Installation and Operation Manual

SiteSync IQ® Wired System

american time®

Part # H004095W
Rev. 11
March 2021

FCC Conformity (USA only)

Responsible Party: American Time, 140 3rd St. S., PO Box 707, Dassel, MN 55325-0707 USA
TEL: 320-275-2101, declares that the product(s):
SiteSync IQ System Controller and Analog Clocks
Comply with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference
(2) This device must accept any interference received, including interference that may cause undesired operation

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Call the dealer or an experienced radio/TV technician for help

Safety Precautions

All electrical power and signal wiring connected to the SiteSync IQ System Controller, secondary clocks, signaling devices and antennas must be installed by qualified persons in conformance with applicable national and local electrical codes. Improper installation of this equipment can result in lethal electrical shock and fire.

Disconnect and lock out electrical power to the unit before removing the wiring compartment cover.

Voltage applied to clock and signal relay contacts must not exceed 250vac.

The SiteSync IQ Master should be installed in a secure location protected from:

- Physical damage
- Water, including condensation
- Direct sunlight
- Operation by untrained personnel

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american-time.com

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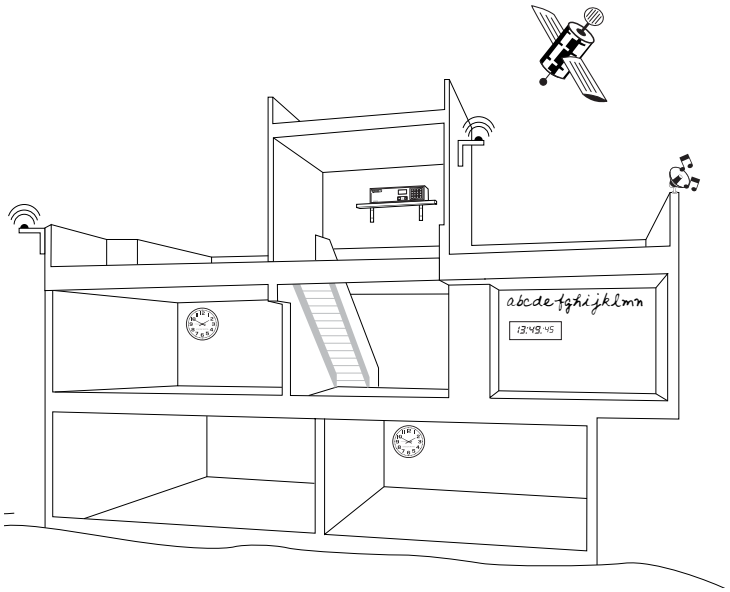
Introduction

The American Time SiteSync IQ Wired System offers the latest and most innovative way to incorporate synchronized time throughout your facility, providing you with improved productivity and punctuality.

SiteSync IQ System Controller Standard Features

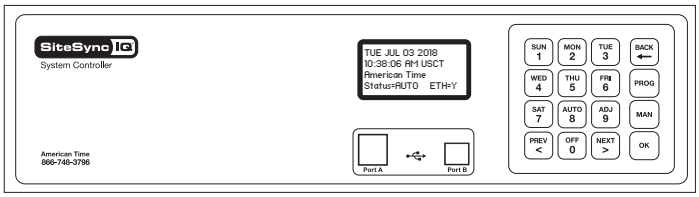
The SiteSync IQ System Controller provides synchronized control of system clocks and electrical circuits such as those for controlling signaling devices and lights. Standard features include:

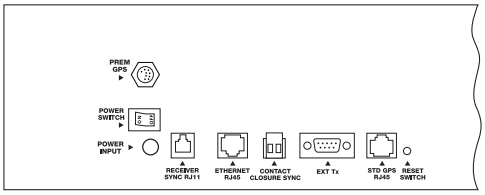
- Built-in keypad and LCD for setup and operation
- Internal clock accuracy of ±1 minute per year (without synchronization)
- Two level password security
- Automatic Daylight Saving Time and Leap Year correction
- Programmable Custom and Automatic Daylight Saving Time
- Support for time zone clocks (up to eight unique time zones)



SiteSync IQ System Controller Optional Features

- Automatic time synchronization with one or more external time references, including Ethernet and GPS
- Flexible control of 6 signal circuits
- Manual control of signal circuits





The following shows the options included with each model number.
Add an R to the end of the Model No. to add the rack mount kit.

Model No.	Standard GPS	GPS Plus	Ethernet	2-Wire Sync
SSQMSTR-**00**X**8**E			X	X
SSQMSTR-**00**X**8**GE	X		X	X
SSQMSTR-**00**X**8**PE		X	X	X

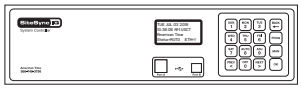
SiteSync IQ Wired System Controller Specifications

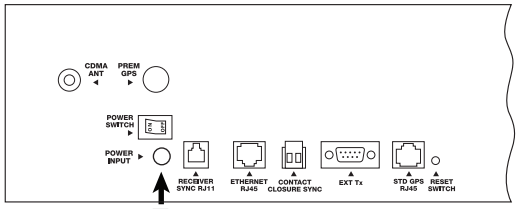
Input Voltage to Power Adapter:	100-240vac, 50/60 Hz
Output Voltage from Power Adapter:	12.0 ±0.6 vdc
Peak Input Power:	10 watts
Nominal Power:	2.5 watts
Fuse: (Input Power)	8 amps, 250vac, Subminiature
Standby Timekeeping:	10 years
Memory/Time Backup:	CR2032 lithium battery, 240 mAh capacity
Timekeeping Accuracy:	±1 minute/year without correction from GPS or Ethernet time reference
Program Retention:	Unlimited
Programmable Events:	9,999 events total
Schedules:	99 maximum
Signal Duration:	Programmable 1-9 seconds or continuous On
Clock Circuits (2):	Dry contacts rated at 250vac, 8 amps resistive, 5 amps inductive
UL Listed	File #E157522
Clock Circuit Fuses (2):	8 amps, 250vac, subminiature
Signal Circuits (6):	Dry contacts rated at 240vac,
	Continuous: 7.5 amps resistive, 5 amps inductive,
	50% duty cycle*: 10 amps resistive
Physical Dimensions:	5"h x 167/8"w x 8"d
Temperature Range:	32˚-140˚F (0˚-60˚C)
Mounting:	Desktop or rack mount
Communication:	Ethernet, RS-422 (GPS Plus), RS-232 (Std GPS), Contact Closure (2-wire) Sync
Shipping Weight:	71/2 ± 1/2 lbs.
Signal Circuits:	0 or 6 (optional)
Display:	128 x 64 graphics LCD
Keypad:	16 button tactile feedback membrane switch

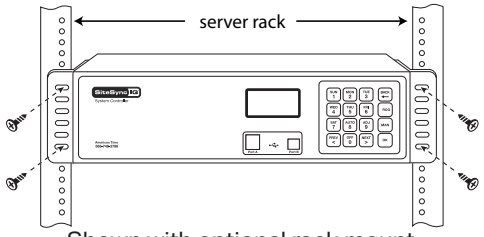
*50% duty cycle is defined as all signal relays on for one minute, off for one minute, repeating

The American Time SiteSync IQ wired clock series offers a selection of clocks to match a wide variety of application requirements. Plastic case, steel case, analog and digital styles will provide years of maintenance-free service.

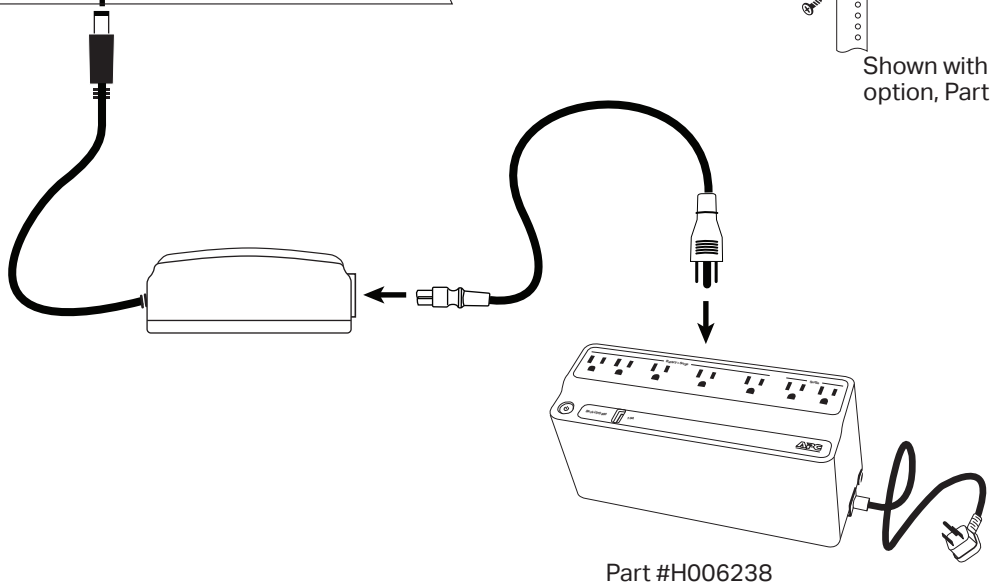
System Controller Installation





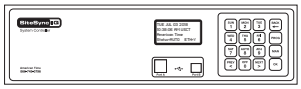


Shown with optional rack mount option, Part No. H004100



Part #H006238

1. Choose a suitable location for the System Controller, following the safety precautions on Page 1:
   a. Place the System Controller indoors.
   b. Locate near an electrical outlet (120vac).
   c. Rack or shelf mount.
   d. If you have a sync option, review the applicable installation guidelines included in this manual.
2. Connect the cables to the System Controller:
   a. Connect the power supply to the POWER INPUT port.
   b. Connect the power supply to 110v electrical supply (American Time recommends using surge protector/battery backup Part # H006238 shown).
3. Turn on the power to the System Controller:
   a. Place the rocker switch on the back of the unit to the ON position as shown above.
   b. Confirm that the backlit display on the front of the unit lights up and displays text.
4. Follow the Setup Wizard instructions on pages 6-9.



System Controller Setup Wizard

Programming Procedure

Turn on the power to the System Controller

The first time the unit is powered up, it will prompt you (See Setup Wizard Main Screen) to press:

- SUN 1 To use the Setup Wizard
- MON 2 Bypass the Setup Wizard temporarily
- TUE 3 Disable the Setup Wizard

■**Note:** Bypassing MON 2 or Disabling TUE 3 the Setup Wizard will prompt you to Enable or Disable transmissions.

❶ **To Configure the System Controller:**

- Press: SUN 1, and enter 4 digit User Lock or enter 0000 to disable this feature.
  User Lock ____ ____ ____ ____

■**Note:** User Lock is the security level used for accessing time/date and event menus.

- Press OK

❷ Enter 4 digit Service Lock or enter 0000 to disable this feature.

- Service Lock: ____ ____ ____ ____

■**Note:** Service Lock is the security level used for accessing System Controller configuration menus.

- Press OK

❸ Select local time zone by using the PREV < NEXT > keys or enter a time code from Appendix B. Press OK and skip to ❺.
If a custom time zone is needed, press ADJ 9 ADJ 9 and OK and continue to ❹.

❹ Enter offset from UTC for Custom Time Zone.

- Use PREV < NEXT > to change + to -.
- Press OK

❺ Select Daylight Saving Time (DST) option.

- Option 8 causes automatic time changes to and from DST under the changeover dates currently in effect in the USA at the time of system manufacture.
  Press OK and skip to ⓮
- Option 9 allows a custom DST to be entered. Press OK and skip to ❻.
- Option 0 turns off DST. Press OK and skip to ⓮

If you chose Auto or Off in ❺, skip to ⓮
If you chose Custom, continue to ❻.

Setup Wizard Main Screen

```
Setup Wizard
1=Enter Now
2=Bypass
3=Disable
```

```
Setup Wizard
Transmissions
1-Enable
2=Disable
```

1

```
Config Menu
Choose User Lock:
      xxxx
0000=Disable     OK=Done
```

2

```
Config Menu
Choose Service Lock:
      xxxx
0000=Disable     OK=Done
```

3

```
Set Menu LOCAL
Time Zone Code:   05
99=Custom      USCT
<>=Scroll      OK=Accept
```

4

```
Set Menu Bias LOCAL
Enter Time Zone
offset from UTC
+ 11:30         OK=Accept
```

5

```
Set Menu DST - LOCAL
Set DST    (Auto)
8=Auto     9=Custom
0=Off      OK=Accept
```

Programming Procedure (cont)

For use only when configuring Custom DST settings

❻ Define DST:
- Press [SUN 1] to set fixed dates and times for the beginning and end of DST. Skip to ❼ .
- Press [MON 2] to set months, weeks, weekdays and times (floating dates) for the beginning and end of DST. Skip to ❿.

❼ Select fixed dates for DST (START):
- Use [PREV <] [NEXT >] to scroll start month and day. Press [OK] to move to the next field.
- Use [PREV <] [NEXT >] or keypad to enter the start time. Press [OK] to move to the next field.
- Use [PREV <] [NEXT >] to select AM/PM. Press [OK] to accept.

❽ Select fixed dates for DST (END):
- Use [PREV <] [NEXT >] to scroll end month and day. Press [OK] to move to the next field.
- Use [PREV <] [NEXT >] or keypad to enter the end time. Press [OK] to move to the next field.
- Use [PREV <] [NEXT >] to select AM/PM. Press [OK] to accept.

❾ Select fixed dates for DST (BIAS):
- Use keypad to enter bias.
- Use [PREV <] [NEXT >] to select "+" or "-". Press [OK] to accept.

❿ Select floating dates for DST (START DATE)
- Use [PREV <] [NEXT >] to scroll week, day and month. Press [OK] to move to the next field.
- Use [PREV <] [NEXT >] on the bias selection to change + and -.
- Use keypad to enter bias. Press [OK] to accept.

⓫ Select floating dates for DST (START TIME):
- Use [PREV <] [NEXT >] or keypad to enter the start time.
- Press [OK] to accept.

⓬ Select floating dates for DST (END DATE)
- Use [PREV <] [NEXT >] to scroll week, day and month. Press [OK] to move to the next field. Press [OK] to accept.

⓭ Select floating dates for DST (END TIME)
- Use [PREV <] [NEXT >] to enter the start time. Press [OK] to move to the next field.
- Use [PREV <] [NEXT >] to select AM/PM. Press [OK] to accept.

6
```
Set Menu DST -  LOCAL
Define DST By:
1= Fixed Dates
2=Floating Dates
```

7
```
Set Menu DST -  LOCAL
DST Start:   Mar  30
Start Time:  01:00  AM
<> = AM/PM          OK=ACPT
```

8
```
Set Menu DST -  LOCAL
DST End:   SEP 15
End Time:  02:00  AM
<> = AM/PM          OK=ACPT
```

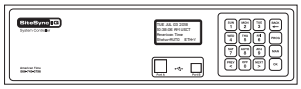
9
```
Set Menu DST -  LOCAL
DST Bias:  +00:00

<> = +/-            OK=ACPT
```

10
```
Set Menu DST - LOCAL
Start of DST:
      1st  SUN  of  APR
Bias  +1:00         OK=ACPT
```

11
```
Set Menu DST - LOCAL
Start Time:
      01:00 AM
<> = AM/PM          OK=ACPT
```

12
```
Set Menu DST - LOCAL
End of DST:
      Last  SUN  of  OCT
                    OK=ACPT
```

13
```
Set Menu DST - LOCAL
End Time:
      01:00 AM
<> = AM/PM          OK=ACPT
```



Programming Procedure (cont)

14 To set the time display mode for the System Controller, select 12/24 Hr Mode.

- Press [SUN 1] for 12 hour mode-AM/PM (1:00 PM)
- Press [MON 2] for 24 hour mode-Military (13:00)

14

```
Set Menu 12/24 Mode
Choose Mode:  1
1=12 HR  (AM/PM)
2=24 HR (Military)
```

If the System Controller has {Ethernet + GPS} as sync options, skip to **15**
If the System Controller has the {Ethernet only,} skip to **17**
If the System Controller has the {GPS only}, skip to **27**
If System Controller has no sync options, skip to **28**

15 To configure unit sync options:

- Press [SUN 1] to skip to **16**
- Press [MON 2] to skip sync option setup. Please ensure the proper time and date on the unit.

15

```
Setup Wizard
Setup Sync Options
1=Yes
2=No
```

16 To set Time Sync Priority:

- For system controllers with more than one sync option configured, choose the sync option priority.

16

```
Config Menu
Time Sync Priority
1=(GPS)
2=Ethernet
```

STOP If the System Controller has {GPS only}, skip to **27**

17 Use the keypad to Enable DHCP or Disable to select static IP entry.

- Press [SUN 1] for enable DHCP
- Press [MON 2] for disable DHCP
- Press [OK] to accept

If you chose enable, skip to **22**
If you chose disable continue to **18**

17

```
Comm Menu
DHCP
1=Enable
2=Disable                OK=Done
```

18 Use the keypad to enter the Unit IP Address. This is a static address assigned by your Network Administrator. Enter preceding zeros as necessary.

- Unit IP Address: _____
- Press [OK]

18

```
Comm Menu
Unit IP Address
   192.168.001.001
<=Bksp              OK=Done
```

19 Use the keypad to enter the Subnet Mask. This is the subnet mask of your network. Enter preceding zeros as necessary.

- Subnet Mask: _____
- Press [OK]

19

```
Comm Menu
Unit Subnet Mask
   255.255.255.000
<=Bksp              OK=Done
```

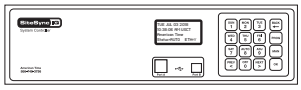
20 Use the keypad to enter the Gateway IP. This is the IP address of your network's Gateway device. Enter preceding zeros as necessary.

- Gateway IP: _____
- Press [OK]

20

```
Comm Menu
Enter Gateway IP
      192.168.010.099
<=Bksp        Ok=Done
```

System Controller Setup Wizard



Programming Procedure (cont)

21 Use the keypad to enter the DNS IP. This is the IP address of your network's DNS server. Enter preceding zeros as necessary.

- DNS IP: _____
- Press [OK]

22 Use the keypad to use Manual IP's or a DNS IP for the same server.

- Press [SUN 1] for Manual IP
- Press [MON 2] for DNS IP

Press [OK] to accept

If you choose Manual IP, continue to **23**

If you choose DNS IP, skip to **25**

23 Use the keypad to enter the Time Server address. Enter preceding zeros as necessary.

- Time Server Address: _____
- Press [OK]

OR Press [OK] to accept the default set at the factory from the list of known good Internet Time Servers in Appendix A.

24 Use the keypad to enter the Alternate Time Server address. Enter preceding zeros as necessary.

- Alt. Time Server Address: _____
- Press [OK]

OR Press [OK] to accept the default set at the factory from the list of known good Internet Time Servers in Appendix A.

25 This shows the currently selected time server DNS address. Use Remote Connect to change this value (see page 37).

- Press [OK]

26 The unit will prompt you to enter the Port Number. This is remote web access and should be set to 0080.

- Port Number: 0080
- Press [OK] to accept the default (80) set at the factory

27 To confirm proper set up, sync each option.

- Press [AUTO 8] to sync.
- a. If successful "Sync Successful" will display.
- b. If not successful, "Sync Failed" will display. Refer to the troubleshooting guide.
- Press [OK] to exit the Sync Now function.

28 Screen 28 will be displayed when the Setup Wizard has been completed. You will no longer be prompted on power-up for the setup information.

The System Controller should now show the correct time and date on its display screen. Your System Controller is now set up for proper operation.
You can continue to the other sections of this manual for further information on other features. If you have any questions or problems that cannot be resolved by following the steps in the Troubleshooting Guide, please contact Technical Support at American Time **(800-328-8996)**.

21

```
Comm Menu
Enter DNS IP
   008.008.008.008
<=Bksp          OK=Done
```

22

```
Comm Menu
Time Server Entry
1=Manual IP
2=(DNS IP)      Ok=Done
```

23

```
Comm Menu
Time Server Address
   131.107.013.100
<=Bksp          OK=Done
```

24

```
Comm Menu
Alt Time Srur Addr
      173.014.055.009
<=Bksp       Ok=Done
```

25

```
Time Server DNS
3.americantime.pool
.ntp.org
             Ok=Next
```

26

```
Comm Menu
Enter Port Number
for web access:  80
                OK=Done
```

27 (example)

```
Set Menu
Time Sync Option is
Available: Ethernet
8=Sync now      OK=Set
```

27a (example)

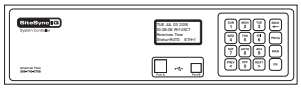
```
Set Menu
      Ethernet Sync
      Successful
```

27b (example)

```
Set Menu
      Ethernet Sync
      Failed
```

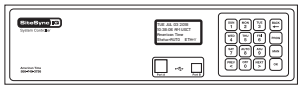
28

```
Setup Wizard

Successfully Completed
```



User Notes

Standard GPS Option



Mounting and Connecting Standard GPS Receiver

This option provides time synchronization via the Global Positioning System (GPS). 15 ft. GPS cable can be extended up to 100 ft. with extensions.

Standard GPS Option Includes:

a. GPS Receiver with 15 ft. cable
b. Mounting Bracket

❶ For best results, mount the GPS antenna to an outside wall or to a mast on the roof with a clear view of the sky.

a. The location should be unobstructed by trees, branches, power lines and other buildings, etc.

b. Avoid installing the GPS antenna near high power transmitting antennas.

c. To avoid lightning strikes, the location should not be the highest point and such that any lightning rods are well above the antenna.

d. The GPS antenna is environmentally sealed, but in colder climates, mount the antenna high enough to avoid getting buried by snow or ice.

e. While not ideal, skylights or windowsills are possible locations. Avoid installation behind Low-Emissivity (Low-E) glass as the GPS signal has difficulty penetrating such glass.

❷ **Install included mounting bracket**

a. Allows for mounting on the side of a building or other structure

b. It is recommended not to mount where there is excessive roof overhang

❸ **Connect cables to System Programmer**

a. Connect GPS receiver cable to STD GPS RJ45 port.

■**Note:** The GPS unit can be extended up to 100 ft.. with optional extension cables. See list below.

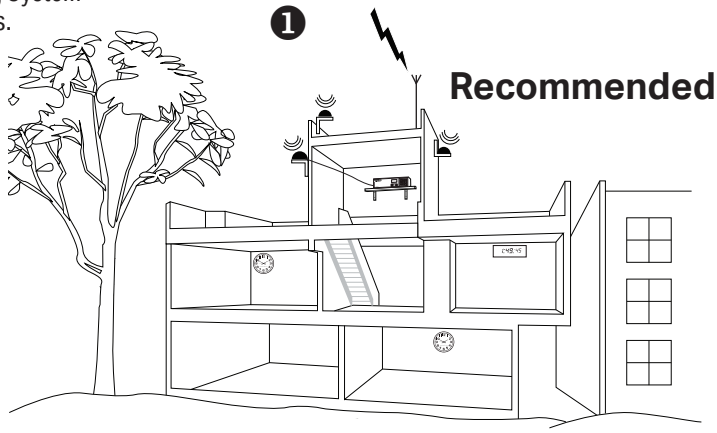
Optional Extension Cables:

Part # H001840 - 25 ft.
Part # H001841 - 50 ft.
Part # H001842 - 75 ft.
Part # H001846 - 100 ft.

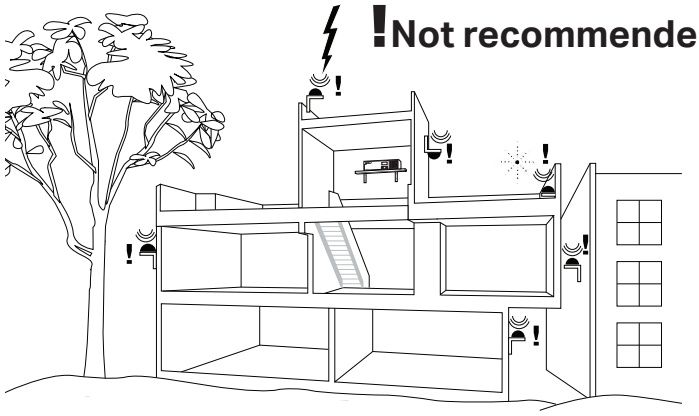
WARNING: Avoid extending outdoors as connectors may corrode.

■**Note:** This option automatically syncs once per hour at a time preset at the factory.

❶ **Recommended.**



!Not recommended.



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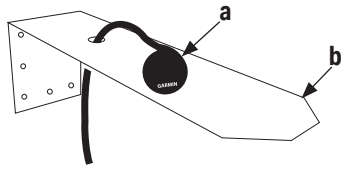

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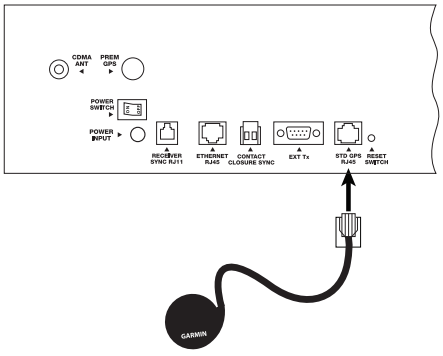
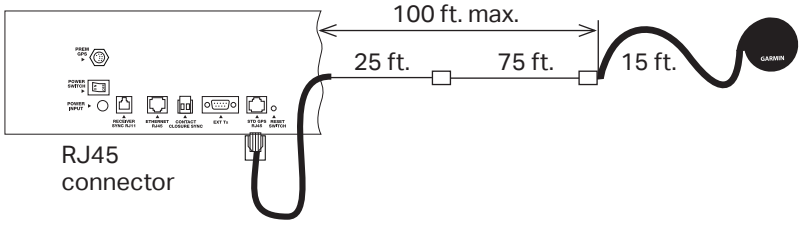
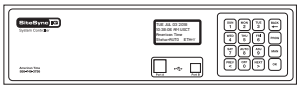






Standard GPS Option

Programming Procedure

Turn on the power to the System Controller

❶ To confirm GPS signal, press [PROG] [THU 5]:

a. Press: [SUN 1], to check signal status.
b. If no signal was received, reference the troubleshooting guide.
c. The Last Signal Received and the Last Attempted Reception may be displayed by pressing [PREV <] or [NEXT >].
d. Press: [OK], if signal was received to view number of connected satellites.

■**Note:** If you see the number of satellites in view, press [OK] [BACK ←] [BACK ←] to return to the Main Screen.

If 0 satellites are connected, reference the troubleshooting guide.

■**Note:** Allow GPS to synchronize. The time may be incorrect while the GPS is receiving its signals. This may take up to 25 minutes. After synchronization, the time and the satellites connected will be updated.

