

The easy choice when indication is all you need

IndiTop 8-30 VDC/AC

General information

The **IndiTop** indication unit is designed to be a simple and easy to use electrical feedback unit for Alfa Laval and Tri-Clover sanitary valves. Compatible with all major PLC (Programmable Logic Controller) digital input cards, It's ideal for use in food, dairy and brewery installations as well as biopharmaceutical applications.

The unit is mounted while its target is threaded onto the valve actuator "mushrooms" with two Allen screws on the valve stem. Once setup either by the quick and easy "5 push setup" or remotely from the PLC, the unit will be able to send feedback about the valve position through a fixed cable.

Sensor System

IndiTop has a unique "No Touch" sensor system without any mechanical adjustments needed. A target magnet is mounted on the valve stem and the magnetic field (axial) is detected by sensor chips inside the sensor unit. The measuring angle from each chip is used to locate the current position of the valve stem with an accuracy of ± 1 mm. Note that the distance to the magnet can be $0.2" \pm 0.12"$.

Feedback Signals

IndiTop is capable of providing two 2 PNP/NPN digital feedback signals in both DC and AC. Selection of PNP or NPN is done by wiring.

Visual indication through LEDs are constantly displaying the current valve position and power (ON/OFF)

Key Features

- Works with both DC and AC supply voltage (8-30V DC/AC)
- Two PNP/NPN digital DC/AC feedback signals
- Quick and easy "5 push setup" through pushbuttons
- Able to perform the setup remotely from the PLC
- Keeps the setup during power outages
- Visual indication through LEDs
- 5m fixed cable
- No mechanical adjustments
- $\pm 0.2"$ tolerance for saved positions



The indication unit IndiTop from Alfa Laval.

Technical Data

Materials

Plastic parts Nylon PA 6 and POM
Rubber parts SEBS
Metal parts: Stainless steel DIN 914 A2. Brass

Sensor System

Sensor accuracy: $\pm 0.04"$
Distance to magnet: $0.2" \pm 0.12"$
Stroke length: $0.24" - 3.17"$

Electrical interface

5m $0.2"$ \varnothing fixed PVC cable with (6) 26 AWG conductors.

Protection Class

IP66/67

Power Supply

IndiTop is designed to be a part of the PLC's Input/Output (I/O) system. It should be supplied from the same protected power supply as the other I/O devices. The unit is reverse polarity and short circuit protected. Designated for use only with power supplies meeting the requirements of EN 61131-2.

Supply voltage: 8 - 30 V DC/AC
Supply voltage nominal: 24 V DC/AC (RMS) (-15% / +20% as per EN 61131-2:2003)
Max. ripple: 5% of nominal supply voltage
Supply voltage absolute max: 30 V DC/AC
Supply voltage absolute min.: 8 V DC/AC
Supply current*): Max. 45 mA

The initial current during power-on is higher. The actual shape of the current pulse depends on the power supply used. Typical values are 150mA RMS during 13 ms (regulated PS) to 360 mA RMS during 8 ms (unregulated PS).

The fulfilling of the UL requirements in UL508 requires that the unit is supplied by an isolating source complying with the requirements for class 2 power units (UL1310) or class 2 and 3 transformers (UL1585).

Feedback Signals

Output signals from the sensor unit to the connected digital interface (PLC).

Nominal voltage: Same as supply voltage
Load current: 50 mA typically, 100 mA max.
Voltage drop: Typically 3 V at 100 mA

Selecting PNP/NPN

PNP (sourcing) or NPN (sinking) function is selected through the brown wire in the cable.
PNP (DC/AC) = Brown wire connected to + (DC) / L1 (AC)
NPN (DC/AC) = Brown wire connected to - (DC) / N (AC)

Relief plug

The indication unit **IndiTop** is provided with a relief plug which opens in case of an actuator leakage. If a leakage occurs the plug remains attached to the unit and can be put in its place again.

Spareparts

The magnet holder inclusive of magnet is available as a sparepart.



