



## Instructions for operating and installing the DC-150N network time of day clock



### Description:

- **The DC-150N is a made in the U.S.A, outdoor rated, 15.0 inch, 4 digit, Red LED network time of day clock.**
- Power: The DC-150N requires 100-240VAC 50/60 hertz, @ 2 amps, isolated and grounded power (supplied by end user).
- Enclosure: All extruded aluminum; 18.5 inches tall x 48 inches wide x 3.25 inches deep.
- Paint: Black textured (finger print resistant) powder coat finish.
- Weight: 35 lbs.
- Viewing distance: 750ft.
- Time base: Atomic time correction once every 10 seconds after connection has been established. Accepts either NTP or SNTP. Factory calibrated crystal oscillator +/- 2 minutes per year accuracy (free running mode).
- Time zones: EST, CST, MST, PST (time zone default is setup for shipped to address, dip switch selectable).
- Time format: 12 or 24 Hour (12 hour default, dip switch selectable)
- Controls: Ethernet CAT-5E (RJ45 female connection)
- (LAN) Network connections:
  - DHCP (default)
    - IP 0.0.0.0
    - Network mask 0.0.0.0
    - Gateway 0.0.0.0
    - DNS 0.0.0.0
  - Time server, Southfield Michigan (nist.net-servicesgroup.com, 64.113.32.5, default)
- Internal data rate: 9600 baud
- Mounting: (2) aluminum .125 inch x 1.5 inch x .75 inch C channel mounting rails

# DC-Digital

(2) Weather resistant electrical Junction boxes.  
Upper junction box = Network data connection  
Lower junction box = Power



**Connections:** The DC-150N requires a breakered 120VAC @ 2 Amp, grounded and isolated electrical service.

- **Power:** See photo above. The DC-150N contains (2) electrical outdoor rated electrical boxes located on the right side of the enclosure.
  - (1) The lower junction box: Power
  - (1) The upper junction box: Network data input
- Use 12 Gauge high voltage (600 volt) rated wiring. Run all of the power wiring through weather resistant seal tite and use proper seal tite connectors from the power junction box and to the feed power disconnect. All connectors are ½ inch to the electrical junction boxes.
- **Earth Ground:** Make sure that ground is in accordance with local electrical codes. Improper grounding and or an open neutral will cause irreparable damage to the DC-150N and or an electrical shock hazard.
- **Data:** The data junction box is used to house the weather resistant data network connection. It contains a CAT-5 RJ45 female receptacle inline coupler. Run a CAT-5 cable through a flexible seal-tite conduit into the data junction box located on the DC-150N enclosure. Use ½ inch seal-tite connectors. Make a CAT-5, RJ45 female Ethernet network connection inside the provided junction box and install the coupling connector into the DC-150N enclosure. Make sure that the CAT-5 cable not be bent in a tight 90 degree angle.



**Operation:** The DC-150N is equipped with an internal 3 position dip switch that can be accessed to change, if it is necessary, its time zone and or time format. To access the dip switch remove the face plate and locate the 3 position dip switch near the top edge of the main circuit board. Switch the following to acquire the preferred time zone or time format.

➤ **Time Zones:** Internal dip switch settings:

- **EST:** Switch 1 OFF and 2 OFF
- **CST:** Switch 1 ON and 2 OFF
- **MST:** Switch 1ON and 2 ON
- **PST:** Switch 1 OFF and 2 ON

➤ **Time Format:** Internal dip switch settings

- 12 hour mode switch 3 OFF
- 24 hour mode switch 3 ON

➤ Before applying power, make sure all of the DC-150N covers are secured in place.

➤ Apply power to the DC-150N at this time.

➤ The DC-150N will display 12:00 A.M. Allow several minutes for the DC-150N to acquire a DHCP address and to acquire the Atomic time from the time server.

