SSM Series Master Clock Installation Manual (V2)

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Mounting Diagram

SSM SERIES MASTER CLOCK 2 WIRE DIGITAL COMMUNICATION

SSM Series Master Clock
with Converter Option

01:55:46

20 21

White
Black

12
10   2
9   3
8   4
7   6   5

24V SAM Series Analog Clock

Yellow
Orange

1:55

24V SBD 1000 Series Digital Clock
or
SBD 2000 Series Digital Clock

1   2

6
5
7
Ø Ø
110V

Converter
Box

3   4

Option:

Converter Box
SCB–000–000–1
(5.5A Output)

White
Black

12
10   2
9   3
8   4
7   6   5

24V SAM Series Analog Clock
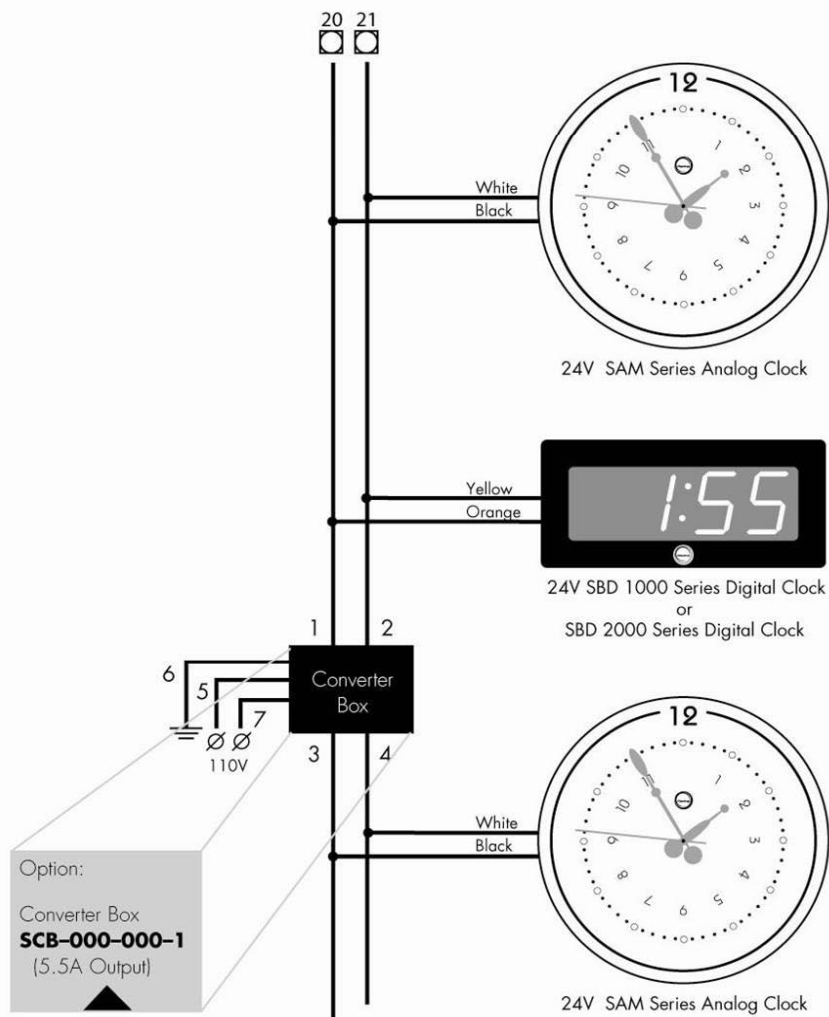
SSM SERIES MASTER CLOCK RS485 24 VOLT

