

The Altai M360-X is an industrial Wi-Fi 6 client/access point that was specifically designed to meet the growing demand for industrial automation and digitization. It supports PROFINET and RS-232/422/485 serial interface, which allows I/O controllers and devices such as PLCs, meters, sensors, or actuators to communicate through the WLAN. This facilitates a transformation from traditional production lines to smart industrial OT networks.

With the rugged and compact design, along with its DIN-rail/wall mount, the M360-X can be easily integrated into various robotic systems such as AGVs, AMRs, AS/RS, and more. By leveraging Altai's fast roaming and AlwaysConnected technology, the M360-X ensures robust, reliable, seamless, and low-latency wireless connectivity, enabling real-time monitoring and precise control of production systems in logistics, warehousing, and manufacturing industries.



### Key Features and Benefits



#### Enhanced Capacity with Wi-Fi 6 Support

Harnesses Wi-Fi 6 features such as OFDMA and bi-directional multi-user MIMO to enhance capacity on both 2.4 GHz and 5 GHz radios, ensuring superior performance.

Total Data Rate	2.976 Gbps (2.4 GHz: 574 Mbps + 5 GHz: 2402 Mbps)
Max. Concurrent Users	256 (128 for both radios)*



#### Compact and Rugged Design

Purpose-built for installation on AGVs, AMRs, AS/RS, or any robots, the M360-X is designed to be the smallest form factor while delivering optimal RF performance without compromise. Its rugged construction guarantees durability in challenging industrial environments.



#### Super Dual-Band Coverage

Max. LOS Distance (as AP)	300 m (2.4 GHz), 250 m (5 GHz)*
Max. LOS Distance (as CPE)	1.7 km to AX600-S*



#### Serial to Wireless LAN Device Server

Provides an RS-232/422/485 interface to enable network access to serial devices, such as PLCs, meters, sensors, or actuators, over the wireless LAN.



#### Seamless Roaming

Supports 802.11k/v/r and proprietary CPE roaming technologies, the M360-X enables seamless roaming for time-sensitive applications. This ensures uninterrupted connectivity and smooth handoffs between APs for improved user experience.



#### Multi-Link Redundancy

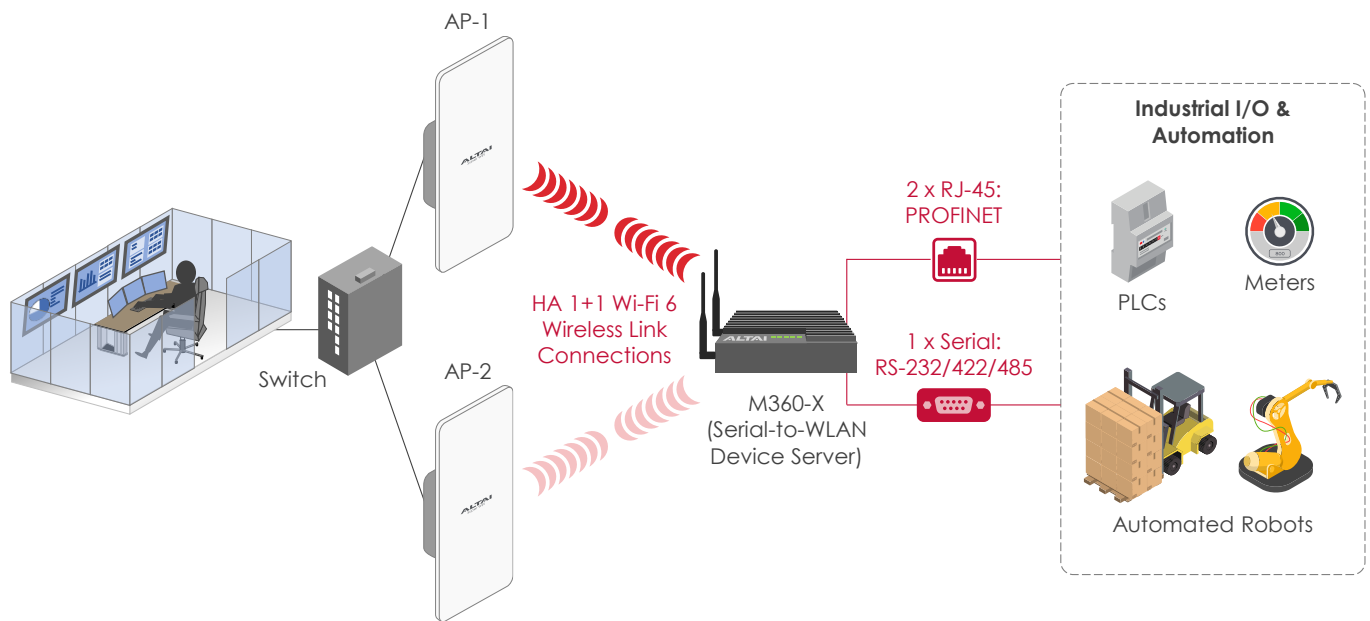
Provides highly reliable wireless connection and resiliency with both 2.4GHz and 5GHz links connected simultaneously through Altai's AlwaysConnected feature to ensure the greatest link quality and low latency for mission-critical applications.



