

The ConnectPoint Line



Nexcomm System's ConnectPoint products offer long-range cable replacement for industrial applications. Using the new Wi-Fi HaLow standard, these robust products can send data at over 5MBps up to half a mile or lower speeds at up to a mile. This offers wire replacement to lower installation costs and maintenance.

The ConnectPoint AP access point controls the network and acts as the central hub. It is associated with one or more ConnectPoint Stations, which are connected to remote devices.

They offer both Ethernet and RS-485 ports to wire to external devices, such as drives, controllers and PLCs. Ethernet is on a standard RJ-45 connector. RS-485 is on a 4-pin M8 connector.

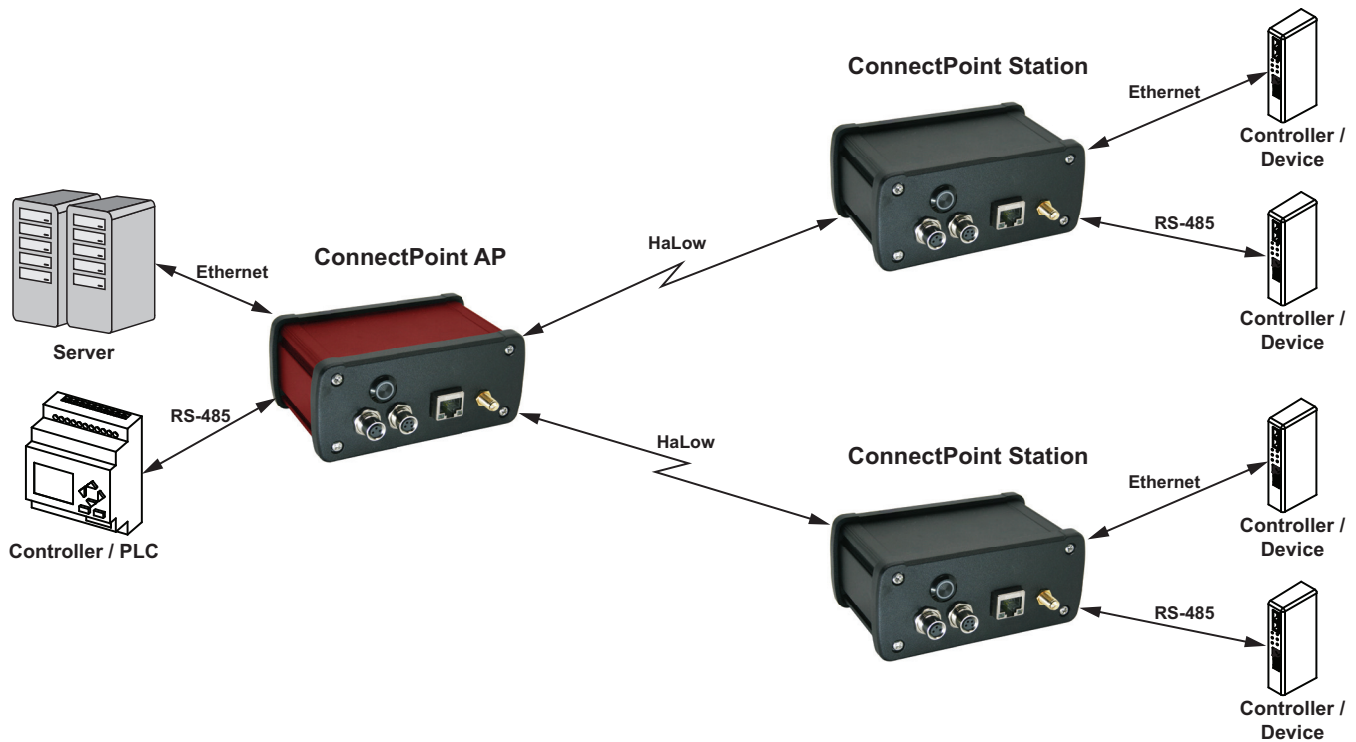
They pass data straight through, so they are protocol agnostic. They can be used with Modbus, BACnet, PROFIBUS, Modbus TCP and any other protocol that uses Ethernet or RS-485.

Housed in rugged aluminum enclosures, the system is designed for harsh industrial environments.



Benefits

- Wirelessly extends the range of Ethernet and RS / EIA / TIA-485 networks up to 1 mile, depending on antennas and environment.
- Protocol agnostic so they can seamlessly integrate with many systems.
- Eliminate cable installation and infrastructure costs.
- A single access point can support multiple nodes.
- A Wi-Fi HaLow connection between the access point and nodes simplifies installation while providing security, networking, range and power options.
- Plug-and-play operation to reduce setup, configuration, and maintenance.
- Linking ConnectPoint devices is as simple as pressing a button on both devices.
- Rugged IP67/68 aluminum enclosures with DIN rail mounting options.
- Custom labeling is available.



ConnectPoint AP



Specifications

- 9-36VDC, 3-pin M8 Female Connector
- 1 RS-485 Channel, 4-pin M8 Female Connector
- 1 10/100 Ethernet Port, RJ-45 Connector
- Wi-Fi HaLow, RP-SMA connector
- Extruded Aluminum Enclosure
- Optional Flange Mounting or DIN Rail Mounting Kits
- Rated to IP66
- 2.72 x 4.53 x 2.03 Inches

The ConnectPoint AP access point serves as the heart of the ConnectPoint system. It establishes the HaLow network and controls the network parameters. It connects to a ConnectPoint Station or another ConnectPoint AP either individually or simultaneously. One ConnectPoint AP is required in every network. It supports over 1,000 stations on the network.

