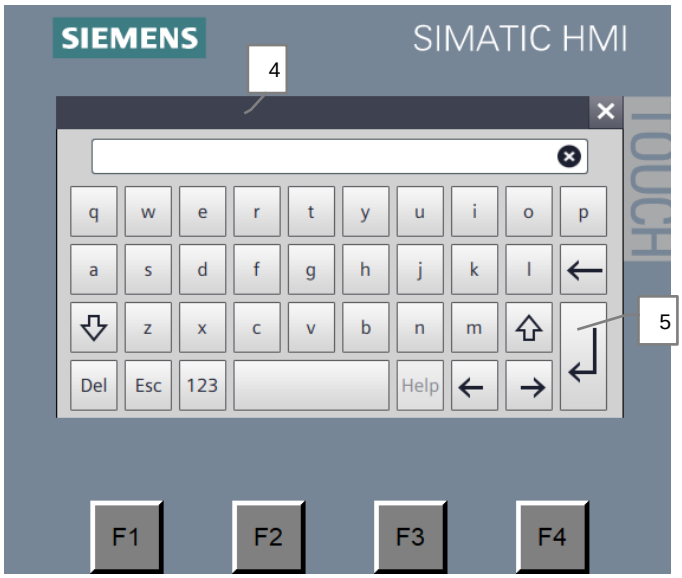


Fig. 5-3: Screen keypad

ℹ	The password for access protection is “**48727**”. To enable access protection again, you need to log out. Refer to Section 5.3, Page 25.

No.	Name	Meaning
1	Login window	Is shown when a function key is pressed or a screen accessed (not the “Info” button)
2	Field for password entry	Select it to enter the password. The screen keypad is shown.
3	OK button	Press it to confirm the password entry.
4	Screen keypad	Is shown when the entry field is pressed in the login window.
5	button 	Confirms entry of the password. After it is pressed, the user returns to the login window.

5.3 Re-enabling access protection on the operator panel

✧ You are logged in:

✧ Access protection is disabled.

1. Tap the button (1).

➢ The main menu is shown (2)

2. Tap “Log out” (3)

➢ Access protection is enabled again.

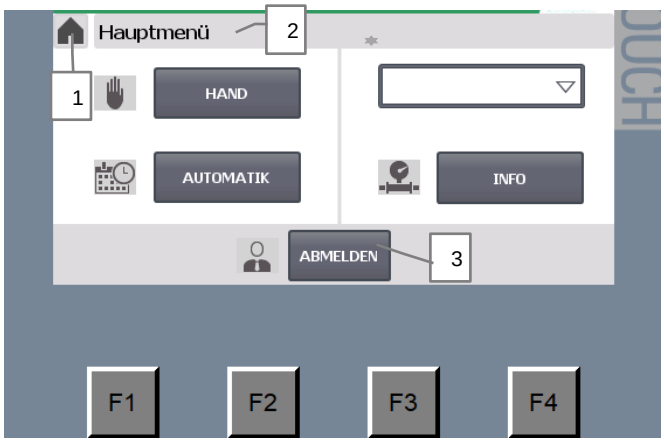


Fig. 5-4: Log out – Re-enabling access protection

ℹ	The user is also logged out when the device is restarted.

No.	Name	Meaning
1	Button 	Press it to switch to the main menu.
2	Main menu	The main menu is shown when the device is switched on (start screen) or button (1) is pressed.
3	Logout button	Press it to enable access protection. The controller program is protected from unauthorised access.

5.4 Colour depiction of the operating states

The respective operating state of the air purifier is visualised by different coloured illumination of the logo (1) of Franz Ziel GmbH. The meanings:

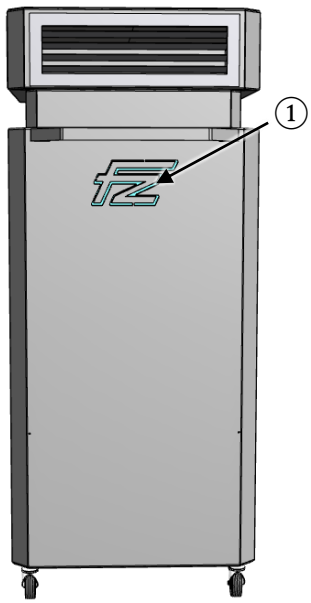


Fig. 5-1: FZ logo

Colour	Operating state
	Normal mode - the air purifier is cleaning the air drawn in during Manual or Automatic mode. ⚠ Note that in Automatic mode the device only actively purifies in the time periods defined by the weekly clock timer (refer to Section 5.6, Page 30). Outside the times, the logo continues to light green but the fan is not active.
	At least one of the filters fitted has reached its saturation limit and should be replaced immediately (see Section 7, Page 38)
	Decontamination phase - temperatures reaching 110°C are present inside the air purifier.
	A fault has occurred; operation has been stopped (see Section 6, Page 36). “Fault” is also shown in the status bar on the display. Contact customer service at the manufacturer.
(no colour)	The air purifier is in Standby mode. The display is shown when the device is turned on from the main switch for example.

5.5 Manual mode

✧ From the main menu, the “Manual” button (3) is pressed.

➢ The menu for Manual mode is opened.

➢ The “Decontamination” and “Air purification” modes can be selected.

ℹ	Automatic mode can not be started from Manual mode. Manual mode must first be stopped for this.

