

HE 5721 FP

Δp Solenoid valve controller



Operating Instructions

(English)

The inscriptions on switch boards, front panels etc. are translated for a better understanding.

The actual delivery is normally carried out in german. If You wish a localized version, please contact Your distributor.

Documenthistory

Date / Version	Description
23.07.2014 / 2.1	Added Documenthistory. Chapter 3.2, 8, 9: Power supply changed to 100 – 240 VAC (wide range power supply). Updated Device Designation: max. temperature at surface: 135°C. Added Declaration of conformity.

Imprint

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1 General Safety Instructions

Instrument Safety

This instrument was built and tested according to production-specifications and was shipped in safe condition. The protection class mentioned in the operating instructions is applicable. In order to maintain this condition and to ensure a safe operation, the applicant must follow the hints and warnings given in these safety notes. The instrument must be operated only by trained personnel. Maintenance and repair should be carried out only by trained, qualified personnel familiar with the relevant hazards. The instrument may be operated within the specified environmental conditions (see data sheet) without impairing its safety. The instrument is intended for mounting in an enclosure. Its contact safety is ensured by installation in a housing (switch cabinet, panel etc.).

Unpacking the Instrument

Remove instrument and accessories from the packing. Enclosed standard accessories: Operating notes or operating instructions for the instrument (if necessary, fixing elements). Check, if the shipment is o.k. and complete and if the instrument was damaged by improper handling during transport and storage. One instruction manual will be attached to each shipment.



Warning !

If the instrument is heavily damaged that a safe operation seems impossible, the instrument must not be taken into operation. We recommend to keep the original packing material for shipment in case of maintenance or repair.

Caution !

The instrument contains electrostatically sensitive components. While transport und mounting, the rules for protection against Electric Static Discharge (ESD) must be followed.

Mounting

In order to have a proper function each instrument has to be placed in dustfree and dry rooms, either in a panel or in the relevant socket of a 19-inch instrument carrier.

The ambient temperature at the place of installation should not exceed the permissible nominal operational temperature specified in the data sheet.

When mounting several instruments at high packing density, sufficient ventilation must be provided to ensure a correct function.

The sealing devices (e.g. sealing ring) required for the relevant protection type must be applied.

Two captive screws are provided at the instrument front for fixing the 19-inch module in the instrument carrier. Generally, the fixing elements delivered with the instrument must be applied.

Electrical Connections

All electrical wiring must be conform to local Electrical Standards (e.g. VDE 0100 in Germany).

The input leads must be kept separate from signal and mains leads.

The protective earth must be connected to the relevant terminal (in the instrument carrier).

In order to prevent electrical interferences, we recommend using twisted and screened cables.

The electrical connections must be made according to the relevant connecting diagrams.

Commissioning

Before instrument switch-on, ensure that the advices and specifications given below are followed:

Ensure that the supply voltage corresponds to the specification on the instrument label.

All covers required for contact safety must be applied.

Before instrument switch-on, check if other equipment and / or facilities connected in the same signal loop is / are not affected. If necessary, appropriate measures must be taken.

For instruments with protection class I, the protective earth must be connected with the relevant terminal in the instrument carrier.

The instrument may be operated only when mounted in its enclosure.

Operation

Switch on the supply voltage. The instrument is now ready for operation.

If necessary, a warm-up time of approx. 15 min. should be taken into account.



Warning !

Any interruption of the protective earth in the instrument carrier can impair the instrument safety. Intentionally interruptions are not permitted.



Warning !

If the instrument is damaged to an extent that safe operation seems impossible, shut it down and protect it against accidental operation.

Trouble Shooting

Before checking the instrument, all possibilities of error in other equipment and connections (input leads, wiring, equipment connected in the output circuit) should be checked. If the trouble cannot be located by checking these points, we recommend returning the instrument to the manufacturer.

Hint

Note that primary elements (especially thermocouples) connected to the energized transmitter are grounded in many cases, i.e. that the insulation resistance during operation can be reduced considerably. In these cases, additional connection to earth is not permissible.

Shut-Down

For permanent shut-down, disconnect the instrument from all voltage sources and protect it against accidental operation.

Before instrument switch-off, check that other equipment and / or facilities connected in the same signal loop is / are not affected. If necessary, appropriate measures must be taken.

Maintenance, Repair and Modification

The instrument needs no particular maintenance. Any instrument with electro-mechanical relays has a limited durability (ask for data-sheet).



Warning!

When opening the instruments, or when removing covers or components, live parts or terminals can be exposed.

Before carrying out such work, the instrument must be disconnected from all voltage sources. After completing such work, re-shut the instrument and re-fit all covers and components. Check, if the specifications on the instrument label are correct !



When opening the instruments, electrostatically sensitive components can be exposed. Therefore any checking or putting into operation of the instrument should be carried out at workstations which are protected against ESD.

Modifications, maintenance and repair may be carried out only by trained, authorized persons. Any repair or trouble-shooting by the applicant during the guarantee-period will result in losing the claim of guarantee. It is not permitted to operate or apply the instrument if the recommended specifications, warnings or conditions are not observed.

If a default was found due to a blown fuse, the cause must be determined and removed. For replacement, only fuses of the same type and current rating as the original fuse must be used. Using repaired fuses, or short-circuiting the fuse socket is inadmissible !

Explosion Protection

This instrument may be operated, due to its dust-proof housing, in areas of explosion zone 22 classification (occurrence of clouds of flammable air-borne dust for short periods). The special regulations for this device have to be observed.

Storage

The storage-room for the instrument must be dry, dustfree and free of vibrations. The range of the storage-temperature is 0 to 70 °C. Any direct UV-radiation to the instrument must be avoided.

Transport

If no other recommendations are mentioned in the instruction manual the packing material used should have the quality that no damage to the instrument will occur even if it drops from a height of 80 cm.

Right of modification reserved !

Explosion Protection

The device is approved for the operation in explosion zone 22.

Device Designation:   **II 3D T135°C IP65**

approved for explosion zone 22

II	operation not in mines
3D	dusts, normal security
T135°C	maximal temperature at surface
IP65	International Protection class: dust tight, touch proof

The protection class IP65 is part of the Ex-designation.
As a consequence some instructions have to be followed:



Use appropriate cable glands for the installation of cables and mount them professional. Don't damage the protection class.



Not used holes in the housing have to be closed dust tight with appropriate sealing screws.



Operation with opened cover is not admissible.



The tightness of hose fittings e.g. for ΔP - measurement or hose cleaning has to be checked.



Only wet or moistured cleaning tools are allowed for the plastic housing, to prevent electrostatic charges.

2 General Description

2.1 General

The HE 5721 FP solenoid valve control system is used for pulse activation of solenoid valves in air pollution control systems.

The HE 5721 FP permits numerous controlling and monitoring functions and comprises a differential pressure measuring and control system.

