



MANUAL

Elma 9200BT

https://www.elma.sk/product.php?id_product=1731

EAN: 5706445840489



English

1 Introduction

Elma 9200BT True RMS AC/DC Clamp meter with Bluetooth

Free **Elma Link APP** and build in **LED flashlight**

Elma 9200BT is a robust TRUE RMS AC / DC multimeter equipped with Bluetooth feature. The instrument measures power, voltage, frequency, duty cycle, capacity, temperature, resistance and continuity. In addition, the instrument is equipped with special function for external current clamp with the possibility to measuring up to 3000A with (**ElmaFlex 430**).

With the **Bluetooth** feature and the free **Elma Link APP** available for both iOS and Android, the **Elma 9200BT** 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.

The **Elma 9200BT** has a large illuminated display and is equipped with etc. LED flashlight, data hold, max / min and auto power off.

The **Elma 9200BT** has a large illuminated display and is equipped with etc. LED flashlight, data hold, max / min, Non-Contact AC Voltage Measurements and auto power off. **Elma 9200BT** Clamp meter meets EN61010-1 CAT III 600 V and comes in bag with test leads, batteries and manual.

Accessories

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



2 Safety

2.1 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

2.2 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.

2.3 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	400A AC/ DC
V AC, V DC	750 V AC/ DC
Resistance, Capacitance, Frequency, Diode Test	300 V AC/ DC
Temperature, iFlex A	

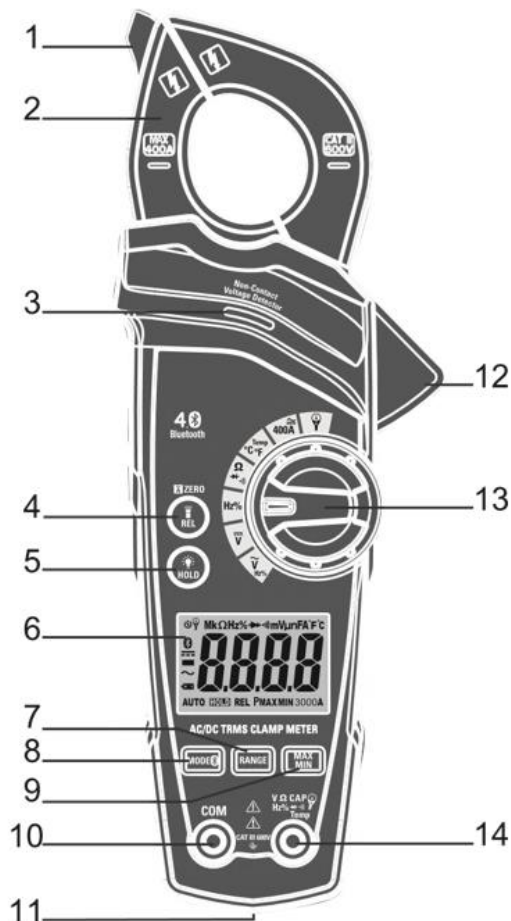
2.4 Cautions

- 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.

3 Description

3.1 Meter description

1. Non-contact AC voltage indicator)
2. Current Clamp
3. Non-contact AC voltage indicator light
4. **REL and Flashlight button**
5. **Data Hold and Backlight button**
6. LCD display
7. **RANGE button**
8. **MODE select and Bluetooth button**
9. **Max/Min button**
10. - Terminal (BLACK) **COM** for: See pkt.14
11. Battery Cover (backside)
12. Clamp trigger
13. Rotary Function switch
14. + Terminal (RED) for V Ω Diode Continuity CAP TEMP Hz% and external current clamp



3.2 Display

Display Description

HOLD	Data hold
—	Negative reading display
8888	Measurement display digits
REL	REL/DCA zero
MAXMIN	Maximum/Minimum
⏻	Auto power off
AUTO	Auto range mode
— ~	Direct current / Alternating current
+ I	Low battery indicator
mV V	Milli-volts or Volts (Voltage)
Ω	Ohm, (Resistance)
A	Amperes (Current)
F	Farad (Capacitance)
Hz%	Hertz (Frequency)/Percent(duty cycle)
FA °C	Fahrenheit and Celsius units (Temperature)
μnMk m	Unit of measure prefixes: micro, nano, mega, kilo, milli,
)))	Continuity test
➔	Diode test
Bluetooth	Bluetooth 4.0 active
Lightbulb	External current clamp




4 Operation


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

4.1 AC/DC Current Measurements with clamp

WARNING: Ensure that the test leads are disconnected from the meter before making current clamp measurements.

