

# SENSAPHONE<sup>®</sup>

## REMOTE MONITORING SOLUTIONS

### **Sensaphone Sentinel**

### **Firmware Revision History**

#### **Version 1.8.17**

- Updated firmware download routines to improve firmware updates over cellular connections.

#### **Version 1.8.9**

- Corrected issue that caused Runtime (Normally Open) zones to stop working.
- Corrected issue that caused Min/Max reset on Runtime & Pulse Count zones to work incorrectly.

#### **Version 1.8.8**

- Upgrade secure connection to TLS 1.2, AES256/SHA256; also enable server name TLS extension (Server Name Indication; SNI).
- Prevent the device from automatically rebooting if main power is off.
- Upgrade security certificate.
- Disable IP forwarding.

#### **Version 1.7.32**

- Corrected an issue which could result in the relay output being set to the wrong state after a reboot.
- Improved storage of certain variables in battery-backed memory while device is powered off or rebooted.
- Corrected issue which caused pulse count and run-time values to reset or become corrupt.
- Improved NTP server compatibility for time synchronization.
- DHCP addresses no longer sent to the server
- (Sentinel PRO & Stratus Only) Improved handling of Modbus values & alarm status when the device reboots or is powered down.

#### **Version 1.7.25**

- Reduced the time to automatically reboot the unit in the event of excessive connection negotiation errors.
- Added an 'Auto Acknowledge' feature which will cancel remaining alarm notifications if the condition corrects itself. Feature must be enabled per zone.
- Changed 'Alarm Reset' functionality such that the reset timer will run whenever the alarm is enabled.
- Improved DNS server compatibility.
- (Sentinel PRO & Stratus only) Updated flash memory startup routines to verify that the chip is ready for access prior to use to protect against unexpected writes.

#### **Version 1.7.21**

- Corrects an issue which was preventing the unit from successfully rebooting when certain DHCP errors or Ethernet controller errors were detected.
- Improves the operation of the reset-to-defaults button and adds an audible beep when pressed.
- Sends the IP address of the device to the server when configured for DHCP.

## **Version 1.7.18**

- Removed zone values from periodic updates when the zone is disabled.
- Added automatic reboot if consecutive connection attempts result in TCP socket connection failure.

## **Version 1.7.16**

- Corrected an issue which caused occasional website mismatch between zone 'status' and 'value' fields.

## **Version 1.7.12**

- Added verification of datalog records written to internal memory with rewrite if errors detected.
- Improved datalog upload reliability.
- [Sentinel Pro] Reduced false MODBUS "Not Responding" alarms.
- [Sentinel Pro] Eliminated retries if a MODBUS zone is busy or in error.

## **Version 1.7.11**

- Corrected Relay Output issue which caused the unit to incorrectly report the on/off state of the output(s).
- Corrected pulse count processing issue at start-up which caused the unit to potentially fail to boot up.
- Corrected Standby mode issue which caused the Standby time to count down from 65,535 minutes when it was set to 'untimed'.

## **Version 1.7.10**

- Corrected an issue which caused (reset) alarms to be sent out while the device was in standby

## **Version 1.7.9**

- Improved accuracy of temperature readings which can affect units currently in the field. **THESE UNITS MAY REQUIRE RE-CALIBRATION AFTER THIS FIRMWARE UPDATE.**
- Randomized the connection sequence to Sensaphone.net servers which provides for enhanced redundancy and recovery when devices connect to the Sensaphone.net server system
- Zone values will update the Sensaphone.net website while in standby
- The Datalogger will record current values while in standby
- Alarm Reset timers will restart after a reboot. This ensures that the Alarm Reset feature will function correctly if the device reboots (or is powered on) with previously acknowledged alarms.
- Allocated additional memory resources for selected internal tasks

## **Version 1.7.5**

- Added automatic reboot if operating system detects a memory problem or if multiple TCP socket errors occur
- Added led error codes 18 and 19 for TCP socket-closed error and HTTP parse error
- Added alternate method to set clock when NTP is unavailable
- Improved datalog download process
- Improved communication protocol error handling

## **Version 1.7.4**

- Improved datalog record search routines

## **Version 1.7.3**

- Freeze MODBUS zone values while in Standby mode
- Device no longer records a datalog record at startup
- Improved firmware download process
- Optimized datalog memory storage