#### Secure Wireless Protection

Supports WPA3 for secure Wi-Fi access, offering advanced encryption protocols to safeguard data transmission.

\* The actual number of concurrent users, distance and performance vary depending on site conditions, device configurations and client capabilities.



## Use Cases

### Automated Robotics in Warehouses and Logistics

The M360-X offers reliable wireless connectivity and seamless roaming capabilities for high-mobility, mission-critical applications. Thanks to fast roaming and AlwaysConnected 1+1 link redundancy feature support, it is particularly suitable for autonomous vehicles and remote-controlled machinery.

### Remote Process Control in Manufacturing and Utility Plants

The M360-X supports a serial-to-Wi-Fi device server and can be set to various operation modes, including Real COM, TCP Server, TCP Client, UDP Server, and UDP Client. This enables serial devices, including PLCs and meters, to communicate with IP/TCP network devices over the air, facilitating remote monitoring and management of the manufacturing process.



## Wireless Interfaces

### 2.4 GHz (2x2:2) Radio

• Operating Mode	AP/CPE (STA)/Repeater #		
• Standard	IEEE 802.11b/g/n/ax		
• Maximum Data Rate	574 Mbps		
• Operating Frequency †	2.400 – 2.484 GHz (Ch 1-13)		
• Channel Bandwidth	20/40 MHz		
• Transmit Power †	21 dBm (Max.), 18 dBm (Per Chain) Adjustable in 1 dB step		
• Receiver Sensitivity (Typical, per chain)			
802.11b	1 Mbps	-95 dBm; 11 Mbps	-88 dBm
802.11g	6 Mbps	-91 dBm; 54 Mbps	-75 dBm
802.11n	HT20, MCS0	-92 dBm; HT20, MCS7	-74 dBm
	HT40, MCS0	-89 dBm; HT40, MCS7	-71 dBm
802.11ax	HE20, MCS0	-92 dBm; HE20, MCS11	-63 dBm
	HE40, MCS0	-89 dBm; HE40, MCS11	-61 dBm

### 5 GHz (2x2:2) Radio

• Operating Mode	AP/CPE (STA)/Repeater #		
• Standard	IEEE 802.11a/n/ac/ax		
• Maximum Data Rate	2402 Mbps		
• Operating Frequency †	5.150 – 5.250 GHz (Ch 36-48) 5.250 – 5.350 GHz (Ch 52-64) 5.470 – 5.725 GHz (Ch 100-140) 5.725 – 5.850 GHz (Ch 149-165)		
• Channel Bandwidth	20/40/80/160 MHz		
• Transmit Power †	27 dBm (Max.), 24 dBm (Per Chain) Adjustable in 1 dB step		
• Receiver Sensitivity (Typical, per chain)			
802.11a	6 Mbps	-89 dBm; 54 Mbps	-72 dBm
802.11n	HT20, MCS0	-89 dBm; HT20, MCS7	-72 dBm
	HT40, MCS0	-87 dBm; HT40, MCS7	-69 dBm
802.11ac	VHT20, MCS0	-89 dBm; VHT20, MCS9	-67 dBm
	VHT40, MCS0	-87 dBm; VHT40, MCS9	-64 dBm
	VHT80, MCS0	-82 dBm; VHT80, MCS9	-60 dBm
	VHT160, MCS0	-80 dBm; VHT160, MCS11	-55 dBm
802.11ax	HE20, MCS0	-88 dBm; HE20, MCS11	-60 dBm
	HE40, MCS0	-87 dBm; HE40, MCS11	-58 dBm
	HE80, MCS0	-82 dBm; HE80, MCS11	-53 dBm
HE160, MCS0	-80 dBm; HE160, MCS11	-52 dBm	

### Other Radio Specifications

- 20 SSID (10 SSID per Radio) by default, expandable to 32 SSID
- Hidden SSID in Beacons
- Client Association Control per SSID by SNR and Data Rate
- Bandwidth Control Per SSID/Client
- Auto channel Selection and Interference Mitigation Suite
- Dynamic Frequency Selection (DFS) in 5 GHz spectrum
- Band Steering #
- Multi-AP Steering and Stickiness Optimization (802.11k/v) #
- Fast Roaming (802.11r)
- QoS: 802.11e (WMM)
- Dual-Radio and 1+N Redundancy #

