Close at hand

**Automation for Hygienic Fluid Handling Equipment,
June 2023**

Everything at your fingertips

Tackle the challenges you face with innovative Alfa Laval solutions for hygienic applications. Regularly updated, this convenient online catalogue gives you fast access to our comprehensive product range.

Sustainability is at the core of Alfa Laval technologies. These hygienic components and equipment can help you reduce emissions, contamination risks, energy and water use, and total cost of ownership. They also increase uptime, safety and product integrity.

Wherever you are, you have fast access to the components, equipment and expertise you need through the Alfa Laval global network of more than 1500 partners, supported by our sales companies worldwide. Using our eBusiness portal,our channel partners can locate the products you need, order equipment, or track shipments in real time.

To make your life easier, take advantage of Alfa Laval tools and resources. Simply click on the sales item number to view or download 3D CAD models and 2D drawings from our CAD portal.Or download product documentation, including Q-doc documentation for our UltraPure portfolio, here.

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Pumps

Centrifugal pumps


LKH


LKH UltraPure


LKH Evap


LKHPF


LKH Multistage

Valves

Double seat valves


Aseptic Mixproof


Unique Mixproof


Unique Mixproof 3-body


Unique Mixproof CP-3


Unique Mixproof UltraPure


Unique Mixproof Large Particle

Diaphragm valves


Unique DV-ST UltraPure


DV-ST Multiport

Ball valves


SBV Sanitary

Shutter valves


Koltek Valves

Regulating valves


Unique RV-ST


Unique RV-P

Heat transfer

Gasketed plate heat exchangers


Hygienic line


FrontLine


BaseLine


Industrial line

Tank equipment

Tank cleaning machines


SaniJet 25 UltraPure


SaniJet 20 UltraPure


TJ40G


TJ 20G


GJ PF FT


GJ A6


GJ 9


Multijet 25


MultiJet 45

Agitators


ALS and ALS-SB


ALB


ALT


ALTB

Mixers


Hybrid Powder Mixer


Rotary Jet Mixer


LeviMag®


LeviMag® UltraPure

Installation material

Hygienic tubes and fittings


Flanges, clamps and unions


Bends, tees and reducers

Tubes and tube support

UltraPure tubes and fittings

UltraPure tubes and fittings

Filters and strainers

Strainers


LKH Prime


LKH Prime UltraPure


SolidC

Rotary lobe pumps


OptiLobe


SRU


Unique Mixproof PMO Curd


Unique Mixproof Tank Outlet


Unique Mixproof Horizontal Tank

Double seal valves


SMP-BC


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Single seat valves


Unique SSV


Unique SSV Change-over


Unique SSV FDV

Control/Check valves


CPM-2


LKC-2 Non-Return


LKC UltraPure


Unique Vacuum Breaker

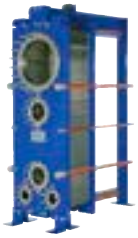

LKUV-2 Air-Relief

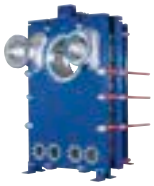
Safety valves


Safety Valve


SB Anti Vacuum House


TS-series


AlfaCond


AlfaVap

Fusion-bonded plate heat exchangers


AlfaNova

Brazed plate heat exchangers


Brazed PHE


GJ 4


SaniMicro


SaniMidget


SaniMagnum


SaniMidget SB


SaniMagnum SB


SaniMega SB

Static spray balls


LKRK Static Spray Ball

Wall mounted cleaning nozzles


PlusClean®/PlusClean® UltraPure

Tank covers


LKDC-LP


Type R


LKD


Type CG


Type C

Tank accessories


Sight glasses

Tank feet

Membranes and filters

Membranes

Spiral membranes

Plate and frame module

Flat sheet membranes

Auxiliary membrane equipment

Test units

Housing

ATD Couplers

Safety filters

Circumferential piston pumps


SX


SX UltraPure


DuraCirc


DuraCirc Aseptic

Twin screw pumps


Twin Screw


Unique SSV Aseptic


SSV Tangential


Unique SSV Tank Outlet


Unique SSV Manual


Unique SSSV Small Single Seat

Butterfly valves


LKB


LKB-F


LKB UltraPure

Sampling valves


SB Anti Vacuum Valve


SB Pressure Relief Valve


Unique Sampling Valve


SB Membrane Sample Valve


SB Micro Sample Port


SB Micro Sample Port Type M

Welded spiral heat exchangers


Spiral Heat Exchangers

Welded plate and block heat exchangers


Combabloc Free Flow

Scraped surface heat exchangers


Contherm

Tubular heat exchangers


Pharma-line S and P


Pharma-line Point of Use

Automation

Sensing and control


ThinkTop® V70


ThinkTop® V50


ThinkTop® D30


ThinkTop® Basic Intrinsically Safe


IndiTop


Unique Control LKB

Condition monitoring


CM Connect


CM

Cleaning validation


Rotacheck

Service and spare parts


Service kits

Service tools


Service tools valves


Service tools mixing and blending


Service tools tank cleaning


Service tools pumps

Alfa Laval Stainless Steel and Rubber Materials

Technical Information

Stainless Steel

Our stainless steel material have the following demands to the contents of the most essential alloys:

Descriptions	Standard	Chrome Cr%	Nickel Ni%	Molybdenum Mo%	Carbon C%
AISI 304	ASTM A270	18.0-20.0	8.0-10.5	0.0	≤ 0.08
AISI 304L	ASTM A270	18.0-20.0	8.0-12.0	0.0	≤ 0.03
AISI 316L	ASTM A270	16.0-18.0	10.0-14.0	2.0-3.0	≤ 0.03
1.4301 (304)	EN 10088-1 (X 5CrNi18-10)	17.0-19.5	8.0-10.5	0.0	≤ 0.07
1.4307 (304L)	EN 10088-1 (X 2CrNi18-9)	17.5-19.5	8.0-10.0	0.0	≤ 0.03
1.4401 (316)	EN 10088-1 (X 5CrNiMo17-12-2)	16.5-18.5	10.0-13.0	2.0-2.5	≤ 0.07
1.4404 (316L)	EN 10088-1 (X 2CrNiMo17-12-2)	16.5-18.5	10.0-13.0	2.0-2.5	≤ 0.03
1.4435 (316L)	EN 10088-1 (X 2CrNiMo18-14-3)	17.0-19.0	12.5-15.0	2.5-3.0	≤ 0.03
1.4571 (316Ti)	EN 10088-1 (X6CrNiMoTi17-12-2)	16.5-18.5	10.5-13.5	2.0-2.5	≤ 0.08

Rubber Materials

In order to obtain the longest possible lifetime for rubber seals it is essential to choose the right quality for the actual duty. Consequently when choosing rubber quality, the characteristics of the different rubber types should be considered. All product wetted rubber material are in conformity of FDA.

EPDM Rubber (Ethylene Propylene)

EPDM rubber is widely used within the food industry as it is resistant to most products used in this sector. Another advantage is that it may be used to a recommend max. temperatures of 140°C (244°F). However, there is one essential limitation, EPDM is not resistant to organic and non-organic oils and fats.

Actylonitrile Butadiene Rubber, NBR

NBR is the rubber type most frequently used for technical purposes. It is quite resistant to most hydrocarbons, e.g oil, grease and fat. It is sufficiently resistant to diluted lye and nitric acid and may be used to a recommended max. 95°C (203°F). As NBR is attacked by ozone it may not be exposed to ultraviolet rays and should thus consequently be stored so that this is avoided.

Silicone rubber, Q

The most significant quality of silicone rubber is that it can be applied from temperatures below -50°C (-58°F) to approx. + 180°C (356°F) and still keep its elasticity. The chemical resistance is satisfactory to most products. However, undiluted lye and acids as well as hot water and steam may destroy silicone rubber. The resistance to ozone is good.

Fluorine rubber, FPM

FPM is often used when other rubber types are unsuited, especially at high temperatures up to approx. 180°C (356°F). The chemical resistance is good to most products, however hot water, steam, lye, acid and alcohol should be avoided. The resistance to ozone is good.

Hydrogenated actylonitrileButadiene Rubber, HNBR

Mechanically strong and normally resistant to ozone and strong oxidizers, animal and vegetable fats, nonpolar solvents, oils and lubricants, water and aqueous solutions. The recommend max. temperature is 130°C (266°F).

Perfluoroalkoxy polymer, PFA

PFA is very similar to PTFE, but opposite to those PFA is thermo plastic and has minimal porosity. PFA has a very high mechanical strength which makes it a perfect choice when dealing with abbrasive products. The PFA seal offers longer service intervals. The recommended max. temperature for the PFA seal is 90°C (194°F).

Product and chemical resistance of flexible rubber materials

The information below is intended as an aid in selecting the best rubber quality for an actual application. It is not possible to state any general lifetime of rubber seals as many factors influence it: chemical attack, temperature, mechanical wear etc. Extreme temperatures, even within the generally accepted limits, may worsen other kinds of attack and thus reduce the lifetime.

Ratings

1 = Unsuitable.

2 = Limited suitability.

3 = Normal suitability.

4 = High suitability.

- = Not recommended for other reasons.

The table contains data which have been compiled from the results of our own tests and the recommendations of our raw material suppliers. The data should be considered as recommendations only and will be brought up-to-date from time to time. They are based on constant contact with the specified product.

In case of doubt or lack of information it would be advisable to consult us directly, which will enable us to investigate specific applications.

Product or process	NBR [1]	HNBR [2]	EPDM [3]	Q [4]	FPM [5]	PTFE [6]
Dairy products (milk, cream)	3	3-4	3-4	3-4	-	3-4
Dairy products (sour milk products)	3	3-4	3-4	3-4	-	3-4
Brewery products (beer, hops etc.)	3	3-4	3-4	1-2	2-3	3-4
Wine and yeast	3	3-4	4	4	2-3	3-4
Animal and vegetable fats: 100°C	3	4	1–2	3	4	3-4
Water and water solutions < 70°C	3	4	4	3	2-4	3-4
Hot water and steam < 130°C	1	4	4	2	-	3-4
Concentrated fruit juices and etheral oils < 100°C	1	-	1	1	3	3-4
Non-oxydising acids < 80°C	1-2	2	3	1–2	2	3-4
Oxydising acids < 80°C	-	2	3	1	2	3-4
Weak concentrate of lye < 100°C	2	3-4	4	2	2	3-4
Strong concentrate of lye < 100°C	1	2-3	3	1	1	3-4
Mineral oils < 110°C	3	4	-	-	4	3-4
Aliphatic carburetted hydrogen (hexane)	3	3	1	1	4	3-4
Aromatic carburetted hydrogen (benzole)	1	2	1	1	3	3-4
Alcohols	1–3	2-3	2-3	3-4	3-4	3-4
Ester and ketones	1-2	1-2	1-2	1-2	3-4	3-4
Ether	1	2	1	1-3	3-4	3-4
Methylene chloride	1	2	1	2-3	3-4	3-4
Ozone and atmospheric conditions	1-2	3	4	4	3-4	3-4

International designation of flexible rubber materials according to ISO R 1629.

ISO = International standard.

Notes

	Designation of flexible rubber materials	Abbreviation symbol
[1]	Nitrile rubber	N
[2]	Hydrogenated actylonitrile rubber	H
[3]	Ethylene propylene rubber	E
[4]	Silicone rubber	Q
[5]	Fluorinated rubber	F
[6]	Polytetraflour ethylene	

Compliance and certification

We can provide documented and certified compliance with a broad spectrum of relevant international and local hygiene standards, worldwide. This helps you significantly reduce the engineering costs of setting up and operating standard-compliant processing plants around the world.

Please find below some examples of regulations, standards, and guidelines applicable to our products used in hygienic applications.

More information can be found in Instruction Manuals on alfalaval.com page.

For special requests please contact your local Alfa Laval organization.

Authorized to carry the 3A symbol

The mission of 3-A SSI is to enhance product safety for consumers of food, beverages, and pharmaceutical products through the development and use of 3-A Sanitary Standards and 3-A Accepted Practices. The 3-A symbol is a registered mark used to identify equipment that meets 3-A Sanitary Standards for design and fabrication.

ATEX-directive is the popular name for the European Directive 2014/34/EU setting the rules for equipment and protective systems intended for use in potentially explosive atmospheres.

Compliance to the Regulation (EC) No. 1935/2004.

The framework regulation (EC) No. 1935/2004 regulates food contact materials and articles within EU. It includes several requirements for materials and articles intended to come into contact with food to ensure material safety.The glass and fork symbol may be used to indicate that the relevant requirements stated in (EC) No. 1935/2004 are met.

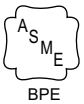
CE marking is a mandatory conformity mark for products placed on the market in the European Economic Area (EEA). With the CE marking on a product the manufacturer ensures that the product conforms with the essential requirements of the applicable EC directives. The letters "CE" stand for "Conformité Européenne" ("European Conformity").

UKCA marking is a mandatory conformity mark for products placed on the market in Great Britain (England, Scotland, and Wales). With the UKCA marking the manufacturer ensures that the product conforms with the relevant requirements of the applicable legislations.

Within United States, requirements for food contact materials and articles are specified by the Food and Drug Administration (FDA) and are regulated under the Code of Federal Regulations, Title 21 “Food and drugs”, Parts 170-199 “Food for human consumption”.

USP Class VI / ISO 10993

The United States Pharmacopeia (USP) standards, chapter 87 and 88, and International Organization for Standardization (ISO) standard 10993, sections 5, 6,10 and 11, specifies requirements to ensure biocompatibility of product contact parts intended to be used in pharma applications.



The American Society of Mechanical Engineers Bioprocessing Equipment (ASME BPE) is the Bioprocess Equipment group of the ASME that provides engineers and quality control professionals a measurable way to specify and purchase equipment for the Biotechnology, Pharmaceutical and Personal Care Products industries.

Alfa Laval hygienic product animations

Automation animations

Get a look inside our products and see how they work. Mouse over the image and click to see animations. See more at: Alfa Laval - hygienic product animations

Alfa Laval ThinkTop® Rethought

Alfa Laval ThinkTop® Rethought. Smart and adaptable

Alfa Laval ThinkTop® Rethought. Intuitive and fast

Alfa Laval ThinkTop® Rethought. Durable and reliable

ThinkTop® Rethought. Burst Seat Clean: Less Water, Less Waste

Intuitive, intelligent hygienic valve control - Alfa Laval ThinkTop® operating principles

Alfa Laval ThinkTop® Pulse Seat Clean for drain valves

Installation of the ThinkTop® D30

Unique Control for LKB Butterfly valves

Automation

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Sensing and control

Alfa Laval IndiTop

Sensing and control

Introduction

The Alfa Laval IndiTop is a digital valve indication unit that offers reliable, cost-effective operation and standard functionality for automated sensing of hygienic valves. The IndiTop provides real-time information about valve operating status 24/7 while boosting productivity and securing traceability.

Application

The IndiTop is designed to sense and indicate the fluid handling process in hygienic applications across the dairy, food, beverage, biotechnology, pharmaceutical and many other industries.

Benefits

- Reliable and accurate valve sensing
- Proven and inherently safe design
- Streamlined and compact design
- Watertight design
- Easy to operate

Standard design

The IndiTop valve sensing unit consists of a proven no-touch, set-and-forget sensor system with light-emitting diodes (LEDs) and an encapsulated cable for connection to any programmable logic controller (PLC) system with a digital interface. It fits on all Alfa Laval hygienic valves; no adapter is required.

Installation is straightforward. No special expertise or tools are required. To initiate manual setup, simply press the keypad pushbuttons to startup sequence. Or set up the indication unit without the keypad using the optional remote-control wire function in combination with the PLC system.

Working principle

The Alfa Laval IndiTop is an automated indication unit that does not require the use of any solenoid valve. It transmits the status and condition of the valve position to any PLC system using one of two electrical feedback signals—either DC/AC or PNP/NPN. LEDs display the current main valve position and on/off power status at all times.

The sensor system accurately detects valve stem movement, the position of the valve at any given time, with an accuracy of ± 1mm through the use of microchip sensors. To locate the current valve position, sensor chips inside the sensor board calculate the angle between the axial magnetic field produced by an indication pin mounted on the valve stem.

Each indication unit fits all Alfa Laval hygienic valves and provides a tolerance band for valves to prevent product failure. This indication unit also eliminates the need to readjust the sensors and boosts productivity.

LEDs conveniently display the main valve positions, setup and local fault indication on the indication unit.

Certificates

CE

c UL us LISTED

TECHNICAL DATA

Communication	
Interface:	Digital PNP/NPN
Supply voltage:	8-30 VDC/VAC

Sensor board	
Max current consumption:	45mA
Feedback signal #1:	De-energized valve
Feedback signal #2:	Energized valve
Valve tolerance band options:	1
Default tolerance band:	± 0.2”
Sensor accuracy:	± 0.004”
Stroke length:	0.004” - 3.15”

PHYSICAL DATA

Materials	
Steel parts:	Stainless steel and Brass
Plastic parts:	Black Nylon PA 6, SEBS and POM

Environment	
Working temperature:	-4 °F to +185 °F
Protection class:	IP66 and IP67
Protection class equivalent:	NEMA 4.4x and 6P

Cable connection	
16 ft option:	6 wire, dia. 0.2" (AWG26)
33 ft option:	6 wire, dia. 0.2" (AWG26)
1.6 ft with plug option:	M12 plug, incl. M12 socket

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

Options

- Cable configuration

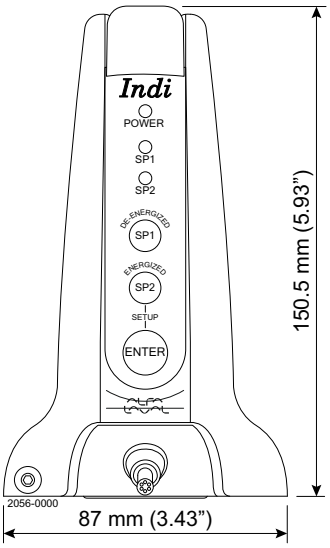
Accessories

- Threaded plate for indication pin on SRC, SMP-BC and i-SSV valves
- Adaptor for Unique SSSV valves

Compatible actuators

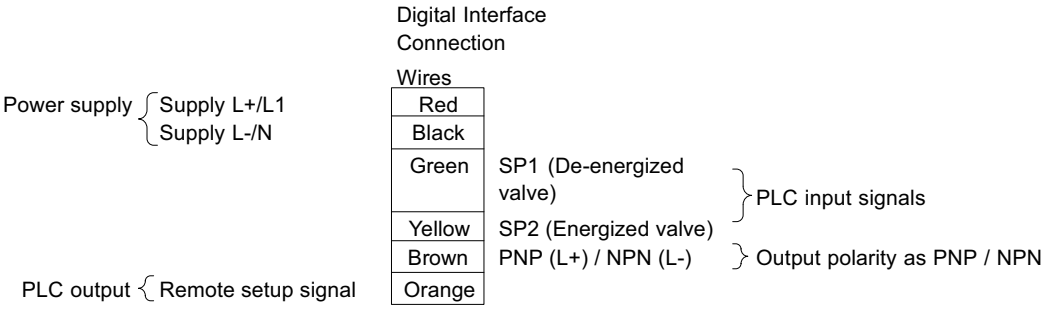
SBV	Yes	Unique 7000	Yes
Koltek	Yes	Unique 7000 aseptic	Yes
LKLA-T	Yes	Unique 7000 long stroke	No
ARC	Yes	SMP valves	Yes
SRC	Yes	Unique Mixproof (U/L seat lift)	No
SRC long stroke	No		

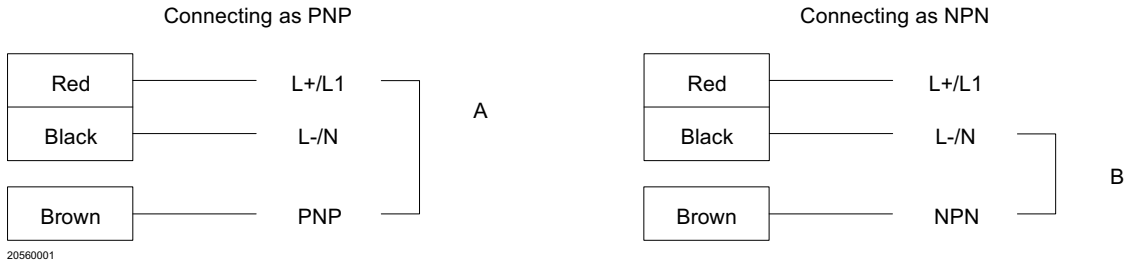
Dimensions (inch)



Electrical connection

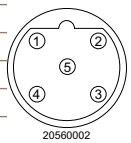
The fixed cable consists of 6 wires. For standard 2 feedbacks not using the remote setup features only 4 wires need to be connected to external systems (Red/Black/Green/Yellow). Brown is always connected to either Red (PNP) or Black (NPN) depending on whether PNP or NPN is required. The orange wire must be connected to Red if the remote setup feature is not used.





A. Brown connected with Red wire on external screw terminals if PNP polarity

B. Brown connected with Black wire on external screw terminals if NPN polarity

Cable wire connections			M12 plug - PIN connections		
Red	L+/L1		PIN 1	Black	L-/N
Black	L-/N		PIN 2	Yellow	SP2 (Energized valve)
Green	SP1 (De-energized valve)		PIN 3	Green	SP1 (De-energized valve)
Yellow	SP2 (Energized valve)		PIN 4	Red	L+/L1, 8-30V AC/DC
Brown	PNP (L+) / NPN (L-)		M12 Plug		PNP (L+) PIN 4
	Remote setup signal		Internal wire connections	Brown	NPN (L-) PIN 1
Orange	If not used - connect to L+/L1		PIN 5	Orange	Remote setup signal
					If not used - connect to L+/L1

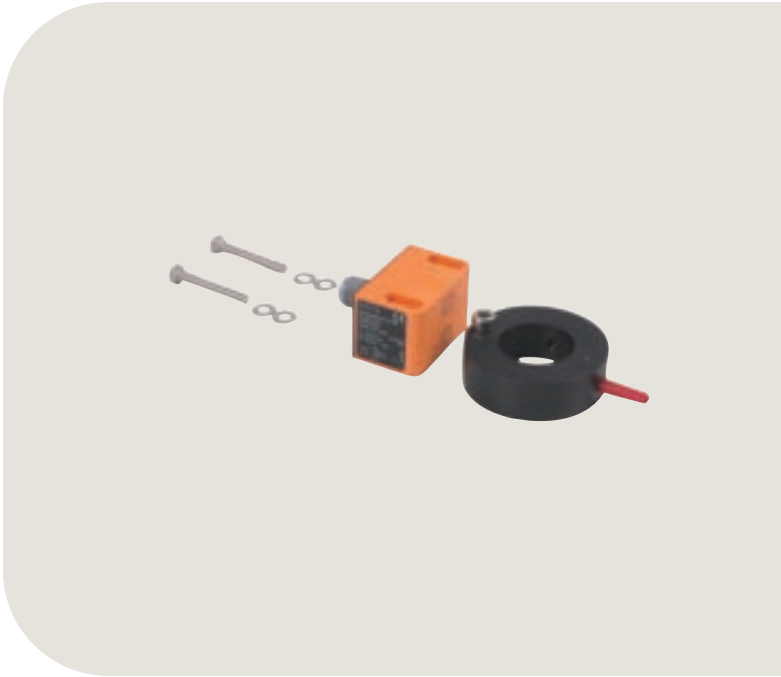
Alfa Laval Indication units

Sensing and control

Introduction

The Alfa Laval Indication unit - Inductive is an electrical feedback unit that offers cost-effective operation and standard functionality for automated indication on the inductive side of Alfa Laval butterfly valves. Straightforward and easy to use, this indication unit provides information about valve operating status 24/7 while boosting productivity.

This inductive indication unit is compatible with any programmable logic controller (PLC) with a PNP/NPN interface.



