NETWORK CONNECTED SOLUTIONS FOR YOUR BUILDING
BETTER, GREENER, SMARTER

The world is undergoing an exponential acceleration in the pace of technological evolution and digital transformation, resulting in new opportunities for the improvement of the quality, sustainability and efficiency of our lives.

Leveraging these opportunities in the connected real estate market is the crux of “smart” building technology.
Smart buildings use automated processes to control their operations, including heating, ventilation, air conditioning, lighting and security systems. This infrastructure helps building owners and operators improve asset reliability and performance, which reduces energy use, optimizes space improves utilization and minimizes the environmental impact of buildings.

It is no surprise that the building environment, building automation and the Internet of Things (IoT) are converging. Molex smart building technology is rapidly evolving and delivering more than just energy savings.
The “3-30-300™ principle” refers to the estimated amount a company pays per square foot annually for energy, real estate, and its workforce. This principle helps put an organization’s affected operating costs into better perspective.

With energy representing approximately $3 per square foot, energy saving merely scratches the surface of the overall value proposition for smart buildings.

Using sensor technologies to understand how occupants utilize space has the potential to reduce the typical $30 real estate costs.

And because a company’s largest expense is often its payroll – at $300 per square foot – if you use smart building technology such as Molex to offer customizable and controllable environments to increase employee productivity and tenant satisfaction, the value is significantly more than the energy savings.
How to give individuals greater control over their office environment? The Molex CoreSync solution automatically controls lights and adjusts the light color to resonate with natural human biorhythms to boost productivity. Users can set their preferred temperature and the Building Management System can adjust the temperature based on who is present.

To support the growing mobile workforce, smart buildings enable estate managers to optimize their assets. With Molex integrated sensor technology, facility managers can better understand worker patterns and respond automatically to personal preferences. Making it easier to carry out menial tasks, such as locating and managing conference rooms.

During an office emergency how can you be smarter? Audio alarms and speakers will broadcast high level messages to your visitors, staff, customers, or students. Increasingly the smarter option through Molex is to direct people away from the danger to safe locations using intelligent directional lighting.

In addition to intelligent sensors that enable energy savings by automatically detecting whether someone is sitting at a desk. Smart buildings are deploying Molex Power over Ethernet (PoE) that allow a single cable to provide both data and electrical connectivity to wireless access points, IP cameras, VoIP phones, lighting and building management systems.
The term Human Centric Lighting has been defined as the process of adapting the qualities of artificial light to emulate the natural course of daylight, adjusting people’s daily rhythms and improving motivation, well-being, and productivity.

The ability to migrate lighting controls and distributed sensor systems to an IP-based Molex infrastructure, allows the smart building to dynamically adapt to a human centric lighting environment. Delivering a pleasant and productive place to work.

1 Impact of Windows and Daylight Exposure on Overall Health and Sleep Quality of Office Workers - A Case-Control Pilot Study. Mohamed Boubkeri, Ph.D, Ivy N. Cheung, et al
POWER OF THE NETWORK

Smart buildings use the power of the IoT to deliver significant benefits across a wide range of business capabilities.
Molex (a subsidiary of Koch Industries) is a globally recognized provider of electronic solutions in a wide range of industries. With more than 75 years of experience, design and manufacturing facilities around the world, Molex leads the industry in R&D investment, striving to develop and deliver innovative, high-quality, reliable solutions that can be customized to meet your needs.

MOLEX - POWER OVER ETHERNET

A pioneer of structured cabling and high speed data technologies, Molex provides a comprehensive portfolio of copper and fiber structured cabling solutions. With more than three decades of experience delivering enterprise network solutions for some of the largest organizations in the world.

Today these organizations are working with Molex to leverage PoE solutions to deliver enhanced benefits, by allowing electric power to pass along with data over Ethernet cabling. This single cable provides both data and power connectivity to devices from lighting, Access Points to building management systems. Delivering maximum performance and efficiency with reliability that is fundamental to the infrastructure of smart buildings.

CORESYNC - SENSORS AND INTELLIGENT PROCESSING

Integrating field-proven cabling and wireless technologies, the Molex CoreSync platform enables smart buildings and smart campuses by feeding multi-sensor data to a central host, providing building analytics and orchestrating disparate building systems. Such as real time energy consumption, lighting, temperature, humidity and air quality, meeting room management and occupancy, security, audio-visual, powered shades and building automation systems.