### Antennas

• Antenna Type	External, Dual-Band 3 dBi Omni
• Connector Type	2 x RP-SMA Female
• Frequency Range	2.4 – 2.5 GHz, and 5.150 – 5.875 GHz

## Serial Interface

Operation Modes	Real COM, TCP Server, TCP Client, UDP Server, UDP Client
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## Networking

- Switch/Gateway Mode
- IPv4/IPv6 Dual-Stack
- NAT
- DHCP Client/Server
- PPPoE Client #
- VLAN per SSID/VLAN per User (Dynamic VLAN)/VLAN Pooling
- Multicast Rate Filter/IGMP Snooping
- MAC Clone #

## Security

- Authentication – Open, Shared key, WPA/WPA2/WPA3 (Personal/Enterprise), 802.1X (EAP-PEAP/TLS/TTLS/SIM/AKA)
- Encryption – WEP, TKIP, AES
- Management Frame Protection (802.11w)
- Inter/Intra-SSID Client Isolation
- MAC-based Access Control (White/Black List)
- RADIUS
- Multiple PSK
- External Captive Portal
- Trusted IP Management Access
- WIDS/WIPS #
- Check Point Nano Agent

## Management

- Management Platforms: Standalone, AltaiGate, AltaiCare Cloud, AltaiCare On-Premises, Insights
- SNMP v1/v2c /v3
- MIB2/IF-MIB/Altai Enterprise MIB
- Syslog
- Remote Factory Reset #

## Physical Specifications

• Dimension	87 x 119 x 34 mm
• Weight	410 g (Without Mounting Kit and Antenna)
• Mounting	DIN Rail Mount or Wall Mount
• Network Interface	1 x 10/100/1000Mbps RJ-45 Port (PoE In) 1 x 10/100/1000Mbps RJ-45 Port
• Serial Interface	1 x RS-232 / RS-422 / RS-485 (DB9 Male)
• Indicator	1 x Power Status 1 x Ethernet Interface Status 2 x Radio Interface Status 1 x Serial Interface Status
• Reset Button	Onboard

† The transmit power and operating frequency may vary according to country regulations.

‡ Power accessories including PoE injectors are not included.

# Will be available in the future.

**Power**

- Power Supply ‡ 12 – 48 V DC Terminal Block, or Passive 24 – 56 VDC PoE PD
- Power Consumption 18 W (Max.)

**Environmental Specifications**

- Operating Temperature -20 °C to +60 °C (Ambient)
- Storage Temperature -40 °C to +75 °C
- Humidity 5% – 90% (Non-Condensing)
- Lightning Protection EN 61000-4-5
- Vibration Protection IEC 60068-2-6

**Certifications**

- FCC/CE/Others
- RoHS2 Compliance

**Warranty**

- 1-Year Limited Hardware Warranty

Product Ordering Information	
<b>Standard Package</b>	
Part No.: SD.M360-3241-000	<ul style="list-style-type: none"> <li>• M360-X Wi-Fi 6 industrial dual-band 2x2 CPE/AP (Model No.: M360-X)</li> <li>• Standard DIN rail and wall mount Kit</li> </ul>
Part No.: SD.M360-3241-001	<ul style="list-style-type: none"> <li>• M360-X Wi-Fi 6 industrial dual-band 2x2 CPE/AP (Model No.: M360-X)</li> <li>• Standard DIN rail and wall mount Kit</li> <li>• Dual-band 3 dBi omni antenna</li> </ul>
<b>Optional Accessories</b>	
Part No.: SD.PE-0001-EP	<ul style="list-style-type: none"> <li>• Indoor 54 VDC 1 gigabit passive PoE injector</li> </ul>
<b>Warranty Extension</b>	
Part No.: SV.HW-M3602-00	<ul style="list-style-type: none"> <li>• 2nd Year Extended H/W Warranty for M360-X</li> </ul>
Part No.: SV.HW-M3603-00	<ul style="list-style-type: none"> <li>• 3rd Year Extended H/W Warranty for M360-X</li> </ul>
Part No.: SV.HW-M3604-00	<ul style="list-style-type: none"> <li>• 4th Year Extended H/W Warranty for M360-X</li> </ul>
Part No.: SV.HW-M3605-00	<ul style="list-style-type: none"> <li>• 5th Year Extended H/W Warranty for M360-X</li> </ul>
<b>Contact Us</b>	
<ul style="list-style-type: none"> <li>• Email: <a href="mailto:sales@altaitechnologies.com">sales@altaitechnologies.com</a> or <a href="mailto:info@altaitechnologies.com">info@altaitechnologies.com</a></li> </ul>	

M360X-PB-240821

The information contained herein is subject to change without prior notice.