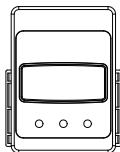


Display unit for the instrument connecting Bluetooth MDU-100X/200X

English Manual (ver.1.20)

Thank you very much for purchasing MDU series. Before using, read this instruction manual carefully and use it correctly. In order to refer the instruction manual anytime, keep it always at a safe and available place.



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Warranty Sheet

In a case of failures, due to manufacturing defects, contact the shop/ distributor where you purchased product or directly inform us. The warranty period of this product is one year from the date of purchase.

Warranty	
[User Information]	
Street Address:	
Full Name:	
Model :MDU-100X/200X	
Serial number :	
Warranty period:15month after shipment by factory	
Distributor/ shop name:	
- This warranty sheet is required for after-sales service. - This warranty sheet is not to be reissued. For your convenience, fill in above information and keep it with the end user of the instrument.	
Note	
Warranty policy	
1. In cases of a malfunction occurs during normal use, within the warranty period, it is to be repaired free of charge, based on the warranty provisions.	
2. The warranty sheet is not to be reissued.	
3. Even during the warranty period, under the following circumstances, items are not to be repaired free of charge.	
A) Failure due to improper handling	
B) Failure due to handling and use, outside design specifications	
C) Failure due to modifications or repairs other than our company or those commissioned by our company	
D) Other failures not considered to be manufacturing defects	

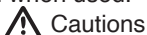
For Safe Use

In order to use this instrument safely, follow this instruction manual strictly and attention to the following cautions and warnings described below.



Warning

In cases of misused, it causes serious injury to the body or danger to the life of the end-user. Pay extra attention when used.



Cautions

If it is misused, it causes damage to the instrument. Or it disturbs the function of the instrument as specified.

- Please note that this device cannot be used in an environment where it is not available to connect with the measuring instrument by Bluetooth connection.
- The measuring instrument cannot pair with a smartphone while using this device. Please note that it cannot be used with "Multi-Tracer" at the same time.
- Please note that it is not possible to connect two measuring instruments with this device at the same time.
- Do not use a measuring instrument made by another company by connecting it to this instrument. The correct value will not be displayed and may cause an accident.
- Do not pair with the measuring instrument made by other company. The correct value will not be displayed and it may cause an accident.



Warning

- There is a risk of electric shock.
- Never use it in direct contact with the power lines. It may cause an accident.
- When using a measuring instrument with connecting this device in a high-voltage circuit, be sure to equip this device to the insulating rod that secures an enough insulation distance according to the each specified live-working safety regulations.
- When mounting this device on the insulating rod, secure firmly with a fastener to prevent it from falling off. *If dropped, the shock may cause damage to workers or surrounding facility.
- Never hit it to ground after use. It may cause malfunction.
- Check whether the surrounding environment and work is safe before use.
- High voltage circuits are extremely dangerous. For user without specialized knowledge, avoid using the measuring instrument connecting with this device near high voltage circuits.
- Even while operating a smartphone or a this device, keep the safety work sufficiently. If the insulation rod tumbled, it may lead to an unexpected accident.
- Avoid using this device in near electric circuit that exceeds the using voltage range specified by each connected measuring instrument.
- Due to safety reasons, do not use under abnormal condition, such as raining, lightning, eruption, storm, earthquake or tsunami.
- Do not use at uninsulated conductors or at bus bars
- Do not push into a covered electric wire, larger than the inner diameter of the unit.
- Do not use on the instrument or the insulating rod with damages.



Caution

- If the unit becomes dirty, use a soft cloth with a moistened water or a neutral detergent in a small amount and wipe lightly. Do not use abrasives or organic solvents.
- Do not use if water gets inside or its surface is wet.
- Do not wash by immersing it in water or in similar liquid.
- Do not dry it in a microwave oven or in similar heaters.
- Do not expose to direct sunlight for a long time. It may cause deterioration of its cover.
- It is NOT dustproof or waterproof structure. Do not use or store in environment with harmful smoke or gas containing salts, sulfur, ammonia components or in ultraviolet light, etc. It may cause malfunction.
- Some kinds of oil may deteriorate the cover part, and it may cause malfunction. Wipe oil away lightly with a soft cloth, moistened with water or a neutral detergent, a small amount.
- Refrain from storing it in an environment where it has mold etc.
- Do not store it in an environment that exceeds the specified operating temperature and humidity.
- Do not roast this unit with a firearm such as a lighter
- Cannot be used underwater.
- Do not give a strong shock to the unit.
- Do not use as a lightning rod.
- Do not use as a hammer etc.
- Before measurement, be sure to pair with a measuring instrument. Without the pairing, it does not show the reading values.
- Safety work is ensured by an insulating rod when used in a high voltage circuit., it is recommended to wear insulation gloves. Perform the work, according to each operation rule.

