

# Installation instruction

## PLC control head for globe and rotary valves



We reserve the right to make technical changes and improvements to our products.

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## 1 General information



These installation instructions are part of the control head and must be available to the user at all times. All safety instructions must be made sufficiently known and must be complied with. If the device is passed on, the installation instructions must also be passed on.

### 1.1 List of images and diagrams

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## 2. Technology and application

### 2.1 Function of the control head

The control head can be combined with Kieselmann valves. It is mounted and screwed to the respective valve actuator. The non-contact magnetic sensor technology allows use with different valve types. The positions of the valve are detected by the electronics of the control head and transmitted to a higher-level control system. The signals are forwarded via a dedicated cabling. The electronics signal the valve status at the control head. The actuator is controlled via integrated pilot valves. The air is supplied either directly via the control head or via an external hose connection. Operation may only be carried out in the environment provided for this purpose.



Figure 1



The installation of systems must be carried out by qualified personnel. The cables must be kept away from interfering components such as supply lines of frequency converters.

## 2.2 Structure of the control head

The control head consists of a lower part with bayonet locking on which a plastic or stainless steel hood can be mounted. An electronic system is integrated in the resulting housing, which makes it possible to control and record the positions of the valve. The electronics are available in a light and a premium version. An all-round display can be mounted on both versions. The pilot valves, which are also integrated, control the movement of the drive. The electrical connections are made via a cable entry in the lower part. Other connection technologies such as e.g. M12 plug connectors are also possible. A connection to the supply air is made using compressed air quick connectors. Optionally, shut-off elements are possible for the air intake.

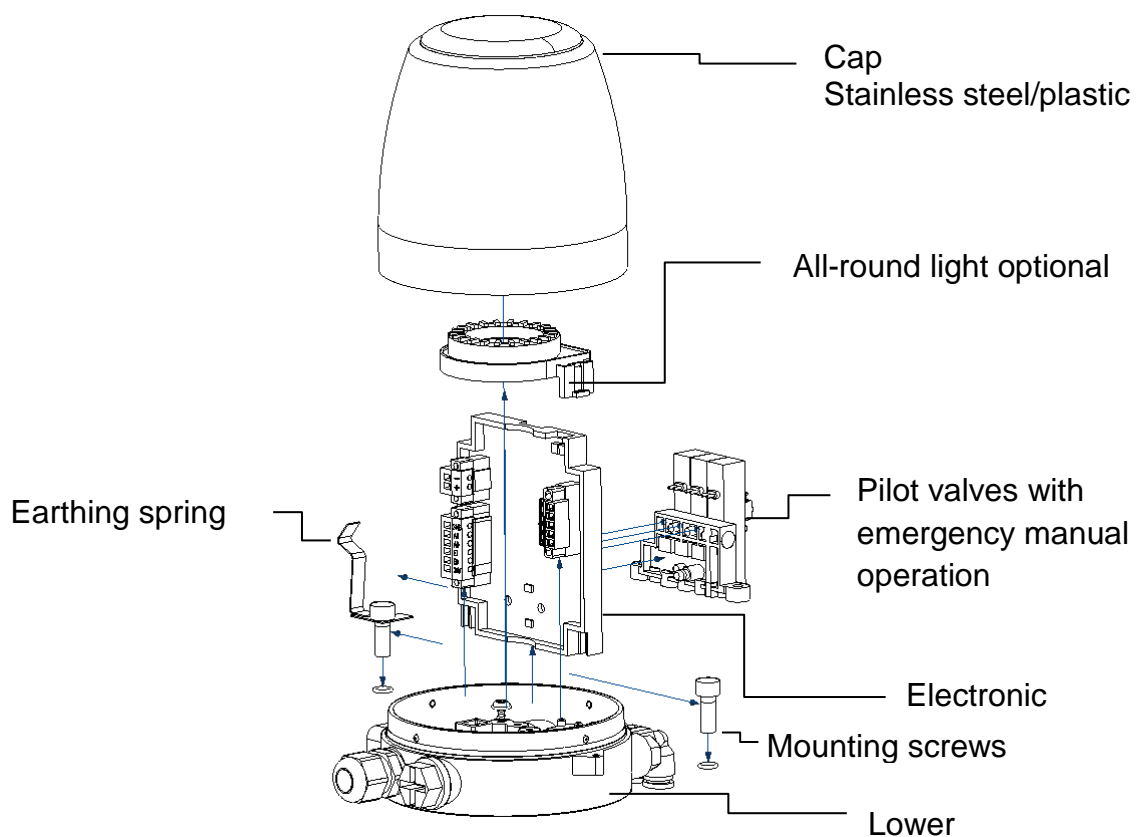


Figure 2

## 2.3 Control of the actuator

The actuator can be controlled via the built-in or external pilot valves. External pilot valves are located in the switchgear of the higher-level control system. The internal pilot valves can be triggered by a manual override.

## 2.4 Determining the position

The position of the linear actuator is determined using a magnet carrier. This carrier is located in the spindle of the valve. For rotary actuators, a rotary encoder with magnets is used to determine the position.

