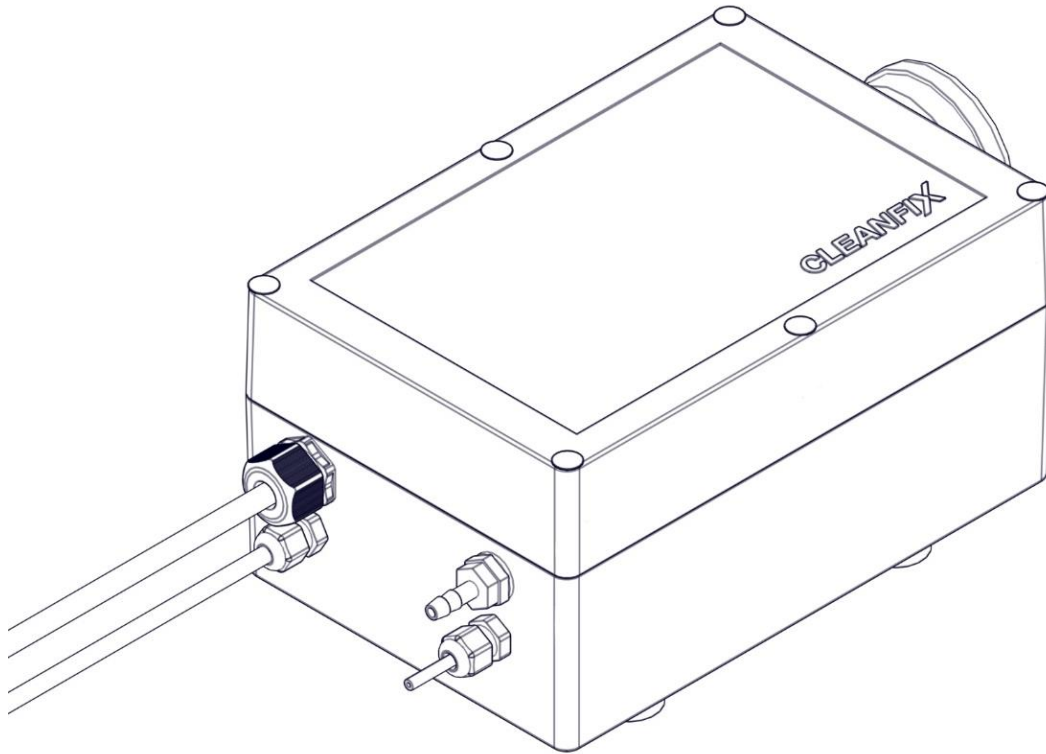


## E-BOX 3.0

### Installation Instructions



<https://cleanfix.org/e-box-3.0>

- EN:** Scan QR-Code to get instructions in other languages.  
**DE:** QR-Code scannen um Anleitung in weiteren Sprachen zu erhalten.  
**FR:** Scanner le code QR pour obtenir des instructions dans d'autres langues.  
**IT:** Scansione QR-Code per ottenere istruzioni in altre lingue.  
**ES:** Escanea el Código QR para obtener instrucciones en otros idiomas.  
**PT:** Digitalize o Código QR para obter instruções noutras línguas.  
**TR:** Diğer dillerdeki talimatlar için QR kodunu tarayın.



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## 1 General information

### 1.1 Legal notice

#### 1.1.1 Copyright

The copyright is owned by Hägele GmbH, Germany. Copies, incorporation in other media, translations, or the use of excerpt or parts is not permitted without the explicit consent of Hägele GmbH. All rights reserved. The contents of these operating instructions are subject to change without notice. Technical data subject to change.

#### 1.1.2 Manufacturer's and service address



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Website: <http://www.cleanfix.org>

##### Service:

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For additional information, feel free to contact our customer service team and our worldwide representatives at any time.

## 1.2 Introduction

Before installing or commissioning of the Cleanfix® E-Box 3.0, familiarize yourself with the contents of these operating instructions. This will help you achieve optimal results and work safely. The operating instructions are a component of the product and must always be close at hand. By doing so, you will:

- avoid accidents.
- comply with the warranty terms.

### 1.2.1 Target group of these operating instructions

These operating instructions are intended exclusively for off-highway vehicles trained mechanics.

The product may be installed and commissioned only by persons who are familiar with the operating instructions, the product, as well as the national laws and regulations concerning work, safety, and accident prevention.

### 1.2.2 Liability and damages

Since we are not included in technical service updates from the manufacturer, you may be required to make adjustments when installing this product. Hägele GmbH does not assume responsibility for installation and modification costs.

