

Network Clock

NTP synchronized, powered by PoE



- **Start up Guide**
- **Manual**

Network Connection

On the rear side of the clock you will find a network connection (RJ45).

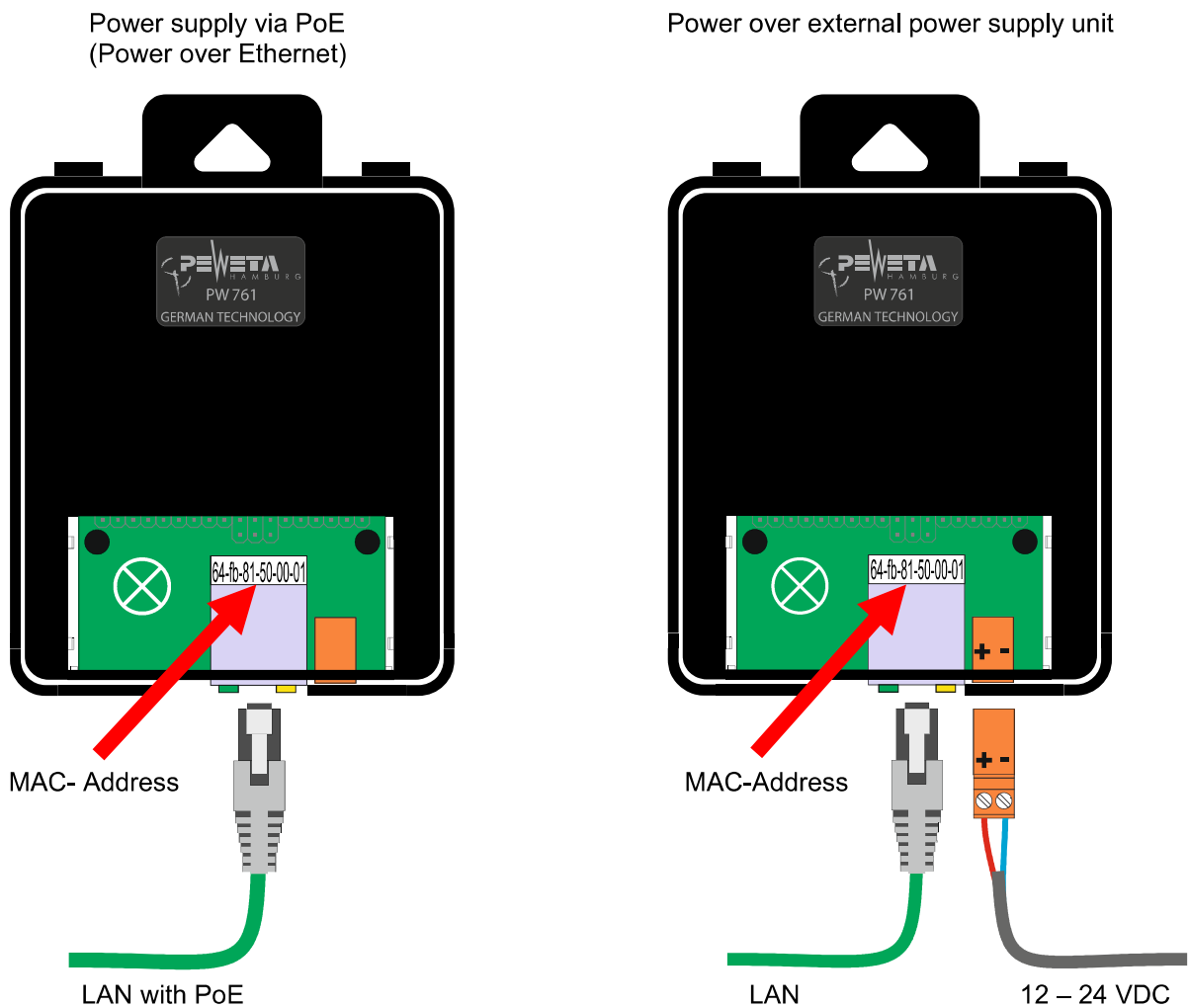
The Clock can synchronize to an NTP Server, which is located in the Network, like this it can receive Time and Date from an NTP Server.

The Clock cannot synchronize other NTP Clients (it is no NTP Server).

By default the Clock's network card is delivered as a DHCP Client.

Configuration:

1. Establish a network connection and power supply:



2. On the rear side of the clock the network card's MAC Address can be found. Determine the corresponding IP in your DHCP Server.

3. Open a HTML browser and enter the IP into the address line and a Login-page unknown you can also enter the name.
The name (for the DNS resolution) consist the following parts: "PWCLK", a minus sign, the last 6 digits of the MAC Address, a dot and the domain.

