

# Smaller and Lighter for IoT Solution >

*Molex Micro Solutions supporting further leaps in IoT*



**molex**

# IoT Sensor Situations and Challenges >

IoT has recently been pushing forward in a variety of fields, but current sensors are still limited in smallness and lightness for specifications of various products in which they are incorporated.



## Existing product size

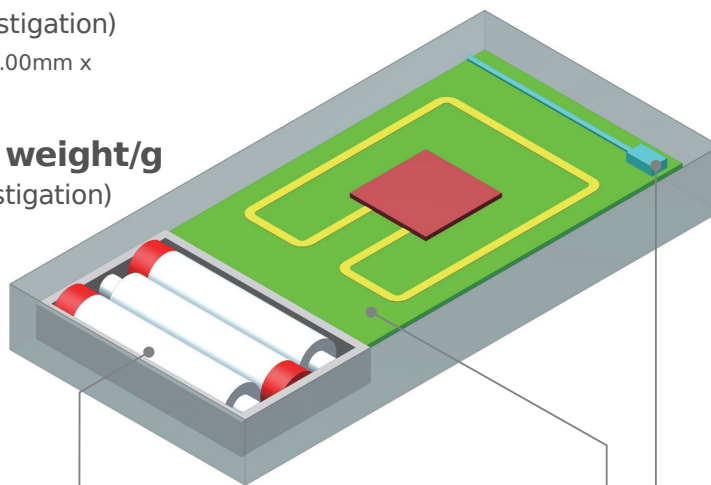
(internal company investigation)

Width 62.00mm x depth 125.00mm x  
height 15.00mm

## Existing product weight/g

(internal company investigation)

Total weight 275 g



## Concern #1

With existing components, there is a great dependence on format, so design specifications are restricted, making it difficult to make a format that is suited to the application in use.

## Concern #2

It is difficult to optimize size and weight due to the size and weight of individual parts, so developments in miniaturizing and lessening weight are limited.

## Considerations in battery use



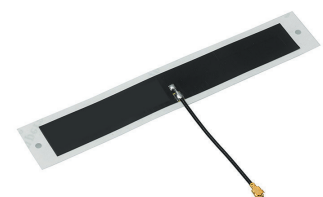
Design versatility is limited by battery format and size, and the weight of the battery adds to the end product's weight.

## Considerations in antenna circuit board use



The range of specification settings is determined by the format of the circuit board, so a certain amount of space is required.

