



# ClockSync SNTP (RFC 2030) v9 Module Application Guide

## Description

This utility allows a Crestron 2-series processor to synchronize its internal clock with a public NIST Internet time server using an implementation of the DAYTIME protocol. This is similar in theory and operation to the wide variety of Atomic Clock programs available for Windows and other operating systems.

## Internet Disclaimer

This module requires Internet access and depends on the output of one or more 3<sup>rd</sup>-party Internet websites. As such, ControlWorks Consulting is unable to guarantee the formatting, content, availability, or reliability thereof. In the event of a permanent outage or change in formatting, ControlWorks may or may not elect to issue an update to purchasers of the module.

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Compatibility			Processor Requirements	
 2-Series Compatible	 NOT CNMSX Compatible	 NOT System Builder Compatible	 Ethernet REQUIRED	 Compact Flash NOT NEEDED

## Module Application

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This utility replaces the extended clock driver. Do not place any other clock driver in the program. This utility sets both the date and time on the processor to match that sent by the server. The time will be adjusted every morning at 2am. You may also manually force a poll by pulsing the "[poll\_time]" input.

**NOTE: Due to limitations of the Network Time Protocol, this module will stop working on 7-February-2036. ControlWorks will be unable to support this module after that date.**

The Crestron processor should be running cuz 3.137 or higher.

DNS servers must be declared on the Crestron processor. Use the Viewport command **ADDNns** or the menu under Functions -> Set Up Control System IP Information -> Advanced. For best results, use the DNS servers provided by the ISP of the connection you are trying to monitor. If these are unavailable, you can use 216.175.203.18 and 216.175.203.27, which were used in the test and debug process of this module.

## SETUP INSTRUCTIONS:

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Create UDP/IP connections to time-a.nist.gov and utcnist.colorado.edu, or the proper local time server(s). All connections should be on UDP port 123d. Make connections as listed below and enjoy.

# Signal and Parameter Descriptions

Bracketed signals such as "[signal\_name]" are optional signals

## DIGITAL INPUTS

[poll\_time] ..... pulse to force poll. Optional, since polling is automated for 2am.

## ANALOG INPUTS

This module does not utilize any analog inputs

## SERIAL INPUTS

time\_server1\_rx\$ ..... tie to rx\$ of the primary UDP socket  
time\_server2\_rx\$ ..... tie to rx\$ of the secondary UDP socket. Optional and can be omitted if only one time server is desired.

## DIGITAL OUTPUTS

[time\_set\_success] ..... Optional. Pulsed when the time is successfully set from either time server  
[time\_set\_failure] ..... Optional. Pulsed when the time could not be successfully set using either time server.  
time\_server1\_connect ..... Connect to the enable input of the primary UDP socket  
[time\_server2\_connect] ..... Optional. Connect to the enable input of the secondary UDP socket  
[in\_dst] ..... optional, high when in DST

## ANALOG OUTPUTS

This module does not utilize any analog outputs.

## SERIAL OUTPUTS

[time\_module\_status\$] ..... Optional. Provides text feedback about the status of the module.  
time\_server1\_tx\$ ..... Tie to tx\$ of the primary UDP socket  
[time\_server2\_tx\$] ..... Optional. Tie to tx\$ of the secondary UDP socket  
[tod\$] ..... output of extended clock driver

## PARAMETERS

DST ..... same as clock2, as follows:  
..... 0d No DST  
..... 1d U.S.  
..... 2d Southern Hemisphere  
..... 3d Same as 2d  
..... 4d European Union  
..... 5d Egypt  
  
uct offset ..... signed value indicating number of time zones off from GMT (i.e. Eastern US is -5d, Central US is -6d)  
  
dwell ..... unsigned value indicating the amount of time that the module should wait before rolling over to the next time server or declaring failure. If this time expires while trying server #1, server #2 will be tried. If the time expires while trying server #2, the [time\_set\_failure] output will be pulsed

## Support

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This module is supported by ControlWorks Consulting, LLC. Should you need support for this module please email [support@controlworks.com](mailto:support@controlworks.com) or call us at 440-449-1100. ControlWorks normal office hours are 9 AM to 5 PM Eastern, Monday through Friday, excluding holidays.

Before calling for support, please ensure that you have loaded and tested operation using the included demonstration program and touchpanel(s) to ensure that you understand the correct operation of the module. It may be difficult for ControlWorks to provide support until the demonstration program is loaded.

Updates, when available, are automatically distributed via Email notification to the address entered when the module was purchased. In addition, updates may be obtained using your username and password at <http://www.thecontrolworks.com/customerlogin.aspx>.

## Distribution Package Contents

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The distribution package for this module should include:

ClockSync SNTP (RFC2030) v9 help.pdf .....	This help file
ControlWorks ClockSync SNTP (RFC2030) v9.UMC.....	Crestron user module to insert in program
NTP parser.usp.....	Simpl+ for use with SNTP module
SNTP parser.ush.....	Simpl+ for use with SNTP module
ControlWorks ClockSync SNTP (RFC2030) demo v9.smw	Example program (PRO2)

## Revision History

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V9 lincoln@controlworks.com 2006.04.05

Corrected additional Daylight Saving Time Issue (in TIME and SNTP modules only; no change to DAYTIME module)

lincoln@controlworks.com 2006.01.31  
Implemented revised Test DNS logic

V8 lincoln@controlworks.com 2005.11.03  
Corrected issue with Daylight Saving Time

V7 lincoln@controlworks.com 2005.10.11  
Initial Release of the SNTP Version.

# ControlWorks Consulting, LLC Module License Agreement

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