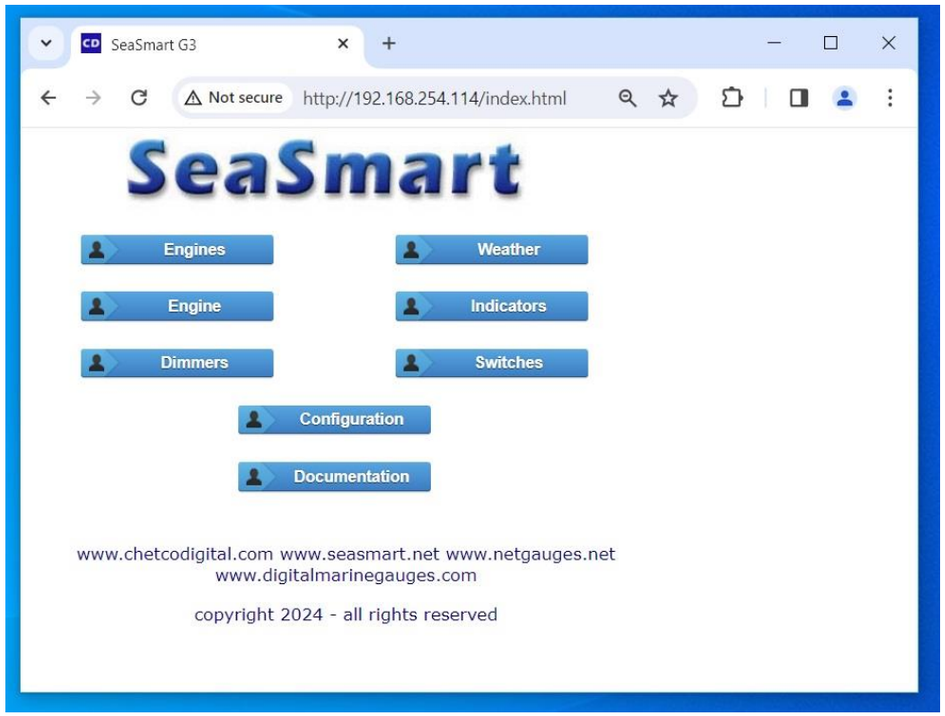


SITE LINKS

Engines

Displays Dual Engine Gauges

Engine

Displays Single Engine Gauges

Dimmers

Displays mesh networked dimmer controls

Indicators

Displays indicator status and runtimes

Switches

Displays/Controls networked switches

Configuration

Main device configuration page

Documentation

Lists all documents stored on internal SD cad

SITE LINKS

Home

Navigates back to Home page

Config

Current Page

Status CAN

Displays current received CAN messages

Status 0183

Displays current received NMEA 0183 messages from Serial port 2

Files

Browses files/folders on SD card

****** See App Note ANSS23080701-WEB CONFIG FILES.pdf for full details in using SD card files *****

PGN Filters

Enables selecting target PGNs received on CAN bus

STATUS

Device ID

MAC address for Gateway – Used to link to HelmSmart Services

Version

Current Firmware version. Check after performing an update

IP Address

Current DHCP assigned network address or manually configured

SSID

Configured WIFI network ID

Network Type

AP (Access Point) stand alone WIFI without internet access

STATION – a local router based infrastructure with internet gateway

DHCP

ENABLED – automatically is assigned network address by local router

STATIC – Manually configured network address and gateway

CELL DB

Strength of cellular signal when using optional internal modem

CELL AI

Cellular connection status when using optional internal modem

BOOT CONFIG

DEFAULT

Uses current config values stored in internal memory on each reboot

Factory

Uses Factory Defaults on next boot.

Access Point mode. Default stand alone WIFI with its own SSID. Does not require other network routers or equipment. Devices will connect to SeaSmart G3 directly. No internet access is available as there is no router

XML Override

Forces network settings to those stored on SD Config .xml file

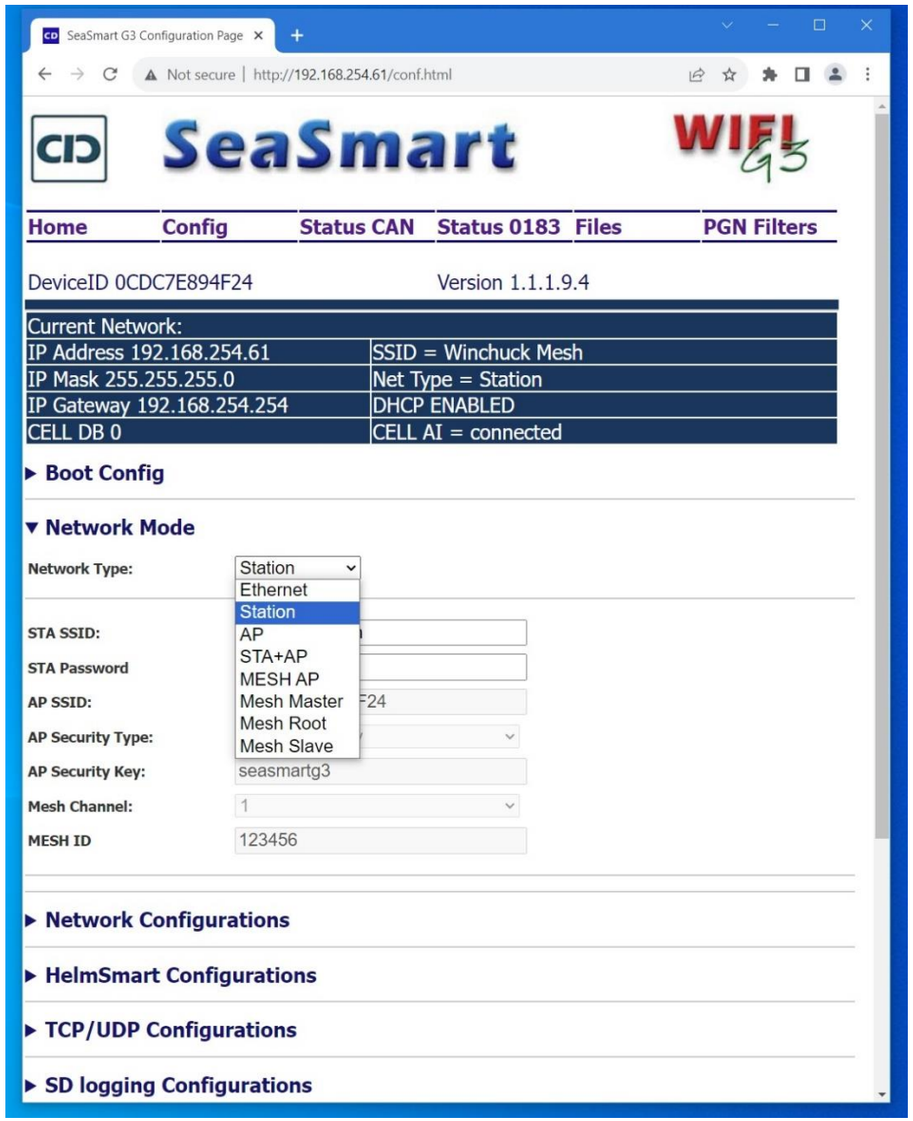
Used to override default AP mode if a bad network setting is encountered

Bypass firmware check

Disables performing a version check when updating firmware.

Do not use this option unless required to switch platforms

Improper use of this option may render device inoperable.



NETWORK TYPE

ETHERNET

Uses built in ethernet port for network connections. Disables WIFI modes

STATION

Normal infrastructure mode. Requires network router to join with other devices and internet access. Must be configured with valid network settings (SSID and Passwords) of connecting devices. Once connected – all devices on network can access SeaSmartG3 by its assigned address or DNS

AP

Access Point mode. Default stand alone WIFI with its own SSID. Does not require other network routers or equipment. Devices will connect to SeaSmart G3 directly. No internet access is available as there is no router

STA+AP

Not currently implemented

MESH AP

Not currently implemented

MESH MASTER

Gateway sends switch/dimmer commands to all slaves on same MESH ID

MESH ROOT

Optional Mesh network module – Required to communicate to all SLAVES

MESH SLAVE

Slaves are controlled by the MESH Master/Root gateway

NETWORK SETTINGS

STA SSID

SSID of the infrastructure that SeaSmartG3 is joining. This is normally the SSID of the local router

STA PASSWORD

Password of the local network. Normally set by the local router

AP SSID

The SSID of SeaSmartG3 when in AP mode – Other devices wishing to connect to SeaSmartG3 in stand alone mode will use this SSID

AP SECURITY TYPE

Default is WPA2 PASSKEY which requires other devices supply matching password (security key)

AP SECURITY KEY

The SeaSmartG3 password

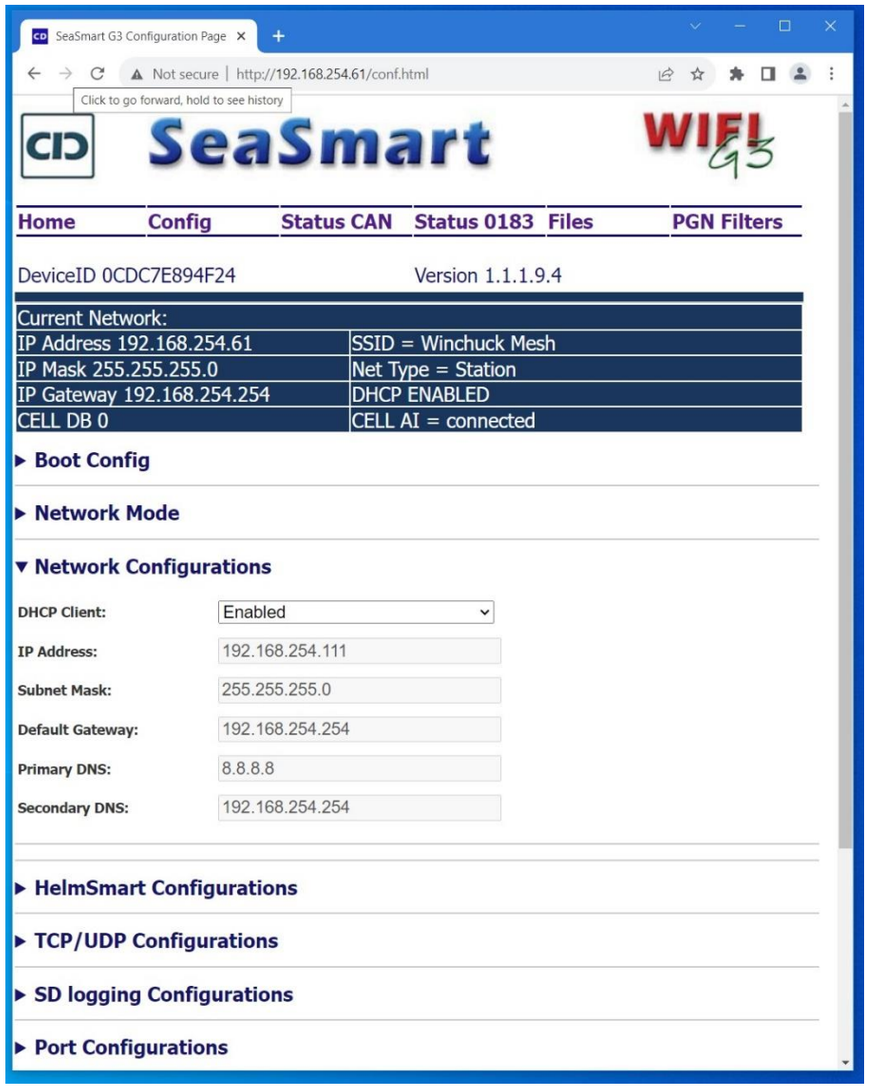
MESH CHANNEL

The channel used for mesh networks – All devices on the mesh network must use the same channel. Range is from 1-14

MESH ID

ID used by all slave devices on the same MESH Network must match

****** See App Note AN_SS230228_SeaSmartSTAmode.pdf for full details on setting up STATION (router based infrastructure) mode *****



Network Configurations

DHCP ENABLED

Allows the local router to assign all network settings to SeaSmartG3 gateway for network connections.