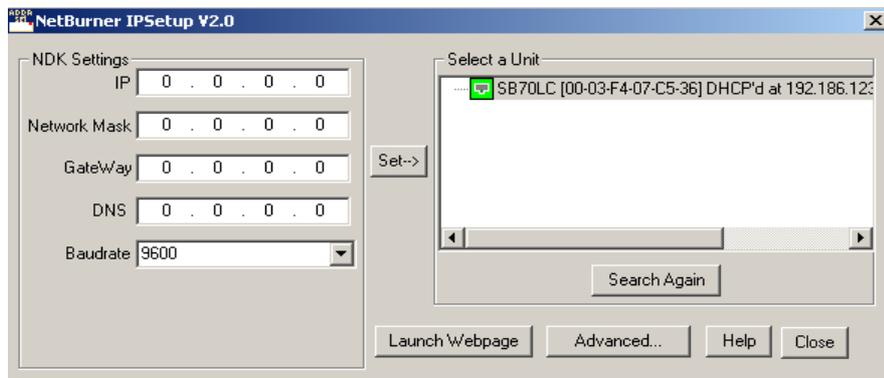
See below for programming a static IP address and or have it receive the time from and internal time server.

### **Static IP address setup:**

These instructions will walk you through how to reprogram your network clocks for static IP. The DC-Digital clocks are (default) set for DHCP (*Dynamic Host Configuration Protocol*) which means that your server will **lease** or assign the clock its IP address. If the server is not DHCP enabled, then the clocks will need an IP address assigned to it. This is referred to as a static address. Once assigned, it will not change until you change it – where as a dynamic address may be re-leased a new IP every time it is connected to the network. Here are the steps in which to change the dynamic address setting to static.

1. Ensure the network clocks are plugged into the network and are powered up.
2. Install the provided file ***IPSetup.exe***. Install the file on a computer that will be able to see the network clock that requires the IP change.
3. When you open the file, it should appear something like this: see below

## Static IP address setup: continued



4. The setup window will show every Netburner unit. (shown is a SB70LC)
5. Click on the unit that you want to change so that it becomes highlighted.
6. Enter the information needed to the left. Enter the IP address, network mask, gateway, and DNS information. **Make certain the baud rate is 9600bps. If this is a different value, the Ethernet card and clock cannot communicate and the clock will not operate correctly.**
7. When the information is entered, and you verify it is correct, press the **Set** → button in the center of the window. The unit will disappear from the **Select a Unit** screen. Wait about 30 seconds while the unit is being programmed and then the unit will reappear with the IP that you entered. If it doesn't reappear, press the **Search Again** screen button and it should appear. Make sure it has the correct IP.
8. To reset the unit to DHCP, simply follow these directions and enter all zeros for the fields on the left as seen above.

## Redirecting the DC-Digital Network Clock to an internal NTP Server:

The file *autoupdate.exe* is included on the CD that accompanied the DC-Digital clock.

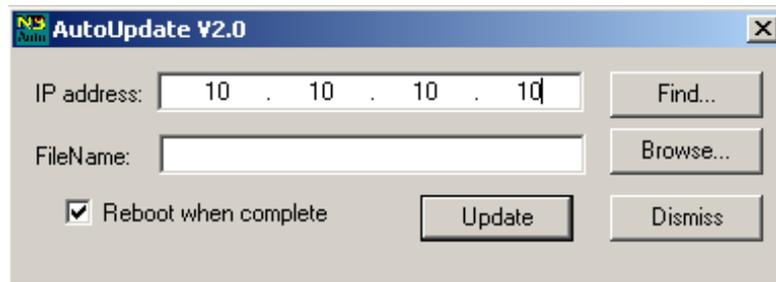
**You will need to contact IES (800-977-6872) with the IP Address of the target NTP server.** We will create the new file and email it to you along with the default file. So we will send you (2) files as follows:

- 1) **Default\_APP.s19 (original programmed file)**
- 2) **[customer name]\_APP.s19 (changed file pointing toward your NTP server)**

The application *autoupdate.exe* will need to be loaded onto a computer that can see the unit (DC-Digital Network clock) you are trying to change.

