KIESELMANN

FLUID PROCESS GROUP

Translation of the original

Operating Instructions

control head SPS

Type 5633

for Lift and Turning Valves

KIESELMANN GmbH

Paul-Kieselmann-Str. 4-10
D - 75438 Knittlingen

☎ +49(0) 7043 371-0 • 🖷 +49(0) 7043 371-125
www.kieselmann.de • info@kieselmann.de

Copyright: © KIESELMANN FLUID PROCESS GROUP

Manufacturer: AquaDuna GmbH & Co.KG

Table of Contents

1 General informations 4
1.1 Informations for your safety 4
1.2 Marking of security instructions 4
1.3 General designated use 4
1.4 Personnel 4
1.5 Modifications, spare parts, accessories 5
1.6 General instructions 5
2 Safety instructions 6
2.1 Intended use 6
2.2 General notes 6
2.3 General safety instructions 6
3 Delivery, transport and storage 8
3.1 Delivery 8
3.2 Transport 8
3.3 Storage 8
4 Disposal 9
5 Specification 10
6 Function and operation 11
6.1 Function 11
6.2 Control of the actuator 11
6.3 Positioning 11
6.4 Pulse cleaning technology 11
6.5 ES Function 12
6.6 Application 13
6.7 Function settings of the control head 13
6.8 LED signalling 14
6.9 Electrical connections 15
6.10 Setting Pulse generator for Lift valves 16
7 Assembly 17
8 Commissioning 18
8.1 Commissioning 18
8.2 Teaching 18
8.3 Integration into a plant 18
9 Malfunctions 19
9.1 Emergency stop 19
10 Disassembly 20
11 Technical data 21
11.1 Dimensions 21
12 Wearing parts 22
13 Appendix 23
13.1 Annex 1 23
13.2 Annex 2 24
13.3 Annex 3 25

1 General informations

1.1 Informations for your safety

We are pleased that you have decided for a high-class KIESELMANN product. With correct application and adequate maintenance, our products provide long time and reliable operation.

Before installation and initiation, please carefully read this instruction manual and the security advices contained in it. This guarantees reliable and safe operation of this product and your plant respectively. Please note that an incorrect application of the process components may lead to great material damages and personal injury.

In case of damages caused by non observance of this instruction manual, incorrect initiation, handling or external interference, guarantee and warranty will lapse!

Our products are very carefully produced, mounted and tested. However, if there is still a reason for complaint, we will naturally try to give you entire satisfaction within the scope of our warranty. We will be at your disposal also after expiration of the warranty. In addition, you will also find all necessary instructions and spare part data for maintenance in this instruction manual. If you don't want to carry out the maintenance by yourself, our KIESELMANN - service team will naturally be at your disposal.

1.2 Marking of security instructions

Hints are available in the chapter "safety instructions" or directly before the respective operation instruction. The hints are highlighted with a danger symbol and a signal word. Texts beside these symbols have to be read and adhered to by all means. Please continue with the text and with the handling at the valve only afterwards.

Symbol	Signal word	Meaning
	DANGER	Imminent danger which will result severe personal injury or death.
	WARNING	Imminent danger which may result severe personal injury or death.
	CAUTION	Dangerous situation which may cause slight personal injury or material damages.
	NOTICE	An harmful situation which may result in damages of the product itself or of adjacent vicinity.
	INFORMATION	Marks application hints and other information which is particularly useful.

1.3 General designated use

The fitting is designed exclusively for the purposes described below. Using the fitting for purposes other than those mentioned is considered contrary to its designated use. KIESELMANN cannot be held liable for any damage resulting from such use. The risk of such misuse lies entirely with the user. The prerequisite for the reliable and safe operation of the fitting is proper transportation and storage as well as competent installation and assembly. Operating the fitting within the limits of its designated use also involves observing the operating, inspection and maintenance instructions.

1.4 Personnel

Personnel entrusted with the operation and maintenance of the tank safety system must have the suitable qualification to carry out their tasks. They must be informed about possible dangers and must understand and observe the safety instructions given in the relevant manual. Only allow qualified personnel to make electrical connections.

1.5 Modifications, spare parts, accessories

Unauthorized modifications, additions or conversions which affect the safety of the fitting are not permitted. Safety devices must not be bypassed, removed or made inactive. Only use original spare parts and accessories recommended by the manufacturer.

1.6 General instructions

The user is obliged to operate the fitting only when it is in good working order. In addition to the instructions given in the operating manual, please observe the relevant accident prevention regulations, generally accepted safety regulations, regulations effective in the country of installation, working and safety instructions effective in the user's plant.

2 Safety instructions

2.1 Intended use

These control heads Type 5633 are designed to be used only on FLUID PROZESS GROUP actuators. They may only be used in the areas intended for this purpose. Any application other than intended is forbidden. Application must be made only by qualified and instructed persons. Modifications are not covered by the manufacturer.

2.2 General notes

NOTICE - observe the operating instructions

These operating instructions are an integral part of the product and must be available to the user at all times. Every safety instruction is to be made sufficiently known and to be observed. If the unit is passed on, the operating instructions must be passed on as well.

NOTICE

All data are in line with the current state of development. Subject to change as a result of technical progress.

2.3 General safety instructions

NOTICE

Safety requirements

The operator of the control head is obliged to train the operating personnel as well as the personnel authorized to carry out the maintenance. Everybody who works with controlling pneumatic actuators, must be informed about the dangers that these devices may present.

