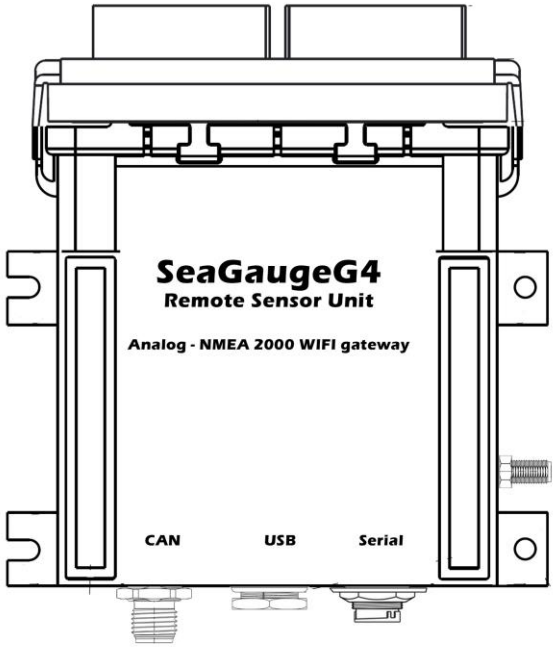
Application Note

ANSS024110301 – SeaGauge G4 Config .XML files



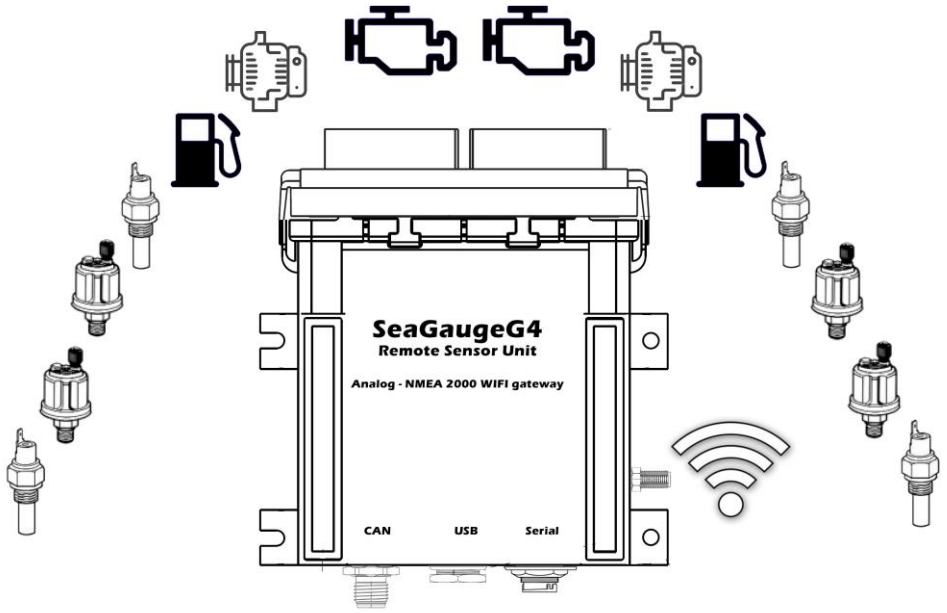
Chetco Digital Instruments, Inc
Revision 091125

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

SeaGaugeG4 also provides 4 additional indicator/status inputs (18VDC max) and 4 relay driver (12VDC) outputs

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 can trigger multiple alarms based on sensor voltages from any of the 12 analog inputs and 3 pulse inputs



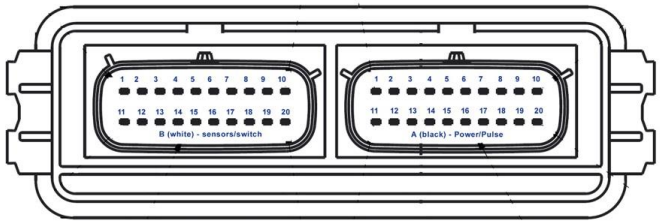
SeaGaugeG4 supports up to 12 analog sensor inputs and 4 indicator inputs via a 20 pin Molex MX150 plug (black) and 3 pulse style inputs via separate 20 pin Molex MX150 plug (white).

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

The 4 indicator inputs (INC00-INC03) are used to provide on/off status for 12VDC circuits. When voltages of 10V to 18VDC are applied, the associated indicator channel will be set. When no voltage is applied, the indicator channel is cleared.

Each indicator channel has a runtime accumulator that counts the number of seconds the channel is active up to 16,777,216 seconds

SeaGaugeG4 Header



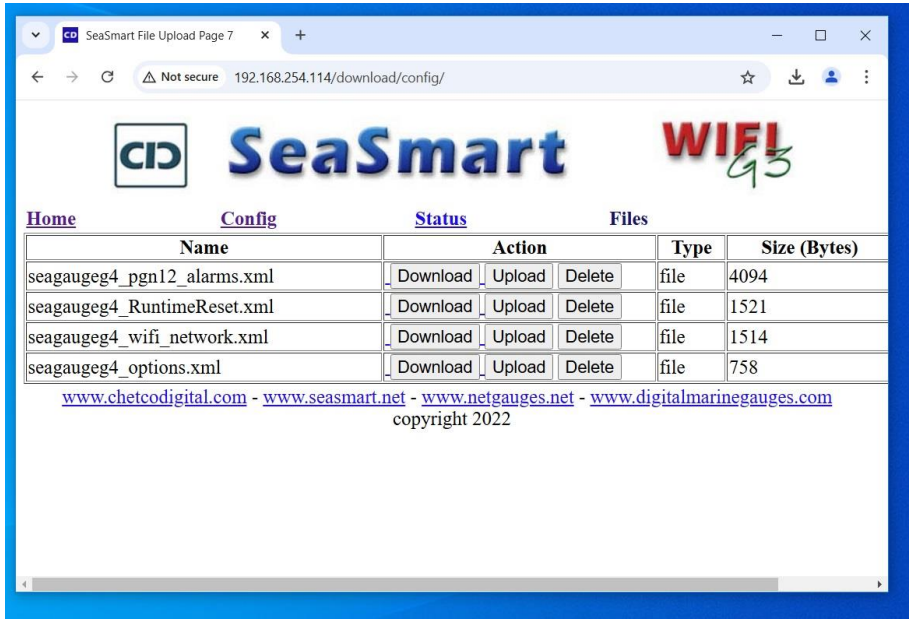
B1 - NC	B11 - NC	A1 - SW5	A11 – SW4
B2 - NC	B12 - NC	A2 - SW7	A12 – SW6
B3 – SEN10 (SBOOST)	B13 – SEN11 (STRAN)	A3 - NC	A13 - NC
B4 – SEN04 (STEMP)	B14 – SEN05 (SOIL)	A4 – P1 (SRPM)	A14 - GND
B5 – SEN06 (SFUEL)	B15 – SEN07 (SBAT)	A5 – P0 (PRPM)	A15 - GND
B6 – SEN00 (PBAT)	B16 – SEN01 (PFUEL)	A6 – P2	A16 - GND
B7 – SEN02 (PTEMP)	B17 – SEN03 (POIL)	A7 – 5VOUT	A17 – 5VOUT
B8 – SEN08 (PBOOST)	B18 – SEN09 (PTRAN)	A8 - GND	A18 - GND
B9 – INC03	B19 – INC02	A9 – 12VIN	A19 = 12VIN
B10 – INC01	B20 – INC00	A10 - NC	A20 - NC

SeaGaugeG4 can be configured by using customized .xml files stored on the internal SD card. These files contain config tags that override existing values stored in internal memory.

When SeaGaugeG4 is powered or reset, it will first load a set of factory default configuration values.

It will then load any new values stored in internal memory set when using the embedded browser pages

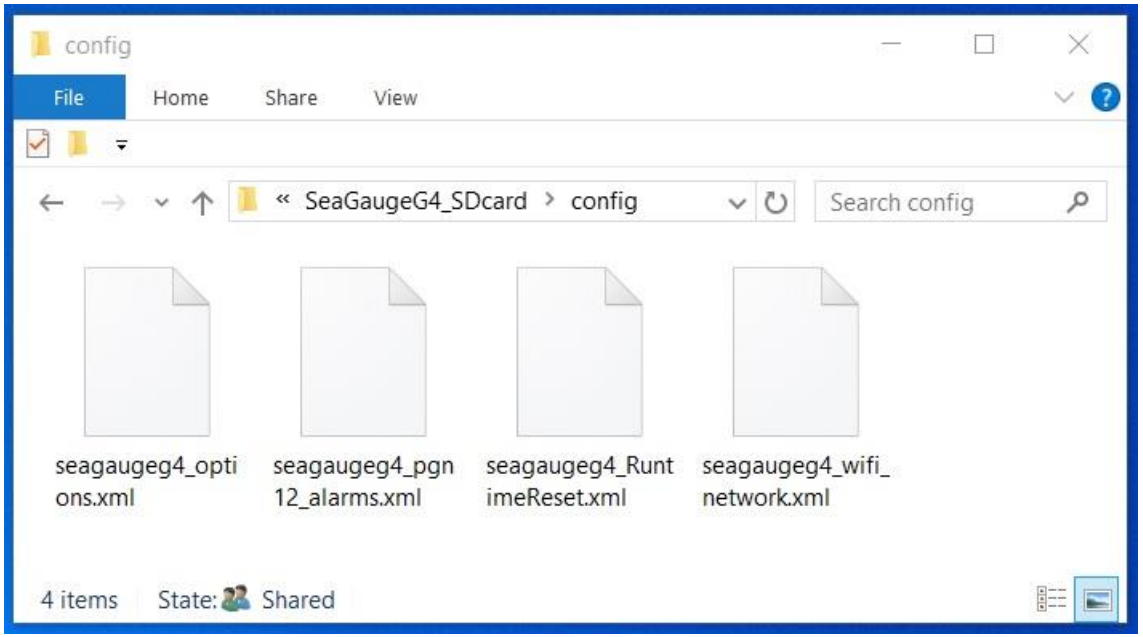
Finally, if a configuration.xml file is found in the SD card \config directory, SeaGaugeG4 will read and load those values and overwrite any current matching configuration parameters found in internal memory.



