



CIRCUITWERKES

Makers of Innovative Electronics

Sicon-8 Webserver32 Addendum to the Sicon-8 Manual

Hardware Version 1.3
Manual Rev 1.1
Firmware Version 1.0.3

Your Sicon-8 must be equipped with main FW version 1.75, or higher to use the CircuitWerkes advanced Webserver described in this document. If your Sicon-8 does not have at least v1.75 FW, you don't have the new Webserver, but it is possible to upgrade most Sicon-8s the latest Webserver. Please call us at 352-335-6555 for upgrade information.

Using the Internal Web Server

Networking basics:

Before reading any further, we would like to mention that the following section is not intended to be a comprehensive guide to networks, nor does it necessarily describe your network. Indeed, we have found that networks vary quite a lot and yours will probably be different than is described here. We assume that you, or a network administrator, is familiar with your network and knows how to set it up to accommodate Web servers that exist within your network. The brief discussion provided below is only intended to be used as a very non-specific description of how a network might function.

In Internet land, devices on your network get unique IP addresses because each piece of hardware has a serial number embedded into it. Every device with a serial number, called a MAC address, has to get an IP address assigned to it in order to function using the networking protocol called TCP/IP, which is what is used for the Internet. The router in your network uses those IP addresses that it assigns to keep track of what data requests have been made and how to route responses to the devices that need data. In a way, the IP address is sort of like a nickname that computers use to talk to each other. A computer will only respond if it has been called by name. So, the IP addresses are what one computer uses to address or talk to another computer. The router also uses those IP addresses to manage the flow of communications between each computer so that they are not all talking at once like an old fashioned party-line.

IP addresses are usually doled out within a fixed range, so it's also easier for humans to remember a device's location via its IP address than to try to remember every item's MAC number. For instance an internal network might use the IP range of 192.168.1.### where ### can be 001 through 254. Once the network administrator has set up the address range, he or she only has to keep track of what's assigned to the last three digits of the address range.

Generally, simple networks are divided into two sets of addresses. There are the addresses that exist inside the network (called the private or LAN side) and then there are addresses that exist on the Internet (public or WAN) side of the network. We've already described the private side above, but getting stuff on the private side to talk to the public side can be tricky.

When you have one device that is connecting your internal network to the Internet, like a cable modem or DSL modem, it also has a unique serial number, so it gets assigned an IP address from your ISP. But the ISP only sees the modem, not other equipment on the inside of your network, so they cannot assign multiple IP addresses (actually they can, but that's another story). Although you probably only have one IP address, you will have a whole range of port numbers that you can use for each IP address that exists on the private side of your network. Usually, different types of communications use standardized ports to talk to devices. For instance http (Web browsing) is mostly done on port 80. FTP is usually port 21. E-mail might use port 25. Often, we want to set our network connection up to pass port 80 to some device on our network, like the Sicon-8 Webserver32, that serves up web pages. We do that by telling the router/firewall to pass port 80 requests to the IP address that we know we have previously assigned to the Sicon-8 Webserver32. To do that, we have to tell our firewall that it's okay to send port 80 requests to the Sicon-8 Webserver32, otherwise it'll just block those requests if they come from the public side of the firewall. As described earlier, each device on the private side needs a static IP address that is set by the network administrator. So, each item on the inside of a network that will be communicating with the outside world has to have an IP address within the local network **AND** it must also have the appropriate port opened on the firewall. On the Internet side of the firewall, there is usually only the main IP address and the port number.

When you put it all together it might look like this:

Public IP address 67.234.98.135, port 630 could be mapped to internal IP address 192.168.1.250, port 80. So a browser request made to 67.234.98.135:630 would serve up a web page because you would really be talking to 192.168.1.250:80. Once you have that properly configured, your Sicon-8 Webserver32 can serve up Web pages from inside of your network to the Internet.

Connecting to the Sicon-8 Webserver32 for the first time:

Most networks use a router as their central hardware. When a device is plugged into a router, the device normally obtains an IP address from the router using a process called DHCP. By default, the Sicon-8 Webserver32 obtains a DHCP address from your network's DHCP server. In order to connect to the Sicon-8 Webserver32, you can use one of two methods: First, the device has a default netbios name of "[SICONWEB32](#)". You can type <http://SICONWEB32/> (no www) and your browser should take you to the login screen. On some browsers, you must enter the entire <http://SICONWEB32/> including the starting "http" and the backslash after the 2. Some browsers will work either way. Note that netbios names are not supported in some operating systems such as Android. The second method requires you to know what its network IP address is. An IP address inside a network will usually look like XXX.XXX.X.XXX, for example 192.168.1.100. Your router knows this information and you can usually find out what the address is by logging into the setup page of your router. Most routers have a page that shows the attached devices. This can be shown as part of the router's DHCP page, or it may be shown in a separate LAN discovery page. Once you know the IP address of your device, you will be able to connect to it by entering the address into your browser's address bar. You can use the CircuitWerkes Netscanner utility, found on our Website or on the CD that came with your Sicon-8 to locate the device on your network. Netscanner will identify the Sicon-8 Webserver32 by name ("SICONWEB32") and will show you the IP addresses of all objects on your network that respond to pings.

If you do not use a router in your network or if you want to configure your Sicon-8 Webserver32 via a direct connection, the default IP address for this device is 192.168.1.200. If making a direct connection, you must set your computer's network settings to match the Sicon-8 Webserver32's settings. Your PC's TCP/IP properties must be set to 192.168.1.xxx with a netmask of 255.255.255.0. Once you have connected to the Sicon-8 Webserver32, you can set its IP address to whatever you wish from the configuration page.

