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

Utilisation and service intervals

Utilisation estimation for lighting-plants, pumps, and generators is complex as a simple ignition feed may not be a reliable indicator of activity. Likewise, service scheduling can be difficult as it relies on manually read hour meters and the equipment is often remote.

Edge processing on Senquip telemetry devices allows vibration, movement, CAN, serial, or a combination of measurements to determine and set the current machine state. Once the state is set, internal hour-meters keep track of the cumulative time in each state. Typical states are "Off", "Fault", "Idle", and "Run"; they are however arbitrary and be set by the user.

Engine hours can be extracted from utilisation data or can be read directly from the engine controller via CAN or serial. Whether the hours are calculated or retrieved, they can be formatted in the same way so that the end platform always receives data in an agreed format.
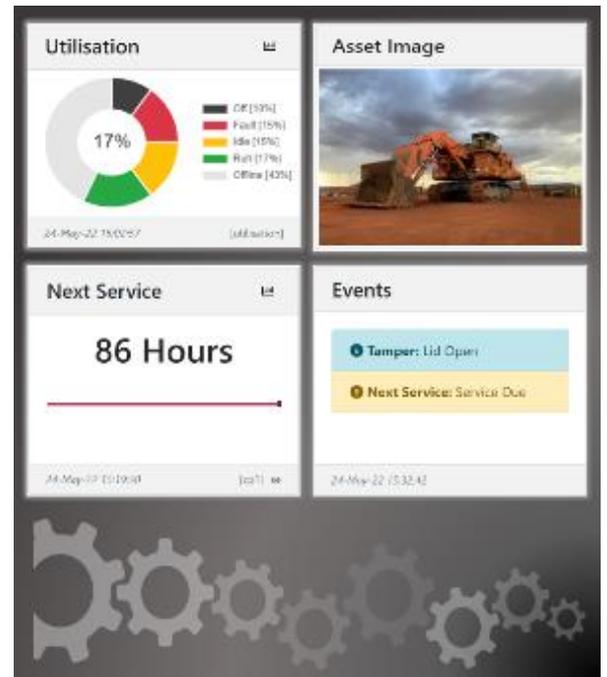
Senquip partners with Ubidots

Senquip is excited to announce a partnership with Ubidots, a platform that allows the rapid assembly and launch of Internet of Things (IoT) applications without having to write code or hire a software development team.

Ubidots is a low-code IoT development platform for engineers and developers without the time or energy to build an entire production-ready IoT application. From device-friendly APIs to a clean UI for end-users, Ubidots provides the essential building blocks to bring your IoT application to market faster.

Ubidots is more than just a data visualisation platform — it is an application enabling platform that allows you to deploy a full-blown IoT business: from one account you can create multiple independent white-label organisations that can be thoroughly customised and accessed by different users whose roles can be defined.

An integration guide and the Prospect Control case study are available here: https://ubidots.com/blog/.

Branded portals

Did you know that Senquip provides white-labelled portals with your brand, colour scheme, links to your contacts, and at your own website URL.

Get all the benefits of a pre-designed, maintained dashboard solution without having to write a single line of code or hire a web developer.

The Senquip Portal provides a customisable summary screen, detailed device page, data download, device setup and update, a scripting facility, subscription management and more. For more detail on Senquip branded portals, contact Senquip or your favourite distributor.

Auto APN available now

Auto APN is now available for Senquip devices. Auto APN allows a user to insert a SIM card and have the Senquip device search for a suitable network operator with which to connect. No setup required.

Details contained on the SIM allow the Senquip device to determine the country and network operator associated with the SIM. Once the where and who is established, the Senquip device can try to connect to the network using a pre-loaded list of APNs.

The quality of the user experience is only as good as the list. If you would like your network operator to be included in the next Auto APN release, please send us the device ID and the APN settings that you are using.

Interesting sensors, Bluetooth pressure sensor

TE Connectivity manufactures a [Bluetooth pressure sensor](#) that is perfect for monitoring hydraulic and pneumatic system pressures on mobile machines.

The sensors are available in pressure ranges from 150psi to 15,000 (1000 Bar) psi and also measure temperature. Range is 20m and battery life is 2 years with 5 second updates.

Using multiple wireless Bluetooth pressure sensors paired to a Senquip device allows safe measurement away from crush zones and high-pressure elements.

