

HE 5712 Compact / Modular

Solenoid valve controller



Operating Instructions

(Original German version)

Impressum

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Document History

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1. Legal provisions

Manufacturer

AXXERON HESCH electronics GmbH, Boschstraße 8, 31535 NEUSTADT, GERMANY.

Intended Use

- The solenoid valve controller HE 5712 is used for cleaning industrial filter systems.
- The controller can be operated within the operating and environmental conditions approved in this manual without impairing its safety.
- The manufacturer is not liable for improper use and any resulting personal injury or material damage; the risk is borne solely by the user. Failure to comply with the above criteria for intended use may result in the expiry of the warranty and liability for the device.



Note!

The device version **HE 5712 Compact** is available as **ATEX-approved device for use in EX zone 22 as well as without ATEX approval**. If you have ordered an ATEX-approved device, you must necessarily observe the safety instructions for explosion prevention, the indication on the name plate as well as the special regulations in *chapter 2.4 Device Identification*.

The device version **HE 5712 Modular** is **not ATEX-approved!**

Personnel qualification

All work on the solenoid valve controller may only be carried out by qualified electricians with sufficient knowledge in the field of electrical engineering.

Device Safety

The device has been constructed and tested in accordance with VDE 0411 / EN 61010-1 and has left the factory in perfect safety condition. To maintain this condition and ensure safe operation, the user must observe the notes and warnings described in this manual.

Declaration of Conformity

The valid declaration of conformity is available in the download center of our website <https://www.hesch-automation.com/en/support/download-center/>.

Click on the tab **Declarations of Conformity** to select your device.

2. Safety Information

2.1 Symbols and Basic Safety Instructions

This chapter contains important safety regulations and notes. To protect against personal injury and material damage, it is necessary to read this chapter carefully before working with the device.

Symbols used

The following symbols are used in this manual. All safety instructions have a uniform structure.



Personal injury warning!

The severity of the danger is indicated by the respective signal word.



Explosive atmosphere warning!



High voltage warning!



Material damage warning caused by electrostatic charge!



Property damage warning!



Note!

Identifies possible malfunctions and indicates optimum operating conditions.

2.2 Signal Words

DANGER!

Indicates an imminently hazardous situation, which, if not avoided, will result in death or serious injury.

WARNING!

Indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury.

WARNING!

Indicates a hazardous situation, which, if not avoided, could result in minor or moderate injury.

2.3 Safety in the individual operating phases

When installing the control unit and during operation, the following safety instructions must be observed.



Danger of Electrocutation!

Before working on the device, switch off all power supplies used. The electrical cables must be laid according to the respective national regulations (in Germany VDE 0100). The measuring lines must be laid separately from the mains leads. The connection between the connection for the functional earth (in the respective device carrier) and a protective conductor must be established.



Danger of Electrocutation!

Any interruption of the protective conductor in the device carrier can lead to the device becoming dangerous. Intentional interruptions are not permitted. If it is suspected that safe operation is no longer possible, the device is to be decommissioned and secured against unintentional operation.



Danger of Electrocutation!

Do not open the device while it is live! When opening the devices or removing covers and parts, live parts may be exposed. Connecting points can also be live!



WARNING!

The device must never be put into operation despite any visible damage.



WARNING!

During installation, commissioning, maintenance and troubleshooting, observe the accident prevention regulations applicable to your system, e.g. DGUV Regulation 3 "Electrical installations and equipment".



WARNING!

Clean dirty contacts with oil-free compressed air or with spirit and a lint-free cloth.



Warning of material damage caused by electrostatic charge!

Observe the safety measures according to BS EN 61340-51/-3 to avoid electrostatic discharge!



Explosion Prevention! (for ATEX approved devices only!)

It is permitted to use the device version **HE 5712 Compact** (see Figure 1) in explosion zone 22 with closed lid. It is mandatory to ensure that no explosive ambient conditions, such as e.g. development of dust exist, before opening the device for e.g. parametrisation.



Troubleshooting!

At the beginning of troubleshooting, all possible sources of faults on additional devices or supply lines (measuring lines, wiring, downstream devices) should be taken into consideration. If the fault could not be found after checking these points, we recommend sending the device to the supplier.



Decommissioning!

Switch off the power supply on all poles if the device is to be decommissioned. Secure the device against unintentional operation! If the device is connected to other devices and / or equipment, the effects must be considered and appropriate precautions taken before switching off.

2.4 Device Identification



Note!

The device version **HE 5712 Compact** is available as **ATEX-approved device for use in EX zone 22 as well as without ATEX approval**. If you have ordered an ATEX-approved device, you must necessarily observe the safety instructions for explosion prevention, the indication on the name plate as well as the special regulations in *chapter 2.4 Device Identification*.

The device version **HE 5712 Modular** is not ATEX-approved!

The devices are labelled as follows:

HE 5712 Compact with ATEX:	Without ATEX:
UK CA (CE) Ex II3D Ex tc IIIC T135°C Dc IP65	UK CA (CE)

II3D	Device category	Use in Zone 22 for dust during normal operation
Ex	Indicates an electrical operating material, standards of series EN 60079-Off. were applied.	
tc	Type of ignition protection:	Protection by housing
IIIC	Dust group:	Conductive dusts
T135°C	Temperature class	Maximum permissible surface temperature
Dc	Device protection level:	Use in Zone 22 for dust
IP65	Protection class	Dust-tight and protected against water jets

The following special regulations must be observed:

- Connect cables professionally in glands.
- Close not needed housing bores with locking bolts.
- The ATEX approval remains valid only if the installation is carried out professionally in compliance with the protection class specified in the device identification.
- Cleaning of the housing is only permitted with moist cleaning agents to avoid static charging.
- Cleaning is necessary to prevent increased dust generation on the device.
- Operation under voltage, in zone 22, only in closed state.
- Before closing, ensure that the device housing is free of dust

3. Device Description

The solenoid valve controller HE 5712 is available in different versions. The HE 5712 Compact is also available with or without ATEX approval.

3.1 Overview

3.1.1 HE 5712 Compact



Figure 1 HE 5712 (Compact)




Name plate for <u>ATEX approved</u> devices:	Name plate for devices <u>without ATEX approval:</u>
<div style="border: 1px solid black; padding: 10px;"> <p>HESCH UK CA CE</p> <p>HE 5712 Magnetventilsteuerung # 5712 7000</p> <p>Netz power 24 VDC Ventile valves 8 Messbereich range 0...35 mbar Ausgang output 4...20 mA S.-Nr. serial no. 00599054</p> <div style="text-align: right;">  </div> <hr/> <p>HESCH Industrie-Elektronik GmbH Boschstraße 8 DE 31535 Neustadt Tel.: +49 5032 9535-0 www.hesch.de</p> <p style="text-align: right;">  III D Ex tc IIC T135°C Dc IP65 </p> </div>	<div style="border: 1px solid black; padding: 10px;"> <p>HESCH UK CA CE</p> <p>HE 5712 Magnetventilsteuerung # 5712 0899 1105</p> <p>Netz power 24 VDC Ventile valves 8 Messbereich range 0...35 mbar Ausgang output 4...20 mA S.-Nr. serial no. 00599054</p> <div style="text-align: right;">  </div> <hr/> <p>HESCH Industrie-Elektronik GmbH Boschstraße 8 DE 31535 Neustadt Tel.: +49 5032 9535-0 www.hesch.de</p> </div>

Figure 2 Name plates (Compact)



Figure 3 HE 5712 (Compact) Connections

3.1.2 HE 5712 Modular

The HE 5712 Modular does not have an ATEX approval.