If mDNS is enable on local network, the gateway can be accessed by its AP SSID using the default url http://seasmartg3-XXXX.local

Otherwise you must use local network tools to discover devices and match to the SeaSmartG3 DeviceID

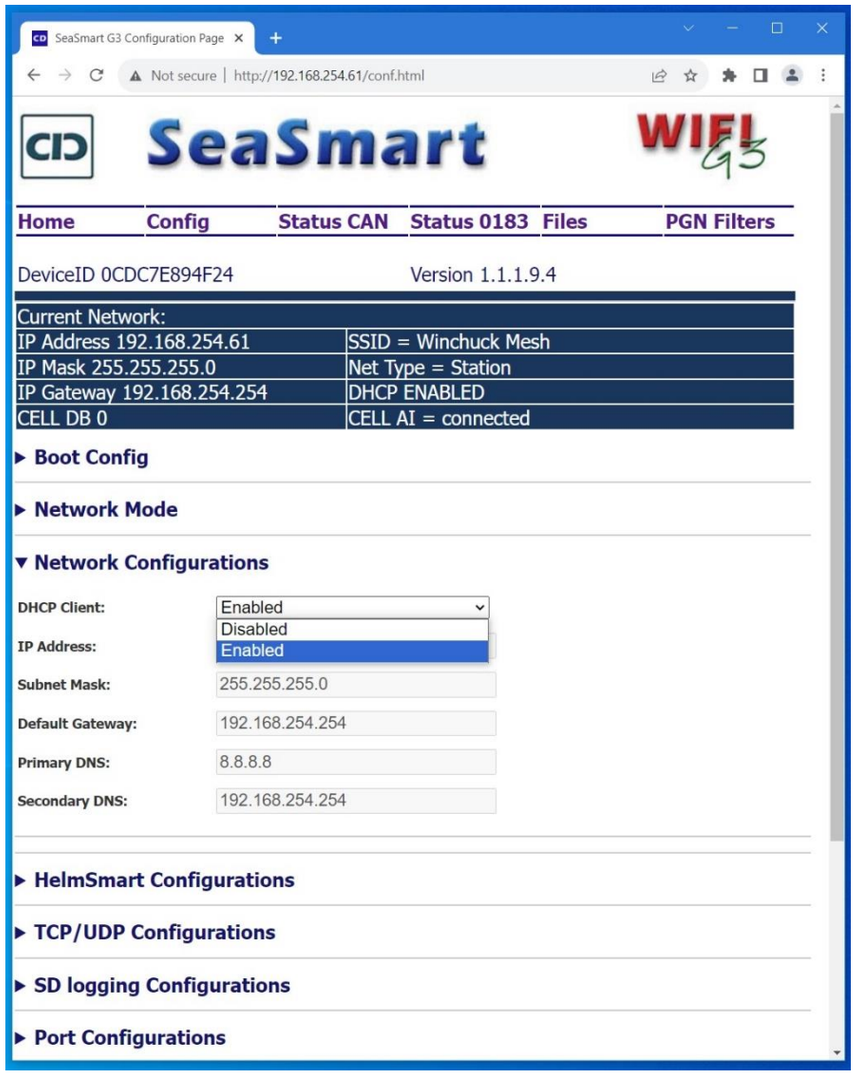
DHCP DISABLED

Used when assigning a static address to the SeaSmart Gateway

You must supply all the correct network information used by the local router to enable access.

When using static IP, be sure to not overwrite other devices on the local network.

The Default Gateway should be the same as the local router to gain internet access.



DHCP DISABLED SETTINGS

IP ADDRESS

An unused address on the local network. Be sure it is on the same subnet as other connected devices

SUBNET MASK

Must match the local router assignment

DEFAULT GATEWAY

The address that connects to upstream networks or the internet

PRIMARY DNS

Internet DNS server to resolve hostnames

Secondary DNS

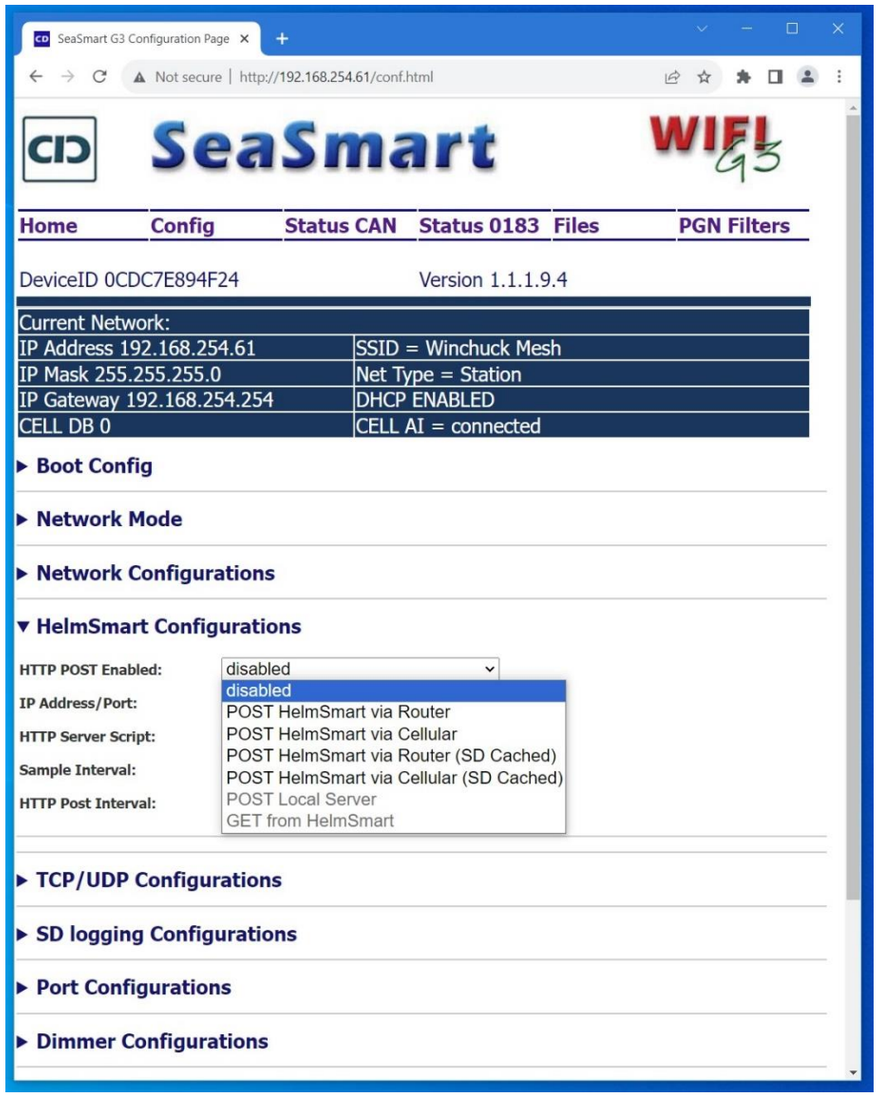
Backup DNS server. Usually the local router

HelmSmart Configuration

Upload to Cloud Services

Enables local data to be automatically uploaded to the HelmSmart Cloud service based on selected update interval in minutes.

****** See App Note AN_SSG325091302_EnablePushSmart.pdf for full details on enabling PushSmart services*****



HELMSMART ENABLE

POST HELSMART VIA ROUTER

Sends data directly to the HELMSMART service via local router connections.

Any missed or lost messages are not resent and not stored

Lowest bandwidth option

POST TO HELMSMART VIA CELLULAR

Uses a optional 4G Cell Modem module to connect to HELMSAMRT services.

Any missed or lost messages are not resent or stored

POST TO HELMSMART VIA ROUTER (CACHED)

Sends data directly to the HELMSMART service via local router connections

. Any missed or lost messages are stored on SD card and resent when connections are resumed

Lowest bandwidth option

POST TO HELMSMART VIA CELLULAR (CACHED)

Uses a optional 4G Cell Modem module to connect to HELMSAMRT services.

Any missed or lost messages are stored on SD card and resent when connections are resumed

HELMSMART SETTINGS

IP ADDRESS/PORT

Not used for SeaSmartG3

HTTP SERVER SCRIPT

Not used for SeaSmartG3

SAMPLE INTERVAL

The rate (500 msec) at which PORT2 messages are appended into the 4KB buffer for upload to HelmSmart service.

This only effects messages arriving via PORT2 (either PUSHSMART data from SeaGauge HUB or NMEA 0183 data) which are added to any CAN BUS messages already received

The default of 2 means PORT2 is scanned for new messages every 1 seconds. This value can be decreased to 1 for SeaGauge since it outputs messages at that interval.

HTTP POST INTERVAL

The rate (in minutes) at which the 4KB message buffer is uploaded to HELSMART service.

In normal practice this value is related to maximum upload speeds of the network connections and the rate of all new messages.

To achieve a continuous resolution of 1 second for SeaGauge only messages, this value can be decreased to 1 if network services can support such speeds

TCP/UDP Configurations

TCP

Not supported at this time

UDP Broadcasts

A UDP Broadcast allows SeaSmart to send data to all devices on the local network at selected intervals.

Used by netDimmer Gateways to send switch and level commands to all slaves listening on the selected port number

Can also be used by other SeaSmart Gateways to bridge NMEA 2000/J1939 CAN bus messages across the local network.

Third party dashboard apps also use UDP broadcasts to render live sensor data.

UDP BROADCAST ENABLE

DISABLED

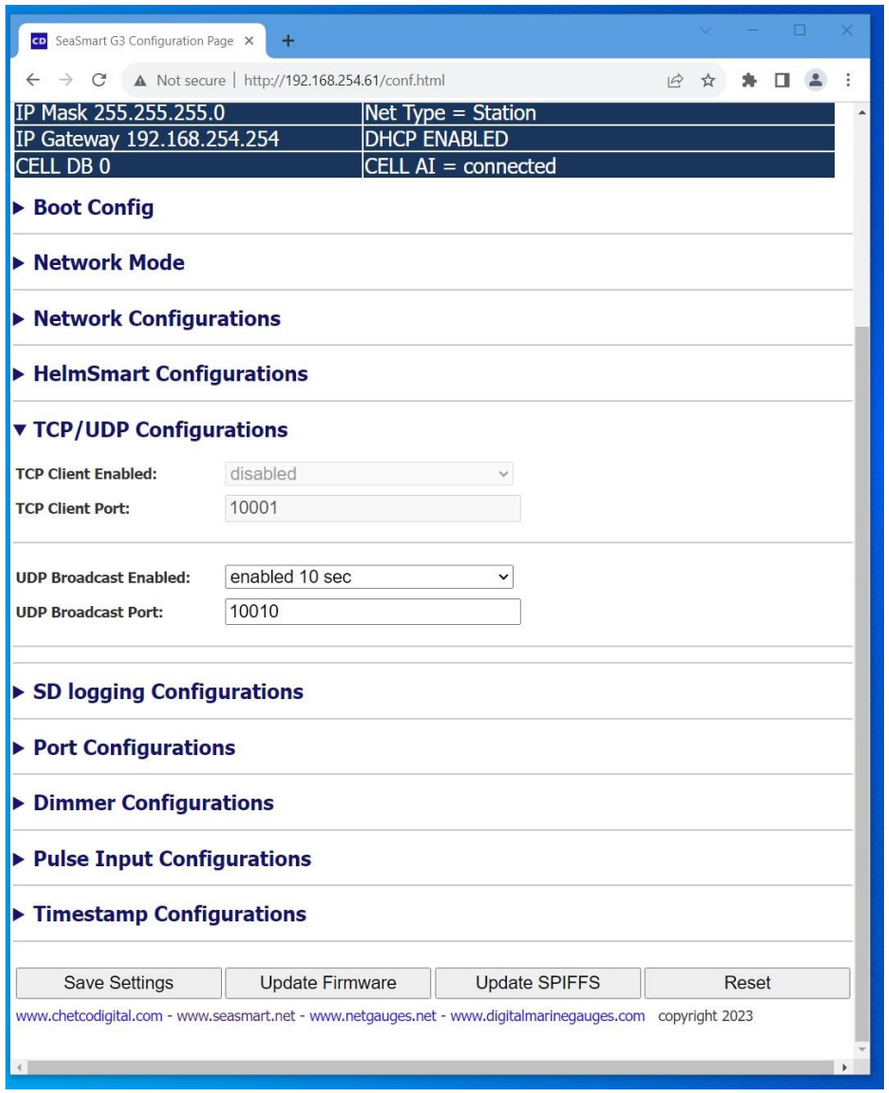
No UDP Broadcast are active

ENABLED XX SEC

A UDP Broadcast of the internal 8KB Message buffer is made on the selected port number at XX seconds.