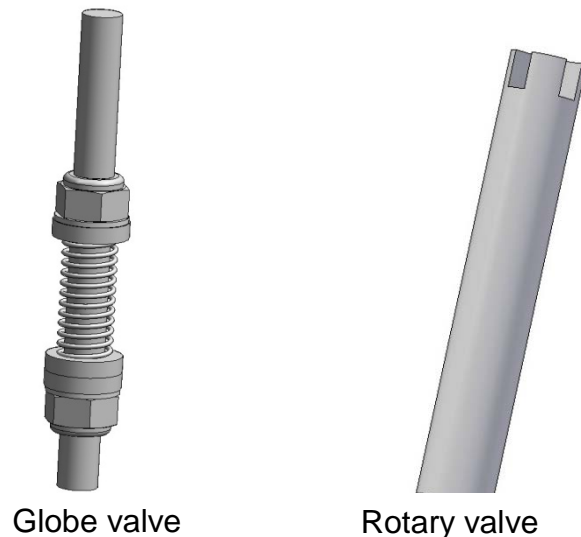


Figure 3

## 2.5 ES Technology

An external supply for the pilot valves can be fed in for safety shutdown of valves. This supply can be interrupted for example by an emergency stop switch, to place a specific part of a plant into the STOPPED condition. All messaging routes to the overarching control system remain available.

## 2.6 Application

These control heads are suitable for use on Kieselmann actuators for globe and rotary valves, as well as ball valves. The area of application can be found in the technical specifications



These control heads are designed for use on all actuators with a suitable encoder system. Applications must only take place in the intended areas. All uses other than those intended are forbidden. The use must only be initiated by trained and inducted personnel.

Conversions and/or modifications are not covered by the manufacturer.

## 2.7 Setting the actuator types

The setting of the valve types is done using a selector switch (S1). The switch positions are assigned to the actuators according to the list below.

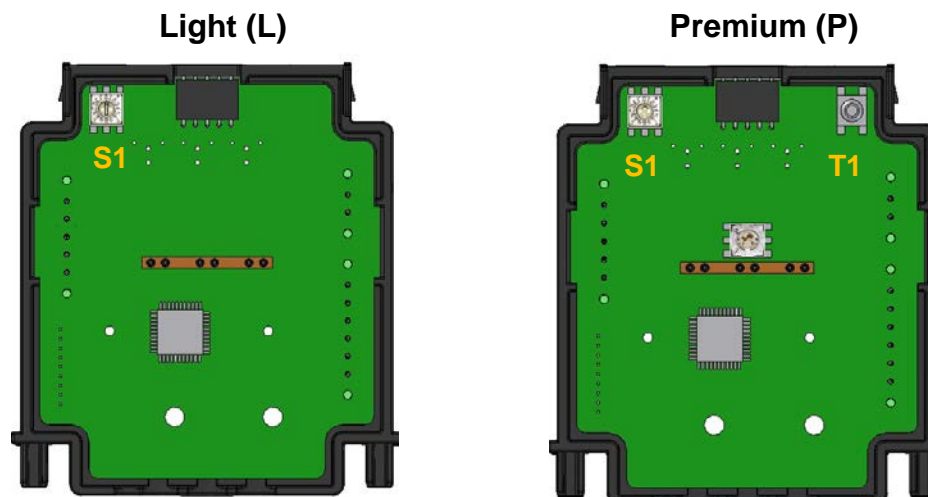


Figure 4

Actuator description	Switch position (S1)
Double seat valve phase up / down without feedback	0
Double seat valve without phase	1
Double seat valve phase up only	2
Double seat valve with cyclic stroke detection and feedback	3
Globe valve LÖ / FS	4
Globe valve LÖ / LS	5
Globe valve LS / FÖ	6
Double seat valve with inverse phase	7
Rotary valve / flap LÖ / FS	8
Rotary valve / flap LÖ / LS	9
Rotary valve / flap LS / FÖ	A
Globe valve LÖ / FS	B
Globe valve LÖ / LS separately controllable	C
Rotary valve / flap LÖ / LS separately controlled	D
Globe valve FÖ / LS	E
nu	F

Table1



### Caution Type 3 only with premium version

When setting type 3, pay special attention:

To teach the positions, the T1 button must be pressed and held down while plugging in the 6 pin connector. After releasing the button, the actuator enters learning mode and moves to the positions in sequence. Now the connector can be screwed and the cover closed.

## 2.8 LED Signalling

Signalling the actuator position  
by the LED on the circuit board or optionally via the all-round display

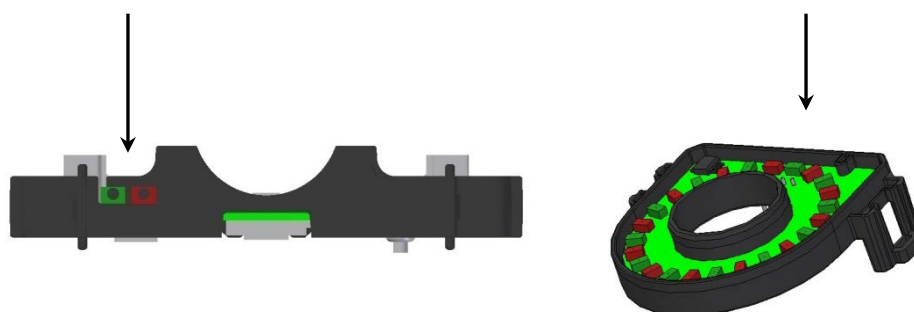


Figure 5

		Comment
Valve closed	LED red	
Valve open	LED green	
Valve position undefined	Alternating red / green 8 Hz	
For valves with learning mode switch position 3		
Cycle down	LED red blinks	only P variant
Cycle up	LED green blinks	only P variant
Programming	Red / green simultaneously	4Hz
Incorrectly programmed	Red blinks	20 Hz
Program error	Red / Green alternating	4 Hz