Figure 4 HE 5712 (Modular) Operating Unit



Figure 5 Rear panel HE 5712 (modular) Operating Unit

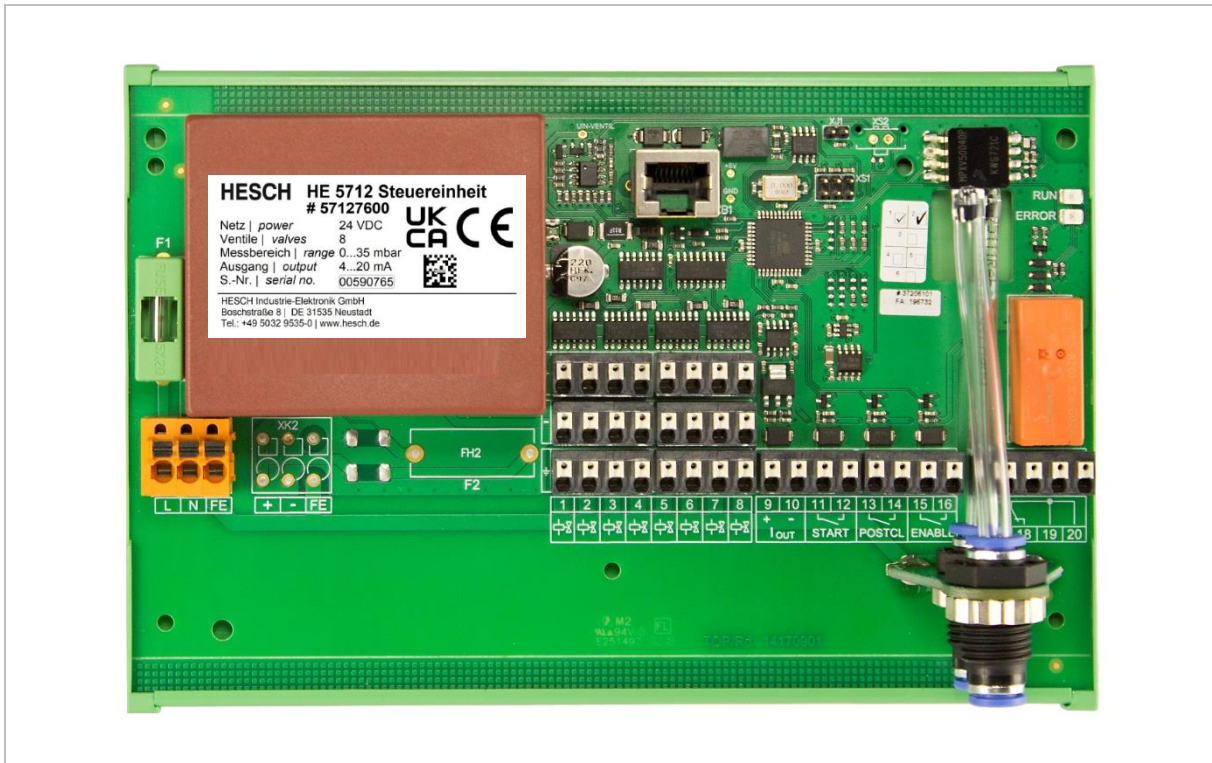








Figure 6 HE 5712 (Modular) control unit in standard rail enclosure (100...240 V AC)

3.2 Display and Operating Elements



Figure 7 Display and Operating Elements

Symbols	Meaning
●	Operation signal
●	Cleaning active
●	Alarm active
●	Pulse time
●	Pause time
●	The number of valves is shown in the display and can be changed
●	Post-cleaning cycles are shown in the display and can be changed
●	Total / partial cycle is shown in the display and can be changed
●	Interruption due to defective valve line or solenoid valves
●	Short circuit of a valve line (overcurrent)
●	Differential pressure is shown in the display
●	The active valve number is shown in the display

Symbols	Meaning
	PARA key: parametrisation mode On/Off
	UP key: increase the displayed value
	DOWN key: decrease the displayed value
	ENTER key: confirm the displayed value
	TEST key: test mode On/Off
	Display <ul style="list-style-type: none"> • Normal operation: current differential pressure, current valve • Parametrisation mode: parameter values and alarm messages • Switch with UP / DOWN keys