UDP Broadcast is PUSHSMART protocol of any CAN BUS messages and messages received on PORT2.

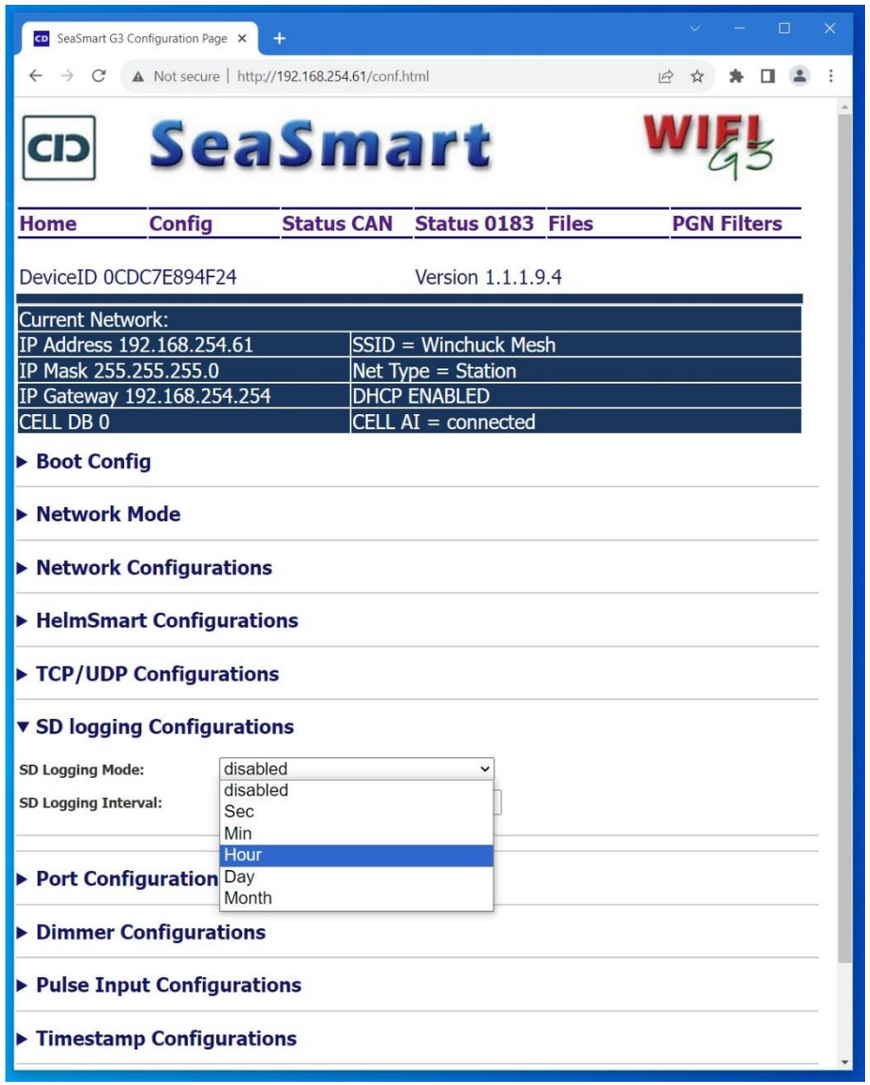
Can be a combination of PUSHSMART and NMEA 0183 messages depending on what is received on PORT2



UDP BROADCAST PORT

UDP BROADCAST PORT

The port number the broadcasts are made on. Connecting devices must listen on the same port



SD LOGGING MODE

DISABLED

No logging is made to internal SD card

SEC

Messages from the internal 8KB buffer are stored to SD card based on the select interval and new file name created every second

SSLOG00_000541_01230721125930.txt

MIN

Messages from the internal 8KB buffer are stored to SD card based on the select interval and new file name created every second

SSLOG00_000541_01230721125900.txt

HOUR

Messages from the internal 8KB buffer are stored to SD card based on the select interval and new file name created every hour

SSLOG00_000541_01230721120000.txt

DAY

Messages from the internal 8KB buffer are stored to SD card based on the select interval and new file name created every day

SSLOG00_000541_01230721000000.txt

MONTH

Messages from the internal 8KB buffer are stored to SD card based on the select interval and new file name created every month

SSLOG00_000541_01230721000000.txt

SD LOGGING INTERVAL

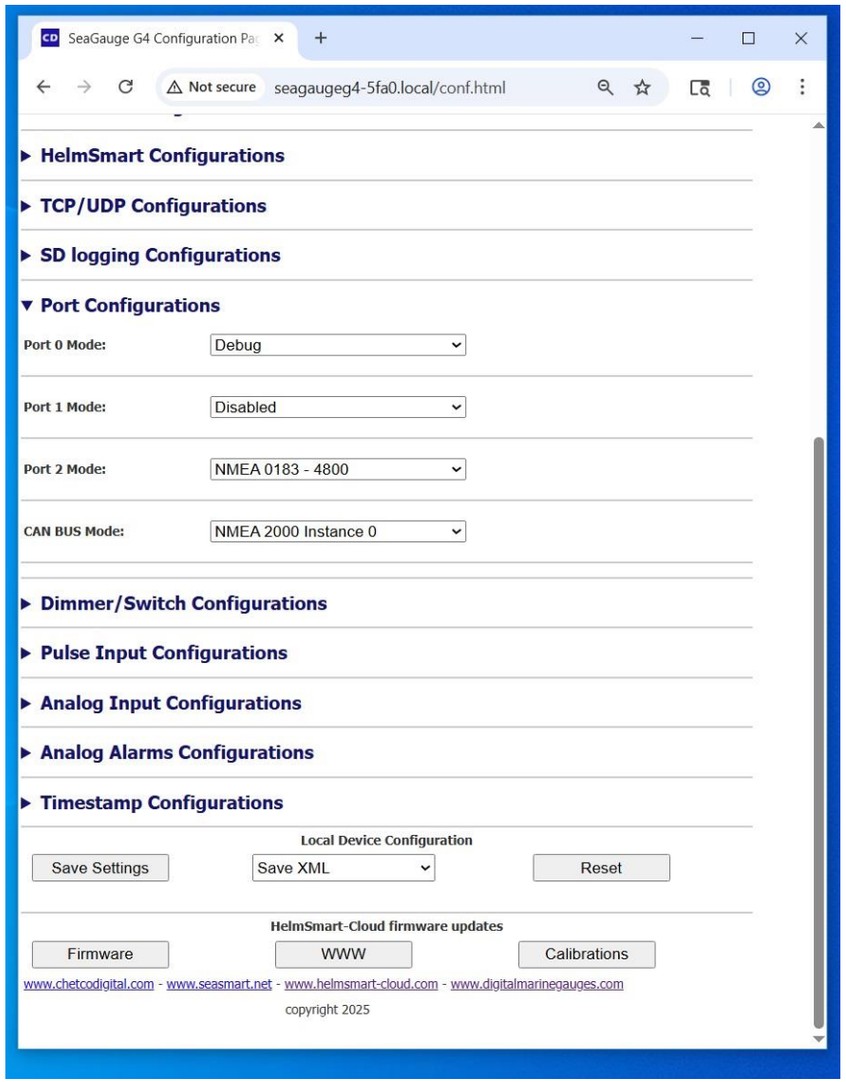
SD LOGGING INTERVAL

The number of minutes to update log file with messages in 8KB buffer from both CAN BUS and PORT2 interfaces

A new log file is created based on selected mode every sec, min, hour, day, or month.

Otherwise new data is appended to existing file.

Minimum Log interval is 60 seconds



PORT Configurations

PORT0

Port0 is the SeaGaugeG4 USB port

In debug mode – status messages can be viewed with a serial monitor

PORT1

Port 1 is not available for SeaGaugeG4 - DISABLED

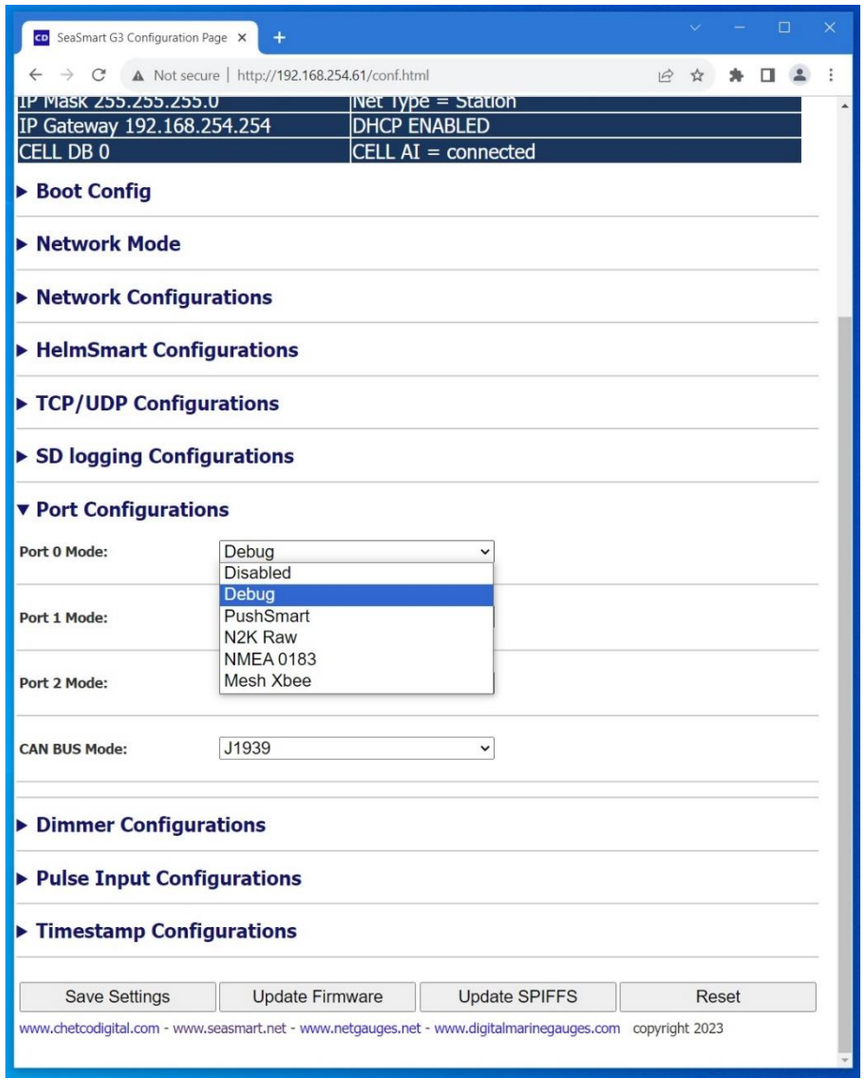
PORT2

Messages received on PORT2 will be output in PUSHSMART format for monitoring.

Example: $PCDIN,01F200,CP2I3U07,AA,01880EFFFF7FFFFF*29

CAN BUS

Sets J1939 mode (no auto source address) or NMEA 2000 mode (auto address claim). Also sets the device source address on the NMMEA 2000 bus.



