

ACCESS NETWORKS ANX 7150 PRODUCT SERIES

ACCESS NETWORKS ANX 7150

These Access Networks ANX 7150 models offer a single integrated power supply, one RJ-45 Ethernet port for out-of-band network management, one USB Type-C port for console management, one RJ-45 port for serial console management, and one USB port for external file storage.

	Access Networks ANX 7150-24 Switch	24× 10/100/1000 Mbps RJ-45 ports 2× 10/100/1000 Mbps uplink RJ-45 ports 4× 1/10 GbE uplink/stacking SFP/SFP+ ports
	Access Networks ANX 7150-24P Switch	24× 10/100/1000 Mbps RJ-45 PoE+ ports 370 W PoE budget 2× 10/100/1000 Mbps uplink RJ-45 ports 4× 1/10 GbE uplink/stacking SFP/SFP+ ports
	Access Networks ANX 7150-48 Switch	48× 10/100/1000 Mbps RJ-45 ports 2× 10/100/1000 Mbps uplink RJ-45 ports 4× 1/10 GbE uplink/stacking SFP/SFP+ ports
	Access Networks ANX 7150-48ZP Switch	48× 10/100/1000 Mbps RJ-45 PoE+ ports 570 W PoE budget 2× 10/100/1000 Mbps uplink RJ-45 ports 4× 1/10 GbE uplink/stacking SFP/SFP+ ports
	Access Networks ANX 7150-48PF Switch	48× 10/100/1000 Mbps RJ-45 PoE+ ports 740 W PoE budget 2× 10/100/1000 Mbps uplink RJ-45 ports 4× 1/10 GbE uplink/stacking SFP/SFP+ ports

ACCESS NETWORKS ANX 7150 Z-SERIES

The Access Networks ANX 7150 Z-Series Switch offers redundant hot swappable load sharing power supplies, up to 2 hot swappable fans, one RJ-45 Ethernet port for out-of-band network management, one USB Type-C port for console management, one RJ-45 port for serial console management, and one USB port for external file storage.

	Access Networks ANX 7150-48ZP	16× 100/1000 Mbps/2.5 Gbps RJ-45 PoH, 802.3bt ready ports¹ 32× 10/100/1000 Mbps RJ-45 PoE+ ports 1,480 W PoE budget (with two power supplies) 8× 1/10 GbE uplink/stacking SFP/SFP+ ports
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ACCESS NETWORKS ANX 7150 COMPACT SWITCH

The Access Networks ANX 7150 compact switch offers a single integrated power supply, one RJ-45 Ethernet port for out-of-band network management², one USB Type-C port for console management, one RJ-45 port for serial console management², and one USB port for external file storage².

	Access Networks ANX 7150- C12P Compact Switch	12× 10/100/1000 Mbps POE+ RJ-45 ports 124 W PoE budget. Fanless 2× 10/100/1000 Mbps uplink RJ-45 ports 2× 1/10 GbE uplink/stacking SFP/SFP+ ports
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¹ Up to 90W per port, IEEE 802.3bt support pending software update. Compatible with uPoE.

