

# Building and Industrial Automation Trends Require Connectivity

Do you have the right products to create seamless connections in tight spaces?

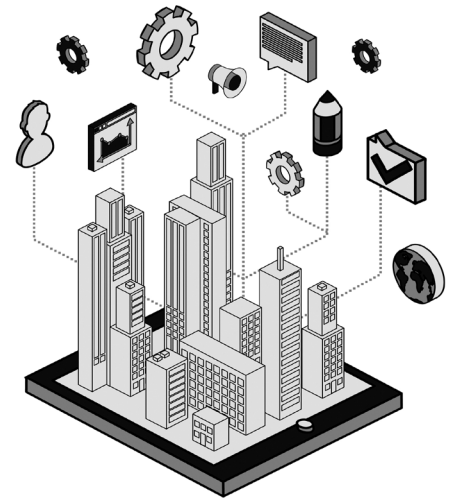
## SITUATION

Connected system innovations found in commercial buildings are carrying over into industrial building infrastructure and production lines where automation is focused on buildings systems, including climate control, security and safety as well as advanced manufacturing processes.

More complex, connected and modularized buildings require a significant increase in the number of internal systems that use multiple printed circuit board (PCB) and flex assemblies for sensors, cameras and multiple active module PCBs. Assemblies demand connectors with improved signal integrity (SI) for speed and robustness in tight spaces. And while connectivity is increasing, it must be accomplished without an increase in the product profile.

The next wave of features propelled by industrial internet of things (IIoT) innovation will require increased internal PCB and flex assembly density within the same application profile. This will drive more modularity, with complex circuitry requiring additional semiconductors, memory, capacitors and resistors on multiple boards, increasing low-profile connector demand.

Do you know enough about the latest interconnectors to address these challenges?



## TREND 1: More Features Need More Power

- Feature-rich devices require more power in the same space, demanding low-to-mid power connections.
- More applications will have low volt motors, lighting and power supplies that will require low-power connection points.
- The demand for space-savings with increased internal density will drive shifts from wire to board or flex to board in how the power is supplied into the board

## TREND 2: Real-Time Information Requires Faster Connections

- Sensors and cameras are processing and interpreting more information at higher processing speeds, requiring connectors with superior SI performance. Consider the need for high-performing, durable interconnects early in the development process.
- Higher resolution displays require increased EMI and SI performance
- Antenna bands have evolved to drive more information at higher processing speeds, requiring more active and passive components.

## TREND 3: Space Constraints Require Profile Flexibility

- The inside profile of building automation applications is becoming more space constrained. Increased modularity limits the space from the connector and other components, requiring more profile and orientation micro connector options.
- Having multiple profile and orientation micro connector options gives designers and building managers flexibility to address space, location and connector entry-point challenges.

## WHAT'S TRENDING

# The Right Connector for Seamless Building Integration

Industrial building designers, owners and managers consider automation an investment rather than a luxury. Digital infrastructure now must be designed to support scalability and simplified integration of smart, connected systems.

For example, building automation systems (BASs) have decreased energy usage and costs by processing data and aligning building systems from sensors to control lighting fixtures, HVAC equipment and more. This example can be extended to production lines that have realized an increase in vision and scanning equipment to optimize production cost and efficiency.

The ability of these building and production line systems to orchestrate the automation of disparate information (audio/video, security cameras and access systems) dramatically increases the modularity in these applications. In turn, this increases demand for high-performing connection points. Molex's deep experience developing connectors with retention and mechanical features that perform well in low-profile, space-saving environments supports the goals of BAS designs.



**Contact us** to learn more about Molex [Pico-Lock Connector System](#), [Micro-Lock Plus Wire-to-Board Connector System](#), [Power Connectors](#), [SlimStack Board-to-Board Connectors](#) and [Easy-On FFC/FPC Connectors](#).

### SOLUTION:

#### **Pico-Lock Wire-to-Board Connectors**

- Side positive locking system for high retention force and max space savings
- Ultra-low-profile right-angle design
- Up to 6.5A per circuit design



### SOLUTION:

#### **Micro-Lock Plus Wire-to-Board Connectors**

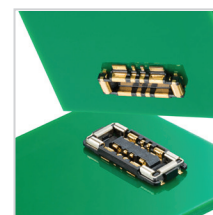
- Design flexibility with multiple pitches, mating orientations, dual-and single-row options
- Robust low-profile mechanical locking system for optimal retention force



### SOLUTION:

#### **Power Board-to-Board Connectors**

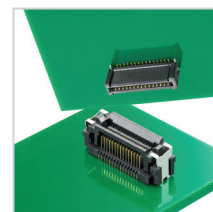
- 3.0 to 10.0A of current capabilities
- Dual-contact terminal design for signal assurance during high shock and vibration
- Wrap-around nail design for additional mechanical robustness



### SOLUTION:

#### **SlimStack FSB5 Floating 0.4mm-Pitch Board-to-Board Connectors**

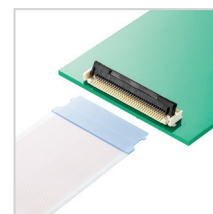
- +/- 0.5mm of floating range in any direction for ease of mating and superior performance in high shock and vibration environments
- 125°C operating temperature
- High speed supports up to 6 Gbps
- Offered in multiple mating heights



### SOLUTION:

#### **Easy-On 0.5mm-Pitch FPC Connectors**

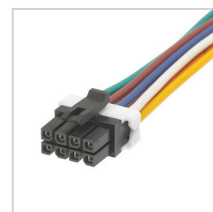
- Multiple orientations, including vertical and right angle
- Large range of actuator styles for design flexibility and robustness
- Multiple profile option for max space savings
- 105°C operating temperature



### SOLUTION:

#### **Nano-Fit Power Connectors**

- 6.5 to 8.0A current ratings
- 2.50mm pitch
- Fully isolated terminals
- Optional terminal position assurance retainer



# molex