3.3 Differential pressure column

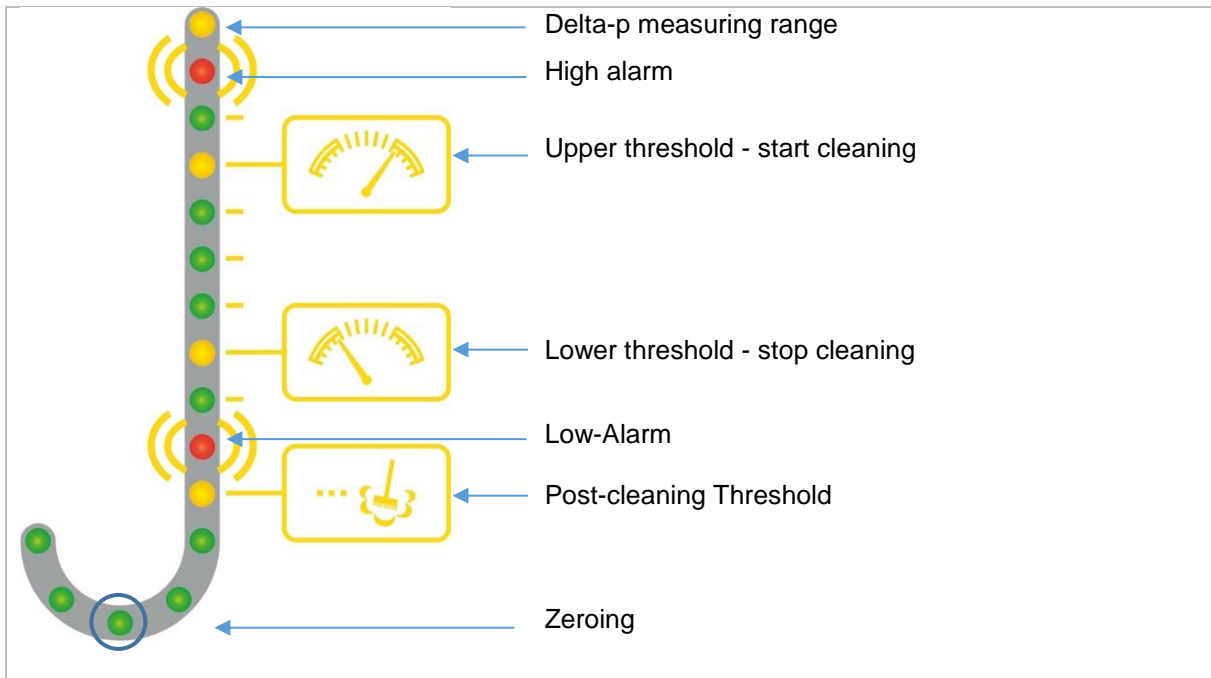


Figure 8 Differential pressure column

3.4 Technical Data

Technical Data	
Measuring range (please refer to the nameplate)	0...35 mbar
	0...90 mbar
	0...450 mbar
Max. differential pressure:	Measuring range 0...35 mbar: 160 mbar
	Measuring range 0...90 mbar: 400 mbar
	Measuring range 0...450 mbar: 2000 mbar
Medium	Air and dry, non-aggressive gases
Basic accuracy:	± 1 % of the final value
Temperature drift	± 0.05 % / K of the final value
Hysteresis	± 0.5 % of the final value
Intended use:	Solenoid valve controller for cleaning industrial filter systems
Valve outputs:	Max. 8 outputs, 24 V DC
Supply voltage: (Please refer to the nameplate on the device.)	<ul style="list-style-type: none"> • 100...240 VAC / 50...60 Hz • 24 VDC ±10% safety extra-low voltage (SELV)
Power consumption:	30 VA with 100...240 VAC control Max. 30 W with 24 VDC control
Pulse time:	0.01...9.99 seconds adjustable
Break time:	1.0...999 seconds adjustable
Display:	7-segment display, 3-digit, 14 mm height, white For differential pressure/valve display, parameter and alarm values
LEDs:	14 LEDs for status displays, 16 LEDs for differential pressure column
Keys:	PARA (ESC), UP, DOWN, ENTER, TEST
Analogue output:	4...20 mA, max. permissible load: 400 Ω
Digital inputs:	Start Post-cleaning release
Relay output:	1 change-over contact 250 VAC, 5 A as combined operating and fault signal
Interfaces:	USB device, type B for writing and reading the parameters (USB / TTL adapter required)
Air / creepage distances:	Pollution degree 2, overvoltage category II
EMC:	Interference emission: BS EN 61000-6-4 Resistance to interference: BS EN 61000-6-2
Housing dimensions:	
Compact housing	231 × 125 × 90 mm
Modular (panel mounting)	200 × 122 × 30 mm
Modular (control unit)	192 × 128 × 63 mm
Connection set for the Compact housing (Option):	<ul style="list-style-type: none"> • 2 × M32 with multiple sealing insert for 6 cables with 6mm diameter • 3 × M16 for supply and communication
Electrical connections	Supply: Cross-section rigid/flex: max mm ² , flex.: max. 1.5 mm ² with ferrule: Rest: cross-section rigid/flex.: max. 1.5 mm ² , flex.: max. 0.75 mm ² with ferrule
Pneumatic connections	Pressure measuring line: Push-in bulkhead fitting for Ø6 mm hose
Mounting	
Compact housing	Wall mounting. Mounting position: vertical
Modular	Panel-mounting housing, vertical mounting position Control unit: standard rail

Ambient climatic conditions	
Storage	-20°C...+70°C
Transport	-40°C...+85°C
Operation	<u>Compact housing</u> <ul style="list-style-type: none"> • -20°C...+50°C • in EX zone 22: -20°C...+40°C <u>Modular</u> <ul style="list-style-type: none"> • -20°C...+50°C • No ATEX approval
Relative humidity	Relative humidity 95%, no condensation allowed, KUF according to DIN 40040

Subject to technical changes.

4. Mounting



Note!

If you want to drill the device to the wall, *Figure 9* can be used as a drilling template.

The ambient temperature at the installation point must not exceed the permissible temperature for nominal use specified in the technical data.



Note!

The HE 5712 Compact with **ATEX approval** may be installed in **EX zone 22**. You must necessarily observe the safety instructions for explosion protection, the indication on the name plate as well as the special regulations in *chapter 2.4 Device Identification*.

The device version **HE 5712 Modular** is not ATEX-approved!

