



# Pressure Switch

hydro-electric signal converter

Pressure range 5-130 bar, 50-350 bar and 50-550 bar



## 1 Description of the product

Hydro-electric pressure switches in piston design convert the pressure in hydraulic systems into electrical signals. The switching point can be continuously adjusted and locked by means of an adjusting knob within different adjusting ranges. The installed micro switch is a change-over switch which can be connected as break or make contact.

The electrical connection can be rotated by 4 x 90° with the housing.

The pressure switches are designed for industrial use with normal environmental conditions for installations with a maximum system pressure of up to 600 bar.

## 2 Validity of the documentation

This document applies to the following products:

Pressure switches of data sheet F9.732.

The following types or part numbers are concerned:

- 9730-500, -501, -502.

## 3 Target group of this document

- Specialists, fitters and set-up men of machines and installations with hydraulic expert knowledge.
- Specialists, fitters and set-up men of machines and installations with expert knowledge in electrical engineering.

### Qualification of the personnel

**Expert knowledge** means that the personnel must

- be in the position to read and completely understand technical specifications such as circuit diagrams and product-specific drawing documents,
- have expert knowledge (electric, hydraulic, pneumatic knowledge, etc.) of function and design of the corresponding components.

An **expert** is somebody who has due to its professional education and experiences sufficient knowledge and is familiar with the relevant regulations so that he

- can judge the entrusted works,
- can recognize the possible dangers,
- can take the required measures to eliminate dangers,
- knows the acknowledged standards, rules and guidelines of the technology.
- has the required knowledge for repair and mounting.

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## 4 Symbols and signal words

### **WARNING**

#### **Person damage**

Stands for a possibly dangerous situation.  
If it is not avoided, death or very severe injuries will result.

### **CAUTION**

#### **Easy injuries / property damage**

Stands for a possibly dangerous situation.  
If it is not avoided, minor injuries or material damages will result.



#### **Hazardous to the environment**

The symbol stands for important information for the proper handling with materials that are hazardous to the environment.  
Ignoring these notes can lead to heavy damages to the environment.

### **Note**

This symbol stands for tips for users or especially useful information. This is no signal word for a dangerous or harmful situation.

## 5 For your safety

### 5.1 Basic information

The operating instructions serve for information and avoidance of dangers when installing the products into the machine as well as information and references for transport, storage and maintenance.

Only in strict compliance with these operating instructions, accidents and property damages can be avoided as well as trouble-free operation of the products can be guaranteed.

Furthermore, the consideration of the operating instructions will:

- avoid injuries
- reduce down times and repair costs,
- increase the service life of the products.

### 5.2 Safety instructions

The product was manufactured in accordance with the generally accepted rules of the technology.

Observe the safety instructions and the operating instructions given in this manual, in order to avoid personal damage or material damage.

- Read these operating instructions thoroughly and completely, before you work with the product.
- Keep these operating instructions so that they are accessible to all users at any time.
- Pay attention to the current safety regulations, regulations for accident prevention and environmental protection of the country in which the product will be used.
- Use the ROEMHELD product only in perfect technical condition.
- Observe all notes on the product.
- Use only accessories and spare parts approved by the manufacturer in order to exclude danger to persons because of not suited spare parts.
- Respect the intended use.
- You only may start up the product, when it has been found that the incomplete machine or machine, in which the product shall be mounted, corresponds to the country-specific provisions, safety regulations and standards.

- Perform a risk analysis for the incomplete machine, or the machine.

Due to the interactions between the product and the machine/fixture or the environment, risks may arise that only can be determined and minimized by the user, e.g. :

- generated forces,
- generated movements,
- Influence of hydraulic and electrical control,
- etc.

## 6 Application

### 6.1 Intended use

Pressure switches are used in industrial applications:

- to switch on and off motor pumps
- to switch to unpressurised mode
- for sequence control of solenoid valves
- for pressure-dependent machine tool interlock

Furthermore the following belongs to possible uses:

- Use within the capacity indicated in the technical characteristics (see data sheet).
- Use as per operating instructions.
- Compliance with service intervals.
- Qualified and trained personnel for the corresponding activities.
- Mounting of spare parts only with the same specifications as the original part.

### 6.2 Misapplication

#### **WARNING**

#### **Injuries, material damages or malfunctions!**

Modifications can lead to weakening of the components, reduction in strength or malfunctions.

- Do not modify the product!