Multiple configuration files are allowed and can contain parameters in related groups.

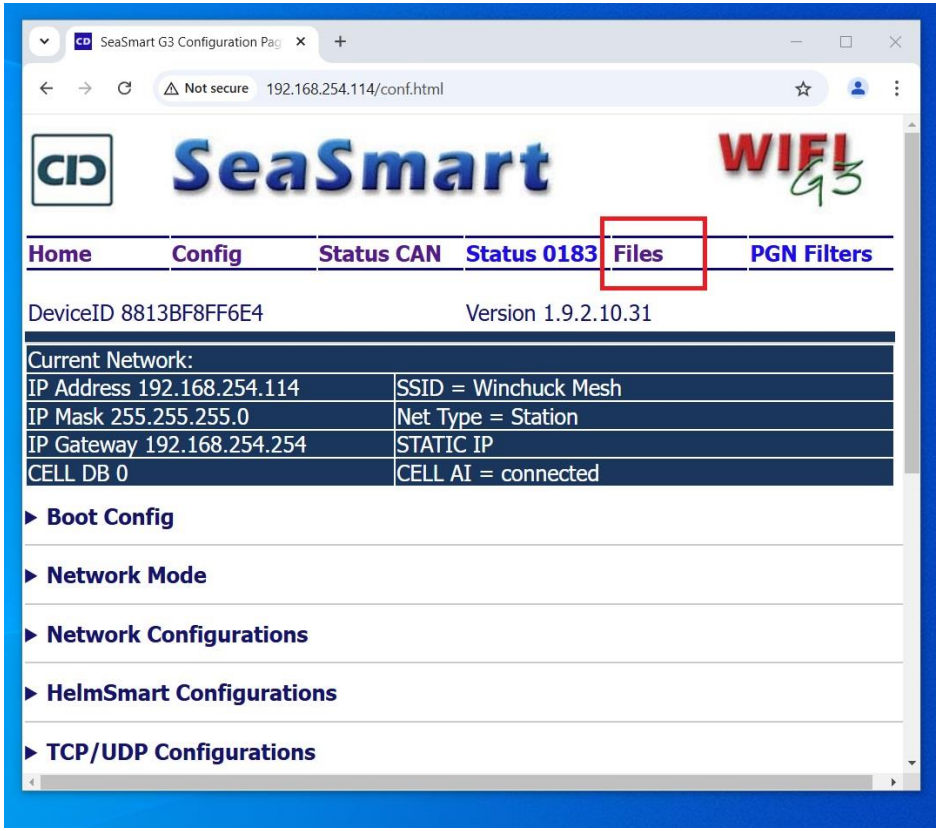
Specific .xml files can be loaded to force initial or default configurations and then later removed to allow changing parameters via the embedded browser pages.

Configuration.xml files can be easily modified with any text editor and stored back on the internal SD card.

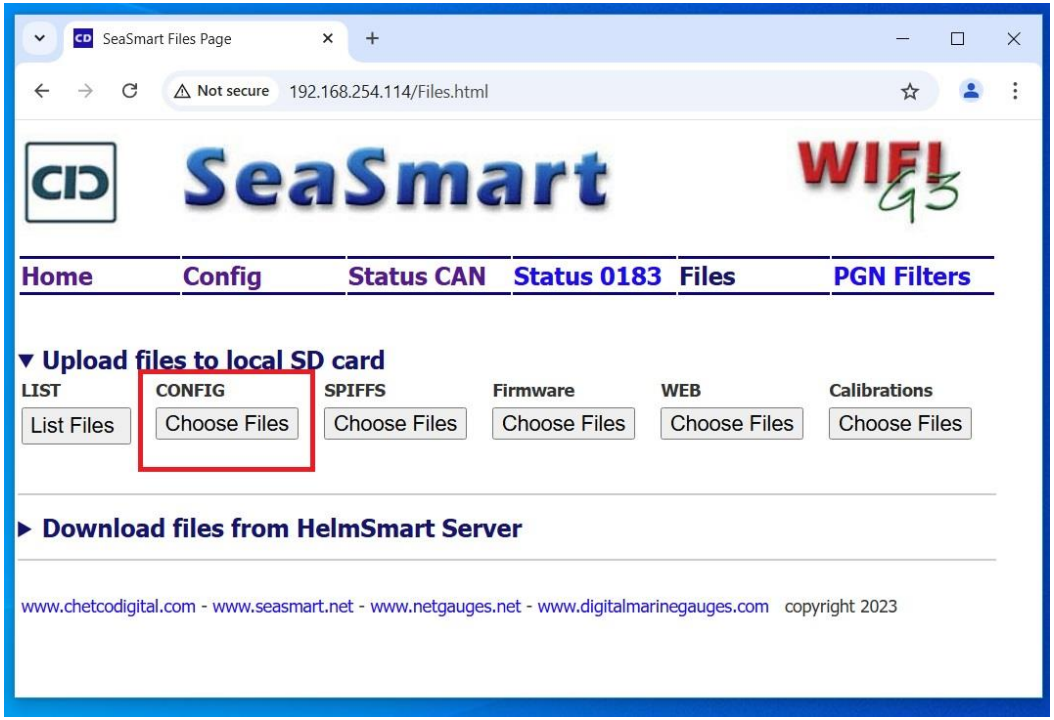


Files can be written to the internal SD card without needing to open unit and removing card.

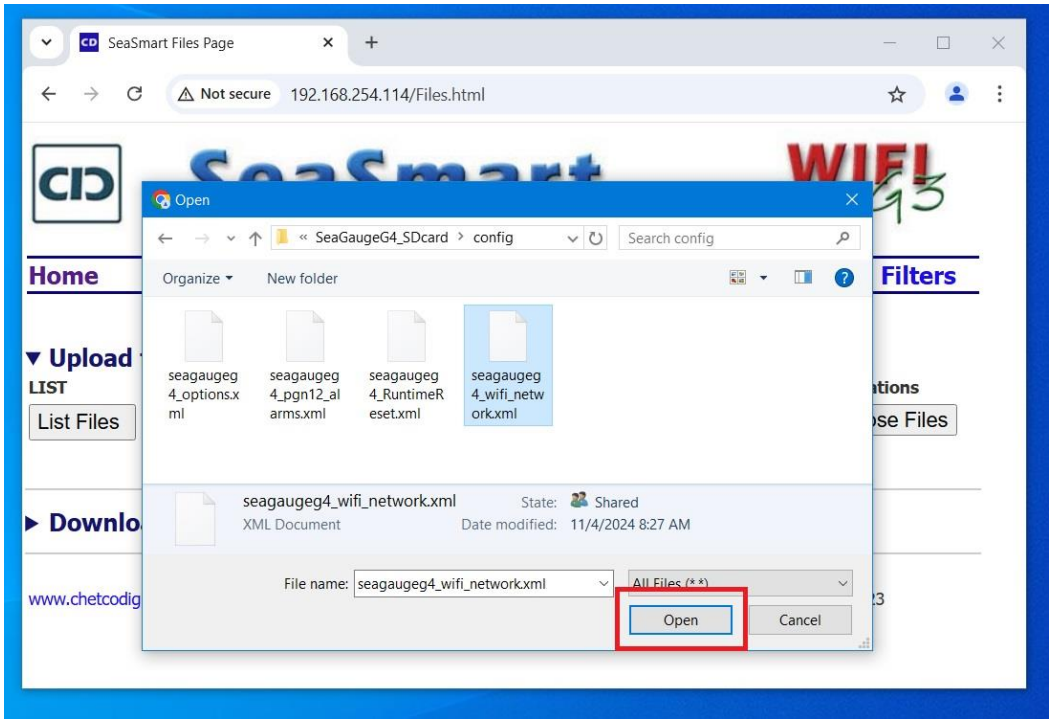
Use the FILES tab on the main CONFIGURATION page to access the SeaGaugeG4 file management functions



