Option

Ethernet

Marine Master Clock

WESTERSTRAND URFABRIK AB

P.O. Box 133
SE-545 23 TÖREBODA

Tel. +46 506 48000
Fax. +46 506 48051

Internet:: http://www.westerstrand.se
E-mail: info@westerstrand.se

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General

The Ethernet module makes it possible to connect a Master Clock to a LAN (Ethernet Local Area Network). The module can be built into a Marine Master Clock.

The module can be used for Master Clock remote control, programming of relay outputs, alarm distribution, supervision and for distribution of correct time. The module can be configured to work as a NTP server or NTP client.
For transmission of correct and accurate time the NTP (Network Time Protocol) is used. NTP is a part of the protocol family UDP/IP.
When using the Ethernet module for time distribution the Master Clock can act as a NTP primary server or as a NTP client.
Units connected to the LAN, supporting NTP, can receive correct time from the Master Clock via the network module.
Included with the Ethernet module is NyToP, Westerstrand NTP-client for Windows 98/NT/2000/XP/Vista.
For remote control and relay programming the windows based application software QW3Control can be used. The QW3Control is an option.

To configure the different parameters such as IP-address, work mode etc. a normal WEB-browser is used.

Link indicator

The front panel of the Marine Master Clock has a Link indicator LED.

Link indicator	LED ON = Link activated. The Master Clocks is connected to a network.
	LED OFF = No link activated. The Master Clock is not connected to a network.

Technical data

Art. no.:	123384-00
Supported protocols:	NTP version 1, 2 and 3, RFC1305
(For time distribution)	SNTP, RFC 1769
Other supported protocols:	FTP (RFC 959)
	HTTP
Transport protocol:	TCP/IP
IP-address assignment	Dynamic, using DHCP, or fixed IP-address
Compatibility:	Ethernet version 2/IEEE 802.3
Ethernet:	Supports 100BASE-T (RJ45) connections
Ambient temperature:	-20°C up to +55°C
Device Management:	Web-Based (requires web browser)
NTP client software:	NyToP , freeware, manual 1672
Application software:	QW3Control art. no. 123396-00, manual 1739

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Configuration

Most of the configuration parameters are set via an external PC by using a ***Web-browser***, but some of the settings can also be done from the Master Clock.

The following parameters can be set from the Master Clock by using the special function *setup*.
- IP address

The following parameters can be viewed from the Master Clock by using the special function *status*.
- IP address

Example:
Give the module IP-address 192.168.1.66

MON 14 OCT 2007 09:07:00 LTw	Select function by using ↓ .
SPEC.-FUNCTIONS	Accept using YES. Press NO until wished function is displayed.
SPEC.-FUNCTIONS SETUP	Accept using YES.
SETUP IP	Press NO until the text IP is displayed. Accept using YES.
IP **192.168.001.066?**	Set, by using the arrows, the IP-addess 192.168.001.066. Accept using YES.
SETUP IP	Return to running mode by using ←.
SPEC.-FUNCTIONS SETUP	←
SPEC.-FUNCTIONS	←
MON 14 OCT 2007 09:07:00 LTw	

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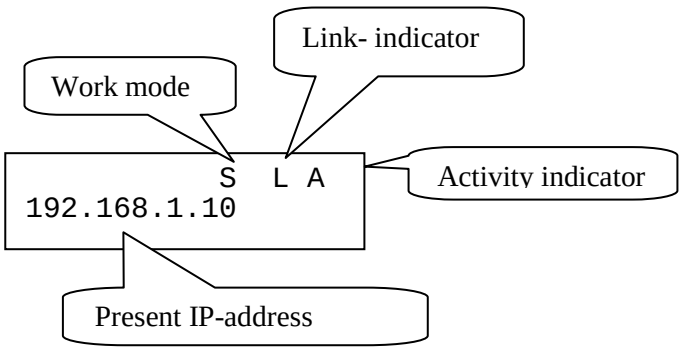
Status IP



Work mode S = Server. The Master Clock works as a NTP time server.
C = Client. The Master Clock works as a NTP time client.