Application

The electrical indication unit is designed with inductive sensors for use with Alfa Laval butterfly valves in hygienic applications across the dairy, food, beverage, biotechnology, pharmaceutical and many other industries.

Benefits

- Durable and cost-effective
- Precision operation
- Long service life
- Easy to operate

Standard design

The Indication unit – inductive consists of steel and plastic components, seals, contact pins, and cable connection with socket, screw and cable gland. Easy to mount, this indication unit does not require any mechanical adjustments and must be installed between the air-operated actuator and the valve.

Working principle

The Alfa Laval Indication unit – Inductive sensor is an inductive proximity switch that has non-contact electronic switching elements. It is activated by an electromagnet device known as a roller leaf. The standard output signal is always a digital signal (on/off) indicating the position of the valve.

Certificates

CE

TECHNICAL DATA

Communication	
Electrical design:	DC PNP
Operating voltage:	10...36 V DC
Output function:	2 x NO
Current consumption:	<15 mA
Current rating:	250 mA
Electrical connection:	M12 plug

PHYSICAL DATA

Materials	
Steel parts:	Stainless steel
Plastic parts:	PBT; PC (polycarbonate)
Contact pins:	Gold-plated

Environment	
Working temperature:	-13 °F to +176 °F
Protection rating	IP 67

Note!
Compatible brackets are available for the actuators and handles for LKB butterfly valves.
The M12 counterpart (Socket) connector are not a part of the indication unit package. The wiring and pinout on the M12 plug has changed, compared to the previous indication units.
For further information: See also ESE001257

Options

- Valve compatibility

Accessories

- Various cable options

Compatible actuators

LKLA ø85	Yes
LKLA ø133	Yes

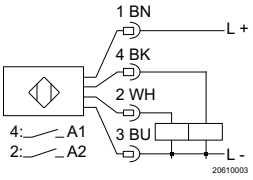
Compatible Valves

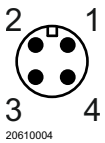
LKB	Yes
LKB-2	Yes

Electrical connection

Standard M12 Connection

Pin	Setup
1	Supply +
4	Closed: OUT + 1 (A1)
2	Open: OUT + 2 (A2)
3	Supply -





Alfa Laval ThinkTop V20

Sensing and control

Introduction

The Alfa Laval ThinkTop V20 valve indication unit offers reliable, cost-effective operation of hygienic valves. It provides standard functionality for intuitive sensing of the valve position and status, displayed on the unit's 360° light-emitting diodes (LEDs). It also provides convenient real-time valve position monitoring and easy access to historical data, making process control more reliable and accurate while saving time and money on installation, commissioning, operation and maintenance.

Application

Purpose-designed to digitalize essential on-off valve monitoring, the ThinkTop V20 is the first pure valve-sensing device that is maintenance-free and does not require manual adjustment or programming. It meets standard process system requirements for sensing and displaying the fluid handling status. It senses and indicates the valve position and status in fluid handling processes in hygienic applications across the dairy, food, beverage, home and personal care, biotechnology, pharmaceutical and many other industries.

Benefits

- More reliable real-time process control from a sensor system that does not require readjustment over time
- 70 % faster, more intuitive setup than conventional valve indication units
- Compact, aesthetic and maintenance-free design based on the ThinkTop V-series
- Choice of communication protocols – digital, AS-I and IO-Link – to suit process requirements
- 360° LED visual status indication, visible from all directions

Standard design

The ThinkTop V20 is suitable for use on all Alfa Laval hygienic valves. Installation is efficient and straightforward; no expertise, adapter or special tools are required. Mount the unit on top of the valve, then tighten the two screws on the valve mushrooms. Plug the M12 female plug into the ThinkTop V20 to begin the intuitive live startup sequence. No additional steps are required. It is compatible with any Alfa Laval hygienic valve with standard mushroom connections, making it easy to install new or replace older valve indication units.

Working principles

The ThinkTop V20 is an automated valve indication unit that does not require the use of any solenoid valve. It transmits the status and condition of the valve position to any programmable logic controller (PLC) system using electrical feedback signals, such as digital, AS-Interface or IO-Link. Light-emitting diodes (LEDs) on the unit provide a 360° visual indication of the valve status, visible from any direction, displaying the current main valve position and any local faults.

The sensor system accurately detects valve stem movement and the valve position at any given moment, using microchip sensors with an accuracy of ±1mm. Sensor chips on the sensor board calculate the angle between the axial magnetic field produced by a sensor target mounted on the valve stem to signal the current valve position. The ThinkTop V20 is compatible with all Alfa Laval hygienic valves, eliminating the need to readjust the sensors and thereby boosting productivity.

Certificates

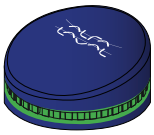
TECHNICAL DATA

Material	
Plastic parts	Nylon PA 12
Steel parts	1.4301 / 304
Gaskets	Nitril / NBR
M12 chassis connector	Stainless steel / Gold plated pins
Environment	
Working temperature	-10 °C to +60 °C
Protection class (IP)	IP69K
Protection class (NEMA)	4, 4X and 6
Control board	
Communication	See interfaces section
Sensor accuracy	± 1 mm
V20 – Valve stem length	Below < 65 mm
Mean Time to Failure (MTTF)	224 years
Approvals	UL/CSA Certificate: E174191
M12 chassis connector	
AS-Interface V20	4-pin series
IO-Link interface V20	4-pin series
Digital interface V20	4-pin series
Vibration	
Vibration	18 Hz-1kHz @ 7.54g RMS
Shock	100g
Humidity	
Constant humidity	+40 °C, 21 days, 93% R.H.
Cyclic humidity	-25 °C/+55 °C, 12 cycles
Working	93% R.H.

OPERATIONAL DATA

ThinkTop LED indication

ThinkTop features a 360-degree light guide. When the sensor target is within the respective setup position band, the corresponding colour lights up.



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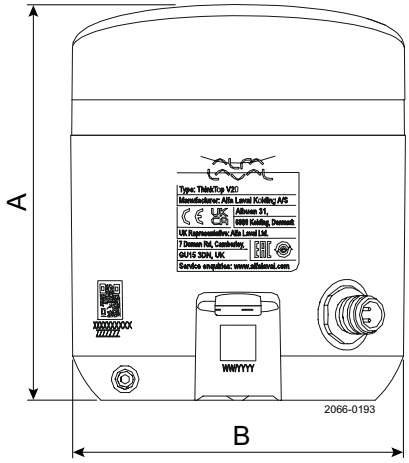
2066-0134

Valve position		
Actuator	De-energised	Valve Energised

Dimensions

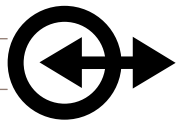


ThinkTop V20	mm	Inch
A	123	4.84
B	105	4.13

Digital interface

ThinkTop V20 Digital 24V

Device name	ThinkTop V20 Digital 24V
Voltage supply	• 24 VDC ± 10 %; according to EN 61131-2
Protection	• Reverse polarity (24 VDC ± 10 %); EN 61131-2 • Voltage interruption and brown-out; EN61131 • Short circuit; EN 61131
Current consumption	• Nominal 30mA (Idle)
PLC input card	• DC PNP • Max rated 24V/100 mA
UL supply	• Class 2 according to cULus
Voltage-drop	• Typical 3V at 50 mA



Terminals V20 Digital-IO 24V		
	M12, pin 1	24V
	M12, pin 2	Valve de-energised (DE-EN)
	M12, pin 3	GND
	M12, pin 4	Main valve energised (EN)

Terminals V20 Digital-IO 24V Retrofit IndiTop		
	M12, pin 1	GND
	M12, pin 2	Main valve energised (EN)
	M12, pin 3	Valve de-energised
	M12, pin 4	24V

ThinkTop AS-Interface

Device name	ThinkTop V20 ASI3
Supply voltage	• AS-Interface 29.5 – 31.6 VDC
Protection	• Reverse polarity; EN 61131-2 • Voltage interruption and brown-out; EN 61131 • Short circuit; EN 61131
Current consumption	• Nominal: 30 mA (idle) • Max 100 mA (solenoid valve and seat lift sensor active)
AS-I specification v3.0	• Supports extended A/B addressing and is compatible with M4 AS-I master profile, allows up to 62 nodes on an AS-I network • Slave profile = 7A77
AS-I addressing	• Default slave address (Node) is = **0** • Address (Node) changes with a standard handheld AS-I addressing device or via AS-I Master Gateway

Terminals V20 AS-interface		
	M12, pin 1	AS-i +
	M12, pin 3	AS-i -

IO-Link interface

ThinkTop IO-Link

In addition to process indication, the IO-Link variant enables diagnostic information and features additional functionality that is unique to the IO-Link ThinkTop.

It's recommended to just add them all to the preferred IO-Link configuration tool. The configuration tool will automatically match the correct IODD with the connected ThinkTop.

Device name	ThinkTop V20 IO-Link
IO-Link supply voltage	• 24 VDC ± 10 %
Current consumption	• Nominal: 30 mA (idle)
Download of IO-Link files	• Alfa Laval Anytime and ThinkTop configurator • Go to www.alfalaval.com ThinkTop and documentation
IO-Link interface tool	• USB IO-Link master • **Configuration tool**
Cable length to IO-Link master	• Max 20 meters
Transmission rate	• COM 2 (38.4 kBaud)
Minimum cycle time	• 5 ms
Data storage	• yes
Profiles	• na
SIO mode	• no
Port class	• A

IO-Link data table

For the IO-Link version, the bit assignment and diagnostic data can be found in the manual "IO-Link Interface Description" for ThinkTop V20. Go to www.alfalaval.com ThinkTop V20 and documentation.

On ThinkTop V20 control board, using the IO-Link interface tool from ifm, all parameter settings and visualization data are available through the diagnostic connection port.

From the “IO-Link Interface Description” the table below shows an overview of the data storage parameters. When replacing a ThinkTop V-series on a process plant, some data are re-stored, included in the new ThinkTop V-series, and other data must be reassigned again, excluded in the new ThinkTop V-series.

Please note that data storage is a feature that must be actively selected in the PLC's hardware configuration when setting up the IO-link master.

Included	Excluded
RGB color	Setup data
Customized tags	Diagnostics

Electrical connections

ThinkTop V20

Terminal	Control board	Colour code wires
1	L +24V	BN (brown)
2	L -GND	BU (blue)
3	IO-Link signal	BK (black)

ThinkTop V20

M12 option (4-pin A-coded plug)

Pin numbers and terminal numbers are aligned

M12 Chassis plug connector	Control board Terminal numbers	M12 pin assignments wire colours
	1: L +	Pin 1: BN (brown)
	2: nc	-
	3: L -	Pin 3: BU (blue)
	4: Out1	Pin 4: BK (black)

Alfa Laval ThinkTop® V50

Sensing and control

Introduction

ThinkTop V50 takes valve control to a new level and all these new features are available on any Alfa Laval diaphragm, butterfly & single seat. While helping to increase production performance and secure traceability, ThinkTop V50 provide real-time information on the valve's operating status 24/7.

ThinkTop V50 are interchangeable with prior ThinkTop versions, and the appropriate variant is selected based on the number of solenoid valves. With only one sensor target and included adapter, ThinkTop V50 are easily retrofittable to existing Alfa Laval valves.

ThinkTop V50 come fitted with features such as Auto Setup, Live Setup and Flex Setup that streamline the setup process, making it quick and easy. Auto Setup and Live Setup recognise the valve based on its DNA profile and can complete the valve setup without any manual interaction.

Pulse seat clean function available on ThinkTop V50. This valve position-based function controls the optimum seat clean sequence of the valve, making it possible to save CIP time and achieve up to 95% CIP liquid savings for each seat clean.

Application

ThinkTop V50 are designed for use in the dairy, food, beverage, and biopharma industries.

Benefits

- Auto setup
- Automatic valve recognition
- Automatic selection of tolerance band
- Fast, Live and Flex Setup
- 360-degree LED indication
- Pulse seat clean
- Exchangeable (threaded) air-fittings
- Interchangeable with ThinkTop classics

Certificates

A selection of the essential certificates available on ThinkTop

Working principles

The control unit offers a single sensor solution for diaphragm, butterfly, single-seat valves and it can be fitted with 0 or 1 solenoid valves. ThinkTop converts the electrical PLC output signals into mechanical energy to energise, or de-energise, the air-operated valve, using the physical sensor target mounted on the valve stem.

Installation with Auto Setup or Live Setup is intuitive and fast. To initiate Auto Setup, simply press the “SELECT” button and then the “ENTER” button to begin the setup sequence. The ThinkTop automatically recognizes the type of valve and completes the programming sequence fast and efficiently.

Alternatively, the ThinkTop can be set up, without dismantling the control head, using the built-in Live Setup feature for remote-configuration.

Dimensions

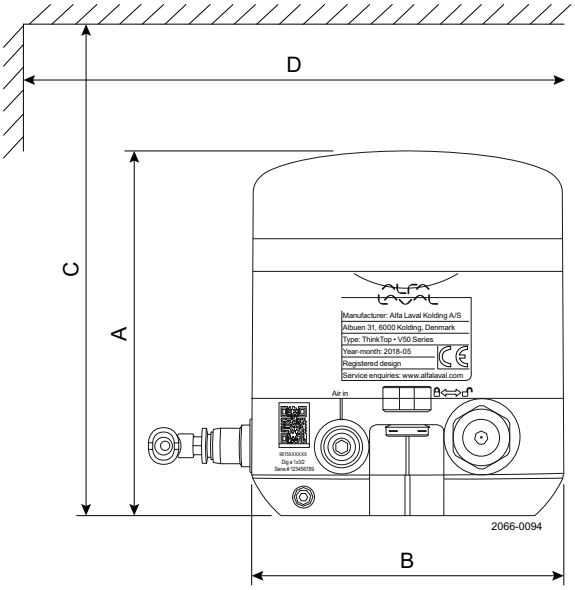


Figure 1. ThinkTop V 50

ThinkTop V 50		
	mm	**Inch**
A	123	4.84
B	105	4.13
C	200	7.87
D	150	5.91

TECHNICAL DATA

Material	
Plastic parts	Nylon PA 12
Steel parts	1.4301 / 304
Gaskets	Nitril / NBR
Air fittings	Nickel plated / Nylon PA6
M12 chassis connector	Stainless steel / Gold plated pins

Environment	
Working temperature	+14 to +140 °F
Protection class (IP)	IP69K
Protection class (NEMA)	4, 4X and 6
Hazardous area	ATEX and IECEx in preperation

Control board	
Communication	See interfaces section
Sensor accuracy	± 0.0039 inch
V50 – Valve stem length	Below <2.56 inch
Mean Time To Failure (MTTF)	224 years
Approvals	UL/CSA Certificate: E174191

Solenoid valve	
Supply voltage	24 VDC ± 10%
Nominal power	0.3 W
Air supply	300-800 kPa (3-8 bar)
Type of solenoids	3/2-ways
Number of solenoids	0-3
Manual hold override	Yes
Air quality	Class 3,3,3 acc. DIN ISO 8573-1
Air pressure	6-8 bar

Solenoid valve	
B10 data	5 million cycles
Recommendation	Operate once a month to prevent dry-out

Note!
Throughout this leaflet, SV is used as an abbreviation for a soleniod valve

Air fitting	
Threaded air fitting G1/8	ø6 mm (Rim blue) or 1/4" (Rim Grey)
Elbow push-in fittings	ø6 mm (Rim blue) or 1/4" (Rim Grey)

Cable connection	
Main cable gland entry Digital	M16 (ø4 - ø10 mm^2) (0.16" - 0.39")
Main cable gland entry AS-I	M16 (ø2 - ø7 mm^2) (0.08" - 0.28")
Seat lift sensor cable gland entry	M12 (ø3.5 - ø7 mm^2) (0.14" - 0.28")
Max wire diameter	0.75 mm^2 (AWG20)

M12 chassis connector	
AS-Interface V50	2 wire, 4-pin series
IO-Link interface V50	3 wire, 4-pin series
Digital interface V50	6 wire, 8-pin series

Vibration	
Vibration	18 Hz-1kHz @ 7.54g RMS
Shock	100g

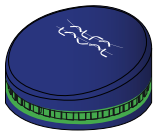
Humidity	
Constant humidity	+104 °F, 21 days, 93% R.H.
Cyclic humidity	-13 °F/+131 °F, 12 cycles
Working	93% R.H.

Accessories by functionality	
Upper seat lift surveillance	Kit
Valve “opening” speed reduction	0-100%. Outlet air fitting on ThinkTop
Valve “closing” speed reduction	0-100%. Inlet air fitting on actuator
Valve closing speed increase	Quick air exhaust, ø0.24 inch

OPERATIONAL DATA

ThinkTop LED indication

ThinkTop features a 360-degree light guide. When the sensor target is within the respective setup position band, the corresponding colour lights up.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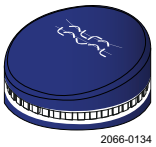
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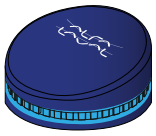
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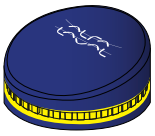
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Valve position						
	Actuator	All De-energised	Main valve open Energised	Upper seat lift Energised	Lower seat push Energised	Between
ThinkTop Mode	Factory setting	Green flashing	White flashing	Blue flashing	Yellow flashing	Off
	Operation	Green	White	Blue	Yellow	Off
	Not OK	Green/red flashing	White/red flashing	Blue/red flashing	Yellow/red flashing	Red flashing

Auto and Live setup

Auto Setup is a rule-based function. If one of these rules are not present, Flex Setup must be used.

By default, ThinkTop V50 uses the de-Energised/Energised paradigm for valve positions feedback.

Parameter	Auto Setup/Live Setup	Flex Setup (retrofit mode)
Status feedback (OK or error)	Valve state (Fail safe signal)	Status error
Seat cleaning function	Enabled	Disabled
Valve operation monitor	Enabled	Disabled
Ext. sensor operation monitor	Enabled	Disabled
Interlock	Enabled	Disabled
Output (AS-i master input)	Special	Special
External sensor masking	Enabled	Disabled

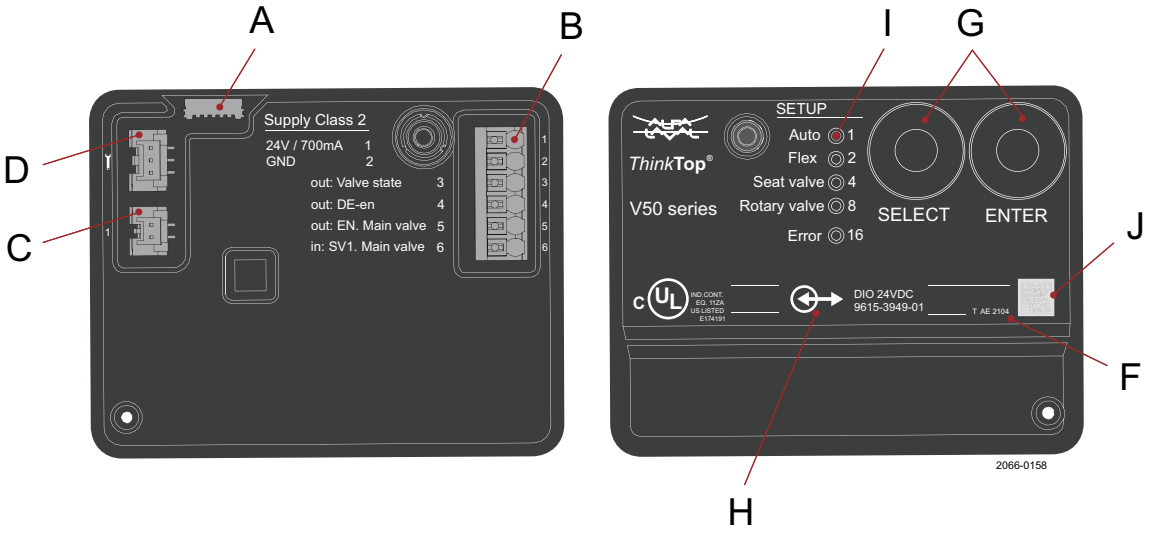
Note!
The "Fail safe signal" is always high for idle operation of ThinkTop and the valve

Valve compatibility chart

Use Anytime configurator for correct selection of ThinkTop V50 and V70 on different valve size and types

	Common applications (Auto / Live Setup)	Special applications (Flex Setup)	Incompatible valves
ThinkTop V50	Single Seat valves Small Single Seat valve Butterfly valves Diaphragm valves Ball valves Shutter valves Double seat valves Double seal valve	• ThinkTop classic retrofit mode or alternative setup with no restrictions • Feedback structure such as the open/closed valve feedback • All SSV (1/2" - 4") NO, shut off, maintainable, need to be setup as a rotary valve • Application with no solenoid valve, feedback indication only • One control unit to control multiple valves-actuators • SMP-BC where using 2 solenoid valves to operate main valve and pilot leak-detect valves independently	• Valves without actuator stem and mushrooms • Koltek Type 633 three position actuator, valve size 1” – 3” • Regulating valves • Safety valves • Sample valves • SMP-EC • 700 series • Other valve brands

Overview of control board V50



A: LED indication lamp
B: Spring loaded terminals
C: Solenoid valve connectors
D: Diagnostic port (Alfa Laval)
E: Upper seat lift sensor terminal
F: Control board - Firmware version
G: Push buttons "Select" and "Enter"
H: Symbol for electrical interface
I: LEDs for unit status display
J: Non-public QR code

ThinkTop and automated valve-seat cleaning

The standard features Burst seat clean and Pulse seat clean makes it easy to optimize the water consumption during CIP cleaning of the gaskets in Mixproof valves and drain valves.

Information on how to handle pulse seat clean and burst seat clean can be found in the instruction manual, AS-Interface table and in the IO-Link IODD interface description.

Feature availability table

This table shows in which ThinkTop configurations the features are available and if they can be controlled from the PLC.

ThinkTop	Interface	Feature	Availability
V50	Digital	Pulse clean	Feature not available
V50	AS-Interface	Pulse clean	1 solenoid valve - PLC controlled function
V50	IO-Link	Pulse clean	1 solenoid valve – PLC controlled function

ThinkTop pulse seat clean

Intended for high CIP flow pressure and for single seat valves or butterfly valves used as drain valves. No setup required, pulse seat clean is a standard and ready to perform feature in ThinkTop V50 with one solenoid valve.

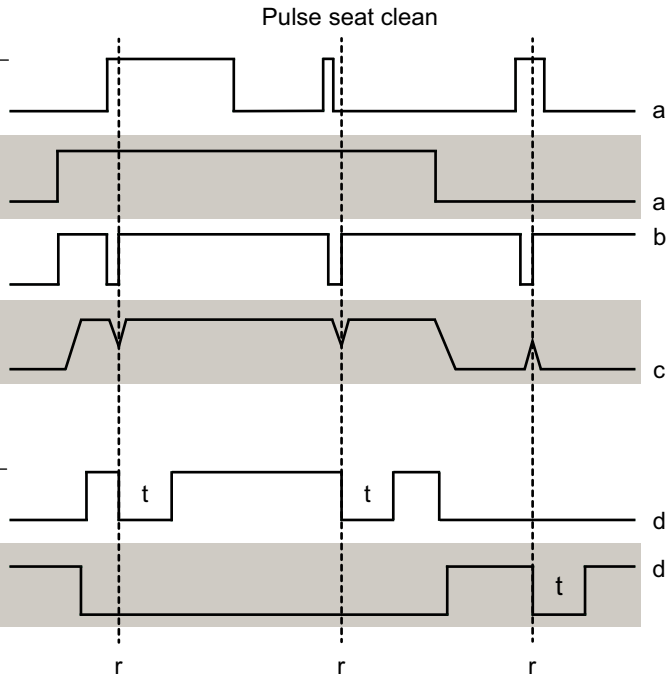
How to PLC control the pulse cleaning function, please set up and follow the function diagram. The PLC input duration (a) to the ThinkTop must be at least 500 ms.

