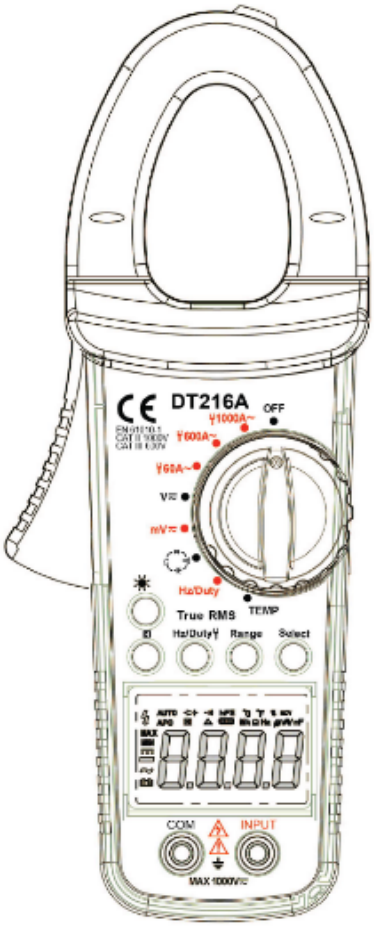
EN V52
Professional clamp multimeter

SOLIGHT

Thank you for purchasing our equipment. Please read this manual carefully and heed the safety warnings and instructions before installing, using or repairing the equipment. This will ensure not only the protection of persons, but also the long life of the equipment. This manual contains all safety information, operating instructions, specifications and maintenance of the equipment.

This device measures AC/DC voltage, AC current, resistance, audio continuity, diodes and temperature. It is a 3 5/6 digit, 6000 digit digital clamp meter with automatic ranging.

The V52 series digital clamp multimeter has been designed according to EN61010-1 for electronic measuring instruments with overvoltage category (CAT III 600V CAT II 1000V).



TECHNICAL PARAMETERS

DC Voltage (Auto Range)	Range: 600 mV - 1000 V (±0.8% + 3 to ±1.0% + 5)
AC Voltage (Auto Range, True-RMS)	Range: 600 mV - 750 V (±1.2% + 6 to ±1.2% + 8)
AC Current (Auto Range, True-RMS)	Range: 10 mA - 1000 A (±2.5% + 10)
Resistance (Auto Range)	Range: 600 Ω - 60 MΩ (±1.5% + 5)
Capacity (Auto Range)	Range: 60 nF - 60 mF (±8.0% + 5)
Temperature	Range: -40 °C - 1000 °C (-40 °F - 2000 °F) (±1.2% + 4 to ±5.0% + 4)
Frequency (Auto Range)	Range: 0 Hz - 10 MHz (±1.0% + 5)
frequency via clamps (Clamp Mode)	Range: 50 Hz - 1 kHz (±1.5% + 5)
Duty Cycle	Range: 0.01% - 99.9% (±1%)
Diode test	voltage in the pass direction: approximately 3.2 V
Continuity	Buzzer threshold: <30 Ω
Dimension	240 × 95 × 40 mm
Operating temperature	0°C to 40°C, less than 80% RH
Storage temperature	-10°C to 50°C, less than 85% RH
Batteries	3× AAA 1.5V batteries

WARNING

To avoid possible electric shock or personal injury and to prevent possible damage to the measuring instrument or equipment under test, observe the following rules:

1. Check the housing before using the measuring instrument. Do not use the meter if it is damaged or if the housing (or part of it) is removed/damaged. Pay attention to the insulation around the connectors.
2. Check the test leads for damaged insulation or bare metal. Check the continuity of the test leads.
3. Do not connect a voltage higher than the rated voltage

marked on the meter between the terminals or between any terminal and earth.

4. The rotary switch should be placed in the correct position and the range must not be changed during measurement to avoid damaging the meter.
5. If the meter operates with an effective voltage higher than 60V in DC or 30V in AC, special care must be taken as there is a risk of electric shock.
6. Use the correct clamps, functions and ranges for your measurements.
7. Do not use or store the measuring instrument in an environment with high temperature, humidity, explosive, flammable and strong magnetic field. The performance of the meter may deteriorate after getting wet.
8. Keep your fingers behind the finger protectors when using the test leads.
9. Before testing resistance, continuity, or diodes, disconnect power to the circuit and discharge all high-voltage capacitors.
10. When the battery indicator appears, replace the battery. When the battery is low, the meter may give false readings that can lead to electric shock and personal injury.
11. Before opening the meter case, disconnect the connection between the measuring leads and the circuit under test and turn off the power supply of the meter.
12. The internal circumference of the meter must not be changed arbitrarily to avoid damage to the meter and accident.
13. For maintenance, the meter surface should be cleaned with a soft cloth and mild detergent. No abrasives or solvents should be used to prevent corrosion, damage and accidents to the meter surface.
14. The device is suitable for indoor use.
15. Switch off the meter when not in use and remove the battery when not in use for a long time . Keep checking the

battery as it may leak with prolonged use, replace the battery as soon as a leak is detected. A leaking battery will damage the meter.

