



EKF



TECHNICAL MANUAL

Digital clamp meter
M266C EKF EXPERT

SAFETY INFORMATION

The digital clamp meter M266C EKF EXPERT complies with IEC 61010-1:2001 in terms of safety requirements, and IEC 61326-2-1:2005 and IEC 61326-2-2:2005 in terms of electromagnetic compatibility.

To ensure safe operation of the device, follow the instructions herein.

The safety symbols used herein are listed in Table 1.

Table 1

	Important safety information
	High voltage may be present
	Grounding
	Double insulation
	The fuse can be replaced by a similar one with the parameters specified herein

SAFETY INSTRUCTIONS:

- Use sockets, functions and measuring ranges as described herein.
- Do not use the device if its housing is damaged. Pay particular attention to the connection sockets.
- Use original probes from this device model. Do not use defective probes. Check the insulation of the probes on the regular basis. When measuring, keep your fingers behind the barrier edge of the probes.
- Do not operate the device with the back lid open or the housing loosely closed.
- Never exceed the overload capacity value specified for each measuring range.
- Do not touch any unused sockets when the device is connected to the measured circuit.
- If you do not know the measured value order before measuring, set the range switch to the maximum value.
- Before changing the position of the range switch, disconnect the probe from the circuit to be measured.
- When measuring in TV sets and static power supplies, be aware that high voltage pulses may be present at the measured points, which can damage the device.
- Disconnect power and discharge high voltage capacitors when measuring electrical resistance, testing circuit continuity and diodes.
- Never measure resistance in a closed circuit.
- Do not use the product in explosive or high-humid environment.
- Do not place more than one wire into the clamp meter.
- Replace the battery as soon as the symbol «BAT» appears.
- Be careful whenever dealing with voltage over 60V DC or 30V AC.



If you fail to observe the manufacturer's operating instructions, the protection of the device may be degraded. Stop using the device immediately if any malfunctions or faults occur. The device shall be serviced and repaired only by authorized service companies. For cleaning of the product, use a soft cloth, do not use abrasives or solvents.

1 DESCRIPTION

The digital clamp meter M266C EKF EXPERT is a high-quality measuring instrument with a wide range of functions for everyday use:

- DC voltage measurement DCV ($\underline{V}$)
- AC voltage measurement ACV ($\underline{V}$)
- AC measurement (no break in circuit) ACA ($\mathbf{A\sim}$)
- electrical resistance measurement (Ω)
- temperature measurement ($^{\circ}\mathbf{C}$ / $^{\circ}\mathbf{F}$)
- circuit continuity test / buzzer ($\bullet \gg$)
- data hold (**HOLD**)

To hold the measurement result, press the button and the current values will be held on the display. Press the button again to reset the recorded value.

- insulation test Ω (if the option 500 V insulation tester is connected).

2 FRONT PANEL ELEMENTS

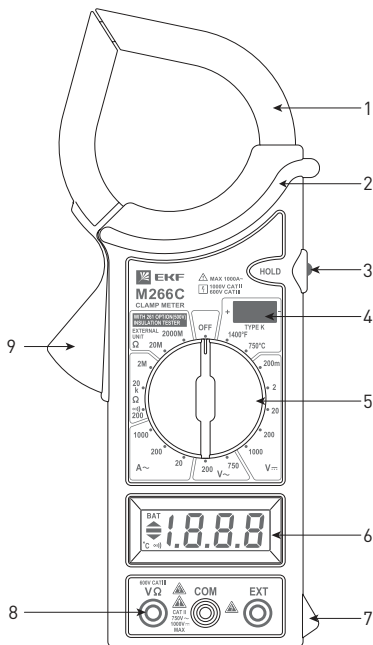


Fig. 1 - Front panel elements

1. Transformer clamps for AC non-contact measurement in a wire;
2. Finger safety barrier;
3. Button «**HOLD**»;
4. Socket for connecting thermocouple, type «K»;
5. Rotary switch for selecting functions and measurement range, and switching on/off the device («**OFF**»);
6. LCD display 3 1/2 digits;

7. Strap fastener;
8. Sockets:
 «**VΩ**» - to connect the probe of positive polarity (red probe);
 «**COM**» - to connect the probe of negative polarity (black probe);
 «**EXT**» - to connect 500V insulation tester;
9. Clamp opening trigger.