SSM Series Master Clock

Power
Common

Transformer
110 / 24VAC

Slow-blo
fuse

Black   White

Ø Ø
110VAC
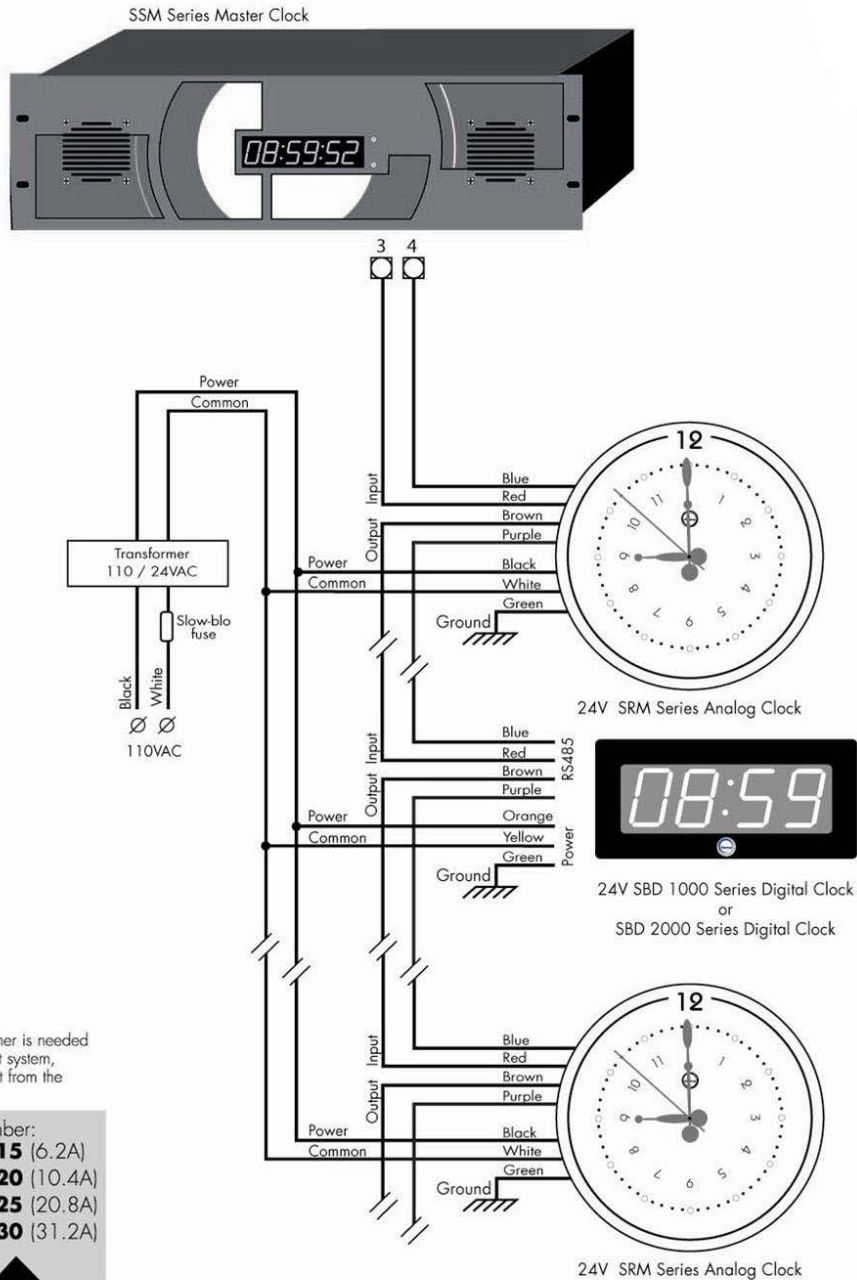
**
If a transformer is needed
for a 24 volt system,
please select from the
following:

Part Number:
35–M015 (6.2A)
35–M020 (10.4A)
35–M025 (20.8A)
35–M030 (31.2A)

Input
Output
Power
Common
Ground

Blue
Red
Brown
Purple
Black
White
Green

24V SRM Series Analog Clock

Input
Output
Power
Common
Ground

RS485
Power

Blue
Red
Brown
Purple
Orange
Yellow
Green

24V SBD 1000 Series Digital Clock
or
SBD 2000 Series Digital Clock

Input
Output
Power
Common
Ground

Blue
Red
Brown
Purple
Black
White
Green

24V SRM Series Analog Clock

SSM SERIES MASTER CLOCK RS485 110 VOLT

SSM Series Master Clock

08:59:52

3   4

Power
Common

Black
White

110VAC

Input   Blue
         Red
Output   Brown
         Purple
Power   Black
Common   White
         Green
Ground

110V SRM Series Analog Clock

Input   Blue
         Red
Output   Brown
         Purple
Power   Black
Common   White
         Green
Ground

RS485

Power

08:59

110V SBD 1000 Series Digital Clock
or
SBD 2000 Series Digital Clock

Input   Blue
         Red
Output   Brown
         Purple
Power   Black
Common   White
         Green
Ground

