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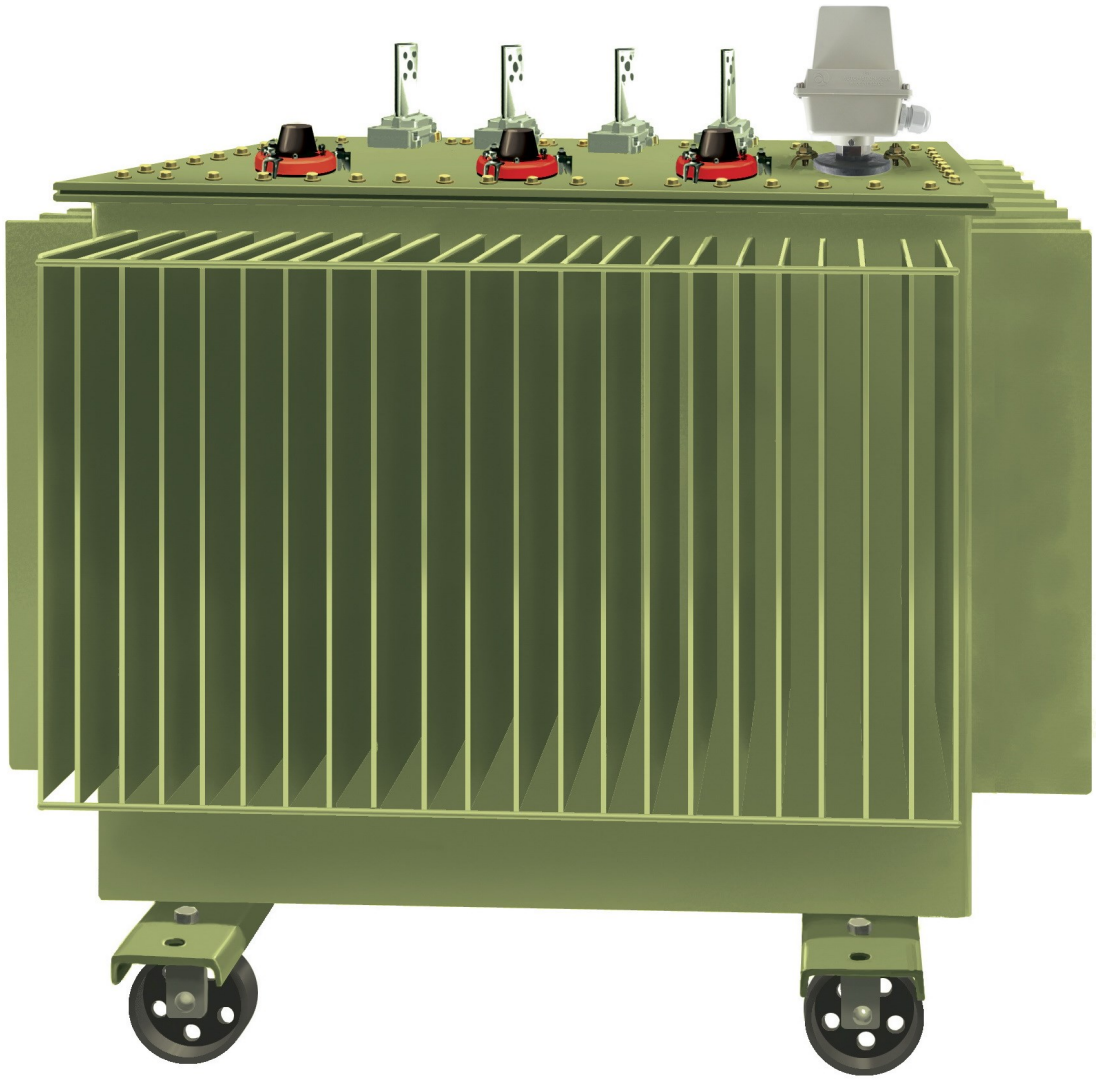
# TECHNICAL INSTRUCTIONS
# PR1 & PR2



# 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: ±10% (±50 mbar)
- Response time: < 10 milliseconds

## 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: ≤ 140°C

## 2.5 Breaking capacity

| **Current** | **Resistive load** *L/R < 40 ms* | **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 *50/60 Hz – cos φ 0.5* | 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).

