# Manual

# CIRCLE LINE

**With NTP**


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## Allmänt

This product is a digital clock for indoor use which is synchronised via NTP. The user can set the light intensity by a potentiometer inside the clock. The user can set the light intensity. At power failure the time is updated in a Timekeeper circuit. After the power failure the digital clock starts up on correct time.
The network setting is made via a WEB-browser.
When synchronised, the clock is automatically set to correct time. The colon will flash when time from the NTP server is accepted.
All versions display time in hours and minutes. Time is expressed in 24 hours format. Seconds are shown graphically in a circle.
If time is not initially programmed "--:--" is shown instead of digits for time.

## LAN connection

The digital clocks are equipped with a RJ45 (10BASE-T) connector for direct connection to the LAN via an Ethernet switch. Each clock has a unique IP address. The IP address, gateway, subnet mask and server IP address is set up via a WEB-browser. If DHCP is used the clock will receive its IP address automatically from the DHCP server.

*The clock is delivered with DHCP, fall-back adress 192.168.3.10.*
*The MAC-address is labelled at the clock.*

## NTP

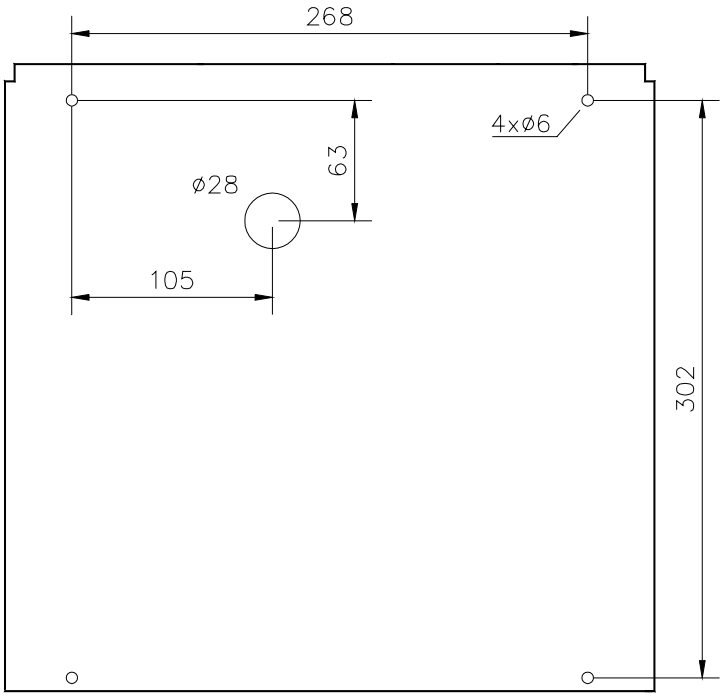
To distribute correct time to different users in a Local Area Network (LAN) the Network Time Protocol (NTP) is used. NTP is a part of the protocol family TCP/IP. Westerstrand digital clocks type Ethernet LAN are operated and controlled by Time distributed in the Network.

## What happens if power is down?

If power is down the diodes are turned off. The internal clock continues to keep correct time at least during 24 hours. When power is up again correct time is displayed directly.

# Installation

Remove the back plate from the casing and mount it on wall or bracket. See measurements for attachment below.

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Cable connections to the power supply board are shown in the figure below

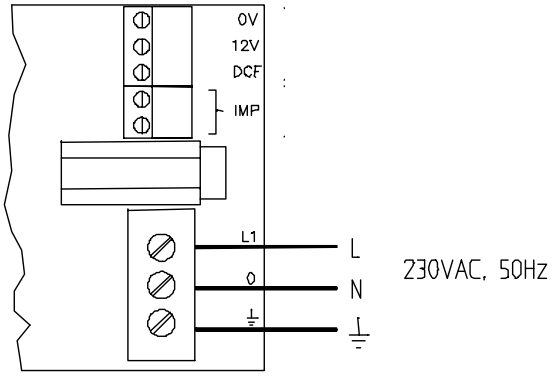



***Fig. Connection 230V AC***

Mains (230V AC, 50Hz) should be connected to the Power terminal. When the clock is permanently installed a readily accessible disconnect device shall be incorporated in the fixed wiring. Installation fuse max10A. Power wire 1,5mm².

