SENSAPHONE®
REMOTE MONITORING SOLUTIONS

Sensaphone Sentinel
Firmware Revision History

Version 1.8.23

- Improved NTP time synchronization by requiring multiple matches
- Added support for flash memory chips from additional manufacturers
- Updated certificate validation routines

Version 1.8.22

- Added support for authorization UUID string.
- Changed output control logic such that the relay output will switch when zone alarms are disabled and the trigger is set to Zone State or if configured in Zone Limit mode.
- Updated several NTP server IP addresses.

Version 1.8.19

· Fixed an issue on the Relay Output setup screen where programmed values in 'Automatic Limit: Zones' mode would display x1000 under certain conditions.

Version 1.8.17

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

· Automatic output relay modes will ignore a given zone if either the Zone's input or alarm is disabled.

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 SNTP 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