Persons being not listed as operating and maintenance personnel, are not allowed to stay in the operating range of the devices. The operator must see to the necessary measures to be taken.

As a general rule, the devices must be maintained solely by qualified personnel. Only original spare parts must be used. If OEM parts are used, warranty will be lost.

Every assembly work carried out at the control head is to be done in stressfree condition.

NOTICE

Loss of warranty if non-original components are used

Damages which result from the use of OEM parts, won't be accepted by the manufacturer.

The control heads are operated with 6 - 8 bar compressed air. Due to the design, stagnation pressure may arise in the cover of the control head in case of leakage. Notification is hereby made that only original spare parts must be used for repair / maintenance.

⚠ WARNING

No ATEX approval

The control head IO-Link is not approved for operation in the ATEX area.

⚠ WARNING

Destruction of the control head cover

If the cap is not completely screwed down, the cover may be destroyed through the stroke movement of the piston rod.

– If the pulse generator which is in the control head, is removed or put in, make sure that the closing cap is screwed down until the metallic stop.

⚠ CAUTION

Danger due unintended use

The control head must be operated only in the ambiance intended for it.

⚠ CAUTION

Damage to the control head cover

The control head cover is fitted with bayonet catch. Make sure that no tools are used to loosen the cover and that the respective sense of rotation to open and/or close is observed.

⚠ CAUTION

Risk of injury due to pressure in the control head

When handling the control head, take into consideration that the hood may be under pressure.

When removing it, make sure that the hood is held fast.

⚠ CAUTION

Damage due to incorrect operation

Only authorized persons are allowed to stay in the operational area of the control head.

3 Delivery, transport and storage

3.1 Delivery

Our products are very carefully produced, mounted and tested. Should there be any reason for complaint, we will naturally give you entire satisfaction within the scope of our warranty. We will be pleased to help you after expiry of warranty, too.

NOTICE

When receiving a delivery, always check the packing list against the delivery scope. After having noticed that delivery is complete, the goods must be checked for damage.

If there are damages, it is essential to note them down on the shipping documents. In case of damage, the forwarder must countersign the documents.

Delivery scope

- Control head
- Quick guide
- Instructions for use

INFORMATION

You can learn the options from the shipping documents.

3.2 Transport

If parts are returned, either keep the outer package or use a packaging where the devices are not damaged.

3.3 Storage

NOTICE

Damage to the product due to improper storage!

Observe storage instructions

avoid a prolonged storage

INFORMATION

Recommendation for longer storage

We recommend regularly checking the product and the prevailing storage conditions during long storage times.

- Don't store any objects on the products.
- Protect the products for wetness, dust and dirt.
- The product should be stored in a dry and well ventilated room at a constant temperature (optimal indoor temperature: 25 C ±5 ; indoor humidity data 60% ±5%).
- Protect seals, bearings and plastic parts for UV light and ozone.

4 Disposal

If the control head is put out of operation, the plastic parts are to be recycled. The electronic sub-assembly is recycled correspondingly for the recovery of raw materials. You can dispose of these materials over the ways intended.

NOTICE

Make sure that there are not contaminations with materials from operation anymore. If so, the corresponding material for rinsing of the parts to be disposed, must be used.