The use of the products is not authorised:

- For domestic use.
- For use at fairgrounds and amusement parks.
- In food processing or in areas with special hygiene regulations.
- In mines.
- In ATEX areas (in explosive and aggressive environments, e.g. explosive gases and dusts).
- If physical effects (welding currents, vibrations or others) or chemically acting media damage the seals (resistance of the seal material) or components and this can lead to functional failure or premature failure.

**Special solutions are available on request!**

## 7 Installation

### **⚠ WARNING**

#### **Injury by high-pressure injection (squirting out of hydraulic oil under high pressure)!**

Improper connection can lead to escapes of oil under high pressure at the connections.

- Mounting or dismounting of the element must only be made in depressurised mode of the hydraulic system.
- Connection of the hydraulic line as per DIN 3852/ISO 1179.
- Unused connections have to be locked professionally.
- Use all mounting holes.

#### **Injury by high-pressure injection (squirting out of hydraulic oil under high pressure)!**

Wear, damage of the seals, ageing and incorrect mounting of the seal kit by the operator can lead to escapes of oil under high pressure.

- Before using them make a visual control.

#### **Poisoning due to contact with hydraulic oil.**

Wear, damage of the seals, aging and incorrect mounting of the seal kit by the operator can lead to escapes of oil.

Incorrect connection can lead to escapes of oil at the ports.

- For handling with hydraulic oil consider the material safety data sheet.
- Wear protection equipment.

### **⚠ CAUTION**

#### **Operation with inductive loads**

For operation with inductive load, a protective circuit is to be planned.

### 7.1 Design

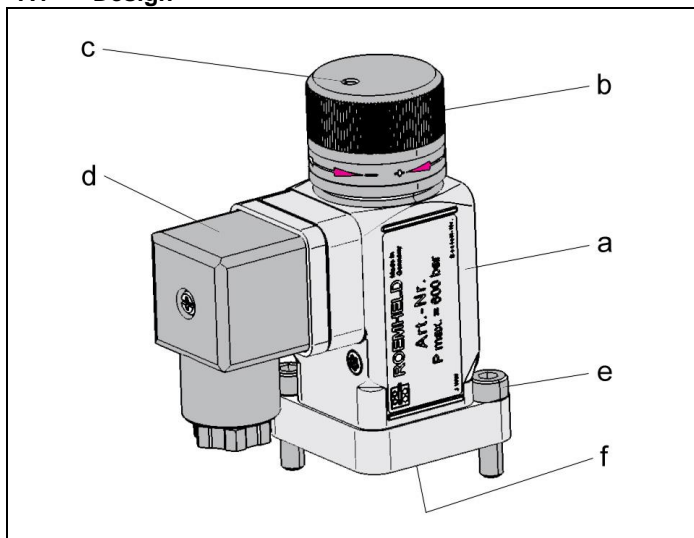


Figure 1: Components

a Pressure switch	e 2 off socket head cap screws (M5x 18 - 8.8 DIN EN ISO 4762) - diagonal
b Adjusting cap	f Flange with FKM O-ring Ø5x1.5
c Locking screw with hexagon socket SW2	
d Plug (accessory)	

### 7.1.1 Connection with adaptor plate

1. Clean the support surfaces.
2. Position pressure switch.
3. Fasten the pressure switch **diagonally** at the flange. (Tightening torque 6 Nm)
4. Connect the pipe by G1/4.

### 7.1.2 Manifold-mounting connection

1. Drill a hole for supply of the hydraulic oil (max. Ø 4 mm) and provide thread for fixation in the fixture.
2. Grind flange surface.
3. Clean the support surfaces.
4. Align and fasten the pressure switch with O-rings on the fixture. (Tightening torque 6 Nm).

## 7.2 Connection of the hydraulic equipment

### **⚠ CAUTION**

#### **Work by qualified personnel**

- Works only to be effected by authorised personnel.

1. Connect hydraulic lines to qualifying standards and pay attention to scrupulous cleanness (A = Extend, B = Retract)!

### **i NOTE**

#### **More details**

- See ROEMHELD data sheets A 0.100, F 9.300, F 9.310 and F 9.360.

#### **Screwed Plug**

- Use only fittings "screwed plug B and E" as per DIN 3852 (ISO 1179).

#### **Hydraulic connection**

- Do not use sealing tape, copper rings or coned fittings.

#### **Pressure fluids**

- Use hydraulic oil as per ROEMHELD data sheet A 0.100.