1. Select positions to the  **400A**. If the approx. range of the measurement is not known, select the highest range then move to the lower ranges if necessary
2. Use the **MODE** button to select AC or DC.
3. Press the **REL** button to zero the meter display For **DC A** measurement with clamp, always use the **REL** mode to reset the display as external disturbances can show a current, hold the clamp close to the conductor to be measured, then press the **REL** button before the clamp opens over the conductor.
4. Press the trigger to open jaw. Fully enclose only one conductor. For optimum results, center the conductor in the jaw.
5. The clamp meter LCD will display the reading.

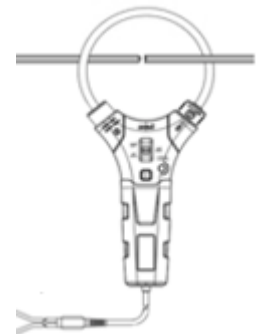
4.2 AC 3000A Current Measurements

1. Select positions,  **External current clamp**.
2. Insert from the Current Transducer the red cable into + input terminal V • Hz%• CAP• Temp• and the black cable into - input terminal **COM**.
3. Press twice on the "Range" button to **3000A**.
4. Select on the Current Transducer "Range" **3000A**. (wait 2 sec., before next step)
5. Place the clamp coil over one conductor.

Open the **flexible ElmaFlex 430 clamp** by turning the knob, place the coil over a single conductor and close completely again.

Place the conductor in the center of the flex coil for most accurate results.

6. The clamp meter LCD will display the reading.



4.3 Non-Contact AC Voltage Measurements (NVC)

1. Turn on the instrument.
2. Touch the probe **NVC** tip to the hot conductor or close to the hot side of the electrical outlet.
3. If AC voltage is present, the red detector light will illuminate.

WARNING: Risk of Electrocution. Before use, always test the Voltage Detector on a known live circuit to verify proper operation.

NOTE: The conductors in electrical cord sets are often twisted. For best results, rub the probe tip along a length of the cord to assure placing the tip in close proximity to the live conductor.

The detector is designed with high sensitivity. Static electricity or other sources of energy may randomly trip the sensor. This is normal operation.

4.4 Measurements with test leads

- For all measurements with test leads apply:
- Insert the red test lead to the red + "**V, Ω , CAP, Hz%, ...**" input terminal
- Insert the black test lead to the black "**COM**" input terminal.
- The test probe must have good contact over the circuit to be measured.

4.5 DC Voltage Measurement

1. Set the function switch to the position $\overline{\text{V}}$
2. Read the voltage measurement on the LCD display.

4.6 AC Voltage measurement

1. Set the function switch to the position $\tilde{\text{V}}_{\text{Hz}\%}$
2. Use the **Mode** button set function to **V** $\tilde{\text{V}}_{\text{Hz}\%}$
3. Read the AC voltage measurement on the LCD display.

4.7 Frequency Measurements Hz / Duty Cycle %

1. Set the function switch to $\tilde{\text{V}}_{\text{Hz}\%}$ or Hz%
2. Use the **Mode** button set function to Hz or Duty Cycle %
3. The display will show the **Hz** (frequency) or **Duty Cycle %** reading.

4.8 Resistance measurement

1. Set the function switch to the $\Omega \rightarrow \cdot\text{))}$ CAP position
2. Use the **Mode** button set function to Ω
3. Read the resistance measurement on the LCD display.

4.9 Capacitance Measurements

WARNING: To avoid electric shock, discharge the capacitor under test before measuring.