1a

```
GPS Time Menu
Choose:
1=Signal Status
2=Enable/Disable
```

1b

```
GPS Time Menu
Signal Not Received
01-06-2014      12:28:15A
1 = Last Good        OK=Done
```

1c

```
GPS Time Menu  LAST
Signal Last Received
01-06-2014      12:28:15A
> = Last Try         OK=Next
```

1c

```
GPS Time Menu   LAST
Attempted Reception
01-06-2014      12:28:15A
< = Last Good        OK=Next
```

1d

```
GPS Time Menu  NOW
Satellites: 3
01-08-2014      1:04:59A
USCST                OK=Next
```

❷ To sync System Controller with correct time & date:

a. Press: [PROG] [SUN 1], to Set Menu Mode.
b. Enter User Lock and press [OK].
c. Press: [ADJ 9], to sync the System Controller with GPS. Press [NEXT >] until GPS option is chosen.
d. Press [AUTO 8] to sync with GPS.

■**Note:** If "GPS Sync Successful" is displayed, press [OK] [BACK ←] [BACK ←] to return to Main Screen.

If "GPS Sync Failed" is displayed, reference the troubleshooting guide.

2b

```
Set Menu Mode
Enter User Lock:
          xxxx
PROG=EXIT          OK=ENTER
```

2c and d

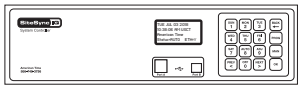
```
Set Menu Mode
Time Sync Option is
Available: GPS
8=Sync now           OK=Set
```

3

```
MON  MAR  10  2014
10:30:06 AM  USCT
American Time
Status=AUTO    GPS=S
```

The GPS sync option is now configured and will update the time on the System Controller automatically once each hour at a time preset at the factory.

■**Note:** When GPS synchronization is working, GPS=S will be displayed on the screen in small text mode as shown in screen shot **3**. If a synchronization attempt fails, GPS=N will be displayed.

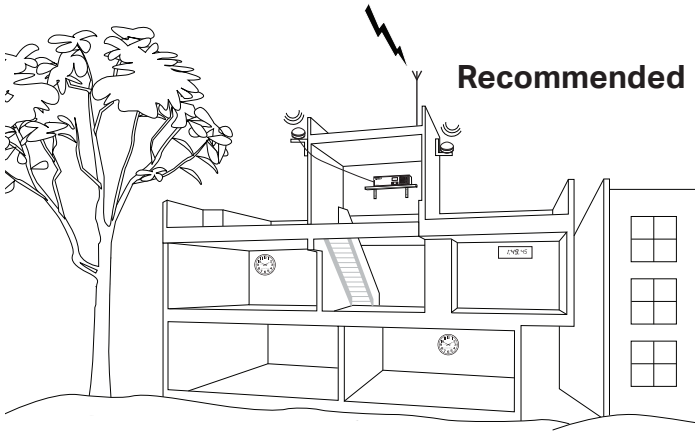


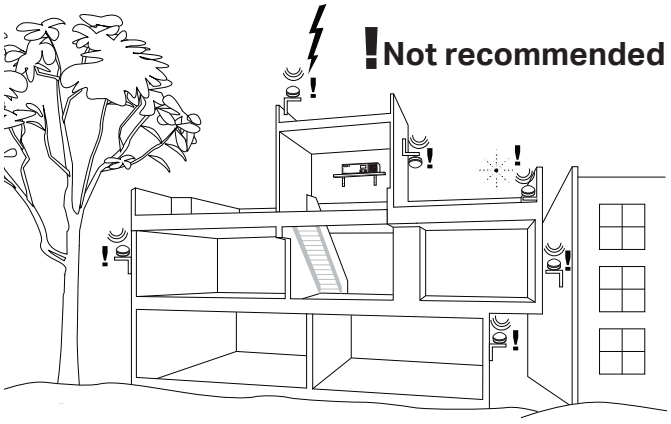
Mounting and Connecting GPS Plus Receiver

GPS Plus Option Includes:

- **A.** Premium GPS Receiver
- **B.** Antenna Mounting Kit
- **C.** 50 ft. Cable
- **D.** Shrink Tubing

This option provides time synchronization via the Global Positioning System (GPS). The option includes weather-tight, non-corrosive connections for outdoor installation and can be extended further (up to 1500 ft.) than the Standard GPS option.





❶ For best results, mount the GPS antenna to an outside wall or to a mast on the roof with a clear view of the sky.

a. The location should be unobstructed by trees, branches, power lines and other buildings, etc.

b. Avoid installing the GPS antenna near high power transmitting antennas.

c. To avoid lightning strikes, the location should not be the highest point and such that any lightning rods are well above the antenna.

d. The GPS antenna is environmentally sealed, but in colder climates, mount the antenna high enough to avoid getting buried by snow or ice.

e. While not ideal, skylights or windowsills are possible locations. Avoid installation behind Low-Emissivity (Low-E) glass as the GPS signal has difficulty penetrating such glass.

❷ **Antenna Installation**

a. Installation on included mounting bracket

1. Allows for mounting on the side of a building or other structure.

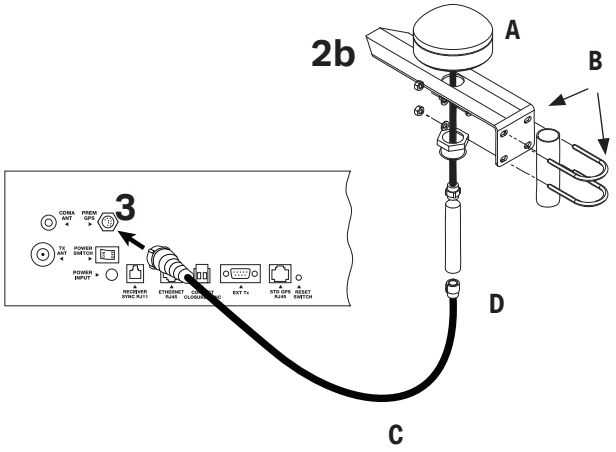
2. It is recommended not to mount where there is excessive roof overhang.

b. Installation if using a mast

■**Note:** If using a mast, it must be grounded.

1. If using a mast, it should be made from 1 inch schedule 40 pipe, or any rigid tubing or conduit with an outside diameter of 1.5 inch or less.

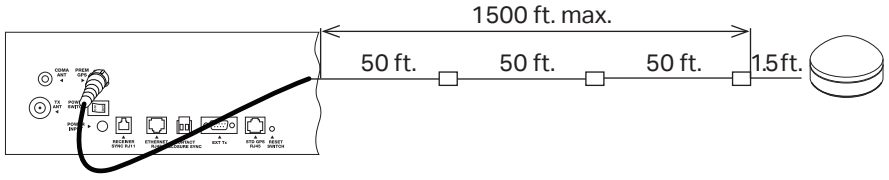
2. Use the U-bolt, hex nuts & lock washers supplied to fix the mounting bracket to the mast.



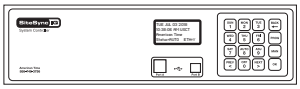
❸ **Connect cables to System Programmer**

a. Connect GPS receiver cable to PREM GPS RS-422 port.

■**Note:** 50 ft. extension cables, Part #H000818, can be added between the cable provided and the System Controller. The cable provided with the kit should always be installed to the GPS antenna pigtail. The total length of all cables should not exceed 1500 ft., (up to 30 standard extension cables).



■**Note:** This option automatically syncs once per hour at a time preset at the factory.



Programming Procedure

Turn on the power to the System Controller

❶ To confirm GPS signal, press [PROG] [THU 5]:

a. Press: [SUN 1], to check signal status.
b. If no signal was received, reference the troubleshooting guide.
c. The Last Signal Received and the Last Attempted Reception may be displayed by pressing [PREV <] or [NEXT >].
d. Press: [OK], if signal was received to view number of connected satellites.

■**Note:** If you see the number of satellites in view, press [OK] [BACK] [BACK] to return to the Main Screen.

If 0 satellites are connected, reference the troubleshooting guide.

■**Note:** Allow GPS to synchronize. The time may be incorrect while the GPS is receiving its signals. This may take up to 25 minutes. After synchronization, the time and the satellites connected will be updated.

❷ To sync System Controller with correct time & date:

a. Press: [PROG] [SUN 1], to Set Menu Mode.
b. Enter User Lock and press [OK].
c. Press: [ADJ 9], to sync the System Controller with GPS. Press [NEXT >] until GPS option is chosen.
d. Press [AUTO 8] to sync with GPS.

■**Note:** If "GPS Sync Successful" is displayed, press [OK] [BACK] [BACK] to return to Main Screen.

If "GPS Sync Failed" is displayed, reference the troubleshooting guide.

The GPS sync option is now configured and will update the time on the System Controller automatically once each hour at a time preset at the factory.

■**Note:** When GPS synchronization is working, GPS=S will be displayed on the screen in small text mode as shown in screen shot **3**. If a synchronization attempt fails, GPS=N will be displayed.

1a

```
GPS Time Menu
Choose:
1=Signal Status
2=Enable/Disable
```

1b

```
GPS Time Menu
Signal Not Received
01-06-2014      12:28:15A
1 = Last Good       OK=Done
```

1c

```
GPS Time Menu  LAST
Signal Last Received
01-06-2014      12:28:15A
> = Last Try        OK=Next
```

1c

```
GPS Time Menu   LAST
Attempted Reception
01-06-2014      12:28:15A
< = Last Good       OK=Next
```

1d

```
GPS Time Menu  NOW
Satellites: 3
01-08-2014      1:04:59A
USCST                OK=Next
```

2b

```
Set Menu Mode
Enter User Lock:
          xxxx
PROG=EXIT          OK=ENTER
```

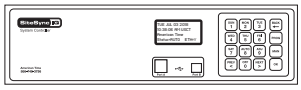
2c and d

```
Set Menu Mode
Time Sync Option is
Available: GPS
8=Sync now           OK=Set
```

3

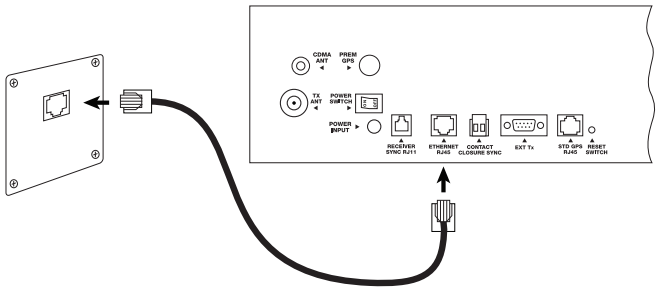
```
MON  MAR  10  2014
10:30:06 AM  USCT
American Time
Status=AUTO   GPS=S
```

Ethernet Option



Connecting Ethernet Option

This option provides time synchronization via Simple Network Time Protocol (SNTP) or Daytime Protocol from Internet Time Servers or an internal Network Time Server.



Ethernet Option requires:

1. TCP/IP Network with Internet access or connection to a Network Time Server.
2. Cat 5 or above patch cable (not included).
3. Hostname: **ssiq***

■**Note:** *Record the last 6 digits of device Serial number (located on back of system controller) after the asterisk (*). The Hostname can be used to identify the system controller on the network for DHCP.

■**Note:** The default ethernet settling has DHCP enabled to automatically obtain an IP address from a DHCP server. If no DHCP address is received, the device will default to 192.168.10.10.

4. *Unit IP Address from Network Administrator:
5. *Subnet Mask:
6. *Gateway IP Address:
7. *DNS Server IP Address:

*Not required if DHCP is Enabled

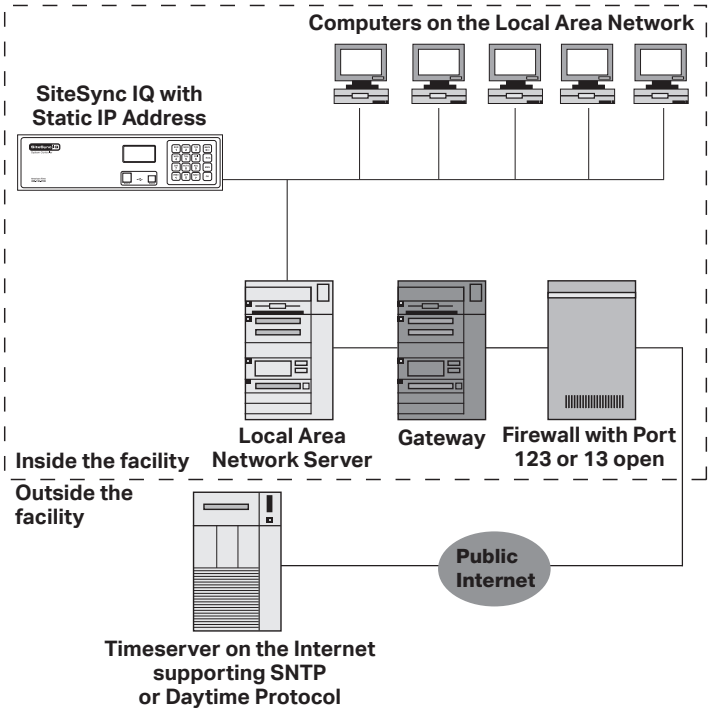
8. Port Number (defaulted to 80):
9. Time Server DNS Address:
10. Time Server IP Address:
11. Alternate Time Server Address:

See Appendix A for a list of Internet Time Server addresses (or use the address of a server on your local network)

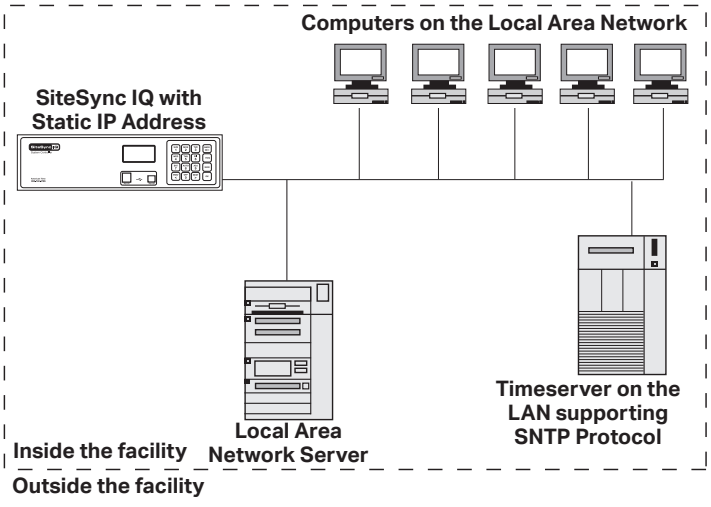
■**Important Note:** Time Servers provide time sync for UTC Time, but do not set Time Zone or DST settings.

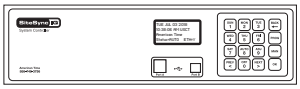
■**Note:** This option automatically syncs once per hour at a time preset at the factory.

Configuration 1: Receive Time Sync via the Internet (SNTP or Daytime Protocol)



Configuration 2: Receive Time Sync via the Internal Network (SNTP)





Ethernet Option

Programming Procedure - Keypad

■**Note:** These settings may already have been entered using the Startup Wizard.

Turn on the power to the System Controller

❶ **Configure Communication (Comm) Settings:**

Press [PROG], [SAT 7], [TUE 3] to access Comm Settings:

a. Use the keypad to Enable DHCP or Disable to select static IP entry.
- Press [SUN 1] for enable DHCP
- Press [MON 2] for disable DHCP
- Press [OK] to accept
- If [SUN 1] skip to f

b. Use the keypad to enter the Unit IP Address. This is a static address assigned by your Network Administrator. Enter preceding zeros as necessary.
- Press [OK]

c. Use the keypad to enter the Subnet Mask. Enter preceding zeros as necessary. This is the subnet mask of your network.
- Press [OK]

d. Use the keypad to enter the Gateway IP. Enter preceding zeros as necessary. This is the IP address of your network's Gateway device.
- Press [OK]

e. Use the keypad to enter the DNS IP. Enter preceding zeros as necessary. This is the IP address of your network's DNS server. Press [OK].

f. Use the keypad to use Manual IP's or a DNS IP for the time server.
- Press [SUN 1] for Manual IP
- Press [MON 2] for DNS IP
- Press [OK] to accept

Note: If [MON 2], skip to i.

g. Use the keypad to enter the Time Server Address. Enter preceding zeros as necessary. Press [OK].

OR Press [OK] to accept the default set at the factory from the list of known good Internet Time Servers in Appendix A.

h. Use the keypad to enter the Alternate Time Server Address. Enter preceding zeros as necessary. Press [OK]. Skip to j.

OR Press [OK] to accept the default set at the factory from the list of known good Internet Time Servers in Appendix A.

i. This shows the currently selected Time Server DNS address. Use Remote Connect to change this value (see page 37). Press [OK].

j. The unit will prompt you to enter the Port Number. This is for Remote Connect web access and should be set to 0080.

Press [OK] to accept the default (80) set at the factory.

k. Press: [OK] [BACK] [BACK], to return to Main Screen.

❷ **Sync System Controller with correct time & date:**

a. Press: [PROG] [SUN 1], to Set Menu Mode.

b. Enter User Lock and press [OK].

c. Press: [ADJ 9], to sync the System Controller with Ethernet. Press [NEXT >] until Ethernet option is chosen.

d. Press [AUTO 8] to sync with Ethernet.

■**Note:** If "Ethernet Sync Successful" is displayed, press [OK] [BACK] [BACK] to return to Main Screen.

If "Ethernet Sync Failed" is displayed, reference the troubleshooting guide.

❸ The Ethernet sync option is now configured and will update the time on the System Controller automatically once each hour at a time preset at the factory.

■**Note:** When Ethernet synchronization is working, ETH=S will be displayed on the screen in small text mode as shown in screen shot **3**. If a synchronization attempt fails, ETH=N will be displayed.

1a
```
Comm Menu
DHCP
1=Enable
2=Disable              Ok=Done
```

1b (ex.)
```
Comm Menu
 Unit IP Address
       192.168.001.001
<=BkSp                 OK=Done
```

1c (ex.)
```
Comm Menu
 Enter Subnet Mask
       255.255.255.000
<=BkSp                 OK=Done
```

1d (ex.)
```
Comm Menu
 Enter Gateway IP
       192.168.010.099
<=BkSp                 OK=Done
```

1e (ex.)
```
Comm Menu
Enter DNS IP
   008.008.008.008
<=Bksp                 OK=Done
```

1f
```
Comm Menu
Time Server Entry
1=Manual IP
2=(DNS IP)             Ok=Done
```

1g (ex.)
```
Comm Menu
 Time Server Address
       137.107.013.100
<=BkSp                 OK=Done
```

1h (ex.)
```
Comm Menu
Alt Time Srvr Addr
       173.014.055.009
<=Bksp                 Ok=Done
```

1i (ex.)
```
Time Server DNS
3.americantime.pool
.ntp.org
                       Ok=Next
```

1j
```
Comm Menu
Enter Port Number
for web access:0080
                       OK=Done
```

2b
```
Set Menu Mode
Enter User Lock:
                 xxxx
PROG=EXIT          OK=ENTER
```

2c & d
```
Set Menu Mode
Time Sync Option is
Available: Ethernet
8=Sync now             OK=Set
```

3
```
MON  MAR  10  2014
10:30:06 AM  USCT
American Time
Circts=Auto        ETH=S
```

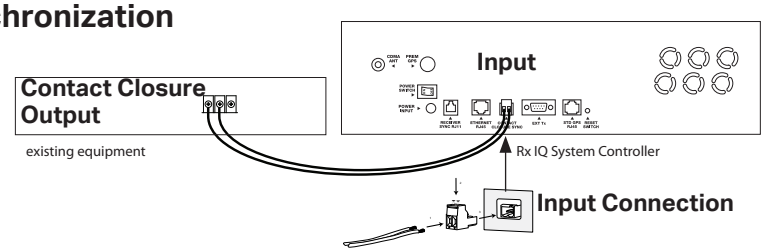
Contact Closure Sync Option

Installing Contact Closure Sync Option

This option allows a SiteSync IQ System Controller to be synchronized with existing equipment with a contact closure. This type of synchronization can also be implemented between two SiteSync IQ System Controllers.

Existing Equipment Providing 2 Wire Synchronization

This option uses the existing system with contact closure (i.e. Phone/Intercom System, Master Clock, Synchronizer, etc.) to synchronize a SiteSync IQ System Controller. Connect wiring as shown in the diagram at right.



Programming Procedure

Turn on the power to the System Controller

1. To set the SiteSync IQ System Controller to be a receiver (Rx) of the contact closure. Press [PROG] [ADJ 9] to enter Master to Master Menu.
2. Enter User Lock. Press [OK].
3. **a.** Press [MON 2] to set the SiteSync IQ System Controller to Rx.
4. Using the keypad, set the time when the existing equipment performs a contact closure. Use [PREV <] [NEXT >] to select AM or PM. Press [OK].

■**Note:** Reference existing equipment instruction manual for contact closure time.

2

```
Comm Menu
Enter User Lock:
      ____
PROG=Exit          OK=Enter
```

3a

```
Comm Menu MTM Sync
Master to Master:
1=Tx          3=Off
2=Rx
```

3b

```
Comm Menu MTM Sync
Transmit Duration:
      50 ms
                   OK=Done
```

4

```
Comm Menu MTM Sync
Sync Time:
      12:00:00     AM
<>AM/PM            OK=Done
```

SiteSync IQ System Controller providing 2 Wire Synchronization (refer to screen shots above)

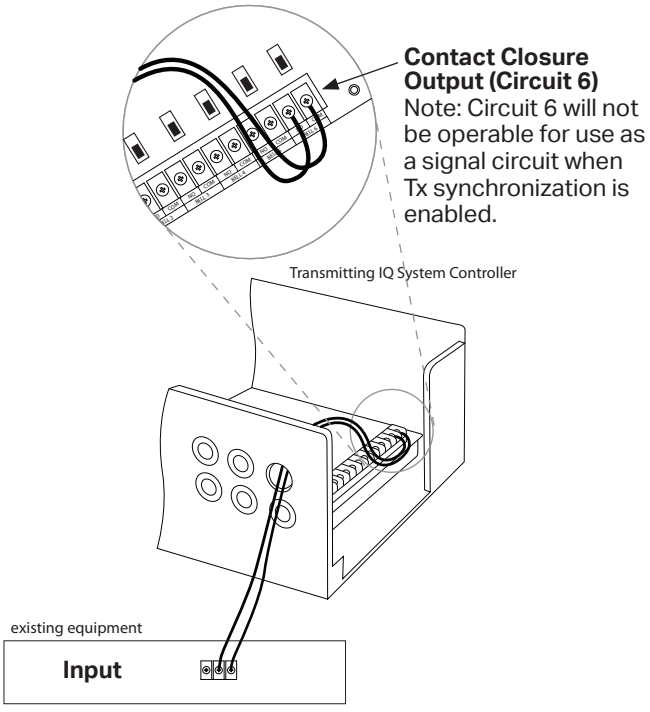
This option uses a SiteSync IQ System Controller to sync existing equipment supporting contact closure input. Connect wiring as shown in the diagram below.

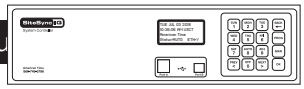
Turn on the power to the System Controller

1. Set the SiteSync IQ System Controller to be a transmitter (Tx) of the contact closure. Press [PROG] [ADJ 9] to enter Master to Master Menu.
2. Enter User Lock. Press [OK].
3. **a.** Press [SUN 1] to set the SiteSync IQ System Controller to Tx.
   b. Enter transmit duration in milliseconds (0-9999). Press [OK].
   Example: 2,000ms=2 seconds
4. Using the keypad, set the time when the contact closure should occur. Use [PREV <] [NEXT >] to select AM or PM. Press [OK].

■**Note:** Reference existing equipment instruction manual for contact closure time. These closure time and duration settings are also used for the wireless Master Synchronizer (optional, ATS Part # H004228).

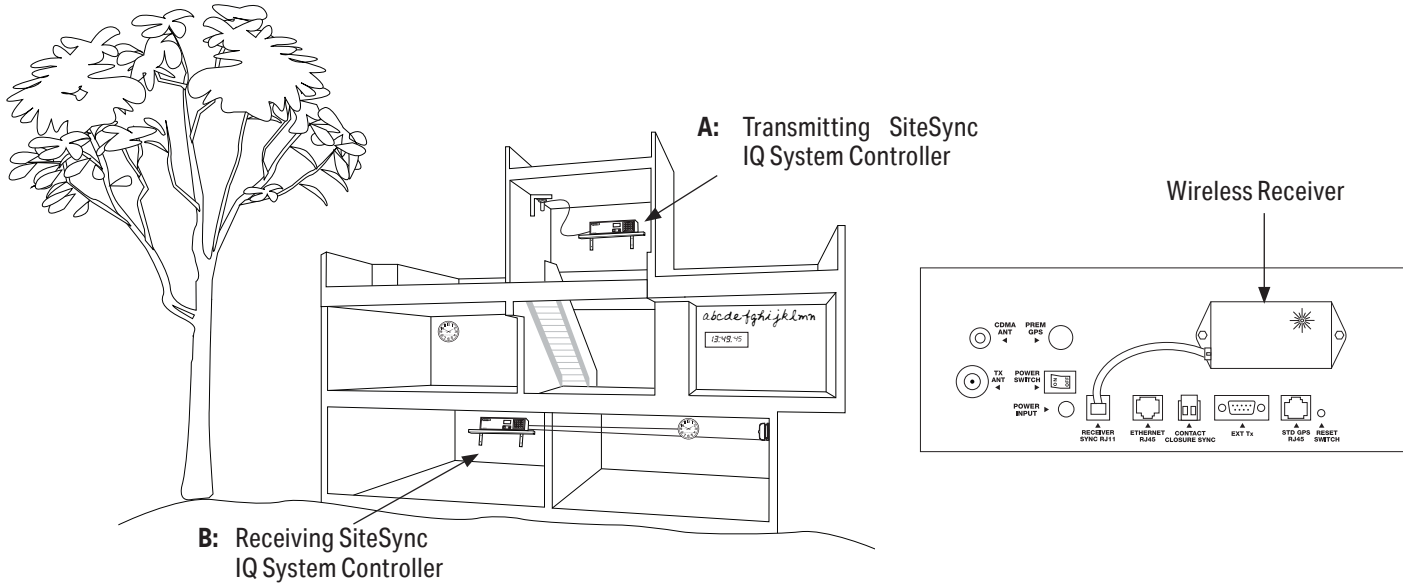
■**Important Note! The Sync Time set in Step 4 must be the same for both units.**





Wireless Sync Option

For installations with existing wired signal devices in locations remote to the SiteSync IQ System Controller. This involves a second, wired IQ System Controller in an area remote to the wireless IQ System Controller.