#### **Connection of the hydraulic**

Further connection data, plans or similar (e. g. hydraulic, electric circuit diagrams or electrical parameters) see enclosures!

### 7.3 Exchange against pressure switch of an older design

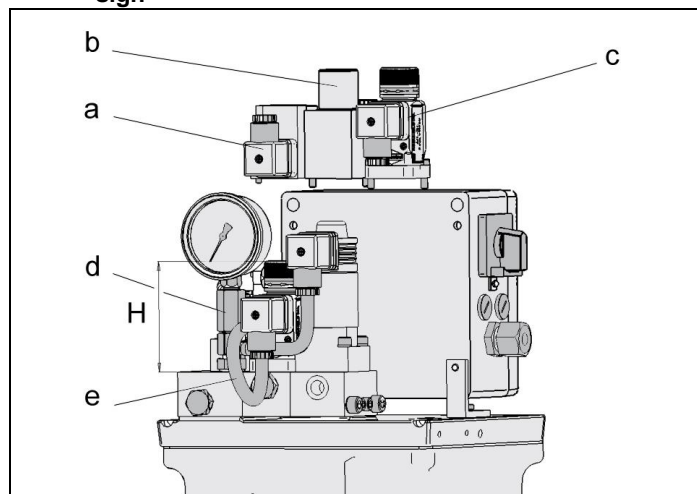


Figure 2: Components

a Pressure switch of the series F9.730	e Plug with 0.6 m cable (accessory 3141-928)
b Pressure switch of the series f9.731	h Difference in height of the pressure switches
c Pressure switch of the series f9.732	
d Pressure gauge union	

### Note

When exchanging the pressure switches, the following has to be considered because of the different heights (H) of the pressure switches and the different positions of the plug:

- **Exchange against F9.730**  
in addition, pressure gauge union and plug with cable 0.6 m.
- **Exchange against F9.731**  
in addition, plug with cable 0.6 m.

This is required for power units as per data sheet D8.011 (oil volume V=5 l).

## 8 Start up

### WARNING

#### Poisoning due to contact with hydraulic oil.

Wear, damage of the seals, aging and incorrect mounting of the seal kit by the operator can lead to escapes of oil. Incorrect connection can lead to escapes of oil at the ports.

- For handling with hydraulic oil consider the material safety data sheet.
- Wear protection equipment.

### CAUTION

#### Operating pressure of 600 bar does not exceed

The maximum operating pressure of 600 bar must not be exceeded.

The switching point adjustment of the pressure switch ex works is approx. in the centre of the pressure range.

The switching point is continuously adjustable by means of the adjusting cap and can be fixed in the desired position by a locking screw.

- Unscrew locking screw
- Increase switching pressure by screwing in the adjusting cap in the direction of arrow (+).
- Reduce switching pressure by screwing out the adjusting cap in the direction of arrow (+).
- Ensure proper operation by repeated exceeding and falling short of the switching point.
- Tighten locking screw, if required.

### Note

For more precise adjustment of the switching pressure an appropriate pressure gauge should be used.

## 9 Maintenance

Check if the hydraulic ports are tight (visual control). The pressure switch itself is maintenance free.

## 10 Trouble shooting

In case of troubles check the connections, the electrical characteristics, the operating pressure and the correct mounting.

## 11 Technical characteristics

### Adjusting ranges

Part-no.:	Pressure adjusting range [bar]:	Hysteresis:
9730-500	50...550	8 ...12 % at 500 ... 250 bar
9730-501	50...350	8 ...12 % at 300 ... 100 bar
9730-501	5...130	8 ...12 % at 100 ... 30 bar

### General characteristics

Operating fluid:	Hydraulic oil HLP22, 32 and 46 (other media - please contact us)
Fluid temperature:	max. 80°C
Fluid connection:	Manifold mounting or with connecting plate (accessory).
Environmental temperature:	-10°C to +80°C
Max. operating pressure:	600 bar
Vibration resistance:	10g (10 ... 2000Hz)
Shock resistance:	30g
Material:	Cylinder body: zinc die casting; adjusting cap: alu (powder coated)
Seals:	FKM
Mounting position:	any

### Electrical characteristics

Port:	Plug DIN 43650, form a
Switching element:	change-over switch
Max. load:	4A at 250V ACc; max 3,0 A at 28V DC; min. 5mAa
Code class (EN 60529):	IP 65

