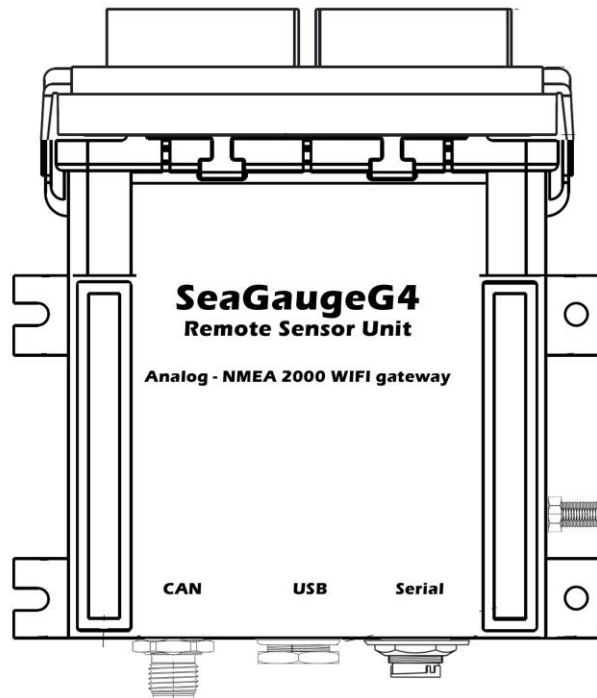


Application Note

ANSS027092701 – SeaGauge G4 configure analog inputs



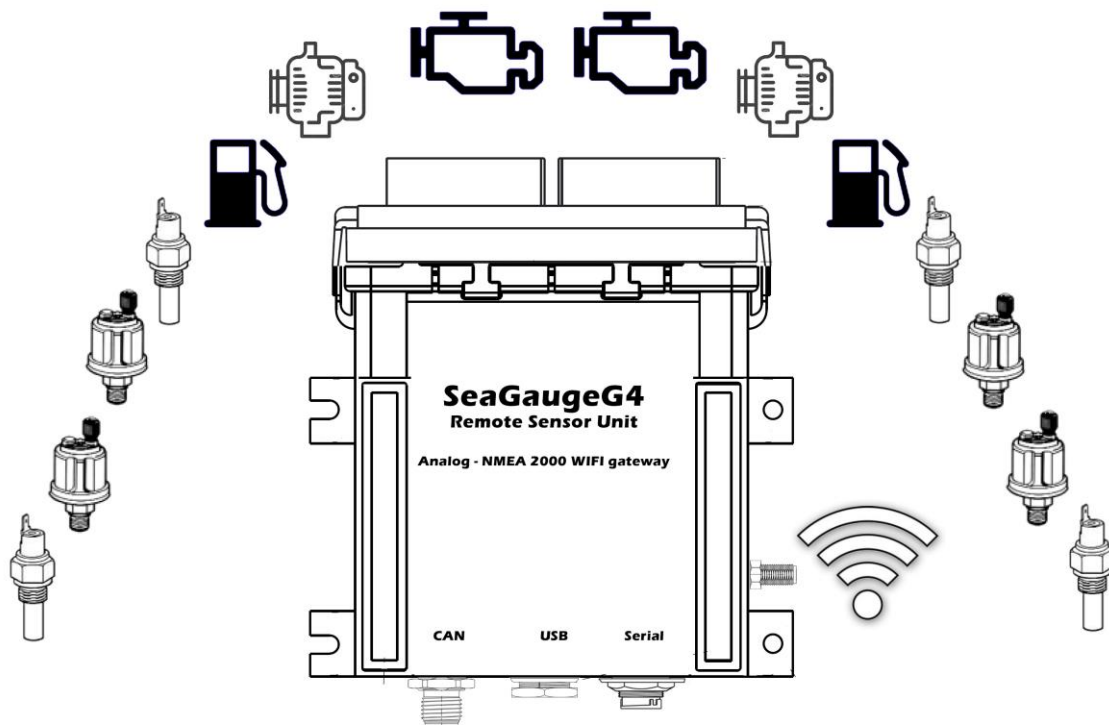
Chetco Digital Instruments, Inc

Revision 021525

SeaGaugeG4 supports up to 12 resistive or voltage style sensor inputs and 3 pulse style inputs.

Sensors are connected to the dual 20 pin Molex style connectors and analog voltages converted to digital protocol compatible with CAN bus and WIFI interfaces.

SeaGaugeG4 provides a user selectable independent 3.2V reference voltage for use with resistive senders or a voltage input for use with existing analog gauges.



SeaGaugeG4 supports up to 12 analog sensor inputs and 8 indicator/relay drive via a 20 pin Molex MX150 plug (black) and 3 pulse style inputs via separate 20 pin Molex MX150 plug (white).

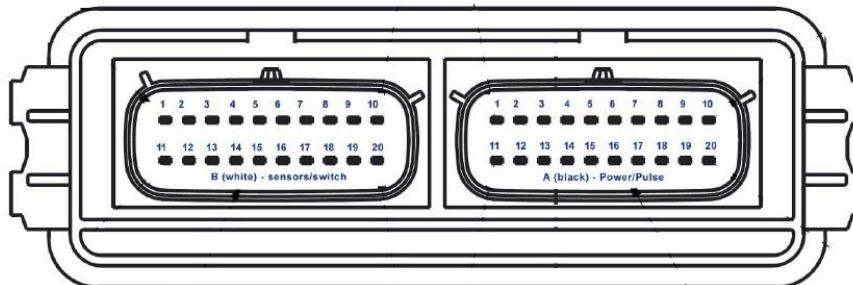
Molex style crimp pins are provided to attach 18 gauge tinned wire and insert into appropriate locations in supplied plugs.

The 12 analog inputs (SEN00-SEN11) are compatible with resistive and voltage style sensors using user configurable internal switches to select operating ranges.

Three pulse inputs (P0-P2) are compatible with inductive and hall effect sensors with an AC range of 1Vpp to 18Vpp

Four relay drive (12VDC) outputs (SW4-SW7) can be used as alarm drivers based on user configurable triggers. Alarm outputs are capable of sinking up to 470mA to ground when active - suitable for driving 12VDC relays, indicator lights, or audio buzzers.

SeaGaugeG4 Header

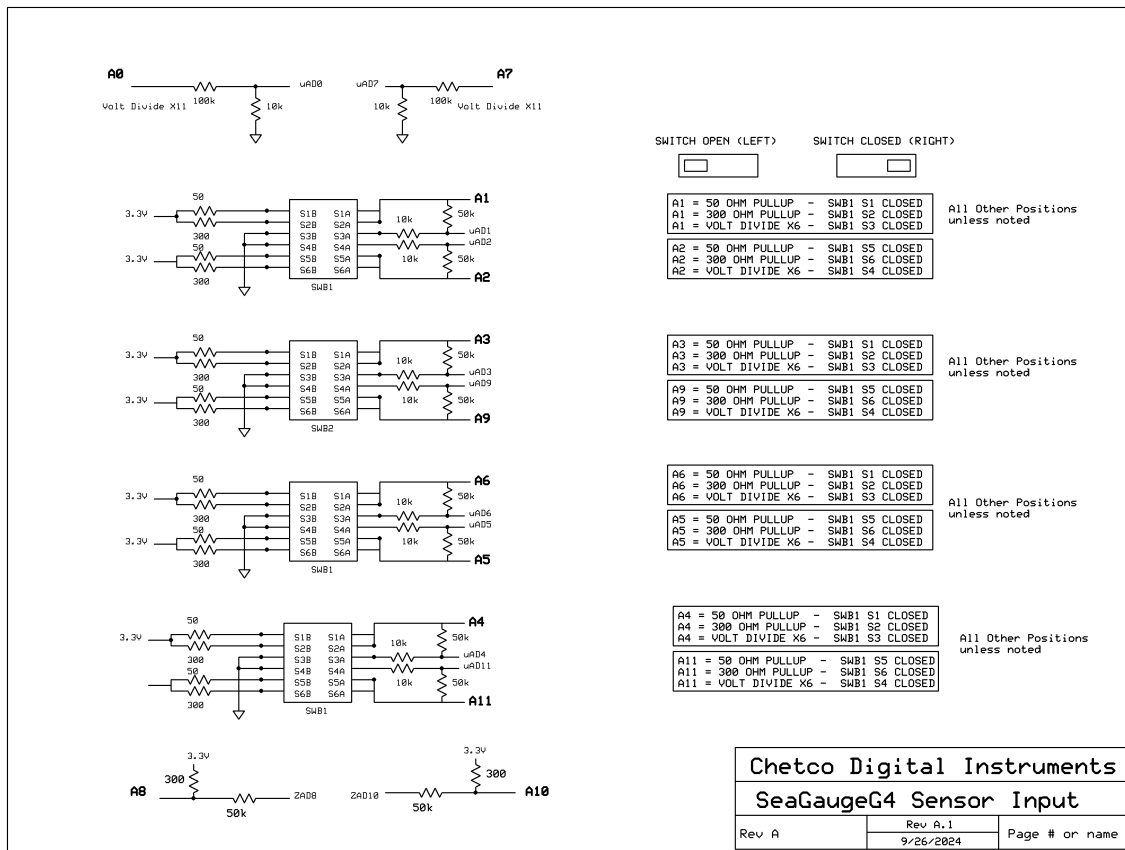


B1 - GND	B11 - GND	A1 - SW5	A11 - SW4
B2 - 5VOUT	B12 - 5VOUT	A2 - SW7	A12 - SW6
B3 - SEN10 - STRANT	B13 - SEN11 - STRANP	A3 - NC	A13 - NC
B4 - SEN04 - SOILP	B14 - SEN05 - SENG	A4 - P0 - P RPM	A14 - GND
B5 - SEN06 - SFUEL	B15 - SEN07 - SALT	A5 - P1 - S RPM	A15 - GND
B6 - SEN00 - PALTV	B16 - SEN01 - PFUEL	A6 - P2 - C RPM	A16 - GND
B7 - SEN02 - PENG	B17 - SEN03 - POILP	A7 - 5VOUT	A17 - 5VOUT
B8 - SEN09 - PTRANT	B18 - SEN08 - PTRANP	A8 - GND	A18 - GND
B9 - INC03	B19 - INC02	A9 - 12VIN	A19 - 12VIN
B10 - INC01	B20 - INC00	A10 - NC	A20 - NC

For resistive senders SeaGaugeG4 will provide a 3.2V reference voltage via a user selectable 50 ohm or 300 ohm pullup resistor. Use 50 ohm for sensors with a max range of below 300 ohm and 300 ohm for sensors greater then 300 ohm.

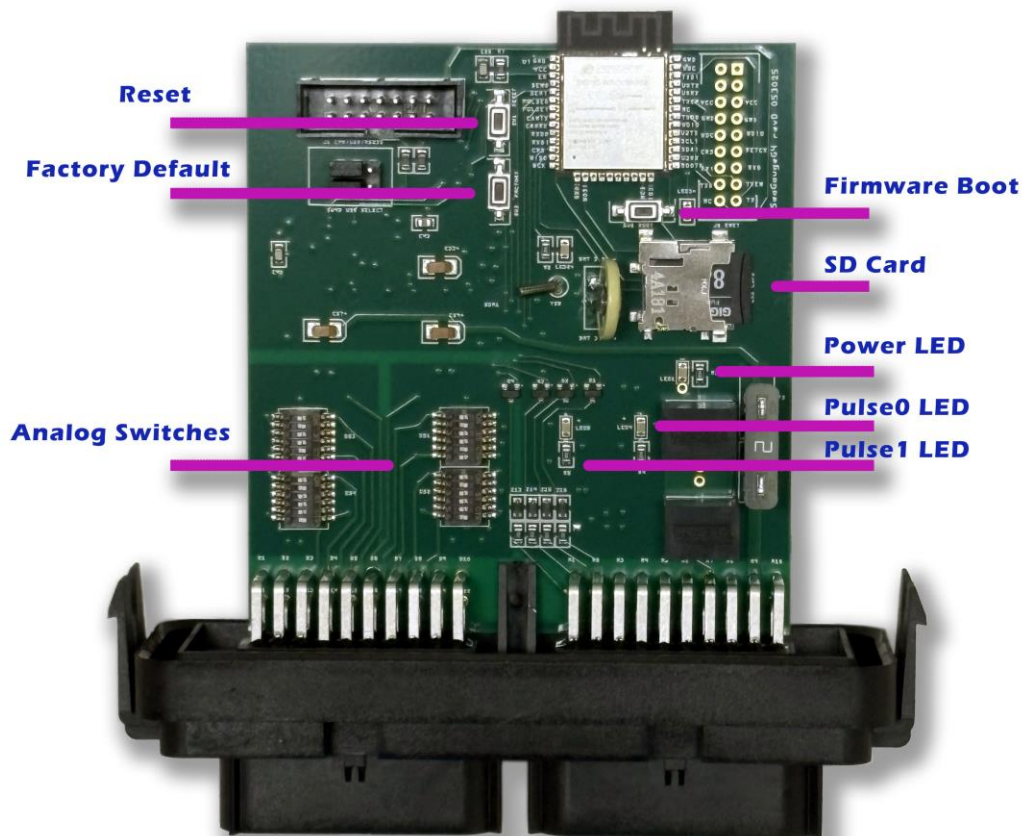
Voltage inputs are scaled via 6X resistance divider to accept a maximum of 19V.