The Web server uses port 80, but this can be changed after login. Often, sites have multiple devices that want to use port 80, including some routers. You have two choices: first, you can change ports on the Sicon-8 Webserver32. Second, your router can simply redirect a different outside (WAN) port to the individual Web servers' inside IP addresses. For instance, the Sicon-8 Webserver32 and another IP device each have Web servers using port 80. The Sicon-8 Webserver32 has an internal IP address of 192.168.1.250 and suppose that the site device has an IP of 192.168.1.200. If you are on the inside (LAN) of the network everything looks great. You can browse to either device and everything works. To access the site from the outside, you must open a "pinhole" that allow data to pass from browsers to your Sicon-8 Webserver32. You can encounter a problem if you try to route WAN port 80 to LAN port 80 for both Web servers. Only one will be assigned. You will not gain access to the second one. Instead, redirect LAN port 80 for each device to a different outside port, such as 800 and 801. In practice, you would access your site by entering its IP address followed by a colon and the port number (xxx.xxx.xxx.xxx:800), or by its URL name followed by the port (www.mysite.com:800). Some routers do not support NAT transversal (redirect). In that case, you will need to simply change the Webserver's port on the Webserver32 (or the other device). Remember that you must use the port number after the IP address or netbios name.

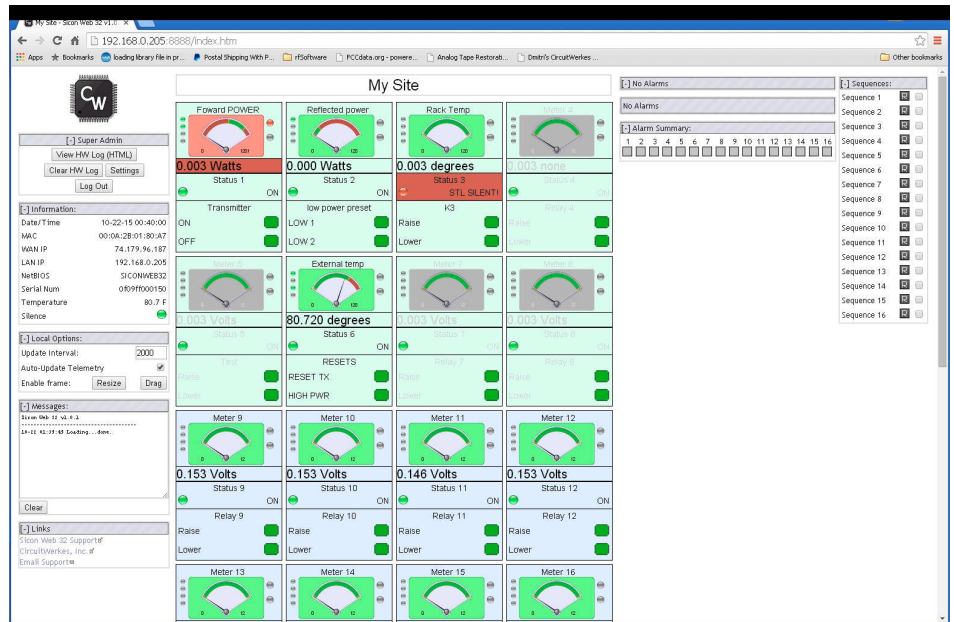
Differentiating multiple devices on a common network:

The Sicon-8 Webserver32 allows you to change the MAC address, IP address and Netbios name of the device. These can be important when multiple CircuitWerkes Webserver based products are used at a common location. In that case, you will want to assign a unique MAC address to each box so that your network can distinguish between them. Likewise, you should change the Netbios name so that each device can be found by a unique name.

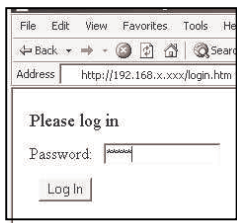
Using the Sicon-8 Webserver32's Web server:

Your Sicon-8 contains a powerful onboard Web server that is the heart of its networking capability. This Web server has proved to be very stable & supports multiple browsers. Although the interface looks simple, the real power of the Web server lies "under the hood", in its speed and enhanced capabilities. Readings are continually updated, at a user-defined speed, which is much faster than many competing products.

Your actual speed depends upon the network and upon your PC's horsepower. Your PC reads the raw data from the Sicon-8 Webserver and "draws" the meter movements. Your computer's ability to draw quickly has a direct effect upon how frequently the meters move. The default update speed is 1500ms which updates the meter position each second. Speeds of 50ms can be achieved on fast networks, however, if you request data too fast, your network or your PC may not be able to handle it and you can get a periodic message saying that the Sicon-8 Webserver32 is not responding. If that happens frequently, slow the updating down by using a bigger number in the "Update Interval" box.



Logging In:



By browsing to whatever IP address your Sicon-8 Webserver32 has, you will be presented with a login screen. **The default administrator's login is 12345678**, unless you have previously set this differently from the configuration menu. There are four access levels to the Sicon-8, reader, controller, administrator and Super-administrator. Only administrators and super administrators can configure the Sicon-8 or the Webserver32. Controllers can operate relays while reader level has no control. The default Super-administrator's access code is simply 12345678. Access codes are set using the serially-connected Sicontroller software.

If you are using Internet Explorer and you incorrectly enter the password one time, you may have to close your browser and reload it because IE cache's the passwords and will try to use them even if they don't work and you have tried to enter a different password. To avoid that problem change your IE settings for temporary files so that Explorer checks for new versions of stored pages on every visit.

Once you have entered the correct password, it will take a few seconds to load the Sicon-8 Webserver32's main page. Once done, you will have access to the metering and controls of the Sicon-8 Webserver32. If you are an administrator, you will also be able to manage the Sicon-8 Webserver32's settings. If the page does not properly load the first time, use the F5 key to refresh the page.

Monitoring and control using the Web server:

The screenshot shows the Sicon-8 Webserver32 main page. The interface is divided into several sections:

- Left Sidebar:** Contains a 'Super Admin' section with buttons for 'View HW Log (HTML)', 'Clear HW Log', and 'Settings'. Below this is an 'Information' section displaying system details like Date/Time, MAC, WAN IP, LAN IP, NetBIOS, Serial Num, and Temperature. Further down are 'Local Options' for 'Update Interval' and 'Auto-Update Telemetry', and a 'Messages' section.
- Main Content Area:** Titled 'My Site', it displays a grid of meters and status indicators. The top row includes 'Forward POWER' (0.003 Watts), 'Reflected power' (0.000 Watts), and 'Rack Temp' (0.003 degrees). Below these are various status indicators for Transmitter, Low power preset, and K3. The middle section shows 'External temp' (80.720 degrees) and several voltage meters (0.003 Volts, 0.003 Volts, 0.003 Volts). The bottom section displays 'Meter 9' through 'Meter 15' with their respective voltage readings and status indicators.
- Right Sidebar:** Contains an 'Alarm Summary' section with a 'No Alarms' message and a list of sequences (Sequence 6 through Sequence 15).