Output table

Bit assignment	AS-I	IO-Link
Trigger signal	O0	O2
Solenoid valve	O1	O4
Solenoid valve state		
Main single seat valve position		

Input table

Bit assignment	AS-I	IO-Link
Main valve energized	I1	I1
Main valve de-energized	I0	I0



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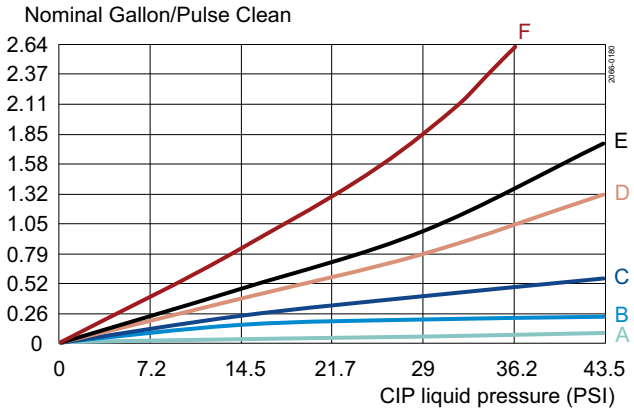
a: Electrical signal from PLC
b: Air output from ThinkTop
c: Physical valve movement
d: Visual LED and electrical signal to PLC
r: Valve position reached
t: 2 sec.

When the valve-position is reached, the pulse seat clean function is released, and the valve returns to the starting position. After which then ready again after 2 seconds to perform another pulse seat clean. A two-second (t) electrical signal and visual feedback (d) is provided as a handshake for successful completion of a pulse seat clean.

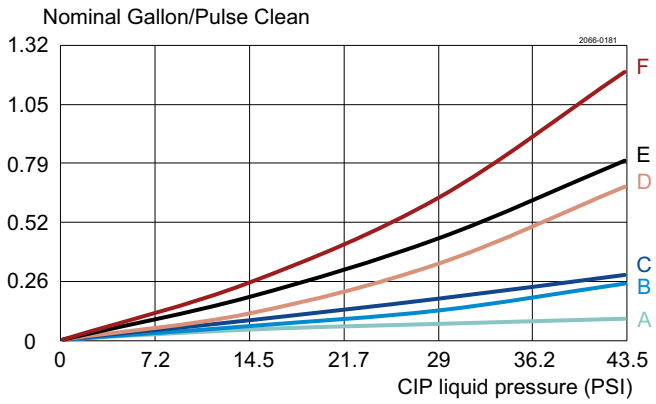
Pulse water consumption graph

ThinkTop V50 CIP water consumption during pulse seat clean on different sizes of drain valves, provided with 87 PSI air pressure to the actuator:



A = 1” / DN25
B = 1.5” / DN40
C = 2” / DN50
D = 2.5” / DN65
E = 3” / DN80
F = 4” / DN100

Figure 1. LKAT-T ø85 and Butterfly valves
1" DN25 to 4" DN100
Air pressure 87 PSI



A = 1” / DN25
B = 1.5” / DN40
C = 2” / DN50
D = 2.5” / DN65
E = 3” / DN80
F = 4” / DN100

Figure 2. Unique SSV valves
1" DN25 to 4" DN100
Air pressure 87 PSI

Compatible valve actuators

List of compatible valve actuators where pulse seat clean and burst seat clean can be applied:

ThinkTop V50	Valve actuators	Applicable
Pulse seat clean	i-Series	Yes
	Single Seat Valves	Yes
	Butterfly Valves - LKLA-T ø85	Yes
	Butterfly Valves - LKLA-T ø133	No
	Diaphragm valves	No
	Ball valves	No
	Shutter valves	No
	Small Single Seat Valves	No
	Safety and Sample valves	No

Valve state – Fail safe signal

The following table gives an overview of behaviour per Error condition where the valve state signal goes low. Further description of the various Error conditions can be found in the ThinkTop Instruction Manual, section 5,2

Valve state is a decentralized functionality, available for all ThinkTop variants and a feature that can be used for monitoring process issues or to ease and simplify the PLC programming of a valve surveillance.

		ThinkTop Digital Valve state	ThinkTop AS-Interface Valve state not available	ThinkTop IO-Link Valve state
Error Code #	Error description	Main valve FAIL SAFE SIGNAL DE-ENERGIZED SIGNAL behaviour	Main valve not available DE-ENERGIZED SIGNAL behaviour	Main valve FAIL SAFE SIGNAL DE-ENERGIZED SIGNAL behaviour
15	Key lock active	na	na	na
16	Sensor target missing	Drops low	Drops low	Drops low
17	Setup prerequisite issue Missing peripherals	Not connected	Not connected	Not connected
18	Pneumatic part issue	Not connected	Not connected	Not connected
19	Seat lift sensor issue	Drops low	Drops low	Drops low
20	Position not reached	Drops low	Drops low	Drops low
21	Unexpected valve movement	Drops low	Drops low	Drops low
22	Seat-lift sensor missing	Drops low	Drops low	Drops low
23	Solenoid valve 1 missing	Drops low	Not connected	Drops low
24	Solenoid valve 2 missing	Drops low	Not connected	Drops low
25	Solenoid valve 3 missing	Drops low	Not connected	Drops low

[1] This event is not treated as an error

		ThinkTop Digital Valve state	ThinkTop AS-Interface Valve state not available	ThinkTop IO-Link Valve state
Error Code #	**Error description**	**Main valve FAIL SAFE SIGNAL DE-ENERGIZED SIGNAL behaviour**	**Main valve not available DE-ENERGIZED SIGNAL behaviour**	**Main valve FAIL SAFE SIGNAL DE-ENERGIZED SIGNAL behaviour**
26	Interlock warning	Drops low	Not connected	Drops low
27	Output short circuit (Digital)	Drops low	Not connected	Not connected
28	Setup aborted	Not connected	Not connected	Not connected
29	Blocked button	Drops low	Not connected	Drops low
30	Voltage Low (Digital)	Drops low	Not connected	Not connected
30	Communication failure (IO-Link)	Not connected	Not connected	Drops low
31	Safety stop	Drops low	Drops low	Drops low
32[1]	Pressure shock event	Not connected	Not connected	Not connected

[1] This event is not treated as an error

Default bitmapping

The default settings apply to both Digital, AS-Interface and IO-Link

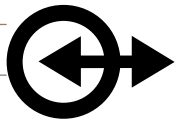
ThinkTop V50 truth signal table: default factory setting

	DE-EN (I0) close	MAIN (I1) open	Valve state (Fail safe signal)
DE-EN (No active SV)	1	0	1
MAIN SV1 active (O1)	0	1	1

Digital interface

ThinkTop Digital 24V DC

Device name	ThinkTop V50 24V Digital - PNP
Voltage supply	• 24 VDC ± 10%; according to EN 61131-2
Protection	• Reverse polarity (24 VDC ± 10%); EN 61131-2 • Voltage interruption and brown-out; EN61131 • Short circuit; EN 61131
Current consumption	• Nominal 30mA (Idle)
Outputs to PLC	• Max 100mA (solenoid valve and seat lift sensor active)
PLC input card	• Max rated 24V/100 mA
UL supply	• Class 2 according to cULus
Voltage-drop	• Typical 3V at 50 mA
Terminal type	• Spring force push-in technology • Supports nominal wire cross-section between 1.0 mm2 [17AWG] and 0.30 mm2 [22AWG] • Supports wire and ferrules for wire cross-section of 0.75 mm2 [18AWG] with pin length 12 mm



Electrical connections

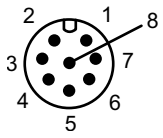
ThinkTop V50

Terminals	Control board	Colour code wires
1	24V	BN (brown)
2	GND	BU (blue)
3	out: Status	WH (white)
4	out: DE-EN	BK (black)
5	out: EN. Main valve	GY (grey)
6	in: SV1. Main valve	PK (pink)

ThinkTop V50

M12 option (8-pin A-coded plug)

Pin numbers and terminal numbers are aligned

M12 Chassis plug connector	Control board Terminal numbers	M12 pin numbers wire colors
	**Solenoid valve**	**0 or 1x3/2-way**
	1: 24V	Pin 1: BN (brown)
	2: GND[1]	Pin 3: BU (blue)
	3: out: Valve state (Valve state) [1]	Pin 2: WH (white)
	4: out: DE-EN	Pin 4: BK (black)
	5: out: EN. Main valve	Pin 5: GY (grey)
	6: in SV1. Main valve	Pin 6: PK (pink)
	7: nc	-
	8: nc	-

[1] Please be mindful of the difference between the number sequence of the control board terminal and the M12 plug pins

ThinkTop AS-Interface

Device name	ThinkTop V50 ASI2 & ThinkTop V50 ASI3
Supply voltage	• AS-Interface 29.5 – 31.6 VDC
Protection	• Reverse polarity (24 VDC ± 10%); EN 61131-2 • Voltage interruption and brown-out; EN 61131 • Short circuit; EN 61131
Current consumption	• Nominal: 30 mA (idle) • Max 100 mA (solenoid valve and seat lift sensor active)
Terminal type	• Spring force push-in technology • Supports nominal wire cross-section between 1.0 mm^2 [17AWG] and 0.30 mm^2 [22AWG] • Supports wire and ferrules for wire cross-section of 0.75 mm^2 [18AWG] with pin length 12 mm
AS-I specification v2.11	• Supports standard addressing and are compatible with M0-M4 AS-I master profiles, allows up to 31 nodes on an AS-I network • **Slave profile = 7FFF**
AS-I specification v3.0	• Supports extended A/B addressing and is compatible with M4 AS-I master profile, allows up to 62 nodes on an AS-I network • **Slave profile = 7A77**
AS-I addressing	• Default slave address (Node) is = **0** • Address (Node) changes with a standard handheld AS-I addressing device or via AS-I Master Gateway

AS-Interface bit table

For the AS-Interface versions, the following bit assignment will be used

PLC system / Gateway Output table	ThinkTop V50
Pulse clean trigger (1 solenoid valve)	O0
SV1. Main valve	O1
SV2. Upper seat lift	nc
SV3. Lower seat push	nc

PLC system / Gateway Input table	ThinkTop V50
DE-EN	I0
EN. Main valve	I1
Upper seat lift	nc
Lower seat push	nc

Electrical connections

ThinkTop V50

Terminal	Control board	Colour code wires
1	AS-i +	BN (brown)
2	AS-i -	BU (blue)

ThinkTop V50

M12 option (4-pin A-coded plug)

Pin numbers and terminal numbers are aligned

M12 Chassis plug connector	Control board Terminal numbers Functions	M12 pin assignments wire colours
	1: AS-i +	Pin 1: BN (brown)
	2: nc	-
	3: AS-i -	Pin 3: BU (blue)
	4: nc	-

IO-Link interface

ThinkTop IO-Link

In addition to process indication and control, the IO-Link variant enables diagnostic information and features additional functionality that is unique to ThinkTop.

If new functionality is implemented in ThinkTop V50, then a new IODD and interface description is generated. Both the new and old IODD will be included in the revision of the “ThinkTop IO-Link zip-file”.

It’s recommended to just add them all to the preferred IO-Link configuration tool. The configuration tool will automatically match the correct IODD with the connected ThinkTop.

Device name	ThinkTop V50 IOL
IO-Link supply voltage	• 24 VDC ± 10%; according to EN 61131-2
Protection	• Reverse polarity (24 VDC ± 10%); EN 61131-2 • Voltage interruption and brown-out; EN61131 • Short circuit; EN 61131
Current consumption	• Nominal: 30 mA (idle) • Max 100 mA (solenoid valve and seat lift sensor active)
Terminal type	• Spring force push-in technology • Supports nominal wire cross-section between 1.0 mm2 [17AWG] and 0.30 mm2 [22AWG] • Supports wire and ferrules for wire cross-section of 0.75 mm2 [18AWG] with pin length 12 mm
ThinkTop control board revisions	• The interface description “ **Before** Dec. 2021” match ThinkTop control boards of revisions AA to AD • The interface description marked “ **After** Dec. 2021” match ThinkTop control boards of revision AE or later
Download of IO-Link files	• Alfa Laval Anytime and ThinkTop configurator • Go to www.alfalaval.com ThinkTop and documentation • Go to www.io-link.com Click IODD finder and key ThinkTop
IO-Link interface tool	• IFM E30390 IO-Link Interface / USB IO-Link master • IFM LR Device – Line recorder
ThinkTop V50	• “ **Before** Dec. 2021” match Device ID 1 “ **After** Dec. 2021” match Device ID 9
Cable length to IO-Link master	• Max 20 meters
Transmission rate	• COM 2 (38.4 kBaud)
Minimum cycle time	• 5 ms
Data storage	• yes
Profiles	• na
SIO mode	• no
Port class	• A

IO-Link data table

For the IO-Link version, the bit assignment and diagnostic data can be found in the manual “IO-Link Interface Description” for ThinkTop V50 respectively. Go to www.alfalaval.com ThinkTop V and documentation

On ThinkTop V50 control board, using the IO-Link interface tool from IFM, all parameter settings and visualisation data are available through the diagnostic connection port

From the “IO-Link Interface Description” the table below shows an overview of the data storage parameters. When replacing a ThinkTop V-series on a process plant, some data are re-stored, included in the new ThinkTop V-series, and other data must be reassigned again, excluded in the new ThinkTop V-series.

Please note that data storage is a feature that must be actively selected in the PLC's hardware configuration when setting up the IO-link master.

Included	Excluded
Customization • Application Specific Tag • Error modifier timeout • Function Tag • Location Tag • Power save • Button lock • RGB colour • Seat valve pulse • Rotary valve pulse • USA bit mapping	Control board ID • Vendor Name • Vendor Text • Product Name • Product ID • Product Text • Serial Number • Hardware Version • Firmware Version • Prod Date
	Setup data • Setup positions • Setup state
	Diagnostics • SV-activations • SV-ON_time • PV-SetupStrokeEn • PV-SetupStrokeDeEn • PressureShockCnt • Temp • Log

Electrical connections

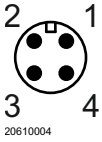
ThinkTop V50

Terminal	Control board	Colour code wires
1	L +24V	BN (brown)
2	L -GND	BU (blue)
3	IO-Link signal	BK (black)

ThinkTop V50

M12 option (4-pin A-coded plug)

Pin numbers and terminal numbers are aligned

M12 Chassis plug connector	Control board Terminal numbers	M12 pin assignments wire colours
	1: L +	Pin 1: BN (brown)
	2: nc	-
	3: L -	Pin 3: BU (blue)
	4: Out1	Pin 4: BK (black)

Alfa Laval ThinkTop® V70

Sensing and control

Introduction

ThinkTop V70 takes valve control to a new level and all these new features are available on any Alfa Laval single-seat and mixproof valves. While helping to increase production performance and secure traceability, ThinkTop V70 provide real-time information on the valve's operating status 24/7.

ThinkTop V70 are interchangeable with prior ThinkTop versions, and the appropriate variant is selected based on the number of solenoid valves. With only one sensor target and included adapter, ThinkTop V70 are easily retrofittable to existing Alfa Laval valves.

ThinkTop V70 come fitted with features such as Auto Setup, Live Setup and Flex Setup that streamline the setup process, making it quick and easy. Auto Setup and Live Setup recognise the valve based on its DNA profile and can complete the valve setup without any manual interaction.

The burst and pulse seat clean function is available on ThinkTop V70. These valve position-based functions controls the optimum seat clean sequence of the valve, making it possible to save CIP time and achieve up to 95% CIP liquid savings for each seat clean.

Application

ThinkTop V70 are designed for use in the dairy, food, beverage, and biopharma industries.

Benefits

- Auto setup
- Automatic valve recognition
- Automatic selection of tolerance band
- Fast, Live and Flex Setup
- 360-degree LED indication
- Burst seat clean
- Pulse seat clean
- Exchangeable (threaded) air-fittings
- Interchangeable with ThinkTop classics

Certificates

A selection of the essential certificates are available on ThinkTop:

Working principles

The control unit offers a single sensor solution for, single-seat and mixproof valves and it can be fitted with up to three solenoid valves. ThinkTop converts the electrical PLC output signals into mechanical energy to energise, or de-energise, the air-operated valve, using the physical sensor target mounted on the valve stem.

Installation with Auto Setup or Live Setup is intuitive and fast. To initiate Auto Setup, simply press the “SELECT” button and then the “ENTER” button to begin the setup sequence. The ThinkTop automatically recognizes the type of valve and completes the programming sequence fast and efficiently.

Alternatively, the ThinkTop can be set up, without dismantling the control head, using the built-in Live Setup feature for remote-configuration.

Dimensions

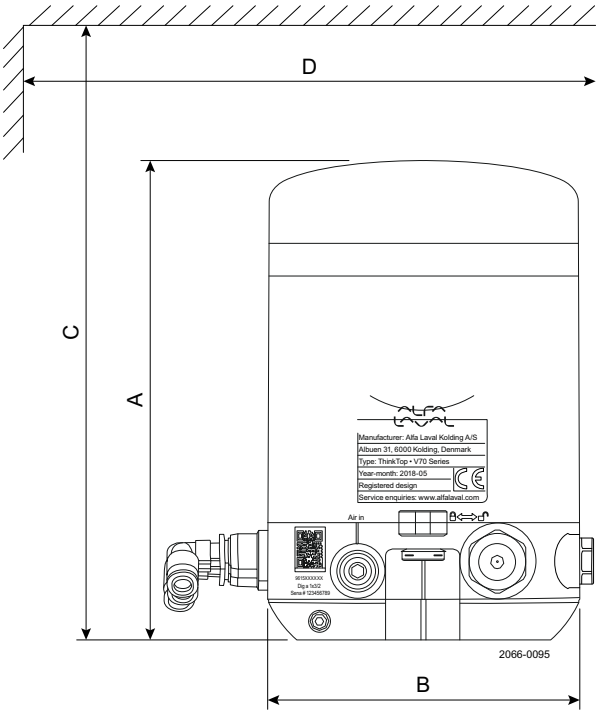


Figure 2. ThinkTop V 70

ThinkTop V 70		
	mm	Inch
A	164	6.45
B	105	4.13
C	250	9.84
D	170	6.69

TECHNICAL DATA

Material	
Plastic parts	Nylon PA 12
Steel parts	1.4301 / 304
Gaskets	Nitril / NBR
Air fittings	Nickel plated / Nylon PA6
M12 chassis connector	Stainless steel / Gold plated pins

Environment	
Working temperature	+14 to +140 °F
Protection class (IP)	IP69K
Protection class (NEMA)	4, 4X and 6
Hazardous area	ATEX and IECEx in preparation

Control board	
Communication	See interfaces section
Sensor accuracy	± 0.0039 inch
Valve stem length	Above >2.56 inch
Mean Time To Failure (MTTF)	224 years
Approvals	UL/CSA Certificate: E174191

Solenoid valve	
Supply voltage	24 VDC ± 10%
Nominal power	0.3 W
Air supply	300-800 kPa (3-8 bar)
Type of solenoids	3/2-ways or 5/2-way
Number of solenoids	0-3
Manual hold override	Yes
Air quality	Class 3,3,3 acc. DIN ISO 8573-1
Air pressure	6-8 bar
B10 data	5 million cycles
Recommendation	Operate once a month to prevent dry-out

Note!
Throughout this leaflet, SV is used as an abbreviation for a soleniod valve

Air fitting	
Threaded air fitting G1/8	ø6 mm (Rim blue) or 1/4" (Rim Grey)
Elbow push-in fittings	ø6 mm (Rim blue) or 1/4" (Rim Grey)

Cable connection	
Main cable gland entry Digital	M16 (ø4 - ø10 mm^2) (0.16" - 0.39")
Main cable gland entry AS-I	M16 (ø2 - ø7 mm^2) (0.08" - 0.28")
Seat lift sensor cable gland entry	M12 (ø3.5 - ø7 mm^2) (0.14" - 0.28")
Max wire diameter	0.75 mm^2 (AWG20)

M12 chassis connector	
AS-Interface	2 wire, 4-pin series
IO-Link interface	3 wire, 4-pin series
Digital interface	10 wire, 12-pin series

Vibration	
Vibration	18 Hz-1kHz @ 7.54g RMS
Shock	100g

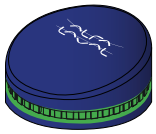
Humidity	
Constant humidity	+104 °F, 21 days, 93% R.H.
Cyclic humidity	-13 °F/+131 °F, 12 cycles
Working	93% R.H.

Accessories by functionality	
Upper seat lift surveillance	Kit
Valve “opening” speed reduction	0-100%. Outlet air fitting on ThinkTop
Valve “closing” speed reduction	0-100%. Inlet air fitting on actuator
Valve closing speed increase	Quick air exhaust, ø0.24 inch

OPERATIONAL DATA

ThinkTop LED indication

ThinkTop features a 360-degree light guide. When the sensor target is within the respective setup position band, the corresponding colour lights up.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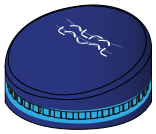
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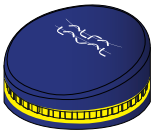
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Valve position						
	Actuator	All De-energised	Main valve open Energised	Upper seat lift Energised	Lower seat push Energised	Between
ThinkTop Mode	Factory setting	Green flashing	White flashing	Blue flashing	Yellow flashing	Off
	Operation	Green	White	Blue	Yellow	Off
	Not OK	Green/red flashing	White/red flashing	Blue/red flashing	Yellow/red flashing	Red flashing

Auto and Live Setup

Auto Setup is a rule-based function. If one of these rules are not present, Flex Setup must be used.

By default, ThinkTop V70 uses the de-Energised/Energised paradigm for valve positions feedback.

