# FAN SPEED SENSOR 3.0

100-P1020


https://cleanfix.org/downloads

**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.

# Contents

# 1 General information

## 1.1 Legal information

### 1.1.1 Copyright

TRANSLATION OF THE ORIGINAL OPERATING INSTRUCTIONS



The contents of these operating instructions may be changed without notice. Subject to change.



### 1.1.2 Service address

Headquarters in Germany
**Hägele GmbH**
Am Niederfeld 13
73614 Schorndorf
Germany

Tel.: +49 7181 96988-360
Email: service@cleanfix.org
Website: https://cleanfix.org

Branch in Canada
**Cleanfix North America Inc.**
250 Wright Blvd.
Stratford, Ontario N4Z 1H3
Canada

Tel.: +1 519 275 2808
Email: cleanfix-ca@cleanfix.org
Website: https://cleanfix.org

Cleanfix distributors worldwide:

https://cleanfix.org/contact

### 1.1.3 Current operating instructions

The current version of the operating instructions and further information are available here – https://cleanfix.org/downloads.

## 1.2 Introduction

Before installing the product, familiarise yourself with the contents of these operating instructions. The operating instructions are part of the product and must be kept close at hand.

### 1.2.1 Target audience

General terms and conditions of use: Trade, industry, agriculture

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

- Operator: May start and stop the machine in automatic mode and carry out maintenance work in accordance with the maintenance instructions.
- Technician: May set up, teach, maintain and troubleshoot the machine, in addition to the work of the operator.

### 1.2.2 Liability and damage

During installation, it may be necessary to make modifications to the machine. Hägele GmbH does assume not responsibility for modification and installation costs.

Based on the information in these instructions, Hägele GmbH accepts no liability for:

- Damage or consequential damage resulting directly from improper operation or maintenance.
- Personal injury or material damage caused by untrained personnel or through failure to comply with regulations concerning work, safety, and accident prevention.

The information, illustrations and descriptions in these operating instructions do not constitute any claim to changes to products already supplied.

Hägele GmbH accepts no liability for the use of other products or any resultant damage.

Check the consignment for transport damage and completeness prior to installation:

- Immediately document any defects or damage in writing.
- Photograph damaged components.
- Send a written damage report to customer service.

Hägele GmbH is not generally liable for any damage that may result from unauthorised changes, rebuilds or improper use.

### 1.2.3 Validity

These operating instructions contain information required to install and start-up the product.

In addition to the description of the standard equipment, the operating instructions also contain some abstractions and exemplary illustrations of optional equipment. The product equipment may differ in part from the descriptions and illustrations.

### 1.2.4 Product identification

The serial number must be quoted for enquiries to the manufacturer.

Serial number: _____

The serial number can be found on the test sticker on the fan speed sensor.

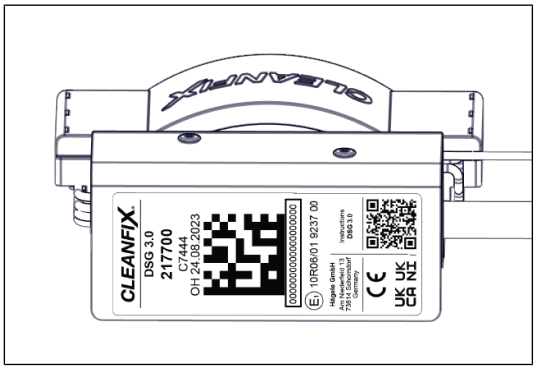


Fig. 1

Service address: See section 1.1.2

### 1.2.5 Emphasis in the text

- Indicates enumerations.

1) Indicates actions that are to be carried out in sequence.

▸ Indicates hazard avoidance measures.

[+] Indicates optional equipment that is not included as standard.

(1) Indicates illustrations enclosed.

The "Information" pictogram indicates tips and additional information.

The "Additional information" pictogram refers to information from additional documentation.

### 1.2.6 Safety information in the text

Safe use is only possible if all the information required for safe operation is observed.

The safety instructions warn the user about dangers and provide information on how to avoid risks.

General safety information can be found at the start of these instructions in Chapter 2.

Specific warning signs are displayed before dangerous operating steps.

Safety / warning signs that must be heeded are highlighted as follows:

**DANGER!**

Warns of an extremely dangerous situation, where failure to heed the hazard warning will lead to death or severe, irreversible injury.

**WARNING!**

Warns of a dangerous situation where failure to heed the hazard warning could lead to death or severe, irreversible injury.

**CAUTION!**

Warns of a dangerous situation where failure to heed the hazard warning will lead to minor, reversible injury.

**NOTICE**

Warns of situations where failure to heed the information provided may lead to material damage.