Separate dedicated dual high voltage inputs up to 36V is available on A0 and A1 for alternator and other applications



A set of four dip switch block all selection for internal pull ups for resistive senders or a voltage divider for each of 8 analog inputs

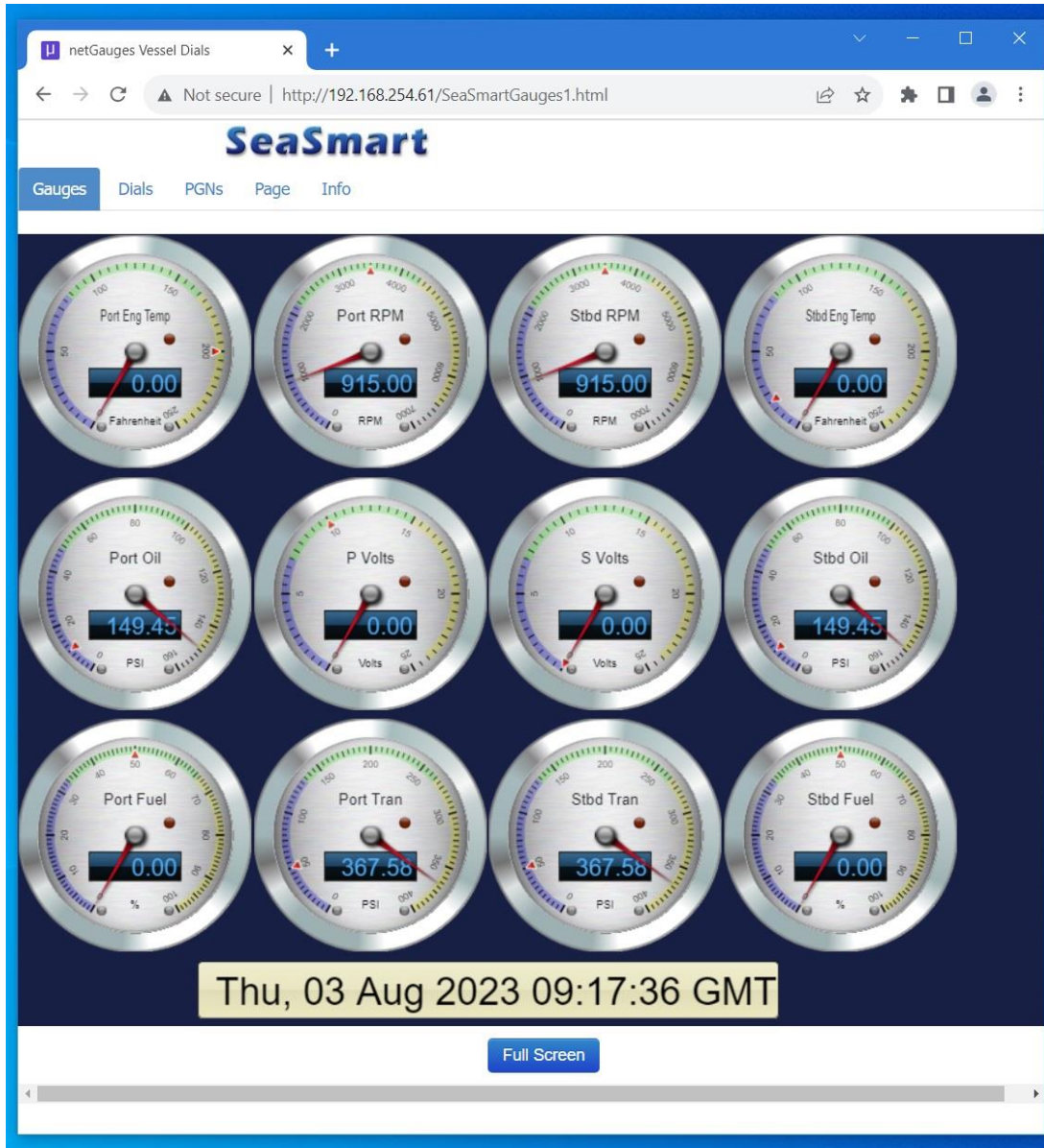
Two of the 12 analog inputs (A0 and A1) are fixed as voltage inputs to 36V and 2 other inputs (A8 and A10) are fixed as 300 ohm pull style inputs.



For configuration of Analog Input Alarms see
[AN_SS24093001_ConfigAnalogAlarms.pdf](#)

For configuration of Indicator Runtimes see
[AN_SS24102301_ConfigIndicatorRuntime.pdf](#)

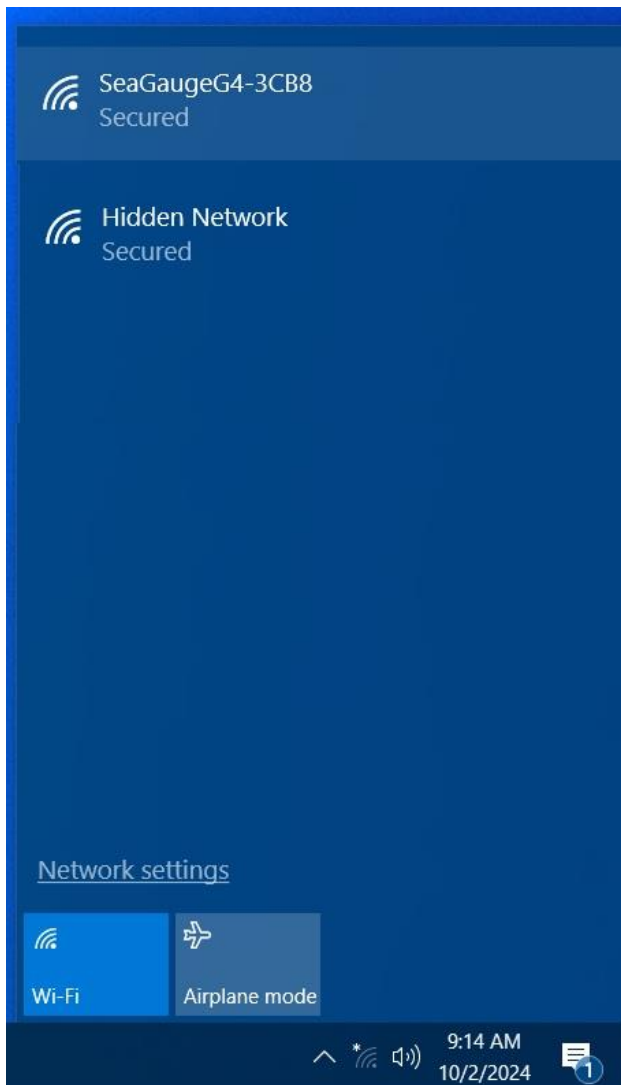
SeaGaugeG4 contains an embedded WEB page interface for configuring the analog inputs to transmit NMEA 2000 or J1939 style messages via its CAN bus interface. These messages are also passed to its embedded Web Server to enable viewing using the local browser interface



Start configuration by connecting to the SeaGaugeG4 WIFI interface via Access Point (AP) mode or Station mode (STA).

AP mode is used when connecting directly to SeaGaugeG4 without using a local router or internet connection. Full CAN bus function can still be enabled and configured in AP mode.

Station mode is used for joining an existing local WIFI network and requires entering the SSID and password of the local network.

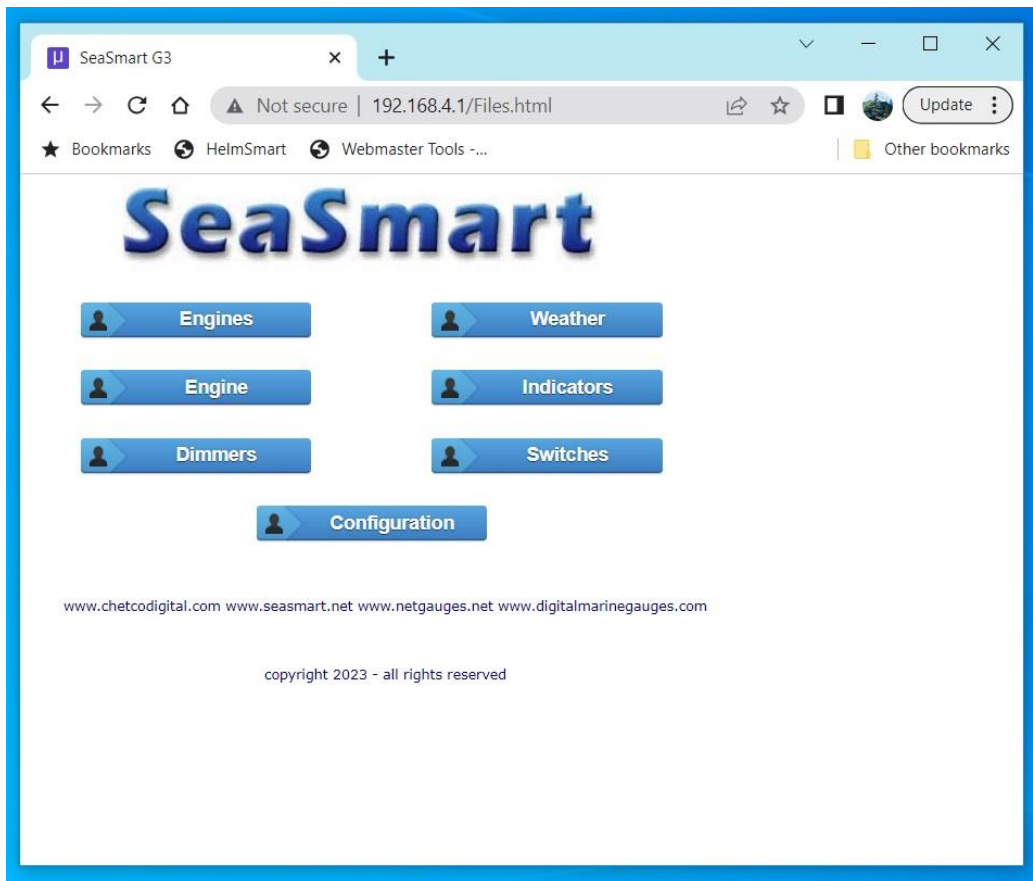


Once connected, enter the default <http://seagaugeg4-XXX.local> where XXXX is the last 4 digits of the device MAC address.

For iOS/Windows devices you can also use the default IP address 192.168.4.1.

For station mode the default protocol is DHCP enabled which means the local router will automatically assign the IP address for SeaGaugeG4. If mDNS is enabled and supported by your browser you can use the default url printed on the SeaGaugeG4 network label.

For example <http://seagaugeg4-XXX.local> where XXXX is the last 4 digits of the device MAC address



Once connected to the SeaGaugeG4 Home page you can navigate to the CONFIGURATION page

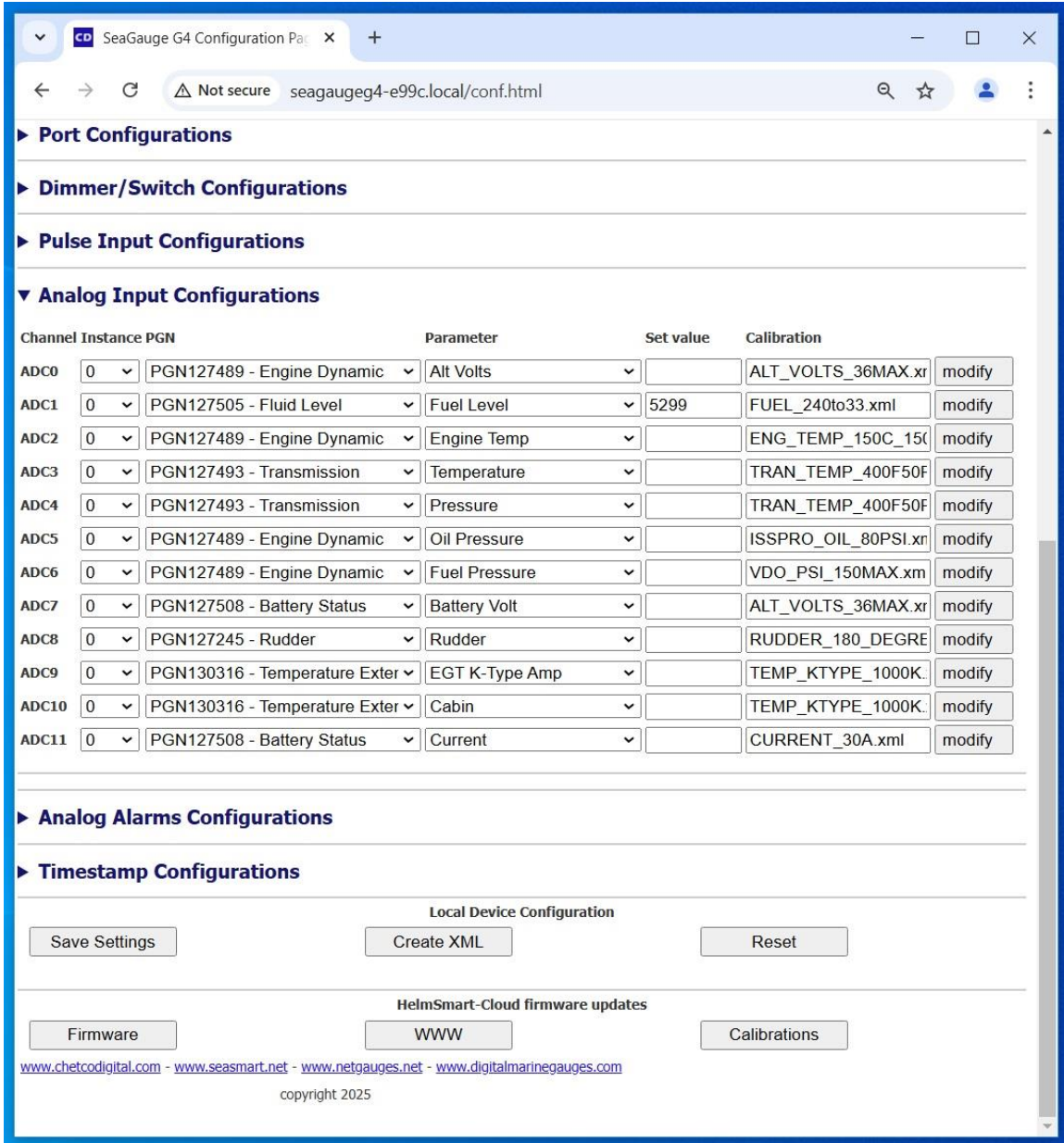
The CONFIGURATION page will have two additional sections for SeaGaugeG4 only - Analog Input Configuration and Analog Alarms Configurations.