PORT0 MODE

DISABLED

No messages are sent out PORT0 interface

DEBUG

Runtime status messages are sent out PORT0 and can be monitored via the external USB connection. Default Baud rate 115600

PUSHSMART

Messages received on PORT2 will be output in PUSHSMART format for monitoring.

Example: $PCDIN,01F200,CP2I3U07,AA,01880EFFFF7FFFFF*29

N2K RAW

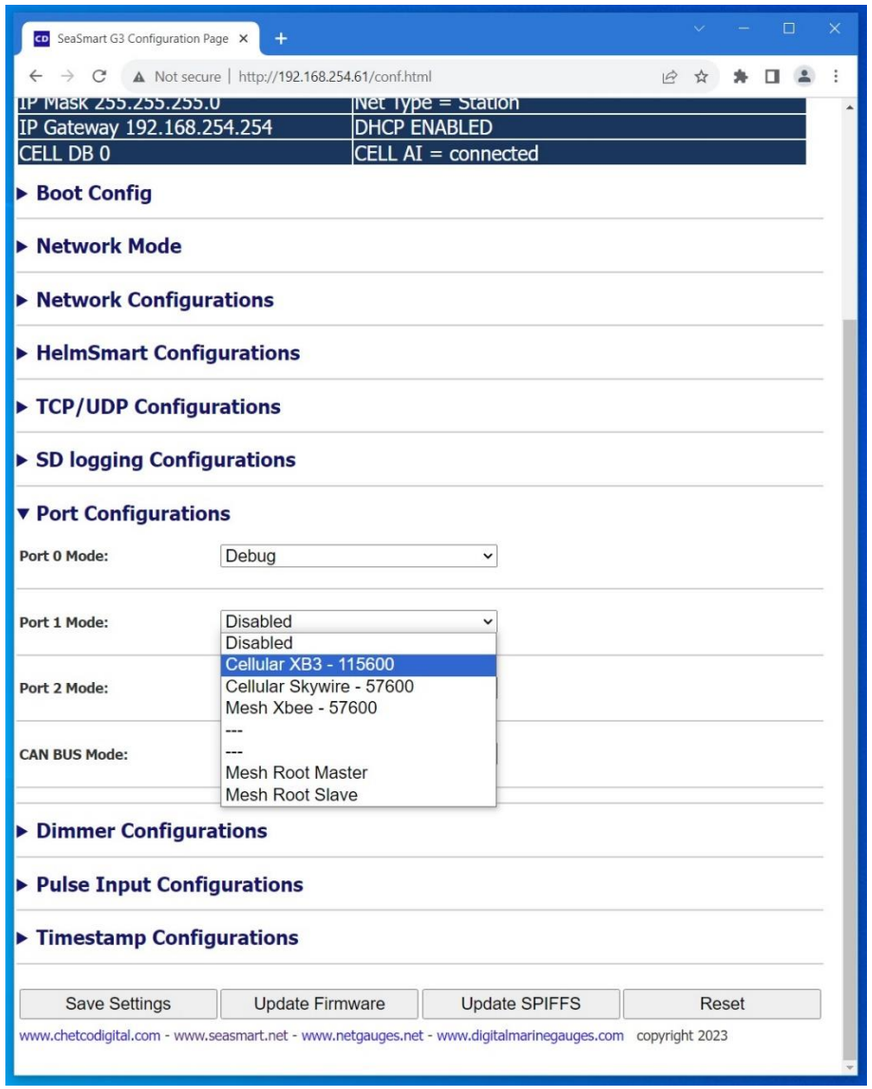
This Mode is not yet implemented on this interface

NMEA 0183

This Mode is not yet implemented on this interface

MESH XBEE

This Mode is not yet implemented on this interface

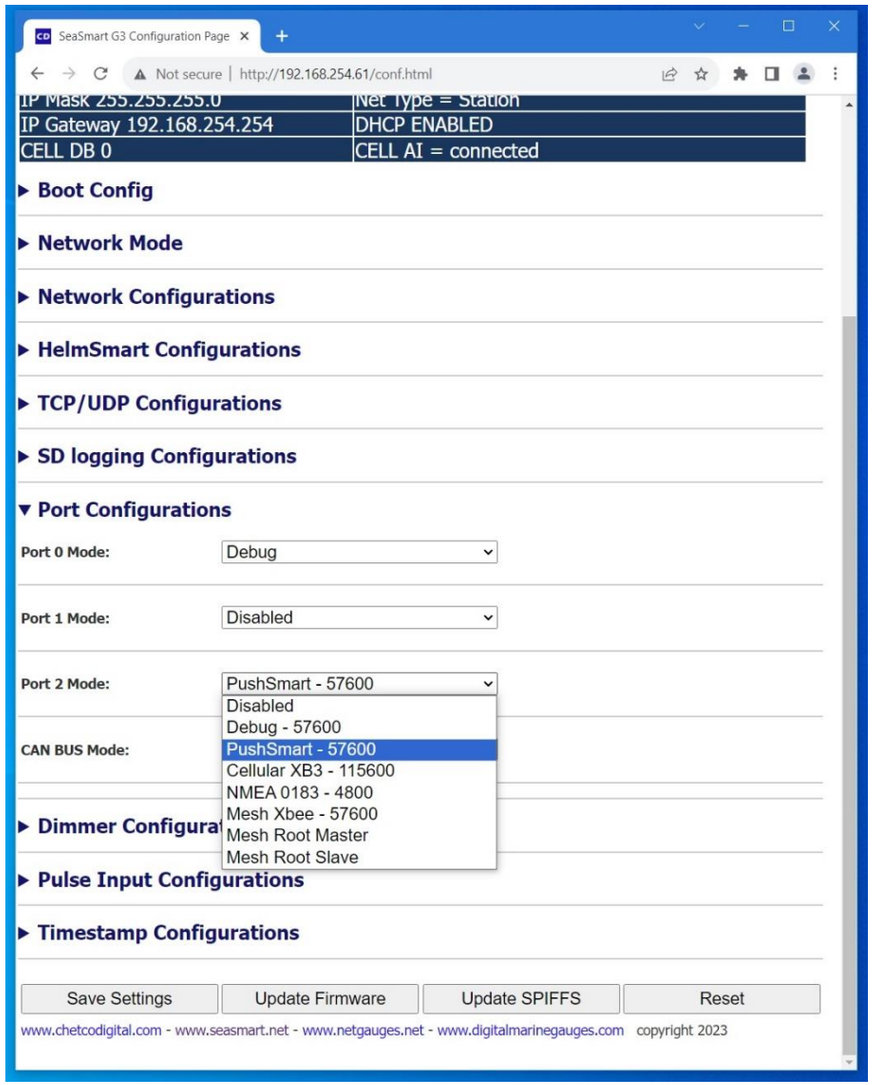


PORT1 MODE

DISABLED

No messages are sent out the internal PORT1 Serial interface

This option is disabled for SeaGaugeG4



PORT2 MODE

DISABLED

No messages are received or output on the external RS232 serial interface

DEBUG-57600

This mode is not yet implemented

PUSHSMART – 57600

Listens for PUSHSMART protocol messages on the external RS232 serial port and writes to internal 8KB buffer used for upload to HELMSMART services

Can also render messages for view on embedded Web Server pages

CELLULAR XB3 – 115600

Not implemented on SeaSmartG3 gateways and SeaGaugeG4 WIFI

NMEA 0183 – 4800

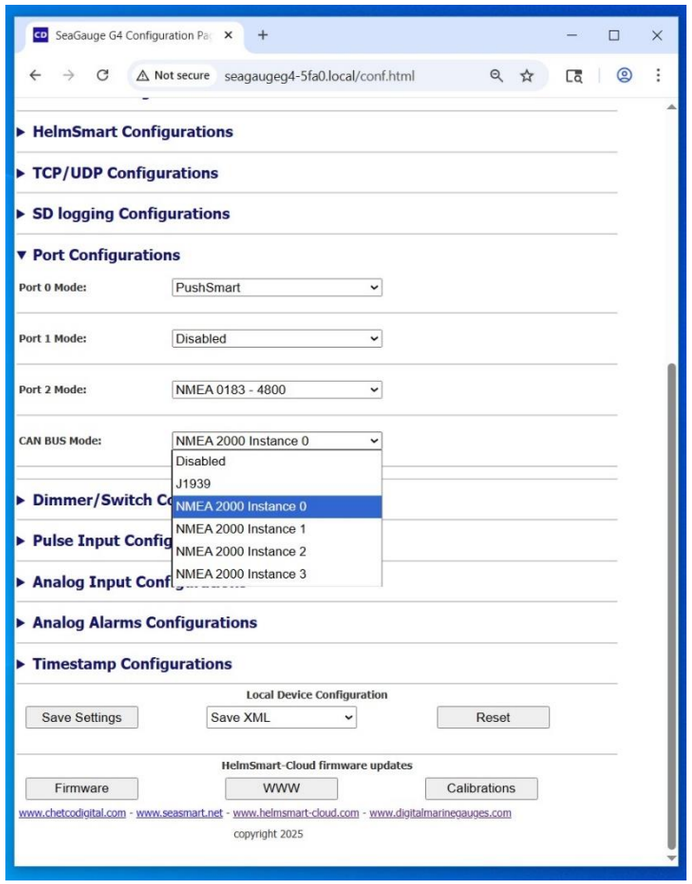
Listens for PUSHSMART protocol messages on the external RS232 serial port and writes to internal 8KB buffer used for upload to HELMSMART services

Can also render messages for view on embedded Web Server pages

Used for direct connection to Weather Station and GPS devices

MESH XBEE – 57600

Not implemented on SeaGaugeG4.



CAN BUS SETTINGS

DISABLED

The external CAN bus interface is disable and no messages are sent or received

J1939

Listens for CAN bus messages with no auto source address

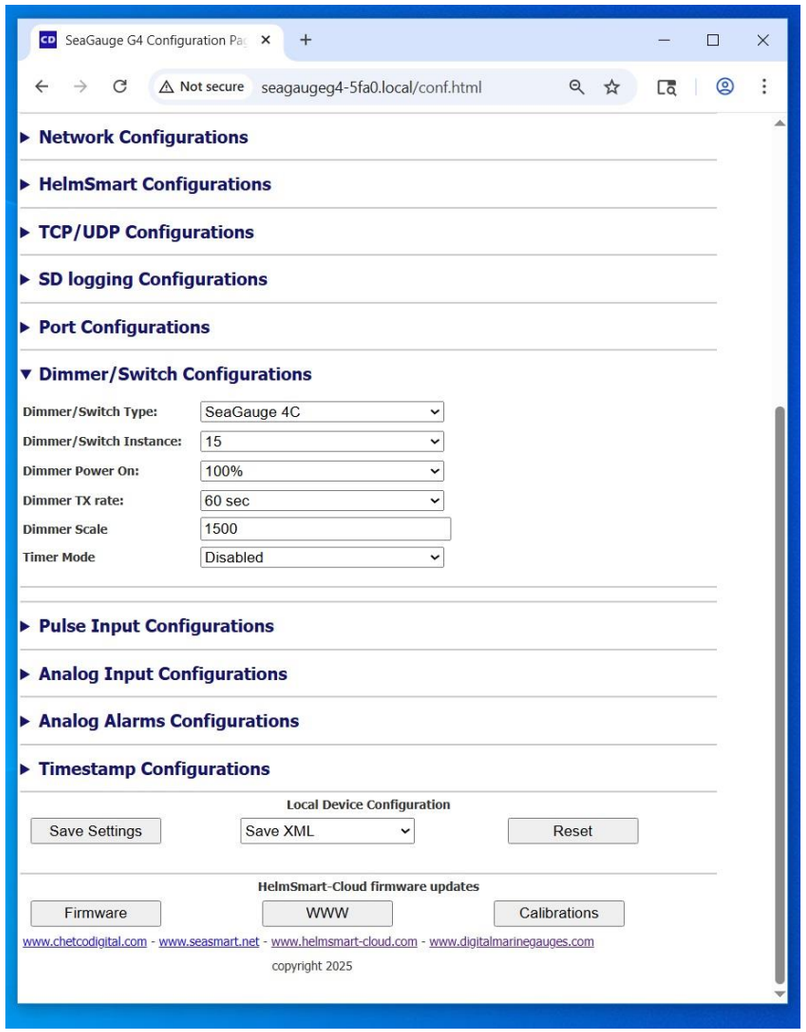
NMEA 2000

Supports full NMEA 2000 protocol for sending and receiving CAN BUS messages from the external interface.