On account of the information provided in these operating instructions, the manufacturer we accept no liability for direct damages or indirect losses arising from improper operation or maintenance. We disclaim all liability for personal injury or property damage caused by untrained personnel or through failure to comply with regulations concerning work, safety, and accident prevention.

No claims for the modification of products that have already been delivered may be made on the basis of the data, illustrations, and descriptions in these operating instructions.

For your safety, use only original spare parts and original accessories.

We assume no liability for the use of other products and any resulting damages.

- 1) Upon arrival see if there is any damage from transit and verifying all items are present.
- 2) Immediately document in writing any defects and damages.
- 3) Photograph damaged components.
- 4) Send in a written damage report.

### 1.2.3 Validity

These operating instructions contain information required for installation and commissioning of the product.

In addition to the description of the standard accessories, the instructions contain a number of abstractions and exemplary illustrations of optional accessories. The product accessories may therefore partially deviate from the descriptions and depictions.

### 1.2.4 Product identification

Inquiries addressed to the manufacturer must include the part number and the E-Box 3.0 serial number. You can find these numbers at the following locations:

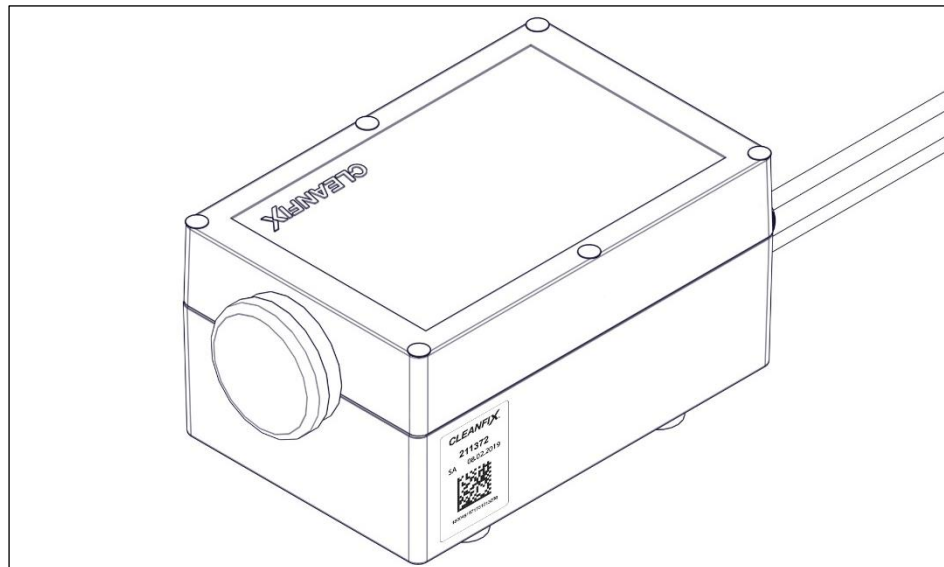


Fig. 1



Fig. 2

- (1) Part number
- (2) Serial number

### 1.3 Product description

The E-Box 3.0 is used to control a Cleanfix reversible fan in vehicles without a compressed air system. When the E-Box 3.0 is used to control the fan, the fan blades rotate around their own axis and effectively clean the radiator and intake grille. Switching from cooling to cleaning is time-controlled, for example, every 30 minutes. This interval can be changed as desired. Intermediate cleaning can be performed at any time by pressing the push button in the driver's cab. A compressor ensures quick switching. The component is secured by a protective box with a high-quality filter.