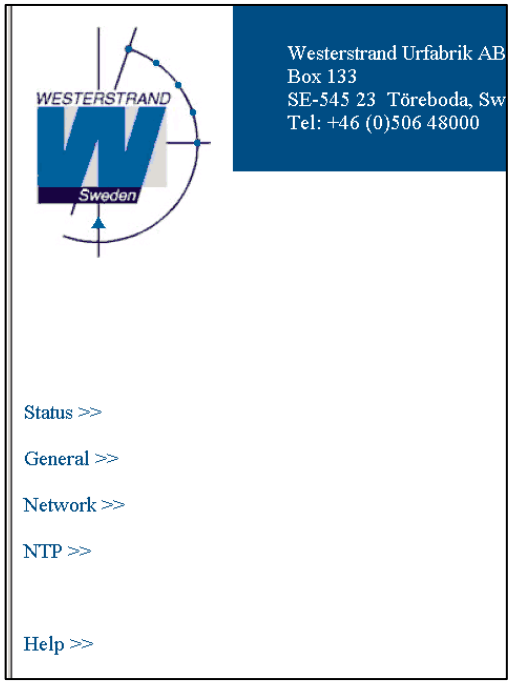
Connect network LAN to the RJ 45 connector located on C.P.U board at the mounting plate.

# Configuration using a WEB-browser

Password
A password is required. Always enter user *admin*. Default password is *password*. If the first letter of the password is blank no question about user and password will appear.

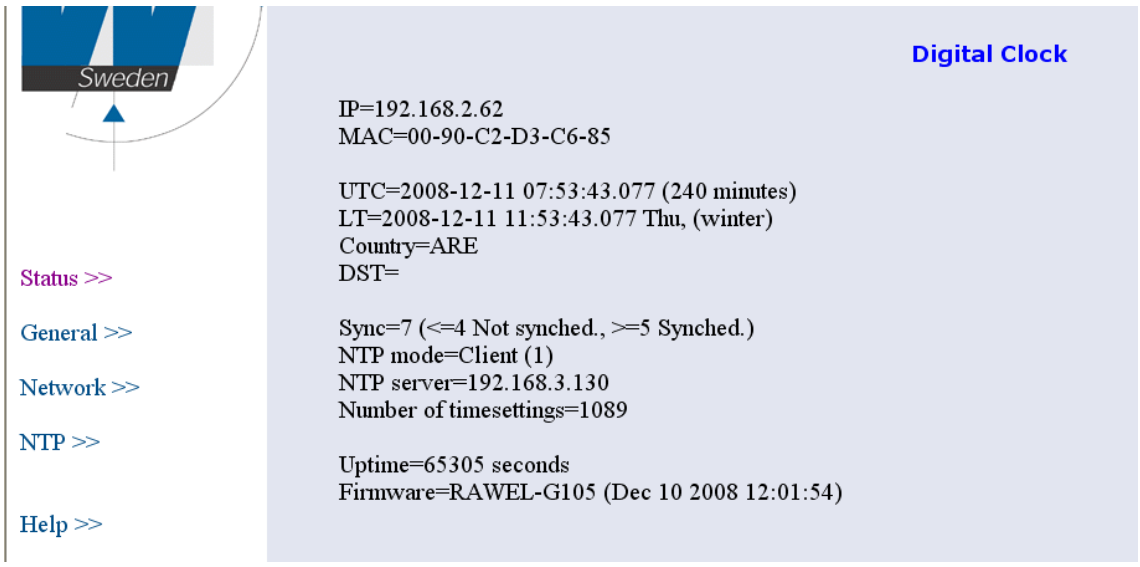
If you forget the password, then a TELNET session must be started. The last line shows a number of characters within square brackets []. Contact Westerstrand and enter this value.


