

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

CAT-M1 recognised as a 5G technology

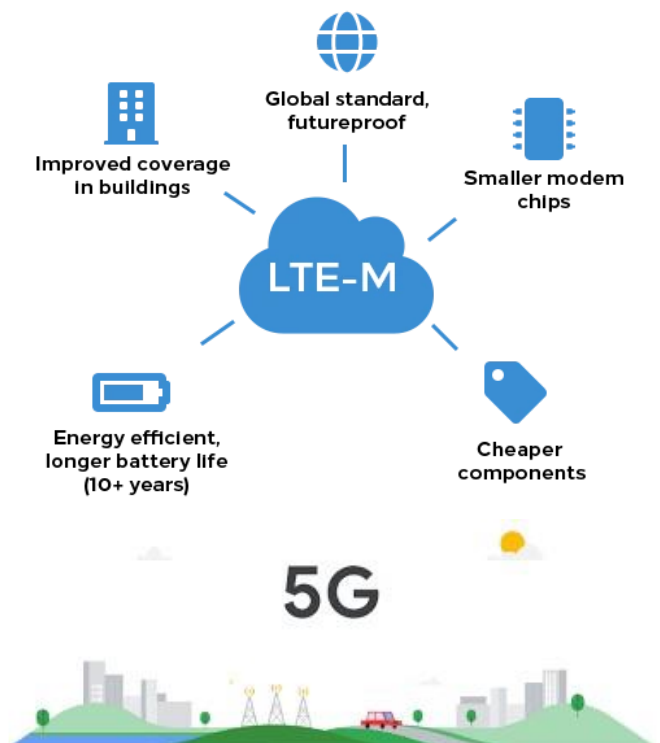
The global mobile network standards body's (3GPP) acceptance of NB-IoT and Cat M1 IoT technologies as 5G IoT technologies means continued support for these technologies beyond the lifespan of 4G.

NB-IoT is designed for carrying very small packets from simple devices, peaking at transfer rates less than 200kbps. That's perfect for devices that only need to send a tiny amount of data, like water management, location management, and industrial sensors.

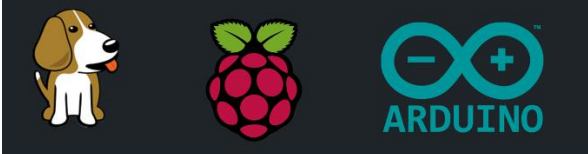
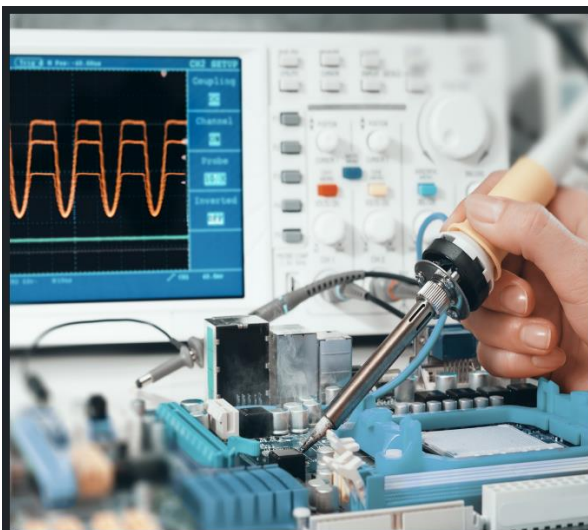
LTE-M, meanwhile, is designed for more complex devices that require more frequent interaction with the network. LTE-M connections are better for devices that need to be mobile, report multiple sets of data, and may require in-field firmware updates. Senquip devices use CAT-M1 as the preferred technology.

With both LTE-M now adopted into the 5G family of technologies, Senquip customer can invest with confidence in the technology's long-term future.

Advantages LTE-M



Make or buy?



Businesses routinely build IoT solutions rather than source from the thousands available in the market.

But do you really need to design and build a custom device? Would you hand over implementation of your management or accounting system to an enthusiastic software developer? Poorly implemented IoT can be as detrimental as a failed accounting system.

You are a miner, transporter, utility; now you are also an electronics manufacturer. Taking the responsibility of making your own products does not stop at design. There is testing, certification, manufacturing, quality, security, and ongoing support to consider.

Engineers, thrive on a challenge. IoT is however an important business system. Think carefully before embarking on an in-house development. Read the full article [here](#).

Chip supply update

Unfortunately, no-one agrees on when things will get better. Semiconductor companies have increased supply 9% in 2021 but demand is growing at the same rate.

