



WCK00x, NTP+POE Digital wall clock, user guide



1. Introduction

NTP (Network Time Protocol) is a highly-precise and convenient way to transfer time via the network. NTP time source is available from public NTP servers, or from local network time servers (for example T101 server with GPS time source, manufactured by Heol Design).

POE (Power Over Ethernet) utilizes the technology that delivers DC power to Ethernet connected devices. POE enables data and power transfer simultaneously through one standard network cable, which makes the deployment of network equipment more cost-effective.

WCK00x clocks bring together all the advantages of PoE technology and real-time synchronized system to the market: get precise time source from the Internet, and receive data and power over the same set of wires, which guarantees high precision and low cost. Moreover, double-sided display is available. This innovation facilitates installation and reduces costs.

WCK00x are available in standard enclosure for internal use, or IP66 enclosure for external use.

2. Technical specifications

Accuracy	+/- approximately 20 milliseconds		
Operating Temperature	-10°C to 60°C		
Viewing Distance	60 meters		
Operating Humidity	90% maximum, non-condensing		
Installation options	Wall, Pendant, Cantilever		
Certifications	CE/FCC		
Power Supply	IEEE 802.3af / 802.3at compliant Power over Ethernet (PoE/PoE+), less than 13W		
	DC power adapter in option : -12V for Red clock -18V for Blue / White clock		
Network interface	Ethernet RJ45 (10M/100M)		
Warranty	One year		
Display Face	4 or 6-digit, 7-segment LEDs WCK010 : 2.3" digit (56mm character), 8*8 dot matrix(38mm high)		
MTBF	50 000 hours		
Luminance display	4 levels of luminance display available. Compared with using the maximum level, 75% power-saving is achieved by turning to the minimum one		
4-digit Single-sided		4-digit Double-sided front/rear	
Part Number	HD-WCK004	Part Number	HD-WCK006
Dimensions	302mm×157mm×60mm	Dimensions	302 mm×157mm×80mm
Cabinet	high-strength black plastic	Cabinet	high-strength black plastic
Weight	0.7kg	Weight	1.2kg
6-digit Single-sided		6-digit Double-sided front/rear	
Part Number	HD-WCK005	Part Number	HD-WCK007
Dimensions	427mm×157mm×60mm	Dimensions	427mm×157mm×80mm
Cabinet	high-strength black plastic	Cabinet	high-strength black plastic
Weight	0.9kg	Weight	1.55kg
6-digit Double-sided front/front		6-digit + Date/Calendar single-sided	
Part Number	HD-WCK009	Part Number	HD-WCK010
Dimensions	854mm×157mm×60mm	Dimensions	430mm×155mm×63mm
Cabinet	high-strength black plastic	Cabinet	ABS or metal or stainless steel
Weight	2.1kg	Weight	2kg

3. Installation

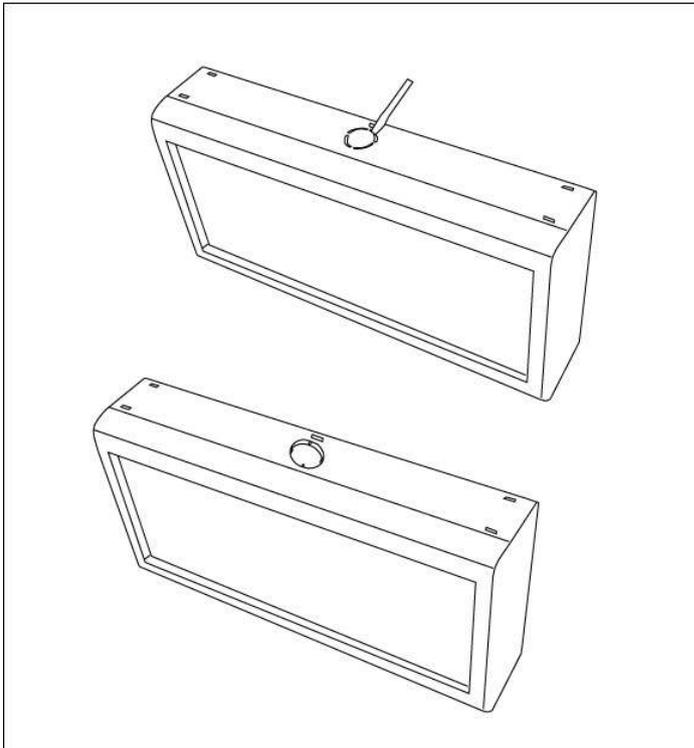
3.1 Power Supply

- 1) If the local network supports PoE, One network cable is needed. The use of SFTP cable is highly recommended.
- 2) If not, power adapter is available in option.

