On-off valve with TOP*Control* ON/OFF

GB

Quickstart
Installation and Operation

bürkert
Fluid Control Systems

GENERAL NOTES GB

These instructions explain with the aid of an example the commissioning of a single-acting on-off valve.
A detailed description of the device, including the external connection of the terminals and the data bit configuration and LED displays, can be found in the operating instructions for the TOP*Control* ON/OFF Type 8631, 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 mainte-nance 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!

GENERAL NOTES GB

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 100 015 - 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.

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 8631, 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 to actuate pneumatically operated process valves. 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.

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When connecting units with EEx-i approval, always follow the operation instructions in detail!

Notes for use in the Ex-area

Please comply with the following:

- In the case of installation and operation in areas that have a risk of explosion, the respective national regulations. In Germany, this is VDE 0165.
- When making electrical connections to the inherently safe circuit, the information given in the corresponding conformity certificates.
- Always follow the information contained in the ATEX approval.

Notes for devices with EEx-i-approval

- Take suitable measures to avoid an electrostatic discharge from the plastic parts of the housing (see EN 100 015 - 1).
- No component should be connected to the inputs and outputs of the circuit board whose electrical data is outside the limits determined for intrinsically safe operation quoted in the data sheet of the positioner.
- Work out on the device with the housing open should not be carried in very damp or aggressive atmospheres. Take precautions to exclude unintentional mechanical damage to the circuit boards or their components. Limit the period during which the unit is opened to that which is absolutely necessary.

DEVICES WITH EEx-i-APPROVAL GB

Electrical data (EEx-i-approval)

Connections:	2 x M16 cable connector with screw terminals for cable cross-sections 0,14 ... 1,5 mm²
Power supply:	
Sensor	see Manufacturer's Declaration form Fa. Pepperl & Fuchs [1]
Valve	see Qualification Test Certificate PTB 01 ATEX 2173 [1]

[1] see detailed operating instructions

Safety requirements

The maximum permissible voltages and the associated maximum permissible short-circuit currents for the corresponding gas group may be taken from Table A1 in the standard DIN EN 50020, 1994 Edition.

In order that the maximum permissible temperature at the solenoid coil of the valve installed is not exceeded, the following limits to the applied power for use in the corresponding temperature class must be observed:

Temperature class	Max. permissible ambient temperature [2] [°C]	Max. permissible power [W]
T6	+50	0,4
	+45	0,5
	+40	0,7
	+35	0,8
T5	+50	0,8
	+45	1,0
	+40	1,1

[2] Ambient temperature for compl. TopControl 8631 (temperature inside the device is higher by max. 5°C)

DEVICES WITH EEx-i-APPROVAL GB

The control head must not be exposed directly to sunshine or strong light sources: this would cause additional warming!

Functional data

Resistance at 20°C (R_{20}):	510 Ohm
Minimum terminal voltage:	11,7 V
Minimum current:	23 mA

The maximum voltage and current values are determined by the permissible electrical operating equipment.

Technical Data

Operating conditions	
Ambient temperature	-10... +50°C
Protection class	IP 65 nach EN 60529
Electrical data	
Voltage supply (see nameplate)	24 V DC ± 10 % [3] 110 / 230 V AC [4]
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/m³
- Water content	max. pressure dew point -20 °C
- Oil content	max. 25 mg/m³
Temperature range of compressed air	-10 ... +50 °C
Pressure range	3 ... 7 bar

[3] Attention: do not use insustrial DC.

[4] At present not available

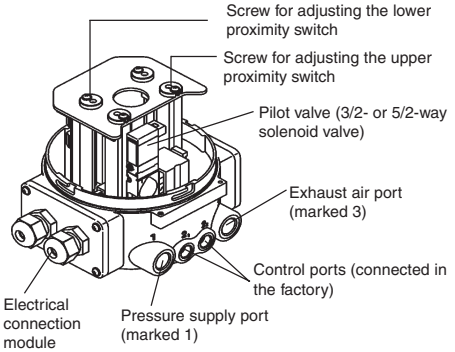
We reserve the right to make technical changes without notice.

Possible expansion steps

- Mechanical over travel switch
- AS interface
- DeviceNet

Various process valves from the Bürkert range can be combined with the TOP*Control* ON/OFF to suit different applications. Y-, flat-seat, diaphragm or ball valves are suitable.

Connection of the control air



Fixing the TOP*Control* ON/OFF

The fixing screw (connection between Top*Control* and process valve) may only be tightened with a maximum torque of 1.2 Nm.

Installation of the valve

- Installation in any orientation but preferably upright.
- Observe the flow direction of the fitting.
- Clean piping from contamination!
- Before attaching the valve housing, make sure the piping is aligned.
- If the housing is to be welded on, make absolutely sure that the actuator is removed beforehand.

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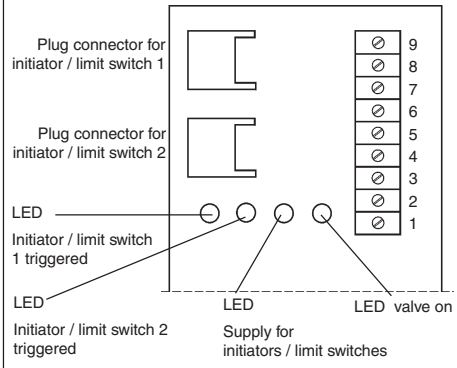
Les adresses se trouvent sur internet sous :
www.burkert.com Bürkert / Company / Locations