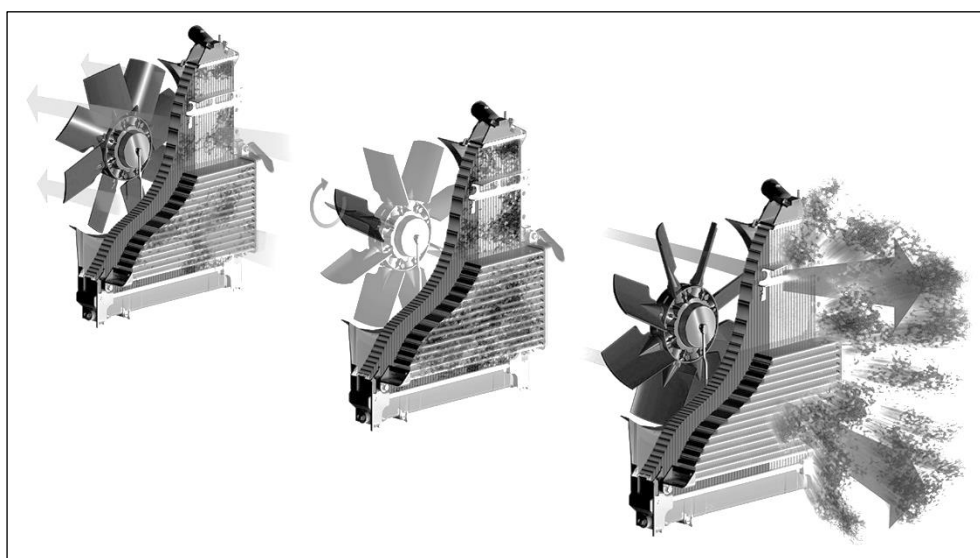
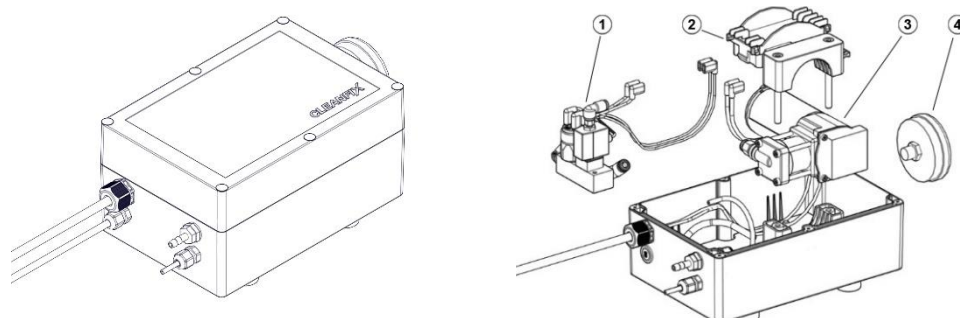


Fig. 3

#### 1.3.1 Components

The E-Box 3.0 contains a valve unit (1), a timer (2), a compressor (3) and a filter (4).



## 1.3.2 Specifications

### Dimensions:

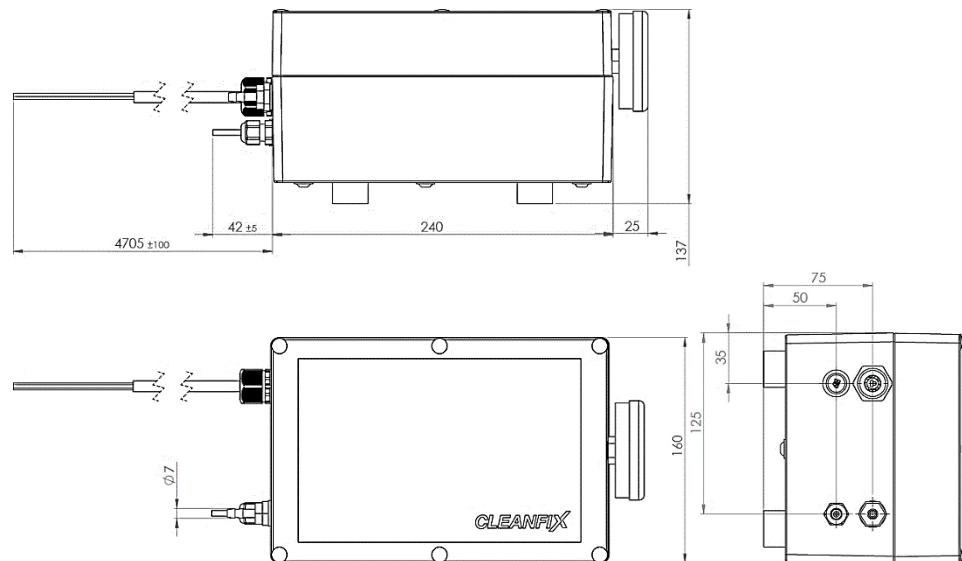


Fig. 4

**Weight:** 3.2 kg

### Electrical connection:

12 V version: voltage: 12 V / current: 12 A  
 24 V version: voltage: 24 V / current: 7 A

### Working pressure of compressed air:

Max. 8.5 bar / 130 psi

## 2 Safety

This chapter provides general safety information. The individual chapters of the operating instructions also contain specific safety information that is not provided in the “Safety” chapter. Observe the safety information:

- for your own safety.
- for the safety of others.
- to ensure machine safety.

When commercial vehicles are involved, a number of risks can arise due to improper behavior. For this reason, work with special care and never under time pressure.

### 2.1 Intended use

The product may be used only for the following purposes: Controlling a Cleanfix reversible fan

Only persons authorized by the manufacturer may make modifications, alterations, and repairs.

Unauthorized modifications, alterations, or improper use fundamentally exempt the manufacturer from liability for resulting damages.

### 2.2 Other regulations

In addition to these instructions, the respective national laws and regulations as amended must be observed (e.g., protective clothing, accident prevention regulations, and occupational health and environmental rules).

