

# Network Time Displays

## ND-2 and ND-4 NTP Referenced Digital Clocks

### KEY FEATURES

- Digital Clock Automatically Synchronizes with NTP Network Time Servers Over an Ethernet Network
- 2 or 4 Inch Digit Sizes
- High Visibility with Adjustable Brightness
- Multiple Time and Date Formats
- Remote Network Configuration Management
- All International Time Zones
- Daylight Savings Support
- High Quality, Professional Appearance

### KEY BENEFITS

- Correct Time is Maintained via Automatic Synchronization to NTP Servers Over the Network
- Easy, Cost Saving Installation Using Existing Ethernet Network and Cabling to Connect to Time Servers Instead of Dedicated Cabling to Transfer Time Signals
- Can Use Wireless Ethernet Connections to Eliminate Difficult Cable Connections
- DHCP for Automatic Network Configuration Saves Time
- Automatic Network Discovery and Remote Management via the Network for Easy and Complete Configuration and Control
- Time Zone and Daylight Savings Support Eliminate Manual Time Adjustments
- Bright Digits Can Be Seen Near or Far Depending on Brightness Level

Symmetricom's Network Time Displays are maintenance free clocks that keep accurate time by synchronizing their time – over the network – to a network time server. The ND-2 and ND-4 use existing Ethernet network infrastructure and the standard network time protocol (NTP) to keep the time correct. Select between several time display formats including 12 or 24 hour format. All international time zones are supported as well as daylight savings time transitions so that the display should never need the time adjusted.

Display installation and configuration is an easy, cost effective task made even easier by using existing network wiring instead of requiring dedicated cabling to distribute time signals. This saves both time and money since it is not necessary to pull dedicated cabling (such as coaxial or RS-485) throughout a facility to transfer the time to the displays. Using wireless network connections can also make display installation in out-of-the-way locations even easier.

Once connected to the network, automatic network address configuration via DHCP coupled with our display discovery and

remote management software makes for easy and complete configuration and control of the displays over the network from a single PC. You do not even need to physically see the display to change the settings and verify the correct time and time formats. Display configuration is saved to non-volatile memory to survive any power fail situation.

Each display is configurable to synchronize with a network time server and will accommodate a second time server as an alternate. These time servers need only be accessible over the LAN/WAN and support NTP.

The ND-2 and ND-4 displays lend themselves to a variety of applications. These displays look great in lobbies, manufacturing facilities, break rooms, equipment racks anywhere accurate time needs to be presented. Multiple displays also work well as time zone clocks in control rooms.



ND-2 and ND-4 Network Time Displays

## Network Time Display Specifications

### NETWORK PROTOCOLS

- NTP
- SNTP
- Telnet
- DHCP
- TCP/IP
- UDP

### INPUT/OUTPUT CONNECTIONS

- Network: 10Base-T Ethernet; RJ-45
- Serial: Bi-directional RS-232, 9600, N, 8, 1; 9-pin D

### INPUT/OUTPUT CONNECTIONS

- ND-2 Network Time Display
  - Digits: Six 2.3" (5.8 cm) LED digits; red
  - Size: With rack mount ears: 18.9" W x 3.5" H x 6.2" D (48 x 8.9 x 15.7 cm)  
Without rack mount ears: 16.9" W x 3.5" H x 6.2" D (42.9 x 8.9 x 15.7 cm)
  - Weight: 8.0 lbs. (3.64 Kg)
  - Power: 120-240 Vac 50/60 Hz, <10 watts
  - Certification: FCC

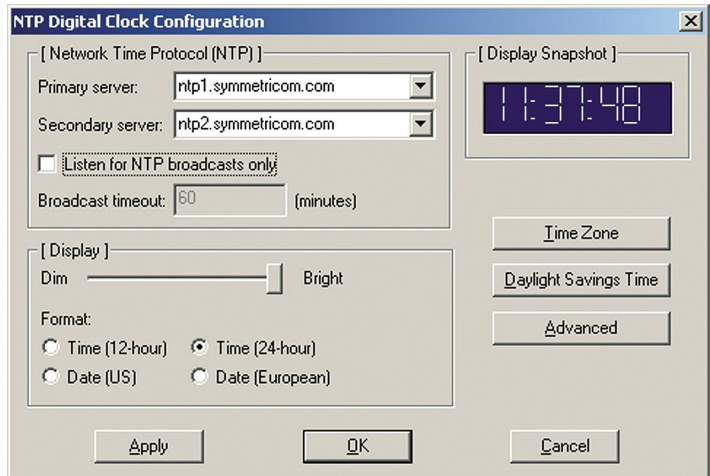


- ND-4 Network Time Display
  - Digits: Six 4.0" (10.1 cm) LED digits; red
  - Size: 25.25" W x 7.6" H x 4.25" D (64.1 x 19.3 x 10.8 cm)
  - Weight: 8.6 lbs. (3.91 Kg)
  - Power: 120-240 Vac 50/60 Hz, <10 watts
  - Certification: FCC
  - Mounting holes 16" (40.6 cm) apart centered on top rear of chassis.



### TIME/NETWORK CONFIGURATION

- All international time zones
- Daylight savings
- Two NTP time sources
- Multiple time formats (see below)
- 14 levels of brightness control
- Manual time set option
- DHCP or manual network configuration
- Password protected access
- Remote clock status including time adjustment statistics
- Automatic discovery of displays via UDP broadcast



Remotely discover displays and configure all parameters from a single PC over the network.

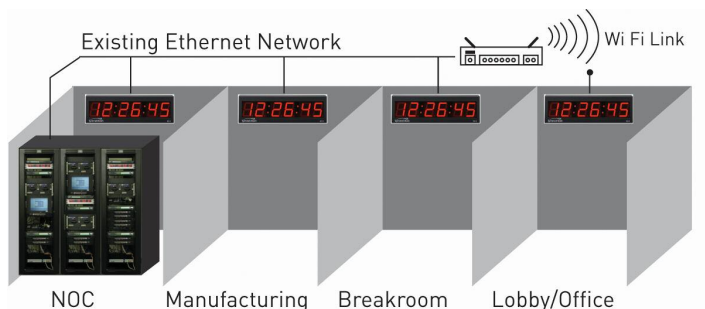
### TIME FORMATS

Example time shown below is 2:34:56 pm on December, 31, 2003



### PRODUCT INCLUDES

Display; power cord, manual; MS Windows based configuration software. ND-2 includes rack mount removable brackets.



Attractive, professional and very visible synchronized time is easily distributed throughout the facility using existing Ethernet networks. Wireless network connections are possible where network cabling is not readily available.



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