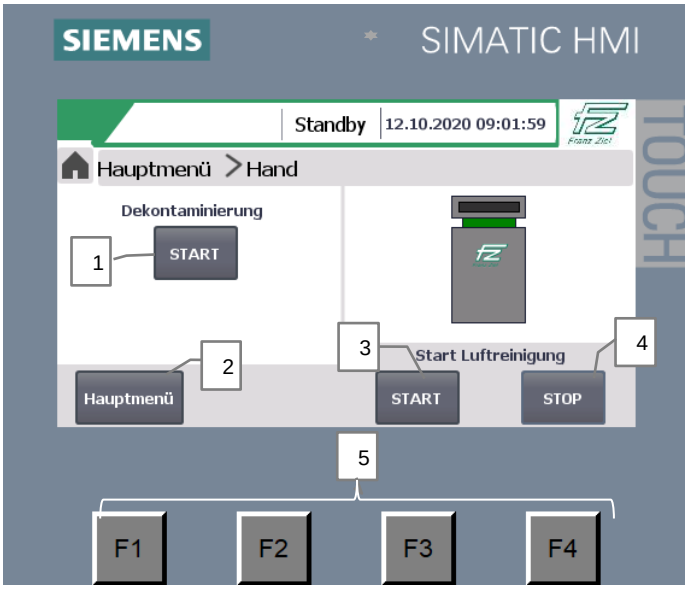


Fig. 5-5: Start screen for Manual mode

No.	Name	Meaning
1	Start decontamination button	Press it to start decontamination. Decontamination is turned off automatically.
2	Main menu button	Press it to return to the main menu.
3	Button Start air purification	Press it to start air purification.
4	STOP button	Press it to stop air purification.
5	Function buttons	As an alternative to the touch screen with the function buttons underneath, the “Main menu”, “Start” and “Stop” buttons can be used.

5.5.1 Starting air purification manually

✧ In the Manual mode menu, button “Start air purification” (3) is pressed.

➢ The fan starts up and the air is circulated.

ℹ	Air purification continues until the “STOP” button (4) is pressed.

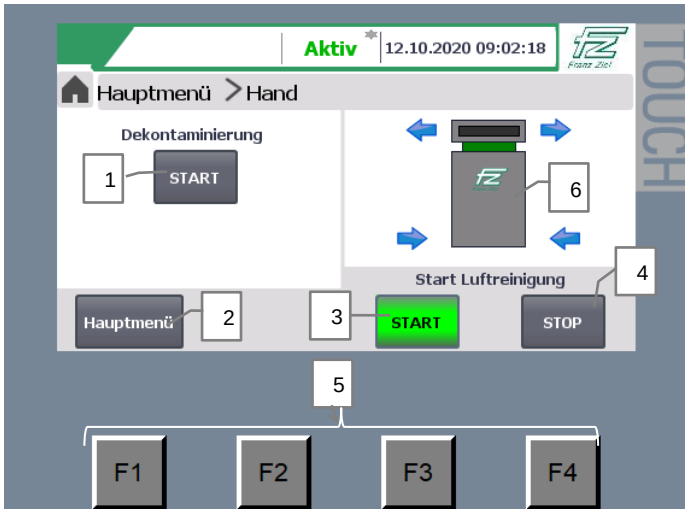


Fig. 5-6: Start of air purification in Manual mode

No.	Name	Meaning
1	Start decontamination button	Press it to start decontamination. Decontamination is turned off automatically.
2	Main menu button	Press it to return to the main menu.
3	Button Start air purification	Press it to start air purification.
4	STOP button	Press it to stop air purification.
5	Function keys	As an alternative to the touch screen, the “Main menu”, “Start” and “Stop” buttons with the function buttons underneath can be used.
6	Display fields	Shows the active air flow as a schematic

5.5.2 Starting decontamination manually

	NOTICE
	To prevent the device from overheating, only perform manual decontamination once a day. After decontamination, always allow the device to cool for 2 to 3 hours before performing work on and with it.

✧ In the Manual mode menu, button “Start decontamination” (1) is pressed.

➢ The decontamination process starts.

ℹ	Decontamination is stopped automatically, but can also be stopped manually with the “STOP” button (4).

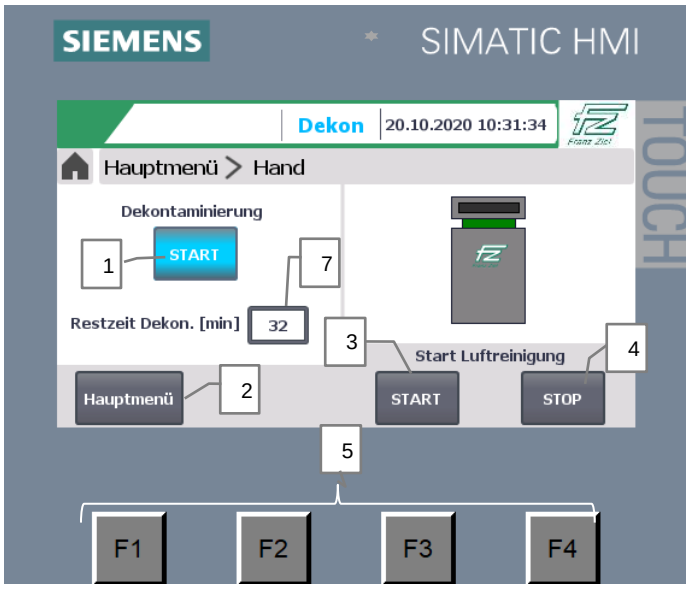


Fig. 5-7: Start of decontamination

No.	Name	Meaning
1	Start decontamination button	Press it to start decontamination. Decontamination is turned off automatically.
2	Main menu button	Press it to return to the main menu.
3	Button Start air purification	Press it to start air purification.
4	STOP button	Press it to stop air purification.
5	Function keys	As an alternative to the touch screen, the “Main menu”, “Start” and “Stop” buttons with the function buttons underneath can be used.
7	Display field	Shows the remaining time for complete decontamination.