After login a list of functions is displayed:



Status >>

Show status of the clock. The information is refreshed every 10th second or by a click on button *Refresh.*

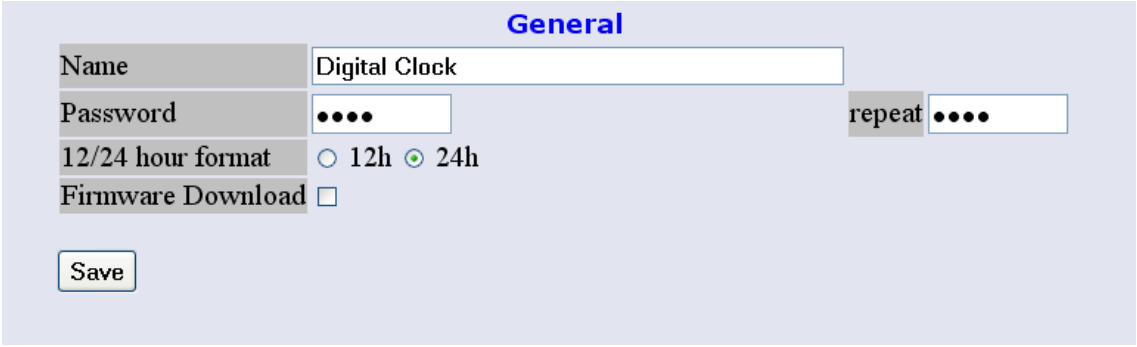



IP= The IP address of the clock
MAC= Unique address. Always 00-90-C2-aa-bb-cc. The last 3 numbers (aa-bb-cc) are found on the network card, e.g. CA8E83

UTC= Current UTC time
LT= Current Local time
Country= Country code (ARE = UNITED ARAB EMIRATES)
DST= Daylight Saving Time (Not applicable for United Arab Emirates)
Sync= Information about synchronisation status
<=4 the clock has not been synchronised
>=5 the clock is synchronised
NTP mode= NTP work mode
NTP server= Address of NTP server
Number of time settings= 1089 (The clock has been synchronised 1089 times)
Uptime= 65305 (The clock has been running 65305 seconds since the last power failure or reset)
Firware= Firware version

General >>

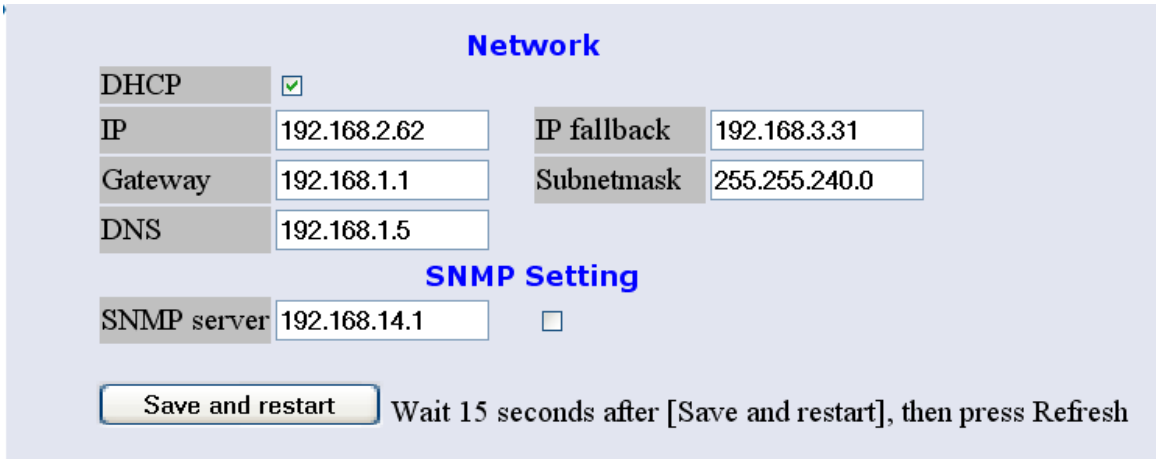
Program general parameters




| | |
|---|---|
| Name | Symbolic name, max. 48 signs. This name is shown in the status menu. |
| Password | Enter a new password. The password must be repeated.<br>Ignore password by choosing password with a blank as 1st character. |
| 12/24 hour | 12h: Time is displayed in 12 hour format.<br>24h: Time is displayed in 24 hour format. |
| Firmware Download | On (Checked): Open the clock for firmware download.<br>After restart this value always is *Off*. Also see section Firmware below.<br>If *On* is set by mistake, then the clock must be restarted |
| Save | Save parameters. If new password was entered then the clock will restart. Then the web reader (e.g. Internet Explorer) also must be restarted. |