Table 2



### 3 Electrical connections Position of the plug connectors

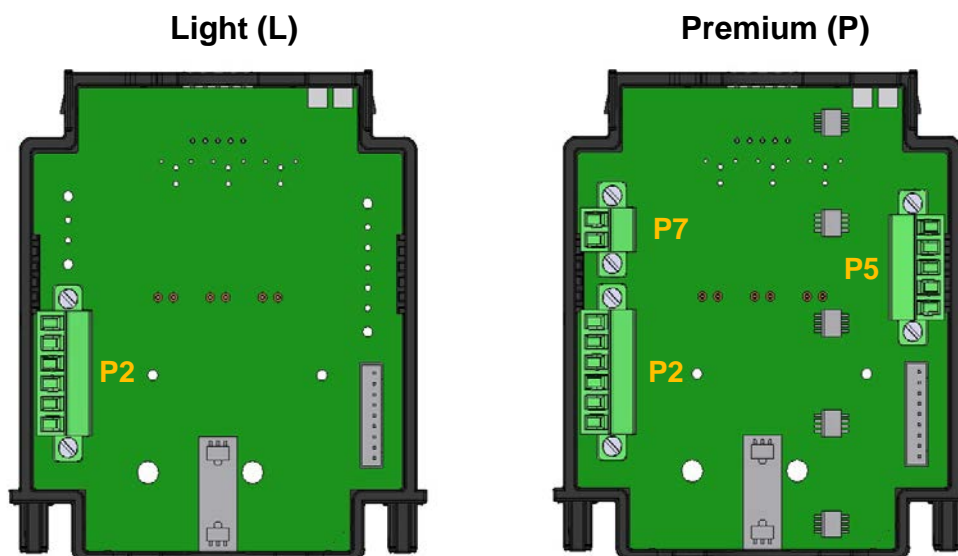


Figure 6

#### 3.1 Electrical connections L and P

Connector P 2 .1	GND
Connector P 2 .2	A1
Connector P 2 .3	A0
Connector P 2 .4	E1
Connector P 2 .5	E0
Connector P 2 .6	+ 24V

#### 6-pin connector (P2)

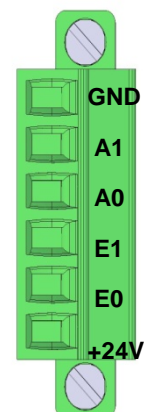


Figure 7

#### 3.2 Electrical connections ES P

Connector P 7 .1	Voltage ES + 24V
Connector P 7 .2	Voltage ES GND

#### 2-pin connector (P7)

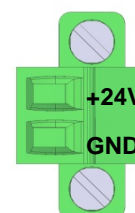


Figure 8

### 3.3 Electrical connections cyclic stroke P (P5)

Connector P 5 .1	NC
Connector P 5 .2	A2
Connector P 5 .3	A3
Connector P 5 .4	NC
Connector P 5 .5	NC

#### 5-pin connector

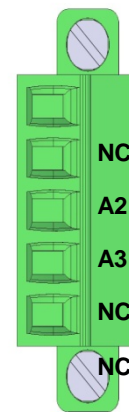


Figure 9

#### Allocation Escha connector

1	+ 24V	brown
2	A1	white
3	GND	blue
4	A0	black
5	E1	grey

#### 5-pin connector

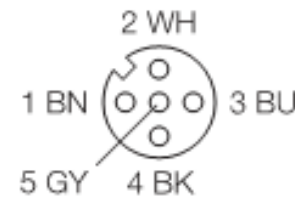


Figure 10

#### Allocation Binder connector for control head type 5631.611.000

1	+24V	Cable no.: 6
2	GND	Cable no.: 1
3	A1	Cable no.: 2
4	A0	Cable no.: 3
5	E1	Cable no.: 4
6	nu	
7	nu	

#### 7-pin connector

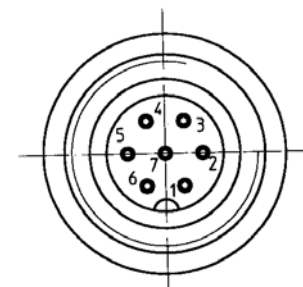


Figure 11

#### Allocation M12 connector for control head type 5631.xxx.000

1	E0	white
2	+24V	brown
3	E1	green
4	A0	yellow
5	A1	grey
6	A2 (only Premium)	pink
7	GND	blue
8	nc	red

#### 8-pin connector

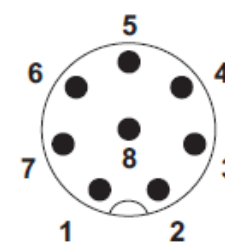


Figure 12

### 3.6 Technical data

#### PLC Electronics

Supply voltage	24V DC
Supply voltage range	± 10%
Power consumption max.	80 mA (24V DC)
Ambient temperature	-10°C – +60°C
Protection class	IP 67 DIN EN 60529
with stainless steel hood	DIN EN 61140 I
with plastic hood	DIN EN 61140 I

#### Control air requirements according to DIN ISO 8573-1:2001

Particle size	max. 5 µm
Particle density	max. 5mg / m <sup>3</sup> , class 3
Water content	Dew point 2°C, class 3
Oil content	oil-free
	max. 25mg / m <sup>3</sup> , class 3
Air pressure	6 – 8 bar
Air volume	160 l / min / 6bar