5.6 Setting the weekly clock timer

✧ From the main menu, the Automatic button is pressed.

➢ The “Weekly clock timer” screen is shown.

ℹ	Setting the day times for weekday “Monday” is described below. The same actions apply for the other weekdays.

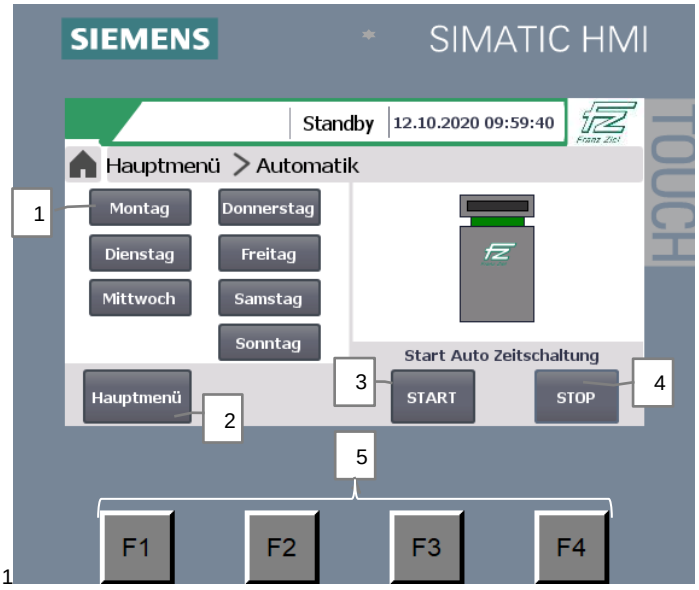


Fig. 5-8: Start screen for weekly clock timer: Weekdays

No.	Name	Meaning
1	Weekday button	Tap the weekday to assign it the required operating times.
2	Main menu button	Tap it to return to the main menu.
3	Start button	Tap it to start Automatic mode
4	Stop button	Tap it to stop Automatic mode
5	Function keys	As an alternative to the touch screen, the “Main menu”, “Start” and “Stop” buttons with the function buttons underneath can be used.

✧ Weekday “Monday” (1) is tapped in the weekly clock timer.

➢ The screen for setting the operating time is shown (see Fig. 5-9, Page 30):

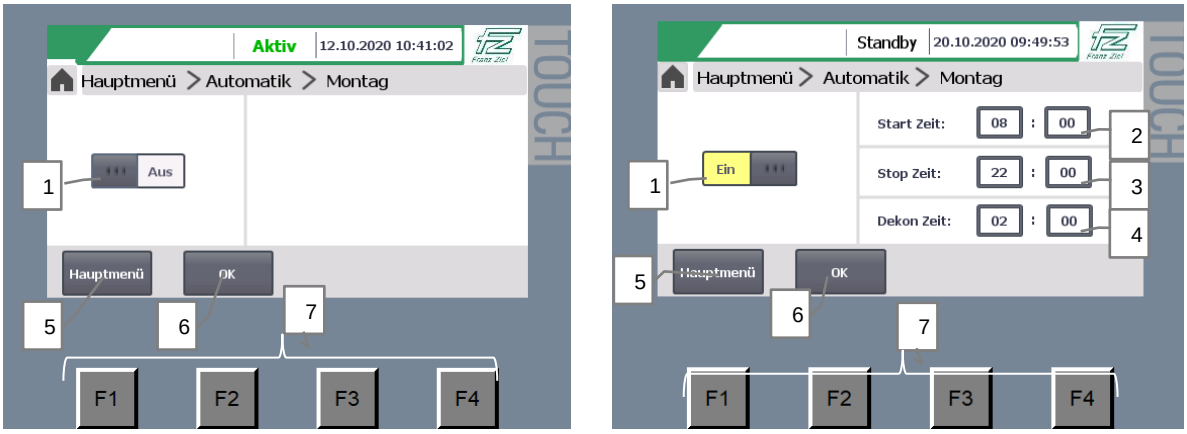


Fig. 5-9: Fully disable a weekday or set the operating times for a weekday

INFO
The start time must be programmed to be before the stop time. Also, the start time entered must be before the stop time (because otherwise the air purifier does not start). The stop time specified ends operation for the respective day. All times can be entered in range 00:00 to 23:59. Example: Monday – start time 7:00; stop time 18:55.

No.	Name	Meaning
1	ON/OFF selection field	Switch on or off operation for the day selected.
2	Start time entry fields	Enter the time at which air purification is to start.
3	Stop time entry fields	Specify the time when air purification is to stop.
4	Decon time entry fields	Specify the time when decontamination is to start (the time required is about 45 minutes)
5	Main menu button	Back to the main menu.
6	OK button	Save the values entered for the weekday and back to the start screen for the weekly clock timer
7	Function buttons	As an alternative to the touch screen with the function buttons underneath, the “Main menu” and “OK” buttons can be used.

INFO
The start time for decontamination can also lie outside the time for air purification, but must be entered so as to be before the stop time. Once a decontamination process is started, it is not stopped by a Stop signal in Automatic mode.

