

# PRODUCT DESCRIPTIONS

## Marine Electric Clock System(MCS-980)

Marine Electric Clock System(MCS-980) with GPS Interface and NTP Server

### GENERAL DESCRIPTION

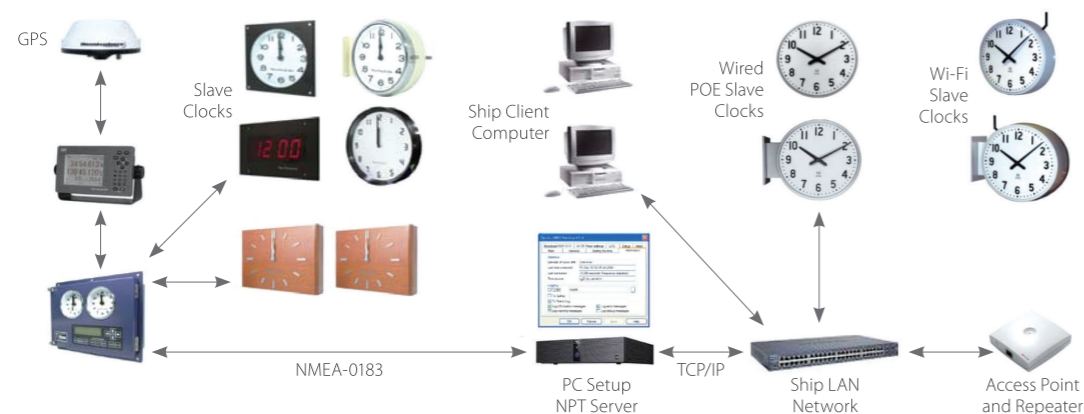
Marine Electric Clock System is a device for indicating precise time and date to the analogue/digital slave clocks as well as recording and monitoring the operation data of the vessel. By connecting to GPS and other devices, the MCS-980 system receives data from the National Marine Electronics Association (NMEA) and the Internet protocols (LAN) to automatically renew and synchronize the precise local time. These systems are manufactured to be shock and vibration proof, as well as are protected from air pressure and salt. The system was tested at the IEC60945 standard and approved for CE.

#### System Features

1. Power Source : AC110/220V, 1Ø, 50/60 Hz
2. Emergency Power : AC or DC 24V (Ripple less than 5%)
3. Power Consumption : AC, less than 50VA  
DC, less than 1.6A (At 24V DC)
4. Automatically switch to DC when AC power causes failure
5. Certification : DNV CE Submitted
6. Temperature : -20°C ~ +45°C
7. Humidity : Less than 90%
8. Net Weight : 7.52Kg
9. Painting Colour : 5.4 PB 2.8 / 3.0 (Dark Blue)
10. Dimensions : 338(W) x 272(H) x 128(D)
11. Mount Type : Flush Mount (Manufacturer Standard)

#### Capacity & function of the System

1. Crystal Oscillation Frequency : 10.000 MHz (TCXO)
2. Accuracy (None GPS) : Within ±1.0 sec per a month  
(With GPS) : Synchronizing from GPS automatically
3. Dual Clocks in Main Unit :
  - Master (UTC) : Three Hands, 0.5sec. Leap, Ø80mm Dial
  - Slave (LTC) : Two / Three Hands, 30sec. Leap, Ø80mm Dial
  - LCD Display : UT / LT Year / Month / Day / Hour / Minute / Second 16-Character 2-Line, Back Light
4. Output Signal Form
  - For 0.5sec Slave Clock : DC 24V, 0.5sec Polarized Pulse
  - For 30sec Slave Clock : DC 24V, 30sec Polarized Pulse
  - Time Signal for Engine Telegraph Logger : DC 24V, ±30sec Polarized Pulse (ADV / REV)
5. NMEA-0183 Signal : Time & Date (IEC1162-1, RS-422, ZDA)
6. There are 3-set Output Port for NMEA-0183
7. Baud Rate Setup (NMEA-0183) : Setup, 1200 / 2400 / 4800 / 9600
8. +20 / -20 Minute Control (Optional)
9. Slave Clock : Up to 80ea
10. Battery Slave Clock (Optional)
11. Built-in lighting control system (Dimmer)
12. Fully protects : Power source and slave line circuit
13. Robust mechanism architecture and excellent stability
14. Easy time control : CW and CCW direction for slave clocks
15. High speed time setup
16. NTP Server (Network Time Protocol, Option)

