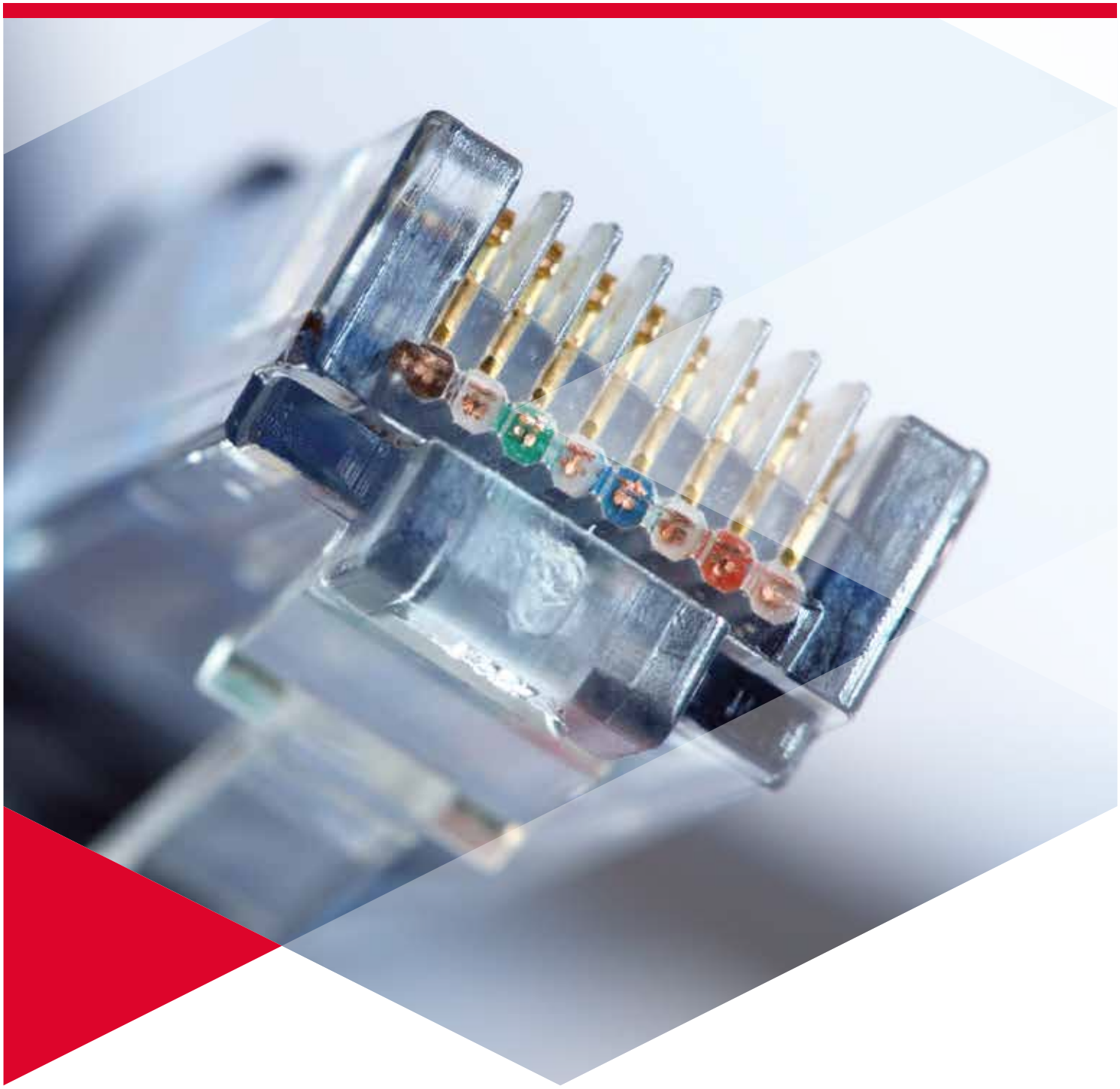

Ethernet Networking

The evolution of your building

Delta™ CONTROLS

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Every corner of your building needs a voice to tell you what’s happening. Delta is designing Ethernet products to make those voices heard.

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– Raymond Rae, Vice President Delta Controls

We continue to develop products that make buildings easier to manage, more cost effective to run and flexible enough to meet your buildings needs.

That’s why we have developed a line of Power Over Ethernet, or PoE controllers.

