User's Manual

CL120
Clamp-on Tester

IM CL120

Thank you for purchasing our Clamp-on Tester.

The following manuals is provided. Please read all manuals.

IM CL-S03:	For standard (CL Series)
IM 00C01C01-01Z1:	Safety manual (European languages)

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 ◆
Yokogawa Test & Measurement Corporation

IM CL120
9th Edition
October 2021 (YMI)

■ 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 of 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 (CAT 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.

O (None, 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.

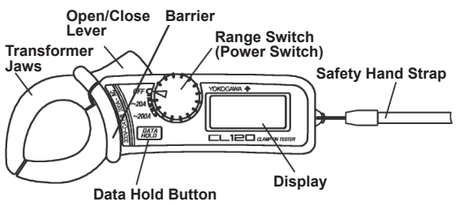
⚠ CAUTION

- 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



LCD Display

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.

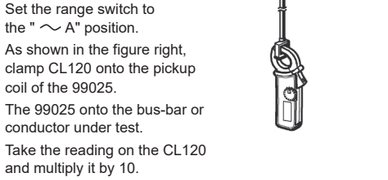
2.2 AC Current Measurement

⚠ 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 DATA HOLD button to freeze the reading.
The reading will be held regardless of subsequent variation in input. H 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 DATA HOLD button again.

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

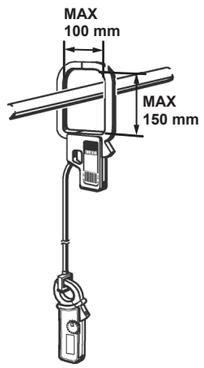
3.3 Optional Accessories

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

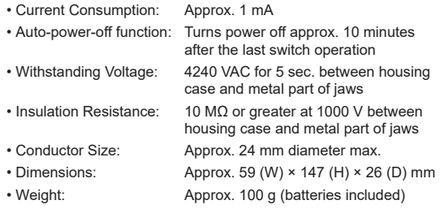
To avoid electric shock hazard, never try to replace batteries during measurement.

⚠ 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, BATT is shown on the display.
Then, replace the battery.
Note that when the battery is completely exhausted, the display blanks without BATT 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 ± 5ºC, relative humidity up to 75%)

AC Current ∼

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: 23ºC ± 5ºC, relative humidity up to 75% without condensation
- Operating Temperature and Humidity: 0 to 40ºC, relative humidity up to 85% without condensation
- Storage Temperature and Humidity: −10 to 50ºC, 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: Tow 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
  Measurement category III 300 VAC
  (Indoor use, operating altitude 2000 m or less, pollution degree 2)
- 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 standards: EU RoHS Directive compliant
  For conformity to environmental regulations and/or standards other than EU, contact your nearest YOKOGAWA office (PIM113-01Z2).
- 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.

7. Regulations and Sales in Various Countries and Regions

Waste Electrical and Electronic Equipment (WEEE)

(EU WEEE Directive valid only in the EEA* and UK WEEE Regulation in the UK)
This product complies with the WEEE marking requirement. This marking indicates that you must not discard this electrical/electronic product in domestic household waste.
When disposing of products in the EEA or UK, contact your local Yokogawa office in the EEA or UK respectively.
(*EEA: European Economic Area)

Batteries and Waste Batteries

Batteries and waste batteries are described in IM CL120-S01-EN.

Authorized Representative in the EEA

Yokogawa Europe B.V. is the authorized representative of Yokogawa Test & Measurement Corporation for this product in the EEA.
To contact Yokogawa Europe B.V., see the separate list of worldwide contacts, PIM 113-01Z2.

User's Manual

CL Series
Clamp-on Tester
For Standard

Supplement

This paper supplements the User's Manual of Clamp-on Testers (except for Model CL420).
CL Series: CL120, CL150, CL155, CL220, CL250, CL255, CL320, CL340, CL345, CL360
This document contains explanations for standard.

Manual of the CL Series

The following manuals are provided as manuals for the CL Series (except for Model CL420). Read them along with this manual.

Manual Title	Manual No.	
	IM 00C01C01-01Z1	Safety manual (European languages)
CL Series	IM CL-S03	For Standard (this manual)
CL Series	IM CL-S04-EN	Disposing the Battery (EU Battery Directive) For Model: CL150, CL155, CL220, CL250, CL255, CL320, CL340, CL345, CL360
CL120 and CL235	IM CL120-S01-EN	Disposing the Battery (EU Battery Directive) For Mode: CL120
CL Series	IM CROHS-CL	Document for China For Mode: CL120, CL220, CL320, CL340, CL345, CL360
CL Series	IM CL-93Z2	Document for Korea

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

Document No.		
PIM 113-01Z2	Inquiries	List of worldwide contacts

Precautions for Safe Use of the Instrument

This product is designed to be used by a person with specialized knowledge.
The general safety precautions described herein must be observed during all phases of operation.
If the instrument is used in a manner not specified in this manual, the protection provided by the instrument may be impaired.
This document and the user's manual of clamp-on tester are an essential part of the product; keep it a safe place for future reference.
YOKOGAWA assumes no liability for the customer's failure to comply with these requirements.