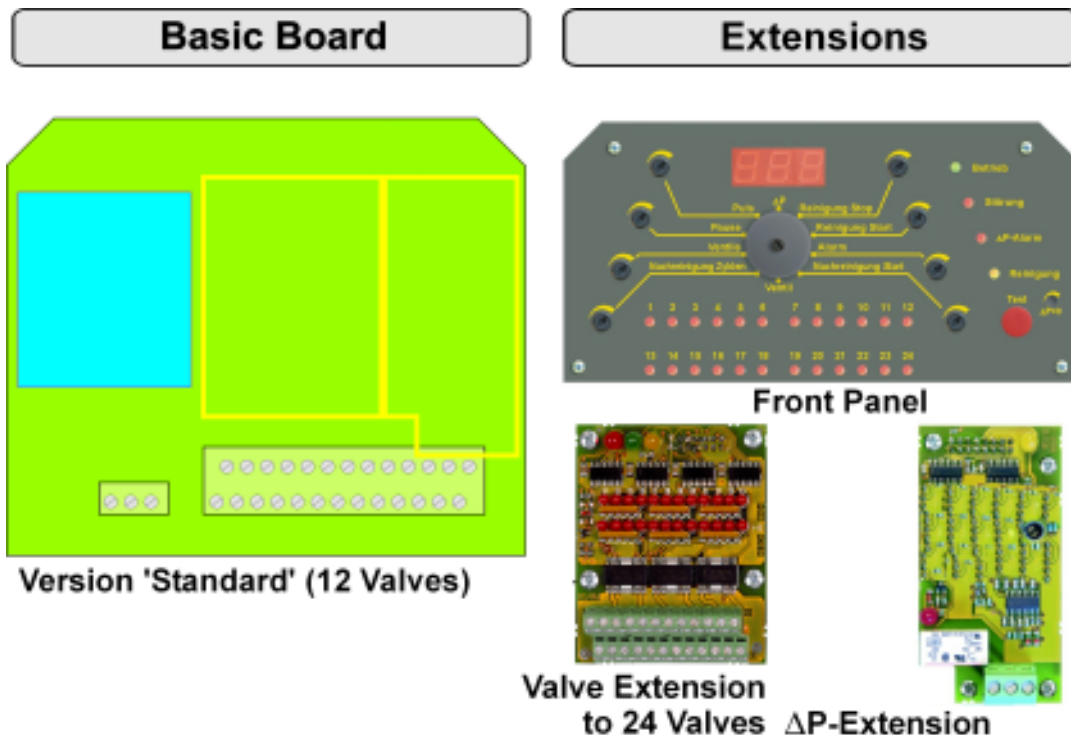
Cleaning can be effected on either a time-controlled or differential pressure basis with switching thresholds or pause time control.

The valves are monitored to detect open or short-circuits. Optionally, the valve function can be checked mechanically by means of a pressure switch.

The Δp extension unit can be used to check a maximum differential pressure.

2.2 Options

- Pressure switch: Mechanical valve function monitoring by means of a pressure switch
(The pressure switch is not part of the delivery but can be ordered separately)
- Valve extension: Attachable board for extension of 12 valve outputs
- Power Supply: 24 VDC
- Connecting kits Cable glands or cable according to the amount of valves.
Details see technical data.



3 Installation and Housing

The instrument should be installed in such a way that it is not exposed to moisture/humidity and dirt. It must also be ensured that the permissible maximum ambient temperature (50° C) is not exceeded. The device has to be protected against direct solar radiation.

Electrical connections should be made in accordance with the relevant VDE (Verein Deutscher Elektrotechniker = Association of German Electrical Engineers) regulations and/or locally applicable regulations.

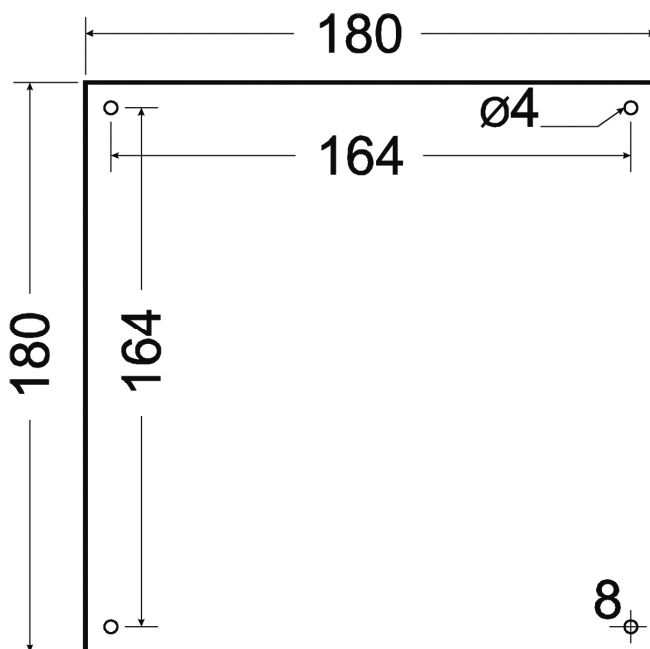
Power relays installed in the control cabinet should be interference-suppressed by means of RC-combinations.

The instrument features its own built-in mains filter. An additional external mains filter may be necessary if voltage transients occur.

3.1 Instruments Dimensions

Dimensions of the valve control unit HE 5721 FP:

- Macrolon housing: 180 x 180 x 100mm (w x h x d)



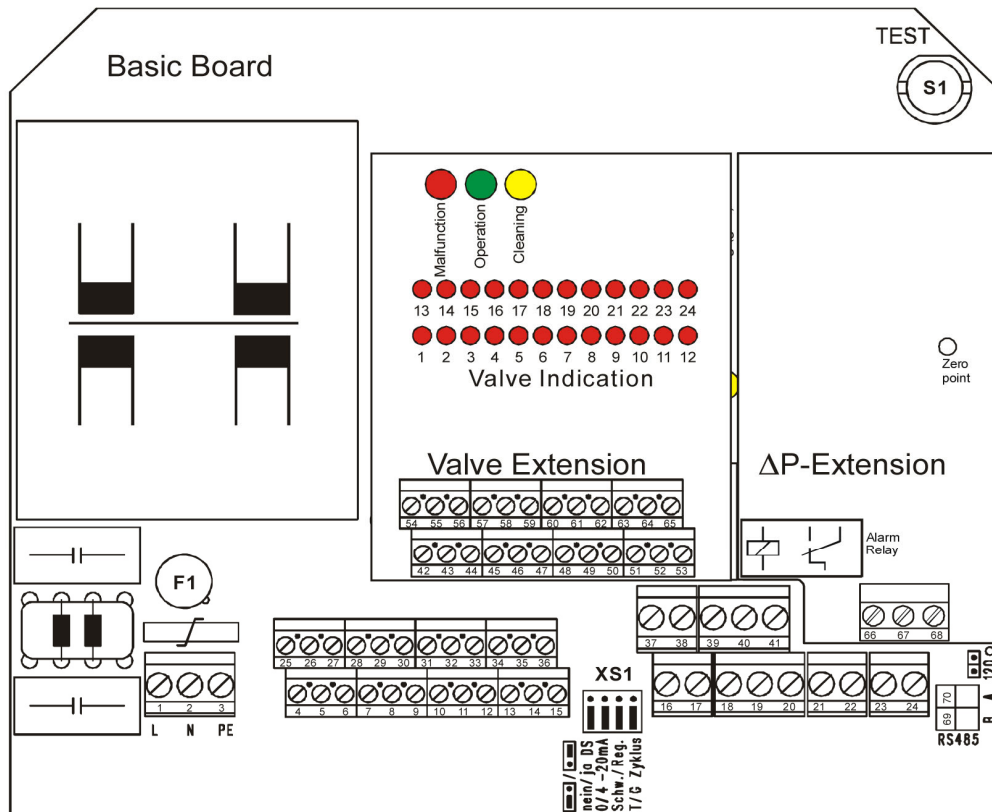
The housing is applied with threaded holes 1x M20 x1,5 and 2x M32 x 1,5 for metrical cable glands. Not used holes have to be closed with sealing caps.

