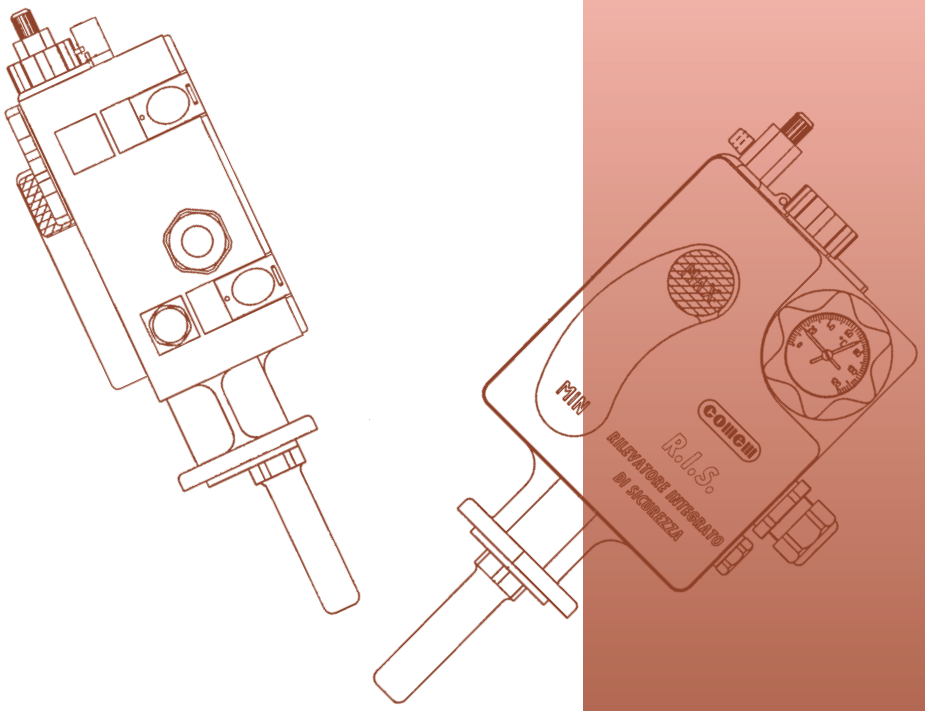



# R.I.S.®

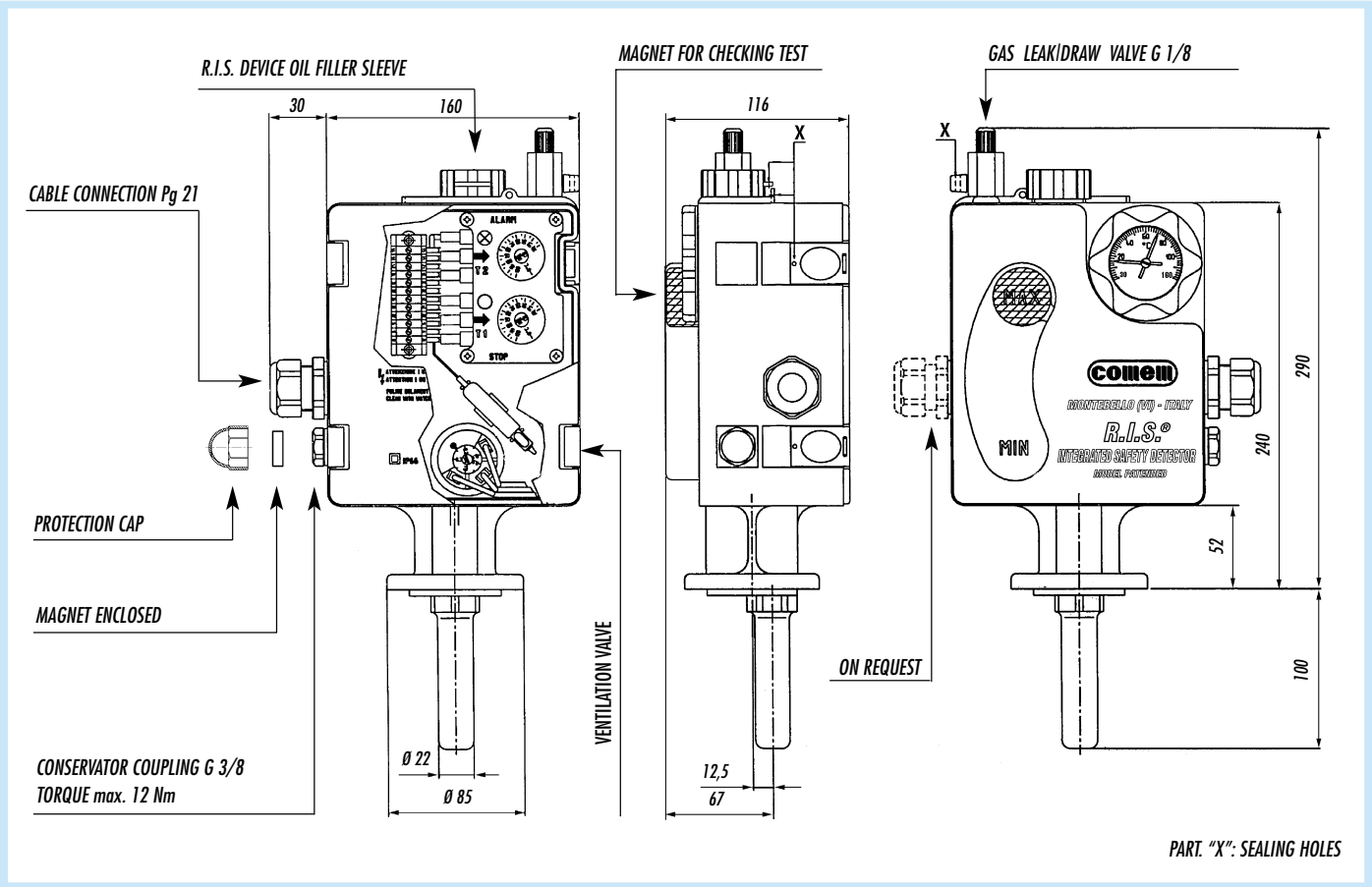
## INTEGRATED SAFETY DETECTOR

comem®

# R.I.S.® INTEGRATED SAFETY DETECTOR


MODEL PATENDED

R.I.S.® (Integrated Safety Detector) was conceived from the need to integrate the functions performed by a number of transformer accessories in a single, compact and reliable instrument, which was capable of replacing their applications, as well as guaranteeing numerous advantages ranging from an economic to functional-aesthetic viewpoint.




It is composed of a robust plastic body, watertight and resistant to extreme climates, that houses a series of instruments and keeps under constant control the following operating conditions of the transformer:

## R.I.S.® INTEGRATED SAFETY DETECTOR

- **PRESSURE**
  - PRESSURE SWITCH closes/opens a circuit on pressure ranging (from 100 up to 500 mbar)
- **TEMPERATURE**
  - THERMOMETER visual representation of oil temperature and max. temperature reached
  - "T2" THERMOSTAT SWITCH (alarm) closes/opens a circuit at a predetermined temperature level (from 30 °C up to 120 °C)
  - "T1" THERMOSTAT SWITCH (stop) closes/opens a circuit at a predetermined temperature level (from 30 °C up to 120 °C)
- **OIL LEVEL**
  - INDICATOR visual indicator of slight oil level variation
  - DETECTOR visual detector of significant oil level variation through closing/opening of an electric circuit
- **GASSING**
  - DETECTOR closes/opens a circuit when the max. gas volume is reached (max. 170 cm³)

