
# Manual Readout Unit

# OG180

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STRUMENTI E MISURE GEOTECNICHE
E STRUTTURALI



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## WARNINGS

This instrument must be utilized only for the application it has been designed for, OTR declines all responsability for any improper use;

Do not use the instrument near potentially explosive gases;

Keep out of reach of children;

Do not connect the readout unit to instruments that are placed in water where an electric dissipation is in progress;

During the installation phase, disconnect the instrument from measuring devices or from any device connected to the AC power supply;

## Furthermore

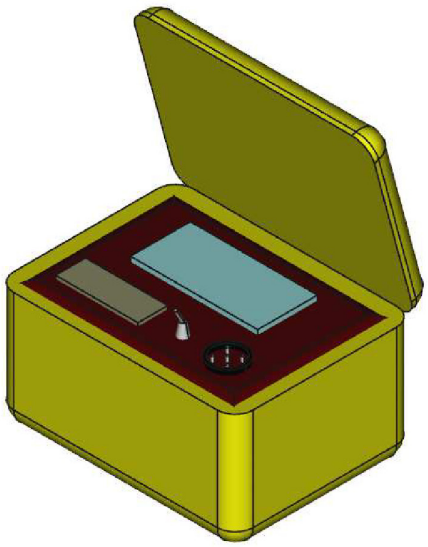
- Do not open the instrument, contact the manufacturer for checks and repairs;
- Do not connect the instrument to the readout unit with wet hands;
- Clean the instrument and its cable with alcohol or water, do not use acetone or aggressive liquids for plastics or labels;

# Applications

Readout units OG180 are used to measure different sensors in geotechnical and structural monitoring.

OG180 is produced in different versions:

- With ratiometric input, full bridges, load cells;
- With ratiometric input, half bridges, crackmeters;
- 4-20 mA;
- mV.

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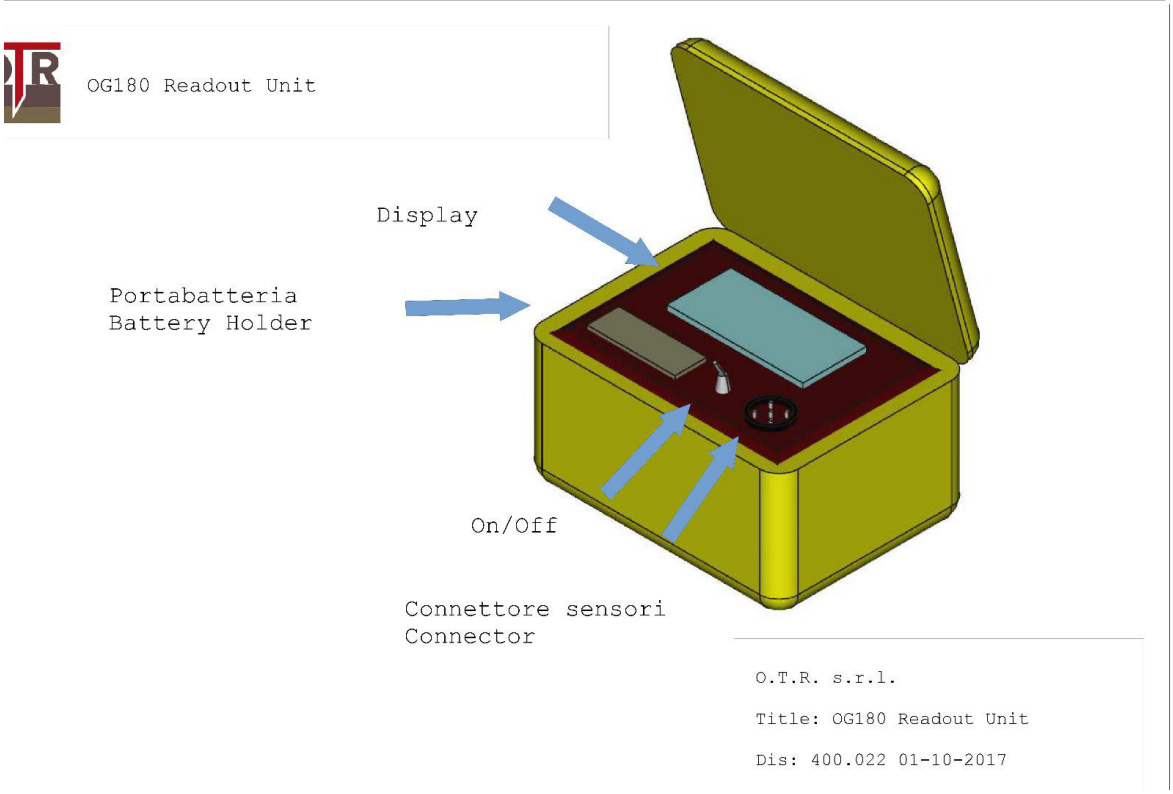
# Description