Network >>

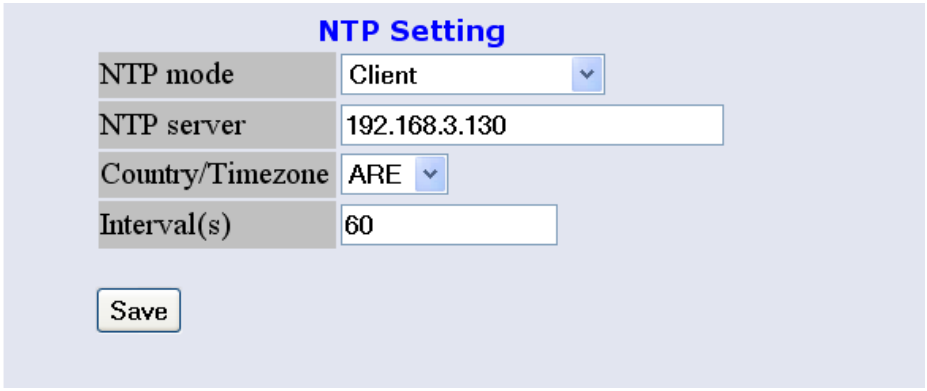
Enter general network parameters.




| | |
|---|---|
| DHCP | Off – Static IP address according to IP below.<br>On – DHCP IP address with fallback according to IP fallback below. |
| IP/IP fallback | IP address |
| Gateway | Network gateway |
| Subnet mask | Network subnet mask |
| DNS | IP address of DNS server |
| SNMP | If SNMP is ON the clock will send SNMP traps to the selected SNMP server. The clock also will answer SNMP poll requests. Please contact Westerstrand for more information about SNMP and MIB-files. |

NTP >>

Enter NTP parameters.




NTP mode

| | |
|---|---|
| Client: | Ask 'NTP server' for time |
| DHCP: | Ask automatically via the DHCP server (DHCP option 0042) |
| Broadcast: | Accept broadcast time messages. |
| Client+ Broadcast: | A Broadcast NTP message will restart an internal timer. If no broadcast NTP messages are received, then NTP request will start automatically according to 'Interval(s)'. |
| DHCP+ Broadcast: | A Broadcast NTP message will restart an internal timer. If no broadcast NTP messages are received, the unit will try to receiver NTP server IP address by using the DHCP server option 042. I found NTP request will start automatically according to 'Interval(s)'. |

NTP Server Select NTP server, e.g. *192.168.1.237* or as an URL *ntp1.sp.se*. Also see DHCP server above.

Country/Timez Select country. A NTP server sends UTC time. The clock will correct this to local time and adjust for DST (Day-Light-Saving) automatically. A rule for DST (daylight saving time) for each country is hard coded in the firmware. Also see DHCP server above.

| Country | Winter | Summer | Timezone acronym |
|---|---|---|---|
| GBR | UTC+0 | UTC+1 | WET/WEST |
| CET | UTC+1 | UTC+2 | CET/CEST |
| ARE | UTC+4 | UTC+4 | United Arab Emirates |

`Interval  Interval in seconds between NTP requests. (Used in client/server mode only).`

Help>>

A short help file in PDF format is displayed.

# SNMP

SNMP is enabled in function Network. The clock will send traps to the management server and answer on polls. The SNMP functions have been tested with a freeware program from IReasoning (www.ireasoning.com) and with Castle Rocks Management Console SNMPc. Contact Westerstrand for further information.

# RASER

This program is used for finding network clocks and setting parameters. RASER sends broadcast messages on UDP port 9999. All Westerstrand Ethernet controllers will answer.

