BMS FAQ's and Myths Explained

Which communication protocol is best?

There are many views, articles and scientific papers behind which protocol is the type for your installation. There are also the different perspectives, such as which is easier to engineer into a site, and which has the most vendors offering competition.

Our preferred protocol is BACnet. This is because there are more vendors offering this protocol, it's reliable, and as a generalization, a BACnet device, from an O.E.M, is often at a lower cost than the same device in Lon Talk.

BMS Open Protocol Types

When we talk about open protocol, we are talking about the communications system which the controllers use as a bus for intercommunications. The BMS communications protocols listed below are the market majority in Australia:

- ➢ BACnet
- ➢ Modbus
- ➢ Lon Works
- ➢ Niagara
- ➢ Sedona

BMS: Why Choose Open Protocols?

The point of open protocol is to negate or reduce the single system vendor "captivity" from the 1970's and 1980's. The strategy of open protocol is to enable multiple vendors to provide products, maintenance and additions to a single BMS installed in a building or campus.

The protocol would enable multiple vendors to bid on the same job, be the job scope in maintenance, upgrades or an extension project without the owner experiencing over pricing from a single vendor system or be left with a system post warranty that is full of integration issues.

What is a BMS Open Platform?

Open Platform is essentially the term used to define the interoperability of the device at the top of the BMS communications tree. Think of it as a "hub" where the spokes are the internet, and other communications branches, such as Lon Works, BACnet, proprietary, and more (lots more). Due to the "open" protocol, the platform data can be exchanged between these "spokes" without the need for "gateways" or other unreliable and costly converters.

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What are BMS IO or Points Lists?

The term IO is industry jargon for inputs & outputs. It's loosely used for referring to the BMS system characteristics as well as specifically for the parameters of BMS controllers (or PLC controller).

I.e. what is this buildings IO? 50 controllers with 1000 hardware points and 1000 software points.
I.e. what is the IO of controller X? This may be 10 digital inputs and 8 digital outputs.

The points list is simply a list of all the points that require to be monitored and/or controlled via the BMS. They are made up of a mixture of IO points and software points.

The list is used to quote a system in the initial stages of a project then after as the starting point for programming.

What is the BMS Head End – HMI?

The "head end" of a BMS is the human machine interface (HMI); often a specific computer with the graphics, alarms, and BMS network for the operator (human) to interpret and monitor the system. Access via a web portal or IP address is more the norm these days. The term is also a reference to as the Graphic User Interface (GUI) which often exists as a web page or on the BMS computer. There are a number of terms used for this:

➢ Head End
➢ Front end
➢ GUI (graphic user interface)
➢ HMI (human machine interface)
➢ BMS computer

What is a BMS – HLI – high level interface?

HLI is an acronym for High Level Interface. This is a device which is installed by the O.E.M (Original Equipment Manufacturer) which allows monitoring and control of equipment directly via the BMS communications network.

For example, a chiller or a generator. The item has a BACnet or Lon Works HLI installed. The device when connected and configured into the network appears on the network like a typical controller. Via programming or "mapping" the parameters of the HLI it can be introduced into the BMS programming directly.

A High Level Interface is incredibly efficient as it uses data, allows alarms and programming can be configured directly by an O.E.M device in the network. It provides real time monitoring and control parameters.

What is the BMS – Low Level Interface?

A Low Level Interface uses dry contacts for monitoring as well as data from a range of electrical parameters such as voltage and current.

For example, if a device is operating a relay wired in parallel with the device it operates, the BMS sees the contacts closure and logs or monitors the point. The point has changed from a "0" or "off" to a "1" or "on" when the contacts on the relay close.

How can I get a "future proof" Building Management System?

Keep it Open Protocol: BACnet and Lon Works have been in existence for decades and are still being supported as new technology is coming on to the market.

