



LCA / LCS Pressure switches



HYDRO-VACUUM[®] S.A.

1862

INNOVATION - EXPERIENCE - CREDIBILITY

WE HAVE BEEN WITH OUR CLIENTS SINCE 1862

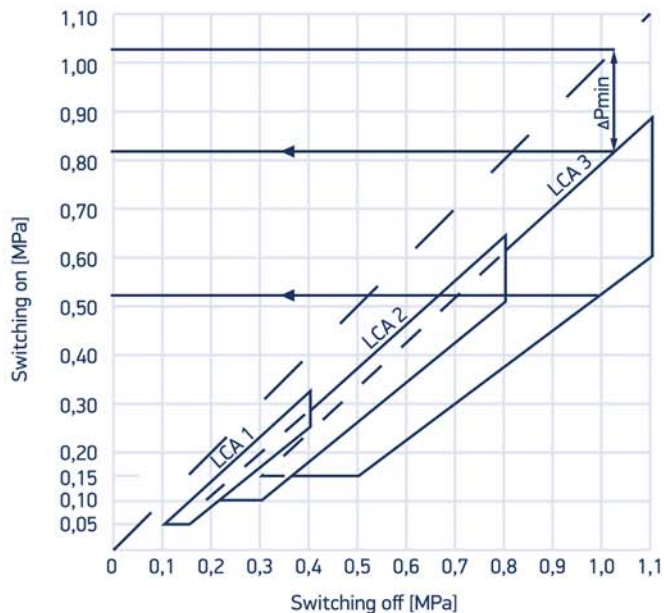
LCA pressure switches

Pressure switches are used to control pressure equipment with tanks, keeping medium pressure of an agent within fixed, defined limits. The LCA pressure switch is used for the automatic switching on and off of electric motors (pumps) working in hydrophore systems and compressed air systems, in places free from dust, gases and explosive or chemically active vapours. Manufactured in three type-sizes depending on pressure range (0.4 MPa - 0.8 MPa - 1.1 MPa). LCA pressure switches are manufactured as mechanized three-line or single-line dual-break manoeuvre low-voltage ac switches. An LCA pressure switch is a variety of a normally closed contactor. Its base, body, movable and stationary jaws are made of glass fibre-reinforced plastic. Copper contacts have silver-cadmium oxide tips. The connector casing is made of polycarbonate.

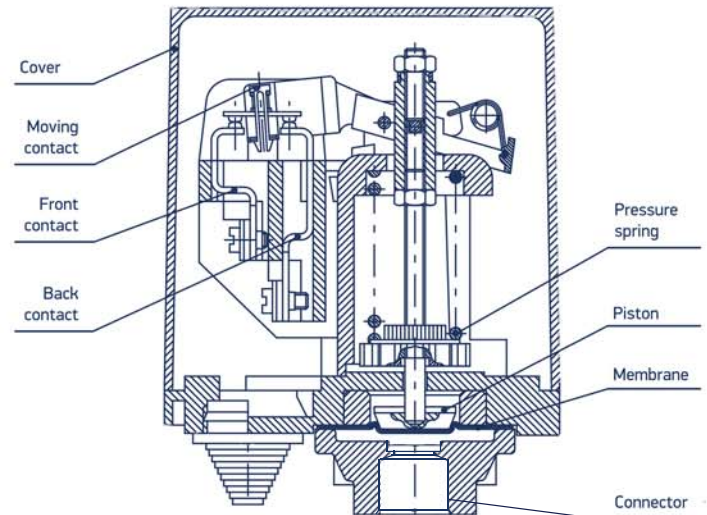
Advantages of the LCA

- ▶ pressure converting system, toggles and electrical elements guarantee reliability and durability proved throughout the decades that the LCA switch has been on the market,
- ▶ membranes used in the pressure switches manufactured by Hydro-Vacuum S.A. are resistant to contact with oil pollution in pressure control systems, which allows the application of LCA switches in industry,
- ▶ LCA switch is characterised by its stability and setting repeatability thanks to the use of high quality elements,
- ▶ transparent cap manufactured from fail-safe plastic – polycarbonate, enables control of technical condition of the elements as well as position of the switch contacts,
- ▶ two dimensions of the assembly spouts G1/4 and G1/2 which allows for assembly in the majority of pressure installations,
- ▶ production and control process is carried out by qualified staff and complies with quality management system ISO:9001. Each switch undergoes hydraulic and electric trial – with test voltage of 2.5 kV
- ▶ 24 month guarantee

Pressure range



Construction



Working conditions

- ▶ Switches should be installed in closed compartments free from dust, gases and explosive or chemically active vapours
- ▶ Permissible operating altitude should not exceed 2000m a.s.l. Maximum ambient temperature is from -5°C to 40°C
- ▶ The lowest relative humidity may reach up to 50% at temp. of 40°C and up to 90% at temp. of 20°C.
- ▶ Protection degree IP 43 (under the condition of assembling the switch cap upwards)

★ Technical data

Rated voltage of insulation	230 V	400 V
Rated frequency	50 Hz	
Rated continuous current	16 A	10 A
Work category	AC-3	
Rated test voltage of insulation	2,5 kV	
Rated frequency of operation	120 cycles/h	
Mechanical durability	0,25 * 10 ⁶ cycles	