3 TECHNICAL DATA

Table 2

Parameter	Value
Maximum display value	1999 with automatic polarity detection
Measurement method	Double-integrated ADC
Measuring rate	2 measurements per second
Overload indicator	«1» on LCD display
Low battery indicator	symbol «BAT» on LCD display
Polarity indicator	symbol «-» for negative polarity
Safety category	600V CATIII / 1000V CATII
Housing insulation	double, class II
Degree of protection by IEC 60529	IP20
Operating temperature, °C	from 0 to +40 at relative humidity of max. 80%
Altitude above sea level, m	max. 2000
Power supply	9 V Battery 6F22
Dimensions, mm	96x235x46
Weight, g	330 (with battery)
Service life, years	10

DC VOLTAGE

Range	Resolution	Accuracy
200 mV	0,1 mV	$\pm 0,5\% \pm 1D$
2 V	0,001 V	$\pm 0,5\% \pm 3D$
20 V	0,01 V	
200 V	0,1 V	
1000 V	1 V	$\pm 0,8\% \pm 3D$

*D - least significant digit value

Input resistance: $\geq 9 \text{ MOhm}$

Overload protection: 250 V AC root-mean-square value for range 200 mV and 1000V DC or 750 V AC for other ranges.

AC VOLTAGE

Range	Resolution	Accuracy
200 V	0,1 V	$\pm 1,0\% \pm 5D$
750 V	1 V	$\pm 1,2\% \pm 5D$

Input resistance: $\geq 9 \text{ MOhm}$

Overload protection: 1000 V DC or 750 V AC for all ranges

Frequency range:

50 Hz - 400 Hz for $\leq 600 \text{ V}$;

50 Hz - 200 Hz for 750 V.

ALTERNATING CURRENT

Range	Resolution	Accuracy
20 A	0,01 A	$\pm 4,0\% \pm 5D$
200 A	0,1 A	$\pm 2,5\% \pm 5D$
1000 A	1 A	$\pm 3,0\% \pm 10D$

Overload protection: 1200 A within 60 sec

Frequency range: 50 - 60 Hz

Width of clamps opening: 5 cm

RESISTANCE

Range	Resolution	Accuracy
200 Ohm	0,1 Ohm	$\pm 1,0\% \pm 5D$
2 kOhm	0,001 kOhm	$\pm 1,0\% \pm 8D$
20 kOhm	0,01 kOhm	
200 kOhm	0,1 kOhm	
2 MOhm	0,001 MOhm	

Overload protection: 250 V DC or 250 V AC (RMS) for all ranges

Maximum voltage of open circuit: 750 mV

TEMPERATURE

Range	Resolution	Accuracy	
		from 0 to 400°C (from 32 to 752°F)	from 401 to 750°C (from 754 to 1382°F)
from 0 to 750°C	1°C	$\pm 1,0\% \pm 3D$	$\pm 2,0\% \pm 3D$
from 32 to 1382°F	1°F		

INSULATION RESISTANCE (If the option 500 V insulation tester is connected)

Range	Resolution	Accuracy
20 MOhm	0,01 MOhm	$\pm 2,0\% \pm 2D$
2000 MOhm	1 MOhm	$\pm 4,0\% \pm 2D$ up to 500 MOhm
		$\pm 5,0\% \pm 2D$ over 500 MOhm

4 MEASUREMENTS



Never exceed the overload capacity value given in the specification for each measuring range.

DC VOLTAGE AND AC VOLTAGE MEASUREMENT (V_{DC} and V_{AC})

1. Connect the red probe to the «**VΩ**» socket and the black probe to the «**COM**» socket. The polarity of the red probe is considered positive.

2. Use the rotary switch to select the desired DC Voltage (V_{DC}) or AC Voltage (V_{AC}) measurement range.

If you do not know the measured value before measuring, set the range switch to maximum voltage, then switch to lower limits to achieve the required measurement accuracy.

3. Connect the probes to the circuit to be tested.

4. Read the value and polarity of the tested voltage on the display.

5. If the display shows only «1» in the left digit, overload has occurred. Set the range switch to a higher value.

6. When the work is completed, disconnect the measuring probes from the tested circuits and put the rotary switch to the «**OFF**» position.

ALTERNATING CURRENT MEASUREMENT (A~)

1. Make sure that the «**HOLD**» button is not pressed.
2. Use the rotary switch to select the desired alternating current measurement range (A~).
3. Release the clamps and place the wire between the clamps.
4. Read the current value on the display.
5. If the display shows only «1» in the left digit, overload has occurred. Set the range switch to a higher value.
6. When the work is completed, put the rotary switch to the «**OFF**» position.

RESISTANCE MEASUREMENT (Ω)

Connect the red probe to the «**V Ω** » socket and the black probe to the «**COM**» socket. The polarity of the red probe is considered positive.

1. Use the rotary switch to select the desired resistance measurement range (Ω).
2. Connect the probes to the tested resistance and read the values on the display.
3. If the display shows only «1» in the left digit, overload has occurred. Set the range switch to a higher value.
4. When the work is completed, disconnect the probes from the tested circuits and put the rotary switch to the «**OFF**» position.