# 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.

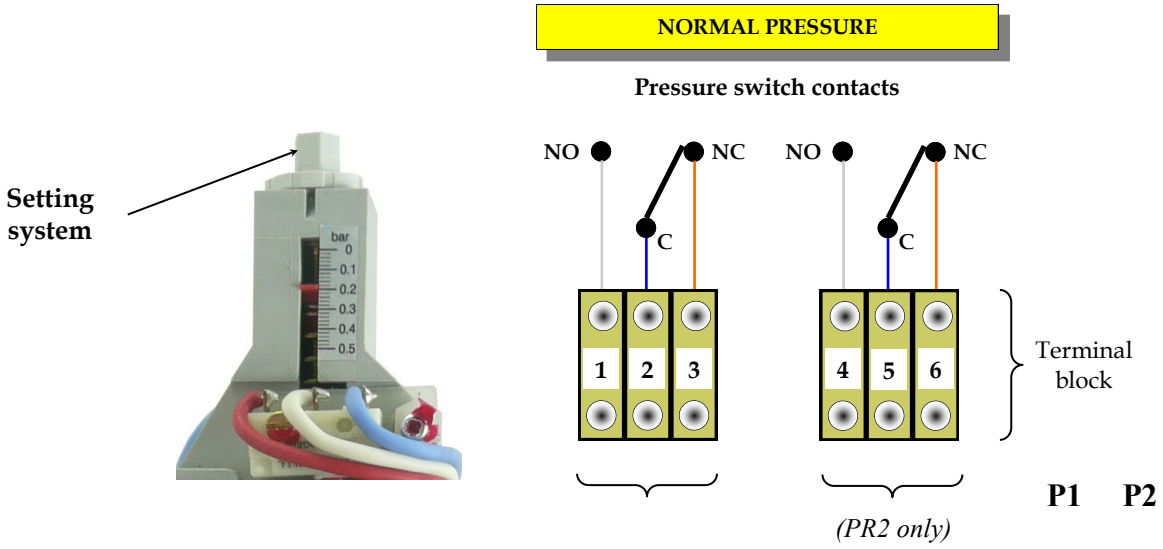
## 4.2 Operating diagram

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.



# 5– TESTS

## 5.1 Precautions

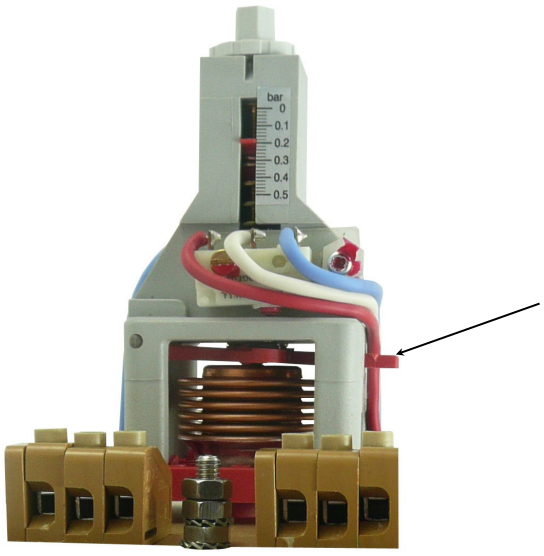
*Before carrying out the tests, make sure:*

- 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.