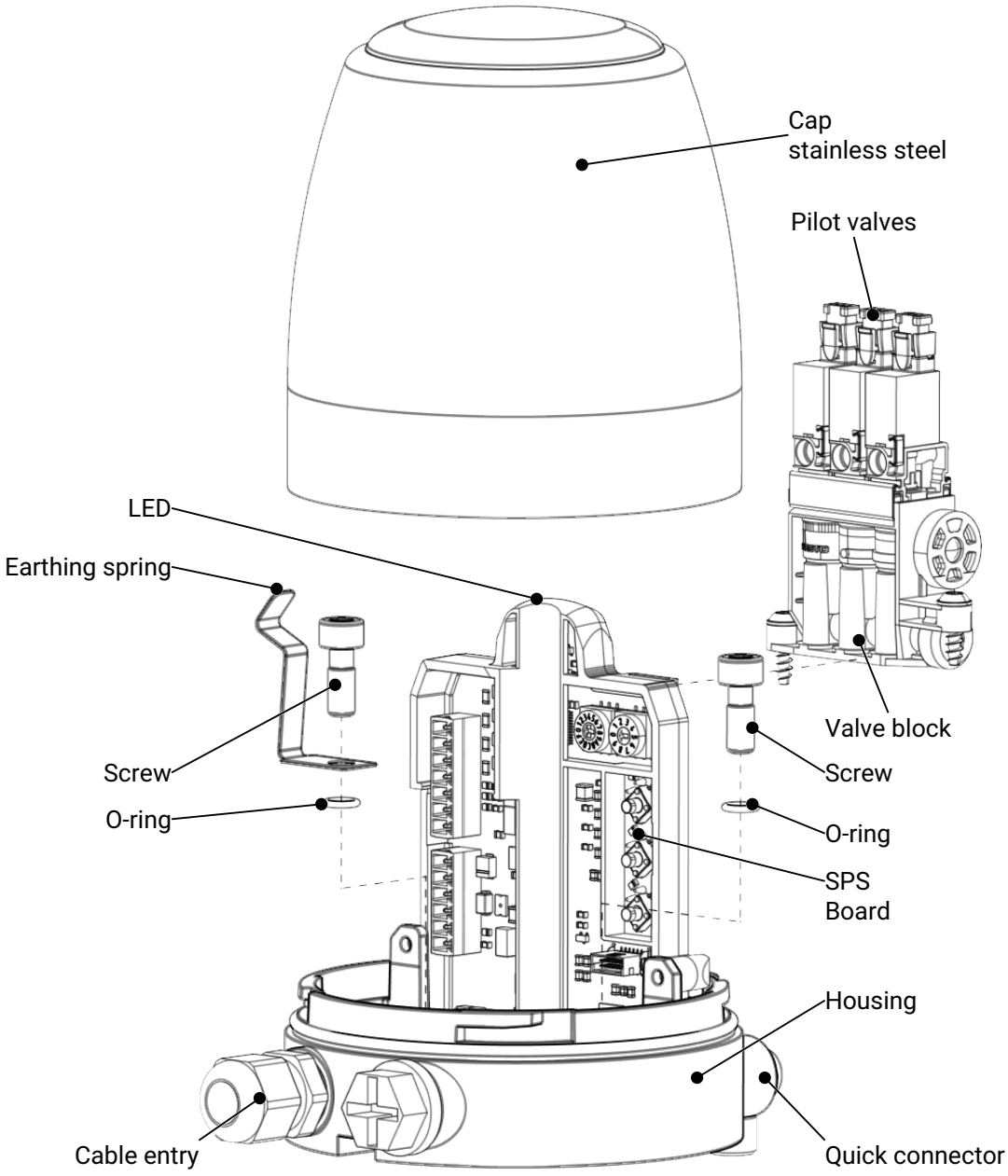
5 Specification

The control head consists of a body with a bayonet lock onto which a plastic or stainless steel cover is fitted.

The electronic system is integrated in this hody. Which allows to control and to acquire the positions of the valve. The valve actuator is controlled via the pilot valves.

The electrical connections are made over a cable entry in the bottom part. Other connections, such as M12 connectors, are possible as an option, too.

The control head is connected to the compressed air supply and the valve actuator via quick-release couplings.



6 Function and operation

6.1 Function

The control head can be combined with the KIESELMANN valves. It is put on the valve drive and then screwed down.

The touchless magnetic sensor technology allows the application in different valve types. The positions of the valves are acquired over the electronics of the control head and forwarded to a higher-level control. The forwarding of the signals is made via a wiring provided for it.

The electronic system signalizes the valve conditions at the control head. The actuator is controlled over the integrated pilot valves. The supply of air is made either directly over the control head or over an external hose coupling.

Operation is allowed only in the intended environment.

NOTICE

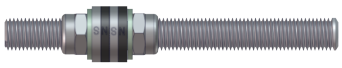
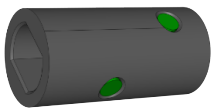
Assembly of plants must be carried out only by qualified personnel. Take care that wires are kept away from interfering components, such as supply lines from frequency converters.

6.2 Control of the actuator

The control of the actuator can made over the installes or external pilot valves. External pilot valves are placed in the switchboard plants of the higher-level control. Internal pilot valves can be triggered over the hand emergency actuation.

6.3 Positioning

The position of the actuator is determined over a magnet carrier (pulse generator). This carrier is located in the axle of the valve.

Pulse generator		
Double seat valve	Single seat valve	Rotary valve
		

6.4 Pulse cleaning technology

When the KIESELMANN ‘pulse’ mode is activated, the valve and the valve seat are flushed extremely efficiently and in a resource-saving manner. Thanks to the newly developed and high-resolution position detection of the control head, the flushing and cleaning process is carried out in the shortest possible time and with minimal use of media.

INFORMATION

Please refer to the Annex 3 [▶ 25] of this operating manual for the input commands for using this function.

6.5 ES Function

ES (Emergency Stop)

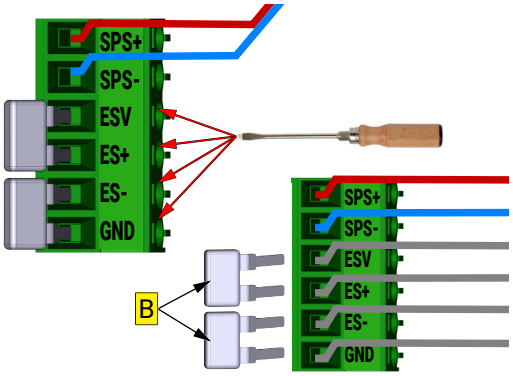
The control head has an emergency stop function. This makes it possible to override the input signal in an emergency so that the valve actuator moves to the basic position.

When supplied as standard, the ES function is deactivated by two fitted insertion bridges in connector P1.

There are two options to activate the ES function of the control head:

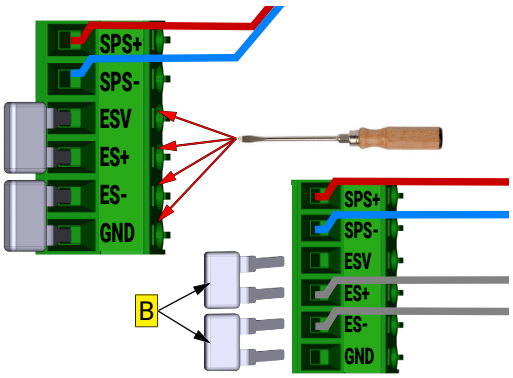
Option 1

Remove the insertion bridge (ESV to ES+ or ES- to GND) and connect your preferred switch to the now free position of the plug using cabling. The switch must interrupt the connection when actuated so that the ES function is activated and the valve actuator moves to the basic position.



