



## metrix MTX 3297Ex Multimeters With 60000-pt Digital Display User Guide

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**QUICK START GUIDE**

**MTX 3297Ex, ASYC IV**

**Multimeters with 60,000-pt digital display**



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## MTX 3297Ex Multimeters With 60000-pt Digital Display

**Before using the multimeter for the first time, read the ATEX/IECEx Instructions Manual.**

It is used to make electrical measurements in potentially explosive zones in categories 0, 1, 2, 20, 21, 22, and MI, per Directive 2014/34/EU (ATEX).

For measurements on protected electric circuits:

- In conformity for all zones: instrument group II, explosion group IIC (explosive gases, vapours, and mists), temperature category T4.
- In conformity for the following zones: instrument group II, explosion group IIIC, dust, fibres, and conductive or nonconductive projections.
- In conformity for use in mines. Instrument group I, explosion group I, methane and coal dust.

For connections to intrinsically safe circuits, check these connections: refer to the user manual.

During measurements on an intrinsically safe circuit, the electrical parameters must comply with the following values:  $U \leq 65$  V (RMS value) or  $I \leq 5$  A.

If you use this instrument other than as specified, the protection it provides may be impaired, endangering you.

The safety of any system in which this instrument might be incorporated is the responsibility of the integrator of the system.

### Precautions for use:

For your safety, use only the leads (15 A, 1,000 V) supplied with the instrument.

They are in conformity with standard EN 61010-031. Before each use, make sure that they are in perfect condition.

When the instrument is connected to the measurement circuits, never touch an unused terminal.

Use only suitable accessories, those supplied with the multimeter or approved by the manufacturer.

If the measurement category of the accessory is different from that of the instrument, the lowest category applies to the whole assembly.

**Fuse:** 10 A, 10×38, 1,000 V, F, breaking capacity > 30 kA

### Inserting the batteries:



Remove the safety tabs from the batteries to make the instrument operational:

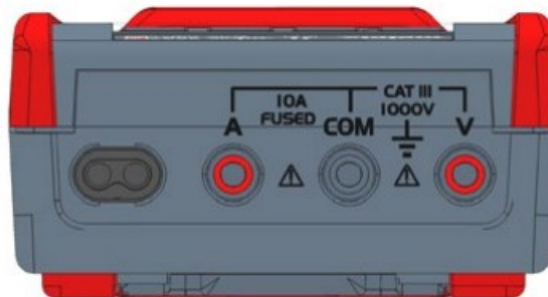
- Unscrew the 3 screws,
- Remove the membrane covering the battery,
- Remove the battery safety tabs,
- Replace the membrane covering the battery,
- Tighten the 3 screws and press on ON key.



In an Ex-classified hazardous area:

- do not open the instrument
- use only qualified batteries.

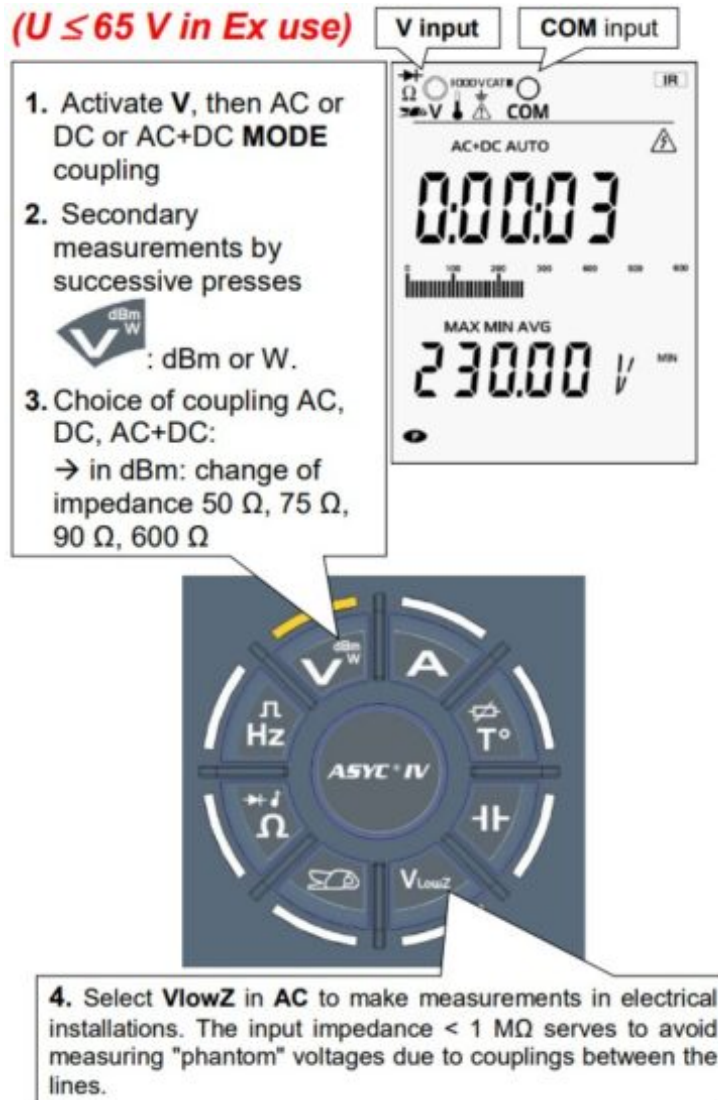
Terminal block: with 3 4 mm banana jacks and an optical socket for USB communication in a safe area:



Function keypad:



**Voltage: VAC, VDC, VAC+DC or VlowZ**



#### Activation of the **MAX, MIN, AVG** measurements:

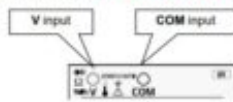
- **MAX** and **MIN** report the highest and lowest values of the RMS measurement.
- **AVG** displays the mean value of the signal since the key press.

Time-stamped value for the **MIN** and the **MAX** [temporary display (4s) on the main display unit, followed by return to present value.

If the time (h:min:sec) exceeds (9:59:59), «—» is displayed:

- – 1st press: recording of the **MAX**, **MIN**, **AVG** (on the 2nd display unit). The max. value is displayed by default.
- Subsequent presses: look-up of the stored values (volatile).

### Frequency: Hz ( $U \leq 65 \text{ V in Ex use}$ )



1. Activate display of the frequency and period on display unit 2.
2. Press Hz again for the secondary measurements: Duty cycle DC%, then resistive power PW%.

### Resistance: $\Omega$ , diode, continuity



1. Activate by pressing.
2. A 2nd press gives access to (continuity).
3. A 3rd press tests the diode (3 V diode).

### Capacitance: F



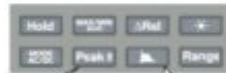
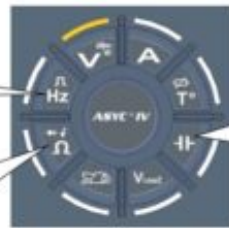
Activate:

Read the measurement value indicated on the display unit.

"OL" is displayed if the value to be measured exceeds the range limits or if the capacitor is short-circuited.

For high values, the measurement cycle includes the display of "run" with a "chaser" decimal point. This means that acquisition is in progress; wait for the display of the digital result.

"Run" is displayed immediately, if the previous measurement was in a small range.



Activate for Peak+ Peak- measurements:

- **Peak+**: displays the maximum instantaneous peak value of the measurement.
- **Peak-**: displays the minimum instantaneous peak value of the measurement.
- 1<sup>st</sup> press: recording of PEAK+, PEAK- (on the 2nd display unit). The PEAK+ value is displayed as default.
- Subsequent presses: look-up of stored values (volatile).

Activation/deactivation of the low-pass = 300 Hz filter:

The low-pass filter (4<sup>th</sup> order) makes it possible to measure the RMS voltage delivered by an MLI type speed controller (for asynchronous motor).

## OPERATING INSTRUCTIONS

Visit our web site to download the operating instructions for your instrument: [www.chauvin-arnoux.com](http://www.chauvin-arnoux.com)  
Search on the name of your instrument. When the instrument has been found, select the page. The operating instructions are on the right. Download them.

## Temperature: °C, °F



1. Press to select the type of probe: Pt100 or Pt1000,
2. Then to toggle the temperature unit (°C or °F) between the two display units.

