

## SMA 2000 Series Master Clock

The master clock shall be the Sapling SMA 2000 Series Master Clock. The master clock shall have an LED display and two buttons that will allow a user to program the clock. The master clock shall be capable of receiving a signal from any NTP or SNTP time server via a local area network or from the internet. 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 relay circuits that can produce synchronous wire data in the form of 59 minute correction protocol, 58 minute correction protocol, National Time/Rauland protocol, or a once a day pulse for intercom systems. The master clock shall be capable of interfacing with the SAM Series analog clock via Sapling's 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 2000 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.

\* (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.