Option 2

Remove the insertion bridges (ESV to ES+) and (ES- to GND). Connect an external supply voltage of 24V to ES+ and ES-. The ESV and GND connections are not contacted in this circuit. As soon as the supply voltage is interrupted, the ES function is activated and the valve drive moves to the basic position.



NOTICE

When the ES function is activated, only spring-loaded valve actuators move to the basic position.

When the emergency stop function is triggered, the signalling (‘Error’ - electrical error control head) flashes red / white (see also LED signalling [▶ 14]).

6.6 Application

These control heads are suitable for the application on KIESELMANN actuators for lift and turning valves.

NOTICE

- These control heads are designed to be used only on KIESELMANN actuators and must be used only in the intended ranges.
- They may only be used in the areas intended for this purpose.
- Any application other than intended is forbidden.
- Application must be made only by qualified and instructed persons.
- Modifications are not covered by the manufacturer.

⚠ WARNING

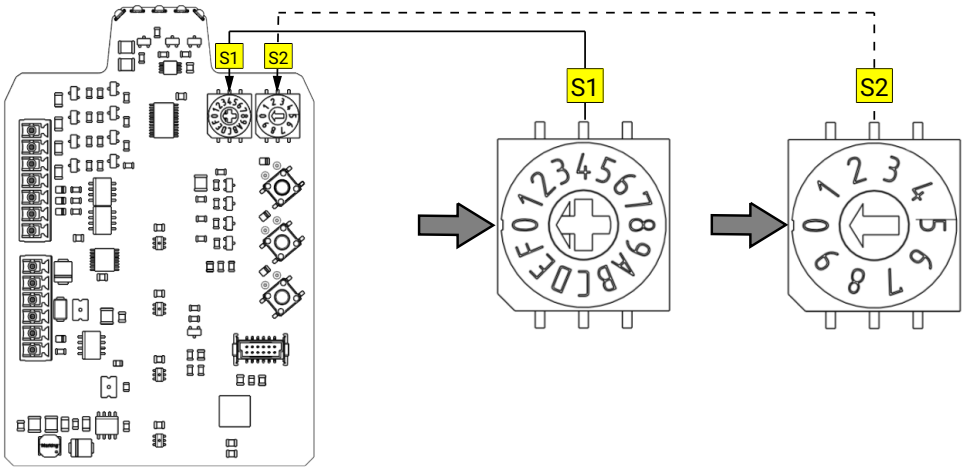
No ATEX approval

The control head IO-Link is not approved for operation in the ATEX area.

6.7 Function settings of the control head

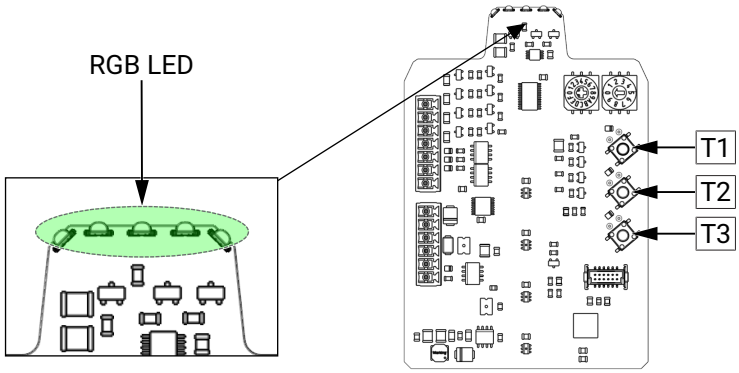
The valve type settings are made using the selector switches (S1)(S2).

The switch positions are assigned to the actuators in the following list Annex 2 [▶ 24].



6.8 LED signalling

Signalling of the actuator position via LEDs on the circuit board.



Lift and Rotary Valves		
Valve position	**RGB LED colour**	**Signalling**
open	green	throughout
close	red	throughout
during valve movement	red / green	flashing

Lift and rotary valves with cycle and ‘pulse’ function		
Valve position	**RGB LED colour**	**Signalling**
Cycle / "pulse" below	red	flashing
Cycle / "pulse" above	green	flashing

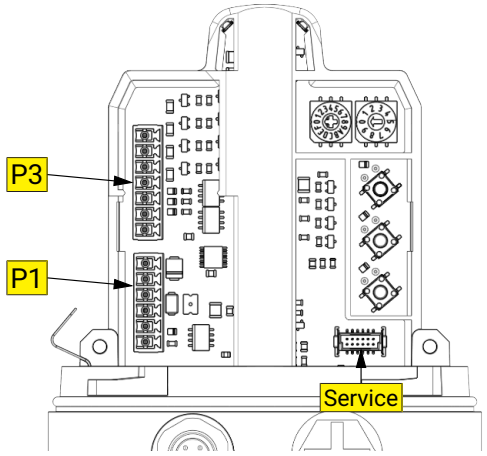
Teaching – Button T1	RGB LED colour	Signalling
Control head not enabled	red / turquoise (cyan)	flashing
during teaching	turquoise (cyan)	flashing
Error during teaching process	red / turquoise (cyan)	flashing