## General antenna use considerations

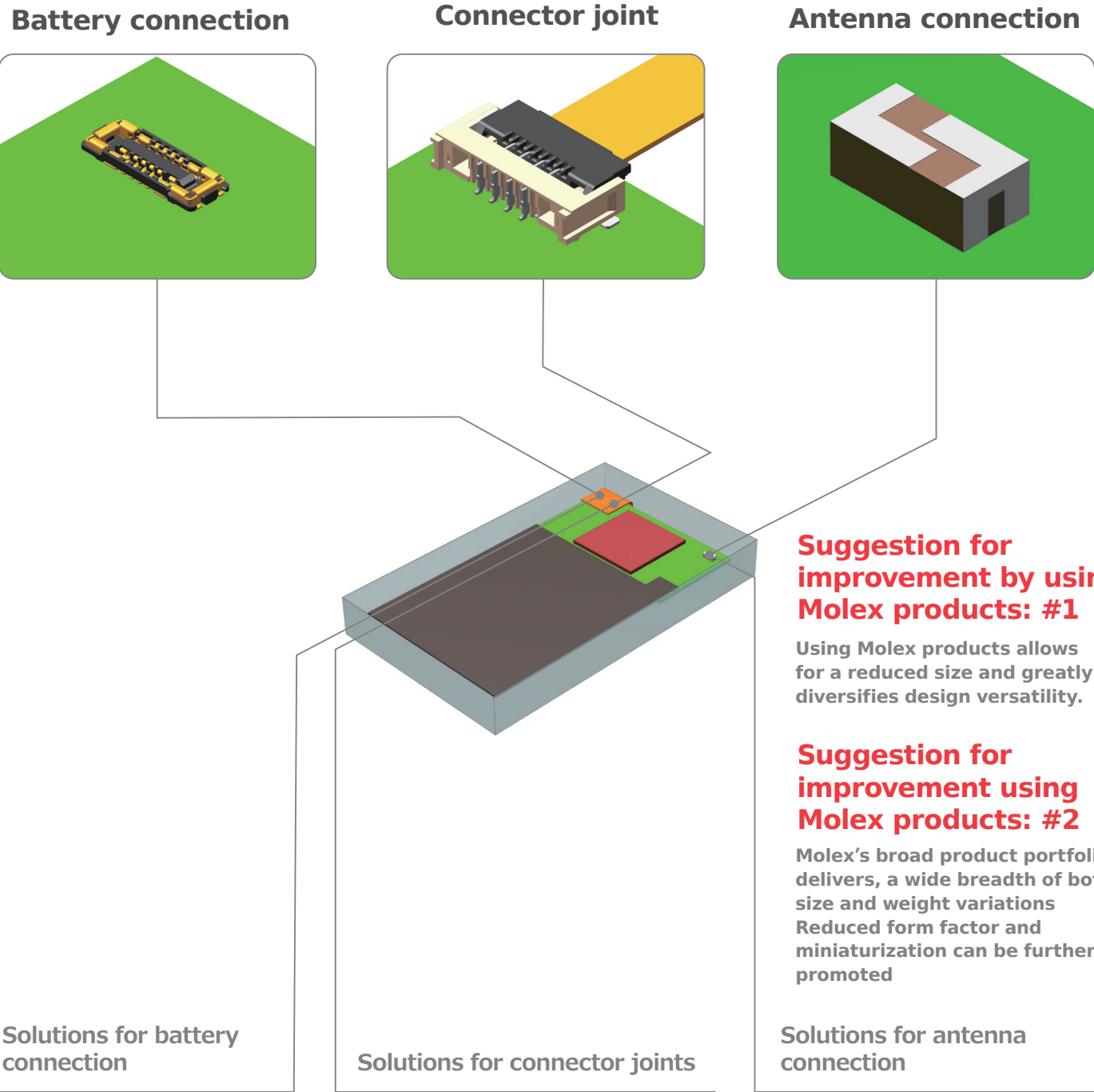


In order to secure space for the antenna, the size of sensors is restricted.



# Possibilities for Molex's proposed small, light-weight, thin types >

Molex's Micro Solution product line for IoT is comprised of sensors and gateways. Because the cloud is used in a diverse range of markets and applications, allowing us to greatly reduce size and weight of sensors.



Because they are thin and fine-pitch products, they can be used even in limited space and allow for drastic weight reduction.

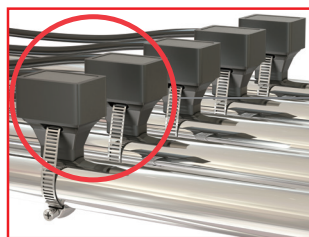
With a plentiful product lineup that is narrow, small and fine-pitch, design variability is increased.

Thin antenna not only save space but also allow for further reduction in size and weight.

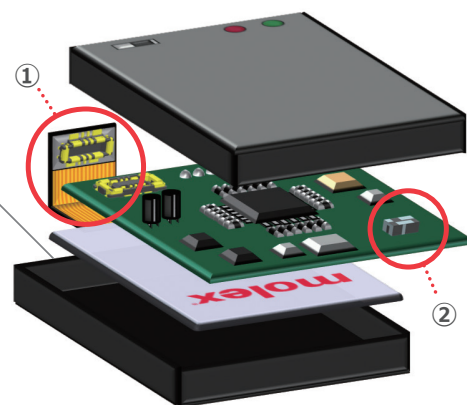
# Industry automation IoT creation

Automation and IoT creation will further increase in industrial facilities.

