

English

## USER MANUAL

Thank you for purchasing this “VIP CLAMP MINI” series multimeter clamp.

To get the best service from this instrument:

- \_ read this user’s manual carefully,
- \_ respect the safety precautions detailed



### ⚠ PRECAUTIONS FOR USE ⚠

- Never use on networks with voltage higher than 600 V in relation to the ground and whose overvoltage category is higher than III, i.e. fixed industrial and domestic installations (see IEC 664-1).
- Indoor use in environments with a degree of pollution of 2 maximum (cf. IEC 664-1), temperature of 0°C to + 50°C and relative humidity lower than 70%.
- Use accessories compliant with safety standards (NF EN 61010-2-031) with minimal voltage of 600 V and overvoltage category III.
- Never open the clamp box before disconnecting all power sources.
- Never connect to the circuit to be measured if the clamp box is not properly closed.
- Before any measurement, check the proper positioning of the cables and switch.
- When measuring current check for proper alignment of the conductor in relation to the markers and proper closing of the jaws.
- Always disconnect the clamp from any power source before changing the battery.
- Do not perform resistance tests, continuity tests or semiconductor tests on a circuit under power.

**SOMMARIO**

<b>1. PRESENTATION...</b>	1
<b>2. DESCRIPTION</b>	1
<b>3. IMPLEMENTATION-FUNCTIONAL CHARACTERISTICS..</b>	1
3.1 Reference conditions.....	3
3.2 Voltage measurements (V).....	3
3.3 Audio continuity test ( ).....	3
3.4 Resistance measurement (W).....	4
3.5 Semi-Conductour Test ( ).....	4
3.6 Current measurement (A).....	5
3.7 INRUSH functions.....	5
3.8 Power measurement ~ (W var VA).....	6
3.9 Power factor calculation (PF).....	7
3.10 Frequency Measurement (Hz).....	7
3.11 Phase order indication	7
3.12 Secondary Functions	8
3.12.1 Display lock	8
3.12.2 Preselection of MIN/MAX mode.....	9
3.12.3 Automatic compensation for cable resistance	9
3.12.4 Automatic compensation of current measurement zer	9
3.12.5 Manual selection of AC, DC or AC+DC mode.....	9
3.12.6 Selections possible in continuity function.....	9
3.12.7 Selectione OF INRUSH function	9
3.12.8 Suppression of automatic stop	9
3.12.9 Activation of the V-Live function	9
3.12.10 Modification of audio indication threshold in continuity test.....	9
3.12.11 Default configuration of the unit.....	9
3.12.12 Date of last calibration carried out on unit	9
3.12.13 Display of the internal software version	10
3.12.14 Showing of disply segments.....	10
<b>4. GENERAL SPECIFICATIONS</b>	10
4.1 Dimensions and weight	10
4.2 Clamp tightening capacity	10
4.3 Power supply	10
4.4 Environmental parameters.....	10
4.5 Compliance with norms	10
4.6 Variations in operating range...	11
4.7 Marginal operating conditions	12
<b>5. GUARANTEE</b> .....	12
<b>6. MAINTENANCE</b>	12
6.1 Changing the battery	12
6.2 Storage	12
6.3 Cleaning	12
<b>7. APPENDIX</b> .....	13

## 1. PRESENTATION

**VIP CLAMP MINI** emphasises reliability and simplicity of use to respond to the needs of power professionals:

- A compact unit integrating the current sensor for intensity measurements without breaking the test circuit
- Outstanding ergonomic features, in particular: -automatic or manual selection of the type of signal to be measured, AC or DC,
  - measurement of the RMS value of any signal (AC+DC),
  - automatic selection of measurement calibre,
  - programmable audio voltage indication: V-Live,
  - "measurement range exceeded" indication,
  - Backlighting of the digital display
  - auto power off system, -MIN - MAX – PEAK value recording function,
  - correction of deviations in DC measurement (DC zero)
  - automatic compensation of measurement cable resistance (**W** zero).
- Compliance with CEI electrical safety standards and CE markings
- Lightness and ruggedness for field use With all new additional features:
  - "Inrush" function in particular for measurement of motor starting currents.
  - Phase order indication function using "2-wire" technique PFISTERER Licence - (instead of 3-wire) capable of determination through contact only, with no fastidious connections.

## 2. DESCRIPTION


(vedi schema § 8 Allegato)

① **Jaws**

② **6-way rotary switch:**

**OFF** Deactivation of the clamp, activation is ensured by selection of other functions

**V** Measurement of DC and AC voltages (rms value)

 Continuity measurement, by use of the yellow resistance key and semi-conductor test

**A** Measurement of DC and AC voltages (rms value)

**PF** Measurement of active, reactive and apparent  
**var W~** powers and power factor in single phase or

**VA** balanced 3 phases systems (by use of the yellow key)



Selection of phase order indicator for 3- phase system with or without neutral

③ **Command keys**

The keys are capable of 3 types of action:

**Short pressure**

>1.3 s, it is valid if the key pressure is detected

**Long pressure**

> 1.3 s, this gives access to a measurement or operating mode. Holding or releasing the key has no effect.