Link indicator L = Link activated. The Master Clocks is connected to a network.
= No link activated. The Master Clock is not connected to a network.

Activity indicator A = Showing the network traffic from / to the Master Clock.

Work mode (NTP Server or Client)

The network module kan work in two different modes
Server:
The Master Clock works as a NTP time server answering to NTP requests from NTP clients.

Client/Server:
The Master Clock is both NTP client and NTP server.
The work mode is set from the Master Clock, SPEC.-FUNKTIONS / SETUP / SYNC.SOURCE.

SYNC.SOURCE = NTP CLIENT
The Master Clock acts as a NTP-client receiving its time from an external NTP server.

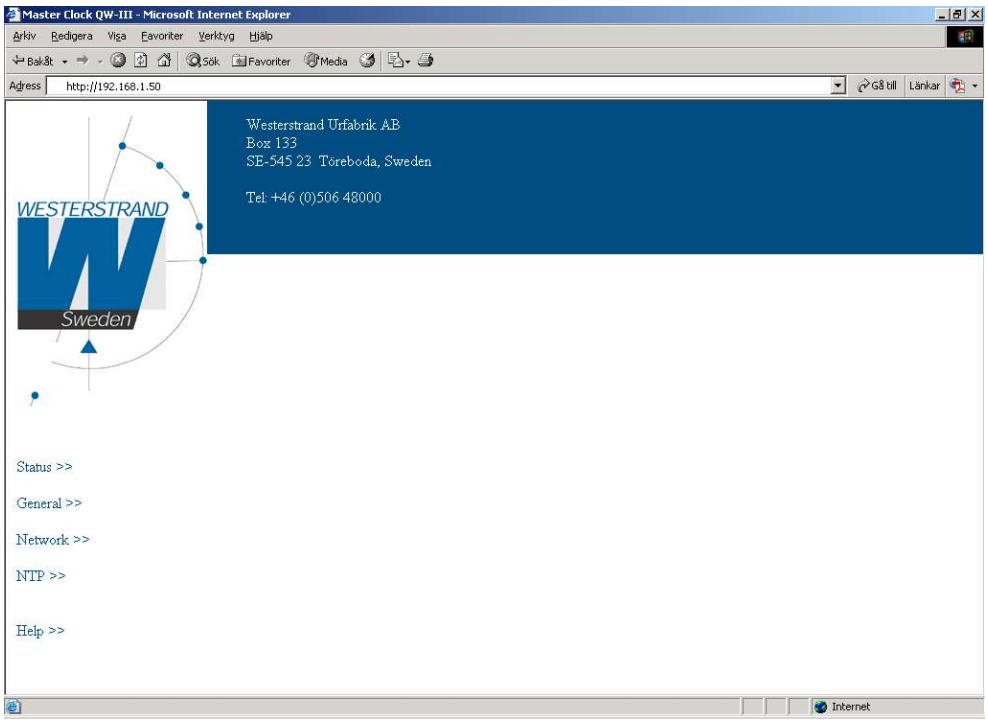
SYNC.SOURCE = NMEA, GPS, etc.;
The Master Clock acts as a NTP server providing connected external clients with correct time.

