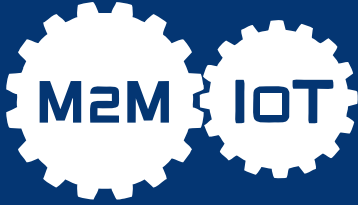


GENESYS



Product Code: GSS-GM-200

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WHAT IS M2M?

The Machine-to-Machine (M2M) philosophy is to abstract and genericise inputs and outputs of systems and devices so that they may interact with each other as a cohesive system without human intervention.

M2M-connected devices rely on one or more central points of interconnect; in turn allowing brand new applications to be built up from existing modules without extensive software development.

“M2M is... the interconnection and interoperability of disparate systems, sub-systems, networks & sub-networks”

- Genesys M2M philosophy

Genesys' next-generation M2M platform will not only enable your systems to communicate with each other in ways you've never imagined, but also to join the **Internet of Things (IoT)**. What this means for consumers is the flexibility to monitor and control systems via the web, and to open up new possibilities for installing systems anywhere in the world, all seamlessly communicating as if they were in the same room.

WHAT CAN M2M DO FOR YOU?

The only limit to the applications M2M technology can serve is imagination. Take a look at the following use cases for Genesys M2M.



ASSET MANAGEMENT

Automate management of your company fleet by remotely controlling access, monitoring location and scheduling services based on vehicle diagnostics.



PROCESS CONTROL & MONITORING

Increase productivity by controlling processes based on real-time sensor activity, including machine operating status, temperature and humidity conditions.



SMART ENERGY

Monitor energy usage and reduce electricity bills by shedding heavy loads when not in use. Introduce renewable energy seamlessly with load balancing.



SECURITY

Receive text alerts and video feeds in the event of a trigger, and minimise false alarms by visually determining the threat before notifying authorities.



HEALTH & SAFETY

Reduce hospital load by monitoring patients' health from home, track dementia sufferers with GPS, or set up geo-fencing to keep people away from risky areas.

GENESYS M2M IoT COMPONENTS

Genesys M2M IoT installations are completely scalable, and our technology is modular right down to the circuit board level, so that our customers only purchase the components their system needs. Take a look at the series of physical components that make up a Genesys M2M IoT system:



NETWORK SERVER

GEH-AM-200

The central hub of your M2M installation, the Network Server aggregates data from all of your devices (via 6LoWPAN, Ethernet, Wi-Fi or RS-485) and allows them to interoperate with either themselves; or other locally or remotely connected devices. It also transforms your devices into Internet of Things (IoT) capable devices - connecting to the internet via 3G, Wi-Fi or Ethernet. For an additional layer of security and speed, Genesys' Cloud Server keeps rolling backups of your M2M settings.



VISUALISATION TOOLS

GTU-SM-200/GTU-AM-200

Genesys Viztools are powerful yet easy-to-use Web and Android™ based applications which connect to your local Network Server or Cloud Server, giving you access to all settings. Both the Web app and Android app are capable of showing real-time graphical information to make it easy to determine the status of your system at any time. Additionally, all historical logging data is readily available.



6LoWPAN NETWORKING

REFER CATALOGUE

6LoWPAN Gateway/Routers provide either a primary interface into a 6LoWPAN network, or when used in tandem can also facilitate transparent tunnelling of industry standard RS-485 protocols over the IEEE 802.15.4 meshed wireless M2M network. 6LoWPAN Nodes of various sizes and capabilities form the grass-roots of a 6LoWPAN M2M network. The most basic node simply repeats wireless signals throughout your installation to increase the range. More advanced units contain auxiliary protocol connectivity, sensor modules and I/O modules, for example providing location and climate sensing. All nodes are Genesys Modular Stack compatible, allowing for easy upgradeability and extendability.