**Held pressure**

Gives access to a measurement or operating mode and remains in this mode as long as pressure is held. Releasing the key causes return to the previous mode.

• **HOLD** has 4 different functions (see description § 3.12):

- Display lock
- Preselection of MIN/MAX mode
- Automatic compensation for cable resistance
- Automatic compensation of current measurement zero

• **The yellow key** has 6 different functions (see also description § 3.12):

- Manual selection of AC, DC or AC+DC mode
- Selection of INRUSH function -Selection of resistance function (**W**), semi-conductor test  continuity test 
- Measurement of active, reactive, apparent powers and power factor calculation -Single phase or balanced three phases systems selection
- Phase order indication measurement (see description § 3.11)

• **MIN/MAX** operates by end-around shift on short pressure:

MIN/MAX	Funzioni V e A	Altre Funzioni
1a Press	PEAK value	MAX value
2 a Press	MAX value	MIN value
3 a Press	MIN value	Return MAX value
4a Press	Return to PEAK value	—

At any time, a long press on the key will quit the MIN/MAX mode. If the INRUSH function was selected (see description § 3.7), a short pressure will return to MIN/MAX mode.

**Note:** In MIN/MAX mode, the Automatic stop function of the unit is unavailable (symbol **P**)

- **Hz** A short press displays the frequency of the measured signal, another press switches back to the previous value. This key is active only for the AAC, VAC and W functions.
- \* **Short pressure:** display backlight command.  
Automatic shutdown after 2 minutes.
- **Held pressure:** display of estimated remaining battery power, expressed in hours (except INRUSH and phase order functions).

**HOLD key/ switch combination** (see description § 3.12):

- Suppression of automatic stop function
- Activation of the V-Live function
- Display of the internal software version

**Yellow key/ switch combination** (see description § 3.12):

- Modification of audio indication threshold in continuity test -Default configuration of the unit

**MIN/MAX key/ switch combination**

(see description § 3.12):

- Date of last calibration performed on unit

#### ④ Liquid crystal display

The liquid crystal display includes the digital display of the measured values, the related units and symbols.

#### Digital display

4 digits, 9999 points, 3 decimal points, + and - signs (DC and peak measurement).

- + **OL:** Positive value range exceedance (> 3999 points)
- **OL:** Negative value range exceedance
- **OL:** Unsigned value range exceedance
- - - -: Indeterminate value (middle)



#### Symbol display

- Flashing,** clamp power limited to approximately 1 hour
- Steady,** battery drained, clamp operation or accuracy no longer guaranteed
- Constant operation** (no automatic shutdown)
- ON steady** when the INRUSH function is selected
- Fixed:** Continuity measurement
- Flashing:** V-Live function selected

**HOLD** Function active

**PEAK** ON in V and A in MIN/MAX mode if the measurement of the peak value is selected

**MAX** Indicates the display of a maximum value in MIN/MAX mode

**MIN** Indicates the display of a minimum value in MIN/MAX mode

**OK** Symbol which goes on during the phase rotation direction detection sequence **W**, if power factor display is selected (yellow key)

**PF** Goes on steady, for switch position

**AC** **Measurement** in AC manual mode  
**Flashing:** measurement in AC automatic mode

**DC** **Fixed:** measurement in DC manual mode  
**Flashing:** measurement in DC automatic mode

Semi-conductor test on position

3Ø Power measurement on balanced 3 phases system.

**The Buzzer** Different tones are emitted according to the function given to the buzzer:

- **Short and medium sound:** valid key
- **Short and high-pitched sound:** prohibited key
- **Short and low sound:** Quit MIN/MAX mode
- **2 short and high-pitched beeps:** validation of a configuration parameter
- **Short and medium sound every 400 ms:** voltage measured higher than the unit's guaranteed safety voltage.
- **5 short and medium recurring beeps:** automatic deactivation of the instrument
- **Short and medium sound:** measured continuity value, lower than programmed threshold, short-circuit junction during semi-conductor test.
- **Modulated medium continuous sound:** value measured in volts, higher than 45 V peak when the V-Live function is selected.