Expand the Analog Inputs Configuration by clicking the arrow on the left



You will now see a list of options for each of the 12 analog input channels.

The options will allow assignment of the CAN bus messages and calibration tables to use for each of the sensor inputs.



The screenshot shows the 'SeaGauge G4 Configuration Page' in a web browser. The 'Analog Input Configurations' section is expanded, displaying a table with 12 channels (ADC0 to ADC11). Each channel has a dropdown for 'Channel Instance', a dropdown for 'PGN', a dropdown for 'Parameter', a 'Set value' field, a 'Calibration' dropdown, and a 'modify' button.

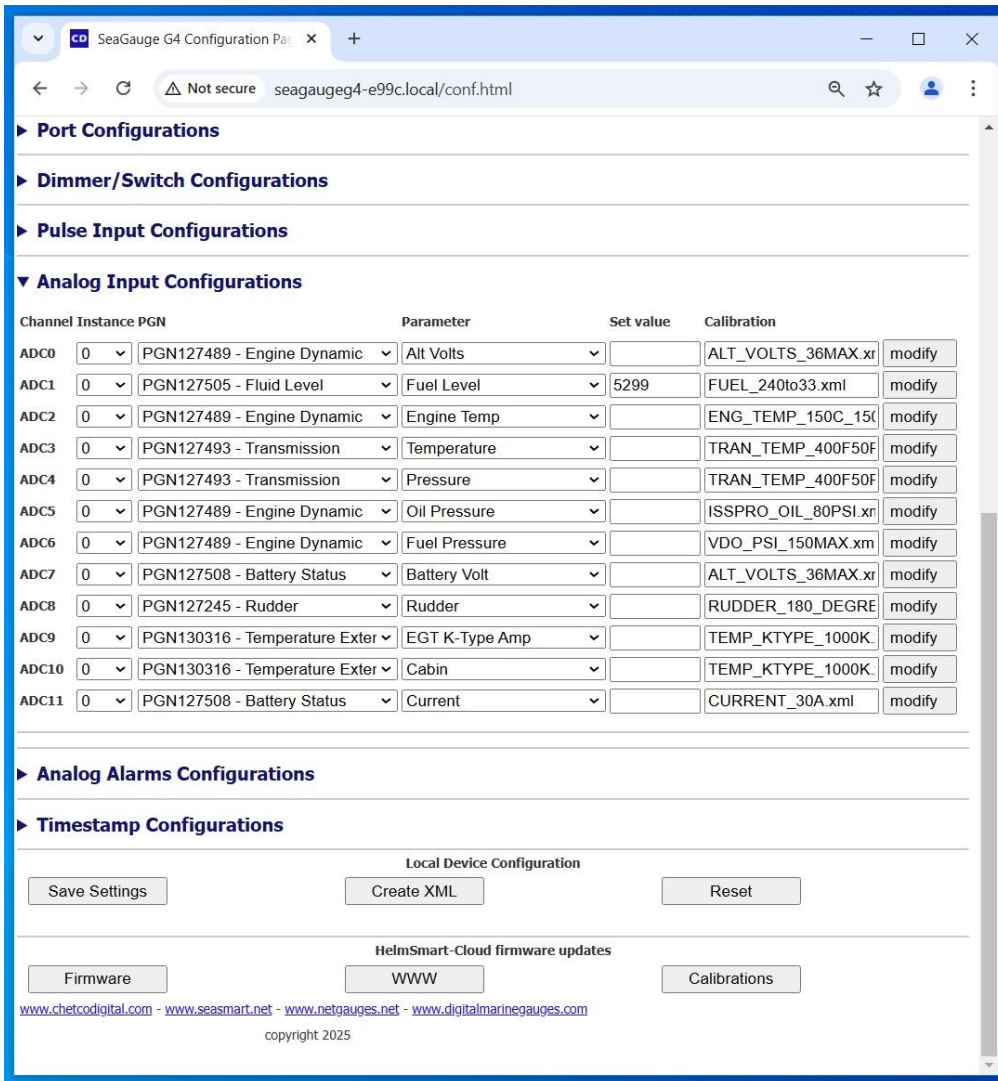
Channel	Instance	PGN	Parameter	Set value	Calibration	Action
ADC0	0	PGN127489 - Engine Dynamic	Alt Volts		ALT_VOLTS_36MAX.xr	modify
ADC1	0	PGN127505 - Fluid Level	Fuel Level	5299	FUEL_240to33.xml	modify
ADC2	0	PGN127489 - Engine Dynamic	Engine Temp		ENG_TEMP_150C_150	modify
ADC3	0	PGN127493 - Transmission	Temperature		TRAN_TEMP_400F50F	modify
ADC4	0	PGN127493 - Transmission	Pressure		TRAN_TEMP_400F50F	modify
ADC5	0	PGN127489 - Engine Dynamic	Oil Pressure		ISSPRO_OIL_80PSI.xr	modify
ADC6	0	PGN127489 - Engine Dynamic	Fuel Pressure		VDO_PSI_150MAX.xm	modify
ADC7	0	PGN127508 - Battery Status	Battery Volt		ALT_VOLTS_36MAX.xr	modify
ADC8	0	PGN127245 - Rudder	Rudder		RUDDER_180_DEGRE	modify
ADC9	0	PGN130316 - Temperature Exter	EGT K-Type Amp		TEMP_KTYPE_1000K.	modify
ADC10	0	PGN130316 - Temperature Exter	Cabin		TEMP_KTYPE_1000K.	modify
ADC11	0	PGN127508 - Battery Status	Current		CURRENT_30A.xml	modify

Below the table are sections for 'Analog Alarms Configurations', 'Timestamp Configurations', and 'Local Device Configuration' (Save Settings, Create XML, Reset). At the bottom, there are links for 'HelmSmart-Cloud firmware updates' (Firmware, WWW, Calibrations) and a copyright notice for 2025.

CAN bus messages are arranged in groups called Parameter Group Number (PGN) with each sensor group containing various parameters related to each group type.

For example, the Battery Status group will contain 3 parameters, Voltage, Current, and Temperature.

There is also an Instance number for each group to uniquely separate multiple PGNs of the same type. Instance numbers are usually used to assign PORT, STBD, CENTER type of sensors. No two PGNs should have the same Instance number



The screenshot shows the 'SeaGauge G4 Configuration Page' in a web browser. The 'Analog Input Configurations' section is expanded, displaying a table with 11 rows of ADC configurations. Each row includes a Channel (ADC0-ADC11), an Instance number (0), a PGN (Parameter Group Number), a Parameter, a Set value, a Calibration file, and a 'modify' button.

Channel	Instance	PGN	Parameter	Set value	Calibration	
ADC0	0	PGN127489 - Engine Dynamic	Alt Volts		ALT_VOLTS_36MAX.xr	modify
ADC1	0	PGN127505 - Fluid Level	Fuel Level	5299	FUEL_240to33.xml	modify
ADC2	0	PGN127489 - Engine Dynamic	Engine Temp		ENG_TEMP_150C_150F	modify
ADC3	0	PGN127493 - Transmission	Temperature		TRAN_TEMP_400F50F	modify
ADC4	0	PGN127493 - Transmission	Pressure		TRAN_TEMP_400F50F	modify
ADC5	0	PGN127489 - Engine Dynamic	Oil Pressure		ISSPRO_OIL_80PSI.xr	modify
ADC6	0	PGN127489 - Engine Dynamic	Fuel Pressure		VDO_PSI_150MAX.xml	modify
ADC7	0	PGN127508 - Battery Status	Battery Volt		ALT_VOLTS_36MAX.xr	modify
ADC8	0	PGN127245 - Rudder	Rudder		RUDDER_180_DEGRE	modify
ADC9	0	PGN130316 - Temperature Exter	EGT K-Type Amp		TEMP_KTYPE_1000K	modify
ADC10	0	PGN130316 - Temperature Exter	Cabin		TEMP_KTYPE_1000K	modify
ADC11	0	PGN127508 - Battery Status	Current		CURRENT_30A.xml	modify

Below the table, there are sections for 'Analog Alarms Configurations' and 'Timestamp Configurations'. At the bottom, there are buttons for 'Save Settings', 'Create XML', and 'Reset' under 'Local Device Configuration', and 'Firmware', 'WWW', and 'Calibrations' under 'HelmSmart-Cloud firmware updates'. The footer includes links to the company website and a copyright notice for 2025.

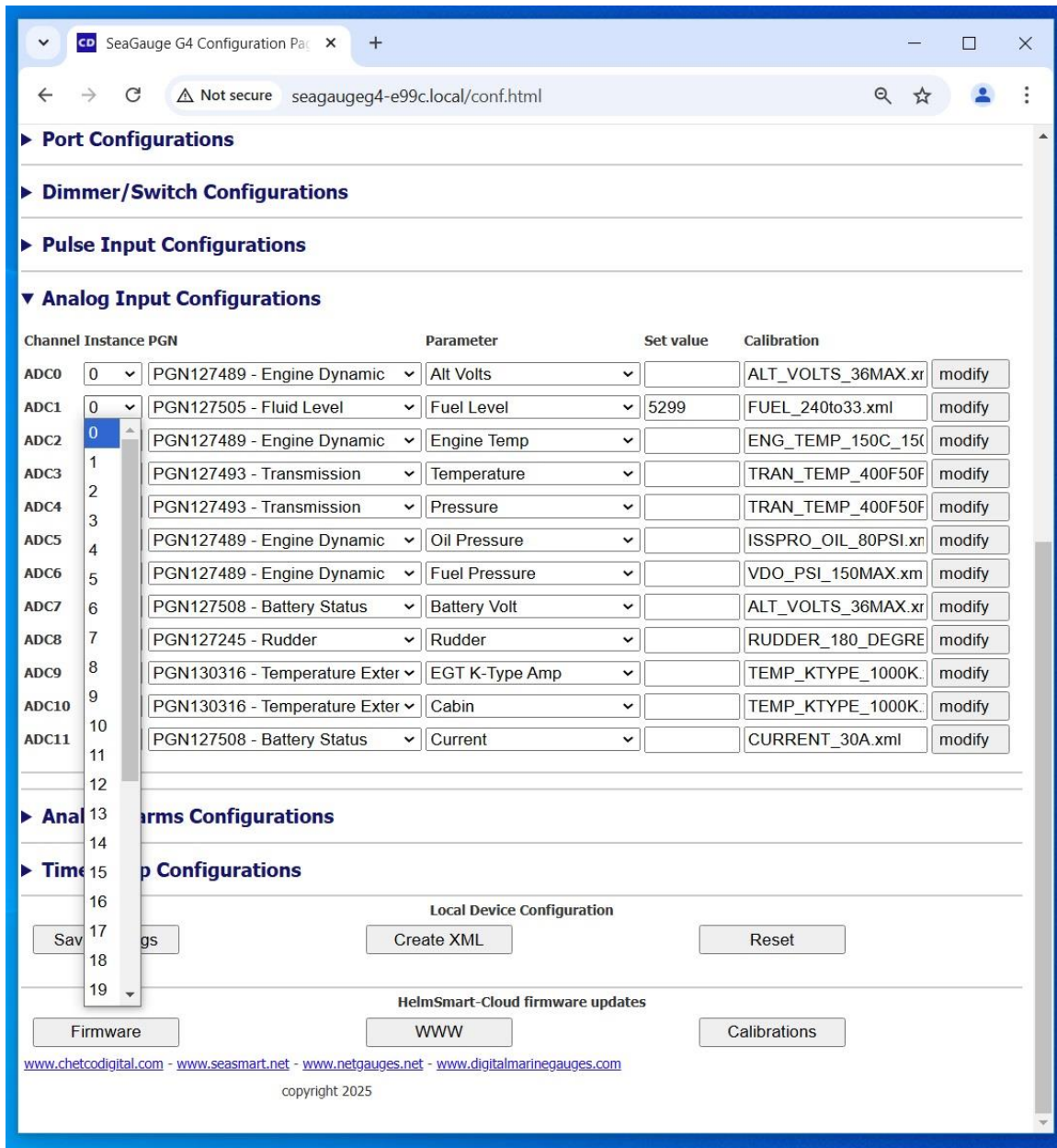
Table 1 – PGN Index List

PGN	PGN HEX	Description	Parameter	Units	Parameter Index
127489	0X1F201	Engine Dynamic	Oil Pressure	0.1 kPa	0
			Oil Temp	0.1 K	1
			Engine Temp	0.01 K	2
			Alt Volts	.001 V	3
			Fuel Rate	.0001 cu m/hr	4
			Engine Hours	1.0 sec	5
			Coolant Pressure	0.1 kPa	6
			Fuel Pressure	1.0 kPa	7
			Check Engine	indicator	8
			Over Temp	indicator	9
			Low Oil Pres	indicator	10
			Low Oil Level	indicator	11
			Low Sys Volt	indicator	12
			Low Coolant Level	indicator	13
127508	0X1F214	Battery Status	Battery Volt	0.01V	0
			Current	0.1 A	1
			Temperature	0.01 K	2
127505	0x1F211	Fluid Level	Fuel Level	0.004 %	0
			Fresh Water Level	0.004 %	1
			Waste Water Level	0.004 %	2
			Live Well Level	0.004 %	3
			Oil Level	0.004 %	4
			Black Water	0.004 %	5
127493	0x1F205	Transmission	Pressure	0.1 kPa	0
			Temperature	0.1 K	1
130314	0x1FD0A	Pressure	Atmospheric Pressure	0.1 Pa	0
			Water Pressure	0.1 Pa	1
			Steam Pressure	0.1 Pa	2
			Compressed Air	0.1 Pa	3
			Hydraulic Pressure	0.1 Pa	4
			Fuel Filter Pressure	0.1 Pa	5
			Pressure 6	0.1 Pa	6
			Pressure 7	0.1 Pa	7
130311	0x1FD07	Environmental	Sea Temp	0.01 K	0
			Outside	0.01 K	1
			Inside	0.01 K	2
			Engine Room	0.01 K	3
			Cabin	0.01 K	4
			Live Well	0.01 K	5

			Bait Well	0.01 K	6
			Refrigeration	0.01 K	7
			Heating	0.01 K	8
			Dew Point	0.01 K	9
			Wind Chill A	0.01 K	10
			Wind Chill T	0.01 K	11
			Heat Index	0.01 K	12
			Freezer	0.01 K	13
130312	0x1FD08	Temperature	Sea Temp	0.01 K	0
			Outside	0.01 K	1
			Inside	0.01 K	2
			Engine Room	0.01 K	3
			Cabin	0.01 K	4
			Live Well	0.01 K	5
			Bait Well	0.01 K	6
			Refrigeration	0.01 K	7
			Heating	0.01 K	8
			Dew Point	0.01 K	9
			Wind Chill A	0.01 K	10
			Wind Chill T	0.01 K	11
			Heat Index	0.01 K	12
			Freezer	0.01 K	13
1303161	0x1FD0A	Temperature Extended	Sea Temp	0.001 K	0
			Outside	0.001 K	1
			Inside	0.001 K	2
			Engine Room	0.001 K	3
			Cabin	0.001 K	4
			Live Well	0.001 K	5
			Bait Well	0.001 K	6
			Refrigeration	0.001 K	7
			Heating	0.001 K	8
			Dew Point	0.001 K	9
			Wind Chill A	0.001 K	10
			Wind Chill T	0.001 K	11
			Heat Index	0.001 K	12
			Freezer	0.001 K	13
			EGT	0.001 K	14
127245	0x1F10D	Rudder	Angle	0.0001 rad	0

Select a unique Instance for each PGN.

