



Leave Surveillance to the Top

Alfa Laval ThinkTop® Basic Intrinsicly Safe

Concept

The ThinkTop® Intrinsicly Safe is designed to ensure optimum valve control in conjunction with Alfa Laval butterfly, single-seat and Mixproof valves and it is compatible with all major PLC systems (Programmable Logic Controller). It is for use in Breweries, Personal Care, Chemical, Biopharmaceutical installations and in Pharmaceutical applications.

The ThinkTop Basic Intrinsicly Safe is a fully equipped control unit that complies with the ATEX Directive 94/9/EC and applies to equipment and protective systems, like all ancillary hygienic processing valves used in areas endangered by potentially explosive atmospheres. According to the ATEX directive the ThinkTop Basic Intrinsicly Safe is approved and classified under Group II, Category 2 (Gas) and Category 3 (Gas) and explosion group II 2G/D EEx ia IIC T6.

Working principle

The ThinkTop® Intrinsicly Safe is used to control and supervise pneumatic valves and is mounted on top of the valve. It receives signals from a PLC via electrical barrier to control the solenoid valve and it returns the valve status signals back to the PLC.

The ATEX addendum EC declaration of conformity is part of the Instruction Manual.



TECHNICAL DATA

Communication

Intrinsic Interface Digital
Supply voltage 8-12 VDC

Sensor board

Feedback signal #1 De-energized valve
Feedback signal #2 Energized valve
Adjustable tolerance band . . . ± 2 mm

Inductive sensor

Switching element function . . . NAMUR NC
Nominal voltage 8 V
Indication of the state LED, yellow
EMC in accordance with IEC / EN 60947-5-2:2004; NE 21
Standards DIN EN 60947-5-6 (NAMUR)
Certificate of conformity PTB 00 ATEX 2032 X

Solenoid valve

Nominal voltage 12 VDC ± 10%, 0.52 W
Air supply 150-700 kPa (1.5-7 bar)
Type of solenoids 3/2-ways
Numbers of solenoids 0-2
Manual hold override Yes
Push-in fittings ø6 mm
Certificate of conformity KEMA 08 ATEX 0093 X

PHYSICAL DATA

Materials

Plastic parts Black Nylon PA 6, with SS fibers
Steel parts 1.4301 (304) and 1.4404 (316)
Seals Nitrile (NBR) rubber

Environment

Ex classification code II 2G/D EEx ia IIC T6
Working temperature 10 °C to +45 °C
Max wire diameter 0.75 mm² (AWG 20)

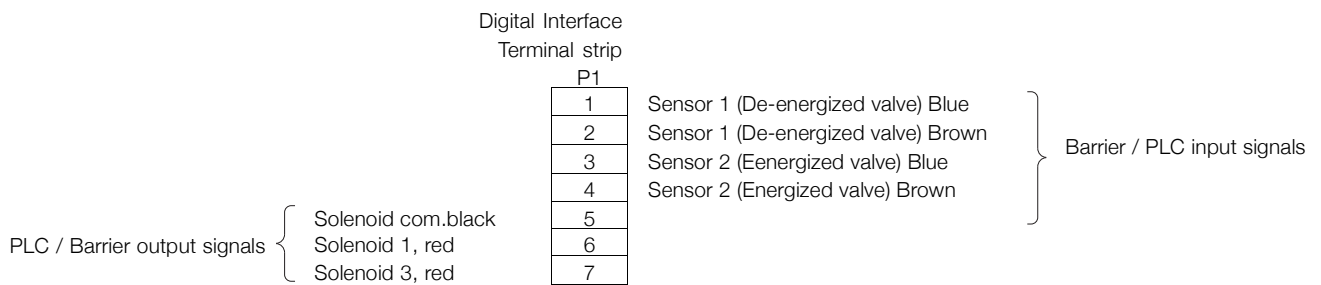
Cable connection

Main cable gland PG11 (ø4 - ø10 mm)
Max wire diameter 0.75 mm² (AWG 20)

The following table list show the ATEX evaluated Alfa Laval valves as ThinkTop Basic Intrinsically Safe can be installed on and in accordance with Atex Directive 94/9/EC.

Valve / Actuator type	ATEX evaluation notes
Unique SSV ATEX	Ex !! 2 G D c T4
Unique Mixpeoof	Non electric equipment with no own ignition source which can be used within the equipment-group II 2 G/D or II 3 G/Dif removing the blue plastic cover from the bottom of the Mixproof valve.
SRC (except SRC-LS)	
SMP-SC	
SMP-TO	
SMP-BC	Non electric equipment with no own ignition source which can be used within the equipment-group II 2 G/Dor II 3 G/D
LKLA-T	
Koltek MH	
SBV	

Electrical connection



Electrical interface

To comply with the ATEX protective system all individual electrical signals from the control unit must be connected to an electrical barrier in the safe area to obtain the intrinsic safe circuit. The electrical barrier must comply with the standard EN 60079-14 and shall always be specified in accordance with the following maximum values as shown in the table below for sensor and solenoid valve (I/O signals).