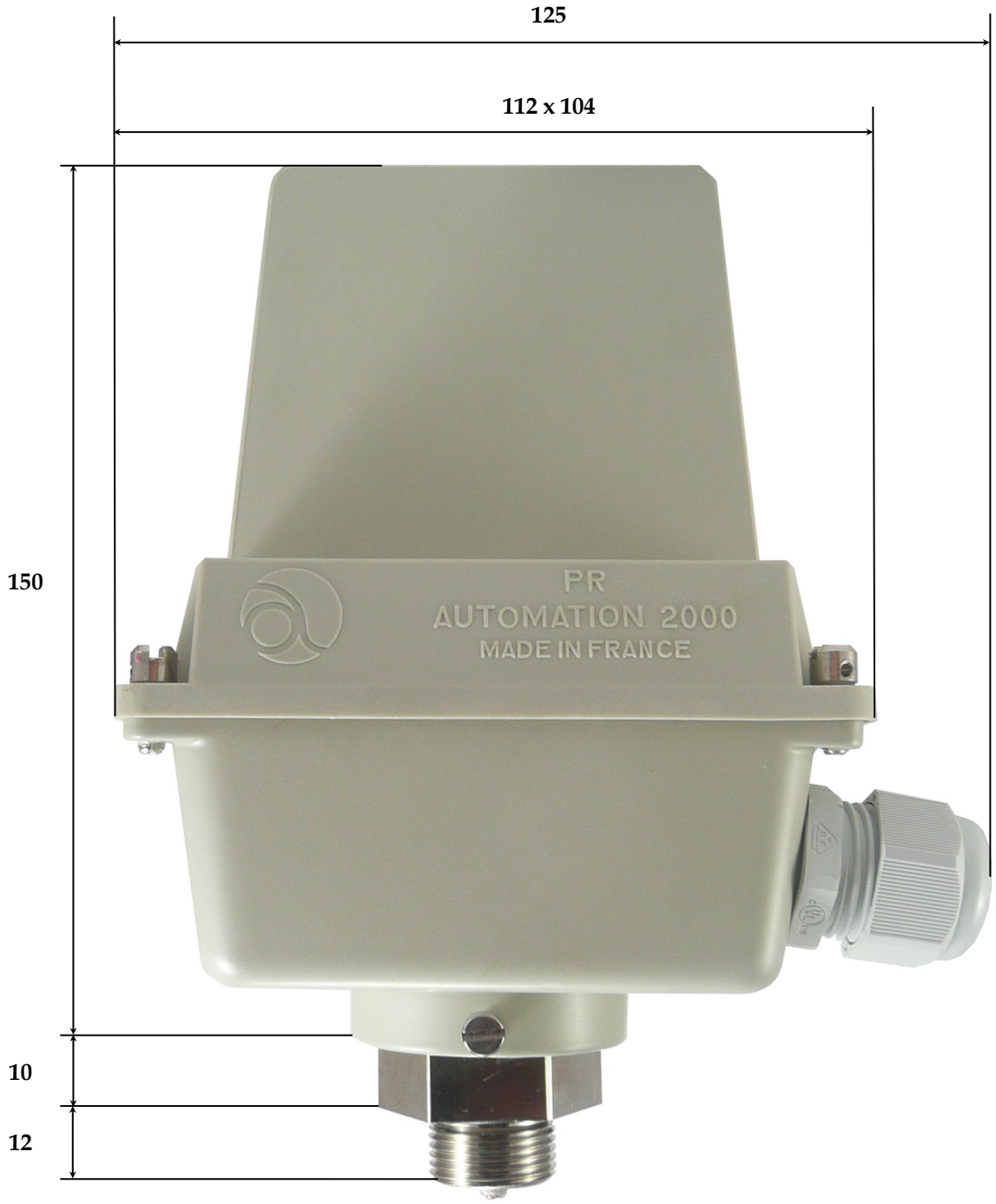



**WARNING**

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

# 6– SPATIAL REQUIREMENT

## 6.1 PR without flange



## 6.2 PR with flange