

**NEOL**®

**NeoClock**®

**User's guide**

**Radio controlled clock for  
Windows 9x, Me, NT 4 and 2000**

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Version 06.2001



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# 1. FOREWORD

The NeoClock radio control clock enables you to synchronize workstations and servers running under Windows 95, 98, Me, NT4 and 2000 with the data of a reference atomic clock.

NeoClock is available in two versions:

**DCF Version:** This version incorporates a radio receiver that picks up the DCF77 signal broadcast by the Mainflingen transmitter located near Frankfurt (Germany). The transmitter broadcasts long waves at a frequency of 77.5 kHz. Its waves can be picked up as far as 1,000 to 1,500 km away from Frankfurt.

**France Inter Version:** This version incorporates a radio receiver that picks up the France Inter signal broadcast by the Allouis transmitter located near Bourges (France). This transmitter broadcasts long waves at a frequency of 162 kHz. Its waves can be picked up as far as 2,500 to 3,500 km away from Allouis.

NeoClock consists of a plastic case (desk version in a blue ABS casing or industrial version in a polycarbonate IP67 casing) equipped with a 5-meter serial cable. The cable features a 9 points SUB-D female connector that can be directly connected to the standard serial port of a PC.

Inside the case, an original 2-antenna device guarantees the best reception of the signal whatever the geographical situation of the case in relation to the transmitter.

An autonomous clock with a temperature-compensated crystal oscillator makes possible for NeoClock to deliver extremely precise time information even in the event of a disturbance in the reference radio signal.

Two control LEDs allow you to check if the product works correctly and if the radio signal is correctly received.

The use of CMOS-technology components makes it possible to power the system through the V24/RS232 serial link of a PC compatible (5-wire link).

## 2. GUARANTEE

NeoClock is guaranteed for a period of **two years** from the purchase date. This guarantee includes the cost-free replacement of a defective product or defective parts, including repair work and return to customer.

Damage due to external accidents, non-approved interventions or overvoltage are excluded from this guarantee.

### GUARANTEE LIMITS

Due to the complexity of computer technology, it is not possible to exclude data treatment errors in any situation of use.

NEOL guarantees that the product will perform substantially in accordance with this manual under normal use and service.

No liability for consequential damage: neither NEOL nor its suppliers shall be liable for any damage whatsoever, including without limitation any loss of business profits, data loss or any financial loss resulting from the use of or the inability to use the NeoClock product, even if NEOL has been advised of the possibility of such damage. In any case, NEOL cannot be liable for an amount exceeding the price actually paid for the purchase of the product.

The present agreement shall be governed by French laws. Any litigation will be submitted to the sole jurisdiction of the courts of the city of STRASBOURG.

The pieces of information mentioned in this document can be modified without notice.

### 3. TECHNICAL SUPPORT

By returning your registration card, you **get free technical support for 90 days**. This offer is valid within two years of the purchase date.

The 90-day period starts at the first support request.

You will find answers to the most frequent questions in the present manual, appendix A (Troubleshooting) and C (FAQ).

The latest data on NeoClock are available on Internet. You're welcome on our web support page at [www.neol.com](http://www.neol.com)

e-mail: [support@neol.com](mailto:support@neol.com)

or

fax +33.03.88.33.37.72

## 4. LICENCE AGREEMENT

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**The use of the NeoClock programs included is subject to the terms of the present licence agreement.**

**Opening the package containing the disks indicates your acceptance of the present licence agreement.**

---

### **Use**

The licensed programs can be used only with a NEOL product (for example NeoClock).

### **Number of licences**

The number of licences depends on the number of PCs (servers or stations) you need to synchronize with the reference server to which the NeoClock receiver is connected.

One licence is necessary for each PC (server or station) that will be directly or indirectly – through a network – synchronized with the NeoClock data.

This licence is compulsory when the time synchronization is done with the client software purchased or other programs (including freeware and shareware).

### **Serial number / Activation key**

The NeoClock package consists of a receiver, Windows software and a single and exclusive serial number. You must enter this serial number during the installation. To each serial number corresponds a single and exclusive activation key that defines the number of licences (see above « Number of licences »).

If you need to extend the number of licences, see Appendix D.

## 5. RECEIVER INSTALLATION

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**The NeoClock receiver can be used to synchronize a stand-alone workstation or several networked computers. In the second case, it must be installed on the computer that will be used as a time reference server.**

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1. Switch your computer off and unplug it.
2. Connect the cable of the NeoClock receiver to the V24/RS232 serial connector of your computer. If your computer is equipped with a 25-pin serial connector, use a DB25/DB9 adapter (see pin function in appendix B).
3. Plug in your computer again.

---

Note : The receiver starts to work only when the software is installed / started (see below).

---

## 6. SOFTWARE INSTALLATION

To install the NeoClock system, follow these steps:

1. Install the software on the time server (see § 6.1);
2. Install the software on the time client(s) (see § 6.2);
3. Position the receiver.

## 6.1. TIME SERVER INSTALLATION

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The "Time Server" is the workstation or server on which you have connected the NeoClock receiver.

---

### 6.1.1. Installation

1. Insert the CD-ROM into the CD-ROM drive of your computer.
2. Run **Setup.exe** from the root directory of the NeoClock CD-ROM.
3. Select **Install server**, then click on **Next**.
4. Choose the folder where the program will be installed.  
Click on Next to validate the folder or on Browse... to select another folder.
5. Follow the instructions on your monitor.
6. After the installation is completed, set the parameters of the "**Time synchronization**" and "**Time server**" programs or services following the instructions given hereafter.

