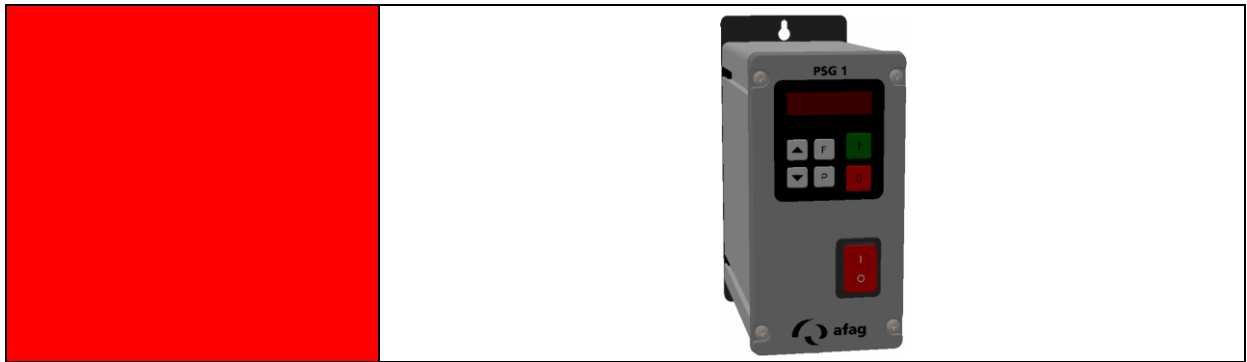


Controller PSG 1



Translation of original operating instruction

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This operation instruction applies to:

Type		Order number
Controller PSG 1	230 V, 50/60 Hz	50211833

Version of documentation: BA_PSG1_R1_E.docx
Release: 1.0
Datum: 2010-03-12

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1 Declaration of conformity

The manufacturer: Afag GmbH, Wernher-von-Braun-Strasse 5a, D-92224 Amberg
www.afag.com – Tel. +49 (0)9621 650 27-0

hereby declares, that the product: **Controller**
Designation: **PSG1**

complies with the basic safety and health requirements of the EMC-Directive **2004/108/EC**.

The product also complies with the following applied, harmonised standards:

Product standard for interference immunity	EN 61000-6-2 EN 61000-6-4
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Upon request, the manufacturer undertakes to transmit technical documents electronically to national authorities, if requested.

City, Date Company: Afag GmbH

Amberg, 12. March. 2010 First name, last name
Mr. Klaus Bott



Managing Director
Afag GmbH



2 Safety instructions



2.1 Notes on symbols and instructions



Symbols: Assembly and commissioning must be carried out by qualified personnel only and according to these operating instructions.

Please observe the meaning of the following symbols and notes. They are grouped into risk levels and classified according to ISO 3864-2.

	
	<p>Indicates an immediate threatening danger.</p> <p>Non-compliance with this information can result in death or serious personal injuries (invalidity).</p>

	
	<p>Indicates a possible dangerous situation.</p> <p>Non-compliance with this information can result in death or serious personal injuries (invalidity).</p>

	
	<p>Indicates a possibly dangerous situation.</p> <p>Non-compliance with this information can result in damage to property or light to medium personal injuries.</p>

	
	<p>Indicates general notes, useful operator tips and operating recommendations which don't affect safety and health of the personnel.</p>

2.2 Basic safety information

This description contains the necessary information for the correct application of the product described below. It is intended for use by technically qualified personnel.


Qualified personnel are persons who, because of their training, experience and position, as well as their knowledge of appropriate standards, regulations, health and safety requirements and working conditions, are authorised to be responsible for the safety of the equipment, at all times, whilst carrying out their normal duties and are therefore aware of, and can report possible hazards (definition of qualified employees according to IEC 364)

 DANGER	
	<p>Hazardous voltage!</p> <p>Failure to observe can kill, cause serious injury or damage.</p>

- Isolate from mains before installation or dismantling work, as well as for fuse changes or post installation modifications.
- Observe the prescribed accident prevention and safety rules for the specific application.
- Before putting into operation, check if the rated voltage for the unit conforms with the local supply voltage.
- Emergency stop devices must be provided for all applications. Operation of the emergency stop must inhibit any further uncontrolled operation.
- Electrical connections must be covered.
- Earth connections must be checked for correct function, after installation.