Standard is PORT = 0 and STBD =1

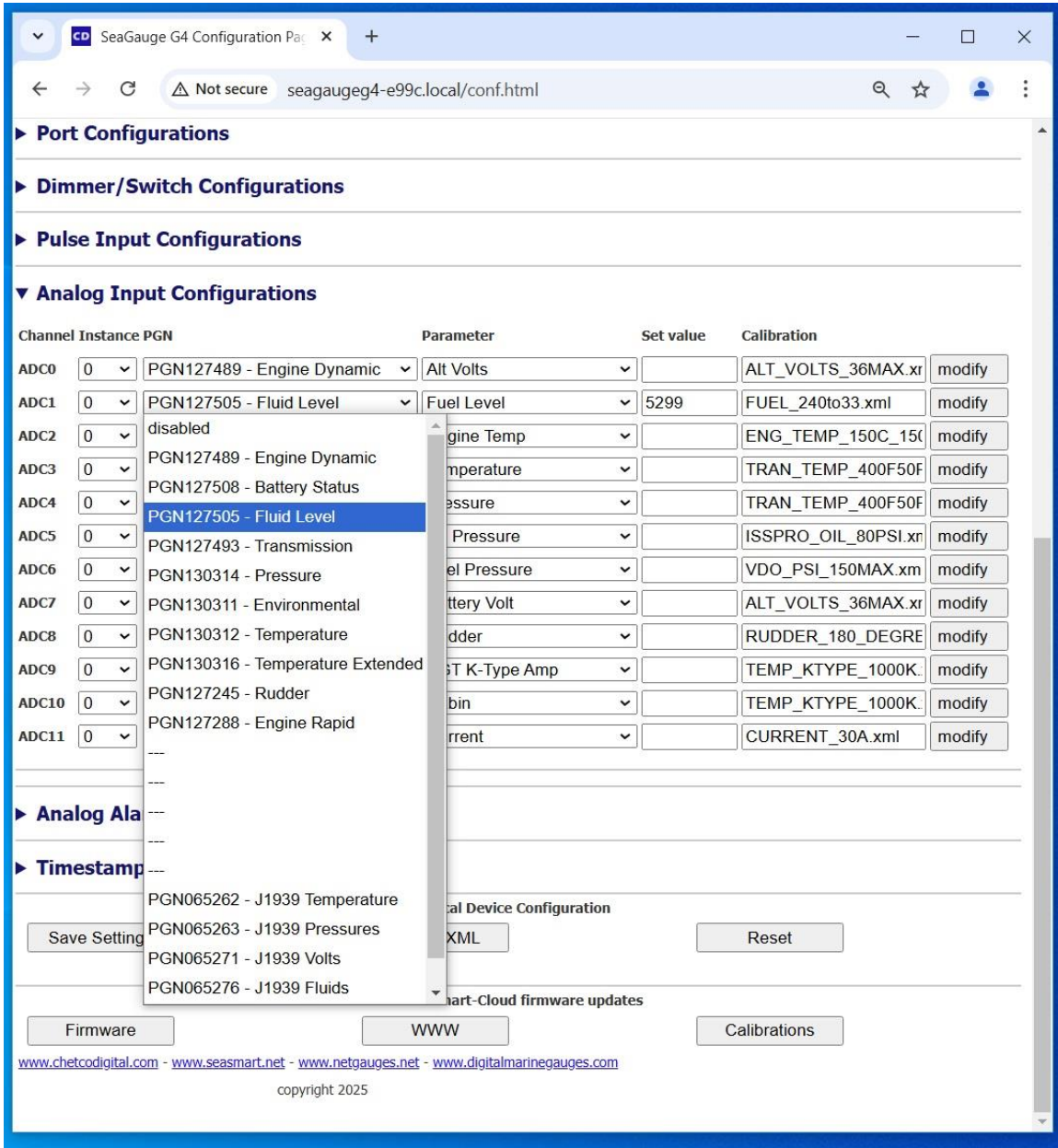


The screenshot shows the 'SeaGauge G4 Configuration Page' in a web browser. The 'Analog Input Configurations' section is expanded, displaying a table with columns: Channel, Instance, PGN, Parameter, Set value, Calibration, and a 'modify' button. The table lists configurations for ADC0 through ADC11. A dropdown menu is open for the 'Instance' column, showing values 0 through 19.

Channel	Instance	PGN	Parameter	Set value	Calibration	
ADC0	0	PGN127489 - Engine Dynamic	Alt Volts		ALT_VOLTS_36MAX.xr	modify
ADC1	0	PGN127505 - Fluid Level	Fuel Level	5299	FUEL_240to33.xml	modify
ADC2	0	PGN127489 - Engine Dynamic	Engine Temp		ENG_TEMP_150C_150	modify
ADC3	1	PGN127493 - Transmission	Temperature		TRAN_TEMP_400F50F	modify
ADC4	2	PGN127493 - Transmission	Pressure		TRAN_TEMP_400F50F	modify
ADC5	3	PGN127489 - Engine Dynamic	Oil Pressure		ISSPRO_OIL_80PSI.xr	modify
ADC6	4	PGN127489 - Engine Dynamic	Fuel Pressure		VDO_PSI_150MAX.xml	modify
ADC7	5	PGN127508 - Battery Status	Battery Volt		ALT_VOLTS_36MAX.xr	modify
ADC8	6	PGN127245 - Rudder	Rudder		RUDDER_180_DEGRE	modify
ADC9	7	PGN130316 - Temperature Exter	EGT K-Type Amp		TEMP_KTYPE_1000K.	modify
ADC10	8	PGN130316 - Temperature Exter	Cabin		TEMP_KTYPE_1000K.	modify
ADC11	9	PGN127508 - Battery Status	Current		CURRENT_30A.xml	modify

Below the table, there are sections for 'Local Device Configuration' (Save, Create XML, Reset) and 'HelmSmart-Cloud firmware updates' (Firmware, WWW, Calibrations). At the bottom, there are links to various websites and a copyright notice for 2025.

Next select the desired parameter group for each sensor



SeaGauge G4 Configuration Page

Not secure seagaugeg4-e99c.local/conf.html

Port Configurations

Dimmer/Switch Configurations

Pulse Input Configurations

Analog Input Configurations

Channel	Instance	PGN	Parameter	Set value	Calibration	
ADC0	0	PGN127489 - Engine Dynamic	Alt Volts		ALT_VOLTS_36MAX.xr	modify
ADC1	0	PGN127505 - Fluid Level	Fuel Level	5299	FUEL_240to33.xml	modify
ADC2	0	disabled	Engine Temp		ENG_TEMP_150C_150F	modify
ADC3	0	PGN127489 - Engine Dynamic	Temperature		TRAN_TEMP_400F50F	modify
ADC4	0	PGN127508 - Battery Status	Pressure		TRAN_TEMP_400F50F	modify
ADC5	0	PGN127505 - Fluid Level	Pressure		ISSPRO_OIL_80PSI.xr	modify
ADC6	0	PGN127493 - Transmission	Oil Pressure		VDO_PSI_150MAX.xml	modify
ADC7	0	PGN130314 - Pressure	Battery Volt		ALT_VOLTS_36MAX.xr	modify
ADC8	0	PGN130311 - Environmental	Rudder		RUDDER_180_DEGREES	modify
ADC9	0	PGN130312 - Temperature	ST K-Type Amp		TEMP_KTYPE_1000K.	modify
ADC10	0	PGN130316 - Temperature Extended	Bin		TEMP_KTYPE_1000K.	modify
ADC11	0	PGN127245 - Rudder	Current		CURRENT_30A.xml	modify
		PGN127288 - Engine Rapid				

Analog Alarm

Timestamp

PGN065262 - J1939 Temperature

PGN065263 - J1939 Pressures

PGN065271 - J1939 Volts

PGN065276 - J1939 Fluids

Save Setting

Reset

Firmware

WWW

Calibrations

Start-Cloud firmware updates

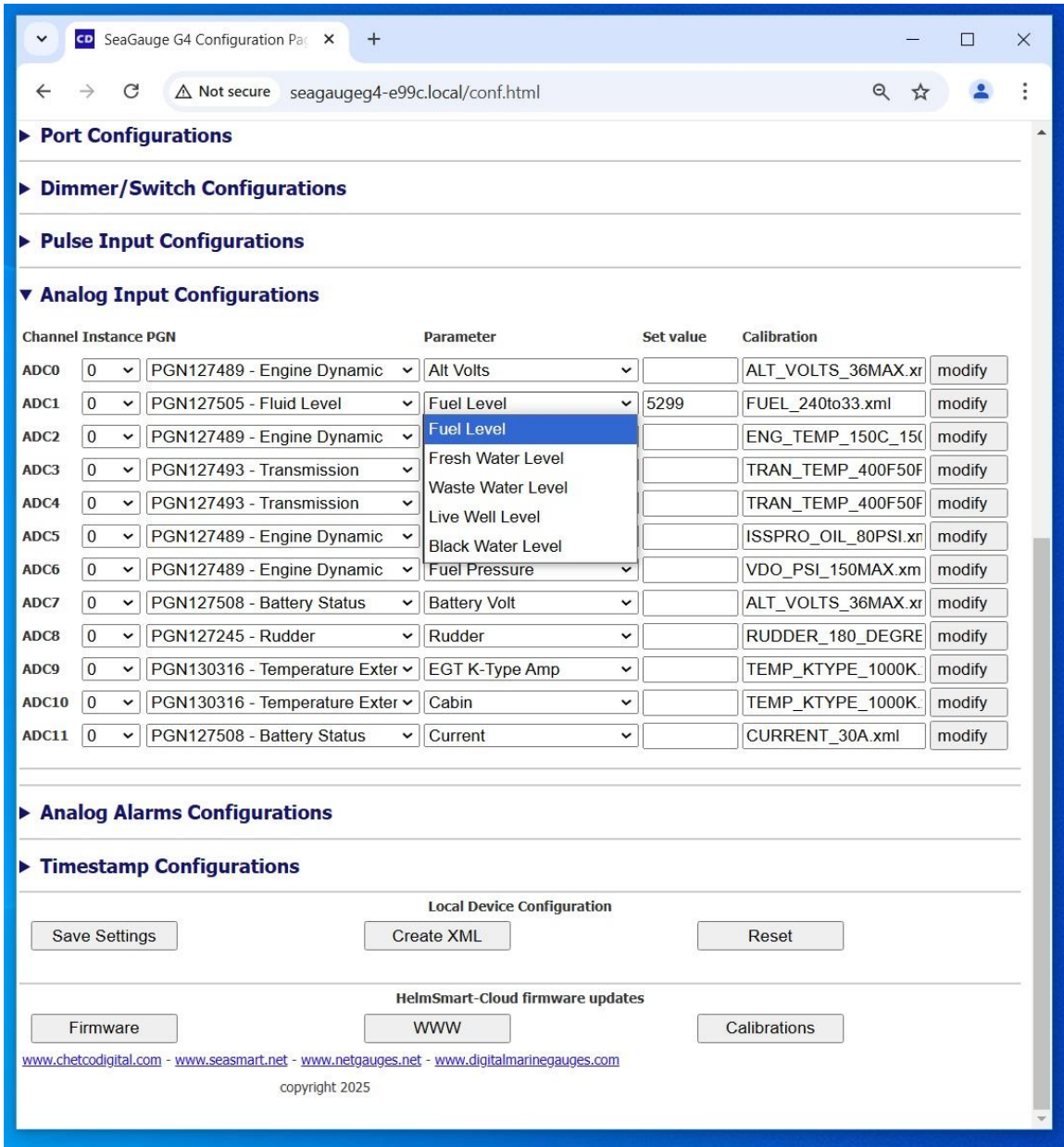
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Then follow with the desired sensor parameter.

Complete all Instance, PGN, and Parameter selections first before proceeding to calibration tables.