### 4 Dimensions and installation

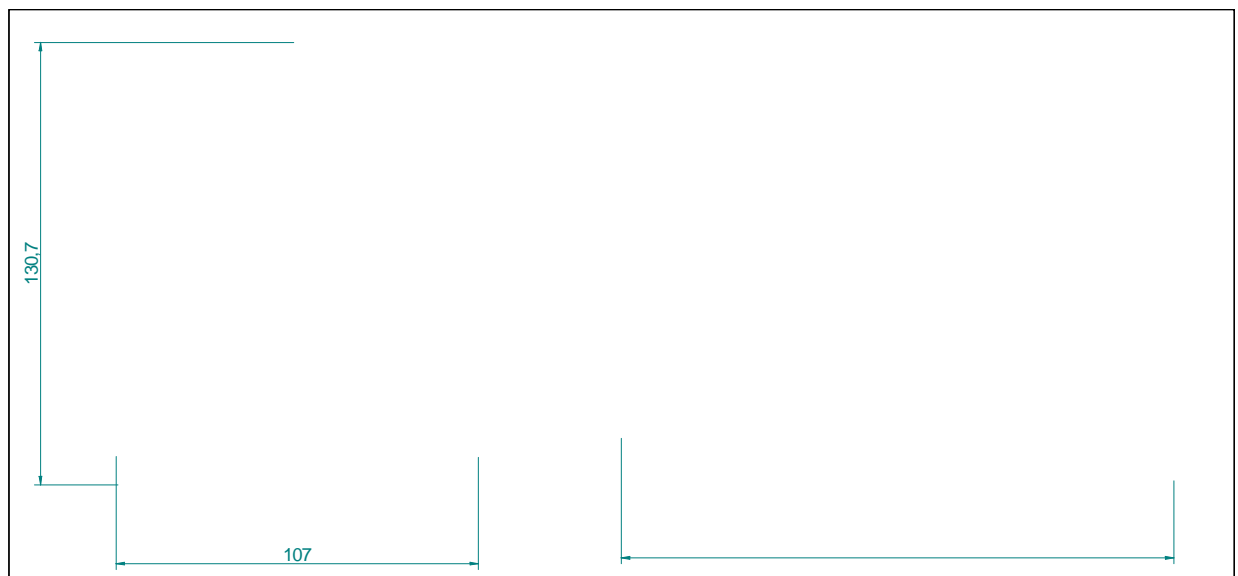


Figure 13

Pneumatic connections	G1/8
Pneumatic hose	Ø 6 mm
Electrical connections	Cable gland
	M12 Adapter M16x1
	5-pin pin connector
	7-pin Binder plug

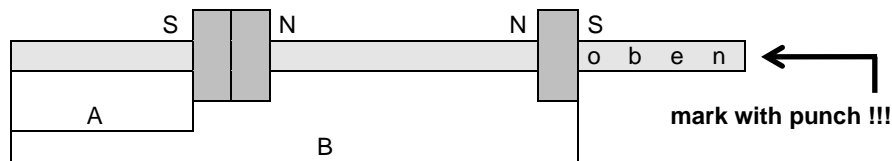
## 5 Adjustment of solenoid encoder for globe valves

Double-seat leakage valves (e.g: 5670...)

$$A = 46.5^{+0.5}$$

$$B = 51.0^{-0.5} + \text{Stroke}_{\text{measurable}} \quad \text{OR}$$

$$B = 51.0^{-0.5} + (\text{Stroke}_{\text{theor}} - \text{leakage space})$$



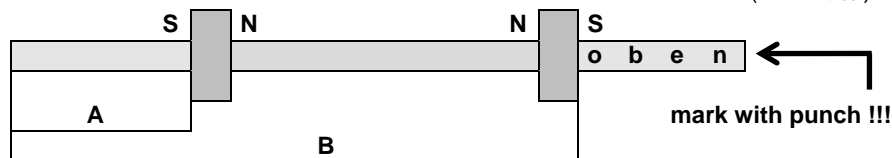
Nominal diameter	Stroke	Leakage-R	(Cyclic stroke)	A <sup>+0.5</sup>	B <sup>-0.5</sup>	Springs	Position indicator
DN 25	21.8	2.5	5.0	46.5	70.5	1	5620.025.005-K000
DN 40	28.0	2.5	5.0	46.5	76.5	1	5620.040.005-K000
DN 50	34.0	2.5	5.0	46.5	82.5	2	5620.050.005-K000
DN 65	43.0	2.5	5.0	46.5	91.5	2	5620.065.005-K000
DN 80	51.5	3.5	6.0	46.5	99.0	2	5620.080.005-K000
DN 100	61.5	3.5	6.0	46.5	109.0	3	5620.100.005-K000
DN 125 /150	65.0	3.5	6.0	56.5	122.5	3	5620.150.005-K000

Angle valve (e.g: 5536...)

$$A = 43.5^{+0.5}$$

$$B = 51.0^{-0.5} + \text{stroke}_{\text{measurable}} \quad \text{OR}$$

$$B = 51.0^{-0.5} + (\text{Stroke}_{\text{theor}})$$



Nominal diameter	Stroke	A	B	Springs	Position indicator
DN 25	22.0	43.5	73.0	2	5702.025.005-K000
DN 40 / 32	24.0	43.5	75.0	2	5702.040.005-K000
DN 50	26.0	43.5	77.0	2	5702.065.005-K000
DN 65	26.0	43.5	77.0	2	5702.065.005-K000
DN 80	35.0	43.5	86.0	2	5702.100.005-K000
DN 100	35.0	43.5	86.0	2	5702.100.005-K000

Switch valve (e.g: 5714...)

Nominal diameter	Stroke	A	B	Springs	Position indicator
DN 25 / 32	18.5	43.5	69.5	1	5714.025.005-K000
DN 40	24.0	43.5	75.0	2	5702.040.005-K000
DN 50	26.0	43.5	77.0	2	5702.065.005-K000
DN 65	26.0	43.5	77.0	2	5702.065.005-K000
DN 80	35.0	43.5	86.0	2	5702.100.005-K000
DN 100	35.0	43.5	86.0	2	5702.100.005-K000

Aseptic valve (e.g: 5836...)