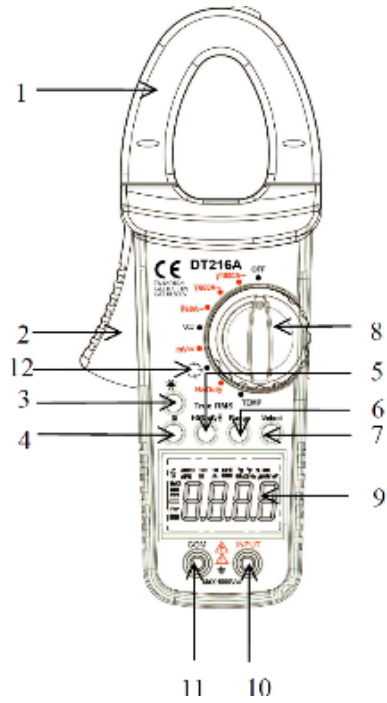
CHARACTERISTICS OF THE DEVICE

Max. display values: 6000
Display size: 34*48 mm
Polarity indication: '-' is displayed automatically
Overrange indication: "OL" is displayed
Low Battery Indication: displays "  "
Range selection: automatic or manual range
True-RMS: ACV ACA measurement
Open jaw clamp: max. 40mm

ELECTRICAL SYMBOLS

 DC (direct current)
 AC (alternating current)
 DC or AC (DC or AC)
 Dangerous tensions may be present.
 Earthing
 Weak battery
 Diode
 Continuity test
°C°F Degrees Celsius or Fahrenheit
AUTO Automatic range
CE Conforms to the European Union Directive
 Double insulation

DESCRIPTION OF EQUIPMENT



1. **Transformer jaws**
   (Capture AC current flowing through the conductor)
2. **Launcher**
   Pressing the spirit level opens the transformer jaws, and releasing the finger pressure on the spirit level closes the jaws again.
3. **Backlight button**
   Press the button to turn the backlight on, press again to turn the backlight off, and after 15 seconds the backlight automatically turns off.
4. **Data Hold button**
   When this button is pressed, the last reading is displayed on the LCD and the "H" symbol is displayed until it is pressed again.
5. **Hz/Duty button**
   Press the button to select the Hz or duty cycle measurement, When ACA is measured, the ACA frequency can be measured by pressing the button.
6. **Range button**
   AC/DC voltage, resistance measurement ranges can be selected manually or automatically by pressing the range button. Select the required ranges by pressing the button as follows.
7. **Select button**
   Press this button to select the Ω measurement function, , or when set to the range.
8. **Function switch / range switch**
   Use this switch to select the desired function and range.

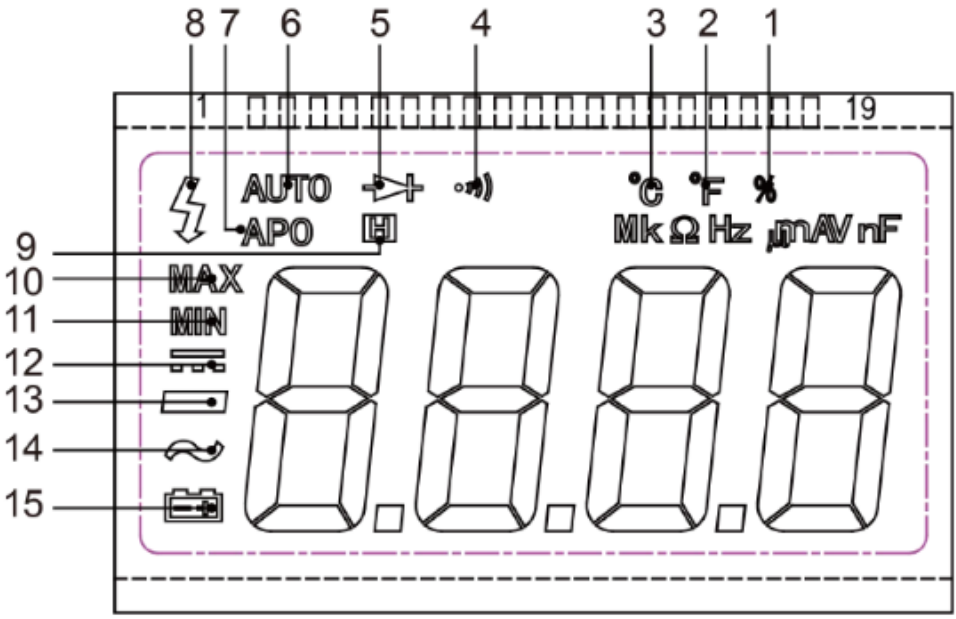
9. **Display**
   3 5/6-digit LCD display with maximum value of 5999

10. **Input connector**
    In addition to using the transformer jaws for ACA measurements, an input connector is required for other functional meter measurements. Note that the input high voltage does not exceed the allowable range, the measurement accepts banana plugs.

