

# ALCATEL-LUCENT OMNIACCESS 5725A ENTERPRISE SERVICES ROUTERS

Rugged wireless 4G routers for broadband-to-the-vehicle services



Enable secure, high-speed 4G/LTE mobile broadband connectivity for buses, light rail and first responders for multimedia managed services, including video, telemetry, passenger services, vehicle health, dispatch and tracking, and Automatic License Plate Recognition.

The Alcatel-Lucent OmniAccess™ 5725A is an integrated, rugged communications platform that enables highly available, reliable and secure broadband cellular connectivity to the vehicle. Multiple services across departments and agencies can be delivered over a single platform, reducing the equipment, connectivity and operational costs of communications.

This router combines a robust mechanical design, adequate for its installation at in-vehicle cabinets, with a versatile broadband wireless (wireless WAN and Wi-Fi) and wired (Ethernet) communications port layout. The OmniAccess 5725A also offers a robust enterprise-class IP stack for the efficient implementation of multiple managed VPN services on mobile access.

## FEATURES

- Reliable LTE wireless WAN performance
- Multipurpose embedded Wi-Fi
- Fully managed Ethernet switch ports
- Enterprise-class internetworking intelligence
- Key advantages over modems and gateways

## BENEFITS

- Provides Enterprise services for in-vehicle environments
- Ensures optimal availability and reliability
- Delivers improved communication over cellular networks
- Provides maximum Wi-Fi security



Table 1 shows the detailed features of the OmniAccess 5725A.

**Table 1. OmniAccess 5725A detailed features**

FUNCTIONS	FEATURES
Reliable LTE wireless (WWAN) performance	<ul style="list-style-type: none"> <li>• One or two embedded 4G/LTE broadband radio interfaces for true high-speed connectivity to on-board applications</li> <li>• Automatic selection of the best available connection based on network availability, signal reception level, quality of service (QoS), time of the day , cost, speed or position</li> <li>• Passive link supervision: Permanently controls signal coverage, technology availability, IP transmission service status and transmission activity</li> <li>• Poll-based link supervision: Detects and corrects failures and degradations on the 4G communications; the router controls error rate, link latency and jitter to guarantee utmost performance on the streaming transmission (real-time IP-CCTV image transmission or voice)</li> <li>• Tight integration of internal cellular modules for shock and vibration resilience, improved radio transmission and reception, protection against theft, and advanced monitoring for troubleshooting (instead of unprofessional USB-based solutions)</li> <li>• Up to two antennas per radio interface to maximize coverage at any location</li> <li>• WWAN+ proprietary optimization of network protocols for improved communication over cellular networks</li> </ul>
Multipurpose embedded Wi-Fi	<ul style="list-style-type: none"> <li>• Embedded WLAN interface with configurable or location-based Client and Access Point modes</li> <li>• Vehicle-proof Wi-Fi: Multiple antennas for better transmission, flexible frequency operation (2.4 and 5 GHz), extended temperature range, reduced component aging, surge circuit protection and power efficiency</li> <li>• State-of-the-art Wi-Fi security, guaranteeing communication privacy and confidentiality</li> <li>• Multiple service coexistence based on independent SSIDs and QoS</li> <li>• Intelligent roaming management based on signal level</li> </ul>
Fully Managed Ethernet switch ports	<ul style="list-style-type: none"> <li>• Full VLAN support, per-VLAN QoS, per-port Ethernet diagnostics and SNMP management allow for the implementation of efficient and secured LAN networks on board</li> </ul>
Enterprise-class internetworking intelligence	<ul style="list-style-type: none"> <li>• Dynamic routing protocols favor the implementation of scalable corporate VPN networks</li> <li>• Multiple service support, based on advanced QoS: Hierarchical traffic analysis, labeling and prioritization guarantees bandwidth to critical applications when sharing limited bandwidth resources</li> <li>• IP forwarding policy based on the real-time status of the transmission link: Packet loss, delay, jitter</li> <li>• Multiple virtual router instances for simultaneous but independent agency/jurisdiction service over the same platform</li> </ul>
Key advantages over modems and gateways	<ul style="list-style-type: none"> <li>• Supports multiple embedded or existing access links (for example, P25) to guarantee service continuity</li> <li>• Extends public safety data network security requirements to the fixed remote and mobile edge</li> <li>• Manages multiple services from various agencies and jurisdictions over a single converged platform, with each agency maintaining its own virtual network ownership experience</li> <li>• Efficiently uses links to transmit various applications based on application criticality, required bandwidth, and nominal and available bandwidth</li> <li>• Allows for shared access to in-vehicle resources such as cameras and displays</li> </ul>