■**Note:** Requires reception from wireless transmitting SiteSync IQ System Controller.

Example application: The wireless transmitting system controller (A) is on top of the building for best signal coverage, and the wired devices (clocks, bells, etc.) terminate on a lower floor (B) or area not near the transmitting unit.

Programming Procedure

Turn on the power to the System Controller

To sync Receiving System Controller with correct time & date:

1. Confirm Transmitting SiteSync IQ system controller (A) is powered and transmitting.
2. Press: PROG, SUN 1, to Set Menu Mode.
3. Enter User Lock and press OK.
4. Press: ADJ 9, to sync the receiving (B) System Controller.
5. Press NEXT > until WLS option is chosen.
6. Press AUTO 8 to sync time.

■**Note:** If "WLS Sync Successful" is displayed, press OK, BACK, BACK to return to Main Screen.

If "WLS Sync Failed" is displayed, reference the troubleshooting guide.

7. The Wireless sync option is now configured and will update the time on the System Controller automatically once each hour at a time preset at the factory.

■**Note:** When Wireless synchronization is working, WLS=S will be displayed on the screen in small text mode as shown in screen shot **7**. If a synchronization attempt fails, WLS=N will be displayed.

3

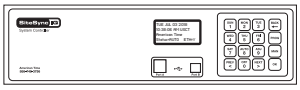
```
Set Menu Mode
Enter User Lock:
        xxxx
PROG=EXIT          OK=ENTER
```

4, 5 and 6

```
Set Menu Mode
Time Sync Option is
Available: WLS
8=Sync now         OK=Set
```

7

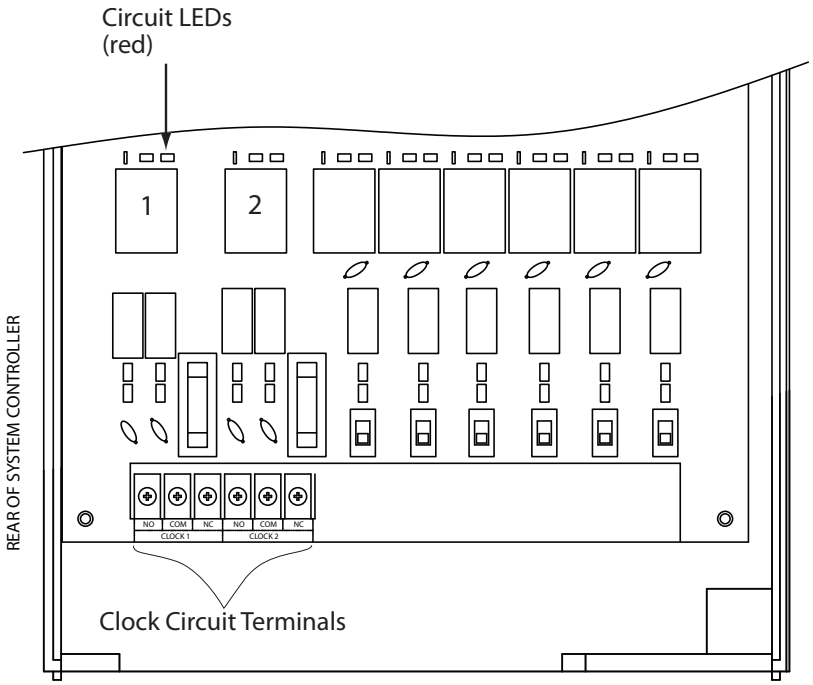
```
MON  MAR  10  2014
10:30:06 AM  USCT
American Time
Status=AUTO   WLS=S
```



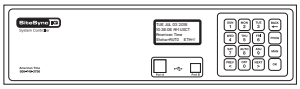
Wired Clock Circuit Installation

To install wired clock circuits:

1. Disconnect and lock out power to the SiteSync IQ System Controller and any circuit wiring.
2. Remove the top cover from the System Controller.
   a. Remove screws from each side of the cover.
   b. Slide the cover up off the base of the unit.
3. Route signal circuit wires into the wiring compartment of the System Controller.
   a. Remove knockout(s). See Appendix G for illustration showing knockout locations on the rear side of the unit.
   b. Use copper conductors only.
   c. Use strain relief connector fittings in the knockout holes to secure the wires.
   d. Route the wires into the wiring compartment, leaving enough slack to make all connections to the relay terminals.
4. Connect clock wires to the circuit relay terminals



See Appendix I on Page 63 for Clock Circuit Wiring Diagram



Adjust Time Menu

The Adjust Time menu serves two functions:
1. Manual correction of impulse secondary clocks, and
2. Simple synchronization of the system controller to an external time source.

❶ Press: [ADJ 9] to access the Adjust Time Menu

❷ Press [SUN 1] to enter Adjust System Clocks Menu

❸ Press [SUN 1] to bring up the Calculated Adjust screen

Enter the time shown on the secondary clocks (to the nearest minute). The time entered should be in 12 hour format as AM/PM settings are irrelevant.

Press [OK]. The time difference between the secondary clocks and the system controller is displayed.

Press [OK] to initiate automatic correction of the secondary clocks and return to the Adjust Time screen.

❹ Pressing [MON 2] in the Adjust System Clocks menu (#3 at right) brings up the Manual Adjust screen.

Press [NEXT >] repeatedly to correct impulse clocks manually.

Press [OK] when finished to return to the Adjust Time menu.

❺ Pressing [MON 2] in the Adjust Time screen (#2 above) causes the unit to attempt synchronization with external time sources* in order of priority. If successful, a message confirming this flashes before the Time Display screen appears.

*The time sync priority can be configured. Reference Settings & Configuration on Page 41.

2

```
Adjust Time
Choose:
1=Adjust System Clks
2=Ethernet Sync Now
```

3

```
Adjust System Clocks
1=Calculated Adjust
2=Man. Adjust Impulse
0=Cancel
```

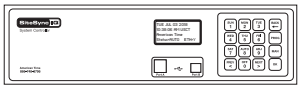
3a

```
Calc Clock Adjust
Enter Time Shown
on secondary clocks
00:00
```

4

```
Adjust System Clocks
Manual Adj. Impulsed
>=Aduance Clocks
(1 per min)      OK=Done
```

Wired Signal Circuit Option



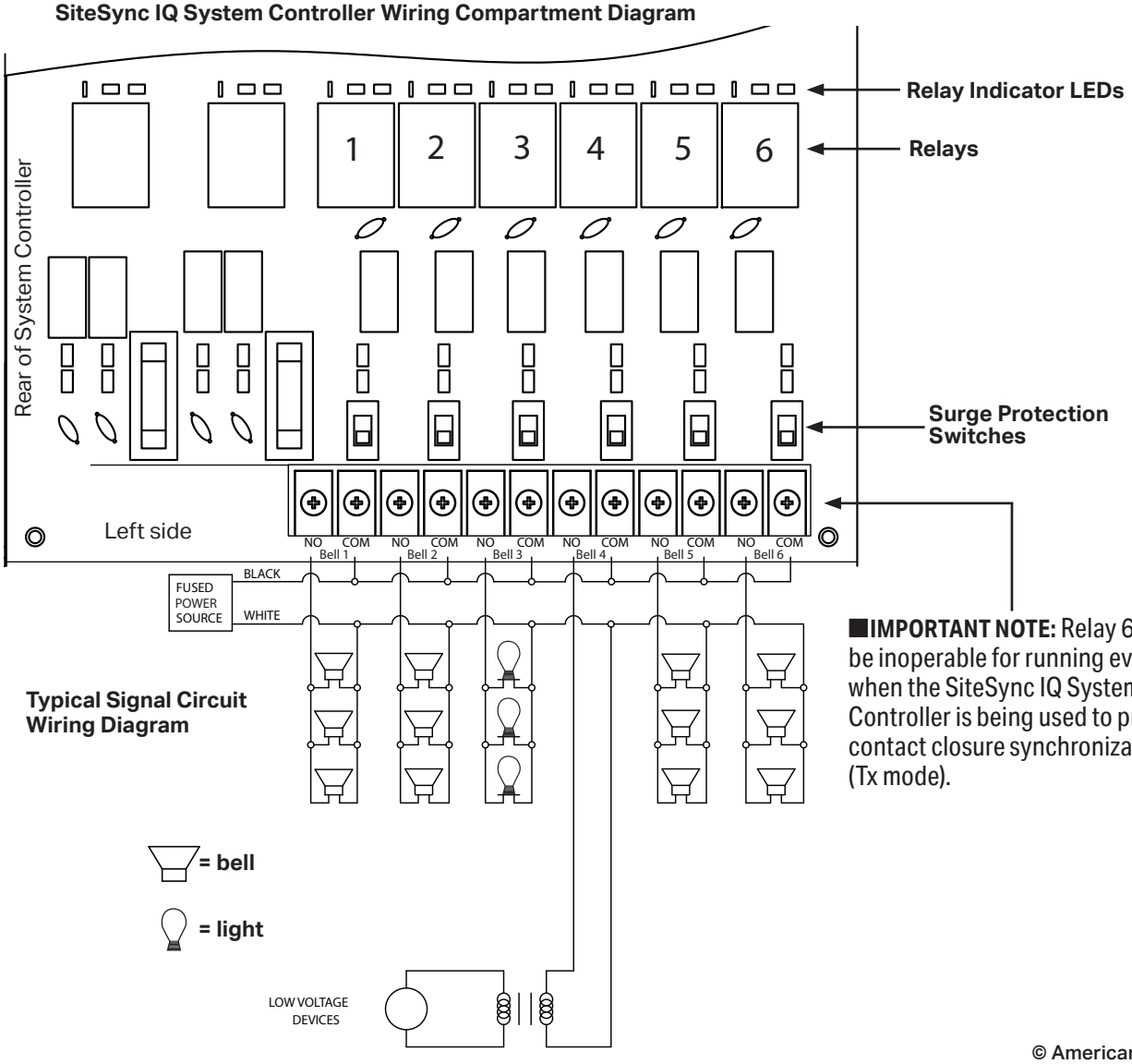
Wired Signal Circuit Installation

To install wired signal circuits (for electrical device control including bells, tone generators, lights, etc.):

1. Disconnect and lock out power to the SiteSync IQ System Controller and any circuit wiring.
2. Remove the top cover from the System Controller.
   a. Remove screws from each side of the cover.
   b. Slide the cover up off the base of the unit.
3. Route signal circuit wires into the wiring compartment of the System Controller.
   a. Remove knockout(s). See Appendix G for illustration showing knockout locations on the rear side of the unit.
   b. Use copper conductors only.
   c. Use strain relief connector fittings in the knockout holes to secure the wires.
   d. Route the wires into the wiring compartment, leaving enough slack to make all connections to the relay terminals.
4. Connect signal wires to the circuit relay terminals.
   a. Route the power (feed) line of each circuit to the COM terminal of the desired circuit (1-6) being connected.
   b. Route the switched (load) line of each circuit to the NO terminal of the desired circuit (1-6) being connected.
   c. Label the wires for each circuit as desired.

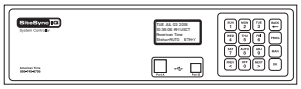
■**Note:** The signal circuits are protected with surge suppression components. In some applications, this protection can cause leakage current to trigger the output device(s) when the circuit is switched OFF. In these cases, the surge protection switches (see illustration below) can be moved to the OFF position. Contact American Time Technical Support with any questions. 800-328-8996.

SiteSync IQ System Controller Wiring Compartment Diagram



Typical Signal Circuit Wiring Diagram

■**IMPORTANT NOTE:** Relay 6 will be inoperable for running events when the SiteSync IQ System Controller is being used to provide contact closure synchronization (Tx mode).



Wired Signal Circuit Option

Programming Events (Keypad Interface)

The SiteSync IQ System Controller contains 6 integrated signal relays. When configured, the Wired Signal Circuit Option allows the System Controller to be used for operating bells, tone generators, lighting circuits and other electrical equipment.

■**Note:** System Controllers with the Ethernet option can also be programmed via the Remote Connect web interface (see page 31).

Definitions:
An **Event** is programmed into the System Controller with time and date information, as well as a duration or a start/stop command. For example, Event 0001 may be programmed to execute every Monday, Wednesday and Friday at 10:00 am for 3 seconds. Each event is assigned to a **Schedule**. The SiteSync IQ System Controller can store up to 9,999 events. The event duration is programmable from 1 to 9 seconds and also allows for ON or OFF commands. Normal events are recurring weekday events. A **Special Event** contains date information that is not specific to weekdays. For example, you can set a special event for the 4th day of every month, the 4th day of every January or the 4th day of January in a specific year. You can also set a special event for every Thursday in January or every Thursday in a specific year.

A **Schedule** is a group of events. For example, a school might program Schedule 01 with 4 events for their morning Elementary recess schedule. The SiteSync IQ System Controller allows for 99 unique schedules, with any number of events in each (up to a maximum total of 9,999 events). Schedules, with groups of events, are assigned to **Circuits**.

A **Circuit** is defined as one of the 6 relay outputs on the SiteSync IQ System Controller. Each circuit can be assigned one schedule at a time. For example, Schedule 01 with 4 events might be assigned to Circuit 1 and Schedule 03 with 10 events might be assigned to Circuit 2.

❶Programming New Events

a. Press: [PROG] [MON 2], enter User Lock using the keypad and press [OK] to enter the Event Menu.

b. Press: [SUN 1] to add an event.

c. Select the number of the schedule for the new event and press [OK].

d. If any events have already been assigned to the selected schedule, the days and start time for the first event are displayed. Use the [NEXT >] key to move to the New Event screen. Press [OK] to display the Select Weekdays screen.

■**Note:** Press [PREV <] on the first event to view the last event. Press [NEXT >] to move to the New Event Screen.

e. To program event days, press [SUN 1] through [SAT 7] keys to add or remove days individually, or

Press [AUTO 8] to add weekdays (shown), [ADJ 9] to add weekends, or

Press [OFF 0] for special events. This allows events to be defined by date(s).

Press [OK] to accept the assigned days.

❷Programming Recurring Events by Weekday

For a non-special event, this brings up the Event Time screen.

To program start time:

a. Use the number keys to enter the hour and minute. Press [PREV <] for AM or [NEXT >] for PM. Press [OK] to accept the event start time.

The Event Duration screen appears. To program event duration (1-9 seconds):

b. Press any number [SUN 1]-[ADJ 9] to specify duration, or

Press [OFF 0] to use the default duration(s) for the circuit(s) assigned to the schedule, or

Press [NEXT >] to latch assigned circuits on until a later event turns them off, or

Press [PREV <] to turn off assigned circuits that were previously turned on.

Press [OK] to accept event duration.

1a and b

```
Event Menu
View Events by
1=Schedule/Event
2=Dte/Tme          3=WKD
```

1c

```
Event Menu
Choose Schedule
Sch=01 Select 1-99
                   OK=Accept
```

1d

```
Event Menu
Sch=10    Event=0000
2014-02-12       12:04 AM
<Scl>    M-Del    OK-Edt
```

1e

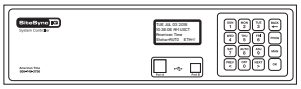
```
Select Weekdays:
8=M-F        MTWTF
9=S+S Key 1234567
0=Special    OK=Accept
```

2a

```
Event menu
Select event time:
Evt Time:   12:00 AM
MTWTF       OK=Acpt
```

2b

```
Event menu
Duration  0=Default
2  Sec  (1-9, < or >)
Off=<  On=>   OK=Set
```



❷ Programming Recurring Events by Weekday (continued)

The Choose Schedule screen reappears:

c. Press [OK] to accept the schedule number.

d. The Event Saved screen briefly appears followed by the Select Event Time screen.

e. If a new event is to be programmed with the same assigned schedule, days and duration as the previous event, Press [SUN 1]. Enter only the start time of the new event and press [OK]. Follow this procedure for all new events sharing the same schedule, days and duration.

To see a programming example, see Appendix D.

Press the [MON 2] key to exit this loop and return to the View Events screen at the top of the Event Menu.

❸ Programming Special Events

a. Press [OFF 0] in the Select Weekdays screen.

b. Press [SUN 1] for Special Event

c. Change the year if necessary or enter 0000 to indicate all years. Press [OK] bring up the Enter Event Month screen.

d. To change the month, enter the number of the month as 2 digits. Enter 00 to select all months. Press [OK] to accept and bring up the Choose screen.

e. Press [SUN 1] to select a day of the month and bring up the Select Event Date screen.

f. Enter a 2-digit day of the month or 00 for all days and press [OK].

Pressing [MON 2] in the Choose Screen (3e) brings up the Select Day screen.

At this screen:

Press [SUN 1]-[SAT 7] keys to add or remove days individually

or Press [AUTO 8] to add weekdays, [ADJ 9] to add weekends.

Press [OK] to accept the assigned days.

2c

```
Event Menu
Choose Schedule
Sch=01   Select 1-99
              OK=Accept
```

2d

```
Event Menu
Y=All   M=All
 MTWTF    05:03 AM
 Event 0000 Saved
```

2e

```
Event Menu
Enter Another Event:
 1=Yes
 2=No
```

2e

```
Event Menu
Select event time:
Evt Time:   1:00 AM
 MTWTF    OK=Acpt
```

3a

```
Select Weekdays:
8=M-F        MTWTF
9=S+S Key 1234567
0=Special    OK=Accept
```

3b

```
Event Menu
1=Special Event
2=Schedule Change
```

3c

```
Event Menu
Enter Event Year
Year: 2014   All=0000
              OK=Accept
```

3d

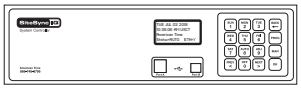
```
Event Menu
Enter Event Month
Month=02 February
All=00    OK=Accept
```

3e

```
Event Menu
Choose:
1=Set  Date  (1-31)
2=Set Weekday(s)
```

3f

```
Event Menu
Select event date
Day of month= 15
All=00   OK=Accept
```



Wired Signal Circuit Option

❸ Programming Special Events (continued)

g. The Select Event Time screen appears. To program start time:

Use the number keys to enter hour and minute.

Press PREV < for AM or NEXT > for PM.

Press OK to accept the event start time.

The Event Duration screen appears. To program event duration (1-9 seconds):

h. Press any number SUN 1 - ADJ 9 to specify duration

or Press OFF 0 to use the default duration(s) for the circuit(s) assigned to the schedule.

or Press NEXT > to latch assigned circuits on until a later event turns them off,

or Press PREV < to turn off assigned circuits that were previously turned on.

Press OK to accept event duration.

❹ Programming Schedule Change Events

a. Press OFF 0 in the Select Weekdays.

b. Press MON 2 for Schedule Change.

c. Change the year if necessary or enter 0000 to indicate all years. Press OK bring up the Enter Event Month screen.

d. To change the month, enter the number of the month as 2 digits. Enter 00 to select all months. Press OK to accept and bring up the Choose screen.

e. Press SUN 1 to select a day of the month and bring up the Select Event Date screen.

f. Enter a 2-digit day of the month or 00 for all days and press OK.

Pressing MON 2 in the Choose Screen (4e) brings up the Select Day screen.

At this screen:

Press SUN 1 - SAT 7 keys to add or remove days individually

or Press AUTO 8 to add weekdays, ADJ 9 to add weekends.

Press OK to accept the assigned days.

g. The Select Event Time screen appears. To program start time:

Use the number keys to enter hour and minute.

Press PREV < for AM or NEXT > for PM.

Press OK to accept the event start time.

3g

```
Event Menu
Select event time:
Evt Time:    12:00 AM
  MTWTF      OK=Acpt
```

3h

```
Event Menu
Duration  0=Default
2  Sec (1-9, <or>)
Off=<  On=>    OK=Set
```

4a

```
Select Weekdays:
8=M-F        MTWTF
9=S+S Key 1234567
0=Special    OK=Accept
```

4b

```
Event Menu
1=Special Event
2=Schedule Change
```

4c

```
Event Menu
Enter Event Year
Year: 2014    All=0000
              OK=Accept
```

4d

```
Event Menu
Enter Event Month
Month=02 February
All=00     OK=Accept
```

4e

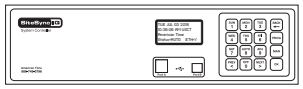
```
Event Menu
Choose:
1=Set  Date  (1-31)
2=Set Weekday(s)
```

4f

```
Event Menu
Select event date
Day of month= 15
All=00     OK=Accept
```

4g

```
Event Menu
Select event time:
Evt Time:    12:00 AM
  MTWTF      OK=Acpt
```



❹ Programming Schedule Change Events (continued)

The Change Schedule screen reappears:

h. Press the 2-digit schedule number of the schedule to change to. Press [OK] to accept the schedule number.

i. The Event Saved screen briefly appears followed by the Enter Another Event screen.

Press [BACK] exit the Event Menu.

4h

```
Event Menu
Change Sch 01 To
Sch=02 Select 00-00
         OK=Accept
```

4i

```
Event Menu
Change Schedule
JUN 02 2014 12:00 AM
Event 0000 Saved
```

❺ Reviewing and Editing Events

Press: [PROG] [MON 2], enter User Lock (unless disabled) using the keypad and press [OK] (unless User Lock is disabled) to enter the Event Menu. From here:

Press [SUN 1] to add, view, edit or delete events sequentially by event number in a particular schedule, or

Press [MON 2] to view, edit or delete events in all schedules, beginning with the first event scheduled to start on or after a specified hour, or

Press [TUE 3] to view, edit or delete events by weekday.

5

```
Event Menu
View Events by
1=Schedule/Event
2=Dte/Tme          3=WKD
```

❻ Reviewing and Editing Events by Schedule

a. From the "View Events by" screen (4), press [SUN 1] to select Schedule/Event screen.

Key in a schedule number and press [OK]. If there are existing events assigned to the schedule, the days and start time for the lowest numbered event are displayed.

Use the [PREV <] and [NEXT >] keys to scroll through screens for all existing events or enter an event number to move immediately to that event.

Press [BACK] to exit the Event Menu. Press [MAN] to delete the event. Press [OK] to view the Select Weekdays screen.

b. This screen shows the days previously assigned to the event. To change event days:

Press [SUN 1] - [SAT 7] keys to add or remove days individually, or

Press [AUTO 8] to add weekdays

or Press [ADJ 9] to add weekends

or Press [OFF 0] to edit a special event (this will lead to the series of screens for defining special events).

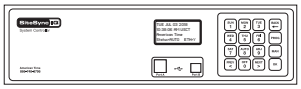
Press [OK] to accept the assigned day. For recurring events this brings up the Event Time screen.

6a

```
Event Menu
Sch=01   Event=0000
2014-02-15    12:04 AM
 <Scl>   M=Del   OK=Edt
```

6b

```
Select Weekdays:
8=M-F     MTWTF
9=S-S  Key 1234567
0=Special  OK=Accept
```



Wired Signal Circuit Option

❻ Reviewing and Editing Events by Schedule (continued)

c. This screen shows the start time of the event. To change start time:

Use the number keys to enter hour and minute.

Press PREV < for AM or NEXT > for PM.

Press OK to accept the event start time. This brings up the Event Duration screen.

d. To program event duration (1-9 seconds):

Press any number SUN 1 - ADJ 9 to specify duration, or

Press OFF 0 to use the default duration(s) for the circuit(s) assigned to the schedule, or

Press NEXT > to latch assigned circuits on until a later event turns them off, or

Press PREV < to turn off assigned circuits that were previously turned on.

Press OK to accept event duration.

Press OK to save event changes.

To see a programming example, see Appendix D.

6c

```
Event Menu
Select event time:
Evt Time:  12:00 AM
 MTWTF    OK=Acpt
```

6d

```
Event Menu
Duration  0=Default
2  Sec (1-9, <or>)
Off=<  On=>  OK=Set
```

❼ Reviewing and Editing Events by Date & Time

a. Press: PROG MON 2, enter User Lock (unless disabled) using the keypad and press OK (unless User Lock is disabled) to enter the Event Menu. From here:

b. Press MON 2 to access the Chronological Sort screen. The options given are Sort or Cancel Sort. Either selection will go to the Hour screen (6c):

c. At the Hour screen, indicate the hour to start displaying events in chronological order. Enter the hour as 2 digits in 24 hour format. Example: the earliest programmed event is 5:00 AM; entering 05 (or an earlier hour) and pressing OK leads to screen 6d.

d. Use the PREV < and NEXT > keys to scroll backward or forward through all programmed events. The steps for reviewing and editing selected events are the same as those listed in Reviewing and Editing Events by Schedule with one exception: the event number cannot be used to jump directly to an event.

7a

```
Event Menu
View Events by
1=Schedule/Event
2=Dte/Tme        3=WKD
```

7c

```
Event Menu Time Sort
Hour (24)

<>=Scroll  OK=Edit
```

7d

```
Event Menu Time Sort
 MTWTF   05:03 AM
Sch: 01 -  Event: 0000
<>=Scroll    OK=Edit
```

❽ Reviewing and Editing Events by Weekdays

a. Press: PROG MON 2, enter User Lock (unless disabled) using the keypad and press OK (unless User Lock is disabled) to enter the Event Menu. From here:

b. Press TUE 3 to access the View Weekday screen.

c. Select the weekday needed by:

Pressing one of the SUN 1 - SAT 7 keys

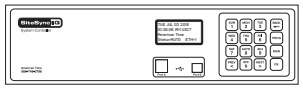
Use the PREV < and NEXT > keys to scroll through screens showing events scheduled for that day. The steps for reviewing and editing selected events are the same as those listed in Reviewing and Editing Events by Schedule with one exception: event number cannot be used to jump directly to an event.