ELECTRICAL CONNECTION

Connections



24-V-Version

Termi-nal	Inductive proximity switch	Mechanical limit switch
1	Valve actuation GND	Valve actuation GND
2	Valve actuaction 0 V/ 24 V	Valve actuation 0 V/ 24 V
3	Supply to initiators GND	Supply to limit switches GND
4	common reference for initiators GND	Common reference for limit switches GND
5	n. c.	Output limit switch 2 (NC)
6	Binary output initiator 2 (NO)	Output limit switch 2 (NO)
7	n.c.	Output limit switch 1 (NC)
8	Binary output initiator 1 /NO)	Output limit switch 1 (NO)
9	Supply to initiators +24 V	Supply to limit switches +24 V

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ELECTRICAL CONNECTION

Connections

110 / 230-V-Version

Terminal	Mechanical limit switch
1	Valve actuation N
2	Valve actuation L 1
3	Supply to limit switches
4	Output common pole
5	Output limit switch 2 (NC)
6	Output limit switch 2 (NO)
7	Output limit switch 1 (NC)
8	Output limit switch1 (NO)
9	Supply to limit switches

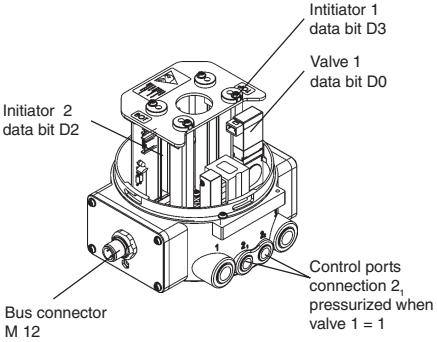
Adjustments on commissioning

To adjust the initiators / proximity switches or limit switches:
- open the housing of the TOP*Control* ON/OFF and
- adjust the initiators using the setscrews (see illustration: Connection of the control air).

Turn clockwise:
movement upward

Turn anticlockwise:
movement downward

Bus drive via AS interface



Pin 1: Bus +
Pin 3: Bus -

Watchdog function	yes
No. of valves / power consumption	1 x 1 W
Power reduction	yes, after ca. 30 ms
Bus connection	- via M 12 plug (Pin 1 = Bus +, Pin 3 = Bus -) - via screw terminals and PG bushing

BUS COMMUNICATION GB

Bus drive via AS interface

Programming data

Standard Device

IO code:	D hex (1 output, 3 inputs)
ID code:	F hex (ext. ID-Codes 1 and 2 = F)
Profile:	S - D. F. F
Certification:	yes, Cert.-no. 32901 (to V.2.11)

Device for A/B-Slave addressing

IO code:	D hex (1 output, 3 inputs)
ID code:	A hex (ext. ID-Codes 1 = 7 hex and 2 = E hex)
Profile:	S - D. A. E
Certification:	yes, Cert.-no. 47601 (to V.2.11)

Observe bit configuration!

Data bit configuration	**D3**	**D2**	**D1**	**D0**
	Input initiator 1	Input initiator 2	Input diagnosis	Output valve 1
Parameter bit configuration	**P3**	**P2**	**P1**	**P0**
	not connected			

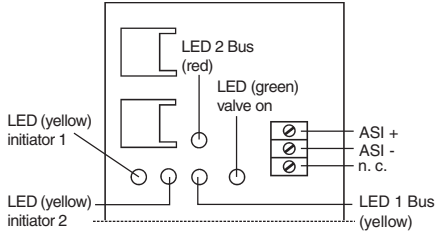
BUS COMMUNICATION GB

Bus drive via AS interface

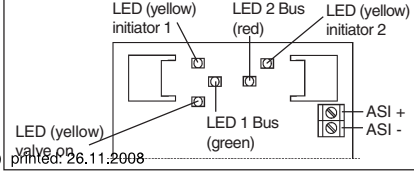
Status display

LED 1 Bus (green)	LED 2 Bus (red)	Status signalled
off	off	POWER OFF
off	on	no data traffic (watchdog expired with slave address non-zero)
on	off	ok
flashes	on	slave adress = 0
off	flashes	Overload of sensor supply

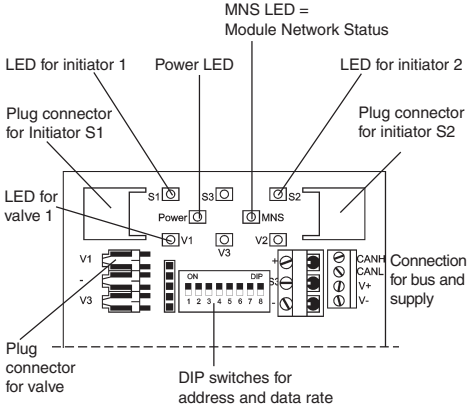
Standard addressing



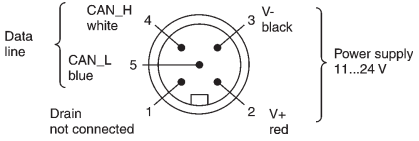
A/B-Slave addressing



Bus drive via DeviceNet



Bus connection (circular plug connector M 12, 5-pole)



Bus drive via DeviceNet

Settings of the DeviceNet address

MAC ID - Medium Access Control Identifier:

DIP1=off=0, DIP1=on=1

MAC ID=DIP $1*2^0$+DIP$2*2^1$+...+DIP$6*2^5$

DIP 1 [2^0=1]	DIP 2 [2^1=2]	DIP 3 [2^2=4]	DIP 4 [2^3=8]	DIP 5 [2^4=16]	DIP 6 [2^5=32]	MAC ID
off	off	off	off	off	off	0
on	off	off	off	off	off	1
off	on	off	off	off	off	2
...	...	...	...	...	...	...
off	on	on	on	on	on	62
on	on	on	on	on	on	63

Bus drive via DeviceNet

Setting the network data rate

DIP 7	DIP 8	Network data rate
off	off	125 kBaud
on	off	250 kBaud
off	on	500 kBaud
on	on	not allowed

Adaption to the data rate of the network