Nominal diameter	Stroke	A	B	Springs	Position indicator
DN 25	10.0	43.5	61.0	1	5802.025.005-K000
DN 40	12.0	43.5	63.0	1	5802.040.005-K000
DN 50	17.0	43.5	68.0	1	5802.050.005-K000
DN 65	21.0	43.5	72.0	1	5802.065.005-K000
DN 80	24.0	43.5	75.0	2	5702.040.005-K000
DN 100	29.0	43.5	80.0	2	5802.100.005-K000
DN 125	34.0	43.5	85.0	2	5802.125.005-K000
DN 150	40.0	43.5	91.0	2	5802.150.005-K000

## 6 Symbols and references

### 6.1 Symbols used

#### Hazard information



The warning triangle indicates special hazards.



Risk of crushing or injuries to the hands

#### Warnings



Warning of dangers

#### Information



Observe operating instructions



Observe information

## 6.2 Terms used

PLC	<b>Programmable Logic Controller</b>
ES	<b>Emergency Stop</b>
nu	<b>not used</b>
NC	<b>not connected</b>

## 6.3 Safety requirements

The operator of the control head is obliged to train both the operating personnel and the personnel authorised to carry out maintenance. All persons working with controlling pneumatic actuators must be informed about the dangers posed by these devices.

Persons who are not listed as operating or maintenance personnel must not be in the operating range of the devices. The operator must ensure that the necessary measures are taken.

Basically, the devices should only be serviced by suitable specialist personnel. Only original spare parts may be used. The warranty will be voided if non-original parts are used.

All assembly work on the control head must be carried out in a de-energised state.

## 6.4 Dangers



The control heads are operated with compressed air 6 - 8 bar. In case of leakage, there may be a pressure build-up in the hood of the control head due to the design. Hence, we specifically point out that only original spare parts may be used for repair / maintenance. Damages resulting from the use of **non-original parts** will **not be acknowledged** by the manufacturer.



The control head may only be operated in the intended environment.



The control head is equipped with a cover with bayonet locking. It must be ensured that no tools are used to release the hood and that the respective direction of rotation for opening or closing is observed.



When handling the control head be aware that the cap may be pressurised. When removing it, ensure that the cap is held firmly.



Only authorised persons are allowed to be in the operating area of the control head.



If the pulse encoder is removed or installed in the control rod then make sure that the closure cap is screwed in as far as it will go until full metallic contact is achieved. If the cap is not screwed in fully due to the stroke movement of the piston rod the cover may be destroyed. Control heads must not be operated with the cap removed!



## 7 Installation Commissioning

### 7.1 Installation of the control head

The control head is mounted on the actuator of the globe or rotary actuator



It is particularly important to ensure that the air feed-through in the actuator with the cardioid groove on the underside of the control head is fitted to match the air outlet.

For assembly the M6 Allen screws with the mounted O ring are required. For control heads with a stainless steel cover, a spring must be mounted for earthing according to Figure 6. For actuators that are smaller than 100 mm in diameter, an intermediate plate Art. No.: 5630600076-087 with an encoder extension Art. No.: 5630600077-059 must be used.

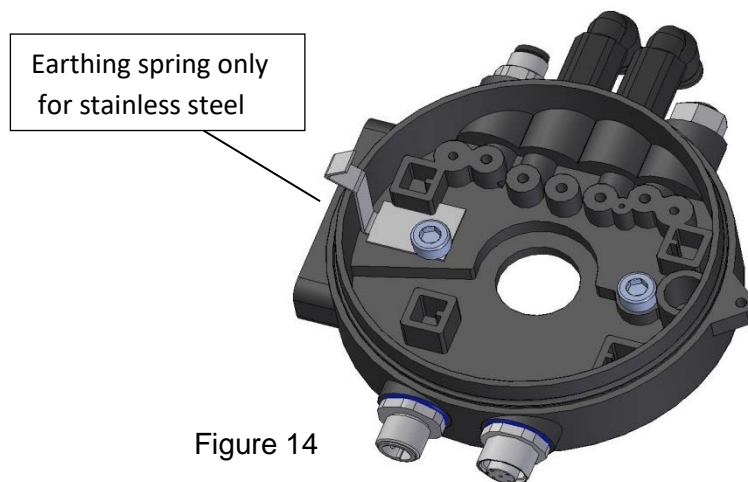


Figure 14



Before putting the control head into operation, always check all parts for tightness. The operator is liable for incorrectly installed control heads.

### 7.2 Required tools for assembly and disassembly

1. Torx screwdriver size T20
2. Allen key size 5
3. Screwdriver long blade size 3
4. Screwdriver size 2
5. Torx screwdriver size T10 only for Ki Top ATEX
6. Open-ended spanner AF 13



### 7.3 Commissioning

Once all screw connections have been tightened and the air line and electrical connection have been made, the control head is ready for initial start-up.

The air supply must be carried out in accordance with the regulations. Check that the filter body is inserted in the air inlet of the control head and that all O-rings are correctly fitted.

Before initial commissioning, the air supply line to the control head must be blown free. Metallic impurities, welding residues and other solid objects can destroy the control head.

### 7.4 Integration into a system

If the control head is integrated into an automated system, it must be ensured that the function of the control head can be monitored. The monitoring must be ensured by the system concept. A visual inspection should also be carried out at specific intervals. The functional check must be documented during visual inspection. If faults or damage are identified during the inspection, then these must be remedied immediately.



In the case of remote-controlled valves, care must be taken to ensure that media cannot be mixed in case of manually operated valves.

When operating in automatically operating systems, the operator must familiarise themselves with the emergency stop procedure for the system.