ACCESS NETWORKS ANX 7150 FEATURE/MODEL COMPARISON

	12 RJ-45 Ports Compact Switch	24 or 48 RJ-45 Ports		24 or 48 RJ45 PoE+ Ports			Z-Series
FEATURE	ANX7150-C12P	ANX7150-24	ANX7150-48	ANX7150-24P	ANX7150-48P	ANX7150-48PF	ANX7150-48ZP
Switching capacity (data rate, full duplex)	68 Gbps	132 Gbps	180 Gbps	132 Gbps	180 Gbps	180 Gbps	304 Gbps
Forwarding capacity (data rate, full duplex)	51 Mpps	98 Mpps	134 Mpps	98 Mpps	134 Mpps	134 Mpps	226 Mpps
10/100/1000 Mbps RJ45 downlinks	12	24	48	24	48	48	32
100/1000 Mbps SFP downlinks							
100/1000 Mbps/2.5 Gbps RJ45 downlinks (full duplex only)							16
100/1000 Mbps/2.5/5/10 Gbps RJ45 downlinks (full duplex only)							
10/100/1000 Mbps RJ45 uplinks (full duplex only, no PoE)	2	2	2	2	2	2	
1/10 Gbps SFP/SFP+ uplinks	2	4	4	4	4	4	8
PoE/PoE+ ports	12			24	48	48	32
PoH / PoE / PoE+ 802.3bt ready ports¹							16
Dual hot-swap power supplies							Yes
Maximum PoE Class 3 ports (15.4 W per port)	8			24	24	48	48
Maximum PoE+ Class 4 ports (30 W per port)	4			12	12	24	48 (2 PSU)
Energy Efficient Ethernet (802.3az)		Yes	Yes	Yes	Yes	Yes	Yes ³
Base IPv4/v6 Layer 3 routing (static routing, RIP)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Advanced IPv4/v6 Layer 3 routing (OSPF, VRRP, PIM, PBR features)	With license	With license	With license	With license	With license	With license	With license
Aggregated stacking bandwidth (data rate, full duplex)	240 Gbps	480 Gbps	480 Gbps	480 Gbps	480 Gbps	480 Gbps	480 Gbps
Stacking density (maximum switches in a stack)	12	12	12	12	12	12	12
Stacking ports (maximum ports ² usable for stacking)	Up to 2×10 GbE SFP+	Up to 4×10 GbE SFP+					
Maximum stacking distance (distance between stacked switches)	10 km	10 km	10 km	10 km	10 km	10 km	10 km

¹ Up to 90W per port, IEEE 802.3bt support pending software update. Compatible with uPoE.

² 10 Gbps SFP+ ports are required for stacking.

ACCESS NETWORKS ANX 7150 FEATURE/MODEL COMPARISON

12 RJ-45 Ports Compact Switch	24 or 48 RJ-45 Ports		24 or 48 RJ45 PoE+ Ports			Z-Series
ANX7150-C12P	ANX7150-24	ANX7150-48	ANX7150-24P	ANX7150-48P	ANX7150-48PF	ANX7150-48ZP

FEATURE	POWER						
Power inlet (AC)	C14						
Input voltage/frequency	AC: 100 to 240 VAC @ 50 to 60 Hz						
Power supply rated maximum (AC)	150 W	36 W	65 W	525 W	525 W	880 W	2x 920 W
PoE power budget (AC)	124 W			370 W	370 W	740 W	1480 W (2 PSU)
Switch power consumption ³ (25°C)							
Idle (no PoE load)	20 W	14 W	24 W	32 W	47 W	50 W	89 W
10% traffic ⁴ (full PoE load)	157 W	24 W	38 W	455 W	476 W	869 W	917 W
100% traffic ⁴ (full PoE load)	157 W	24 W	39 W	472 W	491 W	893 W	932 W
Airflow	Fanless	Fanless	Fanless	Side-to-back	Side-to-back	Side-to-back	Front-to-back
Switch heat dissipation (25°C) ⁵							
Idle (no PoE load)	69 BTU/hr	47 BTU/hr	83 BTU/hr	108 BTU/hr	160 BTU/hr	170 BTU/hr	304 BTU/hr
10% traffic ⁴ (full PoE load)	78 BTU/hr	81 BTU/hr	131 BTU/hr	137 BTU/hr	196 BTU/hr	299 BTU/hr	433 BTU/hr
100% traffic ⁴ (full PoE load)	79 BTU/hr	82 BTU/hr	132 BTU/hr	188 BTU/hr	252 BTU/hr	381 BTU/hr	523 BTU/hr