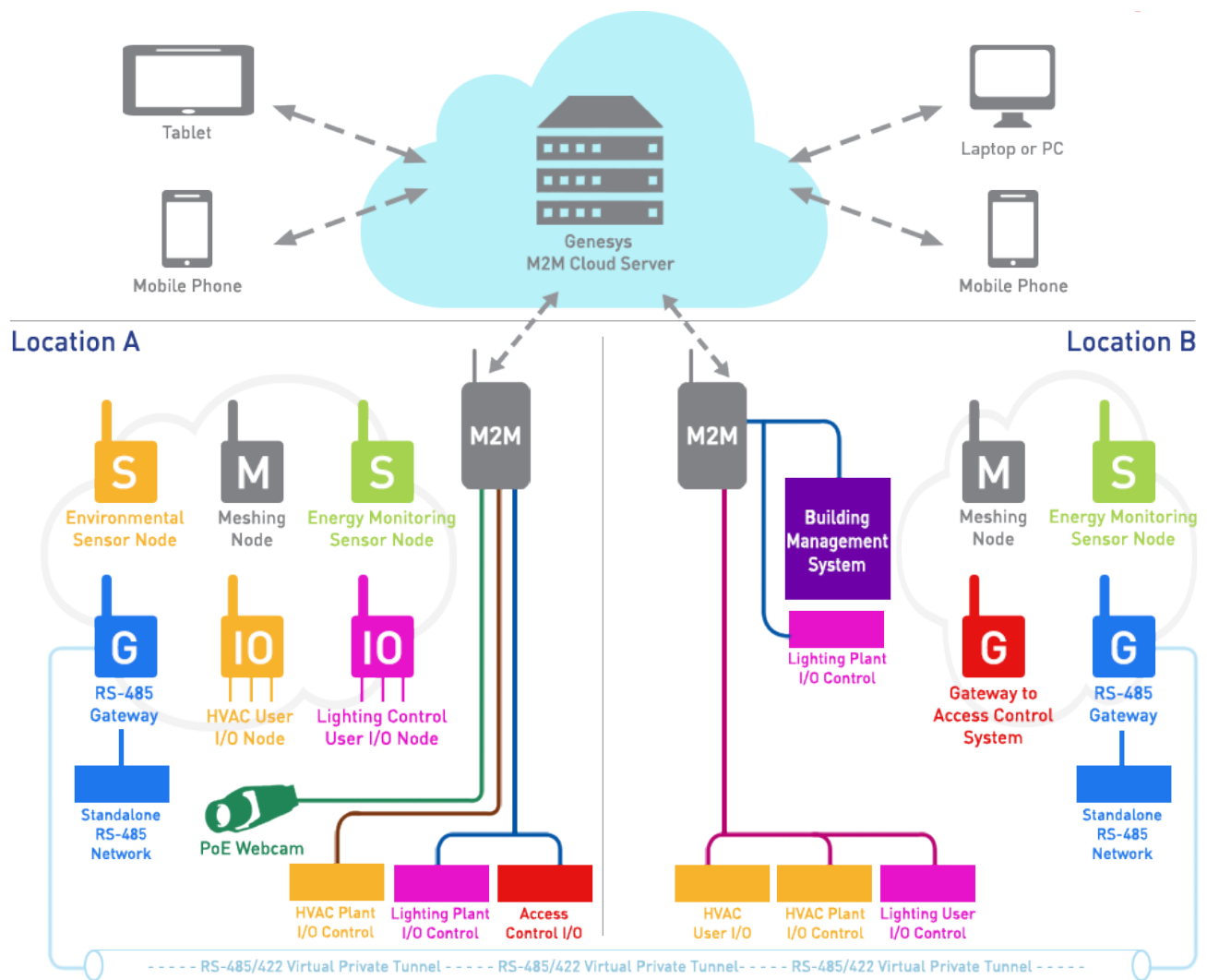
GENESYS MODULAR STACK

REFER CATALOGUE

Genesys Modular Stack is a technology allowing for the easy interconnection of expansion modules. Genesys Modular Stack compliant modules feature a characteristic pair of board-to-board feedthrough connectors, so that they are infinitely stackable with each module adding new functionality.

INSTALLATION EXAMPLE

Below is a diagram of a medium complexity Genesys M2M IoT installation, used to create two 'smart buildings', where energy monitoring, access control, HVAC and lighting in both buildings are controlled harmoniously by Genesys M2M IoT equipment.



PLANT, MODULES AND EQUIPMENT

- HVAC
- Energy Monitoring
- Lighting
- Access Control
- RS-485 Tunnelling Gateway
- Third Party Building Management System

PHYSICAL CONNECTIVITY

- Ethernet
- Power over Ethernet
- RS-485
- Direct Relay Connection
- ☁ Wireless 6LoWPAN Mesh Network

INSTALLATION EXAMPLE

This example M2M installation consists of one M2M IoT Network Server for each building. In Location A, modern Ethernet-based access control systems and lighting systems are connected directly to the Server. Any commands sent or received by these devices are natively readable by the Server; and are added to a 'pool' of functions known to the Server.

The Server contains a 'smart relay', which will connect to the most basic of devices able to be switched electronically. Its inputs and outputs are then able to be added to the function pool. In this example, the smart relay is connected to old-fashioned HVAC infrastructure.

Rounding up the wired interfaces Location A's Server utilises, it is connected to a Power over Ethernet web camera, which can send images or videos upon any available action in the function pool.

The Server contains a 6LoWPAN wireless network module, which forms as the basis for all wirelessly connected equipment in Location A. This includes environmental sensor nodes, which track climate conditions for efficient HVAC operation; energy monitoring nodes, which track energy usage to fine-tune HVAC and lighting control; I/O nodes to add physical switches throughout the building to the function pool; and meshing nodes to ensure wireless signals are consistent throughout the building.

The M2M IoT Network Server links Location A's systems with those of Location B via the Internet, as if they were part of the same system. Location B's systems are similar in functional cross-section to those of Location A, however their physical connectivity and other characteristics are in some cases quite different. For example, Location B's building management system is a third-party system that is fully self contained, but can be monitored and managed by the Ethernet connection to Location B's M2M IoT Network Server.

An interesting feature of this example is the RS-485 virtual private tunnel that is configured between two stand-alone RS-485 networks; one in Location A and the other in Location B. These two stand-alone RS-485 device networks are "private virtual wire-connected" via the Genesys M2M IoT Network Servers. They remain functionally stand-alone and interoperate together as a collective pool of networked devices, and are optionally excluded from the higher-level M2M functionality.

Since Servers in both locations are linked to the M2M Cloud Server, both buildings' infrastructure can be remotely controlled anywhere in the world via Viztool as a web app or Android™ app.

TOMORROW'S INFRASTRUCTURE TODAY

By choosing Genesys M2M IoT for your next-generation control systems needs, you're investing in the most mature, reliable and locally supported M2M technology platform in Australia. Genesys M2M IoT is a continually growing product range with current products designed with forwards compatibility in mind.

Genesys engineers will propose, design and install M2M systems and equipment to suit your needs - so get in contact with us today to start building a smarter business.