### 7.5 Assembly of the control head

During assembly of the control head it must be ensured that both O-rings are installed correctly in the lower part of the control head. The control head must then be mounted on a clean valve body. 2 M6 Allen screws with an O-ring are used for this. If the control head is fitted with a stainless steel cap, then an earthing spring must be installed according to Figure 10. The spring connects the stainless steel cap with the body of the actuator. When doing so, the actuator itself must not be installed insulated to EARTH potential. Potential equalisation must always be ensured. After the assembly of the control head lower section, both the electrical connections and the control air are connected to the head. Following the electrical commissioning, the cap is pushed onto the lower section with the bayonet and locked by rotating 15° clockwise.

The optional allround light can be installed by plugging it into the control circuit board.

## 7.6 Disassembly of the control head



The control head is dismantled if the control head

1. is to be maintained or
2. parts of the control head need to be replaced. The repair instruction applies for this.

The air supply to the control head is stopped. The control head is disconnected from the electrical connection. To dismantle the control head the cover is grasped firmly with both hands. Turning it counterclockwise by approx. 15° releases the bayonet lock. Now the cover can be removed upwards. Tool 1 can be used to remove the electronics or sensors including the pilot valve block. The pilot valve block is equipped differently. For control by external valves, the block is installed without equipment.

If, in addition to the control board or the sensors, the lower part is to be removed as well, all hose and electrical connections must be disconnected. The lower part is fixed with 2 Allen screws M6 using tool 2. The lower part is then removed from the valve upwards.

The optional allround light can be removed from the control circuit board using a size 2 screwdriver by undoing the side lock.

## 8 Spare and wear parts

plastic hood	Spare part	5631.000.002-094
Stainless steel hood closed	Spare part	5631.000.110-021
Stainless steel hood Indicator	Spare part	5631.000.111-000
O Ring Set	Spare part	5631.000.006-000
Electrical connection set	Spare part	5631.000.007-000
Pilot valve block 1MV DSV	Spare part	5630.001.013-000
Pilot valve block 2MV DSV To	Spare part	5630.002.013-000
Pilot valve block 2MV DSV	Spare part	5630.004.013-000
Pilot valve block 3MV DSV	Spare part	5630.003.013-000
Pilot valve block 1MV PDA	Spare part	5630.601.013-000
Pilot valve block 2MV PDA	Spare part	5630.602.013-000
PLC L control board	Spare part	5631.000.013-000
PLC P control board	Spare part	5631.000.012-000
Top LED display	Spare part	5631.000.018-000
Screw set	Spare part	5631.000.005-000
Solenoid encoder for globe valves	For spare part see table point 5.0	
Rotary encoder flap	Spare part	5630.600.010-000

## **9 Transport**

### **9.1 Scope of supply**

The scope of supply includes the control head, for version options please see the delivery paperwork.

### **9.2 Transport and packaging**

Our products are manufactured, assembled and tested with great care. Should there nevertheless be any reason for complaint, we will of course satisfy you within the scope of our warranty. We are also there for you after the warranty.



For all deliveries, the packing list must always be compared with the scope of delivery. After determining completeness, the goods must be checked for damage.

If there is any damage, a note on the delivery documents is essential. The forwarder must countersign the damage.

For return deliveries, either keep the outer packaging or choose packaging that does not damage the equipment.

## 10 Troubleshooting

### 10.1 Emergency shutdown



In order to force an emergency shutdown of the control head, it is essential that the operators of the system are familiar with the system concept. It is essential that an emergency shutdown is trained and the necessary elements for emergency shutdown identified. The training of persons who are entrusted with operation of the system must be documented. All personal injury and damage to property resulting from incorrect operation or incorrect use are borne by the system operator.

## 11 Disposal

If the control head is taken out of service, the plastic parts shall be sent for recycling for such materials. The electronic assembly shall be sent for recycling of raw materials via the designated recycling facility

These materials can be disposed of via the appropriate waste streams.



**ATTENTION** It must be ensured that there is no longer any contamination with substances from operation. For this purpose, the appropriate substance must be used to rinse the parts to be disposed of.

## 12 Imprint

Status September 2020  
Revision 11  
AquaDuna GmbH & Co. KG  
Ferdinand-von-Steinbeis-Ring 31  
D-75447 Sternenfels  
Tel.: 07045 / 204980  
Fax.: 07045 / 204990  
[www.aquaduna.com](http://www.aquaduna.com)

## 13 Declaration of incorporation

### Original-Einbauerklärung

Hersteller / Bevollmächtigter	AquaDuna GmbH & Co. KG Ferdinand-von-Steinbeis-Ring 31 D-75447 Sternenfels
Bevollmächtigte Person für die Zusammenstellung der technischen Unterlagen	Frank Zeitler AquaDuna GmbH & Co. KG Ferdinand-von-Steinbeis-Ring 31 D-75447 Sternenfels

### Produktbezeichnung

#### Steuerkopf für Hub- und Drehventile

Der Hersteller erklärt, dass das oben genannte Produkt eine unvollständige Maschine im Sinne der Maschinenrichtlinie 2006/42/EG ist. Das oben genannte Produkt ist ausschließlich zum Einbau in eine Maschine oder Anlage vorgesehen. Aus diesem Grund entspricht das Produkt noch nicht in allen Anforderungen der Maschinenrichtlinie.

Die speziellen technischen Unterlagen gemäß Anhang VII Teil B wurden erstellt. Der Bevollmächtigte für das Zusammenstellen der technischen Unterlagen kann die Unterlagen auf begründetes Verlangen innerhalb einer angemessenen Zeit zur Einsichtnahme vorlegen.

Die unvollständige Maschine darf erst in Betrieb genommen werden, wenn festgestellt wurde, dass die Anlage, in die diese unvollständige Maschine eingebaut werden soll, den Bestimmungen der Maschinenrichtlinie entspricht.