In addition, the information and safety rules provided by the manufacturer in the respective vehicle documentation must be observed.



## 2.3 Warning messages

### WARNING!

---

#### **Rolling of the vehicle may result in serious injury or death!**

An unsecured vehicle can run over or crush you. This can result in serious injury or death.

- Turn off the vehicle.
- Remove the ignition key.
- Secure the vehicle against rolling.

---

#### **Wearing loose-fitting work clothes may cause serious injury or death!**

Do not wear loose-fitting clothes because they can become entangled in rotating parts.

- Wear work and protective clothing stipulated by the employer's liability insurance association.

---

#### **Working on a machine while it is running may cause serious injury or death!**

No work may be performed on the machine while it is running. Objects or persons may be caught, pulled in, or crushed.

- Work only on machines that have been turned off.

---

### CAUTION!

---

#### **Failure to resolve malfunctions can result in accidents or damage!**

Operation of a defective E-Box can lead to accidents or damage.

- Immediately stop the machine.
- Shut down the machine.
- Secure the machine.
- Resolve the fault promptly or engage a workshop.

---

#### **Activation of the reversing function while persons are standing in front of the vehicle may cause accidents!**

The fan generates strong air currents when it is in the cleaning position. Persons standing in front of the vehicle can be struck by flying dirt when the reversing function is activated.

- Make sure that no persons are standing in front of the vehicle.

---

#### **Activation of the reversing function in closed rooms may cause accidents!**

---

---

The fan generates strong air currents when it is in the cleaning position. In closed rooms, this can generate dust and lead to damage or accidents due to flying parts.

- Use the reversing function only in a safe location and only outside of rooms.
- 

**NOTE**

---

**Switching while the vehicle is in the red temperature range may cause property damage!**

The cooling effect is interrupted during the switching function. Switching while the vehicle is in the red temperature range causes the engine to overheat.

- Avoid switching while the vehicle is in the red temperature range.
  - Park the vehicle and open the hood so that the vehicle can cool down.
-

### 3 Mounting the Cleanfix® E-Box 3.0

This chapter describes how to mount the Cleanfix® E-Box 3.0.

**NOTE**

**An incorrect power supply may cause property damage!**

The Cleanfix® E-Box 3.0 is available for vehicles with 12 V and 24 V power supplies.

- Make sure that the unit is suitable for the existing voltage source.

**High temperatures may cause property damage!**

The temperature of the Cleanfix® E-Box 3.0 must not exceed 60°C / 140°F.

- Attach the unit at a heat-protected location.

**Splashing water may cause property damage!**

The Cleanfix® E-Box 3.0 can be damaged by splashing water that penetrates through the filter.

- If your E-Box 3.0 must be mounted vertically the unit must be mounted with the filter facing upward.

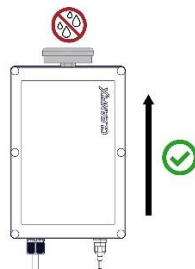


Fig. 5

**Vibrations may cause property damage!**

The Cleanfix® E-Box 3.0 can be damaged by strong vibrations.

- Attach the unit at a vibration-protected location.
- The orientation of the E-Box must be suitable for vibrations that occur.
  - Max. 8.9 g / up to 400 Hz on the Z-axis
  - Max. 4.5 g / up to 400 Hz on the X-axis and Y-axis

