

CW120/CW121 Clamp-on Power Meters (CW240 FAQ is below)

1. There are three available cases for the CW120 series, how do they differ?

The following describes the differences between the three CW120 series cases.

- a1) The 93023 case holds only the main unit of the CW120 or CW121.
It does not accommodate any accessories, but includes a magnet and stand.
- a2) The 93022 carrying case holds the CW120 series main unit along with accessories including current clamps and voltage probes.
- a3) The 93024 case is meant to be a portable carrying case for a CW120 series clamp-on meter and its probes and clamps.

2. What are the recommended CF data saving cards for the CW120 Series clamp-on meters?

Recommended CF cards for the CW120 series are Yokogawa number 97034, 256 MB and number 97035, 512 MB.

3. Can the CW120 series be operated by batteries?

No, the CW120 series clamp-ons are not battery operated. If there is no nearby AC 100 V ~ 240 V +/- 10 %, 50/60 Hz outlet available consider using the model 98030 power cable which derives power for the measurement circuit from the system being measured.

4. What does error message "Err.300" mean?

Error 300 is displayed when attempting to change either the measuring range or phase wiring while the integrated power consumption or elapsed time have not been reset to zero. These changes cannot be done to avoid discontinuity of data. To reset the integral values to zero depress the ESC key for more than 3 seconds before trying to make these changes.

5. What does error message "Err.105" mean?

Error 105 means the PC card is not properly formatted. Confirm that you are using a PC card confirmed for use with the CW120 series and that the card has been properly formatted.

6. Integral power display unit reads MWh, but it seems too big.
What should we do?

It seems that the measuring integral power consumption and display unit do not match each other. Display unit and decimal point position can be changed as required. Default is set that the decimal point position and display unit are automatically selected by the measuring conditions of voltage range, current range, wiring setting, CT ratio and/or VT ratio. In order to obtain the most appropriate display unit, select the menu and change the display unit, kWh for instance, and decimal point position to a proper display. For further details, please refer to instruction manual, Clause 7.2.17 Setting Decimal Point Position and Unit of Electric Energy (DIGIT).

7. Icon of MEM is shown in the display. What does it mean?

It means that the measuring data to be saved to PC card is saved in the back-up memory of CW main unit for some reason. (When no data has been saved in the back-up memory, "MEM" is not displayed). If such back-up data is to be saved continuously, re-slot the PC card and move to MEM menu and select copy and clear in back-up memory,

8. In an integral power measurement, continuous integration leads to overflow.
What is the integral power display limit?

Integrating display limit is 99,999 GWh.

9. The measured current values are radically different than expected values.

Please verify that the clamp model number in clamp setting matches the model number of clamp in use. Set the current range on main unit to match the maximum current range of the clamp probe used.

*Model 96033: 50A

*Model 96030: 200A

*Model 96031: 500A

*Model 96032: 1000A

10. Data is shown in Microsoft Excel for only up to the middle of the first day for a data file containing a volume for one week of 1-second interval readings. Why?

It is because that the data exceeds the Excel worksheet line limit of 65, 536 lines. Please split data files into less than 65,536 lines by editor or the like.

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11. The setting is transferred to the main unit by means of parameter setting tool, Toolbox, but the display shows "failed".

It is assumed that both integral power consumption and integral elapsed time are not zero. Reset the integrated value in the setting display or depress the ESC key for more than 3 seconds to make the integrated value to zero

12. Is it possible to monitor multiple CW120/CW121s using a Pc? If it is possible how would it be configured?

RS-485 allows to connect up to 31 units of CW120/CW121 with one communication line for remote monitoring. A sample configuration would consist of a PC with RS-232, RS-232/485 converter and PC software. A RS-232C/RS-485 converter is required to connect to CW120/CW121 (RS-485 communication spec) to the RS-232 port on PC.

13. Is there any simple setting way of loading the same configuration to a multiple number of CW120/CW121 units?

The CF card saves Configuration data as well as measuring data. Therefore, save the Configuration file CW120/CW121 to the CF card. Then insert CF card into each unit and upload the Configuration file to each unit.

14. What is the preferred communication cable for RS-485?

AWG24 shielded twisted pair cable is preferred.