YOKOGAWA ◆
横河計測株式会社
Yokogawa Test & Measurement Corporation

IM CL-S03
12th Edition: Oct. 2023 (YMI)

⚠ WARNING

- The instrument is a current measurement instrument. Do not use this instrument for any other purpose.
- Be careful not to make the device (conductor) under test short-circuit with metal part of the jaws or test leads.

⚠ CAUTION

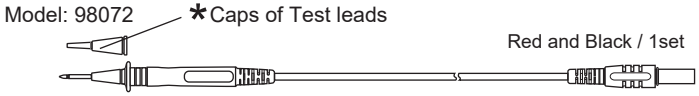
- The use of this instrument is limited to residential, commercial, and light-industrial environments. This instrument may not be able to measure accurately if it is near other equipment generating strong electromagnetic interference or a strong magnetic field caused by large current.
- To verify the instrument's functionality, check that the measured value is update after turning on the power. If the measured value is not updated, the reading will be incorrect and may lead to possible electrical shock or personal injury.

Measurement Category of the Test leads

⚠ WARNING

- When you use the test leads, attach or remove the caps according to the measurement category.
- If the signal cable of the test leads is torn and the inner metal is exposed or if a color different from the outer sheath appears, stop using the cable immediately.

With Caps*: 1000V 10A CAT III/600V 10A CAT IV
Without Caps*: 1000V 10A CAT II/600V 10A CAT II



When the test lead (98072) is used*1: Model CL150, CL155, CL250, CL255

■ General Specifications

Safety Standards
All models: EN 61010-1, EN IEC 61010-2-032
Models that use test leads*1: EN 61010-031
Indoor use, operating altitude 2000 m or less, pollution degree 2

EMC Standards
EN 61326-1 Class B Table 1, EN 61326-2-2
EN 55011 Class B Group 1
Group 1: Equipment that does not intentionally generate or use radio-frequency (RF) energy
EMC Regulatory Arrangement in Australia and New Zealand
Korea Electromagnetic Conformity Standard (한국 전자파적합성기준)

Environmental standards EU RoHS Directive compliant
For conformity to environmental regulations and/or standards other than EU, contact your nearest YOKOGAWA office (PIM113-01Z2).

Authorized Representative in the EEA

Authorized Representative in the EEA Yokogawa Europe B.V. is the authorized representative of Yokogawa Test & Measurement Corporation for this product in the EEA.
(EEA: European Economic Area)
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User's Manual

CL120 and CL235
Clamp-on Tester
Disposing the Battery
クランプテスタ
電池の廃棄について

How to Replace and Dispose the Batteries

Batteries and Waste Batteries

(EU Battery Directive/Regulation valid only in the EEA* and UK Battery Regulation in the UK)

Batteries are included in this product.
When you remove batteries from this product and dispose them,
discard them in accordance with domestic law concerning disposal.
Take a right action on waste batteries, because the collection systems in the EEA and UK on waste batteries are regulated. (*EEA: European Economic Area)

Battery type: Alkaline cell

This marking indicates they shall be sorted out and collected as ordained in the EU battery Directive/Regulation and UK battery Regulation.

How to remove batteries safely:

For further details, see chapter 4, “Battery Replacement” in the User's Manual.

電池交換および廃棄方法について

電池と廃電池

（EU 電池指令 / 規則は EEA* で、UK 電池規則は UK で有効です。）

この製品には電池が使用されています。
製品から電池を取外し、電池単体で処分する場合には、廃棄に関する国内法に従い処分してください。
EEA または UK では、電池の回収システムが整備されているため適切な処置をお願いいたします。 (*EEA: European Economic Area)

電池の種別：アルカリ電池

このマークは、EU 電池指令 / 規則と UK 電池規則に規定されているとおり、分別収集が義務付けられていることを意味しています。

電池の安全な取り外し方法：

取扱説明書の「4.　電池の交換」を参照してください。

YOKOGAWA ◆
横河計測株式会社
Yokogawa Test & Measurement Corporation

IM CL120-S01-JA
IM CL120-S01-EN
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