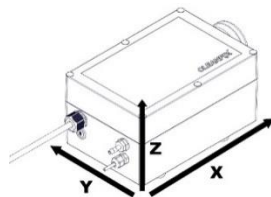


Fig. 6

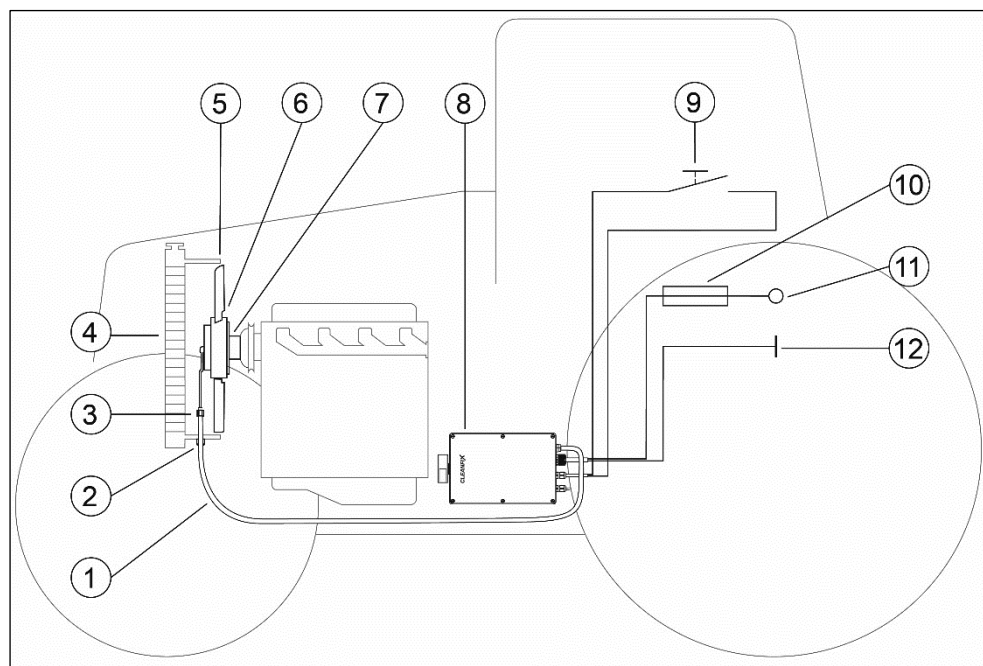
**3.1 Overview**

Fig. 7

- (1) Pressure hose
- (2) Strain Relief Fitting
- (3) Hose clamp
- (4) Radiator
- (5) Shroud
- (6) Cleanfix® reversible fan (pneumatic)
- (7) Flange
- (8) Cleanfix® E-Box 3.0 with Multi-Timer
- (9) Switch (push button)
- (10) Fuse (12 V : 20 A / 24 V : 15 A)
- (11) Keyed power (terminal 15) [red cable]
- (12) Vehicle ground (terminal 31) [black cable]

### Mounting the Cleanfix® E-Box 3.0

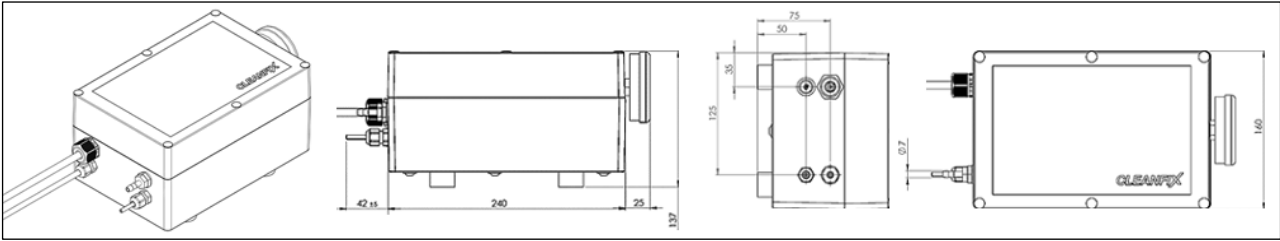


Fig. 8

- 1) Determine the mounting location for the Cleanfix® E-Box.



#### Cleanfix® E-Box 3.0 mounting location

The Cleanfix® E-Box 3.0 may be mounted in the vehicle cab, on the vehicle chassis, near the hydraulic system, or in the engine compartment.

One consideration in choosing the mounting location is the fact that the Cleanfix® E-Box 3.0 compressor generates a faint noise and vibrations when it operates.

One consideration in choosing the mounting location is ensuring that the air filter of the Cleanfix® E-Box 3.0 is sufficiently protected from water.

- Rain
- Splashing water and spray mist from high-pressure cleaners
- Splashing water and spray mist from water on the wheel

If the component is mounted in the engine compartment, the preferred location is on the cooler side of the engine (away from the exhaust manifold and muffler).

#### NOTE

**Using screws that are too long or using excessive torque may cause property damage!**

The rubber-metal dampers may be damaged if the E-Box 3.0 is mounted using screws that are too long or using excessive torque.

- Screws should not be farther than 6 mm into the rubber-metal dampers.
- Screws may be tightened at a maximum torque of 3 Nm.

- 2) Mount the Cleanfix® E-Box 3.0 with suitable screws and a maximum torque of 3 Nm.