8a

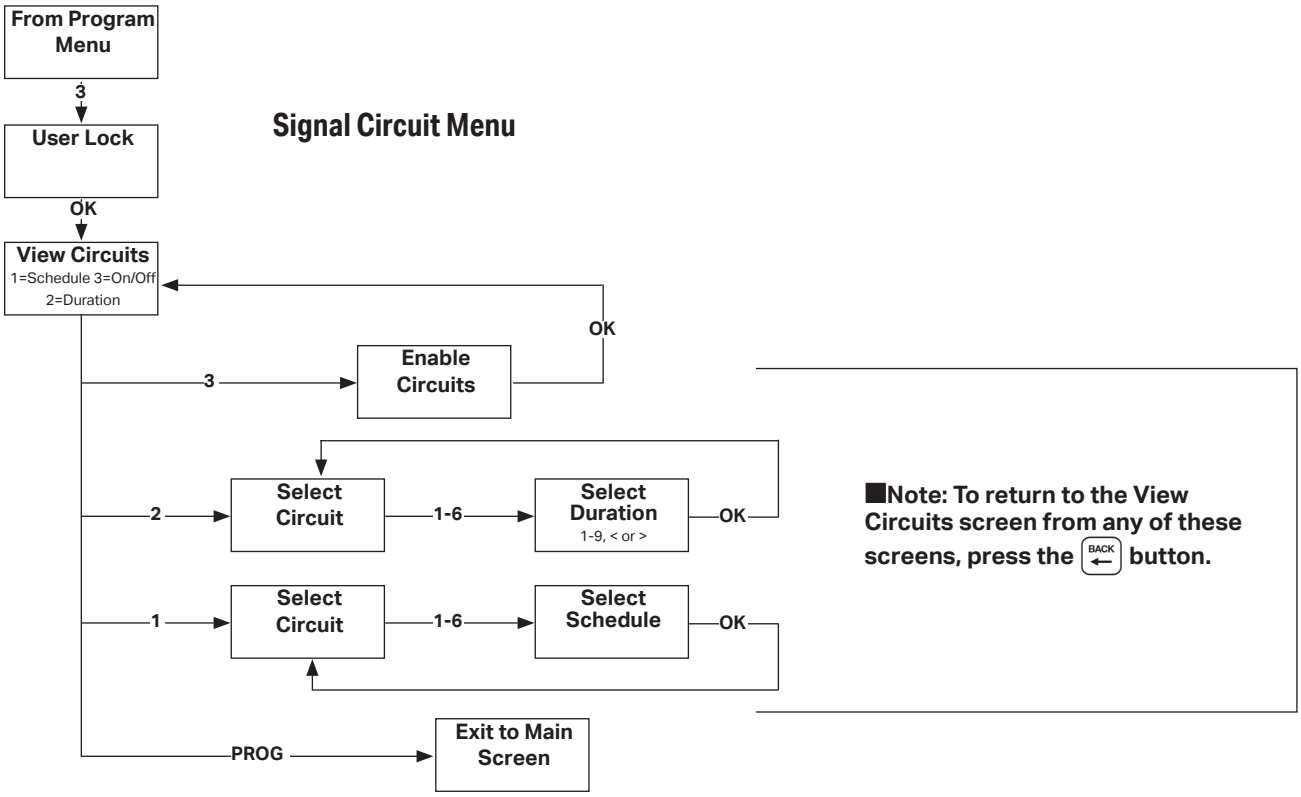
```
Event Menu
View Events by
1=Schedule/Event
2=Dte/Tme        3=WKD
```

8b

```
Event Menu WKD sort
View Weekday:  MON
Sch: 01 - Event: 0000
<>=Scroll    OK=Edit
```



Programming Signal Circuits (Keypad Interface)



Optional signal relays for controlling signal or lighting circuits must be assigned to schedules of events for automatic control. Multiple circuits can be assigned to one schedule, but each signal circuit can be assigned to only one schedule.

Each signal circuit is also programmed with a default event duration. This allows different signal circuits assigned to the same schedule to be activated for different lengths of time for the same event. For example, a school may have circuit 1 connected to the elementary bells and wish to ring those for 3 seconds. It may have circuit 2 connected to the middle school bells and wish to ring those for 5 seconds. The same events can be assigned to a single schedule but will have different durations on different circuits when using circuit duration defaults. This default duration can be overridden by the duration specified for an event (described in the Programming Events section).

■**Note:** System Controllers with the Ethernet option can also be programmed via the Remote Connect web interface (see page 31).

❶Setting Signal Circuit Schedule and Duration

a. Press PROG TUE 3. Enter User Lock (unless User Lock is disabled) and Press OK (unless User Lock is disabled) to enter Circuit Menu.

b. Press SUN 1 to select the Signal Circuit Schedule Assignment screen. The current schedule assignments for all circuits are shown. To change the schedule assignment for a circuit, press the number of the circuit (i.e. SUN 1).

c. Assign a schedule to this circuit by pressing the NEXT > or PREV < buttons until the correct schedule is displayed. (Pressing 0 disables the circuit) Press OK to accept.

This returns you to the Signal Circuit Schedule Assignment screen (**b**).

Press BACK.

Press MON 2 to bring up the Duration screen.

1a

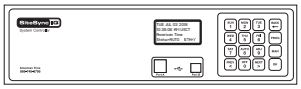
```
Circuit Menu
View Circuits for:
1=Schedule   3=On/Off
2=Duration   Prog=Exit
```

1b

```
Circuit Menu
Select Circuit:
Cir   1  2  3  4  5  6
Sch  01 01 02 02 03 03
```

1c

```
Circuit Menu
Cir:01 Choose Sch
Sch: 01      00=Special
             OK=Accept
```



Wired Signal Circuit Option

❶Setting Signal Circuit Schedule and Duration (continued)

d. This screen shows the current default duration for all circuits. "<" indicates an off default and ">" indicates an on default. To change the default duration for a circuit, press the number of the circuit (i.e. SUN 1).

e. The Select Circuit Duration screen shows the current default duration for the selected circuit. This duration applies only for events that are programmed with a duration of 0. Circuit duration can be for a definite period (1-9 seconds) or for a time defined by two successive events. The first event turns the circuit on, the second event turns it off. To change circuit default duration:

- Press any number 1-9 to specify duration in seconds, or
- Press NEXT > to latch the circuit on, or
- Press PREV < to latch the circuit off.

Pressing any of these options saves the circuit duration and returns to the View Circuits screen (**a**).

To see a programming example, see Appendix D.

1d

```
Circuit Menu
Select Circuit:
Cir  1  2
Dur  <  1
```

1e

```
Circuit Menu
Select Cir 1 Duration
5 Sec (1-9, <or>)
Latchin  Off=<  On=>
```

❷Enabling and Disabling Signal Circuits

a. From the View Circuits screen, press TUE 3 to enter the Enable Circuits screen to view or change the control status of individual circuits.

b. For a signal circuit to be controlled by programmed events, it must be enabled (on) and the status of the system controller must be set to AUTO. To set status to AUTO:

Press AUTO 8, enter User Lock and press OK.

c. Setting the system controller status to OFF disables all signal circuits. To set the status to OFF:

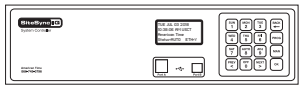
Press OFF 0, enter the User Lock (unless User Lock is disabled) and press OK (unless User Lock is disabled)

2a

```
Circuit Menu
View Circuits for:
1=Schedule   3=On/Off
2=Duration   Prog=Exit
```

2b

```
Circuit Menu
Enable Cir:   OK=Done
1=On  2=On  3=On
4=On  5=On  6=On
```



❸ Controlling Signal Circuits Manually

Signal circuits can be controlled manually with the MAN key acting as a momentary push-button switch. To initiate manual control:

a. Press [MAN], enter User Lock (unless User Lock is disabled) and press [OK] (unless User Lock is disabled).

b. Press any combination of keys 1-6 to select or deselect the circuits to be turned on with the [MAN] key.

Wired Circuit Activation:

Press and hold the [MAN] key to activate the selected circuits for the desired length of time.

Release the [MAN] key.

■**Note:** When the wireless circuit activation is enabled, the wired activation will have approximately a 3 second delay to account for the wireless transmission.

3b

```
Manual Signal                    TX
Select Circuits: 0=WL   7=All
Circuit:  1234567
Man=Signal                OK=Exit
```

The [MAN] key can be pressed as many times as needed. Control of the signal circuits reverts to its previous state (AUTO or OFF) upon exiting this menu.

Wireless Circuit Activation:

Press 0 to enable wireless circuit activation. Press [MAN] to activate the selected circuits for the default duration of circuit 6.

■**Note:** Reference Setting Signal Circuit Schedule and Duration on Page 29 to change the default duration of circuit 6.

■**Note:** Upon pressing [MAN], a TX will appear in the upper right hand corner to signify that the wireless activation is being transmitted.

■**Note:** The wired circuit will be delayed in this mode.

For circuits configured for ON/OFF operation:

If the default duration for a circuit being activated with the MAN function is currently configured to ON or OFF (in the Circuit Durations Menu) the circuit will toggle states when pressing the MAN key. This feature can be used to turn on lights after a power outage. For example, parking lot lighting is set up on Circuit 6 with a continuous ON event at 10:00pm, and an OFF event at 6:00am. The power goes out due to a thunderstorm at 2:00am and comes back on at 3:00am. These parking lot lights will be off, since the unit was reset. To turn them back on after 3:00am, you can activate circuit 6 via the MAN button, as described on the previous page. The lights will then stay on until the OFF event at 6:00am.

Automatically switching assigned schedules for a circuit:

This feature allows for programming of a schedule change on any circuit. This may be handy for setting a holiday schedule, for example:
To program an automatic schedule change:

1. Press [PROG] [TUE 3], enter User Lock (if applicable), then press [SUN 1]. The circuit schedule assignments screen will display.
2. Press circuit (1-6) you wish to set automatic schedule change for.
3. Press [MAN] button to enter a schedule change.
4. Option [SUN 1] and [MON 2] are schedule replacements. This allows for reverting back to the current schedule at a later date.
5. Select [SUN 1] or [MON 2]. In this screen, use the [PREV <] [NEXT >] keys to select the schedule to change to. Press [OK].
6. In this screen, enter the date with the keypad. Press [OK] after entry of each field to advance. For example, press [OK] after entering the year to advance to the month field. AM/PM can be selected with the [PREV <] [NEXT >] keys. Press [OK] when date and time have been entered.
7. Repeat these steps for another schedule change on this circuit. Choose option [MON 2] if option [SUN 1] was initially set or vice versa. These options will occur chronologically by the date and time entered for each.

To see a programming example, see Appendix D.

2

```
Circuit Menu
Select Circuits     1
Circ  1   2   3   4   5   6
Sch  01  01  04  --  --  --
```

3

```
Circuit Menu
Circuit 1  :  Sch 01
MAN=Timed  Sch Change
<>=Scroll     Ok=Accept
```

4

```
Circuit Menu
Timed Sch Change for
Circuit 1  :  Sch  01
1=Sch05       2=Empty
```

5

```
Time Sched Change to
Sch:05  on  2014-10-31
        at  08:00 AM
<>=Scroll     OK=Next
```

6

```
Time Sched Change to
Sch:05  on  2014-10-31
        at  08:00 AM
<>=AM/PM   OK=Next
```

Remote Connect Web Interface

The Remote Connect Web Interface allows remote access to your SiteSync IQ system controller via a web browser. This includes Event and Circuit programming, manual circuit activation, time/date settings and other system configurations.

This feature is available to all SiteSync IQ System Controllers with the Ethernet option.

Note: Java SE Runtime Environment (JRE) 7 Update 7 will need to be installed to run the Events Applet.

–This can also be downloaded at http://www.java.com/en/

–Ensure that you have the most current web browser (ie. Firefox, Internet Explorer, Chrome)

To access Remote Connect:

1. Ensure that the SiteSync IQ System Controller installation has been performed (page 6) and that the Ethernet option has been configured (pages 18-19)
2. Open a web browser. Enter the IP address for your system controller (#4 on page 18) as http://xxx.xxx.xxx.xxx or ssiq plus last six digits of MAC address if DHCP is Enabled in the web browser's Address field (Figure 1). Press the **Enter** key.

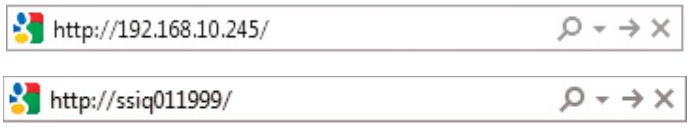


Figure 1

■**Note:** If using DHCP Host Name, the network or computer connected to the system controller for configuration must be on the same Subnet for Host Name to work properly.

■**Note:** If the Remote Transmitter is on a network without a DHCP server, the default address of the Remote Transmitter will be 192.168.10.10. In this situation, directly connect an Ethernet patch cable from the Remote Transmitter to a computer that is on the same Subnet. Example: Set the connecting computer IP address to 192.168.10.11. See your Network Administrator if you do not know how to do this.

3. A User Login window, (Figure 2) will appear. There are two available user names, **uclock** and **sclock**, which represent the user and service access levels. The user security level allows access to everything but the Configuration Tab.

   User Level Access:
   Enter **uclock** in lowercase letters in the *User Name* field and **uclock** in the *Password* field. This is a user login which will allow access to time/date and event menus.

   Service Level Access:
   Enter **sclock** in lowercase letters in the **User Name** field and **sclock** in the *Password* field. This is a service login which will allow access to all menus.
   **Passwords may be changed in the Configuration Tab.

   Then, click the *Login* button.

Figure 2

4. The Remote Connect utility will appear with the *General* tab selected. The tabs displayed may differ depending on the configuration of the unit.

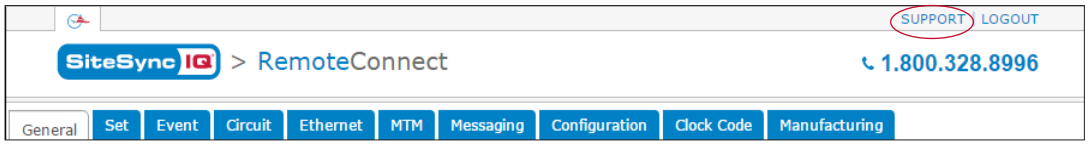


Figure 3

For more details on the features of Remote Connect, click on the Support link in the upper right-hand corner of the utility (Figure 3).

General Tab:

The General Tab contains information about the system controller as well as manual correction options for systems with clock relays.

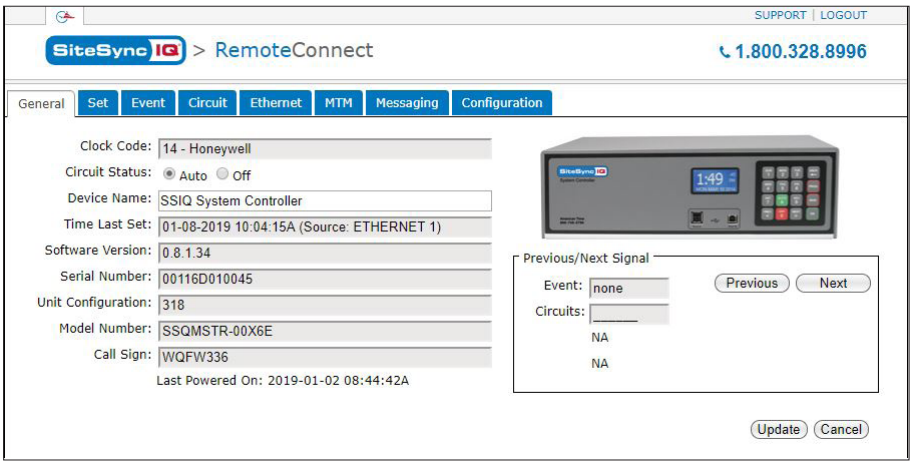


Figure 4

1. *Clock Code* – This allows the user to see which clock code is currently selected to run their wired clocks. If the text is cut off, hover over with mouse to see full text. This field may not be selectable if the system controller is not configured for clock relays.
2. *Circuit Status* – This will enable the bell relays if set to AUTO. This field may not be selectable if the system controller is not configured for bell relays.

■**Note:** Scheduled events will not run if this is not set to AUTO.

3. *Device Name* – This allows the user to name the system controller. This is useful for users that have more than one SiteSync IQ system controllers to manage.

■**Note:** Changing the Device Name requires Service-level access.

4. *Time Last Set* – This will display the last date and time the system controller was set. The source of which the date and time was set will also be displayed.

■**Note:** Ethernet 1 is the Primary Ethernet time server and Ethernet 2 is the Alternate time server as seen on Ethernet tab page 43.

5. *Software Version* – This will display the current software version of the SiteSync IQ system controller.
6. *Serial Number* – This is the serial number of the SiteSync IQ system controller.
7. *Unit Configuration* – This is the configuration code of the SiteSync IQ system controller.
8. *Model Number* – This is the model number of the SiteSync IQ system controller.
9. *Call Sign* – This is the call sign used by the SiteSync IQ system controller.
10. *Previous/Next Signal* – This will display the next circuit activation to occur.
11. *Last Powered ON* – This will display when the SiteSync IQ system controller was last turned on. This is useful to determine if the unit has lost power.
12. *Battery Low* – This indicates that the internal timekeeping battery need to be replaced. See Troubleshooting Section page 55 for more information.

Clock Codes:

Synchronous – If the system is to operate with synchronous clocks and the synchronous clock code is selected the *Manually Adjust Synchronous Clocks* box will appear. For example, setting the *Clock Code* selector to 1 will enable synchronous clock operation.

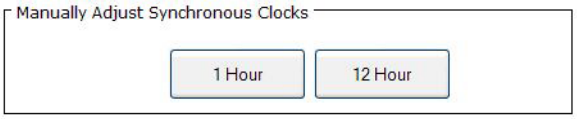


Figure 5

- Pressing the 1 Hour button will advance the clocks by 1 hour. There will be approximately a 1-2 minute delay for each 1 Hour button press to allow the clocks to adjust.
- Pressing the 12 Hour button will advance the clocks to the configured 12 hour mark. There will be a maximum delay of 13 minutes for each 12 Hour button press to allow the clocks to adjust.

Impulse – If the system is to operate with impulse clocks and a impulse clock code is selected the *Manually Adjust Impulse Clocks* box will appear. For example, setting the *Clock Code* selector to 2 will enable impulse clock operation.

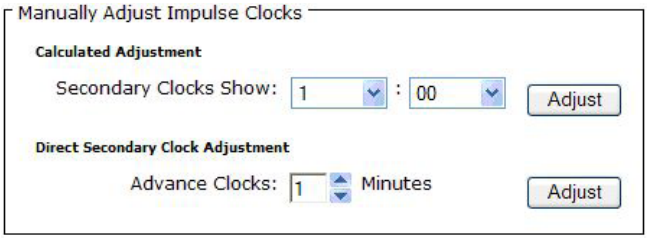


Figure 6

- The *Calculated Adjustment* will automatically adjust the impulse clocks to the correct time. Just enter the time that is shown on the impulse clocks and press *Adjust*. The number of impulses necessary to adjust the clocks will automatically be sent to the clocks.
- The *Direct Secondary Clock Adjustment* will allow for a specific time advancement in minutes. Therefore, entering the number of minutes of advancement and pressing *Adjust* will send the corresponding number of impulses to the clocks.

Set Tab:

The Set Tab allows you to set the time zone, daylight saving time, date, and time for your local clocks and time zone clocks.

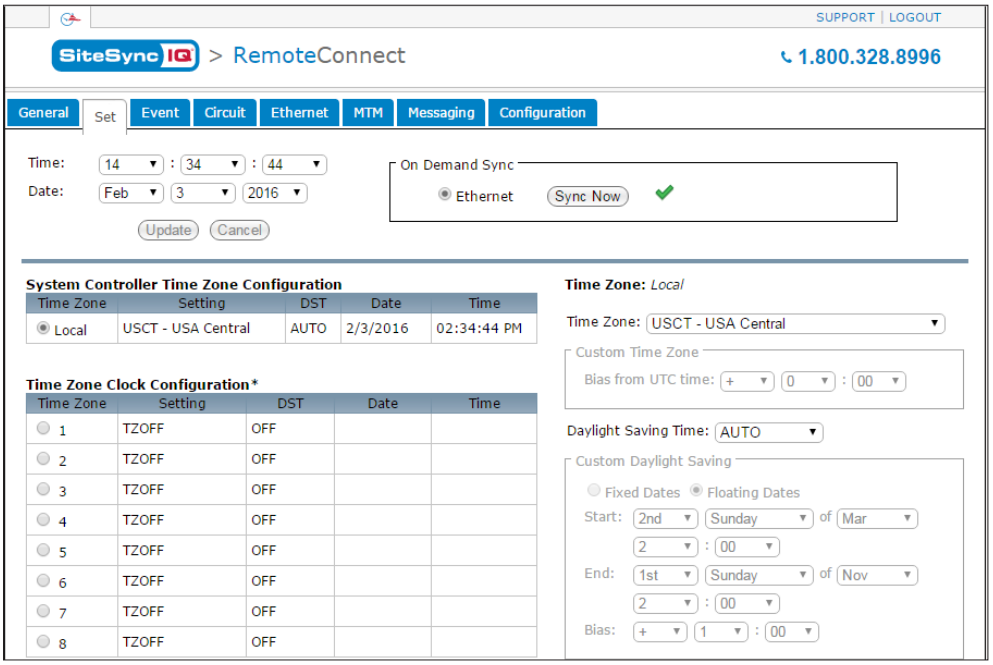
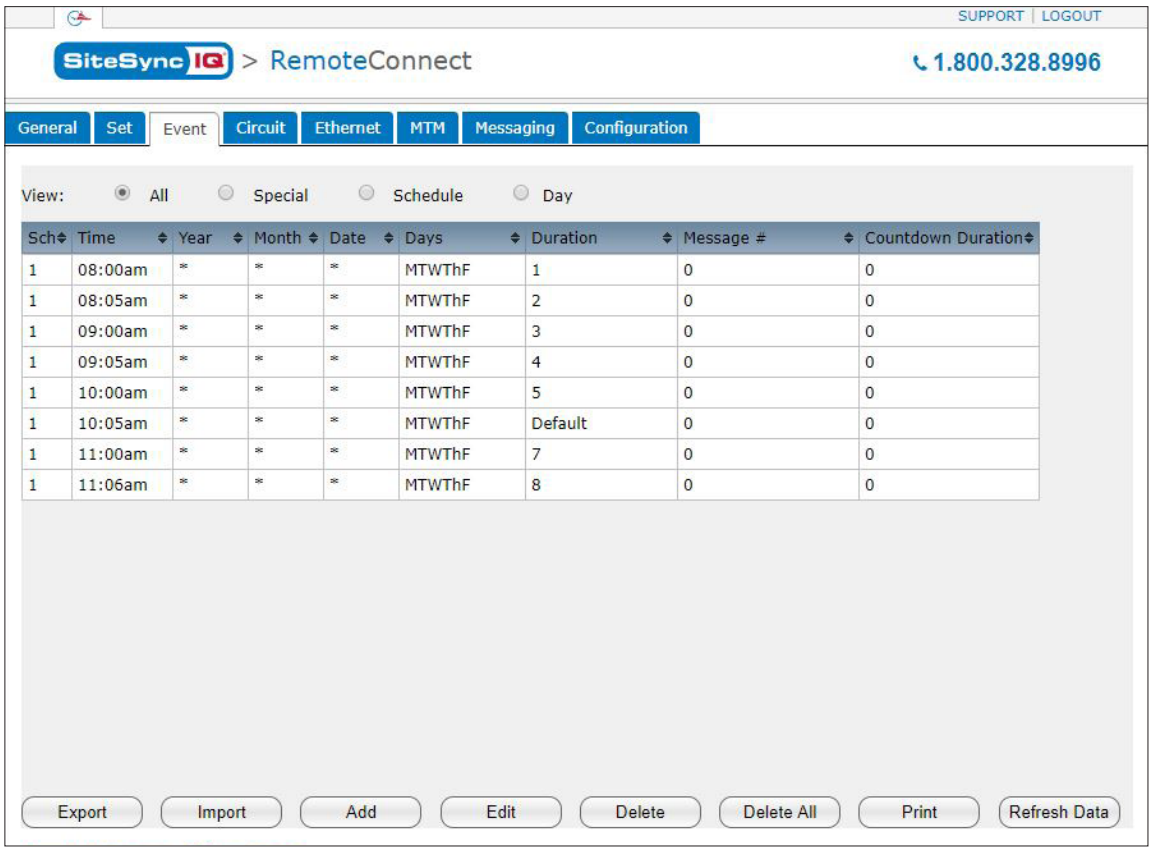


Figure 7

1. *Time:* This allows the user to set the time in the following format HH:MM:SS. After selecting a time change, the *Update* button must be pressed to take effect.
   ■**Note:** Time will always be in military time.
2. *Date:* This allows the user to set the date. After changing the date, the *Update* button must be pressed to take effect.
3. *On Demand Sync:* The synchronization options configured on the system controller will be displayed. The user may choose the option in which they would like to synchronize their time and press *Sync Now*. The time and date will be updated automatically if successful.
   ✔ indicates a successful sync. ✖ indicates a failed sync.
4. *System Controller Time Zone Configuration:* When this is selected, the Time Zone and Daylight Saving Time settings can be configured. The *Update* button in the lower right hand corner must be pressed for any changes to take effect.
   —Time Zone: This drop down contains a list of all time zones.
   —Daylight Saving Time: This drop down contains AUTO, CUSTOM, or OFF.
5. *Time Zone Clock Configuration:* There are 8 selectable time zone clocks. Each time zone clock can be configured to a time zone and DST. The *Update* button in the lower right hand corner must be pressed for any changes to take effect.
   —Time Zone: This drop down contains a list of all time zones.
   —Daylight Saving Time: This drop down contains AUTO, CUSTOM, or OFF.

Event Tab:

The Event Tab allows you to create, edit, print, and save your schedules.



Sch	Time	Year	Month	Date	Days	Duration	Message #	Countdown Duration
1	08:00am	*	*	*	MTWThF	1	0	0
1	08:05am	*	*	*	MTWThF	2	0	0
1	09:00am	*	*	*	MTWThF	3	0	0
1	09:05am	*	*	*	MTWThF	4	0	0
1	10:00am	*	*	*	MTWThF	5	0	0
1	10:05am	*	*	*	MTWThF	Default	0	0
1	11:00am	*	*	*	MTWThF	7	0	0
1	11:06am	*	*	*	MTWThF	8	0	0

Figure 8

1. *View:* This row is for sorting which events should be displayed in the table below. If *Schedule* or *Day* is selected an additional drop down will appear for selection.
   ■**Note:** Press the *Refresh* button to update the table.
2. *Export:* This allows the user to export their schedules to an *.ats* file for backup.
3. *Import:* This allows the user to import a *.ats* file.
4. *Add:* This allows the user to add new events to a specified schedule. There are three types of events:
   –Regular Events: A reoccurring day of the week event.
   –Special Events: An event that occurs on a specific time and date.
   –Schedule Change: A planned change of schedule on a specific time and date.

   This will prompt the following:

   a. *Schedule:* The current event schedule.
   b. *Schedule Name:* The name of the selected schedule.
   c. *Regular Event/Special Event/Schedule Change:* The event type.
   d. *Special Event Date:* Specific date selection for Special Events or Schedule change Events. Does not appear for Regular Events. Date may not be in the past.
   e. *Change Schedule To:* Schedule selection to change to. This only appears if a Schedule Change Event is selected.
   f. *Duration:* Duration of event. Does not apply for Schedule Change Events.
   g. *Time:* The specified time of the event.
   h. *Weekdays (M-F)/Weekends (S-S):* Day of the week selector.
   i. *Accept:* Accept event entry.
   j. *Cancel:* Cancel event entry.