Our experience at Senquip is that newer, small geometry devices like communications chipsets and memory are becoming more available, but supply of microcontrollers and analog devices that use smaller wafers and older technologies remain severely constrained. Senquip has orders on STM that were placed over 6 months ago and still have no confirmed delivery. STM said in November that it would take until 2024 or 2025 to see a major increase in capacity.

Senquip invested heavily in stock as supply constraints became apparent in 2019. We have stock and are ready to supply.



Auto APN – Your assistance needed

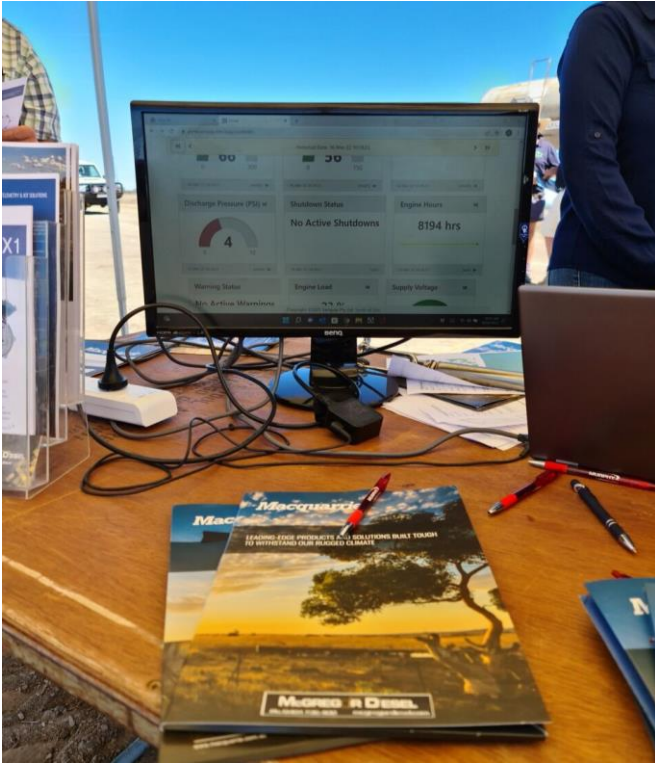


Senquip will be introducing Auto APN in an upcoming firmware release. Auto APN will allow a user to insert a SIM card and have the Senquip device search for a suitable network with which to connect.

Details contained on the SIM allow Senquip to determine the country and network operator. Senquip will then try APNs from a pre-loaded list until a connection is established. The quality of the user experience is only as good as the list.

If you would like your SIM card to be included in the initial Auto APN release, please send us the ICCID or IMSI of the SIM and the APN that you are using. Senquip will add your SIM details to the list.

Assisting our cotton farmers



It was great to work with McGregor Diesel and Macquarie Corporation to introduce Senquip telemetry to 130 cotton industry experts at the 2022 Macintyre Valley Cotton Field Day.

McGregor Diesel demonstrated innovations in remote monitoring and controlling of diesel machines. Cotton farmers use diesel pumps for water management and those pumps are often extremely remote. Being able to monitor and control them locally saves time, prevents critical failure and results in a more productive farming environment.

Farmers were thrilled to see that they could view and control remote machines from the screen of their choice. Events like this remind us quite how exciting the technology remains, and the positive impact that it can have for both businesses and workers.

Compare data from multiple devices

Senquip has expanded their scripting language to allow one device to request measurements from another device. Senquip devices can now request data from each other and include that data in their decision making.

A typical application could be a flood warning sign that is downstream from a level sensor. A Senquip device connected to the warning sign could request the flow level from the upstream device and activate the sign ahead of the high water arriving. Other applications include identification of leaks in pipelines, requesting weather information from a remote station, and detection of slip and loss on conveyors.

When one device requests data from another, a request is sent to the Senquip server. The server responds with the latest data available from that device, included a timestamp. Being able to process a remote devices data locally means that comparisons can be done without server software needing to be written, and if a device goes offline, local decisions can be made at device level.



