

# User's Manual 73101 Pocket Digital Multimeter

Thank you for purchasing our Pocket Digital Multimeter.

Store this manual in an easily accessible place for quick reference.

Printed in Taiwan

**YOKOGAWA**  
Yokogawa Test & Measurement Corporation

IM 73101-E  
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## Precautions for Safe Use

This product is designed to be used by a person with specialized knowledge. When operating the instrument, be sure to observe the cautionary notes given below to ensure correct and safe use of the instrument. If you use the instrument in any way other than as instructed in this manual, the instrument's protective measures may be impaired. YOKOGAWA is by no means liable for any damage resulting from use of the instrument in contradiction to these cautionary notes.

The following safety symbols are used on the instrument and in this manual.

- Handle with Care. Refer to the user's manual. This symbol appears on dangerous locations on the instrument which require special instruction for proper handling or use.

## WARNING

Indicates a hazard that may result in the loss of life or serious injury of the user unless the described instruction is abided by.

## CAUTION

Indicates a hazard that may result in an injury to the user and/or physical damage to the product or other equipment unless the described instruction is abided by.

This symbol indicates double insulation.

This symbol indicates DC voltage/current.

This symbol indicates AC voltage/current.

## WARNING

To avoid a short-circuit or an accident to personnel, use this instrument within maximum input voltage and current.

Measurement Category	Maximum Input Voltage
Measurement category O (Other)	600 V
CAT II	300 V

## Measurement Categories

Measurement Categories	Description	Remarks
O (None, Other)	Other circuits that are not directly connect to MAINS.	Circuits not connected to a mains power source.
CAT II	For measurements performed on circuits directly connected to the low-voltage installation.	Appliances, portable equipment, etc.
CAT III	For measurements performed in the building installation.	Distribution board, circuit breaker, etc.
CAT IV	For measurements performed at the source of the low-voltage installation.	Overhead wire, cable system, etc.

## WARNING

Failure to comply with the precautions below could lead to injury or death or damage to the instrument.

- The instrument is for measuring voltage or resistance. Do not use this instrument for other purpose.
- Do not use the instrument if there is a problem with its physical appearance.
- Do not open the case except when replacing batteries. Only Yokogawa service personnel are authorized to remove the casing or disassemble or modify the instrument.
- Do not attempt to repair the instrument yourself, as doing so is extremely dangerous.
- Do not use the instrument in an atmosphere where any flammable or explosive gas is present.
- Play special attention when measuring the voltage of 30 ACVrms or 60 DCV or more to avoid injury.
- Do not apply an input signals exceeding the maximum rating input value.
- Do not use instrument for measuring the line connected with equipment (i.e. motors) that generates induced or surge voltage since it may exceed the maximum allowable voltage.
- Check testing leads before use and do not use deteriorated or damaged ones. Check the continuity of testing leads.
- Do not use the instrument if there is any damage to the casing or when the casing is removed.
- Be careful not to cross the Barrier when using the test leads.
- Be sure to disconnect the test leads from the circuit when changing the function switch.
- Before starting measurement, make sure that the function is properly set in accordance with the measurement.
- Do not use instrument with wet hands or in a damp environment.
- If the instrument being to emit smoke, becomes too hot, or gives off an unusual smell, do not use the instrument.

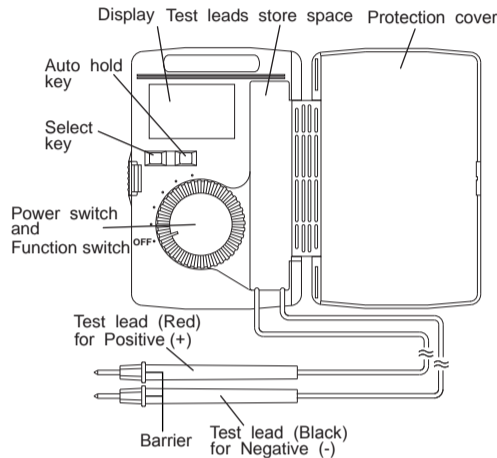
## CAUTION

- The instrument is for domestic use (Class B) and meets the electromagnetic compatibility requirements.
- Do not use the instrument near noise-emitting equipment or where there may be a sudden temperature change. Otherwise, the instrument may produce an unstable reading or errors.
- Do not wipe the instrument using any solvent (chemicals) such as benzene or paint thinner. Otherwise, the front panel may be damaged or discolored. When cleaning the instrument, use a dry cloth.
- Do not leave the instrument exposed to direct sunlight or in a hot and humid location such as the inside of a car, for any prolonged length of time.