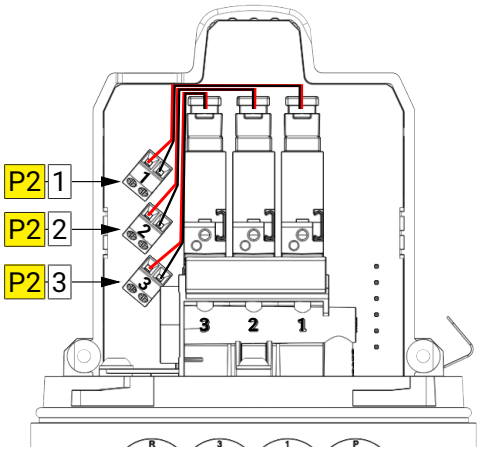
Manual operation / manual switching of solenoid valves via push-button Tx		
Valve position	Valve position (red / green) Manual operation (red / white)	3s continuous - (3s flashing) 3s flashing

Error		
electrical error control head	red / white	flashing

6.9 Electrical connections

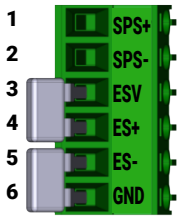
Position of the connectors





Connector 6 pin [P1]

Pin 1	SPS + / 24V	brown
Pin 2	SPS - / 24V neutral GND	L – Sensor GND blue
Pin 3	ESV	-
Pin 4	ES+	-
Pin 5	ES-	-
Pin 6	GND	-

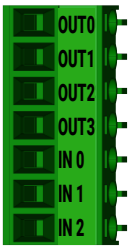


Connector 2 pin [P2]

Pin 1	red
Pin 2	black

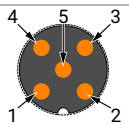
Connector 7 pin [P3]

Pin 1	OUT 0 / A0	yellow
Pin 2	OUT 1 /A1	grey
Pin 3	OUT 2	pink
Pin 4	OUT 3	Not used
Pin 5	IN 0 / E0	Data input white
Pin 6	IN 1 / E1	Green
Pin 7	IN 2	Red



Electrical connection external input, connector M12 (5-pin)

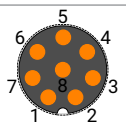
Pin 1	+ 24 V ES supply	brown
Pin 2	Not used	-
Pin 3	- 24 V ES supply	L – Sensor GND blue
Pin 4	Not used	-
Pin 5	Not used	-



Cable entry

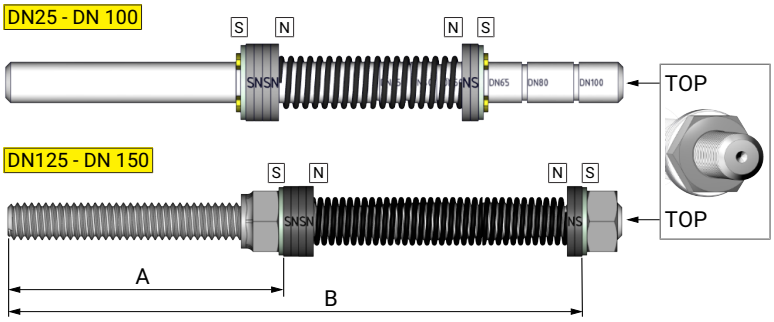
M16 x 1.5

Electrical connection external input M12 connector (8pin)

Pin 1	IN 0 / E0	Data input white	
Pin 2	+ 24 V	brown	
Pin 3	IN 1 / E1	Green	
Pin 4	OUT 0 / A0	yellow	
Pin 5	OUT 1 / A1	grey	
Pin 6	OUT 2	pink	
Pin 7	GND	L – Sensor GND blue	
Pin 8	IN 2	Red	

6.10 Setting Pulse generator for Lift valves

Pulse generator double seat mixproof valve

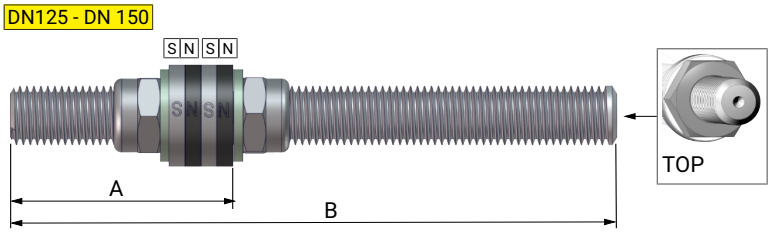


e.g.: 56xx, 564x, 565x, 567x, 568x, 569x, 5000

The setting for nominal sizes DN 25 to DN 100 is specified via the notches on the bolt and secured with a retaining ring.

DN	A	B	Pulse generator
DN 25 – DN 100	-	-	5620.DN.005-K000
DN 125 – DN 150	56.5 mm	122.5 mm	5620.150.005-K000

Pulse generator Single seat valves



e.g.: KI-DS Valve series 55xx

DN	A	B	Pulse generator
DN 25 - DN 150	30 mm	90 mm	5500.150.005-K000

7 Assembly

⚠ WARNING

Before putting the control head into operation, always check that every part is fixed. In case the control heads are not correctly mounted, the operator himself will be liable.

The control head is mounted on the actuator of the lift or turning valve respectively. The hexagon socket screws M6 with the fitted O-ring are required for mounting. If control heads with stainless steel hood are used, a spring is to be fitted for earthing according to (see illustration below).