If the resistance to be measured is set in the circuit, switch off the power supply and discharge all capacitances in the circuit before carrying out the measurements.

TEMPERATURE MEASUREMENT (°C / °F)

1. Put the rotary switch to the position (°C / °F), the display will show the current ambient temperature.
2. Put the thermocouple of «K» type into the temperature socket on the front side of the clamp meter and touch the working end of the thermocouple to the surface of the object to be tested.
3. Read the measured temperature value on the display.
4. When the work is completed, remove the thermocouple type «K» from the sockets and put the rotary switch to the position «**OFF**».



To avoid electric shock, make sure that the thermocouple is disconnected from the device before switching to another measuring function.

CIRCUIT CONTINUITY TEST / BUZZER (•||)

Connect the red probe to the socket «**V Ω** » and the black probe to the socket «**COM**».

1. Put the rotary switch to position (•||)
2. Connect the probes to two points of the circuit to be tested. In case of electrical contact between the points (resistance less than 100 Ohm), the buzzer will sound.
3. When the work is completed, disconnect the probes from the tested circuits and put the rotary switch to the «**OFF**» position.

INSULATION TEST

If the option 500V insulation tester 500 V is connected (out of delivery scope):

1. Connect the insulation tester through tee fork, «**VΩ**», «**COM**», «**EXT**» on the meter to the sockets «**VΩ**», «**COM**», «**EXT**» on the clamp meter.
2. Set the range switch on the clamp meter to the 2000 MΩ limit.
3. Set the range switch on the insulation tester to the 2000 MΩ limit
4. Connect the probes of the clamp meter to the sockets «**L**» and «**E**» of the insulation tester and connect them to the tested insulation. (The insulation tester shall be powered off).
5. Turn the power switch to the «**ON**» position
6. Press the button «**PUSH 500V**», and the red LED 500V will light up. The value of measured insulation resistance will appear on the display. If the value is less than 19 MΩ, turn the range switch of the both devices to the «**20MΩ**» position to increase accuracy.
7. When the insulation tester is not in operation, put its power switch to the «**OFF**» position and remove the probes from the «**L**» and «**E**» sockets. This will extend the life of the batteries and prevent electrical shock.

BATTERY REPLACEMENT

If the «**BAT**» symbol is displayed, the battery needs to be replaced. To replace the battery, unscrew the screws on the rear side of the device. Remove the failed element and replace it with a new one. Observe polarity of the battery. Close the housing and tighten the screws.



Before replacing the battery, make sure that the probes and the insulation tester are switched off and the rotary switch is in the «**OFF**» position.

5 SCOPE OF DELIVERY

1. Clamp meter- 1 pc.
2. Set of probes (red/black) - 1 pc.
3. Battery 9 V - 1 pc.
4. Thermocouple, type K - 1pc.
5. Technical and operation manual - 1 pc.

6 TRANSPORTATION AND STORAGE

The product shall be transported in compliance with the transportation regulations applicable to each means of transport. The product shall be protected against mechanical impact during storage and transportation. The product shall be stored in heated and ventilated space at the ambient temperature from -25 to +35 °C and relative humidity of max. 70%. Do not expose to direct sunlight and precipitations. Do not store near acid and alkali.

7 DISPOSAL



Life-expired and failed products shall be disposed of in compliance with the national and local laws and regulations in force. To dispose of the product, send it to an authorized company for recycling in compliance with the national and local laws and regulations in force.

8 MANUFACTURER'S WARRANTY

The manufacturer guarantees the products comply with the declared characteristics, provided that the consumer follows the operation, transportation and storage conditions.

Service life: 10 years.

Shelf life: 10 years from the date of manufacture.

Warranty period: 12 months from the date of sale.

Manufacturer: For information, refer to the product package.

Importer and EKF trademark service representative: EKF ELECTRICAL SOLUTION – FZCO, Dubai Silicon Oasis, DDP, Building A2, Dubai, United Arab Emirates.

Importer and EKF trademark service representative on the territory of the Russian Federation: OOO «Electroresheniya», Otradnaya st., 2b bld. 9, 5th floor, 127273, Moscow, Russia. Tel.: +7 (495) 788-88-15.

Importer and EKF trademark service representative on the territory of the Republic of Kazakhstan: TOO «Energoresheniya Kazakhstan», Kazakhstan, Almaty, Bostandyk district, Turgut Ozal st., 247, apt 4.

9 CERTIFICATE OF ACCEPTANCE

The digital clamp meter M266C EKF EXPERT has been manufactured in compliance with laws and regulations in force and has been approved for operation.

Quality control stamp

Date of manufacture: For information, refer to the product package.

10 NOTE OF SALE

Date of sale

Seller's signature

Seller's seal



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