4.1 Dimensions

4.1.1 HE 5712 Compact

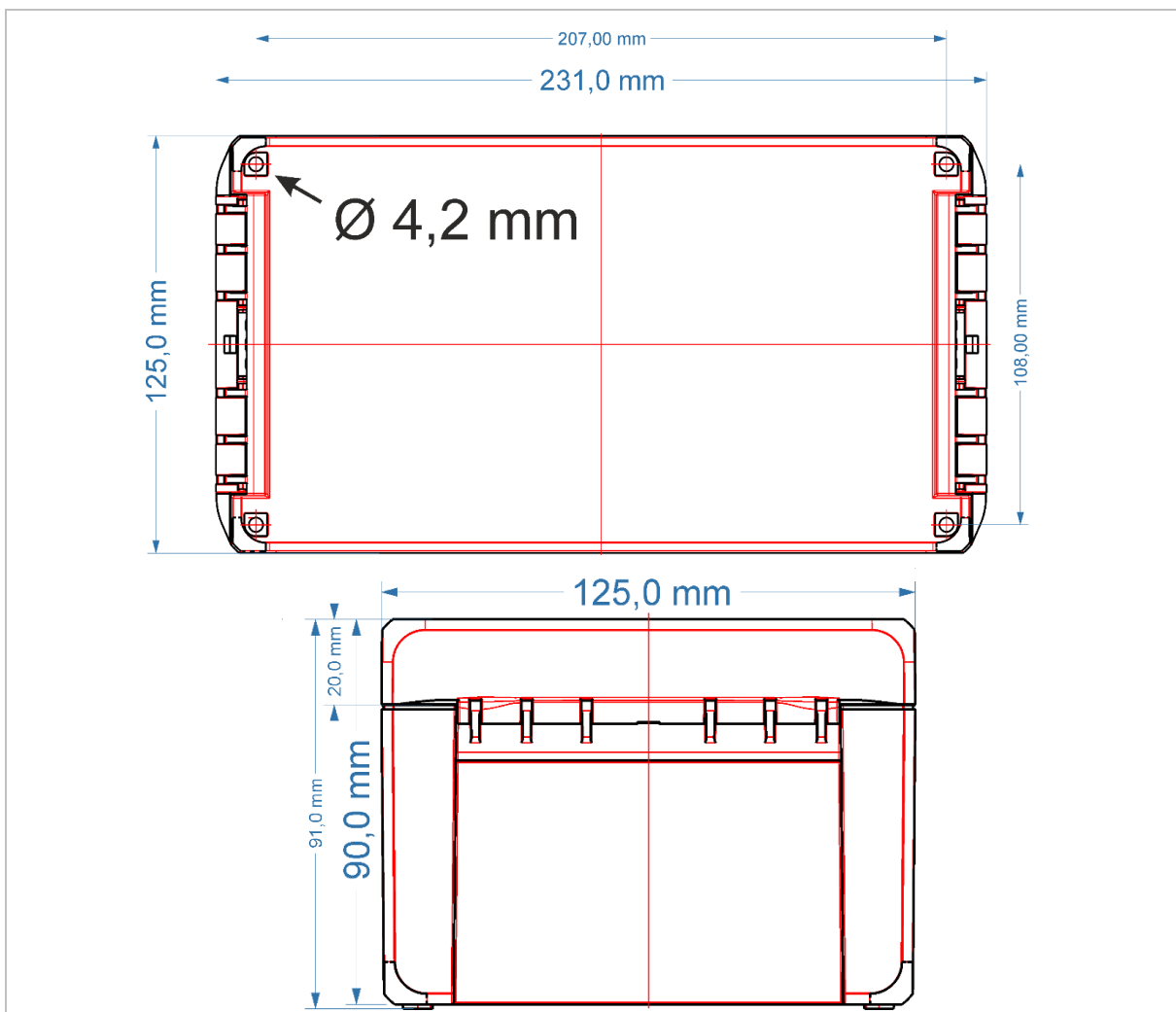


Figure 9 Dimensions of compact housing

4.1.2 HE 5712 Modular Operating unit (panel mounting housing)

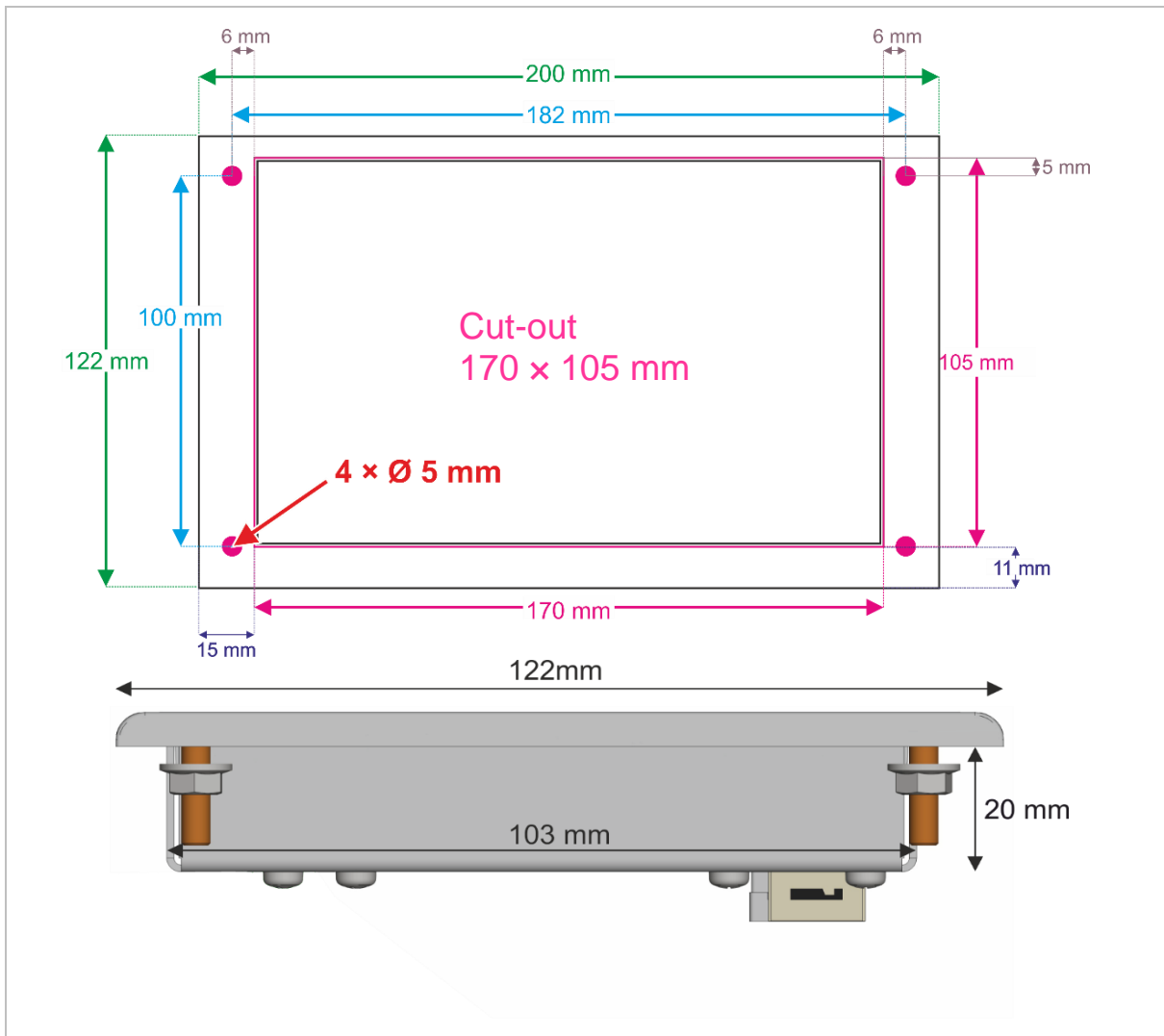


Figure 10 Operating unit (panel mounting housing)

Scope of Delivery

- HE 5712
- Operating Instructions



Note!

Upon receipt, check the delivery for completeness and visible defects. In the event of a complaint, contact your responsible representative of AXZERON HESCH electronics GmbH immediately.

4.2 Opening the device (for HE 5712 Compact)

Opening and closing is performed by hinge technology without screws. A slit screwdriver is required to open the device. The screwdriver must be positioned at the intended position at the housing lid (see *Figure 11*).



Note!

Make sure to move the **screwdriver to the right** to open the hinge (see *Figure 11*). If the screwdriver is moved to the left, the housing cover may be damaged.

The housing lid can be opened to the left up to an angle of 105°. Optionally, the housing lid can be closed by 4 screws in addition, to protect it from unauthorised access. For further information, please contact your service representative of AXXERON HESCH electronics GmbH.

The hinge closure without screws is recommended for a quick service access.

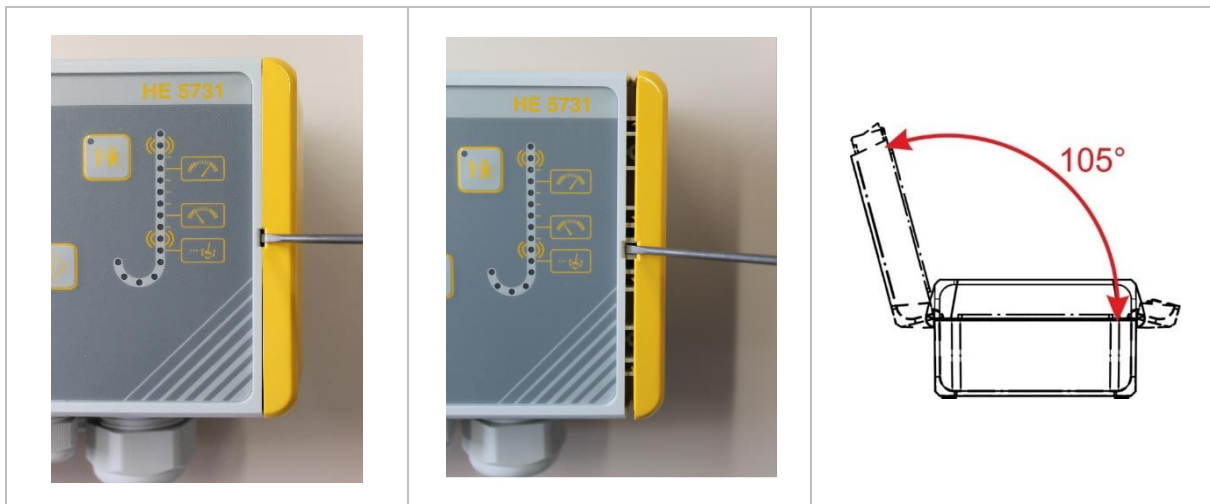


Figure 11 Opening housing lid to the left (figure shows similar device)

5. Electrical Commissioning

Before switching on the device, observe the following:

- Connect the cable firmly to the glands.
- The power supply must correspond to the voltage indicated on the name plate.
- The device may only be operated in closed condition.
- The temperature restrictions specified for the use of the device must be observed before and during operation.
- Ensure that the FE conductor is connected.
- The patch cable between the control unit and the operating unit may only be plugged/unplugged when switched off.

5.1 Safety Information



Danger of Electrocution!

Electrical installation must only be carried out when the power is disconnected.



Warning of material damage caused by electrostatic charge!

Observe the safety measures according to DIN EN 61340-51/-3 to avoid electrostatic discharge!



Note!

Work on the electronics may only be carried out by qualified personnel.

