elma instruments 6100EVSE True RMS Multimeter User Manual

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Contents

Introduction

Instructions for **Elma 6100EVSE multimeter.**

Elma 6100EVSE is a robust TRUE RMS AC / DC multimeter equipped with:

- AC/DC Voltage
- Auto Power OFF
- AC/DC Current
- EVSE
- Data Hold
- Max/Min
- Resistance
- Flashlight
- Capacitance
- Bluetooth for Elma Link App (iOS Android)
- Frequency/Duty Cycle
- Backlight LCD display
- Continuity
- Flexible AC Current with ElmaFlex 430
- Diode

With the **Bluetooth** feature and the free **Elma Link APP** available for both iOS and Android, the **Elma 6100EVSE** becomes a safe and smart documentation tool. Watch your display directly on your Android / iOS device and take measurements at a safe distance from dangerous voltages. View and save all values, curves and graphs directly on your smartphone. Share via email.

Accessories: ElmaFlex 430 current clamp with three ranges 30/300/3000A AC
EAN: 5706445840496

Safety

International Safety Symbols

-  This symbol, adjacent to another symbol or terminal, indicates the user must refer to the manual for further information.
-  This symbol, adjacent to a terminal, indicates that, under normal use, hazardous voltages may be present
-  Double insulation

SAFETY NOTES

- Do not exceed the maximum allowable input range of any function.
- Do not apply voltage to meter when resistance function is selected.
- Set the function switch **OFF** when the meter is not in use
- Remove the battery if meter is to be stored for longer than 60 days.

WARNINGS

- Do not apply voltage to meter when resistance function is selected.
- When measuring volts do not switch to current/resistance modes
- Do not measure current on a circuit whose voltage exceeds 600V
- When changing ranges always disconnect the test leads from the circuit under test.
- Do not exceed the maximum allowable input range of any function.

Function	Maximum input
A AC, A DC	10A AC/DC
V AC, V DC, Frequency, Duty Cycle, EVSE-CP	600 V AC/DC
Resistance, Capacitance, Diode Test, Flexible AC Current	250 V AC/DC

CAUTIONS

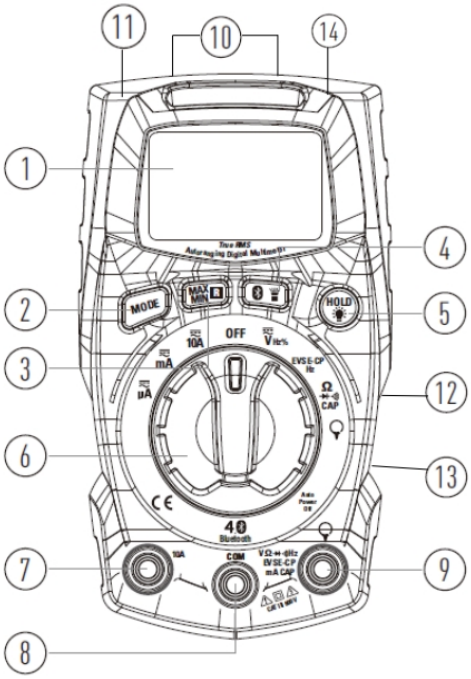
- Improper use of this meter can cause damage, shock, injury or death. Read and understand this user manual before operating the meter.
- Always remove the test leads before replacing the battery or fuses.
- Inspect the condition of the test leads and the meter itself for any damage before operating the meter. Repair or replace any damage before use.
- Use great care when making measurements if the voltages are greater than 25VAC rms or 35VDC. These voltages are considered a shock hazard.
- Always discharge capacitors and remove power from the device under test before performing Diode, Resistance or Continuity tests.
- Voltage checks on electrical outlets can be difficult and misleading because of the uncertainty of connection to

the recessed electrical contacts. Other means should be used to ensure that the terminals are not “live”.