The instrument is composed by :

- Box IP65;
- Battery holder 9V;
- ON/OFF switch;
- Big dimension display (20 mm).

# Identification

Every readout unit reports on its label:

- Serial number with associated calibration report;
- Model (mV/V, mV, 4-20 mA inputs);
- Output unit;
- Pinout of the 7 poles connector on the front panel.

## Load Cell Model

| Pinout Connector | Function |
|---|---|
| 1 | Positive supply of bridge |
| 2 | Negative supply of bridge |
| 3 | Positive output of bridge |
| 4 | Negative output of bridge |

## 4-20 mA Model

| Pinout Connector | Function |
|---|---|
| 1 | 15 V Voltage Output |
| 2 | Sensor Loop - |
| 3 | GND supply of the sensor (for 3 wires) |

## mV Model

| Pinout Connector | Function |
|---|---|
| 1 | 15 V Voltage Output |
| 2 | GND supply ogf the sensor |
| 3 | mV Input |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## Readouts

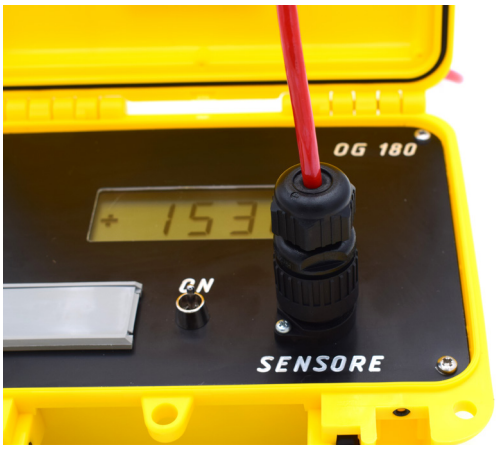
- Connect the sensor using its connector or clamps;
- Turn On readout unit positioning the switch in On position;
- Waiting for sensor stabilization (usually 3-4 seconds)
- Refer to model, calibration report and output display.

## Low Battery Indicator

- If battery is low the reader shows ":" symbols between the numbers. Refer to the label of Low Batt positioned on the readout unit.

## Battery Replacement

- Open the grey battery older and change the battery. Use only 9V PP3 alkaline batteries. Keep the front panel clean and dry. Do not take measures when connectors are wet. Check the calibration at least every 2 years.



# Calculations & Formulas

Let's figure to take a load cell mesure with the following characteristics:

Zero 0.005 mV/V is L0 ;
Nominal full scale1500 KN at 2.000 mV/V/FS is FS;
Courrent reading 1.250 mV/V is L1

$$\text{Load} = \text{FS} \times \frac{L_1 - L_0}{2.000} = 1500 \times \frac{1.250 - 0.005}{2.000} = 933.75\text{KN}$$

Let's figure to take an electric piezometer mesure with the following characteristics:

Zero 4.015 mA is L0 ;
Nominal full scale 500 KPa a 20.12 mA is FS;
Courrent reading 12.50 mA is L1

$$\text{Readout} = \text{FS} \times \frac{L_1 - L_0}{20.12 - 4.015} = 500 \times \frac{12.50 - 4.015}{15.997} = 265.20\ KPa$$



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