



AUTOMATION 2000

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TECHNICAL INSTRUCTIONS

PR1 & PR2



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1- INTRODUCTION

Equipped with a pressure switch with 1 or 2 contacts, PR1 and PR2 have been designed to monitor tank pressure of electrical transformers.



2- TECHNICAL DATA

2.1 Housing

- Housing in composite
- Ratings: IP 56, IK 07*
- Housing cover in composite with 4 screws that can be sealed by lead
- Ratings: IP 56, IK 07*
- Wiring output through M20 stuffing box with anchor
- Tighten capacity: 7,5-13 mm*
- Wiring through terminal block
- Tighten capacity: 2,5 mm² (6 terminals)*

2.2 Pressure switch

- Action through metallic bellows and counterspring
- PR1: 1 adjustable contact*
- PR2: 2 adjustable contacts simultaneously or with an offset (50 mbar maximum)*
- Change-over contacts
- Set-point that can be sealed by lead
- Setting scale: 0-500 mbar (0-700 mbar on request)
- Setting accuracy: ± 10 mbar
- Measure accuracy: $\pm 10\%$ (± 50 mbar)
- Response time: < 10 milliseconds

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2.3 Fitting

- M22 x 1.5 male thread (fine-pitch) in nickel plated brass at the base of the housing, with O-ring type seal
- (As an option) Flange in composite at the base of the housing to be installed on a 60 mm opening (Viton seal and fixing hooks supplied)
Flange diameter : 85 mm

2.4 Operating conditions

- Ambient temperature: -30°C à 65°C
- Dielectric temperature: $\leq 140^{\circ}\text{C}$

2.5 Breaking capacity

Current	Resistive load <i>L/R < 40 ms</i>	Inductive load
12 VDC	2 A	2 A
30 VDC	4 A	2 A
110 VDC	0.5 A	2 A
220 VDC	0.2 A	2 A
250 VAC <i>50/60 Hz - cos φ 0.5</i>	6 A	2 A



3- INSTALLATION

3.1 Preamble

The following installation procedure is given for information only. Automation 2000 cannot be held responsible for its execution.

3.2 Installation precautions

Before installing PR1 or PR2, make sure that:

- Transformer is not powered.
- Transformer dielectric is at ambient temperature (approx. 20°C).
- Transformer opening on which PR1 or PR2 will be installed is opened.

3.3 Hermetically sealed transformer installation procedure

PR1 or PR2 with M22 fitting

- Mount PR1 or PR2 on the fitting designed for that purpose.

PR1 or PR2 with flange

- Fit the flat Viton seal (supplied) in the PR1 or PR2 flange throat.
- Mount PR1 or PR2 on the transformer opening.
- Attach the 3 or 4 fixing hooks supplied according to the tightening precautions below.

TIGHTENING PRECAUTIONS

When you tighten the HM8 nuts on the fixing hooks, make sure that:

- ⇒ The tighten coupling is not higher than 3 m.kg (30 N.m).
- ⇒ The flange DOES NOT TOUCH the transformer cover (the flat Viton seal should stay visible - approx. 1 or 2 mm).
- ⇒ The fixing hooks are tightened one after the other, clockwise in two steps. During the first step, use a loose tighten coupling on all fixing hooks. During the second step, use a tighten coupling not higher than 3 m.kg (30 N.m).

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4- ELECTRICAL OPERATION

4.1 Preamble

All PR1 and PR2 come with change-over contacts, with a Normally Opened contact, a Normally Closed contact and a Common point.

In the following diagrams, contacts are shown unpowered (dead), meaning not under the influence of any defect.