Sensor

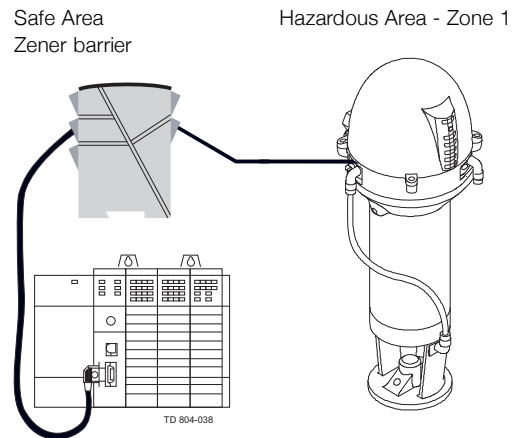
The two inductive NAMUR sensors must be connected to a certified intrinsically safe circuit (e.g. Zener barrier) for apparatus group IIC with the following maximum values:

Max allowed Voltage (Ui)	15	V
Max allowed Current (Ii)	50	mA
Max allowed Power (Pi)	1	W
Max Inductance (Li)	110	mH
Max Capacitance (Ci)	0.08	μF

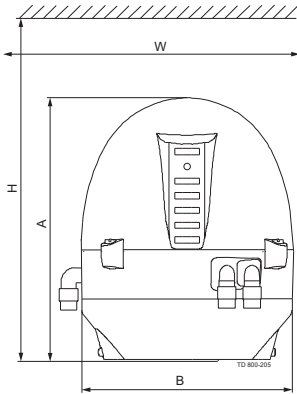
Solenoid valve

The intrinsic safe solenoid valves must also be connected to a certified intrinsically safe circuit (e.g. Zener barrier) for apparatus group IIC with the following maximum values:

Max allowed Voltage (Ui)	28	V
Max allowed Current (Ii)	225	mA
Max allowed Power (Pi)	1	W
Max Inductance (Li)	0	mH
Max Capacitance (Ci)	0	μF



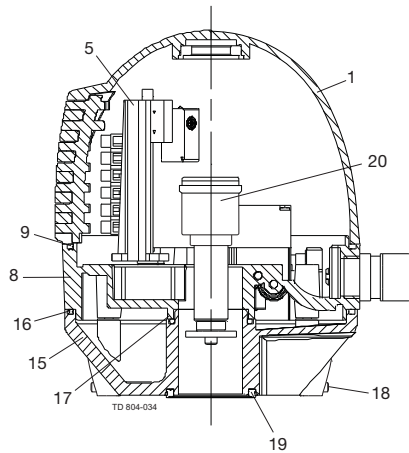
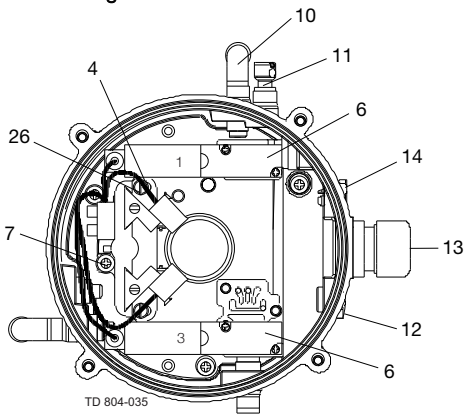
Dimensions



Note! This is the basic design.
Recommended clearance around the ThinkTop

Valve Type	W	H	A	B
Unique SSV ATEX	225	250	171.6	ø137
NC				
SRC NC	225	250	171.6	ø137
Unique Mixproof	225	250	171.6	ø137
Koltek MH	225	250	171.6	ø137
SBV	225	250	171.6	ø137
Unique SSV ATEX	225	320	171.6	ø137
NO				
SRC NO	225	320	171.6	ø137
LKLA-T	225	300	171.6	ø137

Basic design



1. Shell
2. N/A
3. Screw
4. Washer
5. Sensor board
6. Solenoid valve*
7. PT screw
8. Base
9. Special X-ring, grey
10. Air fittings
11. Blow-off valve
12. Thread plug, PG7
13. Cable gland, PG11
14. Gore Vent. membrane
15. Adapter
16. Special X-ring, black
17. O-ring
18. Allen screw
19. Special X-ring
20. Indication pin

* 6a: Solenoid valve (3/2)

* 6b: Solenoid valve (3/2 or 5/2).

Accessories

- Main cable gland PG11

Ordering

When ordering please purchase the following:

- ThinkTop Basic Intrinsically Safe
- Number of solenoid valves (0-2).
- Type of solenoid valves (3/2).
- Push-in fittings ø6 mm or 1/4"
- ThinkTop Basic Intrinsically Safe does not support Unique SSV-LS and SRC-LS

Note!

For further information: See also ESE000810



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