5.7 Starting and ending Automatic mode

1. Once the week is programmed, press the “OK” button (6).

➢ The operating mode is shown. The days for which operation is programmed now light yellow.

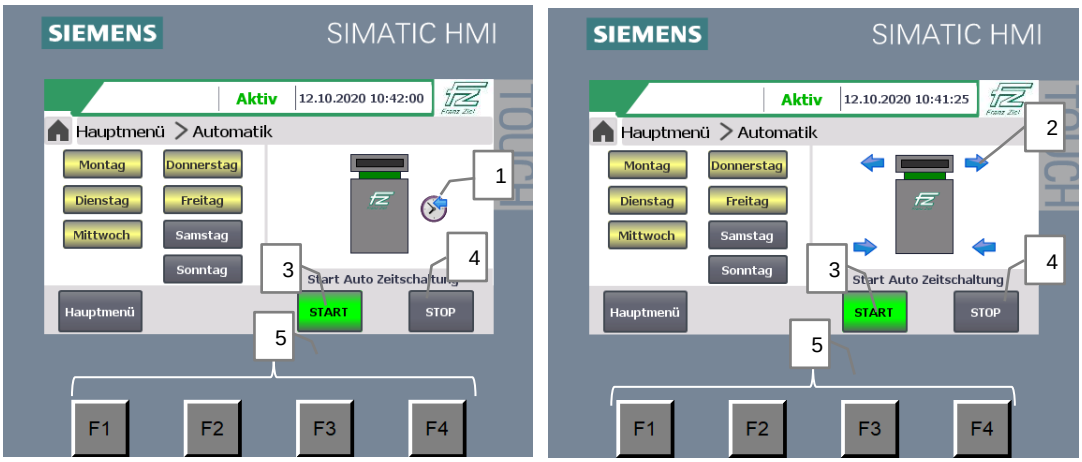


Fig. 5-10: Different displays for waiting device (left) and device running (right)

No.	Name	Meaning
1	Display	Indicates that the air purifier is waiting for a programmed start time.
2	Display	Indicates that the air purifier is running.
3	START button	Tap it to start Automatic mode The button lights green when the operating mode is active.
4	STOP button	Tap it to end Automatic mode.
5	Function buttons	As an alternative to the touch screen with the function buttons underneath, the “Main menu”, “Start” and “Stop” buttons can be used.

5.8 Information

✧ From the main menu, the “INFO” button is pressed.

➢ The Info window is displayed.

ℹ	The Info window can be accessed from any mode.

✧

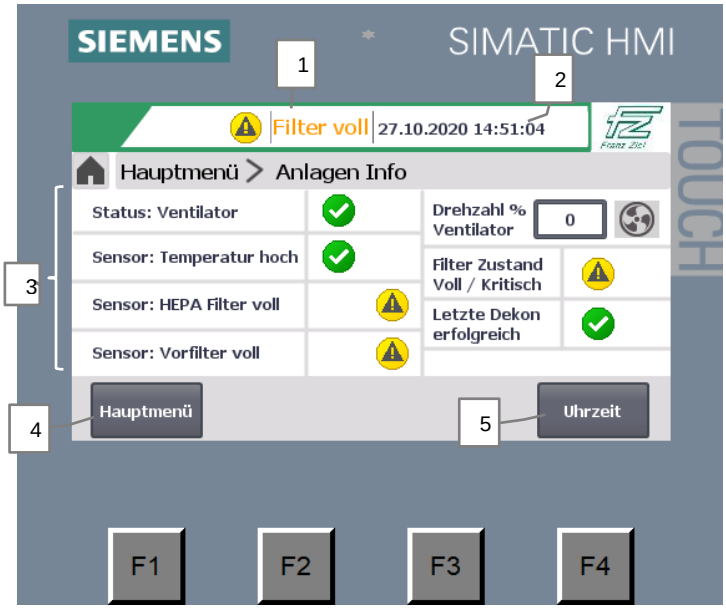


Fig. 5-11: System information

No.	Name	Meaning		
1	Display field	Shows the current operating mode. If there is a fault, it is shown in text form here.		
2	Display field	Shows the current date and time		
3	Parameter displays	The following parameters are monitored and displayed:		
		Fan status	✓	✗
		Sensor: Temperature high	✓	✗
		Sensor: HEPA filter full	✓	⚠
		Sensor: Pre-filter full	✓	⚠
		Fan speed (%)		
		Filter status (full/critical)		⚠
		Last decon successful	✓	✗
4	Main menu button	Back to main menu (or function button F1)		
5	Time button	Tap it to set the system time (see Section 5.9, Page 34)		

		This symbol indicates that the respective parameter is within the required range, i.e. no intervention is necessary.
		This symbol indicates that the respective parameter is not within the required range, i.e. intervention is necessary. See Section 6, Page 36.
		This symbol indicates that the filter elements are full and should be replaced.

5.9 Set time

✧ From the Info window, the "Time" button is pressed.

➢ The window for setting the date and time is shown.

