Cisco Catalyst 9300 Modular Uplink Options and Cable Assembly - Official Technical Overview & Hardware Datasheet

EXECUTIVE SUMMARY

The Cisco Catalyst 9300 Series represents a paradigm shift in enterprise campus access and aggregation switching, engineered to support the escalating bandwidth demands of Wi-Fi 6, IoT convergence, and multi-gigabit workspace technologies. Central to the platform's architectural flexibility is the hot-swappable modular uplink framework, which enables network operators to field-upgrade backbone connectivity without wholesale chassis replacement. This technical datasheet delineates the complete portfolio of network modules, transceiver compatibility parameters, and the associated cable assembly infrastructure — including StackWise and StackPower cabling — required for high-density, resilient campus fabric deployments. The Catalyst 9300 delivers up to 480 Gbps of stacking bandwidth and supports a diverse spectrum of uplink interfaces ranging from legacy 1 Gigabit Ethernet to high-capacity 100 Gigabit Ethernet, ensuring seamless alignment with evolving core network topologies.



HARDWARE ARCHITECTURE & SILICON

The Catalyst 9300 hardware foundation is purpose-built for non-blocking line-rate forwarding and operational longevity. The chassis accommodates dedicated network module slots that interface directly with the primary forwarding ASIC, ensuring that uplink traffic does not traverse internal bottleneck pathways. The modular uplink design philosophy separates the fixed access port configuration from the backbone interface, allowing precise customization per deployment scenario. Supported network module families include the C9300-NM series for 1G/10G/25G/40G connectivity and the C9300X-NM series for advanced 25G/100G requirements, the latter being strictly compatible with Catalyst 9300X switch models. The architecture also incorporates dedicated stacking ports capable of 480 Gbps throughput when utilizing Type 1 or Type 3 stacking cables, facilitating the creation of resilient

switch stacks of up to eight members.

KEY FEATURES & ROUTING LOGIC

- Hot-Swappable Modular Uplinks: Field-replaceable network modules enable in-service bandwidth upgrades and media transitions (copper to fiber) without disrupting access port operations, preserving continuous uptime for critical endpoints.

- Comprehensive Uplink Portfolio: Supported module options span 4x1G, 4x10G (multigigabit capable), 8x10G, 2x25G, 2x40G, and 8x25G configurations, accommodating varied core distances and throughput tiers.

- StackWise-480 Architecture: The platform provides 480 Gbps of stackable backplane bandwidth, enabling simplified management and cross-stack EtherChannel for loop-free redundancy across up to eight Catalyst 9300 or mixed 9300X units.

- StackPower Shared Power Pool: Dedicated StackPower cables (available in 30 cm and 150 cm lengths) create a shared power domain across stack members, permitting power supply redundancy and supplemental PoE budget allocation during peak draw or PSU failure conditions.

- Multigigabit Downlink Synergy: The modular uplink architecture is optimally paired with mGig access models (C9300-24UX, C9300-48UN, C9300-48UXM) to deliver 100M/1G/2.5G/5G/10G access speeds over Category 5e/6a infrastructure, ensuring the uplink capacity scales proportionally with

access-layer demands.

COMPLIANCE & STANDARDS

The Catalyst 9300 Series conforms to rigorous international electromagnetic compatibility, safety, and environmental directives. The platform supports IEEE 802.1ba AV Bridging, IEEE 1588v2 Precision Time Protocol for time-sensitive applications, and hardware-based MACSec AES-256 encryption for link-layer security. All network modules and cable assemblies are designed to meet Telcordia GR-63-CORE and GR-1089-CORE requirements for operation in controlled telecommunications environments.

TECHNICAL SPECIFICATIONS

The following table delineates the primary hardware parameters, modular uplink options, and physical cable specifications for the Catalyst 9300 Series. Network module compatibility must be verified against the specific switch model (9300 vs. 9300X) to ensure ASIC-level interoperability.

Parameter	**Specification**
Form Factor	1RU fixed chassis with dedicated modular uplink slot

Stacking Bandwidth	480 Gbps per stack (StackWise-480)
Stack Size	Up to 8 switches (mixed 9300 and 9300X supported)
Network Module Options	4x1G, 4x10G mGig, 8x10G, 2x25G, 2x40G, 2x100G, 8x25G
Module Compatibility	C9300X-NM series requires Catalyst 9300X models
Stacking Cable Lengths	50 cm (Type 1 default), 1 m, 3 m
StackPower Cable Lengths	30 cm, 150 cm
Power Supply Options	350W AC, 715W AC, 1100W AC (dual redundant)
Uplink Media Support	SFP/SFP+/SFP28 (fiber), QSFP+/QSFP28 (fiber), mGig copper (RJ45)
MACSec Encryption	AES-256 hardware-based (supported on designated SKUs)

ORDERING SKU INFORMATION

Network module procurement requires careful attention to switch model compatibility. The C9300-NM-2Q (2x40G QSFP+), C9300-NM-8X (8x10G SFP+),

and C9300-NM-2Y (2x25G SFP28) are compatible with standard Catalyst 9300 and 9300X models. The C9300X-NM-2C (2x100G QSFP28) and C9300X-NM-8Y (8x25G SFP28) are exclusive to the Catalyst 9300X platform. Stacking infrastructure ordering requires selection of either the standard StackWise kit (containing adapters and a 50 cm Type 1 cable) or discrete cable SKUs for custom lengths (50 cm, 1 m, or 3 m). StackPower cabling is ordered separately in 30 cm or 150 cm variants. All Catalyst 9300 SKUs are Smart Account mandatory; license entitlements are deposited into Cisco Smart Software Manager upon order fulfillment.