## 6.1.2. Time synchronization settings

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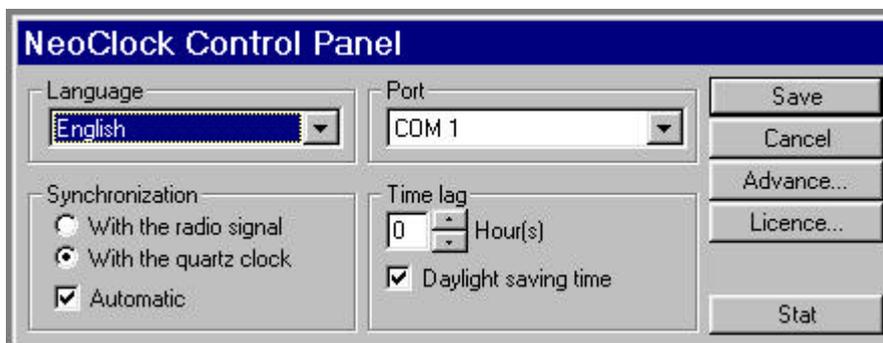
**This program (or service) ensures the time synchronization of the workstation or the server to which the NeoClock radio receiver is connected.**

---

1. In the Windows **Control Panel** double-click on the **NeoClock Time Synchronization** icon:



The NeoClock Control panel appears:



2. Select the language you want to use for the program's interface.
3. Select the number of the serial port used by the NeoClock receiver.

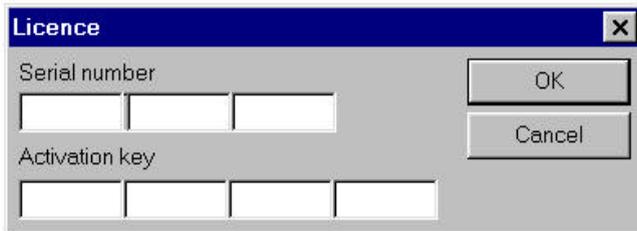
4. Click on **Licence...** then enter the serial number and activation key noted on your licence certificate.

---

Important:

**Be careful of upper-case and lower-case letters!**

---



5. Click on OK.
6. If necessary, you can also modify the other settings listed on the following page.
7. Click on Save.  
The **Information** dialogue box appears.
8. Click on Yes to start (or restart) the program (or service).  
A small clock appears in the taskbar to indicate that the service is correctly started.  
Depending on the status of the clock, its color will change:
  - 🟡 yellow ⇒ At the starting of the program
  - 🔴 red ⇒ When the system clock is not synchronized with NeoClock,  
⇒ In the case of an error,
  - 🟢 green ⇒ When the system clock is synchronized with NeoClock.
9. You can now set the parameters of the "Time server" program (§ 6.1.3).

## **"TIME SYNCHRONIZATION" SETTINGS:**

### **▶Language**

Choose the language to be used for the NeoClock Control Panel into the scroll-down list.

### **⇒Port**

Choose the serial port to be used to connect the NeoClock receiver into the scroll-down list.

### **▶Synchronization with radio signal**

When you select this option, the time synchronization will take place only if the time data received from the atomic clock are correctly decoded. If the reception is disturbed, no synchronization will take place.

### **▶Synchronization with quartz clock**

When you select this option, the time synchronization will take place using the following data:

- from the atomic clock if the time data are correctly received,
- from the quartz clock of the NeoClock receiver if the radio reception is disturbed.

### **▶Automatic synchronization**

Select this option so that the clock is synchronized automatically according to the precedent choices:

- If you selected the **radio signal** option, the synchronization will take place each time the data from the atomic clock are correctly decoded.
- If you selected the **quartz clock** option, the synchronization will take place once a minute at the 0-second shift of the NeoClock quartz clock.

- If you do not select this option, you will have to request the synchronization by clicking on the **manual** synchronization button in the NeoClock window (this button is disabled in Automatic mode).

The computer will be synchronized with:

- the radio signal as soon as a time sequence is correctly decoded (if you selected the **radio signal** option), or
- the NeoClock quartz clock at the following 0-second shift (if you selected the **quartz clock** option).

### **▶Time difference**

You can set a time difference between -12 and +12 hours by clicking on the scrolling arrows.

This time difference enables you to synchronize the workstation or the server with another time zone.

For example, if you want to synchronize a workstation or a server with the Universal Time (UT), do not activate the Daylight saving time and specify a time difference of -1 hour to CET.

### **▶Daylight saving time**

Select this option if you want the time synchronization to take automatically the daylight saving time into account.

### **▶Save**

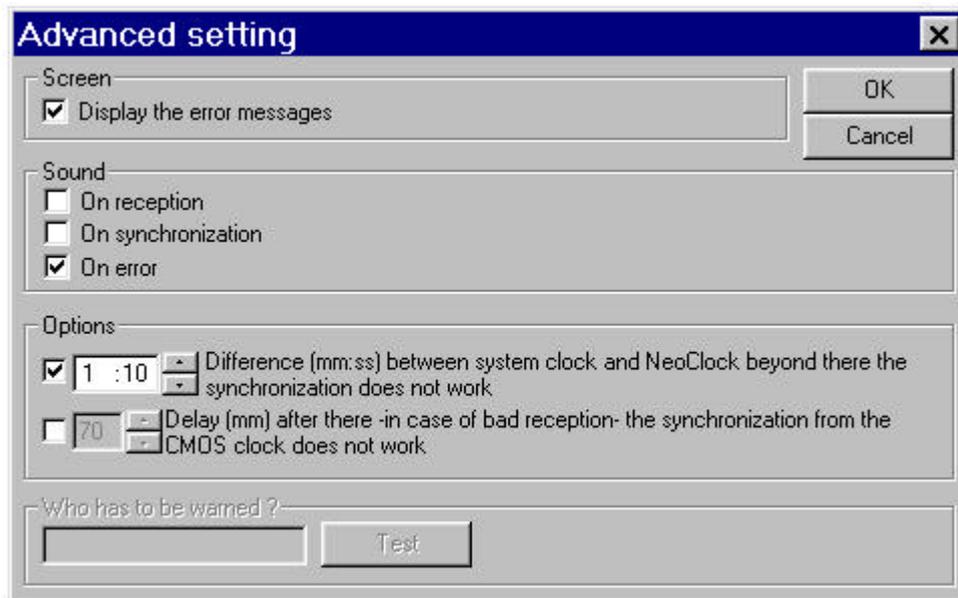
Click on Save to save your modifications.