3.2 Installation instructions

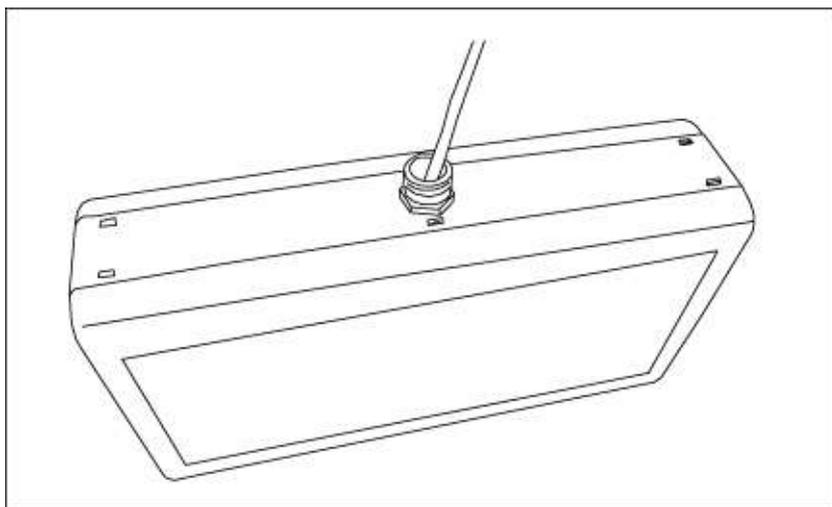
The detailed installation instructions are shown as below.

- a. If necessary, remove the hole on the top of the single-sided clock.



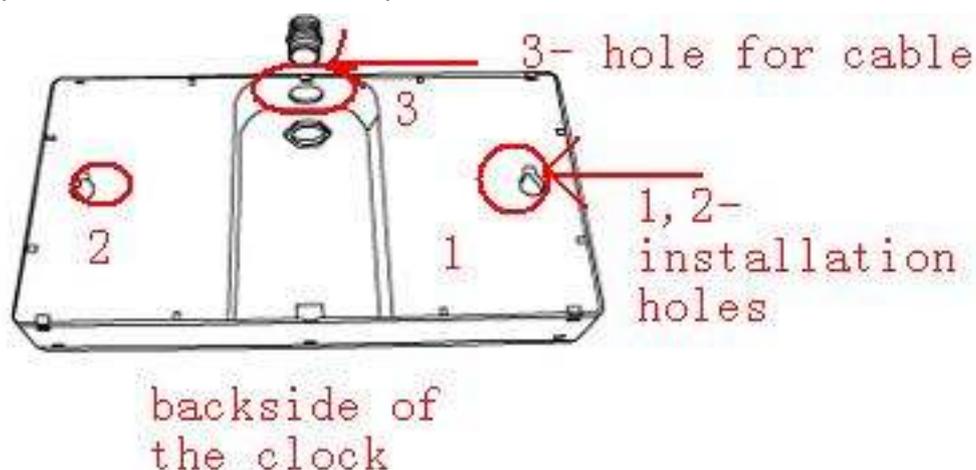
- b. Install the metal accessories, then make the network cable go through the hole.

- c. After the installation being finished the wall clock will just like what is shown below:



3.3 Wall Mounting

Only screws are needed. See the picture below:



There is 375 millimeters between the cantilever holes on the clock rear. The diameter of the cantilever screw head should be within 6-12 millimeters, and the diameter of the screw stem less than 6 millimeters. Work will be done by hanging the clock on the screws.