3.2 Power Supply

The HE 5721 FP is designed for mains operation at 100 – 240 VAC, 50 to 60 Hz.
(Option: 24 VDC)

4 Solenoid valve controller

4.1 Operating and display elements



• Jumper XS1:

	i	!	Legend
Pressure switch	No	yes	nein/ja DS
Analog input	0...20 mA	4-20 mA	0 / 4-20 mA
Type of cleaning	Threshold	Pause control	Schw./ Reg.
Cleaning cycle	Partial cycle	Total cycle	T / G Zyklus

Note: Changes of the jumper configuration become effective after a restart of the device!

• Function:

	Jumper XS1 Cleaning mode	Terminal*	Note
Δp-Threshold control	Schw.		
Pause time control	Reg.		Characteristic selection with pause potentiometer
External-Δp-signal	Reg.	17, 18 external signal	Only pause time control
Timer mode	Schw.	16, 17 connected	Pulse- and pause poti

* Terminals 18, 19 connected = release

Note: Changes of the jumper configuration become effective after a restart of the device!

- **Push-button S1:** ('Test') Starts cleaning with the next valve, terminates the pause of the current valve. If 'total cycle' is selected, cleaning is carried out up to the last valve.
- **LED indicators:** Operation (green) or malfunction (red)
Cleaning (yellow)
Pulse indication for each valve (red)
- **Valve error indication:** The valve LED flashes.
Cause: short-circuit, breakage or error at mechanically valve function monitoring with pressure switch.

4.2 Inputs

- **Analog:** Start or ΔP -input(4)-20 mA
*The analog signal is measured between terminal 17 + and terminal 18 - (GND). Terminal 16 can be used as an auxiliary current source (25 mA)
Timer mode: Term. 16 and 17 connected*
- **Digital:** Release (contact closed) / Stop (contact open)
Post-cleaning (signal from push-button)
Malfunction acknowledgement (signal from push-button) Pressure switch for mechanical checking of the valve function *The inputs are active if they are switched to ground (terminal 18 GND).*

4.3 Outputs

- **Valves:** 1...12 with 24 V DC / 1A (extensible to 1...24 valves)
+ outputs have common potential.
- outputs are switched.
- **Relays:** Contact rating 250 V AC / 5 A
1 change over contact for operating/malfunction message (fail-safe- circuit)
1 normally open contact for cleaning message



***The inputs and the analog output are not potentially separated !
Provide an external potential separation, if required !***

4.4 Functions

4.4.1 Release/Stop

The input releases activation of the valves. If the contact is open, cleaning is stopped immediately.

4.4.2 Start / Δp -IN

The control system can operate in 2 operating modes. They are selected with the jumper 'XS1 Type of cleaning'.

1. Switching threshold: Cleaning is effected as long as a switching contact is closed, e. g. between the upper and the lower threshold of a ΔP controller.
2. Control: Cleaning is effected permanently with variable pause times.
—> cf. pause control

Note: Changes of the jumper configuration become effective after a restart of the device! The (analog) input signal for cleaning can be connected externally or signalled internally by the ΔP extension board.

- Internal signal: "Threshold" for type of cleaning (XS1) "Threshold"
"Control" for type of cleaning (XS1) "Pause control"
- External signal: A 0(4)-20 mA signal is required for controlling.
In order to serve as a 'switching threshold', the signal must be switched between 0(4) mA and > 20 mA. Terminal 16 can be used as source of current for a switching contact.
The current output of a PLC can be used as an external signal.
The current output must be connected to terminal 17 + and terminal 18 - (GND).

It is possible to work with an external and an internal signal simultaneously. The higher signal then has priority. This allows the cleaning to be started in special operating situations, even if the set thresholds have not been exceeded (e. g. for time-controlled forced cleaning).

4.4.3 Post Cleaning

1. Starts if differential pressure falls under threshold with is adjusted at the potentiometer 'Post-cleaning Start'. The number of complete cleaning cycles can be adjusted with the potentiometer 'Cycles'. (Jumper XS1=Schw). Pulse- and pause time as adjusted.
2. Impulse signal at the input 'Post-cleaning' (18,20) triggers the post-cleaning process.
Pulse- and pause time as adjusted.
If the function 'pause control' (XS1 'Regl') is selected, post-cleaning is effected with a fixed pause time of 30 sec.

Note: Changes of the jumper configuration become effective after a restart of the device!

4.4.4 Malfunction acknowledgement

A signal at the input 'malfunction acknowledgement' resets a valve error message (LED and malfunction relay). When the cause of error has been eliminated, the error message is automatically removed. (The condition of a valve is recognized with the next excitation.)

4.4.5 Pressure Switch

The input 'pressure switch' serves for the mechanical check the valve function. The contact must be closed before activating a valve (message: pressure exists). During the pause time, the contact has to open (message: pressure drop = valve is open) and close again (pressure rise = valve is closed). The jumper XS1 has to be changed in the position 'with pressure switch'.

4.4.6 Cleaning Cycle

The cleaning cycle can be selected with the jumper XS1(Cleaning cycle):

- 'Partial cycle' = Cleaning is effected as long as the start signal is active.
- 'Total cycle' = Cleaning is always executed up to the last valve.

Note: Changes of the jumper configuration become effective after a restart of the device!

4.5 Pause Control

The control system is able to carry out a ΔP -dependent pause control. This function is selected with the jumper XS1 'Regl'.

The operator selects an individual controller characteristic with the pause potentiometer. For controlling, the current differential pressure must be signalled to the control system as an analog signal. The signal can be made available either internally by the ΔP extension board or externally as a 0(4)-20 mA signal at the terminals 17 + and 18 - (cf. also 'Start input').

