

# 405-IEC

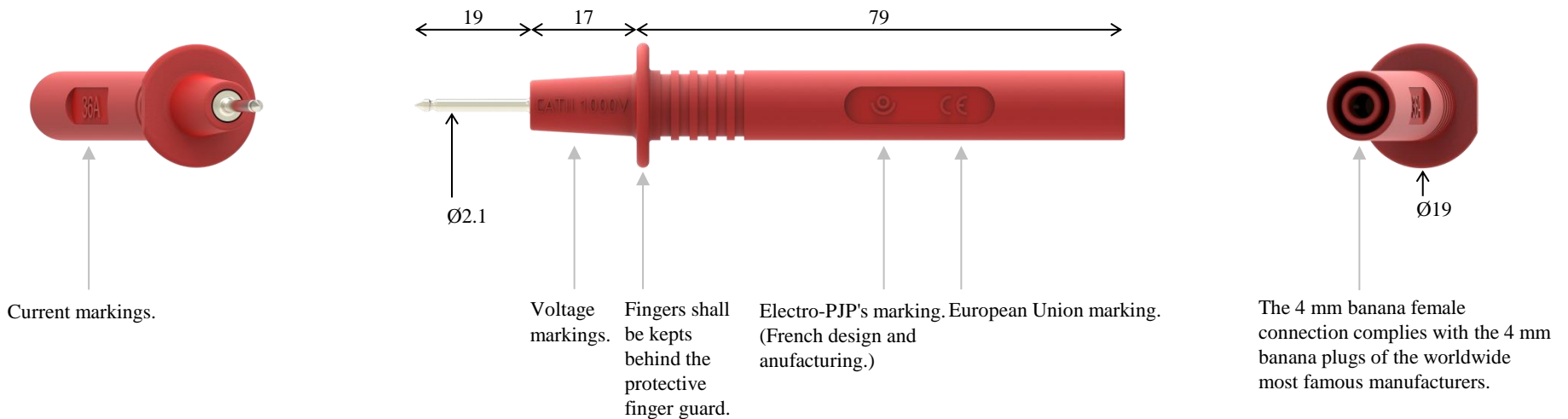
Designation : 2 mm (0.080 ") Smooth Tip Probe Body w/ 4 mm Banana (female) Jack.

Applications : to measure voltages up to 1000 V. General purpose electric and electronic testing, controlling, and measuring.



The flat surface on the Ø19 mm flange prevents the probe from rolling on a table for example.

The thin and long conductive tip allows measurements on deep and small contacts.



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### Electrical safety

#### 1000 V CAT II

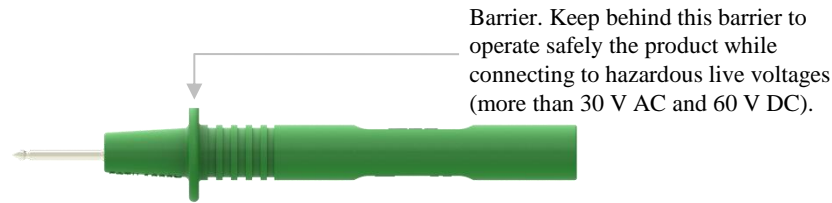
The probe shall not be used in CAT III and CAT IV environments. The conductive tip is too long to comply with the CAT III and CAT IV. The probe is rated to the CAT II only. Unfortunately the length of the conductive tip furthers short-circuits between electric potentials. While the CAT III and CAT IV include higher electric energy than the CAT II. The combination of higher risk of short-circuit and higher hazard in case of short-circuit with the CAT III and CAT IV limits the probe to the CAT II only.



According to EN / IEC 61010-031:2015. 1000 V CAT II, reinforced insulation, 36 A (at +40 °C).

These specifications come from the creepage distances, clearances, accessible parts, and solid insulation of the clip. And the considered specifications of the environment are :

- pollution degree, 1 or 2 ;
- relative humidity, 80 % maximum for temperatures up to 31 °C decreasing linearly to 50 % relative humidity at +40 °C ;
- temperature range, +5 °C to +40 °C ;
- indoor use ; and
- altitude, 2000 m maximum.