The symbol marks are shown below:



Warning

In order to protect the human-body and the unit, refer to the instruction manual and pay close attention.



Cautions

In order to avoid accidents or malfunction caused by incorrect use, refer to the instruction manual.



The symbol indicates that the Bluetooth wireless technologies are employed.

Trademarks (TM, (R) mark, etc. are not specified in this manual.)

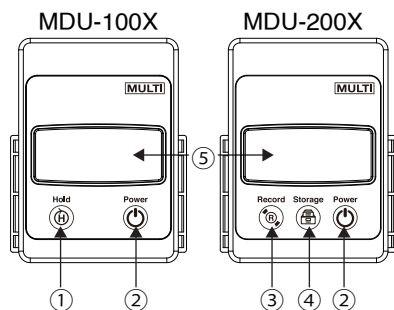
- Bluetooth is a trademark of Bluetooth SIG, Inc.
- Multi Measuring Instruments Co., Ltd. uses it under a license agreement with the company.
- Android and Google Play are trademarks of Google LLC
- The iOS trademark is used under a license agreement with Cisco Systems, Inc.USA.
- iPhone, iPad, iPad mini and iPod Touch are trademarks of Apple Inc., registered in the US and other countries.
- App Store is a service mark of Apple Inc.

Specification

Contents	Specification
Bluetooth version	Bluetooth4.2 class2
Receiving interval	Approx. 0.5s intervals
Power Supply	AAA alkali Battery x 3
Power consumption	- Communication standby: Approx.12mA - Communication connection: Approx.6mA
Display specification	- LCD display - Displayable max 9999 count display with symbol and unit * Units and functions and symbol display to measurement contents differ depending on the connected measuring instrument. - When the battery voltage drops below 3.5V, the "battery" mark on the display lights up. * If the battery voltage drops below 3.3V, the LCD display will fade.
Data hold function	100X=Hold/200X=Record switch are pressed for holding value. - To release the data hold, press the same switch again.
Max hold function (MDU-200X, for HCL-36UX and ALCL-80X)	- To press the Record switch again under data holding, MAX hold function is available. - Press again to release the hold.
Record function (MDU-200X)	- Press the Record switch during 2s at each hold. - Max 4 data can be recorded. - Recorded data can be saved onto the 4 data spaces every time pressing the Storage switch. - Data can be retained even when power off. - To delete data, hold down the Storage switch and press Power after power off.
Harmonics current display function (MDU-200X, for ALCL-80X)	Each time the Storage switch is pressed, the RMS→fundamental →third harmonic measurement value is displayed.
Auto power off function	- When the APO mark is lighting, the power is automatically turned off approx.30min after the last switch operation. - This function is disabled during communication connection (when the APO mark is off).
Weight	180g(with batteries inside)
Size	76*97*50.4mm

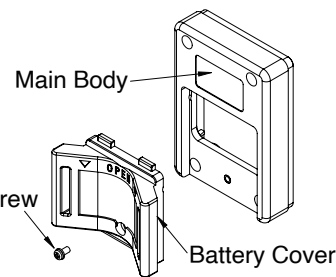
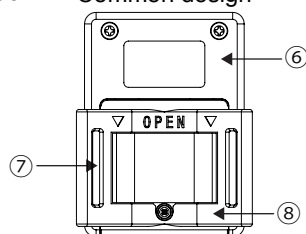
Name of parts and function

Front Side



Back Side

Common design



Warning

Possible electrical shock

- If opening the battery-cover, return to the original position.
 - Do not apply to conductors with the battery cover open.
- Low Battery Indication; when low battery, the battery mark lights up.

Connection with "Multi-Tracer" measuring instruments

<1> Turn on the power of the "Multi-Tracer" measuring instrument. If the instruments have the "⌘" switch, press this switch. If not, move to <2>.

<2> Press the Power switch of these units to turn on the power.

<3> Pairing is complete when the "⌘" mark lights up on the LCD of these units. In the case of connecting with "Multi-Tracer", register the measuring instrument to "Multi-Tracer" at first. After registration, select the measurement point on the map and start to measure. You can record and keep measurement data on the server through "Multi-Tracer". If you do not need to record data, you can also choose a mode that just measures. These Units and "Multi-Tracer" cannot be connected with the Multi-Tracer measurement instruments together at same time. This connection takes priority the one that was quickly paired with the Multi-Tracer measurement instruments. Please close "Multi-Tracer" when using this unit. Attention: Some "Multi-Tracer" compatible measuring instruments cannot be connected with this unit.

Usage instructions

Press the power switch while the measuring instrument to be connected is waiting for connection. Then the APO mark lights up. When the connection is completed, the "⌘" mark lights up on the LCD and the APO mark lights out, the LCD will be able to be displayed measurement value.

