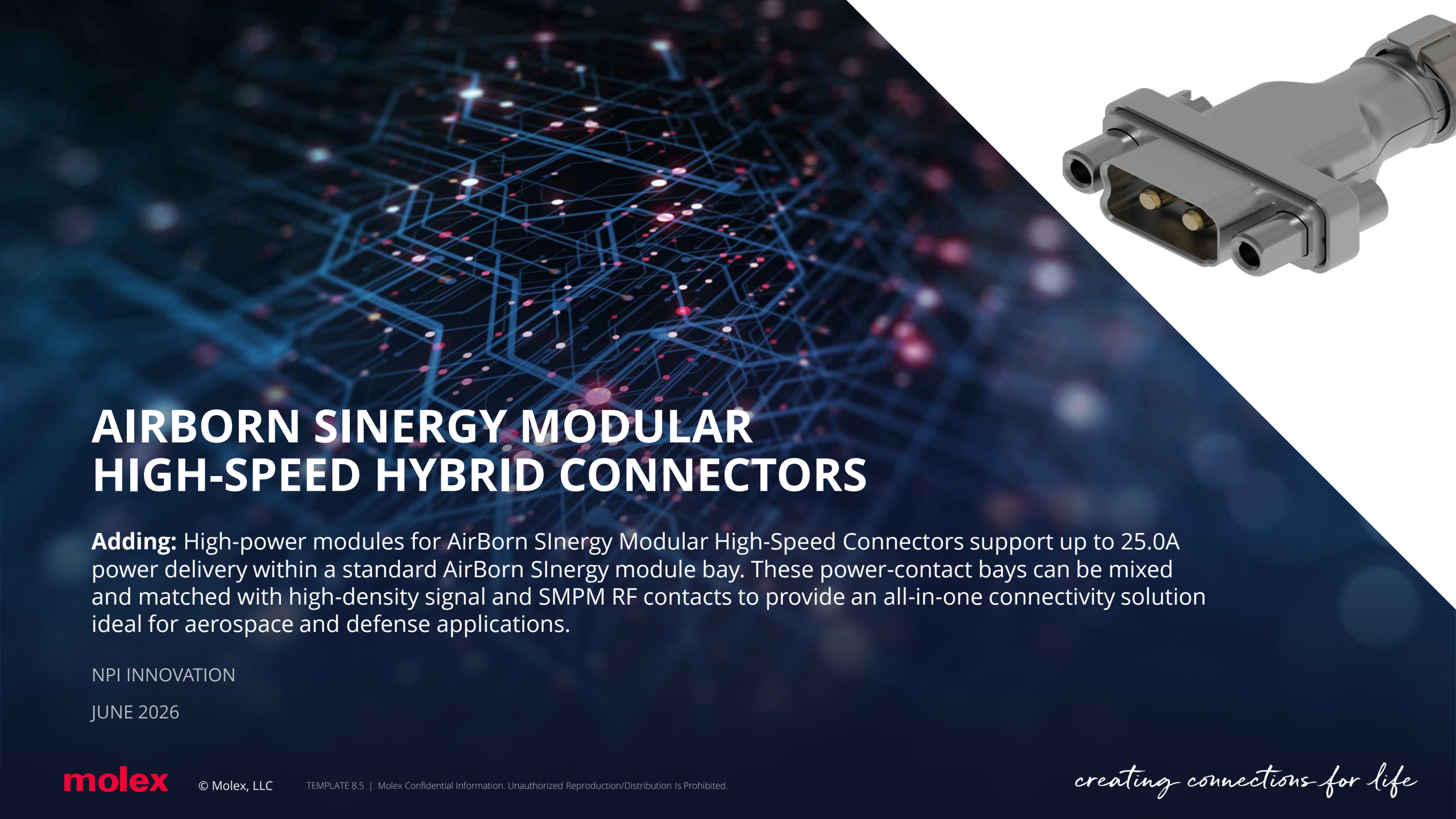




AIRBORN SINERGY MODULAR HIGH-SPEED HYBRID CONNECTORS

Adding: High-power modules for AirBorn Sinergy Modular High-Speed Connectors support up to 25.0A power delivery within a standard AirBorn Sinergy module bay. These power-contact bays can be mixed and matched with high-density signal and SMPM RF contacts to provide an all-in-one connectivity solution ideal for aerospace and defense applications.

