OLI
Oil level indicator
Unexpected or accidental oil leakages may occur randomly along transformer’s lifetime. Clear indication of oil level inside transformer tank and on load tap changer is provided by means of a pointer on the main dial which ensures high visibility from any viewpoint.

Accurate oil level reading through customizable fixing flange suitable for all transformers design.

The float movement associated with the oil level is transmitted to the dial through a magnetic coupling system. The float is available with either axial or radial movement. The standard dial shows the reference marks corresponding to the levels that the oil shows should reach at the following temperatures: -20°C, +20°C, +85°C.
Advantages
1. Customizable mounting flange suitable for all transformers designs
2. Magnetic couplings ensures a reliable movement transmission between float arm and pointer avoiding leakages through conservator wall
3. Adjustable value settings for switches (numbers or wording)
4. No printings neither stickers on the view glass: temperature indication is directly marked on the plate behind the view glass
5. Easy accessibility to wiring box
6. Float movement on radial and axial direction, available also for conservator equipped with rubber bag.

Float movement
This may be in the radial direction of the conservator (type “LA”) or in the axial direction (type “LB”), as shown in the drawing. “LB” model is also available with “rolling floats” for applications on conservators equipped with rubber bag.

Float rod
This is completely threaded. If the length is not specified (distance R in the drawing, fig. 1 and 2), the standard size indicated on the table is supplied. The rolling float arm is an aluminium tube.

Indicating intervention
The switching point of electric microswitches is setted with max 5° in advance with respect to the indications of the minimum or maximum. When there is a double contact on MIN and/or MAX, the second contact intervenes about 5° after the first contact.

Indications for assembly
The level gauges which have float movement in the radial direction of the container (type “LA”) must be fitted offset with respect to the horizontal axis of the conservator (distance “S”, fig. 1) so as to have an exact indication of the minimum and maximum oil level.
Those with movement in the axial direction (type “LB”) must be fitted in the centre of the conservator.
The measurements of the movements (distance “S”) and the length of the rod (distance “R”) are obtained from the formulae given in the order sheet.
It is good practice to check operation of the gauge after having fitted it on the conservator. For further and more detailed information, see the technical information card supplied.

Tests and inspections
The level gauges are subjected to insulation test towards earth as follows between circuit and earth, the minimum dielectric withstand strength is 2kV in accordance to EN - 50216/1.
The bodies of the level gauges, after having passed the dimensional inspection and without their internal parts, are tested for watertightness so as to eliminate those that have leaks. Final testing is carried out when the level gauge is completely assembled. The sensitivity of all the signaling movements and the accuracy of their assembly are scrupulously checked.
Oil level indicator

Technical data

<table>
<thead>
<tr>
<th>Type</th>
<th>L140</th>
<th>OLI -22</th>
<th>OLI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design</td>
<td>COMEM</td>
<td>Interchangeable with existing solution, compatible with all trafo design</td>
<td></td>
</tr>
<tr>
<td>Housing</td>
<td>Die-casted Aluminum alloy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RAL</td>
<td>White 9002</td>
<td></td>
<td></td>
</tr>
<tr>
<td>View glass</td>
<td>Polycarbonate or Tempered Glass</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flange</td>
<td>N/A</td>
<td>Surface treated die-casted aluminum alloy</td>
<td></td>
</tr>
<tr>
<td>Dial</td>
<td>- Numbers and letters directly screen-printed on aluminum plate &lt;br&gt; - Customizable range (MIN +20° C MAX, other available) &lt;br&gt; - Orange pointer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Float Element</td>
<td>Expanded ebonite</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oil temperature</td>
<td>-40°C, +120°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environment temperature</td>
<td>-40°C, +80°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cable Gland</td>
<td>1; M25x1.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP65</td>
<td>IP66 upon request</td>
<td></td>
</tr>
</tbody>
</table>

Identification codes

1 (letter) | L | Level gauge |
2 (letter) | A | Movement of the radial float <br> B | Movement of the axial float <br> V | Viewer (remote indicator) |
3 (number) | 40 | L140 C4 salinity environment resistance <br> 50 | L140 C5 salinity environment resistance <br> 44 | OLI C4 salinity environment resistance <br> 54 | OLI C5 salinity environment resistance <br> 45 | OLI-22 C4 salinity environment resistance <br> 55 | OLI-22 C5 salinity environment resistance <br> 46 | eOLI C4 salinity environment resistance <br> 56 | eOLI C5 salinity environment resistance <br> 47 | eOLI-22 C4 salinity environment resistance <br> 57 | eOLI-22 C5 salinity environment resistance |
4 (letter) | K | Wiring diagram with 1 changeover switch on min. <br> Y | Wiring diagram with 2 changeover switch on min. <br> X | Wiring diagram with 1 changeover switch on min. + 1 changeover switch on max. <br> W | Wiring diagram with 2 changeover switches on min. + 2 changeover switches on max. <br> O | No contacts |
Overall dimension