## 1.3 Product description

When retrofitting Cleanfix reversible fans in machines with a fan with electronic fan coupling, a Cleanfix fan speed sensor must be connected to the electrical interface so that the engine control receives a feedback signal despite the fan being removed.

The Cleanfix fan speed sensor returns certain frequencies to the engine control unit to prevent error messages appearing on the machine display.

Programs A, B and C are required for machines that request a fixed fan speed with electronic fan coupling.

Program D is required for machines that request the entire speed range of the fan with electronic fan coupling.

## Programs A, B and C

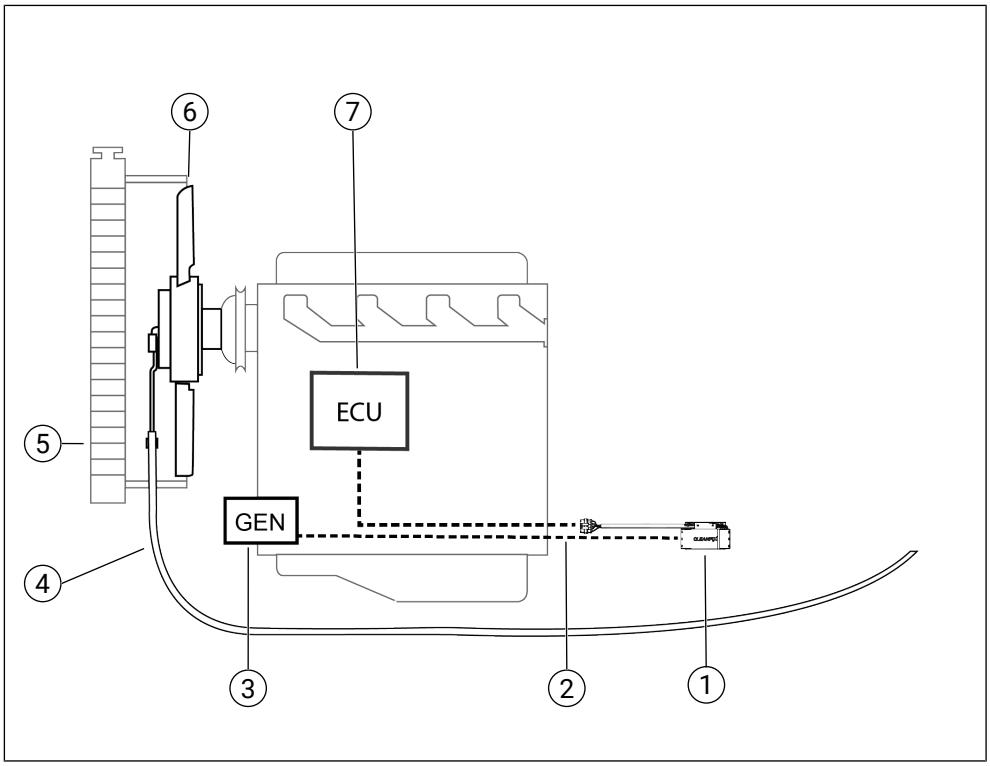


Fig. 2

(1) Fan speed sensor 3.0
(2) Control cable
(3) Generator terminal D+ (only program A and C)
(4) Pressure hose
(5) Radiator
(6) Cleanfix reversible fan
(7) Engine control unit