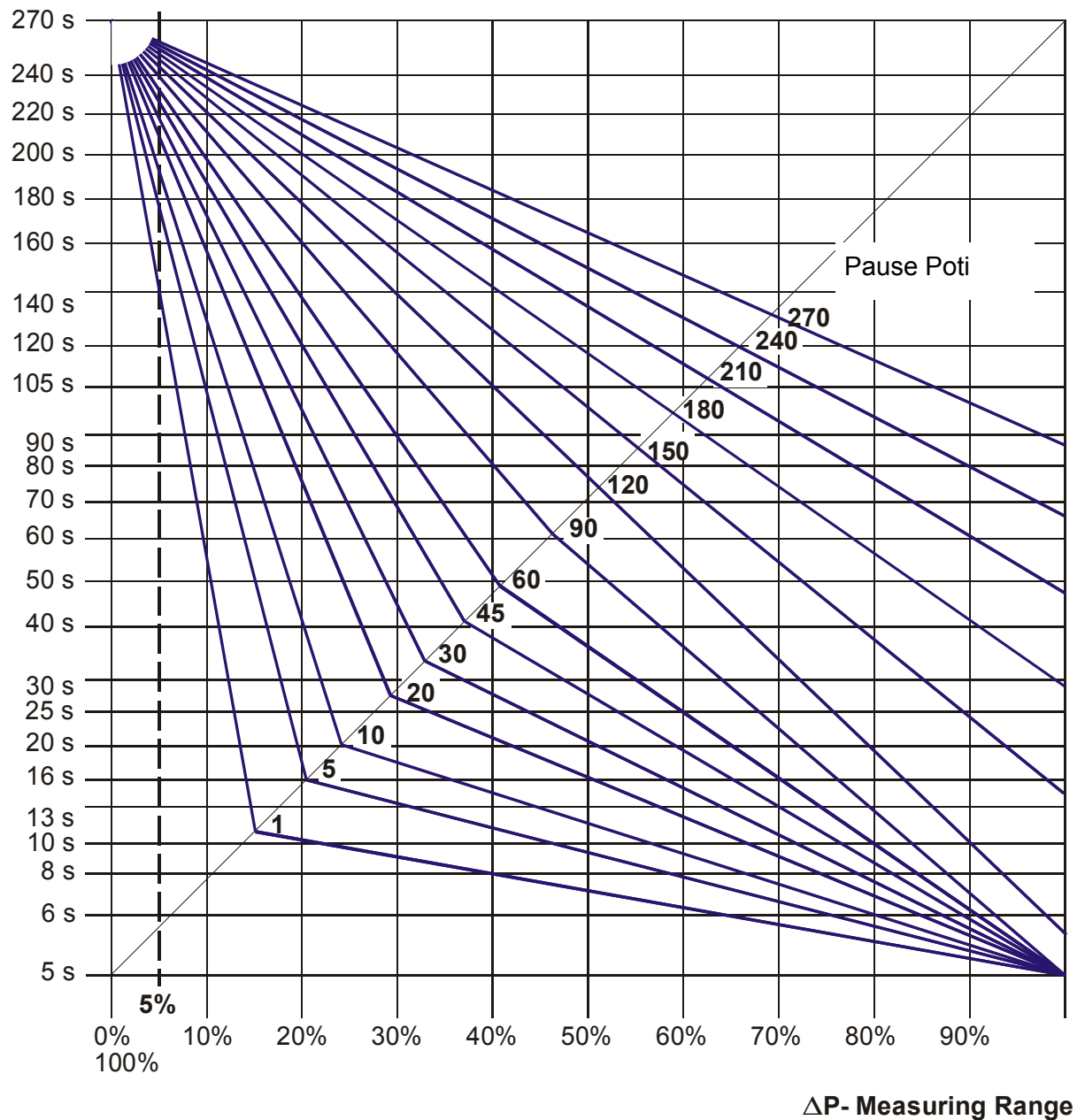
The control system determines the current pause time from the current differential pressure and the selected characteristic curve.

When the differential pressure increases, the pause time is shortened; when the differential pressure decreases, the pause time is prolonged.

The variation of the pause time is not linear.

Cleaning is terminated when the differential pressure falls below approx. 5% of the measuring range.

Controller Characteristics



Example: The filter is to be cleaned at a differential pressure of 60% of the ΔP measuring range with a pause time of approx. 25 sec.

Selection of the characteristic curve: The intersection of the curves '60% of the measuring range' and '25 sec.' is on characteristic curve 60. The pause potentiometer is set to 60 sec.

The control system controls the pause time along characteristic curve 60. The cleaning capacity is increased progressively due to the shape of the characteristic curve. Additionally, a larger amount of dust per impulse is cleaned if the differential pressure is higher (= higher resistance of filter).

For shorter pause times, the capacity of the pneumatic system must be considered.

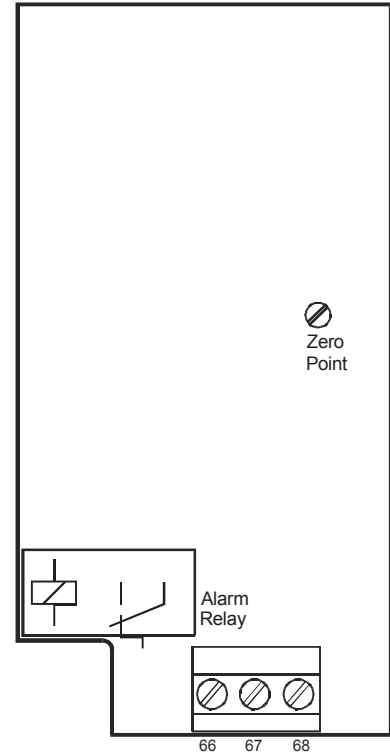
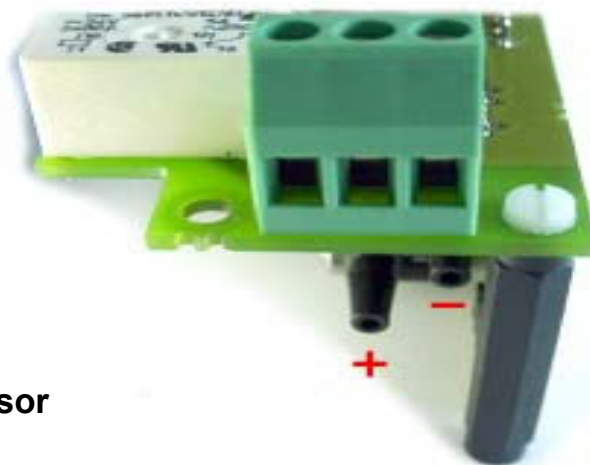
5 Delta-p-Extension

5.1 Operating and Display Elements

- Potentiometer
 Δp -zero (below the switchboard)
 The zero point of the sensor can be adjusted with this potentiometer.

5.2 Outputs

- Relay: Contact rating: 250 V AC / 5 A
 1 Change-over-contact for ΔP -alarm
 Terminal 66 = NC- contact
 Terminal 67 = NO- contact
 Terminal 68 = Change-over-contact



5.3 ΔP -Sensor

- Connection
 The differential pressure sensor is located below the board (see Page 11).
 The connections are suited for hoses with 4 mm inner diameter.

 Left connection (+) : for higher pressure(= pressure before the filter).
 Right connection (-) : for lower pressure(= pressure behind the filter).
 The pressure inputs are connected to screw fittings (4 mm) at the housing.

- ΔP -Adjustment
 In case of a zero drift, the display can be set to zero with the 0-point potentiometer (below the board). Adjustment should be carried out only when no differential pressure is present, i. e. if no measuring hoses are connected. For a better accuracy of the adjustment, check the current output 0(4) to 20 mA at terminals 23+ and 24-.

Adjustment should be carried out at operational temperature as the sensor can present a temperature drift of up to ± 1 mbar.

6 Front Panel

6.1 Operation and Display Board

The board serves for the clear representation and adjustment of all system parameters.



- **Display**

A three digits 7 segment display, value according to the display selector position.

- **LED Indications**

- | | |
|----------------|-------------------------------------|
| 1 LED (green) | Operation indication [Betrieb] |
| 1 LED (red) | Malfunction (valve error) [Störung] |
| 1 LED (red) | ΔP-Alarm |
| 1 LED (yellow) | Cleaning [Reinigung] |
| 24 LED (red) | Valve pulse activation |

- **Display selector**

A ten position rotary switch, which shows with highest position (0) the actual differential pressure. The switch is turned clockwise for the following values.