2.3 Appropriate use

The units described herein are electrical controllers for installation in industrial plants. They are designed for power adjustment on feed equipment with Piezo actuator drives.

NOTE	
	<p>Any other use is inappropriate and will result in the warranty becoming null and void.</p>

See also our General Terms of Business.

3 Description of the device

3.1 General

The PSG1 is a frequency converter for the operation of oscillating conveyors with Piezo drive. It generates an adjustable drive frequency which is independent of the mains frequency. The output voltage is adapted to the Piezo unit so that voltages between -30 and 150 V are generated.

In addition, the device provides a constant conveying capacity for mains voltage fluctuations through an internal offset. The device is controlled via an enable input in such a way that the upstream capacitors are neither charged nor discharged (Start/Stop).

NOTE



Repair work must be carried out by qualified personnel only. We recommend that repairs are carried out on our premises.

NOTE



During switch-on, internal capacitors cause a high inrush current. Especially if several controllers are switched on simultaneously, the external fuse can blow or the circuit breaker can trip.

3.2 Technical data

Figure 1: PSG1

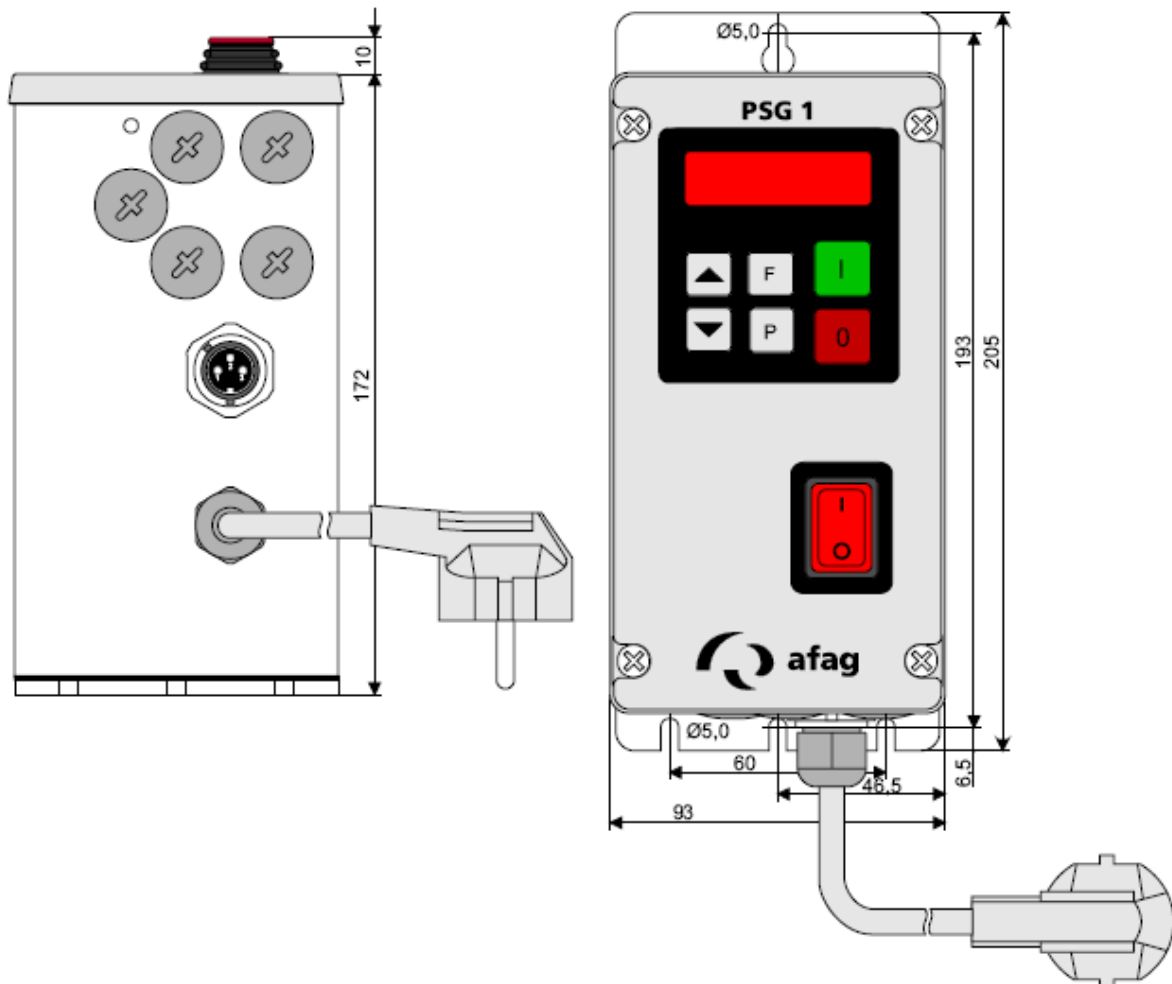


Table 1: Technical data


Type	Units	PSG1
Supply voltage	[VAC]	230 V / ±10%
Supply frequency	[Hz]	50 / 60
Output voltage	[VAC]	-30 ÷ +150
Output current	[mA]	pp / 100
Output frequency	[Hz]	5 ÷ 300 (Preset: 75 ÷ 300)
Enable input	-	Contacts or 24 V, DC
Operating temperature	[°C]	0 ÷ +45
Storage temperature	[°C]	-10 ÷ +80
Recommended fuse	-	10 A, Type 'D' MCB
Protection class	IP	54

4 Assembly instructions

4.1 Installing the unit

3 oblong holes are provided at the backside for attachment. The device can be operated either in a vertical or in a horizontal position.

4.2 Installation

NOTE	
	<p>Do supply voltage, operating voltage of the conveyor and controller input voltage match?</p> <p>Is the controller adequately rated for the rated power of the feeder?</p> <p>What is the vibrating frequency of the feeder?</p>

Connect the unit in accordance with the wiring instructions and ensure that earthing is correct!

4.3 Connection possibilities

Figure 2: Connections (external)