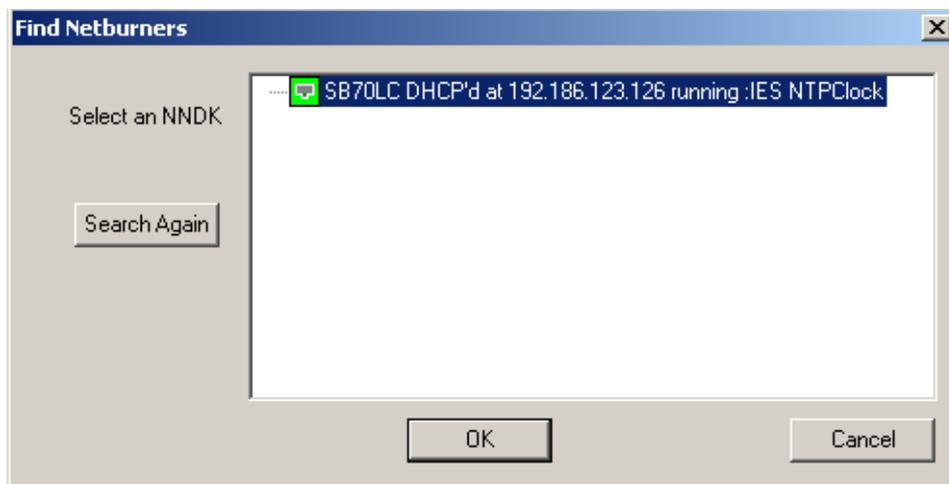


**Redirecting the DC-Digital Network Clock to an internal NTP Server** continued:



The address 10.10.10.10 is being used as a sample address.

1. Click **Find**. This will search your network for any and all DC-Digital Network clocks. The **Find Netburners** window will appear. See below.

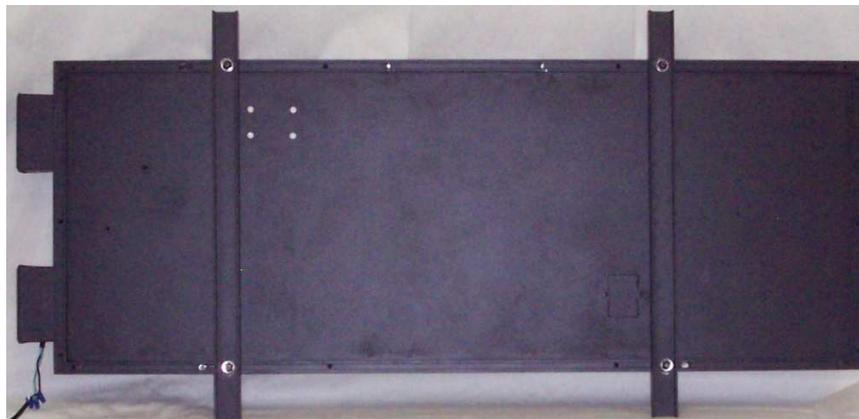


2. Select the unit you want to update. Click on it (the line will turn from a gray to a blue shade).
3. Click the **OK** button. This will bring the **AutoUpdate** screen up again with the address of the unit you want to change filled into the IP address line. Now you need to input the time server address that you want this clock to acquire the time from.
4. Click the **Browse** button to find the file that was sent to you from us [customer name]\_APP.s19. It contains your specific NTP time server address.
5. Double-Click on that file. This will fill the **AutoUpdate** window with the correct info.
6. Click the **Update** button. The programming of the DC-Digital network clock will take 5-10 seconds and it will say **“programming complete without error.”**



**Redirecting the DC-Digital Network Clock to an internal NTP Server** continued:

7. The unit will now be able to acquire the NTP time from that specific address. Make sure that the DC-Digital Network clock will acquire and then update the time.  
**Remove and reapply the power.** It should have the correct time within one minute.
  - **Troubleshooting:** The DC-150N will indicate when the network connection has been lost. The upper left LED cluster will flash once every 10 seconds indicating that network connection has been lost.



- **Mounting:** See photo above. Mount the DC-150N in clean dry dust free area. The DC-150N can be viewed up to 750 feet. It is recommended that you should first test the location of the mounting sight for proper viewing before permanently mounting the DC-150N. There are (2) aluminum .125 inch x 1.5 inch x .75 inch C channel mounting rails for easy wall hanging or remove the rails and use the 5/16 nuts and bolts that are attached to the enclosure channeling. Note: The 5/16 mounting bolts can be loosened and moved horizontally down the enclosure channel to accommodate wider or narrower wall mounting holes. (mounting screws not included).

**for further questions please contact Industrial Electronic Service D.B.A. DC-Digital @ 937-746-9750 or visit us @ [www.dc-digital.com](http://www.dc-digital.com).**