

Velocity 4900 Automation Switch Series

Accelerate Testing and Improve Efficiency with Automation Switches for Lab Connectivity

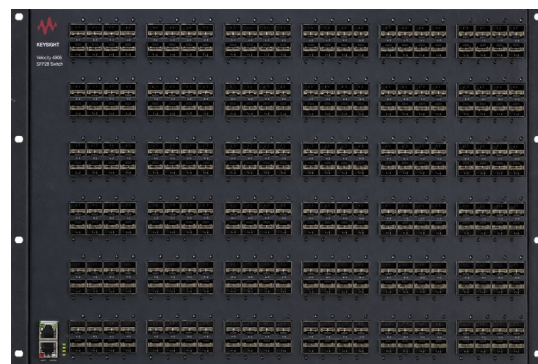
Today's test lab teams face a myriad of challenges, ranging from keeping costs such as energy and labor in check to improving lab tool utilization and actively shortening test cycles. Keysight delivers a portfolio of flexible test lab automation and management products, including a comprehensive series of Velocity Automation Switches to virtualize, automate, and securely manage your physical layer fabric.

Keysight's Velocity 4900 Series switches for test lab automation serve as the focal point for managing lab connectivity and topology. The 4900 optimizes test lab operations by combining Layer 1 matrix switching into a scalable architecture. It offers flexible configurations built for 25G and 100G test environments, with a high-density 72-port QSFP28 switch and a 288-port SFP28 switch.

Built on a hardened Linux operating system and secure BIOS (UEFI), the automation switches provide a secure foundation for lab automation, with CLI and API support for programmatic control and integration. Whether managing dedicated high-performance test labs or consolidated globally accessible lab resources, the 4900 Series supports a wide range of port speeds and media types for operating network topologies within today's complex test labs.



Velocity 4902



Velocity 4906

Benefits and Capabilities

Velocity automation switches help organizations increase utilization of lab equipment, automate lab management, and drive cost savings by:

- Increasing test lab and resource sharing and efficiency
- Reducing time required to set up and test
- Providing insight into lab and equipment use
- Improving lab performance by reducing production errors

Key Switch Features

- 72x QSFP28 ports (4902), 288x SFP28 ports (4906)
- Multi-speed support: 1, 10, 25, 40, and 100 Gb/s
- Multiple media: SM Fiber, MM Fiber, RJ-45 CAT6, DAC, AOC, AEC, Coax, HDMI
- Port speed / media type configurable on a per-port basis
- Port tapping for diagnostics and monitoring
- Traffic replication using one-to-many connections
- Automated connections are instantaneous and assured

Scale Lab Connectivity	Automate Testbeds	Improve Test Fidelity
Pool lab equipment more effectively and manage connectivity at Layer 1	Automate scenario setup and connection changes with programmatic control	Use true Layer 1 forwarding with ultra-low latency and transparent behavior

Figure 1. Velocity 4900 Series Switch Value for Test Labs

Highlights

- True Layer 1, protocol-agnostic forwarding for functional and performance testing
- Ultra-low, deterministic latency and jitter (<100ps) with a fully transparent non-blocking Layer 1 matrix
- Zero packet loss caused by switch congestion; does not create packet queues as conventional Ethernet switches do, eliminating output-buffer contention
- Low switch complexity; requires no MAC learning, routing protocols, ACLs, QoS classification, packet inspection, or large forwarding tables, which reduces power, software complexity, and operational overhead.
- High-density scalable architecture (supporting 1,000s of ports)
- Per-port speed and media configuration for flexible lab topologies
- Integrates seamlessly with Velocity automation workflows-agnostic forwarding for functional and performance testing
- Providing insight into lab and equipment use
- Improving lab performance by reducing production errors

Velocity 4900 Switch Ethernet Configuration Options

Model Comparison				
	4902 Switch VLB14902A		4906 Switch VLB14906A	
Rack Units	2RU		6RU	
Port Count	72 (Up to 288 with breakouts)		288	
Port Form Factor	QSFP28		SFP28	
Max Speed	103.125 Gb/S		25.781 Gb/S	
Throughput Range	100M, 1, 2.5, 5, 10, 25, 40, and 100 Gb/s		100M, 1, 2.5, 5, 10, and 25 Gb/s	
Latency	*		*	

Media Types	SM Fiber, MM Fiber, DAC, AOC, AEC, Coax, HDMI	SM Fiber, MM Fiber, DAC, AOC, AEC, Coax, HDMI
Applications	Ethernet, Fibre Channel, InfiniBand, CPRI, HDMI, SDI, SAS/SATA, SONET	Ethernet, Fibre Channel, InfiniBand, CPRI, HDMI, SDI, SAS/SATA, SONET
Key Capabilities	Per-port configuration, lossless port tapping, traffic replication, media conversion, multicasting	Per-port configuration, lossless port tapping, traffic replication, media conversion, multicasting
Ethernet Management Ports	1 (100M/1G/2.5G)	1 (100M/1G/2.5G)
RS-232 Serial Ports	1 (RJ-45)	1 (RJ-45)
Admin Interfaces	SSH, Rest API, HTTP/HTTPS, Java	SSH, Rest API, HTTP/HTTPS, Java
Operating Systems	Secure Linux, Secure BIOS (UEFI)	Secure Linux, Secure BIOS (UEFI)
TAA Compliant	Yes	Yes
Hot-Swappable Power Supplies	2 (1+1 redundant)	2 (1+1 redundant)
Hot-Swappable Fans	3 (1+1 redundant)	3 (1+1 redundant)
Front-to-Rear Airflow	Yes	Yes
Dimensions (WxHxD)	17.025 in x 3.47 in x 20 in 432.4 mm x 88.1mm x 508 mm	17.25 in x 10.45 in x 25.028 in 437.2 mm x 265.4 mm x 635.7 mm
Weight	*	*
Power Draw	1300W Max (XXX Nominal)*	1300W Max (XXX Nominal)*
Power Supplies	CRPS* 90-264 Vac/47Hz-63Hz	CRPS* 90-264 Vac/47Hz-63Hz