Annotations point to specific features:

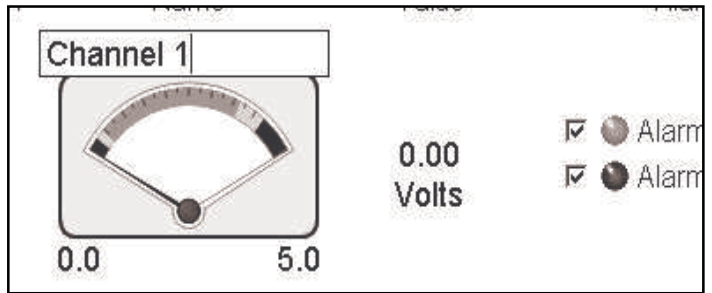
- Displays Current Access Level:** Points to the 'Super Admin' section in the left sidebar.
- Settings button opens the configuration menu in a new window:** Points to the 'Settings' button in the left sidebar.
- Update interval defines how often your meters move:** Points to the 'Update Interval' field in the 'Local Options' section.
- Relay controls:** Points to the 'Relay' buttons (Raise, Lower) for various meters in the main content area.
- Status Indicators:** Points to the status indicators (ON, OFF, LOW 1, LOW 2, etc.) in the main content area.
- Metering:** Points to the various meter displays (Forward POWER, Reflected power, Rack Temp, etc.) in the main content area.
- Alarm trigger indicators show which triggers are active:** Points to the 'Alarm Summary' section in the right sidebar.
- Sequence Status & Control:** Points to the 'Sequence' list in the right sidebar.

Metering: Green background indicates normal operation. Red indicates an out-of-tolerance condition. Grey means that channel is not being monitored.

Sequence Status & Control: This box shows you all of the available sequences. The indicators at left of the labels change color to show active sequences. Controllers or administrators can manually run any sequence by pushing the "R" button. This is a very powerful control since it can perform multiple programmed steps.

Sicon-8 Webserver32 Configuration:

Administrators and controllers can operate relays and view the meters. Readers can login to see the meters, but cannot control anything. Administrators can read meters, operate relays and perform configuration setup tasks, including editing labels by just clicking on them from the main page. Basic calibrating (scaling) readings and changing labels can be done without ever opening the configuration page.



Above: Quick-changing a Label (Admin Only)
Below: The main settings Form (labels tab)

In addition to quick changing the labels and calibrations, administrators can click on the “settings” button to open up the main configuration form in a new window.

The configuration form has 8 tabs. Each tab lets you configure a different aspect of the Webserver32. Common tasks available include setting a static IP address, changing label names, defining what alarms the Webserver will respond to and what actions it will take during an alarm condition.

Changes are highlighted in green or red until saved. Changes highlighted in red are illegal operations and won't be saved.

The screenshot shows a web browser window displaying the 'Settings' page of the Sicon-8 Webserver32. The 'Labels' tab is selected, showing a table with columns: Unit Name, Control Method, Meter Label, Relay Label, and Status. The table lists various units and their corresponding labels and status values. At the bottom of the page, there is a 'Save' button.

Unit Name	Control Method	Meter Label	Relay Label	Status
1 Forward Power	Volts	Transmitter	OFF	ON
2 Reflected power	Volts	Low power preset	LOW2	LOW1
3 Rack Temp	degrees	K3	Lower	Raise
4 Meter 4	none	Relay 4	Lower	Raise
5 Meter 5	Volts	Test	Lower	Raise
6 External temp	degrees	RESETS	HIGH PWR	RESET TX
7 Meter 7	Volts	Relay 7	Lower	Raise
8 Meter 8	Volts	Relay 8	Lower	Raise
9 Meter 9	Volts	Relay 9	Lower	Raise
10 Meter 10	Volts	Relay 10	Lower	Raise
11 Meter 11	Volts	Relay 11	Lower	Raise
12 Meter 12	Volts	Relay 12	Lower	Raise
13 Meter 13	Volts	Relay 13	Lower	Raise
14 Meter 14	Volts	Relay 14	Lower	Raise
15 Meter 15	Volts	Relay 15	Lower	Raise
16 Meter 16	Volts	Relay 16	Lower	Raise
17 Meter 17	Volts	Relay 17	Lower	Raise
18 Meter 18	Volts	Relay 18	Lower	Raise
19 Meter 19	Volts	Relay 19	Lower	Raise
20 Meter 20	Volts	Relay 20	Lower	Raise
21 Meter 21	Volts	Relay 21	Lower	Raise
22 Meter 22	Volts	Relay 22	Lower	Raise
23 Meter 23	Volts	Relay 23	Lower	Raise
24 Meter 24	Volts	Relay 24	Lower	Raise
25 Meter 25	Volts	Relay Label 25	Lower Relay 25	Raise Relay 25
26 Meter 26	Volts	Relay Label 26	Lower Relay 26	Raise Relay 26
27 Meter 27	Volts	Relay Label 27	Lower Relay 27	Raise Relay 27
28 Meter 28	Volts	Relay Label 28	Lower Relay 28	Raise Relay 28
29 Meter 29	Volts	Relay Label 29	Lower Relay 29	Raise Relay 29
30 Meter 30	Volts	Relay Label 30	Lower Relay 30	Raise Relay 30
31 Meter 31	Volts	Relay Label 31	Lower Relay 31	Raise Relay 31
32 Meter 32	Volts	Relay Label 32	Lower Relay 32	Raise Relay 32

The action sequences are user-defined functions that the Sicon-8 Webserver32 will perform whenever an event is triggered. These events are often called alarms, but they can also be simple responses to any particular input as defined by you.