### **▶Cancel**

Click on Cancel to close the window without saving.

⇒ **Advanced...**

Click on this button to modify the advanced settings.



- **Screen**  
Enables to display or not the error messages on the time server.
- **Sound**  
According to the selected options, a sound signal is emitted:
  - on each reception of the radio signal;
  - on each synchronization of the workstation or the server;
  - in the case of an error.

- **Options** (safety options)

- The first option enables you to define a difference between the system clock of the workstation or server and the atomic clock, beyond which no synchronization will take place.

**For optimum safety, we recommend that you select this option and specify a relatively small difference (default setting: 1 minute 10 seconds).**

Note: this option can be activated only if you selected the **Automatic Synchronization option**.

- The second option enables you to define a delay after which no synchronization from the receiver's quartz clock will take place if the reception is disturbed.

This option can be activated only if you selected the **Automatic Synchronization** and **Quartz clock Synchronization options**.

- **Who has to be warned**

Enables the system to send error messages to a user on the network (**only under Windows NT**)

**PLicence...**

Enter the serial number and activation key of the software. You can increase the number of licences by entering a new activation code.

**PStat**

Enables you to display the time synchronization statistics.

### 6.1.3. Time server program settings

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**This program (or service) dispatches the time data to the workstations or servers that request it from the time server. The number of computers that can be synchronized depends on the number of licences you have purchased. If you do not wish to synchronize other computers of the network with the time server, go directly to § 7 RECEIVER POSITIONING**

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1. In the Windows **Control panel** double-click on the **NeoClock Time Server** icon.



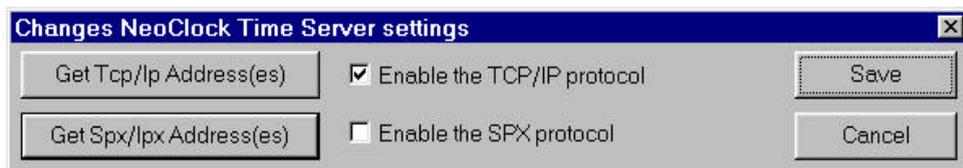
The NeoClock Time Server Settings dialogue box appears. It enables you to select the network protocol you want to use.

---

**Important:**

**The selected protocol must be already enabled on the network!**

---



2. Choose the protocol you want to use.  
The two buttons on the left of the window enable you to know the TCP/IP and/or IPX/SPX addresses used by your computer. These addresses will be necessary for the settings of the Time Client service.
3. Click on Save.  
The **Information** dialogue box appears.

4. Click on **Yes** to start (or restart) the program or service.

In the taskbar, a clock display with an "S" symbol indicates that the service is correctly started.



5. Go to § 6.2 to install one or several time client(s). If not needed, go directly to § 7 for the positioning of the receiver.

### **"TIME SERVER" PROGRAM OR SERVICE SETTINGS:**

#### **▶get TCP/IP Address**

Click on the get TCP/IP Address button to obtain the TCP/IP address of the workstation or server.

#### **▶get IPX/SPX Address**

Click on the get IPX/SPX Address button to obtain the IPX/SPX address of the workstation or server.

#### **▶Enable the TCP/IP protocol**

Select the Enable the TCP/IP protocol option to use this protocol for the transmission of the time data.

#### **▶Enable the IPX/SPX protocol**

Select the Enable the IPX/SPX protocol option to use this protocol for the transmission of the time data.

#### **▶Save**

Click on the Save button to save your modifications.

#### **▶Cancel**

Click on the Cancel button to close the window without saving.

## 6.2. INSTALLATION OF THE TIME CLIENT(S)

---

A "Time Client" is any workstation or server whose clock will be synchronized to the "Time Server" clock.

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### 6.2.1. Installation

Repeat the following instructions for any "Client" computer for which you have purchased a licence:

1. Insert the NeoClock CD-ROM into the CD-ROM drive of your computer.
2. Run **Setup.exe** from the root directory of the CD-ROM.
3. Select **Install client**, then click on **Next**:
4. Choose the folder where the program is to be copied. Click on **Next** to validate the displayed path or **Browse...** to modify it.
5. Then follow the instructions on your monitor.
6. Once the installation program is complete, define the parameters of the "Time Client" program or service according to the following indications.