The ability to migrate disparate building systems to an orchestrated IP-based infrastructure creates business value and an asset for building developers and enterprises.
A complete network infrastructure that provides a cost-effective backbone for integrating disparate building functions with standard building management systems—all while powering and controlling low-voltage devices and lighting!

- A fully addressable lighting system.
- More flexibility using low voltage cabling in lieu of line voltage cable/conduit.
- Open API programming and real-time data exchange, which allows for simple integration with Building Automation System and other building systems.
- Energy savings & metering, data logging to the cloud.
- Supplemental temperature, humidity, & air-quality sensing.
- Asset tracking, color-tuning, and Circadian settings.
CORESYNC COMPONENTS

CORESYNC MANAGER

The CoreSync lighting software, leveraging amBX Smart Core technology, provides support during the complete lifecycle of a smart lighting control system, from design and installation to live operation and building maintenance. When compared with traditional methods, the CoreSync software provides effective lighting in a fraction of the time.

GATEWAYS / DRIVERS

At the heart of the system, the PoE Gateway distributes power and connects luminaires, drivers and sensors to the Manager. Each Gateway is connected to a Cisco switch with a Cat 6/6A cable, capable of receiving 60 watts.

The CoreSync driver family has been designed to drive a variety of LED engines. Each driver can be embedded in the fixture, mounted directly, or placed remotely.
CORESYNC COMPONENTS

The CoreSync Control provides an array of applications that enable the digital building. Whether part of a light fixture service delivery, wired or wireless sensors are enabling real time savings by aligning event requirements to your needs. Dimming light, starting AV, lowering window coverings, starting your conference call can be aligned with software and the touch of a button.

With the rapid growth of IP-based systems, cloud services and the Internet of Things, Molex offers a proven physical layer, ideal for your future’s organisation growth requirements.

As a Cisco® Solution Technology Integrator, Molex integrates Cisco switches into the CoreSync System.

CORESYNC COMPONENTS

SENSORS

LUX LEVEL  COLOR  TEMP  AIR QUALITY  TEMP & HUMIDITY  PRESCENCE  ON/OFF  POWER

NETWORK EQUIPMENT

With the rapid growth of IP-based systems, cloud services and the Internet of Things, Molex offers a proven physical layer, ideal for your future’s organisation growth requirements.

As a Cisco® Solution Technology Integrator, Molex integrates Cisco switches into the CoreSync System.
**Room reservation management:** In conjunction with the API, a CoreSync Alliance application identifies conference room attendance. When no presence is detected, the reservation is cancelled and made available. Options also include a 5-minute room expiry warning through a blinking light.

**Space finder:** An Alliance associate also uses the API to identify and manage desk spaces and reservations. Possibilities also include user personalization to control lighting and heating.
Through combined expertise and innovation, the Alliance is developing frictionless integration that delivers improved efficiency, enhanced outcomes, real-time data and monitoring to commercial building owners, managers and tenants.
Georgia-Pacific selected Molex based on its extensive expertise in digital building transformation capabilities and the versatility of the Molex system as a cornerstone of their office. Systems in the GP Center use an innovative Power over Ethernet (PoE) connected lighting solution for the building that was designed and developed by Molex and Johnson Controls, leveraging technology from Cisco Systems. The IoT/Molex Digital Building network integrates with Johnson Controls’ Metasys® building automation system to deliver a highly secure solution that can monitor light levels, temperature, air quality, and detailed occupancy information for a completely connected environment.
One Europe’s largest energy-positive building has been designed to generate more energy in its operational phase, than it consumed through the production of building materials, construction, operation and disposal of the building.

- Lighting is supported by 95% PoE and the remaining line voltage controlled through Molex, and API integrations. Along with locally designed LED fixtures.
- Dynamic lighting scheduled for different seasons and times, with sensors tracking occupancy, ambient light, temperature & humidity.
- Sensor data shared to modulate the HVAC and the motorized shading system.
- Outcome is energy lighting consumption within 5 kWh/m² per year.
The Molex Advantage

Molex continues to offer a wide range of innovative products and services supported by decades of experience in designing cables, sensors and connectivity solutions for smart building applications. Our products and solutions are also backed by a comprehensive system performance warranty, ensuring peace of mind over the long term.