NPI INNOVATION

JUNE 2026

AirBorn SInergy Modular High-Speed Hybrid Connectors

Supporting complex, high-performance systems by providing up to 25Gbps per lane and up to 25.0A of power in a modular and customizable form factor, AirBorn SInergy Modular High-Speed Hybrid Connectors are qualified to MIL-DTL-83513 standards for reliability in space-constrained aerospace, defense and space applications. One to five configurable bays enable customizable signal, power and RF interfaces that streamline integration and design, while a durable four-point contact system and rugged die-cast metal bodies provide robust reliability in extreme environments.

Series

SRR, SVP, SVR
SCPP, SCRP, SCRR

AirBorn SInergy PCB Connectors
AirBorn SInergy Cable Assemblies



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Key Specifications	
Modular Bays	1 to 5
Validation	Qualified to MIL-DTL-83513 performance requirements
Data Rate	Up to 25Gbps (signal interface)
Frequencies	Up to 40 GHz (RF interface)
Current	Up to 25.0A

Product Overview

AirBorn SInergy Modular High-Speed Hybrid Connectors

Trends and Challenges

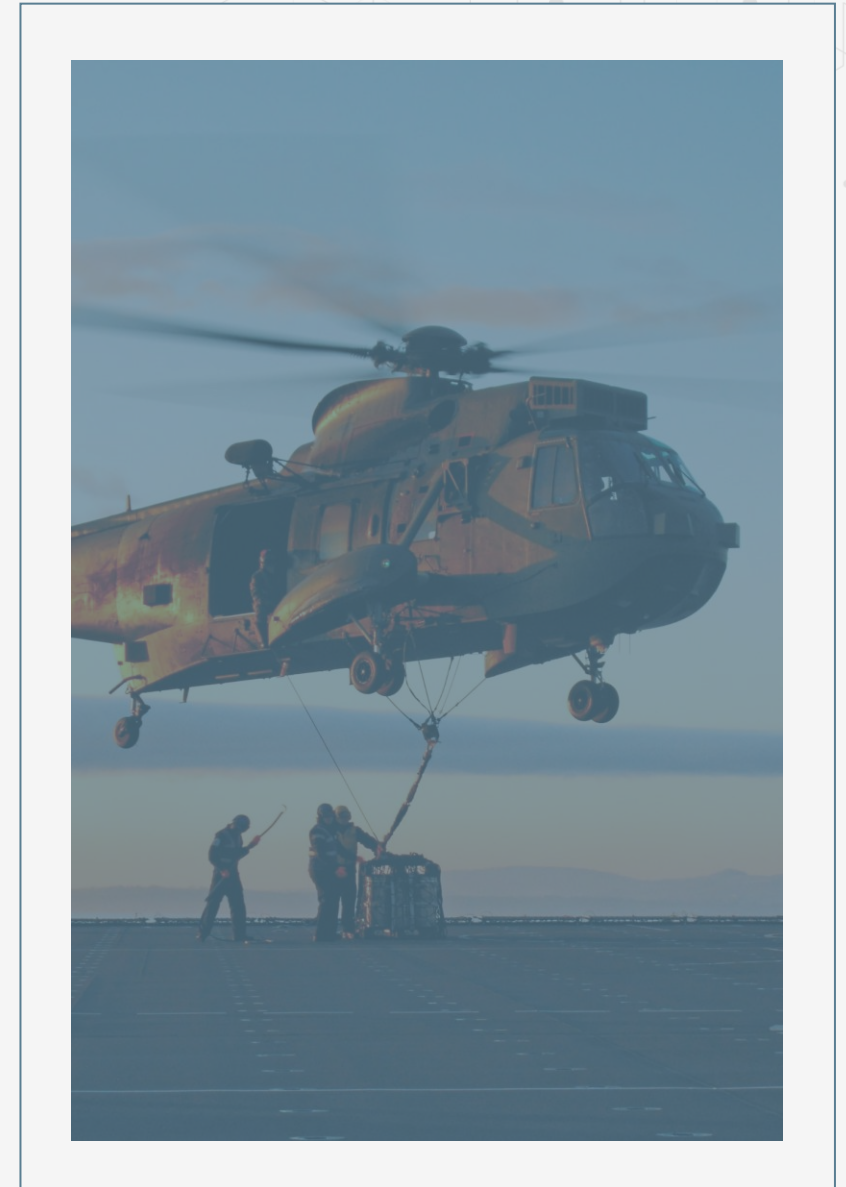
Meeting the ultra-high-speed data transmission requirements of advanced aerospace and defense systems requires exceptional signal integrity (SI) and bandwidth capacity. Connectors must provide electromagnetic interference/radio frequency interference (EMI/RFI) shielding and rugged performance that maintains stable connections amid shocks, vibrations and extreme temperatures. Supporting complex systems also requires versatile connectors that provide varied connectivity solutions in a compact package.

