

# Cab-n-Connect™ A301

More efficient. More performance.



## Cabin Wireless Access Point - 802.11be / Wi-Fi 7

- 802.11 a/b/g/n/ac/ax/be backwards compatibility
- Dedicated smart sensor for top-level security and performance
- Support for WPA3 security certifications
- DO-160G qualified and OEM Line-Fit ready
- ARINC 628-P1 compliant

Kontron's latest ARINC 628-P1 compliant CWAP, the Cab-n-Connect A301 is the first to combine powerful 802.11be Wi-Fi 7 technology, advanced security and ML/AI management capabilities into a single enterprise-class solution that allows customers to deploy high speed, highly secure Wi-Fi in the toughest aircraft environments.

With aggregated data rates up to 11.5 Gbps in the 6 GHz band, concurrent 1.2 Gbps in the 5 GHz band and concurrent 573Mbps in the 2.4 GHz band, this next generation CWAP provides intelligent edge capabilities with the highest level of client services without compromising security monitoring. It has been designed with passive cooling (fanless) technology to prevent the unit from overheating and comes with worldwide operations support.

With more users, more devices, more things, more applications and more threats straining aircraft infrastructure, the Cab-n-Connect A301 was engineered to meet a multitude of ongoing challenges. The Cab-n-Connect A301 is the only avionics-certified CWAP that offers a dedicated, Tri-band sensor that continuously scans and detects security threats in real-time eliminating the risk of vulnerability or attacks, while also optimizing RF performance automatically. It delivers top-level security services, with support for the Wi-Fi Alliance's WPA3 security certifications, TPM for secure key storage.

In addition, Ace Flight™ Connect Firmware provides ease of use and a rich feature set. It is built from best-in-class open-source router / firewall software and is further enhanced by Kontron's integration of leading-edge security features.

The CWAP Cab-n-Connect A301 is engineered based on Kontron's innovative architecture and modular design approach. Benefits of this approach include:

- ▶ Leveraging state-of-the-art technology, while many enterprise WAPs are growing in dimensions and energy consumption, Kontron effectively minimizes the size, weight, and power of the CWAP hardware.
- ▶ The software solution is meticulously optimized for the avionics sector, ensuring enhanced management over the solution's entire lifecycle.
- ▶ This strategic design accelerates the product's time to market and simplifies the upgrade trajectory for forthcoming Wi-Fi technologies.

## Technical Information

<b>RADIO OPERATION</b>	<b>TRI-RADIO TECHNOLOGY</b>	2.4 GHz/5 GHz/ 6 GHz Multi-User MIMO (MU-MIMO) 802.11be: (6GHz) 4K QAM 802.11ax (6E): OFDMA (4096 QAM) 802.11ax: OFDMA (1024-QAM) 802.11ac: OFDM(BPSK, QPSK, 16-QAM, 64QAM, 256-QAM) 802.11ac Packet Aggregation: A-MPDU, A-MSDU 80 2.11ac Very High- Throughput (VHT): VHT20/40/80 802.11ac Advanced Features: LDPC, STBC, Maximum Likelihood (ML) 802.11n: OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 802.11n High-throughput (HT) support: HT 20/40 802.11n Packet aggregation: A-MPDU, A-MSDU 802.11 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11n: (2.4 GHz); 6.5 to 300 Mbps (MCS0 to MCS15, HT20 to HT40) 802.11n: (5 GHz); 6.5 to 300 Mbps (MCS0 to MCS15, HT20 to HT40) 802.11ac: (5 GHz) 6.5 to 3467 Mbps (MCS0 to MCS9, NSS=1to 4, VHT20 to VHT160) 802.11ax: (2.4 GHz): 3.6 to 574 Mbps (MSC0 to MSC11, NSS = 1to 2, HE20 to HE40) 802.11ax: (5 GHz): 72.1 to 1201 Mbps (MSC0 to MSC11, NSS = 1to 2, HE20 to HE80) 802.11ax: (6 GHz): 72.1 to 4804 Mbps (MSC0 to MSC11, NSS = 1to 4, HE20 to HE160) 802.11be: (6GHz): up to 11530 Mbps when using 320 MHz channels 6GHz mode Dedicated Sensor Radio for monitoring across all frequencies of 2.4 GHz/5 GHz. 6GHz band sensing is via a virtual radio BLE 5 Radio Bluetooth® Low Energy (BLE) and IEEE® 802.15.4 compliant 2.4GHz Radio – 256 Clients 5GHz Radio – 256 Clients 6GHz Radio – 512 Clients FCC CFR 47 Part 15, Class B, ICES-003 Class B, FCC Subpart C 15.247, FCC Subpart E 15.407, R55247, EN 301 893, EN 300 328, EN 301 489 1 & 17, EN 50385, EN 55032 (CISPR 32), EN 60601-1-2
<b>DATA RATES</b>	<b>RADIO FOR WIPS &amp; BLUETOOTH</b>	
<b>CLIENTS PER RADIO</b>	<b>RADIO APPROVALS</b>	
<b>RADIO APPROVALS</b>		