The “alarms” are defined by two sets of parameters:

1. The triggering event (defined in the Sicon-8)
2. The step, or steps that you want to take when an event occurs.

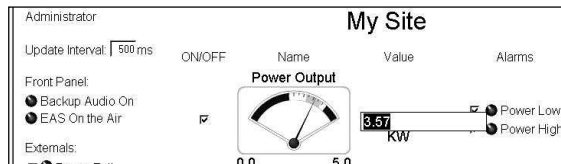
There is more on alarms on pages viii and ix.

Calibrating Meters:

Meters are best calibrated using the Sicontroller software connected serially. Calibrating meters via the Webserver is limited to linear calibrations only.

Only administrators and super-administrators can calibrate the meters. This is best done when the output of your equipment is at its nominal operating voltage. Each input (except for onboard temperature) has a calibration control that is physically associated with the channel. The meter scale can be manually set or can be self-adjusting based upon where the pointer is and what value you assign to that metering input. Meters can be calibrated in just a few simple steps:

1. Log into the Web server for the Sicon-8.
2. Apply a voltage sample to be monitored to the Sicon-8's input.
3. Click on the value currently displayed. This will allow you to directly enter the value that you want to record. When through, hit the enter key to set the value. The meter pointer will now move to the new location on the meter face. The digital readout will also now reflect the correct reading. Note that you cannot currently set the meter scale, so be careful not to exceed the meter's maximum or the meter will appear pinned.



Note that calibrations are linear only. If your equipment outputs power or log scaled voltages, the readings will only be accurate at the calibrated voltage. For Log and Power scales, use the Sicontroller software via serial connection.

Setting Alarm Points:

The Sicon-8 Webserver32 uses a simple but flexible system for handling alarms. It can perform actions when alarm conditions occur and it can perform actions when conditions return to normal, so it is possible to program a simple corrective action for one event and then to program another action to reverse the process when things return to normal. It has sixteen (16) event triggers (alarms) that can be programmed. Each trigger can respond to one of 128 possible metering alarms and 64 possible status alarms (assuming 32 channels in use). In order to activate a trigger, it is necessary to program the desired alarms of the Sicon-8. Typically, these are lower or upper metering alarms, or status inputs. The Webserver32 keeps track of alarm triggers that are set in the Sicon-8. These will be displayed on the Webserver32 meter face. For instance, if the Sicon-8 has upper alarm of 900 on a channel, the alarm will trigger whenever the reading exceeds 900. To be visible, the trigger value must be on the meter's visible range. If the meter is from 0 to 5000 and a lower alarm is set to 1000, that will occur at 20% on the meter. At the point that the meter's value is reduced below the alarm threshold, the meter background will change to red or yellow depending upon if the alarm is critical or warning.

Sicon-8 sets an alarm due to some out of tolerance condition. (Trigger event)

➔

Associated Sequence Runs

Auto-mute: This is experimental. It will self-mute a Webserver32 alarm action after a user-defined number of occurrences. For example, a transmitter is fluctuating above and below the low power limit. You can set this so that the Webserver will stop texting you after XX times. Once muted, you can manually unmute to enable the action or you can automatically unmute based on the event schedule or any other trigger that operates a sequence that you program to unmute the alarm

	User Mute	Auto Mute	Label	Trigger	Response (Action)
1	<input type="checkbox"/>	0	Alarm #1	DISABLED	Sequence 1
2	<input type="checkbox"/>	0	Alarm #2	DISABLED	Sequence 2
3	<input type="checkbox"/>	255	Alarm #3	Forward POWER Critical ON	Sequence 3
4	<input type="checkbox"/>	255	Alarm #4	Reflected power Critical ON	Sequence 4
5	<input type="checkbox"/>	255	Alarm #5	Rack Temp Critical ON	Sequence 5
6	<input type="checkbox"/>	255	Alarm #6	Meter 4 Critical ON	Sequence 6
7	<input type="checkbox"/>	255	Alarm #7	Meter 5 Critical ON	Sequence 7
8	<input type="checkbox"/>	255	Alarm #8	External temp Critical ON	Sequence 8
9	<input type="checkbox"/>	255	Alarm #9	Meter 7 Critical ON	Sequence 9
10	<input type="checkbox"/>	255	Alarm #10	Meter 8 Critical ON	Sequence 10
11	<input type="checkbox"/>	255	Alarm #11	Meter 9 Critical ON	Sequence 11
12	<input type="checkbox"/>	255	Alarm #12	Meter 10 Critical ON	Sequence 12
13	<input type="checkbox"/>	255	Alarm #13	Meter 11 Critical ON	Sequence 13
14	<input type="checkbox"/>	255	Alarm #14	Meter 12 Critical ON	Sequence 14
15	<input type="checkbox"/>	255	Alarm #15	Meter 13 Critical ON	Sequence 15
16	<input type="checkbox"/>	255	Alarm #16	Meter 14 Critical ON	Sequence 16

NOTE: The Webserver works in conjunction with and as a slave to the Sicon-8. Muting alarms in the Webserver's setup page does not prevent the Sicon-8 from setting an alarm. Only acknowledging an alarm from the main Webserver32 page will affect the current alarm. To setup Sicon-8 alarms, you have to use the Siconcontroller software connected serially.

