

# Simple and Discreet Indication of Valve Operation

Indication Units for LKB/LKLA, SRC, ARC and ARC-SB

PD 65398 US4 2002-09

## Description

These indication units are installed laterally on the valve bonnet, between the air operated actuator and the valve.

All switches are EMC approved according to:

- EN 50081-1, Generic emission standard, commercial and light industry.
- EN 50082-2, Generic immunity standard, industrial environment.
- pr EN 60947-5-2, Product family standard: Proximity switches.
- KA 2791.30 section 5.5 EMC, Tetra Pak Corporate Standard.

All tested requirements are met.

The pull-up or pull-down resistance in the input stage of the PLC must be 1-10 k ohms to ensure a proper reading of the signal from the sensors.

The wire connection can be different.



## General description of different types of switches:

### Micro switch

A micro switch can be compared with a standard light switch but in a very small size and light in weight, a so called subminiature switch. It is activated mechanically by a roller leaf. Standard function is normally open (NO), normally closed (NC) and is always a digital signal (on/off).

The features of an environment proof sealed subminiature switch are: Small size and light in weight, with ample electrical capacity, precision operation and long life. The micro switch used in indication units is furthermore enclosed within a corrosion-resistant aluminium housing to seal the switch contact and terminals against contamination.

### Inductive proximity switch

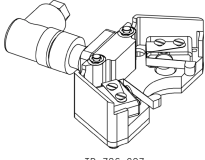
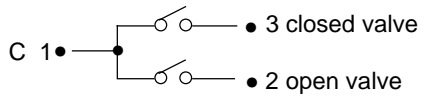
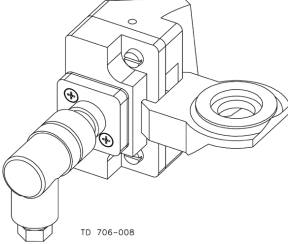
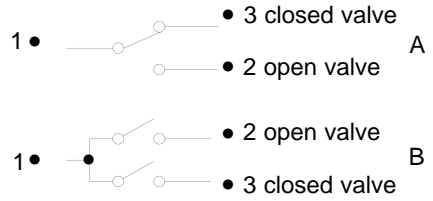
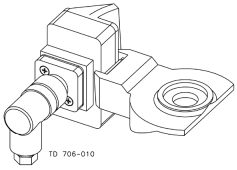
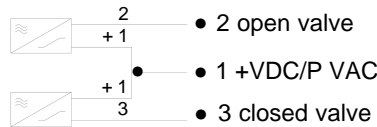
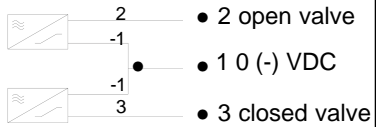
This type of switch is a non-contact electronic switch. It consists of an oscillator which creates high frequency electromagnetic fields which radiate from the sensing face of the switch. Every approaching conductive metal (damping target) causes a reduction of the electromagnetic field. The result is a voltage change of the oscillator. This analog signal is converted by a Trigger circuit into an on/off signal and the output is amplified.

### Hall proximity switch

The Hall prox. switches are also non-contact electronic switching elements. The sensor registers a magnetic field (north pole) and consists of a Hall element (a type of a transistor) matching part, an amplifier and an output part. The output signal is always on/off, digital and the switching frequency is higher than the normal inductive switch or the micro switch. The Hall prox. switch is ideal for modern computer processing. NPN and PNP are two types of transistors. The difference is the composition of positive or negative semiconductive materials.