	In leap years, the date needs to be reset; the time can be set to the current time depending on applicable summer or winter time

✧

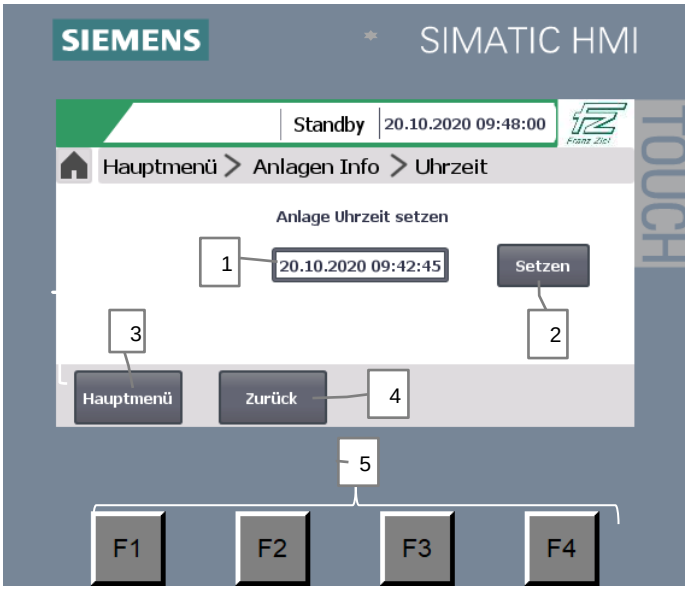


Fig. 5-12: System information

No.	Name	Meaning
1	Date and time input field	Tap this to set the valid date and time
2	Set button	Tap this to save the date and time combination entered.
3	Main menu button	Back to main menu (or function button F1)
4	Back button	Back to the Information menu without saving the values
5	Function buttons	As an alternative to the touch screen with the function buttons underneath, the "Main menu" and "Back" buttons can be used.

5.10 Switching off the device

	DANGER
	Danger to life from electric shock - Never switch off from the main switch when your hands are wet. - Never unplug the connector from the socket when your hands are wet.

Fig. 5-2: Main switch

Pos.	Name
1	Main switch (at back)
2	IEC socket (at back)

1. Ensure that the decontamination phase is complete. Only then can you be sure on next starting that the bacteria, germs and viruses filtered in the HEPA filter have been deactivated.
2. Switch off the device from the main switch (1).
3. Unplug the mains connector from the socket.
4. Ensure suitable measures are in place to prevent unauthorised personnel from using the device.
5. Prevent those without authorisation from sticking objects into the device (as is the case at the air outlet for example).

6 Faults and malfunctions

DANGER

Danger to life from electric shock

Only specialist personnel may open the cabinet.

- Before opening the cabinet, switch off from the main switch and unplug the mains connector.

INFO

The logo lights red when a fault occurs on the air purifier:

“Fault” is also shown in the status bar on the display.

Once the fault is rectified, no fault messages are displayed. There is no need to acknowledge fault messages.

Fault	Potential cause	Rectification
Device not running	No mains supply	Plug the connector into the mains supply. Check the fusing of the terminal.
	Mains plug defective.	Check the mains plug; rectify any deficiencies.
	Power line defective.	Check the power line; rectify any deficiencies.
	Overheating - the temperature monitor has triggered	Leave the device switched off for about 15 minutes. Then restart it. If the device does not start, have it checked by customer service.
Device does not work in Automatic mode	Stop time programmed to be before the start time	The start time must be programmed to be before the stop time.
Fan status	The fan drive is reporting a fault	Operation is ended and can not be started again; contact customer service
Sensor: Temperature high	Too high a temperature inside the housing	The device ends operation. After the device has cooled, it can be started again. If the fault persists: Contact customer service.
Sensor: HEPA filter full	Pressure monitor of HEPA filter detecting too high a pressure delta	Replace the HEPA filter immediately. The device can be used for another 150 operating hours. **After this time, the device can no longer be used**.

Fault	Potential cause	Rectification
Sensor: HEPA filter full despite installation of a new filter	Fault message not reset; warning “Filter full” remains active even when a new filter is fitted	Restart the device.
Sensor: Pre-filter full	Pressure monitor of pre-filter detecting too high a pressure delta	Replace the pre-filter immediately. The device can be used for another 150 operating hours. **After this time, the device can no longer be used**.
Sensor: Pre-filter full despite installation of a new filter	Fault message not reset; warning “Filter full” remains active even when a new filter is fitted	Restart the device.
Operation not possible, touch display showing incorrect data, only ########### instead of time	No connection between controller and touch display.	Restart the device; contact customer service.
Last decontamination not successful	Defect with infrared heating. The second temperature monitor is detecting too low a temperature in the decontamination phase.	The device can continue to be used, decontamination is no longer guaranteed. This means the viruses filtered can not be deactivated. Contact customer service.

7 Servicing and maintenance

	**DANGER** **Danger to life from electric shock** There is a danger to life from electric shock if the housing of the air outlet element (Fig. 7-3, (2)) is not grounded. The make contacts of the toggle fasteners of the air outlet element must be kept electrically conductive. - Ensure after maintenance work that no substances, paints or other materials have an adverse effect on the conductivity of the make contacts.

	**WARNING** **Hazards from delayed maintenance work** Filter replacements not performed in time represent an intoxication risk. Material damage from late cleaning work. The intervals stated here must be deemed minimum requirements. Special ambient conditions may necessitate shorter intervals.

	**WARNING** **Health risk from contact with contaminated internal areas or filter elements.** The filter elements and inside areas of the device can be contaminated with viruses or bacteria. Removing and replacing filters, and cleaning the device, pose health risks. - Every time a filter is changed and the inside cleaned, perform a decontamination beforehand. - Wear personal protective equipment - Disinfect your hands after any work - Keep to the hygiene standards.