### 3. IMPLEMENTATION FUNCTIONAL CHARACTERISTICS

#### 3.1 Reference conditions

The functional characteristics mentioned in each of the measurement functions are guaranteed in the following reference ranges:

- Temperature: +23°C ± 3 K
- Humidity: 45% to 75% relative humidity
- Supply voltage: 8.5 V ± 0.5 V
- Frequency range of applied AC signal: 45 -65 Hz
- Peak factor of applied AC signal:  $\sqrt{2}$
- Position of conductor in clamp jaws: centred
- Conductor diameter: -3d 5 mm -No external AC magnetic field
- No electrical field

#### 3.2 Voltage measurements (V)

1. Connect the measurement leads to the instrument's terminals, complying with the polarities indicated: red lead on the "+" terminal and black lead on the "COM" terminal.
2. Set the rotary switch to position "V".
3. Connect the assembly to the voltage source to be measured, making sure if possible that this voltage does not exceed the maximum acceptable limits (see table below). Range switching and AC/DC selection are automatic.  
Actuate the yellow key to force AC, DC or AC+DC selection manually if necessary.

**⚠** If the signal measured is > 45 V peak, the audio indication is activated if the V-Live function is selected (see § 3.12.9).

Display range	40 V	400 V	4000 V (1)
Measuring range(2)	0,2 V à 39,99 V	40,0 V à 399,9 V	400 à 600 V 400 à 900
Accuracy	1% L +5 pt	1% L +2 pt	1% L +2 pt
Resolutin	10 mV	0,1V	1V
Input impedance	1MW		
Protection	600 V AC or DC		

(1) In DC, the display indicates +OL above +600 V and -OL above -600 V (900 V in PEAK mode). In AC, the display indicates OL over 600 Vrms (900 V in PEAK mode).

(2) In AC if the value of the voltage measured is < 0.15 V the display indicates 0.00.

**⚠** For voltages 600 VDC or rms, a repetitive beep of the buzzer indicates that the measured voltage is higher than the unit's guaranteed safety voltage.

- **MIN/ MAX Mode:**
  - Accuracy: same as previous table +0.2% L
  - Capture time: 100 ms typ.
- **PEAK Mode:**
  - Accuracy: same as previous table +2% L
  - Capture time: 500 µs typ. (2.5 ms max.)
- **Special characteristics in V-Live mode**
  - Detection threshold accuracy: 45 Vpeak ± 2V

#### 3.3 Audio continuity test ( )

1. Connect the measurement cables to the unit terminals.
2. Set the rotary switch to position " " ( )
3. Connect the unit to the circuit to be tested. The buzzer is continuously active as soon as contact is established (circuit closed) and if the resistance value measured is lower than the threshold value chosen by the programming (adjustable from 1 to 40 W, see § 03.12.10). Above 400 W, the display indicates OL.

- **Cable resistance compensation ( zero)** To measure low resistance values, measure the cable resistance first.
  - Short-circuit the cables.
  - Press and hold the **HOLD** key until zero appears on the display. The cable resistance value will then be memorised and subtracted from the value of the resistance measured later.

**Note:** If the value measured is higher than **2 W**, this correction is stopped and the memorised correction value is reset to zero.

Display range	400 W
Measuring range	0,0 à 399,9W
Accuracy (1)	1% L ± 2 pto
Resolution	0,1 W,
Open circuit voltage	3,2 V
Measuring current	300 µA
Protection	500V AC o 750V (DC or peak)

(1) with compensation for measurement cable resistance

**MIN/ MAX Mode:**

- Accuracy: same as previous table +0.2% L
- Capture time: 100 ms typ.

**3.4 Resistance measurements (W,)**

1. Connect the measurement cables to the unit terminals.
2. Set the rotary switch to position "Ω" and press once on the yellow key: The "Ω" symbol is no longer displayed.
3. Connect the unit to the circuit to be tested. Range selection is automatic. To measure low resistance with accuracy, compensate the cable measurement resistance (see § 3.3). Above **40 W**, the display indicates **OL**.

Display range	40 V	400 V	4000 V (1)
Measuring range	0,2 V à 39,99 V	40,0 V à 399,9 V	400 à 600 V 400 à 900
Accuracy	1% L ± 5 pto	1% L ± 2 pto	1% L ± 2 pto
Resolution	10 mV	0,1V	1V
Measuring current (1)	1MW		
Protection	600 V AC ou DC		

**MIN/ MAX Mode:**

- Accuracy: same as previous table +0.2% L
- Capture time: 100 ms typ.

**3.5 Semi-Conductor Test (▶|)**

1. Connect the measurement leads to the instrument's terminals, complying with the polarities indicated: red lead on the "+" terminal and black lead on the "COM" terminal.
2. Set the rotary switch to "▶|" position and press twice on the yellow key: The "▶|" symbol is displayed.
3. Connect the unit to the semi-conductor (junction) to be tested.
  - The measurement current moves from the "+" terminals to the "COM" terminal. It corresponds to the direct testing of the semi-conductor junction.
  - **Short-circuit junction:** audio indication for a threshold <0.050V
  - **Cut or reversed junction** (or threshold > 3.2 V) : **OL** displayed

Display range	4V
Measuring range	0,000 a 3,199V
Accuracy	1% L ± 2 pto
Resolution	1mV
Measuring current (1)	da 2mA a 4mA
Protection	500V AC o 750V (DC or peak)

(1) for the voltage measured

**MIN/ MAX Mode:**

- Accuracy: same as previous table +0.2% L
- Capture time: 100 ms typ.