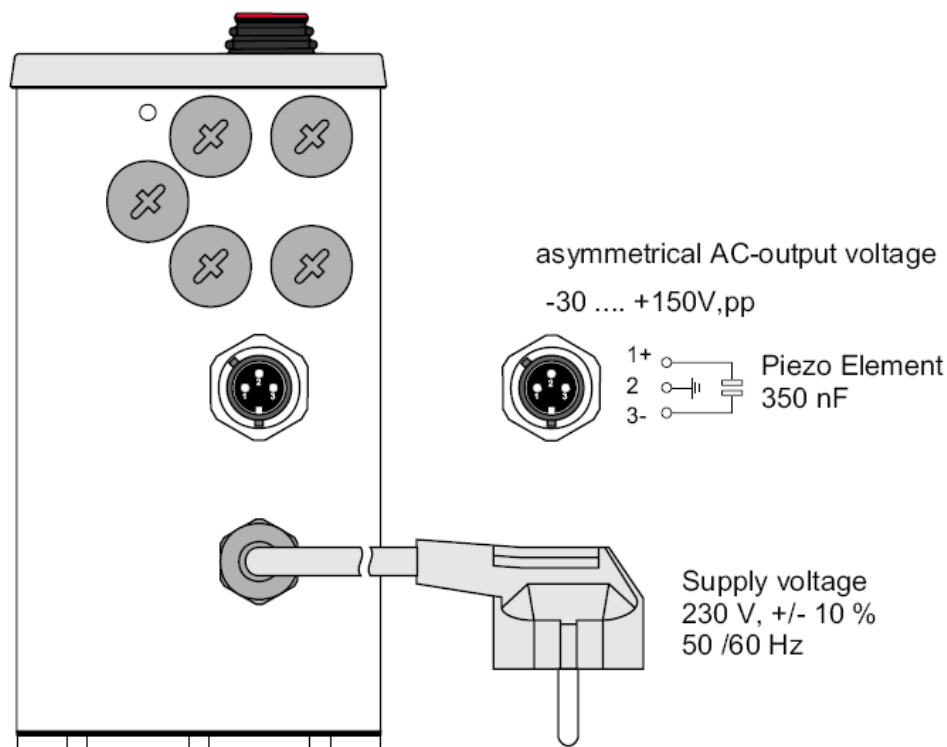
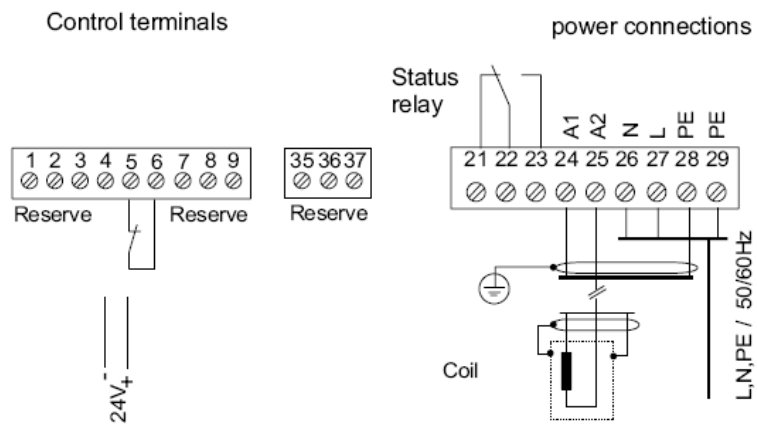


Figure 3: Connections (internal)



Ordering codes for plug:

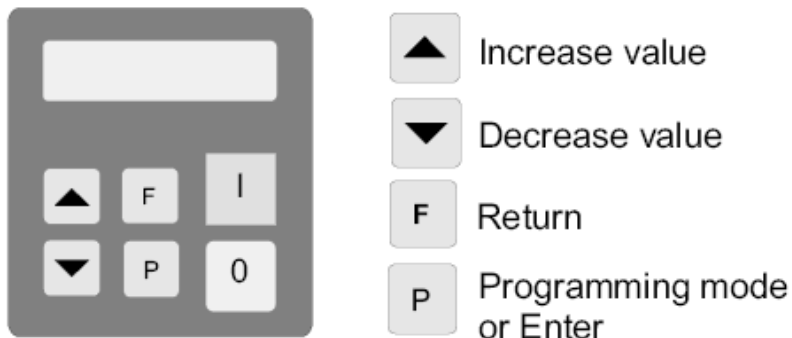
Output plug: Binder: 99-4805-00-03

5 Operating instructions

5.1 Menu operation

Menus are used for changing settings. The different parameters are selected by entering a code.

All adjustments are made by first pressing the P key, followed by selecting the menu code, using the cursor keys.




Settings:

Pressing the cursor key for a short time causes one digit increase/decrease, holding down for a longer time gives changes in ten-digit steps.

Changed settings are saved when exiting the menu or automatically if a key is not pressed for 60 seconds.

Operating displays

 Enable OFF

 Setpoint in %

 Timer running

 Stop using "0" key

NOTE



New units are factory set (see Table 2: Settings).

For units with unknown settings, first recall the factory settings using menu C 000 "FAC".