1. Set the function switch to the $\Omega \rightarrow \cdot\text{))}$ CAP
2. Use the **Mode** button set function to CAP
3. Read the capacitance value in the display.
If "OL" appears in the display, remove and discharge the component.
NOTE! For very large values of capacitance measurement it can take

4.10 Continuity Measurements

1. Set the function switch to the $\Omega \rightarrow \cdot\text{))}$ CAP position
2. Use the **Mode** button set function to continuity $\cdot\text{))}$
3. If the resistance is $< 50\Omega$, a tone will sound.

4.11 Diode test

1. Set the function switch to the $\Omega \rightarrow \cdot\text{))}$ CAP position
2. Use the **Mode** button set function to diode ||
3. Read the display.
4. Reverse the test lead polarity by reversing the red and black leads. Note this reading.
5. The diode or junction can be evaluated as follows.
 - a. If one reading displays a value (typically 0.400V to 0.900V) and the other reading displays **OL**, the diode is good.
 - b. If both readings display OL the diode is open.
 - c. If both readings are very small or '0', the diode is shorted.

4.12 Temperature Measurements

1. Set the function switch to "Temp °C °F" position.
2. Use the **Mode** button set °C Celsius or °F Fahrenheit
3. Insert the Temperature Probe observing polarity, to the red + "V,Ω..." input terminal, and the black – "COM" input terminal.
4. Touch the Temperature Probe head to the device under test. Continue to touch the part under test with the probe until the reading stabilizes. Read the temperature on the LCD display.

WARNING: Remove the thermocouple probe before changing to another measurement function. To avoid electric shock.

The replacement bead wire probe (with banana plug connectors) is **EAN 5706445410057**.

NOTE: To use a Type K thermocouple probe that is terminated by a subminiature (flat blade) connector, a subminiature-to-banana plug adaptor **EAN 5703317660077** is required.

5 Other functions

5.1 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 any button or turn the function switch to the **OFF** position and then to the desired function position.

Auto Power Off can be switched off. Hold the **Mode** button while turning on the instrument. The **Mode** button must be held down until the instrument is completely started.


The **Auto Power Off** symbol  disappears from the display.

5.2 Mode/Bluetooth

- a. **Mode:** Press the **Mode/Bluetooth**-button to select (if possible) to secondary functions this is possible in following functions:

- Ω  **CAP**, functions select Ω **resistance-**, **diode-**, **Continuity** or **Capacitance**.
- **Hz%** function, select **Hz** or **Hz%**
- **V~ /Hz%** function, select **AC V**, **Hz** or **Hz%**.
- **Temperature** function, select **°C** or **°F**
- **400A** function, select **AC current** or **DC current**

* The **Mode** button is also used to turn off the **Auto shut off** function, which is active by default when the instrument is turned on. See the section **Automatic Power Off (APO)**.

- b. **Bluetooth:** Press and hold the "Mode" button to activate the **Bluetooth** function. The symbol  is shown on the LCD display.

5.3 RANGE (auto or manuel)

By default, the instrument is in automatic range mode, the display shows the symbol "**AUTO**", this automatically sets the range to the most appropriate ratio for carrying out measurement.

Change to **Manual RANGE** mode in following functions:

AC 3000A  (always manual range) - **400A** - Ω - **DC V** and **AC V**.

Press the **RANGE** button to activate the manual range mode. The symbol "**AUTO**" disappears from the lower left part of the display. In **manual range mode**, press the **RANGE** button to change measuring range, the decimal point will change its position.

If a reading is higher than the maximum measurable value, the indication "**OL**" appears on the display. Go back to **Auto Range** mode by press and hold the **RANGE** button for more than 1 second or by changing to another function.

5.4 MAX / MIN


When performing measurements in the usual AC/DC current/voltage functions, the **MAX/MIN** function can be activated, which means that in addition to viewing the current measurement result, you can also "collect" the highest and lowest measurement results within the period you measure.

This can't be used for: **Ω , Continuity, Diode, Capacity, Frequency and Duty Cycle%**.