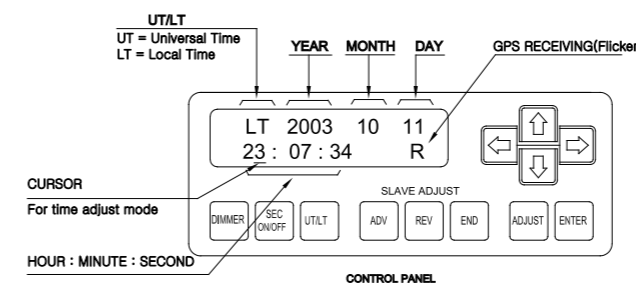


[ Wiring Diagram of Digital Master Clock (MCS-980) System ]



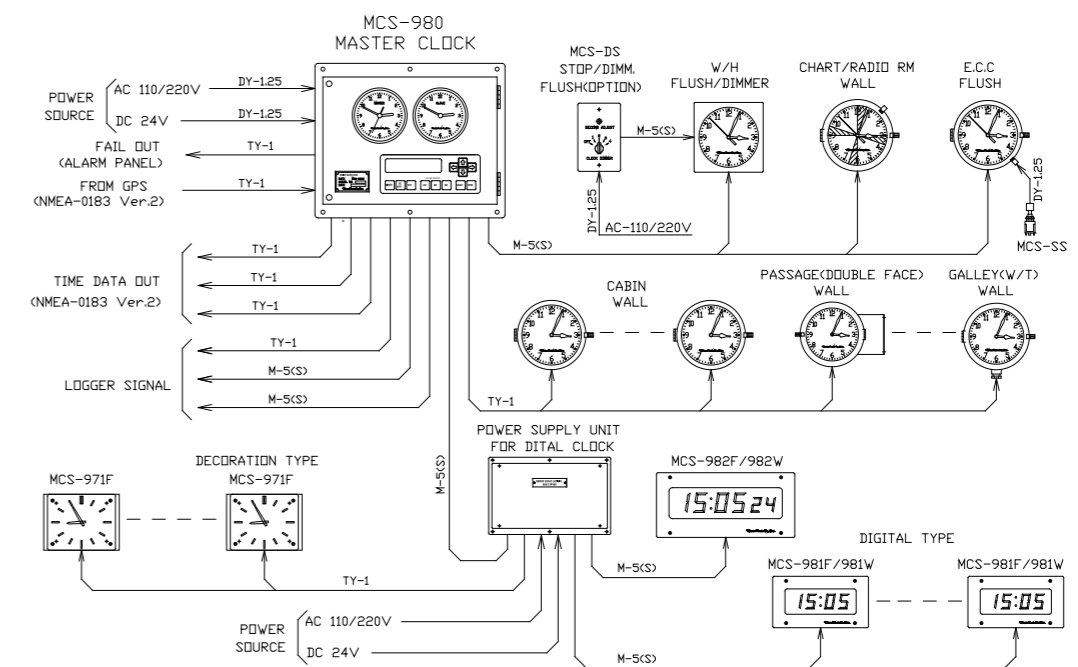
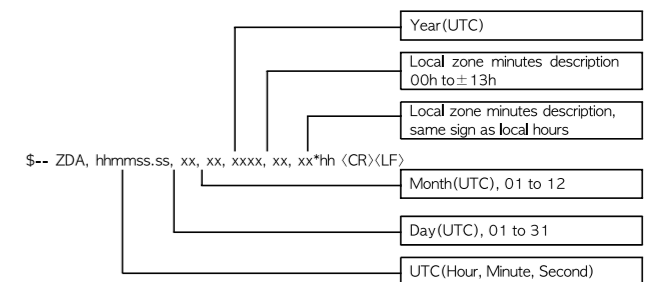
#### Display of Control Panel of Main Unit

1. UT / LT : Universal Time / Local Time
2. Synchronizing from GPS signal automatically



#### NMEA-0183, Serial Interface Protocol

1. In(1) / Out(3) (NMEA-0183, IEC1162-1, RS-422 Compatible, \$GPZDA)
2. Baud Rate Pre-set : 4800BPS (1200 / 2400 / 4800 / 9600 Compatible)
3. Standard Data Format : 4800-N-8-1(BR-Data-Parity-Stop), ZDA



[ Wiring Diagram of Marine Electric Clock (MCS-980) System ]