5.2 Read out and set password



1. Switch on the device while keeping both keys UP and DOWN pressed for 5 seconds. When the 5 seconds are up, "c d d" is displayed and afterwards the currently set password. In state of delivery, the pre-assigned password 001 is displayed (see also 6.2 Parameter Table)



2. Press the ENTER key to set a new a password.



3. The first number starts blinking. Set the requested value with the UP and DOWN keys.



4. When the requested key is displayed, press the ENTER key.

5. Repeat step 3 and 4 to set the second and third number.



6. After the last number has been acknowledged with the ENTER key, HE 5712 is displayed and the controller starts.

5.3 Supply voltage

The value of the correct supply voltage is indicated on the name plate. There are device versions with 100...240 V AC and device versions only with 24 V DC mains voltage.

5.3.1 Compact Housing

Open the housing on the right hinge lock using a slotted screwdriver (see chapter 4.2 Opening the device (for HE 5712 Compact) and Figure 12):

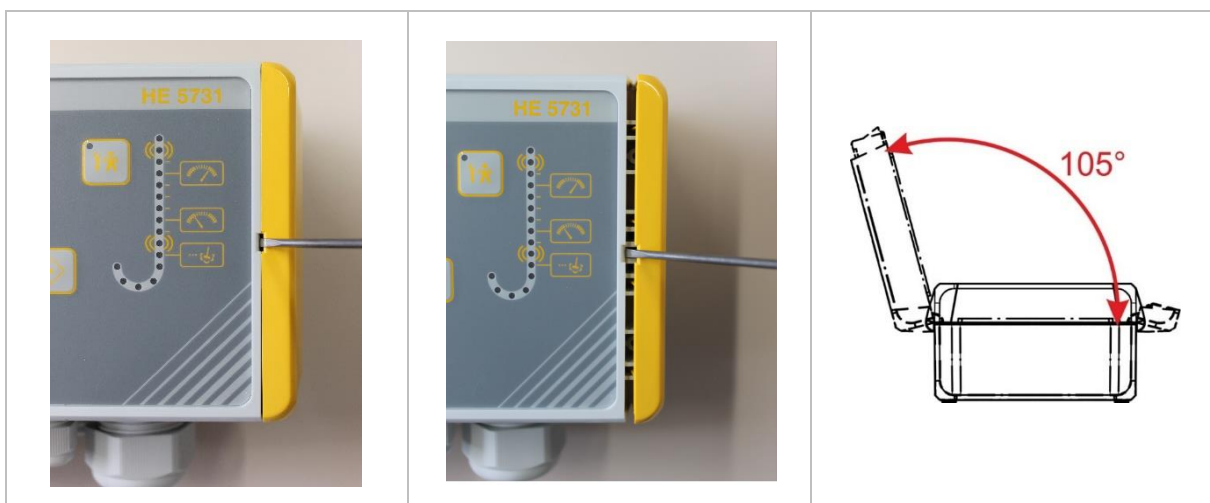


Figure 12 Opening the compact housing (figure shows similar device)

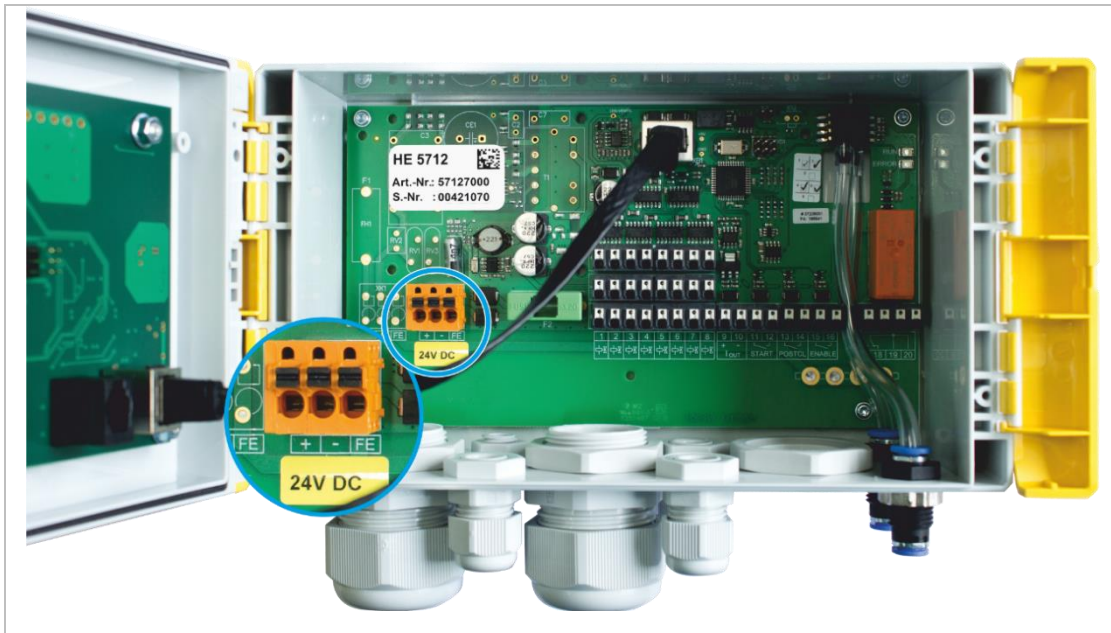


Figure 13 HE 5712 Compact with 24 V DC supply voltage

5.3.2 Housing for Panel Mounting

The supply voltage is applied centrally to the control unit .
 The operating unit receives its 24 V DC supply via a patch cable (CAT5 or better) from the control unit. The patch cable must not be longer than 328 feet (patch cable not included in the scope of delivery).

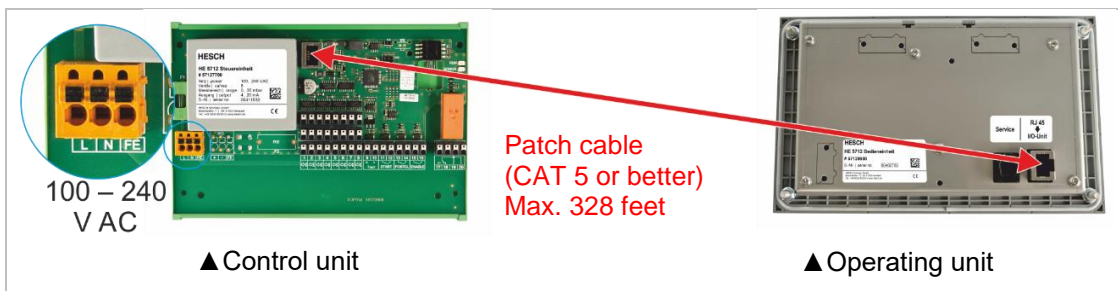


Figure 14 Electrical commissioning of the HE 5712 Modular (100...240 V AC)

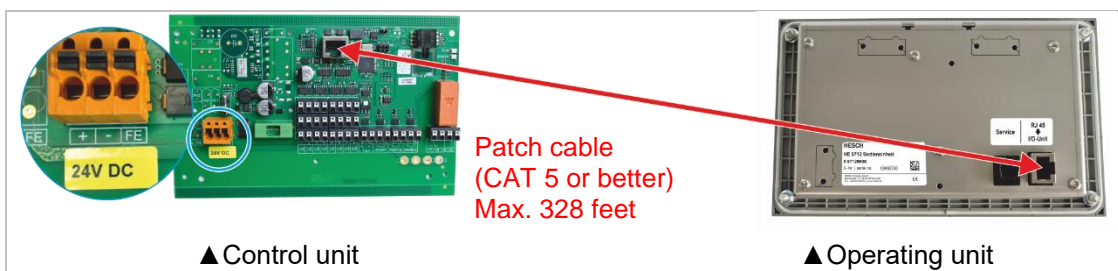


Figure 15 Electrical commissioning of the HE 5712 Modular (24 V AC)

