

Welcome to the Senquip quarterly update. If you would like to be added to the distribution list, please send us a mail at support@senquip.com.

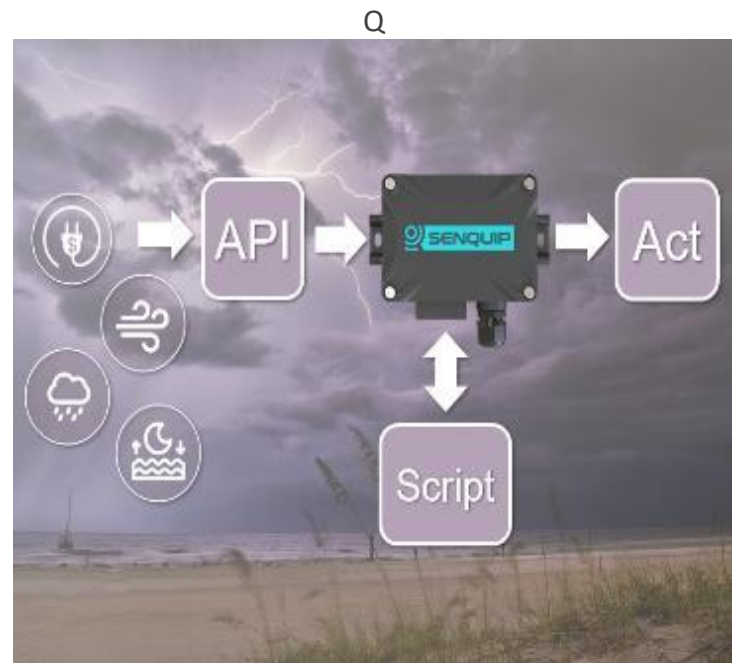
Direct Communication with a Web API

With the addition of the HTTP.query function to the Senquip Scripting language, Senquip devices can now communicate directly with web APIs.

Initial applications include taking action based on spot energy prices, on weather and air quality reports, and retrieving geolocation information such as a physical address from a GPS location.

Senquip has published an [application note](#) on accessing a weather report from the Visual Crossing Weather API.

API functionality on Senquip devices make the resources of the web available locally.



Modbus Extended and Simplified Interface

Senquip has increased the number of Modbus devices that can be addressed by a Senquip device to 50. To facilitate the change, the Senquip Portal has been upgraded with a streamlined Modbus settings page. Multiple register reads of the same type will be added in Q3.

Modbus

Configure up to 20 reads from Modbus RTU slaves in the table below. Select a cell to edit values.

Add Row

ID	Name	Slave Addr...	Function	Register A...	Calibration...	Units	Warning	Alarm
1	X Well Pressure	1	3: Read Unsigned Holding (1...	1	None	kPa	Warning	Alarm
2	X Well Depth	1	3: Read Unsigned Holding (1...	2	None	m	None	None
3	X Well Temperature	1	Read Signed Holding (16-bits)	3	None	oC	Warning	Alarm
4	X Surface Temperature	2	Read IEEE-754 Float Holding ...	13	None	oC	None	None
5	X Dissolved Oxygen	55	Read Unsigned Input (32-bits...	15	0,100,0,1000l	ppm	None	None
6	X Turbidity	55	Read Signed Holding (16-bits)	21	None	%	None	None
7	X pH	55	3: Read Unsigned Holding (1...	13	None		None	None
8	X Surface CO	4	3: Read Unsigned Holding (1...	8	0,100,0,1000l	ppm	Warning	Alarm

More Persistent Variables, Custom Data Parameters, and Trigger Parameters

Persistent variables are stored in non-volatile memory and are used in a script to store variables that must hold their value when the Senquip device goes to sleep, hibernate, or is reset.

Custom Data Parameters are given a name and unit and are used in a script to pass values created in a script into the device data message for transmission. Numbers, strings, and events can be dispatched from within a script and will appear in the Senquip Portal with the names and units associated with the Custom Data Parameter.