* If the connection is not completed, the "⌘" mark will blink on the LCD and APO mark still be lighting up, and the measured value display part is displayed as "---", then please try to connect again.

* If measured value exceeds the measurement range of the connected measurement instrument, it will be displayed as "OL".

■ Data hold function (Common to MDU-100X/200X) MDU-100X presses the Hold switch, MDU-200X presses the Record switch. The DH mark lights up on the LCD and holds the measured value when pressed. To release it, press the same switch again.

■ MAX hold function (Only MDU-200X for HCL-36UX and ALCL-80X)

By pressing the Record switch during data hold, MAX hold is enabled and only the max value is displayed. Press the same switch again to unlock.

■ Harmonics current display function (Only MDU-200X for ALCL-80X)

Each time the Storage switch is pressed, the RMS → fundamental → third harmonic measurement value is displayed (The first digit of the upper right two digits 1: RMS, 2: fundamental, 3: third harmonic current).

■ Record function (applicable only to MDU-200X) Presses the Record switch for 2s under holding data, you can record the measured value in the each space of the No.1~4. When it is recorded normally, the "M" mark lights up. By pressing the Storage switch, changes the recording spaces No.1~4 in order. Press again the Record switch to return to the measuring state.

* Changes the storage space number by pressing the Storage switch unless the data were not deleted, the measured values data in each space can be displayed.

* If communication is disconnected while operating the record function, the "⌘" mark blinks and the APO mark lights up.

* To delete the data, presses the Power switch while pressing the Storage switch when the power is off, and the CLR mark will be displayed. When CLR mark appears, all the measured value data recorded in No.1~4 will be deleted. After finishing the measurement work, move the measurement instrument away from the measurement target, ensures the safety of the surroundings, and then press the power switch on the measurement instrument to turn off the power.

Furthermore, checks whether these unit still are connected or disconnected pairing on these unit LCD.



Caution

- When an overcurrent and/or over voltage are applied on these units, then it may cause damages to these units.
- This instrument is a precision mechanical equipment. When handling, be careful not to apply shock, vibration or excessive stress.

Bluetooth® function

These Units requires Bluetooth communication. For the dedicated application "Multi-Tracer" in order to display, record or storage measurements, download and install Multi-Tracer at APP Store or at Google play in prior. In order to download Multi-Tracer, because it requires each ID, obtain necessary ID in advance. For communication costs related to the download, it is not our responsibility. Proceed the download as it is necessary. For obtaining necessary ID, communicate with customer-center of a dedicated mobile-phone company. In addition, we are not responsible for any problems or costs related to downloading. Proceed download and install based on responsibility of its user.



Caution

- This product has a low power data communication system based on the Radio Law. (Built-in equipment; EYSHCN: 001-A10745)
- The communication range depends on the surrounding environment such as other radio waves and devices.
- This product uses communication frequencies of the 2.4 GHz band. If another wireless devices are using similar communication frequencies near this product, it may disturb wireless communication of both devices. Radio-wave interference may occur. In this case, stop other wireless devices or change the place where this product is used to avoid radio-wave interference.
- Multi-Tracer" is free of charge. However, the internet connection fee is on user's payment.
- The Bluetooth communication function may not works on all mobile terminals. Multi-Tracer" may not work on all mobile devices. Use of devices with radio-communication requires approval in the country of use, and use of the instrument in a country or a region may be subject to penalty as a violation of related laws.

After Sales Service

In the unlikely event of failure, please contact your distributor or our agent at where you have purchased. If you contact a distributor or agent which are different from the one you have purchased, it may be difficult to provide our after-sales service. Please be noted. When you are sending the item for repair, put it in a dedicated packaging box enclosed for this delivery, wrap it sufficiently not to be opened or damaged easily, along with the warranty card including information clearly describing the address, name, and details of the failure, and return to designated retailer/agent where you have purchased the item.

Handling Instruction

Replacing Batteries

- Be sure to power-off and take off the battery-cover on the back-side and place batteries in right directions.
- Place the battery-cover and secure the cover screws with (+) screw driver.

Name of parts	Function
① Hold switch	Holds the measured value
② Power switch	Power On/ Off. MDU-200X is also used to delete all recorded values
③ Record switch	Used to hold and record measured values
④ Storage switch	Used to select 4 storage spaces and also used to delete all recorded values
⑤ LCD	Displays the symbol and the battery status with measured value sent from the connected measuring instrument
⑥ Main Body	To store PCB etc
⑦ Fastener hole for fixing	Passing the velcro fastener for fixing the insulating rod
⑧ Battery Cover	Open when replace batteries. Equipped with the non-slip rubber for fixing to the insulating rod