- If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

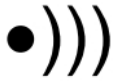
Description

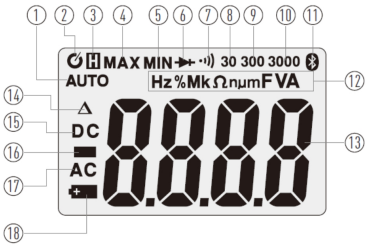
Meter description

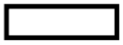


1. LCD display
2. **MAX**/**MIN**/**Range** button
3. **MODE** Select button
4. Rotary Function switch
5. **10A** input (RED)
6. **COM** Input (-) BLACK for: See pkt 7
7. + Input (RED) for V – Ω – Diode – continuity– capacitance –Hz% – Extern current clamp
8. **HOLD** Data hold / backlight button
9. Flashlight / **Bluetooth** button
10. Fuse cover (backside down)
11. **Battery cover** (backside upside)
12. Holder for 2 testleads (backside)
13. **Flashlight** (top)
14. **Slope stand** (backside)

	Display	Description	
1	**AUTO**	Automatic range mode	

2		Auto Power Off
3		Data Hold
4-5	**MAX MIN**	Maximum/minimum
6		Diode test
7		Continuity test
8-9-10	**30-300-3000**	Range
11		Bluetooth for **Elma Link APP**
12	**Hz %**	**H**ertz, frequency / Hz percent (**%**) Duty Cycle
	M, k, m, n, m	Unit of measure prefixes Mega – kilo – micro – nano – milli
	mV V	**m**illi volt – **V**olt
	Ω	Ohm, Resistance
	A	**A**mpere, Current
	F	**F**arad, Capacitance
13		Measurement display digit



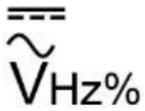
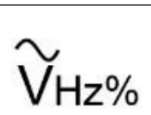
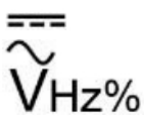
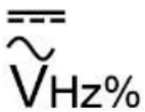
14		Relative value
15	**DC**	**DC** Direct current / voltage
16		Negative reading sign
17	**AC**	**AC** Alternating current / voltage
18		Low battery indicator

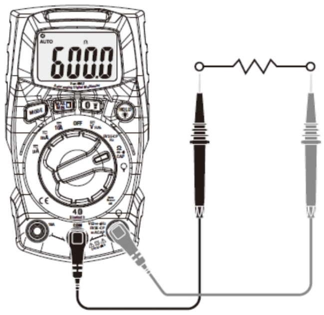
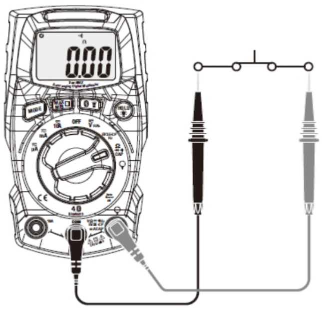
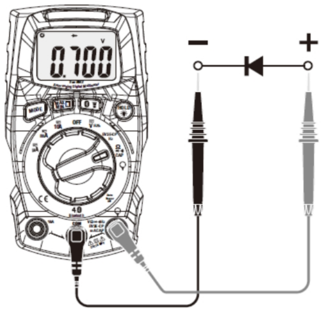
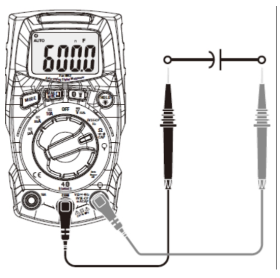
Operation

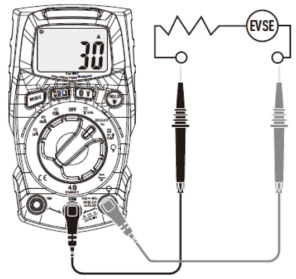
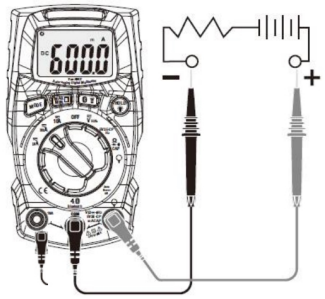
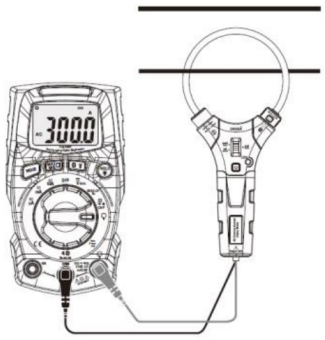
NOTES: Read and understand all Warning and Caution statements in this manual prior to using this meter. Set the function select switch to the OFF position when the meter is not in use.