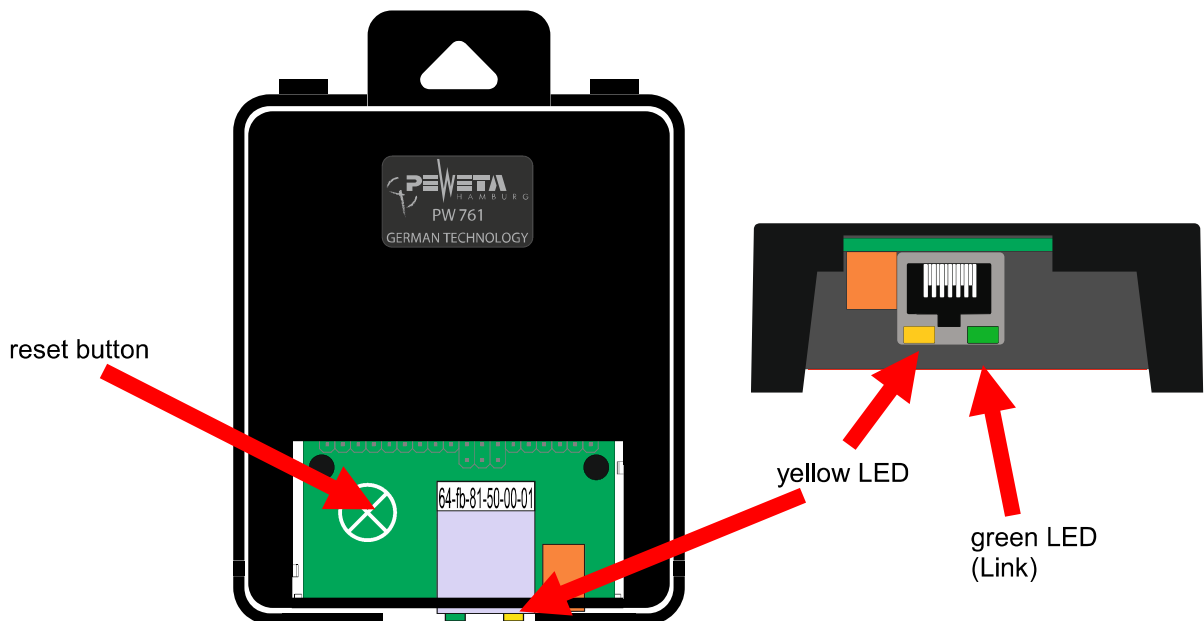
Example 1: IP is known: 192.168.66.81

Example 2: IP is unknown: PWCLK-123456.company.local

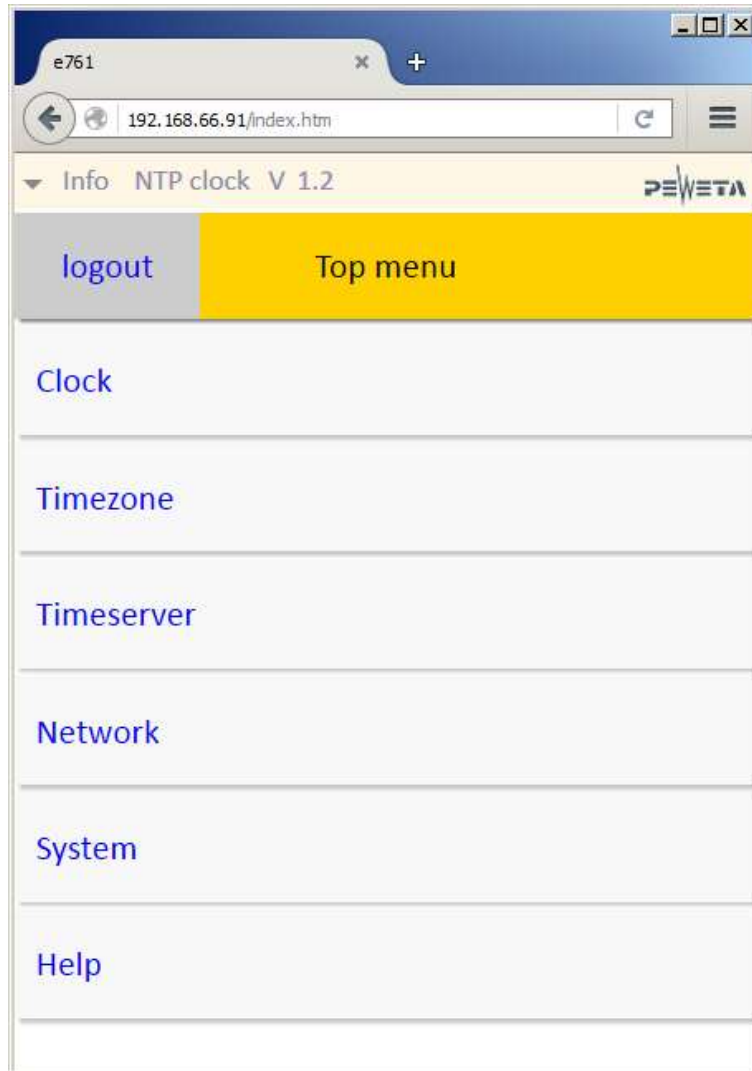


Putting into Operation without DHCP Server:

1. Keep pressing the "reset button".
2. Plug the network cable with PoE into the network connector or attach the external power supply.
3. The yellow LED in the network connector flashes. Wait until the yellow LED has flashed at least 6 times, before you stop pressing the "reset button".
4. Now, the clock's IP is 192.168.1.100 and can be contacted by a PC, which is in the same network.



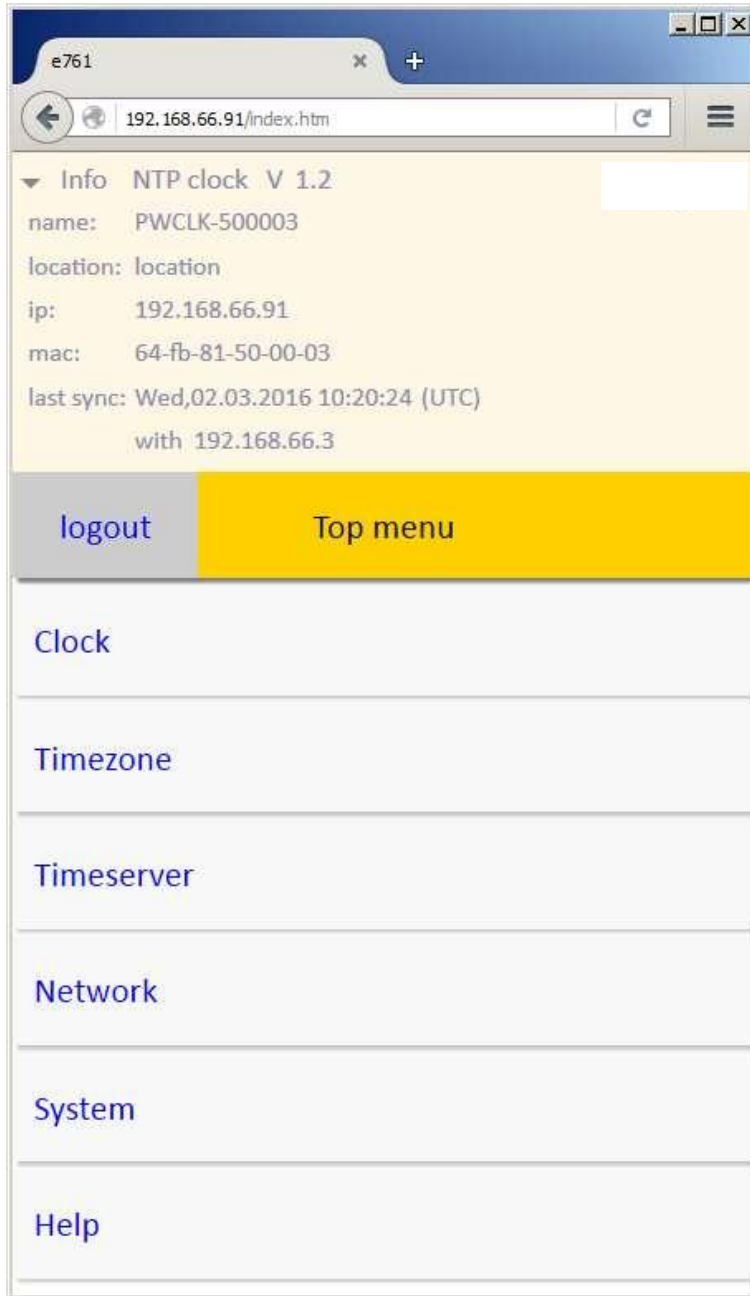
4. Enter the password „ntp“ and click on the button “login”.
The „TOP MENU“ appears:



Compatible with:

Mozilla	Firefox	Version 43.0.1 or higher
Apple	Safari	Version 9.0.2 or higher
Microsoft	Internet Explorer	Version 11.0.9600 or higher
Microsoft	Edge	Version 25.10586 or higher

5. By clicking on the arrow in front of the „info“ button, the latest network parameters and the NTP-Synchronization state are displayed:



Menu „Clock“:

Name: In this field fill in the device name. At corresponding DHCP configuration it can be used for DNS name resolution. Permitted are 15 characters as letters:

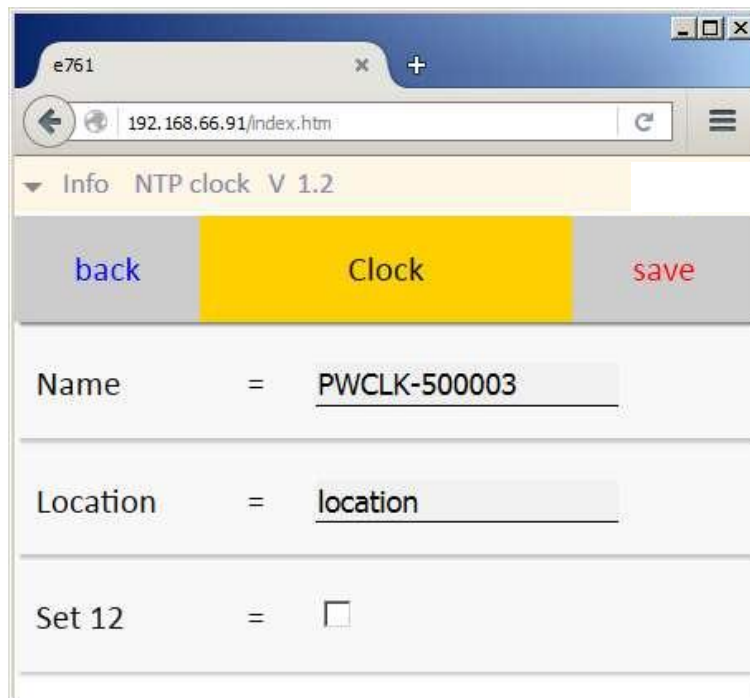
Letters: Between upper case and lower case is not differentiated, umlauts, spaces and “?” are not supported.

Numbers: 0 to 9

Special Characters: “-“ characters, may not be at the beginning or the end

Location: Fill in a value which identifies the clock (e.g. location)

Set 12: If you check the box and you confirm with "save", all pointers will run in the 12 o'clock position



The screenshot shows a web browser window with the address bar displaying '192.168.66.91/index.htm'. The page title is 'Info NTP clock V 1.2'. The main content area has a yellow header bar with the word 'Clock' in the center. Below the header, there are three rows of configuration fields:

Name	=	<input type="text" value="PWCLK-500003"/>
Location	=	<input type="text" value="location"/>
Set 12	=	<input type="checkbox"/>

At the top of the form area, there are three buttons: 'back' (blue text), 'Clock' (yellow background), and 'save' (red text).

Note:
Changes are only taken over if they are confirmed with „save“!

Please use the button „back“ to return to the „TOP MENU“ , do not use the return arrow of the HTML browser, because this would be cause a logout.

Menu „Timezone“:

In this area you can determine different settings, if the clock should carry out a summer / winter time changeover or if a UTC divergence should be displayed.

The NTP server sends out the time as UTC (coordinated world time) which corresponds to London's winter time. Data for summer / winter time and a UTC divergence are not send.

Note:

Changes are only taken over if they are confirmed with "save"!

Please use the button „back“ to return to the „TOP MENU“ , do not use the return arrow of the HTML browser, because this would cause a logout.

Name of time zone: In this field you can deposit a name for the time zone. For Europe, i.e. MEZ/MESZ

UTC-Offset: Fill in the UTC divergence. Values from +14:00 hours to -14:00 hours are accepted. Default value is +1:00 (MEZ/MESZ).

Summertime: Check the box and confirm with "save" to set up a summer/winter time changeover:

The screenshot shows a web browser window with the address bar displaying '192.168.66.91/index.htm'. The page title is 'Info NTP clock V 1.2'. The navigation bar contains three buttons: 'back' (blue text), 'Timezone' (white text on a yellow background), and 'save' (red text). Below the navigation bar, the form fields are as follows:

Name of timezone	=	MEZ/MESZ
UTC-Offset	=	+1:00
Summertime	=	<input checked="" type="checkbox"/>
Summertime start	=	last Sun in Mar at 2:00h
Summertime end	=	last Sun in Oct at 2:00h

Summertime Starting Time:

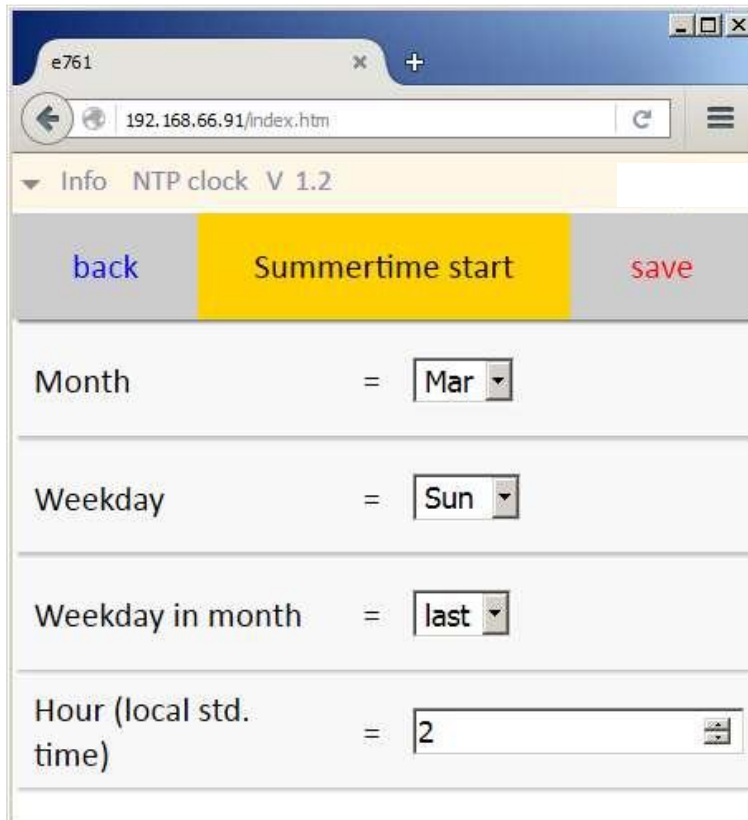
Summertime start: Click on the link "Summertime start" to determine the month, weekday, weekday in the month and the time of the summertime beginning.
In the following example the clock is put forward at 2:00 o'clock to 3:00 o'clock, on every last Sunday in the month of March.

Month: Month in which the summertime begins.

Weekday: Weekday on which the summertime begins.

Weekday in month: 1. 2. 3. 4. or last weekday in the month

Hour (local std.time): Time when the clock has to changeover from summertime to wintertime.
The clock time needs to be chosen as local standard time (wintertime).



The screenshot shows a web browser window with the address bar displaying "192.168.66.91/index.htm". The page title is "Info NTP clock V 1.2". The main content area features a navigation bar with three buttons: "back", "Summertime start" (highlighted in yellow), and "save". Below the navigation bar, there are four rows of configuration options, each with a label, an equals sign, and a dropdown menu or input field:

- Month = Mar
- Weekday = Sun
- Weekday in month = last
- Hour (local std. time) = 2

Summertime Ending Time:

Summertime end: Click on the link "Summertime end" to determine the month, weekday, weekday in the month and the time when the summertime ends.

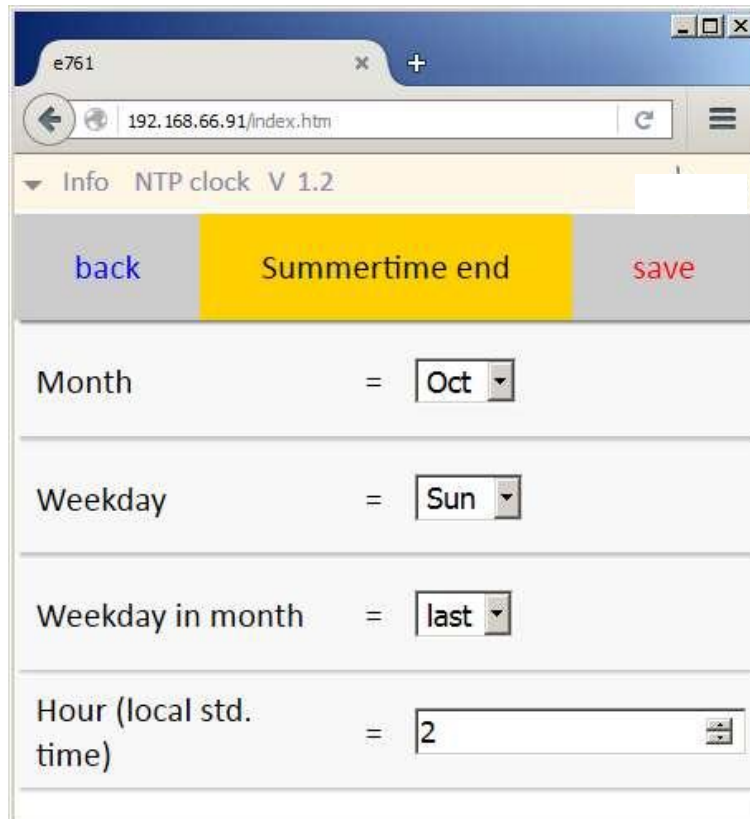
In the following example the clock is put forward at 2:00 o'clock to 3:00 o'clock (local time), on every last Sunday in the month of October.

Month: Month in which the summertime ends.

Weekday: Weekday on which the summertime ends.

Weekday in month: 1. 2. 3. 4. or last weekday in the month

Hour (local std.time): Time when the clock has to changeover from wintertime to summertime.
Attention: The clock time needs to be chosen as local standard time (wintertime).



The screenshot shows a web browser window with the address bar displaying '192.168.66.91/index.htm'. The page title is 'Info NTP clock V 1.2'. The main content area features a navigation bar with three buttons: 'back', 'Summertime end' (highlighted in yellow), and 'save'. Below the navigation bar, there are four rows of configuration options, each with a label, an equals sign, and a value:

Month	=	Oct
Weekday	=	Sun
Weekday in month	=	last
Hour (local std. time)	=	2

Menu „Timeserver“:

Note:

Changes are only taken over if they are confirmed with "save"!

Please use the button "back" to return to the "TOP MENU", do not use the return arrow of the HTML browser, because this would cause a logout.

Local NTP port: In this field you can change the port of the main clock for the NTP protocol.

Accept broadcast: If you check the box the clock will synchronize on NTP broadcast packets.