Signals:	NPN	PNP
Activated sensor	0	1
Non-activated sensor	1	0

**Electrical data and connection**

<p>Micro Switch</p> <p>Type: NO or NC.</p> <p>Signal output: On/off, digital.</p> <p>Supply voltage: 24-55 (110) VDC/VAC.</p> <p>Supply current: Min. 100 mA. Max. 1 A.</p> <p>Note! As the unit is not grounded it should not be used for voltages exceeding 55 V.</p>	 <p>For valve types: LKB/LKLA</p>  <p>C 1 ● — ● 3 closed valve ● 2 open valve</p>
 <p>For valve types: SRC, ARC and ARC-SB</p>  <p>A ● — ● 3 closed valve ● 2 open valve</p> <p>B ● — ● 2 open valve ● 3 closed valve</p> <p>A = One micro switch. B = Two micro switches.</p>	
<p>Inductive proximity switch, IFM:</p> <ul style="list-style-type: none"> <li>- Signal output: Digital, PNP/NPN (2 wire).</li> <li>- Supply voltage: 20-110 VAC/10-110 VDC.</li> <li>- Current rating: 150 mA.</li> <li>- Minimum load current: 4 mA.</li> <li>- Leakage current: ≤ 0.6 mA.</li> <li>- Voltage drop: ≤ 5 V.</li> </ul>	 <p>For valve types: SRC, ARC and ARC-SB</p> <p><b>PNP DC/AC</b></p>  <p>2 ● — ● 2 open valve + 1 ● — ● 1 +VDC/P VAC + 1 ● — ● 3 closed valve 3</p> <p><b>NPN DC</b></p>  <p>2 ● — ● 2 open valve - 1 ● — ● 1 0 (-) VDC - 1 ● — ● 3 closed valve 3</p>



## Electrical data and connection

Hall proximity switch NPN, yellow colored:

- Signal output: Digital.
- Supply voltage: 5 to 24 VDC. Built-in regulator.
- Supply current: Max. 10 mA, normally 5 mA.
- Output: NPN open collector, max. 24 V, 25 mA.
- Activation: Magnet, N-pole.
- Temperature range: -4°F to 158°F.

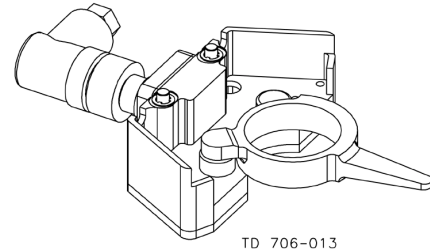
Hall proximity switch PNP, green colored:

- Signal output: Digital.
- Supply voltage: 5 to 24 VDC. Built-in regulator.
- Supply current: Max. 15 mA, normally 10 mA.
- Output: PNP open collector, max. 24 V, 150 mA.
- Activation: Magnet, N-pole.
- Temperature range: -4°F to 158°F.

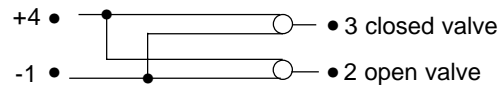
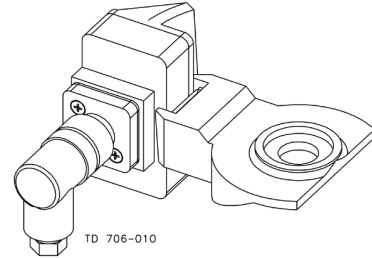
Hall proximity switch PNP, grey colored:

- Signal output: Digital.
- Supply voltage: 20 to 30 VDC. Built-in regulator.
- Supply current: Max. 15 mA, normally 10 mA.
- Output: PNP open collector, max. 24 V, 150 mA.
- Activation: Magnet, N-pole.
- Temperature range: -4°F to 158°F.

For valve types:  
LKB/LKLA



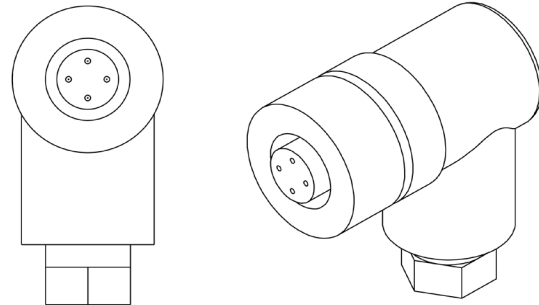
For valve types:  
SRC, ARC and ARC-SB



Technical data for female M12 plug

- Voltage: 250V AC/DC
- Current: 4A
- Temperature: -13°F to 194°F.
- PA 66
- IP 67
- PG9, max cable diameter OD 0.39" (10mm)

The plug is 90° angled and can be turned 4 x 90°



**CSI**

417.831.1411  
csidesigns.com

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The information contained herein is correct at the time of issue, but may be subject to change without prior notice.

How to contact Alfa Laval  
Contact details for all countries  
are continually updated on our website.  
Please visit [www.alfalaval.com](http://www.alfalaval.com) to  
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