Parameter	Auto Setup/Live Setup	Flex Setup (retrofit mode)
Status feedback (OK or error)	Valve state (Fail safe signal)	Status error
Seat cleaning function	Enabled	Disabled
Valve operation monitor	Enabled	Disabled
Ext. sensor operation monitor	Enabled	Disabled
Interlock	Enabled	Disabled
Output (AS-i master input)	Special	Special
External sensor masking	Enabled	Disabled

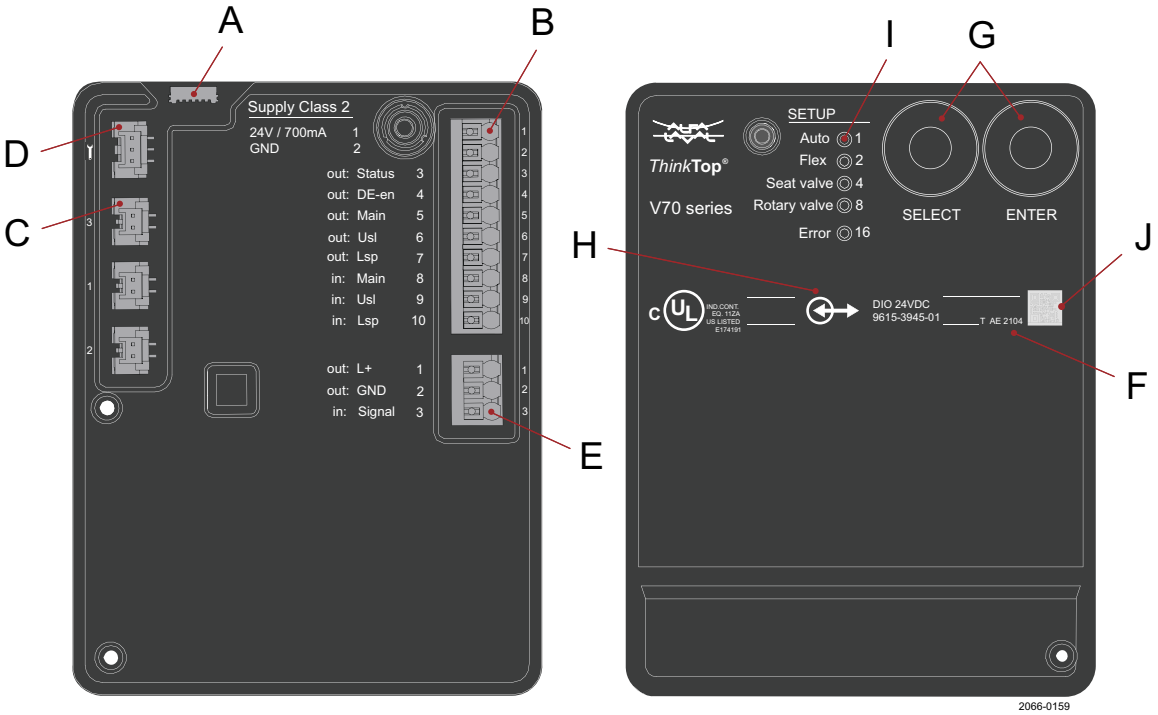
Note!
The "Fail safe signal" is always high for idle operation of ThinkTop and the valve

Valve compatibility chart

Use Anytime configurator for correct selection of ThinkTop V70 on different valve size and types

	Common applications (Auto / Live Setup)	Special applications (Flex Setup)	Incompatible valves
ThinkTop V70	Double seat valves Double seal valve Long stroke single seat valves Diaphragm valves Air/Air valves	• ThinkTop classic retrofit mode or alternative setup with no restrictions • Feedback structure such as the open/closed valve feedback • All SSV (1/2" - 4") NO, shut off, maintainable, need to be setup as a rotary valve • Application with no solenoid valve, feedback indication only • One control unit to control multiple valves-actuators • SMP-BC where using 2 solenoid valves to operate main valve and pilot leak-detect valves independently	• Valves without actuator stem and mushrooms • Koltek Type 633 three position actuator, valve size 1" – 3" • Regulating valves • Safety valves • Sample valves • SMP-EC • 700 series • Other valve brands

Overview of control board



A: LED indication lamp
B: Spring loaded terminals
C: Solenoid valve connectors
D: Diagnostic port (Alfa Laval)
E: Upper seat lift sensor terminal
F: Control board - Firmware version
G: Push buttons "Select" and "Enter"
H: Symbol for electrical interface
I: LEDs for unit status display
J: Non-public QR code

ThinkTop and automated valve-seat cleaning

The standard features Burst seat clean and Pulse seat clean makes it easy to optimize the water consumption during CIP cleaning of the gaskets in Mixproof valves and drain valves.

Information on how to handle pulse seat clean and burst seat clean can be found in the instruction manual, AS-Interface table and in the IO-Link IODD interface description.

Feature availability table

This table shows in which ThinkTop configurations the features are available and if they can be controlled from the PLC.

ThinkTop	Interface	Feature	Availability
V70	Digital	Pulse clean	Feature not available
V70		Burst clean	2 or 3 solenoid valves - Manual setup
V70	AS-Interface	Pulse clean	1 solenoid valve - PLC controlled function
V70		Burst clean	2 or 3 solenoid valves - Manual setup or PLC controlled mode
V70	IO-Link	Pulse clean	1 solenoid valve – PLC controlled function
V70		Burst clean	2 or 3 solenoid valves - Manual setup or PLC controlled mode

ThinkTop pulse seat clean

Intended for high CIP flow pressure and for single seat valves or butterfly valves used as drain valves. No setup required, pulse seat clean is a standard and ready to perform feature in ThinkTop V70 with one solenoid valve.

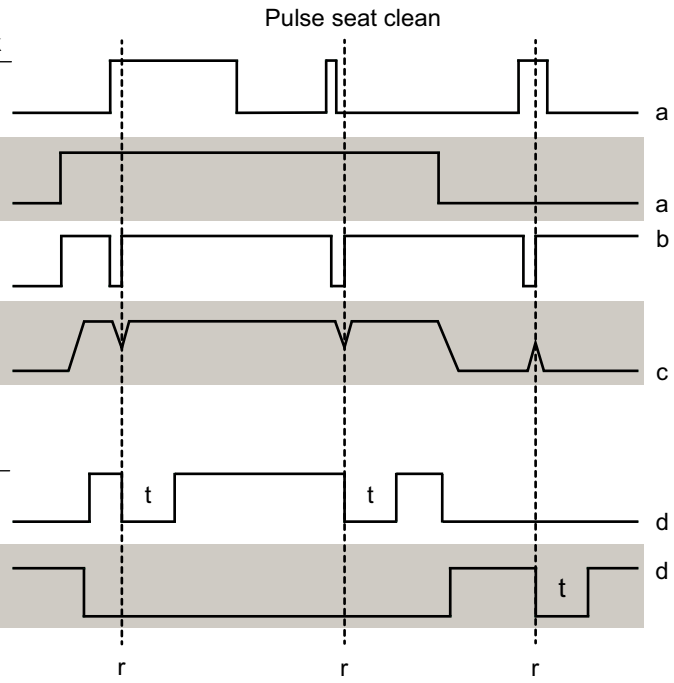
How to PLC control the pulse cleaning function, please set up and follow the function diagram. The PLC input duration (a) to the ThinkTop must be at least 500 ms.

Output table

Bit assignment	AS-I	IO-Link
Trigger signal	O0	O2
Solenoid valve	O1	O4
Solenoid valve state		
Main single seat valve position		

Input table

Bit assignment	AS-I	IO-Link
Main valve energized	I1	I1
Main valve de-energized	I0	I0



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a: Electrical signal from PLC
b: Air output from ThinkTop
c: Physical valve movement
d: Visual LED and electrical signal to PLC
r: Valve position reached
t: 2 sec.

When the valve-position is reached, the pulse seat clean function is released, and the valve returns to the starting position. After which then ready again after 2 seconds to perform another pulse seat clean. A two-second (t) electrical signal and visual feedback (d) is provided as a handshake for successful completion of a pulse seat clean.

Pulse water consumption graph

ThinkTop V70 CIP water consumption during pulse seat clean on different sizes of drain valves, provided with 87 PSI air pressure to the actuator:

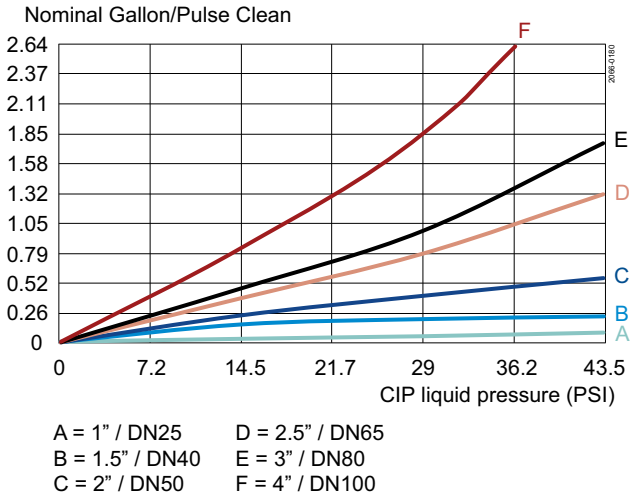


Figure 1. LKAT-T ø85 and Butterfly valves
1" DN25 to 4" DN100
Air pressure 87 PSI

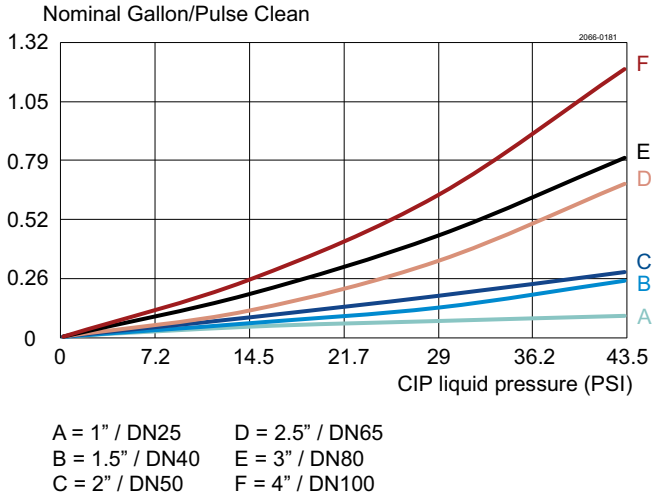


Figure 2. Unique SSV valves
1" DN25 to 4" DN100
Air pressure 87 PSI

ThinkTop burst seat clean

For efficient cleaning of the gaskets in a Mixproof valve during pressurized CIP flow. The burst clean mode is disabled as default and can be enabled either locally on the ThinkTop or remotely from the control system. The feature is available in ThinkTops configured with two or three solenoid valves.

For manual push-button setup, burst seat clean feature can be enabled or disabled on the ThinkTop V70 control board by doing the following. Press "SELECT" (4 times) until LED # 4 flashes, then press 'ENTER' to activate or deactivate the function.

For remotely PLC control of the burst clean mode please refer to the bit table of AS-Interface and IO-Link or the function diagram. With PLC control, the burst clean mode can easily alternate between high CIP flow pressure or CIP gravity cleaning.

When the PLC burst clean mode bit goes **“high”**, the burst seat clean function is enabled, leaving the setting locked and cannot be switched locally or from the HMI system. When the PLC burst clean mode bit goes “low” the function is disabled. While the PLC input is low the mode can be toggled locally on the ThinkTop.

If ThinkTop V70 is set up using Auto Setup without the upper seat lift sensor, the function uses the stored setup stroke time for “Lower seat push” plus 1 second extra for when the solenoid valve is deactivated.

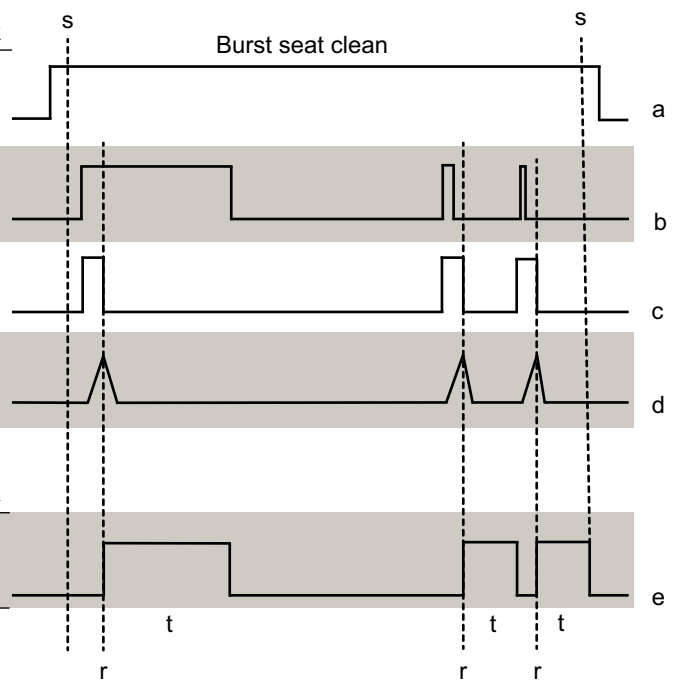
How to control the burst cleaning function, please set up and follow the function diagram. The PLC input duration (b) to ThinkTop must be at least 500 ms.

Output table

Bit assignment	AS-I	IO-Link
Enable/Disable mode	O0	O3
Upper seat lift Lower seat push	O2 O3	O5 O6
Solenoid valve state		
Seat lift/push valve position		

Input table

Bit assignment	AS-I	IO-Link
Upper seat lift Lower seat push	I2 I3	I2 I3



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a: Push button or electrical signal from PLC
b: Electrical signal from PLC
c: Electrical activation inside ThinkTop
d: Physical valve movement
e: Visual LED and electrical signal to PLC
r: Valve position reached
s: Signal high during Burst seat cleaning
t: Min. 2 sec.

When the valve-position is reached, the burst seat clean function is released, and the valve returns to the starting position. After which then ready again after 2 seconds to perform another burst cleaning. A minimum two-second (t) electrical signal and visual feedback (e) is provided as a handshake for successful completion of a burst seat clean.

Burst water consumption graph

ThinkTop V70 CIP water consumption during Burst seat clean on different Mixproof valves, provided with 87 PSI air pressure:

Pipe velocities across valves >4.92 ft/s

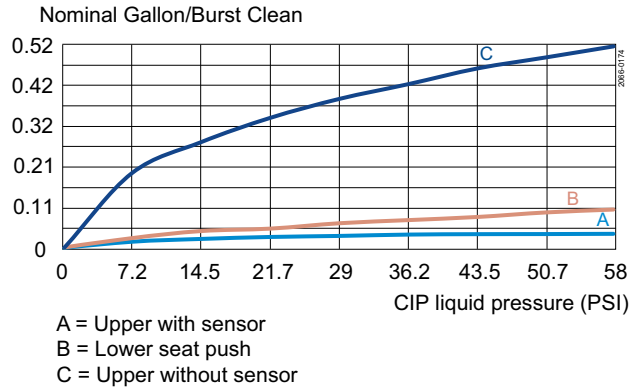


Figure 3. Unique Mixproof valve / Unique Mixproof CP-3 valve 1.5″ DN40 and 2″ DN50

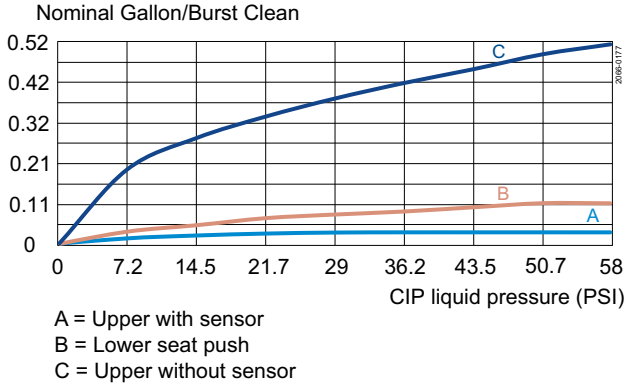


Figure 4. Unique Mixproof valve / Unique Mixproof CP-3 valve with lower flush 1.5″ DN40 and 2″ DN50

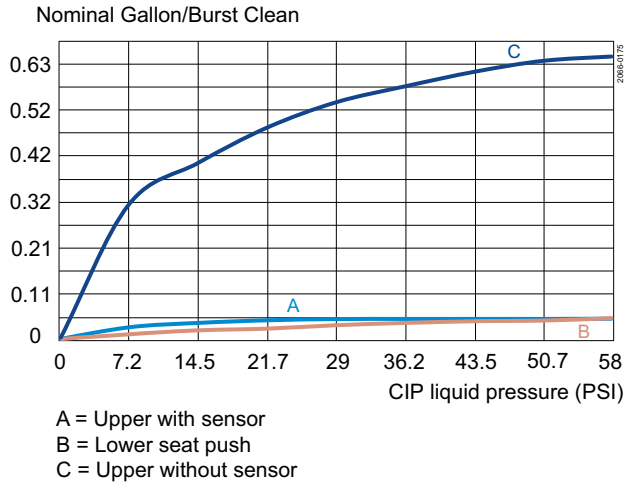


Figure 5. Unique Mixproof valve /Unique Mixproof CP-3 valve 2.5″ DN65 and 3″ DN80

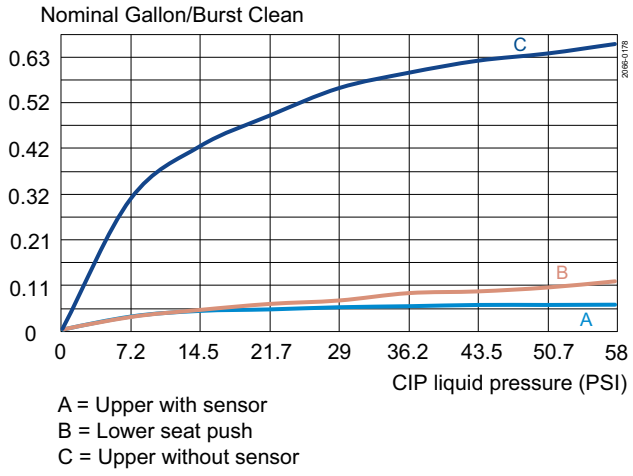


Figure 6. Unique Mixproof valve / Unique Mixproof CP-3 valve with lower flush 2.5″ DN65 and 3″ DN80

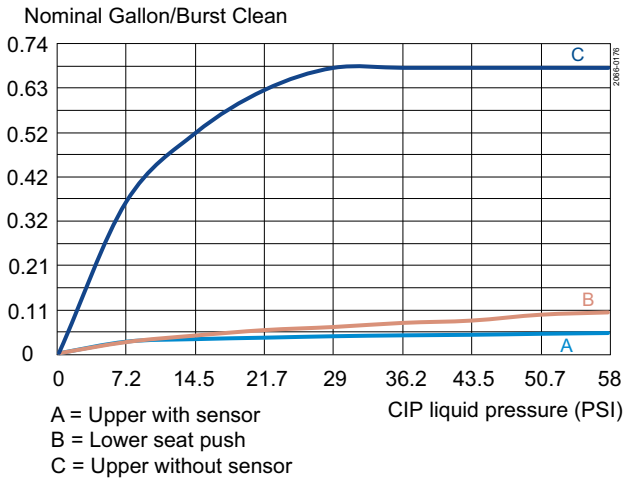


Figure 7. Unique Mixproof valve / Unique Mixproof CP-3 valve 4″ DN100

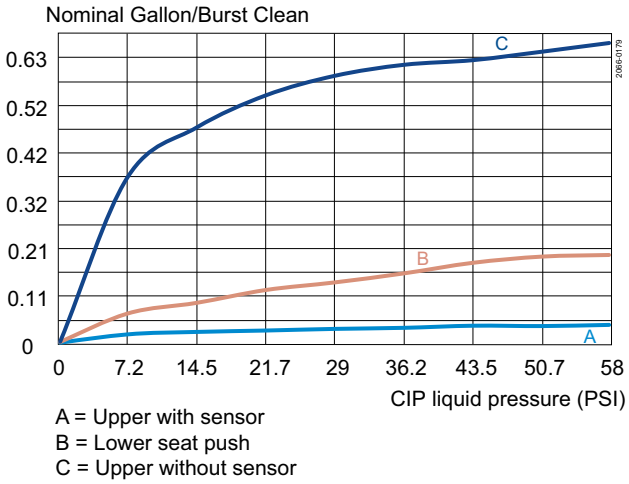


Figure 8. Unique Mixproof valve / Unique Mixproof CP-3 valve with lower flush 4″ DN100

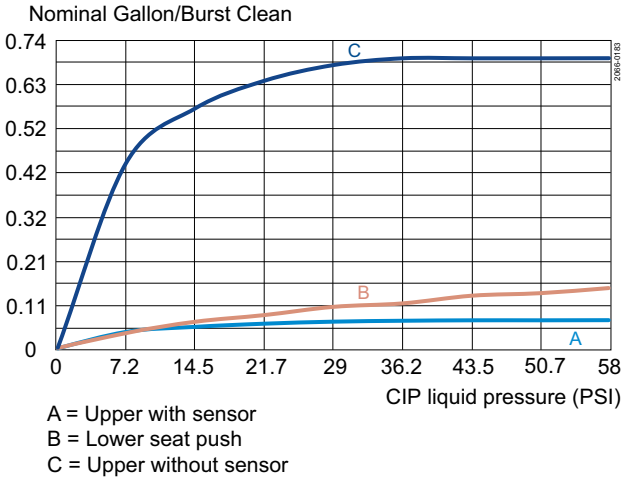


Figure 9. Unique Mixproof valve / Unique Mixproof CP-3 valve 5″ DN125 and 6″ DN150

Compatible valve actuators

List of compatible valve actuators where pulse seat clean and burst seat clean can be applied:

ThinkTop V70	Valve actuators	Applicable
Pulse seat clean	i-Series	Yes
	Single Seat Valves	Yes
	Butterfly Valves - LKLA-T ø85	Yes
	Butterfly Valves - LKLA-T ø133	No
	Diaphragm valves	No
	Ball valves	No
	Shutter valves	No
	Small Single Seat Valves	No
	Safety and Sample valves	No

ThinkTop V70	Valve actuators	Applicable
	Air/Air valves	Yes
	700 series	No
	2 Step valves	No
	Long stroke valves	Yes
Burst seat clean	Double seat valves	Yes
	Double seal valves	No

Valve state – Fail safe signal

The following table gives an overview of behaviour per Error condition where the valve state signal goes low. Further description of the various Error conditions can be found in the ThinkTop Instruction Manual, section 5,2

Valve state is a decentralized functionality, available for all ThinkTop variants and a feature that can be used for monitoring process issues or to ease and simplify the PLC programming of a valve surveillance.

		ThinkTop Digital Valve state	ThinkTop AS-Interface Valve state not available	ThinkTop IO-Link Valve state
Error Code #	Error description	Main valve FAIL SAFE SIGNAL DE-ENERGIZED SIGNAL behaviour	Main valve not available DE-ENERGIZED SIGNAL behaviour	Main valve FAIL SAFE SIGNAL DE-ENERGIZED SIGNAL behaviour
15	Key lock active	na	na	na
16	Sensor target missing	Drops low	Drops low	Drops low
17	Setup prerequisite issue Missing peripherals	Not connected	Not connected	Not connected
18	Pneumatic part issue	Not connected	Not connected	Not connected
19	Seat lift sensor issue	Drops low	Drops low	Drops low
20	Position not reached	Drops low	Drops low	Drops low
21	Unexpected valve movement	Drops low	Drops low	Drops low
22	Seat-lift sensor missing	Drops low	Drops low	Drops low
23	Solenoid valve 1 missing	Drops low	Not connected	Drops low
24	Solenoid valve 2 missing	Drops low	Not connected	Drops low
25	Solenoid valve 3 missing	Drops low	Not connected	Drops low
26	Interlock warning	Drops low	Not connected	Drops low
27	Output short circuit (Digital)	Drops low	Not connected	Not connected
28	Setup aborted	Not connected	Not connected	Not connected
29	Blocked button	Drops low	Not connected	Drops low
30	Voltage Low (Digital)	Drops low	Not connected	Not connected
30	Communication failure (IO-Link)	Not connected	Not connected	Drops low
31	Safety stop	Drops low	Drops low	Drops low
32[1]	Pressure shock event	Not connected	Not connected	Not connected

[1] This event is not treated as an error

Default bitmapping

The default settings apply to both Digital, AS-Interface and IO-Link

ThinkTop V70 truth signal table: default factory setting

	DE-EN (I0) all closed	MAIN (I1) open	USL (I2) open	LSP (I3) open	Valve state (Fail safe signal)
DE-EN (No active SV) Both seats closed Lower seat in closed position Upper seat in closed position	1	0	0	0	1
MAIN SV1 active (O1) Lower seat in open valve position Upper seat not closed	0	1	0	0	1
USL SV2 active (O2) Upper seat not close Lower seat in closed position	0	0	1	0	1
LSP SV3 active (O3) Lower seat in seat push position Upper seat in closed position	0	0	0	1	1

USA compliance option

Available to all ThinkTop V70 variants. The USA compliance option refers to a bit mapping interface used in the USA on Mixproof valves, fitted with 3 solenoid valves. This USA bitmapping can be enabled after or before auto setup.

US regulations require independent closed position feedback signals for upper seat lift and lower seat push in a Mixproof valve application

The USA bitmapping are enabled or disabled on the ThinkTop V70 control board. Press "SELECT" (5 times) until LED no 8 flashes, and then press 'ENTER" to enable or disable. This option is also available as an adjustable IO-Link parameter.

The USA compliance option is from factory disabled by default. However, if it is enabled and there is a manual reset to factory default, the USA compliance option remains enabled.