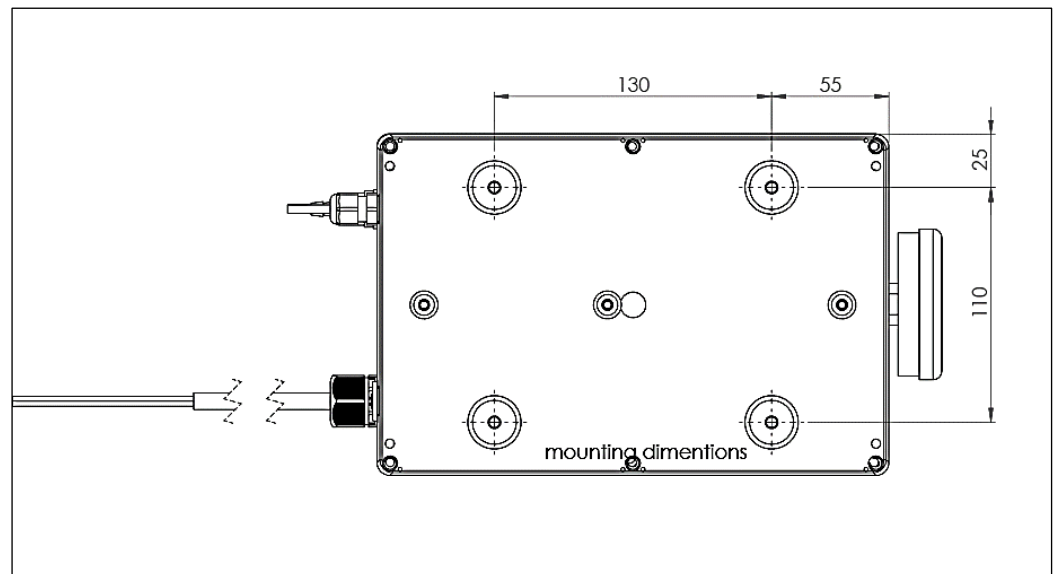


Fig. 9

### Connecting the Cleanfix® E-Box 3.0 with the pressure hose of the Cleanfix® reversible fan

- 3) Cut the pressure hose to a suitable length.
- 4) Slide the hose clamp over the pressure hose.
- 5) Slide the pressure hose over the hose fitting of the Cleanfix® E-Box.
- 6) Secure the pressure hose by pinching the ears of the hose clamp with pliers.

### Installing the push button

- 7) Determine the installation location for the push button in the vehicle cab.



#### Push button installation location

If an unassigned OEM push button is available in the vehicle cab, this push button can be used to save installation time.

If no unassigned OEM push buttons are available on the vehicle, the supplied push button can be used.

### NOTE

#### Drilling into cables may cause property damage!

Cables and electrical components run under the consoles and other components in the vehicle cab. These cables and components can be damaged during drilling.

- Make sure that no cables or electrical components will be drilled into at the location to be drilled.
- Drill carefully and interrupt the drilling process several times to check whether cables or electrical components are in the way.

- 8) Drill a hole with a 22 mm diameter for the push button.
- 9) Mount the push button.

#### Connecting the Cleanfix® E-Box 3.0 and push button to the vehicle's power supply

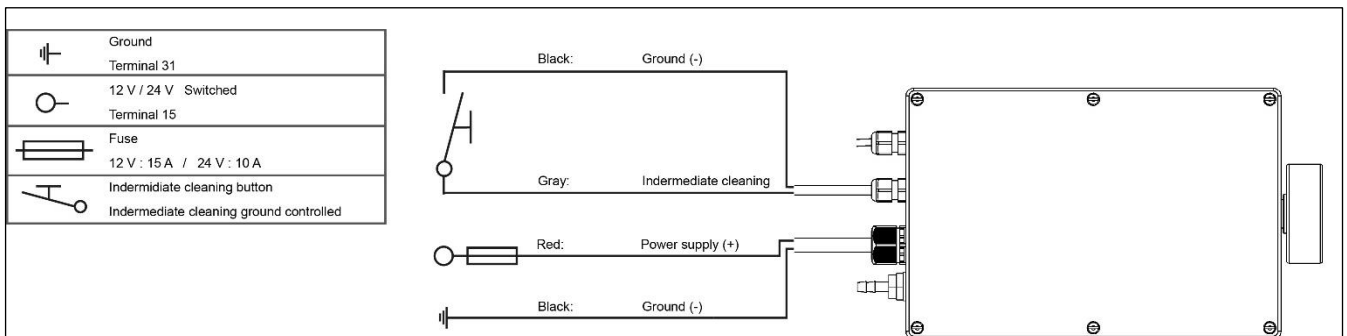


Fig. 10

- 10) Determine the power supply to which the Cleanfix® E-Box 3.0 and the push button can be connected.



#### Power connection for the Cleanfix® E-Box 3.0 and push button

If a switched and fused circuit with a sufficient power supply (12 V : 20 A / 24 V : 15 A) is available in the vehicle, then this circuit can be used to save installation time.

If a switched and fused circuit is not available in the vehicle, then the supplied push-on connection with fuse can be used.

- 11) Connect the Cleanfix® E-Box 3.0 and push button to the vehicle's power supply.

## 4 Operation and setting

Switching from cooling to cleaning is time-controlled, for example, every 30 minutes. This period can be changed as desired. An intermediate cleaning can be carried out at any time by pressing the button.

