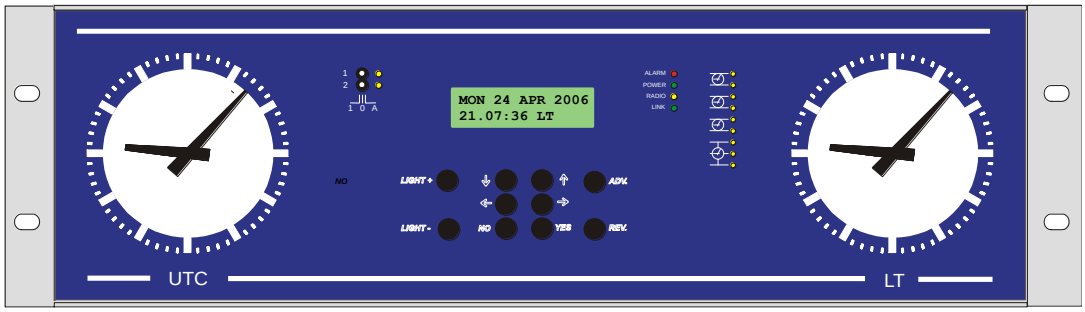
Technical specification Marine Master Clock



General

The master clock has 6 buttons and one (2 line x 16 character) LCD. To facilitate time zone change there are 2 separate buttons for this purpose. The master clock also has a dimmer to adjust background illumination.

Technical data

Crystal frequency:	4,915200 MHz.
Accuracy:	0,1 sek./24 hours (+20C°).
Microprocessor:	HD6412394.
Time memory:	30 days (Back-up with Super Capacitor)
Ambient temperature:	0° C to +50°C.
Relative humidity:	Max. 85% non-condensing.
Case:	19” case according to drawing 085811-00.
IP rating:	IP20
Weight:	5.0 kg.
CE-approval, EMC	Emission according to EN61000-6-3, Immunity according to EN61000-6-2.

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Outputs for slave movements *:

Control clocks:	Analogue display, with background illumination.
Output 1:	
Impulse system:	1/1 minute, 1/2 minute, second, 1/2 second, time code (TC)
Type of time:	LT, UTC
Impulse length:	Minute 0.1-9.9 sec. Second 0.1-1 sec.
Output 2:	
Impulse system:	1/1 minute, 1/2 minute, second, 1/2 second, time code (TC)
Type of time:	LT, UTC
Impulse length:	Minute 0.1-9.9 sec. Second 0.1-1 sec.
Output 3:	
Impulse system:	1/1 minute, 1/2 minute, second, 1/2 second, time code (TC)
Type of time:	LT, UTC
Impulse length:	Minute 0.1-9.9 sec. Second 0.1-1 sec.
Output 4:	
Impulse system:	2-wire, 1/1 minute, 1/2 minute, second, 1/2 second, time code (TC). 3-wire for forward forward/back. 1/1-minute alt. 1/2-minute.
Type of time:	LT, UTC
Impulse length:	Minute 0.1-9.9 sec. Second 0.1-1 sec.
Max. load / output:	2A
Total load all outputs together:	2.5A

The outputs have short circuit protection that is restored automatically.

*Analogue intelligent slave clocks connected to time code output receive the time code and steps to correct time by rapid impulses. The rapid impulses have a speed of approx. 10 steps /second. To step forward 11 hours takes approx. 1 minute and 10 seconds.

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Relay outputs

Number of outputs:	2 Changeover potential-free contacts.
Max load/relay output:	230 V 6A.
Program memory:	100 year (EEPROM).
Signal points:	800

Special pulse output

Relay output no. 2 can be dedicated to send out a special pulse.
When this function is enabled the relay is activated every day for 5 seconds at 02.00 UTC.

Telegraph Logger Clock signal

If one of the impulse outputs is configured to work as telegraph logger clock signal (1/2M-12B), then relay output no. 2 is used to send out a Counter C.W. signal and can not be used for other purposes.

Alarm output

Number of outputs:	2 Changeover potential-free contacts.
Type of alarms	
Output no. 1 (general alarm):	Overload / short circuit, synchronisation alarm
Output no. 2 (power alarm):	Power failure alarm

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Serial ports

The Master Clock is equipped with two serial ports, one RS232 and one RS422/485.
Both ports can be used either as input or output for serial time messages.
If programmed as output the port can be used to send out time to external equipment such as computers etc.
If programmed as input the port can be used to synchronise the master clock with an external time source provided with RS232 or RS485 output. The purpose of this is to achieve higher accuracy.

Protocol, data format and baud rate is selectable for respective serial port.

Serial output

Baud rate (selectable):	300, 600, 1200, 2400, 4800, 9600, 19200 baud.
Data format (selectable)	7N1, 7N2, 7O1, 7O2, 7E1, 7E2, 8N1, 8N2, 8O1, 8O2, 8E1, 8E2
No. of data bits:	7 or 8.
Type of parity:	None, odd or even.
No. of stop bits:	1 or 2.
Selectable data format:	
Available protocols	- ZDA Time string, NMEA 0183 - Westerstrand protocol no. 2, 3, 5, 7 etc. (Automatic time message protocols)
Type of time (selectable):	UTC, LT

Serial input

Baud rate:	4800 baud.
Data format:	8N1
Type of protocol:	ZDA Time string, NMEA 0183

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Power supply

The master clock has two inputs for power supply, one for AC, and one for 24V DC. As standard the DC-input is a direct connected input without galvanic isolation and no compensation for low input voltage. With option DC/DC the DC-input will be galvanic isolated and low / high input voltage is compensated automatically.

Supply voltage:	90 - 264V 50/60 Hz and 24VDC.
Option DC/DC:	
(Galvanic isolated)	
Input voltage:	19 - 36VDC
Output voltage:	23 – 30VDC (adjustable)
Isolation voltage:	1500V

Power consumption	
AC:	65W
DC:	50W

Options

DC/DC -converter
Ethernet LAN connection
GPS-receiver
Table model
Software for time to computer, WINT

Ethernet LAN (option)

Protocol:	NTP according to RFC1305 and RFC1361, TCP/IP
Compatibility:	Ethernet version 2/IEEE 802.3
Ethernet:	Connection 100BASE-T (RJ45)

Rules and regulations

The Marine Master Clock fulfils the rules according to IEC / EN60945:2002, maritime navigation and radio-communication equipment and systems.

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