### Operating temperature range

-20 °C mini., +80 °C maxi. (please see above too).

### Conformity

- European Directive "Low Voltage Directive" 2014/35/UE.
- International / European standard EN / IEC 61010-031:2015.
- European Directive "RoHS" 2011/65/EU.
- European REACH regulation n°1907 / 2006.

### Environment

- "RoHS" compliant, Pb ≤ 4 % in conductor, Pb ≤ 0.1 % in insulator, Hg ≤ 0.1 %, Cr VI ≤ 0.1 %, Cd ≤ 0.01 %, PBB ≤ 0.1 %, and PBDE ≤ 0.1 %.
- REACH compliant, no substances from the candidate list of SVHC for authorisation at mass concentrations greater than 0.1 %.

### Materials

Conductors : nickel-coated brass. Insulator, please contact us.


### Colors



### Weight

0.022 kg.

### Origin

 Designed and manufactured in France.

### Reliability benchmark

Year of 1st placing on the market 1993.

### Packaging

Bag of 10 units of the same color.

## GLOSSARY :

- ACCESSIBLE.** Able to be touched with a standard test finger or test pin.
- BASIC INSULATION.** Insulation of HAZARDOUS LIVE parts which provides basic protection.
- CAT II.** Measurement or overvoltage category II. For measurement performed on / equipment connected to the building wiring.
- CAT III.** Measurement or overvoltage category III. For measurement performed on / equipment connected to part of a building wiring installation.
- CAT IV.** Measurement or overvoltage category IV. For measurement performed on / equipment connected to the origin of the electrical supply to a building.
- CLEARANCE.** Shortest distance in air between two conductive parts.
- CREEPAGE DISTANCE.** Shortest distance along the surface of a solid insulating material between two conductive parts.
- CTI.** Comparative Tracking Index of the insulating material in accordance with IEC 60112.
- DOUBLE INSULATION.** Insulation comprising both BASIC INSULATION and SUPPLEMENTARY INSULATION.
- EN / IEC 60529.** European / international standard regarding the degrees of protection provided by enclosures.
- EN / IEC 61010-1.** European / international standard regarding the safety requirements for electrical equipment for measurement, control, and laboratory use – Part 1: General requirements.
- EN / IEC 61010-031.** European / international standard regarding the safety requirements for electrical equipment for measurement, control and laboratory use – Part 031: Safety requirements for hand-held probe assemblies for electrical measurement and test.
- "LVD".** European Directive 2014/35/EU on the harmonization of the laws of Member States relating to electrical equipment designed for use within certain voltage limits. (Usually called the Low Voltage Directive.)
- MAINS.** Low-voltage electricity supply system to which the equipment concerned is designed to be connected for the purpose of powering the equipment.
- MAINS CIRCUIT.** Circuit which is intended to be directly connected to the MAINS for the purpose of powering the equipment.
- OVERVOLTAGE CATEGORY.** Numeral defining a TRANSIENT OVERVOLTAGE condition.
- POLLUTION.** Addition of foreign matter, solid, liquid or gaseous (ionized gases), that may produce a reduction of dielectric strength or surface resistivity.
- POLLUTION DEGREE.** Numeral indicating the level of POLLUTION that may be present in the environment.
- POLLUTION DEGREE 1.** No POLLUTION or only dry, non-conductive POLLUTION occurs, which has no influence.
- POLLUTION DEGREE 2.** Only non-conductive POLLUTION occurs except that occasionally a temporary conductivity caused by condensation is expected.
- REINFORCED INSULATION.** Insulation which provides protection against electric shock not less than that provided by DOUBLE INSULATION.
- "RoHS".** European Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment.
- SOLID INSULATION.** Insulating materials.
- SUPPLEMENTARY INSULATION.** Independent insulation applied in addition to BASIC INSULATION in order to provide protection against electric shock in the event of a failure of BASIC INSULATION.
- TRANSIENT OVERVOLTAGE.** Short duration overvoltage of a few milliseconds or less, oscillatory or non-oscillatory, usually highly damped.
- WORKING VOLTAGE.** Highest r.m.s. value of the a.c. or d.c. voltage across any particular insulation which can occur when the equipment is supplied at rated voltage.

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