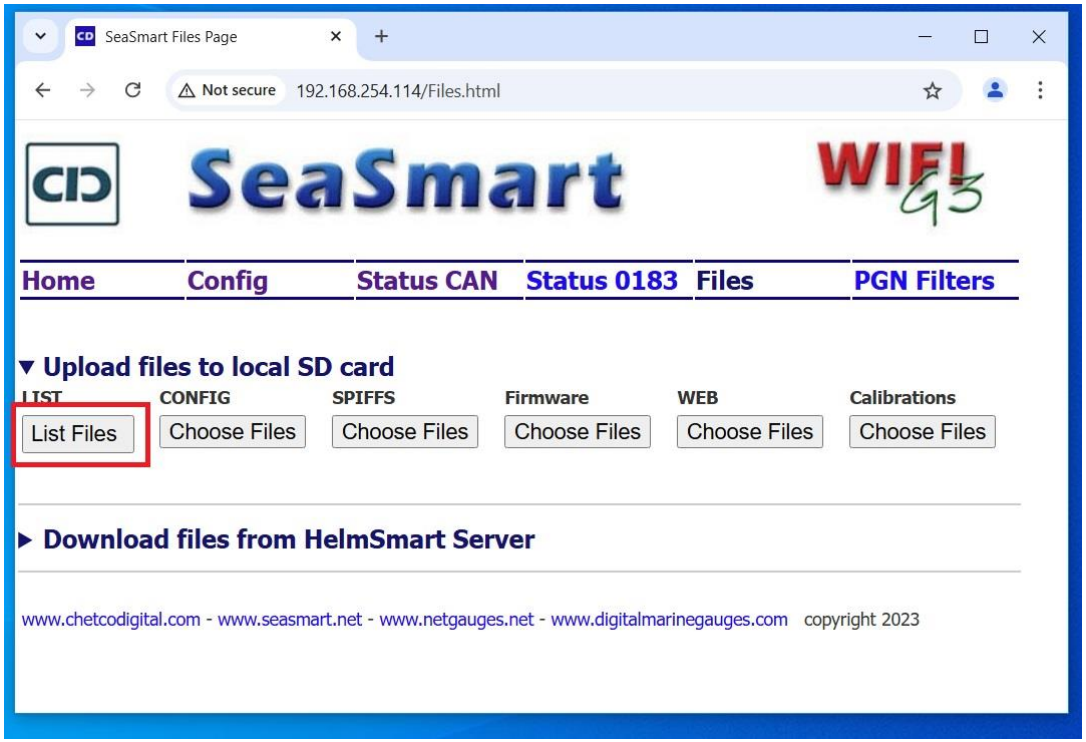
Then use the CHOOSE FILES button under the CONFIG section to select the desired .xml file from the local browser device.



Choose the desired file and OPEN to copy to SD Card

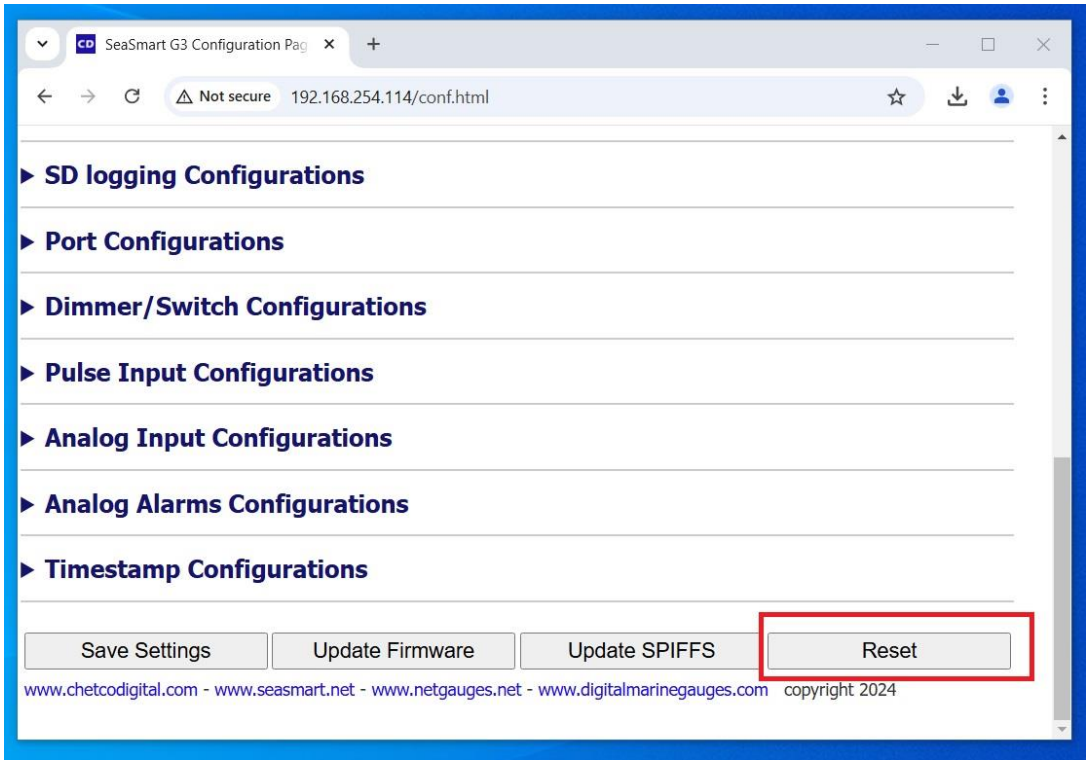


Once copied to SD card, you can go back to the FILES tab and LIST FILES

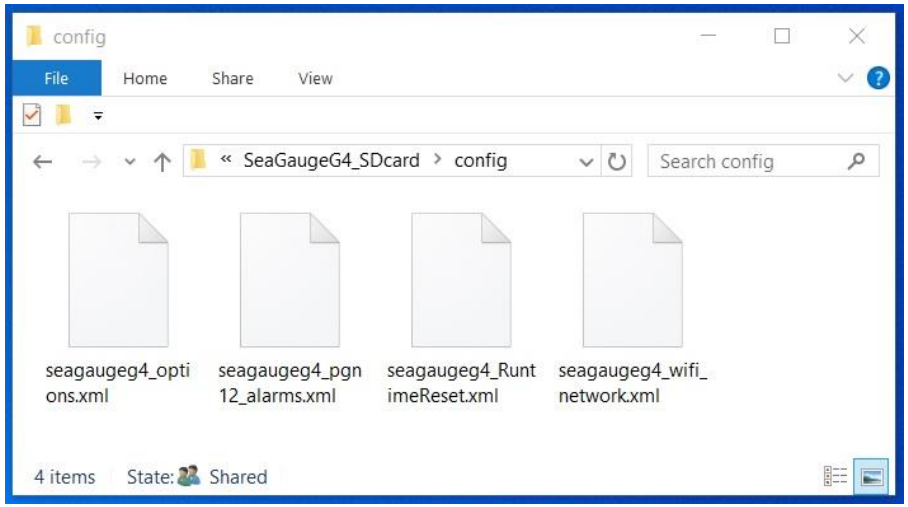


Choose the CONFIG directory

Finally, you will need to reboot so SeaGaugeG4 can read all the .xml files and new changes can take effect



To make configuration management easier, it is better to use a collection of files rather then put everything into one file



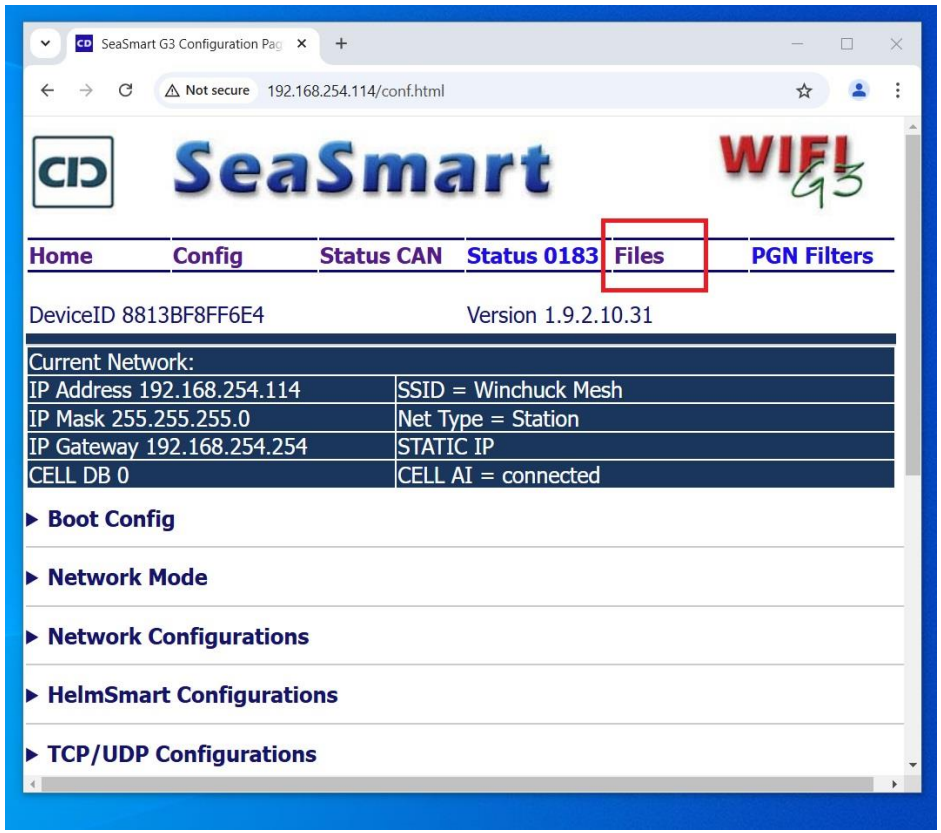
In this example we have four different files used to configure all SeaGaugeG4 functions

- **seagaugeg4_wifi_network.xml** sets up the basic setting to join a local wireless router-based network
- **seagaugeg4_pgn12_alarms.xml** configures the analog sensor inputs and alarms
- **seagaugeg4_RuntimeReset.xml** initializes the pulse and indicator runtime counters
- **seagaugeg4_options.xml** configures SD data logging and HelmSmart Cloud services

You can use any file name as long as it is less then 32 characters and ends in .xml

Files can be written to the internal SD card without needing to open unit and removing card.