4.2 Operating diagram

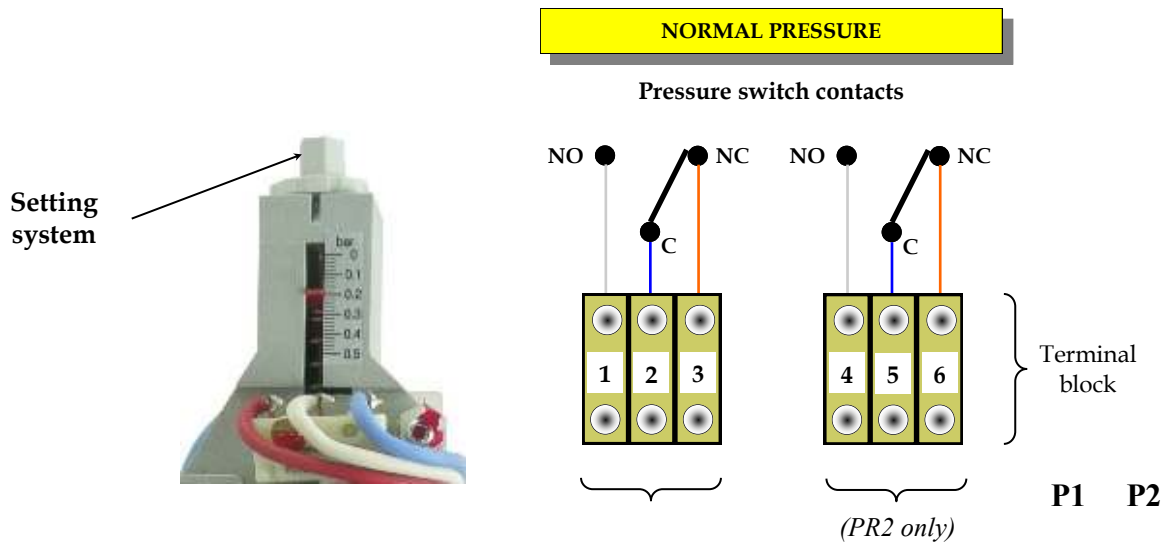
Pressure elevation is due to:

- an electrical defect inside the transformer tank causing a localized heating;
- an intensive transformer use (overcharge).

Pressure is monitored by a pressure switch with metallic bellows and counterspring with an adjustable set-point.

When the pressure reaches the set-point value, the pressure switch contact closes.

Pressure set-point is defined by the transformer manufacturer.



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5- TESTS

5.1 Precautions

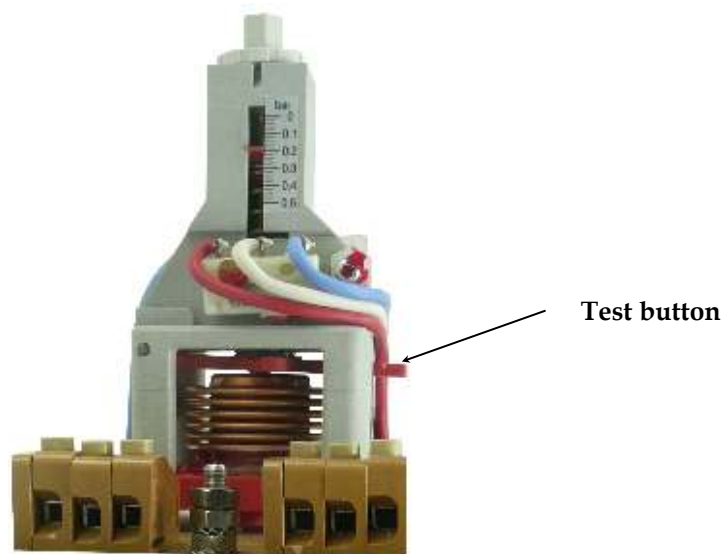
Before carrying out the tests, make sure:

- That the transformer is not powered.
- To carefully check the wiring system.
- That the electric interlocking system is powered so that the loops can be tested up to the final element (e.g. LED for alarm function, actuators for trigger function)

5.2 Pressure

Element concerned: pressure switch

- Pull upward the red test button located on the side of the pressure switch.
- The contact changes position.
- Check that the loop is operating correctly, then release the red test button.



WARNING

When you make tests by shunting the terminals, you are testing the cable and not the device.

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6- SPATIAL REQUIREMENT

6.1 PR without flange



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6.2 PR with flange



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