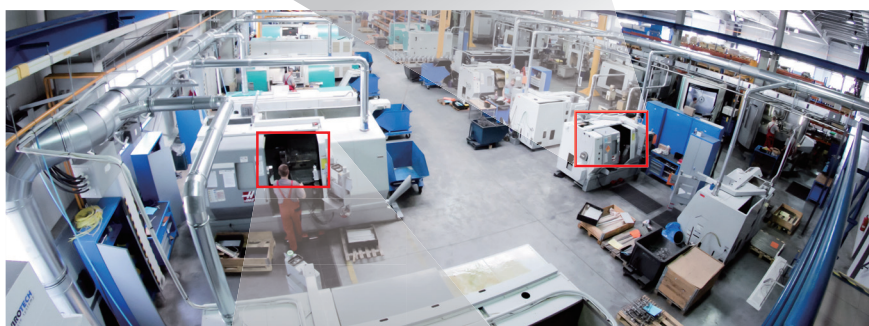
## Device monitoring sensor



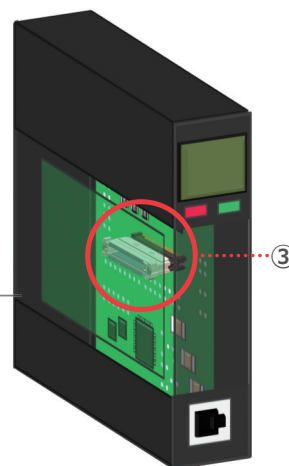
Module exploded view



Machine monitoring sensor



Module exploded view



## Programmable Logic Controller(PLC)

### Molex's proposed micro miniature product example

Product series	Pitch (mm)	Key point	Product features & benefits
① SlimStack Board-to-Board connector 0.40- and 0.80mm- pitch battery series	0.40	High current Minimum mating height 0.60mm Minimum mating width 2.00mm	In various applications that demand further size reductions, we support a current rate up to a maximum of 10.0A with an industry-minimum class product size.
② Antenna products	-	Miniature type low weight model	By designing products that are reduced in size and weight, it is possible to economize on used space.
③ SlimStack Board-to-Board connector 0.635mm pitch series	0.635	Abundant number of poles and mating height lineup	Supporting an abundant pole count lineup from 20 to 240 poles and flexible design

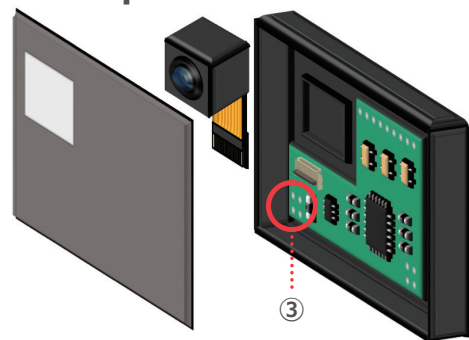
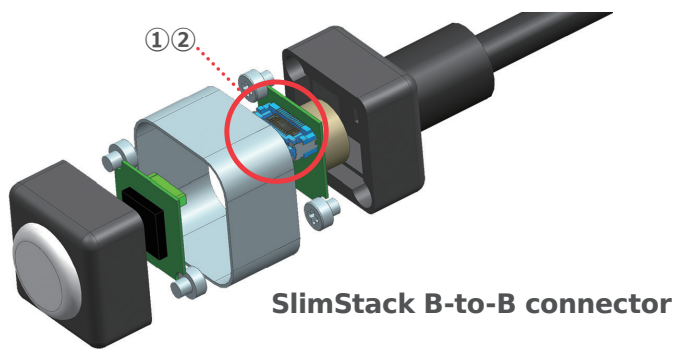


# Factory automation unmanned carrier >

To further the automation in factories through IoT introduction, sensors and cameras that manage and monitor operations are necessary.



In-camera connection use example



## Molex’s proposed micro miniature product example

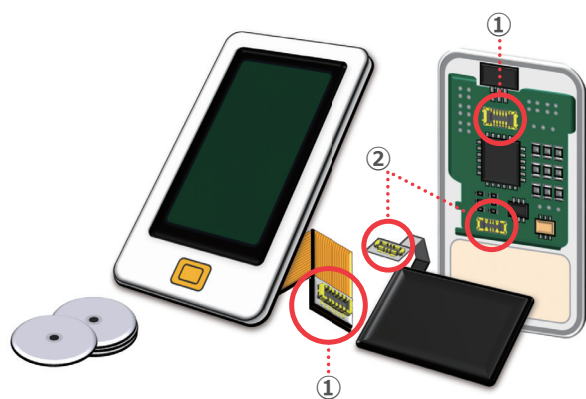
Product series	Pitch (mm)	Key point	Product features & benefits
<div>①</div> <div>SlimStack Board-to-Board connector FSB5 series</div> <div></div>	0.40	World’s smallest floating connector	Product width is 3.80mm, making it one of the smallest floating connectors in the market, while also establishing a small floating movability range of ±0.5mm.
<div>②</div> <div>SlimStack Board-to-Board Connector 0.40mm-Pitch B8 Series</div> <div></div>	0.40	Clean point connector mounting	Molex’s unique contact profile increases contact reliability and reduces power flicker caused by dropping impact, and foreign material is removed by wiping.
<div>③</div> <div>Easy-On FFC/FPC connector 0.50mm-Pitch FBH1 Series</div> <div></div>	0.50	Low-profile connector	Dual connector that contributes to space saving as one of the smallest low-profile connectors in the market that also contributes to design freedom with a range of pole counts.