Use the FILES tab on the main CONFIGURATION page to access the SeaGaugeG4 file management functions



XML files contain a list of <configitem tags which define the parameter name and value

<configgroup name = "device" >
<configitem name="Device_Name"><value>SeaGauge_WIFI_G4</value></configitem>
<configitem name="CAN_Mode"><value>**2**</value></configitem>
<configitem name="Uart0_Mode"><value>**0**</value></configitem>
<configitem name="Uart1_Mode"><value>**0**</value></configitem>
<configitem name="Uart2_Mode"><value>**4**</value></configitem>
<configitem name="TimeSource"><value>**11**</value></configitem>
</configgroup>

For example: **<configitem name="CAN_Mode"><value>2</value></configitem>**
Where the parameter name is CAN_MODE and parameter value is **2**

It is very important to never change the parameter name – only change the value between the two **<value></value>** tags

You can use available on-line tools that allow format and validation of modified .xml files

The following sections will describe the basic SeaGaugeG4 configuration parameters set using a collection of .xml files

Note: any matching parameter found in .xml files will always overwrite existing stored values.

Sample XML file

network.xml

```
<?xml version="1.0" standalone="yes"?>
<configrecord version="24.12.20">
<configgroup name = "XMLACTION">
<configitem name="LOADXML"><value>1</value></configitem>
<configitem name="Save_NVRAM"><value>1</value></configitem>
</configgroup>
<configgroup name = "DEVICE">
<configitem name="DeviceID"><value>FFFFFFFFFFFF</value></configitem>
<configitem name="VersionInfo"><value>1.9.3.1.25</value></configitem>
</configgroup>
<configgroup name = "Network">
<configitem name="DHCP"><value>0</value></configitem>
<configitem name="IPAddress"><value>192.168.254.114</value></configitem>
<configitem name="SubNet"><value>255.255.255.0</value></configitem>
<configitem name="Gateway"><value>192.168.254.254</value></configitem>
<configitem name="DNS1"><value>8.8.8.8</value></configitem>
<configitem name="DNS2"><value>192.168.254.254</value></configitem>
</configgroup>
<configgroup name = "WIFI">
<configitem name="WiFiType"><value>1</value></configitem>
<configitem name="STASSID"><value>SeaGaugeG4</value></configitem>
<configitem name="STASECTYPE"><value>3</value></configitem>
<configitem name="STASECKEY"><value>seasmartg3</value></configitem>
<configitem name="SAPSSID"><value>SeaGaugeG4-FFFF</value></configitem>
<configitem name="SAPSECTYPE"><value>3</value></configitem>
<configitem name="SAPSECKEY"><value>seasmartg3</value></configitem>
</configgroup>
<configgroup name = "UDP">
<configitem name="UDPEnable"><value>0</value></configitem>
<configitem name="UDPPort"><value>10020</value></configitem>
<configgroup name = "TCP">
<configitem name="TCPEnable"><value>0</value></configitem>
<configitem name="TCPPort"><value>10020</value></configitem>
</configgroup>
<configgroup name = "HTTPPOST">
<configitem name="PostType"><value>0</value></configitem>
<configitem name="PostInterval"><value>1</value></configitem>
</configgroup>

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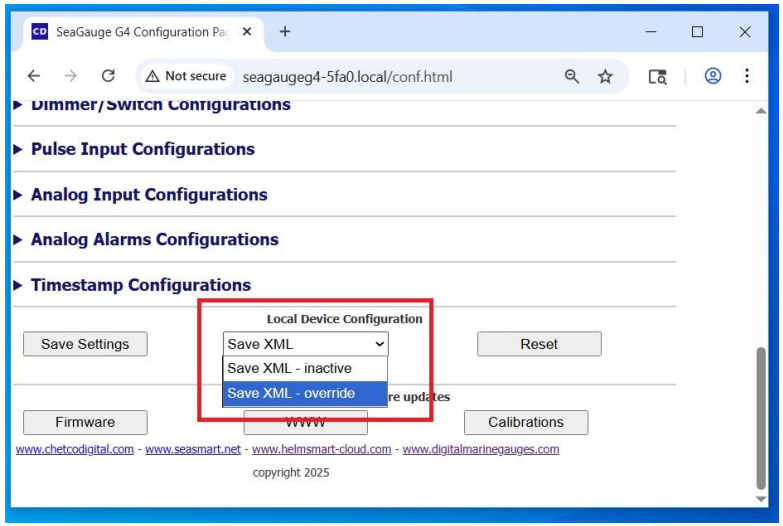
```

Each congifuration.xml file will contain an XMLAction section which determines if the file contents will override existing values on reboot or simply document the current settings when created.

A LOADXML value = 1 will force and override of stored matching stored values.
A SAVE_NVRAM value = 1 will force SeaGaugeG4 to store modified xml vales in NVRAM

```
<configgroup name = "XMLACTION">
 <configitem name="LOADXML"><value>1</value></configitem>
 <configitem name="Save_NVRAM"><value>1</value></configitem>
 </configgroup>
<configgroup name = "DEVICE">
 <configitem name="DeviceID"><value>FFFFFFFFFFFF</value></configitem>
 <configitem name="VersionInfo"><value>1.9.3.1.25</value></configitem>
 </configgroup>
```

The Save XML – override option on the configuration page will set these vales to 1 on all stored .xml files

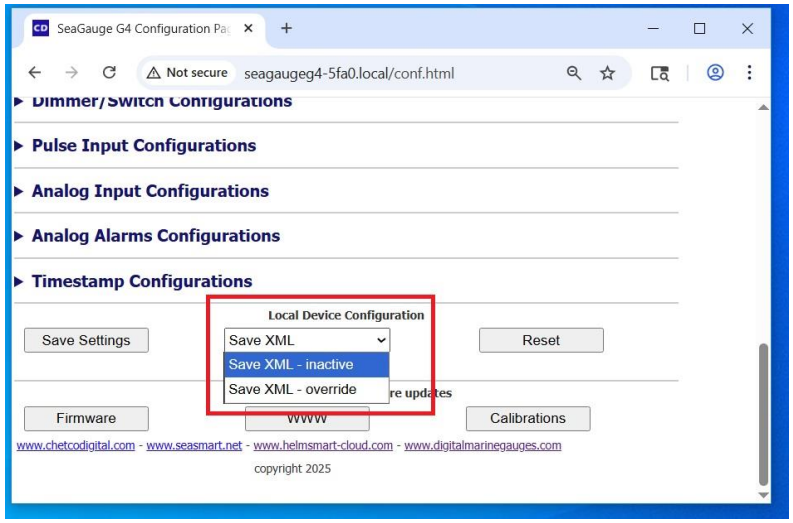


Each congifuration.xml file will contain an XMLAction section which determines if the file contents will override existing values on reboot or simply document the current settings when created.

A LOADXML value = 0 will force SeaGaugeG4 to ignore parameters from the xml file
A SaveNVRAM value = 0 will not store xml values

```
<configgroup name = "XMLACTION">
 <configitem name="LOADXML"><value>0</value></configitem>
 <configitem name="Save_NVRAM"><value>0</value></configitem>
</configgroup>
<configgroup name = "DEVICE">
 <configitem name="DeviceID"><value>FFFFFFFFFFFF</value></configitem>
 <configitem name="VersionInfo"><value>1.9.3.1.25</value></configitem>
</configgroup>
```

The Save XML – inactive option on the configuration page will set these values to 0 on all stored .xml files



The Save XML options allow creating a snapshot of all current configuration parameters which can then be modified and reloaded on the SD card/

By using the SAVE XML – OVERRIDE option, all current settings can be saved to SD card and then used to reconfigure SeaGaugeG4 after a complete firmware update.

This option can also be used to configure parameters like network settings which are not modifiable via user interaction from the config page.

After a SAVE XML – OVERRIDE is selected – no user changes from the configuration page are possible until the XML override is disabled via SAVE XML- INACTIVE option or manual edit of the individual xml files.

NETWORK.XML

Basic default SeaGaugeG4 port settings and station WIFI network configuration.

network.xml

```
<?xml version="1.0" standalone="yes"?>
<configrecord version="24.12.20">
<configgroup name = "XMLACTION">
<configitem name="LOADXML"><value>1</value></configitem>
<configitem name="Save_NVRAM"><value>1</value></configitem>
</configgroup>
<configgroup name = "DEVICE">
<configitem name="DeviceID"><value>FFFFFFFFFFFF</value></configitem>
<configitem name="VersionInfo"><value>1.9.3.1.25</value></configitem>
</configgroup>
<configgroup name = "Network">
<configitem name="DHCP"><value>0</value></configitem>
<configitem name="IPAddress"><value>192.168.254.114</value></configitem>
<configitem name="SubNet"><value>255.255.255.0</value></configitem>
<configitem name="Gateway"><value>192.168.254.254</value></configitem>
<configitem name="DNS1"><value>8.8.8.8</value></configitem>
<configitem name="DNS2"><value>192.168.254.254</value></configitem>
</configgroup>
<configgroup name = "WIFI">
<configitem name="WiFiType"><value>1</value></configitem>
<configitem name="STASSID"><value>SeaGaugeG4</value></configitem>
<configitem name="STASECTYPE"><value>3</value></configitem>
<configitem name="STASECKEY"><value>seasmartg3</value></configitem>
<configitem name="SAPSSID"><value>SeaGaugeG4-FFFF</value></configitem>
<configitem name="SAPSECTYPE"><value>3</value></configitem>
<configitem name="SAPSECKEY"><value>seasmartg3</value></configitem>
</configgroup>
<configgroup name = "UDP">
<configitem name="UDPEnable"><value>0</value></configitem>
<configitem name="UDPPort"><value>10020</value></configitem>
<configgroup name = "TCP">
<configitem name="TCPEnable"><value>0</value></configitem>
<configitem name="TCPPort"><value>10020</value></configitem>
</configgroup>
<configgroup name = "HTTPPOST">
<configitem name="PostType"><value>0</value></configitem>
<configitem name="PostInterval"><value>1</value></configitem>
</configgroup>