Accept multicast: If you check the box the clock will synchronize on NTP multicast packets.

Multicast address: Fill in the multicast IP.

Server NTP port: Here you can change the port of the NTP server for the NTP protocol.

Timeserver 1 Fill in the standard NTP server.

Timeserver 2 Here you can fill in an alternative NTP server. If NTP timeserver 1 is not accessible, the requests are send to timeserver 2.

Timeserver 3 Here it is possible to fill in an additional NTP server. If NTP timeserver 1 and 2 are not accessible, the requests are sending to NTP timeserver 3.

Timeserver 1 DHCP: If you have selected the box and the IP address of an NTP server is transmitted via Option 42 in the DHCP, a timeserver which was manually entered in Timeserver 1 will be overwritten.

Figure on the next page

The screenshot shows a web browser window with the address bar displaying '192.168.66.91/index.htm'. The page title is 'Info NTP clock V 1.2'. The navigation bar contains three buttons: 'back', 'Timeserver' (highlighted in yellow), and 'save'. The configuration form consists of several rows, each with a label, an equals sign, and a value or checkbox:

Local NTP port	=	123
Accept broadcast	=	<input type="checkbox"/>
Accept multicast	=	<input type="checkbox"/>
Multicast address	=	224.0.1.1
Server NTP port	=	123
Timeserver 1	=	192.168.66.3
Timeserver 2	=	0.0.0.0
Timeserver 3	=	0.0.0.0
Timeserver 1 DHCP	=	<input checked="" type="checkbox"/>



Menu „Network“:

DHCP: If you have checked the box, the network card will obtain the network parameters from a DHCP server.

IP Address, Netmask, Default Router and DNS can be assigned/changed manually, if you have not checked the DHCP checkbox.

Note:

Changes are only taken over if they are confirmed with "save"!

Please use the button "back" to return to the "TOP MENU", do not use the return arrow of the HTML browser, because this would cause a logout.

Info NTP clock V 1.2		
back	Network	save
DHCP	=	<input checked="" type="checkbox"/>
IP Address	=	<input type="text" value="192.168.66.91"/>
Netmask	=	<input type="text" value="255.255.255.0"/>
Default router	=	<input type="text" value="192.168.66.1"/>
DNS	=	<input type="text" value="192.168.66.5"/>

Menu „System“:

Note:

Changes are only taken over if they are confirmed with "save"!

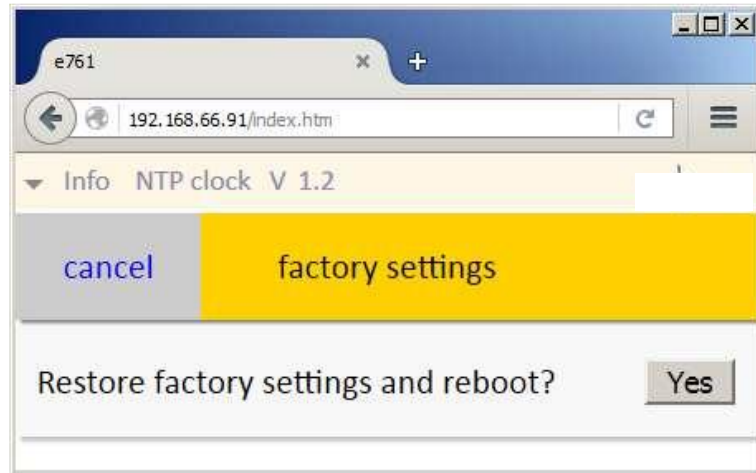
Please use the button "back" to return to the "TOP MENU", do not use the return arrow of the HTML browser, because this would cause a logout.



K

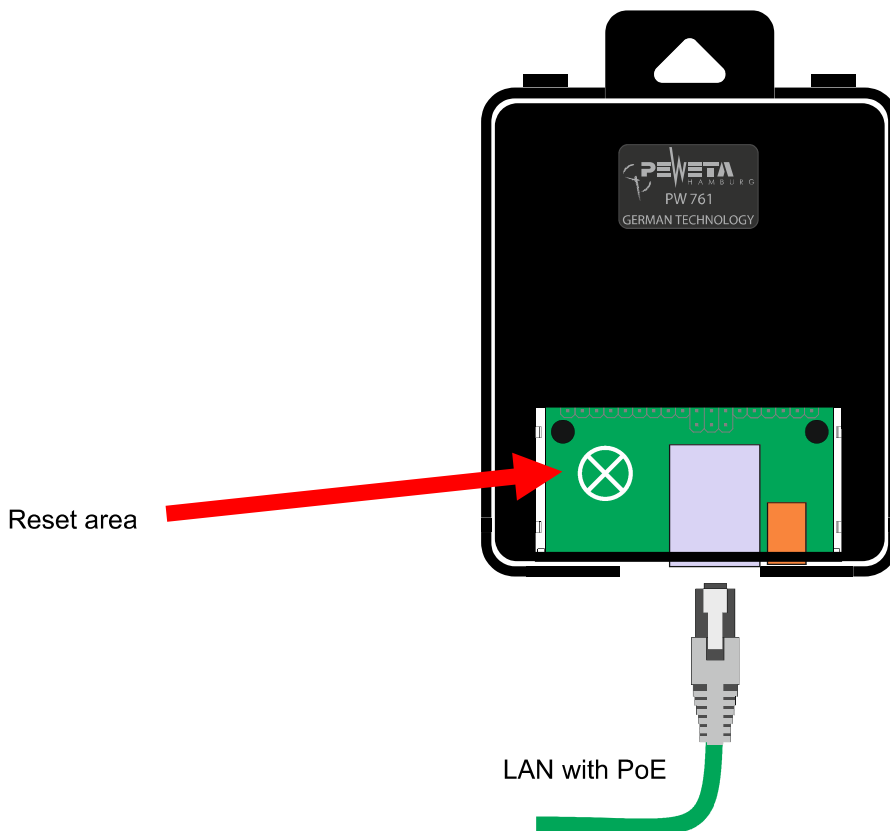
Restore factory settings and reboot:

Sets the network parameters back to the factory settings and restarts the network card.