SAVE SETTINGS at bottom of page before proceeding to Calibration tables



The screenshot shows the 'SeaGauge G4 Configuration Page' in a web browser. The 'Analog Input Configurations' section is expanded, displaying a table with 12 rows (ADC0 to ADC11). Each row has dropdown menus for Channel, Instance, PGN, and Parameter, followed by a 'Set value' field, a 'Calibration' field, and a 'modify' button. A dropdown menu is open for the 'Parameter' of ADC2, showing options like 'Fuel Level', 'Fresh Water Level', 'Waste Water Level', 'Live Well Level', 'Black Water Level', and 'Fuel Pressure'. Below the table are sections for 'Analog Alarms Configurations', 'Timestamp Configurations', 'Local Device Configuration' (with 'Save Settings', 'Create XML', and 'Reset' buttons), and 'HelmSmart-Cloud firmware updates' (with 'Firmware', 'WWW', and 'Calibrations' buttons). At the bottom, there are links to various websites and a copyright notice for 2025.

Channel	Instance	PGN	Parameter	Set value	Calibration	
ADC0	0	PGN127489 - Engine Dynamic	Alt Volts		ALT_VOLTS_36MAX.xr	modify
ADC1	0	PGN127505 - Fluid Level	Fuel Level	5299	FUEL_240to33.xml	modify
ADC2	0	PGN127489 - Engine Dynamic	Fuel Level		ENG_TEMP_150C_150	modify
ADC3	0	PGN127493 - Transmission	Fresh Water Level		TRAN_TEMP_400F50F	modify
ADC4	0	PGN127493 - Transmission	Waste Water Level		TRAN_TEMP_400F50F	modify
ADC5	0	PGN127489 - Engine Dynamic	Live Well Level		ISSPRO_OIL_80PSI.xr	modify
ADC6	0	PGN127489 - Engine Dynamic	Black Water Level		VDO_PSI_150MAX.xm	modify
ADC7	0	PGN127508 - Battery Status	Fuel Pressure		ALT_VOLTS_36MAX.xr	modify
ADC8	0	PGN127245 - Rudder	Battery Volt		RUDDER_180_DEGRE	modify
ADC9	0	PGN130316 - Temperature Exter	Rudder		TEMP_KTYPE_1000K.	modify
ADC10	0	PGN130316 - Temperature Exter	EGT K-Type Amp		TEMP_KTYPE_1000K.	modify
ADC11	0	PGN127508 - Battery Status	Cabin		CURRENT_30A.xml	modify
			Current			

Local Device Configuration

Save Settings Create XML Reset

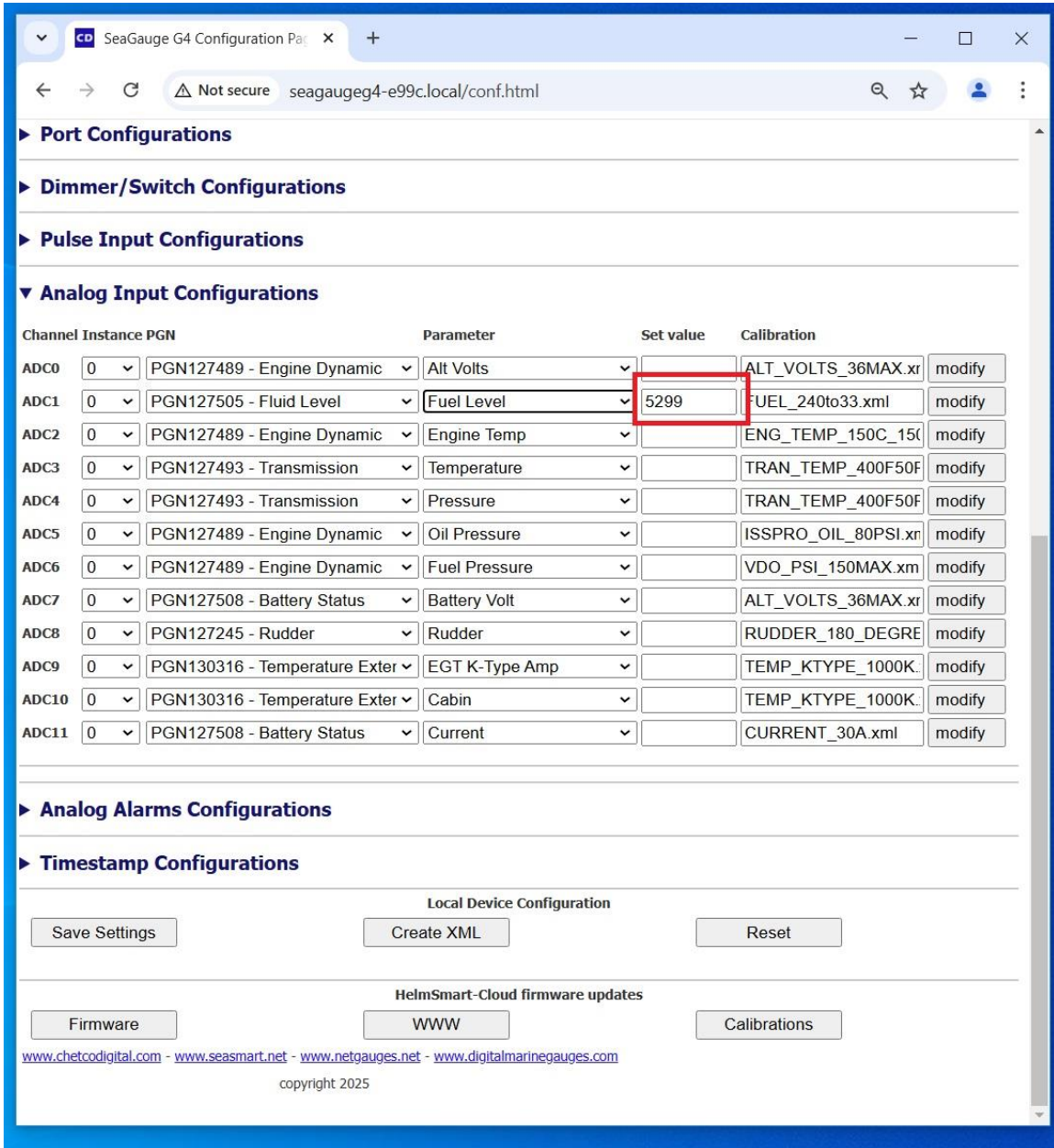
HelmSmart-Cloud firmware updates

Firmware WWW Calibrations

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Fluid Tank Levels have a SET VALUE option to enter total tank volume in liters. This value is used by displays to convert percentage full to actual liters/gallons



SeaGauge G4 Configuration Page

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► Port Configurations

► Dimmer/Switch Configurations

► Pulse Input Configurations

▼ Analog Input Configurations

Channel	Instance	PGN	Parameter	Set value	Calibration	
ADC0	0	PGN127489 - Engine Dynamic	Alt Volts		ALT_VOLTS_36MAX.xr	modify
ADC1	0	PGN127505 - Fluid Level	Fuel Level	5299	FUEL_240to33.xml	modify
ADC2	0	PGN127489 - Engine Dynamic	Engine Temp		ENG_TEMP_150C_150	modify
ADC3	0	PGN127493 - Transmission	Temperature		TRAN_TEMP_400F50F	modify
ADC4	0	PGN127493 - Transmission	Pressure		TRAN_TEMP_400F50F	modify
ADC5	0	PGN127489 - Engine Dynamic	Oil Pressure		ISSPRO_OIL_80PSI.xr	modify
ADC6	0	PGN127489 - Engine Dynamic	Fuel Pressure		VDO_PSI_150MAX.xm	modify
ADC7	0	PGN127508 - Battery Status	Battery Volt		ALT_VOLTS_36MAX.xr	modify
ADC8	0	PGN127245 - Rudder	Rudder		RUDDER_180_DEGRE	modify
ADC9	0	PGN130316 - Temperature Exter	EGT K-Type Amp		TEMP_KTYPE_1000K.	modify
ADC10	0	PGN130316 - Temperature Exter	Cabin		TEMP_KTYPE_1000K.	modify
ADC11	0	PGN127508 - Battery Status	Current		CURRENT_30A.xml	modify

► Analog Alarms Configurations

► Timestamp Configurations

Local Device Configuration

Save Settings Create XML Reset

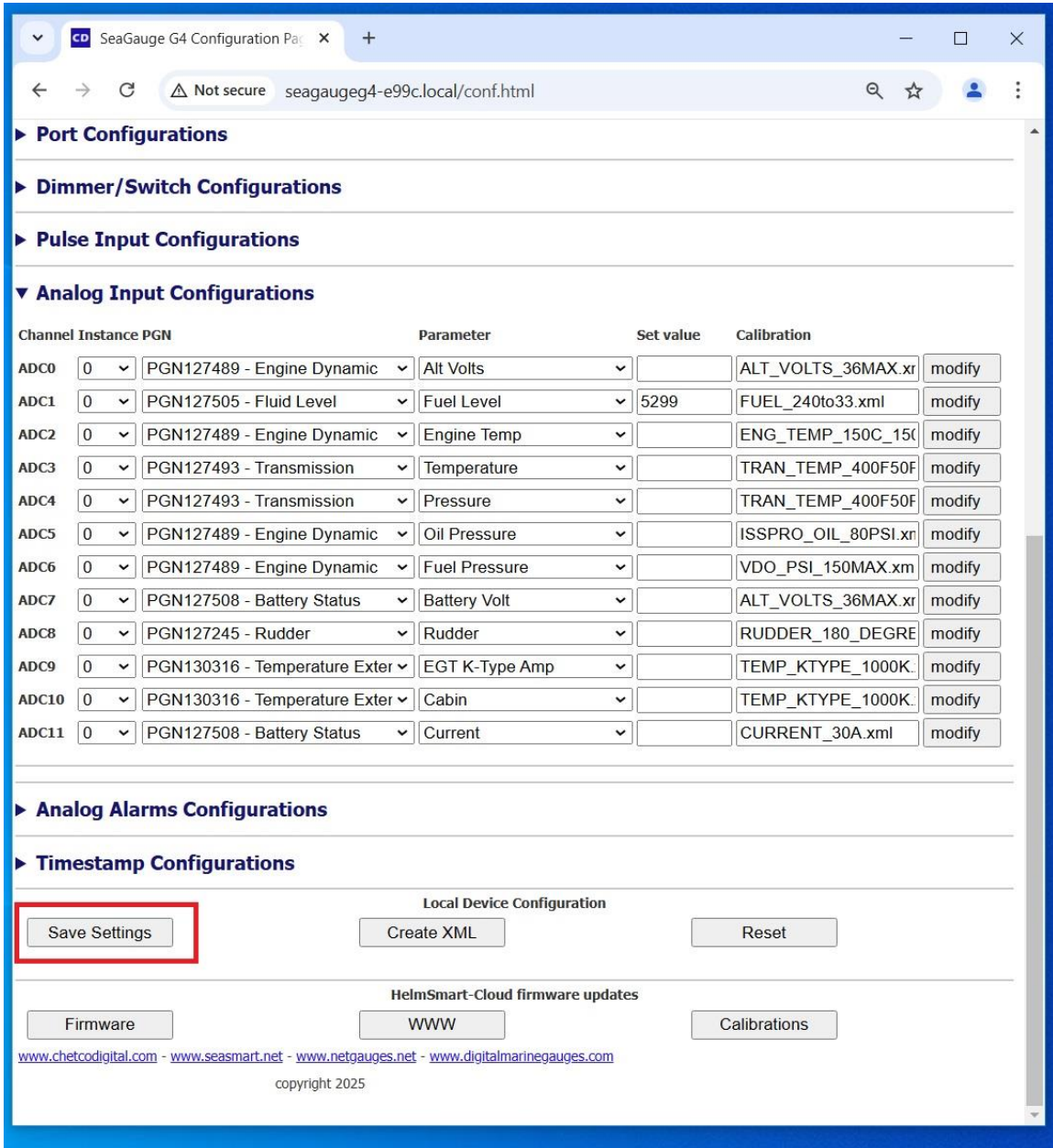
Helmsmart-Cloud firmware updates

Firmware WWW Calibrations

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Be sure to SAVE SETTINGS before proceeding else you will lose all changes.



The screenshot shows the 'SeaGauge G4 Configuration Page' in a web browser. The 'Analog Input Configurations' section is expanded, displaying a table with 12 rows (ADC0 to ADC11). Each row contains fields for Channel Instance, PGN, Parameter, Set value, Calibration, and a 'modify' button. The 'Save Settings' button is highlighted with a red rectangle. Below the table, there are sections for 'Analog Alarms Configurations', 'Timestamp Configurations', and 'Local Device Configuration' (containing 'Save Settings', 'Create XML', and 'Reset' buttons). At the bottom, there are links for 'Firmware', 'WWW', and 'Calibrations', along with a copyright notice for 2025.