## Maximum Overload Protection Input

Function	Maximum rating input value	Maximum over load protection input
	600 DCV	600 DCV
	600 ACV	
	Voltage and current input prohibited.	600 ACVrms

## COMPONENTS (DESCRIPTION OF PANEL)



## DESCRIPTION OF FUNCTIONS

### Power Switch and Function Switch

Turn the switch for power on and off and to select the functions of DCV, ACV,  $\Omega$ , Buz, Diode.

### Battery Voltage Drop Indication Display

If the internal battery has been consumed and the voltage drops, the display shows . In this case, replace with 2 new batteries (LR-44 or SR-44).

### Auto Hold Function

- Press A-HOLD key. (The display shows the A-H symbol)
- Connect the test leads to the object under test.
- When the reading stabilizes, the buzzer sounds.
- Remove the testing leads from the object under test.
- The DMM now shows the measured value that it retains.
- You can repeat steps <2> to <5> as many times as you like as long as the display shows the symbol.
- To cancel this function, press the A-HOLD key once again.

### [ Note ]

- In DC voltage measurement, the Auto Hold function is only available for range over 4V.
- The Auto Hold function cannot be applied to unstable signals.

## ACCURACY (MEASUREMENT RANGES)

23±5°C <80%RH  
Accuracy: ± (% of reading + digit)

Range	Resolution	Accuracy	Input Resistance	Maximum input
400 mV	0.1 mV	1.2+2	>100 M $\Omega$	600 V
4 V	0.001 V	0.7+1	11 M $\Omega$	
40 V	0.01 V	1.2+1	10 M $\Omega$	
400 V	0.1 V			
600 V	1 V			

Range	Resolution	Accuracy	Input Resistance	Maximum input
4 V	0.001 V	2+5	11 M $\Omega$ , <50 pF	600 Vrms
40 V	0.01 V		10 M $\Omega$ , <50 pF	
400 V	0.1 V			
600 V	1 V			

Range	Resolution	Accuracy	Measuring current and open voltage	Maximum input
400 $\Omega$	0.1 $\Omega$	1.2+2	<1 mA, <3.4 V	600 V
4 k $\Omega$	0.001 k $\Omega$		<0.5 mA, <1.0 V	
40 k $\Omega$	0.01 k $\Omega$		<70 $\mu$ A, <0.7 V	
400 k $\Omega$	0.1 k $\Omega$		<7 $\mu$ A, <0.7 V	
4 M $\Omega$	0.001 M $\Omega$	2+3	<0.7 $\mu$ A, <0.7 V	
40 M $\Omega$	0.01 M $\Omega$	5+3	<70 nA, <0.7 V	

Range	Resolution	Accuracy	Open-circuit voltage	Maximum input
400 $\Omega$	0.1 $\Omega$	Beep on 50±20 $\Omega$	<3.4 V	600 V

Range	Resolution	Accuracy	Open-circuit Voltage	Maximum input
2 V	0.01 V	1.5+1	<3.4 V	600 V

## GENERAL SPECIFICATIONS

Measuring method : Dual integration mode  
Display : Counter approx. 4300 counts max.  
Range selection : Auto range  
Over indication : "OL" mark (Voltage only)  
"- -" mark (Others)  
Polarity : Automatic selection ("-" is displayed only.)  
Low battery indication : If the internal battery has been consumed and the voltage drops, the display shows mark.  
Sampling rate : Approx. 2 times/sec.  
Operating temperature/Humidity : 0 to 50°C <80%RH (No condensation)  
Storage temperature/Humidity : -10 to 60°C <70%RH (No condensation)  
Power supply : LR-44 × 2 or SR-44 × 2  
Dimensions : Approx. 117 (L) × 76 (W) × 18 (H) mm  
Weight : Approx. 110g  
Accessories : User's Manual . . . . . 1  
LR-44 Button Cell (installed) . . . 2

### Safety standard:

EN 61010-1: 2010,  
EN 61010-2-030: 2010,  
EN 61010-031: 2002+A1: 2008  
300 V CAT II,  
600 V Measurement category O (None)  
2000m max. above sea level, indoor use,  
Pollution degree 2

### EMC standard:

EN 61326-1 Class B, EN 61326-2-2  
EMC Regulatory Arrangement in Australia and New Zealand  
EN 55011 Class B, Group 1  
Korea Electromagnetic Conformity Standard ( 한국 전자기파 적합성 기준 )

## MEASUREMENT PROCEDURE

### WARNING

- Do not apply an input signals exceeding the maximum rating input value.
- Be sure to disconnect the test leads from the circuit when changing the function switch.
- Be careful not to across the Barrier when using the test leads.