Industry Needs

Using modular, hybrid connectors with configurable modules and versatile mounting options allows designers to meet multiple demands of high-performance systems and constrained geometries with a single consolidated connectivity solution. Rugged construction that meets stringent aerospace and defense industry standards helps ensure reliable operation and streamlined validation processes.

Product Solutions

AirBorn SInergy Modular High-Speed Hybrid Connectors are compact, high-performance connectors that use a modular design with one to five bays. The AirBorn SInergy design enables mixing and matching of high-density signal, 25.0A power and SMPM (subminiature push-on micro) RF connections. Tested to MIL-DTL-83513 specifications, AirBorn SInergy connectors meet stringent military and aerospace requirements for durability and signal strength in applications subject to shock forces, vibration, moisture and extreme temperatures. Signal connectors use four points of contact per pin, with 50 microinches of gold plating to ensure consistent connectivity at data rates up to 25Gbps.



Vital Product Information

AirBorn SInergy Modular High-Speed Hybrid Connectors

Hybrid High-Speed Data and Signal Support

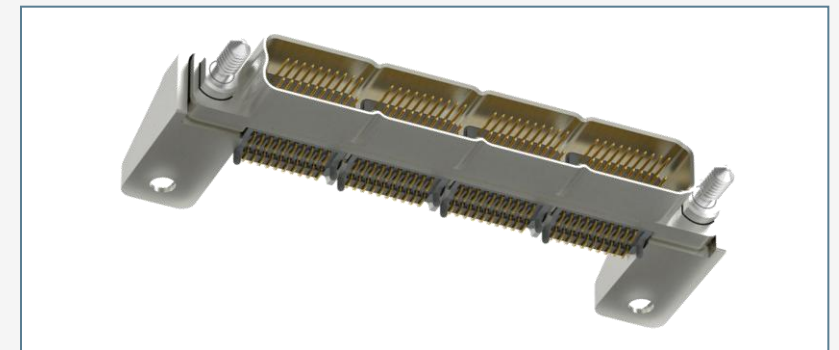
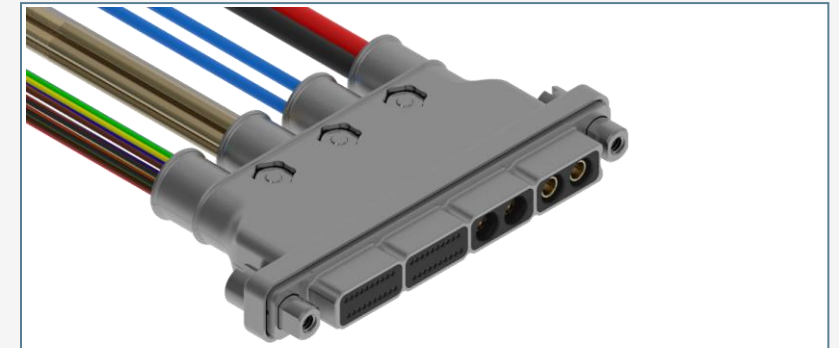
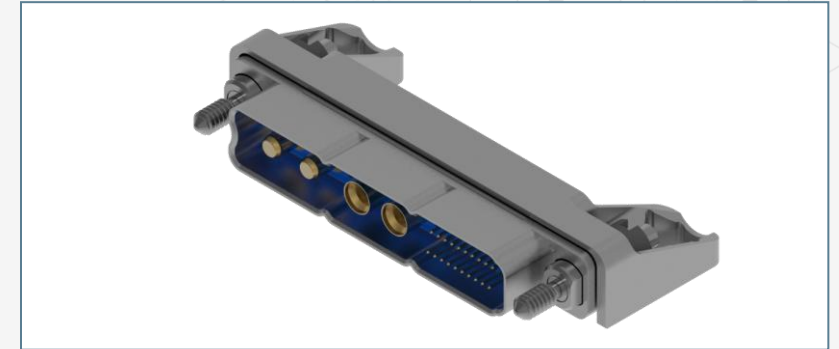
Providing data rates up to 25Gbps per lane and 75Gbps aggregate bandwidth, these connectors help meet the demands of modern aerospace and defense systems and enable reliable high-speed transmission for protocols such as XAUI, USB 3.0, PCI Express 3.0/4.0, SAS-3/4 and 10G/25G Ethernet.