Channel Instance	PGN	Parameter	Set value	Calibration
ADC0	0	PGN127489 - Engine Dynamic	Alt Volts	ALT_VOLTS_36MAX.xr
ADC1	0	PGN127505 - Fluid Level	Fuel Level	FUEL_240to33.xml
ADC2	0	PGN127489 - Engine Dynamic	Engine Temp	ENG_TEMP_150C_15C
ADC3	0	PGN127493 - Transmission	Temperature	TRAN_TEMP_400F50F
ADC4	0	PGN127493 - Transmission	Pressure	TRAN_TEMP_400F50F
ADC5	0	PGN127489 - Engine Dynamic	Oil Pressure	ISSPRO_OIL_80PSI.xn
ADC6	0	PGN127489 - Engine Dynamic	Fuel Pressure	VDO_PSI_150MAX.xm
ADC7	0	PGN127508 - Battery Status	Battery Volt	ALT_VOLTS_36MAX.xr
ADC8	0	PGN127245 - Rudder	Rudder	RUDDER_180_DEGRE
ADC9	0	PGN130316 - Temperature Exter	EGT K-Type Amp	TEMP_KTYPE_1000K.
ADC10	0	PGN130316 - Temperature Exter	Cabin	TEMP_KTYPE_1000K.
ADC11	0	PGN127508 - Battery Status	Current	CURRENT_30A.xml

Local Device Configuration

Save Settings Create XML Reset

HelmSmart-Cloud firmware updates

Firmware WWW Calibrations

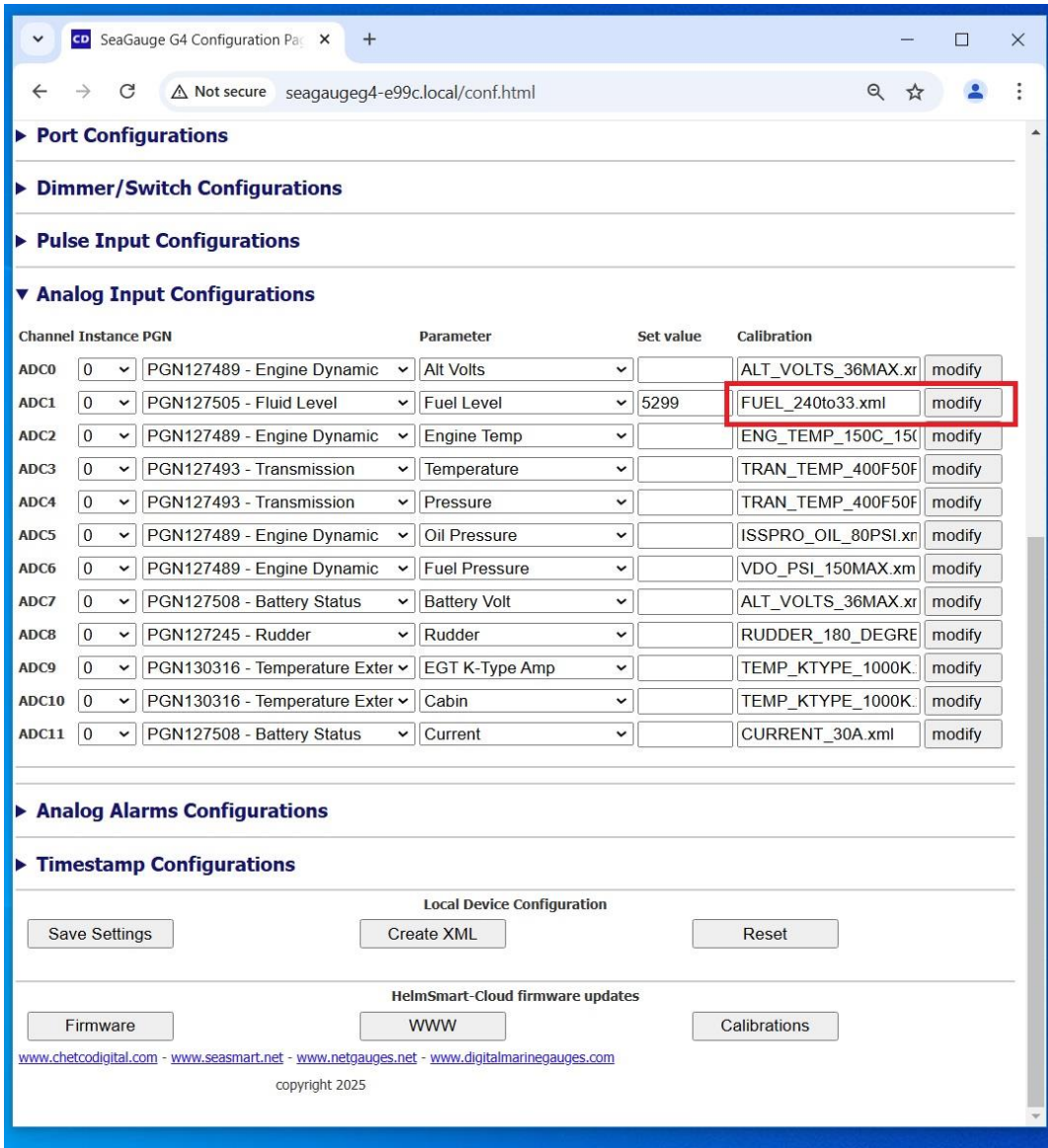
www.chetcodigital.com - www.seasmart.net - www.netgauges.net - www.digitalmarinegauges.com

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After all Parameters have been assigned and SAVED – proceed to selecting the desired Calibration Tables to use for each sensor.

Calibration tables are prestored on the internal SD card before selection. Files can be uploaded using the FILES link at the top of the CONFIGURATION page.

Choosing the MODIFY button next to each analog channel will bring up a file select dialog to allow choosing calibration files already stored on the internal SD card.



SeaGauge G4 Configuration Page

Not secure seagauge4-e99c.local/conf.html

Port Configurations

Dimmer/Switch Configurations

Pulse Input Configurations

Analog Input Configurations

Channel	Instance	PGN	Parameter	Set value	Calibration	
ADC0	0	PGN127489 - Engine Dynamic	Alt Volts		ALT_VOLTS_36MAX.xr	modify
ADC1	0	PGN127505 - Fluid Level	Fuel Level	5299	FUEL_240to33.xml	modify
ADC2	0	PGN127489 - Engine Dynamic	Engine Temp		ENG_TEMP_150C_150F	modify
ADC3	0	PGN127493 - Transmission	Temperature		TRAN_TEMP_400F50F	modify
ADC4	0	PGN127493 - Transmission	Pressure		TRAN_TEMP_400F50F	modify
ADC5	0	PGN127489 - Engine Dynamic	Oil Pressure		ISSPRO_OIL_80PSI.xr	modify
ADC6	0	PGN127489 - Engine Dynamic	Fuel Pressure		VDO_PSI_150MAX.xml	modify
ADC7	0	PGN127508 - Battery Status	Battery Volt		ALT_VOLTS_36MAX.xr	modify
ADC8	0	PGN127245 - Rudder	Rudder		RUDDER_180_DEGRE	modify
ADC9	0	PGN130316 - Temperature Exter	EGT K-Type Amp		TEMP_KTYPE_1000K	modify
ADC10	0	PGN130316 - Temperature Exter	Cabin		TEMP_KTYPE_1000K	modify
ADC11	0	PGN127508 - Battery Status	Current		CURRENT_30A.xml	modify

Analog Alarms Configurations

Timestamp Configurations

Local Device Configuration

Save Settings Create XML Reset

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Firmware WWW Calibrations

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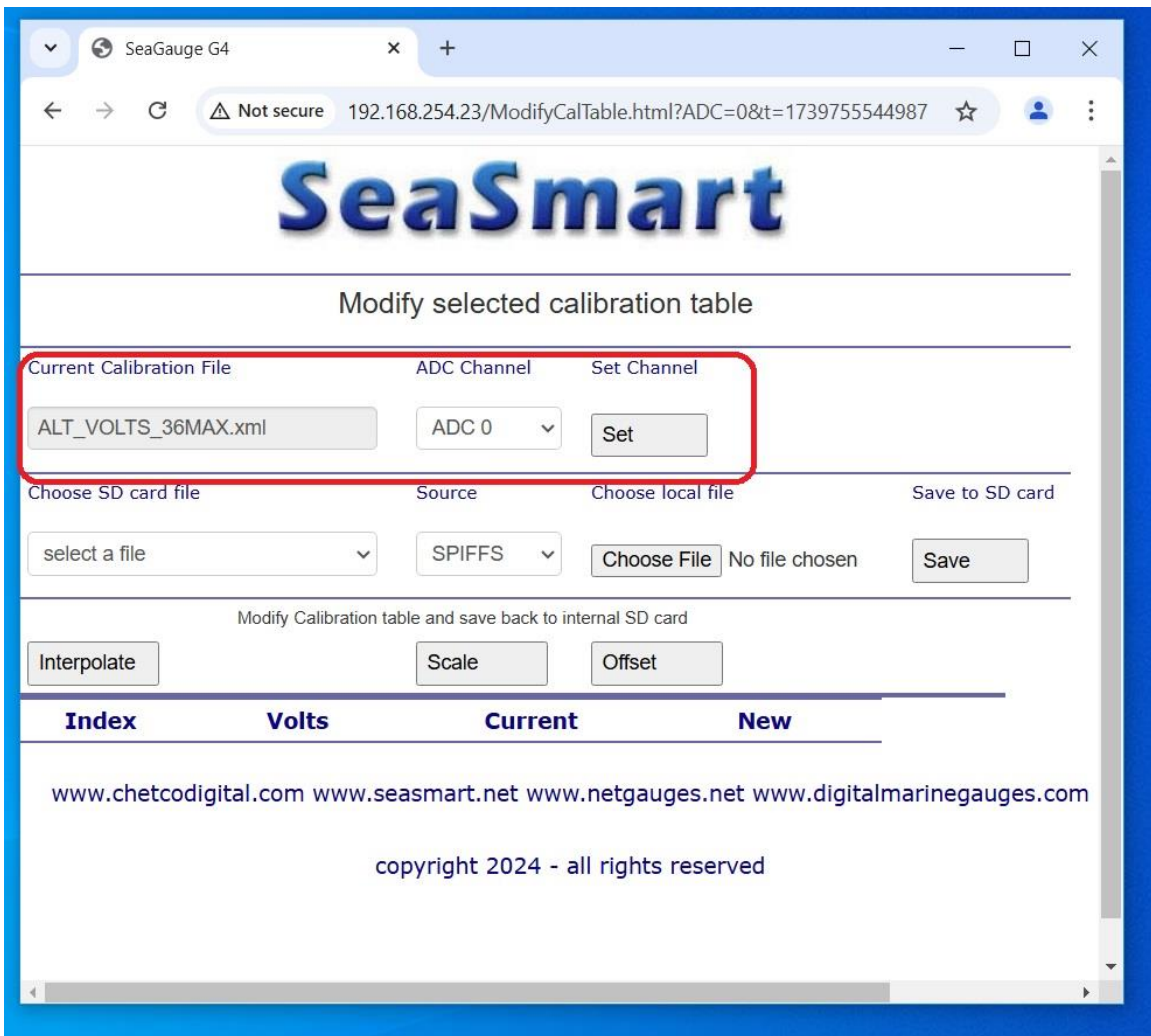
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Use the SET ADC button under ACTION to assign the desired calibration file to the sensor input.

Be sure the desired calibration file and ADC channel are set correctly as these are not automatically set from the previous page.

YOU MUST RESET THESE VALUES TO MATCH

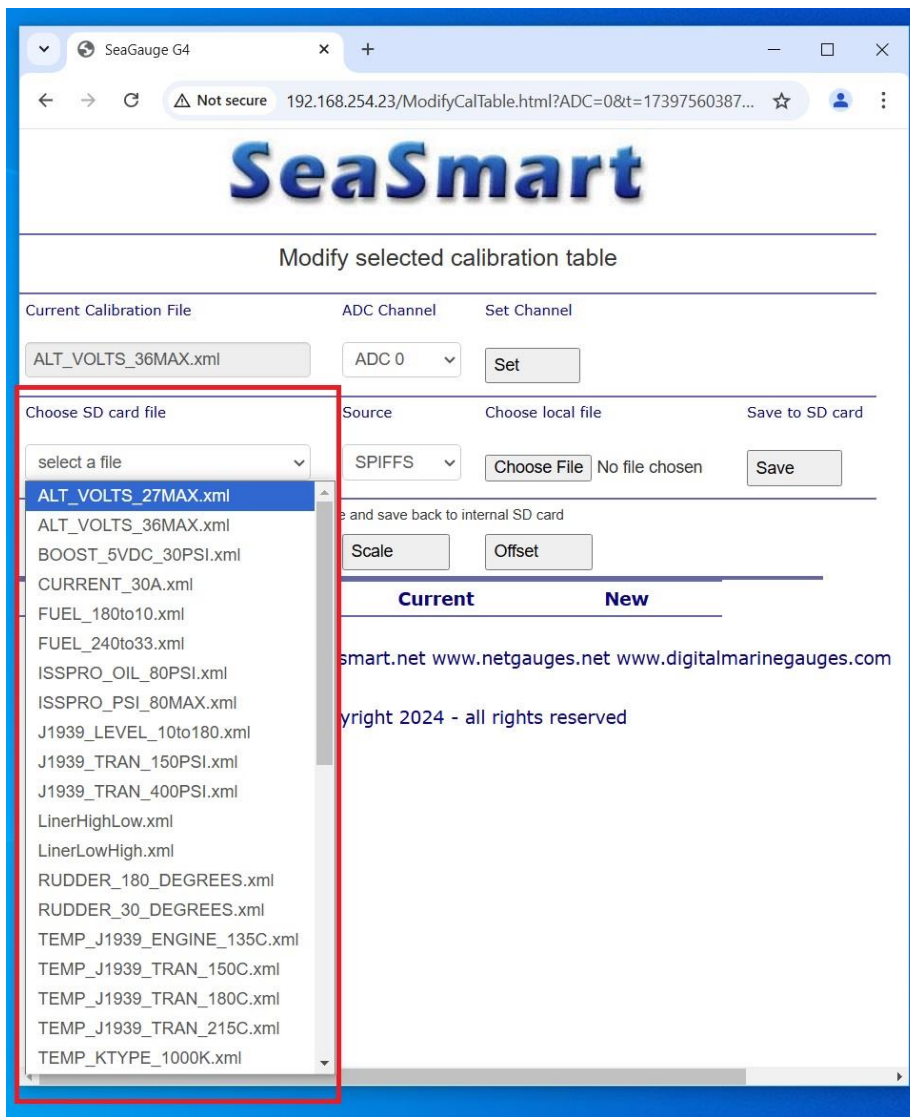
Existing files can be user modified or new files uploaded to internal SD card



The screenshot shows a web browser window titled "SeaGauge G4" with the URL "192.168.254.23/ModifyCalTable.html?ADC=0&t=173975544987". The page features the "SeaSmart" logo and the heading "Modify selected calibration table". A red rectangle highlights the "Current Calibration File" section, which includes a text input field containing "ALT_VOLTS_36MAX.xml", a dropdown menu for "ADC Channel" set to "ADC 0", and a "Set" button. Below this, there are sections for "Choose SD card file" (with a "select a file" dropdown), "Source" (with a "SPIFFS" dropdown), "Choose local file" (with a "Choose File" button and "No file chosen" text), and "Save to SD card" (with a "Save" button). At the bottom, there are buttons for "Interpolate", "Scale", and "Offset", followed by a table with headers "Index", "Volts", "Current", and "New". The table contains four links: "www.chetcodigital.com", "www.seasmart.net", "www.netgauges.net", and "www.digitalmarinegauges.com". The footer includes the text "copyright 2024 - all rights reserved".