5.4 Valve connections

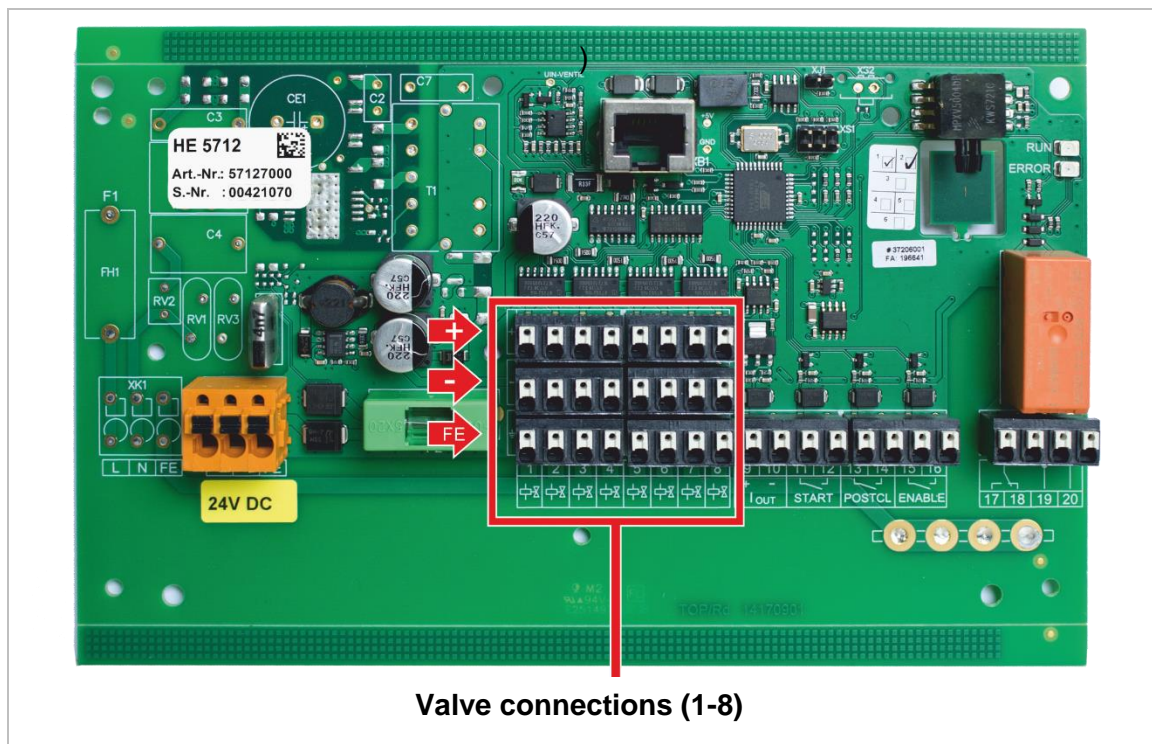


Figure 16 HE 5712 control unit (24 V DC) Valve connections

A maximum of 8 valves can be connected to the solenoid valve controller. The connections of a valve are arranged vertically one above the other. One terminal is provided for the FE connection of each valve.

The valve outputs are designed for 24 V DC and 1A. The minimum recovery time (break) must be

- greater than or equal to ten times the pulse time for software version 1.xx
- greater than or equal to the pulse time for software version 2.xx

The controller automatically extends the effective pause time to the above ratio.

The software version can be determined via a serial number query in the customer area of our website <https://www.hesch-automation.com/en/login/>.



Note!

All valve outputs of a system refer to the same mass (-) (12, 14, 16). It is permitted to use one ground line for several inputs.

6. Parameterisation



Explosion Prevention! (for ATEX approved devices only!)

It is permitted to use the device version **HE 5712 Compact** (see Figure 1) in explosion zone 22 with closed lid. It is mandatory to ensure that no explosive ambient conditions, such as e.g. development of dust exist, before opening the device for e.g. parameterisation.

6.1 Parameterisation with Device Keyboard



1. Press the PARA key to change the values of the system parameters. A flashing LED indicates the value currently to be changed.

c o d

2. If a password has been assigned, c o d is displayed.



3. Press the ENTER key.



4. Press the UP and DOWN keys to enter the password digit by digit.



5. Press the ENTER key to acknowledge the password.
As long as you stay in the parameter menu, the password does not need to be entered again.



6. Use the UP and DOWN keys to select the required parameter. The current value is displayed.



7. Press the ENTER key to change the parameter value. The first digit to be changed flashes in the display.



8. Use the UP and DOWN key to set or change the value of the digit.



9. Press the ENTER key to acknowledge the value. The next digit then flashes in the display

10. Repeat steps 8 and 9 to set the second and third digit. The next parameter is offered.

11. If necessary, change the next parameter.



12. The parameterisation mode is terminated by pressing the PARA key again. To enter the parameter menu once again, you must re-enter the password.

6.2 Parameter Table

Parameters	Adjustment range	Default setting	Pre-assignment
Password <ul style="list-style-type: none"> 3-digit number that must be entered before parameters can be changed. 0 = no password protection	0 ... 999	000	001
Pulse time	0.01 ... 9.99 s	0.10 s	0.10 s
Break time	0.1 ... 999 s	5.0 s	5.0 s
Number of valves	1 ... 8	8	8
Post-cleaning cycles	OFF, 1 ... 20	1	1
Type of cleaning part/overall cycles	0 ... 9	0	0
Δp-measuring range			
0 ... 35 mbar	5.0 ... 35 mbar	35 mbar	35 mbar
0 ... 90 mbar	5.0 ... 90 mbar	35 mbar	90 mbar
0 ... 450 mbar	5.0 ... 450 mbar	35 mbar	450 mbar
High alarm [mbar] <ul style="list-style-type: none"> Threshold for the high alarm message. If exceeded, the relay contact is closed 	OFF, 0.0 ... 500.0 mbar	30.0 mbar	30.0 mbar (at 0...35 mbar measuring range) 80.0 mbar (at 0...90 mbar measuring range) 390.0 mbar (at 0...450 mbar measuring range)
Upper threshold [mbar] <ul style="list-style-type: none"> If this is exceeded, Δp-dependent cleaning starts. Start of the Δp-cycle 	0.0 ... 500.0 mbar	15.0 mbar	15.0 mbar 40.0 mbar (at 0...90 mbar measuring range) 190.0 mbar (at 0...450 mbar measuring range)
Lower threshold [mbar] <ul style="list-style-type: none"> The Δp-dependent cleaning stops if the temperature falls below this value. End of the Δp cycle 	OFF, 0.0 ... 500.0 mbar	10.0 mbar	10.0 mbar (at 0...35 mbar measuring range) 25.0 mbar (at 0...90 mbar measuring range) 130.0 mbar (at 0...450 mbar measuring range)
Low-alarm [mbar] <ul style="list-style-type: none"> Threshold for the low alarm message. If the value falls below this value, the relay contact is closed if the value does not fall below the post-cleaning threshold within the low-alarm delay. 	OFF, -5.0 ... 500.0 mbar	OFF	OFF (at 0...35 mbar measuring range) OFF (at 0...90 mbar measuring range) OFF (at 0...450 mbar measuring range)

Parameters	Adjustment range	Default setting	Pre-assignment
Post-cleaning Threshold [mbar] <ul style="list-style-type: none"> The threshold is activated when the lower threshold is exceeded. If the threshold is activated and the pressure falls below the threshold, a post-cleaning cycle is triggered and the cleaning relay is closed for the parameterised post-cleaning time. 	OFF, 0.0 ... 500.0 mbar	2.0 mbar	2.0 mbar (at 0...35 mbar measuring range)
			5.0 mbar (at 0...90 mbar measuring range)
			25.0 mbar (at 0...450 mbar measuring range)
Δp-Offset [mbar] The offset is added to the currently measured differential pressure.	-50.0 ... 50.0 mbar	0 mbar	0 mbar



Note!