Trigger Parameters create a button on the main data page of the Senquip Portal. When a user clicks a button from the device's home page, a command is queued and then sent to the device. When the device receives the command, a trigger call-back function is invoked and can be made to perform a task on the device.

Each Custom Setting creates a setting entry on the main data page of the Senquip device that can be used by an operator to pass a value into a script. The purpose of the setting is up to the user. Settings can either be a number or string type. The visibility, name and units for each custom setting can be modified from the Scripting page.

Senquip has increased the number of persistent variables to 50, Custom Data Parameters to 50, Trigger parameters to 50, Custom Number Settings to 5, and Custom String Settings to 5.

Custom Data Parameters ⚠ Unsaved Changes

<input checked="" type="checkbox"/>	[cp1]	Tank Temperature	deg C	<input type="button" value="x"/>
<input checked="" type="checkbox"/>	[cp2]	Fuel Volume	L	<input type="button" value="x"/>
<input checked="" type="checkbox"/>	[cp3]	Tank Pressure	PSI	<input type="button" value="x"/>
<input checked="" type="checkbox"/>	[cp4]	Fuel Flow	l/m	<input type="button" value="x"/>

[\[Help\]](#)

Trigger Parameters ⚠ Unsaved Changes

<input checked="" type="checkbox"/>	[tp1]	Zero Tank Level	Blue	<input type="button" value="x"/>
<input checked="" type="checkbox"/>	[tp2]	Start Flow	Green	<input type="button" value="x"/>
<input checked="" type="checkbox"/>	[tp3]	Stop Flow	Red	<input type="button" value="x"/>

[\[Help\]](#)

Custom Number Settings ⚠ Unsaved Changes

<input checked="" type="checkbox"/>	[num1]	Max Tank Volume	L	<input type="button" value="x"/>
<input checked="" type="checkbox"/>	[num2]	Max Fuel Flow	l/m	<input type="button" value="x"/>

[\[Help\]](#)

Custom String Settings ⚠ Unsaved Changes

<input checked="" type="checkbox"/>	[str1]	Tank Model Number	<input type="button" value="x"/>
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[\[Help\]](#)

CAN Bus PGN Calculator

CAN ID Calculator Rev 1.0			
		SENQUIP	
Message ID to PGN			
		HEX	DEC
INPUT:	Message ID (HEX)	18ff0404	419365892
		HEX	DEC
OUTPUT:	PGN (DEC)	ff04	65284
	Source Address (DEC)	04	4
	Priority (DEC)	6	6
PGN to Message ID			
		DEC	HEX
INPUT:	PGN (DEC)	65284	FF04
	Source Address (DEC)	4	04
	Priority (DEC)	6	18
		DEC	HEX
OUTPUT:	Message ID (HEX)	419365892	18FF0404

Senquip has released a [CAN calculator](#) to assist with the decode of J1939 messages into PGN, Source Address, and Priority and to simplify the encoding of PGN, Source Address, and Priority into a J1939 message.

The calculator is a simple Excel spreadsheet that can be downloaded from the Senquip website.

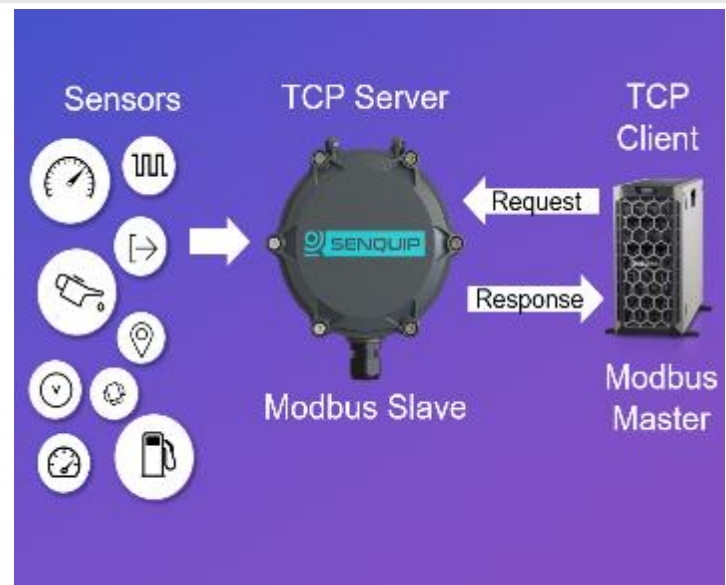
A battery life calculator for Senquip ORBs is also available on the website.

