

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.

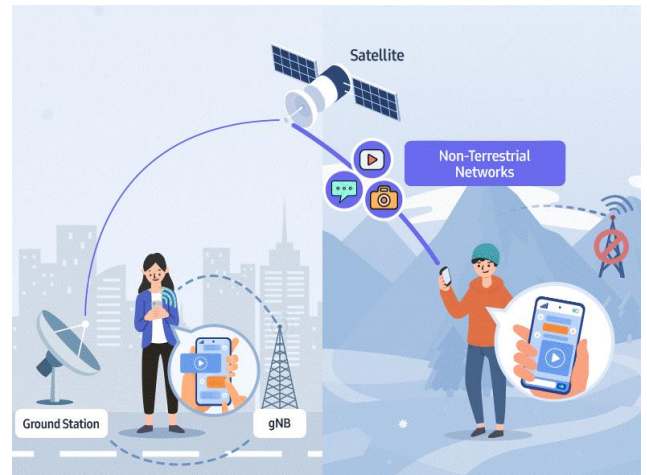
Satellite Enabled 5G Communications

NTN is a 5G communications standard that enables satellites to bring LTE connectivity to regions that were previously unreachable by terrestrial networks.

NTN-IoT expands the reach of IoT devices, enabling global coverage.

NTN-NR directly links smartphones and other 5G devices by satellite.

Senquip is currently making changes to Senquip ORB and QUAD products to be ready for the launch of NTN in 2024.



Colour Coded Terminal Blocks


Keep a look out for the new colour-coded terminal block on the Senquip QUAD.


Colour-coded connections speed up installs and reduce connection errors. The Senquip ORB will also be upgraded in future builds.


Much of the innovation in Senquip product comes from our users. If you have an idea as to how we can improve our product, please let us know.




What do the Certification Marks Mean?






 The RCM mark confirms compliance with legal and technical requirements for products to be legally sold in Australia and New Zealand.

 RF equipment sold in the United States must undergo electromagnetic radiation emissions testing to confirm compliance with standards set by the Federal Communications Commission.

 CE RED is a radio equipment directive adopted by the European Union. RED certification allows sale of equipment in all 28 countries of the EU.



Part Name: Senquip ORB
Part Number: ORB-C1
FCC ID: 2BCCIORBC1A
This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.



Where Has Senquip Shipped in Q2 2023



Australia



USA



UK



France



Uruguay



South Africa



Italy



New Zealand



Sweden



Spain

Precise 4-20mA

Senquip has increased the resolution of the 4-20mA channels on both the Senquip ORB and Senquip QUAD with the QUAD now achieving a precision of 2.5uA.

The change will allow Senquip customers to measure pressure and level more accurately, enabling tighter control and the detection of small changes.

The Senquip QUAD has five 4-20mA sink or source channels and the Senquip ORB two source channels.



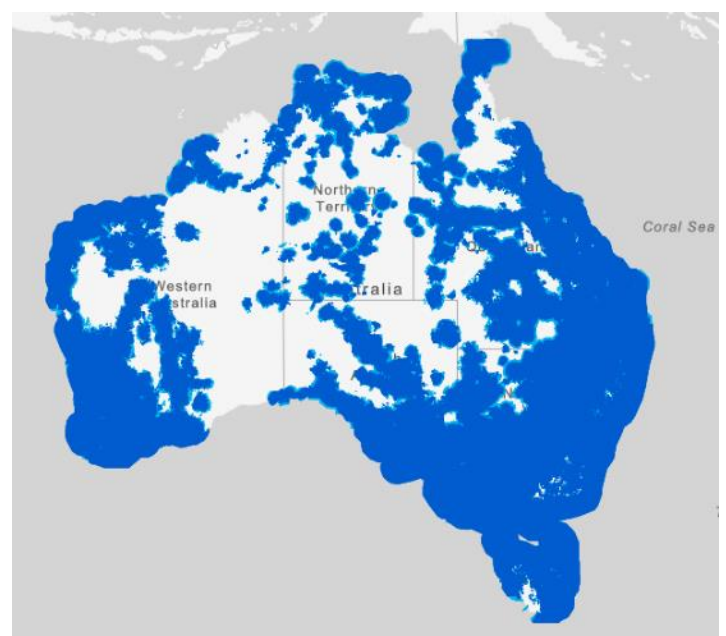
End of the Line for 3G in Australia

Telstra, Optus, and Vodafone have all phased out parts of their 3G networks with Telstra switching off 2100MHz spectrum in 2019.

Vodafone will switch off its 3G network entirely on December 15 this year and Telstra will follow in June 2024. Optus will wait until September 2024 to phase out 3G.