2066-0097

USA bitmapping

The information in the table is based on the following setup:

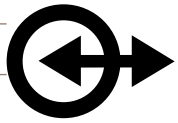
- ThinkTop V70 with 3 solenoid valves
- IFT series seat lift sensor of type NO or NC
- Mixproof valve with both seats installed (balanced or unbalanced upper plug)
- Any combination of above valve type and sensor type

	DE-EN (I0) Both closed	MAIN (I1) open	USL (I2) closed	LSP (I3) closed	Valve state (Fail safe signal)
DE-EN (No active SV) Both seats closed Lower seat in closed position Upper seat in closed position	1	0	1	1	1
MAIN SV1 active (O1) Lower seat in open valve position Upper seat not closed	0	1	0	0	1
USL SV2 active (O2) Upper seat not closed Lower seat in closed position	0	0	0	1	1
LSP SV3 active (O3) Lower seat in seat push position Upper seat in closed position	0	0	1	0	1

Digital interface

ThinkTop Digital 24V DC

Device name	ThinkTop V70 24V Digital - PNP
Voltage supply	• 24 VDC ± 10%; according to EN 61131-2
Protection	• Reverse polarity (24 VDC ± 10%); EN 61131-2 • Voltage interruption and brown-out; EN61131 • Short circuit; EN 61131
Current consumption	• Nominal 30mA (Idle)
Outputs to PLC	• Max 100mA (solenoid valve and seat lift sensor active)
PLC input card	• Max rated 24V/100 mA
UL supply	• Class 2 according to cULus
Voltage-drop	• Typical 3V at 50 mA
Terminal type	• Spring force push-in technology • Supports nominal wire cross-section between 1.0 mm2 [17AWG] and 0.30 mm2 [22AWG] • Supports wire and ferrules for wire cross-section of 0.75 mm2 [18AWG] with pin length 12 mm



Electrical connections

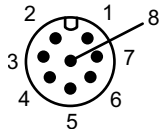
ThinkTop V70

Terminals	Control board	Colour code wires
1	24V	BN (brown)
2	GND	BU (blue)
3	out: Status	WH (white)
4	out: DE-EN	BK (black)
5	out: EN. Main valve	GY (grey)
6	out: USL. Upper seat lift	PK (pink)
7	out: LSP. Lower seat push	VT (violet)
8	in SV1. Main valve	YE (yellow)
9	in SV2. Upper seat lift	GN (green)
10	in SV3. Lower seat push	RD (red)
	Seat lift sensor	
E1	L+	BN (brown)
E2	GND	BU (blue)
E3	Signal	BK (black)

ThinkTop V70

M12 accessory (8-pin A-coded plug)

Suggestions for alignment of M12 pin numbers and terminal numbers

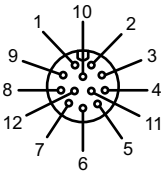
M12 Chassis plug connector	Control board Terminal numbers	M12 pin numbers wire colors		
	Solenoid valve	**0, 1x3/2 or 5/2-way**	**2x3/2-way**	**3x3/2-way**
	1: 24V	Pin 1: BN (brown)	Pin 1: BN (brown)	Pin 1: BN (brown)
	2: GND [1]	Pin 3: BU (blue)	Pin 3: BU (blue)	Pin 3: BU (blue)
	3: out: Status (Valve state) *[1]	Pin 2: WH (white)	Pin 2: WH (white)	Pin 2: WH (white)
	4: out: DE-EN	Pin 4: BK (black)	Pin 4: BK (black)	Pin 4: BK (black)
	5: out: EN. Main valve	Pin 5: GY (grey)	Pin 5: GY (grey)	Pin 5: GY (grey)
	6: out: USL Upper seat lift	Pin 6: PK (pink)	Pin 6: PK (pink)	_
	7: out: LSP Lower seat push	Pin 7: VT (violet)	_	_
	8: in SV1. Main valve	Pin 8: YE (yellow)	Pin 8: YE (yellow)	Pin 8: YE (yellow)
	9: in SV2. Upper seat lift [1]	_	Pin 7: VT (violet)	Pin 6: PK (pink)
	10: in SV3. Lower seat push [1]	_	_	Pin 7: VT (violet)

[1] Please be mindful of the difference between the number sequence of the control board terminal and the M12 plug pins

ThinkTop V70

M12 option (12-pin A-coded plug)

Pin numbers and terminal numbers are aligned

M12 Chassis plug connector	Control board Terminal numbers	M12 pin numbers wire colors
	Solenoid valves	**0, 1, 2 and 3x3/2-way or 1x5/2-way**
	1: 24V	Pin 1: BN (brown)
	2: GND[1]	Pin 3: BU (blue)
	3: out: Status (Valve state)[1]	Pin 2: WH (white)
	4: out: DE-EN	Pin 4: BK (black)
	5: out: EN. Main valve	Pin 5: GY (grey)
	6: out: USL Upper seat lift	Pin 6: PK (pink)
	7: out: LSP Lower seat push	Pin 7: VT (violet)
	8: in SV1. Main valve	Pin 8: YE (yellow)
	9: in SV2. Upper seat lift	Pin 9: GN (green)
	10: in SV3. Lower seat push	Pin 10: RD (red)
	11: nc	-
	12: nc	-

[1] Please be mindful of the difference between the number sequence of the control board terminal and the M12 plug pins

ThinkTop AS-Interface

Device name	ThinkTop V70 ASI2 & ThinkTop V70 ASI3
Supply voltage	• AS-Interface 29.5 – 31.6 VDC
Protection	• Reverse polarity (24 VDC ± 10%); EN 61131-2 • Voltage interruption and brown-out; EN 61131 • Short circuit; EN 61131
Current consumption	• Nominal: 30 mA (idle) • Max 100 mA (solenoid valve and seat lift sensor active)
Terminal type	• Spring force push-in technology • Supports nominal wire cross-section between 1.0 mm^2 [17AWG] and 0.30 mm^2 [22AWG] • Supports wire and ferrules for wire cross-section of 0.75 mm^2 [18AWG] with pin length 12 mm
AS-I specification v2.11	• Supports standard addressing and are compatible with M0-M4 AS-I master profiles, allows up to 31 nodes on an AS-I network • **Slave profile = 7FFF**
AS-I specification v3.0	• Supports extended A/B addressing and is compatible with M4 AS-I master profile, allows up to 62 nodes on an AS-I network • **Slave profile = 7A77**
AS-I addressing	• Default slave address (Node) is = **0** • Address (Node) changes with a standard handheld AS-I addressing device or via AS-I Master Gateway

AS-Interface bit table

For the AS-Interface versions, the following bit assignment will be used

PLC system / Gateway Output table	ThinkTop V70
Pulse clean trigger (1 solenoid valve) Burst clean mode (2 or 3 solenoid valves)	O0
SV1. Main valve	O1
SV2. Upper seat lift	O2
SV3. Lower seat push	O3

PLC system / Gateway Input table	ThinkTop V70
DE-EN	I0
EN. Main valve	I1
Upper seat lift	I2
Lower seat push	I3

Electrical connections

ThinkTop V70

Terminal	Control board	Colour code wires
1	AS-i +	BN (brown)
2	AS-i -	BU (blue)
	Seat lift sensor	
E1	L+	BN (brown)
E2	GND	BU (blue)
E3	Signal	BK (black)

ThinkTop V70

M12 option (4-pin A-coded plug)

Pin numbers and terminal numbers are aligned

M12 Chassis plug connector	Control board Terminal numbers Functions	M12 pin assignments wire colours
	1: AS-i +	Pin 1: BN (brown)
	2: nc	-
	3: AS-i -	Pin 3: BU (blue)
	4: nc	-

IO-Link interface

ThinkTop IO-Link

In addition to process indication and control, the IO-Link variant enables diagnostic information and features additional functionality that is unique to ThinkTop.

If new functionality is implemented in ThinkTop V70, then a new IODD and interface description is generated. Both the new and old IODD will be included in the revision of the “ThinkTop IO-Link zip-file”.

It’s recommended to just add them all to the preferred IO-Link configuration tool. The configuration tool will automatically match the correct IODD with the connected ThinkTop.

Device name	ThinkTop V70 IOL
IO-Link supply voltage	• 24 VDC ± 10%; according to EN 61131-2
Protection	• Reverse polarity (24 VDC ± 10%); EN 61131-2 • Voltage interruption and brown-out; EN61131 • Short circuit; EN 61131
Current consumption	• Nominal: 30 mA (idle) • Max 100 mA (solenoid valve and seat lift sensor active)
Terminal type	• Spring force push-in technology • Supports nominal wire cross-section between 1.0 mm2 [17AWG] and 0.30 mm2 [22AWG] • Supports wire and ferrules for wire cross-section of 0.75 mm2 [18AWG] with pin length 12 mm
ThinkTop control board revisions	• The interface description “ **Before** Dec. 2021” match ThinkTop control boards of revisions AA to AD • The interface description marked “ **After** Dec. 2021” match ThinkTop control boards of revision AE or later
Download of IO-Link files	• Alfa Laval Anytime and ThinkTop configurator • Go to www.alfalaval.com ThinkTop and documentation • Go to www.io-link.com Click IODD finder and key ThinkTop
IO-Link interface tool	• IFM E30390 IO-Link Interface / USB IO-Link master • IFM LR Device – Line recorder
ThinkTop V70	• “ **Before** Dec. 2021” match Device ID 2 “ **After** Dec. 2021” match Device ID 10
Cable length to IO-Link master	• Max 20 meters
Transmission rate	• COM 2 (38.4 kBaud)
Minimum cycle time	• 5 ms
Data storage	• yes
Profiles	• na
SIO mode	• no
Port class	• A

IO-Link data table

For the IO-Link version, the bit assignment and diagnostic data can be found in the manual “IO-Link Interface Description” for ThinkTop V70 respectively. Go to www.alfalaval.com ThinkTop V and documentation

On ThinkTop V70 control board, using the IO-Link interface tool from IFM, all parameter settings and visualisation data are available through the diagnostic connection port

From the “IO-Link Interface Description” the table below shows an overview of the data storage parameters. When replacing a ThinkTop V-series on a process plant, some data are re-stored, included in the new ThinkTop V-series, and other data must be reassigned again, excluded in the new ThinkTop V-series.

Please note that data storage is a feature that must be actively selected in the PLC's hardware configuration when setting up the IO-link master.

Included	Excluded
Customization • Application Specific Tag • Error modifier timeout • Function Tag • Location Tag • Power save • Button lock • RGB colour • Seat valve pulse • Rotary valve pulse • USA bit mapping	Control board ID • Vendor Name • Vendor Text • Product Name • Product ID • Product Text • Serial Number • Hardware Version • Firmware Version • Prod Date
	Setup data • Setup positions • Setup state
	Diagnostics • SV-activations • SV-ON_time • PV-SetupStrokeEn • PV-SetupStrokeDeEn • PressureShockCnt • Temp • Log

Electrical connections

ThinkTop V70

Terminal	Control board	Colour code wires
1	L +24V	BN (brown)
2	L -GND	BU (blue)
3	IO-Link signal	BK (black)
	Seat lift sensor	
E1	L+	BN (brown)
E2	GND	BU (blue)
E3	Signal	BK (black)

ThinkTop V70

M12 option (4-pin A-coded plug)

Pin numbers and terminal numbers are aligned

M12 Chassis plug connector	Control board Terminal numbers	M12 pin assignments wire colours
	1: L +	Pin 1: BN (brown)
	2: nc	-
	3: L -	Pin 3: BU (blue)
	4: Out1	Pin 4: BK (black)

Alfa Laval ThinkTop® DeviceNet

Sensing and control

Introduction

The Alfa Laval ThinkTop® DeviceNetTM is a modular valve control unit that offers reliable, cost-effective operation and standard functionality for automated sensing and control of hygienic valves. ThinkTop DeviceNet provides real-time information about valve operating status 24/7 while boosting productivity and securing traceability.

Application

The ThinkTop DeviceNet is designed to control the fluid handling process in hygienic applications across the dairy, food, beverage, biotechnology, pharmaceutical and many other industries.

Benefits

- Reliable and accurate valve sensing and control
- Proven and inherently safe design
- Low total cost of ownership
- Watertight design
- Easy to operate

Standard design

The ThinkTop DeviceNet valve sensing and control unit 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 programmable logic controller (PLC) system with a DeviceNet interface. It fits on all Alfa Laval hygienic valves; no adapter is required.

Installation is straightforward. No special expertise or tools are required. To initiate manual setup, simply press a push-button startup sequence. Or set up without dismantling the control unit using the optional infrared (IR) keypad for remote control.

Working principle

The sensor system accurately detects valve stem movement, the position of the valve at any given time, with an accuracy of ± 0.1mm through the use of microchip sensors. To locate the current valve position, sensor chips inside the sensor board calculate the angle between the axial magnetic field produced by an indication pin mounted on the valve stem.

The solenoid valves receive signals from the PLC system to activate or deactivate the air-operated valve. It then transmits feedback signals indicating up to four valve positions and conditions back to the PLC system.

In the control unit, up to three electric solenoid valves can physically convert compressed air into mechanical energy to activate or deactivate the pneumatic valve actuator.

Each control unit fits any Alfa Laval hygienic valve and provides a tolerance band for valves to prevent product contamination and failure. This eliminates the need to re-adjust the sensors and boosts productivity.

LEDs conveniently display all the valve positions, solenoid activation, setup and local fault indication on the control unit.

Certificates

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:	± 0.2”
Sensor accuracy:	±0.004”
Stroke length:	0.004” - 3.15”

Solenoid valve	
Max current consumption:	45mA
Air supply:	40 - 130 PSI
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:	-4 °F to +185 °F
Protection class:	IP66 and IP67
Protection class equivalent:	NEMA 4.4x and 6P

Cable connection	
Main cable gland:	PG11 (0.16” - 0.39”)
Max wire size:	AWG 1
Optional cable gland:	PG7 (0.16" - 0.27")

Note!
For further information: See also ESE00355
The ThinkTop has Patented Sensor System, Registered Design and Registered Trademark owned by Alfa Laval

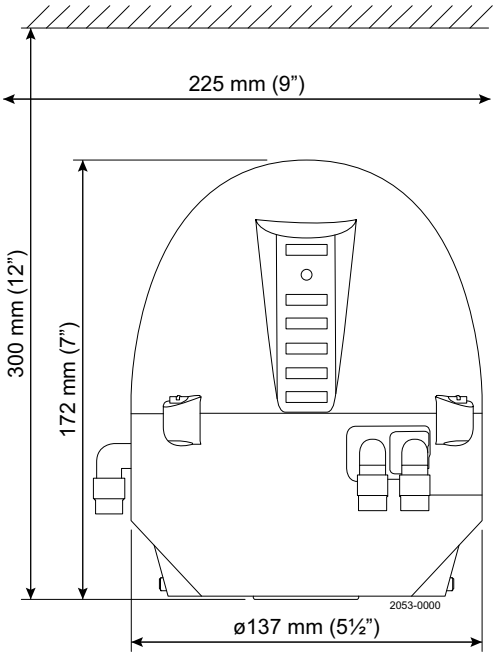
Options

- Solenoid valve configuration
- Pneumatic tubing interface
- When ordering please state if with pigtail

Accessories

- Various cable options
- Threaded plate for indication pin on SRC, SMP-BC valves
- Special indication pin for Unique 7000-LS, Unique 7000 High Pressure valve
- Adaptor for Unique 7000 Small Single Seat valves

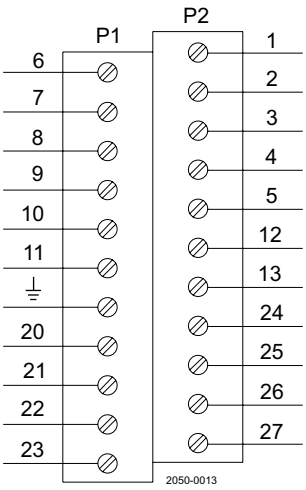
Dimensions (inch)



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

Alfa Laval ThinkTop Basic® Intrinsically Safe

Sensing and control

Introduction

The Alfa Laval ThinkTop® Basic Intrinsically Safe is a modular, explosion-safe automated valve control unit that offers cost-effective operation and standard functionality for automated sensing and control of hygienic valves. It provides real-time information about valve operating status 24/7 while boosting productivity.

Application

The ThinkTop Basic Intrinsically Safe is designed to control the fluid handing process in hygienic applications across the dairy, food, beverage, biotechnology, pharmaceutical and many other industries.

Benefits

- Reliable valve sensing and control
- Proven and inherently safe design
- Low total cost of ownership
- Watertight design
- Easy to operate

Standard design

The ThinkTop Basic Intrinsically Safe valve sensing and control unit consists of a proven NAMUR feedback sensor system with light-emitting diodes (LEDs), low voltage solenoid valves, ready for connection to a electrical barriers and to any programmable logic controller (PLC) system with a digital interface. It fits on all Alfa Laval hygienic valves; no adaptor is required.

Working principle

By an indication pin mounted on the valve stem, the NAMUR feedback sensors detects valve stem movement, the position of the valve at any given time, with the adjusted accuracy of the feedback sensors.

The Alfa Laval ThinkTop Basic Intrinsically Safe is fitted with up to two solenoid valves that can convert compressed air and the electrical PLC signal into mechanical energy to activate or deactivate the pneumatic valve actuator.

Certificates

CE UKCA Ex

TECHNICAL DATA

Communication	
Interface Intrinsic:	Intrinsic

Sensor board	
Feedback signal #1:	De-energized valve
Feedback signal #2:	Energized valve

Inductive sensor	
Switching element function:	NAMUR NC
Nominal voltage:	8.2 V
Indication of the state:	LED, yellow (Internally)
EMC in accordance with:	EN 60947-5-6
Certificate of conformity:	Gas: PTB01ATEX2191 Dust: BVS04ATEXE153

Solenoid valve	
Air supply:	22 - 100 PSI
Type of solenoids:	3/2-ways
Numbers of solenoids:	0-2
Manual hold override:	Yes
Push-in fittings:	Ø6 mm or 1/4"
Certificate of conformity:	DEKRA 11ATEX0273 X

PHYSICAL DATA

Materials	
Steel part:	Stainless steel and Brass
Plastic parts:	Black Nylon PA 6 with SS fibers
Seals:	Nitrile (NBR) rubber

Environment	
Working temperature:	14 °F to 113 °F
Protection class:	IP66 and IP67
Protection class equivalent:	NEMA 4.4x and 6P
Ex classification code:	Gas: Ex II 2G Ex ib IIC T6 Gb X Dust: Ex II 2D Ex ib IIIC T85 Db X

Cable connection	
Main cable gland:	PG11 (0.22" - 0.34")
Max. wire size:	AWG 19

Note!
See also the ThinkTop Basic Intrinsically Safe instruction manual

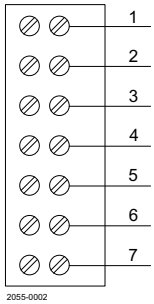
Options

- Solenoid valve configuration
- Pneumatic tubing interface

Accessories

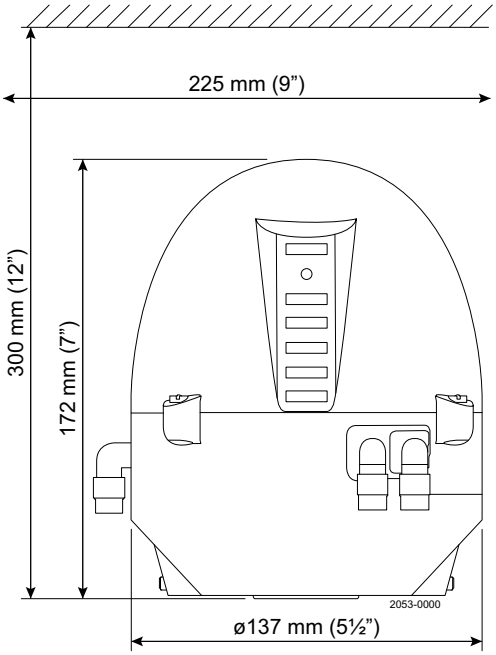
- Threaded plate for indication pin on SRC, SMP-BC valves
- Adaptor for Unique 7000 Small Single Seat valves

Electrical connection



1. Sensor 1 [De-energized] (blue) 8 VDC (-)
2. Sensor 1 [De-energized] (brown) (+)
3. Sensor 2 [Energized] (blue) 8 VDC (-)
4. Sensor 2 [Energized] (brown) (+)
5. Common; solenoids (black) 12 VDC (-)
6. Input; solenoid #1 (red) (+)
7. Input; solenoid #3 (red) (+)

Dimensions (inch)



ATEX evaluated Alfa Laval valves

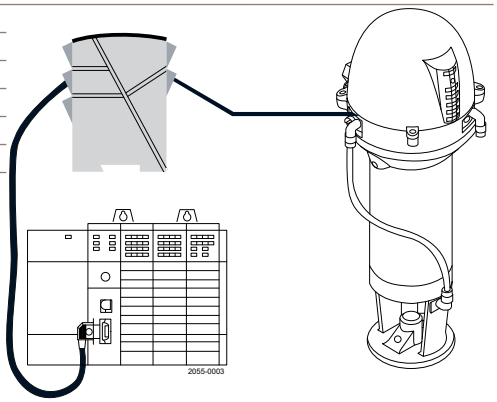
The following table list show the ATEX evaluated Alfa Laval valves which the ThinkTop Basic Intrinsically Safe can be installed on to be accordance with Atex Directive 2014/34/EU.

Valve / Actuator type	ATEX evaluation notes
Unique 7000 ATEX	Non-electric equipment with no own ignition source which can be used within equipment-group II 2 G/D or II 3 G/D
Unique Mixpoof	Non electric equipment with no own ignition source which can be used within the equipment-group II 2 G/D or II 3 G/D if removing the blue plastic cover from the bottom of the Mixproof valve
SRC (except SRC-LS) SMP-SC, TO, BC LKLA-T Shutter valve SBV	Non electric equipment with no own ignition source which can be used within the equipment-group II 2 G/D or II 3 G/D

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			Solenoid valve		
The two inductive NAMUR sensors must be connected to a certified intrinsically safe circuit (e.g. Zener barrier) for apparatus group II 2G/2D with the following maximum values:			The intrinsic safe solenoid valves must also be connected to a certified intrinsically safe circuit (e.g. Zener barrier) for apparatus group II 2G/2D with the following maximum values:		
Max. allowed Voltage (Ul)	15	V	Max. allowed Voltage (Ul)	28	V
Max. allowed Current (Ii)	50	mA	Max. allowed Current (Ii)	225	mA
Max. allowed Power (Pi)	0.120	W	Max. allowed Power (Pi)	1	W
Max. Inductance (Li)	110	µH	Max. Inductance (Li)	0	µH
Max. Capacitance (Ci)	80	nF	Max. Capacitance (Ci)	0	nF



Alfa Laval Automation unit DV-ST

Sensing and control

Introduction

The Alfa Laval Automation unit DV-ST is a pneumatic control and indication unit optimized for use with the Alfa Laval Unique DV-ST valve. Compact, durable and easy to clean, it is ideal for safe, reliable operation where space is limited. This automated control and indication unit provides real-time information about valve operating status 24/7 while boosting productivity and securing traceability.

Application

The Automation unit DV-ST is widely used with the Alfa Laval Unique DV-ST valve in hygienic applications across the dairy, food, beverage, biotechnology, pharmaceutical and many other industries.

Benefits

- Cost-effective digital device
- Safe, reliable operation
- Compact design
- Long service life
- Easy to clean

Standard design

The Alfa Laval Automation unit DV-ST consists of a transparent polycarbonate cap, a proven sensor system with light-emitting diodes (LEDs), solenoid valves, and sensor board for connection to any programmable logic controller (PLC) system with a digital interface.

Working principle

The indication pin mounted on the valve stem is used to locate the current valve position. The solenoid valves receive signals from the PLC system to activate or de-activate the air-operated valve. It then transmits feedback signals indicating up to two valve positions and valve condition back to the PLC system.