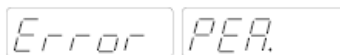
5.2 Settings

Table 2: Settings

Settings	Range	Code	Factory settings	Menu code
Amplitude (feed rate)	0... 100 %	A.	0 %	000
Vibrating frequency	75...300 Hz	F.	100 Hz	000
Soft start ramp up	0... 60 Sec.	/.	0.1 Sec.	000
Soft stop ramp down	0... 60 Sec.	\.	0,1 Sec.	000
Restore factory settings		FAC.		000
Restore user settings		US.PA.		000
Save user settings		PUSH.		000

The specific settings for a system can be saved by selecting “PUSH” in menu C 000 (recall settings via menu C 000 “US.PA”)

Error messages

	Overload (output current too high). Possible cause: Feeder too large, frequency too low
	Short-circuited output Possible cause: Incorrect wiring
	Input voltage too high Cause: Mains voltage too high.
	Current spike limit Frequency set too low or altered too rapidly during setting up

NOTE

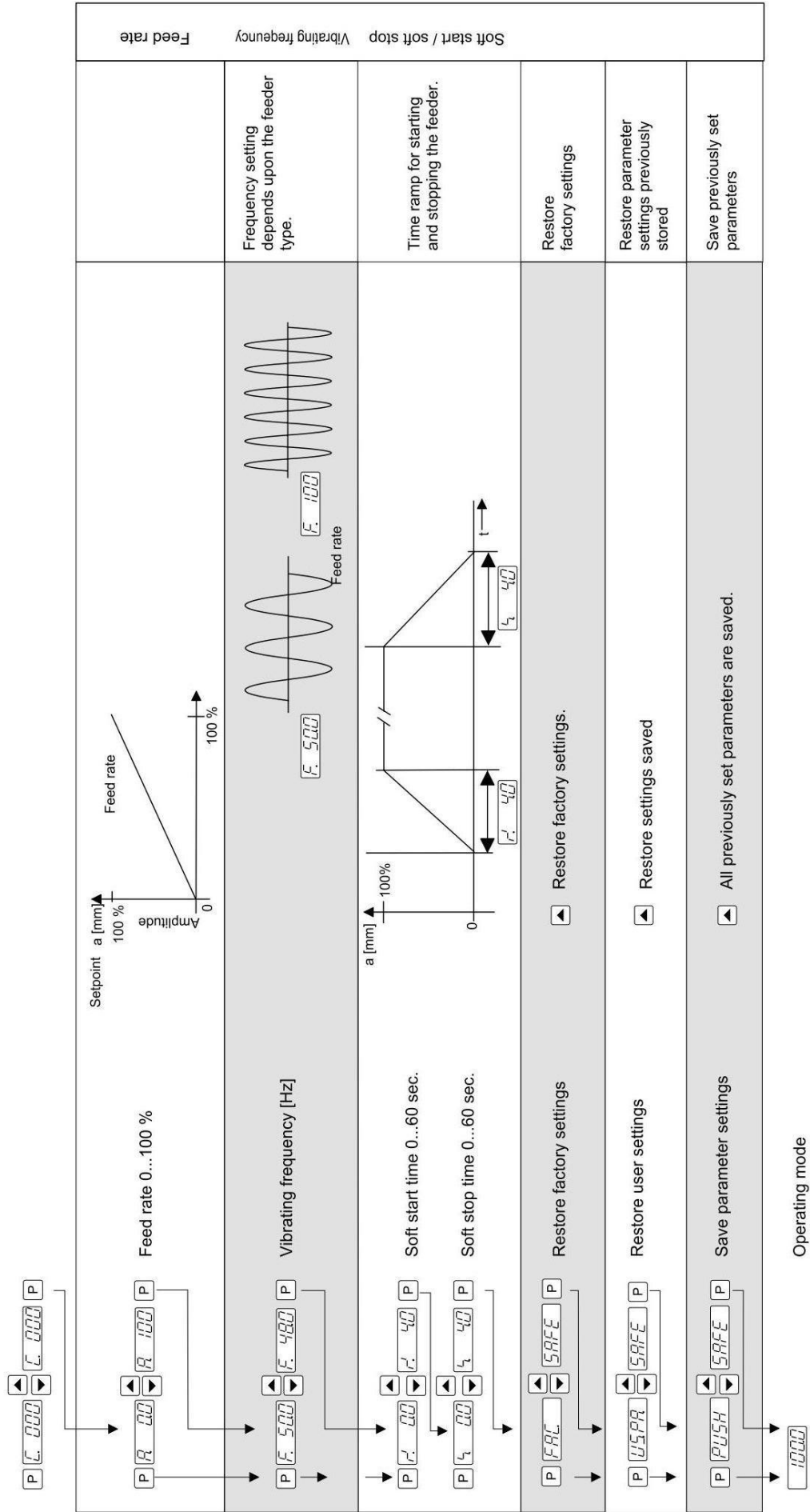


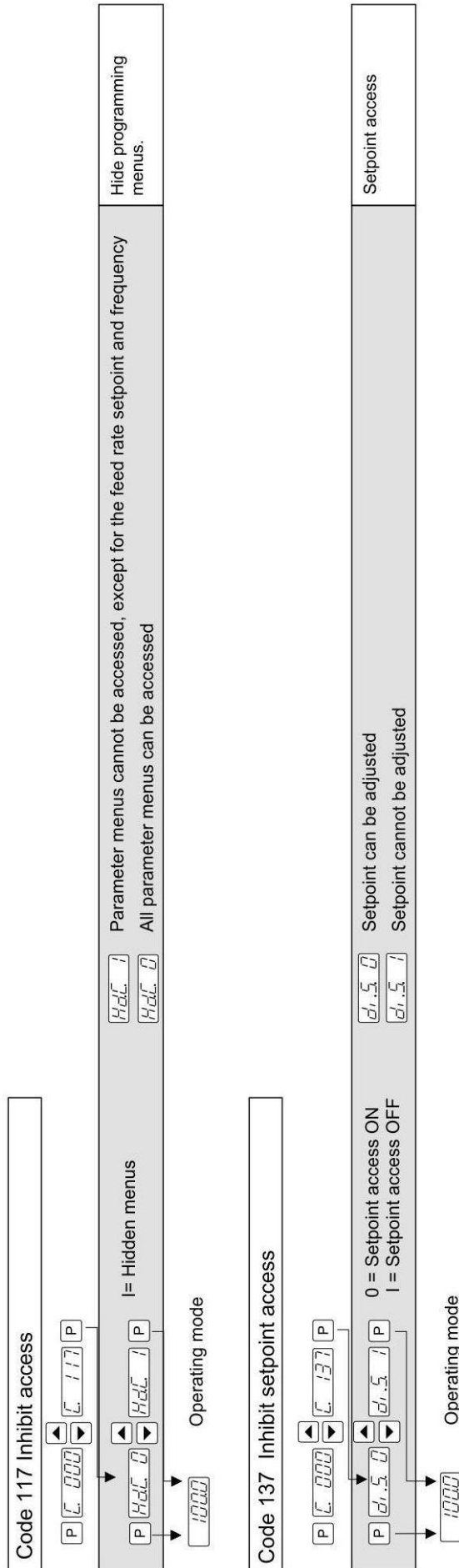
Error messages must be cleared in menu no. C 009 by means of “Cl.err.”.

Frequently appearing errors, which are not described in this chapter, should be reported to the manufacturer.

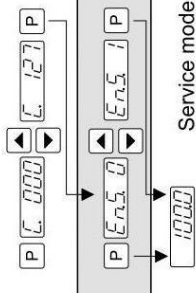
No code number is required to change the feed rate: pressing the P key twice will call the setpoint display.

