



# SMC 3000 Series Master Clock Programming Manual (v3)

User Password  
\_\_\_\_\_  
(default is 1111)



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## Getting Started

### Definitions

- Event:** A pre-programmed action, such as ringing of bells at a specific time, which is triggered by a relay closure in one or more of the zones of the master clock
- Schedule:** A series of programmed events. One schedule can include enough events to cover a complete school day.
- Zone:** Each zone is controlled by a relay closure to which devices such as bells or fire alarms can be connected. The master clock has four (4) zones as a standard, with up to twelve (12) optional.

### User programming features

All user programming is to be done by using the 16-button keypad located on the front of the Sapling master clock. The keypad is shown below:

1	2	3	↓
4	5	6	↑
7	8	9	→
YES	0	NO	←

The LCD display is 20 characters wide and consists of both a top and a bottom line. When the master is powered on, the LCD display should read:

The Sapling Company Sch:001      hh:mm:ss
--

### Entering the Password

To enter the user-programming mode you will need to use the four (4) digit user password provided on page one (1) of this manual. Press the four (4) digits of the password on the keypad. There is no need to press the <YES/ENTER> key after entering the password. You will automatically be brought to the next step upon entering the password. Please note that your password will be hidden as you enter it. The \* sign will appear instead of digits.

### To Exit the Programming Mode

If at any time during programming, you wish to exit programming mode, press the <YES/ENTER> key or the <NO/CLEAR> key, as appropriate, in response to the prompts on the LCD display. After scrolling through all the options and responding to all applicable prompts the LCD display will then return to the main screen.



## Setting The Time Of Day

To begin, enter the user password when the master clock is at the main screen. The display will read:

Time OK?  
hh:mm:ss

If you wish to change the time press the <NO/CANCEL> button on the keypad. If the time is correct, press the <YES/ENTER> button.

If the <YES/ENTER> button is pressed, the display will go to the next option. If the <NO/CANCEL> button is pressed, the display will read:

Enter Time:  
?:?:??

Enter the time that you want into that master clock in 24 hour mode.

The display will read:

Are You Sure  
hh:mm:ss

Press the <YES/ENTER> key. Then the prompt will go back to:

Time OK?  
hh:mm:ss

Press the <YES/ENTER> button to advance to the next option.



## Setting The Date

The prompt will read:

Date OK?  
mm.dd.yy

If you wish to change the date, press the <NO/CANCEL> button. If the date is correct, press the <YES/ENTER> button and this will take you to the next option.

If you selected to change the date, then the display will read:

Enter Date:  
?:?:??

Enter the correct date. After entering the correct date, the display will read:

Are you sure:  
mm.dd.yy

Press the <YES/ENTER> button. The display will read:

Date OK?  
mm.dd.yy

## Programming Events

The prompt will read:

Add Programming?

If you wish to enter programming, press the <YES/ENTER> button. If you do not wish to enter programming, press the <NO/CANCEL> button and it will advance to the next option.

If you selected to add programming the display will read:

Sch 000 00:00:00  
s,m,t,w,t,f,sa,mf,ed



## Programming Events

Type in the schedule number that you want the event to occur on. After entering the schedule number, the cursor will go to the time. Enter the time that you want the event to transpire in 24 hour mode .

The cursor will go down to the days of the week. The list goes from Sunday through Saturday, as well as “mf” for Monday through Friday and “ed” for everyday. Move the cursor to the desired day(s), and press the <YES/ENTER> button. The letters will capitalize confirming your selection.

After making your selection press the ↓ arrow. A new display will come up and will read:

```
Sch ###  hh:mm:ss  
Zone 001  Dur: N.A.
```

To toggle through the zones, press the → and ← arrow keys. To toggle through the durations, press the <YES/ENTER> button until the desired choice is made. The standard durations are off, on, 0003, 0005 and NA. Off will keep the zone off. On will keep the zone on continually. 0003 will activate the zone for three seconds. 0005 will activate the zone for five seconds. NA will have no effect on the zone.

After selecting the options, press the ↓ arrow key. The display will read:

```
Sch ###  hh:mm:ss  
Are You Sure?
```

Press the <YES/ENTER> key to accept. The display will then read:

```
Add Programming?
```

If you wish to enter more events, the master clock will keep the information for the durations and days of the week selected until the master clock goes back to the main screen.



## Editing or Viewing Events

The display will read:

Edit Programming?

Press the <YES/ENTER> button if you wish to edit or view an event. If you do not wish to edit any events, press the <NO/CANCEL> button.