Measurements

1. For AC DC Voltage – **Frequency, Duty Cycle** – **EVSE-CP/ Hz – Resistance** – **Continuity – diode,** and **capacity** measurement.
Insert the red test lead to the red + "**VΩHz%..** terminal, and the black to the black – **"COM"** terminal. Connect the test leads, with good contact, in parallel to the circuit under test.

Measure settings		**Measuring of**	**Func. switch**	***Mode**	**Display**
	**1a**	DC- Voltage ±		0	DC V or m V
	1b	AC- Voltage		0	AC V
		Frequency		1	Hz
		Duty Cycle		2	%

		Resistance	Ω ▶|·)) CAP	0	Ω or MΩ or KΩ
1a. Notices the polarity when measuring DC., red to + and black to Com.					
	**1c**	Continuity	Ω ▶|·)) CAP	1	Ω and
1c. Notices for Continuity tests, if the resistance is < 50Ω, a tone will sound					
 	**1d**	Diode	Ω ▶|·)) CAP	2	and V
1d. Touch the test probes to the diode under test. Forward voltage will indicate **0.4V to 0.7V.** Reverse polarity will indicate "**OL**". The diode is OK Shorted diode will indicate near **0 mV** and an open diode wi ll indicate "**OL**" in both polarities.					
	**1e**	Capacity	Ω ▶|·)) CAP	3	n F
1e. **WARNING:** To avoid electric shock, discharge the capacitor under test before measuring					
				0	A

	**1f**	EVSE-CP/Hz	EVSE-CP/Hz	1	Hz
1f. Read EVSE Current on the display – press Mode and read frequency					
 2- **10A** 3- **mA/ µA**	***2**	AC Current 10A		0	DC A
		DC Current 10A		1	AC A
	3	AC Current mA		0	DC mA
		DC Current mA		1	DC µA
		AC Current µA		0	DC µA
		DC Current µA		1	DC µA
2-3 Connect the test leads, with good contact, in series to the circuit under test. ***2** For current measurement max. **10 A** (only for 30 sec. every 15 min.)					
	**4**	** Current with extern flex – clamp		0	A
		** Accessories Extern AC Clamp model **ElmaFlex 430** EAN: 5706445840496			

4. Insert the red test lead from the external clamp to the red + " **VΩHz%..** terminal, and the black test lead to the black – **"COM"** terminal.
Open the clamp on the flexible ***ElmaFlex 430*** with the **turn knob**, place the flex coil around a single phase and close the clamp completely again. Place the single phase in the middle of the flex coil for best results and read t he current directly in the display.

Hold/ Back light

Hold Press the **Hold**/**Backlight** key, to "freeze" the measured value on the display, press the key again to cancel the freeze function. While Hold is active the display shows the symbol  .

Backlight The LCD display is equipped with backlight for easier viewing in low-lighted areas. A long press at the **Hold**/**Backlight** key, will activate the backlight, a long press again will, turn off the backlight.