**Pending switch appliance testing*

Velocity 4902 Automation Switch

The Velocity 4902 is a 2RU, 72-port QSFP28 Layer 1 switch built to support 25G and 100G test environments. It delivers true Layer 1 forwarding for functional and performance testing, with ultra-low, deterministic latency and jitter and a fully non-blocking transparent Layer 1 matrix.

The 4902 supports multi-speed operation from 100M through 100 Gb/s, multiple media types, and per-port speed / media selection. Port tapping, “any-to-any” and one-to-many traffic replication help teams diagnose and monitor test scenarios without disrupting the underlying topology. The architecture scales to 1000s of ports. The 4902 fits teams that want to pool lab equipment, create testbeds programmatically, and reduce the time required to set up and test.

Velocity 4906 Automation Switch

The Velocity 4906 is a 6RU, 288-port SFP28 Layer 1 switch designed for dense 25G environments. It provides fully transparent Layer 1 forwarding with ultra-low, deterministic latency for functional and performance testing.

The 4906 switch supports multi-speed operation, multiple media types, per-port configuration, port tapping, and traffic replication. Its higher port density and scalability to 1000s of ports makes it well suited for large test labs that need to scale connectivity while preserving test fidelity.

Additional Velocity Automation Switches

Test labs are challenged with the ever-changing landscape of ethernet speeds, test tools, and interface types. Velocity provides a variety of automation switches to support your test lab requirements and environments.

Velocity HS Series Switches

The Velocity HS Series can maximize efficiency in diverse environments by supporting Ethernet speeds up to 400 G and enabling the use of lower speed test tools for higher speed testing through rate conversion and aggregation. Isolated port mapping allows you to easily configure test scenarios that would otherwise require additional spending for new tool ports. The HS Series delivers flexible, multi-speed support in three different chassis options with QSFP-28 or QSFP-DD interfaces. Review the HS Series datasheet and Keysight website for additional information.

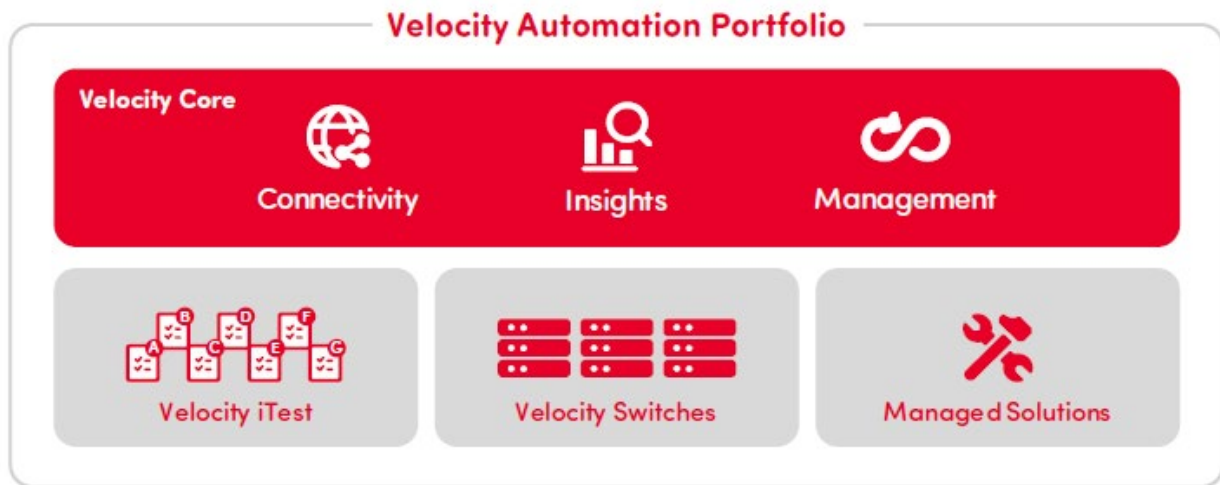


Figure 2. Velocity Automation Portfolio Diagram

The Velocity Switches are a part of the Velocity Automation Portfolio, which supports the complete automation of customer lab and testing environments for large enterprise, NEM, and service provider organizations. It is the only fully integrated solution to provide automation and management of lab resources, facilitate automated test suite creation, oversee lab connectivity and topology, and provide professional services for automation success.