15. I don't have a RS232 port on my computer. Can I use a RS232 to USB converter?

It is possible to connect by combining commercially available RS-232/USB converter and CW120/121 cable (model: 91011).

16. Please advise how to use the command to download the data by means of PC link communication. Please advise how to handle 2 registers being returned.

Two (2) pieces of registers save the voltage and current data as explained in register map exclusively used for CW120/CW121. Unlike reading out them individually and add, continuous reading out is available by specifying the first register and key word to be read out as explained in WRD command. For further details, please refer to user's manual communication functions Clause 5.4.7 WRD command on P. 5-12.

CW240 Clamp-on Power Meters

1. What are the recommended CF data saving cards for the CW240 Series clamp-on meters?

Recommended CF cards for CW120/240 are Yokogawa number 97034, 256 MB and number 97035, 512MB. Operation has been successfully checked with the following commercially available cards with more memory, but operation

SanDisk SDCFB-1024 (1GB)

SanDisk SDCFB-2048 (2GB)

- * No other files are presented in PC card.
- * PC card is inserted at the start of integration.
- * PC card should not be removed during the integration.
- * No communication is performed.
- * Avoid excessive key operations.

Sufficient interval allows to save all data which corresponds to 1GB and 2GB capacity.

2. Is it possible to add an optional analog input/output functions after purchasing the main unit?

Adding such functions after unit purchasing is not available. Please be sure to add them at the time of main unit purchasing.

3. Please advise the specifications of DA output voltage for optional analog input/output functions.

It is $\pm 1V$ DC of the rated value for each range. Accuracy is \pm (measurement accuracy + 0.2% f.s.), and output resistance is $22\Omega \pm 5\%$.

4. What is the difference between measurement cycle and interval?

- * Measurement cycle refers to the time interval used to measure the instantaneous real time value of one cycle of input voltage.
- * Interval means the time interval for saving and output the measurement data.
- * The r.m.s. value of voltage, current and electric power value in every one cycle are measured as an instantaneous value.
- * Calculate the maximum, minimum and average values of instantaneous value being measured within the interval time and save them in the PC card in every interval time.
- * Instantaneous value (for one cycle) of adjacent interval time is saved in the PC card in every interval time.

5. Download the data being saved in PC card to Excel , but the display data is not well understandable. What does it mean?

Header Characters in Appendix 2 File/Print Item Descriptions which is located in the instruction manual explains the details.

6. Electric power is measured in three-phase three-wire three-current connection. Tried to verify each phase by formula of electric power, voltage, current and power factor ($U \times I \times$ power factor = electric power), but the value does not match. Why? Actual measurement data are as follows.

- * Voltage: U1_INST(V):215.0V
- * Current: I1_INST(A)_1:45.0A
- * Electric power: P1_INST(W)_1:970W
- * Power factor: PF1_INST_1:0.17

In case of three-phase three-wire three-current, the voltage of each phase electric power is phase voltage of virtual neutral point.

Voltage U1 is a line voltage so it is required to convert to phase voltage (line voltage $/\sqrt{3}$) .

In this case, the phase voltage shall be 124.1V ($215.0/\sqrt{3}$).

Where, V1: 124.1V, I1:45.0A, P1:970W, the equation of power factor shall be $970/(124.1 \times 45.0) = 0.174$, hence, the measurement value is quite close.

7. Why is there no harmonic analysis item in the calibration certificate?

Both basic measurement (voltage, current, electric power) and harmonic measurement are implemented based on PLL synchro system. Harmonic data is calculated based on the basic data (voltage, current, electric power). Therefore, if the accuracy of basic data meets the specifications, then the harmonic measurement data is also approved to be within the specifications accordingly. This is the reason why no harmonic analysis item is presented in the calibration certificate.

8. Why won't the unit allow me to change wiring configurations or change file names?

A data save/ integration has been completed and the MIN, MAX, and AVE data must be cleared from the Measure List memory Go to the List screen from the Measure section. Push down the F5 button for 5 seconds, a "measurement data will be cleared proceed?" message will appear, press the enter button. You will now be able to change all configuration fields