In case of actuators whose diameter is smaller than 100 mm, usa a distance plate. For rotary actuators, an encoder extension is also required to extend the puls generator.

NOTICE

- When mounting the control head, make sure that the O-rings are correctly mounted in the body of the control head.
- Install the control head on a clean valve actuator.
- Control heads with a stainless steel cover must be installed with an earthing spring.
- The spring connects the stainless steel hood with the actuator body. The actuator itself must not be incorporated in an insulated way toward the potential EARTH.
- Always mind the equipotential bonding.

- Mount the control head on the actuator using Allen screws (M6x16) (2x) with O-rings (2x).
- Connect the electrical and pneumatic connections.
- Place the cover on the housing and turn clockwise (15°).

Earthing spring

Art. No.: 5630000103-340

Adapter plate

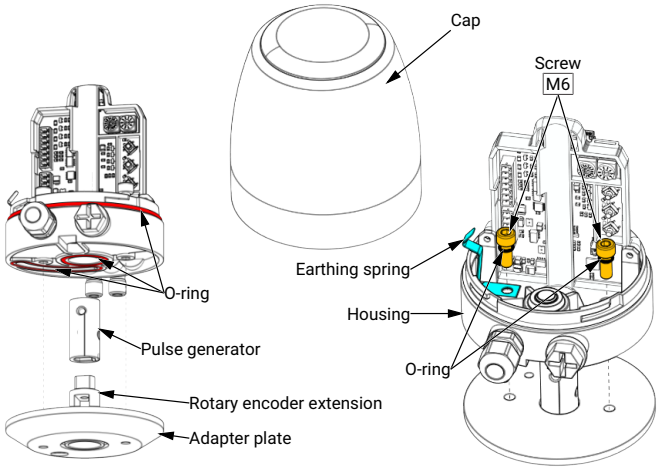
Art. No.: 5630600076-087

Dog

Art. No.: 5630600077-059

Pulse generator

Art. No.: 5631600010-000



8 Commissioning

8.1 Commissioning

After all screws had been tightened and the air pipe as well as the electrical connection had been made, the control head is ready for commissioning.

The air supply must be made according to specification. Check if the filter body is set into the air entry of the control head and if all O-rings are correctly mounted.

Prior to commissioning, the air pipe toward the control head must be blown off. Metallic impurities, welding residues and other solid bodies may destroy the control head. Prior to commissioning, the air pipe toward the control head must be blown off. Metallic impurities, welding residues and other solid bodies may destroy the control head.

8.2 Teaching

Once the control head has been screwed and installed on the valve body, the control head must be taught in (teaching process). Please ensure that the control head is de-energised before carrying out the teaching process.

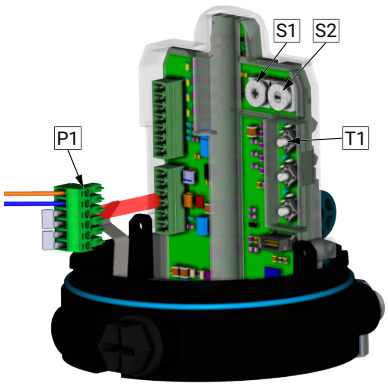
First, select the appropriate programme for your valve actuator – refer to the tables for switch positions Annex 2 [▶ 24]. The programme is set using the programme selection switches S1 and S2. (The predefined parameters for each valve actuator are already stored on the control head circuit board).

- Press and hold the MV 1 button (T1) and insert the power supply plug (P1).
- Press and hold the MV 1 button (T1) for a further 3 seconds before releasing it. The teaching process now starts automatically.
- During the teaching process, the signalling light on the circuit board flashes turquoise (cyan).
- Once the teaching process has been successfully completed, the signalling changes to the specified standard value (red = valve closed / green = valve open).

QUICK GUIDE

- Disconnect the power supply connector (P1)
- Select switch setting - Switch (S1) and (S2)
- Press and hold the MV 1 button (T1)
- Insert power supply connector (P1)
- Press and hold the MV 1 button (T1) for a further 3 seconds and release

→ … **Teaching process starts**



(see also LED signalling [▶ 14])

8.3 Integration into a plant

If the control head is integrated into an automatically working plant, make sure that the function of the control head can be monitored. Monitoring must be guaranteed by the plant design. An optical control has also to be carried out in certain time intervals. The function control must be documented in case of optical inspection. If faults or damages are determined during control, they must be immediately removed.

NOTICE

Make sure with remote-controlled valves that the mediums won't be mixed if the fittings are operated by hand emergency actuation.

In case of operation in automatically working plants the operators must familiarize with the cutoff or emergency stop of the plant respectively.

9 Malfunctions

9.1 Emergency stop

⚠ WARNING

In order to force an emergency stop of the control head, the operators of the plant must absolutely familiarize with the plant design.

- ➢ It is essential to train an emergency stop and to inform about the necessary elements regarding an emergency stop.
  - – The training of the persons who were charged with the operation of the plant, must be documented.
  - – Every damage to person and property which results from faulty operation or faulty application respectively, are borne by the plant operator.

