



# INSTRUCTIONS FOR RE-CALIBRATION

# Wheel-e V2

An innovating current in installation testing

## REEL AND TESTER OF CONTINUITY

TO MEASURE THE RESISTANCE OF PROTECTIVE CONDUCTORS AND EQUIPOTENTIAL BONDING



### QUICK START :

**Belt**, attach it at the waist and adjust.

**"Ω" socket**, connect it to an Electro-PJP lead and connect it to an Electro-PJP pole or probe.

**4 mm banana plug**, connect it to an Electro-PJP crocodile clip or mains socket adapter.

**"φ" button**, push until hearing the double-beep.

**Crocodile clip or mains socket adapter**, connect it to the equipotential reference chosen (the earth contact of a mains socket for instance).

**Pole or probe**, with it touch the protective conductors.

**LCD**, watch it to know the Ohm value of the measured resistance between the crocodile clip (or the mains socket adapter) and the probe (or the pole).

### SPECIFICATIONS :

**The protection is compromised if instructions are not respected.**

**Device protection** : 400 V AC between the two sockets or between one of the sockets and the plug of the wire. Fuse 6.3 mm x 32 mm High breaking capacity 30 kA, 500 mA AC, 690 V AC. See K to replace the fuse.

**User protection (reference to earth) :**

600 V AC CAT III / 300 V AC CAT IV, reinforced insulation, class 2, pollution degree 2, according to EN / IEC 61010-1:2010, and 300 V AC CAT III / 300 V AC CAT IV, reinforced insulation, class 2, pollution degree 3, according to EN / IEC 61010-1:2010. IP2X according to EN / IEC 60529:2001.

The protection of a combination of Wheel-e and accessories is the lower of the protection of Wheel-e and of the accessories.

**Environmental conditions** : pollution degree 2 (usual environment) or 3 (see above) ; storage and operating temperature range, from -20 °C to +55 °C ; maximum relative humidity 80 % for temperatures up to 31 °C decreasing linearly to 50 % relative humidity at 40 °C ; don't submerge the device ; protect if from liquids, rain, and any precipitation ; don't use it in wet or explosive atmospheres.

**Maximum current in the wire (when used as a simple reel, see I) :** 500 mA (fused).

**Unusual voltage warning.** When there is a unusual voltage on the protective conductors, Wheel-e doesn't measure resistance and beeps fast and alternately, the LCD backlight flashes in red, and the unusual voltage is displayed. If minus (-) is before the value then it is DC else it is AC and Wheel-e displays the RMS value (AC voltage as sinusoidal). Input impedance : 300 kΩ. Warning range : from 8 V AC / DC to 400 V AC / DC.

**Maximum compensating value** : 4 Ω.

**Power supply** : 4 AA alkaline batteries (AA rechargeable batteries are compatible but reduce the time before replacing the batteries).

**Batteries life** : about 1.7 day in normal use at 20 °C and with new batteries. About 5 h 50 min when measuring continuously a continuity resistance less than 1 with enabled beep and new batteries. Auto power off after 5 min without activity.

**Method to measure continuity resistances** : current between 200 mA and 210 mA, voltage between 4 V and 24 V, self-reversing of the polarities, compliant with the EN / IEC61557-4:2007 standard.

**Measurement accuracy of continuity resistances** : ±0.07 Ω from 0.00 Ω to 0.50 Ω ; ±10 % ±0.02 Ω from 0.50 Ω to 2.00 Ω ; and ±8 % beyond 2.00 Ω. To keep the measures right while you are changing accessories or you are moving to another environment (high variation of temperature or relative humidity) or you are changing of input (connecting to the plug of the wire instead of the "AUX" socket and vice versa), operate a compensation of the used accessories (see E and G) before measuring and replace the batteries when the batteries life icon flashes.

**Measurement range of continuity resistance** : from 0.00 Ω to 20.0 Ω.

**Display resolution of continuity resistances** : from 0.00 Ω to 9.99 Ω and from 10.0 Ω to 20.0 Ω.

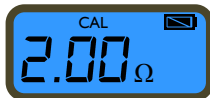
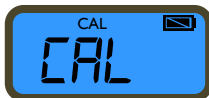
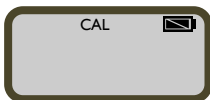
### \* 2 Ω AND 1 Ω-VERSIONS.

Wheel-e exists in two versions, a 2 Ω-version whose the OK (beep + blue backlight) / not OK (no beep and red backlight) threshold is set at 2 Ω and a 1 Ω-version whose the threshold is set at 1 Ω.