FEATURE	ENVIRONMENT						
Net Weight (Kg)	2.58	3.8	4.82	4.93	6.17	6.28	6.61
Dimensions (mm)	269 (W) 213 (D) 43.4 (H)	440 (W) 280 (D) 43.65 (H)	440 (W) 370 (D) 43.65 (H)	440 (W) 280 (D) 43.65 (H)	440 (W) 370 (D) 43.65 (H)	440 (W) 370 (D) 43.65 (H)	440 (W) 332 (D) 44 (H)
Acoustics (25°C, min fan speed)	Fanless	Fanless	Fanless	41.4 dBA	41.8 dBA	47.7 dBA	52 dBA
MTBF (25°C)	562,889 hours	871,931 hours	714,420 hours	397,428 hours	335,853 hours	312,241 hours	104,626 hours

FEATURE	MANAGEMENT PORTS						
USB Type-C port (for console management)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
RJ45 serial port (for serial console management)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
USB Type-A port (for external file storage)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
RJ45 Ethernet port (for out of band network management)	Yes	Yes	Yes	Yes	Yes	Yes	Yes

³ ANX 7150-48ZP Switch includes one AC power supply and one fan.

⁴ Traffic load on all ports connected with maximum possible PoE/PoE+ loads (if equipped).

⁵ PoE power not included in switch heat dissipation figures since the heat is not dissipated at the switch.

ACCESS NETWORKS ANX 7150 SPECIFICATIONS

FEATURES	SPECIFICATIONS
Connector options	10/100/1000 Mbps RJ-45 1 Gbps SFP ports 1/10 Gbps SFP+ ports - Out-of-band Ethernet management: 10/100/1000 Mbps RJ-45 - Console management: RJ45 serial port and USB Type-C port with serial communication device class support - File transfer: USB port, standard-A plug
DRAM NVRAM (Flash) Packet buffer size	1 GB 2 GB 8/10/12/24 port: 2 MB, 48 port: 4 MB
Maximum MAC addresses	16,384
Maximum VLANs Maximum PVLANS	4,095 32
Maximum STP (spanning trees instances)	254
Maximum VEs	128
Maximum ARP entries	4,094
Maximum routes (in hardware)	1,000 (IPv4), 1,000 (IPv6) - Next hop address: 4,094
Trunking	- Maximum ports per trunk: 16 - Maximum trunk groups: 128
Maximum jumbo frame size	9,216 bytes
QoS priority queues	8 per port
Multicast groups	3,072 (Layer 2) 2,048 (Layer 3)
Quality of Service (QoS)	- ACL Mapping and Marking of ToS/DSCP (CoS) - ACL Mapping and Marking of 802.1p - ACL Mapping to Priority Queue - Classifying and Limiting Flows Based on TCP Flags - DiffServ Support - Honoring DSCP and 802.1p (CoS) - MAC Address Mapping to Priority Queue - Priority Queue Management using Weighted Round Robin (WRR), Strict Priority (SP), and a combination of WRR and SP
Traffic management	- ACL-based inbound rate limiting and traffic policies - Broadcast, multicast, and unknown unicast rate limiting - Inbound rate limiting per port - Outbound rate limiting per port and per queue

ACCESS NETWORKS ANX 7150 SPECIFICATIONS

FEATURES	SPECIFICATIONS
Security	802.1X authentication - MAC authentication - Flexible authentication - Web authentication - DHCP snooping - Dynamic ARP inspection - Neighbor Discovery (ND) Inspection - Bi-level Access Mode (Standard and EXEC Level) - EAP pass-through support - IEEE 802.1X username export in sFlow - Protection against Denial of Service (DoS) attacks - Authentication, Authorization, and Accounting (AAA) - MAC Address Locking MAC Port Security - Advanced Encryption Standard (AES) with SSHv2 - RADIUS/TACACS/TACACS+ - Secure Copy (SCP) - Secure Shell (SSHv2) - Protected Ports - Local Username/Password - Change of Authorization (CoA) RFC 5176 - Trusted Platform Module - RADSEC (RFC 6614) - Encrypted Syslog (RFC 5425)
SDN features	- OpenFlow v1.0 and v1.3 - OpenFlow with hybrid port mode - Operates with an OpenDayLight Controller
High availability	- Layer 3 VRRP/VRRP-E protocol redundancy - Real-time state synchronization across the stack - Hitless failover and switchover from master to standby stack controller - Hot insertion and removal of stacked units - Layer 2 VSRP switch redundancy - In Service Software Update (ISSU)