The power of evolution

Delta Controls, one of the largest independent manufacturers of Building Automation Systems, is recognized as a technology innovator. Our track record includes delivering the world’s first fully integrated BACnet building solution encompassing HVAC, lighting and access products. We believe that Ethernet and PoE will make buildings more future proof and easier to integrate into I.T. systems in the world of ‘always online’ and ‘big data’ in which we all now operate.

The networks we’re used to

The most common Building Automation System (BAS) network being installed today is MS\TP. This network protocol was established more than 25 years ago. If you went to your home or to your office, could you find more than five technological devices more than 5 years old? 10 years? 15?

MS\TP has served you and your building well for so long because the throughput requirements for a BAS network had not changed for over a decade.
While the needs of I.T. networks have grown exponentially, the requirements for our building networks didn’t change. Comfort was our primary goal, temperatures don’t change much over the span of a minute and any changes to the control of a room could take hours for an occupant to perceive. For the bandwidth offered by a conventional MS\TP network, the data transfer needs of these relatively slow processes were easily met.

Our needs are changing

The energy conservation needs of today have changed the needs of the networks in your business. Seconds of mechanical equipment action can turn into dollars at the end of the year. Opportunities to conserve energy can be lost by the minute. Your data feedback from equipment in the field needs to be up to the second. Energy savings can be missed due to lost load shedding opportunities or over conditioning of a space. Why maintain worker efficiency if you’re not watching the bottom line across all the expenditure of your business?

The answer is ethernet

All of these energy and control demands lead up to one thing; your BAS network needs to be able to do more. The answer is Ethernet. A 1 Gbps Ethernet network is ten thousand times faster than your conventional MS\TP network and with the requirements of a BAS today; you're going to want those speed capabilities to keep up with the flow of data within your building today and in the future.

How can you take advantage of a simplified network architecture?

Ethernet networks offer a simplified architecture that will make it easier to grow and care for your building networks. If every device on your network is Ethernet ready, your I.T. and network admin staff can take care of all the common and everyday needs of your system. Single points of failure for your network are eliminated. If a controller on your network starts malfunctioning, it won't take down large chunks of your system. Individual controllers are homerun to a switch and are therefore isolated on Ethernet networks, so they are easily replaced by other preloaded or preconfigured equipment.

- Simple troubleshooting and network administration familiar to I.T. staff
- Easier future integration of expanded networks
- Increased security for your network at the I.T. level
- Use standard network tools for troubleshooting

Are your current automation network options presenting the best fiscal solution?

Taking advantage of Ethernet networks can reduce new installation costs. Every building today needs a robust I.T. architecture. You can keep your building on the same network, or isolate it from your sensitive data easily and with a lower potential cost than running a completely proprietary network. There is a drastically decreased cost of network expansion on a full Ethernet network. You'll be able to take advantage of existing infrastructure instead of starting from scratch each time you want to update your system.

- In house network repair and maintenance
- Huge reductions in the cost of systems that share their architecture with I.T. networks
- Reduced cost for future system expansion and simplified network maintenance

Running a data center?

- 30 seconds of high temperature variance could cost you expensive equipment and client data

Are you in the Pharmaceutical or food processing industries?

- Any fluctuation in temperature beyond set variances will result in spoiled product and wasted time for your staff

Do you manage an educational facility?

- Universities and schools need up to the minute data on energy use and unit performance

Are you building an office space or currently managing existing office space?

- Office spaces need to be kept comfortable to maintain proper employee efficiency but the control of those spaces need to make fiscal sense

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Energy profiling demands that we have data from every corner of network being logged all the time.

All of these demands lead up to one thing; your BAS network needs to be able to do more.

The answer is Ethernet.

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– **Chris Kwong,** Director of Engineering

Using the newest technologies available today ensures that your system will remain current for much longer.

This means that you'll be able to seamlessly upgrade your network for easier expansions and replacements.

Making your building future-proof

If you need to upgrade your BAS system in the future, will the network you're choosing today be compatible with future devices? BACnet is the current leader in BAS networks worldwide. The BACnet committee has been researching and implementing standards that will make their networks more and more compatible with I.T. infrastructures. Most BAS equipment manufacturers are only taking advantage of this for network backbones, still utilizing proprietary and incompatible networks for the bulk of their devices in the field.

Delta Controls manufactures application level Ethernet and PoE devices, meaning that every device in your building can exist on a flat Ethernet architecture.

- A network that will be compatible with future upgrades or expansions
- A seamless architecture taking advantage of today's I.T. advancements
- An architecture based on widely adopted technologies

Data requirements and network speed

More than ever before, we need data from our building's systems. Energy requirements, storage of sensitive equipment or products, or keeping today's workforce productive all require increased data collection and faster network speeds. Data collection devices and services may outpace yesterday's networks. If you're revising your building or constructing new work and living environments, you need to be sure that what you're installing will meet the needs of your building in the future.