## 6.2.2. Time Client settings

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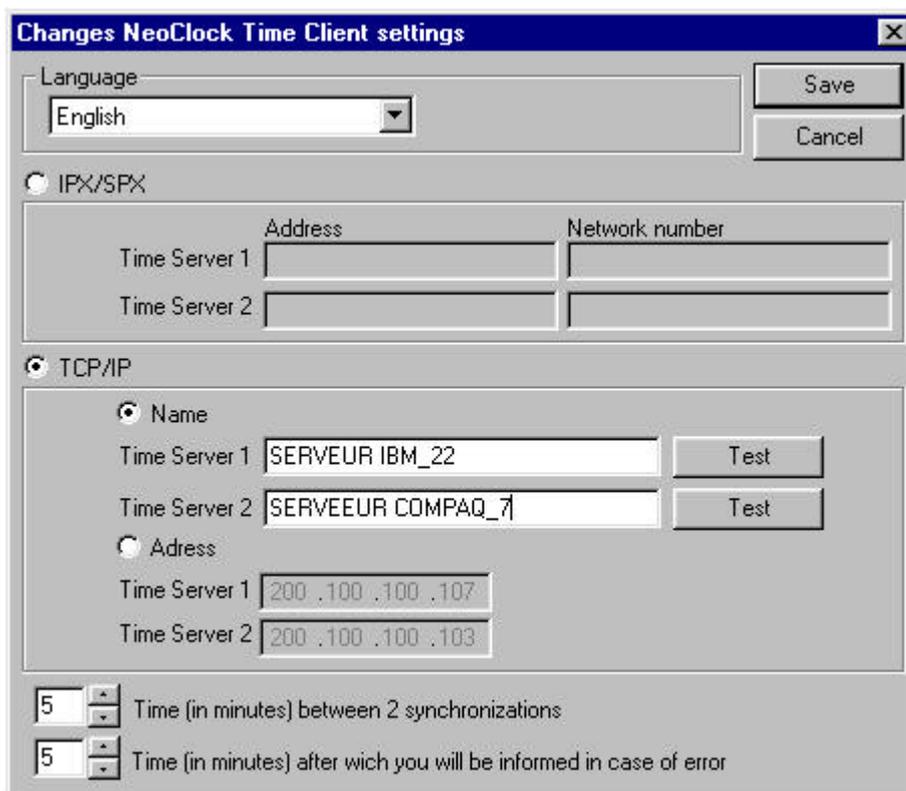
**This program (or service) enables you to synchronize a workstation or a server with the time server.**

---

1. In the Windows **Control Panel** double-click on the NeoClock Time Client.



The NeoClock Time Client settings dialogue box appears.



2. Choose your language.
3. Select the network protocol to be used and specify the address of the time server in the Time Server 1 text box.

The Time Server 2 text box can be filled with the address of a second time server inside the same network. If the first time server breaks down, the network's time clients will be automatically synchronized with the second server.

---

**Note:**

If you do not know the IPX/SPX or TCP/IP address of the time server, go to the time server and double-click on the **NeoClock Time Server** icon in the Windows **Control Panel**.

In the NeoClock Time server Settings window, click on the 2 left buttons to get the addresses. Then click on Cancel to close the window.

---

4. If necessary, modify the default settings of the synchronization interval and the display delay of error messages by following the instructions of the following page.
5. Click on **Save**. The **Information** dialogue box appears.
6. Click on Yes to start (or restart) the program or service.  
A small watch icon appears into the taskbar when the program (or service) starts. Click on this icon to open the NeoCli window displaying a day calendar with the day's Saints.



To close this program under Windows 95/98/Me, click once on Ctrl + Alt + Suppr and close the NeoCli program.

7. After repeating the installation procedure on all the "clients" of the time server, go to § 7/ Positioning of the receiver.

## **TIME CLIENT SETTINGS:**

### **⇒Language**

Into the drop-down list, choose the language to be used in the Settings window of the Time client.

### **⇒IPX/SPX**

Choose this option if your network uses the IPX/SPX protocol and enter the IPX/SPX address of the time server in the Time Server 1 text box.

The Time Server 2 text box can be filled with the IPX/SPX address of a second time server that is equipped with a NeoClock receiver. This increases the synchronization safety inside a network.

If the first time server breaks down, the network's time clients will be automatically synchronized with the second server.

---

If you do not know the IPX/SPX address of the **time server**, go to the time server and open the Windows **Control Panel**. Double-click on the **NeoClock Time Server** icon. In the **NeoClock time server settings** window, click on the **Get IPX/ SPX Address** button.

Click on Cancel to quit.

---

### **⇒TCP/IP**

Choose this option if your network uses the TCP/IP protocol and enter the TCP/IP address of the time server in the Time Server 1 text box.

The Time Server 2 text box can be filled with the TCP/IP address of a second time server that is equipped with a NeoClock receiver. This increases the synchronization safety inside a network.

If the first time server breaks down, the network's time clients will be automatically synchronized with the second server.

---

If you do not know the TCP/IP address of the **time server**, go to the time server and open the Windows Control Panel. Double-click on the **NeoClock Time Server icon**.

In the **NeoClock time server settings** window, click on the **Get TCP/IP Address** button then click on Cancel to quit.

---

**▶Time between two synchronization processes**

Use the scrolling buttons to set the synchronization frequency (5 to 999 min.)

**▶Time after which you will be informed in the case of an error.**

Set the display delay of error messages (between 5 and 999 min.).

**▶Save**

Click on the Save button to save your modifications.

**▶Cancel**

Click on Cancel to close the window without saving.

## 7. RECEIVER POSITIONING

1. After connecting the receiver, setting and starting the NeoClock **Time Synchronization** program in the Control Panel, check that the POWER LED (or the left LED in front view on the desk version) flashes regularly every second.

It shows that the NeoClock works correctly. If not, go to **Appendix A TROUBLESHOOTING**.

2. Now find a place for your NeoClock receiver.

**This step is critical to ensure the good working of the product.**

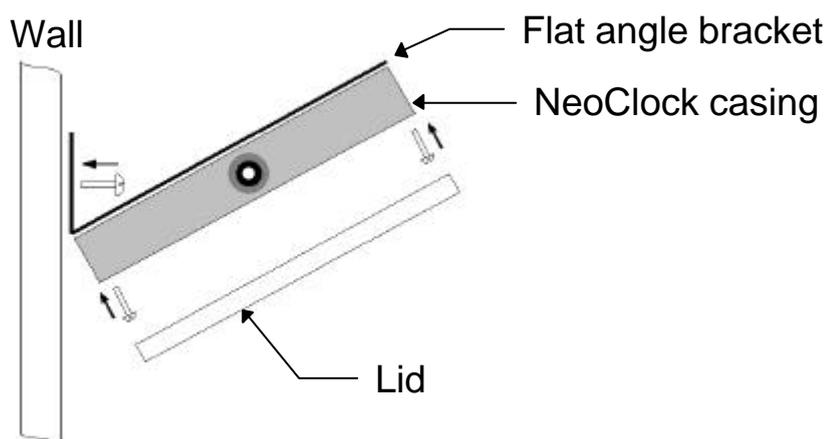
Do not fix the NeoClock receiver in any place yet, because you will perhaps have to move and test it in different places to find the best reception of the radio signal.