**Program D**

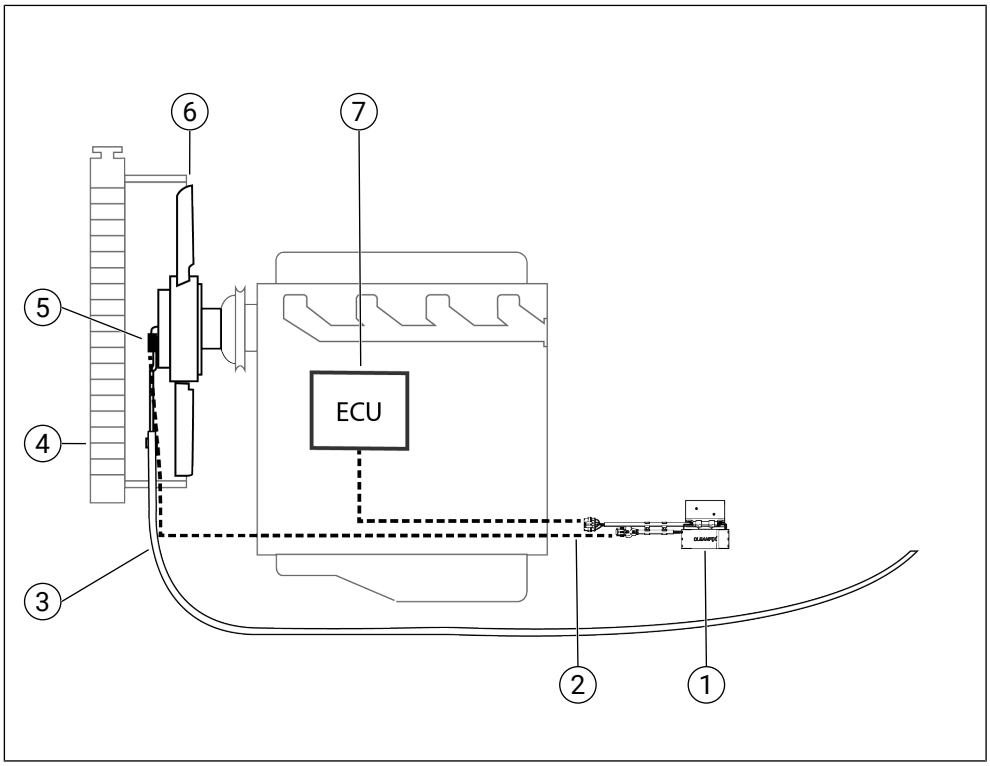


Fig. 3

(1) Fan speed sensor 3.0
(2) Control cable
(3) Pressure hose
(4) Radiator
(5) Speed sensor
(6) Cleanfix reversible fan
(7) Engine control unit

### 1.3.1 Declaration of conformity

We hereby declare that the product in the version marketed by us complies with the applicable provisions of the following directives and regulations:

- Directive 2006/42/EC
- Directive 2014/30/EU
- Directive 2011/65/EU
- Regulation 1907/2006/EC
- Supply of Machinery (Safety) Regulations 2008: Great Britain
  Supply of Machinery (Safety) Regulations 2008: Northern Ireland
- Electromagnetic Compatibility Regulations 2016: Great Britain
  Electromagnetic Compatibility Regulations 2016: Northern Ireland
- Restriction of the Use of the Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012: Great Britain
  Restriction of the Use of the Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012: Northern Ireland

- Registration, Evaluation, and Authorization of Chemical Substances EC1907/2006: Great Britain
  Registration, Evaluation, and Authorization of Chemical Substances EC1907/2006: Northern Ireland

The complete declaration of conformity can be found at www.cleanfix.org/downloads.