10 Disassembly

Assembly Tools

1. Torx screwdriver T10, T20
2. Allen wrench Größe 5 mm
3. Screwdriver long blade size 3
4. Screwdriver size 2
5. Open-end spanner SW 13

Disassembly

NOTICE - observe the operating instructions

Dismounting of the control head is made when

- the control head or the valve shall be maintained
- parts of the control head shall be replaced

see illustration Assembly [▶ 17]

- Interrupted the air supply to the control head and disconnected the control head from the electric contact.
- Loosen the cover from the housing by turning it approx. 15° anti-clockwise and remove it (bayonet catch).
- Use a Torx screwdriver to remove the electronics or the sensors with the pilot valve block.
- **NOTICE! The pilot valve block is differently assembled. The block is built in without assembly in case of control by external valves.**

Dismantling body

- Loosen the pneumatic and electrical connections.
- Unscrew the allen screws (M6) (2x).
- Remove the housing upwards from the valve.

11 Technical data

SPS Elektronics

Supply voltage	24V DC
Supply voltage range	± 10%
Electrical nominal power	0,5 W (per solenoid valve)
Current consumption	
Maximum[1]:	105 mA (24V DC)
Quiescent current[2]:	25 mA
Current consumption at rest	23 mA (with standard configuration)
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

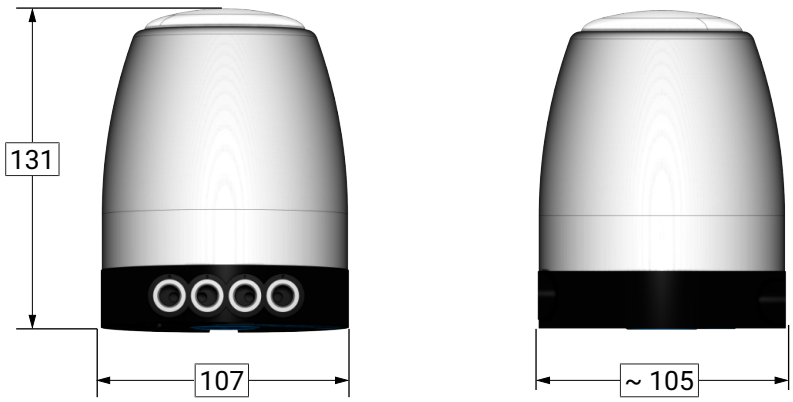
1: Signalling with flashing RGB LEDs and three switched solenoid valves

2: Signalling RGB LEDs, no control of the solenoid valves

Requirements for the control air

DIN	ISO 8573-1:2010 [3:(≤5 µm):4:4]
Control air pressure	6 bar
Air volume	300 l / min / 6bar

11.1 Dimensions



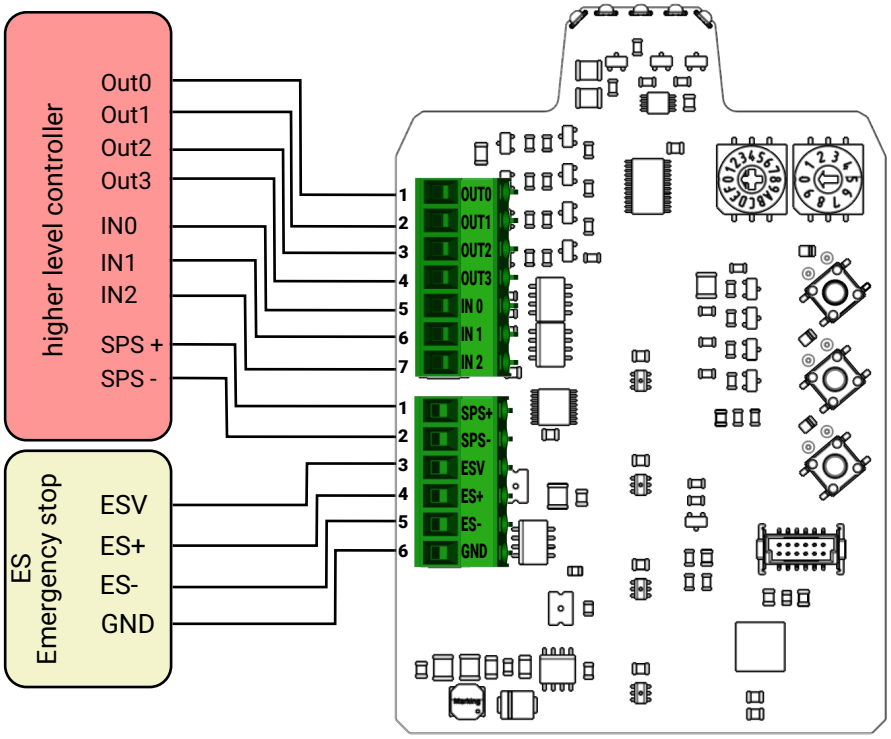
12 Wearing parts

Spare parts	Article number
Rotary encoder right	5630 600 010-000
Rotary encoder left	5630 600 010-001
Cap: stainless steel (LED with Logo)	5631 000 110-032
Cap: stainless steel (with Logo)	5631 000 118-021
Cap: Plastic (with Logo)	5631 000 002-094
Seal kit: O-ring	5631 000 006-000
Board SPS	5633 000 013-003
Screw set KI-TOP	5631 000 005-000
Spreader cap complete	5631 000 111-000
Valve block -XXX-Con	5633 001 012-000
Valve block -XX1-Con	5633 001 013-000
Valve block -3X1-Con	5633 002 013-000
Valve block -321-Con	5633 003 013-000
Valve block -X2X-Con	5633 601 013-000
Valve block -32X-Con	5633 602 013-000