Sequences:

Sequence	Sequence Label	Action #1	Pause	Action #2	Pause	Action #3	Pause	Action #4	Pause	Action #5	Pause	Action #6	Pause	Action #7	Pause
Sequence 1	Custom Names	No Action	0	No Action	0	No Action	0	No Action	0	No Action	0	No Action	0	No Action	0
Sequence 2	No Action	No Action	0	No Action	0	No Action	0	No Action	0	No Action	0	No Action	0	No Action	0
Sequence 3	Sequence 3	Momentary Raise Relay	0	No Action	0	No Action	0	No Action	0	No Action	0	No Action	0	No Action	0
Sequence 4	Sequence 4	Latch: Raise Relay	0	No Action	0	No Action	0	No Action	0	No Action	0	No Action	0	No Action	0
Sequence 5	Sequence 5	Unlatch: Raise Relay	0	No Action	0	No Action	0	No Action	0	No Action	0	No Action	0	No Action	0
Sequence 6	Sequence 6	Momentary Lower Relay	0	No Action	0	No Action	0	No Action	0	No Action	0	No Action	0	No Action	0
Sequence 7	Sequence 7	Unlatch: Lower Relay	0	No Action	0	No Action	0	No Action	0	No Action	0	No Action	0	No Action	0
Sequence 8	Sequence 8	Email Log	0	No Action	0	No Action	0	No Action	0	No Action	0	No Action	0	No Action	0
Sequence 9	Sequence 9	Email Alarm Event	0	No Action	0	No Action	0	No Action	0	No Action	0	No Action	0	No Action	0
Sequence 10	Sequence 10	Mute Alarm	0	No Action	0	No Action	0	No Action	0	No Action	0	No Action	0	No Action	0
Sequence 11	Sequence 11	Unmute Alarm	0	No Action	0	No Action	0	No Action	0	No Action	0	No Action	0	No Action	0
Sequence 12	Sequence 12	Mute Email Group	0	No Action	0	No Action	0	No Action	0	No Action	0	No Action	0	No Action	0
Sequence 13	Sequence 13	Unmute Email Group	0	No Action	0	No Action	0	No Action	0	No Action	0	No Action	0	No Action	0
Sequence 14	Sequence 14	Log Readings	0	No Action	0	No Action	0	No Action	0	No Action	0	No Action	0	No Action	0
Sequence 15	Sequence 15	Perform Special	0	No Action	0	No Action	0	No Action	0	No Action	0	No Action	0	No Action	0
Sequence 16	Sequence 16	No Action	0	No Action	0	No Action	0	No Action	0	No Action	0	No Action	0	No Action	0

Any trigger event can perform any of the 16 action sequences on the “sequences” list. There are fourteen basic actions available and a sequence can run up to seven actions. Available actions include operating relays, sending e-mails and muting or unmuting actions associated with alarms.

Whenever actions are occurring, the Webserver32 will not respond to outside commands or to other events until the action has completed. If a pause is set to 60 seconds, then the Sicon-8 Webserver32 will not be responsive to outside control, nor will it update its meters, until that time, plus whatever amount of time to run the action steps has passed.

Example: I want to be e-mailed or texted when certain alarms occur.

First we click on the notifications tab and enter the required information there. More about notifications can be found on page x.

Next, we setup a simple sequence to perform the actual e-mailing. We might use this sequence over and over for various alarms. So, we pick a sequence and pull down the list of actions. Here we select “email alarm event”. We can then choose which list of recipients this email will be sent to. You can also name this sequence to make it easier to recognize. We save that page and open the “Alarm Setup” tab.

In alarms setup, we click on the drop down list of available alarms and select the condition that will be used to trigger the sequence. On the right side of the line, we pull the drop down list of sequences and select the one that we just setup for e-mailing alarms. We can name this alarm trigger so that we can keep track of it. Save this page. Now whenever that alarm is detected by the Sicon-8, the Webserver will send the requested message to you.

E-mail notifications Setup

Telemetry		Alarm Setup		Notifications		Connectivity		Misc		Streaming		Sequences	
SMTP Server settings:													
Server:				SMTP my-isp.net									
Port:				25									
Username:				my-user-name									
Password:				*****									
From:				Type a valid reply address here									
Subject:				Mail from My Transmitter									
												Save SMTP Settings	
Last server response code: 32768													
Recipient list (max 80 characters per index location):													
Recipient(s) IDX 1:				Put as many addresses as desired in each index, separated by commas								Test Email	
Recipient(s) IDX 2:												Test Email	
Recipient(s) IDX 3:												Test Email	
Recipient(s) IDX 4:												Test Email	
Recipient(s) IDX 5:												Test Email	
												Save Recipient List	

E-mail notifications can be sent to you for alarm purposes as part of your sequences. The Webserver32 supports SSL/TLS secure access servers such as gmail. We do not guarantee that SSL will work on all mail servers, but it should work on most. Most unsecured mail servers will use port 25 or 2525. If your server requires port 995 or 465, you will need to check the box marked "Use SSL." You will also need to submit your user name and password. These must be submitted individually.

For mail servers that require a user name and password, there are fields provided to enter the required information.

An open email server is: relay (dot) appriver (dot) com. Port = 2525. There is no authentication, so no user name or password should be entered. SSL/TLS should also not be checked.

The "From" field should normally contain a valid reply to address. Some mail servers will not deliver mail unless there is a valid "reply to" address.

The "Subject" field is the title that will be prepended to each e-mail's subject line.

The bottom half of the form has five fields for entering e-mail addresses. **Each field can contain more than one address, separated by a comma for each.**

SMS texts are actually just e-mails sent to the target mobile number at the carrier's SMS domain name. For example, 987-654-3210@txt.att.net (no dashes would be entered in the phone number, of course).

When testing email, notice the message box area of the main Webserver page. If you get a DNS error, try entering a public DNS server into the DNS box on the connectivity tab. Public DNS servers are available from Google (8.8.8.8 and 8.8.4.4) and others. Normally, pointing to a good public DNS server will fix lookup errors.

Connectivity (Network settings):

The Webserver32 allows you to change almost everything about the network configuration.

The HTTP port is typically 80, but you can change it to anything that you want.

The Netbios Name is optional and allows you to find computers or devices by name instead of knowing their IP address. When you call a Netbios name, a request is sent across the network for a response from any device with the matching name. If that device has a Webserver, it can be loaded into your browser directly without calling the IP address, much like a domain name works over the Internet.