- | | | |
|---|---|----------|
| 0 | ΔP- displays the actual differential pressure value | [mbar] |
| 1 | Cleaning Stop [Reinigung Stop]: (Lower threshold) | [mbar] |
| 2 | Cleaning Start [Reinigung Start]: (Upper threshold) | [mbar] |
| 3 | Alarm (Highest threshold) | [mbar] |
| 4 | Post Cleaning Start [Nachreinigung Start]: (Lowest threshold) | [mbar] |
| 5 | Valve [Ventil]: the actual valve number is displayed | |
| 6 | Post Cleaning Cycles [Nachreinigungszyklen] | |
| 7 | Valves [Ventile]: number of used valves | |
| 8 | Pause: pause time | [s] |
| 9 | Pulse [Puls]: pulse time | [s] x.xx |

- **Test push button**

Starts a permanent cleaning until the button is pressed anew. This mode is indicated with alternating display of 'tES' and differential pressure value.

- **Valve error indication:** Valve LED flashes.

Cause: overcurrent, interruption or error with valve monitoring with pressure switch.

Select display 'Valve' [Ventil]: No. of the erroneous valve

flashing 1. digit:

dash low = interruption

dash high = overcurrent

7 System Setup

7.1 Adjustment of System Parameters



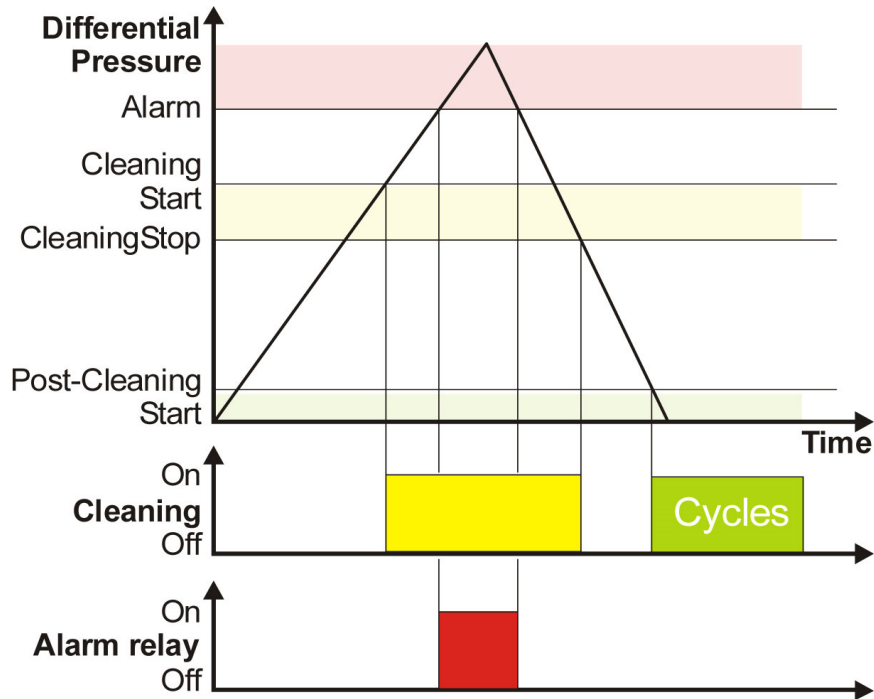
Adjustments are made during operation. If the threshold for 'Cleaning Start' is set under the actual differential pressure, the cleaning begins.

Remedial action: increase thresholds, disconnect device briefly from power.



Do not adjust the potentiometer without switching the display selector to that value!

1	Cleaning Stop	lower threshold
2	Cleaning Start	higher threshold
3	Alarm	Alarm threshold
4	Post-cleaning Start	lowest threshold, which starts the post-cleaning if ΔP value falls below.
5	Actual valve	Valve-No. is displayed. With malfunction: the erroneous valve.
6	Post-cleaning cycles	Number of cleaning-cycles. Adjust integer value accurately with the adjusting aids. See below.
7	Valves	Number of valves used in the system. Adjust integer value accurately with the adjusting aids
8	Pause	Pause time in seconds. Format xxx In the mode 'Pause Control': Selection of a characteristic curve.
9	Pulse	Pulse time in seconds. Format: x.xx
$\Delta p = 0$		Zero point calibration See details in chapter 5.3



7.2 Adjusting Aids for Integer Parameters

With the potentiometers also integer values are set. To support this procedure the instrument offers two adjusting aids, which both work simultaneously:

1. Display: $\bar{1}$ 1 $\bar{1}$ $\bar{2}$ 2 $\bar{2}$ $\bar{3}$ 3 $\bar{3}$ $\bar{4}$ 4 etc.
The value is correctly adjusted, if no dash is represented.
2. Valve LED row: Cycle adjustment: LED line flashes or lights up
Valve adjustment: max. 2 individual LEDs flash or light up.

Cycle Adjustment

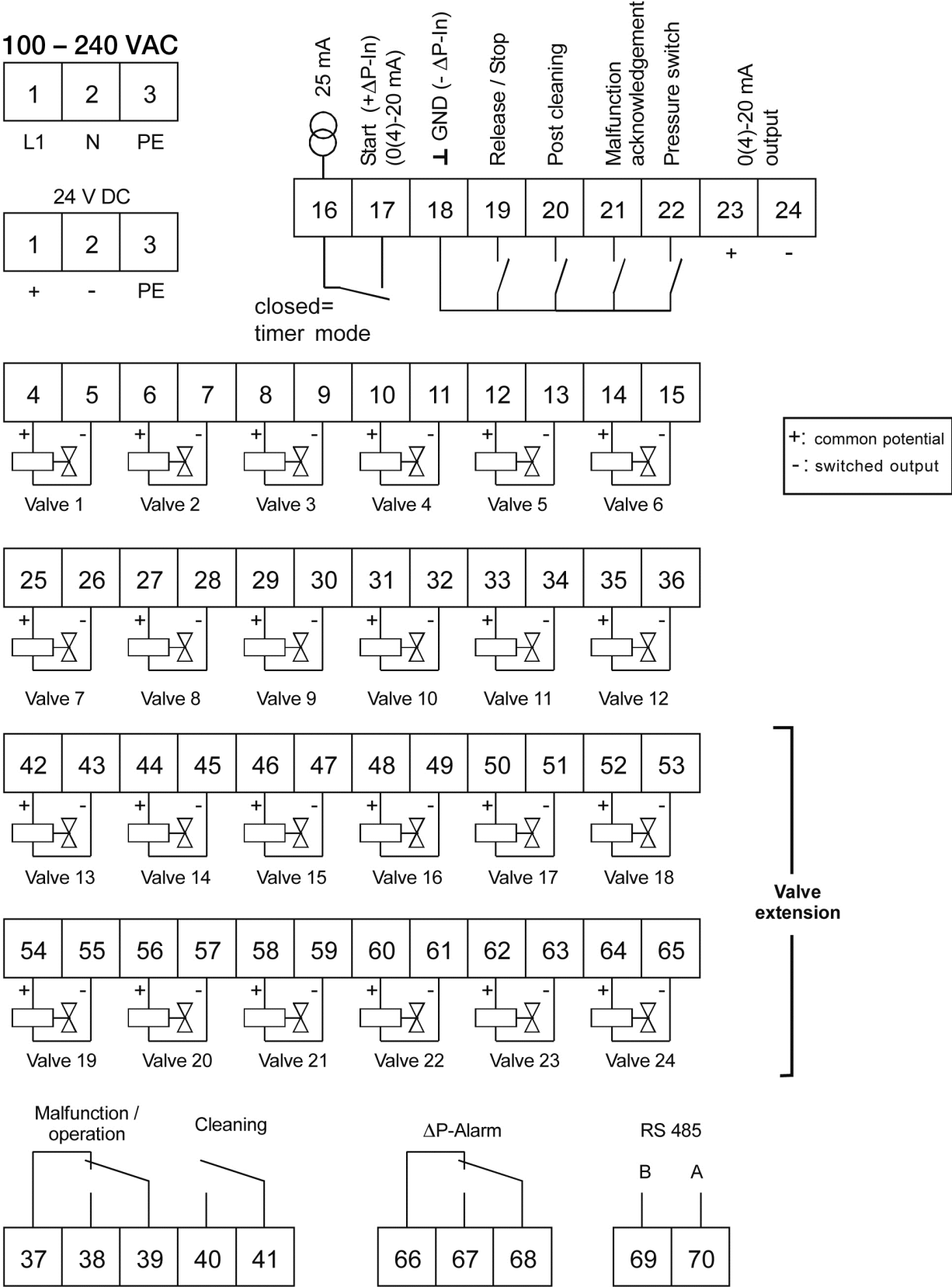
Display	LED row (Valves)	Description
$\bar{2}$		flashing
$\bar{3}$		flashing
3		steady for 5 s
H ₃		flashing
$\bar{4}$		flashing