11. **COM input connector**
    Low power consumption for all voltages, resistance and continuity etc. Measurement accepts banana plugs.

12. **Scope**
    Resistance, Continuity, Capacitance, Diode, Press the button to select the required ranging mode.

DISPLAY DESCRIPTION



1. A work cycle is selected
2. Fahrenheit temperature test is selected
3. The Celsius temperature test is selected
4. Continuity test is selected
5. The diode test is selected
6. Auto range mode is selected

7. Automatic shutdown mode is selected
8. Symbol of declining high voltage
9. Data hold is active
10. MAX - the maximum value is displayed
11. MIN - the minimum value is displayed
12. DC (Direct Current)
13. Negative sign
14. AC (Alternating Current)
15. Low battery and immediate battery replacement

SPECIFICATIONS

Accuracy guaranteed for 1 year 23°C±5°C, less than 80% RH

DC Voltage - automatic range

Input impedance: 10MΩ

Scope	Resolution	Accuracy
600mV	0.1mV	±(0.8% of rdg + 5 digits)
6V	1mV	±(0.8% of rdg + 3 digits)
60V	10mV	
600V	100mV	
1000V	1V	±(1.0% of rdg + 5 digits)

Overload protection:
600V AC RMS CAT III, 1000V AC RMS CAT II
Max. Input voltage: max:
600V AC RMS CAT III, 1000V AC RMS CAT II

AC CURRENT - Automatic range

Measurement voltage drop: 200 mV

Scope	Resolution	Accuracy
60A	10mA	±(2.5% of rdg + 10 digits)
600A	100mA	
1000A	1A	

Displays the True-RMS value

AC Voltage - Automatic. range adjustment

Scope	Resolution	Accuracy
600mV	0.1mV	±(1.2% of rdg + 8 digits)
6V	1mV	±(1.2% of rdg + 6 digits)
60V	10m	
600V	100mV	
750V	1V	±(1.2% of rdg + 8 digits)

Input impedance: 10MΩ
Overload protection:
600V AC RMS CAT III, 1000V AC RMS CAT II
Max. Input voltage:
600V AC RMS CAT III, 1000V AC RMS CAT II
Displays the True-RMS value

Temperature

Scope	Resolution	Accuracy
-40 ~ 1370°C	1°C	-40°C~150°C:±(1.2% + 4)
		150 C~1370° ° C:± (2.5% + 4)
-40 ~ 2000°F	1°F	-40 F~302° ° F:± (5% + 4)
		302 F~2000° ° F:± (2.5% + 4)

Overload protection: 250V DC/AC rms

Resistance - Automatic range

Scope	Resolution	Accuracy
600 Ω	0.1Ω	±(1.5% of rdg + 5 digits)
6 KΩ	1Ω	
60 KΩ	10Ω	
600 KΩ	100Ω	±(1.5% of rdg + 5 digits)
6 MΩ	1KΩ	
60 MΩ	10KΩ	

Open voltage: approximately 0.5 V
Overload protection: 250V DC/AC RMS

Diode and continuity

Scope	Description	Note
	The approximate forward voltage drop is displayed	Open circuit voltage: approx. 3.2 V
	The built-in buzzer sounds when the resistance is less than approximately 30 Ω.	Open circuit voltage: approximately 1.2 V

Overload protection: 250V DC/AC RMS

Continuity test: if the resistance is between 30Ω and 100Ω, the buzzer may or may not sound. When the resistance is greater than 100Ω, the buzzer will not sound.

Frequency - Automatic range

Scope	Accuracy
0 ~ 10MHz	±(1.0% of rdg + 5 digits)

Frequency - via clamps

Scope	Accuracy
50 ~ 1KHz	±(1.5% of rdg + 5 digits)

Capacity - Automatic range

Scope	Accuracy
6nF/60nF/600nF/6uF 60uF/600uF/6mF/60mF	±(8.0% of rdg + 5 digits)

Work cycle

Scope	Resolution	Accuracy
0.01%~99.9%	0.01%	±1%

For a value between 10% and 90% of the duty cycle at 50 Hz.