FEATURES	FEATURE SETS
Layer 2 feature set	802.1s Multiple Spanning Tree 802.1x Authentication - Auto MDI/MDIX - BPDU Guard, Root Guard - Dual-Mode VLANs - MAC-based VLANs, Dynamic MAC-based VLAN activation - Dynamic VLAN Assignment - Dynamic Voice VLAN Assignment - Fast Port Span - GVRP: GARP VLAN Registration Protocol - IGMP Snooping (v1/v2/v3) - IGMP Proxy for Static Groups - IGMP v2/v3 Fast Leave - Inter-Packet Gap (IPG) adjustment - Link Fault Signaling (LFS) - MAC Address Filtering - MAC Learning Disable - MLD Snooping (v1/v2) - Multi-device Authentication - Per-VLAN Spanning Tree (PVST/PVST+/PRST) - Mirroring: Port-based, ACL-based, MAC Filter-based, and VLAN-based - PIM-SM v2 Snooping - Port Loop Detection - Private VLAN - Remove Fault Notification (RFN) - Single-instance Spanning Tree - Trunk Groups (static, LACP) - Uni-Directional Link Detection (UDLD) - Metro-Ring Protocol (MRP) (v1, v2) - Virtual Switch Redundancy Protocol (VSRP) - Q-in-Q and selective Q-in-Q - VLAN Mapping - Topology Groups
Base Layer 3 IP routing feature set	- IPv4 and IPv6 static routes - RIP v1/v2, RIPvng - ECMP - Port-based Access Control Lists - Layer 3/Layer 4 ACLs - Host routes - Virtual Interfaces - Routed Interfaces - Route-only Support - Routing Between Directly Connected Subnets
Premium Layer 3 IP routing feature set with software license¹	- IPv4 and IPv6 dynamic routes - OSPF v2, v3 - PIM-SM, PIM-SSM, PIM-DM, PIM passive (IPv4, IPv6) - PBR - Virtual Route Redundancy Protocol VRRP (IPv4) - VRRP v3 (IPv6) - VRRP-E(IPv4/IPv6)

ACCESS NETWORKS ANX 7150 SPECIFICATIONS

FEATURES	STANDARD COMPLIANCE
IEEE standards compliance	802.1AB LLDP/ LLDP-MED 802.1D MAC Bridging 802.1p Mapping to Priority Queue 802.1s Multiple Spanning Tree (MST) 802.1w Rapid Reconfiguration of Spanning Tree (RSTP) 802.1x Port-based Network Access Control (PNAC) 802.3 Carrier Sense Multiple Access/Collision Detection (CSMA/CD) 802.3ab 1000BASE-T 802.3 10Base-T 802.3ad Link Aggregation (Dynamic and Static) 802.1 AX-2008 Link Aggregation 802.3ae 10 Gigabit Ethernet 802.3af Power over Ethernet 802.3at Power over Ethernet Plus 802.3bz Multigigabit Ethernet 802.3u 100Base-TX 802.3x Flow Control 802.3z 1000Base-SX/LX 802.3 MAU MIB (RFC 2239) 802.1Q VLAN Tagging 802.1BR Bridge Port Extension 802.3az Energy Efficient Ethernet