Post-cleaning is suppressed as long as precoating is activated.

The following parameters can only be changed with the "EasyTool Controls" program (see also chapter 6.4 Parametrisation with Service PC)

Parameters	Adjustment range	Default setting	Pre-assignment
Δp-Filter Δp-Filter constant for damping the Δp measurement.	0.1 ... 10.0 s	2.0 s	
Δp-Work Area <ul style="list-style-type: none"> Defines the working range below the upper threshold in % of the measuring range. Alternative to the lower threshold. 	1 ... 100%	10	
High alarm Delay Delay after the high alarm threshold has been exceeded until the high alarm relay is switched.	0.1 ... 30.0 s	2.0 s	
Low-alarm Delay <ul style="list-style-type: none"> Delay after falling below the low alarm threshold until the low alarm relay is switched. The relay is not switched if the value falls below the final cleaning threshold within the delay. 	1 ... 600 s	300 s	
Precoating Offset <ul style="list-style-type: none"> The precoating offset increases the start threshold for cleaning (upper threshold). At an offset of 0, the precoating function is disabled. After reaching the first cleaning threshold (increased by the precoating), the precoating is automatically disabled. 	OFF, 0 ... 500.0 mbar	1.0 mbar	1.0 mbar
			3.0 mbar
			13.0 mbar
Post-cleaning Offset <ul style="list-style-type: none"> The automatic post-cleaning is activated when the value "Post-cleaning threshold" + value "Offset post-cleaning" is exceeded (is independent of the lower threshold). 	0.5 ... 10.0 mbar	2.0 mbar	2.0 mbar
			5.0 mbar
			10.0 mbar



Note!

The threshold values can be set as required. There is no logical check. If the values of the lower thresholds are parameterised above the values of the upper thresholds, the cleaning and pressure display cannot function as expected.

6.3 Offset for Zeroing



1. Press PARA key.



2. Use the UP / DOWN keys to select the "Zeroing" parameter.



3. Confirm with the ENTER key. The display flashes.



4. Press UP / DOWN simultaneously for 2 seconds. The currently measured value is inverted and accepted as the offset.



5. If the UP / DOWN keys are pressed independently, the offset value can be set manually.

6.4 Parametrisation with Service PC

For parametrisation of several devices, parameterisation with a service PC is recommended. The USB / TTL adapter required for this is available at AXXERON HESCH. The parameters can be changed via PC and the "EasyTool Controls" software. The software can be used to save a configuration or to restore a saved configuration.

1. Connect the PC to the operating unit via USB cable.
2. Start "EasyTool Controls" to transfer the files or data.



Note!

Instructions for the most important program functions are available at AXXERON HESCH electronics GmbH.

6.5 Enable / Disable Precoating



Enable: Press the TEST key and the UP key simultaneously. *PrE* is displayed alternately with other information.



Disable: Press the TEST key and the DOWN key simultaneously.

After reaching the first cleaning threshold (increased by the precoating), the precoating is automatically disabled.

6.6 Reset Default Settings



Note!

If a password has been assigned, it must be entered during reset. After the reset, the password is 0. A new password must be assigned. (see *chapter 5.2 Read out and set password*).



1. Switch on the device while keeping both keys UP and DOWN pressed for 5 seconds.
-

`EEP`

2. `EEP` is displayed.
-

`cod`

3. When the 5 seconds are up, `cod` is displayed to enter the password.
-



4. Press the ENTER key to start the password entry.
-



5. After entering and acknowledging the last digit of the password, the controller starts with default parameters (see *6.2 Parameter Table*)
-



6. If no password has been assigned, the controller starts automatically after 5 seconds with default parameters (see *6.2 Parameter Table*).
-

7. Operation of the controller

7.1 Normal Operation

Operation is started by applying the supply voltage. The valve cleaning is controlled via the inputs and outputs of the device.

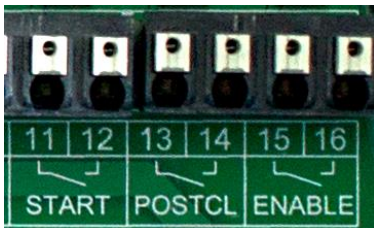


Current output



Note!

All valve outputs of a system refer to the same mass (-) (12, 14, 16). It is permitted to use one ground line for several inputs.



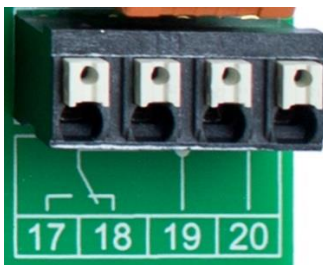
11 Start
13 Postcleaning
15 Enable
12,14,16 mass (-)

As long as the start input (**START**) is closed, the valves are controlled with the set control times. Prerequisite: The enable input (**ENABLE**) is closed.

A push-button signal at the cleaning input (**POSTCL**) starts the triggering of the valves with the set control times. The number of cleaning cycles is specified in the parameters (see *chapter 6.2 Parameter Table*).

Prerequisite: The enable input (**ENABLE**) is closed. To initiate cleaning, the enable input (**ENABLE**) must be closed. Cleaning can be triggered by closing the start input, a push-button signal at the post-cleaning input (**POSTCL**) or by exceeding the upper differential pressure threshold.

WARNING! In test mode, valves can also be controlled without ENABLE.



Operating or fault signal relay

In error-free operation, the contact between terminals 17, 19 and 20 is closed. If there is a fault, the contact between terminals 18, 19 and 20 is closed.

The following causes lead to an error message:

- power failure (fail-safe operation)
- bus error
- device fault (parameter error)
- valve errors
- Δp -alarms



Note!

Post-cleaning is suppressed as long as precoating is activated.

7.2 Test Function



1. Press the TEST key to perform a function test of the valves.
-



2. Select the desired valve with the UP / DOWN keys.
-



3. Press ENTER (The selected valve is permanently operated with the stored pulse and pause time).
-

4. If necessary, test the next valve.
-



5. Press the TEST key for more than 2 sec. to start a test cycle on all enabled valves.

The active test mode is indicated by the illuminated LED on the TEST key.

Press the TEST key one more time to cancel the active test mode.



6. Press the TEST key once to select another valve.

Press the TEST key twice to terminate the test mode.