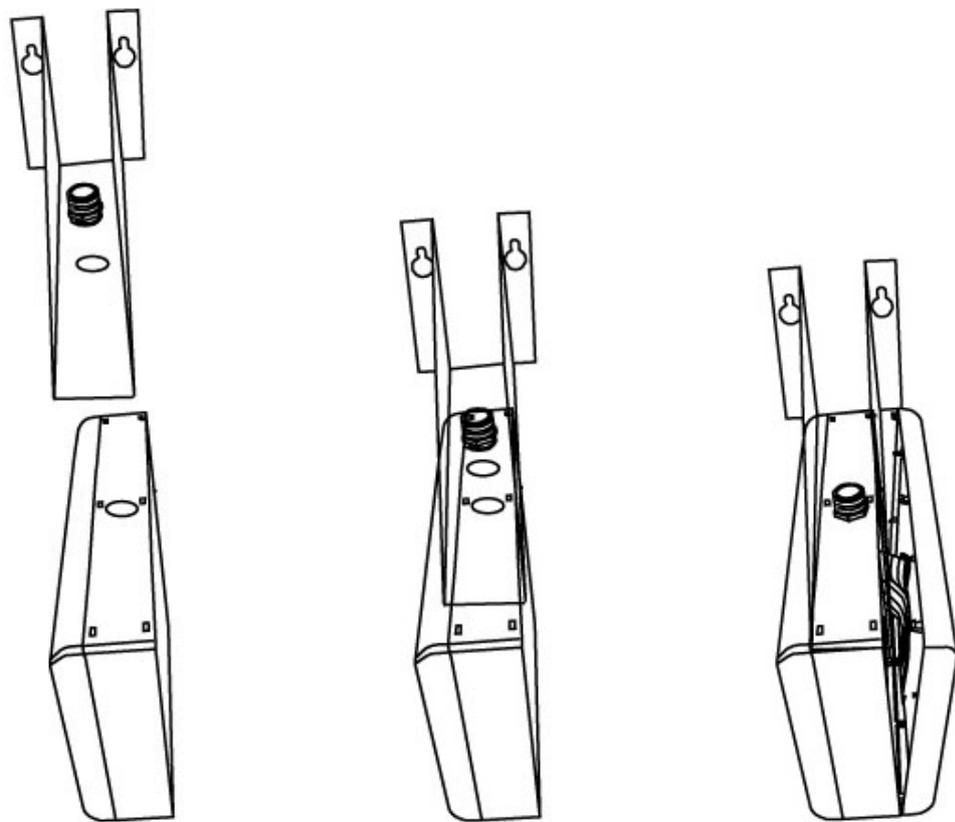
If the wall is newly decorated, please make sure that the cable required has been led out from where the clock screen is to be installed; If not, we suggest leading in the cable through the hole above the clock screen, and connect with the corresponding port.

3.4 Cantilever Mounting and Double-sided Display

The following steps are to be followed:

- a. Remove the hole on the top of the single-sided clock.
- b. Use the mental coupling of screw thread to fix the mental bracket on the top of the clock.
- c. Make the cable go through the mental coupling to connect with the interface.
- d. For double-sided display in this type, another display screen is needed.

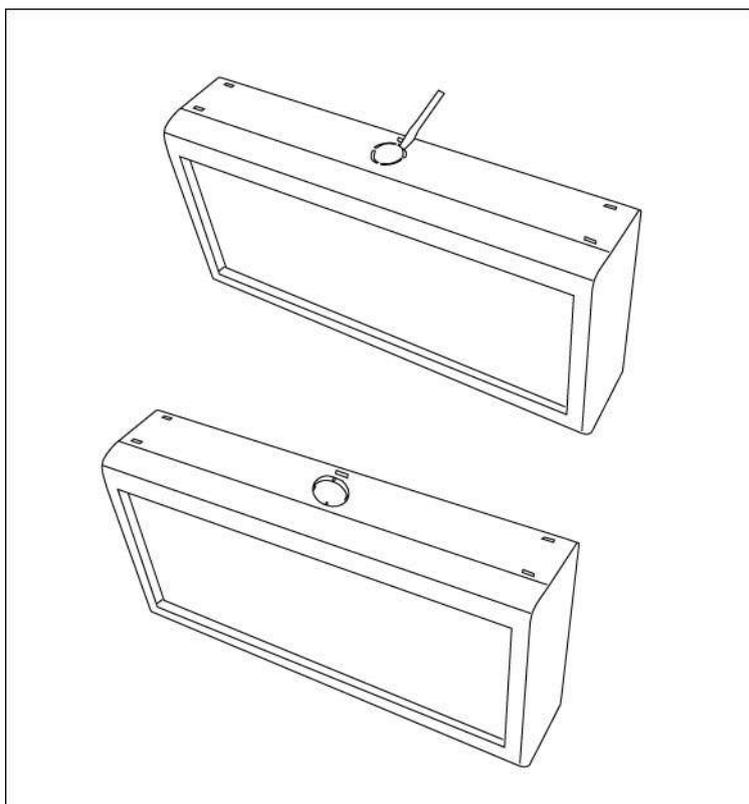
The following pictures are shown for reference.