To check what the version you use, operate a compensation (see E and G) and measure a resistance of 1.5 Ω. If the backlight is blue then you have a 2 Ω-version else you have a 1 Ω-version.

## M I WANT TO RE-CALIBRATE AT 2.00 Ω :

- (Wheel-e on) I fully disconnect (sockets and reel wire).
- I check the battery icon is full (else I replace the batteries with new ones, see J).
- I pick a 0 Ω shunt (M1) (P / N Electro-PJP 2019-S).
- I push quickly two times on the "φ" button.
- I connect the 0 Ω shunt (M1) to the 2 sockets.
- I wait for a few seconds.
- **Blue backlight, 0.00, two short beeps then a continuous beep** which inform the compensating has succeeded (the displayed value can vary, between 0.00 and 0.07 for instance, because of the measurement tolerance).
- I disconnect the 0 Ω shunt (M1).
- I push the "φ" button during 2 s at least to switch off.
- I pick a 2 Ω standard shunt (M2) (P / N Electro-PJP 21119-2.00) and a 4 mm screwdriver.
- I unscrew the J1 screw and remove the J2 batteries cover.
- I pick a thin Ø2 mm maxi. screwdriver.
- I push the "φ" button during 2 s at least to switch on.
- I connect the 2 Ω shunt (M2) to the 2 sockets.
- With the thin Ø2 mm maxi. screwdriver I push the inner re-calibrating button through the M3 hole.

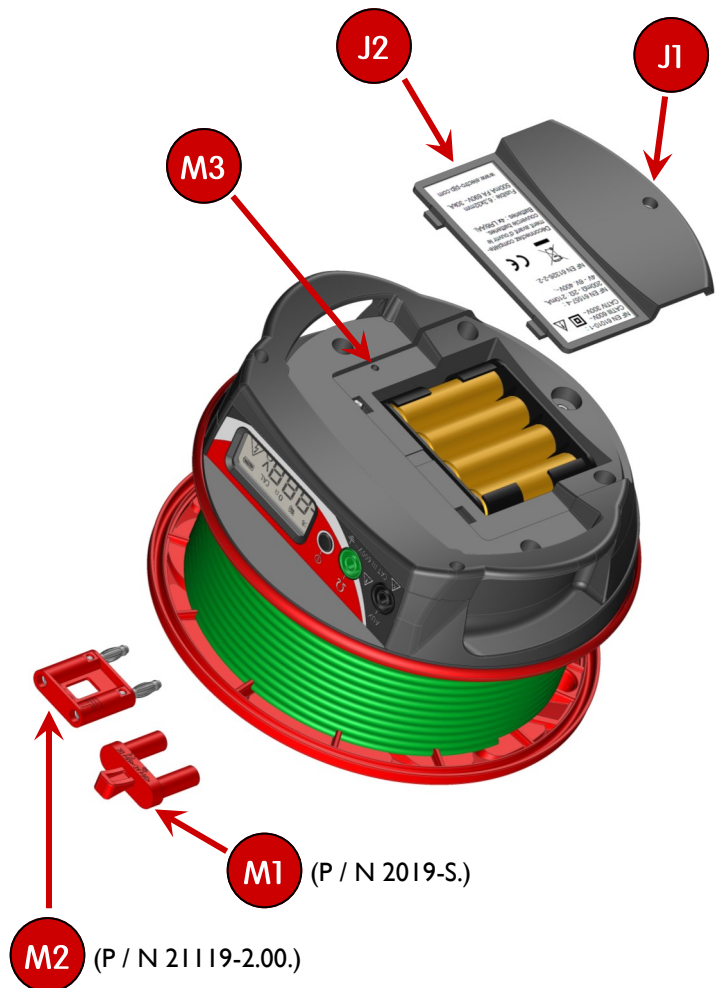


- **Blue backlight, 2.00, and CAL icon** which inform the 2.00 Ω calibrating has succeeded.
- I push the "φ" button during 2 s at least to switch off.
- I disconnect the 2 Ω shunt (M2), and I reassemble the J2 batteries cover and screw the J1 screw.
- I push the "φ" button during 2 s at least to switch on.
- I compensate the resistance of my accessories according to E or G.

Wheel-e is ready to measure. This calibration at 2 Ω is kept until the next re-calibration even if the batteries are replaced and / or if Wheel-e is switched off.



**red backlight, E02, and CAL icon** : the calibrating failed (because the calibrating shunt isn't right, ...). I switch off Wheel-e.



**EXPLODED VIEW.**

## RE-CALIBRATIONS :

Date	Comments



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