**3.6 Current measurements  $\sphericalcap$  (A)**

1. Set the rotary switch to position "A "
2. Clamp the conductor carrying the current to be measured, check for proper closing of the jaws and for foreign bodies in the gap. For DC, the  $\sphericalcap$  arrow engraved on the jaws must be directed in the presumed direction of current circulation for the sign of the displayed value to be significant. Range switching and AC/DC selection are automatic. Actuate the yellow key to force AC, DC or AC+DC selection manually if necessary.

**Correction of the current measurement zero (DC zero)**

To measure the low currents, perform a zero correction first. -Press and hold the HOLD key until zero appears on the display. The corrected value will then be memorised and subtracted from the value of the current measured later.

**Note:** this correction is performed only on the DC component of the zero. If the value measured is higher than 6 A, this correction is stopped and the memorised correction value is reset to zero.

**Characteristics**

Display range	40A	4000 W	40 W
Measuring range(2)	0,20 a 39,99 V	40,0 a 3999,9 A	400 A 600A peak
Accuracy (3)	1,5% L +10 pto	1,5% L +5 pto	
Resolution	10mA	100mA	1mA

- (1) In DC, the display indicates **+OL** above +400 A and **-OL** above -400 A (600 A in PEAK mode).  
In AC, the display indicates **OL** over 400 Arms (900 V in PEAK mode).  
(2) In AC, if the value of the current measured is < 0.15 A, the display shows **0.00**.  
(3) With correction of zero in DC

- Repeatability of the measurement after several consecutive closings of the clamp: 0.3% typical

- **MIN/ MAX Mode:**
  - Accuracy: same as previous table +0.2% L
  - Capture time: 100 ms typ.
- **PEAK Mode:**
  - Accuracy: same as previous table +2% L +0.5 A
  - Capture time: 500  $\mu$ s typ. (2.5 ms max.)

**3.7 INRUSH function**

- **Description**  
This function is used to follow quick changes in the current, such as a damped sinusoidal quantity, by measuring the successive rms values calculated on 1/2, 1, 2 1/2, 5 and 10 periods from the largest rms value computed and updated on 1/2 period.  
The applications are:
  - Measurement of motor start-up currents
  - Correct definition of fuses and circuit breakers (signal amplitude-time relationship)
  - Stress on components by current overload

The field of application is limited to industrial frequencies (15 Hz... 70 Hz)

**Implementation**

This function is accessible in AC current measurement only, after selection of the MIN/MAX mode.

Action	Display	Comments
Press the yellow key	0,5 P then the value for rms corresponding out F	Enter the function Signal frequency < 15 Hz o > 70 Hz
Press on HOLD key then press successively the yellow key	1P-2,5P-5P-10P-0,5P with each time the rms value corresponding alternately	Consultation of values rms (computes on of consecutive periods)
Short pressure on the MIN/MAX key	Return to values MIN,MAX or PEAK	Exit from the function return to MIN/MAX mode

**Characteristics**

- Accuracy: 5% +0.5 A
- Capture time: 10 periods of the signal frequency (200 ms at 50 Hz)
- Range for use: 3d 5 A peak for the first period of the signal

**3.8 Power measurement (W var VA)**

1. Connect the measurement leads to the instrument's terminals, complying with the polarities indicated: red lead on the "+" terminal and black lead on the "COM" terminal.
2. Set the rotary switch to position "W"(single phase measurement).
3. Make a long press on the yellow key for measurement on balanced 3 phases system.
4. Connect the clamp on the system selected for power measurement, complying with the following instructions:

**SINGLE PHASE SYSTEM**

-Connect the measurement cables for voltage measurement, red cable on phase, black cable on neutral. -Clamp the conductor carrying the current to be measured, check for proper closing of the jaws and for foreign bodies in the gap.

**BALANCED 3 PHASES SYSTEM**

- Connect the measurement cable for voltage measurement, red cable on phase 1, black cable on phase 2 (U<sub>12</sub> measurement).
- Clamp the conductor of phase 3 (I<sub>3</sub> measurement).

**Nota** : same results are achieved with the following couples of measurement : U<sub>23</sub> with I<sub>1</sub> and U<sub>31</sub> with I<sub>2</sub>. In both cases the "•3f" arrow on the jaws, must be directed in the direction of power circulation from the source to the load. In which case:

- the "+" sign corresponds to power consumed by the load.
- the "-" sign corresponds to power supplied by the load.

