Position indicating system for remote indication of tap-changer position

The indicator is a moving-coil instrument, which is available with quadrant scale or ring scale. It is fed by a measuring transducer. The indicator is suitable for series connection of more instruments, and it is controlled by a potentiometer in the motor-drive.

Technical data

<table>
<thead>
<tr>
<th>Component</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position transmitter</td>
<td>The position transmitter is included in the motor-drive. Potentiometer type, 10 / 50 / 100 or 1000 Ω/step.</td>
</tr>
<tr>
<td>Measuring transducer</td>
<td>The measuring transducer is normally mounted in the motor drive, but it can also be placed in the control room. Type: ACT20P-PRO-RTC1-AO-DO-S, 24 – 230 V AC/DC ±15 %</td>
</tr>
<tr>
<td>Output: Current</td>
<td>Predefined: 0 – 1 mA, 0 – 5 mA, 0 – 10 mA, 0 – 20 mA, 4 – 20 mA +/-1 mA, +/-10 mA, +/-20 mA For a digital position indicator: 4 – 20 mA Other: Manually set output range low between -21 – 20 mA and output range high between -20 – 21 mA</td>
</tr>
<tr>
<td>Voltage</td>
<td>Predefined: 0- 5 V, 0-10 V, +/-5 V, +/-10 V, 1-5 V, 2-10 V Other: Manually set output range low between -10.5 – 9.5 V and the output range high between -9.5 – 10.5 V Input: Resistor: 0-15 kΩ Potentiometer: 10-150 kΩ</td>
</tr>
<tr>
<td>Position indicator</td>
<td>Moving-coil instrument Input: see Measuring transducer Black frame Size 96 x 96 mm or 144x144 mm Further data on request.</td>
</tr>
</tbody>
</table>
Ordering table
To ensure correct delivery, following information must be given:

Measuring transducer
• Number of positions
• Desired supply voltage
• Desired output

Position indicator
• Number of positions and type of marking
• Language

Adjustment of measuring transducer
The measuring transducer is set at the factory. If reprogramming is needed, see simplified scheme in Fig. 06. A complete programming scheme can be downloaded from Weidmüller webpage.

Adjustment of remote position indicator (for on-load tap-changer)
The measuring transducer, which feeds the position indicator, is located in the motor-drive mechanism and is checked and calibrated at the tap-changer factory. Once connected to the position indicator at site, the transducer might require some adjustment.
1. Operate the tap-changer to its max. position.
2. Check that the position indicator now shows the same position. If not take notice of how much the pointer is displaced.
3. Operate the tap-changer to its min. position.
4. Check that the position indicator also shows the min. position. If not take notice of how much the pointer is displaced.
5. If the pointer is displaced in either the min. or max. position some programming is needed to correct that displacement. See note 4 in the programming instructions (Fig. 06).
Programming instructions

ACTI | Set active output
AL  | Set alarm
AO  | Set analog output
AOHI | Set analog output range high
AOLO | Set analog output range low
CURR | Set current output mode
CVTI | Set conversation time
IN  | Set input
INFS | Input failure signaling
INHI | Set input range high
INLO | Set input range low
INRG | Set input range
LIN | Linear
POTI | Set potentiometer input
REV | Set reverse mode
SPEC | Customer specific range
SPW | Set password
TRF | Set transfer function
TRIM | Enable output trim
TRHI | Set trim high value in %
TRLO | Set trim low value in %
UNIT | Input unit
VOLT | Set voltage output mode

For abbreviation and scale version explanations see the next page!

*1) “50m” conversion time is only available for resistance =< 4kΩ and POTI range =< 4kΩ. Otherwise use “300m”.
*2) If scale version 1 is used press [OK] and select the desired output value in the AOLO and AOHI menu. If scale version 2 is used press [UP] or [DOWN] key to select the desired output value then press [OK].
*3) INFS menu will only display when “4-20 mA”, “2-10 V” or “1-5 V” is selected as the input range. Otherwise AL menu will display.
*4) After setup is complete check if the pointer on the analog scale is at the correct position. If it is then you are finished. If the pointer is displaced it needs to be corrected.

If scale version 2 is used the TRIM menu can correct the displacement. Follow the TRIM instructions.

If scale version 1 is used the AOLO and AOHI menu can correct the displacement. Use these menus to change the output value. In order to access these you need to start from the beginning by pressing [OK].

*5) Select value that adjust the displaced pointer to the correct position on the scale. This adjustment happens instantly.
Scale version 1
The starting position of the pointer is located below the first position. It requires the functions AOLO and AOHI for adjusting the displacement of the pointer.

Scale version 2
The starting position of the pointer is located at the first position. Only requires the function TRIM for adjusting the displacement.