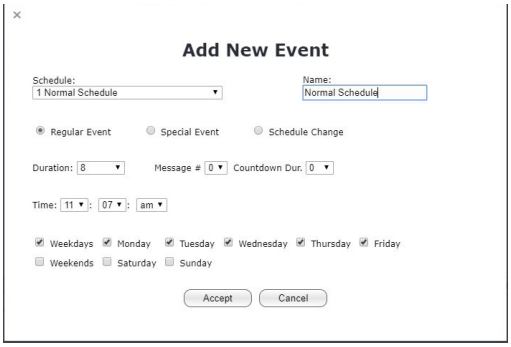


Figure 9

Event Tab (cont):

5. *Edit:* This will prompt the Event Edit window for the event highlighted. This can also be accessed by double clicking on an entered event.
6. *Delete:* This will delete the highlighted event.
7. *Delete All:* This will delete all events.
8. *Print:* This will print the events that are displayed in the table.

Circuit Tab:

The Circuit Tab contains circuit designations to specific schedules. This tab also contains the *Manual Activation* feature which allows manual activation of relays.

Schedule:

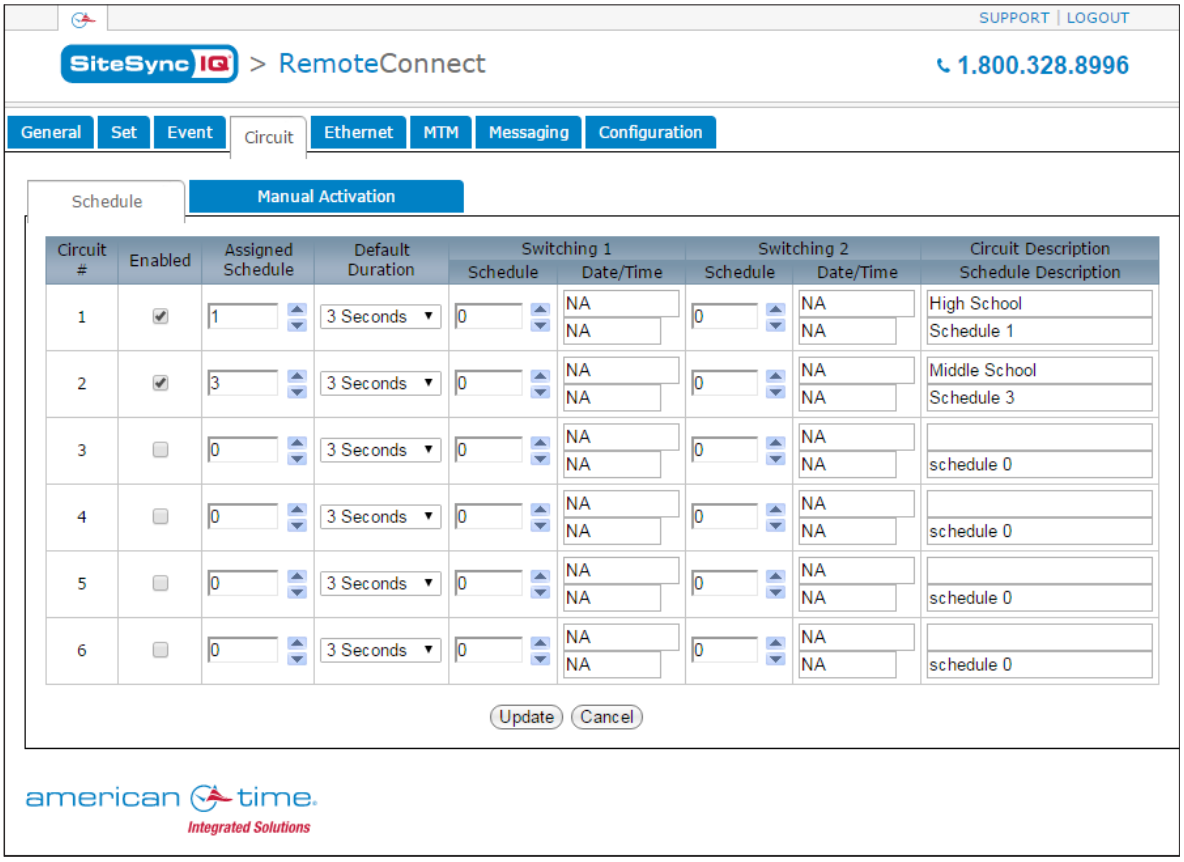


Figure 10

1. *Enabled:* This allows the user to enable or disable the circuit. The circuit must be enabled to run an assigned schedule. The *Update* button must be pressed for changes to take effect.
2. *Assigned Schedule:* This is the current schedule assigned to the circuit. The *Update* button must be pressed for changes to take effect.
3. *Default Duration:* This is the default duration of the circuit. Events may or may not use this default duration. The *Update* button must be pressed for changes to take effect.
4. *Switching 1:* This allows the user to schedule a schedule change. For example, the image above may be a typical example of a winter break schedule. The *Update* button must be pressed for changes to take effect.
    a. *Schedule:* This is the schedule that the circuit will switch to at the specified date/time.
    b. *Date/Time:* This is the date/time in which the schedule for the circuit will switch.
5. *Switching 2:* This has the same functionality as *Switching 1*.
6. *Circuit Description:* This allows the user to name the circuits. The *Update* button must be pressed for changes to take effect.
7. *Schedule Description:* This displays the schedule name as defined in the Event Edit window (Figure 9).

Manual Activation:

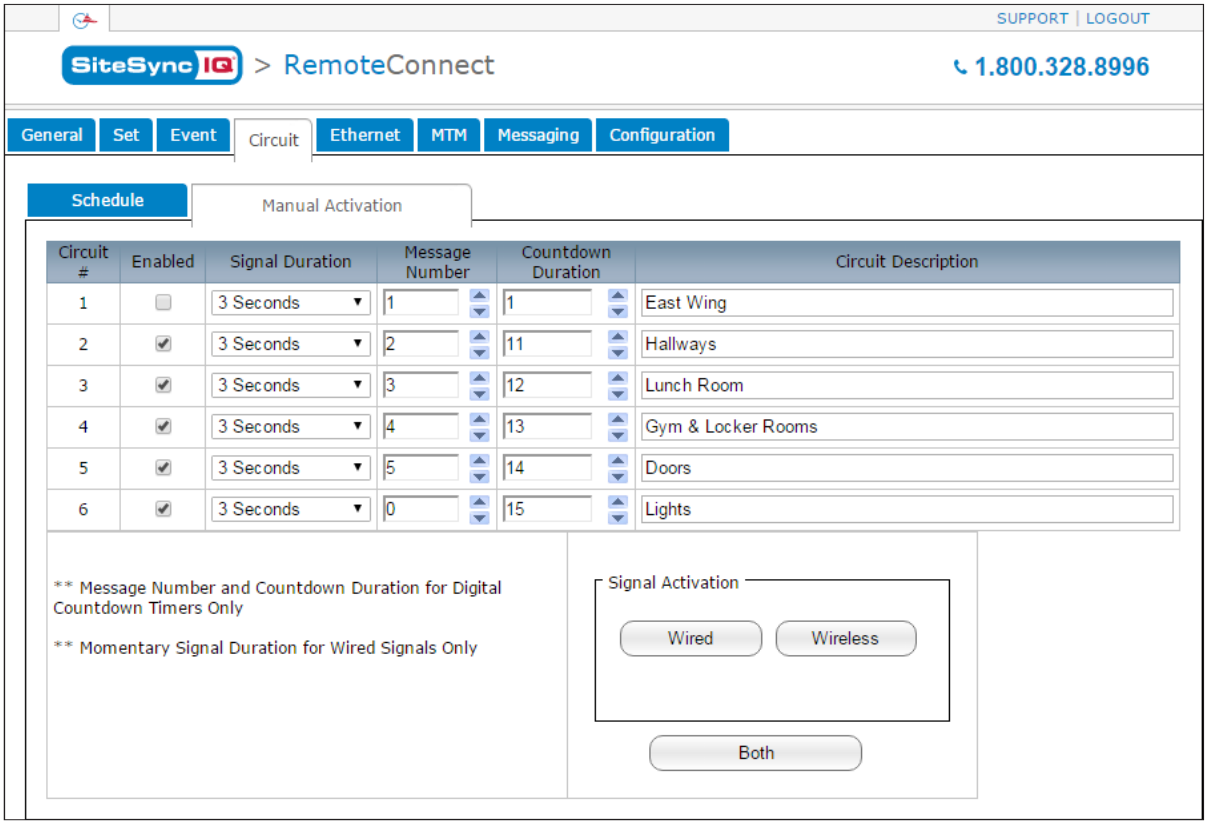


Figure 11

1. *Enabled:* This allows the user to enable or disable which circuits should be manually activated.
2. *Signal Duration:* This is the duration which the circuit will manually activate.

   —Momentary: The duration *Momentary* is only used for Wired Signal Activation. This will allow the user to signal the circuit for as long as they hold down the *Wired* button.
3. *Circuit Description:* This is the description of the circuit as assigned in the *Schedule Tab*.
4. *Wired:* This will signal the wired enabled circuits only for the duration specified in the *Signal Duration*.
5. *Wireless:* This will signal the wireless enabled circuits only for the duration specified in the *Signal Duration*.
   ■**Note:** A *Momentary* Signal Duration cannot be assigned to a wireless signal activation.
6. *Both:* This will signal the wired and wireless enabled circuits for the duration specified in the *Signal Duration*.
   ■**Note:** A *Momentary* Signal Duration cannot be assigned to a wireless signal activation.

Ethernet Tab: (Only editable with Service-level login).
The Ethernet Tab contains the network settings for the SiteSync IQ system controller.

1. *Ethernet Enable:* This allows the user to choose if the SiteSync IQ system controller should be a client, server, or both (time synchronization).
2. **DHCP:** This is the default Ethernet setting. When this box is checked, the device will automatically obtain an IP address from a DHCP server. The address received will be displayed in the Unit IP Address boxes.
   ■**Note:** If no DHCP address is received, the device will default to 192.168.10.10. In this situation, directly connect an Ethernet patch cable from the system controller to a computer that is on the same Subnet. Example: Set the connecting computer IP address to 192.168.10.11. See your Network Administrator if you do not know how to do this. More information is also available in the Ethernet troubleshooting section.

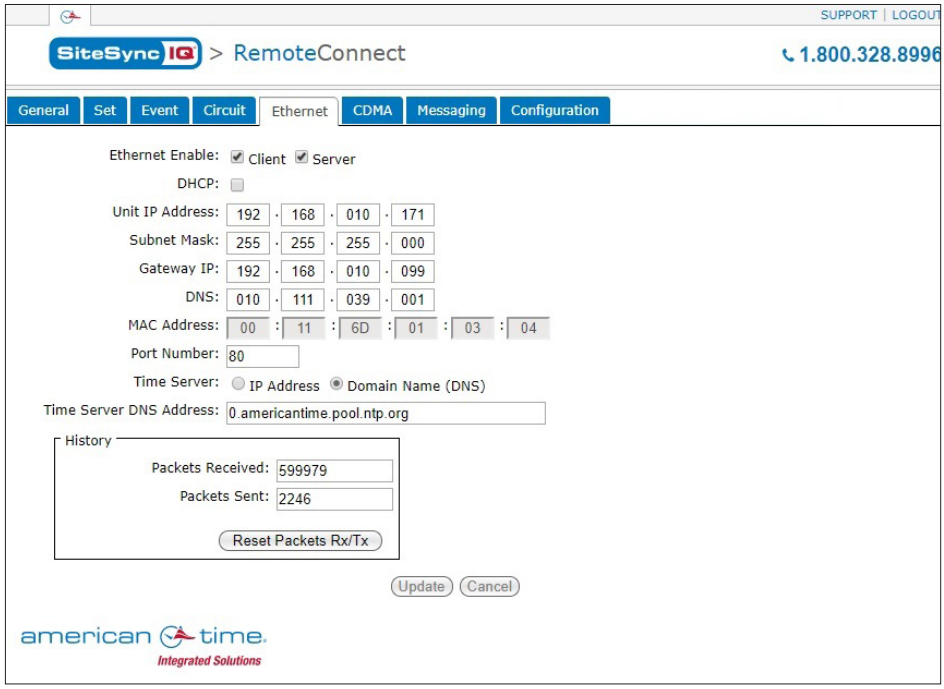


Figure 12

3. **Unit IP Address:** This displays the IP address of the system controller. These boxes are normally grayed out and can only be changed if the DHCP box is unchecked. After changing all IP fields in the Ethernet Tab, press the Update button to save the configuration.
4. **Subnet Mask:** This displays the subnet mask of the system controller. After changing all IP fields in the Ethernet Tab, press the Update button to save the configuration.
5. **Gateway IP:** This displays the assigned Gateway IP. After changing all the IP fields in the Ethernet Tab, press the Update button to save the configuration.
6. **DNS:** This displays the IP address of the network server.
7. **MAC Address:** This displays the MAC address of the SiteSync IQ system controller. This field can't be changed in Remote Connect.
8. **Port Number:** This Port Number is defaulted to 80 so that Remote Connect can be displayed. This enables the web server.
9. **Time Server:** This displays two time server options, only one can be selected.
10. **Time Server IP Address:** This displays the IP address of the time server. After changing this field, press the Update button. This is referred to as Ethernet 1 which is displayed under the general tab. Time Last Set: (Source Ethernet 1).

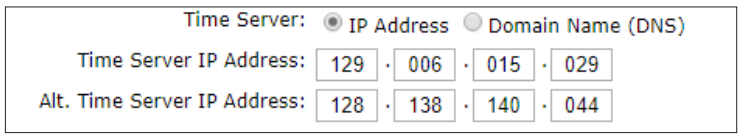


Figure 13

11. **Alt. Time Server IP Address:** This displays an alternate IP address of a time server. After changing this field, press the Update button. This is referred to as Ethernet 2 check is displayed under the General tab, Time Last Set: (Source Ethernet 2).
12. **Time Server DNS Address:** This displays the IP address from a DNS server used for SNTP synchronization (i.e. 0.americantime.pool.ntp.org or time.nist.gov).
13. **History:** This displays a history of the Ethernet activity to and from the Remote Transmitter. This can be reset by pressing the Reset Packets Rx/Tx button.

    ■**Note:** When changing these setting in Remote Connect, close your browser and log in again (with the new IP address, if applicable). Use caution when revising these settings, as you could lose connectivity after pressing Update.

GPS Tab:

The GPS Tab contains status information of the GPS antenna. This displays the signal status, signal strength, and the last signal received.

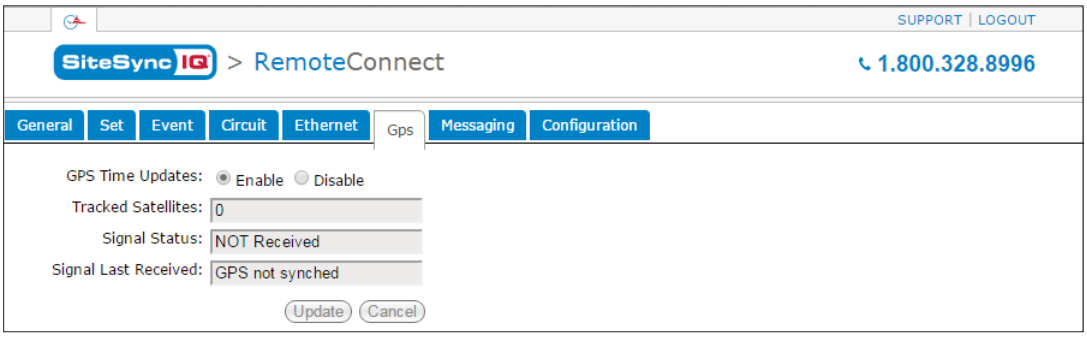


Figure 15

1. *GPS Time Updates:* This allows the user to enable or disable the GPS time synchronization source. The *Update* button must be pressed for this change to take effect.
2. *Tracked Satellites:* This displays the number of tracked satellites. There should be a minimum of 3 tracked satellites for proper reception.
3. *Signal Status:* This displays if the GPS signal has been received within the last 2 hours.
4. *Signal Last Received:* This displays the date and time of the last GPS signal reception.

Configuration Tab:

The Configuration Tab requires a service password for access. Within this tab, the user can change their passwords, update their firmware, change their time synchronization priority, or change the system controller's banner text.

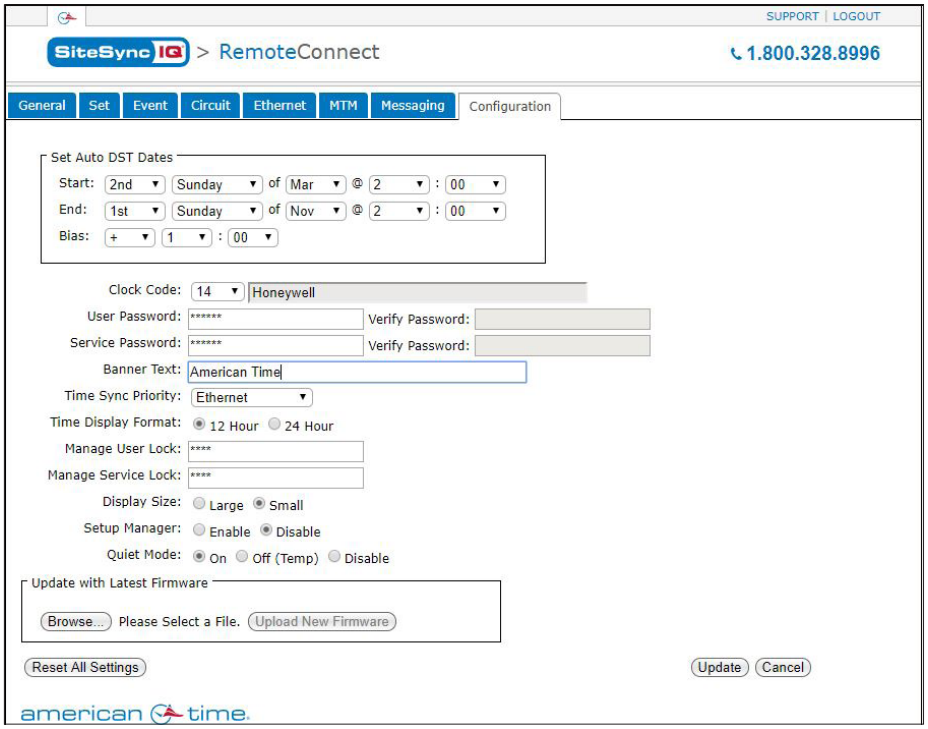


Figure 16

1. *Set Auto DST Dates:* This allows the user to change the AUTO DST dates and times. This allows for future flexibility if the DST were to change. The *Update* button must be pressed for changes to take effect.
2. *Clock Code* – This allows the user to see which clock code is currently selected to run their wired clocks. If the text is cut off, hover over with mouse to see full text. This field may not be selectable if the system controller is not configured for clock relays.
3. *User Password/Verify:* This allows the user to change the *User Password*. The *User Password* must match the *Verify Password* to be accepted. The *Update* button must be pressed for changes to take effect.
4. *Service Password/Verify:* This allows the user to change the *Service Password*. The *Service Password* must match the *Verify Password* to be accepted. The *Update* button must be pressed for changes to take effect.
5. *Banner Text:* This allows the user to change the *Banner Text* displayed on the LCD screen of the system controller. The *Update* button must be pressed for changes to take effect.
6. *Time Sync Priority:* This allows the user to change the *Time Sync Priority*. This feature is used to determine the priority of time synchronization of the system controller. The *Update* button must be pressed for changes to take effect.
7. *Time Display Format:* This allows the user to change the *Time Display Format* on the LCD screens. The format chosen will also be displayed on our American Digital Series Clocks. The *Update* button must be pressed for changes to take effect.
8. *Manage User Lock:* This allows the user to change the *User Lock* for accessing menus through the keypad of the system controller. This lock must be numeric. The *Update* button must be pressed for changes to take effect.
9. *Manage Service Lock:* This allows the user to change the *Service Lock* for accessing menus through the keypad of the system controller. This lock must be numeric. The *Update* button must be pressed for changes to take effect.
10. *Display Size:* This allows the user to change the LCD display size. The *Update* button must be pressed for changes to take effect.
11. *Setup Manager:* This allows the user to enable the Setup Wizard on a power cycle. If enabled the Setup Wizard will appear on a power cycle. The *Update* button must be pressed for changes to take effect.
12. *Update with Latest Firmware:* This allows a user to update the firmware of the system controller. The firmware file must be downloaded from the support site to the PC which is running Remote Connect.
13. *Reset All Settings:* Pressing this button will reset the system controller to factory defaults.

■**Note:** Pressing this will change the IP address of the unit and it will have to be reconfigured to meet the network specifications.

Settings and Configuration

Manually Setting Time and Date

Press [PROG] [SUN 1] and enter your user lock then [OK] (unless disabled) to access the Set Menu.

❶ Manually Setting Time:

- a. Press: [SUN 1]
- b. Enter the hours by pressing the two digit number (i.e. [OFF 0] [FRI 6])
  Press [NEXT >]

■**Note:** If 24 hour mode is active, skip to d.

- c. Toggle to AM or PM using [BACK ←]
  Press [NEXT >]
- d. Enter the minutes by pressing the two digit number (i.e. [TUE 3] [OFF 0])
  Press [NEXT >]
- e. Enter the seconds by pressing the two digit number (i.e. [WED 4] [THU 5])
  Press [OK] when finished

❷ Manually Setting Date

- a. Press [MON 2]
- b. Enter the year by pressing the four digit number (i.e. [MON 2] [OFF 0] [SUN 1] [THU 5])
  Press [NEXT >]
- c. Enter the month by pressing the two digit number (i.e. [OFF 0] [SUN 1])
  Press [NEXT >]
- d. Enter the date by pressing the two digit number (i.e. [OFF 0] [SUN 1])
  Press [OK] to accept

1a

```
Set Menu Options
1=Time      2=Date
3=Time Zone & DST
4=12/24     9=Sync Now
```

1b

```
Set Menu Hour
Time: [12]:00:00 AM
>=Mins
<=Secs          OK=Accept
```

1c

```
Set Menu Hour
Time: 12:00:00 [AM]
>=Mins      Back=AM-PM
<=Hours         OK=Accept
```

1d

```
Set Menu Min
Time: 12:[00]:00 AM
>=Secs
<=Hours         OK=Accept
```

1e

```
Set Menu Sec
Time: 12:00:[00] AM
>=Hours
<=Mins          OK=Accept
```

2a

```
Set Menu Options
1=Time      2=Date
3=Time Zone & DST
4=12/24     9=Sync Now
```

2b

```
Set Menu Year
[2015] - 01 - 01
>=Month    Back=Day
<=BkSpc         OK=Accept
```

2c

```
Set Menu Month
2015 - [01] - 01
>=Day      Back=Year
           OK=Accept
```

2d

```
Set Menu Day
2015 - 01 - [01]
>=Year     Back=Month
           OK=Accept
```

Settings and Configuration

The Config Menu offers the ability to change several settings for the SiteSync IQ Master. Press [PROG] [SAT 7] and enter your service lock to access the Configuration Menu.

❸ Manage Locks: From Config Menu press [SUN 1]

- a. User Lock. Press: [SUN 1] and enter a new 4 digit User Lock OR Press 0000 to disable this feature.
  User Lock ____ ____ ____ ____
- Press [OK]

■**Note:** User Lock is the user security level used for accessing time/date and event menus.

- b. Service Lock. Press: [MON 2] and enter a new 4 digit Service Lock or enter 0000 to disable this feature.
  Service Lock: ____ ____ ____ ____
- Press [OK]

■**Note:** Service Lock is the service security level used for accessing System Controller configuration menus.

3a

```
Config Menu
Choose User Lock:
      xxxx
0000=Disable     OK=Done
```

3b

```
Config Menu
Choose Service Lock:
      xxxx
0000=Disable     OK=Done
```

❹ Time Sync Priority: From the Config Menu press [TUE 3]

This feature is used to determine the priority of time synchronization of the System Controller. This screen only displays the sync options that your System Controller supports.

- a. Press the number that corresponds to your time sync priority
- b. Enter the minutes and seconds that the System Controller should attempt to synchronize each hour to the time sync option chosen.

4a

```
Config Menu
Time Sync Priority
1=(GPS)
2=Ethernet              Ok=Done
```

4b

```
Config Menu
 Time Sync Priority
   Set to Ethernet
 At  04:15              OK=Done
```

❺ Clock Code: From the Config Menu press [WED 4]

This feature is used to set the clock code for wired clock circuits.

- a. Enter the clock code using the keypad
- b. Press [OK]

5

```
Config Menu
Select Clock Code
    01
    OK=Done
```

❻ Clear/Restore: From the Config Menu press [THU 5]

This feature allows for the deletion of all events or restoration of the System Controller to factory defaults.

- a. Press [MON 2] to delete all events or [OFF 0] to cancel.
- b. Press [SUN 1] to restore factory defaults or [OFF 0] to cancel.

6a

```
Config Menu
Clear All Events
1=Confirm
0=Cancel
```

6b

```
Config Menu
Restore Factory
Settings
1=Confirm    0=Cancel
```

❼ Setup Manager: From the Config Menu press [FRI 6]

This feature allows for the enabling and disabling of the Setup Wizard.

- Press [SUN 1] to Enable or [MON 2] to Disable.
- Press [OK] when finished.

❽ Banner Text: From the Config Menu press [SAT 7]

This feature allows for the customization of the banner text (up to 20 characters) displayed on the main screen.

- Use [PREV <] and [NEXT >] to scroll through the available list of characters. Press [OK] to move to the next character.
- Press [OK] when finished.

❾ Display Settings: From the Config Menu press [AUTO 8]

This feature allows for the display to be presented in a small or large format. The contrast of the screen can also be set.

- a. Display size: Press [SUN 1] and choose [SUN 1] for large or [MON 2] for small.
- b. Contrast Ratio: Press [MON 2] and use the [PREV <] and [NEXT >] keys to change the contrast.
- Press [OK] when finished.

❿ Auto DST Settings: From the Config Menu press [ADJ 9]

This feature allows the AUTO DST settings to be configured as necessary. This setting does not need to be changed unless the Energy Policy Act of 2005 is amended.

- a. Start of DST: Use the [PREV <] and [NEXT >] keys to choose the starting week, day and month. Press [OK] after each selection. Use the keypad to enter the Bias and the [PREV <] and [NEXT >] keys to set the "+" or "-".
- Press [OK] when finished.
- b. End of DST: Use the [PREV <] and [NEXT >] keys to choose the ending week, day and month. Press [OK] after each selection.
- Press [OK] when finished.

⓫ USB Flash Drive

Refer to Appendix F for instructions on updating the software on the AllSync IQ Master.