**Specific reference conditions**

PF = 1; I 3d 2 A; U 3d 10 V

**Active power measurement characteristics**

Display range	4000W	40kW	400 kW
Measuring range(2)	5a 3999 W	4,00 kW 39,99 kw	40,0 kW a 240,0kW - 399,9kW(1)
Accuracy (3)	2% L +1 pt		
Resolution	1W	10W	100W

**Reactive power measurement characteristics**

Display range	4000W	40kW	400 kW
Measuring range(2)	5a 3999 var	4,00 kvar a 39,99 kvar	40,0 kvar a 240,0kW - 399,9kvar(1)
Accuracy (3)	2% L +1 pt		
Resolution	1var	10var	100var

**Apparent power measurement characteristics**

Display range	4000W	40kW	400 kW
Measuring range(2)	5a 3999 VA	4,00 kvar a 39,99 kVA	40,0 kvar a 240,0kW - 399,9kVA(1)
Accuracy (3)	2% L +1 pt		
Resolution	1VA	10VA	100VA

- (1) the scale is limited to 240 kW (kvar, kVA) in one-phase (600 V x 400 A) and 399.9kW (kvar kVA) in 3 phases system. Above this value, the display indicates **+OL** or **-OL** depending on the sign of the power.
- (2) if the power value is < 5 W or if the voltage or current values are respectively < 0.15 V or < 0.15 A, **0** is displayed.
- (3) The measurement accuracy is affected by an instability linked to current measurement of approximately 0.1 A.

**Example:** for a power measurement performed at 10 A, the instability of the measurement will be 0.1 A/10A, or 1%.



**MIN/ MAX Mode:**

- Accuracy: same as previous table +0.3% L
- Capture time: 100 ms typ. (every 400 ms)

**3.9 Power factor calculation (PF)**

With the clamp configured in power measurement (switch on position **W**) and correctly connected (see § 3.8), perform a short press on the yellow key: the power factor is displayed.

**Characteristics**

Display range	1,00	
Measuring range(1)	0,20 a 0,49	0,50 a 1,00
Accuracy	5% L +2 pt	5% L +2 pt
Resolution	0,01	

(1) The display of the power factor is limited to 1.00 If one of the terms of the power factor calculation is outside its power range, the display of the power factor indicates an indeterminate value"- - -".

**MIN/ MAX Mode:**

- Accuracy: Same for the table below + 1 pt
- Capture time: 100 ms typ. (every 400 ms)

**3.10 Frequency Measurement (Hz)**

This function is active for measurements V, A, W in AC. For the power function, the frequency measurement is performed on the voltage signal.

1. Perform a short pressing on the Hz key, the display shows the frequency of the measured signal.
2. Pressing again returns to the previously displayed measurement.

**Characteristics**

Display range	40 Hz	400 Hz	4000 Hz	40kHz
Measuring range(1)	10,00 a 39,99 Hz	40,0 a 399,9 Hz	400 a 3999 Hz	4,00 kHz a 19,99 Hz
Accuracy	0,4% L +1 pt			
Resolution	0,01 Hz	0,1 Hz	1 Hz	10 Hz
Triggering threshold (2)	5V ou 10A			

1) Below 5 Hz, the display shows **0.0**

(2) **Below the triggering threshold, the display shows an indeterminate value (- - -).**

**MIN/MAX**

- Accuracy: same as in the table above +0.2% of reading with limitation to 5 kHz.
- Capture time: 125 ms typ. every 400 ms



**3.11 Phase order indication**

This measurement is performed with 2 cables only, sequentially as follows:

1. Integration of a "reference" period on one phase L1-L2 for example
2. Integration of a "reference" period on one phase L1-L3
3. Calculation of the time delay between "reference" and "measurement" periods enabling determination of the phase order or phase rotation direction.

**- Special reference condition**

-3-phase and sinusoidal network with 50 Hz or 60 Hz stable frequency

**Characteristics**

- Frequency range: 47 Hz to 53 Hz or 57 Hz to 63 Hz.
- Acceptable voltage range: 50 V to 600 V
- Acceptable phase imbalance rate:  $\pm 10^\circ$
- Acceptable amplitude imbalance rate: 20%
- Acceptable voltage harmonic distortion: 10%

**Running of phase rotation direction detection sequence**

**Note 1:**

In the following table, display of the symbol  refers systematically to the beginning of sequence


**Note 2:**

The sequence of the following table is described using:

- L1 on terminal "COM"
- L2 then L3 on terminal "+" The same result is obtained if:
- L2 on terminal "COM", L3 then L1 on terminal "+" or:
- L3 on terminal "COM", L1 then L2 on terminal "+"

**Note 3:**

The measurement principle is based on a certain frequency stability and practically sinusoidal signals (THD < 10%). This excludes in particular measurement on power generators whose spin stabilisation system is too weak to ensure adequate frequency stability.