## Alcatel-Lucent OmniAccess 5725A models

The OmniAccess 5725A comes standard with 4 Fast Ethernet switched ports. The OmniAccess 5725A relies on WWAN access through either LTE or HSPA+. All models feature some form of a cellular interface.

**Table 2. Product matrix**

PRODUCT MATRIX	OA5725A
Integrated switched 10/100Mb ports	4
Wi-Fi option	Yes
LTE or HSPA+ option	Yes
Power consumption (max under full traffic load)	8.5 W
Heat dissipation	28.9 BTU/h
Height	6.2 cm (2.4 in.)
Width	16.5 cm (6.5 in.)
Depth	20.6 cm (8.1 in.)
Approximate weight	1.5kg (3.3 lb)
Operating temperature	-30°C to +70°C (-20°F to 160°F)
Humidity (operating)	5% to 95% non-condensing

## TECHNICAL SPECIFICATIONS

### Interfaces and connectors

- 4 x Fast-Ethernet 10/100 Mb/s, RJ-45F
- Up to 2 x wireless WAN interfaces
  - LTE/DC-HSPA+/HSPA+/HSPA/UMTS/EDGE/GPRS
  - LTE/EVDO/1xRTT
  - LTE Band 14, secondary Wi-Fi, 4.9 GHz
- Wi-Fi 802.11n interface
- 1 x standalone GPS (optional)
- Flexible antenna connector layout
  - LTE antenna ports (TNC)
  - Wi-Fi antenna ports (SMA-RP)
  - GPS active antenna port (FME)
- 1 x auxiliary serial port (DB-9F)
- 4 x status LEDs
- Accessible fuse
- Two internal SIM trays
- Embedded crypto-processor

### Power

- Input power: 24 V DC
- Min. operating power: 9 V
- Max. operating power: 39 V
- M12 power connector
- Power consumption
  - Nominal: 8.5 W
  - Max.: 9.5 W
- Programmable time delay for device shut-down
- Full protection against power-on/power-off transients: inverse polarity, surges and spikes
- Accessible fuse protection

### Environmental specifications

- Operating temperature: -30 °C to +70 °C (-20 °F to 160 °F)
- Designed to meet industry standards for foreign object and water ingress
- Shock and vibration proof
- Relative humidity: 5% to 95%

### Mounting options

- Wall mounted
- Ceiling
- Horizontal

### GPS

- Embedded standalone GPS (optional)
- 48 channels
- Ultra-high sensitivity
- Fastest time to first fix
- WAAS support
- Assisted GPS support
- NMEA Protocol
- Local and remote data delivery
- Position logging
- Active antenna
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### Cellular interfaces

- Up to 2 interfaces
  - LTE/HSPA+/HSPA/UMTS/EDGE/GPRS (AT&T)
  - LTE/EVDO/1xRTT (Verizon)
  - LTE/DC-HSPA+/HSPA+/HSPA/UMTS/EDGE/GPRS (Europe)
  - For other interfaces (LTE Band 14, secondary Wi-Fi, Wi-MAX or 4.9 GHz, contact your local dealer)