```

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<?xml version="1.0" standalone="yes"?>	
<configrecord version="22.10.29">	File version – do not change
<configgroup name = "XMLACTION">	Group name – do not change
<configitem name="LOADXML"><value>1</value></configitem>	When set to 0 - contents of this XML file are ignored on reboot. When set to 1 – this XML file will override corresponding stored values
<configitem name="Save_NVRAM"><value>1</value></configitem>	When set to 1 – the modified XML values are saved in NVRAM
</configgroup>	
<configgroup name = "device" >	Group name – do not change
<configitem name="DeviceID"><value>FFFFFFFFFFFF</value></configitem>	Current DeviceID when XML file was saved
<configitem name="VersionInfo"><value>1.9.3.1.25</value></configitem>	Current FW Version when XML file was saved
</configgroup>	
<configgroup name = "Network">	Configure SeaGaugeG4 network IP interface
<configitem name="DHCP"><value>0</value></configitem>	Enables DHCP mode – only applies in station mode Value(0) disable and use static IP assignment Value(1) enable DHCP and let local router assign IP address and gateway info
<configitem name="IPAddress"><value>192.168.254.114</value></configitem>	The static IP address used when DHCP is disabled
<configitem name="SubNet"><value>255.255.255.0</value></configitem>	The static subnet used when DHCP is disabled
<configitem	The static gateway used when DHCP is

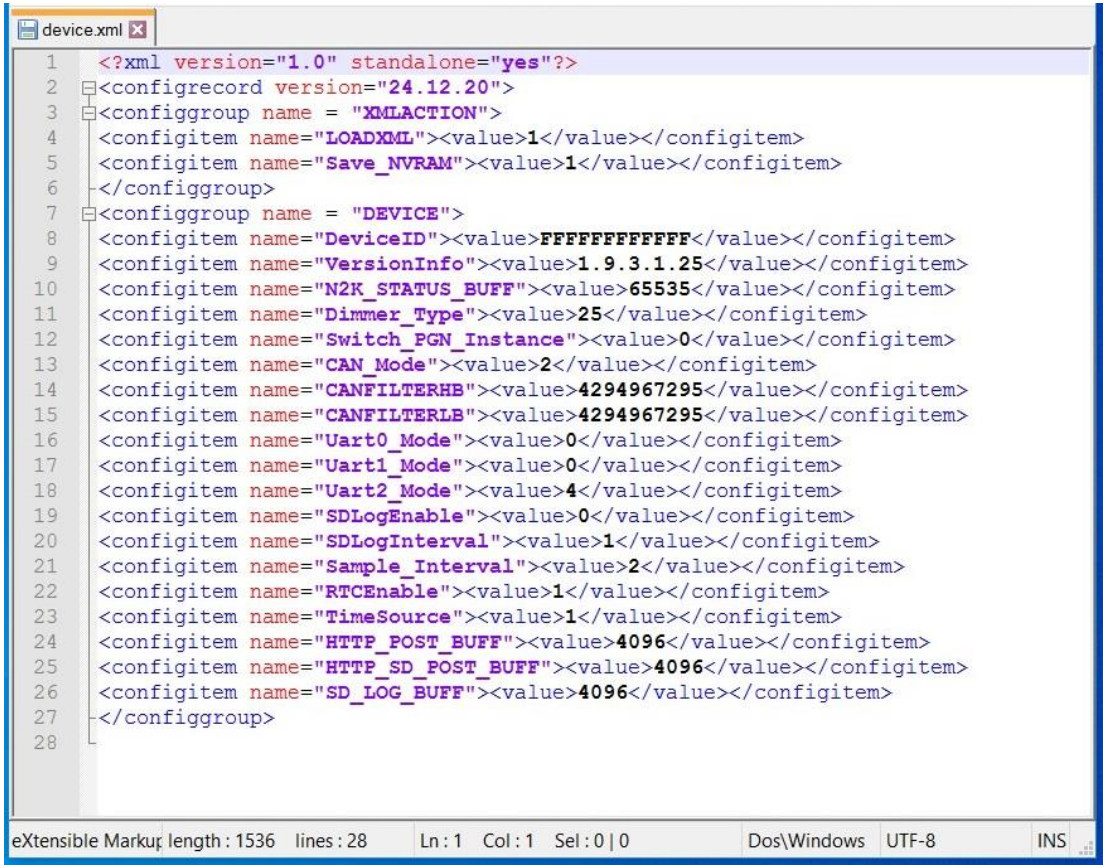
name="Gateway"><value>192.168.254.254</value></configitem>	disabled
<configitem name="DNS1"><value>8.8.8.8</value></configitem>	The static DNS1 used when DHCP is disabled
<configitem name="DNS2"><value>192.168.254.254</value></configitem>	The static DNS2 used when DHCP is disabled
</configgroup>	
<configgroup name = "WiFi">	Physical Nework COnfiguration
<configitem name="Factory"><value>2</value></configitem>	Enables Factory reset to default values Value(0) Normal boot using stored memory values Value(1) Factory reboot using default values – AP WIFI mode Value(2) Use values from XML files on SD card
<configitem name="WiFiType"><value>1</value></configitem>	Sets the network interface Value(0) Ethernet – requires a internal module Value(1) Station mode – connects to local WIFI network using supplied SSID and password Value(2) AP mode – standalone separate WIFI network with no internet access
<configitem name="STASSID"><value>SeaGaugeG4 WIFI</value></configitem>	The SSID of the local network to connect to when in station mode
<configitem name="STASECTYPE"><value>3</value></configitem>	The password protocol top use when connection in station mode. Default value(3) is WPA2
<configitem name="STASECKEY"><value>seagaugeg4</value></configitem>	The WPA2 password to use in station mode
<configitem name="SAPSSID"><value></value></configitem>	The SSID to use when in AP mode – do not change default

<configitem name="SAPSECTYPE"><value>3</value></configitem>	The password protocol to use in AP mode – do not change default
<configitem name="SAPSECKEY"><value>seasmartg3</value></configitem>	The password to use when connecting in AP mode. This value can be changed.
</configgroup>	
<configgroup name = "UDP">	
<configitem name="UDPEnable"><value>0</value></configitem>	Enables UDP broadcast of PushSmart protocol on selected port number 0= disabled 1= 1 second interval 2 = 2 second interval 3 = 5 second interval 4 = 10 second interval 5 = 30 second interval 6 – 60 second interval
<configitem name="UDPPort"><value>10020</value></configitem>	UPD Port to broadcast on
<configgroup name = "TCP">	
<configitem name="TCPEnable"><value>0</value></configitem>	Enables TCP connection of PushSmart protocol on selected port number 0= disabled 1= 1 second interval 2 = 2 second interval 3 = 5 second interval 4 = 10 second interval 5 = 30 second interval 6 – 60 second interval
<configitem name="TCPPort"><value>10020</value></configitem>	TCP Port to connect on
</configgroup>	
<configgroup name = "HTTPPOST">	
<configitem name="PostType"><value>0</value></configitem>	Enable/Disable HelmSmart services

	Value(0) disable updates to HelmSmart Value(1) Enable HelmSmart updates – must be connected to internet Value(2) not available on SeaGaugeG4 Value(3) Enable HelmSmart updates and retry each post if network fails. Can slow other SeaGaugeG4 functions Value(4) not available for SeaGaugeG4
<configitem name="PostInterval"><value>1</value></configitem>	HelmSmart Post interval in minutes
</configrecord>	

DEVICE.XML

Shows example of device configuration for NMEA 2000 and NMEA 0183.



<?xml version="1.0" standalone="yes"?>	
<configrecord version="22.10.29">	File version – do not change
<configgroup name = "XMLACTION">	
<configitem name="LOADXML"><value>1</value></configitem>	When set to 0 - contents of this XML file are ignored on reboot. When set to 1 – this XML file will override corresponding stored values
<configitem name="Save_NVRAM"><value>1</value></configitem>	When set to 1 – the modified XML values are saved in NVRAM
</configgroup>	
<configgroup name = "DEVICE">	Group name – do not change
<configitem name="DeviceID"><value>FFFFFFFFFFFF</value></configitem>	Current DeviceID when XML file was saved
<configitem name="VersionInfo"><value>1.9.3.1.24</value></configitem>	Current FW Version when XML file was saved
<configitem name="N2K_STATUS_BUFF"><value>65535</value></configitem>	Size of data buffer returned by embedded web server to update dashboards Default value is 65535 (0xFFFF) which uses internal variable buffer size based on actual CAN data recievd. Other values from 1024 to 4096 (max) can be specified for fixed sized bugffers.
<configitem name="Dimmer_Type"><value>25</value></configitem>	Must be set to 25 for SeaGaugeG4 to enable the 4 switch diver outputs.
<configitem name="Switch_PGN_Instance"><value>0</value></configitem>	The CAN/NMEA2000 switch instance used for PGN127501 and PGN127502”

<configitem name="CAN_Mode"><value>2</value></configitem>	CAN BUS MODE 0 = disabled 1= J939 protocol only (no auto address) 2 = NMEA 2000 device instance 0 3= NMEA 2000 device instance 1 4 = NMEA 2000 device instance 2 5 = NMEA 2000 device instance 3
<configitem name="CANFILTERHB"><value>4294967295</value></configitem>	High byte of CAN Message filter – Bit Ored value
<configitem name="CANFILTERLB"><value>4294967295</value></configitem>	Low byte of CAN Message filter – Bit Ored value
<configitem name="Uart0_Mode"><value>0</value></configitem>	Sets mode of the USB port data 0 = DEBUG Messages disabled 1 = DEBUG Messages enabled 2= PushSmart Protocol 3 = RAW N2K protocol 4= NMEA 0183 data if present on RS232 inputs
<configitem name="Uart1_Mode"><value>0</value></configitem>	SeaGaugeG4 does not support UART1 = default =0
<configitem name="Uart2_Mode"><value>4</value></configitem>	Mode for external RS232 port 0=disabled 1=debug messages at 57600 baud 2=PushSmart protocol at 57600 baud 3=not supported for SeaGaugeG4 3=NMEA 0183 messages at 4800 baud
<configitem name="SDLogEnable"><value>0</value></configitem>	Enables logging sensor data to internal SD card