Action	Display	Comments
Switch on the position 1 2 3		Enter the function
Press the yellow key	<b>rEF</b>	The unit is ready to detect the reference period
Cable connected black on L1 and contact displays red cable on L2	<b>ErrV</b> (2 s) poi <b>Err Hz</b> (2 s) poi <b>rEF OK</b>	after 10 seconds maximum result is one of the 3 following opposite: -- if voltage < 50 V -- if nominal freq. 50 Hz or 60 Hz  -- <b>reference period correct</b>
Red cable contact on L3 (less than 10 seconds after leaving L2)	<b>MEAS</b> <b>ErrV</b> (2 s) then <b>Err Hz</b> (2 s) then <b>Err 1.2.3</b> <b>3.2.1</b>	The unit determines the period measurement, the following messages may be displayed (after 10 s max): -- determination of period for measurement in progress -- contact on L3 a was performed too late (more than 10 s after display rEF OK) -- voltage incorrect -- frequency incorrect -- determination of phase direction impossible -- direct direction of phase rotation -- reverse direction of phase rotation
Press yellow key		Return to beginning of sequence (valid at all times in the sequence)

**3.12 Secondary Functions**

**3.12.1 Display lock**

A short pressing on the **HOLD** key freezes the display. A second pressing unlocks the display.

**3.12.2 Preselection of MIN/MAX mode**

A short pressing on the **HOLD** key then on the **MIN/MAX** key preselects the MIN/MAX mode. A second pressing on the HOLD key makes the MIN/MAX mode effective.

This function is used to select the MIN/MAX mode upon request to prevent, for example, the unwanted or mistaken integration of MIN/MAX values.

### 3.12.3 Automatic compensation for cable resistance

This compensation is obtained by holding down the HOLD key when the continuity test or measurement resistance function is selected.

When the key is released, when the display shows zero, the correction value is memorised in the clamp.

If the value measured is higher than 2 **W**) this correction is stopped and the memorised correction value is reset to zero.

This correction is prohibited in MIN/MAX mode.

### 3.12.4 Automatic compensation of current measurement zero

This compensation is obtained by holding down the HOLD key when the current measurement function is selected.

When the key is released, when the display shows zero, the correction value is memorised in the clamp.



If the value measured is higher than 6 A, this correction is stopped and the memorised correction value is reset to zero.

This correction is prohibited in MIN/MAX mode.

### 3.12.5 Manual selection of AC, DC or AC+DC mode

By default the clamp switches to AC or DC mode automatically (AC or DC symbol flashing) for the V and A functions. Short successive presses on the yellow key are used to select manually AC measurement, DC measurement of compound signals (AC+DC) and return to automatic mode. When the mode is selected manually, the AC, DC or AC+DC symbol is fixed. The selection of this manual mode is impossible in MIN/MAX or HOLD mode.

### 3.12.6 Selections possible in continuity function

By default the clamp is in continuity function (  ) for the position corresponding to the rotary switch. Successive presses on the yellow key enable selection of the resistance measurement ( **W** ), then the semi-conductor test function (  )

and return to the continuity function (  )



### 3.12.7 Selection OF INRUSH function

This is done in function A (AC) by pressing first on the MIN/MAX key then on the yellow key.

Consultation of the values corresponding to this function is possible by pressing first on the HOLD key then by short successive presses on the yellow key (see § 3.7).

Quitting this function is possible by short presses on the MIN/MAX key.

### 3.12.8 Suppression of automatic stop

Hold the HOLD key pressed and bring the rotary switch from the OFF position to the position The unit emits a double beep then the  symbol flashes. The selected configuration is memorised when the key is released: the symbol remains lit continuously. The unit returns to automatic stop mode when the switch goes to the OFF position . L'apparecchio emette un duplice bip quindi il simbolo lampeggia.


La configurazione scelta viene memorizzata quando si rilascia il tasto : il simbolo è acceso fisso.

L'apparecchio ritorna in modo arresto automatico quando il commutatore passa sulla posizione OFF.

### 3.12.9 Activation of the V-Live function

Hold the HOLD key pressed and bring the rotary switch from the OFF position to the V position.

The unit emits a double beep then the V and  symbol flashes.

The selected configuration is memorised when the key is released: the V symbol is then ON steady and the symbol flashes. Proceed in the same way to suppress the V-Live function: the  symbol then goes OFF when the key is released.


### 3.12.10 Modification of audio indication threshold in continuity test

Hold the Yellow key pressed and bring the rotary switch from the OFF position to the position

. The unit beeps, the **W** and symbols go ON along with the threshold value (40.0 by default). Adjustment is then possible from 1 **W** to 40 **W** by successive pressings on the yellow key (short pressure: progression of 1 **W** by 1 **W**; press and hold: progression of 10 **W** by 10 **W**). Once the value is chosen, actuate the rotary switch to memorise.