7.3 Display Mode



1. Press UP / DOWN key to select or change the display mode.
-

2. The differential pressure, the currently controlled solenoid valve or both can be displayed alternately.

7.4 Differential pressure measurement



Figure 17 Differential pressure measurement connections (HE 5712 Compact)

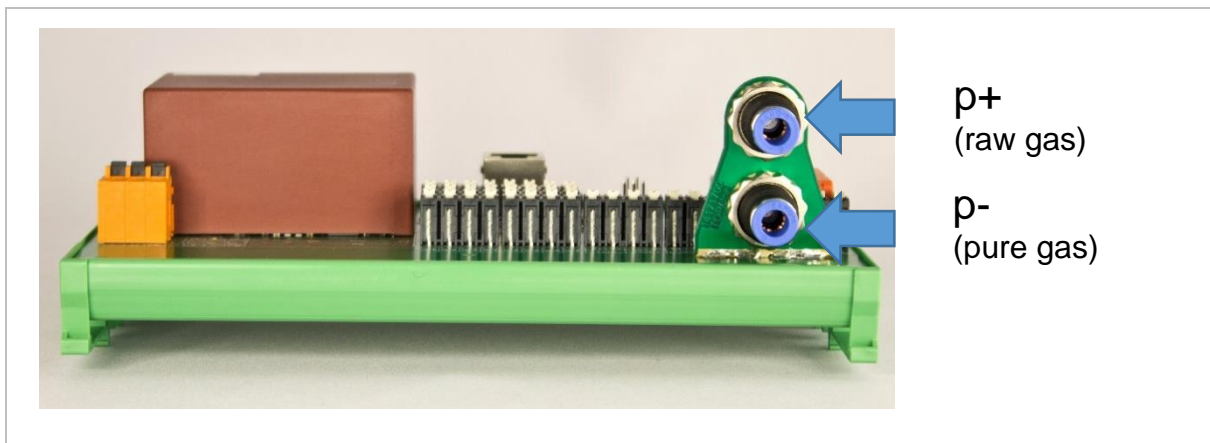


Figure 18 Pressure connections on the control unit (HE 5712 Modular)

The differential pressure is measured internally and transmitted as 4... 20 mA signal to the higher-level controller or to an indicating device.
The current output is scalable over the adjustable measuring range.

For example:

0 ... 30 mbar \cong 4 ... 20 mA, 0 ... 20 mbar \cong 4 ... 20 mA

In normal operation, the cleaning process is started when the upper "Cleaning" threshold is exceeded and stopped again when the lower "Cleaning" threshold is reached.

When the precoating function is activated, the cleaning starts at the upper threshold increased by the precoating offset.

There is a delay time of 5 minutes to carry out post-cleaning during a normal shutdown procedure without triggering an alarm signal by falling below the low alarm. The post-cleaning threshold must be reached before the end of these 5 minutes, otherwise the low alarm will be triggered.

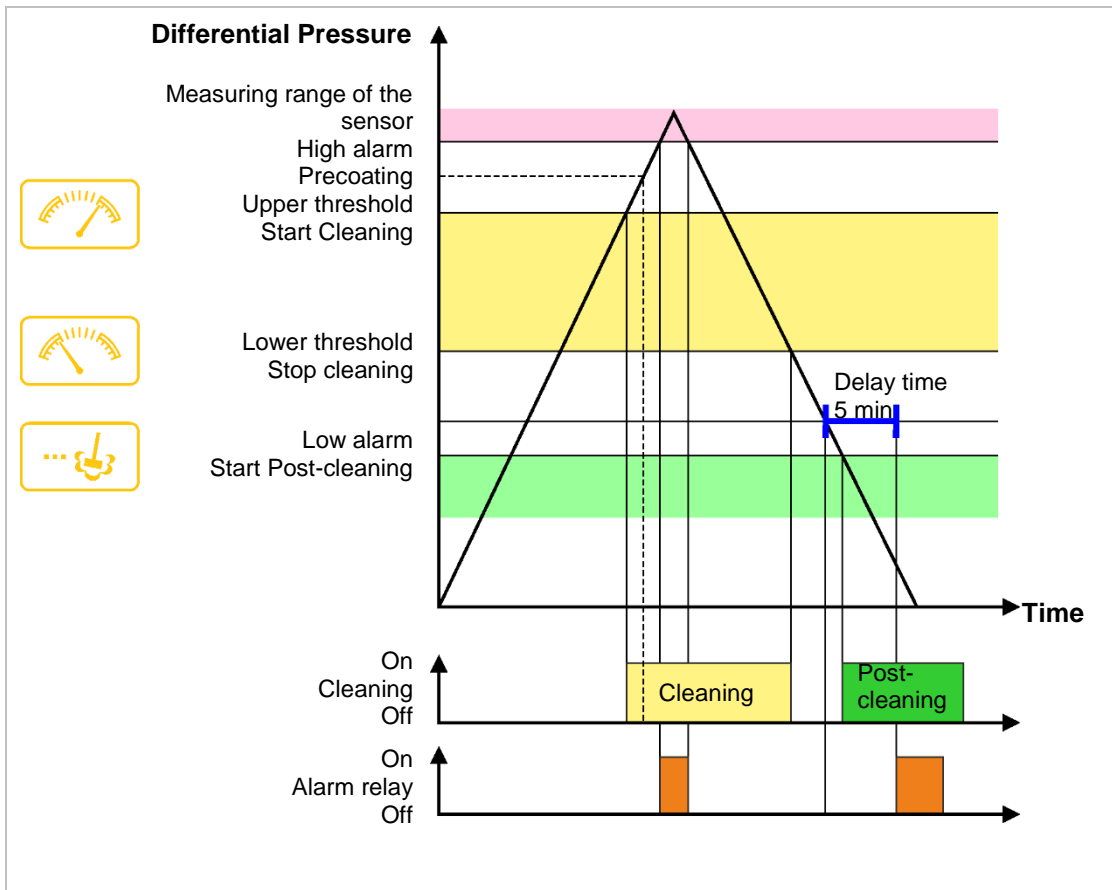






Figure 19 Time course of the differential pressure measurement

8. Error Messages

Display	Cause	Troubleshooting
The differential pressure display shows “ -- ”	The differential pressure signal is below the permissible measuring range	<ul style="list-style-type: none"> • Check differential pressure • Check external screw connection
The differential pressure display shows “- - - ”	The differential pressure signal is above the permissible measuring range	<ul style="list-style-type: none"> • Check differential pressure signal • Check external screw connection
The LED  flashes. The display shows the relevant valve	No current flows through the valve line	<ul style="list-style-type: none"> • Check the wiring to the indicated valve for interruption. • Check the valve in question. • Check if the valve plug is connected correctly
The LED  flashes. The display shows the relevant valve	The permissible valve current of 1 A has been exceeded	<ul style="list-style-type: none"> • Check the wiring to the indicated valve for interruption. • Check the valve in question. • Check if the valve plug is connected correctly
The High-Alarm-LED flashes 	The differential pressure exceeds the set threshold	<ul style="list-style-type: none"> • Adjust the set pulse and pause times • Check filter element • Check solenoid valves for proper mechanical function • Check compressed air system
The Low-Alarm-LED flashes 	The differential pressure falls below the set threshold for longer than 5 minutes without reaching the post-cleaning threshold	<ul style="list-style-type: none"> • Adjust the set pulse and pause times
Display is dark or lights up briefly and goes out again immediately	The internal fuse triggers (After a recovery time of a few minutes, the controller can be switched on again)	<ul style="list-style-type: none"> • Switch off the operating unit • Check whether the ambient temperature is above the permissible value. • Check the ratio of pulse to pause time. • Check current consumption of solenoid valves Observe restrictions.
Post-cleaning does not work	<ul style="list-style-type: none"> • No signal at post-cleaning input • Precoating function active • Differential pressure has not risen above the lower cleaning threshold. 	<ul style="list-style-type: none"> • Disable precoating see chapter 6.5 <i>Enable / Disable Precoating</i>

9. Maintenance and Service

Maintenance

The device must be cleaned regularly to prevent increased dust generation on the device.

Disposal

Dispatch metals and plastics for recycling. Electrical and electronic components must be collected separately and disposed of accordingly. Dispose of assembled printed circuit boards professionally.

Service

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