	Value(0) disable logging Value(1) log data and create new file each second Value(2) log data and create new file each minute Value(3) log data and create new file each hour Value(4) log data and create new file each day Value(5) log data and create new file each month
<configitem name="SDLogInterval"><value>1</value></configitem>	SD logging interval in seconds
<configitem name="Sample_Interval"><value>2</value></configitem>	Analog sensor sample interval in 0.5 seconds 1 = 0.5 seconds 2= 1 seconds 4 = 2 seconds
<configitem name="RTCEnable"><value>1</value></configitem>	Enable internal battery backed clock
<configitem name="TimeSource"><value>1</value></configitem>	Source used to synchronize the internal RTC clock 0 = disable 1 = Network Time (NTP) if available on local WIFI or Ethernet network (does not work for AP mode) 2= GPS from CAN/RS232 inputs 8 = Time PGNs from other SeaGauge/SeaSmart devices 9= GNSS PGNS from CAN bus 10 = Time sync from HELMSMART cloud services 11 – use internal battery backed RTC time

<configitem name="HTTP_POST_BUFF"><value>4096</value></configitem>	Size of data buffer used for HELMSMART uploads MAX = 4096 bytes
<configitem name="HTTP_SD_POST_BUFF"><value>4096</value></configitem>	Size of cache buffer used to store data to SD card when a HelmSmart post operation fails due to network interruption MAX = 4096 bytes
<configitem name="SD_LOG_BUFF"><value>4096</value></configitem>	Size of data buffer written on each SD log event MAX = 4096 bytes
</configgroup>	
<	