FEATURES	NETWORK AND DEVICE MANAGEMENT
Management	- DHCP Auto Configuration - Configuration Logging - Digital Optical Monitoring - Display Log Messages on Multiple Terminals - Embedded Web Management (HTTP/HTTPS) - Embedded DHCP Server - Industry-standard Command Line Interface (CLI) - Access Networks SmartZone Network Controller (sold separately) - CLI activation of optional software features - USB file management and storage - Macro for batch execution - Out-of-band Ethernet Management - RSPAN - TFTP - TELNET Client and Server - SSH / SSH V2 - Bootp - SNMPv1/v2c - DHCP Server and DHCP Relay - SNMPv3 Intro to Framework - Architecture for Describing SNMP Framework - SNMP Message Processing and Dispatching - SNMPv3 Applications - SNMPv3 User-based Security Model - SNMP View-based Access Control Model SNMP - sFlow - Network Time Protocol (NTP) - Multiple Syslog Servers - SCP - Virtual Cable Tester (VCT)

FEATURES	ENVIRONMENT
Temperature	Operating Temperatures: 0°C to 45°C (0°C to 40°C for ANX 7150-C08P and ANX7150-C10P) Storage Temperatures: -40°C to 70°C
Humidity	Operating relative humidity: 5% to 95% at 45°C, non-condensing Non-operating relative humidity: 0% to 95% at 70°C, non-condensing
Altitude	Operating altitude: 10,000 ft (3,000 m) maximum Storage altitude: 39,000 ft (12,000 m) maximum

ACCESS NETWORKS ANX 7150 SPECIFICATIONS

FEATURES	COMPLIANCE/CERTIFICATION
Electromagnetic emissions	FCC Class A (Part 15); EN 55022/CISPR-22 Class A; VCCI Class A; ICES-003 Electromagnetic Emission; AS/NZS 55022; EN 61000-3-2 Power Line Harmonics; EN 61000-3-3 Voltage Fluctuation and Flicker; EN 61000-6-3 Emission Standard (supersedes: EN 50081-1)
Safety	CAN/CSA-C22.2 NO. 60950-1-07; UL 60950-1 Second Edition; IEC 60950-1 Second Edition; EN 60950-1:2006 Safety of Information Technology Equipment; EN 60825-1 Safety of Laser Products—Part 1: Equipment Classification, Requirements and User's Guide; EN 60825-2 Safety of Laser Products—Part 2: Safety of Optical Fibre Communication Systems
Immunity	EN 61000-6-1 Generic Immunity and Susceptibility (supersedes EN 50082-1); EN 55024 Immunity Characteristics (supersedes EN 61000-4-2 ESD); EN 61000-4-3 Radiated, Radio Frequency, Electromagnetic Field; EN 61000-4-4 Electrical Fast Transient; EN 61000-4-5 Surge; EN 61000-4-6 Conducted Disturbances Induced by Radio-Frequency Fields; EN 61000-4-8 Power Frequency Magnetic Field; EN 61000-4-11 Voltage Dips and Sags
Environmental regulatory compliance	RoHS-compliant (6 of 6); WEEE-compliant
Vibration	IEC 68-2-36, IEC 68-2-6
Shock and drop	IEC 68-2-27, IEC 68-2-32