The RADIO SIGNAL LED (or right LED in front view on the desk version) will help you find a place where the reception of the radio signal is clear enough.

Once this **LED remains continuously on** during 2 to 3 minutes without switching off, you can fix the receiver with its wall support.

The next section will explain you the meaning of the control LEDs.

### Positioning of the industrial IP67 casing



## 7.1. THE CONTROL LEDS

The NeoClock receiver is equipped with two control LEDs on the front that indicate the status of the receiver at any time. The operation of these LEDs depends on the system of antennas (DCF77 or France Inter) used by the NeoClock receiver.

### 7.1.1. DCF77 antenna system

#### **POWER LED (industrial version)** **or left LED in front view (desk version)**

##### **red blinking:**

Shows that the NeoClock has not yet been able to decode the time data coming from the DCF transmitter since it has been powered.

It also shows that the time data coming from the atomic clock could not be decoded correctly for over 24 hours.

##### **green blinking:**

Indicates that the time data coming from the atomic clock could be decoded without error. These data were sent to the connected PC through the V24/RS232 connection and were also used to synchronize the autonomous quartz clock of the NeoClock receiver.

#### **RADIO SIGNAL LED (industrial version)** **or right LED in front view (desk version)**

##### **off:**

Indicates that the DCF77 signal carrier is not received correctly.

##### **green:**

Indicates that the DCF77 signal has been received correctly for more than 2 seconds. The LED must be lit without interruption so that the radio signal can be decoded without error.

The LED switches off during 2 seconds each time the reception is interrupted or disturbed. If this happens, move the receiver until the LED remains on.

See § 7.2 IMPORTANT REMARKS for the positioning of your receiver.

## 7.1.2. France Inter antenna system

### **POWER LED (industrial version)** **or left LED in front view (desk version)**

#### **red blinking:**

Shows that the NeoClock has not yet been able to decode the time data coming from the Allouis transmitter since it has been powered.

Also shows that the time data coming from the atomic clock have not be decoded without error by the NeoClock receiver for the past 24 hours.

#### **green blinking:**

Indicates that the time data coming from the atomic clock could be decoded without error. These data were sent to the connected PC through the V24/RS232 connection and were also used to synchronize the autonomous quartz clock of the NeoClock receiver.

### **RADIO SIGNAL LED (industrial version)** **or right LED in front view (desk version)**

#### **red blinking:**

Indicates a very low level of reception of the radio signal.

#### **green blinking:**

Indicates a medium level of reception of the radio signal.

#### **green:**

Indicates a good level of reception of the radio signal.

#### **off:**

Indicates that the quality of the radio signal has been too low for more than one minute.

If this happens, move the receiver until the LED remains on.

---

### **Important note about the FRANCE INTER receivers:**

Every Tuesday between 2 a.m. and 5 a.m. approximately, the TDF France Inter transmitter stops to send time data for maintenance reasons.

Error messages warning that no signal is received appear in the NeoClock main window as well as in the log file. This is normal.

However, you can still obtain a high-precision synchronization of the workstation or server equipped with the NeoClock receiver during this period by selecting the **Quartz clock** synchronization option in the NeoClock control panel.

---

Also see § 7.2 IMPORTANT REMARKS for the positioning of the receiver.

## 7.2. IMPORTANT REMARKS

Since it consists of a radio receiver, the NeoClock system must be kept away from any source of electrostatic and electromagnetic disturbances.

To avoid interference, keep the receiver as far away as possible from:

- computers, screens, keyboards, television sets;
- fluorescent tubes;
- electric motors;
- dimmer switches;
- emission and reception antennas;
- any other interference source.

Reception is difficult in some areas.

Try several different places before choosing the final location of the receiver.

**Place the receiver** if possible:

- close to a window
- high up.

**Do not place it** in rooms where reception is impossible, such as:

- a basement
- the middle of a building with a metallic structure.

---

If your computer is located in a room where reception is difficult, you can use an extension cable to move the receiver away.

Take a shielded extension cable and connect the pins numbered 2, 3, 4, 5 and 7 of the 9-pin connector.

The extension cable can be up to 100 meters long (320 feet) .

---

## 8. UNINSTALL SOFTWARE

The NeoClock software can be automatically uninstalled with the Windows uninstallation program.

In **Control panel / Add/Remove Programs / Install/Uninstall** click on **NeoClock** then on **Add/Remove...** and finally on **Yes** to confirm the uninstallation.

---

### Remark:

Before you click on **Yes** to confirm the file deletion, close the control panel so the uninstallation program can also remove the programs and corresponding icons of the control panel.

If you don't, you will have to remove later the corresponding files (CplSrv.cpl and/or CplAclk.cpl and/or CplCli.cpl) with the help of the explorer.

Depending on the operating system in use, these files are to be found in the following folders:

⇒under Windows 95, go to the folder WINDOWS/SYSTEM

⇒under Windows 98, go to the folder WINDOWS/SYSTEM

⇒under Windows Me, go to the folder WINDOWS/SYSTEM

⇒under Windows NT 4.00, go to the folder WINNT/SYSTEM32

⇒under Windows 2000, go to the folder WINNT/SYSTEM32

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## 9. NEOCLOCK WINDOW

A control window can be displayed on the time server when the time synchronization program (or service) is started.