For low speed M2M applications, the dedicated Telstra 4G LTE CAT-M1 network offers more range per tower and is an obvious replacement for telemetry devices in remote locations.

CAT-M1 is faster than NB-IoT and offers the ability to perform over the air firmware updates.



IP68 Seal for Senquip ORB



Keep an eye out for the new Senquip blue seal on the Senquip ORB. The new seal extends the IP rating of the enclosure lid to IP68, having been tested at 10m for 30 minutes. The bright colour makes it almost impossible to misplace and allows for a quick visual confirmation that the seal is in place.

Senquip ORBs continue to ship with vented glands, allowing for pressure equalisation to prevent water ingress during heating and cooling. To ensure IP68, replace the gland with a rated version that best fits cables used in the application.

Magnetic Attraction

Senquip devices are now available with an integrated hall-effect sensor that can be activated by an external magnet held near the enclosure. The function of the hall-effect sensor can be configured in device settings.

A sleeping device can be woken instantly to take a measurement, force a settings change, or update firmware. The embedded webserver can be enabled to download a saved file or change a setting locally. A user written function in a script can be triggered to perform a custom. Or do all three.



New Application Notes



[Ubidots](#) is an industrial IoT platform for predictive maintenance, condition monitoring, energy management and more. From device-friendly APIs to a clean user interface for end-users, Ubidots provides the building blocks to bring your IoT application to market faster.

Senquip devices can send data directly to Ubidots, enabling the visualisation of CAN-bus, Modbus, and other machine data directly in Ubidots.

Senquip in collaboration with [IPU Group](#) have written an [application note](#) to simplify the process.

Senquip Out and About



Senquip is thrilled to be shortlisted as a finalist in the Hunter Manufacturing Awards for 2023. Senquip has entered the Senquip QUAD in the excellence in product category and has also entered manufacturer of the year for our innovative Industry 4.0 manufacturing concepts.

Senquip had an exceptionally successful AIMEX exhibition on the [Macquarrie Corporation](#) stand. The message about remote control, monitoring, and telemetry solutions certainly resonated with the audience. Well done, Jackson, Nick, and Milind for your energy and enthusiasm.



Shane and Mandy McGregor of [McGregor Diesel](#) were honoured with the Innovation Award at the Mac Valley Cotton Awards for their contributions to the industry.

McGregor Diesel supplies, repairs, and maintains earthmoving equipment, irrigation pumps & engines and agricultural machinery in the Goondiwindi region.

A recent pump site upgrade completed with a C9.3 CAT engine was fitted with a Macquarrie Corporation control panel and Senquip telemetry. The pump can now be remotely started and stopped, and is fully monitored including engine hours, service reminders, engine load, discharge pressure, position, RPM and warnings via email and SMS.



Lightning Detection

[Gencom](#) is working with Senquip to provide lightning alert systems that are self-contained, standalone, and that can detect cloud to cloud and cloud to ground strikes to a range of 35km with a resolution of 1km. The system, which uses the [BTD-200](#) sensor from Biral, boasts a 95% accuracy for a single strike and 99.9% for a storm with 3 lightning flashes, with an almost zero false alarm rate.

The system provides advanced notice of approaching thunderstorms and in many cases can issue a warning of potential overhead lightning before the first strike. Notifications are via SMS and email, with an option to trigger externally connected devices. It is designed for use on mines, airports, harbours, farms, sporting fields, golf courses, or anywhere where humans are exposed to the threat of lightning.



Critical Firmware Updates for SFW002 and SFW003



A critical firmware update has been released for SFW002 and SFW003. The update resolves an issue where ORB and QUAD devices may not wake from hibernate under extreme conditions that include:

- device entering and exiting hibernate often,
- physical environment too hot to allow battery charging,
- switching between LTE and Wi-Fi, both with very poor signal,
- buffering and sending messages whilst constantly losing connection.

It is highly recommended that SFW002 and SFW003 device firmware be upgraded to the latest available.

64-bit Modbus

Senquip ORB and QUAD devices now support double precision 64-bit Modbus reads. Both big-endian and little-endian byte orders are supported.

A big-endian system stores the most significant byte of a word at the smallest memory address and the least significant byte at the largest. A little-endian system, in contrast, stores the least-significant byte at the smallest address.



Interesting Sensors – Modbus Temperature



The Waveshare WSTP11A is an industrial temperature probe that operates on RS485 Modbus RTU. Being Modbus, we can connect many of these to a single Senquip device.

The measurement range is -40°C to 85°C with an accuracy 0.5% of full scale. The device is stainless steel, IP65, and supports a supply range of 12V to 36V making it perfect for industrial vehicle applications.

We found the sensor at [The IoT Store in Australia](#) but note that it is widely available.

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