### CAUTION

To verify the instrument's functionality, check that the measured value is update after turning on the power. If the measured value is not update, the reading will be incorrect and may lead to possible electrical shock or personal injury.

### DC Voltage

Applications (object to be measured): Measure D. C. circuits

Measurement Ranges: 5 ranges from 400 mV to 600 V

### Measurement Procedure:

- Set the function switch at (DCV) range.
- Apply the black test lead to the negative (-) potential side of the circuit to measure and the red test lead to the positive (+) potential side.
- Read the value on the display.
- After measurement, remove the red and black test leads from the object to be measured.

The display fluctuates when the test leads are removed. This is not malfunction.

### AC Voltage

Applications (object to be measured): Measure sine-wave A. C. voltage such as lighting voltages

### Measurement Ranges:

4 ranges from 4 V to 600 V

### Measurement Procedure:

- Set the function switch at (ACV) range.
- Apply the red and black test leads to the circuit to measure.
- Read the value on the display.
- After measurement, remove the red and black test leads from the object to be measured.

- This instrument employs the average measurement system and some error is made to the display of waveforms other than sine waves.
- The accuracy guaranteed frequency range is 45 Hz to 400 Hz.

## Resistance Measurement $\Omega$

### WARNING

Do not apply voltage to the input terminals.

### Applications (object to be measured):

Resistance of resistors and circuits is measured.

### Measurement Ranges:

6 ranges from 400  $\Omega$  to 40 M $\Omega$

### Measurement Procedure:

- Set the function switch at  $\Omega$  (OHM).
- Apply the red and black test leads to the object to be measured.
- Read the value on the display.
- After measurement, remove the red and black test leads from the object to be measured.

### Checking Continuity

### WARNING

Do not apply voltage to the input terminals.

### Applications (object to be measured):

Checking the continuity of wiring and selecting wires. The buzzer sounds when the resistance in a circuit to measure is less than about 70 $\Omega$ .

### Procedure:

- Set the function switch at range.
- Apply the red and black test leads to a circuit or conductor to measure.
- The continuity can be judged by whether the buzzer sounds or not.
- After measurement, release the red and black test leads from the object measured.

### Testing Diode

### WARNING

Do not apply voltage to the input terminals.

### Applications (object to be measured):

The quality of diodes tested.

### Procedure:

- Set the function switch at range.
- Connect the test leads to the diode to be tested. When measuring the forward voltage across diode, a normal diode will indicate 0.5 to 0.7V. The reverse voltage will indicate "OL".
- For a short-circuited diode, a value near 0V will be displayed.

## AUTO POWER OFF SELECTION

- The DMM will power off automatically in approx. 20 minutes later after the last operation was stopped.
- The alarm buzzer sounds 7 times before around 1 minute of power off.
- Press any key or turn the Function switch while the instrument is beeping postpones the power-off time.
- To cancel the Auto Power Off Function, hold down the select key and then set the Function switch from OFF to the position of any desired measurement mode. The AUTO POWER OFF indication turns off when the Function is cancelled.

## Battery Replacement

### WARNING

- If the rear case or the battery lid (cover) is removed with input applied to the input terminals, you may get electrical shock. Before starting the work, always make sure that no input is applied.
- Before starting the work, be sure to turn OFF the main unit power and remove the test leads from the circuit.

### <How to Replace>

- Remove the battery lid (cover) screw with a screwdriver.
- Remove the battery lid (cover).
- Take out the batteries and replace with 2 new batteries.
- Attach the battery lid (cover) and screw it on.

Contact information of Yokogawa offices worldwide is provided on the following sheet.

PIM 113-01Z2: Inquiries List of worldwide contacts

## For the Pollution Control of Electronic and Electrical Products of the People's Republic of China

They are applicable only in China.

产品中有害物质的名称及含量

部件名称	有害物质					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr (VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
框架 (塑料)	×	○	○	○	○	○
线路板 ASSY	×	○	○	○	○	○
导线	×	○	○	○	○	○
电池	×	○	○	○	○	○

○: 表示该有害物质在该部件所有均质材料中的含量均在GB/T 26572 规定的限量要求以下。  
×: 表示该有害物质至少在该部件的某一均质材料中的含量超出GB/T 26572 规定的限量要求。

### 环保使用期限:



该标识适用于SJ /T11364中所述, 在中华人民共和国销售的电子电气产品的环保使用期限。只要您遵守该产品相关的安全及使用注意事项, 在自制造日起算的年限内, 则不会因产品中有有害物质泄漏或突变, 而造成对环境的污染或对人体及财产产生恶劣影响。  
注) 该年数为“环保使用期限”, 并非产品的质量保质期。零件更换的推荐周期, 请参考使用说明书。