Look out for "proprietary open" systems as this is where a single vendor offers an open protocol device but adds another "bit" to ensure it can only communicate with devices from the same vendor. This can be tricky as it is sold as open protocol (which technically is true) but does not allow the functionality and integration of a true open protocol system.

Can we change vendors of our BMS without an upgrade or refurbishment?

Yes, there are some conditions, but nearly always there is a way without a massive capital outlay. Our experience is that you will need all passwords which have the maximum level of programming. It should be noted, the building owner owns these passwords and can demand them from a vendor.

Why would we change BMS vendor?

There's a multitude of reasons, including price, but in our experience, the most common is the business culture of the vendor is no longer tolerable, be it from cost, service or performance etc. The technology or product is rarely an issue.

What is an EMS?

EMS is an acronym for Energy Management System. Most BMS's can deliver this functionality without a great deal of cost. Often there are programming opportunities built into the existing BMS which allow for the additional use of the system for energy management.

Can my old Field Equipment connect to a new Building Management System?

Very likely yes, there are common standards for the way field equipment is manufactured and these are often easily connected to a new system. If there is an obscurity, which might occur with a proprietary BMS then there are often tables and formulas in the controllers which can be tailored to meet a given requirement for a given device. This can be copy and pasted into all the controllers on a site or facility to ensure they all work the same.

How can I get more from my Building Management System?

The best way to improve the value and performance of your BMS is to watch it and check the plant rooms and/or the zone in question. Ask yourself why is an event occurring and why it is happening at that time. By monitoring the situation you'll find the answer and have a good idea what to ask your BMS vendor to rectify or how to improve the situation. The key is to keep asking "why?"

Can a Building Management System do Energy Metering?

Most BMS's can do Energy Metering. The ones that can't are likely obsolete or very basic. If it can't do energy metering without a major upgrade, consider total replacement. Energy Meters use open protocols and can talk to most BMS's without issues.

Can I view my Building Management System remotely and receive email notifications of alarms?

With a Tridium BMS system a built-in Web server is available to you at no extra cost. This allow setup of remote access to your building from anywhere in the world just as if you were in front of the site computer.

Alarms can be setup to be emailed out to various people depending on alarm type. This is useful if they are sent to your incumbent mechanical services contractor so they can react to it before your tenant / client knows there was an issue in the first place.

Other vendors have "Add-ons" which you are charged for as an extra for this functionality.

How many users can I have on my BMS System?

The Tridium system allows you to allocate as many users as you wish. Other proprietary systems limit you to how many uses may use the system and charge extra if you require to do so.

If my BMS is on the Web, how secure is it and can I get hacked?

As with any device that is connected to the internet, internet security best practice needs to be applied. Your IT support company can assist with this as Tridium uses common IT functionality.

In addition, the application itself has built in enhanced security features such as:

- ➢ Public key infrastructure (PKI) with certificate management.
- ➢ HTTP connections.
- ➢ SSL/TLS capabilities.
- ➢ LDAP Authentication.
- ➢ Passwords encrypted to AES256.

All this security jargon is common knowledge to your IT department and doesn't require any specialist security consultant to implement.

Important questions to ask before choosing your BMS system and vendor:

The following are a few important questions to ask before choosing your BMS system and vendor. Asking these questions will hopefully stop any expensive through life cost and being "locked" in to a single vendor.

- ➢ Is the system able to be completely serviceable in Western Australia by at least two factory trained and certified vendors?
- ➢ Do they use fully open and not proprietary or "open proprietary" protocols?
- ➢ Do I need any special Gateways to talk to other vendor's equipment?
- ➢ Can their system be connected to the buildings existing IT infrastructure?
- ➢ Will I retain all of the passwords to all the system including the master password?
- ➢ How many systems are installed?
- ➢ What are the costs for extra features like?
    - o Emailing alarms
    - o Remote access
    - o Adding extra users
- ➢ Do you require special software to remotely access the system?
- ➢ Can I change BMS controls contractors if I'm not satisfied with the price or level of service without replacing the whole system?