My Site - Sicon Web 32 v1.0.1 Settings - Google Chrome
192.168.0.205:8888/settings.htm

Telemetry Alarm Setup Notifications **Connectivity** Misc Logging Sequences Time & Events

WAN IP 74.179.86.187
LAN IP 192.168.0.205
MAC Address 00:0A:2B:D1:80:A7
HTTP Port 8888 Submit
NETBIOS Hostname SICONWEB32 Submit
Static IP (0.0.0.0 = not used/DHCP enabled) Enable DHCP 192.168.0.205 Submit
Subnet Mask 255.255.254.0 Submit
Default gateway 192.168.0.1 Submit
Primary DNS server 8.8.4.4 Submit
Secondary DNS server 8.8.8.8 Submit

DDNS settings:
DDNS Service (DDNS update server only, not your host name. Use supplied presets or enter your own): Presets: members.dyndns.org
Username:
Password: Submit
Host to update with current WAN IP (full host, ie myhost.dyndns.org):
Saving DDNS settings forces update. Please read your DynDNS provider's policies regarding abusive behavior.
Status: The IP Check indicated that no update was necessary.

Save

CircuitWerkes Sicon Web 32 Web Interface v1.0.1, Firmware v1.0.1
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Best viewed on IE7+, Chrome, Firefox 6+ in 1024x768+ resolution

The Webserver32 is normally configured for DHCP by setting the four address octets to 0.0.0.0. If you want to enter a static IP address, you can direct enter it in the Static IP field as ###.###.###.###. This can also be set using the serially connected Sicontroller software.

When set to DHCP, the Webserver32 will detect the default gateway and enter its address in the “Default Gateway” field and also in the “Primary DNS Server” field. You can alter the DNS fields manually, if desired.

Differentiating multiple devices on a common network:

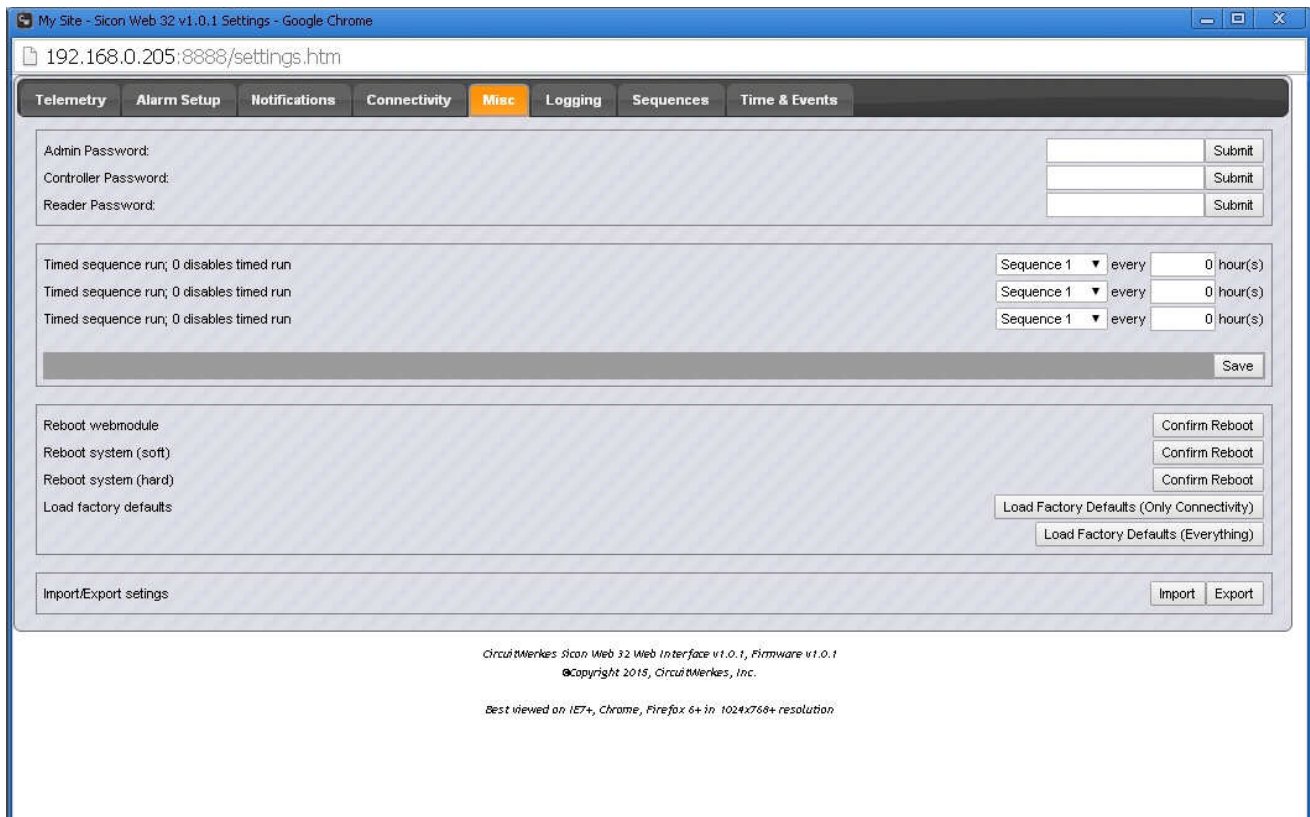
The Sicon-8 Webserver32 allows you to change the IP address, port number and Netbios name of the device. These can be important when multiple CircuitWerkes Webserver based products are used at a common location. In that case, you will want to assign a unique Netbios name so that each device can be found by a unique name. If using static IP addresses, you will need to set a unique one for each device.

Dynamic DNS (beta):

Dynamic DNS allows you to operate devices requiring a static address on networks that have only dynamic IP addresses. You make up a name for your location and register it with a DDNS service. Whenever your IP address changes, the device detects the change and notifies the host DNS service. The host service then modifies the address that the name points to. So when you try to login using the name, it always points to the right address. Currently the Webserver32 supports dyndns.org, no-ip.com and dnsomatic.com. Other DNS redirect services that follow the openDNS protocol may work, too. All of these services offer free and paid services. After setting up an account, enter your credentials into the fields of the DNS settings page and save them. DDNS has been tested, but is considered a beta feature.