### 1.3.2 Dimensions

Front view

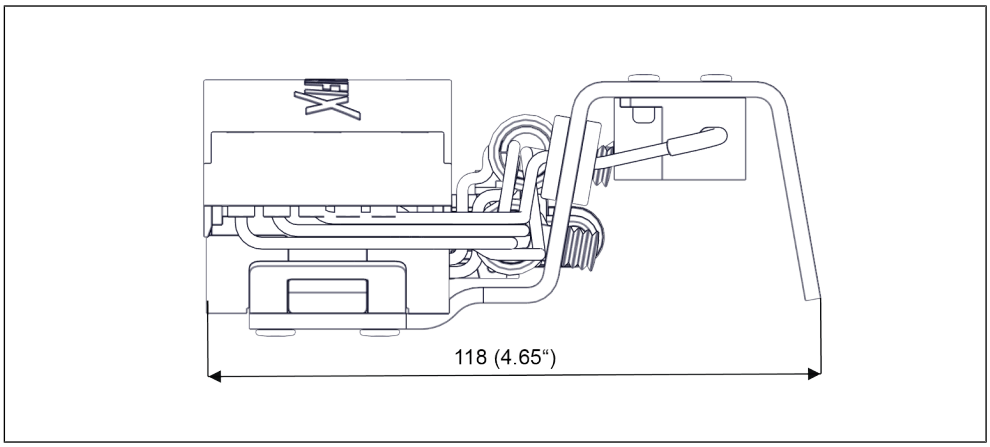


Fig. 4

Side view

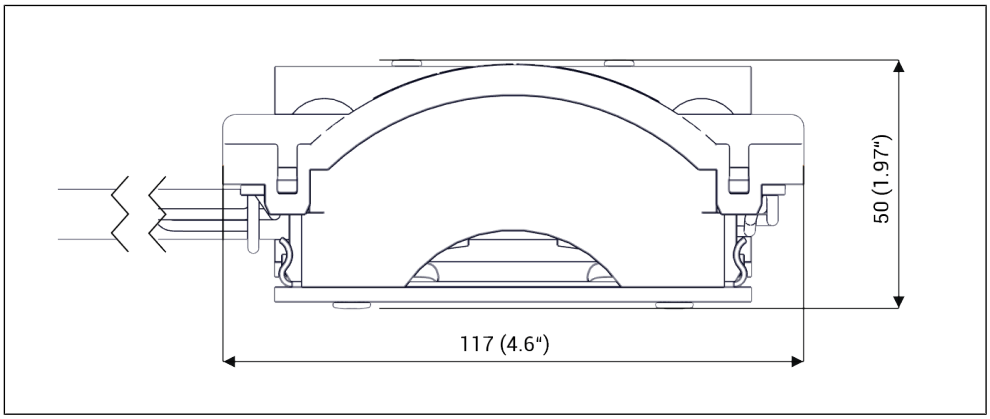


Fig. 5

Drilling template

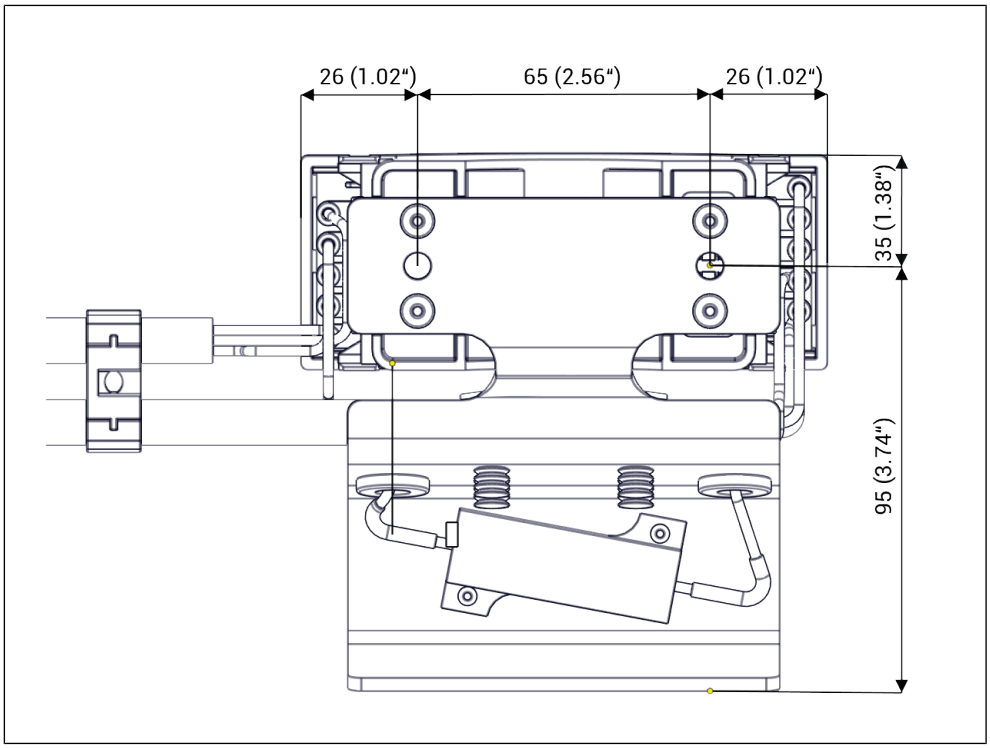


Fig. 6

### 1.3.3 Voltage supply, interfaces

**Electrical power supply:**

Voltage: 5 V for connections to the engine control unit (ECU)

External voltage supply: 12V / 24V

Connecting line: 0.6 W

**Interfaces:**

Engine control unit (ECU): machine-specific plug connection

Fan speed sensor for program D: AMP Superseal 3-pin

External voltage supply for fan speed sensor 3.0-S: 2x 1mm² (black (earth) / red (voltage supply + 12 V / 24 V))

# 2 Safety

This chapter contains general information on safety. Each chapter of the operating instructions contains additional safety information that must also be observed.

## 2.1 Intended use

The product is designed to report frequencies back to the engine control unit of the higher-level machine. The fan speed sensor is used exclusively in conjunction with a Cleanfix reversible fan. Operation is fully automatic.

The product may only be used for the following purposes:

- Transmitting frequencies to the engine control unit of the higher-level machine.
- Querying the speed of the Cleanfix reversible fan using the Cleanfix speed sensor.

## 2.2 Reasonably foreseeable misuse

Use of the machine in a manner not foreseen by the manufacturer, but which may result from easily predictable human behaviour.

- Failure to read the operating instructions.
- Inserting test objects other than those specified into the machine.

## 2.3 Machine limits

**Machine service life:** Cannot be determined

**Recommended maintenance intervals:** Maintenance free

**Operation:** Indoors / in a closed room / not exposed to weathering / covered and protected from weathering / outdoors and exposed to weathering

**Sunlight:** Direct or indirect exposure to sunlight is not permitted

## 2.4 Other regulations

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

## 2.5 General safety information

**CAUTION!**

**Risk of burns caused by hot surfaces!**

Sheet metal can reach high temperatures due to the resistance.