8

```
Config Menu
Setup Wizard:
      Disabled
1=Enable   2=Disable
```

9

```
Config Menu
Change Banner Txt  1
American Time
<>=Change              OK=Acpt
```

10a-large text mode

```
10:30      :06
           AM
MON FEB 09 2008
```

10a-small text mode

```
TUE  FEB  09  2008
10:30:06 AM  USCT
American Time
Status=AUTO   GPS=N
```

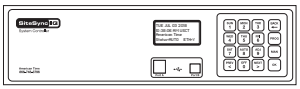
11a

```
Config Menu
START OF DST:
   2nd   SUN   of   MAR
BIAS  + 1:00          OK=Acpt
```

11b

```
Config Menu
END OF DST:
   Last   SUN   of   OCT
                  OK=Accept
```

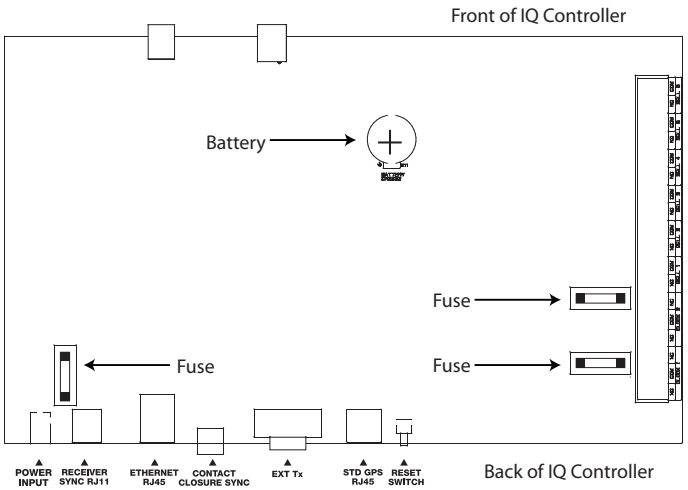
Troubleshooting System Controller



If you have any of these problems, follow the appropriate steps:

1. **System controller appears off (LCD dark) when power is connected:**
   - Disconnect power and remove top cover. Check fuse and replace if necessary.
2. **Power has been reset, Press OK is displayed on the LCD screen:**
   - Verify that the power source is stable
     -Press OK if there was a power outage
     -Press OK if power is not supplied by a switchable plug
     -Press OK if unit was unplugged
   - Determine source of power loss
3. **Unit Crashed. Press OK is displayed on the LCD screen:**
   -The system controller will automatically reset and resume normal operation if the unit crashes.
   -Diagnostic information is saved to the unit for troubleshooting.
   -If this occurs frequently, please update to the newest firmware, as the issue may have already been resolved.
4. **Incorrect time is displayed by system controller after loss of power:**
   - Backup battery may be dead. Check for "Low Battery Voltage" message when time is displayed in small text (see Display Settings section). If this message is displayed, replace battery with new CR2032 or equivalent 3v lithium battery. Install battery with + side up, as shown below.
5. **Power outage during Daylight Saving Time correction:**
   - If there is a power outage during the correction period for Daylight Saving Time, the secondary clocks might not correct. In this case, the clocks can be reset manually (see Clock Troubleshooting) or they will automatically reset during their next reception attempt after the power is restored.
6. **Signal circuits not responding to programmed events:**
   - Refer to Wired Signal Circuit Troubleshooting Guide.
7. **Unable to synchronize with Ethernet Time Source:**
   - Refer to the Ethernet Troubleshooting Guide.
8. **Unable to synchronize with GPS Time Source:**
   - Refer to the GPS Troubleshooting Guide.
9. **Lost or forgotten User Lock:**
   - Contact American Time Technical Support at the number listed below.
10. **SiteSync IQ System Controller locks up or display goes blank:**
    - Use a pen, small screwdriver or paperclip to press the reset button (See diagram in Appendix G). **OR**
    - Remove power from the unit by switching the Power Input switch off, wait 5 seconds, then turn the unit back on.

If the problem cannot be resolved after following these steps, call Technical Support at American Time at 800-328-8996.



Troubleshooting GPS

If you have trouble synchronizing to GPS, follow these troubleshooting steps:

1. If GPS receiving antenna has been connected to the SiteSync IQ System Controller for less than 25 minutes, the GPS time signal may be inaccurate. Allow more time. If still not synchronizing follow these steps:

   Press: PROG THU 5, to check the GPS signal status.

   ```
   GPS Time Menu
   Choose:
   1=Signal Status
   2=Enable/Disable
   ```

   Press: SUN 1, to check signal status.

   ```
   GPS Time Menu - LAST
   Signal Last Received
   01-06-2014      12:28:15A
   OK=Done      1=Retry
   ```

   If no signal was received, continue to Step 2.

   ```
   GPS Time Menu
   No Signal Last Rec.
   01-06-2014      12:28:15A
   OK=Done      1=Retry
   ```

   If signal was received, press OK to view number of connected satellites. Press OK BACK BACK to return to the Main screen.

   ```
   GPS Time Menu-Now
   Satellites: 3
   01-06-2014      12:28:15A
   USCST                    OK=Next
   ```

   ■**Note:** If 0 satellites are connected, continue the troubleshooting steps.

2. Check the GPS cable connections between the System Controller and GPS antenna. Replace any damaged cables and verify the connectors are securely locked together. If you are using extension cables, try temporarily moving the system controller closer to the GPS antenna and connect without the extension cables (if possible).
3. If no signal has been received after checking the status and configuration, move the GPS antenna to a better location and follow the installation and configuration steps again.
4. Ensure the GPS update function is enabled:

   Press PROG THU 5 MON 2;

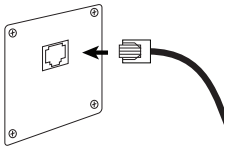
   Enter User Lock, then press OK;

   Display should show:

   ```
   Set Menu Mode
   GPS Update Enabled
   1=Disable GPS Update
                    OK=Done
   ```

   If not, press SUN 1 then OK.
5. Inspect the GPS antenna for damage. Look for signs of lightning strikes or falling debris.
6. Look for obstructions to the antenna's view of the sky and remove them if possible (example: tree branches). Clear any snow or ice off the antenna and surrounding area.
7. If the GPS antenna is installed behind a Low-E glass window or skylight, try another location or replace the glass if possible.

If the problem cannot be resolved after following these steps, please call Technical Support at American Time at 800-328-8996.



Troubleshooting Ethernet

If you have trouble connecting the SiteSync IQ System Controller via Ethernet, follow these troubleshooting steps:

1. Check the Ethernet cable connection to the SiteSync IQ System Controller. Make sure the patch cable is securely connected to the Ethernet RJ-45 port and that it is not damaged. Have the cable tested or connect a computer or another Ethernet device to this cable to confirm proper connection.
2. Ensure that the Ethernet is enabled. From the main screen:
   Press: PROG, AUTO 8, MON 2, enter User Lock, and press OK. Press MON 2 to enter the Client menu.
   If Ethernet is Disabled, press SUN 1 to enable and press OK.

```
Comm Menu
Enable/Disable
1=Remote Program
2=Client  3=Server
```

```
Comm Menu
Client
1=Enable   2=(Disable)
OK=Done
```

   Verify the packet counts for RX and TX are greater than 0. Press SUN 1, OK, NEXT > from the Comm Menu.
   If greater than 0 press OK, BACK ←, BACK ← to return to the Main screen. If packet counts are 0, continue with troubleshooting steps.

```
Comm Menu
Packets RX:0
Packets TX:0
0=Reset            OK=Done
```

3. Initiate Sync Now:
   Press: PROG, SUN 1 to Set Menu Mode.
   Enter User Lock and press OK.
   Press: ADJ 9 to sync the System Controller with Ethernet. Press NEXT > until Ethernet option is chosen.
   Press AUTO 8 to sync with Ethernet.

```
Set Menu Mode
Time Sync Option is
Available: Ethernet
8=Sync now         OK=Set
```

4. Confirm all Network settings (see "Ethernet Installation" section of this manual). Make sure the SiteSync IQ System Controller is configured properly.
5. Change the Time Server IP address to a different timeserver among those listed in Appendix A. Perhaps the timeserver that the system controller is attempting to communicate with is down or not responding quickly enough due to network traffic, etc.
6. Press PROG, AUTO 8, THU 5, to See the current IP address. Confirm the IP address is valid and no other device or computer on the network is using the same IP address.
7. Ensure that the Network has port 123 open for SNTP or port 13 open for Daytime Protocol.
8. Ping the IP address of the unit from another computer to see if it is responding. Check with your Network Administrator if you do not know how to do this.
9. Test the time server by attempting to get a time stamp from another computer. Check with your Network Administrator if you do not know how to do this.

If the problem cannot be resolved after following these steps, please call Technical Support at American Time at 800-328-8996.

Troubleshooting Remote Connect

If you have trouble connecting the SiteSync IQ System Controller to the Remote Connect software, follow these troubleshooting steps:

1. Check the Ethernet cable connection to the SiteSync IQ System Controller. Make sure the patch cable is securely connected to the Ethernet RJ-45 port and that it is not damaged. Have the cable tested or connect a computer or another Ethernet device to this cable to confirm proper connection.
2. Ensure that the Remote Programming is enabled. From the main screen:
   Press: PROG AUTO 8 MON 2, enter User Lock, and press OK. Press SUN 1 to enter the Remote Prog menu.

```
Comm Menu
Enable/Disable
1=Remote Program
2=Client   3=Server
```

   If Remote Programming is Disabled, press SUN 1 to enable and press OK.

```
Comm Menu
Remote Programming
1=Enable
2=Disable              OK=Done
```

3. Confirm all Network settings (see "Ethernet Installation" section of this manual). Make sure the SiteSync IQ System Controller is configured properly.
4. Press PROG AUTO 8 THU 5, to See the current IP address. Confirm the IP address is valid and no other device or computer on the network is using the same IP address.. The Network Administrator should be able to resolve any conflicts.
5. Ensure the Network has Port 80 open.
6. Ping the IP address of the unit from another computer to see if it is responding. Check with your Network Administrator if you do not know how to do this.
7. If the Sitesync IQ system controller is configured in DHCP mode and you are not able to connect to the Remote Connect interface, ensure that the device is on a network that will serve DHCP addresses. If no DHCP server is present or fails to receive an address, the SiteSync IQ system controller will default to 192.168.10.10. Try connecting to the SiteSync IQ system controller by typing in its IP address in the address field of the browser in this format: http://xxx.xxx.xxx.xxx./ or Host Name: http://ssiqxxxxxx/ and click Enter.

■**Note:** The connecting computers IP address must be on the same Subnet.

Example 1 - IP address

Example 2 - Host Name

If the problem cannot be resolved after following these steps, please call Technical Support at American Time at 800-328-8996.

Troubleshooting Contact Closure Sync

If you have trouble connecting the SiteSync IQ System Controller via Contact Closure, follow these troubleshooting steps:

1. Verify that contact closure sync is enabled:
   a. System Controllers with {GPS + Ethernet} or do not have contact closure input capability. See the table on Page 5 and refer to your model number.
   b. Confirm contact closure is enabled in the Comm Menu by pressing PROG ADJ 9 User Lock OK. See Page 18 for more information.
2. Check the Contact Closure connection to the IQ System Controller. Make sure the two wires are securely connected.
3. Ensure that the sync time is correct. See instruction on Page 18 for setting the sync time on the SiteSync IQ System Controller. Refer to the instructions provided by the manufacturer of any connected device to set its sync time.
4. Test contact closure wiring by removing the two wires from the output device and shorting them together. If this does not result in the receiving device going to the specified sync time, try removing the two wires from the receiving device and using a jumper wire to short the terminals.

If the problem cannot be resolved after following these steps, please call Technical Support at American Time at 800-328-8996.

Troubleshooting Wired Clock Circuit

If you have trouble operating wired clock circuits, follow these troubleshooting steps:

1. Ensure you have the clock code configured in your system controller:
   a. Press PROG SAT 7 to enter the Config Menu
   b. Enter your Service Lock if necessary.
   c. Press WED 4 to enter the Clock Code select screen and verify that it is correct.

2. If the system controller time was recently changed, allow up to 24 hours for secondary clocks to re-synchronize to the system controller.
3. Ensure there is sufficient voltage across each secondary clock.
4. If fewer that 25 AllSync secondary clocks are connected to the system controller, the secondary clocks might not recognize the correction from the system controller. Connect all intended clocks and allow time for normal system controller correction. If secondary clocks still have not corrected, you may need additional hardware. Contact American Time Technical support for information on adding a Resistor Pack (Part #H001941) to your system.

If the problem cannot be resolved after following these steps, please call Technical Support at American Time at 800-328-8996.

Troubleshooting Wired Signal Circuit

If you have trouble operating wired signal circuits, follow these troubleshooting steps:

1. Signal circuits not responding to programmed events:
   a. Make certain that the system controller status is set to AUTO:

      Press [AUTO 8], enter User Lock, if applicable, and press [OK].

   b. Confirm that signal circuits are enabled. From the View Circuits screen:

      Press [TUE 3] to enter the Enable Circuits screen to view or change the control status of individual circuits.

      ```
      Circuit Menu
      Enable Cir:   OK=Done
      1=On  2=On  3=On
      4=On  5=On  6=On
      ```

   c. Confirm that signal circuits and events programmed to control them are assigned to the same schedule.

   d. Check for correct voltage at signal relay contacts. The COM (common) terminals should measure full voltage all the time. The NO (normally open) terminals should have power only when the circuit is activated.

2. Signal circuit(s) On when they should be Off:
   a. Press [MAN], enter User Lock, if applicable, and press [OK]. Then choose circuit(s) to activate/deactivate.

   b. If the circuit does not toggle On or Off, check for stray voltage on the signal relay normally open contacts.

   ■**Note:** You can try disabling the surge protection circuitry by switching it off (see diagram). These switches are located inside the wiring compartment. Remove power to the System Controller and signal circuit lines before removing cover to access wiring.

   c. Verify the LED for the circuit is Off (see diagram).

3. Signal circuits not responding at all:
   a. Carefully open the top cover of the SiteSync IQ System Controller by removing the screws on each side of the unit.

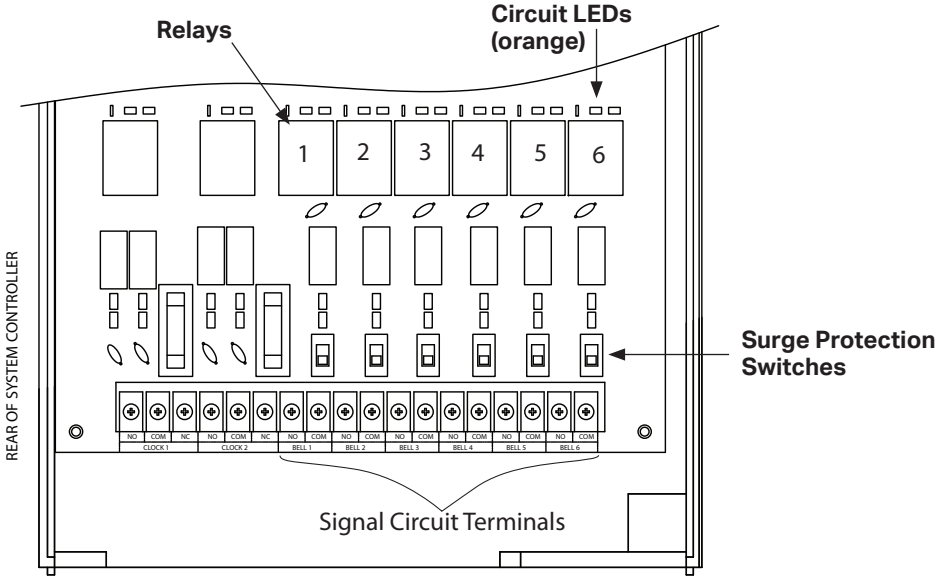
   b. Press the [MAN] key, enter User Lock, if applicable, then press [OK].

   c. Choose the circuit(s) you wish to test and press the [MAN] key to trigger the applicable relay(s).

   d. Observe the LED(s) next to the circuit relays being tested. If they light up when the circuit is being triggered, verify the operation of the relay by measuring the voltage on the relay terminals. The NO terminal should have power. If they don't light up, verify the circuits are enabled (see Step 1b above).

■**IMPORTANT NOTE:** Relay 6 will be inoperable for running events when the SiteSync IQ System Controller is being used to provide contact closure synchronization (Tx mode).

If the problem cannot be resolved after following these steps, please call Technical Support at American Time at 800-328-8996.



Clock Troubleshooting

Secondary Clocks Not Synchronized

1. Make certain the system controller is running the correct clock code (see page 41).
2. If the system controller time was recently changed, allow up to 24 hours for secondary clocks to re-synchronize to the system controller.
3. Make sure there is sufficient voltage across each secondary clock.
4. If fewer than 25 AllSync secondary clocks are connected to the system controller, the secondary clocks might not recognize the correction from the system controller. Connect all intended clocks to allow time for normal system controller correction. If secondary clocks still have not corrected, you may need additional hardware. Contact American Time Technical Support for information on adding a Resistor Pack (Part #H001941) to your system.

If the problem cannot be resolved after following these steps, please call Technical Support at American Time at 800-328-8996.

Appendix A: Ethernet Timekeeping

NIST Internet Time Servers

Using the SiteSync IQ System Controller as a Time Server

The SiteSync IQ System Controller with Ethernet option can be used as a time server supporting the SNTP and Daytime protocols and can be used to synchronize computers or other devices via the Ethernet. A typical configuration would be a SiteSync IQ System Controller with GPS and Ethernet options, where GPS is used as the time source for the IQ System Controller and Ethernet is used to sync the time on a network server or various workgroup computers.

To set up your computer or other device to synchronize to the IQ System Controller, simply enter the IP address of the IQ System Controller as the time server address for the computer or device.

In Windows XP:

1. Right-click your clock and then click **Adjust Date/Time**.
2. Click the **Internet Time** tab. click the **Server** down arrow, and then enter the IP address of the IQ System Controller you wish to synchronize this computer to (example: 192.168.1.200).
3. Click **Update Now**. Windows XP will connect to the IQ System Controller and set the computer's clock.

In Windows 7:

1. Right-click your clock and then click **Adjust Date/Time**.
2. Click the **Internet Time** tab, and then click **Change Settings**.
3. **Check Synchronize with an Internet time server**, enter the IP address of the IQ System Controller you wish to synchronize this computer to (example: 192.168.1.200), and then click OK.

■**Important Notes:**

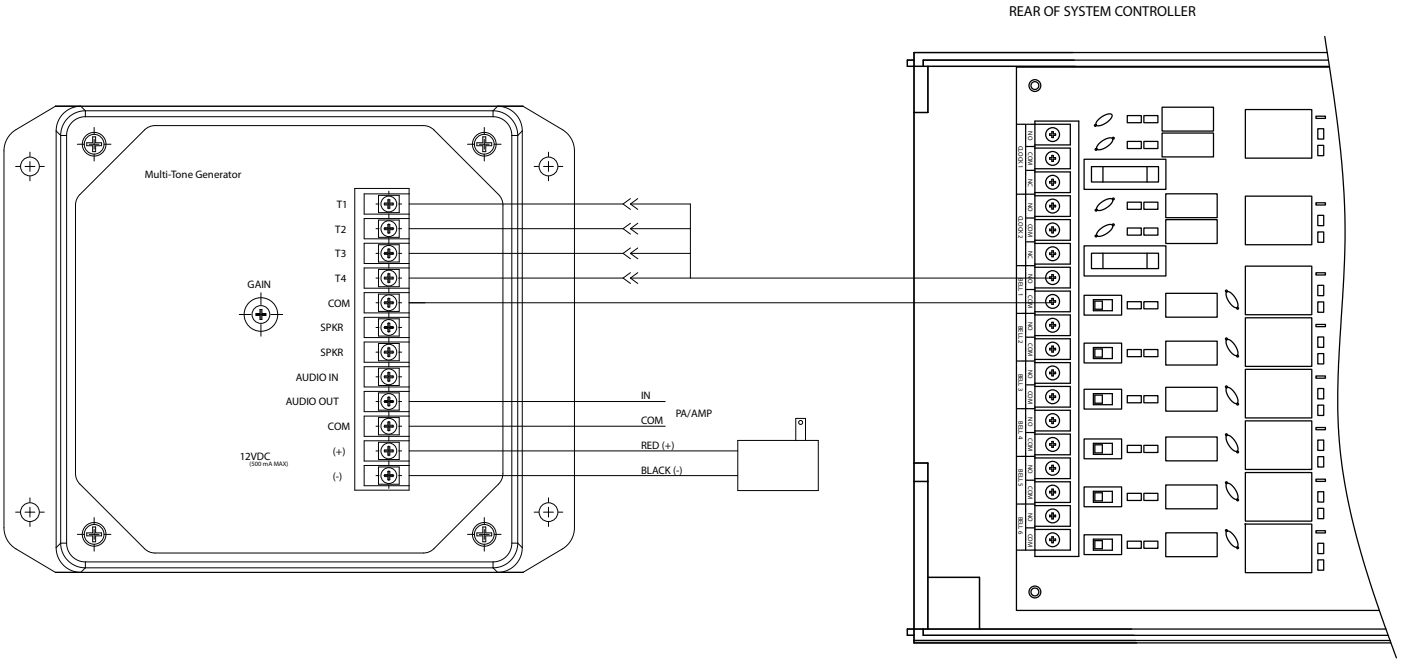
- Setting up your computer to synchronize to the IQ System Controller via Ethernet does not account for time zone and Daylight Saving Time settings, which must be properly set on the computer (they are not transferred via Ethernet).
- The computer or other device being synchronized to the IQ System Controller must be on the same network as the IQ System Controller, or have access to it through a firewall (port 123 open for SNTP and port 13 open for Daytime Protocol).
- If your computer is on a domain, it is set up to get the time from the domain controller and you will not be able to perform the above tasks. Domain controllers using the Windows Time Service can be set up by your network administrator to synchronize directly to time servers on the Internet or to the IQ System Controller. Contact American Time Technical Support at 800-328-8996 with any questions.

■**Note:** Please reference http://tf.nist.gov/tf-cgi/servers.cgi for the latest NIST Internet Time servers list, which includes the status of each server.

Appendix B: Supported Time Zones

Time Zone Code	Description	Hours Difference from UTC (Winter)	Hours Difference from UTC (Summer)	Automatic Daylight Saving Time Adjustment?
00	LMT (Local Mean Time) - based on longitude	CALCULATED	CALCULATED	CONFIG
01	USA Alaska	-9	-8	YES
02	USA Aleutian (HAST/HADT)	-10	-9	YES
03	USA Arizona	-7	-7	NO
04	USA Atlantic / Puerto Rico (AST)	-4	-4	NO
05	USA Central (CST/CDT)	-6	-5	YES
06	USA Chammoro (chST)	+10	+10	NO
07	USA Eastern (EST/EDT)	-5	-4	YES
08	USA Hawaii (HST)	-10	-10	NO
09	USA Indiana East	-5	-5	NO
10	USA Mountain (MST/MDT)	-7	-6	YES
11	USA Pacific (PST/PDT)	-8	-7	YES
12	USA Midway Island / Samoa (SST)	-11	-11	NO
13	USA Wake Islands (WAKT)	+11	+11	NO
14	UTC+0	+0	+0	CONFIG
15	UTC+1	+1	+1	CONFIG
16	UTC+2	+2	+2	CONFIG
17	UTC+3	+3	+3	CONFIG
18	UTC+4	+4	+4	CONFIG
19	UTC+5	+5	+5	CONFIG
20	UTC+6	+6	+6	CONFIG
21	UTC+7	+7	+7	CONFIG
22	UTC+8	+8	+8	CONFIG
23	UTC+9	+9	+9	CONFIG
24	UTC+10	+10	+10	CONFIG
25	UTC+11	+11	+11	CONFIG
26	UTC+12	+12	+12	CONFIG
27	UTC+13	+13	+13	CONFIG
28	UTC-1	-1	-1	CONFIG
29	UTC-2	-2	-2	CONFIG
30	UTC-3	-3	-3	CONFIG
31	UTC-4	-4	-4	CONFIG
32	UTC-5	-5	-5	CONFIG
33	UTC-6	-6	-6	CONFIG
34	UTC-7	-7	-7	CONFIG
35	UTC-8	-8	-8	CONFIG
36	UTC-9	-9	-9	CONFIG
37	UTC-10	-10	-10	CONFIG
38	UTC-11	-11	-11	CONFIG
39	UTC-12	-12	-12	CONFIG
99	Custom Time Zone	CONFIG	CONFIG	CONFIG

Appendix C: Tone Generator Wiring



Appendix D: Wired Signal Circuit Programming Examples

Example: Programming Recurring Events

To program a new event in Schedule 2 that turns on signal circuits for 5 seconds starting at 8:55 AM every weekday Monday-Friday, press:

Step 1: [PROG]
Step 2: [MON 2]
Step 3: Enter User Lock (unless User Lock is disabled)
Step 4: [OK] (unless User Lock is disabled)
Step 5: [SUN 1] for Schedule/Event
Step 6: [OFF 0] [MON 2] for Schedule 2
Step 7: [OK]
Step 8: [PREV <] if necessary to display New Event
Step 9: [ADJ 9] to deselect Saturday and Sunday
Step 10: [OK] to accept day selection
Step 11: [OFF 0] [AUTO 8] [THU 5] [THU 5] for time
Step 12: [PREV <] if necessary to select AM
Step 13: [OK] to accept time
Step 14: [THU 5] for event duration
Step 15: [OK] to accept duration
Step 16: [OK] to save event

At this point, to program a new event for the same schedule, days and duration, simply Press [SUN 1] and enter the new start time and press [OK]. To stop programming similar events press [MON 2]. Press [BACK ←] to exit Event Menu. Press [BACK ←] again to exit Program Menu if programming is complete.

Example: Reviewing and Editing Events by Schedule

To change only the duration of Event 24 in Schedule 2 to 6 seconds, press:

Step 1: [PROG]
Step 2: [MON 2]
Step 3: Enter User Lock (unless User Lock is disabled)
Step 4: [OK] (unless User Lock is disabled)
Step 5: [SUN 1] for Schedule/Event
Step 6: [OFF 0] [MON 2] for Schedule 2
Step 7: [OK]
Step 8: [OFF 0] [OFF 0] [MON 2] [WED 4] for event number
Step 9: [OK] to jump to event 24
Step 10: [OK] to show event weekdays
Step 11: [OK] to accept day selection
Step 12: [OK] to accept time
Step 13: [FRI 6] for event duration
Step 14: [OK] to accept duration
Step 15: [OK] to save event

Press [BACK ←] to exit Event Menu. Press [BACK ←] again to exit Program Menu if review/edit is complete.