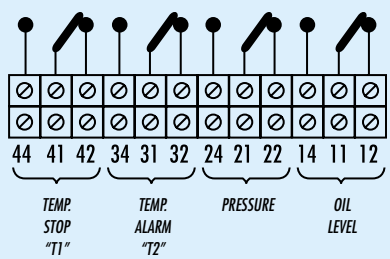
| DESCRIPTION AND FUNCTIONS | MEASURE VALUE | CHECKING TEST |
|---|---|---|
| ***OIL LEVEL*** *(Float)*<br>*The device indicates any gas evolvement or oil level variation.*<br>*-Slight oil level variation or any insignificant gas evolvement is denoted by the float position between "MIN" & "MAX" on the display.*<br>*-At major oil variation level or gas evolvement the float stops at "MIN" and opens/closes the alarm circuit.*<br>*-Any accumulated gas can be drawn off by the cock provided.* | *max 170 cm³* | *Locate the magnet close to the float (between MAX and MIN). Drawn it downwards until it reaches "MIN". To reset the float to its correct position draw the magnet upwards and detach.* |
| ***PRESSURE*** *(Pressure switch)*<br>*This feature measures the internal pressure of transformer. The normal level is set according to the transformer manufacturer's instructions. When pressure exeeds a pre set level the alarm circuit is triggered via a N/O or N/C switch.* | *100 ÷ 500 mbar* | *With the internal pressure at least 100 mbar set the adjusting knob of the pressure switch to minimum.* |
| ***TEMPERATURE****:*<br>*"T2" THERMOSTAT SWITCH (ALARM)*<br>*The feature measures the internal oil temperature of the transformers. The normal operating value is set according to the transformer manufacturers instructions. At a pre set temperature on alarm circuit is triggered via a N/O or N/C switch (T2).* | *30 ÷ 120 °C* | Open the rear cover using both hands, do not lever at one side only.<br>*The adjustement knob of the alarm switch "T2" should be set to zero.* |
| *"T1" THERMOSTAT SWITCH (STOP)*<br>*The feature measures the internal oil temperature of the transformers. The normal operating value is set according to the transformer manufacturers instructions. At a pre set temperature on stop circuit is triggered via a N/O or N/C switch (T1).* | *30 ÷ 120 °C* | *The adjustement knob of the stop switch "T1" should be set to zero.* |
| *THERMOMETER*<br>*The device measures the internal temperature of the transformer, which shall be visualized outside the device through the protection window.*<br>*The thermometer is equipped with a zero re-setting pointer.* | *30 ÷ 160 °C* | *The protection window is to be unscrewed so that the pointer shall be set to zero.* |

## GENERAL FEATURES

| | |
|---|---|
| *DEGREE OF PROTECTION (EN 60529)* | ***IP 66*** |
| *DEGREE OF SHOCK TIGHTNESS (EN50102)* | ***IK 07*** |
| *SALT-FOGTIGHT* | ***1000 h*** |
| *UV-RAY RESISTANCE (UNI-ISO 4892 / UNI-ISO 4582)* | ***500 h*** |
| *TEMPERATURE RESISTANCE* | ***-40 °C ÷ +120 °C*** |
| *CABLE CONNECTION (WIRE Ø 13 mm UNTILL Ø 18 mm)* | ***Pg 21*** |
| *CABLE BOX (EN 50005 / EN 60947-7-1 / IEC 947-7-1)* | ***ACCORDING TO STANDARD*** |
| *WIRE SECTION TO BE USED ON CLAMP BOX* | ***UNTILL 2,5 mm²*** |
| *MAX. RATED PRESSURE* | ***500 mbar*** |
| *ELECTRICAL CARACTERISTICS* | *INSULATED ENCLOSURE* ⧈ |

| CURRENT | A.C. | | | | | | D.C. | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Circuit type | OHMIC | | | INDUCTIVE (cos φ 0,5) | | | OHMICO | | | INDUCTIVE (L/R 40 ms) | | |
| Voltage | 220 | 127 | 24 | 220 | 127 | 24 | 127 | 48 | 24 | 127 | 48 | 24 |
| Contacts interrupt power **OIL LEVEL / GAS BLEED** | 2A | 2A | 2A | 2A | 2A | 2A | 2A | 2A | 2A | 2A | 2A | 2A |
| Contacts interruption power **PRESSURE SWITCH** | 6A | 6A | 6A | 1,5A | 1,5A | 1,5A | 0,6A | 0,6A | 0,6A | 0,6A | 0,6A | 0,6A |
| Contacts interruption power **THERMOSTAT** | 16A | 16A | 16A | 4A | 4A | 4A | 0,6A | 0,6A | 0,6A | 0,6A | 0,6A | 0,6A |

***WIRING DIAGRAM BY EN 50005 STANDARD***



## TESTS

R.I.S.® has amply passed the type tests prescribed by both European Standard Pr EN 50216-1 and 3 and by Comem internal technical standards, which can be listed as follows:

**TYPE TESTS:**

- Pressure overload: 2.5 bar - 2 minutes - with oil at 115 °C
- Operation at extreme temperatures: at -40 °C and 120 °C
- Classification of the IP 66 protection rating: EN 60529
- Classification of ambient conditions: 4K2, 4Z2, 4B1, 4C2, 4S3, according to EN 60721-3-4
- Mechanical vibrations 4M4 (shock 250 m/sec$^2$. Time spectrum "I" : 11 ms),according to EN 60721-3-4
- Classification of seismic conditions Level 2 class 0: according to EN 60068
- Inclined operation: 15°
- Gas or oil volume for contact switching at ambient temperature and at the average working temperature of the transformer: max. 170 cm$^3$
- Contact response time: < 0.5 seconds
- Allowed max. magnetic field value: 25 mt (no intervention of R.S.I.®). According to Pr EN 50216-3.
- Mechanical shock protection IK 07: according to EN 50102
- Tightness test - 1000 hours in saline saturated atmosphere. UNI-ISO 9227-93 (NSS).
- Tightness test against UV ageing according to UNI ISO 4892.

**ROUTINE TESTS:**

Before shipment each piece is also subjected to the following routine tests:

- Tightness test: 30 minutes - 1 bar - with oil at 90 °C
- Operation of thermostats
- Pressure switch operation
- Oil level switch operation.

## OPTIONS

- Pneumatic pump group / oil re-fill in altitude. Code: 5400806001.

## SUPPLY CONDITIONS

R.I.S.® (product code 1SD4039000) is supplied in a single sturdy carton (dimensions: 400 x 200 x 160 mm, weight: 2.2 kg) and complete with the following accessories:

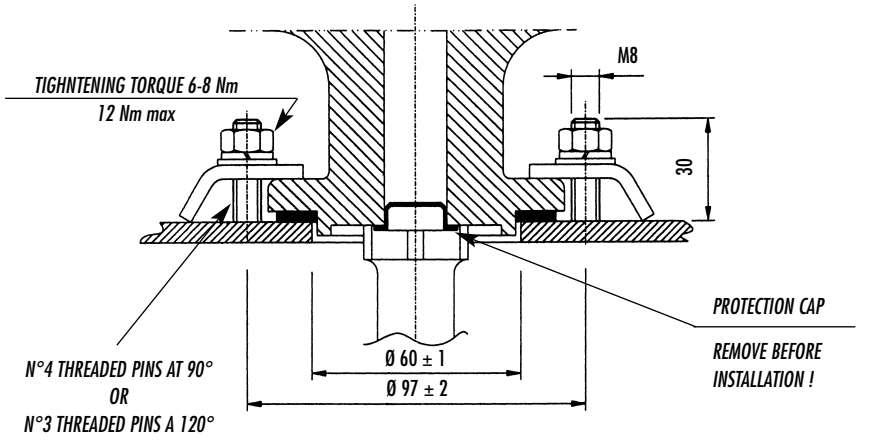
- Instruction booklet for installation and use.
- Fixing Kit.
- Test report.

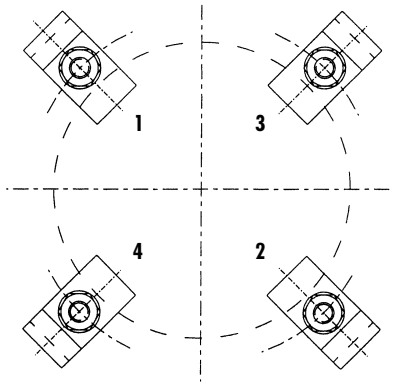
## R.I.S. MOUNTING INSTRUCTION
### APPLICATION TO A TRANSFORMER TANK