110V SRM Series Analog Clock
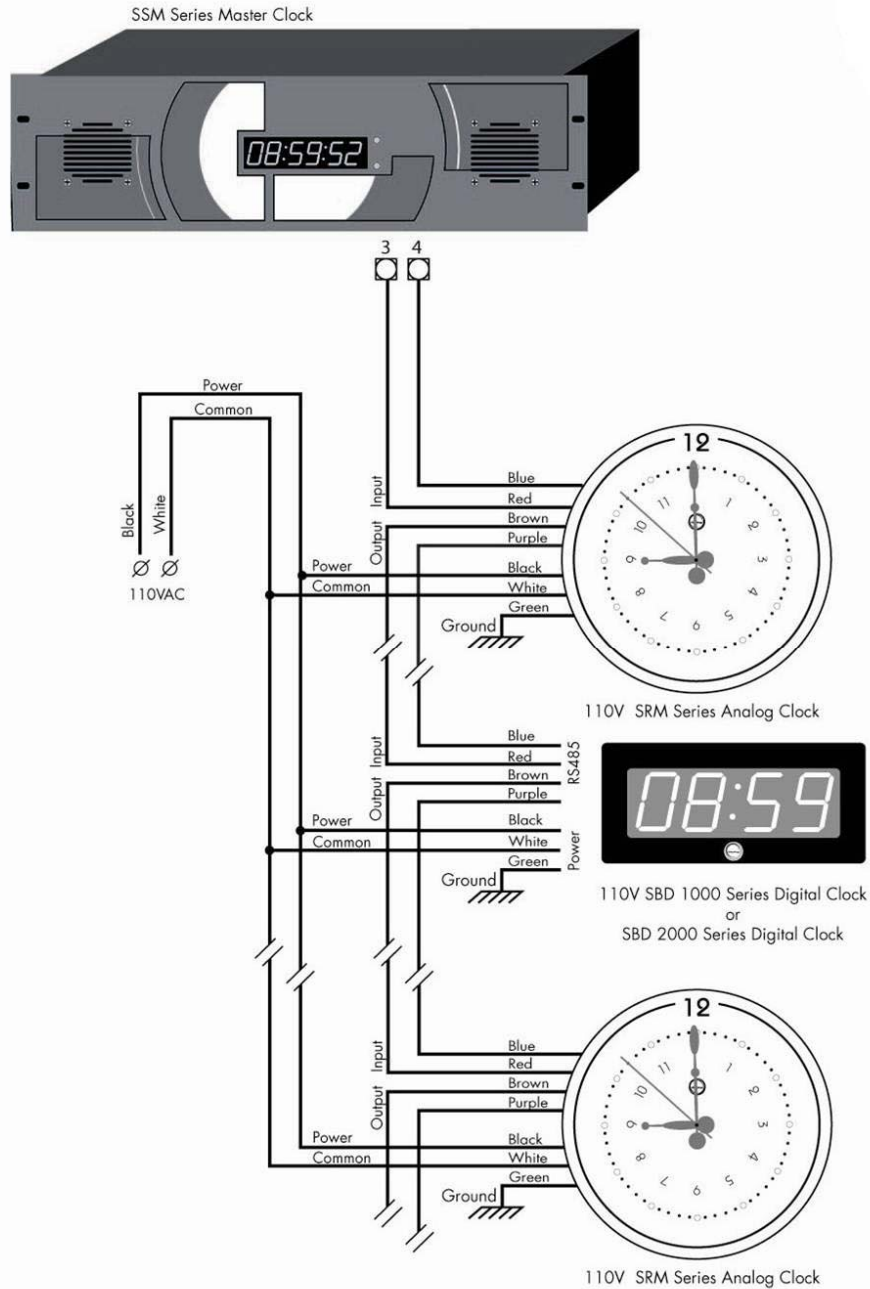
SSM SERIES MASTER CLOCK 3 WIRE SYNCHRONOUS OUT PUT 110V/24V
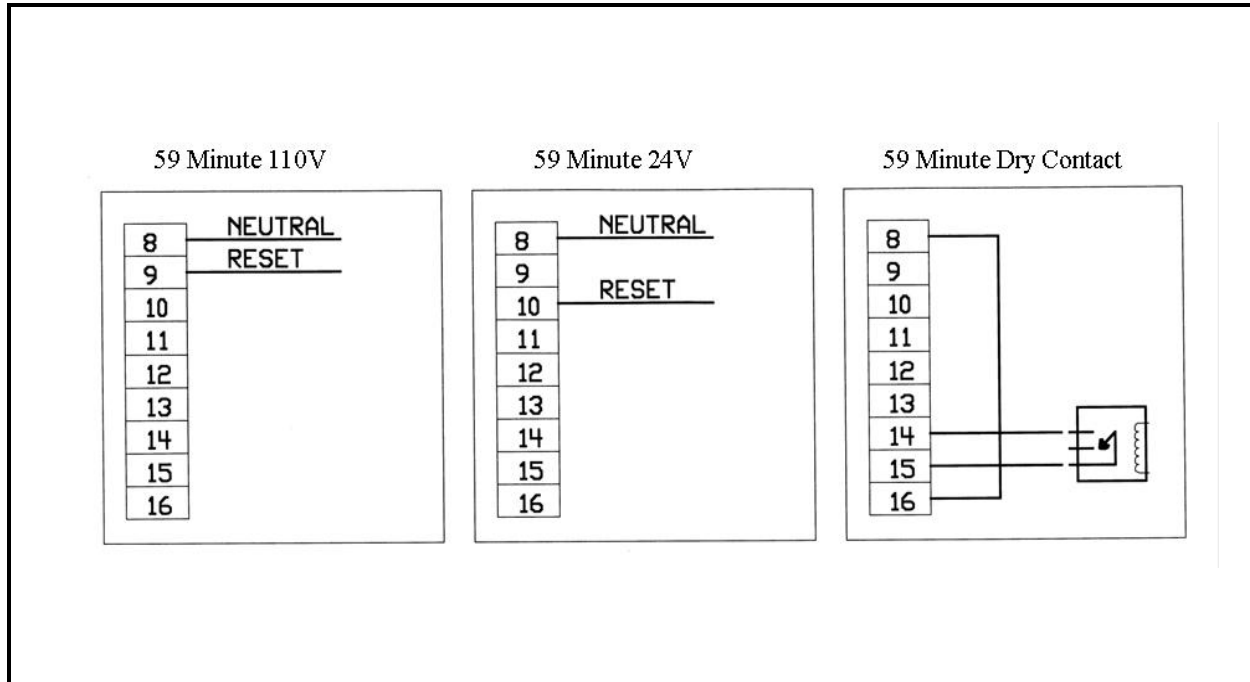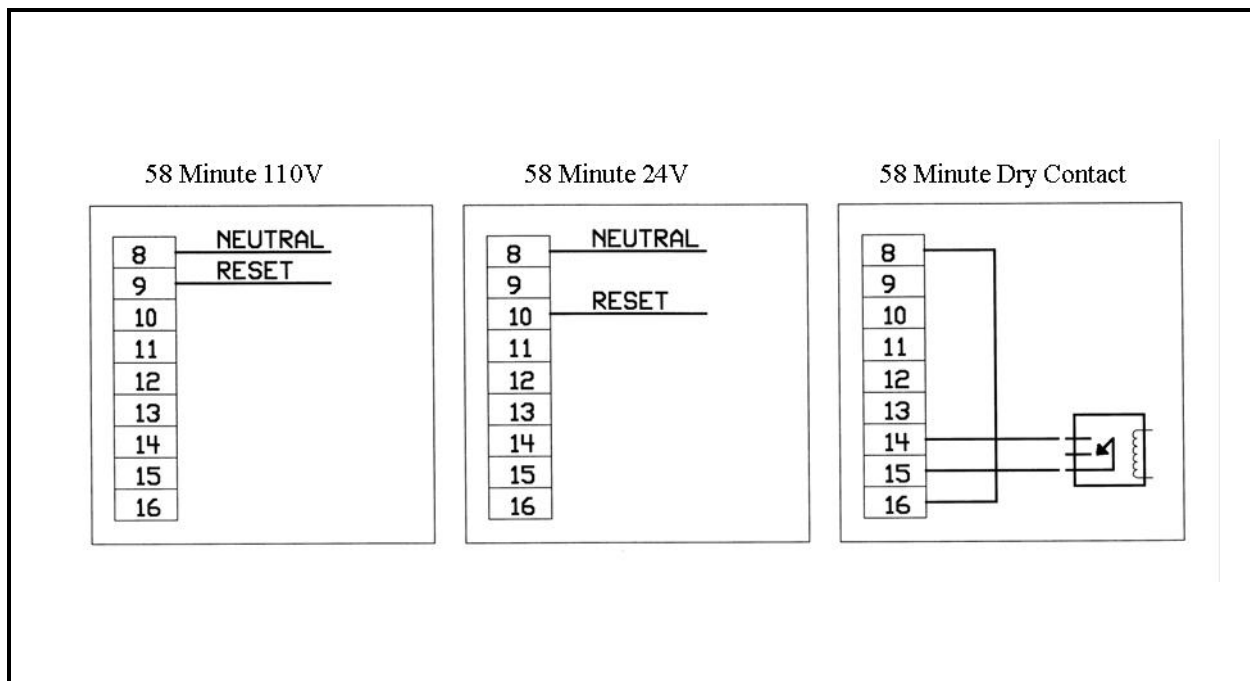**58th MINUTE CORRECTION , 59th MINUTE CORRECTION, National Time& Rauland .**