- ► Wear heat-resistant protective gloves.

**NOTICE**

**Material damage due to live parts!**

Work on electrical equipment may only be carried out if it has been disconnected from the power supply and secured to prevent uncontrolled activation or connection.

- ► Turn off the engine.
- ► Remove the ignition key.
- ► Check that the equipment is not live.
- ► Wait 2 min. or until the LED goes out.

# 3 Required tools

- Cordless screwdriver
- Drill
- 2x M6 screws

# 4 Installation

**NOTICE**

**Material damage to the engine control unit!**

The engine control unit can be damaged when working on live parts.

- ► Disconnect from the power supply.
- ► Wait 2 min. or until the LED goes out.
- ► For external voltage supply: Loosen the voltage connection.

1) Disconnect the plug and remove the cable harness to the original fan.

**NOTICE**

**Material damage due to incorrect installation position!**

The function of the fan speed sensor can be restricted by excessive heat.

- ► Temperature must not exceed 105°C.
- ► Avoid temperature build-up.
- ► Avoid high radiant heat.
- ► Ensure an exchange of air.

2) Install the mounting plate of the fan speed sensor on the vehicle frame or metal using 2x M6 screws.
3) Make sure that no components behind are damaged while drilling.
4) Clip the fan speed sensor onto the mounting plate.

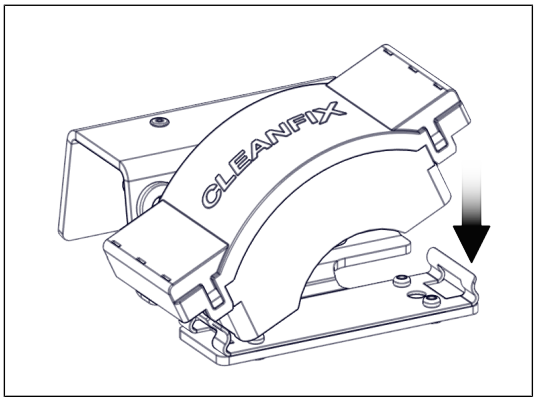


Fig. 7

The preferred installation location is in front of the radiator, so that the fan speed sensor is supplied with cooling air.

## 4.1 Program A, C with connection to the generator

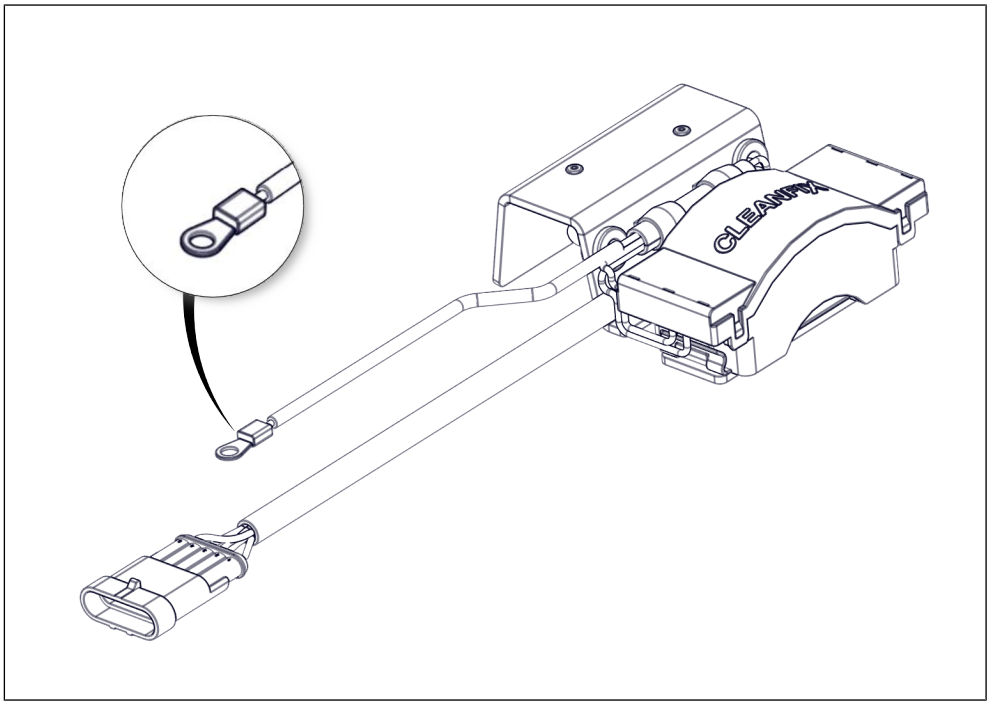


Fig. 8

5) Attach the fan speed sensor to the plug connection of the vehicle control unit.