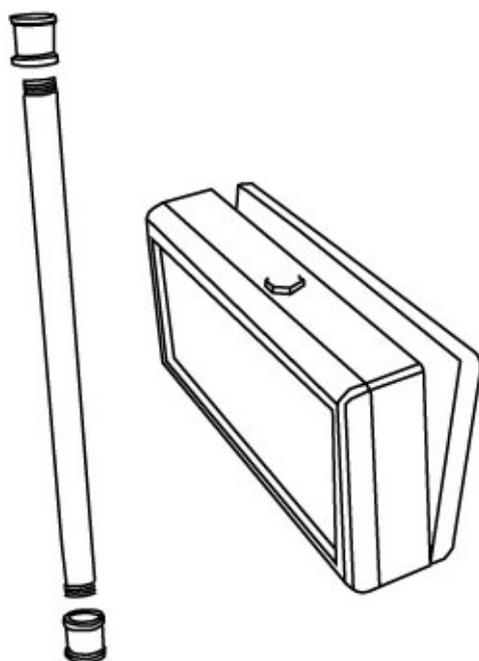
3.5 Pendant Mounting and Double-sided Display

In this type, the following steps are to be followed:

- a. Remove the hole on the top of the single-sided clock.

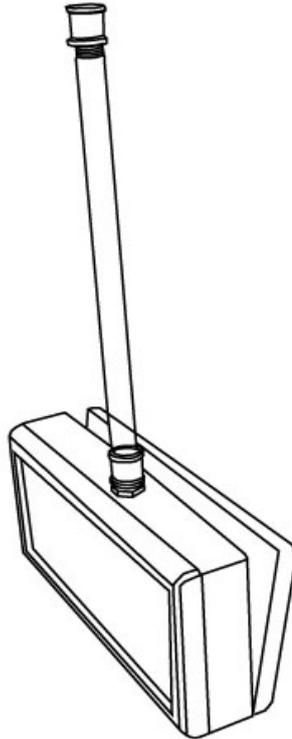


b. Take out the metal coupling and the nut at first, and install them on the top of the clock.



c. Then make the network cable pass through the pendant tube and the metal coupling; connect the cable with the interior interface of the clock screen.

d. For double-sided display in this type, another display screen is needed.



4. Operation Status

When power is supplied, there are three status under normal operation:

- Self-Check
- IP address
- Time display

4.1 Self-Check

Self-check status aims to inspect whether all LED segments are in good condition. This status lasts 10 seconds, showing 99:99, 88:88...to 00:00.

4.2 IP address

When you set the static IP address, the screen will show the IP figures for 4 times (sequence of 4 fields). When you set dynamic IP address (DHCP), “DHCP” will be shown first before getting the IP address. If it fails to track DHCP server within the scheduled time, the screen will automatically display IP address as 192.168.2.55.

4.3 Time Display

After the IP display step, if it is not synchronized with the external time source, it will keep running based on this time zone, with a dot at the bottom right :



If synchronized with the network time server, it will display the normal local time (without dot at the bottom right).

4.4 Time display configuration button

The rear side control button allows you to set the time display mode .