### 3.12.11 Default configuration of the unit

Hold the Yellow key pressed and bring the rotary switch from the OFF position to A position.

The unit emits a double beep then all the segments of the digital display and the  symbol flash.

The default configuration is memorised when the key is released: the display no longer flashes and the symbol disappears.

The default configuration is:

- Audio identification threshold: 40 **W**
- Auto cut-off: with
- V-Live function: none

### 3.12.12 Date of last calibration carried out on unit

Hold the MIN/MAX key pressed and bring the rotary switch from the OFF position to the V position.

The unit emits a beep, then the calibration date of the unit is displayed in the form "week - year" (SS.AA) as long as the MIN/MAX key is pressed.

### 3.12.13 Display of the internal software version

Hold the **HOLD** key pressed and bring the rotary switch from the OFF position to the **A** position . The unit beeps, the software version is displayed in the form UX.XX for 2 seconds, then all the segments of the display are shown as long as the HOLD key is pressed.

### 3.12.14 Showing of display segments

See § 03.12.13. It is usually possible for any key-switch combination not described previously.

## 4. GENERAL SPECIFICATIONS


### 4.1 Dimensions and weight

- 70 x 193 x 37 mm •260 g

### 4.2 Clamp Tightening Capacity

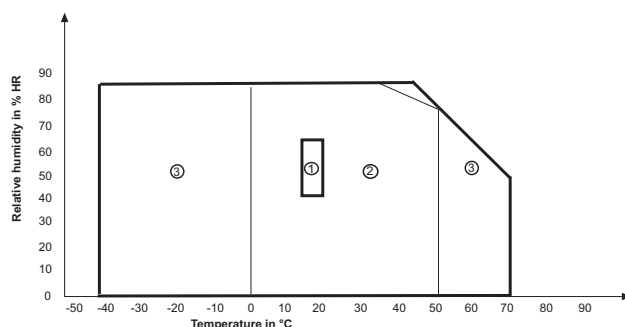
- ≤26 mm

### 4.3 Power Supply

- a standard 9 V alkaline battery (type CEI 6LF22, 6LR61 or NEDA 1604).To change it, see §7.1.
- Average battery charge life: 60 h or 20,000 x 10 s measurements
- 6 Battery charge indicator :  
Flashing: charge life < 1 h Fixed: Change battery
- Automatic OFF after 10 minutes with no action on the switch or the keys (reactivation by switching from the OFF

### 4.4 Environmental parameters

- Temperature - Humidity



#### Altitude


- Operation: ≤2.000 m
- Storage: ≤ 12000 m

#### Indoor use

Impermeability: protection index IP 40 (according to EN 60529, ed. 92)

### 4.5 Compliance with norms

#### Electrical safety:

- secondo EN 61010-1, ed. 2001 e EN 61010-2-032, ed. 2003
- Dual insulation: 
- Installation category: 600 V CAT III o 300 V CAT IV
- Pollution level: 2

#### Electromagnetic compatibility

- as for EN 61326-1, ed. 2006

#### Mechanical resistance

- Free fall 1 m (test as for IEC 68-2-32)
- Shock : 0,5 J (test as for IEC 68-2-27)
- Vibrazioni : 0,75 mm (test as for IEC 68-2-6)

#### Auto- power OFF (for UL94)

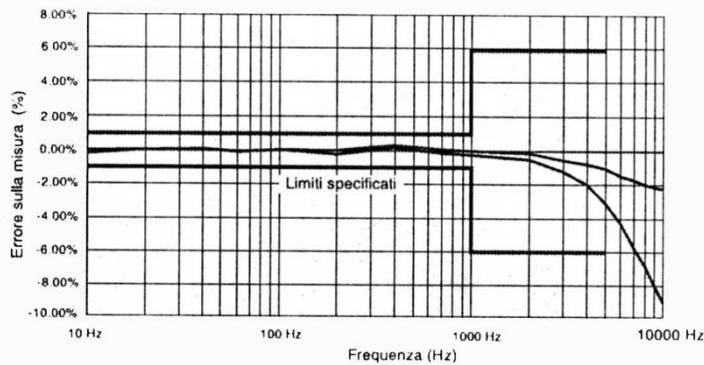
- Housing: V0
- Jaws: V0
- Display window: V2