7.1 Necessary preparations prior to all maintenance work

1. Use the necessary personal protective equipment.
2. Select mode “Decontamination!”. Refer to Section 5.5.2, Page 29.
3. Wait until the decontamination is complete and the device has cooled sufficiently.
4. Switch off the device. See Section 5.10, Page 35.

Work required / Interval	Necessary PPE	Prior to initial use	As required or at least once a month	As required or at least every 6 months	As required or at least every 12 months
Outer cleaning See Section 7.2					X
Check for dirt the opening of the air inlet; clean it as required - see Page 40	  	X	X		
Check for dirt the opening of the air outlet; clean it as required - see Page 41	  	X	X		
Replace the HEPA filter Refer to Page 43	  				X*
Replace the pre-filter Refer to Page 42	  			X*	

Work required / Interval	Necessary PPE	Prior to initial use	As required or at least once a month	As required or at least every 6 months	As required or at least every 12 months
Visual inspection for dirt inside the device; clean it as required - see Page 45	  				X

* Or on reaching the pre-set pressure delta (is shown on the display and by the logo switching to orange).

7.2 Outer cleaning

CAUTION

Material damage. Water penetrating into the device can cause serious damage.

- Cleaning water must not enter the inside of the device.

Aggressive cleaning agents can damage the surface of the air purifier.

- First test the cleaning agent - at a place that is not visible when the device is used later.

1. Carry out the necessary preparations (see Section 7.1, Page 38)
2. Wipe away dirt particles using a lint-free cloth moistened with suitable cleaning agent.
3. Ensure that no moisture can enter the device.
4. Allow the device to dry before using it again.

7.3 Air grills

	**WARNING** **High temperatures pose a hazard.** Cleaning the air grills poses a risk of burns. They can become hot during a decontamination process. - Only those wearing protective gloves are allowed to clean the air grills.

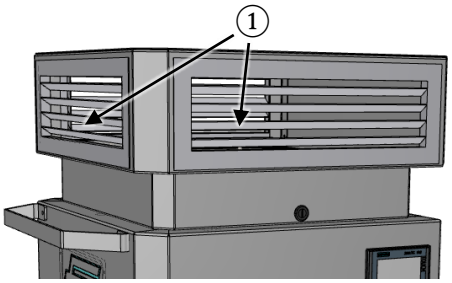


Fig. 7-1: Air grill

Pos.	Name
1	Air grill

1. Carry out the necessary preparations (see Section 7.1, Page 38)
2. Carefully wipe the air grill of the air outlet using a lint-free cloth moistened with suitable cleaning agent.

	**INFO** We recommend in addition applying disinfectant to the opening of the air outlet.

7.4 Replacing the pre-filter

	WARNING
	Harmful materials pose hazards. Coming into contact with the pre-filter poses a contamination risk. - Remember that viruses filtered by the pre-filter do not become inactive by the decontamination phase. - Therefore only touch the pre-filter when wearing suitable gloves. - After touching the pre-filter, disinfect your hands. - Keep to the hygiene standards.

1. Carry out the necessary preparations (see Section 7.1, Page 38)

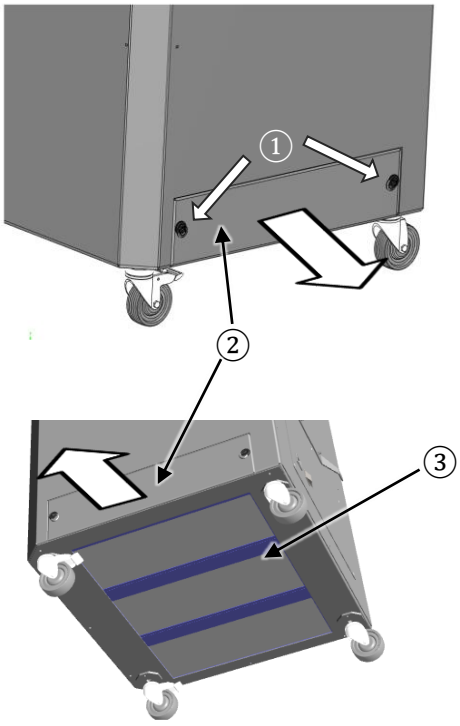


Fig. 7-2: Pre-filter and tray for pre-filter

2. Undo the 2 toggle fasteners (1) for the pre-filter tray.
3. Pull out the tray (2) in the direction of the arrow.
4. Remove the pre-filter (3).
5. Put the pre-filter into an airtight bag and seal the bag.
6. Throw the pre-filter out with domestic waste and the gloves used.
7. Disinfect your hands.

Fit a new filter element in the reverse order.

7.5 Replacing a HEPA filter

DANGER

Danger to life from electric shock

There is a danger to life from electric shock if the housing of the air outlet element (Fig. 7-4, (3)) is not grounded.

The make contacts of the toggle fasteners of the air outlet element must be kept electrically conductive.

- Ensure that no substances, paints or other materials have an adverse effect on the conductivity of the make contacts (3).

WARNING

Harmful viruses and bacteria pose hazards.

Viruses and bacteria from coming into contact with the HEPA filter pose a health risk.

- Every time the filter is replaced, decontaminate the device first. After a decontamination, let the device cool for 2 to 3 hours.
- Only touch the HEPA filter when wearing suitable gloves.
- After touching the pre-filter, disinfect your hands.
- Keep to the hygiene standards.