Install with setup file SETUP_RASERxxx.EXE (xxx=version e.g. 107). Icon 'RaSer' is created on the desktop. Start the program. Click on button [Help]. Manual RASER.PDF is displayed. Check this manual for further information.

Find a Westerstrand Ethernet module

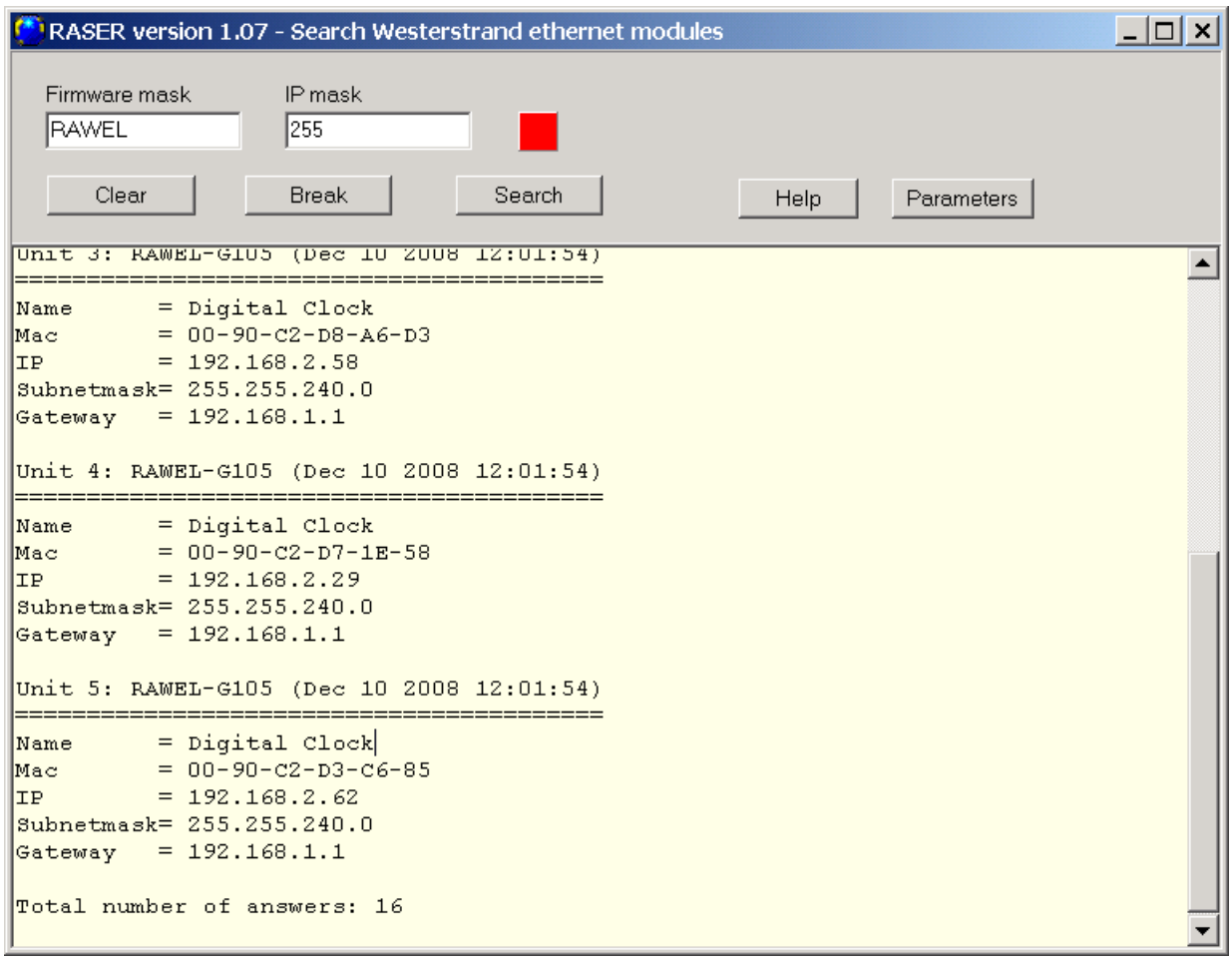
1. Set firmware mask. Examples:
* Search all Westerstrand Ethernet modules (default)
*RAWEL* Search only modules with letter RAWEL (Digital Clocks) in the firmware text, e.g. RAWEL-G105

2. Set IP mask. Examples:
*255* Broadcast to all, i.e. 255.255.255.255 (default)
*13* Only show answers from segment 255.255.13.255

3. Click on button [Search]. The box becomes green. Program RASER will timeout after 5 seconds. Break a search by a click on [Break].