Environment

Description	Unit	Value	Directive	Directive	Directive	State/Condition
Cold	Temperature: °F	-13 ±10	IEC 68-2-1	IEC 68-2-1		Non operating
	Duration: h	16	Test Ab			
	Temperature: °F	-4 ±10	IEC 68-2-1	IEC 68-2-1	A	Operating
	Duration: h	16	Test Ab			
Dry Heat	Temperature: °F	+194 ±7	IEC 68-2-2	IEC 68-2-2		Non operating
	Duration: h	96 ±1	Test Bb			
	Temperature: °F	+176 ±7	IEC 68-2-2	IEC 68-2-2	A	Operating
	Duration: h	16	Test Bb			
Change of temperature	Temperature: °F	-4/+176	IEC 68-2-14	IEC 68-2-14		Operating
	Duration: h	1	Test Na			-20/+80
	Cycles:	5				
Protection	Class	IP66/67	IEC 529	IEC 529	A	Operating
Damp heat, cyclic	Temperature: °F	+77/+131	IEC 68-2-30	IEC 68-2-30		Non operating/ Operating
	Cycles:	12	Test Db			
Damp heat, steady state	Temperature: °F	+104	IEC 68-2-3	IEC 68-2-3		Non operating/ Operating
	Humidity: %RH	93	Test Ca			
	Duration: day & night	21				
Free fall	Height: mm	1000	IEC 68-2-32	IEC 68-2-32	A	Packed
	Number of falls:	28	Test Ed			
Bump	Acceleration: g	5	IEC 68-2-29	IEC 68-2-29	A	Non operating/ Operating
	Number:	2 x 3 x 1000	Test Eb			
	Pulse time: ms	16				
Vibration	Freq./Ampl.: Hz / mm	10 - 55 / 0.7	IEC 68-2-6	IEC 68-2-6	A	Operating
	Freq./Acc.: Hz / g	55 - 500 / 10	Test Fc			
	Duration: minutes	3 x 30				
Shock	Acceleration: g	15	IEC 68-2-27	IEC 68-2-27	A	Non operating/ Operating
	Number:	2 x 3 x 3	Test Ea			
Fast transients, immunity	Common mode: kV _{peak}	2	EN 61000-4-4	EN61000-4-4 (direct injection)	B	AC, DC power ports. Operating
	T _r /T _f : ns	5/50				
	Rep. frequency: kHz	5	(capacitive clamp)	Process ports. Operating		
	Common mode: kV _{peak}	2				
T _r /T _f : ns	5/50					
Rep. frequency: kHz	5					
Surges, immunity	T _r /T _f : μs	1.2/50 (8/20)	EN 61000-4-5	EN61000-4-5	B	Operating
	Common mode: kV _{peak}	2				
	Differential mode: kV _{peak}	1				
Electrostatic discharge, Immunity	Contact discharge: kV	6	EN 61000-4-2	EN61000-4-5	B	Operating
	Air discharge: kV	8				
	Indirect discharge via coupling plane: kV	6				
Electromagnetic field, immunity	Frequency: MHz	80 - 1000	ENV 50140	ENV 50140	A	Operating
	Test level: V _{rms} /m	10				
	Modulation: %AM 1kHz	80	ENV 50204	ENV 50140		
	Frequency: MHz	900 ± 5				
Test level: V _{rms} /m	10					
	Duty cycle: %	50				
	Rep. frequency: Hz	200				
RF Common mode, immunity	Frequency: MHz	0.15 - 80	ENV 50141	ENV 50141	A	Operating
	Test level: V _{rms}	10				
	Modulation: %AM 1kHz	80				
	Source impedance: Ω	150				
Power frequency	Power frequency: Hz	50	EN 61000-4-8	EN61000-4-8	A	Operating
Magnetic field, immunity	Magnetic field: A/m	30				
Electromagnetic field, emission	Frequency: MHz	30 - 230	EN 55022	EN 55022	A	Operating
	Field strength: dBμV/m	30 (at 10 m distance)				
	Frequency: MHz	230 - 1000				
	Field strength: dBμV/m	37 (at 10 m distance)				

EMC Directive	89/336/EEC	EN 50081-1, EN 50082-2
UL approval	8-30 VDC/VDC, Class 2 input, 45 mA max. output	UL508 - E203255

Electrical connections

The fixed cable consists of 6 wires. When the remote setup feature is not used 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.

Connections:

- Red+/L1, 8-30 DC/AC
- Black-/N
- GreenSP1 (De-energized)
- YellowSP2 (Energized)
- BrownPNP (+ or L1) / NPN (- or N)
- OrangeRemote setup bit **(If not used - connect to +/L1)**