As a Wi-Fi HaLow access point, it controls and manages the connections to the other devices. When a button is pressed on both devices, they automatically find each other. The access point sends the other device the network parameters, such as channel, bandwidth, and encryption key. Both devices then go to normal operation and start communicating.

The ConnectPoint AP has both Ethernet and serial RS-485 ports. The Ethernet port is a waterproof RJ-45 jack for standard CAT-5 or CAT-6 cables. The RS-485 port is a 4-pin female M8 connector.

The ConnectPoint AP simply passes any data received on the ports to the HaLow link and vice versa. It does not decode or decrypt the data in any way. This makes it suitable for any application or protocol using these physical transport layers, such as Modbus 485, Modbus TCP, BACnet, PROFINET, PROFIBUS and others.

Housed in an IP66 extruded aluminum enclosure, the ConnectPoint AP is ruggedized for harsh industrial environments.



ConnectPoint Station



Specifications

- 9-36VDC, 3-pin M8 Female Connector
- 1 10/100 Ethernet Port, RJ-45 Connector
- 1 RS-485 Channel, 4-pin M8 Female Connector
- Wi-Fi HaLow, RP-SMA connector
- Extruded Aluminum Enclosure
- Optional Flange Mounting or DIN Rail Mounting Kits
- Rated to IP66
- 2.72 x 4.53 x 2.03 Inches

The ConnectPoint Station is an end point in the HaLow network. It is a bridge between a HaLow network and both Ethernet and RS-485 networks, automatically passing data between the networks. It communicates with a ConnectPoint AP to act as a cable replacement between end devices.

Any data presented on the RS-485 port is sent to the ConnectPoint AP over Wi-Fi HaLow and output on its RS-485 port. Likewise, any data on the Ethernet port is output on the Ethernet port on the other side. It is also possible to configure the ConnectPoint devices to send data from Ethernet on one side to RS-485 on the other side, and vice versa.






The ConnectPoint Serial does not decode, decrypt, or interpret the data, so it can be used with any protocol based on the RS-485 or Ethernet physical connection. This includes Modbus 485, Modbus TCP, BACnet, PROFINET, PROFIBUS and others.

The 485 port is a 4-pin female M8 connector. The Ethernet port is a waterproof RJ-45 jack for standard CAT-5 or CAT-6 cables. Housed in an IP66 extruded aluminum enclosure, the ConnectPoint Station is ruggedized for harsh industrial environments. Combined with the extraordinary range and throughput of Wi-Fi HaLow, this makes the ConnectPoint Station ideal for wirelessly connecting drives, controllers, and PLCs in industrial communications networks.





Wi-Fi HaLow

Wi-Fi CERTIFIED HaLow™ for IoT

Features

-  Sub-1 GHz spectrum operation
-  Narrow band OFDM channels
-  Several device power saving modes
-  Native IP support
-  Latest Wi-Fi® security

Benefits

-  Long range: approximately 1 km
-  Penetration through walls and other obstacles
-  Supports coin cell battery devices for months or years
-  No need for proprietary hubs or gateways

Source: Wi-Fi Alliance®

The 802.11ah specification or Wi-Fi HaLow, was released by the Wi-Fi Alliance in 2017. It is best described as “sub-GHz long-range Wi-Fi”. It takes the features that have made Wi-Fi one of the most successful wireless protocols and brings it into lower frequency bands. It fills a gap by offering much better range than Bluetooth and IEEE 802.15.4 radios while offering much better data throughput than protocols like ZigBee, Thread and LoRa. This allows it to offer several distinct advantages.

Range – In general, lower frequencies offer better range and penetration through obstructions in the environment. By moving into the 800MHz and 900MHz bands, HaLow offers much better range and performance than traditional 2.4GHz systems as well as newer 5GHz and 6GHz systems.

Data Throughput – The first-generation Wi-Fi HaLow chipsets can push data at up to 10MBps, which is much faster than protocols like Bluetooth, ZigBee, Thread, and LoRa

Power Consumption – Power is critical in battery powered IoT products. The peak power of HaLow is higher than other radios, but because its throughput is much higher, its total on time is much shorter. This puts HaLow's power per bit efficiency higher than any of the other popular protocols.

Scalability – HaLow has been tested at over 1,000 nodes on one access point. Most IoT systems can intelligently manage 250 to 350 nodes.

Security – Wi-Fi has led advances in security over the years and HaLow benefits from this experience. Wi-Fi HaLow uses WPA3 and Wi-Fi Enhanced Open, the highest level of security developed for the latest Wi-Fi generation.

For a more detailed look at Wi-Fi HaLow, please see:

www.nexcommsys.com/wi-fi-halow-long-range-wi-fi

Antennas



The antenna is critical to the performance of any wireless system. The type, construction and installation should all be considered early in the evaluation of any wireless product. The ConnectPoint products use Wi-Fi HaLow operating in the 900MHz band (902 to 928MHz).

Nexcomm Systems can provide a few antenna options with the ConnectPoint products, but many more are available from antenna manufacturers and distributors. Contact us for any questions about which antennas to use with the ConnectPoint products in your application.