Code 000 control mode





Code 127 Enable service menu

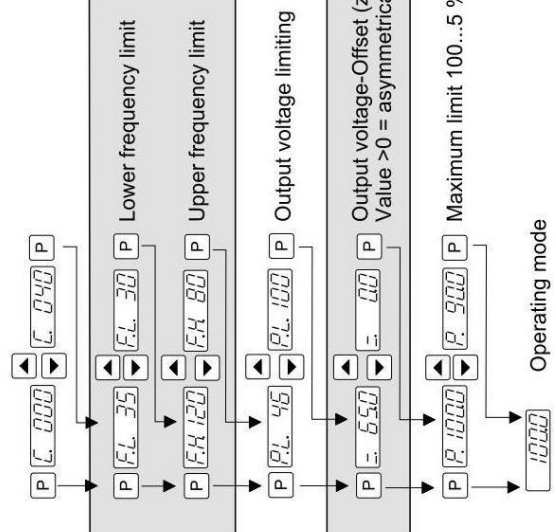


0 = Service mode OFF
1 = Service mode ON

Service	Extended settings	Enables access to the service-menu C 040
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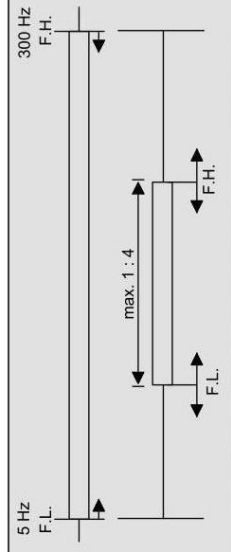
[E n. 5. 1]

Code 040 Service



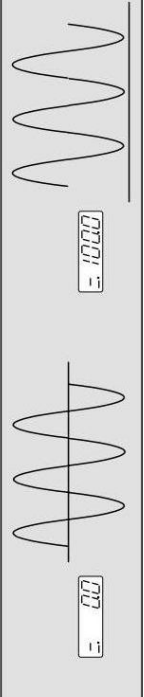
Adjustable frequency range
Parameters 'F.L.' and 'F.H.'
in Menu C 040.

Effective frequency range
Parameter 'F' in
Menus C 000.



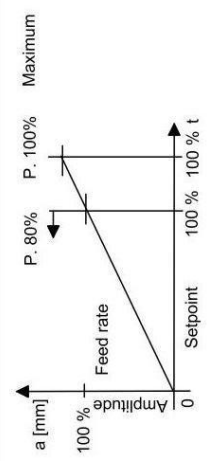
Frequency range	Setting the limits of the frequency adjustment range accessible for the user. A narrow adjustment range is preferable for the automatic frequency search function.
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Output voltage-Offset (zero level)
Value >0 = asymmetrical Output voltage



Output voltage-Offset (zero level)
Value >0 = asymmetrical Output voltage

Maximum limit 100...5 %



Maximum feed rate	Limiting of output voltage or feed rate, e.g. to prevent hammering. The displayed setpoint range remains at 0...100%.
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6 Maintenance instructions

6.1 Troubleshooting and fault repair

Fault:	Fault repair
Appliance not working	Check the mains voltage, check the fuses and replace if necessary.
	Check the control signals and reset to factory settings, if necessary (see chapter 5.2 Settings)
Conveyor not working	Check the mains frequency (50/60 Hz).
	Check whether the oscillation frequency was correctly adjusted, reset to factory settings, if necessary (see chapter 5.2 Settings)

7 Address for orders

Germany:

Afag GmbH
Wernher-von-Braun-Straße 5a
D – 92224 Amberg
Tel.: ++49 (0) 96 21 / 65 0 27-0
Fax: ++49 (0) 96 21 / 65 0 27-390

Sales

Afag GmbH
Berliner Straße 31
D – 71229 Leonberg
Tel.: ++49 (0) 71 52 / 60 08-0
Fax. ++49 (0) 71 52 / 60 08-10

sales@afag.com

www.afag.com

Switzerland:

Afag Automation AG
Zuführtechnik
Fiechtenstrasse32
CH – 4950 Huttwil
Tel.: ++41 (0) 62 / 959 86 86
Fax: ++41 (0) 62 / 959 87 87

8 Disposal

PSG's that are no longer in use should not be disposed of as complete units but dismantled into separate materials and recycled. Non-recyclable components must be disposed of correctly.