Modbus TCP Implementation

Senquip devices can now host TCP servers with the primary application being Modbus TCP.

All Senquip devices have a Modbus RTU peripheral that works over RS232 or RS485 and which allows Senquip devices to connect to multiple Modbus sensors.

A newly published application note shows how Senquip devices can now host a TCP server, and with a simple script can act as a slave on a Modbus TCP network. This is especially useful as Senquip devices can connect to a multitude of non-Modbus sensors, and can through a script, present the sensor data in a structured way to an external Modbus TCP master.



Interesting sensors: Vibration sensor

The KPV200 is an RS485 Vibration Sensor that performs the vibration calculations (FFT) on the sensor and delivers vibration data over MODBUS as 128 frequency bins.

The frequency range can be selected as 1600Hz, 800Hz, 400Hz, 200Hz, 100Hz, and 50Hz. Maximum g-range can be selected as $\pm 2G$ or $\pm 16G$.

Data from the sensor can be read by a Senquip device and processed within a script to identify changes in frequency spectrum or in the amplitude of a single frequency.

Because the frequency calculations are done on the sensor, high frequency sampling is not required, and a snapshot of the current frequency profile can be taken at a rate suitable for the application.

Applications include equipment health monitoring of ventilation fans, pumps, crushers, conveyors, and mills, and the detection of early signs of wear, misalignment, or imbalance.



Vibration



01-May-23 08:52:22

[mod2]

UL 94 V0 Materials Upgrade



Flame-retardant materials reduce the risk of products catching fire and slow down combustion. UL 94 (Underwriters Laboratories test standard UL 94) is the most widely used flammability test for determining relative flammability for plastic materials. It measures the ability of plastic part to extinguish the flame after ignition.

UL 94 V-0 is one of the highest ratings and specifies that a plastic material must self-extinguish within 10 seconds of ignition and any drips must not ignite. In industrial settings, using materials with higher UL 94 ratings, like V-0 or V-1, is vital to enhance safety and minimize fire propagation risks during incidents.

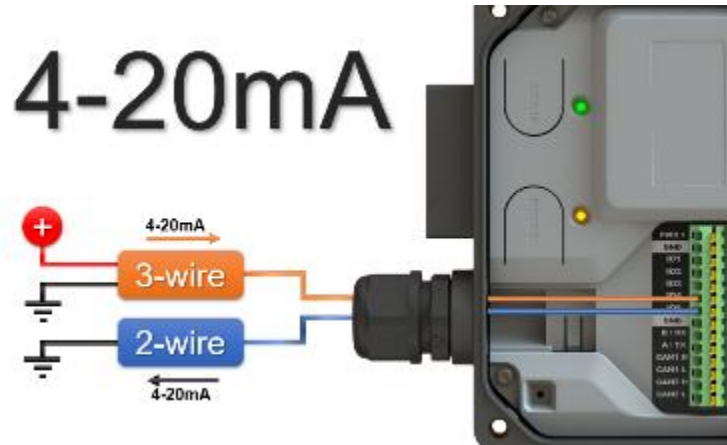
Senquip enclosures have been upgraded to UL 94 V0 material, providing an additional layer of fire safety.

