

# User's Manual CL120 Clamp-on Tester

IM CL120

Thank you for purchasing our Clamp-on Tester.

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

PIM 113-01Z2: Inquiries  
List of worldwide contacts

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

**YOKOGAWA** IM CL120  
8th Edition: Nov. 2020 (YMI)  
Yokogawa Test & Measurement Corporation

## Precautions for Safe Use of the Instrument

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.

This manual is an essential part of the product; keep it a safe place for future reference.

YOKOGAWA is by no means liable for any damage resulting from use of the instrument in contradiction to these cautionary notes.

## The instrument and this manual use the following safety symbols:

- Danger! Handle with Care. This symbol indicates that the operator must refer to an explanation in the User's Manual in order to avoid the risk of personal injury or death and/or damage to the instrument.
- This symbol indicates double insulation.
- This symbol indicates double insulation.
- This symbol indicates ground (earth).
- This symbol indicates that this instrument designed to be applied around or removed from HAZARDOUS LIVE conductors provided if the RATED circuit-to-earth voltage does not exceed the value indicated in the measurement category.

## WARNING

Indicates that there is a possibility of serious personal injury or loss of life if the operating procedure is not followed correctly and describes the precautions for avoiding such injury or loss of life.

## CAUTION

Indicates that there is a possibility of serious personal injury or damage to the instrument if the operating procedure is not followed correctly and describes the precautions for avoiding such injury or damage.

## NOTE

Calls attention to information that is important for the proper operation of the instrument.

## WARNING

- Never make measurement on a circuit above 300 VAC.
- Do not use the instrument in an atmosphere where any flammable or explosive gas is present.
- The transformer jaws are made of metal and their tips are not insulated.  
Be especially careful about the hazard of possible shorting where the equipment under test has exposed metal parts.
- Avoid using the instrument if it has been exposed to rain or moisture or if your hands are wet.
- Do not exceed the maximum allowable input of any measurement range.
- The barrier is there to protect you from touching the HAZARDOUS LIVE conductor.  
Be careful not to reach the barrier when using the instrument.
- Safety protectors such as rubber-insulated gloves should be worn to prevent electrical shock when using the instrument.
- Never open the battery compartment cover when making measurement.
- Always switch off the instrument before opening the battery compartment cover for battery replacement.
- Do not use the instrument if the case is damaged or not attached.  
Do not attempt to repair/modify the product yourself, as doing so is extremely dangerous.  
Should an abnormality or failure in the product be found, contact the vendor from which you purchased the product.

## Measurement category

Function	Maximum Allowable Input Measurement Category III
~ A	200 ArmsAC Measuring circuit voltage : 300 VrmsAC

The CL120 is designed for measurement category III. Do not use the CL120 for measurements in locations that fall under Measurement Category IV.

CAT O (Other) applies to measurement of circuits that are not directly connected to a main power supply.

CAT II applies to measurement of circuits that are connected to low-voltage installations.

CAT III applies to measurement of facility circuits.

CAT IV applies to measurement of power source circuits for low-voltage installations.

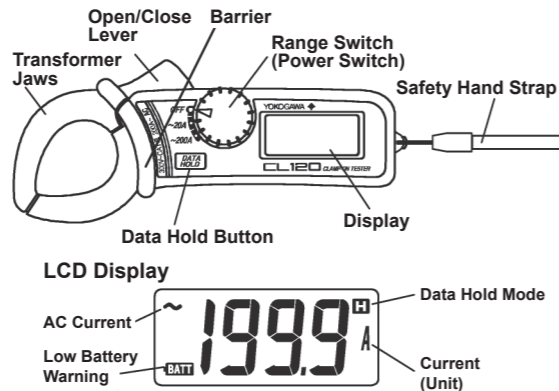
## CAUTION

- Be sure to set the range switch to the "OFF" position after use. When the instrument will not be in use for a long period of time, place it in storage after removing the battery.
- Use a damp cloth and detergent for cleaning the instrument. Do not use abrasives or solvents.