Relay Out

19   18

110 / 24 VAC

Neutral	White
Power	Black
Reset	Yellow
	Green
Ground	

110V / 24V SAM Series Analog Clock

Neutral	Orange
Reset	Yellow
Power	Power
Neutral	Neutral
	Green
Ground	

SBD 2000 Series Digital Clock

Neutral	White
Power	Black
Reset	Yellow
	Green
Ground	

110V / 24V SAM Series Analog Clock

Interfacing With Other Systems
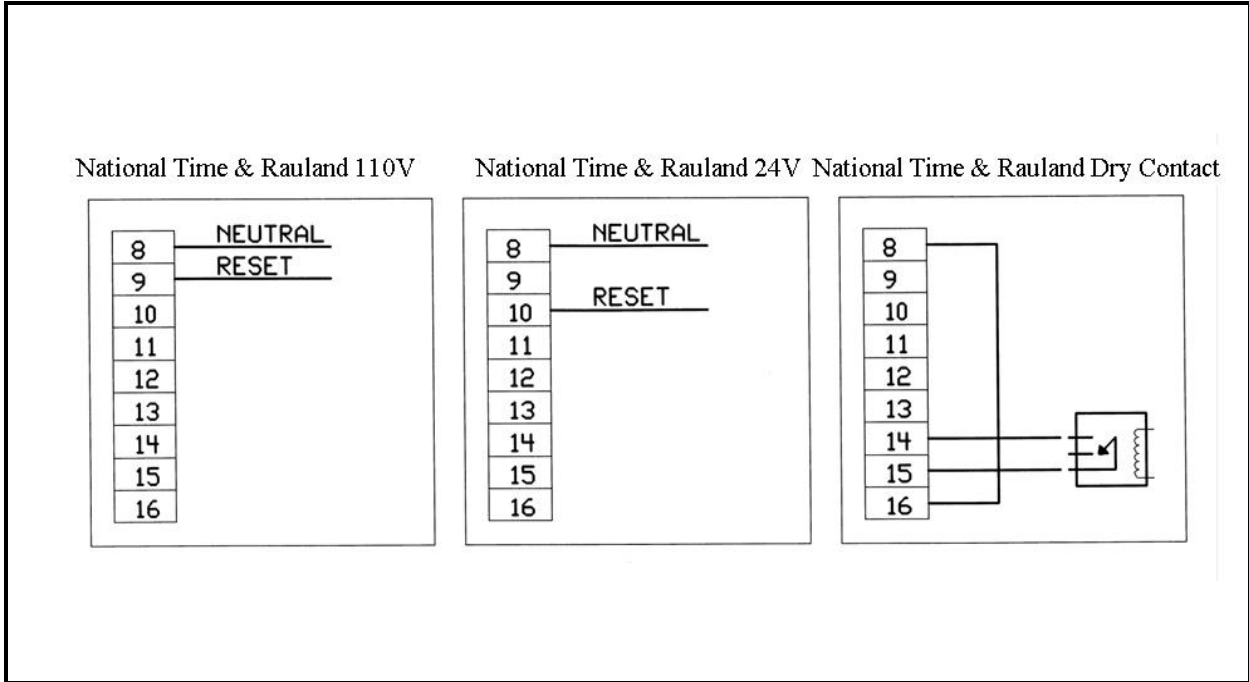
59 Minute Correction

58 Minute Correction

SSM Series Master Clock Installation Manual (V2)