Use the Drop-down list under CHOOSE SD CARD FILE to select a preloaded calibration file

Calibration files can be stored in internal memory called SPIFFS or on the removable SD card. SPIFFS files can not be modified



The screenshot shows the SeaSmart web interface for modifying a calibration table. The browser address bar shows the URL: 192.168.254.23/ModifyCalTable.html?ADC=0&t=17397560387... The page title is "SeaSmart". The main heading is "Modify selected calibration table".

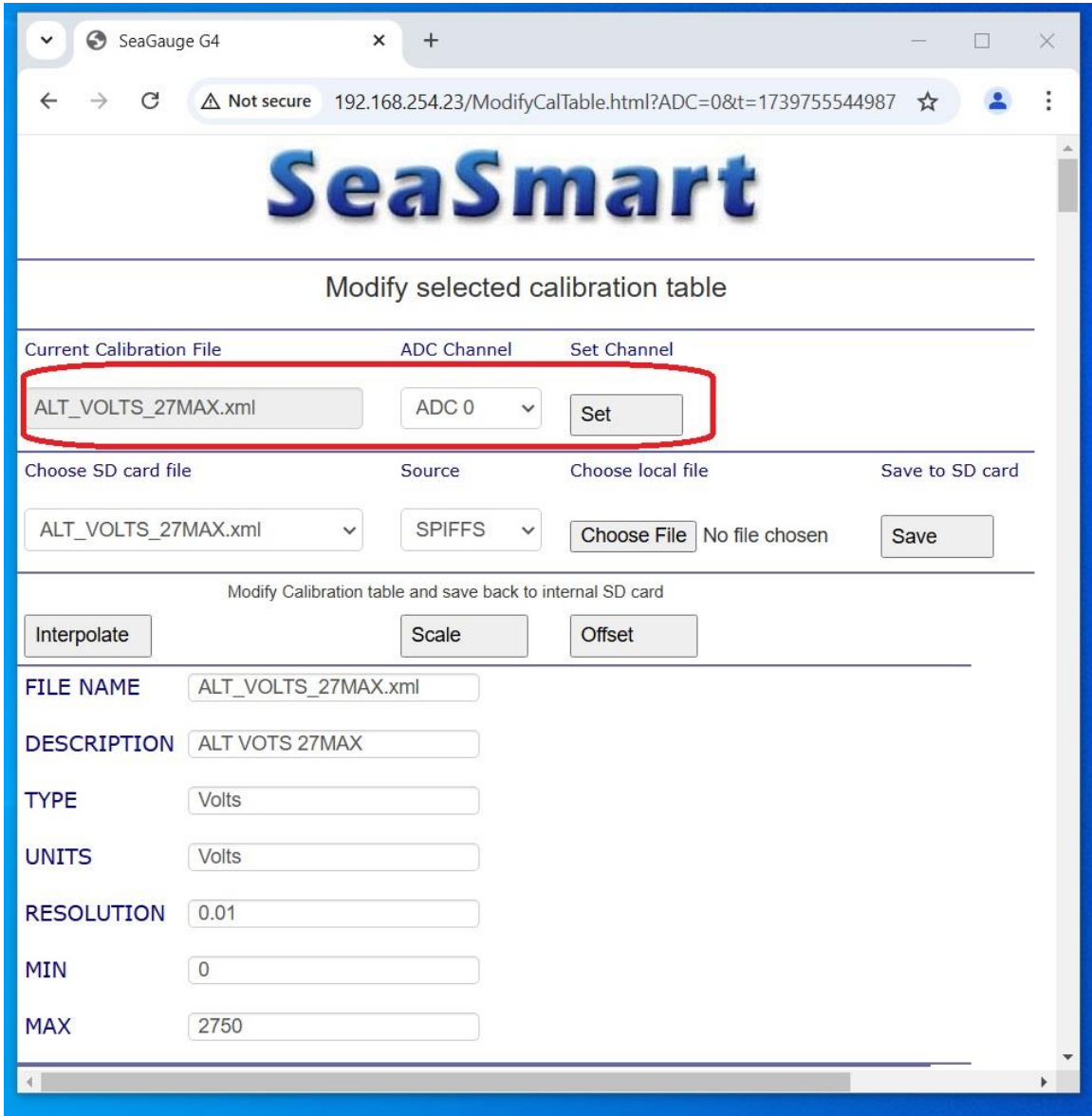
The form includes the following sections:

- Current Calibration File:** A text box containing "ALT_VOLTS_36MAX.xml".
- ADC Channel:** A dropdown menu showing "ADC 0".
- Set Channel:** A "Set" button.
- Choose SD card file:** A dropdown menu with a list of preloaded calibration files. The list includes: ALT_VOLTS_27MAX.xml, ALT_VOLTS_36MAX.xml, BOOST_5VDC_30PSI.xml, CURRENT_30A.xml, FUEL_180to10.xml, FUEL_240to33.xml, ISSPRO_OIL_80PSI.xml, ISSPRO_PSI_80MAX.xml, J1939_LEVEL_10to180.xml, J1939_TRAN_150PSI.xml, J1939_TRAN_400PSI.xml, LinerHighLow.xml, LinerLowHigh.xml, RUDDER_180_DEGREES.xml, RUDDER_30_DEGREES.xml, TEMP_J1939_ENGINE_135C.xml, TEMP_J1939_TRAN_150C.xml, TEMP_J1939_TRAN_180C.xml, TEMP_J1939_TRAN_215C.xml, and TEMP_KTYPE_1000K.xml. The file "ALT_VOLTS_27MAX.xml" is currently selected.
- Source:** A dropdown menu showing "SPIFFS".
- Choose local file:** A "Choose File" button.
- Save to SD card:** A "Save" button.
- Scale and Offset:** Two text boxes labeled "Scale" and "Offset".
- Current and New:** Two tabs labeled "Current" and "New".

At the bottom of the page, there is a footer with the text: "smart.net www.netgauges.net www.digitalmarinegauges.com" and "Copyright 2024 - all rights reserved".

Use the SOURCE drop down to list files from internal memory (SPIFFS) or the SD card

Once a file is selected, use the SET button to assign the file to the desired ADC channel



The screenshot shows the SeaSmart web interface in a browser window. The page title is "SeaSmart" and the subtitle is "Modify selected calibration table". The interface is divided into several sections:

- Current Calibration File:** A text box containing "ALT_VOLTS_27MAX.xml".
- ADC Channel:** A dropdown menu showing "ADC 0".
- Set Channel:** A button labeled "Set".
- Choose SD card file:** A dropdown menu showing "ALT_VOLTS_27MAX.xml".
- Source:** A dropdown menu showing "SPIFFS".
- Choose local file:** A button labeled "Choose File".
- No file chosen:** A text label.
- Save to SD card:** A button labeled "Save".
- Modify Calibration table and save back to internal SD card:** A section with three buttons: "Interpolate", "Scale", and "Offset".
- FILE NAME:** A text box containing "ALT_VOLTS_27MAX.xml".
- DESCRIPTION:** A text box containing "ALT VOTS 27MAX".
- TYPE:** A text box containing "Volts".
- UNITS:** A text box containing "Volts".
- RESOLUTION:** A text box containing "0.01".
- MIN:** A text box containing "0".
- MAX:** A text box containing "2750".

**** See App Note [AN_SS24103101_ModifyCalibrationFiles.pdf](#) for full details in modifying calibration tables ****

Calibration files contain 256 entries which map sensor voltages created by the sensor resistive profile to physical measurements. Each resistive sensor will produce a voltage from 0 to 3.2V based on physical measurement and selected pull up resistor. This voltage is converted to a table index by formula $V_{\text{sensor}} * 256/3.2$.

The sensor voltage is determined by sensor profile

Temperaturgeber / Temperature Sensors Kennlinie-Tabelle / Characteristic Curve Table 16

Heißeleiter / Thermistor 92-027-029-3901

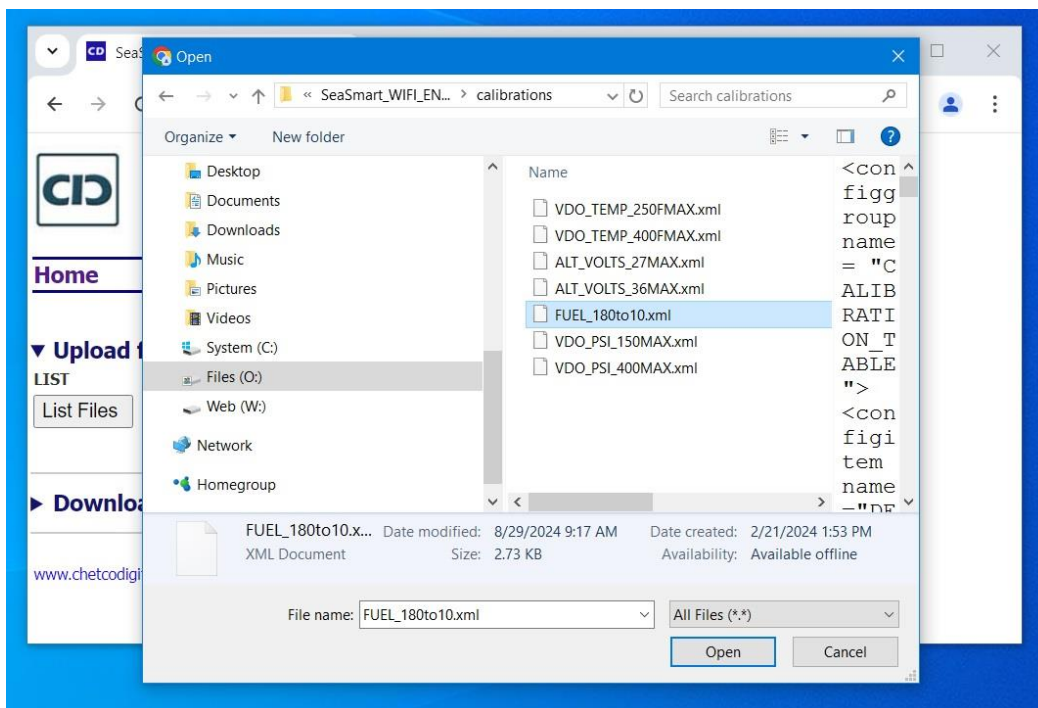
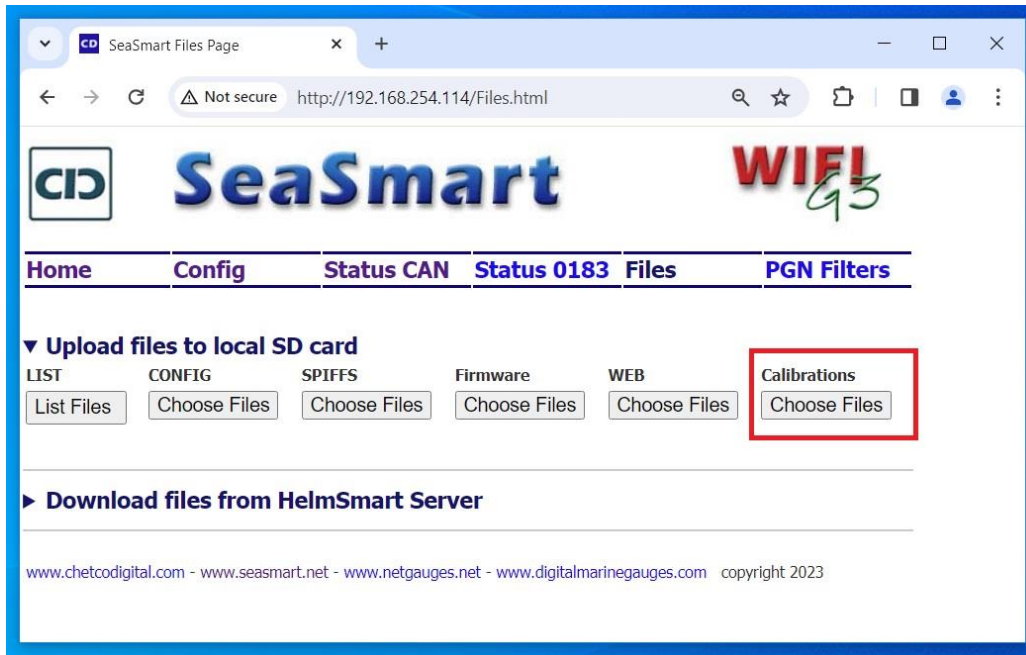
Temp. °C	Geber / Sensor		
	R (Ohm)	± Tol (%)	± Tol (Ohm)
-40.0	5848.26	.44	25.48
-35.0	5725.69	.50	28.68
-30.0	5574.12	.57	31.65
-25.0	5389.39	.63	34.06
-20.0	5174.01	.69	35.60
-15.0	4927.41	.71	35.08
-10.0	4658.61	.71	33.08
-5.0	4372.59	.69	30.08
.0	4082.00	.64	26.00
5.0	3794.36	.68	25.83
10.0	3520.31	.72	25.25
15.0	3262.42	.74	24.26
20.0	3029.33	.76	22.92
25.0	2823.37	.82	23.25
30.0	2643.73	.87	23.01
35.0	2486.95	.90	22.41
40.0	2353.45	.91	21.48
45.0	2239.89	.91	20.30
50.0	2144.43	.89	19.03
55.0	2063.97	.85	17.64
60.0	1996.72	.82	16.30
65.0	1940.11	.77	14.96
70.0	1892.86	.72	13.71
75.0	1853.26	.67	12.44
80.0	1820.12	.62	11.30
85.0	1792.21	.58	10.43

For this VDO style air temperature sensor a temperature of 25C (77F) will produce a resistance of 2823 ohms.