## CAUTION

Using this instrument is limited to under residential, commercial and light-industrial environment. This instrument may not be able to measure accurately if it is near other equipment generating strong electromagnetic interference or a strong magnetic field caused by large current.

## 1. Instrument Layout



## 2. Measurement

### 2.1 Preparation for Measurement

#### CAUTION

- The jaw section is a delicate, precision sensor. Do not subject the jaw to unreasonably strong shock, vibration, or force when using it.
- If dust gets into the tops of the jaws, remove it immediately. Do not close the jaws when dust is trapped in its joints as the sensor may break.
- Please check that the range switch is set to the desired position before measurement.

### 2.2 AC Current Measurement

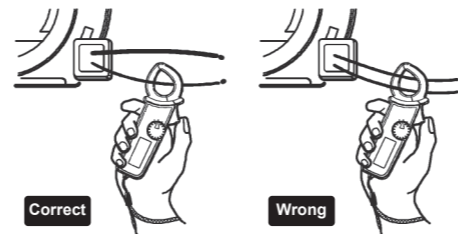
#### WARNING

Never use the instrument on a circuit above 300 VAC.

- (1) Set the range switch to the " ~ 20A " or " ~ 200A " position.  
"AC" should be shown on the upper left corner of the display.
- (2) Press the open/close lever to open the transformer jaws and clamp them onto a single conductor and take the reading on the display. The most accurate reading will be obtained by keeping the conductor at the center of the transformer jaws.

#### NOTE

During current measurement, keep the transformer jaws fully closed. Otherwise, accurate measurements cannot be taken. Maximum conductor size is 24 mm in diameter.



## 3. Other Functions

### 3.1 Auto-Power-Off Function

This is a function to prevent the instrument from being left powered on in order to conserve battery life. The instrument automatically turns off about 10 minutes after the last switch or button operation. To turn to normal mode, turn the range switch to "OFF", then to the desired position.

### 3.2 Data Hold Function

This is a function used to freeze the measured value on the display. Press the button to freeze the reading. The reading will be held regardless of subsequent variation in input. is shown on the upper right corner of the display while the instrument is in the data hold mode. To exit the data hold mode, press the button again.

#### NOTE

When the Auto-power-off function works while instrument is in the data hold mode, data hold is cancelled.

### 3.3 Optional Accessories

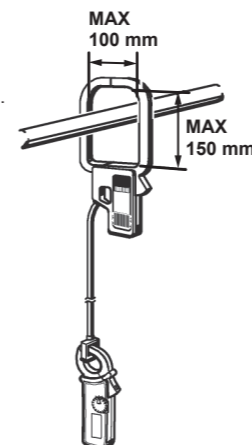
Clamp Adapter Model 99025  
(For AC current measurement only)

#### NOTE

Model 99025 has been discontinued.

Clamp Adapter Model 99025 is designed to increase the measuring capability of a clamp meter. With the use of the clamp adapter, you can not only extend current range over 2000 A, but also clamp on a large bus-bar or conductor.

- (1) Set the range switch to the " ~ A " position.
- (2) As shown in the figure right, clamp CL120 onto the pickup coil of the 99025.
- (3) The 99025 onto the bus-bar or conductor under test.
- (4) Take the reading on the CL120 and multiply it by 10.



## 4. Battery Replacement

#### WARNING

To avoid electric shock hazard, never try to replace batteries during measurement.

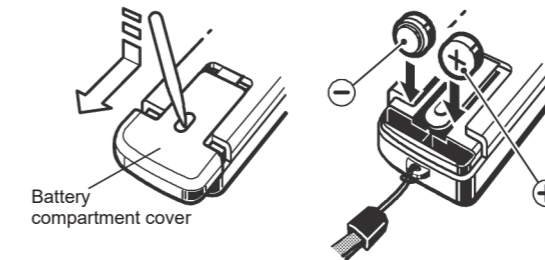
#### CAUTION

- Do not mix new and old batteries.
- Make sure to install battery in correct polarity as indicated in battery compartment.