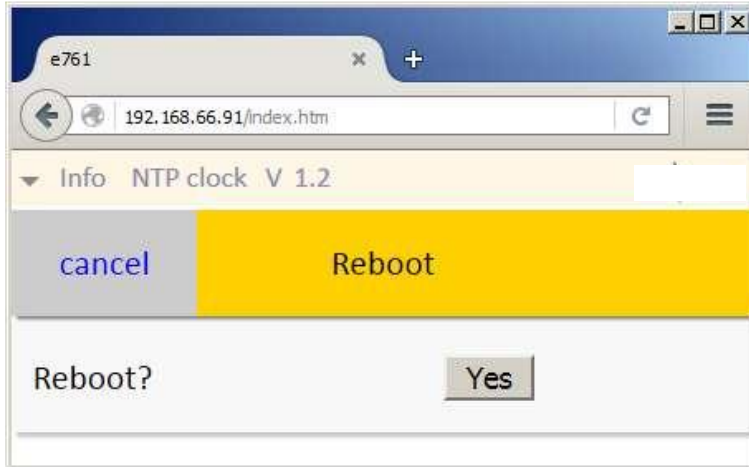


Restore factory settings and reboot **at the clock:**

1. Pull out the LAN cable with PoE, or if available the external power supply.
2. Touch the „reset area“ with one finger
3. Plug in the LAN cable with PoE, or the external power supply.
4. Now release the „reset area“.



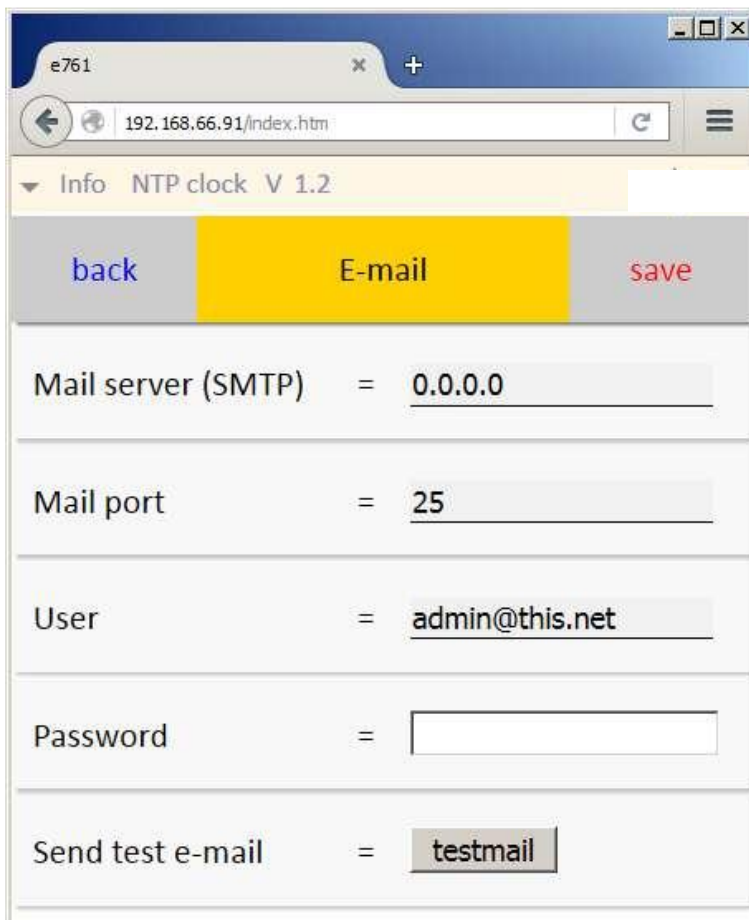
Reboot: Neustart der Netzwerkkarte ohne die Werkseinstellungen zurückzusetzen.



E-mail: Deposit the e-mail parameters to receive error messages and system information. The mail client supports SMTP with LOGIN- authentication. Enter the IPv4-address of your server and mail account information in this field and click on "save". This done, you can verify the connection by sending a test e-mail.

You will receive the following information via mail:

- 1. Reset
- 2. No time synchronization for more than an hour
- 3. Successful synchronization after reset or loss of synchronization



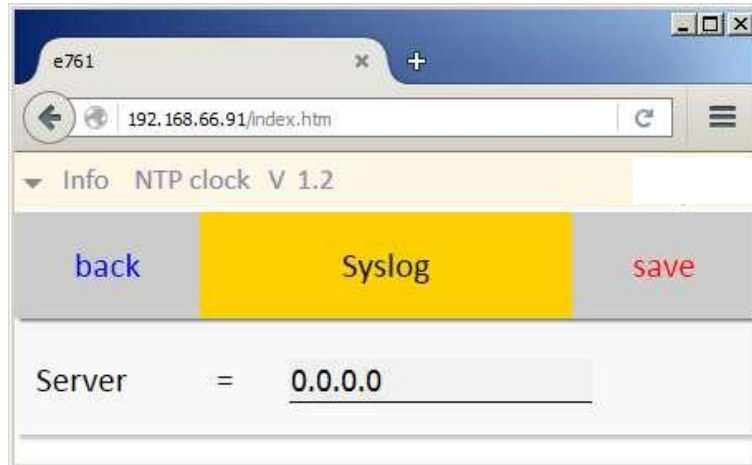
Syslog:

Deposit a syslog-server to receive error messages and system information.

Enter the IPv4-address of your syslog-server in this field.
The clock sends out via UDP/Port 514.