4-20mA Upgrade on ORB and QUAD

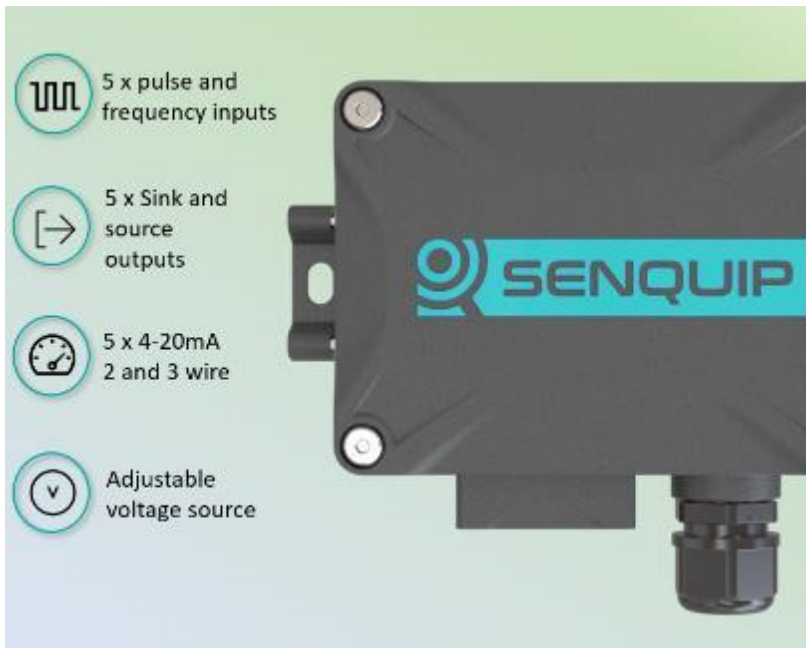
The Senquip QUAD can measure 5 simultaneous 4-20mA sensors in either 2-wire or 3-wire configuration.

The Senquip QUAD improves on the Senquip ORB internal 12V voltage booster with an output that is now configurable in the range 5V to 25V even when input power is removed.

4-20mA accuracy has been enhanced on the Senquip ORB and QUAD with the ORB now offering 9-bit accuracy and the QUAD 14-bit accuracy across the 4-20mA range.



Most Flexible IO Ever



All five IO on the Senquip QUAD can measure voltage, current, frequency, duty cycle, and can count pulses. They can be switched to ground, to power, to an internally generated voltage source, turned off, or have a pullup enabled. And they can do it all simultaneously.

Simultaneous voltage and current measurement allows a load to be turned on, the voltage to be checked, and the current to be confirmed, providing diagnostics for attached loads. Positive and negative currents can be measured allowing for measurement of 2-wire and 3-wire 4-20mA devices.

IO functionality can be completely controlled with a user written script, giving you more options for measurement and control.

Senquip Out and About

[Automation Group](#) has been busy showing Senquip at Ozwater 23 and the AHA conference in Penrith, both in May.



[IPU Group](#) was spotted at the Royal Logistics Corp and will be at [PlantWorks](#), the UK's premier Live Demo Construction Equipment and Technology Event in 2023.



Cumulocity IoT Certification

Senquip is thrilled to have received Cumulocity IoT certification for both the Senquip ORB and the Senquip QUAD.

Certification is a guarantee of compatibility between Senquip devices and the Cumulocity IoT platform and is only granted after extensive integration testing.

Senquip devices bring a highly versatile, fully programmable IoT offering to the Cumulocity platform.



Multi Factor Authentication

Profile

Change Password

Multi-Factor Authentication

Multi-Factor Authentication (MFA) increases security for your account by adding a second authentication method and not relying solely on a password.

You will need either the **Google Authenticator** or **Authy** app on your phone or tablet to continue.

Enable MFA

Billing Details

Subscriptions

Multi-factor Authentication (MFA) is an authentication method that requires the user to provide two or more verification factors to gain access to a resource such as an application, online account, or a VPN.

MFA is a core component of a strong identity and access management (IAM) policy. Rather than just asking for a username and password, MFA requires one or more additional verification factors, which decreases the likelihood of a successful cyber-attack.

Enable MFA today using the account icon on the Senquip Portal.

Celebrating Australian Made Week

Senquip joined in celebrating Australia Made week in May. Senquip would like to thank existing customers for supporting Australian made and would like to welcome new customers to support local.



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Senquip Update Q2 2023