WEB browser

Login window

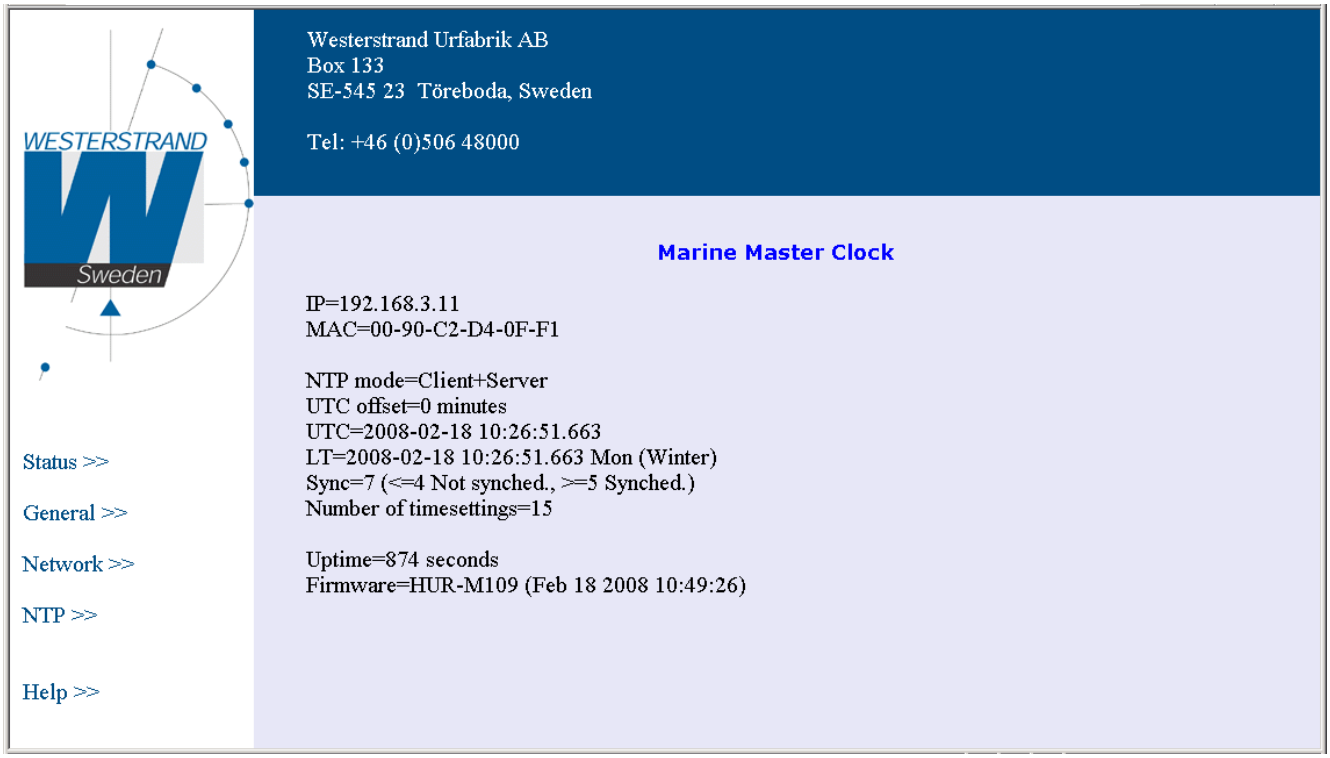
The Web interface requires a password. Always use user name *admin* and a valid password. Default password is *password*.

After login a function list is displayed.:



