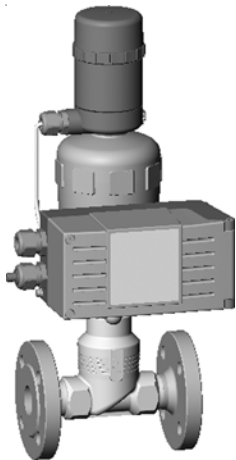


## Control valve with SIDEControl

GB



**bürkert**  
Fluid Control Systems

### GENERAL NOTES

These instructions explain with the aid of an example the commissioning of a single-acting control valve. A detailed description of the device can be found in the operating instructions for the SIDEControl Type 8635, as well as in the operating instructions for the process valves on the accompanying CD.

#### Safety notes



- Keep to standard engineering rules in planning the use of and operating the device!
- Installation and intervention for maintenance work are only allowed by qualified personnel using suitable tools!
- Observe the current regulations on accident prevention and safety for electrical devices during operation and maintenance of the device!
- Before interfering with the system, always switch off the voltage!
- Note that in systems under pressure, piping and valves may not be loosened!
- Take suitable precautions to prevent inadvertent operation or damage by unauthorized action!
- After interruption of the electrical or pneumatic supply, make sure the process is restarted in a well-defined, controlled manner!



#### ATTENTION EXERCISE CAUTION ON HANDLING! ELECTROSTATICALLY SENSITIVE COMPONENTS / MODULES

This device contains electronic components that are sensitive to electrostatic discharge (ESD). Contact to electrostatically charged persons or objects will endanger these components. In the worst case, they will be immediately destroyed or will fail after commissioning.

Observe the requirements of EN 100015-1 (IEC 61340-5-1) in order to minimize the possibility of, or avoid, damage from instantaneous electrostatic discharge. Also take care not to touch components that are under supply voltage.

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### GENERAL NOTES

#### Intended use



Please observe the notes in these operating instructions together with the conditions of use and permitted data that are specified in the data sheet Type 8635, in order that the device will function perfectly and remain operable for a long time. On non-observance of these notes and unauthorized interference with the device, we will refuse all liability and the warranty on device and accessories will become void! The device serves exclusively as a positioner and process control system. Any other use or use exceeding the specific scope is considered to be **non-intended use**. Bürkert will not be liable for any damage resulting therefrom. The risk will be borne by the user.

#### Device-related notes

- For installation and operation in potentially explosive zones, observe the relevant national regulations (in EN 60079-14 / IEC 60079-14).
- On electrical connection of inherently safe circuits, observe the information on the relevant declaration of conformity (see *Operating Instructions* on CD).
- Take suitable precautions to prevent electrostatic charging of plastic parts of the housing (see EN 100015-1 / IEC 61340-5-1).
- No components shall be connected to the inputs and outputs of the boards whose electrical data lie outside the limits stated on the data sheet for the positioner.
- Only inherently safe devices (according to EN 50020 / IEC 60079-11) shall be connected to the serial interface in potentially explosive zones.
- The plastic covering shall be removed only by the manufacturer.
- Interventions in the device with the housing open shall not be carried out in very humid or aggressive atmospheres. Limit the duration of opening of the housing to that which is absolutely necessary.
- The design type inspection certificate is to be found in the *Operating Instructions* on the CD.

## TECHNICAL DATA

### Technical data

#### Operating conditions

Ambient temperature	-25 ... +60 °C
Protection type	IP 65 to EN 60529

#### Electrical data

Current supply	4 ... 20 mA via setpoint input
Burden voltage	< 12 V DC
Burden resistance	590 W at 20 mA
Protection class	3 to VDE 0580

#### Pneumatic data

Control medium	Quality classes to DIN ISO 8573-1
- Dust content	max. particle size 40 µm max. particle density 10 mg/m <sup>3</sup>
- Water content	max. pressure dew point -20 °C
- Oil content	max. 1 mg/m <sup>3</sup>
Temperature range of compressed air	-25 ... +65 °C (non-Ex devices or T4/T5) -25 ... +60 °C (T6)
Pressure range	1.4 ... 6.0 bar

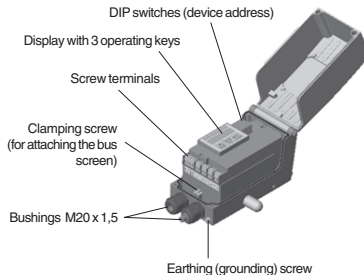
### Possible expansion steps of the SIDEControl (Ex ia version)

- Analog position repeater
- Inductive proximity switches
- Binary input / output
- Communication via HART protocol
- Software functions

*We reserve the right to make technical changes without notice.*

## STRUCTURE AND FUNCTIONS

### Overview



The *SIDEControl* is suitable for pneumatically actuated continuous valves with single-acting linear or part-turn actuators.