MAX/MIN RANGE

When performing measurements in normal AC / DC current and voltage functions, the **MAX**/**MIN** mode can be activated, which means that, in addition to the normal measurement results, you can also "save" the highest and lowest results, within the measurement period. Can't be used for: **External clamp, Resistance, Review, Diode, Capacity, Frequency, and Duty Cycle.**

1. The first short press at the **MAX**/**MIN**/**RANGE** button activates the **MAX**/**MIN** function. The icon **"MAX"** will appear. The meter will display and "freeze" the maximum reading value and will update only when a higher value occurs.
2. Press again the **MAX**/**MIN**/**RANGE** button, the display icon **"MIN"** will appear. The meter will display and "freeze" the minimum reading value and will update only when a lower value occurs.
3. To exit **MAX**/**MIN** mode press and hold the **MAX**/**MIN**/**RANGE** button for 1 seconds.
4. **Manuel range** the first long press (1 sec.) at the **MAX**/**MIN**/**RANGE** key, will change the default, auto range measuring mode to **manual range** mode. **AUTO** disappears in the display. When entering the manual range mode, continue to press the button until the correct range is set.

Bluetooth/ Flash light

Flashlight. Short press the Bluetooth/ Flashlight button, will turn on or off the flashlight **Bluetooth** A long press at the Bluetooth/ Flashlight button will activate the Bluetooth data transmission function, thus allowing for the free **Elma Link APP,** as you can download at the **App Store** or **Google play,** for control of the instrument in a safe distance with your smart device, as well as save and transferring documentation or share measurements to the task you are doing. A long press again at the **Bluetooth**/ Flashlight button will turn **off** the Bluetooth function.

Automatic Power OFF (APO)

In order to conserve battery life, the meter will automatically turn off after approximately 15 minutes. To turn the meter on again press a random button or turn the function switch to the **OFF** position and then to the desired function position.

Turn off the **Auto Power OFF** function, press and hold the **Mode** button while turning on the instrument. The **Mode** button must be held down, until **Elma 6100EVSE** is fully started.

The **Auto Power OFF** symbol  disappear from the display.

Maintenance

WARNING: To avoid electrical shock, disconnect the meter from any circuit, remove the test leads from the input terminals, and turn **OFF** the meter before opening the case for change of battery or fuses. Do not operate the meter with an open case.

Cleaning and Storage

Periodically wipe the case with a damp cloth and mild detergent; do not use abrasives or solvents. If the meter is stored away for 60 days or more, remove the battery and store it separately.

Battery replacement

1. Remove the Phillips head screw that secures the rear battery cover (backside upside)
2. Replace Two “AAA” 1.5V Alkaline Battery.
3. Secure the battery cover.

Fuse replacement

The instrument is secured with 2 fuses for protection. When replacing, use the same type of fuses.

1. Remove the Phillips head screw that secures the fuse cover (backside down)
2. Replace the failed fuse. Type F10A/600V or Type F600mA/600V
3. Secure the fuse cover

General specification

Recommended calibration interval: 1 year

Display	6000 counts LCD
Continuity check	Threshold 50W; Test current < 0.5mA
Diode test	Test current typical 0.3mA; Open circuit typical voltage < 3.3VDC
Low battery indication	 is displayed

Over-range indication	'**OL**' is displayed
Measurement rate	2 readings per second, nominal
Input Impedance	10MW (VDC and VAC)
AC response	True rms (50-400Hz, AAC – VAC and Fleksibel AC strømtang)
Operating Temperature	5oC to 40oC
Storage Temperature	-20oC to 60oC
Operating Humidity	Max 80% up to 31oC decreasing linearly to 50% at 40oC
Storage Humidity	<80%
Operating Altitude	Max. 2000 meter
Battery	2 Psc. " AAA" 1.5V Alkaline battery
Fuses	1 Type F10A/600V og 1. Type F600mA/600V
Auto power OFF	After approx. 15 min.
Dimensions & Weight	121 x 67 x 35mm; 190g
Safety	For indoor use and in accordance with the requirements for double insulation to IEC1010-1 (2001): EN61010-1 (2001) Overvoltage Category III 600V ,Pollution Degree 2

Support

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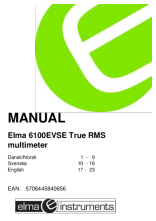
Documents / Resources

 MANUAL Elma 6100EVSE True RMS multimeter	elma instruments 6100EVSE True RMS Multimeter [pdf] User Manual 6100EVSE, True RMS Multimeter, RMS Multimeter, 6100EVSE, Multimeter