Das oben genannte Produkt erfüllt die Anforderungen der nachfolgend genannten Richtlinien und harmonisierten Normen:

- Maschinenrichtlinie 2006/42/EG
- DIN EN ISO 12100:2011-03

Sternenfels, 24.09.2020



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**Frank Zeitler**  
Geschäftsführer

## 14 Appendix 1

Conversion to previous version

Removal of the circuit board guides from the control head lower part

After removal of the pilot valve block with the attached electronics the circuit board guides are removed using flat pliers if req. from the lower section.



Figure 15

The magnets at position A are moved 3mm upwards. This change is very important to ensure the detection of the bottom end position.

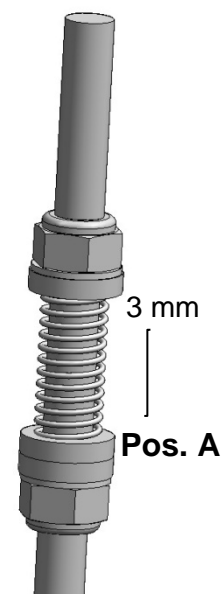


Figure 16

## 15 Appendix 2

Circuit example PLC board

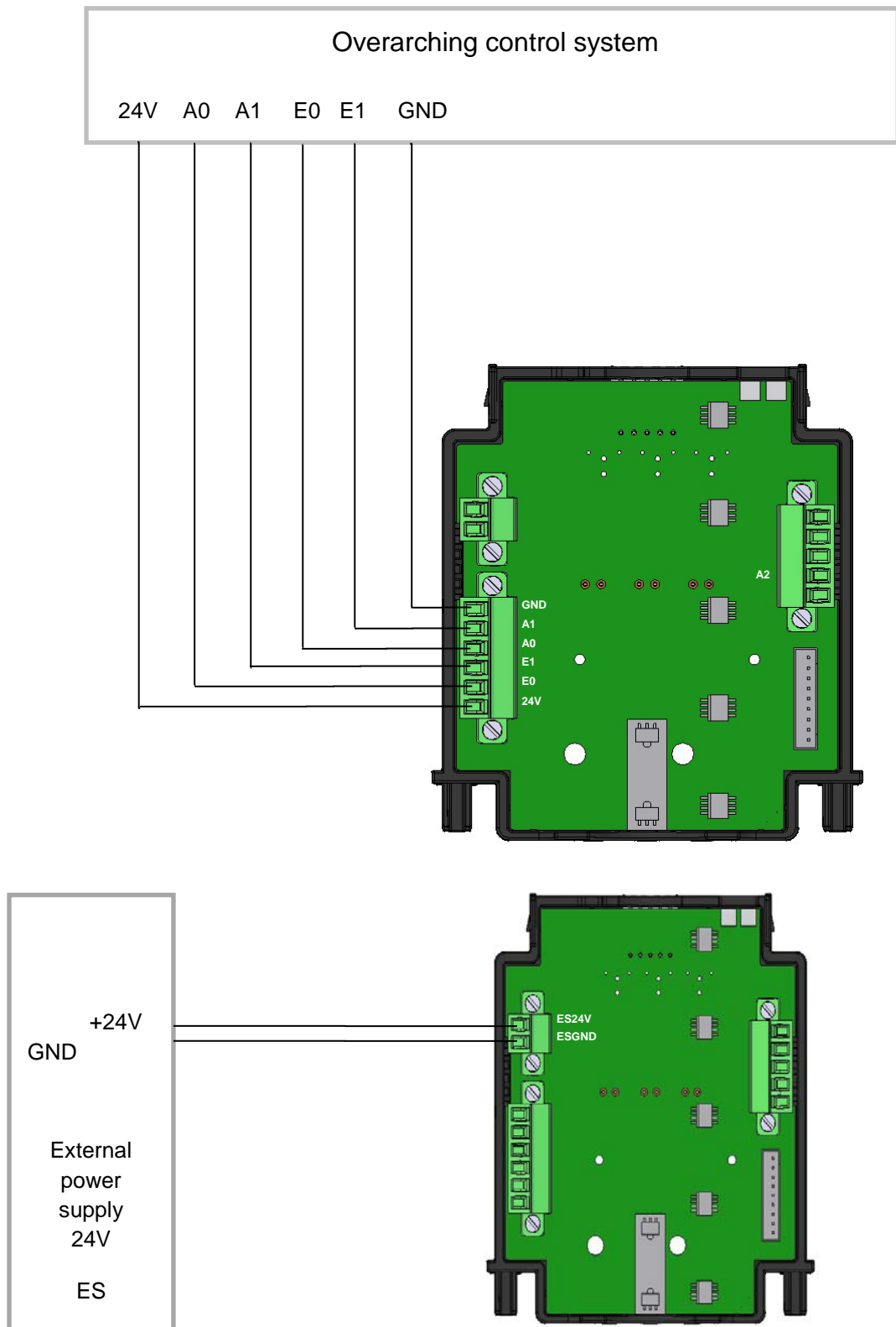


Figure 17



## 16 Appendix 3

### Control PLC VB

#### Switch position 0

Double-seat valve  
Normal position is closed  
with cycle  
without cyclic stroke detection

A2	A1	A0	Position	E1	E0	Action
-	0	1	closed	0	0	close
-	0	1	Cycle up	0	1	Cycle upward
-	0	1	Cycle down	1	0	Cycle downward
-	1	0	open	1	1	open