6) Connect black-sheathed cable with white insulation with ring contact to terminal D+ of the generator.

## 4.2 Program B

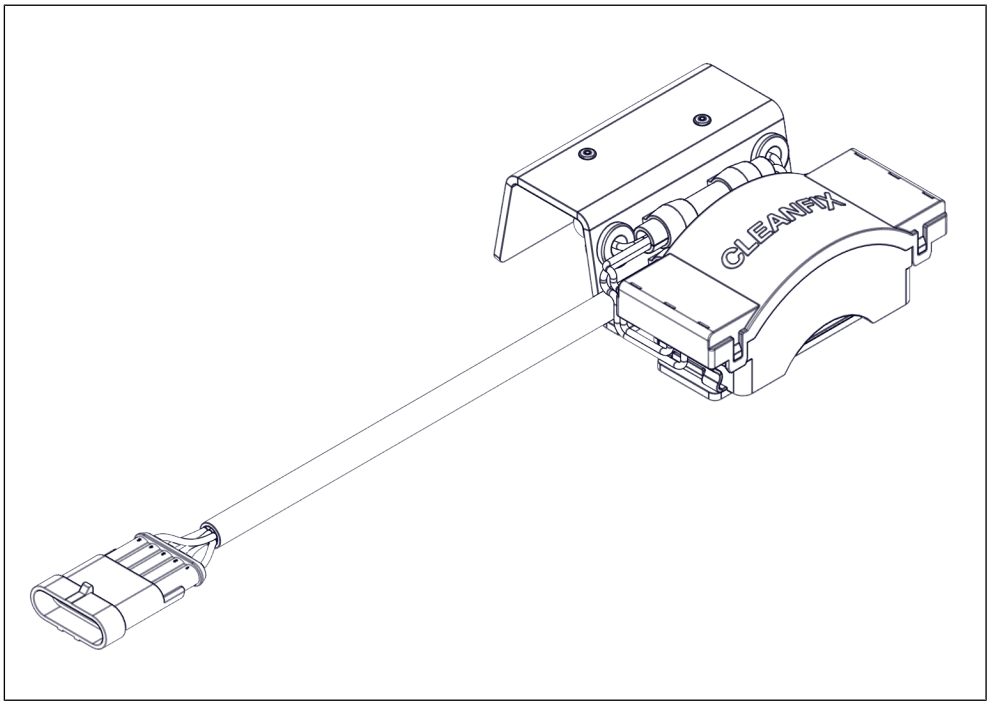


Fig. 9

7) Attach the fan speed sensor to the plug connection of the vehicle control unit.

## 4.3 Program C with connection to the air conditioning compressor

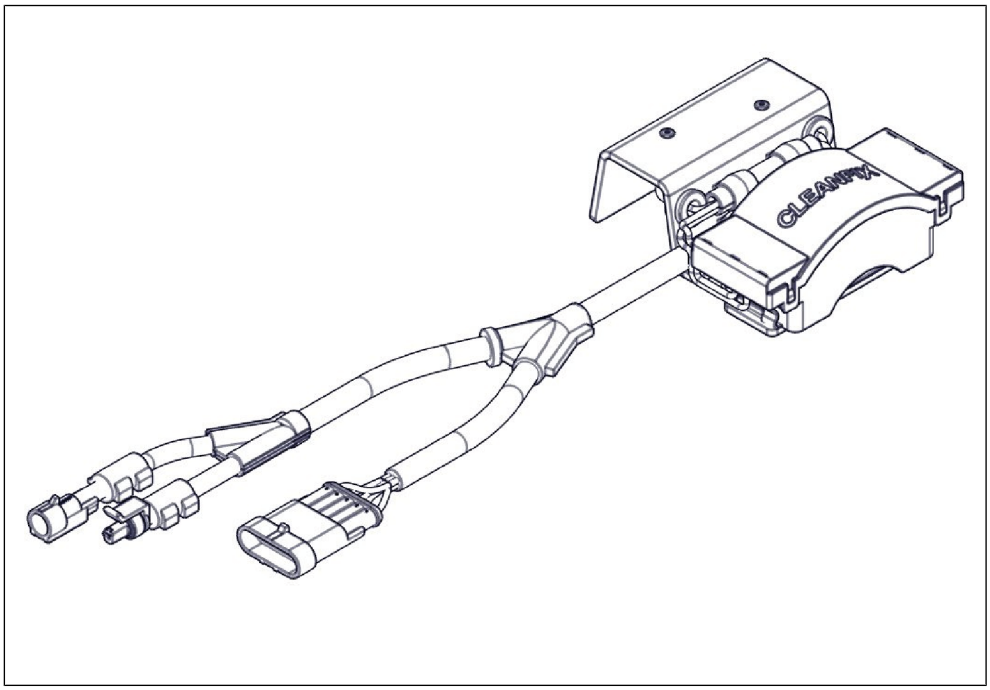


Fig. 10

8) Disconnect the plug from the control line to the air conditioning compressor.