Appendix D: Wired Signal Circuit Programming Examples

Example: Programming Signal Circuits

To assign Signal Circuit 1 to Schedule 12 with a default duration of 5 seconds, and Signal Circuit 4 to Schedule 6 with a default duration of 8 seconds, press:

Step 1: [PROG]
Step 2: [TUE 3]
Step 3: Enter User Lock (unless User Lock is disabled)
Step 4: [OK] (unless User Lock is disabled)
Step 5: [SUN 1] for Schedule
Step 6: [SUN 1] to select Circuit 1
Step 7: [SUN 1] [MON 2] to assign Circuit 1 to Schedule 2
Step 8: [OK]
Step 9: [MON 2] to select Duration
Step 10: [THU 5] to set Circuit 1 default duration to 5 seconds
Step 11: [SUN 1] to select Schedule
Step 12: [WED 4] to select Circuit 4
Step 13: [OFF 0] [FRI 6] to assign Circuit 4 to Schedule 6
Step 14: [OK]
Step 15: [MON 2] to select Duration
Step 16: [AUTO 8] to set Circuit 4 default duration to 8 seconds

Press [PROG] to exit Signal Circuit Menu. Press [BACK ←] again to exit Program Menu if programming is complete.

Example: Programming Special Events

To program a new special event in Schedule 2 that turns on signal circuits for 8 seconds starting at 3:45 PM on October 31, 2008, press:

Step 1: [PROG]
Step 2: [MON 2]
Step 3: Enter User Lock (unless User Lock is disabled)
Step 4: [OK] (unless User Lock is disabled)
Step 5: [SUN 1] for Schedule/Event
Step 6: [OFF 0] [MON 2] for Schedule 2
Step 7: [OK]
Step 8: [PREV <] if necessary to display New Event
Step 9: [OK]
Step 10: [OFF 0] to select Special
Step 11: [MON 2] [OFF 0] [OFF 0] [AUTO 8] to change year to 2008
Step 12: [OK] to accept year
Step 13: [SUN 1] [OFF 0] to change month to October
Step 14: [OK] to accept month
Step 15: [SUN 1] to select Set Date
Step 16: [TUE 3] [SUN 1] to set date

Appendix D: Wired Signal Circuit Programming Examples

Example: Programming Special Events (continued)

Step 17: [OK]
Step 18: [OFF 0] [TUE 3] [WED 4] [THU 5] to set start time
Step 19: [NEXT >] to select PM
Step 20: [OK]
Step 21: [AUTO 8] to set duration
Step 22: [OK]
Step 23: [OK] to save event

Press [BACK ←] to exit Event Menu. Press [BACK ←] again to exit Program Menu if programming is complete.

Example: Switching Assigned Schedules

This example will demonstrate a temporary holiday schedule switch. The current schedule (01) will be switched to Sch 02 on December 23, 2008 at Midnight and then switched back after a period of time.

Step 1: [PROG] [TUE 3] and enter User Lock (if applicable). Press [SUN 1].
Step 2: Select a circuit in which the schedule is to change (1-6). For our example, we'll select circuit 1.
Step 3: Press [MAN] to change the schedule on circuit 1.
Step 4: Press [SUN 1].
Step 5: Use the [PREV <] [NEXT >] keys to select a schedule to change to. Only schedules with events programmed will be selectable.
Step 6: Press [SUN 1].
Step 7: Enter the year 2008 and press [OK].
Step 8: Enter the month 12 and press [OK].
Step 9: Enter the day 23 and press [OK].
Step 10: Enter the time (hours) 12 and press [OK].
Step 11: Enter the time (minutes) 00 and press [OK].
Step 12: Select AM using the [PREV <] [NEXT >] keys and press [OK].
This should return you to the replacement schedule screen (Step 4)

To change the schedule back to Sch 01 on January 15, 2009:

Step 13: Press [MON 2].
Step 14: Use the [PREV <] [NEXT >] keys to select the original schedule.
Step 15: Press [OK].
Step 16: Enter the year 2009 and press [OK].
Step 17: Enter the month 01 and press [OK].
Step 18: Enter the day 15 and press [OK].
Step 19: Enter the time (hours) 12 and press [OK].
Step 20: Enter the time (minutes) 00 and press [OK].
Step 21: Select AM using the [PREV <] [NEXT >] keys and press [OK].
This should return you to the replacement schedule screen (Step 4).
Step 22: Press [PROG] [BACK ←] to exit to the main screen.

Appendix E: Checking IQ System Controller Status Information

Turn on the power to the System Controller

Press [PROG] [FRI 6] to access the Status Menu.

❶ Clock Code: From the Status Menu press [SUN 1]

This displays the currently configured clock code.

- Press [OK] to exit.

❷ Last Time Set: From the Status Menu press [MON 2]

This displays when the time was last set on the IQ System Controller (and by what means).

- Press [OK] to exit.

❸ Software Version: From the Status Menu press [TUE 3]

This displays the software version and the date it was created.

- Software Version: _____
- Press [OK] to exit.

❹ Serial Number: From the Status Menu press [WED 4]

This displays the IQ System Controller's serial number.

- Serial Number: _____
- Press [OK] to exit.

❺ Unit Configuration: From the Status Menu press [THU 5]

This displays the model configuration of the IQ System Controller, set at the factory.

- Unit Configuration Code: _____
- Press [OK] to exit.

❻ Model Number: From the Status Menu press [FRI 6]

This displays the model number of the IQ System Controller.

- Model Number: _____
- Press [OK] to exit.

❼ Call Sign: From the Status Menu press [SAT 7]

This displays the call sign of the IQ System Controller.

- Call Sign: _____
- Press [OK] to exit.

❽ Previous/Next: From the Status Menu press [AUTO 8]

This displays the next scheduled event. Pressing [NEXT >] will scroll through the events in chronological order.

- a. Regular Events
- b. Special Events
- Press [OK] to exit.

❾ Cap Codes: From the Status Menu press [ADJ 9]

This displays a menu to select a cap code to view:

1. IQ Time Cap Code: _____
2. IQ Events Cap Code: _____
3. Legacy Time Cap Code: _____
4. Legacy Events Cap Code: _____
5. Call Sign Cap Code: _____
6. Other 2 Cap Code: _____

- Press [OK] to exit.

❿ Power/Transmission: From the Status Menu press [OFF 0]. This displays:

1. Power: Last time power was restored to system controller.

Screen shots are examples

1

```
Status Menu
Configured Clock
Code=01
                    OK=Done
```

2

```
Status Menu
Time Last Set
2014 - 02 - 09  01:05:00 A
                    OK=Done
```

3

```
Status Menu
Software Ver  1.00
Created  2013 - 05 - 28
                    OK=Done
```

4

```
Status Menu
Serial Number:
  001160010000
                    OK=Done
```

5

```
Status Menu
Unit configuration:
       0113
                    OK=Done
```

6

```
Status Menu
Model Number:
     SSQMSTR-05N6GE
                    OK=Done
```

7

```
Status Menu
Call Sign:
      WQFW336
                    OK=Done
```

8a

```
Status Menu
Next Signal :      _2_456
Event 0005 :     12:00 AM
SMTWTFS              OK=Done
```

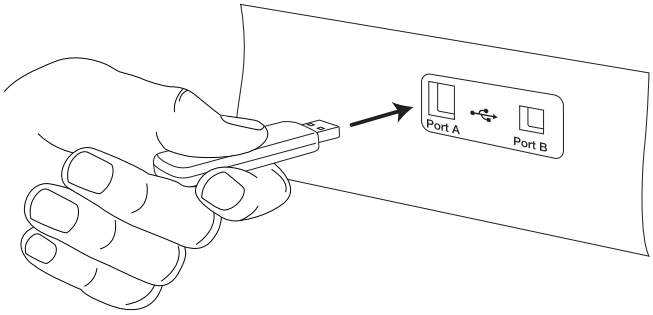
8b

```
Status Menu
Next Event :       _2_456
Event 0009 :     10:01 AM
2014 - 02 -109       OK=Done
```

Appendix F: USB Flash Drive

USB Update Programming

❶ Insert USB drive into the bottom slot of Port A.



■**Note:** Ensure USB drive only contains the .BIN file.

❷ Enter Service Lock when prompted. Press [OK].

```
Config Menu
Enter Service Lock:
                XXXX
PROG=Exit          OK=Enter
```

❸ Press [OK] to update software.

```
Config Menu
Flash Drive Action
   Update Software
<>=Scroll          OK=Accept
```

❹ Wait approximately 4 minutes for update.

❺ The Main screen is displayed when the update is complete.

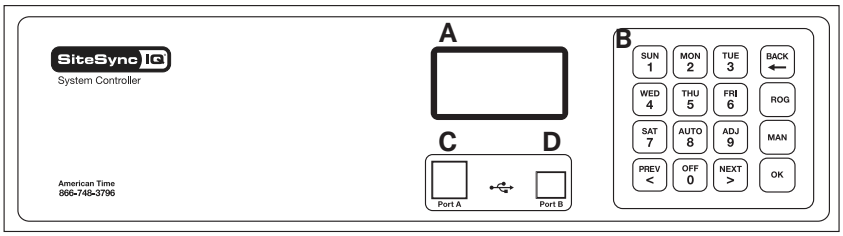
```
MON  MAR  10  2014
10:38:06 AM  USCT
American Time
Status=Circts          GPS=S
```

■**Note:** Latest firmware updates require version 0.5.8.15 *or higher* to be installed on the unit. If a version older than firmware 0.5.8.15 is on the System Controller, you will need to upgrade to firmware 0.5.8.15 first, otherwise the System Controller will not recognize the flash drive when inserted; the Update Software prompt will not be displayed. If the user attempts to manually force the firmware update through the Configuration Menu, there will be a prompt warning that the file size is too large.

Appendix G: SiteSync IQ System Controller Port Diagrams

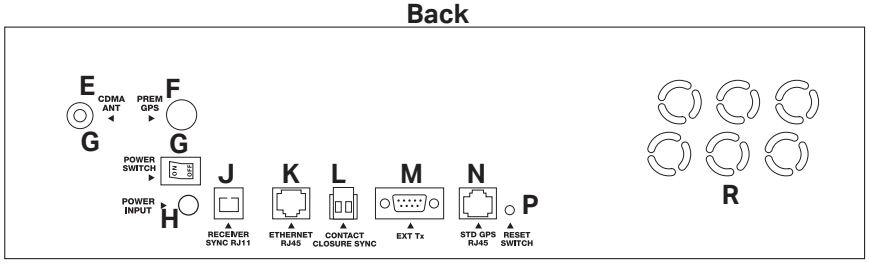
Front of System Controller:
A=LCD Display
B=Keypad
C=Port A - USB Programming Port
D=Port B - USB Diagonistic Port

Front



Back of System Controller:
F=Premium GPS Antenna Port (if equipped)
G=Power ON/OFF Switch
H=Power Input Port
J=Receiver Sync RJ11 Port
K=Ethernet RJ45 Port
L=Contact Closure Sync Port
M=External Transmitter Port
N= Standard GPS RJ45 Port
P=Reset Switch
R=Wiring Compartment Knockouts

Back

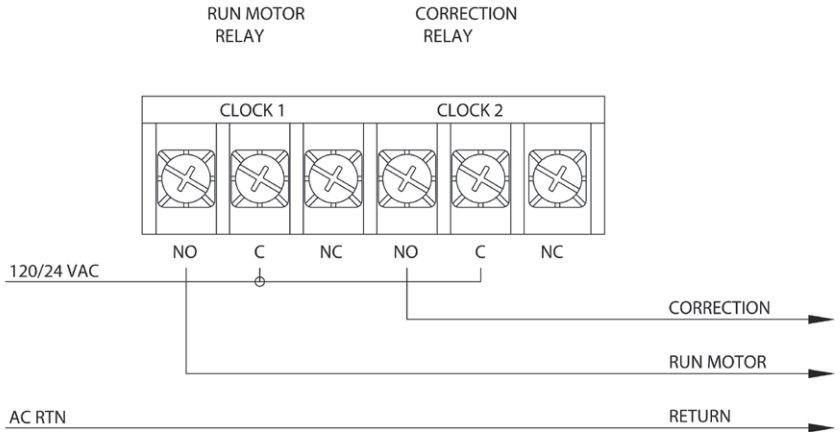


Appendix H: Maintenance Guide

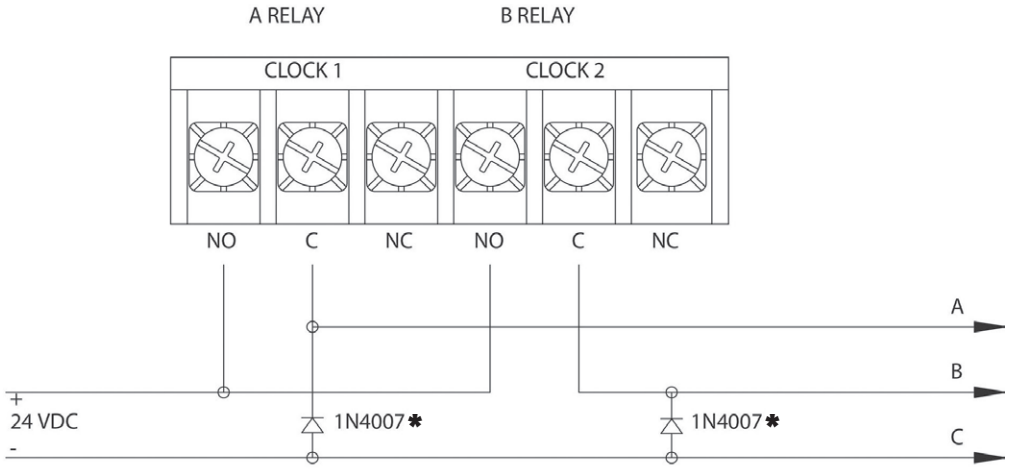
1. **Perform service test on battery backup/surge protector as instructed by manufacturer of unit - Annually**
2. **Keep SiteSync IQ System Controller and clocks free from dust and debris to extend service life - Annually (or as needed)**
3. **Visually inspect all system components, cables, antennas, etc. - Every 6 months** (or before Daylight Saving Time changes twice per year)
4. **Change timekeeping CR2032 battery - Every 5 years**

Appendix I: Clock Circuit Wiring Diagrams

Clock Code 01 - 3 wire Synchronous
Clock Code 03 - Standard Electric Time Dual Motor
Clock Code 06 - Synchronous Wired 2
Clock Code 09 - Simplex 59th Minute Dual Motor
Clock Code 10 - Simplex 45th Minute Dual Motor
Clock Code 11 - National Synchronous Wired (25 sec. hour, 25 pulses 12 hour)
Clock Code 13 - National Synchronous Wired (25 sec. hour, 25 min. 12 hour)
Clock Code 14 - Honeywell
Clock Code 18 - National Synchronous Wired
Clock Code 19 - Stromberg Synchronous Wired (56th minute)
Clock Code 20 - National Synchronous Wired (No 12 hr. correction)
Clock Code 23 - Standard Electric Time Dual Motor (hourly correction only)
Clock Code 36 - Synchronous Wired 2 with Noon and Midnight Sync



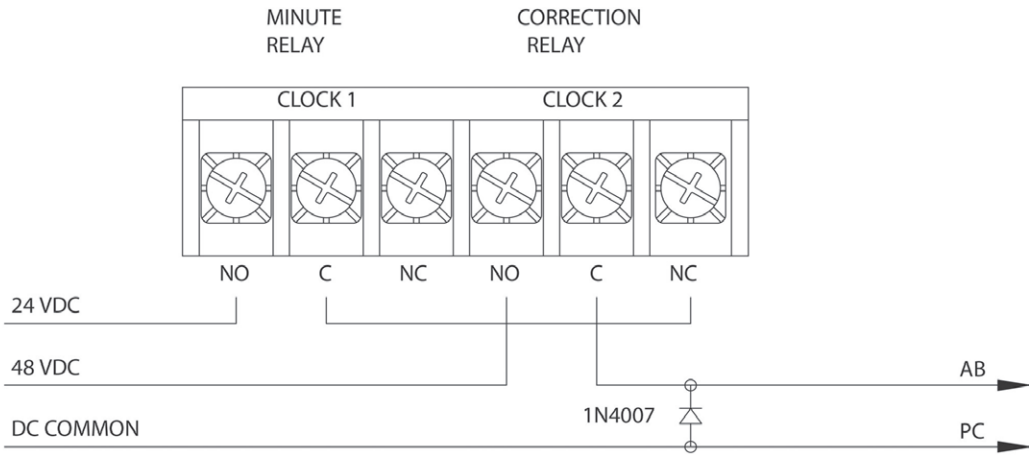
Clock Code 02 - 3 wire Minute Impulse
Clock Code 05 - 3 wire Minute Impulse (58th minute)
Clock Code 16 - 3 wire Minute Impulse (59th minute) with 12hr Correction
Clock Code 47 - Standard Electric Time AR-3 (3 wire Impulse)



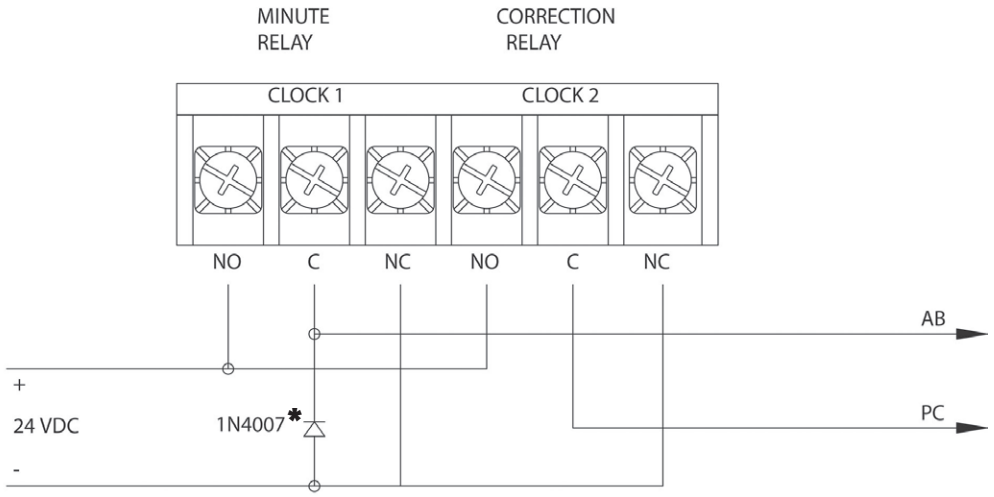
***Rectifier diodes recommended for relay protection.**

Appendix I: Clock Circuit Wiring Diagrams

Clock Code 04 - Standard Electric Time AR-2A 2 wire Dual Voltage
Clock Code 17 - Standard Electric Time AR-2 2 wire Dual Voltage



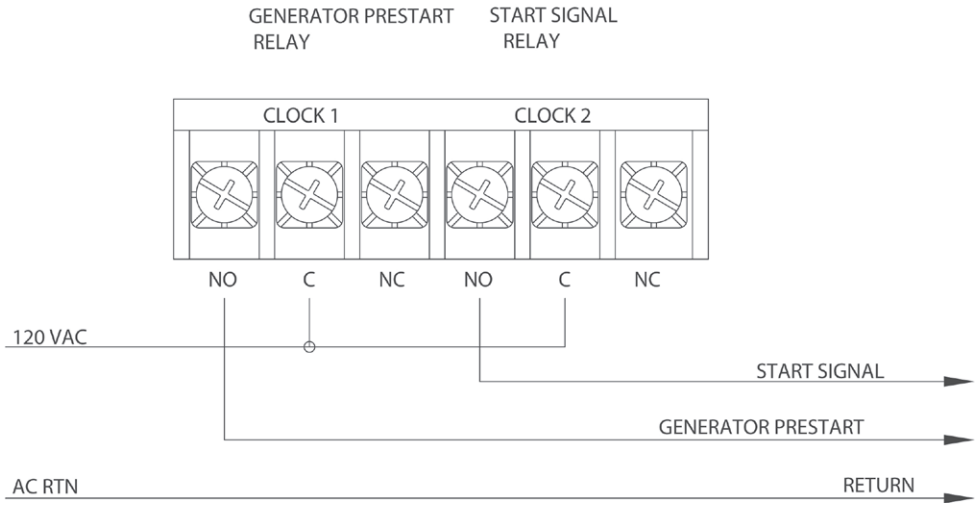
Clock Code 07 - 2 wire Reverse Polarity Minute Impulse (59th minute)
Clock Code 08 - 2 wire Reverse Polarity Minute Impulse (59th minute) with 12hr Correction
Clock Code 12 - Cincinnati D6 - 2 wire Reverse Polarity Minute Impulse (59th minute) with 12hr Correction
Clock Code 26 - Stromberg 2 wire Minute Impulse (58th minute) Hourly Correction Only



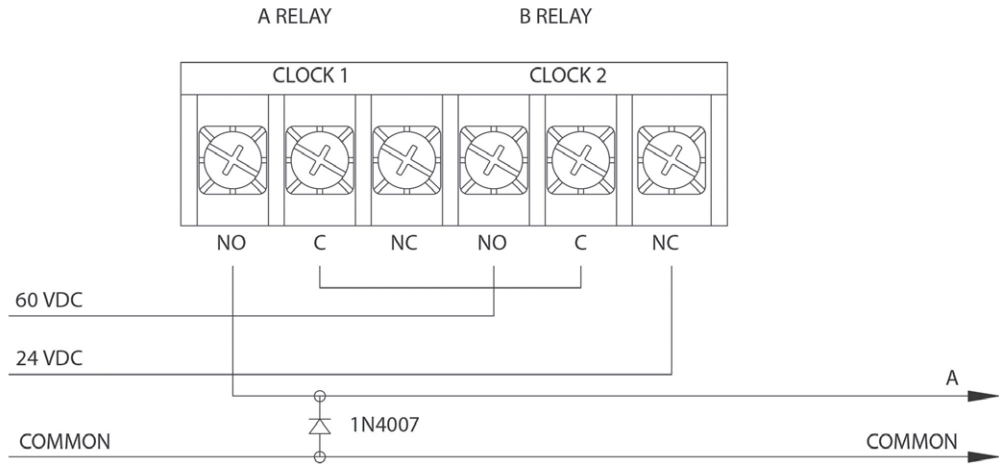
***Rectifier diode recommended for proper operation of reversing polarity.**

Appendix I: Clock Circuit Wiring Diagrams

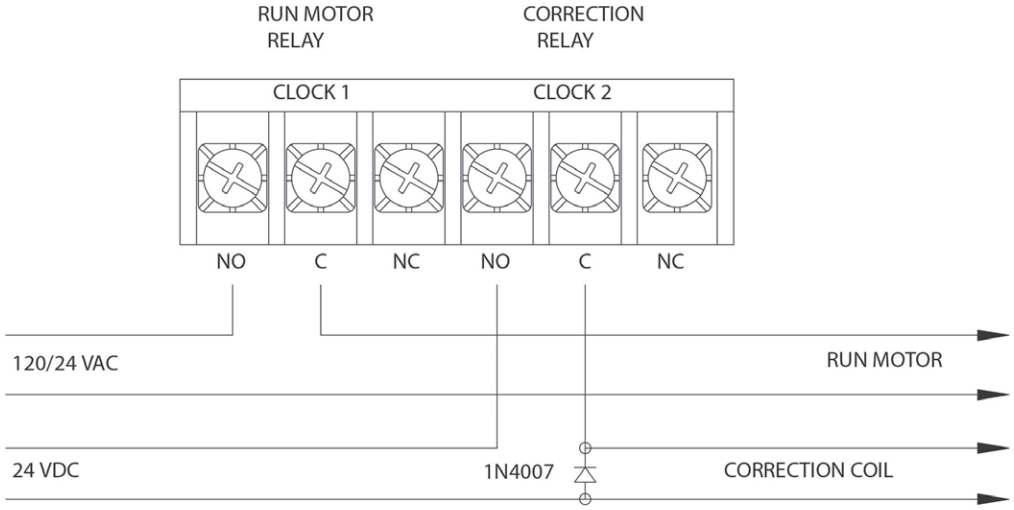
Clock Code 15 - Straight Frequency Electronic Clock