The Multi-Timer automatically initiates a cleaning cycle at set intervals.

### 4.1 Multi-Timer default setting

As delivered, the following times are pre-set:

Compressor ( $mz$ )	The compressor switches off when the pressure reaches 8 bar or after a maximum time of 30 s.
Valve ( $t_1+mz+t_2$ )	23 s
Cleaning interval	30 min

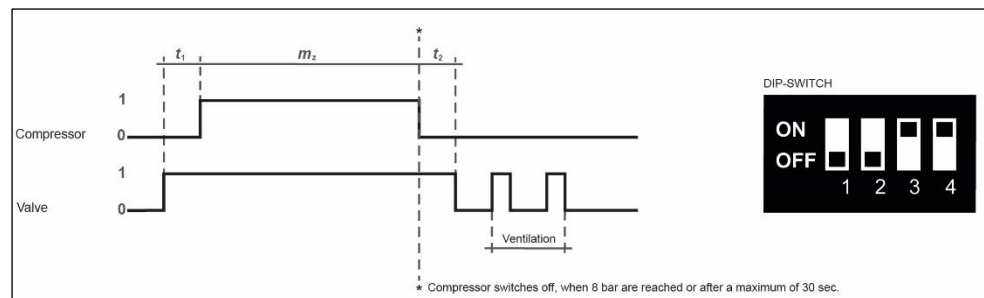


Fig. 11

### 4.2 Setting the Multi-Timer interval

The interval between the cleaning cycles can be changed within the range of 5 min (minimum) to 90 min (maximum). As delivered, the interval is 30 min. In order to change the interval, the cover of the control unit must be removed.



The first cleaning operation will start right way as the timers are direct start setting from CNA. In addition, the function can be verified quickly after the E-Box is installed.



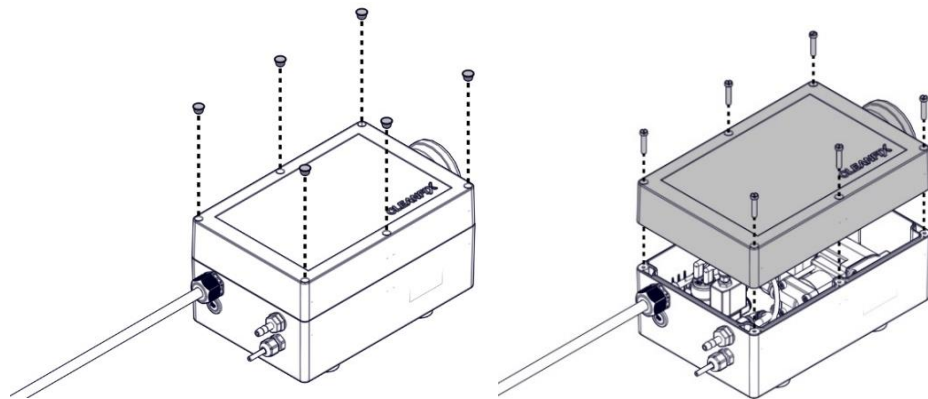


Fig. 12

The frequency of the cleaning cycles depends on the machine and the environment it is working in. The frequency can be adjusted by sliding the DIP switches to one of seven levels.

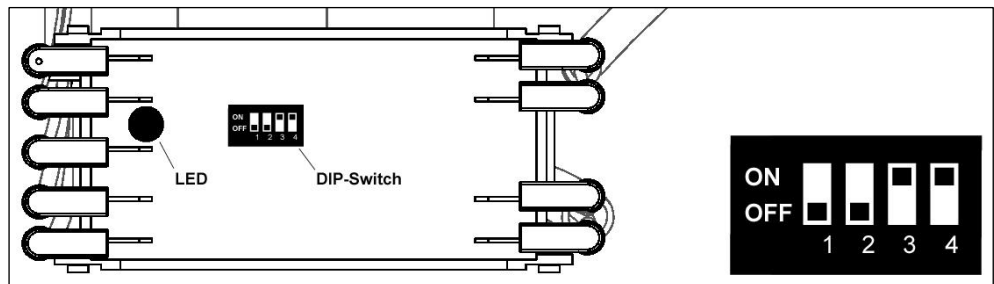


Fig. 13

**NOTE**

**DIP position: OFF = 0; ON = 1**

Time	Pause	Dip switch no.			
		1	2	3	4
z1	5	1	0	0	1
z2	10	0	1	0	1
z3	15	1	1	0	1
z4	30	0	0	1	1
z5	45	1	0	1	1
z6	60	0	1	1	1
z7	90	1	1	1	1

**NOTE****Forcing the DIP switches may cause damage!**

If all DIP switches numbered 1-4 are in the "Off" position, the electronics carry out a self-test. In this case, the compressor and valve are switched on simultaneously for 1 second, then off for 1 second. This continues until the voltage supply is interrupted or a DIP switch is switched to "On".