Valve Adjustment

Display	LED row (Valves)	Description
$\bar{2}$		flashing
$\bar{3}$		flashing
3		steady for 5 s
$\bar{3}$		flashing
$\bar{4}$		flashing

During the adjustment the cleaning process is not interrupted: the cleaning pulse is also displayed. The representation of a valve error is suppressed however during the adjustment.

8 Connecting Diagramm



9 Technical Data


Valve Controller

	<ul style="list-style-type: none"> • Start- / Δp-input 0(4)-20 mA • Release (contact closed) / stop (contact open) • Post-cleaning (impulse signal) • Malfunction acknowledgement (impulse signal) • Pressure switch for mechanical valve function monitoring
Valve outputs:	Max. 12, with extension 24 (option)
Valve voltage:	24 VDC \pm 10 %
Valve current:	1 A (at pulse time \leq 1 s and pause time \leq pulse time), otherwise 0.5 A
Nominal rating valve output:	Max. 24 watt
Display:	<ul style="list-style-type: none"> • 12 (24) LEDs for valve activation • 1 LED "operation" (green) • 1 LED "malfunction" (red) • 1 LED "Δp-Alarm" (red) • 1 LED "cleaning" (yellow)
Functions:	<ul style="list-style-type: none"> • Partial / complete cycle • Δp-dependent control • Valve current monitoring (short-circuit / open circuit) • mechanical valve function monitoring (Option)
Test functions	1 button for valve function test
Relay outputs (Option):	Contact rating 250 VAC / 5 A: <ul style="list-style-type: none"> • 1 change over contact for operation-/ malfunction-indication (fail-safe-circuit) • 1 NO-contact for cleaning indication
Settings	<ul style="list-style-type: none"> • Number of valves 1...12 (24) • Pulse time 0.02...1.2 s • Pause time 1...270 s • Post-cleaning 1...12 cycles • Post-cleaning start threshold 0 .. 100 % of measuring range
Δp-Controller (Option)	
Measuring ranges:	0 ... 25 / 0 .. 500 mbar
Δp-Sensor	Max. static pressure: 1000 mbar Linearity: \pm 1% Hysteresis: \pm 0.1 % Temperature hysteresis: \pm 0.5 % Temp.drift / zero point: \pm 0.025 %/K Temp.drift / full-span value: \pm 0.01 %/K
Settings:	<ul style="list-style-type: none"> • threshold 'cleanig stop' • threshold 'cleaning start' • threshold 'Δp-alarm' • Δp-zero-point

Δ p-Controller (Option)

Display:	3-digit 7-segment display <ul style="list-style-type: none"> • 1 LED "{P-alarm" (red) • 1 LED "cleaning" (yellow)
Analog output	0(4)-20 mA Terminals 23, 24 on the base plane
Relay output:	1 switched output (change over) for Δ p-alarm contact rating 250 VAC, 5A
Pressure connections	Tube screw fitting type: DN 4

General Technical Data

Mains supply:	100 – 240 VAC \pm 10 %, 50 – 60 Hz (option: 24 VDC)
Mains fuse:	0.315 A slow action, type 'TR5' (0.63 A, 3.15 A)
Power consumption:	30 VA (30 VA, 42 W)
Electr. connections	Screw terminal strips, 2.5 mm ²
Ambient temperature	0...50 °C
Noise immunity	<ul style="list-style-type: none"> • DIN EN 50081 part 1 • DIN EN 50082 part 2
Explosion protection	 II 3D T135°C IP65, zone 22
Class of protection	IP 65
Dimensions	180 x 180 x 100 mm (w x h x d)
Housing	Dusttight Makrolon housing (IP65) with metrical threads M20 x 1,5 and 2x M32 x 1,5 for metrical cable glands. Holes are to be sealed with dusttight caps (IP65), 1 sealing cap M32 included
Connecting Kit (Option) 12 valves	1 cable gland M20, 2 cable gland M32 with multi core insert and sealing bolts
Cable Connection (Option) 12 valves	1 cable gland M20, 1 cable gland M32 with wire designation and wire end sleeves
Cable Connection (Option) 24 valves	1 cable gland M20, 1 cable gland M32 with wire designation and wire end sleeves

Subject to technical alterations !

10 Declaration of conformity

HESCH

AUTOMATION PARTNER

EC Declaration of conformity

The Manufacturer:

HESCH Industrie-Elektronik GmbH
 Boschstraße 8
 31535 Neustadt

declares that the following products:

Item no.	Description	Version 1	Version 2
57210000	Valve Controller HE 5721	100–240 VAC/12 Valves	Makrolon
57210010	Valve Controller HE 5721	100–240 VAC/12 Valves	Makrolon/Relais
57210100	Valve Controller HE 5721	100–240 VAC/24 Valves	Makrolon
57210110	Valve Controller HE 5721	100–240 VAC/24 Valves	Makrolon/Relais
57210130	Valve Controller HE 5721	100–240 VAC/24 Valves/ Pressure switch	Makrolon/Relais
57210200	Valve Controller HE 5721	24 VDC/12Valves	Makrolon
57210210	Valve Controller HE 5721	24 VDC/12 Valves	Makrolon/Relais
57210300	Valve Controller HE 5721	24 VDC/24 Valves	Makrolon
57210310	Valve Controller HE 5721	24 VDC/24 Valves	Makrolon/Relais
57210410	Valve Controller HE 5721	100–240 VAC/12 Valves	Makrolon/Relais
57212001	Valve Controller HE 5721	100–240 VAC/12 Valves/delta-p	Makrolon MR 0–25 mbar/Output 0–20 mA
57212002	Valve Controller HE 5721	100–240 VAC/12 Valves/delta-p	Makrolon MR 0–50 mbar/Output 0–20 mA
57212003	Valve Controller HE 5721	100–240 VAC/12 Valves/delta-p	Makrolon MR 0–100 mbar/Output 0–20 mA
57212011	Valve Controller HE 5721	100–240 VAC/12 Valves/delta-p	Makrolon/Relais MR 0–25 mbar/Output 0–20 mA
57212012	Valve Controller HE 5721	100–240 VAC/12 Valves/delta-p	Makrolon/Relais MR 0–50 mbar/Output 0–20 mA
57212013	Valve Controller HE 5721	100–240 VAC/12 Valves/delta-p	Makrolon/Relais MR 0–100 mbar/Output 0–20 mA
57212101	Valve Controller HE 5721	100–240 VAC/24 Valves/delta-p	Makrolon MR 0–25 mbar/Output 0–20 mA
57212102	Valve Controller HE 5721	100–240 VAC/24 Valves/delta-p	Makrolon MR 0–50 mbar/Output 0–20 mA
57212103	Valve Controller HE 5721	100–240 VAC/24 Valves/delta-p	Makrolon MR 0–100 mbar/Output 0–20 mA

