Leave Surveillance to the Top

Alfa Laval ThinkTop® DeviceNet™

Concept

The ThinkTop® is a uniform modular control unit that consists of a proven no-touch, set-and-forget sensor system with light-emitting diodes (LEDs), solenoid valves and valve control sensor board for connection to any PLC (Programming Logic Controller) system with one of the three interfaces; Digital, AS-Interface and DeviceNet. ThinkTop is offering a solution that utilizes all the features available on Alfa Laval butterfly, single-seat and Mixproof valves and is designed for use in the dairy, food and beverage, and biopharm industries; ThinkTop provides real-time information about valve operating status 24/7 while helping to improve production performance and secure traceability .

Working principle

ThinkTop is an automated control unit that can be fitted with up to three solenoid valves and who convert the electrical PLC and sensor signals into mechanical energy to open or close the air-operated valve, using the physical stimulus of an indication pin mounted on the valve stem. ThinkTop fits onto all Alfa Laval sanitary actuators equipped with mushrooms. Installation is straightforward; no special expertise, adapters or tools are required. To initiate manual setup, simply press the push-button startup sequence. Or set up without dismantling the control head using the optional IR keypad for remote control.

TECHNICAL DATA

Communication

Interface	DeviceNet
Supply voltage	11 - 25 VDC
Class 4 messaging	2 byte Polling
Baud rates	125K, 250K, 500K
Default slave address	63

Sensor board

Max current consumption	45mA
Feedback signal #1	Closed valve
Feedback signal #2	Open valve
Feedback signal #3	Seat-lift 1
Feedback signal #4	Seat-lift 2
Feedback signal #5	Status
Valve tolerance band options	5
Default tolerance band	± 5 mm
Sensor accuracy	±0.1 mm
Stroke length	0.1 - 80 mm

Solenoid valve

Max current consumption	45mA
Air supply	300-900 kPa (3-9 bar)
Type of solenoids	3/2-ways or 5/2-ways
Numbers of solenoids	0-3
Manual hold override	Yes
Throttle, Air in/out 1A, 1B	0-100 %
Push-in fittings	ø6 mm or 1/4”

PHYSICAL DATA

Materials

Steel parts	Stainless steel and Brass
Plastic parts	Blue Nylon PA 12
Seals	Nitrile (NBR) rubber

Environment

Working temperature	-20 °C to +85 °C
Protection class	IP66 and IP67
Protection class equivalent	NEMA 4.4x and 6P

Cable connection

Main cable gland	PG11 (4 - 10 mm)
Max wire size	0.75 mm^2 (AWG 19)
Optional cable gland	PG7 (4 - 6,8 mm)

Note!

For further information: See also ESE00355

The ThinkTop has Patented Sensor System, Registered Design and Registered Trademark owned by Alfa Laval

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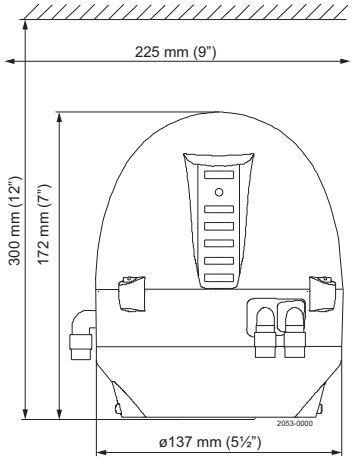
Options
- Solenoid valve configuration
- Pneumatic tubing interface

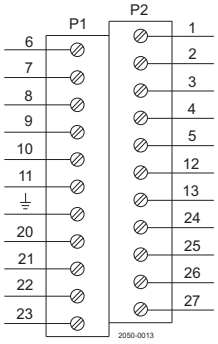
Accessories
- Remote programming (IR keypad)
- For upper seat-lift detection on Mixproof valves
  - External PNP sensors (Refer to Brackets and Inductive Sensors)
  - Cable gland PG7
  - External sensor bracket (Refer to Brackets and Inductive Sensors)
- Various cable options
- Threaded plate for indication pin on SRC, SMP-BC and i-SSV valves
- Special indication pin for Unique SSV-LS, Unique SSV High Pressure valve
- Adaptor for Unique SSSV valves

Dimensions



DeviceNet features			
Generic		Master/scanner	
		I/O Slave messaging supported by ThinkTop® DeviceNet	
Explicit peer to peer messaging	No	• Bit strobe No	No
I/O peer to peer messaging	No	• Polling	Yes
Configuration consistency value	No	• Cyclic	No
Faulted node recovery	No	• Change of state (COS)	No
Configuration method	EDS fil, Top46-7j	ThinkTop before 2012	
	EDS fil, T-Top RTA	ThinkTop after 2012	

Electrical connection



6	N/C	1	Power bus V- (Black)
7	N/C	2	CAN_L (Blue)
8	N/C	3	Drain (Bare)
9	N/C	4	CAN_H (White)
10	N/C	5	Power bus V+ (Red)
11	N/C	12	N/C
Earth	Earth	13	N/C
20	Solenoid com (Grey)	24	Seat-lift 1 “upper”
21	Solenoid 1 (Grey)	25	Seat-lift 2 “lower”
22	Solenoid 2 (Grey)	26	Supply +
23	Solenoid 3 (Grey)	27	Supply-

DeviceNet bits assignment

For DeviceNet the following bit assignment can be used

Valve value		Valve command	
DI0	Feedback #1 Closed valve	DO0	Out #1 Not Connected
DI1	Feedback #2 Open valve	DO1	Out #2 Solenoid valve 1
DI2	Feedback #3 Seatlift 1	DO2	Out #3 Solenoid valve 2
DI3	Feedback #4 Seatlift 2	DO3	Out #4 Solenoid valve 3
DI4	Feedback #5 Status	DO4	Out #5 Not Connected
DI5	Feedback #6 Not Connected	DO5	Out #6 Not Connected
DI6	Feedback #7 Not Connected	DO6	Out #7 Not Connected
DI7	Feedback #8 Not Connected	DO7	Out #8 Not Connected

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