# Connected medical and healthcare >

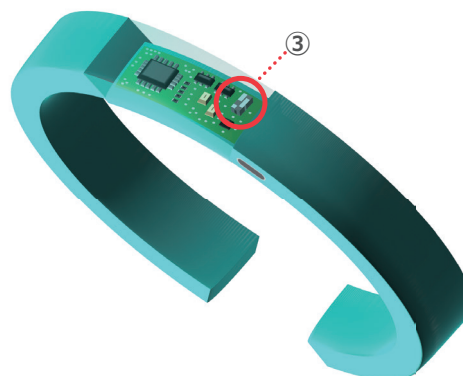
IoT progress has enabled individuals to manage their own health.




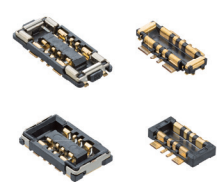
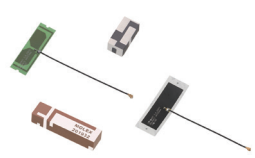
**Liquid crystal connection/internal connection/high-speed charging**



**Wireless data processing (Wi-Fi, Bluetooth)**



## Molex's proposed micro miniature product example

Product series	Pitch (mm)	Key point	Product features & benefits
<b>① SlimStack Board-to-Board connector 0.35mm pitch SSB RP series</b> 	0.35	Maximum current rating: 3.0A	Fast metal covers have superior fit guide functionality and allow for a maximum 3.0A electric conduction. Fit height goes up to 0.60 -1.00mm, supporting a variety of small appliances.
<b>② SlimStack Board-to-Board Connector 0.40- and 0.80mm-Pitch Battery Series</b> 	0.40	High current Minimum mating height: 0.60mm Minimum mating width: 2.00mm	In various applications that demand further size reductions, we support a-current rating up to a maximum of 10.0A with an industry minimum class product size.
<b>③ Antenna products</b> 	-	Miniature type low-weight model	By designing products that are reduced in size and weight, it is possible to economize on used space.



# Smart buildings >

In addition to security, we can also boost strength and segmentation in terms of building maintenance and management.

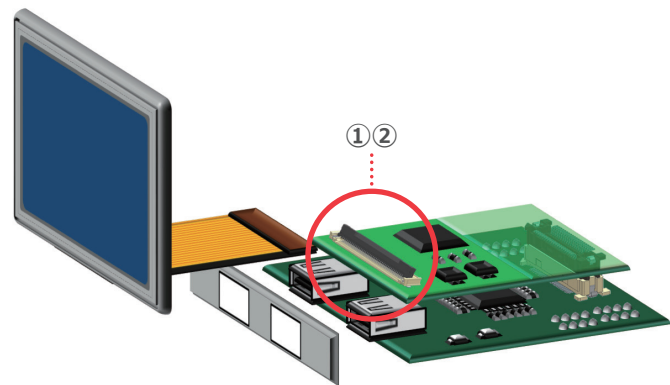
## Smart elevators



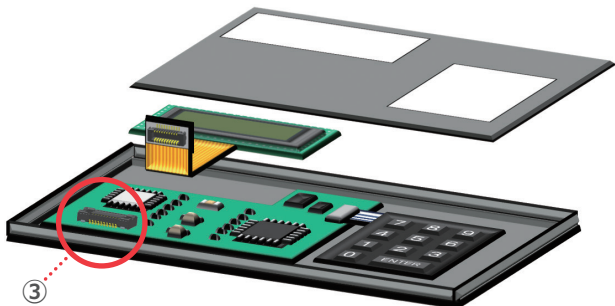
## Smart security gate



## Display connection



## Sensor connection



## Molex's proposed micro miniature product example

Product series	Pitch (mm)	Key point	Product features & benefits
① Easy-On FFC/FPC Connector 0.50/1.00mm-Pitch FD19 Series	0.50	Dual connector, abundant variation	Despite the same basic structure, 0.50mm- and 1.00mm-pitch differences establish a varied pole count lineup. With its dual contact format, this product is optimal for use in applications that demand resistance against vibration
② Easy-On FFC/FPC Connector 0.50/1.00mm-Pitch Slider Series	0.50	Slider lock function, wide ranging pole count development	With its slider lock function, this product comes with a broad range of variations, enabling options such as top contact, bottom contact and straight insertion types.
③ SlimStack Board-to-Board Connector 0.40 mm-Pitch J-Bend Series	0.40	Contact lock terminal with product choice from 10 to 100 poles	With a wide range of options, from 10 to 100 poles, we have developed a product line capable of supporting fit for mating heights from 1.50 to 2.30mm with the same foot pattern.

[www.molex.com](http://www.molex.com)



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