Oil Level Indicator – L140

LA Type (Radial)

LB Type (Axial)

Fig. 1
Oil Level Indicator – OLI / OLI-22

Overall dimension

This device must be coupled with the flanges shown below
Flanges Type “LA”

OLI: ‘4 holes’ flange

OLI-22: ‘8 holes’ flange

Fig. 3
Overall dimension

Flanges Type "LB"

OLI: '4 holes' flange

OLI-22: '8 holes' flange

Fig. 4
\[ R = \left( \frac{\text{ØDC}}{2} - 20 \right) \times 1.15 \]

\[ S = \left( \frac{\text{ØDC}}{0.86} \times 40 \right) \times 0.577 \]

\( \text{ØDC} = \text{Conservator tank diameter} \)

Fig. 5
Wiring diagrams

Diagram type “K”
- CHANGEOVER SWITCH ON MIN (terminals 12-11-14)
  NC contact: terminals 12-11; NO contact: terminals 11-14

Diagram type “Y”
- CHANGEOVER SWITCH ON MIN (terminals 12-11-14)
  NC contact: terminals 12-11; NO contact: terminals 11-14
- CHANGEOVER SWITCH ON MIN (terminals 22-21-24)
  NC contact: terminals 22-21; NO contact: terminals 21-24

Diagram type “X”
- CHANGEOVER SWITCH ON MIN (terminals 12-11-14)
  NC contact: terminals 12-11; NO contact: terminals 11-14
- CHANGEOVER SWITCH ON MAX (terminals 32-31-34)
  NC contact: terminals 32-31; NO contact: terminals 31-34

Diagram type “W”
- CHANGEOVER SWITCH ON MIN (terminals 12-11-14)
  NC contact: terminals 12-11; NO contact: terminals 11-14
- CHANGEOVER SWITCH ON MIN (terminals 22-21-24)
  NC contact: terminals 22-21; NO contact: terminals 21-24
- CHANGEOVER SWITCH ON MAX (terminals 32-31-34)
  NC contact: terminals 32-31; NO contact: terminals 31-34
- CHANGEOVER SWITCH ON MAX (terminals 42-41-44)
  NC contact: terminals 42-41; NO contact: terminals 41-44

Electrical characteristics

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Uninterrupted current (making capacity)</th>
<th>Interrupted current (breaking capacity)</th>
</tr>
</thead>
<tbody>
<tr>
<td>24V DC to 220V DC</td>
<td>2A</td>
<td>100mA, L/R &lt; 40</td>
</tr>
<tr>
<td>230V AC</td>
<td>2A</td>
<td>2A, cosφ &gt; 0.5</td>
</tr>
</tbody>
</table>

Other values may be agreed between purchaser and supplier.
The minimum contact life shall be 1,000 operations.
Only in case that the devise has to operate in a system at 24V DC and making capacity up to 0.5VA, the switches shall be able to make a low current down to 10mA even after one year of non-operation.
<table>
<thead>
<tr>
<th>Number of pieces</th>
<th>Radial float</th>
<th>Axial float</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil level indicator movement</td>
<td>Dial 140 mm</td>
<td>L140</td>
</tr>
<tr>
<td>Type</td>
<td>Dial 220 mm</td>
<td>OLI with 4 holes flange</td>
</tr>
<tr>
<td>Wiring diagram</td>
<td>K</td>
<td>Y</td>
</tr>
<tr>
<td>Environmental protection:</td>
<td>Moderate salinity areas acc. to ISO 12944</td>
<td></td>
</tr>
<tr>
<td>Lens type</td>
<td>Tempered glass</td>
<td>Polycarbonate</td>
</tr>
<tr>
<td>Gaskets type</td>
<td>Viton</td>
<td>NBR -40°C</td>
</tr>
<tr>
<td>Cable gland</td>
<td>M25x1,5</td>
<td>Other</td>
</tr>
<tr>
<td>Oil level indicator movement</td>
<td>Standard (-20°C +20°C + 85°C)</td>
<td>Special (Please fill up the special order sheet)</td>
</tr>
</tbody>
</table>

* Further technical data might be required by our sales specialist in case of order.