9) Connect the fan speed sensor plug in series.

10) Attach the fan speed sensor to the plug connection of the vehicle control unit.

## 4.4 Program D

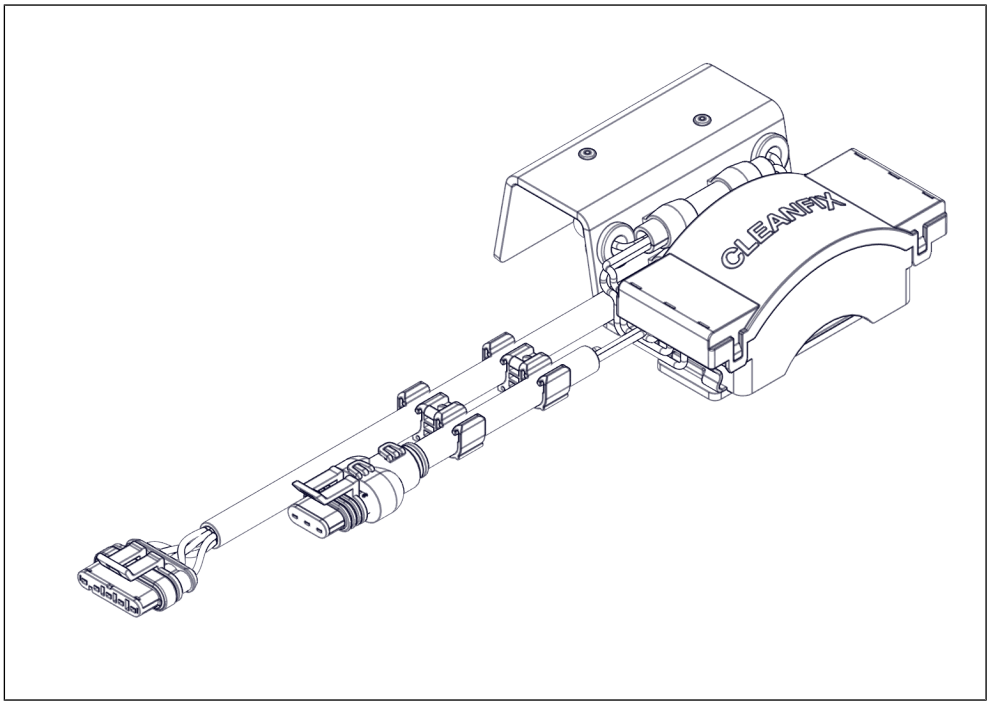


Fig. 11

11) Connect the fan speed sensor to the machine-side interface of the electronic fan coupling.

**NOTICE**

**Material damage due to incorrect cable routing!**

The cable is exposed to various loads during operation.

- ► Route the cable so that it cannot be caught by the fan blades.
- ► Avoid contact with moving parts.
- ► Avoid contact with sharp edges.
- ► Avoid high temperatures.

12) Connect the speed sensor of the Cleanfix fan to the fan speed sensor.

## 4.5 Fan speed sensor 3.0-S with external voltage supply

The fan speed sensor 3.0-S must be installed if the control unit cannot provide the required voltage. The fan speed signal sensor 3.0-S converts the on-board voltage from 12 V / 24 V to 5 V.

13) Connect the red cable to terminal 15 of the on-board voltage 12 V / 24 V (switched plus).

14) Fuse with max. 5 A.

15) Connect the black cable to vehicle earth.