1. At the first press at the **MAX/MIN** button, the max/min capture function is activated. The display shows **MAX**, the instrument will now "freeze" the highest value measured. The value will only change if a higher value occur.
2. Press the **MAX/MIN** button again to see the minimum value. The display shows **MIN** and the displays shows, the lowest value measured. The value will only change if a lower value occur.
3. Pressing the **MAX/MIN** button again, **MAXMIN** flashes in the display, the reading will show the measured value continuously, while the instrument "remember" the highest and lowest values measured. See these values by pressing **MAX/MIN** button, 1 (**MAX**) or 2 times (**MIN**).
4. To exit the **MIN/MAX** function, press and hold the **MAX/MIN** button for 1 second.

5.5 REL/Flashlight

a. **Rel function:** (relative) *Only for* **AC 3000A**  - **400A - Ω - DC V and AC V.**

1. Press the **REL** button to zero the display to 0.00. "**REL**" will appear in the display (not in )
If a change in the measurement value occurs, the display will show the difference between 0.00 and the new value, which is the actual value minus the "stored" zero value.
2. To exit this mode, press and hold the **REL** button until "**REL**" is no longer in the display.
3. For **DC A** measurement with clamp see **AC/DC Current Measurements with clamp**.

b. Flashlight:

Press and hold the **REL/Flashlight button**, to turn the Flashlight on or off.

5.6 Hold/Backlight

- a. **Hold.** Data Hold, to freeze the LCD reading, press the **HOLD** button. While data hold is active, the **HOLD** icon appears on the LCD. Press the **Hold** button again to return to normal operation.
- b. **Backlight:** The LCD is equipped with Backlighting for easier viewing, especially in dimly lit areas. Press the **Backlight** button to turn the Backlight on/off

6 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. Do not operate the meter with an open case.

6.1 Cleaning and Storage

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

6.2 Battery Replacement.

1. Remove the Phillips head screw that secures the rear battery cover.
2. Replace the 2 AAA 1,5 V battery.
3. Secure the battery compartment.

7 Specifications

Function	Range	Resolution	Accuracy (% of reading + digits)
AC True RMS Current (Auto Range)	60.00A	10mA	±(2.0 % of reading+8 digit)
	400.0A	100mA	±(2.5 % of reading+8 digit)
Over rang protection: Maximum input 400A. Accuracy specified from 5% to 100% of the measuring range. Frequency Response: 50Hz to 60Hz True RMS			
DC Current (Auto Rang)	60.00A	10mA	±(2.0 % of reading+8 digit)
	400.0A	100mA	±(2.5 % of reading+8 digit)
Over range protection: Maximum input 400A.			
DC Voltage (Auto-ranging))	600.0mV	0.1mV	±(0.9 % of reading+5 digit)
	6.000V	1mV	±(1.0 % of reading+3 digit)
	60.00V	10mV	±(1.0 % of reading+3 digit)
	600V	100mV	±(1.0 % of reading+3 digit)
Maximum Input:750V DC			
AC True RMS Voltage (Auto-ranging)	6.000V	1mV	±(1.2 % of reading+5 digit)
	60.00V	10mV	±(1.2 % of reading+5 digit)
	600V	100mV	±(1.5 % of reading+5 digit)
AC Response: 50 Hz to 1kHz Accuracy specified from 5% to 100% of the measuring range Maximum Input: 750V AC RMS			
Resistance (Auto-ranging)	600.0Ω	0.1Ω	±1.0 % of reading+4 digit
	6.000kΩ	1Ω	±1.5 % of reading+2 digit
	60.00kΩ	10Ω	±1.5 % of reading+2 digit
	600.0kΩ	100Ω	±1.5 % of reading+2 digit
	6.000MΩ	1kΩ	±2.0 % of reading+5 digit
	60.00MΩ	10kΩ	±3.0 % of reading+8 digit
Input Protection: 300V DC or 300V AC RMS.			
Capacitance (Auto-ranging)	60.00nF	10pF	±5 % of reading+30 digit
	600.0nF	0.1nF	±3 % of reading+5 digit
	6.000uF	1nF	±3 % of reading+5 digit
	60.00uF	10nF	±3 % of reading+5 digit
	600.0uF	0.1uF	±4 % of reading+10 digit
Input Protection: 300V DC or 300V AC RMS. Accuracy is not specified below 6nF.			