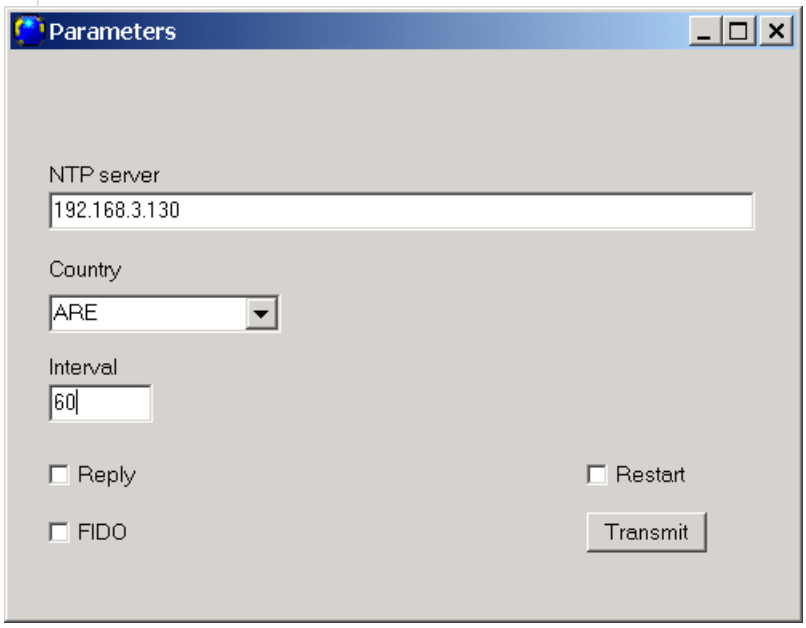
## Example

Here a search for all modules with firmware RAWEL was made. Total 16 units were found, but only 5 correspond to mask RAWEL.




## Parameters

Set parameters in selected clocks. Blank fields will be ignored by the controller.




NTP server:
Select NTP server, e.g.
*192.168.1.237*
*ntp1.sp.se*

Country:
Select country. This information is used by the controller to calculate the local time from the NTP server message.

Interval:
Set interval in seconds between time requests.

Reply:
Send an answer from modules affected by the parameters. This assumes that checkbox [Restart] is unmarked.
See section *Find a Westerstrand Ethernet module* above for the reply format.

Restart:
Force restart the controller.

Transmit:
Send selected parameters. At least 4 letters in the beginning of the firmware mask must correspond to the real firmware name.

Auxiliary functions:
If the info window is right-clicked more functions are displayed.

| | |
|---|---|
| [Clear] | Blank the info window |
| [Log communication] | Log communication. Test. |
| [About] | Show program information |

# Technical specification

| Network | |
|---|---|
| Protocols supported | SNTP, RFC1769, SNMP v1 Enterprise MIB (RFC 1155 - 1157), HTTP |
| NTP protocol modes | Client/server, Broadcast client. |
| Transport protocol | TCP/IP |
| IP address assignment | Fix IP address or DHCP |
| Compatibility | Ethernet version 2/IEEE 802.3 |
| Ethernet | Supports 10BASE-T (RJ45) connections |
| Device Management | Web-Based (requires web browser) |
| Additional info. | Support for DNS |

| | |
|---|---|
| Mains power | 230VAC 50Hz –10% +5% |
| | 20VA |
| Size of digits | 60 mm |
| Diode light intensity | 300 mcd |
| | |
| Protection class | IP43 |
| Standards compliance | EN50081-01 och EN50082-02 |
| Weight | 3,4 kg |
| Dimensions | 344x344x70 mm |