If you selected to edit programming, the display will read:

Sch 000

Type in the schedule number of where the event is located. When the schedule number is entered a screen will come up that looks like the following:

Sch 001 hh:mm:dd  
Choose Event

Cycle through the events by using the ↓ and ↑ buttons. When the event comes up that you want to edit or view, press the <YES/ENTER> key and the display will come up that looks like the following:

Sch 000 00:00:00  
s,m,t,w,t,f,sa,mf,ed

Follow the instructions on page 5 for programming events.

If you wish to delete the event, go to the schedule number and type 000. This will erase the event. Then go down to accept the changes.



## Adding Schedule Changes

Schedule changes are necessary for days that involve early dismissals, 2 hour delays or special days.

The display will read:

Add Schedule Change?

Press the <YES/ENTER> button to add a schedule change. Press the <NO/CANCEL> button to advance to the next option.

If the user chooses to add a schedule change, the display will read:

Sch 000

Enter the schedule that you wish to change to. The display will then read:

Sch ### 00:00:00  
Enter Time

Enter the time you wish the schedule change to occur. The display will then read:

Sch ### 00.00.00  
Enter Date

Enter the date you wish the schedule change to occur. The display will then read:

Sch ### mm.dd.yy  
OK?

Press the YES/ENTER button to accept the schedule change.



## Editing or Viewing Schedule Changes

The display will read:

Edit Schedule Change

Press the <YES/ENTER> button to edit a schedule change. Press the <NO/CANCEL> button to advance to the next option.

If the user selected to edit a schedule change, the display will read:

Sch ### mm.dd.yy  
Edit? hh:mm:ss

Scroll using the ↑ and ↓ buttons until the schedule change that you want to edit appears on the display. Press the <YES/ENTER> button to edit. Follow the instructions on page 7 to set up a schedule change.

If you wish to delete the schedule change, type in 000 over the schedule and accept the changes.

## Activate Manually

The display will read:

Activate Manually?

Press the <YES/ENTER> button to enter this option. Press the NO/CANCEL button to leave programming. The display will read:

Press NO To Exit  
Zone 001 Dur: N.A.

Scroll through the zones using the ← and → buttons. Press the <YES/ENTER> button to scroll through the durations. Press the <NO/CANCEL> button when the user is done selecting their preference. The display will read:

Are You Sure?

Press the <YES/ENTER> button to confirm.





## Advanced Options

There are two advanced programming options, they are "Clock System On/Off" and "Send Numeric Message".

**“Clock System On/Off?”** - This allows the customer to control the power sent to the clock systems. This function would be used to turn off the power if you wanted to perform maintenance on the slave clocks without turning off the entire system.

**“Send Numeric Message?”** - Only for use with a digital clock system. When used with Sapling SBD Series digital clocks, the master can send numeric messages to individual clocks, or groups of clocks, which have been assigned individual “addresses” by the technician prior to installation. If you wish to “silently page” someone by flashing a code onto a specific digital clock location, this function allows you to send such a message.

## Technician Mode

Type in the technician password: 6063

There are 46 different addresses in the Technician Mode. The addresses are as follows:

Address	Description	Address	Description
000	Customer Password	032	Duration 1 for Zone 4
004	Select clock system	034	Duration 2 for Zone 4
005	Select clock system	036	Duration 1 for Zone 5
006	Clock system on/off	038	Duration 2 for Zone 5
007	Enable numeric messaging	040	Duration 1 for Zone 6
008	Send BELL message Zone 1	042	Duration 2 for Zone 6
009	Send BELL message Zone 2	044	Duration 1 for Zone 7
010	Send BELL message Zone 3	046	Duration 2 for Zone 7
011	Send BELL message Zone 4	048	Duration 1 for Zone 8
012	Send BELL message Zone 5	050	Duration 2 for Zone 8
013	Send BELL message Zone 6	052	Duration 1 for Zone 9
014	Send BELL message Zone 7	054	Duration 2 for Zone 9
015	Send BELL message Zone 8	056	Duration 1 for Zone 10
016	Send BELL message Zone 9	058	Duration 2 for Zone 10
017	Send BELL message Zone 10	060	Duration 1 for Zone 11
018	Send BELL message Zone 11	062	Duration 2 for Zone 11
019	Send BELL message Zone 12	064	Duration 2 for Zone 12
020	Duration 1 for Zone 1	066	Duration 2 for Zone 12
022	Duration 2 for Zone 1	069	Enable Daylight Savings Time
024	Duration 1 for Zone 2	071	Keyboard time-out
026	Duration 2 for Zone 2	078	RS485 transmission rate
028	Duration 1 for Zone 3	079	Self test
030	Duration 2 for Zone 3	080	Reset to default values



## Technician Addresses

### Customer Password

Address 000: This address allows the customer password to be modified. The default value is 1111. This password can be any four (4) characters.