Supports auto address claim

Manual assignment of Device Instance when more then one SeaGaugeG4 is present.

Can also bridge some NEMA 0183 messaged received on PORT2 to matching NMEA 200 messages such as Weather Station and GPS functions



Dimmer Configurations

No Dimmer functions are available for SeaGaugeG4

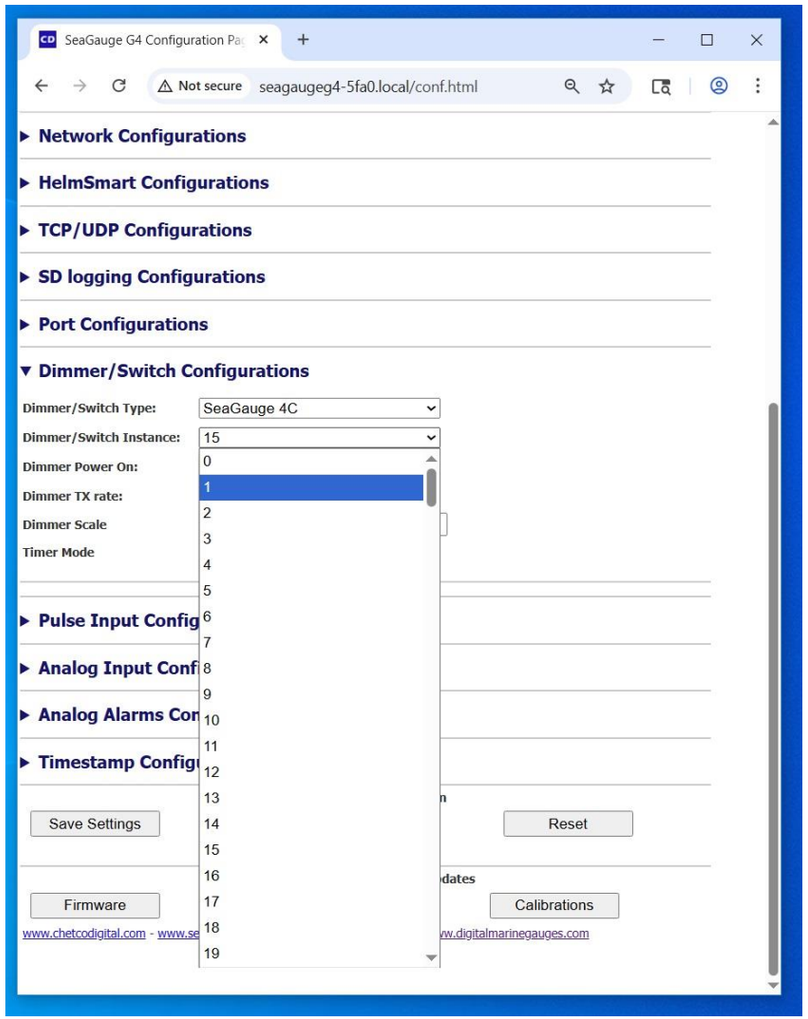
DISABLED

No Dimmer or Switch control messages are sent to internal PORT2 interface

This mode must be disabled when using other devices on the external PORT2 RS232 interface

SeaGauge 4C

Sets SeaGaugeG4 to send/receive switch status PGN127501/PGN127502 for PIO4-PIO7



DIMMER SETTIINGS

DIMMER/SWITCH INSTANCE

Sets the PGN instance for CAN BUS Switch and Dimmer messages

Also used when transmitting Indicator Runtime messages

DIMMER POWER

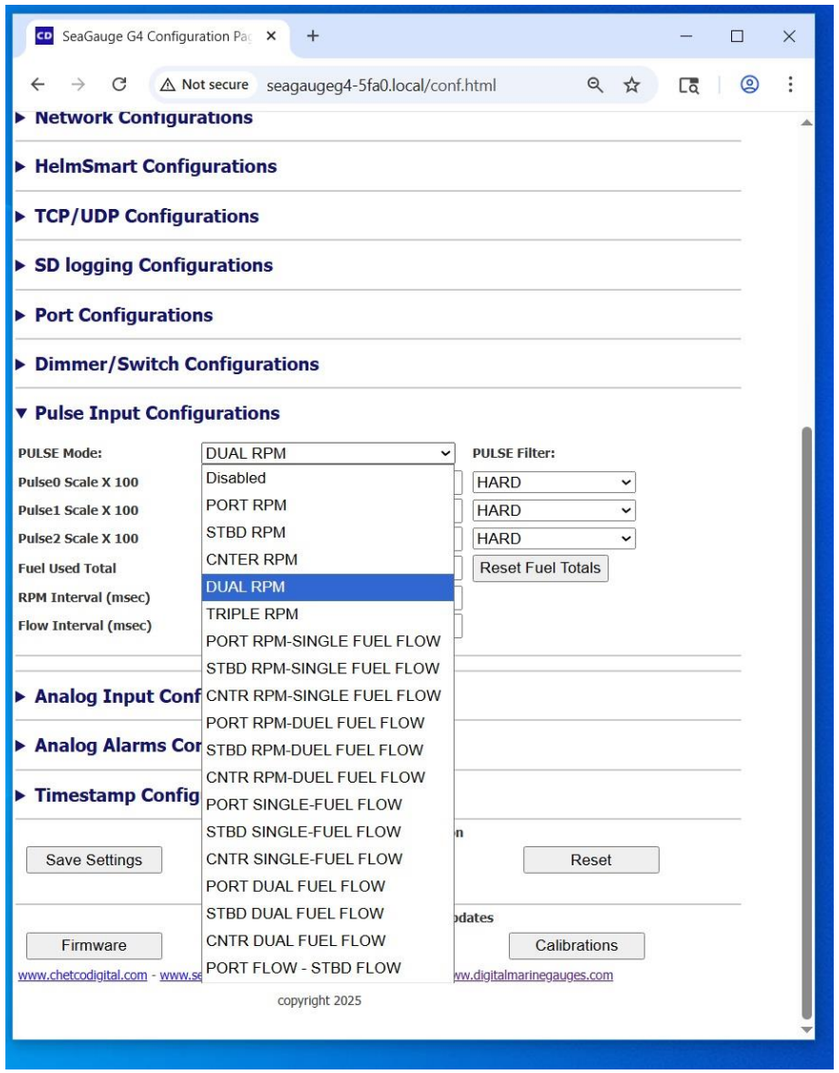
Not available for SeaGaugeG4

DIMMER TX RATE

Not available for SeaGaugeG4

DIMMER SCALE

Not available for SeaGaugeG4



PULSE MODE - RPM

DISABLED

Internal dual pulse inputs are disabled

PORT RPM

Pulse channel 0 input is assigned as a PORT RPM message with instance 0

$PCDIN,01F200,CP2P1401,AB,000000FFFFFFFFFF*51

STBD RPM

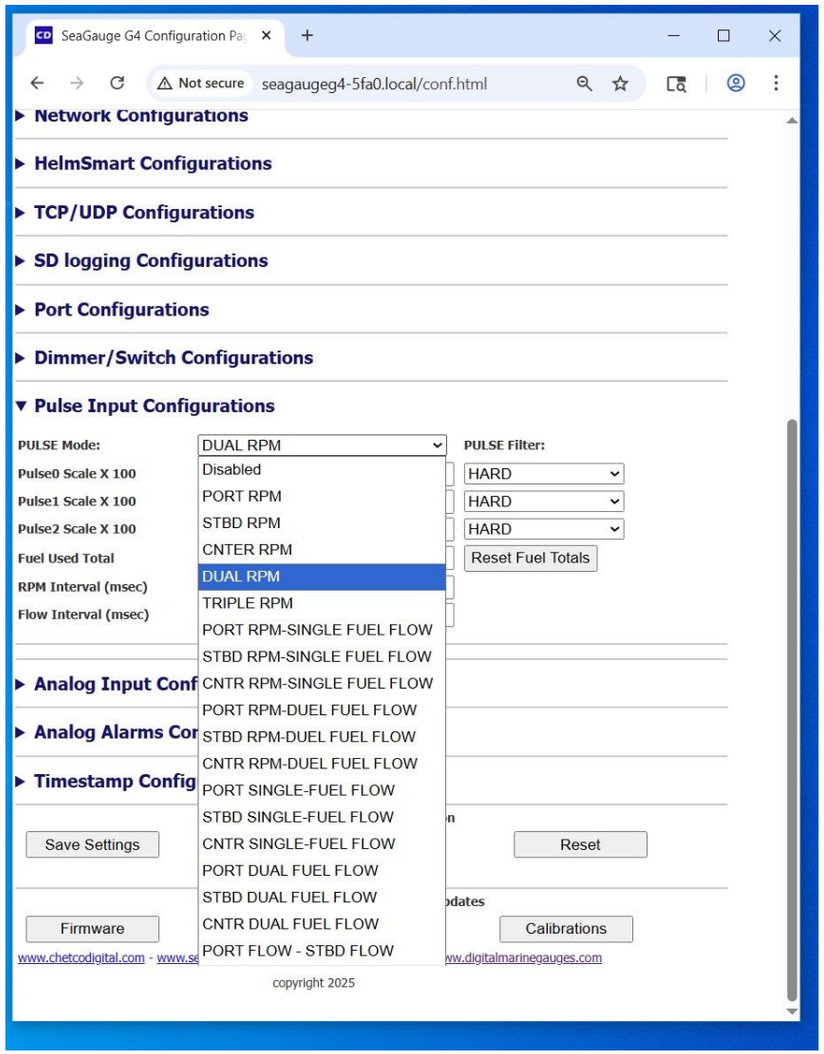
Pulse channel 0 input is assigned as a STBD RPM message with instance 1