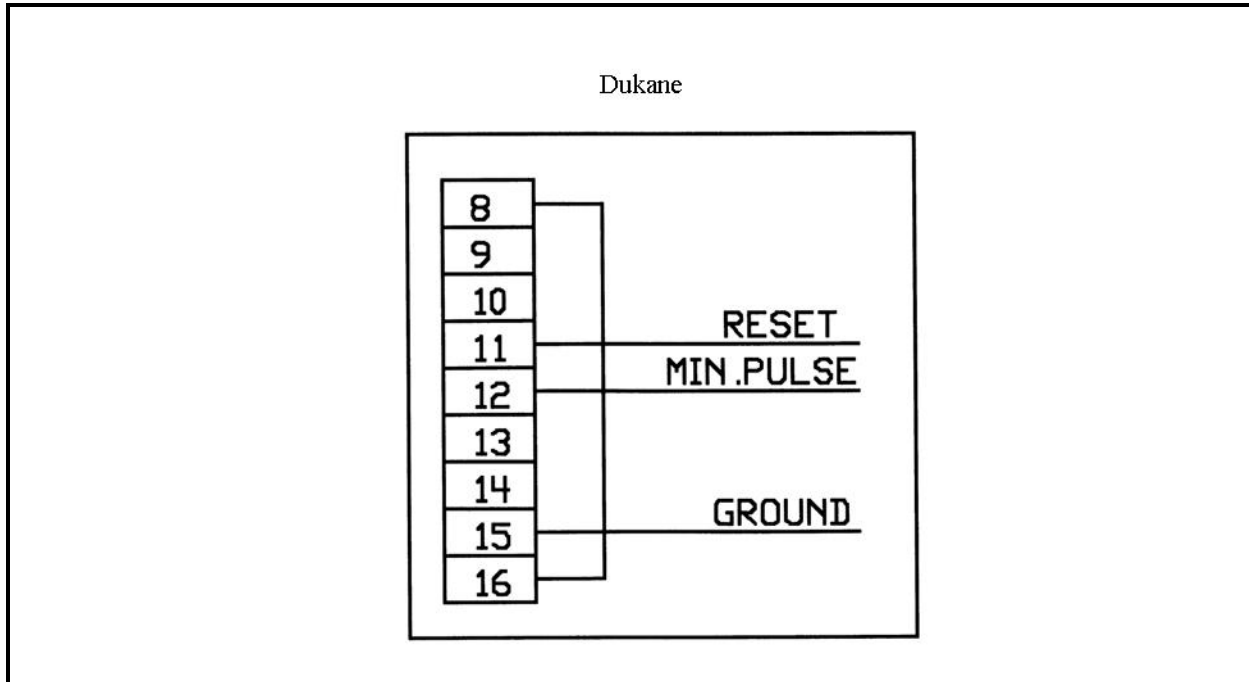## Interfacing With Other Systems

National Time and Rauland

National Time & Rauland 110V   National Time & Rauland 24V   National Time & Rauland Dry Contact

8 — NEUTRAL		8 — NEUTRAL		8	
9 — RESET		9		9	
10		10 — RESET		10	
11		11		11	
12		12		12	
13		13		13	
14		14		14	
15		15		15	
16		16		16	

Rauland Digital

Rauland Digital

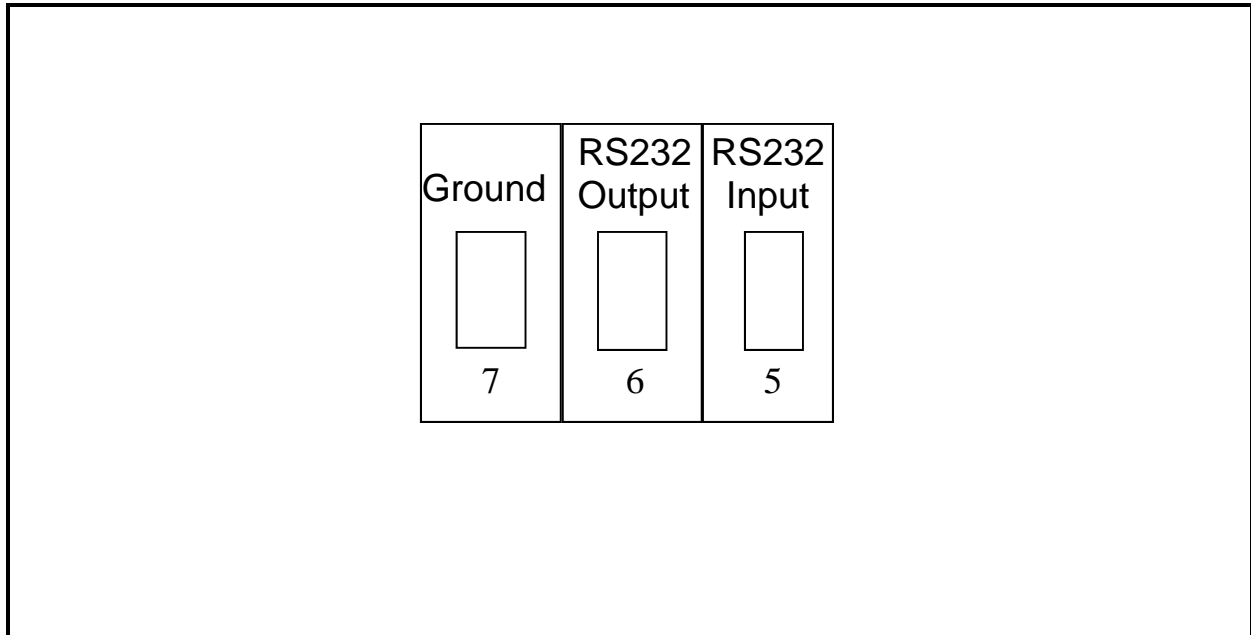| |
|---|
| 8 — +5V |
| 9 |
| 10 |
| 11 — DIG. |
| 12 |
| 13 |
| 14 |
| 15 |
| 16 |