### Sync-Wire Clock System Selection

Address 004: This address controls Clock System #1 (000 is off, default value is 006)

Address 005: This address controls Clock System #2 (000 is off, default value is 001)

Please see the SMC 3000 Installation Manual for more information on sync-wire codes.

### Clock System On/Off

Address 006: This address controls the Clock System.

- 000 = Disabled
- 001 = Enabled (default value)
- 002 = Manually control the power

### Send Numeric Message

Address 007: This address enables/disables the numeric messaging function. This function can only be used when running a wired digital clock system using the SBD 1000 or 2000 and the SBZ series digital clocks. Numeric messaging allows the customer to send a numeric message to individual clocks, to a group of clocks in the system, or to all the clocks.

- 000 = Disabled (default value)
- 001 = Enabled

### Send Bell Message

Address 008 - 019: This address enables/disables the Bell message function. This function can only be used when running a wired digital clock system using the SBD 1000 or 2000 and the SBZ Zone. When enabled, the BELL function will send the word "BELL" through the RS485 when the selected zone(s)' relay closes. Addresses 008 through 019 turn on or off this option for each relay/zone in the master clock.

- 001 = Enabled
- 002 = Disabled (default value)

### Duration Settings For Zones

Address 020 - 066: These addresses allow the user to set the desired duration of the relay closure from 1 - 3600 seconds. Addresses 020 - 034 control the standard four (4) zones. Addresses 036 - 066 control the optional eight (8) relays that are available. Each zone has the option for two (2) saved durations. The user can enter a number from 0001 to 3600 (seconds) to denote the duration of the closure.



## Technician Addresses

### Enable/Disable Daylight Savings Time

Address 069: This address allows the user to enable/disable Daylight Savings Time.

- 000 = Disabled
- 001 = Enabling Pre 2007 DST
- 002 = Enabling Post 2007 DST (default value)

### Keyboard Time-out

Address 071: This option allows the user to set how much time elapses in between key-strokes before the master clock will automatically “time out” of programming mode and return to the main screen. This option is set in seconds from 001 - 255. “000” will disable this feature (default value is 30 seconds).

### RS485 Transmission Rate

Address 078: When using the master clock to control an RS485 clock system, you can control how often data from the master is transmitted to the slave clocks (default value is 001).

- 001 = data transmitted every second
- 002 = data transmitted every 5 seconds
- 003 = data transmitted every 10 seconds
- 004 = data transmitted every 15 seconds
- 005 = data transmitted every 30 seconds
- 006 = data transmitted every minute
- 007 = data transmitted every 2 minutes
- 008 = data transmitted every 5 minutes
- 009 = data transmitted every 10 minutes
- 010 = data transmitted every 15 minutes
- 011 = data transmitted every 30 minutes
- Any other value will turn off RS485 data transmission

### BIT Testing

Address 079: This address enters the self testing mode called BIT testing. This tests all aspects of the master clock. Any value entered in this address will activate the BIT tests (default value is 000).

Keypad: Press <YES> to test the keypad. Press the buttons as shown on the display on the master clock. After completion, the display will display the next option.

LEDs: Press <YES> at this option to test the LED segments. After verifying that all the segments light, press any key to go to the next option.

Real Time Clock: Press <YES> to enter this test. This will check the internal time base of the master clock. If the Real Time Clock passes the test, at the end of test, the display will read: “RT-Clock OK. Press any key.” Press any key to advance to the next option.



## Technician Addresses

EEPROM: Press YES to enter this test. This will check the EEPROM to make sure the master is functioning properly. If it passes the test, the display will read: "EEProm OK".

RAM: This will test to make sure the RAM is functioning optimally. Press YES to enter this test. If the RAM tests good, the display will read "RAM OK".

Relays: Press <YES> to test the relays. Enter the number of zones to test. Pressing 1 tests Zones 1 - 4. Pressing 2 tests Zones 1 - 8. Pressing 3 tests Zones 1 - 12.

Inputs: Press <YES> to test the inputs. Use a jumper to jump pins 5 and 6. The Clk in: will flash between 0 and 1.

Communication Out: The master clock will check the communication output. An oscilloscope is needed, and you should get a square wave if the communication output is functioning properly.

### Reset

Address 080: This address will clear out the programming and will reset to the manufacturer's preset parameters. The default value is 255. Any different values will prompt for the user to clear the programming.