

# TCX 01

## SMC component tester



### 1. PRECAUTIONS FOR USE

Failure to observe the safety instructions may cause an electric shock, fire, explosion, or destruction of the instrument and of the installations.

These safety instructions ensure the safety of persons and correct operation of the device. If the tester is used in a way not specified in this data sheet, the protection provided by the device may be impaired;

This device complies with safety standard EN 61010-1 (Ed-2-2001) for non current-carrying use, at an altitude below 2000 m, indoors, with a level of pollution not exceeding 2.

- Do not use the instrument in an explosive atmosphere or in the presence of flammable gases or fumes;
- Use the device only on non current-carrying circuits. Do not apply voltages exceeding 50 V peak between the inputs or with respect to earth;
- Do not use the instrument if it appears to be damaged, incomplete, or not properly closed;
- Observe the environmental conditions of use;
- Do not modify the instrument and do not replace components with "equivalents". Repairs and adjustments must be done by approved qualified personnel;
- The tester must be warmed up for 30 seconds before use;
- In the presence of equipment emitting powerful electric fields, the display may become unstable or erroneous.

\* Replace the batteries as soon as the symbol appears on the display unit.

\* If the tester is to be left unused for an extended period, remove the batteries and store them separately.

Thank you for buying a **TCX01** tester.

For best results from your device :

- **Read** this user manual attentively ;
- **Observe** the precautions for its use.

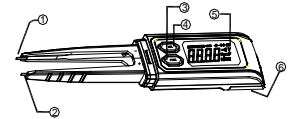
Meanings of the symbols used :

	Risk of danger. The operator agrees to refer to these instructions whenever this danger symbol appears.
	Earth
	Indicates that the device is subject to the waste segregation requirements of directive 2002/96/EC.
	The CE marking indicates compliance with European directives.

### 2. DESCRIPTION

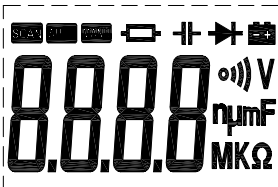
The TCX 01 tester is used for automatic measurements of resistors and capacitors and for junction and continuity tests on non current-carrying components or circuits. The clip arrangement of the probe tips is especially well suited to surface mounted components (SMC).

#### 2.1 Presentation of the device



1. Measurement probe tip/cathode (-)
2. Measurement probe tip/anode (+)
3. "RANGE" key
4. "FUNC." Key
5. LCD display unit
6. Battery compartment cover

#### 2.2 LCD display unit



#### 2.3 FUNC. key (Function key)

Press this key for more than one second to start up the tester; it then switches to the search and automatic function recognition mode .

Press this key repeatedly for less than one second to select the desired measurement function.

Press this key for more than 2 seconds to switch the tester to standby mode.

#### 2.4 RANGE key (Change of range)

In automatic mode, press this key for less than 1 second to switch the tester to manual mode.

In manual mode, press this key for more than 1 second to switch the tester to automatic mode.

In manual mode, press this key for less than one second to change the measurement range.

#### 2.5 Measurement probe tips

For measurements of diodes or of polarized capacitors, the polarity of the probe tips must be observed:

- + : positive probe tip (anode)
- - : negative probe tip (cathode)

### 3. TECHNICAL CHARACTERISTICS

#### 3.1 General characteristics

- Environmental conditions
  - Level of pollution: 2
  - Altitude < 2000 m
  - Operating temperature: 0-40°; (< 80% RH, without condensation)
  - Storage temperature: -10-60°; (< 70% RH, without battery)
- Temperature coefficient: 0.1° (specified uncertainty)/°C (< 18° or > 28°)
- Max. voltage between terminals and with respect to earth: 50 VDC or 36 V RMS in AC
- Display refresh frequency: 3/sec.
- Display: 4 digits, with a maximum of 5999 points.
- Range overshoot indication: "OL" is displayed
- Spent battery indication: The indication is displayed when the batteries are spent and must be replaced.
- Automatic shutdown
  - If no key is pressed for 10 minutes, the tester automatically switches itself off to save the batteries.
- Power supply: 2 1.5 V batteries (AG13 button)
- Dimensions: 181 (L) \* 35 (W) \* 20 (H) mm
- Mass: approximately 65 g (including batteries)

#### 3.2 Measurement characteristics

Uncertainty: ± (% of reading + number of points) from 18°C to 28°C (64°F to 82°F) with relative humidity less than 80%.

NB: the number of points corresponds to the value of the smallest (or last) significant digit.

**NB** : The number of points corresponds to the value of the smallest (or last) significant digit.

#### 3.2.1 Resistance

Range	Resolution	Uncertainty
600 Ω	0,1 Ω	± (1.2 % of the reading + 2 points)
6 kΩ	1 Ω	
60 kΩ	10 Ω	
600 kΩ	100 Ω	
6 MΩ	1 kΩ	± (2 % of the reading + 2 points)
60 MΩ	10 kΩ	

#### 3.2.2 Capacitance

Range	Resolution	Uncertainty
6 nF	1 pF	± 5.0 % of the reading + 5 points
60 nF	10 pF	
600 nF	100 pF	± 3.0 % of the reading + 3 points
6 μF	1 nF	
60 μF	10 nF	± 5.0 % of the reading + 5 points)
600 μF	100 nF	
6 mF	1 μF	
60 mF	10 μF	Not specified

Short-circuit the two terminals of the capacitor before making any measurement.

