Pressure switches type MAP
with fixed switching pressure differential and microswitch with gold plated contacts

MAP are hydro-electric pressure switches with fixed switching pressure differential. The mechanical microswitch with gold plated contacts grants high reliability and long life service.

The microswitch changes its status when the pressure in the hydraulic circuit reaches the switching value set on the adjusting knob. The microswitch returns to the original rest position when the pressure in the hydraulic circuit drops below the nominal fixed switching pressure differential (hysteresis). The electric connector provides both NC or NO contacts.

The pressure in the circuit operates the piston/L54706 acting against the adjustable spring/L54707; once the pressure setting is reached, the piston/L54711 actuates the microswitch/L54708.

The pressure switching value is selectable by a graduated adjusting knob/L54709. Clockwise rotation increases the setting pressure.

Max pressure: 630 bar

### MODEL CODE

<table>
<thead>
<tr>
<th>MAP</th>
<th>160 <strong>E</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed differential pressure switch</td>
<td></td>
</tr>
<tr>
<td>Pressure range:</td>
<td></td>
</tr>
<tr>
<td>40 = 5 + 40 bar</td>
<td>160 = 10 + 160 bar</td>
</tr>
<tr>
<td>80 = 7 + 80 bar</td>
<td>320 = 30 + 320 bar</td>
</tr>
<tr>
<td>630 = 50 + 630 bar</td>
<td></td>
</tr>
<tr>
<td>Options:</td>
<td></td>
</tr>
<tr>
<td>E = Common electric contact connected to pin 1, see section 3</td>
<td></td>
</tr>
</tbody>
</table>

### MAIN CHARACTERISTICS, SEALS AND HYDRAULIC FLUID

- for other fluids not included in below table, consult our technical office

Assembly position / location:
Any position

Subplate surface finishing:
Roughness index Ra 0.4 - flatness ratio 0.01/100 (ISO 1101)

Compliance:
CE to Low Voltage Directive 2014/35/EU
RoHS Directive 2011/65/EU as last update by 2015/65/EU
REACH Regulation (EC) n°1907/2006

Ambient temperature:
Standard = -30°C + 70°C /PE option = -20°C + 70°C /BT option = -40°C + 70°C

Seals, recommended fluid temperature:
NBR seals (standard) = -20°C + 60°C, with HFC hydraulic fluids = -20°C + 50°C
FKM seals (PE option) = -20°C + 80°C
HNBR seals (BT option) = -40°C + 60°C, with HFC hydraulic fluids = -40°C + 50°C

Recommended viscosity:
15 ÷ 100 mm²/s - max allowed range 2.8 ÷ 500 mm²/s

Fluid contamination class:
ISO 4406 class 21/19/16 NAS 1638 class 10, in line filters of 25 μm (β25 ≥ 75 recommended)

Fluids:
Mineral oil:
NBR, FKM, HNBR

Hydraulic fluid:
HL, HLP, HLPD, HVLP, HVLPD

Seals:
DIN 51524
ISO 12922

Seals material, see section 2:
- NBR
- FKM
- HNBR

### CHARACTERISTICS AND WIRING OF INTERNAL MICROSWITCH

<table>
<thead>
<tr>
<th>Supply voltage [V]</th>
<th>125 AC</th>
<th>250 AC</th>
<th>30 DC</th>
<th>250 DC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max current resisting load [A]</td>
<td>7</td>
<td>5</td>
<td>5</td>
<td>0.2</td>
</tr>
<tr>
<td>Max current inductive load (Cos ϕ = 0.4) [A]</td>
<td>4</td>
<td>2</td>
<td>3</td>
<td>0.02</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Contact resistance [MΩ]</th>
<th>≤0.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical life-expectancy</td>
<td>≥1,000,000 switchings</td>
</tr>
<tr>
<td>Mechanical life-expectancy</td>
<td>≥10,000,000 switchings</td>
</tr>
</tbody>
</table>

Rest position
Pressure operated position
4 DIAGRAMS

The diagrams show the switching pressure difference (hysteresis) between the switching positions of the pressure switch electric contacts.

The switching pressure differential may increased depending to the deterioration of the fluid contamination class.

5 DIMENSIONS OF MAP WITHOUT ADAPTORS [mm]

Fastening bolts:
4 socket head screws M5x90 supplied with the pressure switch

6 MODEL CODE FOR ADAPTORS WHEN SUPPLIED SEPARATELY - BHM and BKM with option /PE or /BT are available on request

Type of adaptor
BMM = male
BMF = female
BHM = in-line
BKM = ISO 4401 size 06
BHM = ISO 4401 size 10

Threated connections for BMM and BMF adaptors, see section 7

BHM and BKM adaptors, see section 7

06 = G 1/4” (BMM, BMF, BFM)
10 = G 3/8” (BMM, BMF)
15 = G 1/2” (BMM, BMF)
20 = G 3/4” (BFM)
25 = G 1” (BFM)
32 = G 1 1/4” (BFM)

11 = port P
12 = port A and B
13 = port A
14 = port B
17 = port P and A
18 = port P and B

7 DIMENSIONS OF ADAPTORS [mm]

BMM - Male fittings:

BMF - Female fittings:

BHM - Modular mounting surface ISO 4401-03-02-0-05

For versions 11 and 13 the pressure switch is mounted on side of port A. For version 14 the pressure switch is mounted on side of port B. For versions 12, 17, 18 the pressure switch is mounted on both sides.