TECHNICAL DATA

Position feedback	
2x initiator:	3 Wire PNP Inductive limit switch
2x initiator:	2 Wire NAMUR limit switch
Stroke range valve spindle	0.08 to 1.42 inch

Operating voltage	
Solenoid valve:	24 VDC ±10%, 1W, residual ripple 10%
Inductive limit sensor:	10 to 30 VDC, max. 100mA per initiator
NAMUR limit switch:	8,2 VDC, max. 2,1 mA

Installation
As required, preferably with actuator in upright position

Protection type
IP65 and IP67 according to EN 60529, Type 4X

Protection class
3 acc. to DIN EN 61140

Conformity
EMC directive 2014/30/EU

Ignition protection
II 2G Ex ia IIC T4 Gb

Approval

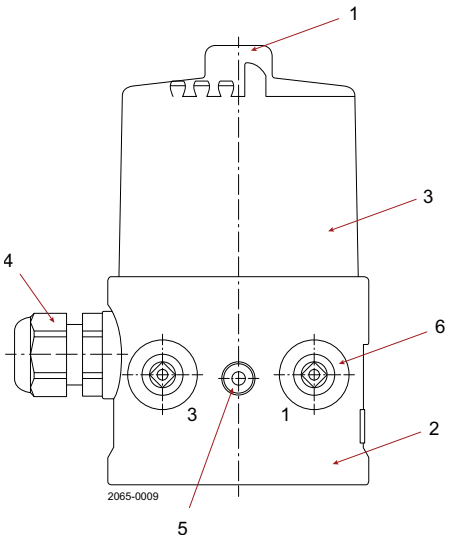
cULus certifi cate no. E238179	
Ignition protection	II 2G Ex ia IIC T4

Electrical connection

Cable gland	M16 x 1,5 - Clamping area 0.16...0.31 inch

PHYSICAL DATA

Material	
1. Transparent cap	PC
2. Basic body	PPS
3. Sealing	EPDM
4. Cable gland	PA
5. Screws	Stainless steel
6. Push-in connector	POM / stainless steel
Threaded ports G1/8	Stainless steel



Air connectors

Push-in fitting for air hose ø6 mm and ¼”

Control medium

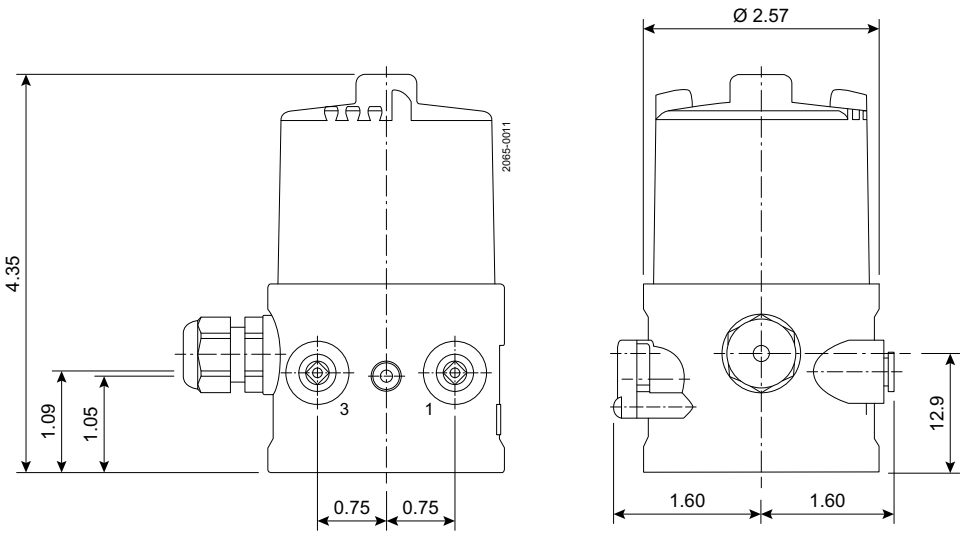
neutral gases, air, quality classes acc. to ISO 8573-1

Dust concentration	Class 7: max. particle size 1575 µin
Particle density	Class 5: max. particle density 6.24 pound/foot³
Pressure condensation point	Class 3: max. -4 °F
Oil concentration	Class X: max. 1.56 pound/foot³
Supply pressure	43.5 to 101.5 psi

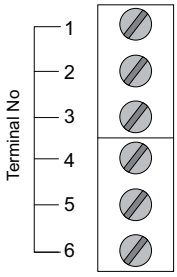
Ambient temperature

ATEX version	-0 to +798 °F
With pilot valve	-145 to +798 °F
Without pilot valve	-290 to +870 °F

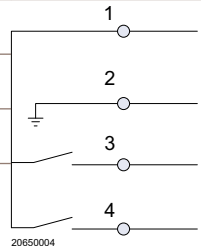
Dimensions (inch)

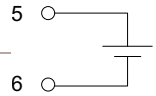


Electrical wire connection

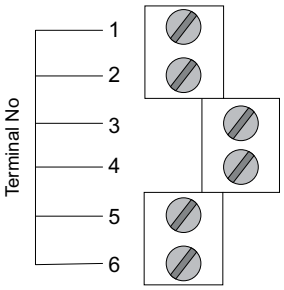


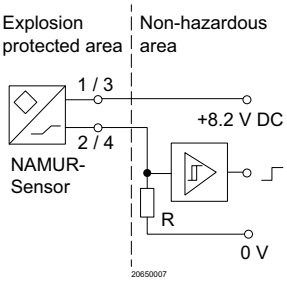
Terminal	Configuration	External circuit
1	INI + (24 V DC) Supply	+24 V DC
2	INI GND Supply	GND
3	INI Top OUT Output 1	Output 1
4	INI Bottom OUT Output 2	Output 2
5	Valve control 0/24 V DC	0/24 V DC ±10%
6	Valve control GND	Residual ripple 10%

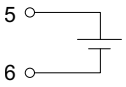




Terminal	Configuration	External circuit
1	INI Top +	
2	INI Top -	
3	INI Bottom +	
4	INI Bottom -	
5	Valve control +	
6	Valve control GND	

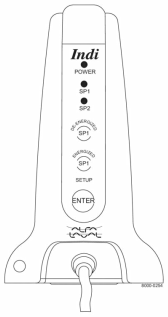




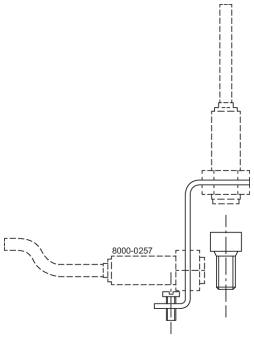
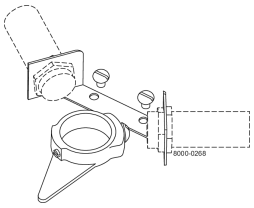
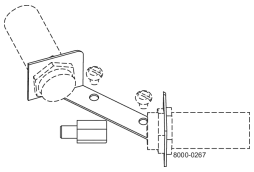
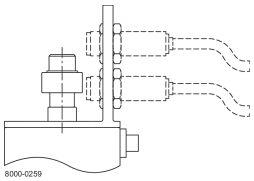
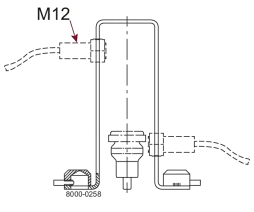


Valve Type Specification: Top Unit
ALSIS Code: 5409

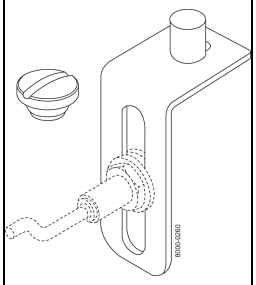
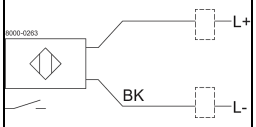
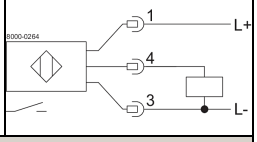
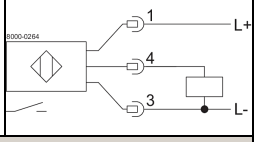
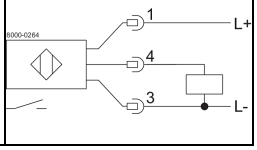
Valves: DV-ST (from size DN15), SRC, Unique SSV (Except SRC-LS and Unique SSV- LS, Except: Unique Mixproof U/L seat lift), Unique SSV Aseptic, Unique Mixproof, SMP-BC, SMP-SC, LKLA-T (LKB), Shutter valve, SBV.

Item no.	Supply voltage	Cable lenght	Load, max.	Position feedback	Type	Size		
	VDC/AC	m	mA			DN	DN/OD	
								IndiTop
9613418101	8-30	5	50	2	PNP/NPN	25-150	25-101.6	
9613418102	8-30	10	50	2	PNP/NPN	25-150	25-101.6	
9613418103	8-30	0.5	50	2	NPN	25-150	25-101.6	
9613418104	8-30	0.5	50	2	PNP	25-150	25-101.6	

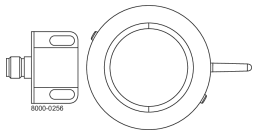
ALSIS Code: 5414

Item no.	Specification	LKB for DN/OD	LKB-2 for DN	
				Bracket system for LKAP
9612498901	Without M12 sensor			
				Bracket system for LKLA ø85
9611417764	Ø12 sensor size	25-101.6	25-100	
9611417765	Ø18 sensor size	25-101.6	25-100	
9611417767	Ø12 sensor size		125-150	
9611417768	Ø18 sensor size		125-150	
				Bracket system for LKLA ø133
9612552901	Ø12 sensor size	101.6	100-150	
9612552902	Ø18 sensor size	101.6	100-150	
				Bracket system for Unique SSSV size 12.7-19.0 mm
9612947703	Without M12 sensor			
				Bracket system for Unique SSV, Unique Mixproof, SMP-SC, SMP-BC, SMP-BCA, LKLA-T (LKB), Shutter valve, SBV
9612411202	Without M12 sensor			
9612411203	Without M12 sensor			

ALSIS Code: 5414

Item no.	Specification	LKB for DN/OD	LKB-2 for DN	
				Bracket system for external sensor on Unique Mixproof
9613095503	Without M12 sensor			
				Inductive sensor (M12)
9611992900 9611995195 9611995196 9611995200 9611995202	IF5718 Inductive 10-36VDC, NO, PNP/NPN NF5003 Inductive, NC, Cable 2M, 2 Wire NF501A ATEX, Ex protection II 2G/1D Ex ia IIC T6 IFT203 Inductive 10-36VDC, NO, PNP, 3 Wire IFC247 Iductive, AS-I V2.1, 62 Node, 2 Wire			
				Inductive sensor (M18)
9611995201	IGT203 Inductive 10-36VDC, NO, PNP, 3 Wire			
				Inductive sensor M5
9611995650 9611995651	IY5036 Inductive 10-36VDC, NO, PNP, 3 Wire IY5046 Inductive 10-36VDC, NO, PNP, Cable 2M, 3 Wire			
				Inductive sensor M12 (Mixproof valve - Upper seat-lift)
9611995199	For all Mixproof valves Balanced or Unbalanced valves Bracket or Yoke mounted			

Indication units for LKB/LKLA ø85/Handle 1.1 Indication units for LKB/LKLA ø133 Product code: 5415

Item no.	Specification	Sensor	Size		
			LKB for DN/OD	LKB-2 for DN	
					24 VDC Digital interface
9611995748 9611995750	Side indication LKB/LKLA ø133 Side indication LKB/LKLA ø85		101.6 25 - 101.6	100 - 150 25 - 100, 125- 150	

ALSIS Code: 5437

Item no.	Supply control board	
		ThinkTop V20 Digital PNP
8010018591	24 VDC	
		ThinkTop V20 IndiTop Retrofit Digital PNP
8010018593	24 VDC	

ALSIS Code: 5438

Item no.	Supply control board	
		ThinkTop V20 AS-Interface v3.0, 62 node
8010018590	AS-i (30V)	

ALSIS Code: 5439

Item no.	Supply control board	
		ThinkTop V20 IO-Link
8010018592	24 VDC	

ALSIS code: 5422 and 5423
Valves: Unique SSV, i-SSV, SSSV, LKLA-T, SMP-BC, DV-ST, Shutter, SBV, Unique Mixproof Except special valves: 3" and 4" Mixproof valves, Long Stroke valves, LKLA, Air/Air, DV-ST HP DN80, 3", DN100, 4" and 2-Step actuators

Item no.	Supply control board	Main entry	Solenoid valve	Air hose connection	Type of solenoids	
				ø = mm		
						ThinkTop® V50 Digital PNP
9615400401	24 VDC	Cable gland	0			
9615400403	24 VDC	Cable gland	1	Ø6	3/2	
9615400405	24 VDC	Cable gland	1	1/4"	3/2	
9615400402	24 VDC	M12 plug	0			
9615400404	24 VDC	M12 plug	1	Ø6	3/2	
9615400406	24 VDC	M12 plug	1	1/4"	3/2	

ALSIS code: 5426 and 2427
Valves: Unique SSV, i-SSV, SSSV, LKLA-T, SMP-BC, DV-ST, Shutter, SBV, Unique Mixproof Except special valves: Long Stroke valves, LKLA, Air/Air, DV-ST DN65, 2½",DN80,3", DN100, 4" and 2-Step actuators

Item no.	Supply control board	Main entry	Solenoid valve	Air hose connection	Type of solenoids	
				ø = mm		
ThinkTop® V50 AS-Interface v2.1,31 node						
9615400407	24 VDC	Cable gland	0			
9615400409	24 VDC	Cable gland	1	Ø6	3/2	
9615400411	24 VDC	Cable gland	1	1/4"	3/2	
9615400408	24 VDC	M12 plug	0			
9615400410	24 VDC	M12 plug	1	Ø6	3/2	
9615400412	24 VDC	M12 plug	1	1/4"	3/2	
ThinkTop® V50 AS-Interface v3.0, 62 node						
9615400413	24 VDC	Cable gland	0			
9615400415	24 VDC	Cable gland	1	Ø6	3/2	
9615400417	24 VDC	Cable gland	1	1/4"	3/2	
9615400414	24 VDC	M12 plug	0			
9615400416	24 VDC	M12 plug	1	Ø6	3/2	
9615400418	24 VDC	M12 plug	1	1/4"	3/2	

ALSIS Code: 5434
Valves: Unique SSV, i-SSV, SSSV, LKLA-T, SMP-BC, DV-ST, Shutter, SBV, Unique Mixproof Except special valves: Long Stroke valves, LKLA, Air/Air, DV-ST DN65, 2½", DN80, 3", DN100, 4" and2-Stepactuators

Item no.	Supply control board	Main entry	Solenoid valve	Air hose connection	Type of solenoids	
				ø = mm		
						ThinkTop® V50 IO-Link
9615400419	24 VDC	M12 plug	0			
9615400420	24 VDC	M12 plug	1	Ø6	3/2	
9615400421	24 VDC	M12 plug	1	1/4"	3/2	

ALSIS code: 5428 and 5429
Valves: Unique SSV, i-SSV, SSSV, LKLA-T, SMP-BC, DV-ST, Shutter, SBV, Unique Mixproof, Long Stroke valves, Air/Air and 2-Step actuators Except special valves: LKLA

Item no.	Supply control board	Main entry	Solenoid valve	Air hose connection	Type of solenoids	
				ø = mm		
						ThinkTop® V70 Digital PNP
9615400001	24 VDC	Cable gland	0			
9615400003	24 VDC	Cable gland	1	Ø6	3/2	
9615400005	24 VDC	Cable gland	1	1/4"	3/2	
9615400007	24 VDC	Cable gland	2	Ø6	3/2	
9615400009	24 VDC	Cable gland	2	1/4"	3/2	
9615400011	24 VDC	Cable gland	3	Ø6	3/2	
9615400013	24 VDC	Cable gland	3	1/4"	3/2	
9615400015	24 VDC	Cable gland	1	Ø6	5/2	
9615400017	24 VDC	Cable gland	1	1/4"	5/2	
9615400002	24 VDC	M12 plug	0			
9615400004	24 VDC	M12 plug	1	Ø6	3/2	
9615400006	24 VDC	M12 plug	1	1/4"	3/2	
9615400008	24 VDC	M12 plug	2	Ø6	3/2	
9615400010	24 VDC	M12 plug	2	1/4"	3/2	
9615400012	24 VDC	M12 plug	3	Ø6	3/2	
9615400014	24 VDC	M12 plug	3	1/4"	3/2	
9615400016	24 VDC	M12 plug	1	Ø6	5/2	
9615400018	24 VDC	M12 plug	1	1/4"	5/2	

ALSIS code: 5430, 5431, 5432 and 5433
Valves: Unique SSV, i-SSV, SSSV, LKLA-T, SMP-BC, DV-ST, Shutter, SBV, Unique Mixproof, Long Stroke valves, Air/Air and 2-Step actuators Except special valves: LKLA

Item no.	Supply control board	Main entry	Solenoid valve	Air hose connection	Type of solenoids	
				ø = mm		
ThinkTop® V70 AS-Interface v2.1,31 node						
9615400101	29.5 - 31.6 VDC	Cable gland	0			
9615400103	29.5 - 31.6 VDC	Cable gland	1	Ø6	3/2	
9615400105	29.5 - 31.6 VDC	Cable gland	1	1/4"	3/2	
9615400107	29.5 - 31.6 VDC	Cable gland	2	Ø6	3/2	
9615400109	29.5 - 31.6 VDC	Cable gland	2	1/4"	3/2	
9615400111	29.5 - 31.6 VDC	Cable gland	3	Ø6	3/2	
9615400113	29.5 - 31.6 VDC	Cable gland	3	1/4"	3/2	
9615400115	29.5 - 31.6 VDC	Cable gland	1	Ø6	5/2	
9615400117	29.5 - 31.6 VDC	Cable gland	1	1/4"	5/2	
9615400102	29.5 - 31.6 VDC	M12 plug	0			
9615400104	29.5 - 31.6 VDC	M12 plug	1	Ø6	3/2	
9615400106	29.5 - 31.6 VDC	M12 plug	1	1/4"	3/2	
9615400108	29.5 - 31.6 VDC	M12 plug	2	Ø6	3/2	
9615400110	29.5 - 31.6 VDC	M12 plug	2	1/4"	3/2	
9615400112	29.5 - 31.6 VDC	M12 plug	3	Ø6	3/2	
9615400114	29.5 - 31.6 VDC	M12 plug	3	1/4"	3/2	
9615400116	29.5 - 31.6 VDC	M12 plug	1	Ø6	5/2	
9615400118	29.5 - 31.6 VDC	M12 plug	1	1/4"	5/2	
ThinkTop® V70 AS-Interface v3.0, 62 node						
9615400201	29.5 - 31.6 VDC	Cable gland	0			
9615400203	29.5 - 31.6 VDC	Cable gland	1	Ø6	3/2	
9615400205	29.5 - 31.6 VDC	Cable gland	1	1/4"	3/2	
9615400207	29.5 - 31.6 VDC	Cable gland	2	Ø6	3/2	
9615400209	29.5 - 31.6 VDC	Cable gland	2	1/4"	3/2	
9615400211	29.5 - 31.6 VDC	Cable gland	3	Ø6	3/2	
9615400213	29.5 - 31.6 VDC	Cable gland	3	1/4"	3/2	
9615400215	29.5 - 31.6 VDC	Cable gland	1	Ø6	5/2	
9615400217	29.5 - 31.6 VDC	Cable gland	1	1/4"	5/2	
9615400202	29.5 - 31.6 VDC	M12 plug	0			
9615400204	29.5 - 31.6 VDC	M12 plug	1	Ø6	3/2	
9615400206	29.5 - 31.6 VDC	M12 plug	1	1/4"	3/2	
9615400208	29.5 - 31.6 VDC	M12 plug	2	Ø6	3/2	
9615400210	29.5 - 31.6 VDC	M12 plug	2	1/4"	3/2	
9615400212	29.5 - 31.6 VDC	M12 plug	3	Ø6	3/2	
9615400214	29.5 - 31.6 VDC	M12 plug	3	1/4"	3/2	
9615400216	29.5 - 31.6 VDC	M12 plug	1	Ø6	5/2	
9615400218	29.5 - 31.6 VDC	M12 plug	1	1/4"	5/2	

ALSIS Code: 5435
Valves: Unique Mixproof, Unique SSV, i-SSV, SSSV, LKLA-T, SMP-BC, DV-ST,
Shutter, SBV Except special valves: LKLA

Item no.	Supply control board	Main entry	Solenoid valve	Air hose connection	Type of solenoids	
				ø = mm		
						ThinkTop® V70 IO-Link
9615400301	24 VDC	M12 plug	0			
9615400302	24 VDC	M12 plug	1	Ø6	3/2	
9615400303	24 VDC	M12 plug	1	1/4"	3/2	
9615400304	24 VDC	M12 plug	2	Ø6	3/2	
9615400305	24 VDC	M12 plug	2	1/4"	3/2	
9615400306	24 VDC	M12 plug	3	Ø6	3/2	
9615400307	24 VDC	M12 plug	3	1/4"	3/2	
9615400308	24 VDC	M12 plug	1	Ø6	5/2	
9615400309	24 VDC	M12 plug	1	Ø6	5/2	

Valve Type Specification: Top Unit
Valves: DV-ST, Unique SSV, Unique SSV-LS, Unique SSV Aseptic, Unique Mixproof, Unique-TO, SMP-BC, LKLA-T (LKB), Shutter valve, SBV.
ALSIS Code: 5406

Item no.	Supply sensor system	Supply solenoids	Solenoid valve	Air hose connection	Type of solenoids	
						ThinkTop® DeviceNet 11-25 VDC
9612639601	DeviceNet 11-25 VDC		0			
9612639602	DeviceNet 11-25 VDC	8 VDC	1	Ø6	3/2	
9612639603	DeviceNet 11-25 VDC	8 VDC	2	Ø6	3/2	
9612639604	DeviceNet 11-25 VDC	8 VDC	3	Ø6	3/2	
9612639605	DeviceNet 11-25 VDC	8 VDC	1	Ø6	5/2	
9612639652	DeviceNet 11-25 VDC	8 VDC	1	1/4"	3/2	
9612639653	DeviceNet 11-25 VDC	8 VDC	2	1/4"	3/2	
9612639654	DeviceNet 11-25 VDC	8 VDC	3	1/4"	3/2	
9612639698	DeviceNet 11-25 VDC	8 VDC	1	1/4"	5/2	

Valve Type Specification: Top Unit
Valves: DV-ST,SRC,UniqueSSVATEX,UniqueMixproof,SMP-BC, SMP-SC,
SMP-TO, LKLA-T (LKB), Shutter valve, SBV.
ALSIS Code: 5405

Item no.	Supply sensor system	Solenoid No.	Ext. air tube connection	Valve type	
			Ø = in		
					ThinkTop® Basic Intrinsically Safe
8010018866	NAMUR NC	0			
8010018867	NAMUR NC	1	Ø0.24	3/2	
8010018868	NAMUR NC	2	Ø0.24	3/2	
8010018869	NAMUR NC	1	1/4”	3/2	
8010018870	NAMUR NC	2	1/4”	3/2	

ThinkTop Basic Intrinsically Safe does not support High Pressure valve, SRC-LS and Unique 7000-LS.
This ATEX approval only cover the ThinkTop Basic Intrinsically Safe