Why are enclosure vents critical

If enclosures are not equipped with pressure compensation vents, heating and cooling cycles can result in moisture being drawn into the enclosure. The effect is worse with a better sealed enclosure as water is drawn up through the wiring loom. Not only are the electronics in the enclosure damaged, but the wiring may be corroded. The effect is often seen on trailers with sealed lights. As the lights are turned on and off, each time the lights cool, moisture is draw up the wiring loom.

The effect may be observed due to day-time heating and night-time cooling, or with self-heating as the equipment is turned off and on. Each time the temperature cycles, minute amounts of moisture are drawn into the enclosure. Over time, this can result in significant water ingress and damage to electronics. A sure way to accelerate the process is to pressure wash a hot enclosure with cold water.

Pressure compensation vents allow enclosures to breathe, equalising pressure and reducing condensation while filtering out liquids and other contaminants. There are alternate solutions such as Silica gel, but this has a limited lifespan before it needs to be replaced. A positive pressure inside will help but it is an expensive solution. Bopla Gehäuse Systeme GmbH has published an excellent video that compares moisture ingress between an enclosure fitted with a vent, and one without.

Bluetooth capability enhanced

Senquip devices include a Bluetooth and Bluetooth Low Energy (BLE) peripheral. BLE supports broadcast, point-to-point communication, and mesh networks. Previous firmware versions have supported broadcast modes only.

Firmware version 2 (SFW002), which is in beta trials and is available on request extends device BLE functionality to include point to point connections. Senquip devices can now scan for devices, connect to those devices, and interact with device characteristics, enabling read, write and notification functionality.

GATT stands for Generic Attributes, and it defines a hierarchical data structure that is exposed to connected BLE devices. This means that GATT defines the way that two BLE devices send and receive standard messages. Understanding this hierarchy is important, because it will make it easier to understand how to use the BLE and write your applications. The Bluetooth Special Interest Group (SIG) provides a video that describes the basics of the GATT.

Latest firmware features

Firmware release 6 is now available and includes the following enhancements.

- Persistent variables can now be loaded and saved from the script, allowing values to be stored during sleep.

A new revision of firmware is now in beta testing and is available on request. SFW002 includes a new operating system which allows for:

- Larger memory sizes to be loaded on future ORB builds.

- Enhancements to Bluetooth functionality to allow reading from and writing to Bluetooth devices.

- Additional certificate options to allow connection to more 3rd party platforms.

- Faster operation from power on.

For the latest firmware, see the Firmware Release Guide and for details on scripting, see the Scripting Guide.

Senquip Portal updates
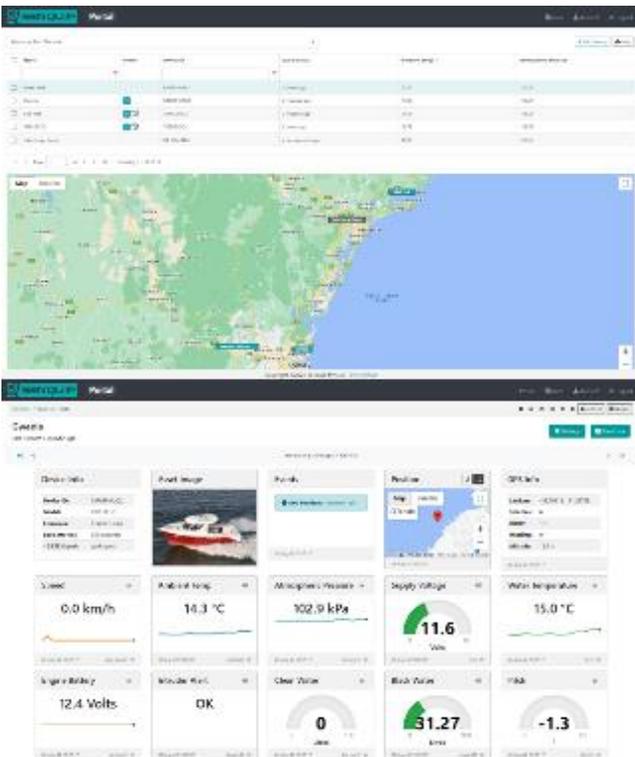
The Senquip Portal has received a series of upgrades recently including a change to widescreen format that allows more widgets to be shown at the same time.

Keep an eye out for the upcoming online payment portal through which all subscriptions can be managed.

The following recent enhancements have also been made:

- Columns on the device summary page can now be customised to show parameters of interest.

- Using the "eye" icon on display widgets, the number of decimal places displayed can now be set independent of the resolution of the measurement.

- Customer parameters, triggers, and other user generated variables can now be deleted.