You will receive the following Information via Syslog:

1. Reset
2. No time synchronization for more than an hour
3. Successful synchronization after reset or loss of synchronization



Technical Specifications of the Network Card

Connection	
Connector plug	RJ45
Cable	CAT5 or higher

Electrical Values	
Power Supply	PoE (Power over Ethernet) according to IEEE -Standard 802.3af-2003
Alternative Power Supply	12V – 24V DC (+/- 10 %)
PoE	Class 1
Max. Power Consumption	0,9 Watt

Performance Characteristics	
Network	Ethernet 10/100 BaseT Full/Half duplex, Auto negotiation, Auto MDI-X
Protocols	IPv4, TCP, UDP, ICMP, ARP, IGMP, DHCP, HTTP , SNMP Client (uni-, multi- und broadcast), SMTP, Syslog

Ambient Values	
Protection Type	IP 30 (EN 60 529)
Protection Class	I
Climate	Operating temperature: 0 ... 55°C Storage temperature: -10 ... 60°C 10-95% relative humidity at 25°C, non-condensing

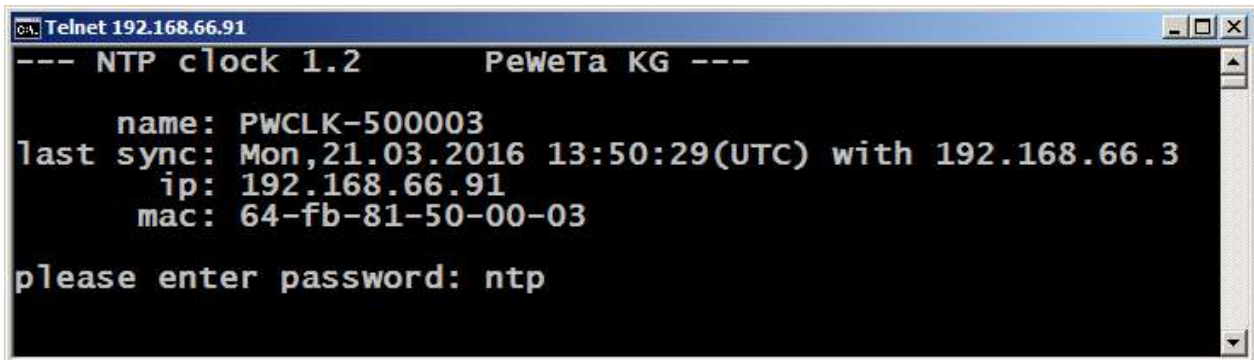
Firmware Update

Open a command line (also called console or terminal) and establish a connection to the clock with Telnet (telnet spaces IP). Confirm with Enter.



```
C:\Windows\system32\cmd.exe
C:\>telnet 192.168.66.91
```

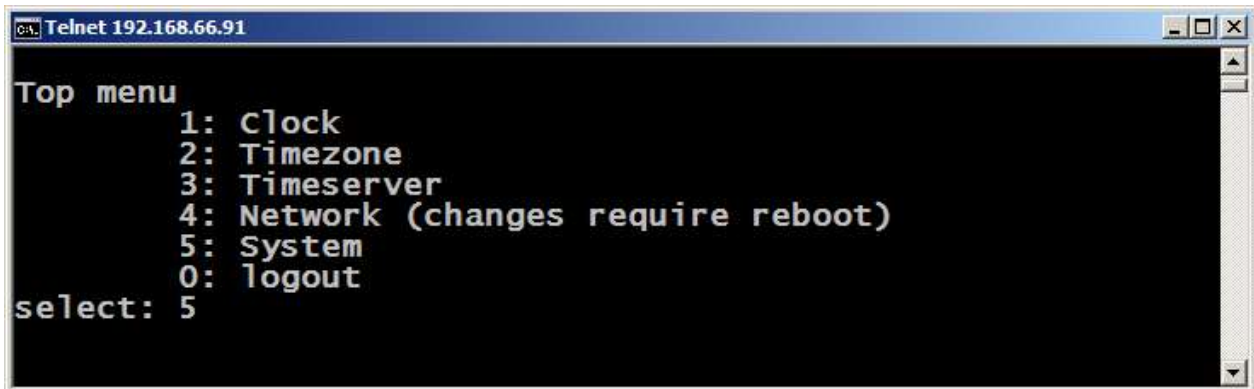
You will be asked for the clock's password, the deposited default password is "ntp". Confirm with Enter.



```
Telnet 192.168.66.91
--- NTP cLock 1.2      PeweTa KG ---
      name: PWCLK-500003
last sync: Mon,21.03.2016 13:50:29(UTC) with 192.168.66.3
      ip: 192.168.66.91
      mac: 64-fb-81-50-00-03

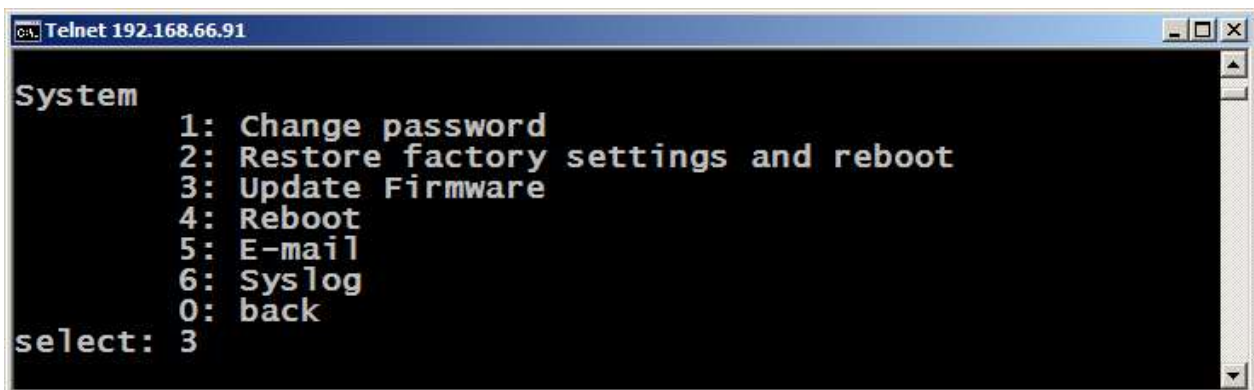
please enter password: ntp
```

Now you access the main menu, select menu item 5 for "system" and confirm with enter:



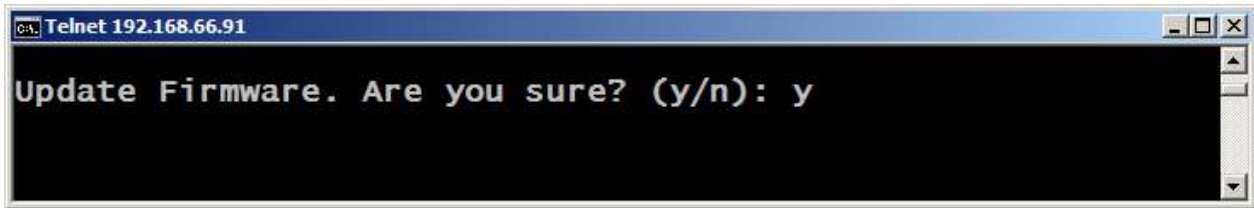
```
Telnet 192.168.66.91
Top menu
  1: Clock
  2: Timezone
  3: Timeserver
  4: Network (changes require reboot)
  5: System
  0: logout
select: 5
```