ALSIS Code: 5417
Diaphragm Actuator Stainless Steel/Stainless Steel

Item no.	Function	Valve	Pilot valve	Position feedback	Air fittings	
SS/HP - Control unit 8697 - H111 x 66 - 24 VDC inductive sensor						
9615363901	NC, NO	DN 8-15	1	Open and close	Ø6 mm and 1/4"	
9615363903	NC, NO	DN 20-25	1	Open and close	Ø6 mm and 1/4"	
9615363905	NC, NO	DN 40-50	1	Open and close	Ø6 mm and 1/4"	
9615363906	NC, NO	DN 65	1	Open and close	Ø6 mm and 1/4"	
9615363907	NC, NO	DN 80	1	Open and close	Ø6 mm and 1/4"	
SS/HP - Control unit 8697 - H111 x 66 - Zone 1 NAMUR sensor						
9615364001	NC, NO	DN 8-15	1	Open and close	Ø6 mm and 1/4"	
9615364003	NC, NO	DN 20-25	1	Open and close	Ø6 mm and 1/4"	
9615364005	NC, NO	DN 40-50	1	Open and close	Ø6 mm and 1/4"	
9615364006	NC, NO	DN 65	1	Open and close	Ø6 mm and 1/4"	
9615364007	NC, NO	DN 80	1	Open and close	Ø6 mm and 1/4"	
SS/HP - Indication unit 8697 - H87xW66 - Zone 1 NAMUR sensor						
9615364201	NC, NO, SA	DN 8-15	0	Open and close	Ø6 mm and 1/4"	
9615364203	NC, NO, AA	DN 20-25	0	Open and close	Ø6 mm and 1/4"	
9615364205	NC, NO, AA	DN 40-50	0	Open and close	Ø6 mm and 1/4"	
9615364206	NC, NO, AA	DN 65	0	Open and close	Ø6 mm and 1/4"	
9615364207	NC, NO, AA	DN 80	0	Open and close	Ø6 mm and 1/4"	
SS/HP - Indication unit 8697 - H106 x 66 - 24 VDC inductive sensor						
9615364101	NC, NO, AA	DN 8-15	0	Open and close	Ø6 mm and 1/4"	
9615364103	NC, NO, AA	DN 20-25	0	Open and close	Ø6 mm and 1/4"	
9615364105	NC, NO, AA	DN 40-50	0	Open and close	Ø6 mm and 1/4"	
9615364106	NC, NO, AA	DN 65	0	Open and close	Ø6 mm and 1/4"	
9615364107	NC, NO, AA	DN 80	0	Open and close	Ø6 mm and 1/4"	

ALSIS Code: 5417
Diaphragm Actuator Stainless Steel/Stainless Steel

Item no.	Function	Valve	Pilot valve	Position feedback	Air fittings	
SS/HP - Positioner unit 8692 - H119xW91 - w/display - Input 4-20mA Analogue						
9614462501	NC, NO, AA	DN 8-15	1	0 - 100%	Ø6 mm and 1/4"	
9614462502	NC, NO, AA	DN 20-25	1	0 - 100%	Ø6 mm and 1/4"	
9614462503	NC, NO, AA	DN 40-50	1	0 - 100%	Ø6 mm and 1/4"	
9614462504	NC, NO, AA	DN 65-100	1	0 - 100%	Ø6 mm and 1/4"	
SS/HP - Positioner unit 8692 ATEX - H119xW91 - w/display - Input 4-20mA Analogue						
8010004258	NC, NO, AA	DN 8-15	1	0 - 100%	Ø6 mm and 1/4"	
8010004259	NC, NO, AA	DN 20-25	1	0 - 100%	Ø6 mm and 1/4"	
8010004260	NC, NO, AA	DN 40-50	1	0 - 100%	Ø6 mm and 1/4"	
8010004261	NC, NO, SA	DN 65-100	1	0 - 100%	Ø6 mm and 1/4"	
SS/HP - Positioner unit 8694 - H119xW91 - w/display - Input 4-20mA Analogue						
9614462505	NC, NO, AA	DN 8-15	1	0 - 100%	Ø6 mm and 1/4"	
9614462506	NC, NO, AA	DN 20-25	1	0 - 100%	Ø6 mm and 1/4"	
9614462507	NC, NO, AA	DN 40-50	1	0 - 100%	Ø6 mm and 1/4"	
9614462508	NC, NO, AA	DN 65-100	1	0 - 100%	Ø6 mm and 1/4"	
SS/SL - Control unit 8697 - H111xW66 - 24 VDC inductive sensor						
8010013944	NC, NO	DN 8-40	1	Open and close	Ø6 mm and 1/4"	
8010013945	NC, NO	DN 50-65	1	Open and close	Ø6 mm and 1/4"	
8010013946	NC, NO	DN 80-100	1	Open and close	Ø6 mm and 1/4"	

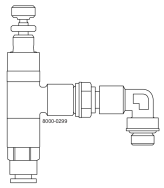
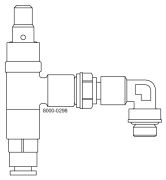
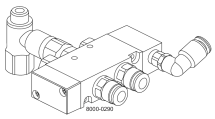
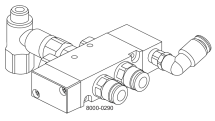
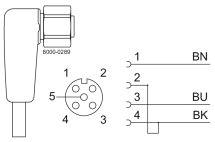
ALSIS Code: 5417
Diaphragm Actuator Stainless Steel/Stainless Steel

Item no.	Function	Valve	Pilot valve	Position feedback	Air fittings	
SS/SL - Control unit 8697 - H111xW66 - Zone 1 NAMUR sensor						
8010013947	NC, NO	DN 8-40	1	Open and close	Ø6 mm and 1/4"	
8010013948	NC, NO	DN 50-65	1	Open and close	Ø6 mm and 1/4"	
8010013949	NC, NO	DN 80-100	1	Open and close	Ø6 mm and 1/4"	
SS/SL - Indication unit 8697 - H106xW66 - 24 VDC inductive sensor						
8010013938	NC, NO, AA	DN 8-40	0	Open and close		
8010013939	NC, NO, AA	DN 50-65	0	Open and close		
8010013940	NC, NO, AA	DN 80-100	0	Open and close		
SS/SL - Indication unit 8697 - H106xW66 - Zone 1 NAMUR sensor						
8010013941	NC, NO, AA	DN 8-40	0	Open and close		
8010013942	NC, NO, AA	DN 50-65	0	Open and close		
8010013943	NC, NO, AA	DN 80-100	0	Open and close		
SS/SL - Positioner unit 8692 - H156xW91 - w/display - Input 4-20mA Analogue						
8010013932	NC, NO, AA	DN 8-40	1	0 - 100%	Ø6 mm and 1/4"	
8010013933	NC, NO, AA	DN 50-100	1	0 - 100%	Ø6 mm and 1/4"	

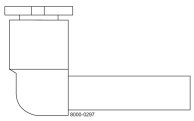
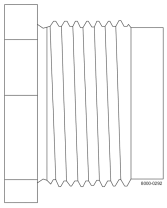
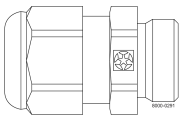
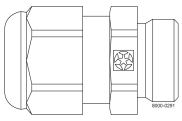
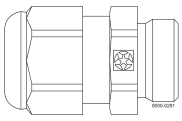
ALSIS Code: 5417
Diaphragm Actuator Stainless Steel/Stainless Steel

Item no.	Function	Valve	Pilot valve	Position feedback	Air fittings	
SS/SL - Positioner unit 8692 ATEX - H156xW91 - w/display - Input 4-20mA Analogue						
8010013936	NC, NO, AA	DN 8-40	1	0 - 100%	Ø6 mm and 1/4"	
8010013937	NC, NO, AA	DN 50-100	1	0 - 100%	Ø6 mm and 1/4"	
SS/SL - Positioner unit 8694 - H156xW91 - wo/display - Input 4-20mA Analogue						
8010013934	NC, NO, AA	DN 8-40	1	0 - 100%	Ø6 mm and 1/4"	
8010013935	NC, NO, AA	DN 50-100	1	0 - 100%	Ø6 mm and 1/4"	

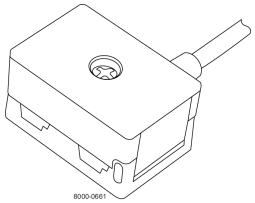
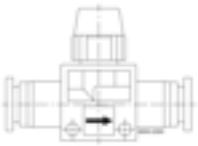
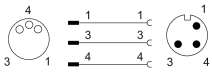
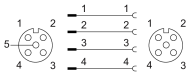
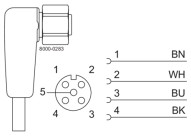
ALSIS Code: 5416

Item no.	Specification	
		Air Reduction Valve - Adjustable pressure
9611995904	Air Reduction Valve, Nickel-plated brass (Black rim) air-fitting Ø6 mm - Adjustable pressure	
		Air Reduction Valve - Set pressure
9611995903 9611996094	Air Reduction Valve, Nickel-plated brass (Black rim) air-fitting Ø6 mm - Set pressure 3 bar Air Reduction Valve, Nickel-plated brass (Orange rim) air-fitting Ø1/4” - set pressure 3 bar	
		Air accessoires
9611992372 9611994713	Female adapter union R3/8 inch SO 23021-10 3/8 inch Quick exhaust valve with connections for 1/8" x 6 mm air tube	
		Air booster kit for (LPV) LargeParticlevalve
8010006250	Air booster kit for (LPV) Large Particle valve Pneumatic 5/2-way booster valve with Ø6 mm air fittings Ready to operate and to be installed on ThinkTop V70 3x3/2-way solenoid valves. Mounting instructions are included in the kit.	
		Air booster kit for Curd valve
8010006251	Air booster kit for Curd valve Pneumatic 5/2-way booster valve with Ø0.25" air fittings Ready to operate and to be installed on ThinkTop V70 3x3/2-way solenoid valves Mounting instructions are included in the kit.	
		Angle M12 socket connector cable, 4 pin and 3 wires with open-end, Stainless Steel
9615397501	Angle M12 socket connector cable, 4 pin and 3 wires with open-end, Stainless Steel Grey seat lift sensor cable, 1 meter for all Unique Mixproof valves	

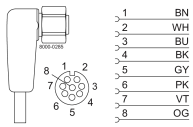
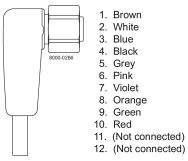
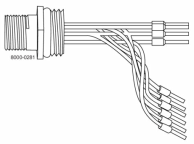
ALSIS Code: 5416

Item no.	Specification	
		Angle air-fittings
9611995678 9611996075 9611996076	Angle air-fitting, Nickel-plated brass (Black rim) Push-in fitting Ø6 mm to Ø6 mm on ThinkTop V70 and ThinkTop V50 Angle air-fittings, Nylon (Blue rim) Push-in fitting Ø6 mm to Ø6 mm on ThinkTop V70 and ThinkTop V50 Angle air-fitting, Nylon (Grey rim) Push-in fitting Ø0.25" to Ø0.25" on ThinkTop V70 and ThinkTop V50	
		Bushing
9614257508	Bushing Yoke mount adapter for upper seat lift sensor on Unique Mixproof valve	
		Cable gland M12 [Black] ø3,5-7 mm
9611996064	Cable gland M12 (Black) Ø3, 5-7 mm For connecting seat lift sensor cable on ThinkTop V70	
		Cable gland M16 [Black] ø2-7 mm
9611996066	Cable gland M16 (Black) Ø4, 5-10 mm Main cable entry, using AS-I drop-cable on ThinkTop V70 and ThinkTop V50	
		Cable gland M16 [Black] ø4,5-10 mm
9611996063	Cable gland M16 (Black) Ø4, 5-10 mm Main cable entry on ThinkTop V70 and ThinkTop V50	

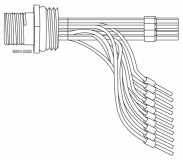
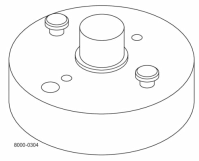
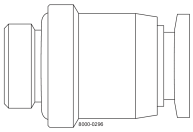
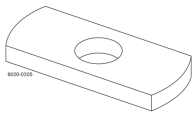
ALSIS Code: 5416

Item no.	Specification	
		Drop cable for AS-Interface
9611993518	Drop cable for AS-Interface 2 m cable (2 x 0.5 mm2) with AS-I flat cable connector IP 67 and open-end	
		Hand air shut-off valve, 270 l/min
9611996113	Hand air shut-off valve, 270 l/min For Ø0.25" air line installation to ThinkTop V70 and ThinkTop V50	
		Jumper cable with M12 and M8 connector, 3 pole
9611995652	Jumper cable with M12 and M8 connector, 3 pole 0, 3 meter cable, fitted with M8 angle and M12 straight connector	
		M12 angle jumper cable, 4 pin and 4 wires with male-female connector, Stainless Steel
9615467601 9615467602	M12 angle jumper cable, 4 pin and 4 wires with male-female connector, Stainless Steel 5 m grey colour cable for ThinkTop AS-Interface and IO-Link M12 angle jumper cable, 4 pin and 4 wires with male-female connector, Stainless Steel 10 m grey colour cable for ThinkTop AS-Interface and IO-Link	
		M12 angle socket connector cable, 4 pin and 4 wires with open-end, Stainless Steel
9615467501 9615467502	M12 angle socket connector cable, 4 pin and 4 wires with open-end, Stainless Steel 5 m grey colour cable for ThinkTop AS-Interface and IO-Link M12 angle socket connector cable, 4 pin and 4 wires with open-end, Stainless Steel 10 m grey colour cable for ThinkTop AS-Interface and IO-Link	

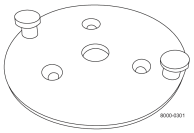
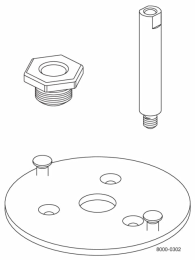
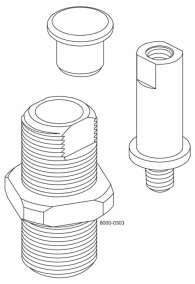
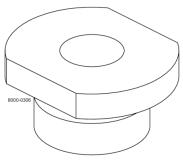
ALSIS Code: 5416

Item no.	Specification	
	M12 angle socket connector cable, 8 pin and 8 wires with open-end, Stainless Steel	
9611995303 9611995304	M12 angle socket connector cable, 8 pin and 8 wires with open-end, Stainless Steel 5 m orange colour cable for ThinkTop V50 Digital M12 angle socket connector cable, 8 pin and 8 wires with open-end, Stainless Steel 10 m orange colour cable for ThinkTop V50 Digital	
	M12 angle socket connector cable, 12 pin and 12 wires with open-end, Stainless Steel	
9615489701 9615489702	M12 angle socket connector cable, 12 pin and 12 wires with open-end, Stainless Steel 5 m grey colour cable for ThinkTop V70 Digital M12 angle socket connector cable, 12 pin and 12 wires with open-end, Stainless Steel 10 m grey colour cable for ThinkTop V70 Digital	
	M12 chassis connector (4-pin series), Stainless Steel	
9615397401 9615397402	M12 chassis connector (4-pin series), Stainless Steel AS-Interface, 2 wire connections for ThinkTop V70 and ThinkTop V50 M12 chassis connector (4-pin series), Stainless Steel IO-Link, 3 wire connections for ThinkTop V70 and ThinkTop V50	
	M12 chassis connector (8-pin series), Stainless Steel	
9615397403 9615397404	M12 chassis connector (8-pin series), Stainless Steel Digital interface, 6 wire connections for ThinkTop V50 M12 chassis connector (8-pin series), Stainless Steel Digital interface, 8 wire connections for ThinkTop V70	

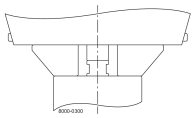
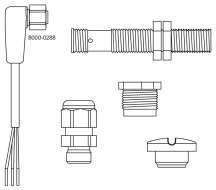
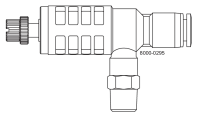
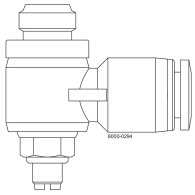
ALSIS Code: 5416

Item no.	Specification	
		M12 chassis connector (12-pin series), Stainless Steel
9615397405	M12 chassis connector (12-pin series), Stainless Steel Digital interface, 10 wire connections for ThinkTop V70	
		Sanitary Ball Valve size 25 - 100 mm
9612647528 9612647610	Adapter set for Sanitary Ball Valve size 25 - 76.1 mm ThinkTop V70, ThinkTop V50, ThinkTop D30 and IndiTop Adapter set for Sanitary Ball Valve size 100 mm ThinkTop V70, ThinkTop V50, ThinkTop D30 and IndiTop	
		Straight air-fittings (threaded)
9611996073 9611996074	Straight air-fittings (threaded) Nickel-plated brass (Blue rim) Ø6 mm and G1/8 threads for direct mounting on ThinkTop V70 and ThinkTop V50 Straight air-fittings (threaded) Nickel-plated brass (Grey rim) Ø0.25" and G1/8 threads for direct mounting on ThinkTop V70 and ThinkTop V50	
		Threaded plate
3135707012	Threaded plate for sensor target SRC, SMP-BC and I-SSV valves	

ALSIS Code: 5416

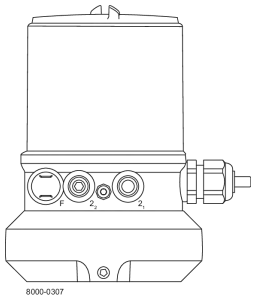
Item no.	Specification	
		Unique DV-ST stainless steel actuator High Pressure (SS/HP) DN8-15 (1/4”-1/2”)
9615299001	Unique DV-ST stainless steel actuator High Pressure (SS/HP) DN8-15 (0.25" - 0.5"), Adapter set for ThinkTop V70, ThinkTop V50, ThinkTop D30 and IndiTop	
		Unique DV-ST stainless steel actuator Slim (SS/SL) DN8-100 (1/4”-4”) Adapter set for ThinkTop V70, ThinkTop V50, ThinkTop D30 and IndiTop
8010008221 8010008222	Unique DV-ST stainless steel actuator Slim (SS/SL) DN8-100 (0.25" - 4.0") Adapter set for ThinkTop V70, ThinkTop V50, ThinkTop D30 and IndiTop. kit DN8-DN40 Unique DV-ST stainless steel actuator Slim (SS/SL) DN8-100 (0.25" - 4.0") Adapter set for ThinkTop V70, ThinkTop V50, ThinkTop D30 and IndiTop. kit DN50-DN80	
		Unique DV-ST stainless steel actuator Slim (SS/SL) DN8-100 (1/4”-4”) Stroke limiter for stainless steel actuator type Slim (SS/SL). Can be combined with adaptor kit for ThinkTop (SS/SL only)
8010008219 8010008220	Unique DV-ST stainless steel actuator Slim (SS/SL) DN8-100 (0.25" - 4.0") Stroke limiter for stainless steel actuator type Slim (SS/SL) Can be combined with adaptor kit for ThinkTop (SS/SL only). kit DN8-DN40 Unique DV-ST stainless steel actuator Slim (SS/SL) DN8-100 (0.25" - 4.0") Stroke limiter for stainless steel actuator type Slim (SS/SL) Can be combined with adaptor kit for ThinkTop (SS/SL only). Kit DN50-DN80	
		Unique Sample Valve size 4 - 25
9614017401 9614257901	M5 sensor adapter for IY5036 and IY5046 on Sample Valve (Open valve position only) size 4 and 10 M5 sensor adapter for IY5036 and IY5046 on Sample Valve (Open valve position only) size 25	

ALSIS Code: 5416

Item no.	Specification	
		Unique Vaccum Breaker and SSSV size 12.7-19.0 mm
9612947601	Unique Vaccum Breaker and SSSV size 12.7-19.0 mm, Adapter set for ThinkTop V70, ThinkTop V50, ThinkTop D30 and IndiTop	
		Upper seat lift surveillance kit, applies to all Unique Mixproof valves
9615414801	Upper seat lift surveillance kit, applies to all Unique Mixproof valves Comprising: Sensor: 9611995199 IFT 216 Cable: 9615397501 EVF599 Bushing: 9614257508 Sensor adapter Cable gland M12: 9611996064 Note: Not included: Replacement screw for spindle coupling: 9615331901 Note: For valves without direct sensor mount in yoke, use additional mounting bracket for sensor, part number: 9613095503	
		Valve closing speed increase
9611996116	Valve closing speed increase (Blue rim) Ø6 mm air fitting connection and G1/8 threads for direct mounting on the valve actuator for air quick exhaust Unit with Ø1/4” air-fitting connection is not available	
		Valve speed reduction 0 - 100%
9611996114 9611996115	Valve speed reduction 0 - 100% (Blue rim) Ø6 mm air fitting connection and G1/8 threads for direct mounting on ThinkTop V70 and ThinkTop V50 Valve speed reduction 0 - 100% (Grey rim) Ø0.25" air-fitting connection and G1/8 threads for direct mounting on ThinkTop V70 and ThinkTop V50	

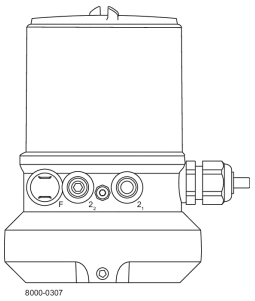
ALSIS Code: 5411

Positioners for single acting actuators only. LKLA-T ø85 (except LKLA-T ø85 NO, A/A and ø133) SSV actuators (except Long strokes actuators)

Item no.	Description	Dimension (inch)	Dimension (mm)	
		A	B	
				Complete positioner for SSV
9611995266	SSV 8694 without display	Ø91	164	
9611995268	SSV 8692 with display	Ø91	164	

ALSIS Code: 5411

Positioners for single acting actuators only. LKLA-T ø85 (except LKLA-T ø85 NO, A/A and ø133) SSV actuators (except Long strokes actuators)

Item no.	Description	Dimension (inch)		
		A	B	
				Burkert Positioner Kit
9634085943	LKLA-T/SBV prepared for 8694 without display incl.: feedback			
9634085944	LKLA-T/SBV prepared for 8692 with display incl.: feedback			
				LKLA-T / SBV
9611995267	LKLA-T / SBV prepared for 8694 without display	Ø91	164	
9611995269	LKLA-T / SBV prepared for 8692 with display	Ø91	164	

Condition monitoring

Product leaflet

Alfa Laval CM

Sensing and control

Introduction

Understanding the running condition of equipment and whether service or maintenance is required is paramount to keeping plant and processes running efficiently and cost effective.

The Alfa Laval CM condition monitor is a quick and easy battery operated device, to attach to rotating equipment and detect any change in the equipment behaviour compared to the benchmark baseline on set-up. Providing users with easy, safe data via bluetooth to enable them to optimise process uptime, assist in maintenance scheduling and efficiency and reduce operating costs.

The Alfa Laval CM periodically measures the tri-axial vibration of the installed unit and the internal temperature storing 3 months of data for analysis, comparing it to the original baseline set-up values and pre-set warning and alarms, which if exceeded provide a visible indication via its LED and via the users mobile device.

In addition, unique identification can provide the user with service data of the equipment and contacts of service partners to ease the maintenance process, ensuring asset value, total cost of ownership and process continuity.

Applications

Designed for hygienic applications, the Alfa Laval CM is suited for use in the dairy, food, beverage, personal care, pharmaceutical and biotechnology industries. In particular the applications where the customer is focused on continuous processing manufacturing where the preventative maintenance attributes can be fully appreciated.

Benefits

- Designed to ensure hygienic integrity, suitable for plant washdown.
- Easy, low cost installation and set-up. No cables required.
- Intuitive mobile app.
- Safe data collection.
- 3 months trend data assist in early detection of process instability, maintenance scheduling & failure analysis.

Standard design

The Alfa Laval CM is a stand-alone PA12 plastic hermetically sealed battery powered monitoring device suitable for use in a hygienic environment with washdown. It is attached to the rotating equipment by a 0.24 inch stainless steel screw. A stainless-steel adaptor will be supplied to retrofit to existing and new Alfa Laval equipment dependent on product size and model.

Working principles

The Alfa Laval CM uses a 3-axis accelerometer and internal temperature sensor to collect and store up to 3 months of data in its onboard memory. In addition, a Bluetooth antenna enables it to connect to an IOS or Android mobile device where it is presented in an intuitive and user-friendly form via an Alfa Laval supplied application for the condition monitor.