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Art.-Nr.	Description	Version 1	Version 2
57212112	Valve Controller HE 5721	100–240 VAC/24 Valves/delta-p	Makrolon/Relais MR 0–50 mbar/Output 0–20 mA
57213011	Valve Controller HE 5721	100–240 VAC/12 Valves/delta-p/FP	Makrolon/Relais MR 0–25 mbar/Output 0–20 mA
57213012	Valve Controller HE 5721	100–240 VAC/12 Valves/delta-p/FP	Makrolon/Relais MR 0–50 mbar/Output 0–20 mA
57213013	Valve Controller HE 5721	100–240 VAC/12 Valves/delta-p/FP	Makrolon/Relais MR 0–100 mbar/Output 0–20 mA
57213111	Valve Controller HE 5721	100–240 VAC/24 Valves/delta-p/FP	Makrolon/Relais MR 0–25 mbar/Output 0–20 mA
57213112	Valve Controller HE 5721	100–240 VAC/24 Valves/delta-p/FP	Makrolon/Relais MR 0–50 mbar/Output 0–20 mA
57213113	Valve Controller HE 5721	100–240 VAC/24 Valves/delta-p/FP	Makrolon/Relais MR 0–100 mbar/Output 0–20 mA
57214001	Valve Controller HE 5721	100–240 VAC/12 Valves/delta-p	Makrolon MR 0–25 mbar/Output 4–20 mA
57214002	Valve Controller HE 5721	100–240 VAC/12 Valves/delta-p	Makrolon MR 0–50 mbar/Output 4–20 mA
57214003	Valve Controller HE 5721	100–240 VAC/12 Valves/delta-p	Makrolon MR 0–100 mbar/Output 4–20 mA
57214011	Valve Controller HE 5721	100–240 VAC/12 Valves/delta-p	Makrolon/Relais MR 0–25 mbar/Output 4–20 mA
57214012	Valve Controller HE 5721	100–240 VAC/12 Valves/delta-p	Makrolon/Relais MR 0–50 mbar/Output 4–20 mA
57214013	Valve Controller HE 5721	100–240 VAC/12 Valves/delta-p	Makrolon/Relais MR 0–100 mbar/Output 4–20 mA
57214014	Valve Controller HE 5721	100–240 VAC/12 Valves/delta-p	Makrolon/Relais MR 0–30 mbar/Output 4–20 mA
57214015	Valve Controller HE 5721	100–240 VAC/12 Valves/delta-p	Makrolon/Relais MR 0–500 mbar/Output 4–20 mA
57214101	Valve Controller HE 5721	100–240 VAC/24 Valves/delta-p	Makrolon MR 0–25 mbar/Output 4–20 mA
57214102	Valve Controller HE 5721	100–240 VAC/24 Valves/delta-p	Makrolon MR 0–50 mbar/Output 4–20 mA
57214103	Valve Controller HE 5721	100–240 VAC/24 Valves/delta-p	Makrolon/Relais MR 0–100 mbar/Output 4–20 mA
57214111	Valve Controller HE 5721	100–240 VAC/24 Valves/delta-p	Makrolon/Relais MR 0–25 mbar/Output 4–20 mA
57214112	Valve Controller HE 5721	100–240 VAC/24 Valves/delta-p	Makrolon/Relais MR 0–50 mbar/Output 4–20 mA
57214113	Valve Controller HE 5721	100–240 VAC/24 Valves/delta-p	Makrolon/Relais MR 0–100 mbar/Output 4–20 mA
57214201	Valve Controller HE 5721	24 VDC/12 Valves/delta-p	Makrolon MR 0–25 mbar/Output 4–20 mA
57214202	Valve Controller HE 5721	24 VDC/12 Valves/delta-p	Makrolon MR 0–50 mbar/Output 4–20 mA
57214211	Valve Controller HE 5721	24 VDC/12 Valves/delta-p	Makrolon/Relais MR 0–25 mbar/Output 4–20 mA
57214212	Valve Controller HE 5721	24 VDC/12 Valves/delta-p	Makrolon/Relais MR 0–50 mbar/Output 4–20 mA
57214302	Valve Controller HE 5721	24 VDC/24 Valves/delta-p	Makrolon MR 0–50 mbar/Output 4–20 mA

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Art.-Nr.	Description	Version 1	Version 2
57214402	Valve Controller HE 5721	100–240 VAC/12 Valves/delta-p	Makrolon MR 0–50 mbar/Output 4–20 mA
57214411	Valve Controller HE 5721	100–240 VAC/12 Valves/delta-p	Makrolon/Relais MR 0–25 mbar/Output 4–20 mA
57214412	Valve Controller HE 5721	100–240 VAC/12 Valves/delta-p/FP	Makrolon/Relais MR 0–50 mbar/Output 4–20 mA
57215011	Valve Controller HE 5721	100–240 VAC/12 Valves/ delta-p/FP	Makrolon/Relais MR 0–25 mbar/Output 4–20 mA
57215012	Valve Controller HE 5721	100–240 VAC/12 Valves/delta-p/FP	Makrolon/Relais MR 0–50 mbar/Output 4–20 mA
57215013	Valve Controller HE 5721	100–240 VAC/12 Valves/delta-p/FP	Makrolon/Relais MR 0–100 mbar/Output 4–20 mA
57215015	Valve Controller HE 5721	100–240 VAC/12 Valves/delta-p/FP	Makrolon/Relais MR 0–500 mbar/Output 4–20 mA
57215033	Valve Controller HE 5721	100–240 VAC/12 Valves/delta-p/FP Pressure switch	Makrolon/Relais MR 0–100 mbar/Output 4–20 mA
57215111	Valve Controller HE 5721	100–240 VAC/24 Valves/delta-p/FP	Makrolon/Relais MR 0–25 mbar/Output 4–20 mA
57215112	Valve Controller HE 5721	100–240 VAC/24 Valves/delta-p/FP	Makrolon/Relais MR 0–50 mbar/Output 4–20 mA
57215113	Valve Controller HE 5721	100–240 VAC/24 Valves/delta-p/FP	Makrolon/Relais MR 0–100 mbar/Output 4–20 mA
57215131	Valve Controller HE 5721	100–240 VAC/24 Valves/delta-p/FP Pressure switch	Makrolon/Relais MR 0–25 mbar/Output 4–20 mA
57215211	Valve Controller HE 5721	24 VDC/12 Valves/delta-p/FP	Makrolon/Relais MR 0–25 mbar/Output 4–20 mA
57215212	Valve Controller HE 5721	24 VDC/12 Valves/delta-p/FP	Makrolon/Relais MR 0–50 mbar/Output 4–20 mA
57215214	Valve Controller HE 5721	24 VDC/12 Valves/delta-p/FP	Makrolon/Relais MR 0–250 mbar/Output 4–20 mA
57215332	Valve Controller HE 5721	24 VDC/24 Valves/delta-p/FP Pressure switch	Makrolon/Relais MR 0–50 mbar/Output 4–20 mA
57219001	Valve Controller HE 5721	100–240 VAC/24 Valves Pressure switch	Makrolon
58063003	Valve Controller HE 5721	100–240 VAC/24 Valves	Makrolon/Relais
61210000	Valve Controller HE 5721	100–240 VAC/12 Valves	Makrolon/Polnisch
61210010	Valve Controller HE 5721	100–240 VAC/12 Valves	Makrolon/Relais/Polnisch
61210100	Valve Controller HE 5721	100–240 VAC/24 Valves	Makrolon/Polnisch
61210410	Valve Controller HE 5721	100–240 VAC/12 Valves	Makrolon/Relais/Polnisch
61212112	Valve Controller HE 5721	100–240 VAC/24 Valves/delta-p	Makrolon/Relais/Polnisch MR 0–50 mbar/Output 0–20 mA
61214001	Valve Controller HE 5721	100–240 VAC/12 Valves/delta-p	Makrolon/Polnisch MR 0–25 mbar/Output 4–20 mA
61214002	Valve Controller HE 5721	100–240 VAC/12 Valves/delta-p	Makrolon/Polnisch MR 0–50 mbar/Output 4–20 mA
61214011	Valve Controller HE 5721	100–240 VAC/12 Valves/delta-p	Makrolon/Relais/Polnisch MR 0–25 mbar/Output 4–20 mA