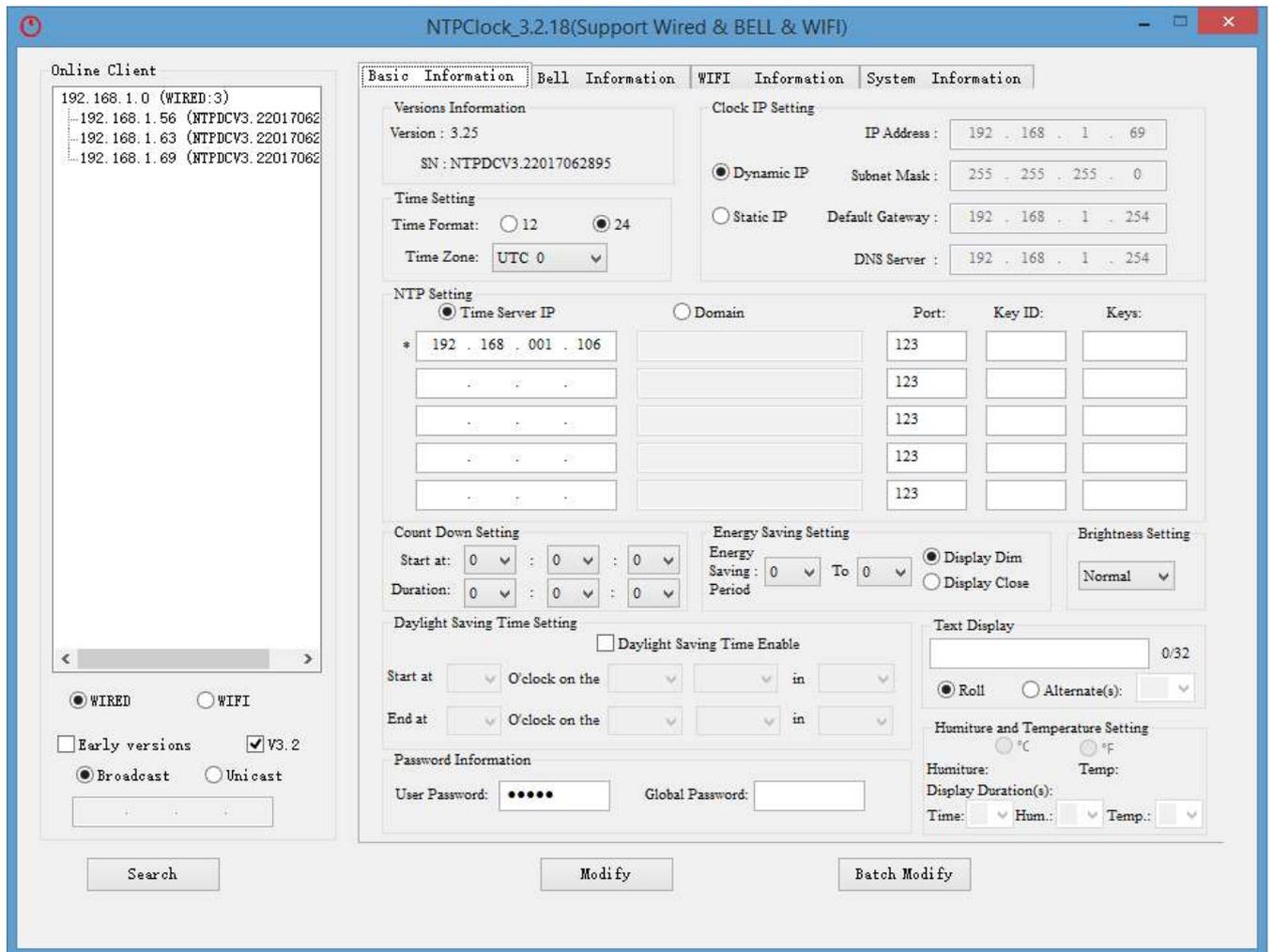
If the network supports DHCP, due to the time source preset, precise local time will be on display after the local time zone and hours display mode are adjusted.

1) In the state of time display, press the button for 3 seconds, the screen will display 12 or 24 hour. Loose the button and then press again, it will switch between 12 and 24. The configuration will take effect in 5 seconds after loosing the button, and the screen will display time accordingly.

2) Press the button for 3 seconds, when the clock display 12 or 24, press the button twice in a row, the clock will display *res*, then the clock will reboot.

5. Configuration

The parameters of WCK00x can be set through the configuration software.



Click “search the clock” button and the clock IP in LAN will be shown. Then click the IP address you need. The configuration information will be shown in the corresponding screen on the right side.

The MAC address will be displayed in the ‘System information’ page.

Basic Settings:

- ➔ Time Zone and Time Format
- ➔ Clock IP Setting
- ➔ NTP server IP Setting
- ➔ Brightness Setting
- ➔ Daylight Saving Time Setting (summer/winter time)
- ➔ User password Setting
- ➔ Energy saving Setting

To effect each setting, you need to input password. Default user password is admin.

6. Troubleshooting

6.1 The clock shows incorrect time.

Check the host IP configuration and make sure the network can communicate with the time server preset. Check ping request if necessary.

6.2 The display remains unchanged.

Check the condition of the button.

6.3 Display the default IP address

The host configuration is DHCP. Make sure the network supports DHCP server. If the clock cannot get the IP address from the DHCP server for a long time, it will resort to the default IP: 192.168.2.55.

6.4 Some LED segments are dark.

Re-power the device. Check whether there are dark segments under self-check state. If there are, the clock needs to be returned to the manufacturer for repair.

6.5 The user's software fails to track the clock.

To make sure that the user's computer and the clock are in the same subnet, and the firewall is set correctly.

6.6 The clock cannot synchronize with any server.

User should make sure that his network can ping Internet time source, and the time server has run its NTP service successfully.

6.7 The clock face is dark.

The clock applies POE technology, which gets power through the network. Make sure that the switches support POE.