1. Carry out the necessary preparations (see Section 7.1, Page 38)

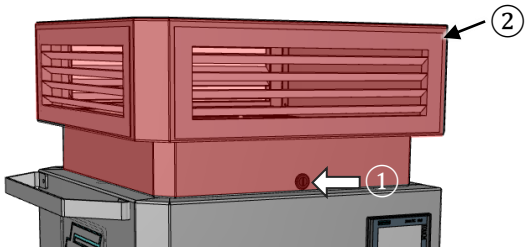


Fig. 7-3: Toggle fasteners on side

2. Undo the toggle fasteners (1) on the side of the air outlet element (2). There are 2 fasteners.
3. Remove and clean the air outlet element (2)

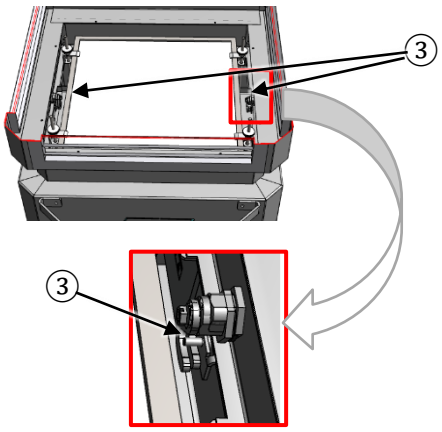


Fig. 7-4: Make contacts

Remove dirt, dust and other impurities from the make contacts (3) of the toggle fasteners. It is imperative after assembly that electrical conductivity (grounding) is realised.

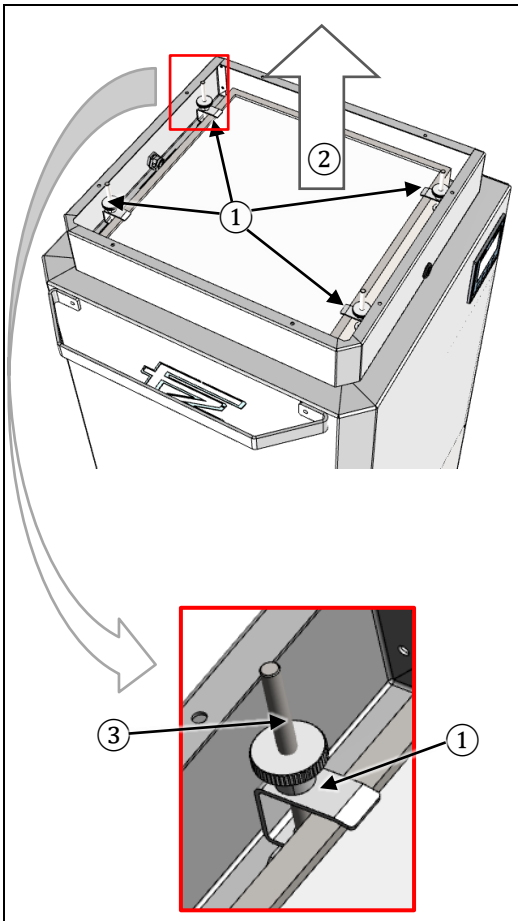


Fig. 7-5: Fastening for HEPA filter

4. Undo the tensioning elements of the HEPA filter (1).
5. Unscrew the tensioning elements (1) with threaded bolts (3), and remove them
6. Remove the HEPA filter (2)

ℹ	The filter seal might stick to the base. Remove adhesive residue and dirt from the base.

7. Put the HEPA filter into an airtight bag and seal the bag.
8. Dispose of the HEPA filter with the domestic waste.

Fit a new filter in the reverse order.

ℹ	When the new HEPA filter is fitted, ensure the correct set of seals is used.

After being fitted and before normal usage, a new HEPA filter must be pre-treated with heat (manual decontamination):

9. After a new HEPA filter is fitted, perform a manual decontamination. Refer to Section 5.5.2, Page 29.

NOTICE

Heating a new HEPA filter can cause strong smells and smoke to be given off.

- Only perform heat treatment using decontamination in well-ventilated rooms with nobody in them.
- If necessary, perform decontamination again.
- Note that manual decontamination should only be performed once a day. To prevent the device from overheating, and to avert damage to the device, let it cool at least 2 to 3 hours between two decontamination phases.

7.6 Cleaning the inside of the device

WARNING

Harmful materials pose hazards.

Contact with materials, or the inside of the device contaminated with viruses or bacteria, pose a risk of contamination.

- Every time the device is cleaned, decontaminate it first.
- Let the device cool for 2 to 3 hours before starting work.
- Only touch the inside area when wearing suitable gloves.
- After touching the surfaces, disinfect your hands.
- Keep to the hygiene standards.

1. Carry out the necessary preparations (see Section 7.1, Page 38)
2. Remove the pre-filter (see Section 7.4, Page 42)
3. Remove the HEPA filter (see Section 7.5, Page 43)

DANGER

Danger to life from electric shock

Only specialist personnel may open the cabinet.

- Turn off from the main switch before opening the device
- Unplug the mains connector from the socket

INFO

Use a lint-free cloth and non-aggressive cleaning agents for cleaning. If required, test the cleaning agent at a place not visible later on; it must not be aggressive towards the surface.

Do not use the following for cleaning:

- Wire brushes
- Emery paper
- Blades
- High-pressure cleaners
- Water hose

4. Clean the inside of the housing from underneath.
5. Clean carefully the air atrial basket of the fan.
6. Clean the inside of the housing from the top.
7. Clean carefully the fan.