To display this window, click on the clock icon in the taskbar.



This window shows the system date and time of the time server. It also shows the nature of the received data:

**FRANCE INTER** or **DCF77**: shows which radio signal is picked up.  
**Summer** / **Winter**: shows the daylight saving time or winter time period

### Manual refresh button

This button enables you to ask for a manual synchronization if the **automatic** option is not selected in the NeoClock Control Panel (Start / Settings / Control Panel / NeoClock Time Synchronization).

The synchronization takes place at the reception of a correctly decoded radio sequence if you selected the **Radio signal** option in the NeoClock control panel.

If you selected the **Quartz clock** option, the synchronization will take place at the 0-second shift of the NeoClock quartz clock.

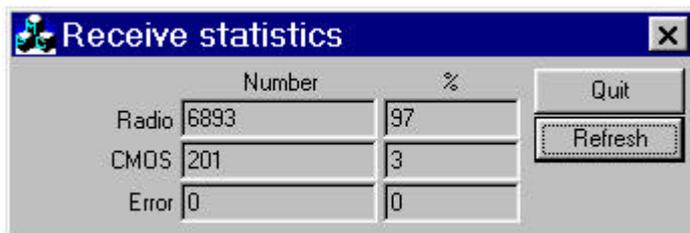
### Status line

This line shows the status of the synchronization system as well as error messages (date and time of last reception, system currently decoding, number of minutes elapsed since last correct reception...)

## 10. STATISTICS

Statistical data concerning the reception level of the radio signal can be displayed by clicking on the **stat** button in the NeoClock control panel.

The displayed values are values cumulated since the first starting of the NeoClock program. These values cannot be reset to zero.



### Refresh button

Click on **Refresh** to display the latest statistics.

# APPENDIX A

## TROUBLESHOOTING

**a/ The POWER LED (industrial version) or left LED (desk version) remains out:**

The NeoClock receiver is not powered correctly.

- ☞ Check that the cable is correctly connected to the serial port of your PC. Check that the NeoClock program is correctly started and that the port setting corresponds the physical port used by the NeoClock receiver.

**b/ The RADIO SIGNAL LED (industrial version) or right LED (desk version) remains out:**

The LED remains out although the POWER LED (left LED on the desk version) flashes every second.

The receiver works correctly but cannot decode the radio signal from the atomic clock.

- ☞ Move the receiver until you find a place providing a better reception level (see § 7.2/ IMPORTANT REMARKS for the positioning of the receiver).

**c/ error messages on the time server:**

### **Not yet synchronized**

The program has just been started and did not receive time data from the NeoClock receiver.

### **Decoding of the radio signal in progress...**

The program has just been started and waits for the reception of a first time sequence from the atomic clock.

### **Time difference too large**

The NeoClock receiver transmitted a time sequence which presents a too large difference compared to the hour of the computer system clock. This difference (safety option) can be specified in the window **advanced setting** of the **NeoClock control panel**.

If the computer system clock presents a too large difference compared to the official hour, there are two way to solve the problem:

☞ Solution 1:

Adjust manually the system clock with a precision which corresponds to that indicated in the **advanced setting** window of the **NeoClock control panel** (default setting: 1 minute and 10 seconds).

☞ Solution 2:

1. In the **advanced setting** window of the **NeoClock control panel**, deactivate the first option.
2. Click on **OK**, then on **Save** in the **NeoClock control panel**.
3. As soon as the computer system clock is synchronized, return in the **advanced setting** window of the **NeoClock control panel** and select the first option again.
4. Click on **OK**, then on **Save** in the **NeoClock control panel**.

---

Advice:

For optimum safety, we recommend that you select this first option in the **advanced setting** window and specify a relatively small difference (default setting: 1 minute 10 seconds).

---

### **Timeout error**

The program has not received time data from the NeoClock receiver for more than 1 minute and 15 seconds.

☞ Solution:

1. Check that the NeoClock receiver is correctly connected to the time Server. Check that you selected the port used to connect the NeoClock receiver:  
In the **Control panel** of the Time Server, double-click on **NeoClock Time Synchronization** then check the port chosen in the **Port** section (if necessary choose another port in the pulldown menu).  
Note: The left LED of NeoClock must blink every second after starting of the program (or Service) **NeoClock Time Synchronization**.
2. Stop and start again the **NeoClock Time Synchronization** program (or Service).

### **Last synchronization: date - hour**

Shows the date and the hour of the last time synchronization.

## d/ error messages on the time client:

### **TCP Connect: 8**

The time client cannot communicate with the time server.

☞ Solution:

1. Check on the time server that the two programs **NeoClock** and **NeoSrv** (under Windows 95/98/Me) or the two services **NeoClock Time Synchronization** and **NeoClock Time Server** (under Windows NT and 2000) are correctly started.

To check the started programs or services:

- under Windows 95/98/Me: push only once on Ctrl+Alt+Del,
- under Windows NT and 2000: in the **Administration tools**, double-click on **Services**.

2. Check on the time client that the address (TCP/IP or IPX/SPX) or the name of the time server indicated during the configuration corresponds to the address or to the name of the time server.

To check:

- the name of the time server: in the **Control Panel**, double click on **NeoClock Time Client** then click on **Test**,
- the TCP/IP address of the time server: in a MS-DOS window of the time client, type **PING** followed by the TCP/IP address of the time server).

3. Check that you have selected the same protocol on the time server as during the configuration of the time client.

To check the selected protocol of the time server:

- in the **Control Panel** of the time server, double-click on **NeoClock Time server**.