## **Version 1.7.2**

- Improved memory erase function when the device is reset to defaults
- Corrected potential corruption of pulse count values
- Improved pulse count initialization to avoid spurious counts
- Corrected Standby LED operation on startup
- Corrected deletion of system description when reset to defaults

## **Version 1.7.1**

- Improved datalog record search routines
- Improved detection and correction of invalid dates
- Zone value updates now limited in size to fit in one MTU.
- Initial Zone updates now includes all zones' min/max values
- Improved handling of Runtime zones
- Improved accuracy of internal clock
- Corrected relay output operation when set to 'Cycle'
- Corrected a memory issue if SSL connect attempt fails
- Corrected a problem when the Output uses a Runtime zone as the trigger source
- Optimized datalog timestamps

## **Version 1.7.0**

- Standby LED now flickers if a delayed reset/reboot is pending
- Improved reliability of alarm event updates
- Improved connection reliability over low-bandwidth networks
- Improved DHCP compatibility with certain satellite modems
- Improved handling of resolution of NTP time server names
- Corrected recording of datalog records at alarm interval when status is only Pending
- Min/Max no longer reset when setting pulse count or runtime values

## **Version 1.6.68**

- Pulse count zone types can now support negative values

## **Version 1.6.67**

- Maintain Standby mode through device reboot
- [Sentinel Pro] Reduced MODBUS TCP socket connect timeout
- [Sentinel Pro] Improved MODBUS TCP polling reliability
- Improved device startup time
- Pulse counts now limited to +/- 1,000,000.00

## **Version 1.6.66**

- [Sentinel Pro] Improved MODBUS serial communications error
- [Sentinel Pro] MODBUS Zones now stored in Battery-backed memory
- Initialize Min/Max values when device is reset to defaults
- Improved Datalog memory search and download routines

## **Version 1.6.41**

- Improved accuracy of zone timers
- Optimizations to datalog upload
- Clear alarm values on reset to defaults

## **Version 1.6.40**

- Adjusted TCP socket settings for improved reliability over an impaired network connection with packet loss and/or large delay
- Increased SNMP timeout for improved reliability over a network connection with large delay

## **Version 1.6.38**

- Corrected issue where negative calibration values became corrupted after a firmware

## **Version 1.6.37**

- Improvements made in flash storage routines

## **Version 1.6.36**

- Added battery-backed storage of alarm and min/max values
- Output relays in manual mode are restored to previous state on power-up
- Datalog entries are now synced to the top of the hour
- Faster initialization and validation of datalog storage

## **Version 1.6.35**

- Online LED blinks an error code on failure to connect to the
- Added support for Zone
- Improved alarm event processing to show alarm status changes on website sooner

## **Version 1.6.34**

- If upgrading from 1.6.24, zone values - including pulse count and runtime - will now be maintained after firmware updates. **HOWEVER, PULSE COUNT AND RUNTIME VALUES WILL BE RESET TO ZERO AFTER THIS UPDATE.**
- Added lithium battery monitoring
- Improved output event processing to show changes in output status sooner
- Corrected min/max values for runtime zone

## **Version 1.6.33**

- Enabled SSL certificate
- Improved reset to defaults functionality
- Improved min/max initialization functions

## **Version 1.6.32**

- Optimized zone updates to server
- Corrected issue affecting runtime alarm limits
- Corrected issue causing large pulse count multipliers to display incorrectly on the website
- Added automatic reboot after network settings are changed

## **Version 1.6.31**

- Improved alarm event processing

### **Version 1.6.30**

- Improved alarm acknowledgement processing

### **Version 1.6.29**

- Runtime values now stored in battery-backed RAM
- Added redundant server connections for auto-failover

### **Version 1.6.28**

- Optimized battery percent-charge calculation
- Added internal memory diagnostic tests

### **Version 1.6.27**

- Added support for Sentinel Pro
- Enhanced communication protocol over https
- Corrected issue affecting the pulse count multiplier

### **Version 1.6.26**

- Added support for SSL server connection failover
- Time synchronization now attempts NTP servers in North America, Asia and Europe
- Datalog timestamp improvements
- Internal memory optimizations

### **Version 1.6.25**

- Corrected an issue affecting the output zone list
- Doubled the frequency of pulse count processing
- Optimized server connection timing
- Added support for pulse counting on Zones 11-12