Interfacing With Other Systems

Dukane

Once A Day Pulse
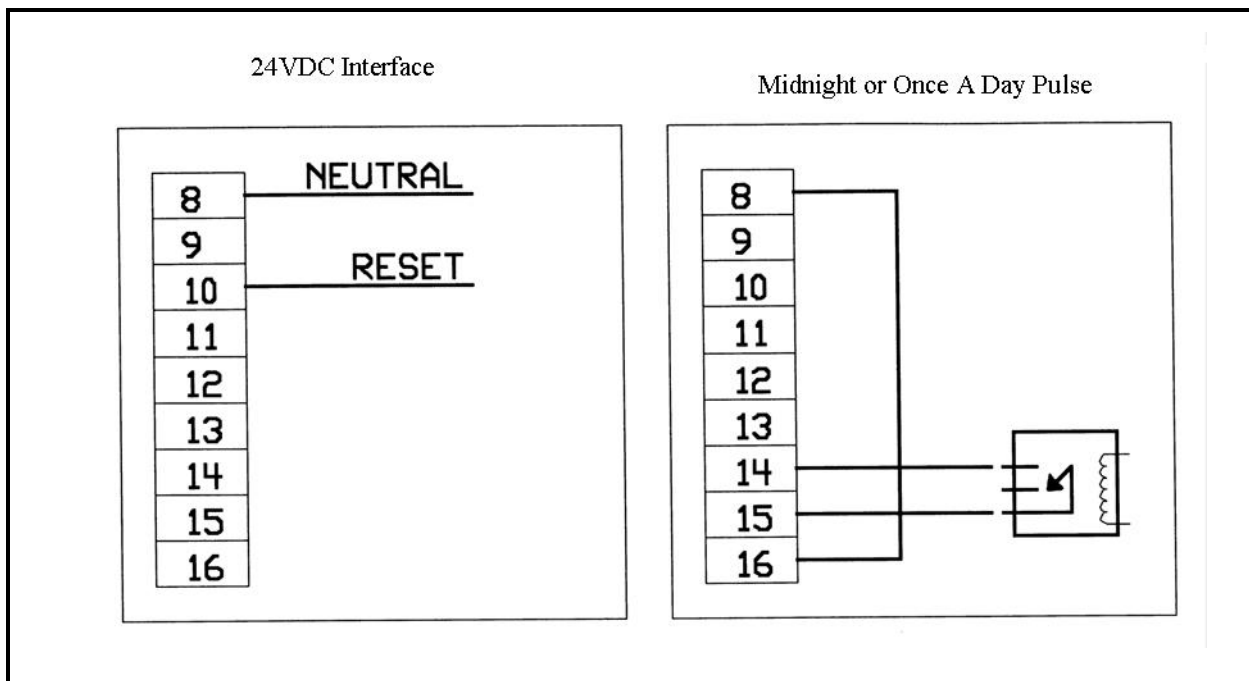
SSM Series Master Clock Installation Manual (V2)

RS232 Input and Output

Ground	RS232 Output	RS232 Input
7	6	5

TCP/IP LAN Connection

SSM TCP/IP LAN Connector

PC TCP/IP LAN Connection To Internet

Programmable Relay

19	18	17

N.O.   COMMON   N.C.

*For instructions on programming the relay, refer to the SSM Programming Manual.