4. Reload the last **Service Pack** after having installed the NeoClock programs.

## APPENDIX B

### TECHNICAL FEATURES

<b>Case</b>	ABS	Polycarbonate industrial casing, IP67		
<b>Size</b>	Diameter=160mm, H=46mm	130 X 180 X 35 mm		
<b>Weight</b>	750 g, incl. cable	950 g, incl. cable and bracket		
<b>Temperature tolerances</b>	0 to +50 ° Celsius	-25 to +75° Celsius		
<b>Cable</b>	5-wire cable, length 5 m			
<b>Connection</b>	DB9 female			
<b>Pin function</b>	Pin	Signal	Direction	PC
	2	TxD	→	Rxd
	3	(-)	←	TxD
	4	(+)	←	DTR
	5	Gnd	<del>3/4</del>	Gnd
	7	(+)	←	RTS
<b>Power supply</b>	through PC serial link (TxD, RTS and/or DTR)			
<b>Consumption</b>	around 5 mA at 8 V DC			
<b>Picked-up radio signal</b>	<b>DCF77 version:</b> DCF77 signal from the Mainflingen transmitter (near Frankfurt in Germany), frequency 77.5 kHz			
	<b>France Inter version :</b> France Inter signal from the TDF transmitter of Allouis (near Bourges in France), frequency 162 kHz			
<b>Reception antennas</b>	<b>DCF77 version:</b> 2 antennas with two demodulators			
	<b>France Inter version:</b> 2 antennas with 1 demodulator			
<b>Autonomous quartz clock</b>	Accuracy: +/- 0.165 sec per day between 0°C and +40°C Battery life: 8 years (lithium battery on support)			

## Data transmission:

The time data are transmitted once a minute at the 0-second shift.

The transmission parameters and transfer procedure are shown in the following table:

<b>Serial transmission parameters</b>	
Baud rate	2 400
Format	8 bits
Parity	no
Stop bits	2

# APPENDIX C

## FAQ

### Frequently Asked Questions

#### Hardware

**▶ How wide is the reception area for the radio signal of the atomic clock?**

DCF77 version

The signal can be picked up at 1,000 to 1,500 km of the transmitter located near Frankfurt in Germany.

FRANCE INTER version

The signal can be picked up at 2,500 to 3,500 km of the transmitter located near Bourges in the centre of France, i.e. in all Central European countries.

**▶ Is it possible to use a longer cable between the NeoClock radio receiver and the serial port of the computer?**

Yes, you can use a shielded complementary cable up to 100 meters long. Use a shielded cable adapted for serial links V24/RS232 (cf. pin diagram APPENDIX B).

**▶ How can I check that the reception of the radio signal is correct?**

Two LEDs allow you to check at any time how the receiver is working.

## **Software**

### **► Which operating systems can I use the NeoClock time synchronization system with?**

The NeoClock synchronization system is available with the following software for:

#### Windows

- \* Windows 95
- \* Windows 98
- \* Windows Me
- \* Windows NT 4.00
- \* Windows 2000

#### Novell

- \* Netware 4.x
- \* Netware 5.x

**► Under Windows, which PC can be declared as *time server*?**

Any PC under Windows 95, 98, Me, Windows NT 4 or 2000 (workstation or client) can be declared as ***time server***. The NeoClock receiver and the corresponding software (or service) must be installed on this PC.

**► Is it possible to synchronize automatically or manually?**

\* On the time server:

You can synchronize automatically or manually according to the setting of the **Automatic** parameter in the **Synchronization** section of the **NeoClock Control Panel**.

\* On the time client :

When the synchronization program is started on a time client, it asks regularly for synchronization with the time server. The time interval can be set between 5 and 999 minutes.

**► Does the NeoClock time synchronization system automatically support the switch to daylight saving time?**

Yes, if you select the option **Daylight saving time** in section **Time lag** of the **NeoClock Control Panel**, provided that the NeoClock receiver correctly gets the signal from the atomic clock!

**► Does the NeoClock time synchronization system allow me to synchronize a computer with the GMT time (UT time of the Greenwich meridian) or another time zone?**

Yes, by setting an optional time difference (-12 to +12 hours) in section **Time lag** of the **NeoClock Control Panel**.

**▶ Does the NeoClock time synchronization system allow me to synchronize other workstations or servers within a local area network (LAN) or a wide area network (WAN)?**

Yes, the NeoClock time synchronization system is based on a client/server architecture and any server or workstation can be declared as **time server**. The other workstations or servers of the network can be synchronized regularly with this server (you need a licence corresponding to the number of synchronized computers).

**▶ Which network protocols are supported by the NeoClock time synchronization system?**

The programs (or services) of the NeoClock time synchronization system support both routable protocols TCP/IP and IPX/SPX.

**▶ Is it possible to synchronize workstations or servers with a time server accessible through a router?**

Yes, since the programs and services used here support the routable protocols TCP/IP and IPX/SPX.

**▶ How often can a "time client" computer be synchronized with a "time server" computer?**

You can set the interval between 5 and 999 minutes for each **time client** in the **NeoClock Control Panel**.

**▶ If the radio reception is temporarily disturbed (electromagnetic interference, thunderstorm, etc.), does the NeoClock system still allow a time synchronization of the PC or server?**

Yes, if the option **Quartz clock** is selected in section **Synchronization** of the **NeoClock Control Panel**. The synchronization of the computer's system clock will thus occur even if the reception is disturbed, but from the quartz clock of the NeoClock receiver.

When the reception is correct, the synchronization will be done from the atomic clock signal.

## ▶ How can I check if the time synchronization works?

When the time synchronization program is started, an icon representing a watch appears in the task bar.

When NeoClock works correctly (signal reception and synchronization of the computer's system clock), the background of the watch is green. If you click on the icon, a **NeoClock Atomic Clock** window appears, in which the text is green on black background.

In the case of a malfunction or an error, the background of the watch icon is red, as well as the background of the **NeoClock Atomic Clock** window. Moreover, a status bar displays the error type.