### Wi-Fi interface

- IEEE 802.11a/b/g/n 2x2
- High power transmission on both 2.4 GHz and 5 GHz
- Low noise amplifiers for improved sensitivity
- Dual power supply and special heat sink
- RF electrostatic discharge and surge protection circuits
- Low output ripple
- Two detachable external antennas (SMA connectors)

### 4-port Fast Ethernet switch

- Ethernet V2 (IEEE 802.3)
- 10/100-BaseT automatic detection
- Half/full duplex automatic negotiation
- MDI/MDI-X crossover detection
- Managed switch
- EtherLike MIB (RFC 2665)
- SNMP-REPEATER-MIB (RFC 2108)
- MAU-MIB (RFC 2668)
- 2 status LEDs per port

### Auxiliary serial port

- Asynchronous RS-232 serial up to 115,200 bps

### Cellular interface-specific functionalities

- Simultaneous operation of up to 2 embedded modems
- Flexible support of 4G and 3G technologies
- Automatic handover

- Policy routing based on:
  - Signal level
  - Network quality probing: delay, jitter, packet loss
  - Radio technology
  - LTE
  - DC-HSPA+
  - HSPA+
  - EVDO
  - UMTS
  - GPRS
  - Time schedules
- Passive interface failure detection (analyzing received traffic)
- Active interface failure detection (network probing poll)
- Diversity antenna
- Dual SIM
- OTA WWAN module firmware upgrade
- SMS management commands
  - Reset device
  - Reset cellular interface
  - Connect/disconnect cellular data link
- Comprehensive RF real-time monitoring for troubleshooting
- WWAN+: Advanced management of network protocols for improved communication over cellular networks

### Wi-Fi specific functions

- 802.11 a, b, g, n
- Client mode or Access Point mode
- High transmission power
- High reception sensitivity
- Manual or automatic channel selection
- Manual or automatic selectable speed
- Multiple SSID
- Security
  - 802.11i, WPA or WPA2
  - EAP or EAPOL
  - Authentication: Open, shared or WPA
  - Encryption: AES, TKIP or WEP
- QoS: AIFS, CWmin or CWmax
- ESSID
- MAC filtering
- Location-based mode selection

### Ethernet switch-specific functions

- VLAN support with 802.1q
- Routing per VLAN
- 802.1x port-based network access control (IEEE.802)
- LLC (IEEE 802.2) or ARP
- Manageable switch
- Real-time events for troubleshooting
- QoS: IEEE 802.1p Class of Service

- Multiple bridge domains
- Simultaneous bridging and routing
- Source routing, MAC filtering and NetBIOS
- IEEE 802.1w
- Bridge over PPP (BCP) and GRE
- Bridge over PPP (BCP)
- Spanning Tree Protocol (IEEE 802.1d)
- Rapid Convergence Spanning Tree Protocol (IEEE 802.1w)
- Per VLAN Spanning Tree Protocol

### IP stack

- IP, ARP or proxy ARP
- Static IP routing
- RIP I or RIP II
- BGPv4
- OSPFv2
- Policy routing with rich selection criteria
- Virtual router instances with multi-VRF
- DHCP client, server and relay
- DynDNS client
- NAT/PAT/port mapping/NAT exceptions
- PAT fire-walling
- Application continuity
- Compatible with HSRP
- Virtual Redundancy Router Protocol
- DNS client and proxy; DNS cache
- DNS dynamic updating
- Bidirectional Forwarding Detection Protocol
- NTP client
- Multiple addresses per interface
- Loopback interfaces
- IPv6-enabled code version available

### Security and VPNs

- IPsec client and server compatible with third-party IPsec peers
- IPsec services: ESP and AH
- IPsec operation modes: Tunnel and transport
- Encryption: AES, DES, 3DES and RC4
- Dedicated hardware crypto-processor
- Authentication: SHA-1 and MD5
- IKE Protocol
- ISAKMP configuration methods: Oakley groups 1, 2, 5 and 15
- Next Hop Resolution Protocol
- Dynamic Multipoint IPsec VPNs
- Gateway Encryption Transport VPN (GET VON)
- Radius access control
- Tacacs access control
- IPsec server compatible with Microsoft clients
- L2TPv2: Client (LAC), server (LNS), L2TP-CI and pseudowire