#### 3.2.3 Diode test


Range	Description	Test condition
	Display of the voltage across the terminals of the diode	Max. current : approximately 1 mA Max. voltage : approximately 2.8 V

### 3.2.4 Continuity test

The buzzer emits a 2 kHz beep when the measured resistance is less than 30 Ω.

## 4. DIRECTIONS FOR USE


### 4.1 Automatic recognition mode

- Press the FUNC. key for more than one second to start up the tester and enter automatic recognition mode . The device then automatically detects the nature of the component - resistor, (ohm), capacitor (F), or diode - or performs a continuity test.


#### NOTE :

- Ranges in automatic recognition mode:  
Resistor: 600.0 Ω – 6.000 MΩ;  
Capacitor: 6 nF – 600 μF.

### 4.2 Resistor measurement




When the component is part of a circuit:  
- disconnect all power sources and discharge the capacitors before the measurement  
- the measurement can be thrown off by the presence of adjacent components.

- Press the FUNC. key and select the  mode.
- Connect the test clip to the component to be measured; the measured value will appear on the display unit.


#### NOTE :

- The RANGE key is available in this mode.
- When the clip is not connected, or poorly connected, in other words open-circuit, the "OL" indication is displayed to report an overshoot of the range.
- If the measurement is rendered inaccurate by the presence of external components: it will be necessary either to isolate the component to be tested or to compare the results to those obtained on a reference circuit.

### 4.3 Capacitor measurement




When the component is part of a circuit:  
- disconnect all power sources and discharge the capacitors before the measurement  
- the measurement can be thrown off by the presence of adjacent components.

- Press the FUNC. key and select the  mode.
- Connect the test clip to the capacitor to be measured; the measured value is displayed.


#### NOTE :

- The RANGE key is available in this mode.
- Discharge the capacitor before making a measurement.
- If the measurement is rendered inaccurate by the presence of external components: it will be necessary either to isolate the component to be tested or to compare the results to those obtained on a reference circuit.


### 4.4 Diode test



When the component is part of a circuit:  
- disconnect all power sources and discharge the capacitors before the measurement  
- the measurement can be thrown off by the presence of adjacent components.

- Press the FUNC ; key and select the  mode.
- Connect the **+ probe tip** of the tester to the anode and the **- probe tip** to the cathode of the diode to be measured.
- The tester will display the approximate forward voltage of the diode. When the connection is reversed, the "OL" indication is displayed (if the diode is functional).
- If the measurement is rendered inaccurate by the presence of external components: it will be necessary either to isolate the component to be tested or to compare the results to those obtained on a reference circuit.

### 4.5 Continuity test

- Press the FUNC. key and select the  mode.
- Connect the test clip to the circuit to be tested. When there is continuity (in other words, a resistance of less than 30 Ω), the buzzer in the device sounds.

## 5. AUTOMATIC SHUTDOWN


- In order to increase the battery life, the device has an automatic shutdown function. If no key is pressed for 10 minutes, the tester automatically switches itself off.

## 6. MAINTENANCE

### 6.1 Cleaning

- Use a soft cloth, dampened with soapy water. Rinse with a damp cloth.
- Dry thoroughly with a dry cloth or forced air before using again.

### 6.2 Replacing the batteries

When the  symbol is displayed, the batteries must be replaced.

Proceed as follows

- Press on the cover of the battery compartment and push as shown by the arrow to open.
- Replace the two batteries with two new 1.5 V batteries (AG13 / LR44 / 357A / etc.).
- Put the cover of the battery compartment back in place.

### 6.3 Metrological check

Like all measuring or testing devices, the instrument must be checked regularly.

This instrument should be checked at least once a year. For checks and calibrations, contact one of our accredited metrology laboratories (information and contact details available on request), at our Chauvin Arnoux subsidiary or the branch in your country.

## 6.4 Repair

For all repairs before or after expiry of warranty, please return the device to your distributor.

## 7. WARRANTY

Except as otherwise stated, our warranty is valid for twelve months starting from the date on which the equipment was sold. Extract from our General Conditions of Sale provided on request.

The warranty does not apply in the following cases:

- Inappropriate use of the equipment or use with incompatible equipment;
- Modifications made to the equipment without the explicit permission of the manufacturer's technical staff;
- Work done on the device by a person not approved by the manufacturer;
- Adaptation to a particular application not anticipated in the definition of the equipment or not indicated in the user's manual;
- Damage caused by shocks, falls, or floods.

## 8. TO ORDER

The TCX01 tester is delivered with :

- one case ;
- 2 1,5 V button batteries ;
- directions for use.

TCX01 .....TCX001-Z