RS485 Input and Output

1	2	3	4

Input A   Input B   Output Y   Output Z
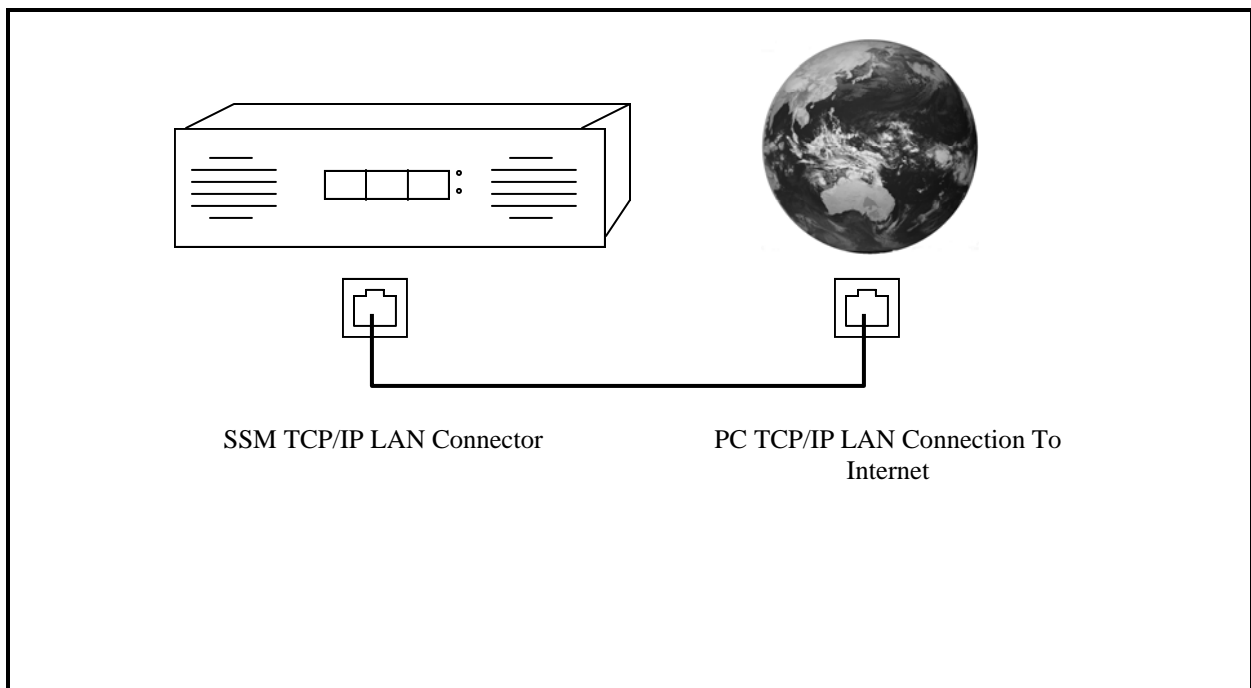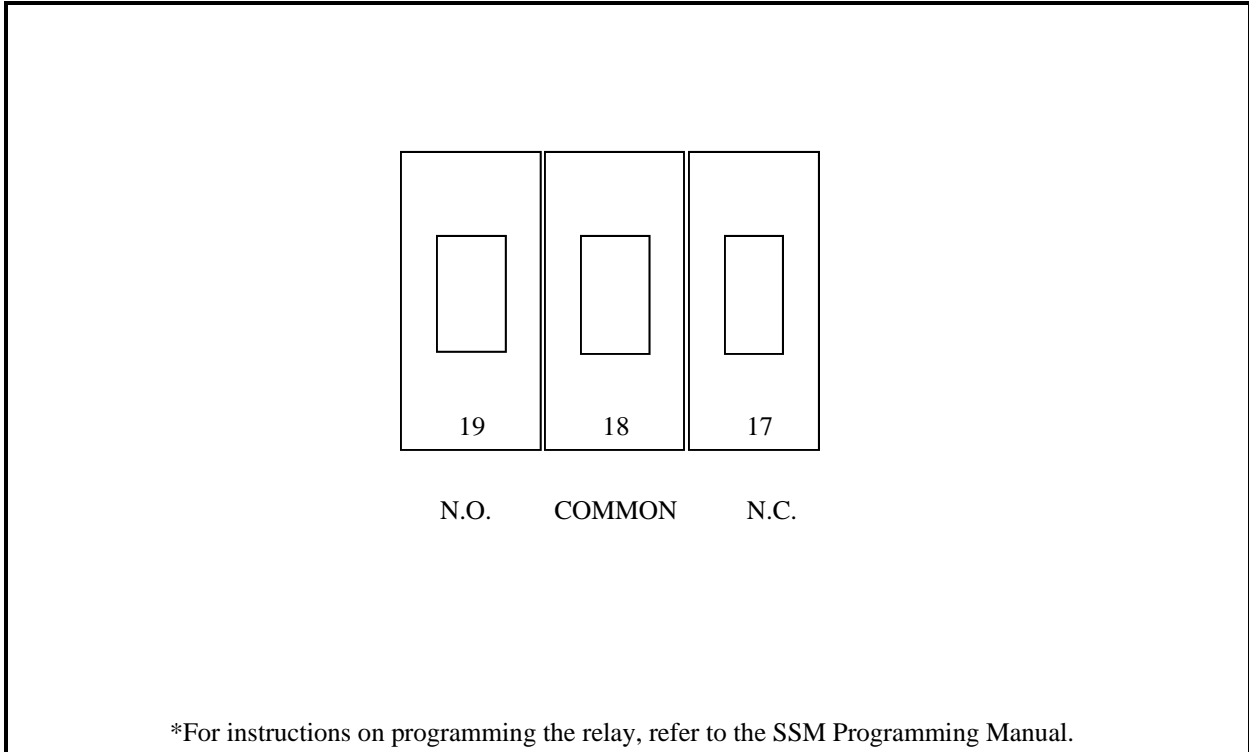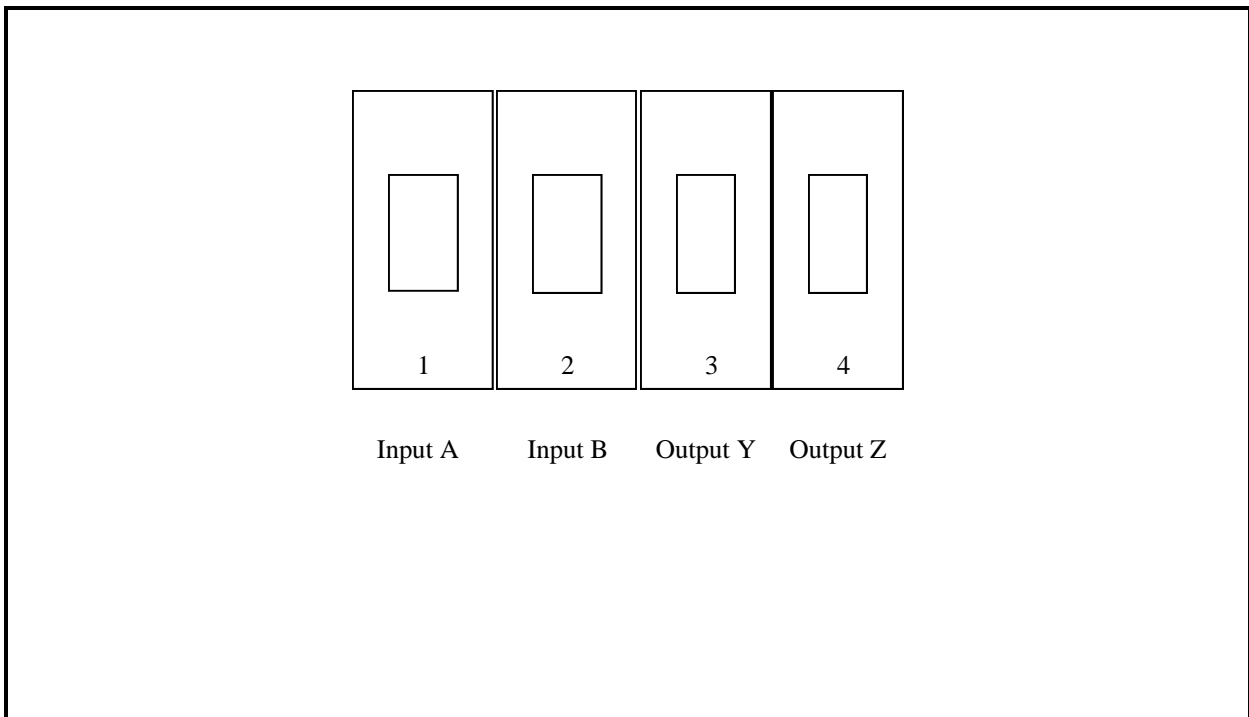
Two (2) Wire Digital Communication Output*

```
┌────────────┬────────────┐
│  ┌──────┐  │  ┌──────┐  │
│  │      │  │  │      │  │
│  │      │  │  │      │  │
│  └──────┘  │  └──────┘  │
│    20      │    21      │
└────────────┴────────────┘
```
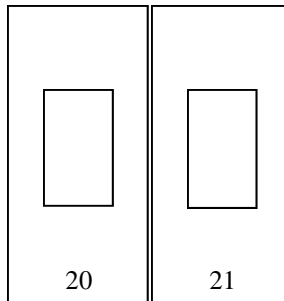
*2 Wire Digital Communication output is only used if the two (2) wire option is ordered