- Telnet, SSH and FTP console access user and password protected
- User and permission levels
- Advanced Firewall System
  - Stateful firewall
  - Advanced packet classification and marking
  - URL and content filtering
- Static and dynamic access controls
- Reverse Route Injection
- Tunnel End-point Discovery Protocol
- Event generation for SIEM interaction
- Non-hackable operating system (not Linux or Microsoft® Windows®)
- NAT-traversal
- X.509v3, LDAP, PKIX, PEM and DER digital certificates
- Simple Certificate Enrollment Protocol
- IPsec PMTU discovery
- GRE and multi-GRE: GRE RC4 encryption
- IPsec stateful failover

### QoS

- Access lists based on:
  - IP source and destination addresses
  - Protocol
  - Input interface/subinterface
  - Output interface/subinterface
  - Incoming DSCP, precedence, ToS field
  - Port
  - Value of CoS field
  - Http URL
  - Hex string or text in the packet
  - Packet length
  - Traffic encapsulated or de-encapsulated in IPsec
  - NAT
  - Session life time
- Packet labeling (DiffServ) depending on preceding classification criteria in this document
- Congestion control queuing mechanisms
  - First In First Out (FIFO)
  - Low Latency Queuing
  - Weighed Fair Queuing
  - Class Based Weighed Fair Queuing
- Traffic limiting in queues with overflow to lesser priority queues
- Policy routing based on network quality probes: Delay, jitter, packet loss
- Policy routing based on priority, speed, time, location or cost
- Controlled packet discard for TCP traffic congestion
- Fragmentation in PPP and MPPP
- Traffic shaping

### PPP for external modem and WAN link aggregation

- PPP (RFC 1661), PAP/CHAP or IPCP
- Dynamic assignment of IP addresses (own or peer)
- PPP multilink
- Multi-class extension to multi-Link PPP
- PPPoE
- PPPoE bridge + routing (PPPoE pass-through)
- PPP multilink over PPPoE
- Re-negotiation based on PADT

### Traffic balancing

- Multi-path per IP packet (with static and dynamic routing)
- Weighted balancing per TCP/IP session
- Weighed to the speed ratio of the different lines
- Multicast: IGMP, IGMP-proxy, MOSPF and PIM-SM

### Data compression

- PPP compression
- IPHC compression
- Van Jacobson and STAC LZS compression algorithms

### Warranty

- Standard hardware warranty

**Table 3. OmniAccess 5725A ordering information**

OA5725A-W4A	OA5725A ESR Automotive Router has extended temperature range and enhanced shock/vibration protection, with 4G/LTE and other features for North America (LTE AWS & B17 MIMO, fallback to HSPA+/UMTS 850/AWS/1900/2100 MHz and GPRS); includes 802.11bgn WLAN AP
OA5725A-W4V	OA5725A ESR Automotive Router has extended temperature range and enhanced shock/vibration protection with 4G/LTE for Verizon (LTE B13 MIMO, fallback to CDMA 850/1900 MHz and HSPA+/UMTS 850/900/1900/2100 MHz and GPRS); includes 802.11bgn WLAN AP
OA5725A-W4G-xx	OA5725A ESR Automotive Router has extended temperature range and enhanced shock/vibration protection, with 4G/LTE for global (LTE at 800/900/1800/2100/2600 MHz, fallback to HSPA+/UMTS 900/2100 MHz and EDGE/GPRS 900/1800/1900 MHz); includes 802.11bgn WLAN AP
OA5725A-WH+-xx	OA5725A ESR Automotive Router has extended temperature range and enhanced shock/vibration protection with worldwide 3.7G (HSPA+ at 850/900/1900/2100 MHz, fallback to EDGE/GPRS 850/900/1800/1900 MHz); includes 802.11bgn WLAN AP