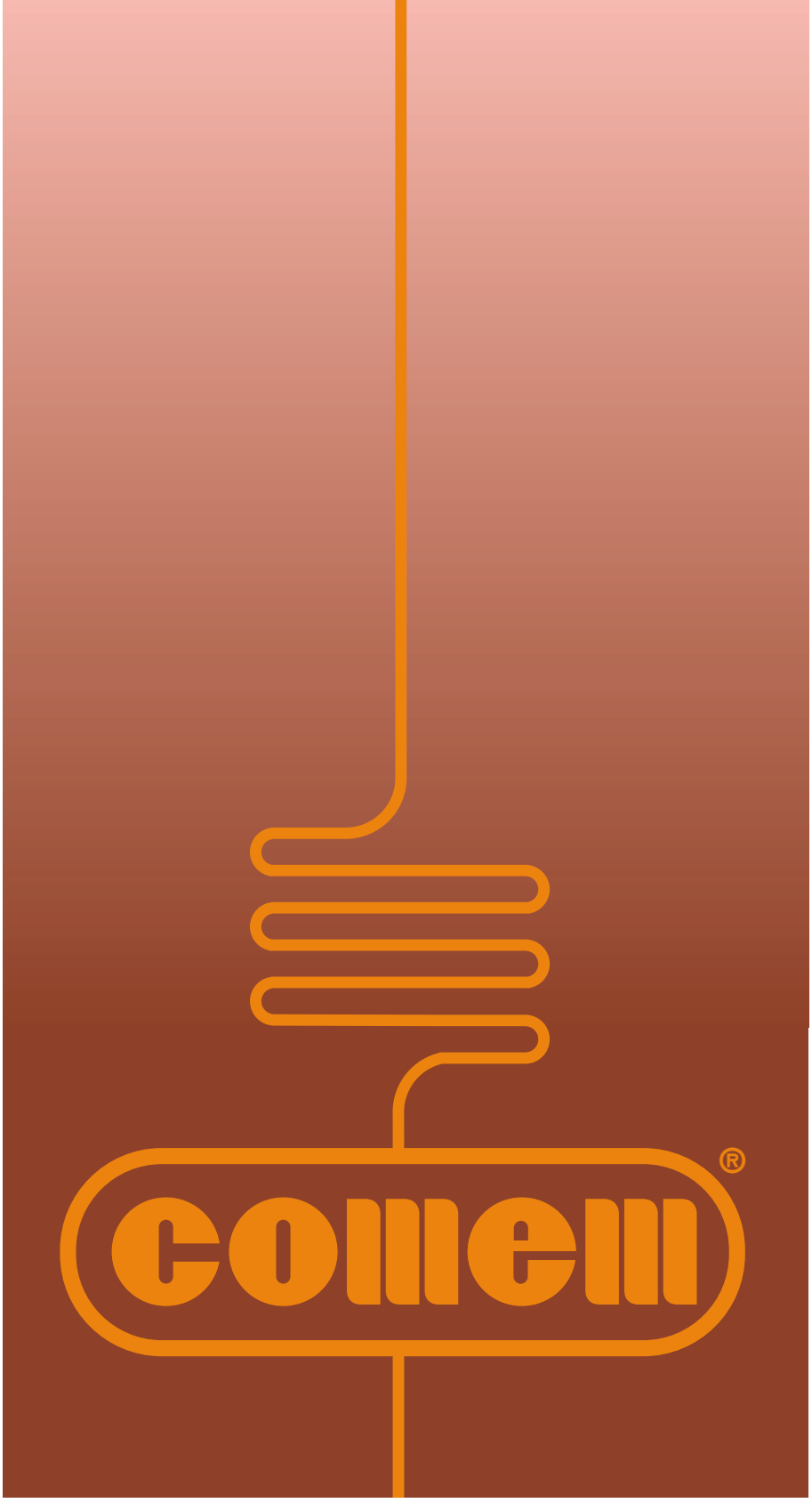
- Ø 60 ± 1 diam. hole on caisson
- Flat gasket (provided with the unit)
- stainless steel fixing brackets (4 pcs packed)
- stainless steel plane washers according to UNI 6592 Ø 8,4 (4 pcs packed)
- stainless steel spring washers according to UNI 1751 Ø 8,4 (4 pcs packed)
- stainless steel M8 nuts according to UNI 5588 (4 pcs packed).

Tighten the nuts in position1,2,3,4 with torque 3÷4 Nm crosswise; repeat the operation following the same sequence until the suggested value is reached.

Due to the deformation of the cover during lifting of the transformer, an oil leak could be possible. It is suggested to use covers of suitable thickness (min. 6-8 mm).



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