Passwords and system utilities:



In the MISC tab you can set sequences to run at a predefined interval. The interval is not clock based for this section. These relay on a timing loop and will not be hyper accurate. However, they will continue to run even if the clock doesn't work.

The resets/reboot section lets you restart your Webserver32 or even reboot the Sicon-8. You can also load default values.

The import/Export functions are VERY important. Here is where you can save your configuration data to a local file. You can also load saved data into a virgin Webserver32 without having to program everything in it from scratch. When you click the "Export" button, you will be presented with a text box containing a lot of information. Select the entire contents of the box (CTRL-A in Windows). Copy the entire contents to the

clipboard (CTRL-C). Then open up a text writer like notepad and paste everything into it (CTRL-V). Save the new file.

To import saved data, open the text file that you previously saved and copy everything to the clipboard (CTRL-A, then CTRL-C). Then click the "Import" button and paste the contents of the clipboard to it and click the "Import" button on this form. When done importing, click the "Save" button at the bottom of the main form, or click any of the save buttons on any of the other tabs. Note that network settings are not automatically saved because they would cause the unit to potentially change IP addresses in the middle of the process and you might not find it if you don't know what IP address and range it is using. Therefore, you have to make those changes individually.

Logging:

The Webserver32 can keep a log and can also e-mail it to you. Logging can be as simple or complex as desired. The log is a FIFO (First In, First Out) circular buffer. When the buffer is full, new entries push the oldest entries off the stack. The log can hold about 50 entries. Log entries can be by time or by action sequence, such as might occur in an alarm condition.

The output format of the logger is defined in the logging setup. The default HTML format produces an easily read log but the format can be altered to read in any way desired by using the items from the drop down list. The log is divided into two parts, the header and the body. The header is printed at the beginning of the log and periodically throughout the log as defined by you in the first setup field. Any text that does not match a keyword is printed exactly as typed. For example, if you want meter one to print the value followed by the label "Amps", you would simply add the label after the meter value. If meter 1 is the Amp meter, then it would be entered as %mv1Amps instead of just %mv1. In other words, when you look at the default template, you will see that %mv1 is already there. You just type "Amps" between the %mv1 and %mv2.

My Site - Stan Web 32 v1.0.1 Settings - Google Chrome

192.168.0.205:8888/settings.htm

Telemetry Alarm Setup Notifications Connectivity Misc **Logging** Sequences Time & Events

Print header every N entries; 0 disables header print
Last N log entries to email; 0 disables log emailing
Log interval (in minutes); 0 disables timed logging
Display log in ascending order (newest entry last)
Run sequence X every N entries; 0 disables this feature
Use ON/OFF instead of 1/0
Log email subject
Log format
HTML
Use colors
Font size (%)

Enter the email subject for mailed logs here

Sequence 1 every 0 entries

Log from SITE 1

HTML
Text
HTML

85

Save

Choose text or HTML formatting for logs. HTML is easier to read & contains more data. However HTML logs do not embed in emails well. However, you can attach them instead of embedding them.

Log header template

Log entry template

AD[Date-Time][%mn1][%mn2][%mn3][%mn4][%mn5][%mn6][%mn7][%mn8][Statuses][Raise Relays][Lower Relays]

(HTML) Start of Row (l) Insert

Load Default Log Header Template Save Log Header Template

%id%dy-%dm-%dd %th:%tm:%ts[%mv1][%mv2][%mv3][%mv4][%mv5][%mv6][%mv7][%mv8][%sv1][%sv2][%sv3][%sv4][%sv5][%sv6][%sv7][%sv8]

(HTML) Start of Row (l) Insert

Load Default Log Entry Template Save Log Entry Template

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Best viewed on IE+, Chrome, Firefox & in 1024x768+ resolution

Defines how often to print the header within the log file.

Defines how many log entries to include with an e-mail

Defines how often to log a set of readings when time-based.

Lets you run a sequence based on how many log entries have happened. Be careful not to create a loop by having a logging command in the sequence that you use..

The bottom half of the form is where you define the format of the log.

An example of a modified logging setup.:

The default header looks like this:

	Date/Time		Channels		Inputs		Relays	
--	-----------	--	----------	--	--------	--	--------	--

In order to get the output below, the following header was created:

	Date/Time		Channels		Inputs		Relays	
			1 2 3 4 Temp Aud1 Aud2		1 2		123456	

Zero (0) is "Off"
and one (1) is "On".

The result is below....

	Date/Time	Channels							Inputs	Relays
		1	2	3	4	Temp	Aud1	Aud2	1 2	123456
T	12-09-13 14:12:57	0.000	0.000	0.000	4.940	77.000	-4.696	-7.933	00	000000
T	12-09-13 14:13:57	0.000	0.000	0.000	4.940	77.000	-10.912	-10.525	00	000000
T	12-09-13 14:14:57	0.000	0.000	0.000	4.940	77.000	-12.655	0.081	00	000000
T	12-09-13 14:15:57	0.000	0.000	0.000	4.987	77.000	-14.837	-6.396	00	000000
T	12-09-13 14:16:57	0.000	0.000	0.000	4.940	77.000	-2.491	-4.891	00	000000
T	12-09-13 14:17:57	0.000	0.000	0.000	4.940	77.000	-5.091	-3.112	00	000000
T	12-09-13 14:18:57	0.000	0.000	0.000	4.940	77.000	-9.461	-12.655	00	000000
T	12-09-13 14:19:57	0.000	0.000	0.000	4.940	77.000	-6.396	-7.933	00	000000
T	12-09-13 14:20:57	0.000	0.000	0.000	4.940	77.000	-4.135	-4.891	00	000000
T	12-09-13 14:21:57	0.000	0.000	0.000	4.940	77.000	-4.891	-2.343	00	000000
T	12-09-13 14:22:57	0.000	0.000	0.000	4.940	77.000	-12.655	-12.185	00	000000
T	12-09-13 14:23:57	0.000	0.000	0.000	4.940	77.000	-6.396	-5.295	00	000000
T	12-09-13 14:24:57	0.000	0.000	0.000	4.940	77.000	-5.295	-22.197	00	000000
T	12-09-13 14:25:57	0.000	0.000	0.000	4.940	77.000	-8.817	-10.525	00	000000
T	12-09-13 14:26:57	0.000	0.000	0.000	4.940	77.000	-6.396	-8.512	00	000000
T	12-09-13 14:27:57	0.000	0.000	0.000	4.940	77.000	-7.657	-9.801	00	000000
T	12-09-13 14:28:57	0.000	0.000	0.000	4.940	77.000	-15.481	-14.837	00	000000
T	12-09-13 14:29:57	0.000	0.000	0.000	4.940	75.755	-3.781	-12.185	00	000000
T	12-09-13 14:30:57	0.000	0.000	0.000	4.987	75.755	-8.817	-4.696	00	000000
T	12-09-13 14:31:57	0.000	0.000	0.000	4.940	75.755	-6.164	-5.719	00	000000
	Date/Time	Channels							Inputs	Relays
		1	2	3	4	Temp	Aud1	Aud2	1 2	123456
T	12-09-13 14:32:57	0.000	0.000	0.000	4.940	77.000	-19.698	-25.719	00	000000
T	12-09-13 14:33:57	0.000	0.000	0.000	4.940	75.755	-13.151	-5.719	00	000000
T	12-09-13 14:34:57	0.000	0.000	0.000	4.987	75.755	-0.858	-4.891	00	000000