<b>ANTENNAS</b>	7x integrated Omni-Directional Antennas
<b>SOFTWARE</b>	<p>Ace Flight™ Connect provides a rich feature-set of flexibility and scalability within a dense cabin aircraft environment offering (Not limited to):</p> <ul style="list-style-type: none"> <li>- Ease of configuration</li> <li>- Management via SSH, Telnet, API, HTTP/HTTPS</li> <li>- Ease of Troubleshooting with the inbuilt tools such as Wireless Survey, Remote Syslog, Spectral Scan</li> <li>- Up-to-date security Standards such as WPA2, WPA3, Wireless ACL</li> <li>- Versatile Networking in AP, Router, Bridge modes with VLAN support</li> <li>- WIPS Support; Full support coming soon, detection without mitigation/prevention is currently supported</li> <li>- Radius Server Support</li> <li>- Hotspot 2.0 Support</li> </ul> <p>Band Steering and Client Load Balancing</p> <ul style="list-style-type: none"> <li>- roaming within the network</li> <li>- field loadable software/updates</li> <li>- Automatic Failure Recovery with dual image configuration</li> </ul> <p>Dynamic Frequency Selection (DFS)</p>
<b>FIRMWARE</b>	<p>Low-Level Embedded Features</p> <ul style="list-style-type: none"> <li>- EEPROM Storage: Stores product details, accessible via CLI and displayed in the WEB GUI</li> <li>- Power On Self-Test: Runs hardware tests during boot, configurable and readable from all supported interfaces</li> <li>- Dual-Bank Support: Supports dual boot bank upgrades with recovery mechanisms</li> <li>- Thermal Management: Protects against overheating by throttling CPU and radios</li> <li>- Firmware Upgrade: Supports upgrades over FTP/TFTP</li> </ul> <p>Logging and Management</p> <ul style="list-style-type: none"> <li>- System Logging: Persistent logging with remote syslog support</li> <li>- Configuration Provisioning over DHCP: Uses DHCP server options to configure CWAP device</li> <li>- LED Indication: Covers mission mode radio status reporting and device identification</li> </ul> <p>Network Configuration</p> <ul style="list-style-type: none"> <li>- IP Strap: Configures IP address using hardware strapping</li> <li>- Zero Conf IP: Configures IP address using the MAC address of the interface</li> </ul> <p>Security Features</p> <ul style="list-style-type: none"> <li>- WIPS: Wireless Intrusion Prevention System with SNMP alarms. Full support coming soon, detection without mitigation/prevention is currently supported.</li> <li>- Secure Boot: Uses TPM for secure booting</li> <li>- Signed Firmware: Supports firmware upgrades using signed firmware</li> </ul> <p>Wireless Features</p> <ul style="list-style-type: none"> <li>- Hot Spot 2.0: Supports EAP-TLS secure connections</li> <li>- Wireless Security: Supports WPA2, WPA3, and other security protocols</li> <li>- Wi-Fi 7 Support: Supports Wi-Fi 7 with high throughput and multi-user load management</li> <li>- Bluetooth Support: Bluetooth Beacon (marketing use-case implementation)</li> </ul> <p>Advanced Wireless Capabilities</p> <ul style="list-style-type: none"> <li>- Roaming: Maintains continuous connection while moving between APs via FastBSS Transition</li> <li>- VLAN to SSID: Allows specifying specific VLAN ID to SSID</li> <li>- Airtime Fairness: Distributes airtime between different VAPs on a single band</li> <li>- RF Operation and Control: Allows disabling Radio RF using discrete (RFKILL)</li> </ul> <p>Client Interfaces</p> <ul style="list-style-type: none"> <li>- CLI: Command line interface for configuration and information</li> <li>- GUI: Web interface for configuration</li> <li>- REST API: Web services providing API for configuration &amp; monitoring</li> <li>- Role-Based User Management: Configurable user roles and rights for GUI and REST API services</li> </ul> <p>RF Domain Manager</p> <ul style="list-style-type: none"> <li>- Support RFDM to allow for single point of wireless network configuration and data collection</li> </ul>
<b>SECURITY</b>	<p>IP filtering, NAT, 802.1x, 802.11i, WPA3, WPA2, WPA Triple Methodology</p> <p>Rogue Detection: 24x7 Tri-band WIPS sensing, on-board IDS and secure guest access Hotspot 2.0 with captive portal, TPM 2.0, Secure boot and Signed FW, Integration with External Radius Server and VLANs</p>
<b>RF MONITORING</b>	Dedicated (2.4GHz, 5 GHz) Dual-Band Sensor Radio and second configurable virtual radio (6GHz) that Intelligent monitors and detects security issues
<b>I/O</b>	<p>EN4165 Style Connectors and pinouts compliant to ARINC 628P1-7</p> <p>Includes Input Power, Discrete I/O: Radio Disable/Enable; PWR On/Off; CWAP Reset, 4x IP Strapping, 3x 100/1000/2500* Mbps auto-negotiation Ethernet</p> <p>Supports Daisy-Chain and Fail-over feature for CWAP downstream fault recovery (2x 100/1000/2500 Mbps pass through)</p>
<b>POWER</b>	115 VAC/360-800 Hz Aircraft Grade power with 200 msec Hold-up; 30 W Nominal
<b>ENVIRONMENT &amp; EMI</b>	Qualified to DO-160G
<b>SIZE/DIMENSIONS (H X W X D)</b>	2.88" (73.10 mm) x 9.5" (241 mm) x 6.8" (173mm) - Mounting per ARINC 836-1-7
<b>WEIGHT</b>	5.0 lbs (2.3 kg) MAX
<b>OPERATING TEMPERATURE</b>	-15 °C to +70 °C

\*Contention of 2:1 is employed for ETH2 & 3

# Ordering Information

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ARTICLE	PART NO.	DESCRIPTION
CWAP, A301, LAB	73001016-001	LRU, CWAP, A301, LAB
CWAP, A301	73001016-101	LRU, CWAP, A301
CABLE KIT, A201/A301, LAB	73001014-500	LAB CABLE KIT, A201/A301

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