8 Permanently taking the device out of service and disposal

8.1 Environmental protection

	CAUTION
	Take care when handling hazardous materials Hazardous materials are harmful to the soil and groundwater. - Keep, transport, collect and dispose of hazardous materials in suitable containers.

Observance of applicable legal regulations is a requirement when disposing of consumables and replacement materials during maintenance work and when taking the air purifier out of service.

8.2 Plastic materials

A maximum level of sorting is required for plastic materials used and processed. Plastic materials must be disposed of in line with legal provisions.

8.3 Metals

Different metals must be disposed of separately.

The disposal must be carried out by an authorised company.

8.4 Electric and electronic scrap, batteries

Devices with this logo on the packaging or on the device must not be disposed of with normal domestic waste. Return these devices separately for recycling to the appropriate return and collection points, such as a recycling depot.

8.5 Permanently taking the system out of service

A check must be carried out on which materials are recyclable.

English

9 Appendix

9.1 Wording of the EC declaration of conformity

Product name:	**Air purifier**
Model name:	**Air Infect Protect 1.5T (AIP 1.5T)**
Year built:	**2020 onwards**
Serial number range:	From **BJ-10-AIP-3010** to **BJ-10-AIP-3020**

The device has been developed, designed and manufactured in compliance with EC Directives:

2006/42/EC Machinery
2014/30/EU Electromagnetic compatibility
2011/65/EU Restriction of the use of certain hazardous substances (RoHS Directive)

- The protection objectives laid down in Low Voltage Directive 2014/35/EU have been satisfied in line with Annex I, No. 1.5.1 in the Machinery Directive by

Company: **FRANZ ZIEL GMBH**
RAIFFEISENSTRASSE 33
48727 BILLERBECK, GERMANY

The following harmonised standards have been applied:

EN ISO 12100:2010	Safety of machinery, equipment and systems
EN 61000-6-2:2005	EMC interference immunity
EN 61000-6-4:2007	EMC transient emissions
EN 61310-2:2008	Indication, marking and actuation
EN 60335-1:2012	Safety of electrical appliances

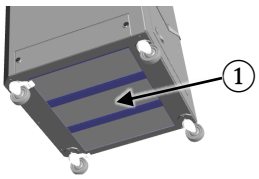
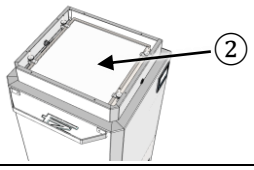
A full list of the standards, directives and specifications used can be obtained from the manufacturer. Full technical documentation is available. The operating instructions for the machine are available.

Responsible for documentation: Documentation department

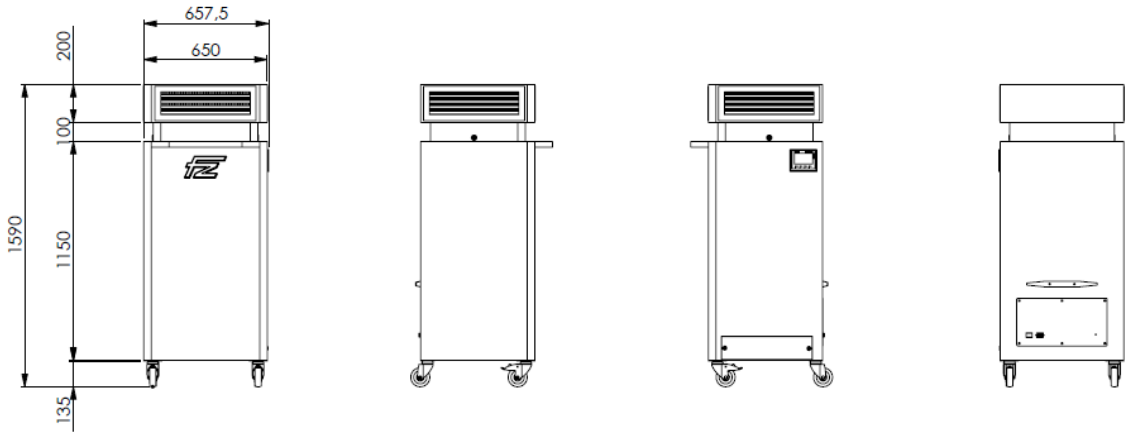
Managing Director: Olaf Ziel
Date of issue: 21 December 2020

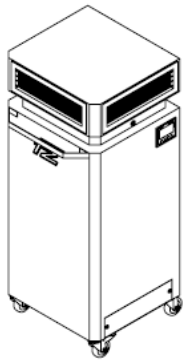
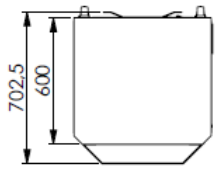
The signed EC declaration of conformity is kept with the manufacturer.

9.2 Spare part list for wearing parts

Component	Picture	FZ part no.
Pre-filter (1x 600x450x92 mm) Filter class: ISO ePM1 55% to DIN ISO 16890		41630044
HEPA filter (1 x 457x457x292mm) Filter class: H14 to DIN EN 1822		40230038
DINIC mains cable power cable CEE 7/7 Schuko plug on C19 angled for 16A CB-19-90		52430217
Guide roller (2 x AGILA 2470PJP100P30-11)		41130015
Guide roller with lock (2 x AGILA 2477PJP100P30-11)		41130016

9.3 Technical drawing

Front view	Side view (from left)	Side view (from right)	Back view
			

Isometric view	Top view
	

9.4 List of keywords

English

9.5 Notes

English