Programming To a Desired IP Address

1. Plug in the device to any gateway or use a crossover cable and connect directly to the PC.

2. Open DS Manager.

3. Double click on the device shown in the window, or click on the device and click on *Settings*.

4. Click on DHCP and disable it.

5. Click on the IP address field.

6. Change the IP address to the desired IP address.

7. Click OK.

8. The device will refresh.

9. If this was done successfully, the device will say *(local)* next to the address.

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Frequently Asked Questions

What systems can be run using the SSM master clock?

RS485 systems can be run through the SSM. If the Converter option is selected, 2 wire digital communication systems can be run as well.

Can the GPS receiver correct the SSM master clock?

Yes, the GPS receiver can transmit the data via RS485 communication output to the RS485 input on the SSM.

Does the SSM interface with a computer?

Yes, through the RS232 connection.

If the power is disconnected from the SSM, will I lose all of my settings?

The SSM will not lose the settings if power is disconnected from it.   A battery back up is installed to ensure the settings will not be lost.

Is there any way that I can view how much current is being drawn from the Converter (Converter option only)?

The SSM has an option through programming where the current can be viewed on the display. Refer to the SSM programming manual for more information.

My power source is 220 volts. Can the SSM be powered on that voltage?

Yes, the SSM can work on 110 volts/50 Hz or 220 volts/60 Hz.

What time server does the SSM get its time from?

The SSM gets its time from time.nist.gov. The IP address for that site is 192.43.244.18.

Can I alter the time server to a NTP server that I designate?

No. The time server is not able to be changed.

What ports need to be opened on the firewall to allow synchronization to the Internet?

The default ports that need to be open are port 13 and port 1001.

Troubleshooting

I can't get the master clock to synchronize with the Internet. What should I do?

> 1) Check your connection between the ends of the CAT 5 cable. Make sure the pin configuration is correct. Upon connection, the master clock should direct itself to the atomic web site to receive the clock signal.

> 2) Make sure ports 13 and 1001 are open on your firewall.

What should I do if the master clock is not powering up?

Measure the voltage between pins 1 & 3. The voltmeter should read 85 - 135 VAC between the hot and the neutral.

I'm trying to synchronize my GPS with the SSM via RS485, but it doesn't seem to correct. What should I do?

Make sure the RS485 is in the correct polarity. If the polarity is reversed, the SSM will not correct.

What should I do if I can't get the programmable relay to close?

Refer to the programming manual of the SSM Master Clock for instructions on how to program the relay. If it still does not work, contact Sapling technical support.

The Converter shut off. How do I reset it?

If the Converter shut off due to an overload, it will attempt to reset in two (2) minutes. If the Converter turned off due to temperature, it will have to be manually reset. Unscrew the cover of the SSM master clock and go to the Converter board. Underneath the transformer will be a push switch. Press the switch and the Converter should turn back on.