### Functions

#### Positioner

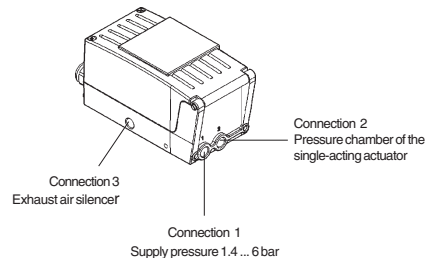
The position of the actuator (stroke) is controlled in accordance with the position setpoint. The latter can be set by an external standard signal.

#### Process controller (option)

The *SIDEControl* is integrated in a control loop. From the process setpoint and the process value, the valve stroke is computed via the control parameters (PID controller). The process setpoint can be set by an external standard signal.

## FLUIDIG CONNECTION

### Connection of the control air



For linear actuators, the following applies in general:

- a) Operating mode normally closed when deenergized (NC): connection of positioning drive *below*
- b) Operating mode normally open when deenergized (NO): connection of positioning drive *above*

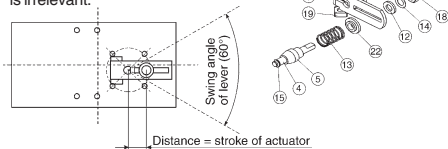
### Installation of the valve

- Any orientation, preferably upright.
- Observe the flow direction (general rule for control valves: flow input under seat!)
- Clean the piping of contamination!
- Before connecting the valve housing, take care that piping is aligned!
- In the case of weld-on housings, be sure to remove the actuator before welding.

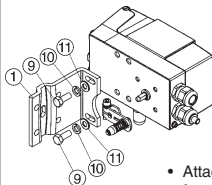
## VALVE CONNECTION

### Attachment to a continuous valve with linear actuator acc. to NAMUR

- Assemble the lever (if not preassembled). The distance of the driving pin from the axle should be equal to the stroke. This results in a swing angle of the lever of 60°. The scale printed on the lever is irrelevant.



- Fix the lever onto the axle of the *SIDEControl*.
- Fix attachment bracket (1) to the *SIDEControl*.



- Select the M8 thread on the *SIDEControl* such that the conical roller (5) on the lever of the position sensor can move freely in U-piece (2) on the actuator over the entire stroke.
- Mount the U-piece on the drive spindle of the actuator.

- Attach the *SIDEControl* to the cast frame or post yoke of the actuator according to NAMUR procedure.

### Alignment of the lever mechanism

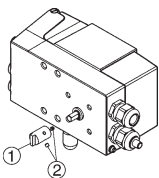
The lever mechanism can be aligned properly only when the device has been connected electrically and pneumatically.

- In the manual mode, move the actuator to half stroke (corresponding to scale on actuator).
- Move the device vertically until the lever is horizontal.
- Fix the device finally to the actuator.

## VALVE CONNECTION

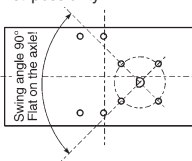
### Attachment to a continuous valve with part-turn actuator

- Determine the orientation of attachment of the *SIDEControl* (parallel to the actuator or rotated by 90°).
- Determine the basic position and direction of rotation of the actuator.

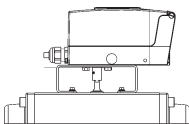
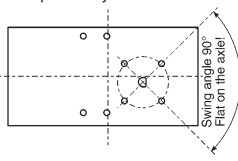


- Push adapter (1) onto the axle of the *SIDEControl* and fix it with 2 setscrews (2). One of the setscrews should press onto the flat on the axle (to prevent slip!). It must be assured that the axle of the *SIDEControl* can move only in one of the ranges shown below in the drawings. Observe the flat on the axle!

1st possibility:



2nd possibility:



- Place the *SIDEControl* on the bracket and fix it.
- Mount the *SIDEControl* with the bracket on the part-turn actuator.



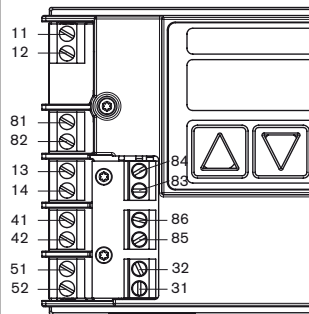
If after starting the function *X.TUNE* the message *X.ERR 5* appears in the LC display, the alignment of the axle of the *SIDEControl* to the axle of the actuator is incorrect.