ACCESS NETWORKS ANX 7150 ORDERING INFORMATION

PART NUMBER	ANX 7150 SWITCHES WITH 1 GbE UPLINKS
ANX7150-C12P	Access Networks ANX 7150 Compact Switch, 12×10/100/1000 Mbps PoE+ ports, 2×1 GbE RJ45 uplink-ports, 2×1 GbE SFP uplink-ports upgradable to 2×10 GbE SFP+ with license. 124 W PoE budget, basic Layer 3 (static routing and RIP).
ANX7150-24	Access Networks ANX 7150 Switch, 24×10/100/1000 Mbps ports, 2×1 GbE RJ45 uplink-ports, 4×1 GbE SFP uplink-ports upgradable to up to 4×10 GbE SFP+ with license, basic Layer 3 (static routing and RIP).
ANX7150-24P	Access Networks ANX 7150 Switch 24×10/100/1000 Mbps PoE+ ports, 2×1 GbE RJ45 uplink-ports, 4×1 GbE SFP uplink-ports upgradable to up to 4×10 GbE SFP+ with license, 370 W PoE budget, basic Layer 3 (static routing and RIP).
ANX7150-48	Access Networks ANX 7150 Switch, 48×10/100/1000 Mbps ports, 2×1 GbE RJ45 uplink-ports, 4×1 GbE SFP uplink-ports upgradable to up to 4×10 GbE SFP+ with license, basic Layer 3 (static routing and RIP).
ANX7150-48P	Access Networks ANX 7150 Switch, 48×10/100/1000 Mbps PoE+ ports, 2×1 GbE RJ45 uplink-ports, 4×1 GbE SFP uplink-ports upgradable to up to 4×10 GbE SFP+ with license, 370 W PoE budget, basic Layer 3 (static routing and RIP).
ANX7150-48PF	Access Networks ANX 7150 Switch, 48×10/100/1000 Mbps PoE+ ports, 2×1 GbE RJ45 uplink-ports, 4×1 GbE SFP uplink-ports upgradable to up to 4×10 GbE SFP+ with license, 740 W PoE budget, basic Layer 3 (static routing and RIP).

ACCESS NETWORKS ANX 7150 ORDERING INFORMATION

PART NUMBER	UPGRADE LICENSES
	All Access Networks ANX 7150 switch models with 1 GbE SFP uplink ports can be upgraded to 10 GbE SFP+ ports with a license.
ANX-7150C-21U210R	License to upgrade the Access Networks ANX 7150 12 ports compact switches from 2×1 GbE SFP to 2×10 GbE SFP+ stacking/uplink-ports. Also includes Layer 3 features (OSPF, VRRP, PIM, PBR).
ANX-7150-41U210	License to upgrade any Access Networks ANX 7150 24/48 ports except the Z-Series from 4×1 GbE SFP to 2×1 GbE SFP and 2×10 GbE SFP+ stacking/uplink-ports.
ANX-7150-41U410R	License to upgrade any Access Networks ANX 7150 24/48 ports except the Z-Series from 4×1 GbE SFP to 4×10 GbE SFP+ stacking/uplink-ports. Also includes Layer 3 features (OSPF, VRRP, PIM, PBR).
ANX-7150-210U410R	License to upgrade any Access Networks ANX 7150 24/48 ports except the Z-Series from 2×1 GbE SFP and 2×10 GbE SFP+ to 4×10 GbE SFP+ stacking/uplink-ports. Also includes Layer 3 features (OSPF, VRRP, PIM, PBR).
ANX-7150Z210U810R	License to upgrade ANX 7150 Z-Series model from 6×1 GbE SFP and 2×10 GbE SFP+ to 8×10 GbE SFP+ stacking/uplink-ports (max 4 for stacking). Also includes L3 features (OSPF, VRRP, PIM, PBR).

PART NUMBER	FRUS AND ACCESSORIES
RPS20-E	Access Networks ANX 7150-48ZP 920 W AC hot-swap PoE power supply, front to back airflow (up to 2 per switch). Only applicable to the Z-Series
ANX-FAN11	Access Networks ANX 7150-48ZP hot-swap fan tray (up to 2 per switch). Only applicable to the Z-Series
	
CC-RJ45-DB9	Console cable RJ45-RJ45 with RJ-45-DB9 Adapter (for RJ-45 console port on ANX 7150)
CC-USBC-USBA	USB 2.0 Cable, Type-C to Type-A, 1 meter (for USB Type-C console port on ANX 7150)
ANX7000-C12-RMK	ANX7150-C12P Compact Switch Rack Mount Kit
ANX7000-RMK	Rack Mount Kit, 2-post FRU for ANX 7000 series 24/48 port models

	