AC current (with Current Transducer)

Function	Range	Transducer ratio	Resolution	Accuracy (% of reading + digits)
Iflex A	30A*	100mV/1A	0.01A	±1.5 % of reading+8 digit
	300A*	10mV/1A	0.1A	
	3000A*	1mV/1A	10A	
Accuracy specified from 5% to 100% of the measuring range Do not include the accuracy of current Transducer with (30A*/300A*/3000* Rang Corresponding Rang).				

Frequency with test leads (AC Voltage)

Function	Range	Accuracy (% of reading + digits)
Frequency (Auto-ranging)	10Hz to 10 kHz	±1 % of reading+5 digit
Input Protection:600V AC RMS Sensitivity:>15V AC RMS		

Frequency (electronic circuits)

Function	Range	Resolution	Accuracy (% of reading + digits)
Frequency (Auto-ranging)	60.00Hz	0.01Hz	±1 % of reading+5 digit
	600.0Hz	0.1Hz	
	6.000kHz	0.001kHz	
	60.00kHz	0.01kHz	
	600.0kHz	0.1kHz	
	1.000MHz	0.001MHz	
	10.00MHz	0.01MHz	
Sensitivity: >2V RMS (@ 20% ÷80% duty cycle) and f<100kHz; >5V RMS (@ 20% ÷ 80% duty cycle) and f>100kHz			
Duty Cycle	20% to 80%		±1.2 % of reading+10 digit

Temperature


Function	Range	Resolution	Accuracy (% of reading + digits)
Temperature °C	-20°C to 760 °C	0.1°C /1°C	±3 % of reading+5 °C
Temperature °F	-4 °F to 1400 °F	0.1°F / 1°F	±3 % of reading+9 °F
Sensor: Type K Thermocouple Input Protection: 300V DC or 300V AC RMS.			

Other functions

Function	Testing Condition Reading	Reading
Diode	Forward DCA is approx.1.5mA, open circuit Voltage MAX. 3V	Forward voltage drop of Diode
Continuity	Test current <0.35mA	Buzzer makes a long sound, While resistance is less than(50Ω)
Input Protection: 300V DC or 300V AC RMS		

8 General specifications

Recommended calibration interval: 1 year

Clamp jaw opening	approx. 30mm (1,2")
Bluetooth 4.0	4.0
Display	3-6/7 digits (6000 counts) backlit LCD
Low Battery indication	 is displayed
Over-range indication	"OL" display
Measurement rate	3 readings per second, nominal
Temperature sensor	Type K thermocouple
Input Impedance	10 MΩ (V DC and V AC)
Operating Temperature	5 °C to 40 °C (41 °F to 104 °F)
Operating Humidity	Max. 80% up to 31°C (87°F) decreasing linearly to 50% at 40°C (104°F)
Operating Altitude	Max. 2000 meter (7000ft)
Storage Temperature	-20 °C to 60 °C (-4°F to 140 °F)
Storage humidity	Mindre end 80%
Battery	2 x. 1,5 V AAA
Battery life	~30h(backlight ON),~100h(backlight OFF)
Auto power OFF	After approx. 15 minutes
Safety	For indoor use and in accordance with the requirements for double insulation to IEC1010-1(2001):EN61010-2-030 EN61010-2-032 EN61010-2-033 Overvoltage
Category	III 600V, Pollution Degree 2.



Elma Instruments A/S
Ryttermarken 2
DK-3520 Farum
T: +45 7022 1000
F: +45 7022 1001
info@elma.dk
www.elma.dk

Elma Instruments AS
Garver Ytteborgsvei 83
N-0977 Oslo
T: +47 22 10 42 70
F: +47 22 21 62 00
firma@elma-instruments.no
www.elma-instruments.no

Elma Instruments AB
Pepparvägen 27
S-123 56 Farsta
T: +46 (0)8-447 57 70
F: +46 (0)8-447 57 79
info@elma-instruments.se
www.elma-instruments.se