### Switching symbol / contact layout

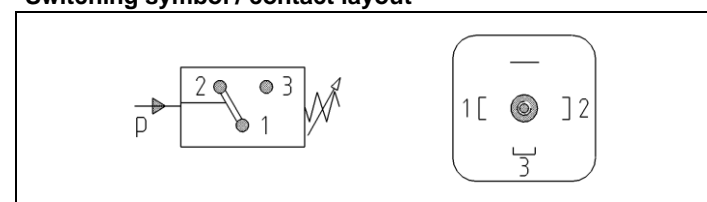


Figure 3: Switching symbol / contact layout

### Weights

Types	Weight [kg]
9730-500	0.325
9730-501	
9730-502	

### NOTE

#### Further information

- For further technical data see ROEMHELD data sheet.

## 12 Accessory

### NOTE

#### Accessories

- See data sheet.

## 13 Storage

### CAUTION

#### Damage due to incorrect storage of components

In case of improper storage, the seals can embrittle and resinification of the anti-corrosive oil or corrosion on/in the element can occur.

- Storage in the packaging and moderate environmental conditions.
- The product must not be exposed to direct sunlight, since UV light may cause serious damage to the seals.

ROEMHELD elements are tested with mineral oil. The exterior of the elements is protected against corrosion.

The residual oil film after the test procedure provides for a six-month interior protection against corrosion when stored in dry and tempered rooms.

## 14 Disposal



#### Hazardous to the environment

Due to possible environmental pollution, the individual components must be disposed only by an authorised expert company.

The individual materials have to be disposed as per the existing regulations and directives as well as the environmental conditions.

Special attention has to be drawn to the disposal of components with residual portions of hydraulic fluids. The instructions for the disposal at the material safety data sheet have to be considered.

For the disposal of electrical and electronic components (e.g. stroke measuring systems, proximity switches, etc.) country-specific legal regulations and specifications have to be kept.

## 15 Declaration of conformity



### Manufacturer

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If the product is modified and not approved by us, this declaration will become invalid.

*i. A. Eugen Rot*

Eugen Rot  
Team leader and Product Manager Hydraulic Power Units

**Römheld GmbH**  
**Friedrichshütte**

Laubach, 22.05.2025

### Responsible person for the documentation:

Dipl.-Ing. (FH) Jürgen Niesner, Tel.: +49(0)6405 89-0.

This declaration of conformity applies to the following products:

Pressure switches of data sheet F9.732.

The following types or part numbers are concerned:

- 9730-500, -501, -502.

We herewith declare that the products described comply with the basic safety and health requirements of the aforementioned EU directives in their design and construction, as well as in the version marketed by us.

The following additional EU directives were applied:

- **2014/68/EU**, Directive for pressure devices
- **2014/35/EU**, Low voltage
- **2011/65/EU**, RoHS

The following harmonised standards have been applied:

**DIN EN 60947-1**; Low-voltage switchgear and controlgear -  
Part 1: General rules

**DIN EN 60947-1**; Low-voltage switchgear and controlgear -  
Part 5-1: Control circuit devices and switching elements -  
Electromechanical control circuit devices

### EN IEC 63000: 2018

Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

The technical documents according to the specified guidelines were created for the products.

The manufacturer obligates to provide the special documentation of the products to national authorities on demand.

## 16 Declaration of conformity



### Importer

Roemheld (UK) Limited  
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www.roemheld.co.uk

If the product is modified and not approved by us, this declaration will become invalid.

SG4 0TY Hitchin, 22.05.2025



Darren Rowell  
Managing Director,

**Roemheld UK Ltd**

### Authorised person to compile the technical documentation:

Darren Rowell, 28 Knowl Piece, Wilbury Way, SG4 0TY Hitchin.

This declaration of conformity applies to the following products:

Pressure switches of data sheet F9.732.

The following types or part numbers are concerned:

- 9730-500, -501, -502.

We hereby declare that the machine described in its design and construction as well as in the version we have placed on the market complies with the essential health and safety requirements according to the following UKCA directives.

The following additional UKCA directives were applied:

- **2016, 2016 No. 1105**, Pressure Equipment (Safety) Regulations
- **2016, 2016 No. 1101**, Electrical Equipment (Safety) Regulations
- **2012 No. 3032**, RoHS Regulations

The following harmonised standards have been applied:

**DIN EN 60947-1**; Low-voltage switchgear and controlgear -  
Part 1: General rules

**DIN EN 60947-1**; Low-voltage switchgear and controlgear -  
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