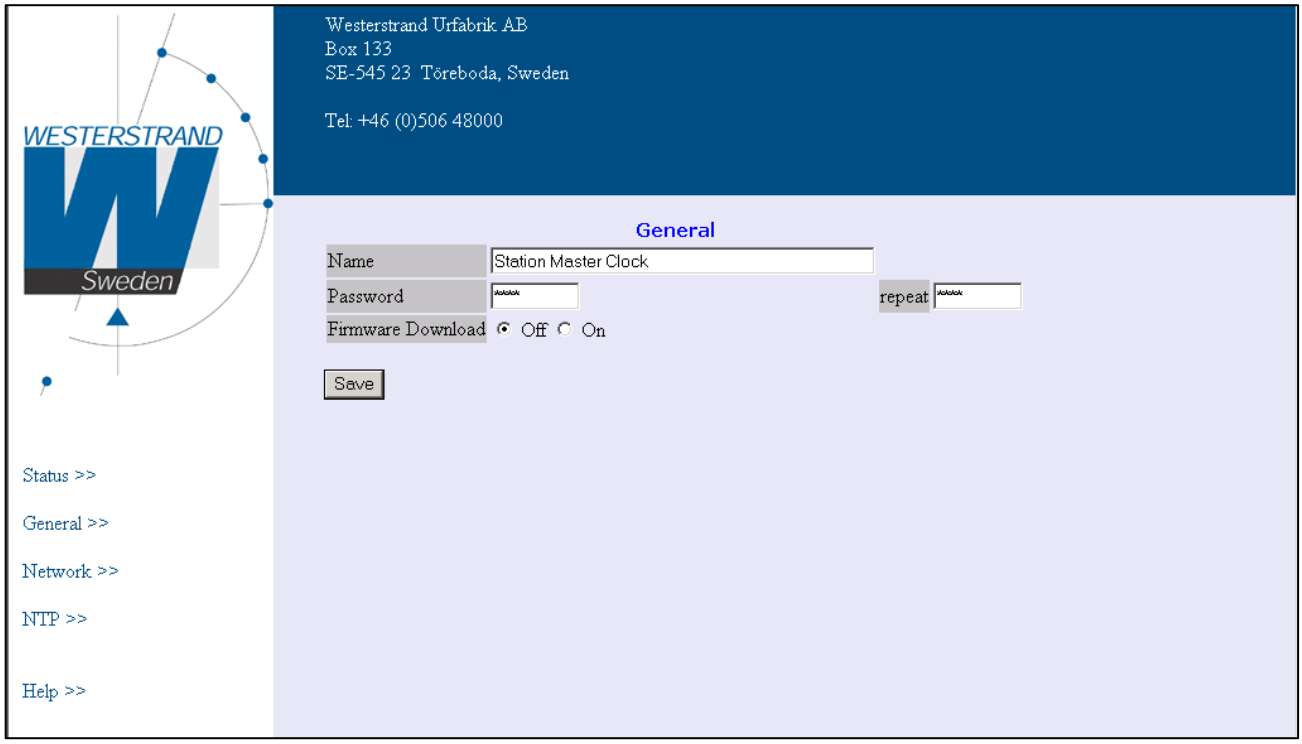
Status >>

Displays the Master Clock status. The status is automatically updated every 10th second.



General >>

To set general parameters.



Name Symbolic name, maximum 48 characters
Example: Station Master Clock.

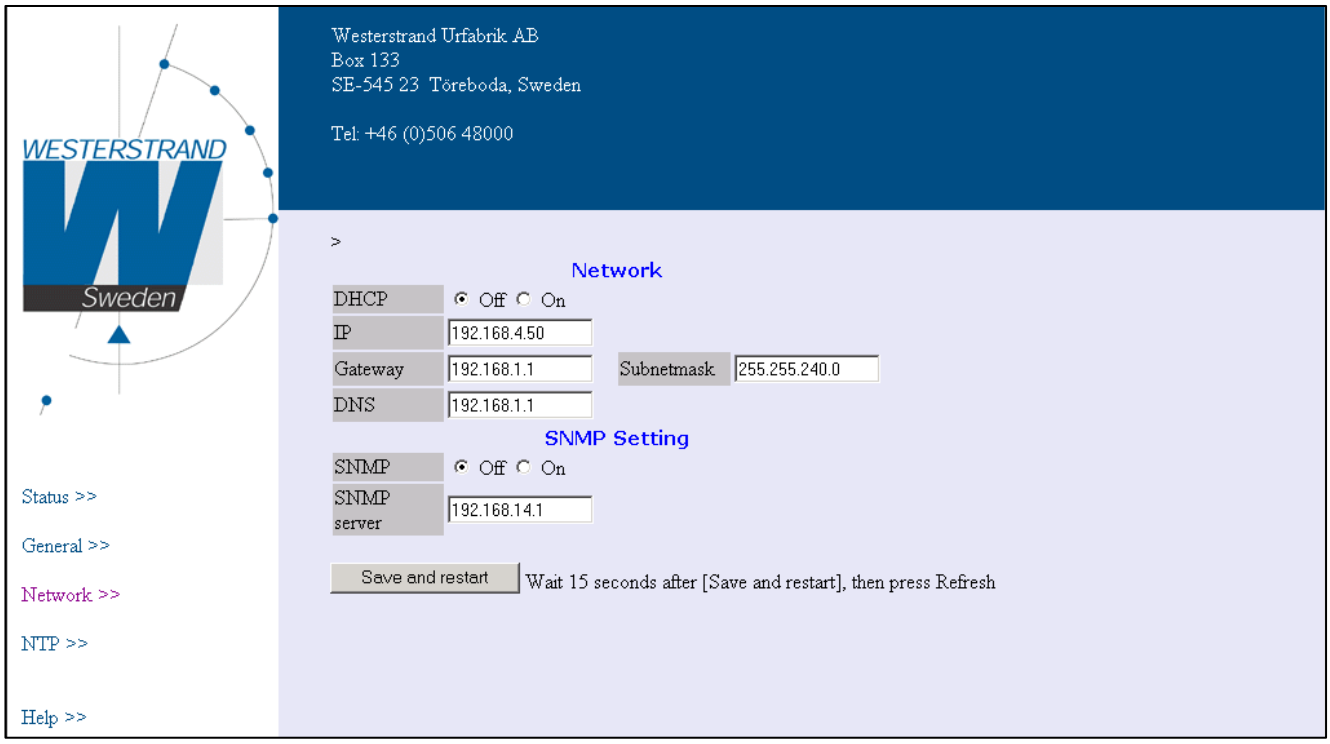
Password Enter a new password. The password has to be repeated.