If the battery voltage becomes too low for the instrument to operate normally, is shown on the display. Then, replace the battery.

Note that when the battery is completely exhausted, the display blanks without shown.

- (1) Set the range switch to the "OFF" position.
- (2) Press in the hole on the battery compartment cover with the tip of a pointed object, then slide open the cover.
- (3) Replace the battery observing correct polarity. Use two new LR44 or SR44 batteries.
- (4) Slide the battery compartment cover back in place.



## 5. Specifications

### Instrument Specifications

- Measuring Ranges and Accuracy  
(at 23 ± 5°C, relative humidity up to 75%)

Range	Measuring Range	Accuracy
20 A	0 to 19.99 A	±2.0% rdg ± 7 dgt (50 Hz to 1 kHz)
200 A	0 to 199.9 A	±2.0% rdg ± 5 dgt (50/60 Hz) ±3.0% rdg ± 10 dgt (40 Hz to 1 kHz)

### General Specifications

- Operating System: Dual integration
- Measurement Function: AC current
- Display: Liquid crystal display (LCD) with maximum counts of 1999
- Overrange Indication: "1" flashes on the highest digit
- Response Time: Approx. 2 seconds
- Sample Rate: Approx. 2.5 times per second
- Temperature and Humidity for Guaranteed Accuracy: 23°C ± 5°C, relative humidity up to 75% without condensation
- Operating Temperature and Humidity: 0 to 40°C, relative humidity up to 85% without condensation
- Storage Temperature and Humidity: -10 to 50°C, relative humidity up to 75% without condensation
- Effect of conductor position: Within 2% difference between maximum and minimum values to a 10 mm-dia conductor
- Effect of external magnetic field: 0.8 A or less in AC magnetic field of 400A/m
- Power Source: Two LR44 or SR44 (3V DC) batteries
- Battery Life: Approx. 100 hours (continuous)
- Current Consumption: Approx. 1 mA
- Auto-power-off function: Turns power off approx. 10 minutes after the last switch operation
- Withstanding Voltage: 4240 VAC for 5 sec. between housing case and metal part of jaws
- Insulation Resistance: 10 MΩ or greater at 1000 V between housing case and metal part of jaws
- Conductor Size: Approx. 24 mm diameter max.
- Dimensions: Approx. 59 (W) × 147 (H) × 26 (D) mm
- Weight: Approx. 100 g (batteries included)

- Safety Standards: EN 61010-1, EN 61010-2-032 (300 VAC CAT III, Pollution degree 2, indoor use)
- EMC Standards: EN 61326-1 Class B Table 1  
EN 61326-2-2  
EN 55011 Class B Group 1  
EMC Regulatory Arrangement in Australia and New Zealand  
Korea Electromagnetic Conformity Standard ( 한국 전자파적합성기준 )
- Environmental standard: EN 50581
- Accessories: LR44 battery . . . . . 2  
Carrying case (Model 93033) . . . . 1  
User's Manual. . . . . 1

## 6. Calibration and After-sales Service

Should any failure occur while you are using the tester, follow the instructions given below.

If the instrument still fails to operate correctly and needs repair, or calibration contact the vendor from whom you purchased the instrument or the nearest YOKOGAWA dealer.

- Turn off the POWER switch once, then turn it back on again.
- If the tester does not turn on, replace the battery with a new one.

### Calibration

It is recommended that the instrument be calibrated once every year.

## Waste Electrical and Electronic Equipment (WEEE), Directive

(This directive is valid only in the EU.)

This product complies with the WEEE directive marking requirement.

This marking indicates that you must not discard this electrical/electronic product in domestic household waste.

### Product Category

With reference to the equipment types in the WEEE directive, this product is classified as a "Monitoring and Control instruments" product.

When disposing products in the EU, contact your local Yokogawa office in Europe.

Do not dispose in domestic household waste.