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## ELECTRICAL CONNECTION

### Configuration of the terminals

- To make electrical connection, open the cover of the *SIDEControl* by unscrewing the 2 screws.



Terminal	Allocation	External connection
11 +	Setpoint +	4 ... 20 mA signal
12 -	Setpoint -	GND
13 +	Process value + (option)	4 ... 20 mA signal
14 -	Process value - (option)	GND
31	Actual value output +	
32	Actual value output -	



Connection of a potential equalization conductor (PE) to the electronics is not required.

## AGENCIES

### Contact addresses / Kontaktadressen

#### Germany / Deutschland / Allemagne

Bürkert Fluid Control System

Sales Centre

Chr.-Bürkert-Str. 13-17

D-74653 Ingelfingen

Tel. + 49 (0) 7940 - 10 91 111

Fax + 49 (0) 7940 - 10 91 448

E-mail: [info@de.buerkert.com](mailto:info@de.buerkert.com)

#### International

Contact addresses can be found on the internet at:

Die Kontaktadressen finden Sie im Internet unter:

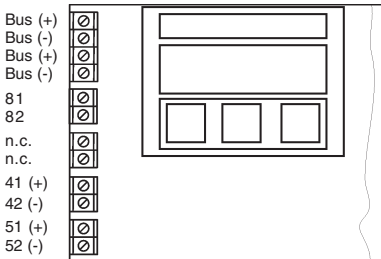
Les adresses se trouvent sur internet sous :

[www.burkert.com](http://www.burkert.com) Bürkert / Company / Locations

## ELECTRICAL CONNECTION

### Configuration of the terminals - Profibus PA

- To make electrical connections, open the cover of the SIDEControl by unscrewing the 2 screws.

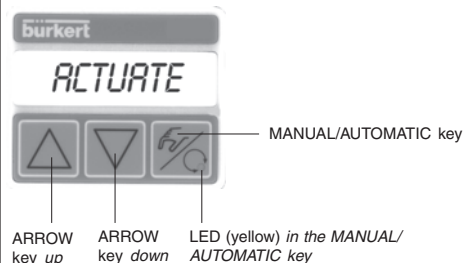


Terminal	Allocation	External connection
BUS (+)	PROFIBUS PA (IN)	To IEC 1158-2 (either polarity between input terminals)
BUS (-)	PROFIBUS PA (IN)	
BUS (+)	PROFIBUS PA (OUT)	To IEC 1158-2 (either polarity between output terminals)
BUS (-)	PROFIBUS PA (OUT)	

Use screened cable for connecting the bus and the binary input in order to assure reliability and EC conformity. The cable screens can be attached using the clamping screw (on the post between the M20 bushings). The cable screens must be attached at both ends. On the outside of the housing there is a further screw for further connection to a suitable earthing (grounding) point.

## BEDIENUNG

### Display and keypad



#### ARROW key up

- Jump within a level
- Change parameters

#### ARROW key down

- Jump within a level
- Change parameters

#### MANUAL/AUTOMATIC key

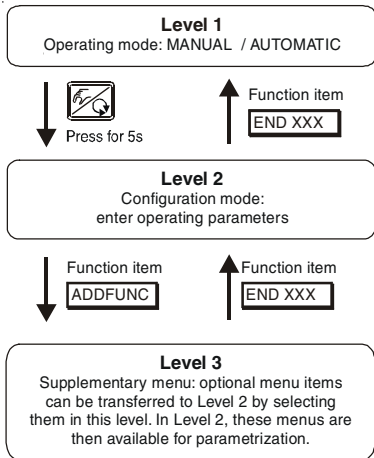
- Level 1: Change between manual and automatic mode
- Level 2: Confirm a parameter (*RETURN*)
- Level 3: Select a menu item (*see also Menu Structure*)

#### LED (yellow)

- Display of operating mode
- AUTOMATIC: LED flashes
- MANUAL: LED off



## SETTINGS ON COMMISSIONING

### Menu structure



## SETTINGS ON COMMISSIONING


### Display in AUTOMATIC mode (Level 1)

Display	
<b>Positioner</b>	<b>Process controller</b>
POS: Actual position of valve	PV: Process value
CMD: Setpoint position of valve 	SP: Process setpoint
INP: Input signal for setpoint position 	POS: Actual position of valve
Temp: Interior temp. of device	CMD: Setpoint position of valve
	Temp: Interior temp. of device



Apostrophe (') moves from left to right


### Change to configuration mode (Level 2)

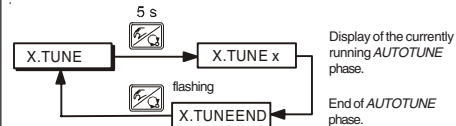
Hold  key depressed for 5 seconds.