Rugged Military-Grade Performance

Tested to MIL-DTL-83513 performance specifications, these connectors are designed to withstand extreme temperature, vibration, shock and moisture. The metal housing provides robustness and EMI/RFI shielding, while the four-point contact design enhances signal integrity and minimizes intermittent disconnection in high-vibration conditions. Power contacts engineered to the MIL-DTL-39029 contact crimp standard support up to 25.0A, simplifying design and power delivery.

Modular Configurability with Flexible Mounting Options

The configurable one- to five-bay system enables custom combinations of signal, power and SMPM RF interfaces to match application needs and reduce the need for multiple connectors. Various mounting styles, including vertical and right-angle board mounts along with cable assemblies, use interchangeable locking, jacking and guide hardware to optimize versatility while simplifying integration and assembly.



Product Advantages and Features

AirBorn SInergy Modular High-Speed Hybrid Connectors

Reduces weight and saves PCB real estate

The small form factor helps optimize contact density in space-constrained devices, offering a contact pitch of 0.80mm (0.0315") for signal contacts and 4.39mm (0.173") for SMPM RF and power contacts.

Provides reliable PCB connections and long-term durability

High-quality surface-mount terminations conform to IPC-A-610 Class 3 specifications, helping prevent solder joint failures and enhancing performance throughout the product life cycle.

Minimizes space usage for tight packaging requirements

Power contacts support up to 25.0A in a MIL-DTL-39029 crimp/contact design, delivering reliable high power in a miniaturized form factor.

Helps prevent connection failures in vibration- or shock-prone applications

Versatile options for locking, jacking and guide hardware are available to optimize mechanical alignment and mating security while securely fastening the connector to the PCB.

Enhances corrosion resistance and minimizes the chances of signal failure

Robust interface plating with 50 microinches of gold and solderable gold termination plating improve durability and signal reliability.

Reduces board congestion, part count and assembly size

Interchangeable, molded insulator bays support customization of contact types and position-by-position configuration, enabling signal, power and RF modules to be combined in a single, all-in-one interface.

Simplifies cable and assembly complexity

SMPM RF, twinax and discrete-wire cables up to 12 AWG can be incorporated into AirBorn SInergy cable assemblies in various combinations, combining multiple functions into a more unified, system-ready solution.

Markets and Applications

AirBorn SInergy Modular High-Speed Hybrid Connectors



Head-Up Displays



Combat Vehicles



Satellites

AEROSPACE

- Avionics
- Drones
- Full-authority digital electronics control systems
- Head-up displays

DEFENSE

- Combat vehicles
- Communications devices
- Missile systems
- Radar systems
- Radio communication devices
- Satellites

SPACE

- Cube satellites
- Satellites
- Vision/camera systems

Frequently Asked Questions

AirBorn SInergy Modular High-Speed Hybrid Connectors

Is the amperage rating based on a specific temperature rise, and is derating information available for other applications?

Yes, the rating is based on a 30°C temperature rise. Additional derating curves and supporting reports are available for specific application requirements.

What is the maximum wire gauge supported by the power contact, and is it based on a specific industry standard?

The power contact supports a maximum wire size of 12 AWG, based on the MIL-DTL-39029 #12 crimp contact design.

Is the power contact module available across all application configurations, such as board-to-board, wire-to-board and wire-to-wire?

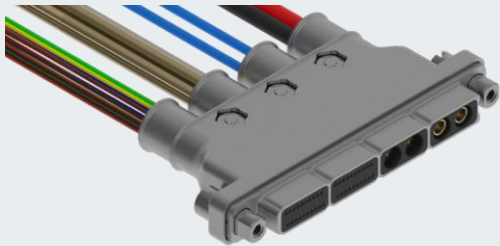
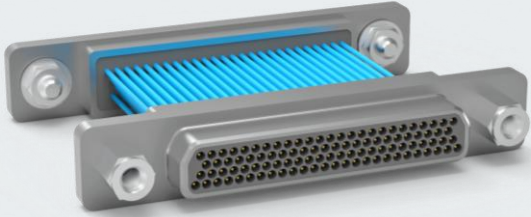
Yes, the power contact module is available across all AirBorn SInergy application types, including board-to-board, wire-to-board and wire-to-wire, as well as motherboard and daughtercard configurations.