CONTROL

Voltage measurement

1. Connect the black test cable to the "COM" connector and the red test cable to the "INPUT" connector.
2. Set the function switch to the range V⎓ or .mV⎓
3. Press the "Select" button to select the AC or DC voltage test
   V~ orV⎓ will appear on the display
4. Connect the measuring leads through the measured source or load.
5. The polarity of the red wire connection will be displayed during the measurement.
   Remark:
   a) In the small range e.g. mV range , the meter may display an unstable reading if the measuring leads have not been connected to the load being measured. This is normal and will not affect the measurement.
   b) To avoid damage to the measuring instrument, do not have a voltage that exceeds 600 V (for DC voltage measurement) or 600 V (for AC voltage measurement) in CAT III conditions and 1000 V (for DC voltage) 750 V (for AC voltage) in CAT II conditions.

Current measurement

1. Set the function/range switch to the 60A 600A 1000A range.
2. Press the switch to open the transformer jaws and clamp only one conductor, it is not possible to take measurements if two or three conductors are clamped at the same time.
3. The figure shown is the alternating current passing through the conductor.

Resistance measurement

1. Connect the black test lead to the "COM" connector and the red test lead to the "INPUT" connector (Note: The polarity of the red test lead is positive "+").
2. Set the function switch to  .
3. Press the "Range" button to select a manual measurement.
4. Press the "Select" button to select the resistance measurement mode, the "MΩ" symbol will be displayed as an indicator.
5. Connect the measuring leads across the load to be measured.
6. The data is displayed on the display

Remark:

a) When measuring resistance >1MΩ, it may take a few seconds for the reading to stabilize. This is normal when measuring high resistance.

b) If the input is not connected, i.e. in a disconnected circuit, the "OL" symbol is displayed as an overrange indicator.

c) Before measuring the resistance in the circuit, make sure that the circuit under test is completely disconnected from the power supply and all capacitors are fully discharged.

Continuity test

1. Connect the black test lead to the "COM" connector and the red test lead to the "INPUT" connector (Note: The polarity of the red test lead is positive "+").
2. Set the function switch to the range . 
3. Press the "Select" button to select the continuity measurement mode and the "  " symbol will be displayed as an indicator.

4. Connect the measuring leads across the load to be measured.
5. If the circuit resistance is less than approximately 30 Ω, the built-in buzzer sounds.

Diode test

1. Connect the black test lead to the "COM" connector and the red test lead to the "INPUT" connector (Note: The polarity of the red test lead is positive "+").
2. Set the function switch to .
3. Press the "Select" button to select the continuity measurement mode and the "x" symbol will appear as an indicator.
4. Connect the red test lead to the anode of the diode under test and the black test lead to the cathode.
5. The meter will show the approximate value of the forward voltage of the diode. If the connections are reversed, the display will show "OL".

Capacity measurement

1. Connect the black test cable to the "COM" connector and the red test cable to the "INPUT" connector.
2. Set the function switch to " ". (NOTE: The polarity of the red wire is positive "+".)
3. Connect the measuring leads across the capacitor to be measured and ensure that the polarity of the connection is maintained.

   Note: If the measured capacitance is greater than 100uF, at least 5 seconds are required for the readings to stabilize.

   COMMENT:

   a) The test temperature is displayed automatically when the thermocouple is inserted into the test holes.

   b) The ambient temperature is displayed when

the sensor circuit is broken.

c) The limiting temperature measured by the thermocouple supplied with the instrument is 250 °C; 300 °C is acceptable in a short period of time, if you need to measure higher temperatures you will need to purchase a higher thermocouple.

Frequency measurement (automatic range)

1. Set the function range switch to the desired "Hz/Duty" position.
2. Connect the black measuring wire to the "COM" connector and the red measuring wire to the "INPUT" connector (Note: The polarity of the red measuring wire is positive "+").
3. Connect the test leads across the load to be measured.
4. Press the "Hz/Duty" button to select the measurement frequency or duty cycle.
   Remark:
   Do not apply more than 250 V rms to the input.
   When using clamp jaws to test AC current, press the "Hz/Duty" button , the meter will display the frequency of the current being measured.

Automatic shutdown

If you do not operate the meter for approximately 15 minutes, it will automatically switch off. To turn it back on, just turn the range switch or press the button. Press the "Select" button, turn it on again, the meter beeps five times, the auto-off function turns off, and the "APO" symbol is no longer displayed on the LCD.

Replacing the battery

If the display shows " ", the battery needs to be replaced. Unscrew the screws and open the back cover, replace the dead battery with new batteries (1.5V AAA carbon zinc batteries).

The product has been issued with a CE declaration of conformity in accordance with the applicable regulations. On request from the manufacturer: info@solight.cz, or downloadable from www.solight.cz/en.

SOLIGHT

Solight Holding, s.r.o., Na Brně 1972, Hradec Králové 500 06,
Czech Republic.