$PCDIN,01F200,CP2P1401,AB,010000FFFFFFFFFF*51

CENTER RPM

Pulse channel 0 input is assigned as a CENTER RPM message with instance 2

$PCDIN,01F200,CP2P1401,AB,020000FFFFFFFFFF*51



PULSE MODE - RPM

DISABLED

Internal dual pulse inputs are disabled

PORT RPM

Pulse channel 0 input is assigned as a PORT RPM message with instance 0

$PCDIN,01F200,CP2P1401,AB,000000FFFFFFFFF*51

STBD RPM

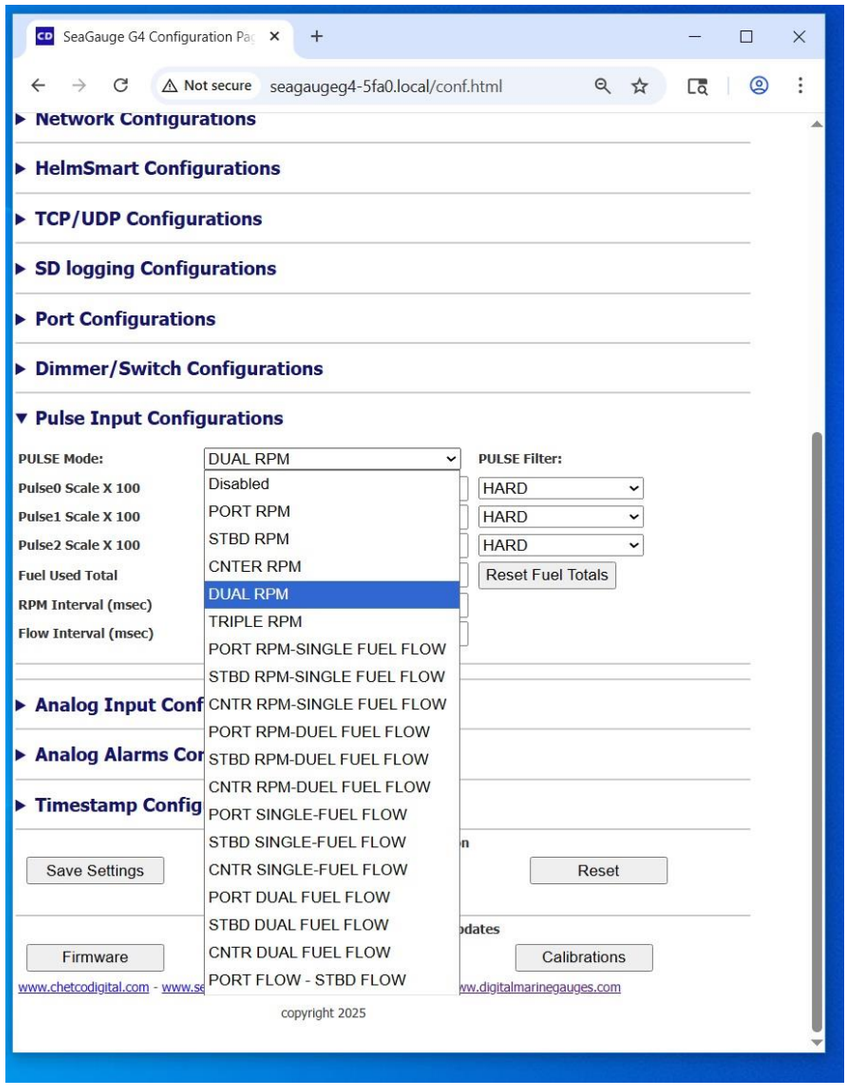
Pulse channel 0 input is assigned as a STBD RPM message with instance 1

$PCDIN,01F200,CP2P1401,AB,010000FFFFFFFFF*51

CENTER RPM

Pulse channel 0 input is assigned as a CENTER RPM message with instance 2

$PCDIN,01F200,CP2P1401,AB,020000FFFFFFFFF*51



PULSE MODE – Dual Fuel Flow

PORT DUAL FUEL FLOW

Pulse channel 0 input is used for flow sensor supply input

Pulse channel 1 input is used for flow sensor return input

Combined difference is used as flow PGN message with instance 0

$PCDIN,01F209,CP2P1402,AB,000000000000000000*5B

STBD DUAL FUEL FLOW

Pulse channel 0 input is used for flow sensor supply input

Pulse channel 1 input is used for flow sensor return input

Combined difference is used as flow PGN message with instance 1

$PCDIN,01F209,CP2P1402,AB,010000000000000000*5B

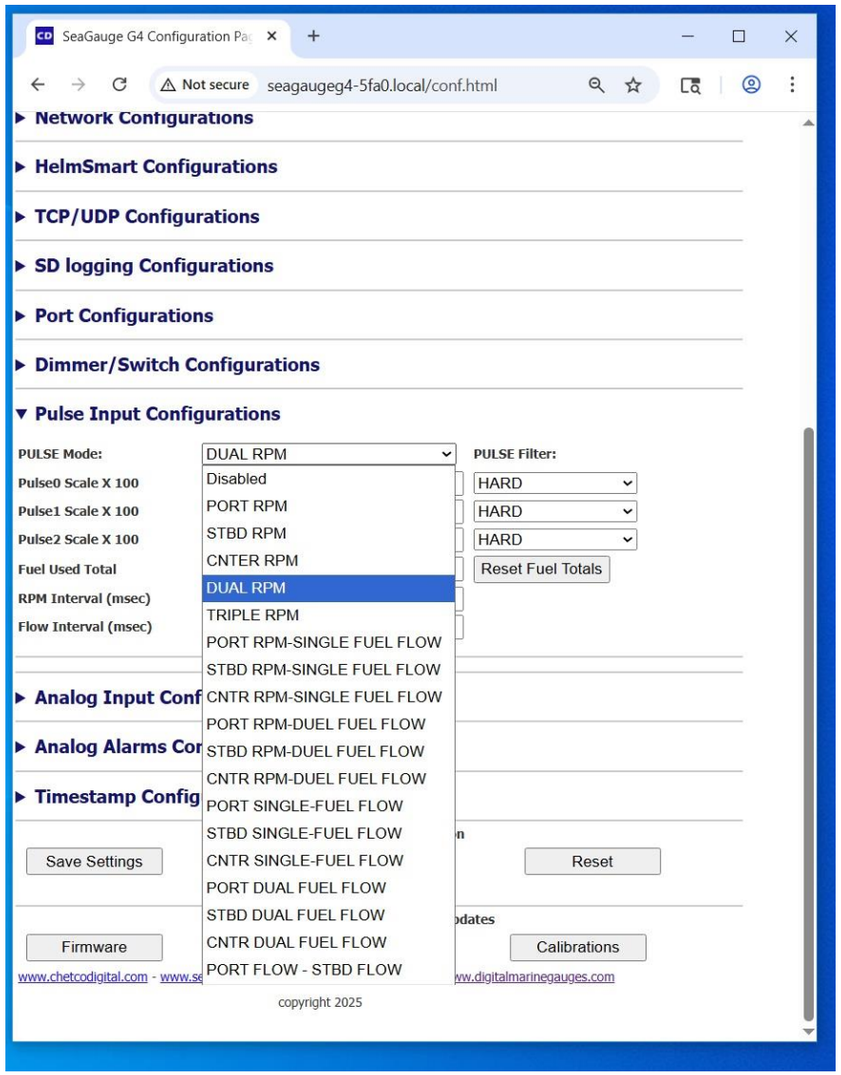
CENTER DUAL FUEL FLOW

Pulse channel 0 input is used for flow sensor supply input

Pulse channel 1 input is used for flow sensor return input

Combined difference is used as flow PGN message with instance 2

$PCDIN,01F209,CP2P1402,AB,020000000000000000*5B



PULSE MODE – RPM/FLOW

PORT RPM FUEL FLOW

Pulse channel 0 input is used for RPM with instance 0

Pulse channel 1 input is used for flow sensor with instance 0

$PCDIN,01F200,CP2P1401,AB,000000FFFFFFFFFF*51
$PCDIN,01F209,CP2P1402,AB,000000000000000000*5B

STBD DUAL FUEL FLOW

Pulse channel 0 input is used for RPM with instance 1

Pulse channel 1 input is used for flow sensor with instance 1

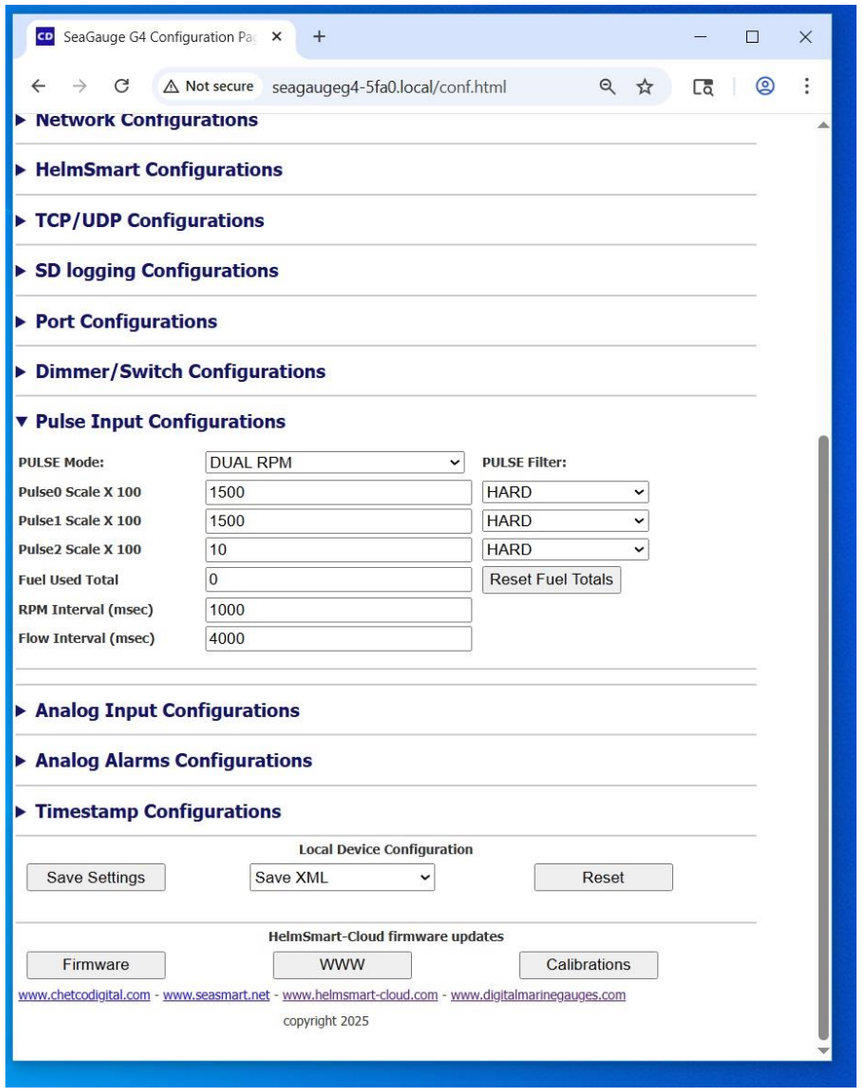
$PCDIN,01F200,CP2P1401,AB,010000FFFFFFFFFF*51
$PCDIN,01F209,CP2P1402,AB,010000000000000000*5B

CENTER DUAL FUEL FLOW

Pulse channel 0 input is used for RPM with instance 2

Pulse channel 1 input is used for flow sensor with instance 2

$PCDIN,01F200,CP2P1401,AB,020000FFFFFFFFFF*51
$PCDIN,01F209,CP2P1402,AB,020000000000000000*5B



PULSE SETTINGS

PULSE0-2 SCALE

Used to calibrate the RPM or Fuel Flow values.