Are the power and signal contact modules available with different types of signal connection such as RF, twinax and discrete-wire connectivity?

Yes, the AirBorn SInergy system is designed to incorporate combinations of power, RF (SMPM) and multiple signal interface or cable types into a single, all-in-one connector housing. AirBorn SInergy connectors can include RF and 25.0A high-power connector bays alongside bays with different types or quantities of signal connections. All signal types, including RF, discrete-wire, twinax and power cables, are offered in all configurations.

Unique and Useful Differentiation vs. Similar Molex Products

AirBorn SInergy Modular High-Speed Hybrid Connectors

	Molex AirBorn SInergy Modular High-Speed Hybrid Connectors	Molex AirBorn M Series Micro-D Hybrid Connectors
Series Number	SRR, SVP, SVR	MD, MP, MM
Modular	Yes	No
Configurations	Board-to-board, wire-to-board, wire-to-wire	Board-to-board, wire-to-board
Applications	Aerospace, defense, medical	Aerospace, defense, industrial, medical
Connector Interfaces	0.15mm signal, 12 AWG power, SMPM	26 AWG signal, 16 AWG power
Number of Modules	Up to five	One
Circuit Count per Module (max.)	20 signal, 2 power, 2 SMPM	24 signal, 2 power
Current Capacity	Up to 2.5A (signal) and 25.0A (power)	Up to 3.0A (signal) and 13.0A (power)
Validation	MIL-DTL-83513, MIL-DTL-39029	MIL-DTL-83513
Operating Temperatures	-55 to +125°C	-55 to +125°C
Product Image		

Product Specifications

AirBorn SInergy Modular High-Speed Hybrid Connectors

Reference Information

Packaging: Tray (connectors), bag (cables)
Designed In: Inches
RoHS: Yes
Halogen Free: Yes
Configuration: 1 to 5 modular bays—high-density signal (HD), power, SMPM (RF)

Electrical

Voltage: Up to 250V AC (RMS)
Current: Up to 2.5A (HD) or 25.0A (power)
Frequency: DC to 40 GHz (RF)
Data Rate: Up to 25Gbps per pair (HD)
Contact Resistance: Up to 30 milliohms (HD or RF)
Impedance: 100 Ohms (HD), 50 Ohms (RF)
Dielectric Withstanding Voltage:
 Sea level—750V AC (RMS)
 21,336m (70,000 feet)—250V AC (RMS)
Insulation Resistance: 5,000 Megohms
Insertion Loss: -0.75 dB @ 12.5 GHz (HD), -0.5 dB @ 40 GHz (RF)
Return Loss: -13.42 dB @ 12.5 GHz (HD)
Voltage Standing Wave Ratio (VSWR): 1.07 @ 40 GHz (RF)

Mechanical

Pitch: 0.80mm (.0315") (HD), 4.39mm (.173") (power or RF)
Header Height: 7.49mm (.295") (receptacle), 6.70mm (.264") (plug)
Connector Mating Force: 20.9N (75 oz) per HD bay + 8.9N (32 oz) per power bay + 32N (115 oz) per RF bay
Connector Unmating Force: 16.7N (60 oz) per HD bay + 8.9 N (32 oz) per power bay + 19.5N (70 oz) per RF bay
Circuit Size: 20 (signal), 2 (power or RF)
Shock Rating: 50g
Durability (max.): 500 cycles

Physical

Shell: Zinc or aluminum alloy, electroless nickel finish
Hardware: Stainless steel, passivated finish
Contact: Phosphor bronze (HD), beryllium copper (RF)
Contact Plating: Gold
Bushing (RF): Brass
Dielectric (RF): Polytetrafluorethylene (PTFE)
Operating Temperatures: -55 to +125°C

Additional Resources

Web Overview Page	https://www.molex.com/en-us/products/connectors/modular-connectors/sinergy-modular-high-speed-hybrid-connectors
Product Overview Sheet	987652-9293.pdf (molex.com)
Global Product Manager	Billy Rhea, ADS



THANK YOU

creating connections for life

molex