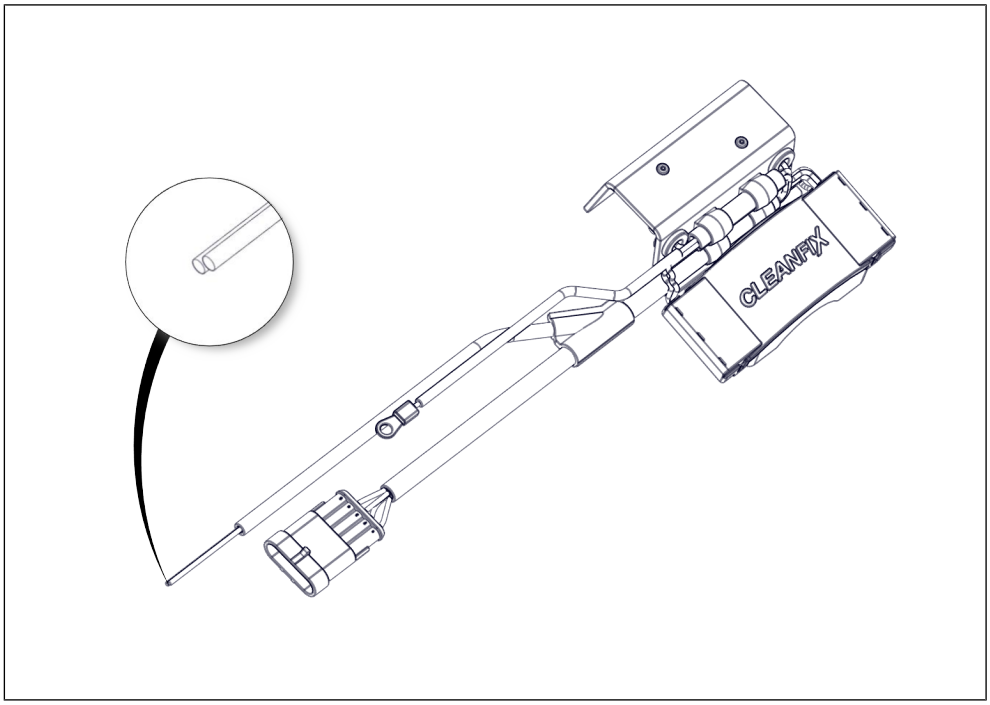


Fig. 12

# 5 Operation

[+] In conjunction with Timer 4.0, the serial number can be saved in the Cleanfix Control app.

# 6 Upkeep

## 6.1 Care

Clean regularly, otherwise the heat cannot be dissipated.

## 6.2 Maintenance

The fan speed sensor is maintenance-free.

## 6.3 Repair

Repair work may only be carried out by service specialists from Hägele GmbH (service address: See section 1.1.2).

# 7 Storage

Store in a dry place, protected from frost and weathering.

# 8 Taking out of service

At the end of the product's service life, dispose of the individual components in accordance with the regulations and in an environmentally friendly manner. Observe the national regulations on disposal that currently apply.

**Plastic parts**

Dispose of plastic parts with the normal household waste, according to country-specific laws (residual waste).

**Rubber parts**

Dispose of rubber parts, such as hoses, at a rubber recycling centre.

**Metal parts**

Dispose of metal parts at a scrap metal recycling centre.

**Electronic components**

Take electronic components to a specialised disposal company.

# 9 Troubleshooting

| Fault | Comment | Action |
|---|---|---|
| No function | Connecting cable could be damaged (broken).<br>Cables are connected incorrectly. | Visual inspection or check connections. In case of a broken cable: Contact the manufacturer.<br>Service address: See section 1.1.2 |
| Fan speed sensor switches off | Temperature is too high. Temperatures above 105°C causes the fan speed sensor to switch off. | Install the fan speed sensor in a cooler location. |
| Terminal contact voltage too low | **Programs A and C:**<br>When the machine is running, the voltage on the black-sheathed cable with ring contact must be greater than 2 V. If the voltage is less than 2 V, the generator charge indicator light is faulty. | Have the charging indicator light repaired. |
| Signal is not detected / LED does not light up / power supply is unsuitable | **Program D:**<br>Sensor faulty. | Contact the manufacturer.<br>Service address: See section 1.1.2 |
| Fan speed sensor does not switch off | **External voltage supply:**<br>The red cable must be connected to terminal 15 (connected positive). | Check the connection. |

## LED flashing code

| Green LED | Comment | Action |
|---|---|---|
| LED flashes green | LED flashes green during monitoring. | |
| LED illuminates green continuously | Fan speed sensor is parametrised. Frequency is output. | |

| Red / green LED | Comment | Action |
|---|---|---|
| LED flashes red and green alternately | Fan speed sensor is not parametrised. | Contact the manufacturer.<br>Service address: See section 1.1.2 |

| Red LED | Comment | Action |
|---|---|---|
| LED flashes red | EEPROM error in the fan speed sensor | Contact the manufacturer.<br>Service address: See section 1.1.2 |

| | | |
|---|---|---|
| LED illuminates red continuously | Error in the fan speed sensor. | Restart:<br>● Check the equipment is not live<br>● Wait until the LED goes out<br>● Switch on again<br>Error persists:<br>Contact the manufacturer.<br>Service address: See section 1.1.2 |

## Notes

Service:
+49 7181 96988-360
service@cleanfix.org

Hägele GmbH
Am Niederfeld 13
73614 Schorndorf
Germany
www.cleanfix.org


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