When the monitor senses some vibration it activates, starts the running hours counter and monitors the tri-axial vibration

and internal temperature of the unit at pre-set intervals determined by the user. This information is sent via Bluetooth to a mobile device running the application if within 20 meters of the condition monitor.

The user can then use the app to review vibration data shown in Fast Fourier Transform (FFT) to review current trend condition against original benchmark values, and in the case of a failure, potentially use the data for system root cause analysis.

In addition, the application shows battery status, historical data for vibration and in unit temperature, total running hours, and information on the unit under monitoring.

Setting up the device is a simple process which is guided by the mobile app.

TECHNICAL DATA

General	
Plastic parts:	PA12
Steel parts:	1.4301 (AISI 304)
Battery:	Lithium Thionyl Chloride
Battery life:	2 years typically (data acquisition request every 6 hours)
Size:	Ø2.24" x 1.06" deep
Weight:	3.5 oz

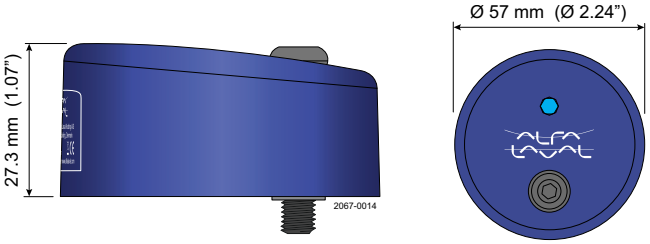
Environment	
Ambient temperature:	-14 °F to +140 °F
Protection class:	IP69K & NEMA4PW

Operating parameters	
Vibration frequency:	From 10 Hz to 2.5 kHz
3-axis vibration range:	0 - 16 g
Mounting surface temperature:	-14 °F to +176 °F
Bluetooth range:	65 Ft line of sight
Mobile app:	Available for iOS and Android

Compliances
The Alfa Laval CM is in compliance to CE, NEMA, IP, Reach & RoHS2. For further compliances, please contact Alfa Laval.

Warranty
12 months for date of despatch. Due to the varied ways that Product(s) can be accessed and/or configured during use, battery life is excluded from the warranty.

Dimensions (inch)



Alfa Laval CM Connect

Condition monitoring

Introduction

The ability to determine the current running condition of equipment and whether service or maintenance is necessary is paramount to keeping plant and processes running efficiently and cost effective. Having this overview whilst at your desk or on your mobile device without needing to collect data from the process floor increases plant safety.

The Alfa Laval CM Connect is a compact, easy to use, cloud-based gateway and vibration monitoring system which allows the user to connect and remotely monitor the condition and changes in running behaviour of rotating equipment. Providing users via built-in wireless cellular technology with easy, safe data, accessed remotely from a PC or handheld mobile device to enable them to optimise their process uptime, assist in maintenance scheduling and efficiency and reduce operating costs.

As a monitor and gateway the Alfa Laval CM Connect periodically measures the tri-axial vibration and the internal monitor temperature of the installed unit sending the data to the cloud for remote monitoring and analysis. In addition, it can be used as a gateway for up to 10 Alfa Laval CM's connected within Bluetooth range. Users can compare the current running status against the original baseline set-up of this equipment network and if pre-set warning and alarm levels are exceeded alerts can be sent via e-mail or SMS to selected recipients.

Advanced frequency analysis functions assist the user in detecting maintenance demanding equipment components in due time, so that maintenance can be carried out as a planned operation.

All data and alerts are stored in the cloud and can be accessed for easy record keeping and troubleshooting.

In addition, unique identification can provide the user with service data of the equipment and contacts of service partners to ease the maintenance process, ensuring asset value, total cost of ownership and process continuity.

Application

Designed for hygienic applications, the Alfa Laval CM Connect is suited for use in the dairy, food, beverage, personal care and pharma/biotech industries. In particular the applications where the customer is focused on continuous processing manufacturing where the preventative maintenance attributes can be fully appreciated.

Benefits

- Safe, remote data collection
- Intuitive user interface
- Continuous trend data to assist in early detection of process instability, maintenance scheduling & failure analysis
- Overview of total run time to assist in periodic maintenance scheduling and spare part logistics
- Prioritize actions for assets dependant on current running condition

Standard design

The Alfa Laval CM Connect is a PA12 plastic hermetically sealed monitoring device suitable for use in a hygienic environment with washdown. It can be mounted on a wall as a gateway device for a network of Alfa Laval CM's or used as a gateway and monitor if attached to the rotating equipment. A stainless-steel adaptor

will be supplied to retro-fit to existing and new Alfa Laval equipment dependent on product range, size and model.

Working principle

The Alfa Laval CM Connect with its' 4G LTE connectivity uses a 3 axis accelerometer and internal temperature sensor to collect and send data to the cloud for remote monitoring. In addition, a Bluetooth antenna enables connectivity of a network of 10 installed Alfa Laval CM's within Bluetooth range providing a complete overview of equipment in that process location. The data can be accessed via an intuitive, user-friendly dashboard on a PC, IOS or Android mobile device.

When a monitor senses some vibration it starts the running hours counter and monitors the tri-axial vibration and internal temperature of the unit at pre-set intervals determined by the user. This information is sent via cellular connectivity to the cloud for review or action.

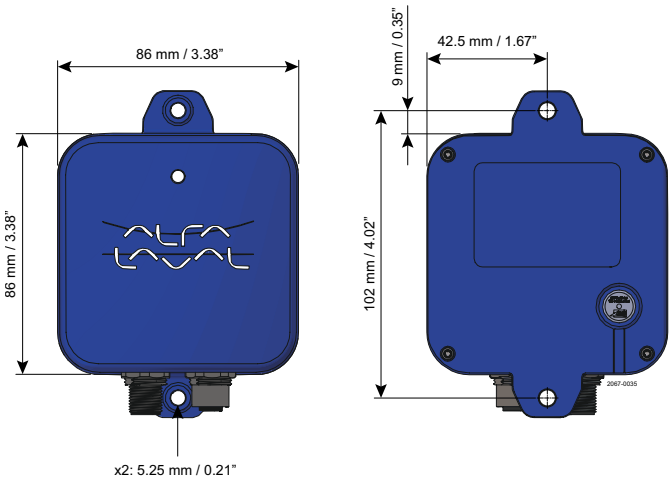
The user can then utilise the dashboard to have a complete overview of the assets and their current running status. Selecting any of the assets the user can review vibration levels and Fast Fourier Transform (FFT) data to determine current trend condition against original benchmark values, and in the case of a warning or alarm mode, alerts can be sent via e-mail or SMS to selected recipients who can use the data for system root cause analysis.

In addition, the dashboard will relay, battery life of CM's, historical data for vibration and in unit temperature, current and total running hours, number of stop/starts and information on the unit under monitoring.

TECHNICAL DATA

General	
Plastic parts:	PA12
Steel parts:	1.4301 (AISI 304)
Size:	86 mm x 117 mm x 41 mm (3.4 x 4.6 x 1.6 inch)
Weight:	164 grams (5.8 oz)
Power requirements	
Power supply:	24 VDC, 7–15W
Wireless Communication	
Cellular data:	4G LTE with global frequencies support Sim card included
Bluetooth Low Energy:	5.0
Environment	
Operating temperature:	–30°C to 70°C (–22°F to 158°F)
Protection class (water ingress):	IP67 & NEMA4X
Operating parameters	
Sampling frequency:	standard 833 Hz. Up to 1.6 kHz
Temperature resolution:	1.5°C (3°F)
3 axis vibration:	0~4 g
Surface temperature:	up to 80°C (176°F)
Cloud connection:	Cellular data
Bluetooth range:	20 metres (65 Ft) line of sight
Compliances	
The Alfa Laval CM-Connect is in compliance to CE, UKCA, Reach, RoHS. For further compliances, please contact Alfa Laval.	
Warranty	
12 months from date of despatch.	

Dimensions (inch)



Alfa Laval Analytics

Connected Solutions and Services

Introduction

Alfa Laval Analytics – Your reliable partner for securing uptime and efficiency of your pumps. Analytics is an AI driven service for pump condition monitoring, brought to you by Alfa Laval.

Application

Alfa Laval Analytics is an advanced data analysis Platform. The system will notify and help you optimize your uptime and increase efficiency. With this powerful tool, you can monitor your pumps, identify and notify potential issues to prevent breakdowns Alfa Laval Analytics enables you to make data-driven decisions improving your bottom line.

Benefits

- Continuos monitoring of production processes
- Advanced data analysis and visualization
- Reduced downtime and improved efficiency
- Increased productivity and profitability
- Easy to use and integrate with your present service setup

Working principle

Continuos Data Collection: Alfa Laval Analytics collects data from a variety of sources, including sensors, machine learning, and manual inputs, ensuring that you have the most up-to-date information of your pumps at all times.

Advanced Data Analysis: Our AI-driven platform uses advanced algorithms to analyze your data and identify trends, patterns, and anomalies. It sends you an automatic notification, helping you make informed decisions and take action to optimize the health of your pumps.

Customizable Dashboards: Alfa Laval Analytics allows you to create plant sections and customize your dashboards to display the metrics that matter most to you.

TECHNICAL DATA

AI driven, automated analytic service for pump vibration – and temperature data. Notifications can be accessed by PC, mobile device and tablet.

Contents of the package:

- Analytics is a subscription service
- Duration: 12 months
- Renewal: Automatically

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Cleaning validation

Alfa Laval Rotacheck Sensor

Cleaning validation

Introduction

The Alfa Laval Rotacheck Sensor is a cleaning validation instrument that provides verification of the Alfa Laval Rotary Jet Head tank-cleaning devices. It is highly accurate at detecting the sweep and impact of the cleaning media released by the rotary jet head, thereby providing tank cleaning quality assurance. This device is suitable also when there is higher pressure during Cleaning-in-Place (CIP) in the tank.

Application

The Rotacheck Sensor is designed for use in a tank-cleaning system that uses rotary jet heads and where the tank is pressurized during CIP and where validation of hygienic operation is required across the dairy, food, beverage, brewery and pharmaceutical industries.

Benefits

- Validation of 360° repeatable cleaning pattern
- Verification of tank cleaning coverage
- Highly accurate detection of the jet sweep and impact
- Improved product quality

Standard design

The Alfa Laval Rotacheck Sensor consists of a stainless steel IP67-rated casing, sensor, diaphragm, welding adaptor, and cable for relay connection. As standard ATEX-certified version is for use in potentially explosive areas. The sensor complies with Category 1/2 requirements for installation in zones 0/1 and 20/21. The relay complies with Category 2 requirements for installation in zone 1/21.

Working principle

The sensor of the Alfa Laval Rotacheck Sensor detects the sweep and impact of fluid jets released as the rotary jet head performs its cleaning cycle. The system is appropriate wherever rotary jet heads are employed in cleaning tanks and where the tank is pressurized during CIP. The signal generated by the system can be audible, visual or integrated into the customer's process control specification.

Based on the geared operation of the cleaning device and signals recording the impact force from the jets, the sensor verifies hygienic operation of the rotary jet heads, taking into account any backpressure in the tanks.

The hygienic Rotacheck sensor is precisely installed to detect the sweep and impact of fluid jets released as the rotary jet head performs its cleaning cycle. From the geared operation of the cleaning device, and by reciving the impact force from the jets, the sensor provides vertification of hygienic operation. Any back pressure in the tanks is accounted for.

Certificates

3.1 certificate

Cleaning Pattern

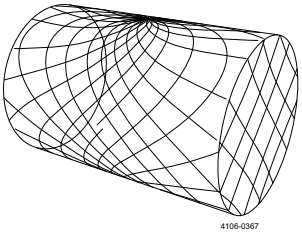


Figure 1. First cycle

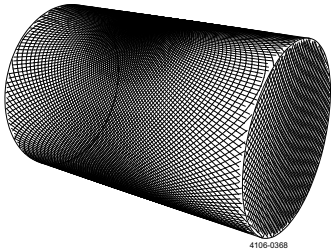


Figure 2. Full pattern

Figure 1 and figure 2 shows the cleaning pattern achieved by a Toftejorg rotary jet head. Rotacheck Sensor enables the user to automatically confirm that this operation has taken place on individual tank cleaning cycles.

TECHNICAL DATA

Pressure	
Pressure:	0.1 - 2 bar (1.5 - 29 PSI)
Max. overload pressure:	15 bar (217 PSI)

Electrical Data	
Max. repetition frequency:	For sensor function 2 Hz
Duration of electrical pulse:	Min. 1.0 sec.
Relay connection, electric:	2 m (6 ft) or 10 m (32.8 ft) cable, Ø6 mm (0.24 inch), PVC, 2 x 0.75 mm^2
Electromagnetic Noise:	Tested and approved according to EU EMC directive

Temprature	
Operating temperature:	-20 to 85 °C (-4 °C to 185 °F)
Temperature on diaphragm:	Max. medium 140 °C (284 °F)
Mounting:	By clamping into the welding adapter or clamped directly on the Toftejorg SaniJet 20 **NOTE!** 4" clamp connection only! (Not suitable for 3" clamp connection)
Enclosure:	IP 67

PHYSICAL DATA

Materials
Sensor and diaphragm 1.4404 (316L)

Alfa Laval Rotacheck Basic and Plus

Cleaning validation

Introduction

The Alfa Laval Rotacheck Basic and Alfa Laval Rotacheck Plus are intelligent sensors that validate the proper function of the Alfa Laval Rotary Jet Head during the cleaning operation for tanks used in hygienic applications. These sensors provide a proven, reliable validation method that increases quality assurance in tank cleaning.

The sensors accurately and precisely register, monitor and evaluate the rotation and impact of the rotary jet head. Whenever any deviation from the original rotation or impact pattern is detected, it automatically sends an error signal, enabling the control system as well as the operator to take remedial action to restore optimal operation.

Designed for use in all types of hygienic tanks, the Rotacheck Basic and Rotacheck Plus is approved to carry the 3-A symbol and the European Hygienic Engineering & Design Group (EHEDG) symbol.

The Rotacheck system may also be used with purified water (PW) and water for injection (WFI) as well as in systems that are pressurized during Cleaning-in-Place (CIP) up to 0.3 bar. Both are approved for use in potentially explosive environments in Zone 0/20 in the product-wetted area and Zone 2/22 in the non-product-wetted area.

Application

The Alfa Laval Rotacheck is designed to fulfil the demands for tank cleaning validation in hygienic applications across the dairy, food, beverage, brewery, and pharmaceutical industries.

Benefits

- Safe, hygienic and validated tank cleaning
- Easy monitoring of rotary jet head operation
- Easy installation and maintenance
- Complies with 3-A standards and EHEDG hygienic guidelines

Standard design

The Alfa Laval Rotacheck control and validation systems for tank cleaning machines consist of a sensor unit with top cover, O-rings and electrical cable and/or connector. The sensor unit has

a sensing device located inside the processing tank and is connected to a sensor board, which processes and communicates the signal to the programmable logic controller (PLC).

The Alfa Laval Rotacheck system is available in two versions with output from the digital sensor via PNP interface to and from the PLC:

- Rotacheck Basic, where the validation happens in the PLC based on the digital signal from the sensor when the water jet hits the sensor
- Rotacheck Plus, an advanced system with a built-in function for validation of the rotary jet head performance. The validation occurs in the Rotacheck and the PLC receives a feedback on the tank cleaning

Alfa Laval Rotacheck Basic

The Rotacheck Basic registers the moment when the sensor is hit by the water jet from the cleaning head. The feedback from the Rotacheck can be:

- Hit: The moment in time when the water jet hits the sensor head
- Alarm: In case of unit failure or constant hit (cleaning device error)
- Idle: When the rotary jet head is not in use and cleaning is not being performed

Alfa Laval Rotacheck Plus

This advanced innovative system features unique built-in teach-in and monitoring functions to verify the proper rotation of the rotary jet head.

As the rotary jet head performs the first CIP cycle, the sensor registers time and pressure data from the cleaning process and stores them as reference data. The reference data represent a unique pattern for a specific cleaning process in terms of the water jet intensity on the tank wall (hits) and the time between the hits from the water jet.

During subsequent CIP cycles, the processor in the sensor board then compares actual values to the digitally stored reference values and alerts the operator if any deviation from the reference values occurs.

The status of rotary jet head operation is shown via digital PLC output as well as a visual light indication. System feedback includes three different outputs:

- Rotation OK: When the operation of the rotary jet head meets the values recorded during the initial CIP cycle, verifying the proper rotation of the jet head
- Alarm: When the rotation of the rotary jet head falls above or below the acceptable reference values recorded during the initial CIP cycle
- Idle: When the rotary jet head is not in use and cleaning is not being performed

Certificates

Q-doc (option)

NOTE! Product contacted parts only!

TECHNICAL DATA

Protection class:	IP66 and IP67

Pressure	
Pressure overload on diaphragm:	217 PSI
Max. working pressure in tank while perfoming monitoring:	4.35 PSI

Electrical data	
Power supply:	24 Vdc +/- 10 %
Power consumption max.:	70 mA
Outputs (HIT “Rotation OK”, Alarm, Idle):	Logic PNP
Max. current per output:	50 mA
Electrical connection:	M12 plug (8 poles) or M16 cable gland

The integrated electronics features short circuit and high temperature protection.

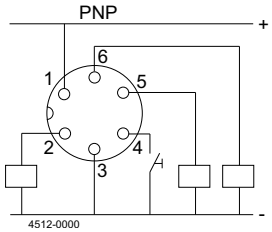
PHYSICAL DATA

Materials	
Wetted parts:	AISI 316L
Fieldhousing:	Polymer PA12
Product wetted elastomer:	EPDM
Other elastomer:	NBR

Operating temperature	
Wetted parts:	-40 to 257 °F (< 284 °F in 1 hour)
Field house:	14 to 140 °F
Weight.	Approx. 1.32 lb

Process connection
Alfa Laval Hygienic Tank Connection (HTC)

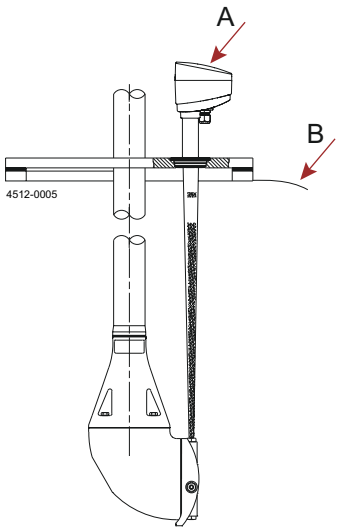
Electical connections



M12 Plug		M16 cable gland	
PIN 1:	+	1	+
PIN 2:	Output: Rotation OK/hit	2	-
PIN 3:	-	3	Output: Idle
PIN 4:	Input: Teach-in	4	Output: Rotation OK/hit
PIN 5:	Output: Idle	5	Output: Error
PIN 6:	Output: Alarm	6	Input: Teach-in

Dimensions (inch)

Installation of Alfa Laval Rotacheck



A = Rotacheck Sensor

B = Tank Top

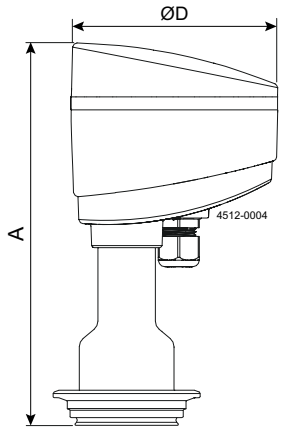


Figure 1. Rotacheck with M16 cable gland

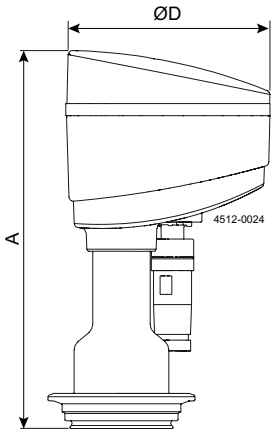
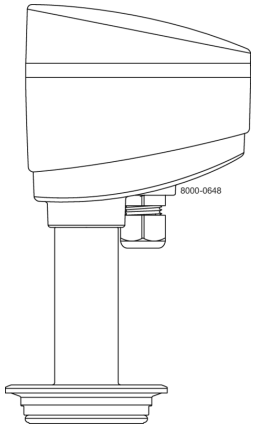
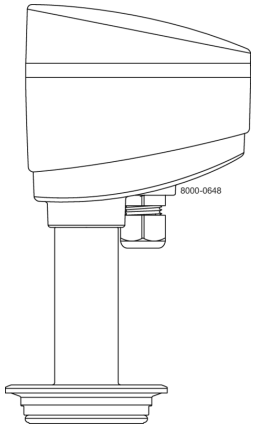


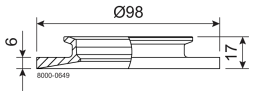
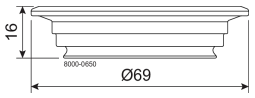
Figure 2. Rotacheck with M12 plug

A	ØD
7"	3.78"

Item no.	Description	
		RotaCheck Basic
9614069901 9614069902 9614069905 9614069906	Electrical connection: Cable gland M16 Electrical connection: M12 plug Electrical connection: Cable gland M16 and Q-doc Electrical connection: M12 plug and Q-doc	
		RotaCheck Plus
9614069903 9614069904 9614069907 9614069908	Electrical connection: Cable gland M16 Electrical connection: M12 plug Electrical connection: Cable gland M16 and Q-doc Electrical connection: M12 plug and Q-doc	

Accessories
9614070801 (HTC Welding adaptor), 9614070890 (HTC Welding adaptor incl. Q-doc), 9614071001 (HTC Blind cap), 9614071090 (HTC Blind cap incl. Q-doc), 9612939303 (HTC Clamp ring), 9611995257 (M12 female plug 8 pins)

ALSIS Code: 5630

Item no.	Description	
		Alfa Laval HTC (Hygienic Tank Connection) 316L and Q-doc
9614070890	Alfa Laval HTC (Hygienic Tank Connection) 316L and Q-doc	
		Alfa Laval HTC (Hygienic Tank Connection) blind cap + O-ring + grease and Q-doc
9614071090	Alfa Laval HTC (Hygienic Tank Connection) blind cap + O-ring + grease and Q-doc	

Item no.	Description
	Complete TJ RotaCheck set – TJ RotaCheck sensor with AC Relay and Cable
TE52E07090	Alfa Laval Rotacheck sensor with AC relay and 2 m cable
TE52E07091	Alfa Laval Rotacheck sensor with AC relay and 10 m cable
	Complete welding Adaptor set – for complete TJ RotaCheck sensor set
TE52E06890	Welding adapter for Rotacheck sensor TE52E0679X with EPDM O-ring
TE52E06891	Welding adapter for Rotacheck sensor TE52E0679X with FKM (Viton) O-ring
	Rotacheck relay
TE52E058	Alfa Laval Rotacheck AC relay
TE52E059	Alfa Laval Rotacheck DC relay
	Rotacheck sensor with cable
TE52E06790	Alfa Laval Rotacheck sensor with 2 m cable
TE52E06791	Alfa Laval Rotacheck sensor with 10 m cable

This is Alfa Laval

Alfa Laval is active in the areas of Energy, Marine, and Food & Water, offering its expertise, products, and service to a wide range of industries in some 100 countries. The company is committed to optimizing processes, creating responsible growth, and driving progress – always going the extra mile to support customers in achieving their business goals and sustainability targets.

Alfa Laval's innovative technologies are dedicated to purifying, refining, and reusing materials, promoting more responsible use of natural resources. They contribute to improved energy efficiency and heat recovery, better water treatment, and reduced emissions. Thereby, Alfa Laval is not only accelerating success for its customers, but also for people and the planet. Making the world better, every day. It's all about Advancing better™.

How to contact Alfa Laval

Contact details for all countries are continually updated on our web site. Please visit www.alfalaval.com to access the information.

100003592-3-ENUS 2306