13 Appendix

13.1 Annex 1

Circuit example



13.2 Annex 2

Switch position for hygienic valves

Valve type / Function	S1	S2
Double seat valve (without cycle detection)	0	0
Double seat valve (piggable, without cycle detection) Double-sealing single seat valve (Flush valve controlled separately)	1	0
–	2	0
Double seat valve (with cycle detection)	3	0
Lift valve, FC	4	0
Lift valve, DA (MV 1 is permanently actuated in the basic position)	5	0
Lift valve, FO	6	0
–	7	0
Rotary valve, FC	8	0
Rotary valve, DA (MV 3 is permanently actuated in the basic position)	9	0
Rotary valve, FO (Feedback reversed to position ‘8’)	A	0
–	B	0
–	C	0
–	D	0
–	E	0
–	F	0

Switch position for aseptic valves

Valve type / Function	S1	S2
Double seat valve, Gembra	0	1
Double seat valve Type 58XX (bellow)	1	1
Double seat valve Type 586X (bellow)	2	1
–	3	1
–	4	1
.	.	.
.	.	.

Switch position for control without solenoid valve

Valve type / Function	S1	S2
Lift valve (basic position of the valve ‘CLOSED’)	0	4
Lift valve (basic position of the valve ‘OPEN’)	1	4
Rotary valve (basic position of the valve ‘CLOSED’)	2	4
Rotary valve (basic position of the valve ‘OPEN’)	3	4
–	4	4
–	5	4
.	.	.
.	.	.

13.3 Annex 3

Switch position for hygienic valves

Switch position		Function	Input signal			Output signal				Note
S1	S2		E2	E1	E0	A3	A2	A1	A0	
0	0	closed	0	0	0	0	0	0	1	
		Cycle lower piston	0	0	1	0	0	0	1	
		Cycle upper piston	0	1	0	0	0	0	1	
		open	0	1	1	0	0	1	0	
1	0	closed	0	0	0	0	0	0	1	
		Cycle lower piston	0	0	1	0	0	0	1	
		Cycle upper piston	0	1	0	0	0	0	1	
		open	0	1	1	0	0	1	0	
3	0	closed	0	0	0	0	0	0	1	
		Cycle lower piston	0	0	1	0	1	0	1	
		Pulse lower piston	1	0	1	0	1	0	1	
		Cycle upper piston	0	1	0	0	0	1	1	
		Pulse upper piston	1	1	0	0	0	1	1	
		open	0	1	1	0	0	1	0	
4	0	closed	0	0	0	0	0	0	1	
		open	0	0	1	0	0	1	0	
		closed	0	1	0	0	0	0	1	
		open	0	1	1	0	0	1	0	
5	0	closed	0	0	0	0	0	0	1	MV 1 – activated in basic position
		open	0	0	1	0	0	1	0	
		closed	0	1	0	0	0	0	1	
		open	0	1	1	0	0	1	0	
6	0	open	0	0	0	0	0	1	0	
		closed	0	0	1	0	0	0	1	
		open	0	1	0	0	0	1	0	
		closed	0	1	1	0	0	0	1	
8	0	closed	0	0	0	0	0	0	1	
		open	0	0	1	0	0	1	0	
		closed	0	1	0	0	0	0	1	
		open	0	1	1	0	0	1	0	
9	0	closed	0	0	0	0	0	0	1	MV 3 – activated in basic position
		open	0	0	1	0	0	1	0	
		closed	0	1	0	0	0	0	1	
		open	0	1	1	0	0	1	0	
A	0	open	0	0	0	0	0	1	0	
		closed	0	0	1	0	0	0	1	
		open	0	1	0	0	0	1	0	
		closed	0	1	1	0	0	0	1	

Switch position for aseptic valves

Switch position		Function	Input signal			Output signal				Note
S1	S2		E2	E1	E0	A3	A2	A1	A0	
0	1	closed	0	0	0	0	0	0	1	
		Cycle lower piston	0	0	1	1	1	0	1	
		Cycle upper piston	0	1	0	0	0	1	1	
		open	0	1	1	0	0	1	0	
1	1	closed	0	0	0	0	0	0	1	
		Cycle lower piston	0	0	1	1	1	0	1	
		Cycle upper piston	0	1	0	0	0	1	1	
		open	0	1	1	0	0	1	0	
2	1	closed	0	0	0	0	0	0	1	
		open	0	0	1	0	0	1	0	
		-								
		-								

Activation without solenoid valves

Switch position		Function	Input signal			Output signal				Note
S1	S2		E2	E1	E0	A3	A2	A1	A0	
0	4	closed	0	0	0	0	0	0	1	
		open	0	0	0	0	0	1	0	
1	4	closed	0	0	0	0	0	0	1	
		open	0	0	0	0	0	1	0	
2	4	closed	0	0	0	0	0	0	1	
		open	0	0	0	0	0	1	0	
3	4	closed	0	0	0	0	0	0	1	
		open	0	0	0	0	0	1	0	
		-								

Notes

KIESELMANN GmbH

Paul-Kieselmann-Str. 4-10
D - 75438 Knittlingen

☎ +49(0) 7043 371-0 • 🖷 +49(0) 7043 371-125
www.kieselmann.de • info@kieselmann.de

Copyright: © KIESELMANN FLUID PROCESS GROUP