4.6 Variations in operating range

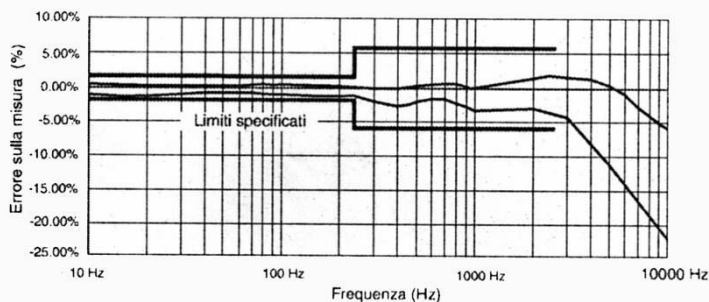
Quantity quantities	Meas. range quantities	Quantity influenced	Influence	
			Typical	Maxi
Battery voltage	7.5 to 10 V	All	< 1 pt	0.2% L +1 pt
Temperature	0...50°C	V A $\Omega$ $\rightarrow$ $\vdash$ W var VA PF Hz	0.05% L/10°C 0.3% L/10°C 0.1% L/10°C 0.25% L/10°C < 1 pt 0.03% L/10°C	0.2% L/10°C +2 pt 0.5% L/10°C +2 pt 0.2% L/10°C +2 pt 0.5% L/10°C +2 pt 2 pt 0,1% L/10°C +2 pt
Relative humidity	10...90% HR	V A $\Omega$ $\rightarrow$ $\vdash$ W var VA PF Hz	$\leq$ 1 pt 0.2% L 0.2% L 0.25% L < 1 pt 0.25% L	0.1% L +1 pt 0.3% L +2 pt 0.3% L +2 pt 0.5% L +2 pt 1 pt 0.5% L +2 pt
Frequency	10 Hz...1 kHz 1 kHz...5 kHz 10 Hz...250 Hz 250 Hz...2.5 kHz	V A	see curve see curve	1% L +1 pt 6% L +1 pt 1.5% L +1 pt 6% L +1 pt
Position of conductor in the jaws (f $\leq$ 400 Hz)	Position on perimeter internal jaws	A W var VA	0.7% L	1% L +1 pt
Retentivity	0...600 peak	A	2 mA/A	3 mA/A
Adjacent conductor crossed by a current 400 ADC or RMS	Conductor in contact with external perimeter jaws	A W var VA	45 dB	40 dB
Conductor clamped by the clamp	0...400 A DC or RMS	V	< 1 pt	1 pt
Application of a voltage on the clamp	0...600 V DC or RMS	A	< 1 pt	1 pt
Peak factor (1)	1,4 to 3.5 limited to 600 A peak 900 V peak	AAC, AC+DC VAC, AC+DC	1% L 1% L	3% L +1 pt 3% L +1 pt
PF (inductive and capacitive)	0.7 and I $\geq$ 5 A 0.5 and I $\geq$ 10 A 0.2 and I $\geq$ 20 A	W var	0.5% L	1% L +1 pt 3% L +1 pt 8% L +1 pt
Rejection of serial mode in DC	0...600 V/50 Hz 0...400 A/50 Hz	V <sub>DC</sub> ADC	50 dB 40 dB	45 dB 35 dB
Rejection of serial mode in AC	0...600 V DC 0...400 A DC	V <sub>AC</sub> , AC+DC W var VA PF A <sub>AC</sub> , AC+DC W var VA PF	> 60 dB > 50 dB	50 dB 40 dB
Rejection of common mode	0...600 V/50 Hz	V A W var VA PF	< 1 pt 0.07 A/100 V < 1 pt	60 dB 0.1 A/100 V 60 dB
Influence of external magnetic field	0...400 A/m (50 Hz)	A W var VA PF	70 dB	60 dB
Number of manoeuvres opening of jaws	50000	A W var VA PF	0.3% L	1% +1 pt

(1) The influence on quantities W, var, VA and PF is identical to that on the current assuming sinusoidal voltage

Tipica frequency response curve  
-V f (f)



- I f (f)



#### 4.7 Marginal operating conditions

Clamped conductor temperature: - 110°C

### 5. GUARANTEE

Our guarantee is applicable for twelve months after the date on which the equipment is made available (extract from our General Conditions of Sale, available on request).

### 6. MAINTENANCE

For maintenance, use only specified spare parts. The manufacturer will not be held responsible for any accident occurring following a repair done other than by its After Sales Service or approved repairers.

#### 6.1 Changing the battery

The clamp must be disconnected from any external electrical source and must not be in contact with the cable.

- Set the switch to OFF
- Slide a screwdriver into the slot at the top of the battery cover (rear of the clamp) and push the battery cover upwards.
- Replace the used battery by a 9 V battery, type LF22; observe the polarities.
- Install the battery in its housing, then install the battery cover.

#### 6.2 Storage

If the clamp is not used for a period of more than 60 days, remove the battery and store it separately.

#### 6.3 Cleaning

- The clamp must be disconnected from any external electrical source and must not be holding the cable. Clean the unit and jaws with a cloth slightly moistened with soapy water. Clean off with a damp cloth. Then dry quickly with a cloth or pulsed air.
- Do not splash water onto the clamp.
- Keep the gap between the jaws in a state of perfect cleanliness.

#### Repair

For all repairs before or after expiry of warranty, please return the device to your distributor.

# VIP CLAMP MINI

APPENDIX