This takes you to the system menu, select menu item 3 for "Update Firmware" and confirm with enter:



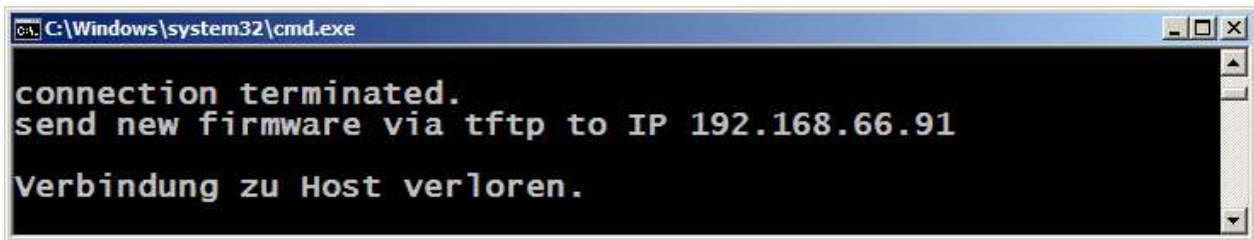
```
Telnet 192.168.66.91
System
  1: Change password
  2: Restore factory settings and reboot
  3: Update Firmware
  4: Reboot
  5: E-mail
  6: Syslog
  0: back
select: 3
```

Enter "y" to continue the process or "n" to cancel operation.



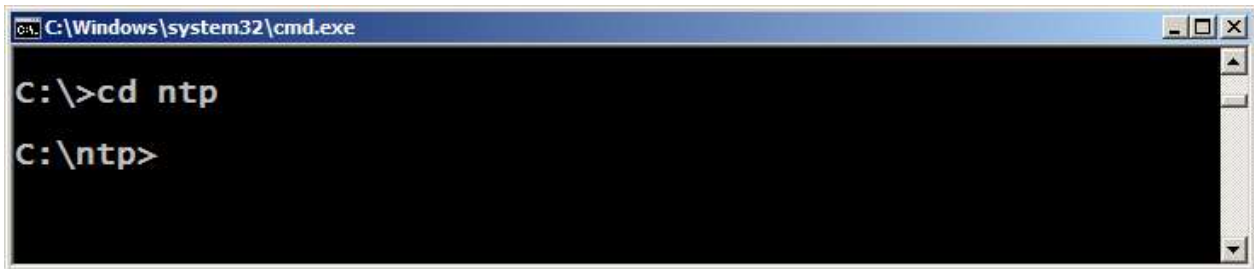
```
CH1: Telnet 192.168.66.91
Update Firmware. Are you sure? (y/n): y
```

After you enter "y" the Telnet connection is terminated.



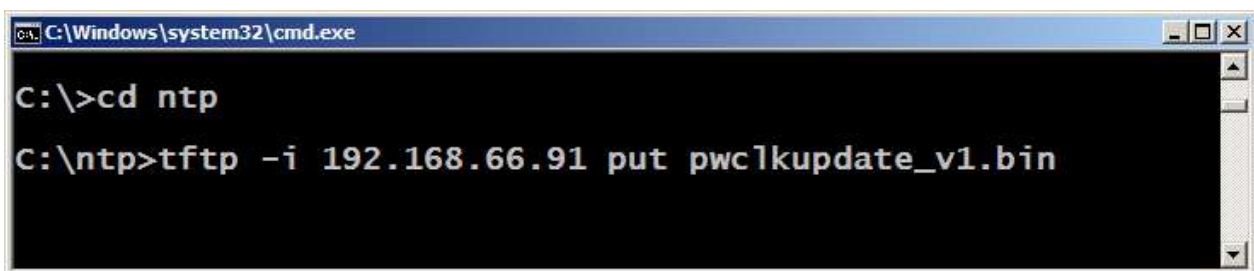
```
CH1: C:\Windows\system32\cmd.exe
connection terminated.
send new firmware via tftp to IP 192.168.66.91
Verbindung zu Host verloren.
```

Copy the update file onto a drive of your computer, open a command line and go to the same Directory as the update file:



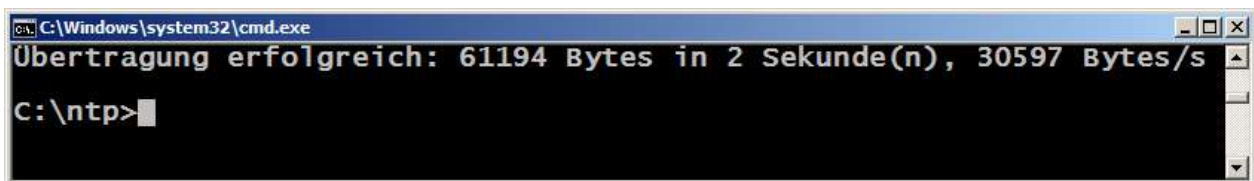
```
CH1: C:\Windows\system32\cmd.exe
C:\>cd ntp
C:\ntp>
```

Download the update file via TFTP command onto the clock: `tftp -i IP put name.bin`



```
CH1: C:\Windows\system32\cmd.exe
C:\>cd ntp
C:\ntp>tftp -i 192.168.66.91 put pwclupdate_v1.bin
```

The successful update is confirmed:



```
CH1: C:\Windows\system32\cmd.exe
Übertragung erfolgreich: 61194 Bytes in 2 Sekunde(n), 30597 Bytes/s
C:\ntp>
```

Put the clock back to factory settings: "Restore factory settings and reboot", see the top of page 14. If the clock is no longer reachable via HTML after the firmware update, please execute "Restore factory settings and reboot" on the clock, see the bottom of page 14.