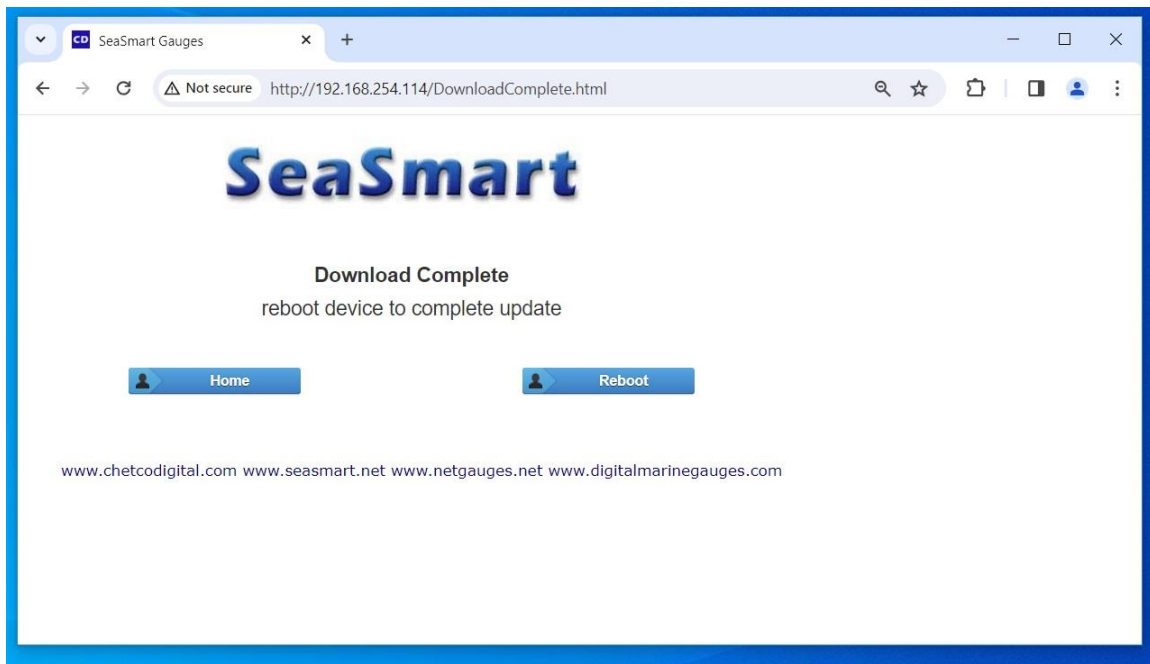
Using a 300 Pullup to 3.2V will produce a voltage of $(2823 / (2823 + 300)) * 3.2 = 2.98V$ and a table index of $2.98 * 256/3.2 = 231$.

Since the Environmental Temperature PGN 130312 has a resolution of 0.01 degrees Kelvin - $25\text{ C} = 298.15\text{K} / 0.01 = 29815$ at table index 231

To upload new or modified calibration tables to internal SD card – use the FILES link at the top of the page and then CHOOSE FILES button under CALIBRATIONS

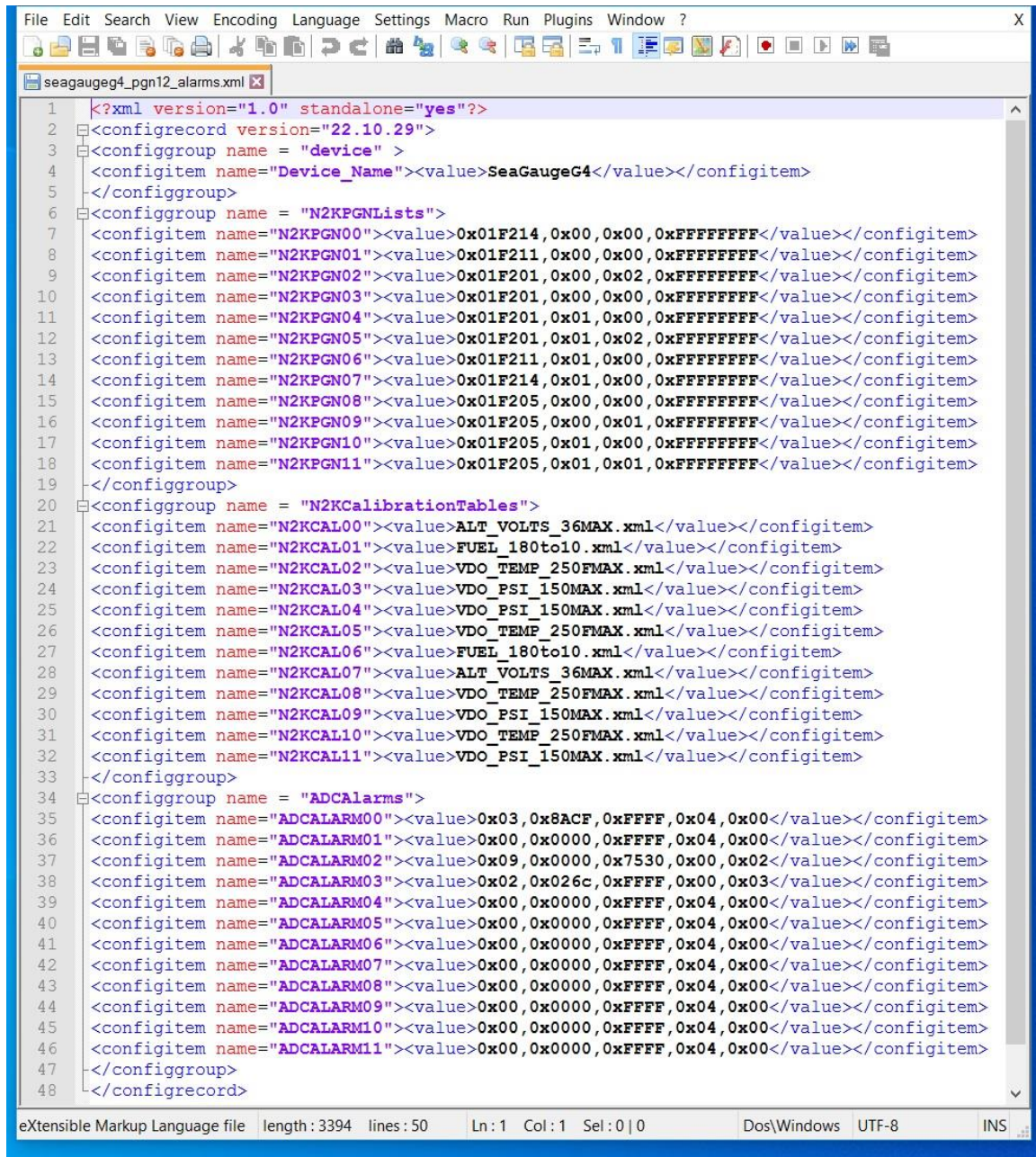


After each new calibration file is uploaded – you will receive a operation complete screen and a option to reboot or go back to Home page.



SeaGaugeG4 Analog Inputs can also be configured by using a .xml file stored in the CONFIG directory of the internal SD card.

The .xml file will contain a configitem for each of the 12 analog inputs which lists the PGN number, instance, and parameter index for each channel



```

1  <?xml version="1.0" standalone="yes"?>
2  <configrecord version="22.10.29">
3    <configgroup name = "device">
4      <configitem name="Device_Name"><value>SeaGaugeG4</value></configitem>
5    </configgroup>
6    <configgroup name = "N2KPGNLists">
7      <configitem name="N2KPGN00"><value>0x01F214,0x00,0x00,0xFFFFFFFF</value></configitem>
8      <configitem name="N2KPGN01"><value>0x01F211,0x00,0x00,0xFFFFFFFF</value></configitem>
9      <configitem name="N2KPGN02"><value>0x01F201,0x00,0x02,0xFFFFFFFF</value></configitem>
10     <configitem name="N2KPGN03"><value>0x01F201,0x00,0x00,0xFFFFFFFF</value></configitem>
11     <configitem name="N2KPGN04"><value>0x01F201,0x01,0x00,0xFFFFFFFF</value></configitem>
12     <configitem name="N2KPGN05"><value>0x01F201,0x01,0x02,0xFFFFFFFF</value></configitem>
13     <configitem name="N2KPGN06"><value>0x01F211,0x01,0x00,0xFFFFFFFF</value></configitem>
14     <configitem name="N2KPGN07"><value>0x01F214,0x01,0x00,0xFFFFFFFF</value></configitem>
15     <configitem name="N2KPGN08"><value>0x01F205,0x00,0x00,0xFFFFFFFF</value></configitem>
16     <configitem name="N2KPGN09"><value>0x01F205,0x00,0x01,0xFFFFFFFF</value></configitem>
17     <configitem name="N2KPGN10"><value>0x01F205,0x01,0x00,0xFFFFFFFF</value></configitem>
18     <configitem name="N2KPGN11"><value>0x01F205,0x01,0x01,0xFFFFFFFF</value></configitem>
19   </configgroup>
20   <configgroup name = "N2KCalibrationTables">
21     <configitem name="N2KCAL00"><value>ALT_VOLTS_36MAX.xml</value></configitem>
22     <configitem name="N2KCAL01"><value>FUEL_180to10.xml</value></configitem>
23     <configitem name="N2KCAL02"><value>VDO_TEMP_250FMAX.xml</value></configitem>
24     <configitem name="N2KCAL03"><value>VDO_PSI_150MAX.xml</value></configitem>
25     <configitem name="N2KCAL04"><value>VDO_PSI_150MAX.xml</value></configitem>
26     <configitem name="N2KCAL05"><value>VDO_TEMP_250FMAX.xml</value></configitem>
27     <configitem name="N2KCAL06"><value>FUEL_180to10.xml</value></configitem>
28     <configitem name="N2KCAL07"><value>ALT_VOLTS_36MAX.xml</value></configitem>
29     <configitem name="N2KCAL08"><value>VDO_TEMP_250FMAX.xml</value></configitem>
30     <configitem name="N2KCAL09"><value>VDO_PSI_150MAX.xml</value></configitem>
31     <configitem name="N2KCAL10"><value>VDO_TEMP_250FMAX.xml</value></configitem>
32     <configitem name="N2KCAL11"><value>VDO_PSI_150MAX.xml</value></configitem>
33   </configgroup>
34   <configgroup name = "ADCCAlarms">
35     <configitem name="ADCCALARM00"><value>0x03,0x8ACF,0xFFFF,0x04,0x00</value></configitem>
36     <configitem name="ADCCALARM01"><value>0x00,0x0000,0xFFFF,0x04,0x00</value></configitem>
37     <configitem name="ADCCALARM02"><value>0x09,0x0000,0x7530,0x00,0x02</value></configitem>
38     <configitem name="ADCCALARM03"><value>0x02,0x026c,0xFFFF,0x00,0x03</value></configitem>
39     <configitem name="ADCCALARM04"><value>0x00,0x0000,0xFFFF,0x04,0x00</value></configitem>
40     <configitem name="ADCCALARM05"><value>0x00,0x0000,0xFFFF,0x04,0x00</value></configitem>
41     <configitem name="ADCCALARM06"><value>0x00,0x0000,0xFFFF,0x04,0x00</value></configitem>
42     <configitem name="ADCCALARM07"><value>0x00,0x0000,0xFFFF,0x04,0x00</value></configitem>
43     <configitem name="ADCCALARM08"><value>0x00,0x0000,0xFFFF,0x04,0x00</value></configitem>
44     <configitem name="ADCCALARM09"><value>0x00,0x0000,0xFFFF,0x04,0x00</value></configitem>
45     <configitem name="ADCCALARM10"><value>0x00,0x0000,0xFFFF,0x04,0x00</value></configitem>
46     <configitem name="ADCCALARM11"><value>0x00,0x0000,0xFFFF,0x04,0x00</value></configitem>
47   </configgroup>
48 </configrecord>

```

Each channel entry starts with the tag name="N2KPGNXX" followed by 4 comma separated values

```
<configitem name="N2KPGN00"><value>0x01F214,0x00,0x00,0xFFFFFFFF</value></configitem>
```

Field 1 is PGN number in 6 digit Hexadecimal

Field 2 is instance in 2 digit Hexadecimal

Field 3 is parameter index number in 2 digit Hexadecimal

Field 4 is SetValue in 8 digit Hexadecimal

Use information from Table 1 – PGN Index List to determine the correct values for each <configitem>

A second CONFIGGROUP section lists the calibration tables to use for each sensor input

```
<configitem name="N2KCAL00"><value>ALT_VOLTS_36MAX.xml</value></configitem>
```

A third CONFIGGROUP section specifies the sensor alarm parameters

```
<configitem name="ADCALARM00"><value>0x03,0x8ACF,0xFFFF,0x04,0x00</value></configitem>
```

Field 1 is Alarm mode number in 2 digit Hexadecimal

Field 2 is Alarm Low value in 4 digit Hexadecimal

Field 3 is Alarm High value in 4 digit Hexadecimal

Field 4 is Alarm Action index number in 2 digit Hexadecimal

Field 5 is Alarm Message index in 2 digit Hexadecimal

The use of an Analog Input Config.xml file will overwrite any other web based config values so that if changes are made via WEB interface page and device is reset, all values will be reset back to the values contained in the config.xml file

****** See App Note [AN_SS24110201_ConfigXMLFiles.pdf](#) for full details in modifying .xml files ******

For configuration of Analog Input Alarms see
[AN_SS24093001_ConfigAnalogAlarms.pdf](#)

For configuration of Indicator Runtimes see
[AN_SS24102301_ConfigIndicatorRuntime.pdf](#)