Multiplies the Pulses per second by 0.01 times value entered

60 pps * 10 * 0.01 * 60 sec = 360 RPM=

Use 5400 for Flow Sensors

PULSE0-2 Filter

Disabled

Soft – 4X time interval average

Median – 5 point Median filter

Hard – combines both Soft and Median filters

FUEL TOTAL Rest

Sets the fuel used total for all pulse inputs

RPM Interval

Time interval in msec for RPM calculations

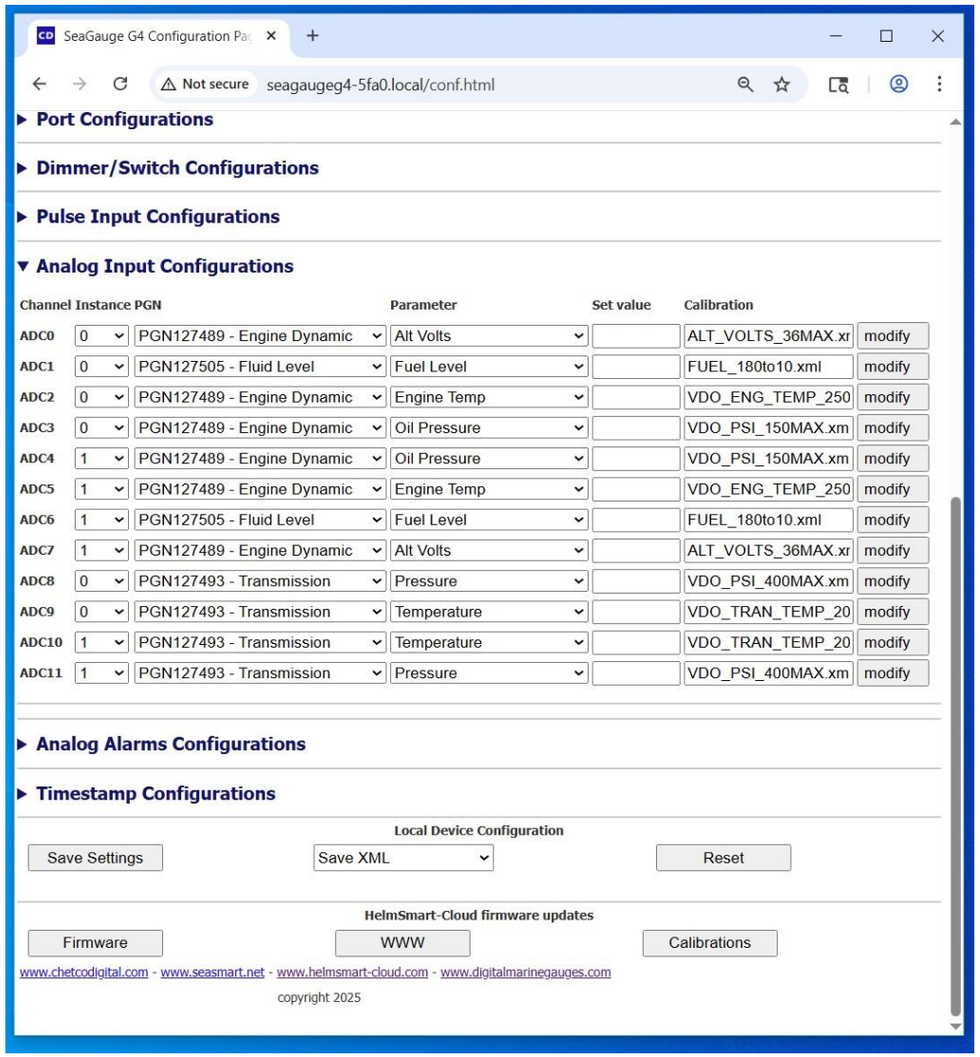
Longer intervals increase resolution but increase lag

FUEL TOTAL Reset

Time interval in msec for Fuel Flow calculations

Longer intervals increase resolution but increase lag

****** See App Note AN_SS24102601_ConfigPulseInputs.pdf for full details in setting pulse inputs ******



Analog Inputs

Instance

PGN Instance – 0=Port, 1= Stbd, 2 = Center

PGN

CAN/NMEA200 PGN number

Parameter

PGN parameter

Set Value

Used mostly for Fluid tank volume in liters

Calibration

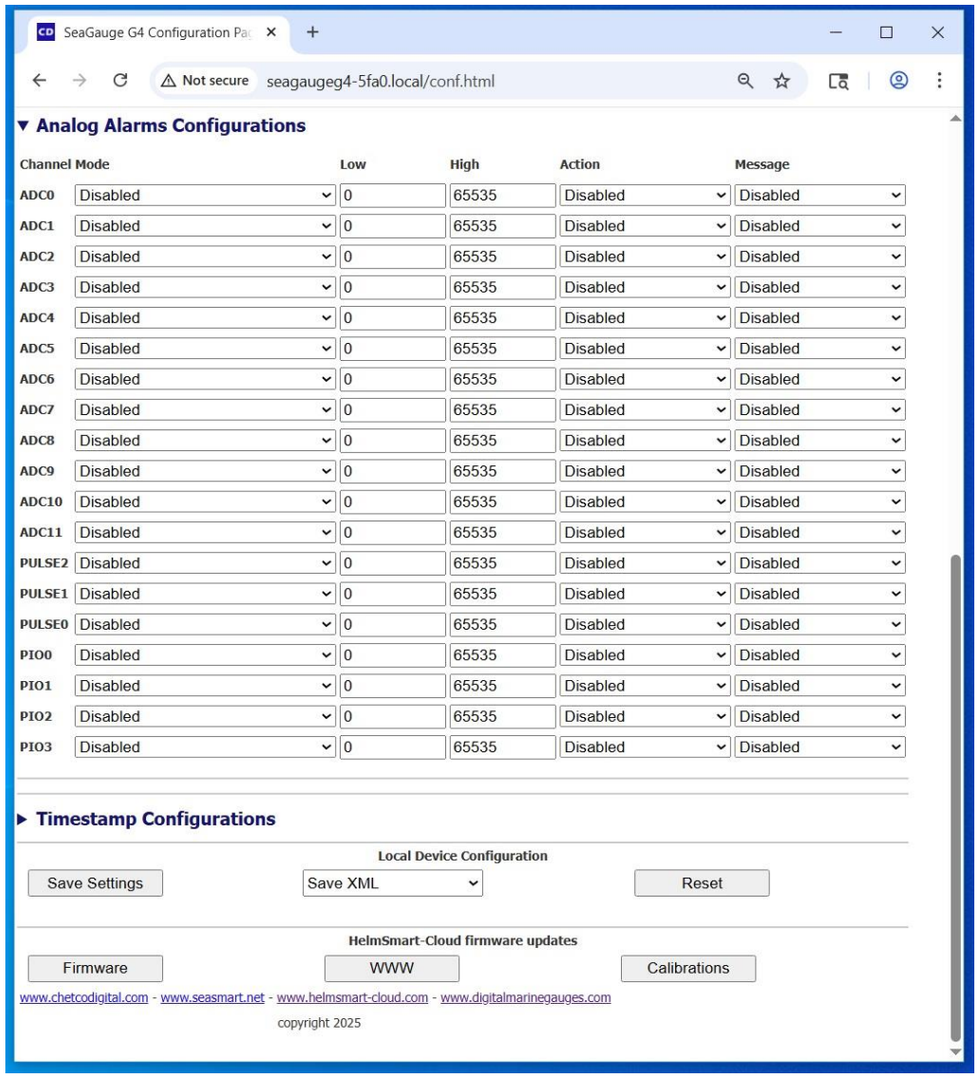
Name of stored calibration table to use for matching sensors

Modify

Modify existing calibration tables and create new one.

****** See App Note AN_SS24092701_ConfigAnalogInputs.pdf for full details in setting analog inputs ******

****** See App Note AN_SS24103101_ModifyCalibrationFiles.pdf for full details in modifying calibration tables ******



Analog Alarms

Channel Mode

Parameters to test for LOW/HIGH sensor values

Low

Low Sensor value to trigger alarm

High

Hogh sensor value to trigger alarm

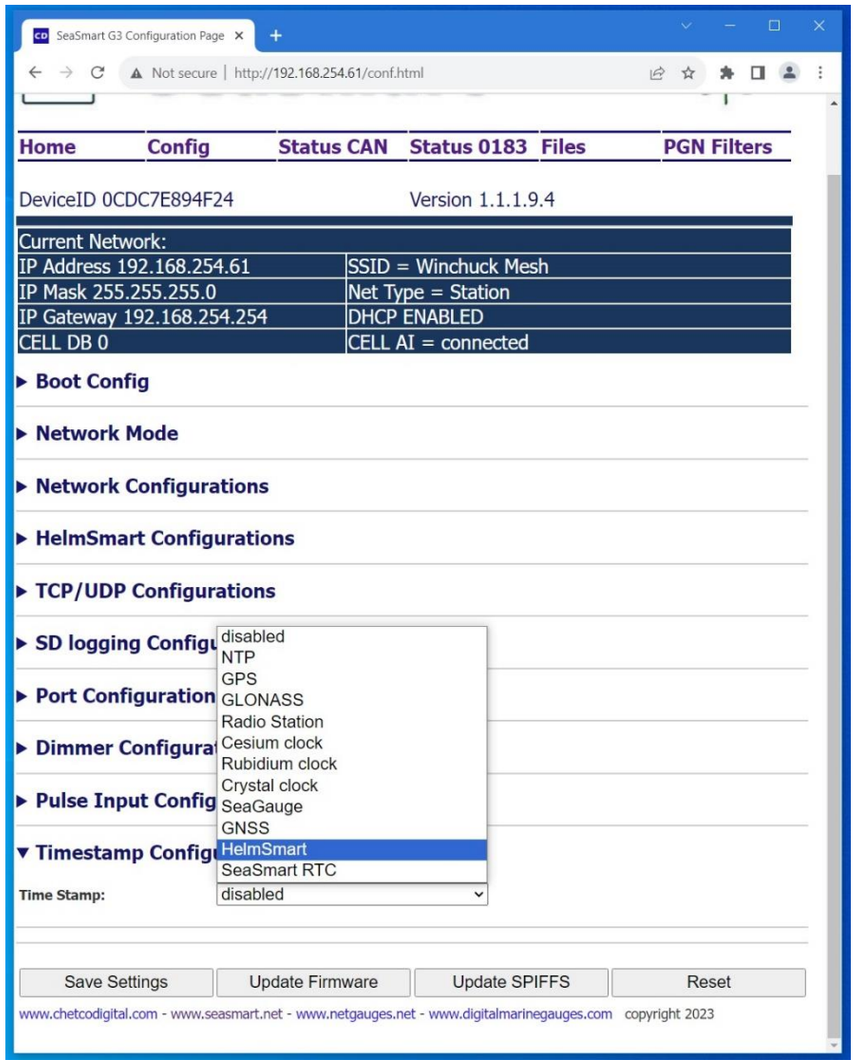
Action

Set PIO4-7 when active alarm

Message

Send CAN/NMEA2000 message when active alarm

****** See App Note AN_SS24093001_ConfigAnalogAlarms.pdf for full details in setting analog alarms *****



TIME SOURCE

DISABLED

Do not set the battery backed internal time from any source

NTP

Use the Network Time Protocol when connected to the internet or a network with a time server to reset internal time on reboot

GPS – CRYSTAL CLOCK

Use a valid GPS time message to reset internal time

SEAGAUGE

Use a SeaGauge generated Time PGN message to set internal time

$PCDIN,01F010,CP2I3U08,AA,0006764C20E91D24*5D

HELMSMART

Use HELMSMART generated POST response message to update internal time if more in 1 sec difference

SeaSmartRTC

Use the internal battery backed time source only.

SAVE SETTINGS

SAVE SETTINGS LOCAL

Save all current values on COFIG page to internal non-volatile memory (NVRAM) for use on next reboot

Most changes to configuration will not take place till next reboot (power cycle)

Be careful of any changes to network settings as they may render the device unreachable if invalid

If after 5 minutes of attempting to join a new network, no connection is made – device will default to AP mode so that it can be connected via WIFI directly

LOCAL DEVICE CONFIGURATION

Save XML Inactive – Copies all device settings to SD card configuration.xml files and sets files as inactive so they do not override stored values on next reboot

Save XNL Override - Copies all device settings to SD card configuration.xml files and sets files as active so they override stored values on next reboot

RESET DEVICE

Force a device reboot – will return to Home page when completed

Update Firmware from HelmSmart

UPDATE FIRMWARE FROM HELMSMART

Will attempt to download and install latest firmware from HELMSMART service if there is a valid internet connection.

This feature will only work if the Gateway is connected to internet via a local router or access point.

If firmware device version stored on HelmSmart is older then current version – update will not proceed

This process can take up to several minutes to complete

A reboot is required after the update is performed.

It is best to disable any current HelmSmart POST operations and SD Data logging to speed up the update process.