SEAGAUGEG4_PGNS_ALARMS.XML - SeaGaugeG4 sensor input configuration and alarms setup

```
<?xml version="1.0" standalone="yes"?>
<configrecord version="24.12.20">
<configgroup name = "XMLACTION">
 <configitem name="LOADXML"><value>1</value></configitem>
 <configitem name="Save_NVRAM"><value>1</value></configitem>
</configgroup>
<configgroup name = "DEVICE">
 <configitem name="DeviceID"><value>FFFFFFFFFFFF</value></configitem>
 <configitem name="VersionInfo"><value>1.9.3.1.24</value></configitem>
</configgroup>
<configgroup name = "N2KPGNLists">
 <configitem name="N2KPGN00"><value>0x01F214,0x00,0x00,0xFFFFFFFF</value></configitem>
 <configitem name="N2KPGN01"><value>0x01F211,0x00,0x00,0xFFFFFFFF</value></configitem>
 <configitem name="N2KPGN02"><value>0x01F201,0x00,0x02,0xFFFFFFFF</value></configitem>
 <configitem name="N2KPGN03"><value>0x01F201,0x00,0x00,0xFFFFFFFF</value></configitem>
 <configitem name="N2KPGN04"><value>0x01F201,0x01,0x00,0xFFFFFFFF</value></configitem>
 <configitem name="N2KPGN05"><value>0x01F201,0x01,0x02,0xFFFFFFFF</value></configitem>
 <configitem name="N2KPGN06"><value>0x01F211,0x01,0x00,0xFFFFFFFF</value></configitem>
 <configitem name="N2KPGN07"><value>0x01F214,0x01,0x00,0xFFFFFFFF</value></configitem>
 <configitem name="N2KPGN08"><value>0x01F205,0x00,0x00,0xFFFFFFFF</value></configitem>
 <configitem name="N2KPGN09"><value>0x01F205,0x00,0x01,0xFFFFFFFF</value></configitem>
 <configitem name="N2KPGN10"><value>0x01F205,0x01,0x01,0xFFFFFFFF</value></configitem>
 <configitem name="N2KPGN11"><value>0x01F205,0x01,0x00,0xFFFFFFFF</value></configitem>
</configgroup>
<configgroup name = "N2KCalibrationTables">
 <configitem name="N2KCAL00"><value>ALT_VOLTS_36MAX.xml</value></configitem>
 <configitem name="N2KCAL01"><value>FUEL_180to10.xml</value></configitem>
 <configitem name="N2KCAL02"><value>VDO_ENG_TEMP_250F.xml</value></configitem>
 <configitem name="N2KCAL03"><value>VDO_PSI_150MAX.xml</value></configitem>
 <configitem name="N2KCAL04"><value>VDO_PSI_150MAX.xml</value></configitem>
 <configitem name="N2KCAL05"><value>VDO_ENG_TEMP_250F.xml</value></configitem>
 <configitem name="N2KCAL06"><value>FUEL_180to10.xml</value></configitem>
 <configitem name="N2KCAL07"><value>ALT_VOLTS_36MAX.xml</value></configitem>
 <configitem name="N2KCAL08"><value>VDO_PSI_400MAX.xml</value></configitem>
 <configitem name="N2KCAL09"><value>VDO_TRAN_TEMP_200C.xml</value></configitem>
 <configitem name="N2KCAL10"><value>VDO_TRAN_TEMP_200C.xml</value></configitem>
 <configitem name="N2KCAL11"><value>VDO_PSI_400MAX.xml</value></configitem>
</configgroup>
<configgroup name = "ADCAlarms">
 <configitem name="ADCALARM00"><value>0x00,0x0000,0xFFFF,0x04,0x00</value></configitem>
 <configitem name="ADCALARM01"><value>0x00,0x0000,0xFFFF,0x04,0x00</value></configitem>
 <configitem name="ADCALARM02"><value>0x00,0x0000,0xFFFF,0x04,0x00</value></configitem>
 <configitem name="ADCALARM03"><value>0x00,0x0000,0xFFFF,0x04,0x00</value></configitem>
 <configitem name="ADCALARM04"><value>0x00,0x0000,0xFFFF,0x04,0x00</value></configitem>
 <configitem name="ADCALARM05"><value>0x00,0x0000,0xFFFF,0x04,0x00</value></configitem>
 <configitem name="ADCALARM06"><value>0x00,0x0000,0xFFFF,0x04,0x00</value></configitem>
 <configitem name="ADCALARM07"><value>0x00,0x0000,0xFFFF,0x04,0x00</value></configitem>
 <configitem name="ADCALARM08"><value>0x00,0x0000,0xFFFF,0x04,0x00</value></configitem>
 <configitem name="ADCALARM09"><value>0x00,0x0000,0xFFFF,0x04,0x00</value></configitem>
 <configitem name="ADCALARM10"><value>0x00,0x0000,0xFFFF,0x04,0x00</value></configitem>
 <configitem name="ADCALARM11"><value>0x00,0x0000,0xFFFF,0x04,0x00</value></configitem>
 <configitem name="ADCALARM12"><value>0x00,0x0000,0xFFFF,0x04,0x00</value></configitem>
 <configitem name="ADCALARM13"><value>0x00,0x0000,0xFFFF,0x04,0x00</value></configitem>
 <configitem name="ADCALARM14"><value>0x00,0x0000,0xFFFF,0x04,0x00</value></configitem>
 <configitem name="ADCALARM15"><value>0x00,0x0000,0xFFFF,0x04,0x00</value></configitem>
 <configitem name="ADCALARM16"><value>0x00,0x0000,0xFFFF,0x04,0x00</value></configitem>
 <configitem name="ADCALARM17"><value>0x00,0x0000,0xFFFF,0x04,0x00</value></configitem>
 <configitem name="ADCALARM18"><value>0x00,0x0000,0xFFFF,0x04,0x00</value></configitem>
 <configitem name="ADCALARM19"><value>0x00,0x0000,0xFFFF,0x04,0x00</value></configitem>
</configgroup>
</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 a 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

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

<?xml version="1.0" standalone="yes"?>	
<configrecord version="24.12.20">	File version – do not change
<configgroup name = "XMLACTION">	
<configitem name="LOADXML"><value>1</value></configitem>	When set to 0 - contents of this XML file are ignored on reboot. When set to 1 – this XML file will override corresponding stored values
<configitem name="Save_NVRAM"><value>1</value></configitem>	When set to 1 – the modified XML values are saved in NVRAM
</configgroup>	
<configgroup name = "DEVICE">	Group name – do not change
<configitem name="DeviceID"><value>FFFFFFFFFFFF</value></configitem>	Current DeviceID when XML file was saved
<configitem name="VersionInfo"><value>1.9.3.1.24</value></configitem>	Current FW Version when XML file was saved
</configgroup>	
<configgroup name = "N2KPGNLists">	Defines the PGN parameters to use for each sensor channel
<configitem name="N2KPGN00"><value>0x01F214,0x00,0x00,0xFFFFFFFF</value></configitem>	PGN number, Instance, parameter index, set value
<configitem name="N2KPGN01"><value>0x01F211,0x00,0x00,0xFFFFFFFF</value></configitem>	PGN number, Instance, parameter index, set value
<configitem name="N2KPGN02"><value>0x01F201,0x00,0x02,0xFFFFFFFF</value></configitem>	PGN number, Instance, parameter index, set value

<configitem name="N2KPGN03"><value>0x01F201,0x00,0x00,0xFFFFFFFF</value></configitem>	PGN number, Instance, parameter index, set value
<configitem name="N2KPGN04"><value>0x01F201,0x01,0x00,0xFFFFFFFF</value></configitem>	PGN number, Instance, parameter index, set value
<configitem name="N2KPGN05"><value>0x01F201,0x01,0x02,0xFFFFFFFF</value></configitem>	PGN number, Instance, parameter index, set value
<configitem name="N2KPGN06"><value>0x01F211,0x01,0x00,0xFFFFFFFF</value></configitem>	PGN number, Instance, parameter index, set value
<configitem name="N2KPGN07"><value>0x01F214,0x01,0x00,0xFFFFFFFF</value></configitem>	PGN number, Instance, parameter index, set value
<configitem name="N2KPGN08"><value>0x01F205,0x00,0x00,0xFFFFFFFF</value></configitem>	PGN number, Instance, parameter index, set value
<configitem name="N2KPGN09"><value>0x01F205,0x00,0x01,0xFFFFFFFF</value></configitem>	PGN number, Instance, parameter index, set value
<configitem name="N2KPGN10"><value>0x01F205,0x01,0x00,0xFFFFFFFF</value></configitem>	PGN number, Instance, parameter index, set value
<configitem name="N2KPGN11"><value>0x01F205,0x01,0x01,0xFFFFFFFF</value></configitem>	PGN number, Instance, parameter index, set value
</configgroup>	
<configgroup name = "N2KCalibrationTables">	Defines the names of the calibration files stored on internal SD card to use for each

	sensor input channel
<configitem name="N2KCAL00"><value>ALT_VOLTS_36MAX.xml</value></configitem>	SD card Calibration file name
<configitem name="N2KCAL01"><value>FUEL_180to10.xml</value></configitem>	SD card Calibration file name
<configitem name="N2KCAL02"><value>VDO_TEMP_250FMAX.xml</value></configitem>	SD card Calibration file name
<configitem name="N2KCAL03"><value>VDO_PSI_150MAX.xml</value></configitem>	SD card Calibration file name
<configitem name="N2KCAL04"><value>VDO_PSI_150MAX.xml</value></configitem>	SD card Calibration file name
<configitem name="N2KCAL05"><value>VDO_TEMP_250FMAX.xml</value></configitem>	SD card Calibration file name
<configitem name="N2KCAL06"><value>FUEL_180to10.xml</value></configitem>	SD card Calibration file name
<configitem name="N2KCAL07"><value>ALT_VOLTS_36MAX.xml</value></configitem>	SD card Calibration file name
<configitem name="N2KCAL08"><value>VDO_TEMP_400FMAX.xml</value></configitem>	SD card Calibration file name
<configitem name="N2KCAL09"><value>VDO_PSI_400MAX.xml</value></configitem>	SD card Calibration file name
<configitem	SD card Calibration file name

name="N2KCAL10"><value>VDO_TEMP_400FMAX.xml</value></configitem>	
<configitem name="N2KCAL11"><value>VDO_PSI_400MAX.xml</value></configitem>	SD card Calibration file name
</configgroup>	
<configgroup name = "ADCAlarms">	Defines the alarm configuration parameters to use for sensor inputs, pulse inputs, and indicator inputs
<configitem name="ADCALARM00"><value>0x09,0x0000,0x01F4,0x00,0x05</value></configitem>	Mode index, Low, High, action index, message index
<configitem name="ADCALARM01"><value>0x00,0x0000,0xFFFF,0x04,0x00</value></configitem>	Mode index, Low, High, action index, message index
<configitem name="ADCALARM02"><value>0x06,0x0000,0x0DFC,0x01,0x02</value></configitem>	Mode index, Low, High, action index, message index
<configitem name="ADCALARM03"><value>0x02,0x02B1,0xFFFF,0x01,0x03</value></configitem>	Mode index, Low, High, action index, message index
<configitem name="ADCALARM04"><value>0x02,0x02B1,0xFFFF,0x02,0x0C</value></configitem>	Mode index, Low, High, action index, message index
<configitem name="ADCALARM05"><value>0x06,0x0000,0x0DFC,0x02,0x0B</value></configitem>	Mode index, Low, High, action index, message index
<configitem name="ADCALARM06"><value>0x00,0x0000,0xFFFF,0x04,0x00</value></configitem>	Mode index, Low, High, action index, message index

<configitem name="ADCALARM07"><value>0x00,0x01F4,0xFFFF,0x04,0x0D</value></configitem>	Mode index, Low, High, action index, message index
<configitem name="ADCALARM08"><value>0x00,0x0000,0xFFFF,0x04,0x00</value></configitem>	Mode index, Low, High, action index, message index
<configitem name="ADCALARM09"><value>0x00,0x0000,0xFFFF,0x04,0x00</value></configitem>	Mode index, Low, High, action index, message index
<configitem name="ADCALARM10"><value>0x00,0x0000,0xFFFF,0x04,0x00</value></configitem>	Mode index, Low, High, action index, message index
<configitem name="ADCALARM11"><value>0x00,0x0000,0xFFFF,0x04,0x00</value></configitem>	Mode index, Low, High, action index, message index
<configitem name="ADCALARM12"><value>0x00,0x0000,0xFFFF,0x04,0x00</value></configitem>	Mode index, Low, High, action index, message index
<configitem name="ADCALARM13"><value>0x00,0x0000,0xFFFF,0x04,0x00</value></configitem>	Mode index, Low, High, action index, message index
<configitem name="ADCALARM14"><value>0x00,0x0000,0xFFFF,0x04,0x00</value></configitem>	Mode index, Low, High, action index, message index
<configitem name="ADCALARM15"><value>0x00,0x0000,0xFFFF,0x04,0x00</value></configitem>	Mode index, Low, High, action index, message index
<configitem name="ADCALARM16"><value>0x04,0x0000,0x0001,0x04,0x01</value></configitem>	Mode index, Low, High, action index, message index

<configitem name="ADCALARM17"><value>0x00,0x0000,0xFFFF,0x04,0x00</value></configitem>	Mode index, Low, High, action index, message index
<configitem name="ADCALARM18"><value>0x00,0x0000,0xFFFF,0x04,0x00</value></configitem>	Mode index, Low, High, action index, message index
<configitem name="ADCALARM19"><value>0x00,0x0000,0xFFFF,0x04,0x00</value></configitem>	Mode index, Low, High, action index, message index
</configgroup>	
</configrecord>	
<?xml version="1.0" standalone="yes"?>	
<configrecord version="22.10.29">	

Alarm Mode table

Value	Mode
0	Disabled
1	Equal to Low
2	Less then Low
3	Greater then Low
4	Equal to High
5	Less then High
6	Greater then High
7	Less the Low and Greater then High
8	Greater then Low and Less then High
9	Latch when greater then High
10	Latch when less then Low

Alarm Action table

Value	Action
0	Disabled
1	Set PIO7<
2	Set PIO6<
3	Set PIO5<
4	Set PIO4<

Alarm messages are CAN bus PGNs sent when alarm is active – used by NMEA2000 MFDs

Alarm Message table

Value	Message
0	Disabled
1	Port Eng Check – PGN127489 – Instance 0
2	Port Eng Temp Check – PGN127489 – Instance 0
3	Port Eng Oil Check – PGN127489 – Instance 0
4	Port Fuel Pressur Check – PGN127489 – Instance 0
5	Port Alt Volts Check – PGN127489 – Instance 0
6	Port EGT Check – PGN127489 – Instance 0
7	Port Fuel Flow Check – PGN127489 – Instance 0
8	Port Tran Oil Check – PGN127489 – Instance 0
9	Port Tran Temp Check – PGN127489 – Instance 1
10	Stbd Eng Check – PGN127489 – Instance 1
11	Stbd Eng Temp Check – PGN127489 – Instance 1
12	Stbd Eng Oil Check – PGN127489 – Instance 1
13	Stbd Fuel Pressur Check – PGN127489 – Instance 1
14	Stbd Alt Volts Check – PGN127489 – Instance 1
15	Stbd EGT Check – PGN127489 – Instance 1
16	Stbd Fuel Flow Check – PGN127489 – Instance 1
17	Stbd Tran Oil Check – PGN127489 – Instance 1
18	Stbd Tran Temp Check – PGN127489 – Instance 1
19	Cntr Eng Check – PGN127489 – Instance 2
20	Cntr Eng Temp Check – PGN127489 – Instance 2
21	Cntr Eng Oil Check – PGN127489 – Instance 2
22	Cntr Fuel Pressur Check – PGN127489 – Instance 2
	Cntr Alt Volts Check – PGN127489 – Instance 2

	Cntr EGT Check – PGN127489 – Instance 2
	Cntr Fuel Flow Check – PGN127489 – Instance 2
	Cntr Tran Oil Check – PGN127489 – Instance 2
	Cntr Tran Temp Check – PGN127489 – Instance 2

RUNTIME_RESETS.XML

Example of resetting indicator and pulse runtimes.

Delete any lines not being used for reset and be sure to remove file from SD card when done to avoid constant reset when rebooted

Can also use **SAVE XML – Inactive** to disable resets

runtime_resets.xml