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Art.-Nr.	Description	Version 1	Version 2
61214012	Valve Controller HE 5721	100–240 VAC/12 Valves/delta-p	Makrolon/Relais/Polnisch MR 0–50 mbar/Output 4–20 mA
61214102	Valve Controller HE 5721	100–240 VAC/24 Valves/delta-p	Makrolon/Polnisch MR 0–50 mbar/Output 4–20 mA
61214112	Valve Controller HE 5721	100–240 VAC/24 Valves/delta-p	Makrolon/Relais/Polnisch MR 0–50 mbar/Output 4–20 mA
61214215	Valve Controller HE 5721	24 VDC/12 Valves/delta-p	Makrolon/Relais/Polnisch MR 0–500 mbar/Output 4–20 mA
61214511	Valve Controller HE 5721	100–240 VAC/24 Valves/delta-p	Makrolon/Relais/Polnisch MR 0–25 mbar/Output 4–20 mA
61215011	Valve Controller HE 5721	100–240 VAC/12 Valves/ delta-p/FP	Makrolon/Relais/Polnisch MR 0–25 mbar/Output 4–20 mA
61215012	Valve Controller HE 5721	100–240 VAC/12 Valves/delta-p/FP	Makrolon/Relais/Polnisch MR 0–50 mbar/Output 4–20 mA
61215111	Valve Controller HE 5721	100–240 VAC/24 Valves/delta-p/FP	Makrolon/Relais/Polnisch MR 0–25 mbar/Output 4–20 mA
61215112	Valve Controller HE 5721	100–240 VAC/24 Valves/delta-p/FP	Makrolon/Relais/Polnisch MR 0–50 mbar/Output 4–20 mA
62213011	Valve Controller HE 5721	100–240 VAC/12 Valves/ delta-p/FP/Goretexmembrane/ Multi-core cable	Makrolon/Relais MR 0–25 mbar/Output 0–20 mA
62213012	Valve Controller HE 5721	100–240 VAC/12 Valves/ delta-p/FP/Goretexmembrane/ Multi-core cable	Makrolon/Relais MR 0–25 mbar/Output 0–20 mA
62213111	Valve Controller HE 5721	100–240 VAC/24 Valves/ delta-p/FP/Goretexmembran/ Multi-core cable	Makrolon/Relais MR 0–25 mbar/Output 0–20 mA
62213112	Valve Controller HE 5721	100–240 VAC/24 Valves/ delta-p/FP/Goretexmembrane/ Multi-core cable	Makrolon/Relais MR 0–25 mbar/Output 0–20 mA
62215012	Valve Controller HE 5721	100–240 VAC/12 Valves/ delta-p/FP/Goretexmembrane/ Multi-core cable	Makrolon/Relais MR 0–50 mbar/Output 4–20 mA
67210000	Valve Controller HE 5721	100–240 VAC/12 Valves Multi-core cable	Makrolon
67210010	Valve Controller HE 5721	100–240 VAC/12 Valves Multi-core cable	Makrolon/Relais
67210110	Valve Controller HE 5721	100–240 VAC/24 Valves Multi-core cable	Makrolon/Relais
67210200	Valve Controller HE 5721	24 VDC/12 Valves Multi-core cable	Makrolon
67210201	Valve Controller HE 5721	24 VDC/12 Valves Multi-core cable	Makrolon
67211010	Valve Controller HE 5721	100–240 VAC/12 Valves	Makrolon/Relais
67214011	Valve Controller HE 5721	100–240 VAC/12 Valves/delta-p Multi-core cable	Makrolon/Relais MR 0–25 mbar/Output 4–20 mA
67214012	Valve Controller HE 5721	100–240 VAC/12Valves/delta-p	Makrolon/Relais MR 0–50 mbar/Output 4–20 mA
67214111	Valve Controller HE 5721	100–240 VAC/24 Valves/delta-p Multi-core cable	Makrolon/Relais MR 0–25 mbar/Output 4–20 mA
67214113	Valve Controller HE 5721	100–240 VAC/24 Valves/delta-p Multi-core cable	Makrolon/Relais MR 0–100 mbar/Output 4–20 mA
67214211	Valve Controller HE 5721	24 VDC/12 Valves/delta-p Multi-core cable	Makrolon/Relais MR 0–25 mbar/Output 4–20 mA

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Art.-Nr.	Description	Version 1	Version 2
67214411	Valve Controller HE 5721	100–240 VAC/12 Valves/delta-p Multi-core cable	Makrolon/Relais MR 0–25 mbar/Output 4–20 mA
67215131	Valve Controller HE 5721	100–240 VAC/24 Valves/delta- p/FP Pressure switch/Multi-core cable	Makrolon/Relais MR 0–25 mbar/Output 4–20 mA
67215132	Valve Controller HE 5721	100–240 VAC/12 Valves/delta- p/FP Pressure switch/Multi-core cable	Makrolon/Relais MR 0–25 mbar/Output 4–20 mA
67215133	Valve Controller HE 5721	100–240 VAC/12 Valves/delta- p/FP Pressure switch/Multi-core cable	Makrolon/Relais MR 0–25 mbar/Output 4–20 mA

are in conformity with following directives:

- 2006 / 95 / EG Low Voltage Directive
- 2004 / 1016 / EG EMC Directive
- 1994 / 9 / EG ATEX Directive of equipment and protective systems intended for use in potentially explosive atmospheres

The following standards are used:

- EN 61010-1:2011 Safety requirements for electrical equipment for measurement, control and laboratory use
- EN 61000-6-2:2006 Immunity for industrial environments
- EN 61000-6-4:2011 Emission standard for industrial environments
- EN 61326-1:2013 Electrical equipment for measurement, control and laboratory use - EMC requirements
- EN 60079-0:2013 Explosive atmospheres
Part 0: Equipment - General requirements
- EN 60079-31:2010 Explosive atmospheres
Part 31: Equipment dust ignition protection by enclosure "t"
Ex tD A22 IP65 T135°C
Ex II 3D Ex tb IIIB T135°C Dc

Neustadt, 26.05.2014



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