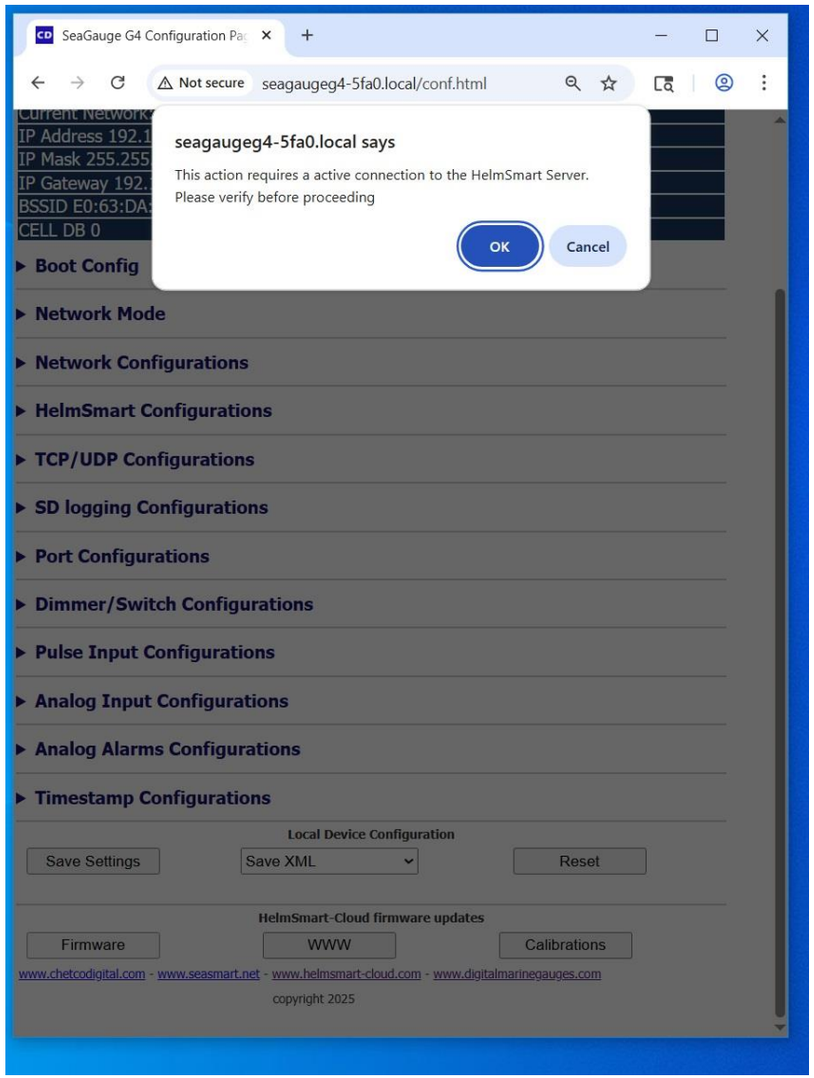
If a current internet connection is not available – updates can be performed by copying firmware files to SD card FIRMWARE dir using the FILES link.

UPDATE SPIFFS FROM HELMSMART

A minimal version of the SeaSamrt Web pages is also stored in embedded FLASH memory to ensure ability to configure device without installed SD card memory.

The SPIFFS file contains the WEB Server content update in compressed format and can be directly installed using the same procedure as performing a firmware update

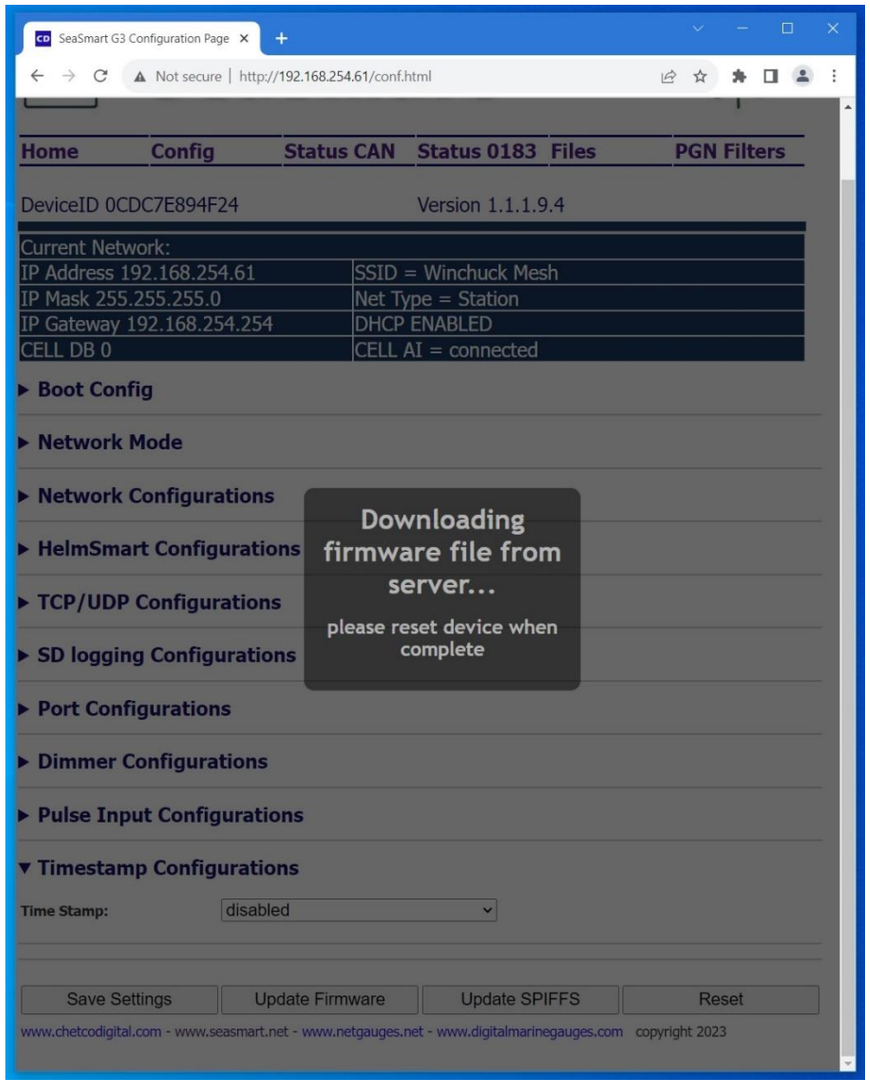
This process can take up to several minutes to complete



Update Firmware from HelmSmart

Confirm Update

At the start of the update you will need to confirm the operation to continue

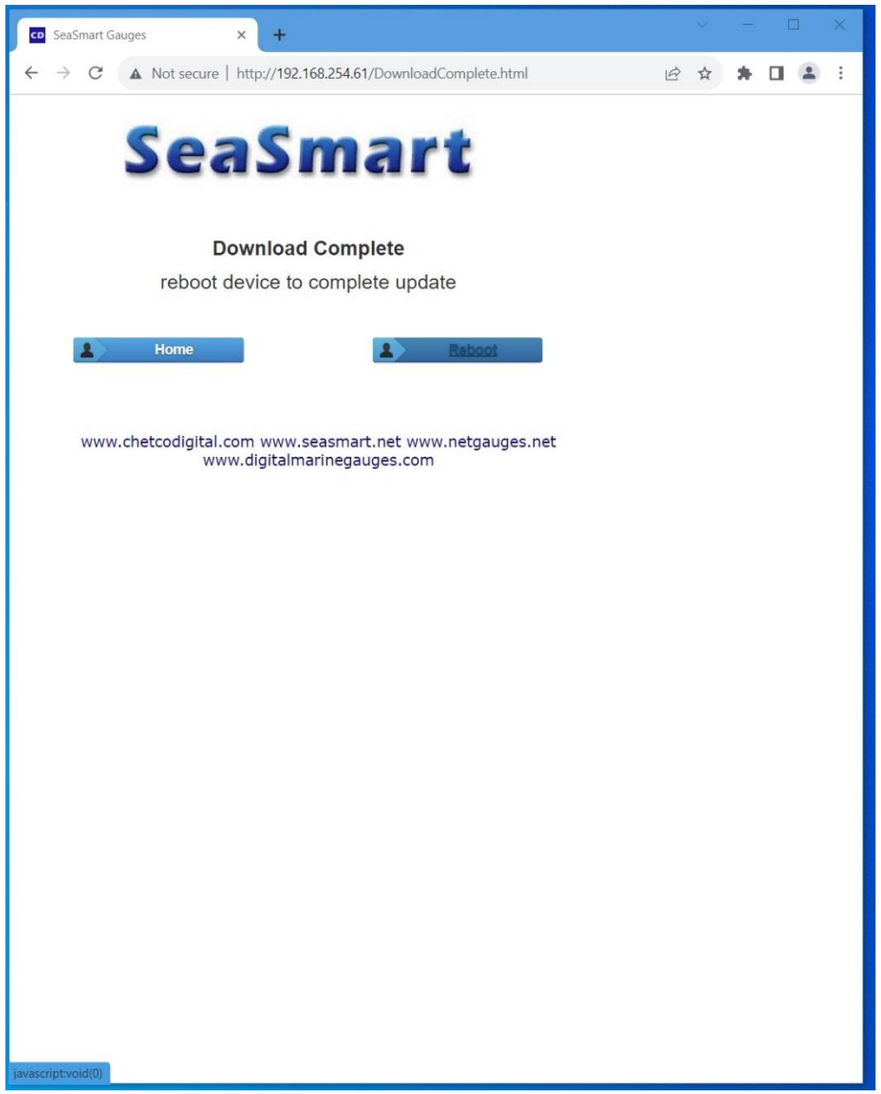


Update Firmware from HelmSmart

Downloading update

The download process will take from 1-2 minutes depending of internet connection speeds.

You will not see any progress status during this time.



Update Firmware from HelmSmart

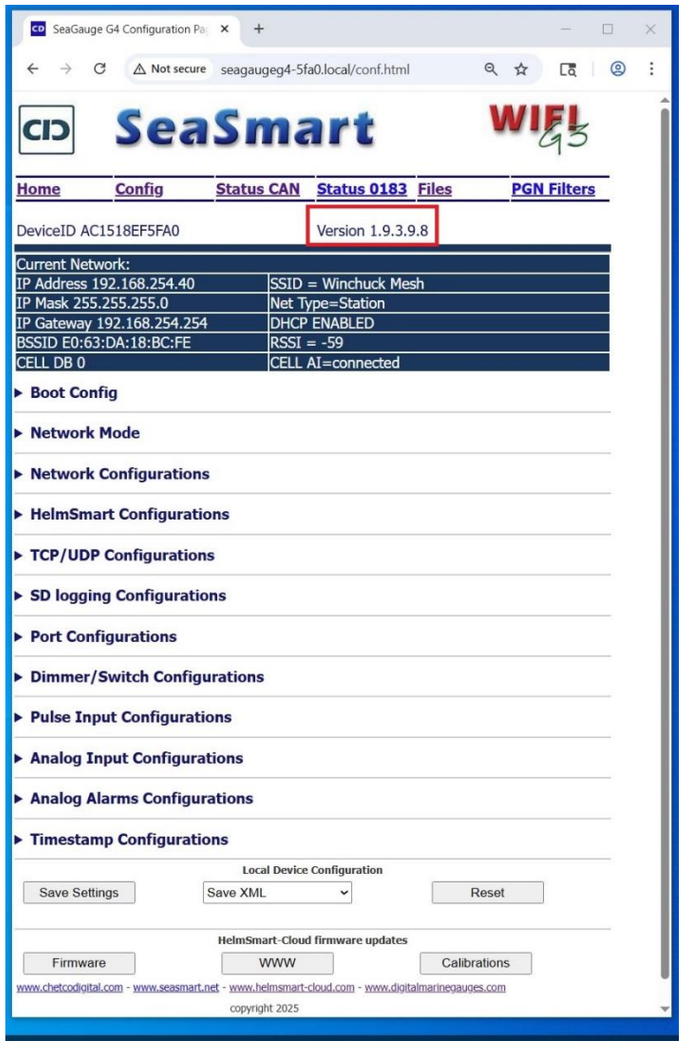
Update complete

After update is complete you will need to reset device.

Update Firmware from HelmSmart

Reload HOME page

Gateway should reboot with the previous stored network connections so it should automatically rejoin the network and display the default home page



Update Firmware from HelmSmart

Confirm Update

After update is complete and device rebooted – you can confirm the update by checking the new VERSION at the top of the CONFIG page

****** See App Note AN_SGG425090902_FirmwareUpdateHelmSmart.pdf for full details in setting HelmSmart Firmware updates *****