After manual setting of the cleaning interval, the cover of the electrical components must be closed again.

## 5 Maintenance

For pneumatic Cleanfix® electrical components with a compressor, the filter must be replaced at each machine maintenance interval.

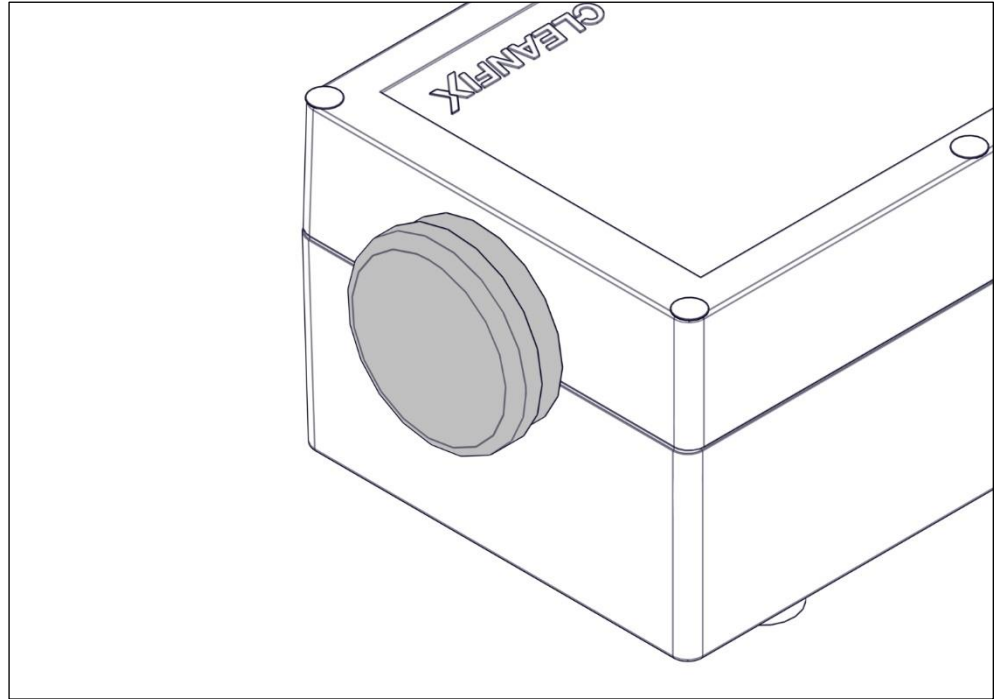


Fig. 14



**Air filter spare parts kit**

Part number: 213259

## 6 Troubleshooting

The control unit monitors the electrical circuit for electronic faults. In the case of a short circuit, the internal fuse switches the control unit off. After the fuse cools, the control unit is switched on again.

Temperatures over 60°C can also cause the control unit to switch off. In this case it is necessary to find a cooler location for the control unit.

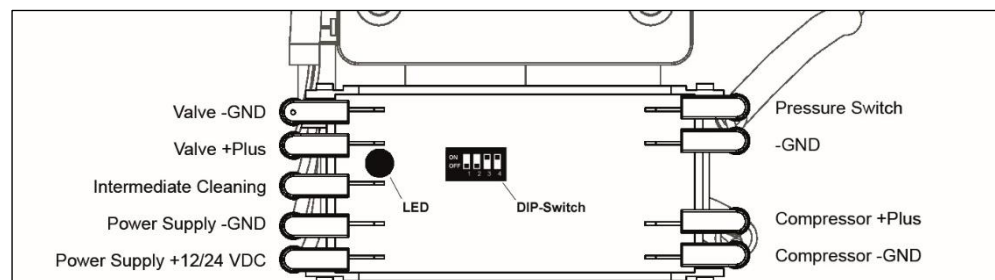


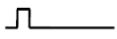



Fig. 15

	LED error code	Cause of error
	Flashes 1x per second	Normal status
	Off	Check operating voltage
	Flashes 1x per 12 seconds	Compressor fault: If DIP switch number 4 is set to the "On" position: - Short circuit to ground - Excess temperature of electronics reached - Open circuit to the compressor
	Flashes 2x per 12 seconds	Valve fault: If DIP switch number 4 is set to the "On" position: - Short circuit to ground - Excess temperature of electronics reached  If DIP switch number 4 is set to the "Off" position: - Open circuit to the valve