Firmware Function to enable firmware download.

Save Save parameters.

Network >>

Used to set the network parameters.



DHCP

With this function it is defined if the Ethernet modules should receive its IP-address automatically from a DHCP server or use the static IP-address.

IP

This function is used to give the Ethernet module a static IP-address.

Gateway

This function is used to enter a gateway IP-address.

Subnetmask

This function is used to enter a subnetmask.

DNS

This function is used to enter a name server IP-address.

SNMP

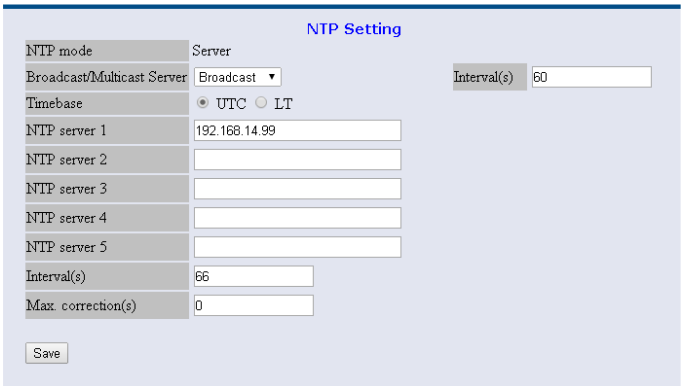
With this code the SNMP functionality can be disabled/enabled.

SNMP server

This function is used to enter the IP-address of the SNMP server.

NTP >>

Used to set the NTP parameters.



NTP mode

NTP mode is set from the Master Clock keyboard, special function SETUP/SYNC SOURCE. See page 5.
Server: The Ethernet module answers time request from clients.
Client/Server: The Ethernet module acts as both a NTP client and a NTP server.

Broadcast/Multicast Server + Interval(s)

---	No periodic transmission of time. A client will ask for time.
Broadcast	Transmit time periodic to IP=255.255.255.255
Multicast	Transmit time periodic to IP=224.0.1.1

Client NTP clock

With periodic transmission client network clocks will show a new time quicker. Make sure the client clock has enabled broadcast/multicast, e.g. *NTP mode = Broadcast/Multicast*. Also *Country/Timezone = Local Time* must be selected in the client clock.

Timebase

With this function the *type of time* transmitted in the NTP message is chosen. Default=UTC.

NTP server 1..5

This function is used if the Time Central is receiving time from an external NTP Server and NTP mode Client/Server. The value entered can be either an IP-address or a name if the DNS server (name server) functionality is used. Server ip address is then the address of the external NTP Server.

Interval(s)

NTP client poll interval in seconds
This function is used if work NTP Client/Server is selected.

Max. correction (s)

This function is used if the Ethernet module is configured as an NTP client
Enter max. correction in seconds. The time is compared with current time in the Time Central. If 0 is chosen, then no check of the time is done.

Help>>

Used to view a pdf help file.

Technical remark

When option Ethernet is mounted and synchronisation source NMEA RS485 is selected the RS485 output can only be used for transmission of NMEA ZDA time string with fixed baudrate (4800) and data format (8N1).

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