### Activation of the relative display mode



- Display and storage of the reference and differential values in the unit of the quantity measured.
- 1st press: activates the relative mode  $\Delta REL$    
 (present value - reference value)   
 and stores the measured value that will be used as reference.
- "REF" indicates storage of the reference.
- Subsequent presses: toggles the display between the measured value and the relative measurement  $\Delta REL$ .
- → Value in %

## Current by direct measurement

( $I \leq 5 A$  in Ex use)



- Press: .
- Select the type of signal AC, DC or AC+DC by pressing .
- Depending on what you select, the screen displays AC, DC or AC+DC.
- Connect the black lead to the "COM" terminal and the red lead to "A".
- If the connection is not correct, an audible beep and a visible signal (LEADS) are activated.*



## Current by voltage output clamp

( $U \leq 65 V$  in Ex use)



1. Activate: .
2. Select the type of signal AC, DC or AC+DC by pressing . Depending on what you select, the screen displays AC, DC or AC+DC.
3. Connect the black lead to the "COM" terminal and the red lead to "V".
4. Select the transformation ratio (the same as that of the clamp) 1 mV/A, 10 mV/A, 100 mV/A, 1000 mV/A by pressing on "clamp": to have a direct reading of the current.





## Operation of the switch keys and measurement

### Functions of the switch and keys



For access to the following functions: , dBm, W, continuity, diode, duty cycle, and pulse duration functions, press the button of the switch corresponding to the chosen function.



Here are the combinations that are possible according to the type of measurement:

Type of measurement	MAX/MIN/ AVG	PEAK ±	ΔREL	RANGE		HOLD	
				Auto.	Manu.		
VLowZ voltage VAC voltage VAC+DC voltage AAC, AAC+DC current	✓	✓	✓	✓	✓	✓	✓
VDC voltage ADC current	✓	-	✓	✓	✓	✓	-
60mVDC voltage	✓	-	✓	-	✓	✓	-
60mVAC voltage 60mVAC+DC voltage	✓	✓	✓	-	✓	✓	✓
Temperature	✓	-	✓	✓	-	✓	-
Ohmmeter	✓	-	✓	✓	✓	✓	-
Capacity	✓	-	✓	✓	✓	✓	-
Frequency	✓	-	✓	✓	-	✓	✓
Period (1/F)	✓	-	✓	✓	-	✓	✓
Continuity	-	-	-	✓	-	-	-
Diode	-	-	-	✓	-	✓	-
dBm	-	-	-	✓	-	✓	-
W	-	-	-	✓	-	✓	-
Duty cycle (Dc+, DC-)	-	-	-	✓	-	✓	-
Pulse duration (Pw+, Pw-)	-	-	-	✓	-	✓	-

Configuration parameters:





USER/BASIC mode: During power up, the device is in BASIC mode (default configuration VAC+DC).

The main display unit indicates, for 3 s, the change to USER or BASIC mode.





- If, when you power up your multimeter, you want to activate the USER mode to recover the configuration when the multimeter was switched off, press **Range** and hold it down, then press **ON/OFF** .
- After an automatic power down, the device restarts in USER mode.
- The 0 center bargraph is managed automatically in IDC and VDC.
- Activation/Deactivation of auto power off by a long press on **MODE AC/DC**.
- Activation of the Backlight - successive presses to increase the brightness
- circular operation: brightness 1 → brightness 2 → brightness 3 → brightness 1

### MLI 300 Hz filter

#### • in voltage measurement

1. Press:  or .
2. Select the type of signal AC+DC or AC by pressing **MODE AC/DC**.  
Depending on what you select, the screen displays: AC or AC+DC.
3. Select the filter by pressing .
4. Connect the black lead to the “COM” terminal and the red lead to “V”. The presence of the  symbol indicates that the filter is active.

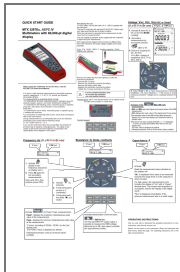
#### • in current measurement

1. Press:  or .
2. Select the type of signal AC+DC or AC by pressing **MODE AC/DC**.  
Depending on what you select, the screen displays: AC or AC+DC.
3. Select the filter by pressing .
4. Connect the black lead to the “COM” terminal and the red lead to “A”. The presence of the  symbol indicates that the filter is active.

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MTX 3297Ex, ASYC IV, MTX 3297Ex Multimeters With 60000-pt Digital Display, MTX 3297Ex,  
Multimeters With 60000-pt Digital Display, 60000-pt Digital Display, Digital Display, Display

References

- [User Manual](#)

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