



# ClockSync SNTP (RFC 2030) v9 SB Only (SystemBuilder & D3PRO) only version

## Module Application Guide

### Description

This module has been specifically built for use within SystemBuilder and D3PRO. It allows a Crestron 2-series processor to synchronize its internal clock everyday 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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Due to limitations of the Network Time Protocol, this module will stop working on February 7<sup>th</sup>, 2036. ControlWorks will be unable to support this module after that date.

Compatibility			Processor Requirements	
 <b>NOT TESTED</b>	 <b>SERIES COMPATIBLE</b>	 <b>System Builder™ COMPATIBLE</b>	 Ethernet REQUIRED	 Compact Flash NOT NEEDED

## Module Application

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This module 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 as well as program start. You may also manually force an update by pulsing the "[poll\_time]" input.

The Crestron processor should be running cuz 3.137 or higher.

DNS servers must be declared on the Crestron processor. In Toolbox connect to the processor in System Info. Once the page has refreshed select Functions then DNS Management... In this dialog box you can now enter and test the DNS servers that you plan to use. DNS servers can also be set in the Text console by using the command **ADDDNS**. Once you have set the DNS addresses you can test them in the Text Console with **TESTDNS**. By entering **TESTDNS google.com** and pressing enter you should get an IP address returned. If the console reports 0.0.0.0 then your DNS settings or connections to the public internet are not correct.

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 Google public DNS Server.

## System Builder Instructions

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### Copying module files into your directories

You will need to place the module files in the appropriate user directories in order to use the module with your SystemBuilder program. Place a copy of ControlWorks ClockSync SNTP (RFC2030) v9 sb only.umc into your USRMACRO directory. Place a copy of sntp\_parser\_v9\_sb\_only.ush and sntp\_parser\_v9\_sb\_only.usp into your USRSPLUS directory. Do this while SystemBuilder is closed or be sure that you refresh the database if you copy the files when the application is open.

### Adding the module to your SystemBuilder project

1. Open your existing SB project or create a new one
2. Right click on your system (by default "Equipment room") and select **New** then **Device...**
3. Under **Database** click the **User** radio button
4. Drop down **Manufacturer** to ControlWorks
5. Be sure the ClockSync SNTP v9 SB Only is the selection in the **Model:** window
6. Click OK
7. Optionally you can now change the default name of the module from Generic to something more descriptive
8. Double-click on the module and select I/O Assignment. Here you can declare the IP address or hostname of your time server
9. Now select Properties and set your UTC offset and dwell parameters. (see parameter definitions section below). Also be sure that the default port of 123 is correct for your time server.
10. If your Properties box includes a selection named **AV** please select it and uncheck the box that says "This device is an audio distribution source."
11. Click OK to close the properties dialog box.

## D3PRO Instructions

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### Copying module files into your directories

You will need to place the module files in the appropriate user directories in order to use the module with your D3 program. Place a copy of ControlWorks ClockSync SNTP (RFC2030) v9 sb only.umc into your USRMACRO directory. Place a copy of sntp\_parser\_v9\_sb\_only.ush and sntp\_parser\_v9\_sb\_only.usp into your USRSPLUS directory. Do this while D3PRO is closed or rebuild the User paths under Edit>Preferences>User Database Paths and then click each Rebuild button.

### Adding the module to your D3 project

1. Open your existing D3PRO project or create a new one
2. Click the **Other Devices** view
3. Right click on your system (by default "Equipment room") and select New then Device...
4. Under Database click the User radio button
5. Drop down **Manufacturer** to **(User Modules)**
6. Be sure the ClockSync SNTP v9 SB Only is the selection in the **Model:** window
7. Click OK three times
8. Optionally you can now change the default name of the module from Generic to something more descriptive
9. Double-click on the module and select the **I/O Assignment** tab. Here you can declare the IP address or hostname of your time server
10. Now select **Properties** tab and set your UTC offset and dwell parameters. (see parameter definitions section below). Also be sure that the default port of 123 is correct for your time server.
11. Click OK to close the properties dialog box.

# Signal and Parameter Descriptions

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

Note: These signals and parameters are only visible in SIMPL Windows

## 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 UDP socket

## 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

## 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

## PARAMETERS

uct offset ..... signed value indicating number of time zones off from GMT (i.e. Eastern US is -5d, Central US is -6d)

dwel ..... 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.controlworks.com/customerlogin.aspx> .

## Distribution Package Contents

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The distribution package for this module should include:

ClockSync SNTP (RFC2030) v9 sb only help.pdf ..... This help file  
ControlWorks ClockSync SNTP (RFC2030) v9 sb only.UMC Crestron user module to insert in program  
sntp\_parser\_v9\_sb\_only.usp ..... Simpl+ for use with SNTP module  
sntp\_parser\_v9\_sb\_only.ush ..... Simpl+ for use with SNTP module  
ControlWorks ClockSync Demo v9.sba ..... Example SystemBuilder program (PRO2)

## Revision History

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V9 sb only caleb@controlworks.com 2011.04.12

Initial Release of the SNTP for SystemBuilder and D3PRO.

### Development Environment

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This module version was developed on the following hardware and software. Different versions of hardware or software may or may not operate properly. If you have questions, please contact us.

<b>Crestron Hardware</b>	<b>Firmware Version</b>
Crestron PRO2 Processor	v4.003.0015
<b>Software</b>	<b>Software Version</b>
Crestron SIMPL Windows	3.01.24
Device Database	33.00.0005.00
Crestron Database	25.00.002.00
SIMPL+ Cross Compiler	1.3

# ControlWorks Consulting, LLC Module License Agreement

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