- Future expansions will be easier to implement
- Energy data collection needs will be met
- Use a network with the capability to process network data up to ten thousand times faster than conventional two wire networks
- Take advantage of energy conservation opportunities because you have more data collection options with faster network speeds
- Optionally, support direct connection to cloud services and storage

Can you take advantage of the fastest growing technologies like PoE?

Power Over Ethernet takes advantage of technology that allows you to power devices on the same cable that those devices communicate on. Some of the most cutting edge networks take advantage of this technology to reduce installation cost and complexity. Delta Controls offers devices that allow you to take advantage of these technologically advanced networks.

- Reduced complexity of installation
- Take advantage of smartswitch technology so the device only draws the power it needs
- Completely power down or activate devices based on a schedule

We have a complete, **top to bottom** Ethernet product architecture.

With Ethernet support for your entire network, you'll have an endless ability to acquire data from your building. This will give you the ability to integrate with metering networks and employ energy savings strategies.

Delta hosts a large selection of Ethernet based System and Application level controllers. From the DAC-606E all the way to the DSC-1616E, these controllers are capable of providing the advanced functions required to run an entirely Ethernet based BACnet network, including capabilities such as super capacitor powered time clocks, optional Modbus integration, SRAM backup, and firmware that can be loaded or saved over the network.

Applications

With easy to mount enclosures that are screw or din rail mountable, these controllers are designed for a wide range of applications requiring almost any range of I/O configurations. Their applications include but are not limited to Roof Top Units, Air Handlers, Boilers or Chillers, etc. Because these controllers are fully programmable, they can handle almost any application

DAC-606E

The DAC-606E Application Controller is a Native BACnet Building Controller that communicates over an Ethernet network. With 6 inputs and 6 binary triac outputs, the DAC-606E is suitable for controlling various packaged units and other equipment with small I/O requirements. As the controller is completely programmable, GCL programs and BACnet objects can be tailored to the specific application. The controller is designed for a wide range of applications with small local I/O requirements.

DAC-633E

The DAC-633E, with 6 inputs, 3 binary triac outputs, and 3 Universal (analog) outputs this model provides increased flexibility for control of application equipment similar to the DAC-606E. Just like the 606E, the 633E is completely programmable.

DAC-633POE

The DAC-633POE rounds out our application level PoE lineup allowing you the convenience of single cable installation covering both power and communications. With the same, flexible I/O count of the 633E, this PoE based controller can cover a multitude of configurations with some simple programming.

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The essence of PoE is integration. By integrating with your IT Network, you bring a true managed network to the HVAC infrastructure.

– John Nicholls, Executive Vice President Delta Controls

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DVC-V304E

The DVC-V304E is a fully programmable, Native BACnet®, Advanced Application Controller that communicates over an Ethernet network.

DVC-V304E supports BACnet IP, and BACnet over Ethernet protocols on its Ethernet port. It also supports a RS-485 subLAN of Delta LINKnet devices such as the Delta Controls BACstat line of smart network sensors and DFM I/O expansion modules.

DVC-V322PoE

The DVC-V322PoE is a fully programmable, native BACnet®, Advanced Application Controller for VAV applications featuring Power over Ethernet (PoE).

PoE provides high speed communications and device power in a single cable, simplifying wiring and eliminating the need for a local control transformer.

DVC-V322E

The DVC-V322E supports all the same capabilities for VAV applications but includes 2 universal outputs and 2 digital outputs allowing for greater range of ancillary control along with your VAV unit.

DAC-1146E

The DAC-1146E, with 11 inputs, 6 binary triac outputs and 4 Universal (analog) outputs, the DAC-1146 is suitable for controlling a greater variety of equipment ranging from the zone specific to rooftop and multizone air handlers. As the controller is completely programmable, GCL programs and BACnet objects can be tailored to these larger tasks.

DAC-1180E

The DAC-1180E sports a similar I/O count to the 1146 but it drops the binary outputs to allow for 8 Universal (analog) outputs allowing for an even greater range of applications. The DAC-1180E is one of our most versatile models for all sorts of medium sized applications.

In addition to the Application Controllers seen here, there is a full range of fully programmable, Ethernet Delta System Controllers available.

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With the desire for more information out of our systems, bigger data pipelines are required and with our Ethernet products we are at the very edge, within the zone.

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– **Grant Calhoun,** Director of Product Management