#### Switch position 1

Double-seat valve  
Normal position is closed  
without cycle

A2	A1	A0	Position	E1	E0	Action
-	0	1	closed	0	0	close
-	1	0	open	1	1	open

#### Switch position 2

Double-seat valve  
Normal position is closed  
with cycle only upward  
without cyclic stroke detection

A2	A1	A0	Position	E1	E0	Action
-	0	1	closed	0	0	close
-	0	1	Cycle up	0	1	Cycle upward
-	1	0	open	1	1	open

#### Switch position 3\*

Double-seat valve  
Normal position is closed  
with cycle, with cycle stroke detection  
with Teach In

A2	A1	A0	Position	E1	E0	Action
0	0	1	closed	0	0	close
0	1	1	Cycle up	0	1	Cycle upward
1	0	1	Cycle down	1	0	Cycle downward
0	1	0	open	1	1	open

#### Switch position 4

Single-seat valve  
Normal position is closed  
Spring-closing

A2	A1	A0	Position	E1	E0	Action
-	0	1	closed	0	0	close
-	1	0	open	1	0	open

#### Switch position 5

Single-seat valve  
Normal position is closed  
Air opening / air closing

A2	A1	A0	Position	E1	E0	Action
-	0	1	closed	0	0	close
-	1	0	open	1	0	open



**Switch position 6**

Single-seat valve  
Normal position is open  
Spring-opening

A2	A1	A0	Position	E1	E0	Action
-	0	1	closed	0	0	open
-	1	0	open	1	0	close

**Switch position 7**

Double-seat valve  
Normal position is open  
with cycle  
without cyclic stroke detection

A2	A1	A0	Position	E1	E0	Action
-	0	1	closed	0	0	open
-	0	1	Cycle up	0	1	Cycle upward
-	0	1	Cycle down	1	0	Cycle downward
-	1	0	open	1	1	close

**Switch position 8**

Butterfly valve  
Normal position is closed  
Spring-closing

A2	A1	A0	Position	E1	E0	Action
-	0	1	closed	0	0	close
-	1	0	open	1	0	open

**Switch position 9**

Butterfly valve  
Normal position is closed  
Air opening / air closing

A2	A1	A0	Position	E1	E0	Action
-	0	1	closed	0	0	close
-	1	0	open	1	0	open

**Switch position A**

Butterfly valve  
Normal position is open  
Spring-opening

A2	A1	A0	Position	E1	E0	Action
-	0	1	closed	0	0	open
-	1	0	open	1	0	close

**Switch position B\***

Single-seat valve  
Normal position is closed  
Spring-closing  
with Teach In

A2	A1	A0	Position	E1	E0	Action
-	0	1	closed	0	0	close
-	1	0	open	1	0	open

**Switch position C**

Single-seat valve  
Position undefined  
Air opening / air closing

A2	A1	A0	Position	E1	E0	Action
-	0	1	closed	0	1	open
				0	0	-
				1	1	-
-	1	0	open	1	0	close

### Switch position D

Butterfly valve  
Position undefined  
Air opening / air closing

A2	A1	A0	Position	E1	E0	Action
-	0	1	closed	0	1	close
				0	0	-
				1	1	-
-	1	0	open	1	0	open

### Switch position E\*

Single-seat valve  
Normal position is open  
Spring-opening  
with Teach In

A2	A1	A0	Position	E1	E0	Action
-	0	1	closed	0	0	open
-	1	0	open	1	0	close

### Switch position F

Factory setting

A2	A1	A0	Position	E1	E0	Action
-	-	-	company-internal	-	-	company-internal



## Caution

\* **only available in Premium version**

A2 only connected in the Premium version.

A3 not connected in all control heads.

## 17 Appendix 4

### PLC control special VB

#### Switch position 0

Tank outlet valve  
with cycle only upward  
with Teach In

A2	A1	A0	Position	E1	E0	Action
0	0	1	closed	0	0	no actuator
0	1	0	open	0	1	Main actuator
1	0	0	Cycle up	1	0	Cycle upward
				1	1	no actuator

#### Switch position 1

Globe valve  
Air opening / air closing  
separately controllable  
with Teach In

A2	A1	A0	Position	E1	E0	Action
-	1	0	closed	0	0	no actuator
-	0	1	open	0	1	Open main actuator
				1	0	Close main actuator

#### Switch position 2

Double-sealing  
Single-seat valve with  
a  
Leakage valve

A2	A1	A0	Position	E1	E0	Action
-	0	1	closed	0	0	no actuator
-	1	0	open	0	1	Main actuator
-	0	1	closed	1	0	Outlet actuator
-	1	0	open	1	1	Main and outlet actuator

#### Switch position 3

A2	A1	A0	Position	E1	E0	Action

#### Switch position 4

A2	A1	A0	Position	E1	E0	Action

#### Switch position 5

A2	A1	A0	Position	E1	E0	Action

#### Switch position 6

A2	A1	A0	Position	E1	E0	Action

#### Switch position 7

A2	A1	A0	Position	E1	E0	Action

#### Switch position 8

A2	A1	A0	Position	E1	E0	Action

#### Switch position 9

A2	A1	A0	Position	E1	E0	Action

<b>Switch position A</b>	A2	A1	A0	Position	E1	E0	Action
<b>Switch position B</b>	A2	A1	A0	Position	E1	E0	Action
<b>Switch position C</b>	A2	A1	A0	Position	E1	E0	Action
<b>Switch position D</b>	A2	A1	A0	Position	E1	E0	Action
<b>Switch position E</b>	A2	A1	A0	Position	E1	E0	Action
<b>Switch position F</b> Factory setting	A2	A1	A0	Position	E1	E0	Action
	-	-	-	company-internal	-	-	company-internal



### Caution

A2 only connected in the Premium version.  
A3 not connected in all control heads.