```
<?xml version="1.0" standalone="yes"?>
<configrecord version="24.12.20">
<configgroup name = "XMLACTION">
<configitem name="LOADXML"><value>1</value></configitem>
<configitem name="Save_NVRAM"><value>1</value></configitem>
</configgroup>
<configgroup name = "DEVICE">
<configitem name="DeviceID"><value>FFFFFFFFFFFF</value></configitem>
<configitem name="VersionInfo"><value>1.9.3.1.25</value></configitem>
</configgroup>
<configgroup name = "RuntimePulse">
<configitem name="PulseRTTotal00"><value>2210400</value></configitem>
<configitem name="PulseRTTotal01"><value>2275200</value></configitem>
<configitem name="PulseRTTotal02"><value>0</value></configitem>
<configitem name="FuelRTTotal00"><value>0</value></configitem>
<configitem name="FuelRTTotal01"><value>0</value></configitem>
<configitem name="FuelRTTotal02"><value>0</value></configitem>
<configgroup name = "RuntimePIO">
<configitem name="PIORTTotal00"><value>0</value></configitem>
<configitem name="PIORTTotal01"><value>0</value></configitem>
<configitem name="PIORTTotal02"><value>0</value></configitem>
<configitem name="PIORTTotal03"><value>0</value></configitem>
<configitem name="PIOCycle00"><value>0</value></configitem>
<configitem name="PIOCycle01"><value>0</value></configitem>
<configitem name="PIOCycle02"><value>0</value></configitem>
<configitem name="PIOCycle03"><value>0</value></configitem>
</configgroup>

eXtensibl length : 1415  lines : 28  Ln : 1  Col : 1  Sel : 0 | 0  Dos\Windows  UTF-8  INS
```

<?xml version="1.0" standalone="yes"?>	
<configrecord version="22.10.29">	File version – do not change
<configgroup name = "XMLACTION">	
<configitem name="LOADXML"><value>1</value></configitem>	When set to 0 - contents of this XML file are ignored on reboot. When set to 1 – this XML file will override corresponding stored values
<configitem name="Save_NVRAM"><value>1</value></configitem>	When set to 1 – the modified XML values are saved in NVRAM
</configgroup>	
<configgroup name = "DEVICE">	Group name – do not change
<configitem name="DeviceID"><value>FFFFFFFFFFFF</value></configitem>	Current DeviceID when XML file was saved
<configitem name="VersionInfo"><value>1.9.3.1.24</value></configitem>	Current FW Version when XML file was saved
</configgroup>	
<configgroup name = "RuntimePulse">	
<configitem name="PulseRTTotal00"><value>0</value></configitem>	Pulse0 run-time reset in seconds
<configitem name="PulseRTTotal01"><value>0</value></configitem>	Pulse1 run-time reset in seconds
<configitem name="PulseRTTotal02"><value>0</value></configitem>	Pulse1 run-time reset in seconds
<configitem name="FuelRTTotal00"><value>0</value></configitem>	Fuel used 0 total reset in liters
<configitem	Fuel used 1 total reset in liters

name="FuelRTTotal01"><value>0</value></configitem>	
<configitem name="FuelRTTotal02"><value>0</value></configitem>	Fuel used 2 total reset in liters
<configgroup name = "RuntimePIO">	
<configitem name="PIORTTotal00"><value>0</value></configitem>	Indicator PIO0 run-time reset in seconds
<configitem name="PIORTTotal01"><value>0</value></configitem>	Indicator PIO1 run-time reset in seconds
<configitem name="PIORTTotal02"><value>0</value></configitem>	Indicator PIO2 run-time reset in seconds
<configitem name="PIORTTotal03"><value>0</value></configitem>	Indicator PIO3 run-time reset in seconds
<configitem name="PIOCycle00"><value>0</value></configitem>	Indicator PIO0 cycle count reset
<configitem name="PIOCycle01"><value>0</value></configitem>	Indicator PIO1 cycle count reset
<configitem name="PIOCycle02"><value>0</value></configitem>	Indicator PIO2 cycle count reset
<configitem name="PIOCycle03"><value>0</value></configitem>	Indicator PIO3 cycle count reset
</configgroup>	
</configrecord>	

The following table summarizes the types of pulse connections that are used for the selected Pulse Modes.

Pulse Mode	Index	Pulse 0	Pulse 1	Pulse 2
Disabled	0	-	-	-
PORT RPM	1	P Tach	-	-
STBD RPM	2	S Tach	-	-
CNTER RPM	3	C Tach	-	-
DUAL RPM	4	P Tach	S Tach	-
PORT DUAL FUEL FLOW	5	-	Supply FLOW	Return Flow
STBD DUAL FUEL FLOW	6	-	Supply FLOW	Return Flow
CNTR DUAL FUEL FLOW	7	-	Supply FLOW	Return Flow
PORT RPM-FUEL FLOW	8	P Tach	Supply FLOW	-
STBD RPM-FUEL FLOW	9	S Tach	Supply FLOW	-
CNTR RPM-FUEL FLOW	10	S Tach	Supply FLOW	-
TRIPLE RPM	11	P Tach	S Tach	C Tach*
PORT RPM-DUEL FUEL FLOW	12	P Tach	Supply FLOW	Return Flow
STBD RPM-DUEL FUEL FLOW	13	S Tach	Supply FLOW	Return Flow
CNTR RPM-DUEL FUEL FLOW	14	S Tach	Supply FLOW	Return Flow

* Must be a Hall Effect type of sensor

PULSE.XML

Shows example of device configuration for Dual RPM (PORT/STBD).

pulse.xml

```
<?xml version="1.0" standalone="yes"?>
<configrecord version="24.12.20">
<configgroup name = "XMLACTION">
<configitem name="LOADXML"><value>1</value></configitem>
<configitem name="Save_NVRAM"><value>1</value></configitem>
</configgroup>
<configgroup name = "DEVICE">
<configitem name="DeviceID"><value>FFFFFFFFFFFF</value></configitem>
<configitem name="VersionInfo"><value>1.9.3.1.24</value></configitem>
</configgroup>
<configgroup name = "PULSE">
<configitem name="PulseMode"><value>4</value></configitem>
<configitem name="Pulse0Scale"><value>1500</value></configitem>
<configitem name="Pulse1Scale"><value>1500</value></configitem>
<configitem name="Pulse2Scale"><value>5400</value></configitem>
<configitem name="PulseInterval"><value>1000</value></configitem>
<configitem name="FlowPulseInterval"><value>4000</value></configitem>
<configitem name="Pulse0Filter"><value>0</value></configitem>
<configitem name="Pulse1Filter"><value>0</value></configitem>
<configitem name="Pulse20Filter"><value>0</value></configitem>
</configgroup>

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eXtensible M length : 1061 lines : 22 Ln : 1 Col : 1 Sel : 0 | 0 Dos\Windows UTF-8 INS

<?xml version="1.0" standalone="yes"?>	
<configrecord version="22.10.29">	File version – do not change
<configgroup name = "XMLACTION">	
<configitem name="LOADXML"><value>1</value></configitem>	When set to 0 - contents of this XML file are ignored on reboot. When set to 1 – this XML file will override corresponding stored values
<configitem name="Save_NVRAM"><value>1</value></configitem>	When set to 1 – the modified XML values are saved in NVRAM
</configgroup>	
<configgroup name = "DEVICE">	Group name – do not change
<configitem name="DeviceID"><value>FFFFFFFFFFFF</value></configitem>	Current DeviceID when XML file was saved
<configitem name="VersionInfo"><value>1.9.3.1.24</value></configitem>	Current FW Version when XML file was saved
</configgroup>	
<configgroup name = "PULSE">	
<configitem name="PulseMode"><value>4</value></configitem>	Sets mode for all 3 pulse inputs 0 - disabled 1 -Pulse 0 = Port RPM 2 –Pulse 1 = STBD RPM 3- Pulse 2 = CNTR RPM 4 Pulse0=Port RPM Pulse = Stbd RPM 5- Pulse0=Port RPM Pulse1 = Stbd RPM Pulse2 = Cntr 6 -Puse0=Port RPM Pulse 1 Port Flow Supply 7 -Puse0=Stbd RPM Pulse 1 Stbd Flow Supply 8 -Puse0=Cntr RPM Pulse 1 Cntr Flow Supply 9 -Puse0=Port RPM Pulse 1 Flow Supply Pulse 2

	Return Flow 10 -Puse0=Stbd RPM Pulse 1 Flow Supply Pulse 2 Return Flow 11 -Puse0=Cntr RPM Pulse 1 Flow Supply Pulse 2 Return Flow 12 -Puse1=Port Flow Supply 13 -Puse1=Stbd Flow Supply 14 -Puse1=Cntr Flow Supply 15 -Puse1=Port Flow Supply Pulse 2 Return Flow 16 -Puse1=Stbd Flow Supply Pulse 2 Return Flow 12 -Puse1=Cntr Flow Supply Pulse 2 Return Flow

<configitem name="Pulse0Scale"><value>1500</value></configitem>	Scale factor to use for RPM and fuel flow Defaut for fuel flow sensors od 5400
<configitem name="Pulse1Scale"><value>1500</value></configitem>	Scale factor to use for RPM and fuel flow Defaut for fuel flow sensors od 5400
<configitem name="Pulse2Scale"><value>5400</value></configitem>	Scale factor to use for RPM and fuel flow Defaut for fuel flow sensors od 5400
<configitem name="PulseInterval"><value>1000</value></configitem>	Sample period in msec for RPM calculations
<configitem name="FlowPulseInterval"><value>4000</value></configitem>	Sample period in msec for Flow calculations
<configitem name="Pulse0Filter"><value>0</value></configitem>	Filters applied to Pulse0 0=disabled 1=Soft – Time period 4X interval 2=Medium – 5 point MEDIAN 3=Hard – combines both SOFT and MEDIAN
<configitem name="Pulse1Filter"><value>0</value></configitem>	Filters applied to Pulse1 0=disabled 1=Soft – Time period 4X interval

	2=Medium – 5 point MEDIAN 3=Hard – combines both SOFT and MEDIAN
<configitem name="Pulse2Filter"><value>0</value></configitem>	Filters applied to Pulse2 0=disabled 1=Soft – Time period 4X interval 2=Medium – 5 point MEDIAN 3=Hard – combines both SOFT and MEDIAN
</configgroup>	
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