Clock Code 21 - Cincinnati D1

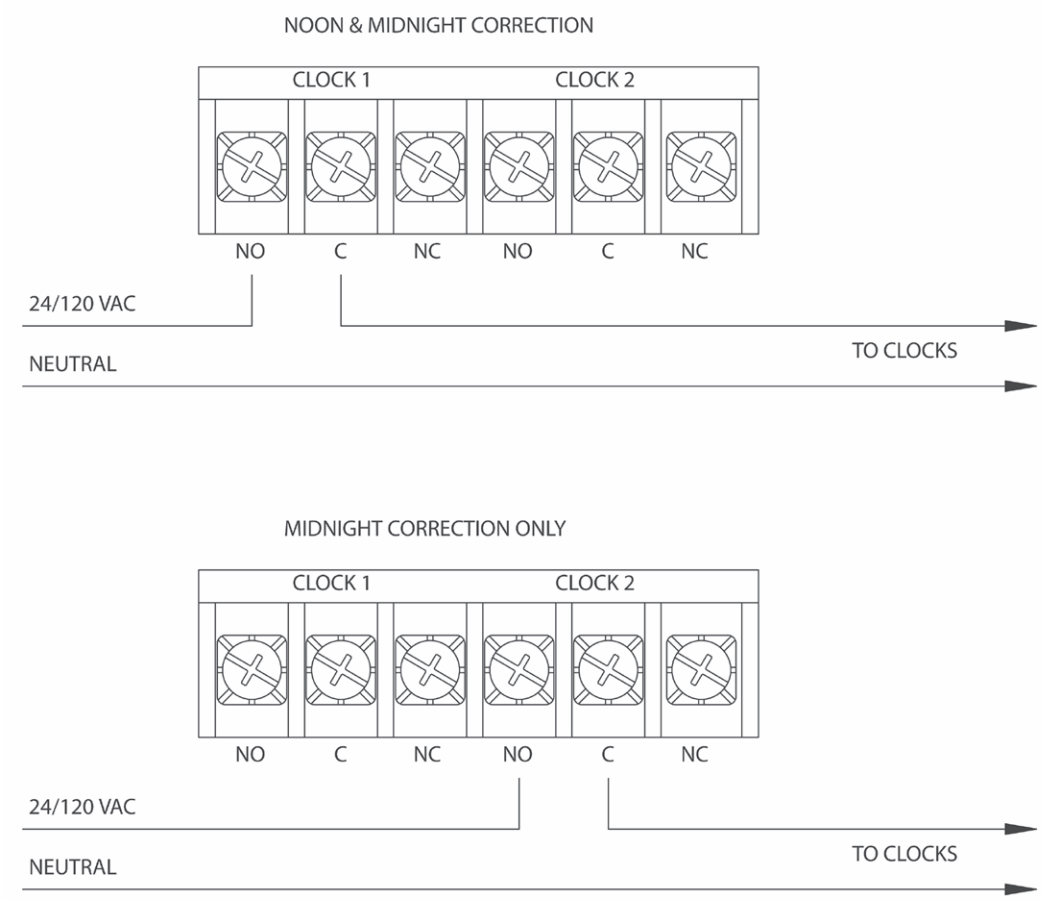


Clock Code 22 - Dukane Synchronous Wired

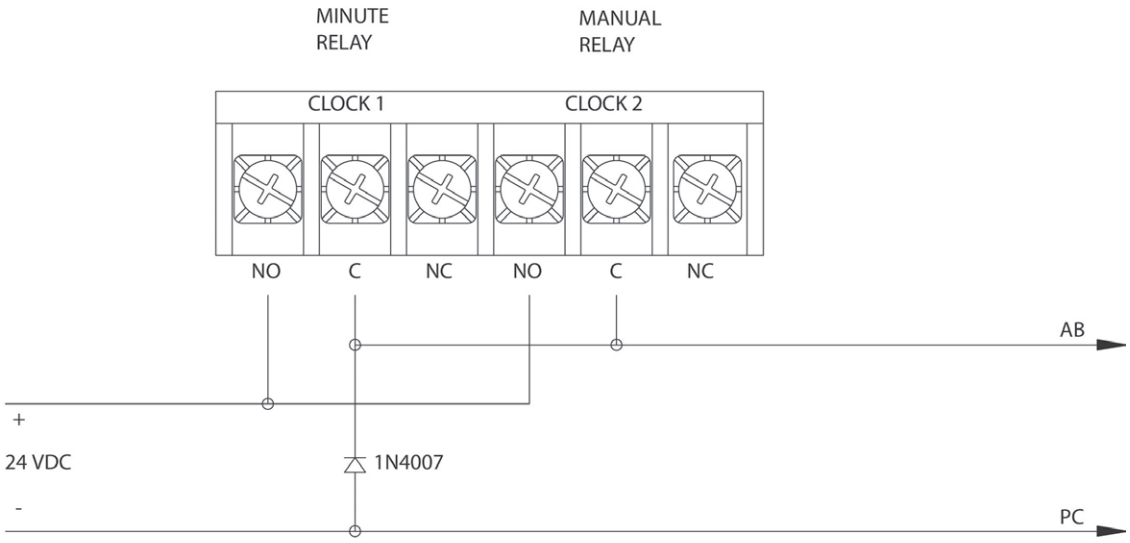


Appendix I: Clock Circuit Wiring Diagrams

Clock Code 27 - Digital Clock Reset - 12:00 AM/PM

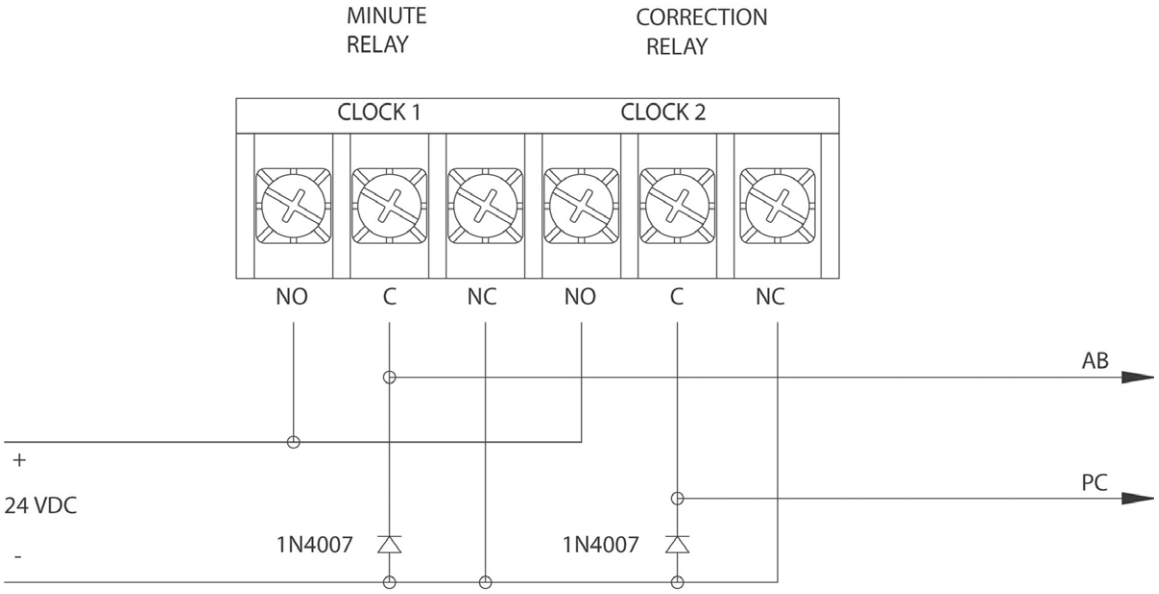


Clock Code 37 - 2 wire Reverse Polarity Minute Impulse



Appendix I: Clock Circuit Wiring Diagrams

Clock Code 38 - 2 wire Reverse Polarity Minute Impulse (59th minute) with 12hr Correction



Appendix J: Clock Codes

CLOCK CODE = 01
3-WIRE SYNCHRONOUS (59th MINUTE)
Hourly Correction = 8 second signal from HH:57:54 to HH:58:02
12 Hour Correction = 14 second signal from 05:57:54 to 05:58:08
Clock Types Covered:
American Time - A****(A,B or L)A***, B****(A,B or L)A***, U****(A,B or L)A***
Cincinnati - *D-10, *D-12
Dukane - 24SS* Series
Edwards - *010 & *012
Faraday/Standard Electric Time - 2315*, 2316*, 2335*, 2336*, 2370*, 2372*, 2380*, 2382* Series
IBM - 77* Series
Lathem - Type SS*
Simplex - 77* Series, 82* Series, 2310-92* Series, 6310-92* Series

CLOCK CODE = 02
3-WIRE MINUTE IMPULSE (59th MINUTE)
Every Minute from HH:59 through HH:49 - Pulse (2 sec) Between 58 and 00 Seconds (Lines A & B)
Every Minute from HH:50 through HH:58 - Pulse (2 sec) Between 58 and 00 Seconds (A LINE ONLY)
HOURLY - 59th MINUTE CORRECTION - 20 pulses between 10 and 50 seconds (Line A only)
Clock Types Covered:
American Time - A****(J or F)***, B****(J or F)***
Cincinnati - *D2, *D4
Edwards - Impulse *02, *04
Lathem - Type ISC* (3-wire hourly only correction)
Simplex/IBM - 55*, 75* & 80* Series, 6310-90* Series, 2310-90* Series

CLOCK CODE = 03
STANDARD ELECTRIC TIME DUAL MOTOR
Normal Operation - 120/24VAC continuous (RUN Only)
Hourly Correction - 29 second signal from HH:59:30 to HH:59:59 - RUN Power is Disconnected
12 Hour Correction - 15 minute signal from 5:12:00 to 5:27:00 (AM & PM) - RUN Power is Connected
Clock Types Covered:
American Time & Signal - X****(G or H)A***
Faraday - 2420 through 2431 Series
Standard Electric Time - CR & GRC 109106 through 109155, J109106 through J109155 and 105047 through 105066

CLOCK CODE = 04
STANDARD ELECTRIC TIME AR-2A TWO WIRE DUAL VOLTAGE
Every Minute - EXCEPT 59TH MIN - 24 VDC PULSE (2 SEC) FROM RUN RELAY
59th Minute - from 50 SEC to 00 SEC - HIGHER VOLTAGE (48VDC) PULSE FROM CORRECTION RELAY
Clock Types Covered:
Standard Electric Time - AR-2A

CLOCK CODE = 05
3-WIRE MINUTE IMPULSE (58th MINUTE)
Every Minute between XX:58 and XX:48 - Pulse (2 sec) Between 58 and 00 Seconds (Lines A & B)
Every Minute from XX:49 through XX:57 - Pulse (2 sec) Between 58 and 00 Seconds (Line A only)
HOURLY - 58th MINUTE CORRECTION - 20 pulses between 10 and 50 seconds (Line A only)
Clock Types Covered:
3-WIRE MINUTE IMPULSE (58th MINUTE)

CLOCK CODE = 06
SYNCHRONOUS WIRED 2
Hourly Correction - 55 second signal from HH:58:05 to HH:59:00
12 Hour Correction - 10 signals (95 sec ON, 25 sec OFF) from 05:05:00 to 05:24:35
Clock Types Covered:
American Time - H****(A or B)H***
Cincinnati - *D8, WS*
Honeywell - ST402A*
Faraday - 2310*, 2311*, 2320*, 2321*, 2330*, 2331*, 2313*, 2314*, 2333*, 2334*, and 1310 through 1431

CLOCK CODE = 07
TWO WIRE REVERSE POLARITY MINUTE IMPULSE (59th MIN)
Every Minute from HH:59:SS through HH:49:SS (at :58 to :00 SEC) - POSITIVE POLARITY (RUN RELAY)
Every Minute from HH:50:SS through HH:58:SS (at :58 to :00 SEC) - NEGATIVE POLARITY (CORRECTION RELAY)
59th Minute - 20 PULSES - NEGATIVE POLARITY (CORRECTION RELAY)
Clock Types Covered:
American Time - A****FF***, B****FF***
Lathem - Type ISC* (2-wire hourly correction only)
Cincinnati - *D3
Edwards - *03
Faraday - 2373* Series, 2383* Series
Simplex - 2310-90* Series, 6310-90* Series

CLOCK CODE = 08
TWO WIRE REVERSE POLARITY MINUTE IMPULSE (59th MIN) WITH 12 HR CORRECTION
Every Minute from XX:59:XX to XX:49:XX (at :58 to :00 SEC) - POSITIVE POLARITY (RUN RELAY)
Every Minute from XX:50:XX to XX:58:XX (at :58 to :00 SEC) - NEGATIVE POLARITY (CORRECTION RELAY)
59th Minute - 20 PULSES - NEGATIVE POLARITY (CORRECTION RELAY)
12 HOUR CORRECTION - Every Minute From 6:02:10 through 6:44:55 - 20 PULSES - NEGATIVE POLARITY
Clock Types Covered:
American Time - A****FG***
Lathem - ISC* (with 12 hour correction installed)

Note: * indicates prefix or suffix of alpha and/or numeric characters (size, shape, mounting, etc.) that are not relevant to the master clock timing protocol.

Appendix J: Clock Codes

CLOCK CODE = 09
SIMPLEX 59th MINUTE DUAL MOTOR
Normal Operation - 120/24 VAC continuous (RUN only)
Hourly Correction - 54 second signal from HH:58:05 to HH:58:59 - RUN Power is Disconnected
Clock Types Covered:
Simplex - *M*

CLOCK CODE = 10
SIMPLEX 45th MINUTE DUAL MOTOR
Normal Operation - 120/24 VAC continuous (RUN only)
Hourly Correction - 54 second signal from HH:44:05 to HH:44:59 - RUN Power is Disconnected
Clock Types Covered:
SIMPLEX/IBM - *M*

CLOCK CODE = 11
RAULAND/NATIONAL SYNCHRONOUS WIRED (25 second hour, 25 pulses 12 hour)
Hourly Correction = 25 SECOND signal at first minute of every hour
12 Hour Correction - 25 signals (25 sec ON, 35 sec OFF) from 06:00:00 to 06:24:25
Clock Types Covered:
National Time - EX-HH and EX-LL
Dukane - 240* Series
Rauland - 2460 Series

CLOCK CODE = 12
CINCINNATI D6 - 2 WIRE REVERSE POLARITY MIN. IMPULSE (59th Min) W/12 HR Correction
Every Minute from XX:59:XX through XX:49:XX (at :58 to :00 SEC) - POSITIVE POLARITY and Every Minute from 4:49 to 5:55 AM&PM (at :58 to :00 SEC)
Every Minute from XX:50:XX through XX:58:XX (at :58 to :00 SEC) - NEGATIVE POLARITY ** EXCEPT from 4:49 to 5:55 AM&PM **
HOURLY CORRECTION - 59th Minute - 20 PULSES - NEGATIVE POLARITY
12 HOUR CORRECTION - Every Minute From 5:00:10 through 5:30:50 - 20 PULSES - NEGATIVE POLARITY
Clock Types Covered:
American Time - B****FG***
Cincinnati - *D6
Edwards - *06
Faraday - 2376*, 2386*

CLOCK CODE = 13
RAULAND/NATIONAL SYNCHRONOUS WIRED (25 second hour, 25 min 12 hour)
Hourly Correction = 25 SECOND signal at first minute of every hour
12 Hour Correction = 25 MINUTE signal from 6:00:00 to 6:25:00
Clock Types Covered:
National Time - EX-HH and EX-LL
Dukane - 240* Series
Rauland - 2460 Series

CLOCK CODE = 14
HONEYWELL
Hourly Correction - 55 second signal from HH:58:05 to HH:59:00
12 Hour Correction - 12 signals (65 sec ON, 25 sec OFF) from 05:05:00 to 05:22:35
Clock Types Covered:
American Time - H****(A or B)H***
Cincinnati - *D8, WS*
Honeywell - ST402A*
Faraday - 2310*, 2311*, 2320*, 2321*, 2330*, 2331*, 2313*, 2314*, 2333*, 2334*, and 1310 through 1431

CLOCK CODE = 15
STRAIGHT FREQUENCY ELECTRONIC CLOCK
PREP: Every Hour from HH:57:00 to HH:59:00 - 2 Minute Signal on GENERATOR PRESTART Line
HOURLY CORRECTION: Every Hour (except 5) from HH:57:54 to HH:58:02 - 8 Second Signal on START SIGNAL Line
12 HOUR CORRECTION: From 5:57:54 to 5:58:08 - 14 Second Signal on START SIGNAL Line
Clock Types Covered:
Simplex/IBM

CLOCK CODE = 16
3-WIRE MINUTE IMPULSE (59th MINUTE) W/12 HR CORRECTION
Every Minute from XX:59 through XX:49 - Pulse (2 sec) Between 58 and 00 Seconds (Lines A & B)
Every Minute from XX:50 through XX:58 - Pulse (2 sec) Between 58 and 00 Seconds (A LINE ONLY)
HOURLY - 59th MINUTE CORRECTION - 20 pulses between 10 and 50 seconds
12 HOUR CORRECTION - Every Minute From 6:02:10 through 6:44:55 - 20 PULSES
Clock Types Covered:
American Time - A****JG***
Lathem - Type ISC* (3-wire with 12 Hour correction)

CLOCK CODE = 17
STANDARD ELECTRIC TIME AR-2 TWO WIRE DUAL VOLTAGE
Every Minute - EXCEPT 58TH MIN - 24 VDC PULSE FOR 2 SEC
58th Minute - from 58:50 to 59:00 - HIGHER VOLTAGE (48VDC) PULSE
Clock Types Covered:
Standard Electric Time - AR-2

CLOCK CODE = 18
NATIONAL SYNCHRONOUS WIRED
Hourly Correction = 28 SECOND signal at first minute of every hour
12 Hour Correction = 27 MINUTE signal from 6:00:00 to 6:27:00
Clock Types Covered:
American Time - G Series
National Time - EX-HH and EX-LL
Dukane - 240* Series
Rauland - 2460 Series

Note: * indicates prefix or suffix of alpha and/or numeric characters (size, shape, mounting, etc.) that are not relevant to the master clock timing protocol.

Appendix J: Clock Codes

CLOCK CODE = 19
STROMBERG SYNCHRONOUS WIRED (56th MINUTE)
Hourly Correction = 8 second signal from HH:56:10 to HH:56:18
12 Hour Correction = 14 second signal from 11:56:36 to 11:56:50
Clock Types Covered:
Stromberg - WX*

CLOCK CODE = 20
NATIONAL SYNCHRONOUS WIRED (NO 12 HR CORRECTION)
Hourly Correction = 28 SECOND signal at first minute of every hour
12 Hour Correction = NONE
Clock Types Covered:
National Time

CLOCK CODE = 21
CINCINNATI D1
2nd THROUGH 58TH MINUTE - 24 VDC PULSE FOR 2 SEC
59th THROUGH 1st MINUTE - 60 VDC PULSE FOR 2 SEC
HOURLY CORRECTION - HH:59:10 to HH:01:49 - THREE SETS OF TWENTY PULSES (24VDC)
Clock Types Covered:
Cincinnati - *D1

CLOCK CODE = 22
DUKANE SYNCHRONOUS WIRED
Hourly Correction = 55 second signal from HH:57:00 to HH:57:55
12 Hour Correction = 11 signals - 55 sec ON, 65 sec OFF at 5:59:00 AM & PM
Clock Types Covered:
Dukane - 24A*, 24B*, 24C*, 24D*, and 24E* Series

CLOCK CODE = 23
STANDARD ELECTRIC TIME DUAL MOTOR (HOURLY CORRECTION ONLY)
Normal Operation - 120/24 VAC continuous (RUN only)
Hourly Correction - 29 second signal from HH:59:30 to HH:59:59 - RUN Power is Disconnected
Clock Types Covered:
Standard Electric Time

CLOCK CODE = 25
INDUSTRIAL ELECTRONIC SERVICE MASTER CLOCK (DIGITAL CLOCKS)
NORMAL OPERATION - Black Wire 24 VDC Positive with Respect to White Wire
MINUTE RESET - Secondary Clocks Advance 2 Minutes per Second of Polarity Reversal
12 HOUR RESET - Power is removed from the Secondary Clocks at 11:59:57 AM and PM for 3 Seconds
Clock Types Covered:
Industrial Electronic Service - TBD

CLOCK CODE = 26
STROMBERG 2 WIRE MINUTE IMPULSE (58th MINUTE, HOURLY CORRECTION ONLY)
Every Minute from XX:06:XX through XX:57:XX (at :58 to :00 SEC) - NEGATIVE POLARITY
Every Minute from XX:58:XX through XX:05:XX (at :58 to :00 SEC) - POSITIVE POLARITY
58th Minute - From XX:58:10 to XX:58:50 - 20 PULSES - NEGATIVE POLARITY
12 HOUR CORRECTION - NONE
Clock Types Covered:
Stromberg

CLOCK CODE = 27
DIGITAL CLOCK RESET - 12:00 AM/PM
NORMAL OPERATION - RELAYS CLOSED - 24/120VAC TO SECONDARY CLOCKS
12 HR CORRECTION - RESET AT 12:00 AM (and PM, for Noon versions)

CLOCK CODE = 36
SYNCHRONOUS WIRED 2, WITH NOON & MIDNIGHT SYNC
Hourly Correction = 55 second signal from HH:58:05 to HH:59:00
12 Hour Correction - 10 signals (95 sec ON, 25 sec OFF) from 05:05:00 to 05:24:35

CLOCK CODE = 37
TWO WIRE NONCORRECTIVE MINUTE IMPULSE
Every Minute - XX:XX:58 through XX:XX:00 - POSITIVE POLARITY

CLOCK CODE = 38
TWO WIRE REVERSE POLARITY MINUTE IMPULSE (59th MIN) WITH 12 HR CORRECTION
Every Minute from XX:59:XX to XX:49:XX (at :59 to :00 SEC) - POSITIVE POLARITY
Every Minute from XX:50:XX to XX:58:XX (at :59 to :00 SEC) - NEGATIVE POLARITY
HOURLY CORRECTION - 59th Minute - 24 PULSES - NEGATIVE POLARITY from HH:59:02 through HH:59:48
12 HOUR CORRECTION - Each Minute from 6:01:02 through 6:39:48 - 24 PULSES - NEGATIVE POLARITY
Clock Types Covered:
American Time - A****FG***
Lathem - ISC* (with 12 hour correction installed)

Note: * indicates prefix or suffix of alpha and/or numeric characters (size, shape, mounting, etc.) that are not relevant to the master clock timing protocol.

Glossary

Analog Clock - A clock that represents time by position of hands on a dial.

CAT 5 Cable - Category 5 Cable. A twisted pair cable type designed for high signal integrity and commonly used in computer networks such as Ethernet. CAT 5 cable is used for GPS extension cables and Ethernet wiring in the SiteSync IQ System.

Circuit - One of the 6 relay outputs on the SiteSync IQ System Controller.

Client - A computer or other networked device, or a software application, that connects to and request information from a server.

Contact Closure Sync - A common method of synchronizing two devices together by means of a 2-wire connection. The output device provides a synchronization time pulse once per day at a specified time by closing the connection on the 2-wires leading to the input device.

Daytime Protocol (RFC-867) - A standard, Internet-based timekeeping specification that calls for a timestamp to be sent from a timeserver as an ASCII character string containing the current date and time. This message is sent from the timeserver as a response to any input on port 13. The timeserver closes the connection as soon as the timestamp is sent. The SiteSync IQ System Controller is capable of sending and receiving timestamps via UDP port 13 using this protocol.

DHCP - The Dynamic Host Configuration Protocol (DHCP) is an auto configuration protocol used on IP networks. A DHCP server can automatically assign an IP address to the Sitesync IQ system controller when DHCP is enabled.

Digital Clock - A clock that displays time with numerical display (12:00).

Ethernet - A very popular technology for networking computers and other devices. This communication method is used for transmitting and receiving precise timing signals by the SiteSync IQ System Controller.

Event - Programmed into the SiteSync IQ System Controller with time and date information, as well as a duration or a start/stop command. For example, Event 0001 may be programmed to execute every Monday, Wednesday and Friday at 10:00 am for 3 seconds.

FCC - Federal Communication Commission. A U.S. government agency in charge of regulating non-federal government use of radio spectrum.

Firewall - A network configuration, usually both hardware and software, that forms a fortress between networked computers within an organization and those outside the organization. It is commonly used to protect information such as e-mail and data files within a physical building or organization site.

Gateway - A network device or network point that acts as an entrance to another network, such as the server through which computers on a local area network (LAN) access the Internet.

Gateway IP Address - The address value for the Gateway device on the network (see Gateway).

GPS - Global Positioning System. A constellation of satellites operated by the United States Military (US Naval Observatory) that broadcast precisely timed signals from space. These signals are used for extremely accurate global navigation as well as the distribution of precise time.

Internet - A worldwide system of computer networks in which any one computer can get information from/or talk to any other connected computer using the TCP/IP protocols.

Leap Second - A second of time as measured by an atomic clock, added to or omitted from official timekeeping systems annually to compensate for changes in the rotation of the earth.

Low-E glass - Low Emissivity Glass. This type of glass features a unique surface coating that reduces the heat transfer through the window. Such a coating can reflect anywhere from 40% to 70% of the normally transmitted heat, while not inhibiting the amount of light that passes through the window. However, the metal oxide coating of Low-E glass does not allow the GPS signals to pass through. Thus, mounting the GPS antenna inside a window with Low-E glass is not recommended.

Master Clock - In a timekeeping or clock system, a device that acts as the source of time. The Master Clock, or System Controller, transmits the time to any number of secondary (slave) clocks.

Navigation Message - A message, transmitted by each GPS satellite, containing its orbital elements, clock behavior, system time and status messages.

Network - A group of interconnected computers or other electronic devices, capable of transferring data signals with each other.

NIST - National Institute of Standards and Technology. The Time and Frequency Division, part of NIST's Physics Laboratory, maintains the standard for frequency and time interval for the United States and provides official time to the United States. This includes traceability from the GPS timing signals to the NIST national frequency standard.

Patch Cable - A cable with plugs or terminals on each end of the conductor or conductors used to connect circuits of equipment together. Patch cables are used to connect an individual computer or other device to a network. The SiteSync IQ System Controller can be connected to an RJ45 jack with an Ethernet Patch Cable.

RJ45 - Registered Jack-45. An 8-pin (or 8-wire) modular connector used to attach data transmission devices to standard telephone wiring. Commonly used in Ethernet data connections and installed in the SiteSync IQ System Controller for physical connection of the Ethernet port.

RS-422 - Standard communications interface approved by the Electronic Industries Alliance (EIA) for connecting serial devices and supporting multi-point connections. This interface supports higher data rates and higher immunity from interference than RS-232 and is used for communication between the SiteSync IQ System Controller and the Premium GPS receiver.

Schedule - A group of events. For example, a school might program Schedule 01 with 4 events for their morning Elementary recess schedule. The SiteSync IQ System Controller allows for 99 unique schedules, with any number of events in each (up to a maximum total of 9,999 events).

Secondary Clock - Also known as a slave clock. This is a clock that synchronizes its timekeeping to that of a system master clock.

Server - A host computer or host device on a network, which shares resources and "serves" data to client computers or other servers.

Shrink Tubing - Tubing which has been extruded, cross-linked and mechanically expanded which, when reheated, will return to its original diameter. For this GPS kit, it is used to protect the electrical and communications connections from water, etc. It can be easily installed over the connectors and will shrink tightly over them after being heated.

SNTP - Simple Network Time Protocol. A less complex form of Network Time Protocol (NTP) commonly used for synchronization of computers and other devices. In SNTP, the client makes a single timing request to a single server (similar to the Daytime Protocol) and then uses this information to set its clock. This differs from NTP, which uses multiple servers and averages their results. The SiteSync IQ System controller supports SNTP as both a client and a server.

Static IP Address - An Internet Protocol (network) address permanently assigned to an individual machine, account or user.

Subnet Mask - A number that helps to define the relationship between the host (computers, routers, switches, etc.) and the rest of the network.

Synchronization - The process of bringing two clocks or time sources into phase so their difference is zero. In the case of a timekeeping system, time synchronization takes place between the master clock and all secondary clocks. In addition, in the case of the GPS timekeeping option, the SiteSync IQ System Controller is synchronized to the GPS time source so the time output of the master is matched to the NIST time standard.

Timeserver - A system or device that acquires the correct time from a local reference clock and/or remote timeservers and will answer time requests from other systems. See "Server" above.

Glossary

Timeserver IP Address - The value of an address for a timekeeping server on the local computer network or Public Internet.

Timestamp - A time mark or notation that indicates the date and time.

UDP - User Datagram Protocol. An Ethernet protocol commonly used for time sensitive applications and which does not guarantee reliability, but does not delay packets (as in TCP-IP).

UL - Underwriters Laboratory. U.S. non-profit safety testing and certification organization.

USNO - U.S. Naval Observatory. An organization within the United States Navy which determines precise time and maintains the master clock for the United States. The USNO monitors the timing of the Global Positioning System (GPS) to provide a reliable and stable coordinated time reference for the GPS satellite navigation system.

UTC - Universal Coordinated Time. A time-scale that forms the basis of a coordinated distribution of standard frequencies and time signals throughout the world. It is often referred to as Greenwich Mean Time (GMT) or Zulu Time (military and aviation).

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