## ▶ How can I check if the time server program (or service) is started?

When the **time server** program is started, an icon representing the letter "S" within a circle appears in the task bar.

When the program (or service) works correctly, the background of this circle is green.

In the case of an error, the background of the circle is red.

## ▶ Which programs (or services) must be installed?

The program are installed automatically by an installation program.

Two programs (or services on Windows NT) are installed on the **time server** computer.

The first program communicates with the NeoClock radio receiver and realises the time synchronization of the **time server**.

The second one distributes the date and time to the time clients who request it from the **time server**.

On the client computers of the **time server**, only one program (or service on Windows NT) is installed. This program realises the periodical time synchronization with the **time server**.

**▶ How can I know how many time clients are connected to the *time server*?**

When the *time server* program is started, an icon representing the letter "S" within a circle appears in the task bar. Click on this icon to see the number of *time clients* connected to the time server.

**⇒ Are there any statistics about the time synchronization since installation?**

Yes, you can find statistics by clicking on the **Stat** button in the NeoClock **Control panel**.

The displayed values are cumulative data going back to the first starting of the NeoClock time synchronization program. You can not reset these values.

## **APPENDIX D**

### **LICENCE EXTENSION**

You wish to extend the number of workstations or servers to be synchronized with the time server to which the NeoClock receiver is connected.

1. Send back the following order form after completing it with the serial number and activation key of the current software.
2. You will receive a new activation key corresponding to the number of stations you need to synchronize.

Licence extension prices:  
Please contact your retailer or NEOL.

# ORDER FORM

N° \_\_\_\_\_

Company: _____
Address : _____
ZIP:  _ _ _ _  City : _____ Country _____
VAT Identification No: _____
Tel. : _____ Fax : _____

Invoice address:	Delivery address (if different):

Date of purchase	Retailer

Serial number	Activation key

Current licence:  NT 1    NT 10    NT 50    NT 100    NT...

REF.	DESIGNATION	PRICE
NT		

<b>PAYMENT BY</b>	TOTAL	
Bank transfer <input type="checkbox"/>		

DATE	NAME	SIGNATURE

**Send back this order form to your retailer or to:**

**NEOL EQUIPEMENTS INFORMATIQUES**

4 Rue Nationale - BP 11 - 67801 BISCHHEIM Cedex - FRANCE

Bank: BNP - SCHILTIGHEIM (FRANCE)			
Bank	Agency	Account No	Key
30004	00495	00022771880	06

# APPENDIX E

## CE CONFORMITY STATEMENT

We

Name: NEOL SA

Address: 4 Rue Nationale

Place/Country 67800 – BISCHHEIM (France)

Declare under our sole responsibility that the following product:

Trademark: NEOL Type designation: NeoClock

which whom this declaration refers, is conform with the following standards or other normative document(s) provided that it is installed, maintained and used in the application for which it is made, with respect of the "professional practices" relevant installation standards and manufacturer's instructions :

EN 60950 (09/92) + amendments 1 (1993), 2 (1993), 3 (1995)  
and 4 (1996)

EN 55022 (09/98) Radio disturbance characteristics of Information  
Technology Equipment

EN 55024 (01/99) Immunity characteristics of Information Technology  
Equipment

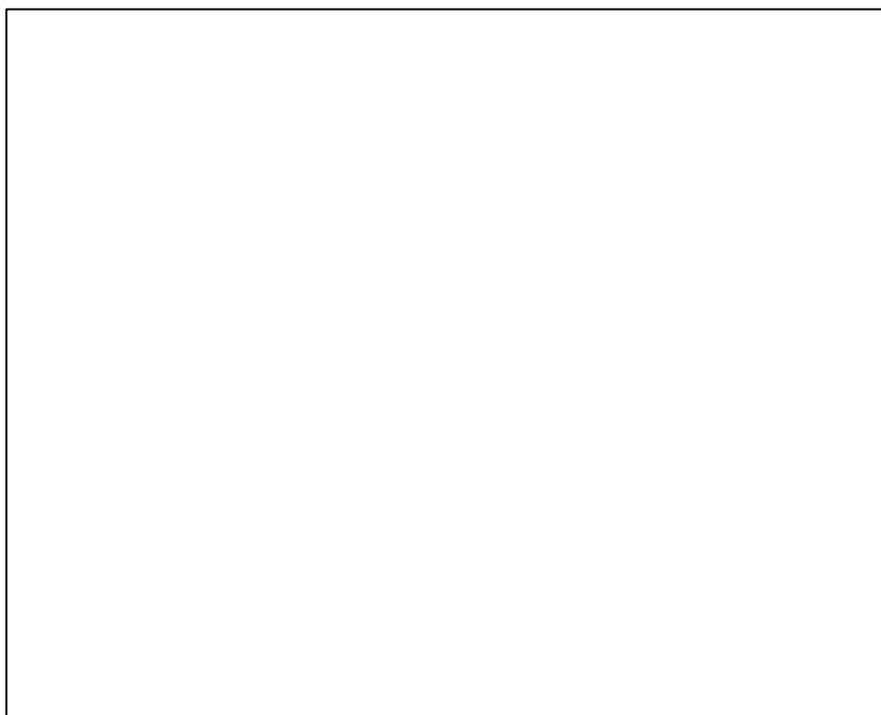
According to the requirements of the:

- Directive 1999/5/EC of the European parliament and of the council of 9 March 1999 on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity
- Electromagnetic Compatibility Directive 89/336/EEC, amended by 92/31/EEC and 93/68/EEC
- Low Voltage Equipment directive 73/23/EEC, amended by 93/68/EEC

Bischheim, 9<sup>th</sup> May 2000

Paul REYSER – General Manager

Your retailer:



Designed and made in France by:

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