## SETTINGS ON COMMISSIONING

### Starting the AUTOTUNE function

*AUTOTUNE*, the program for automatic parametrization of the *SIDeControl*, is started by calling up the function *X:TUNE*.

Using the  key, select *X:TUNE*.





*X.ERR X* - display on occurrence of an error





*AUTOTUNE* does not parametrize the process controller.

### Activating the process control (option) - Level 3

(in S/HART version only)

Using the  key, select *ADDFUNC*, confirm the choice with the  key and reach **Level 3**.

Using the  key, select *P.CONTRL*, confirm the choice with the  key and obtain the function *\*P.CONTRL*.

Using the  key, select *END* and confirm the choice with the  key.

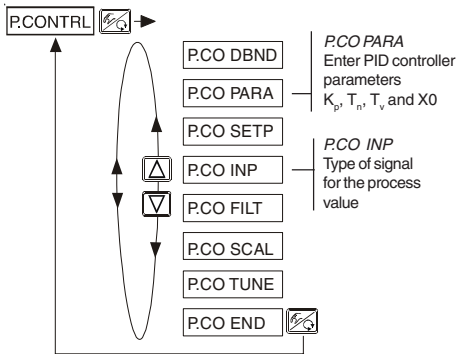
## SETTINGS ON COMMISSIONING

### Setting up the process control (option) - level 2

(in S/HART version only)

The function *P.CONTRL* was transferred to **Level 2** and can be parametrized there as follows:

Using the key, select *P.CONTRL*.



**FIGURES:** Each individual digit: Confirm overall value and each individual digit: increment, decrement.

### Quitting the configuration mode

Select the function *END* with the key.

Confirm the selection with the key.

Changes to operating mode.

## SETTINGS ON COMMISSIONING

### MANUAL or AUTOMATIC mode

Within **Level 1**, you can change between MANUAL and AUTOMATIC mode by pressing the key.

Operating mode	Yellow LED (in the MANUAL / AUTOMATIC key)	Display
AUTOMATIC	flashes	An apostrophe (') runs continuously from left to right (see <i>Display in AUTOMATIC mode</i> )
MANUAL	off	Last display set in AUTOMATIC mode.

### Functions

	MANUAL mode	AUTOMATIC mode
	Open valve	The valve controls according to the setpoint.
	Close valve	
	Hold down up key and simultaneously press down key: fast opening	
	Hold down down key and simultaneously press up key: fast closing	



These and all other software functions, as well as the GSD files are described in detail in the operating instructions for *SIDeControl* Type 8635 on the CD supplied.

## SETTINGS ON COMMISSIONING

### Changing the internal setpoint (process controller only)

In the AUTOMATIC mode:

- Press the or key for 3 seconds.
- Adjust the process setpoint with the or key.
- Confirm the entry with the key and return to the operating mode.

### Profibus PA bus configuration

The *SIDeControl* profibus PA can be controlled via Profibus PA from a central automation system (e.g. process control system). The momentary valve position is reported via the bus.

For detailed information on commissioning a Profibus PA branch, we recommend the *Profibus Commissioning Guidelines* by the PROFIBUS Users Organization (PUO).

### Setting the device address

- Configuration and parametrization are done locally via the menu functions or via the bus.
- The settings of the DIP switches are read in only on switching on the device.

DIP 8	OFF	Enter device address with DIP switches
	ON	Enter device address via the bus

DIP 1	DIP 2	DIP 3	DIP 4	DIP 5	DIP 6	DIP 7	Address	Permissible address range
2 <sup>0</sup>	2 <sup>1</sup>	2 <sup>2</sup>	2 <sup>3</sup>	2 <sup>4</sup>	2 <sup>5</sup>	2 <sup>6</sup>	3	
ON	ON	OFF	OFF	OFF	OFF	OFF	:	
OFF	OFF	ON	ON	ON	ON	ON	124	
ON	OFF	ON	ON	ON	ON	ON	125	125
OFF	ON	ON	ON	ON	ON	ON	126	126