Latest firmware features

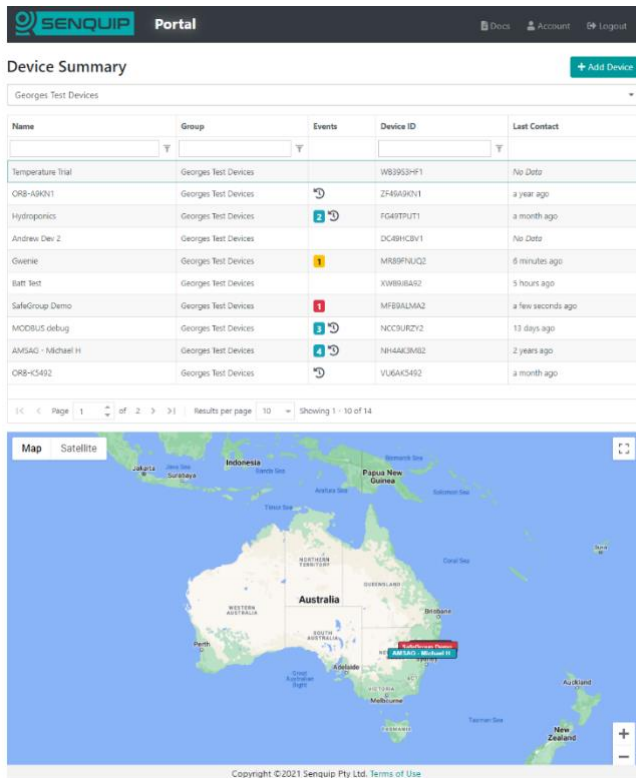


Firmware release 5 is now available and includes the following enhancements.

- **STATES:** Add the concept of machine ‘states’ such as work, idle, offline etc. The current ‘state’ can be set from a script. The device automatically records the number of hours spent in each state. Utilisation information can then be shown on the Senquip Portal.
- **FILES:** Reading/writing files on the device is now possible using the device script.
- **WEB:** the device’s local webserver allows viewing and downloading of files created by the script.
- **SCRIPT:** one device can now request data from another Senquip device (using Senquip Portal) for local processing and advanced edge decision making.
- **TIME:** if a NTP server is not available, the device will get time from GPS data or from LTE network information.
- **RESET:** the factory reset process will now also delete the user script.

For the latest firmware, see the [Firmware Release Guide](#) and for details on scripting, see the [Scripting Guide](#).

Senquip Portal updates



The screenshot shows the Senquip Portal interface. At the top, there's a navigation bar with 'SENQUIP Portal', 'Docs', 'Account', and 'Logout'. Below that is a 'Device Summary' section with a '+ Add Device' button. The main content is a table of devices for 'Georges Test Devices'. The table has columns for Name, Group, Events, Device ID, and Last Contact. Below the table is a map of Australia and New Zealand with a red box highlighting a location in Queensland, Australia.

Name	Group	Events	Device ID	Last Contact
Temperature trial	Georges Test Devices		WB99EHP1	No Data
CR8-ABN1	Georges Test Devices	👁️	Z45A9N1	a year ago
Hydroponics	Georges Test Devices	👁️	FG4TRU1	a month ago
Andrew Dev 2	Georges Test Devices		DC4BHC8V1	No Data
Overvie	Georges Test Devices	📌	MR89FNJQ2	6 minutes ago
Batt test	Georges Test Devices		XW89B8A2	5 hours ago
SafeGroup Demo	Georges Test Devices	📌	MF88ALMA2	a few seconds ago
MODBUS debug	Georges Test Devices	👁️	NCC8URZV2	13 days ago
AMSAG - Michael H	Georges Test Devices	👁️	NH4AC3M82	2 years ago
CR8-C542	Georges Test Devices	👁️	VUG4S492	a month ago

The Senquip Portal will receive a series of upgrades over the next few months. The first of these is an enhanced device summary table that allows for filtering and searching for devices. Future upgrades will include user customisation of columns in the table and a comprehensive tree structure to enable logical sorting of devices.

The following recent enhancements have also been made:

- Using the “eye” icon on display widgets, the number of decimal places displayed can now be set independent of the resolution of the measurement.
- Using the Settings/Admin tab now allows the export of device settings, scripts, portal settings, asset notes, and notifications settings in a single file. This has been done to simplify the cloning of devices. Device name and network settings are not cloned.

Interesting sensors, MODBUS in-line converters

[Banner SC15 In-Line Converters](#) turn discrete and analog signals into MODBUS devices, allowing traditionally discrete sensors to be networked. The S15C converters are designed to plug directly into a sensor and begin operating immediately. The small, 15 mm tubular design and M12 connectivity enable easy installation in tight, space-constrained deployments. The converter uses the same power supply as the sensor, keeping wiring simple. A rugged, over-moulded IP68 housing ensures reliable performance even in harsh manufacturing environments.

The following variants and more are available:

- Discrete
- Current (4-20mA)
- Voltage
- Current Transformer
- Thermistor

