# SMA 3000 Series Master Clock

The Master Clock shall be the Sapling SMA 3000 Series. The master clock shall have an LED display, as well as a backlit, two row by twenty character LCD display. It shall also have a 16 button rubber tactile keypad next to the displays that shall allow a user to program the master clock. The master clock shall have up to ten pre-programmed NTP servers which will be accessible for modification over a network interface. The master clock will be capable of receiving signals from existing master clocks via RS485, 59 minute correction, 58 minute correction, National Time and Rauland transmission protocol, or Dukane transmission protocol. The master clock (when a wireless transmitter is attached) shall be capable of translating a wired synchronization signal into Sapling's wireless signal, and then broadcasting the wireless signal to Sapling SAL(G*) and SBL(G**) secondary clocks The master clock shall contain two clock circuits that have the capability to run synchronous wire systems such as 59 minute correction, 58 minute correction, National Time/Rauland or a once a day pulse for intercom systems. The master clock shall be capable of interfacing with the SAM Series analog clock via the Converter Box. It shall also be capable of interfacing with the SRM Series analog clock and any of Sapling's 3200 or 3300 series digital clocks via RS485 communication protocol. The master clock shall be powered by 115VAC/60 Hz or 230VAC/50 Hz. The master clock will be capable of acting as a repeater for another master clock. The master clock shall contain the necessary circuitry and programs so that a typical web browser, like Internet Explorer, can access the clock over a local area network. When accessed this way, the clock settings can be modified through a graphic user interface. The interface shall allow the user to program all of the display features for secondary clocks, the IP settings of the master clock, and any system setting that the master clock has.

SMA 3000 upgrade options

Wireless Transmitter - The Master Clock shall be capable of transmitting data to the SAL(G) wireless analog clock and the SBL(G) wireless digital clock. The master clock shall also be capable of acting as a repeater when receiving a wired or wireless signal from another master clock. The Master clock shall include either a 915–928 MHz transmitter or a 2.4GHz transmitter. Both types of transmitter hardware shall use frequency–hopping technology.

GPS – The master clock shall have the option of having a GPS receiver board and antenna port built into the unit. This hardware and software will allow the master clock to receive UTC data from GPS satellites.

SNTP Server – The master clock shall have the capability to distribute time via SNTP protocol over a computer network. This means that IP devices on the network will be able to acquire SNTP data from the master clock if directed to do so.

Relays (zones) - The master clock shall be capable of utilizing four or eight zones that can activate or deactivate bells, lights, etc. A user shall be able to program the zones either through the 16 button rubber tactile keypad and LCD display, or through the Web interface.

Countdown for Digital Clocks – The master clock shall be able to set the countdown time between events and make the digital clocks count down.

* (G) is used for 2.4GHz models, in which case the model code is SALG. In 900MHz models, the model name is SAL.
** (G) is used for 2.4GHz models, in which case the model code is SBLG. In 900MHz models, the model name is SBL.

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