The first character is either a T for time triggered or a sequence number (like S13) to indicate what caused the log reading to be taken.

Date & Time:

The Webserver32 has the ability to calibrate the Sicon-8 clock to an NTP (Time) server. The Sicon-8 will keep time if an NTP server is not available. The time setup box lets you set the current time and also selects how often to automatically sync the Sicon-8 clock to an NTP server. The NTP server list is embedded in the stack and is not currently user adjustable. Setting NTP update to zero disables updating. You can also manually sync the Sicon-8's clock to your PC, if desired.

Telemetry	Alarm Setup	Notifications	Connectivity	Misc	Logging	Sequences	Time
<div>Set date/time stamp manually Sync with PC</div> <div>MM-DD-YY HH:MM:SS <input type="text"/></div> <div>NTP Server <input type="text" value="pool.ntp.org"/></div> <div>NTP Port <input type="text" value="123"/></div> <div>NTP Update Interval (in minutes); 0 disables NTP <input type="text" value="10"/></div> <div>GMT Offset (in minutes) <input type="text" value="-300"/></div> <div>Save</div>							

NOTE: Stations relying on the Sicon-8 to change power and patterns should take care during daylight savings times, to avoid syncing the Webserver to the PC clock, if the PC clock is DST advanced.

Event Scheduler:

The Webserver32 contains a basic event scheduler with 50 events. This scheduler is independent of the scheduler in the Sicon-8. It can still be used to perform some of the same tasks normally associated with the main scheduler like automating AM pattern and power changes. The granularity of time resolution is + or – 600ms, so it can be used to pre-roll audio cuts or switch transponders at appropriate intervals prior to taking a program. The event scheduler can be programmed to run once, repeat constantly, or repeat for a specific duration (such as a month). Repeating events that end can be programmed to repeat during the next year so that AM changes can repeat themselves every year during the same month.

The events are triggered by the Sicon-8's time. Unlike the Sicon-8's main clock, the Webserver can be setup to observe daylight savings time (DST), but if DST is used, any AM change schedules will need to be manually adjusted to compensate for the 1 hour difference. The Sicon-8's onboard clock syncs itself to NTP time servers but will continue to keep time if the network is disconnected.

To create an event that repeats every day for a month, first set up a sequence that your event will be triggering.

Next, enable the event by clicking in the "Enable Event" check box.

You next select Recurring type. Put in the start date and time. Select "Days" for the recurrence type and 1 for the interval.

The Exit Type will be by "Date" and select the last day of the month at 23:59:59.

The "repeat annually" box causes the event to recur every year.

The screenshot shows the 'Site Sentry 4 v1.5.3 Settings' window in Internet Explorer. The 'Time & Events' tab is selected. The 'Events Summary' table lists 50 events, all with the same start time '01-01-12 00:00:00'. One event is marked as 'disabled'. A callout box points to this event with the text 'Event is disabled'. Another callout box points to the 'Enable Event' checkbox in the 'Selected Event Setup' section, with the text 'To set an event, first click on the line of the event that you want to create or edit. Then, you can enter the parameters and save the event.' A third callout box points to the 'Repeat annually' checkbox, with the text 'This section gives you information about your events at a glance. Mouse over the event for more info and to see if it is enabled.' The 'Selected Event Setup' section shows the 'Enable Event' checkbox checked, 'On event trigger sequence' set to 'Sequence 1', 'Entry Type' set to 'Recurring', 'Start Date/Time' set to '01-01-12 07:00:00', 'Recurrence Type' set to 'Days', 'Recurrence Interval' set to '1', 'Exit Type' set to 'Date', 'End by' set to '01-31-12 23:59:55', and 'Repeat annually' checked. The 'Set date/time stamp manually' section shows fields for 'MM-DD-YY HH:MM:SS', 'NTP Server', 'NTP Port', 'NTP Update Interval (in minutes)', 'GMT Offset (in minutes)', and 'Enable daylight saving time (DST)'. A callout box points to the 'Sync with PC' button, with the text 'Setting the clock. Here you can sync the clock to your PC, setup the NTP server, set DST options and enter the time zone. Note that all times are referenced to GMT and the offset is in minutes. For example, Eastern Standard time is -300 minutes or 5 hours.'

Notes:

1. When setting AM daytime operating parameters, all times on the FCC license are in **STANDARD** time. Either disable DST or shift your power/pattern times to account for DST, if you need to use DST for other events.
2. The secondary event scheduler in the Webserver should be considered beta. Although we believe it works properly, we cannot guarantee this. We strongly suggest using the main event scheduler in the Sicon-8 for critical applications.