Power of the directly controlled motors	2,2 kW	4,0 kW
Minimum temperature of driving factor	0°C	
Maximum temperature of driving factor	40°C	
Type of driving factor	water, air, machine oil, transformer oil	
Sections of connecting cables	min 1,5 mm ²	max 4 mm ²
Pressure switches mass	0,41 kg - G1/4"	0,5 kg - G1/2"

⚙️ LCS pressure connectors

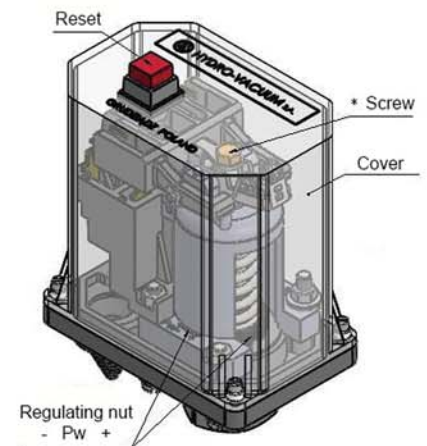
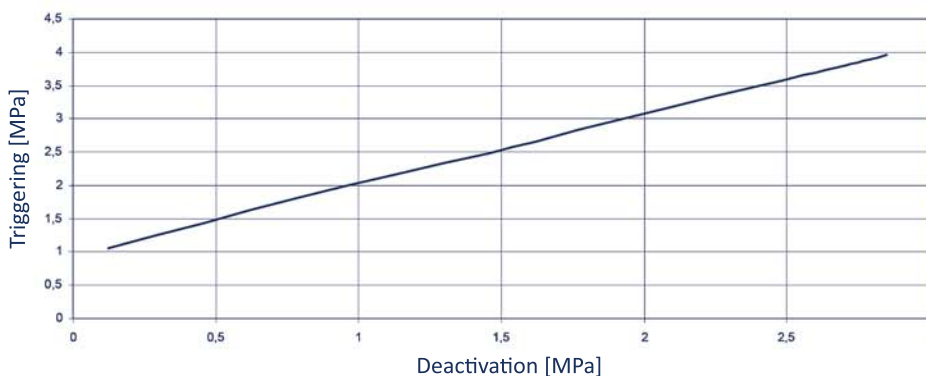
Protection against dry running

LCS connectors are used to protect devices, mainly pumps, against operation at excessively low pressure in the installation. These connectors are typically used in hydrophore systems supplied from open tanks, wells and water supply networks, where protection against drop of pressure in a pipeline is required.

★ Advantages of the LCS

- ▶ in addition to 230 V motors of power up to 2.2 kW, LCS connectors may work with 400 V three-phase motors of power up to 4 kW,
- ▶ durability (design based on proven pressure connector of LCA type, which has been present on the market for many years),
- ▶ wide range of triggering and deactivating,
- ▶ 24-months guarantee.

📊 Possible set points (tolerance +/- 10%)



★ Working conditions

- ▶ Connectors are intended for installation in closed rooms, free from dusts, gases and explosive or chemically active vapours
- ▶ Allowed installation height may not be greater than 2000 m a.s.l.
- ▶ Allowed ambient temperature is -5°C to 40°C
- ▶ The lowest relative humidity may reach up to 50% at temp. of 40°C and up to 90% at temp. of 20°C.
- ▶ IP 43 protection class (provided that the connector is installed with its cover facing up)

☆ Technical data

Rated voltage of insulation	230 V	400 V
Rated frequency	50 Hz	
Rated switching current	16 A	10 A
Operating category	AC-3	
Insulation rated proof voltage	2,5 kV	
Normal rated switching frequency [switching cycles/hour]	120 cycles/h	
Rated switching durability [switching cycles]	0,25 * 10 ⁶ cycles	
Nominal connection durability	2,2 kW	4,0 kW
Propelling medium minimum temperature	0°C	
Propelling medium maximum temperature	40°C	
Propelling medium type	water, air, machine oil, diesel fuel	
Connecting cables cross-sections	min 1,5 mm ²	max 4 mm ²
Connector weight	0,41 kg - G1/4"	0,5 kg - G1/2"

There is a possibility to install special connector to a pressure switch with aluminium connector without necessity of screwing in the whole switch through application of G ¼" or G ½" connector.



All components as well as the whole manhole are assembled in Hydro-Vacuum S.A. mostly from elements manufactured by Hydro-Vacuum S.A.; remaining materials (screws, nuts etc.), are manufactured locally.

☆ Principle of operation

Their operation is reversed compared to LCA – LCS connectors, i.e. they deactivate the pump after pressure drops below set point. LCS connectors allow to set triggering pressure (in accordance with the graph below) without the change of pressure difference (delta, hysteresis), which is constant and is approximately 1 bar. They are three-way or single-way, low voltage, mechanised alternating current control switching devices. LCS type pressure connector is a normally open contactor (closes in case of pressure increase). Base, body, movable and immovable jaws are made of glass-fibre reinforced plastic. Copper contacts are equipped with tips made of cadmium-silver oxide. The connector's housing is made of polycarbonate.

It suspends operation of a system after detecting low pressure in LCS installation. The pump system will be activated again after physical pressing and holding RESET button until required operating pressure returns.



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