

# Accedian Skylight SFP Compute Sensors

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Accedian is now part of Cisco

## Product overview

The Accedian Skylight SFP Compute Sensor portfolio offers customers a wide variety of high-performance Gigabit Ethernet pluggable service assurance and demarcation options for enhanced mobile, Carrier Ethernet, and IP service deployments.

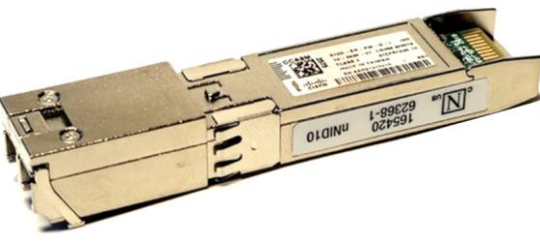
Fully integrated with the Accedian Skylight platform, Accedian Skylight SFP Compute Sensors support service delivery automation, scalable metric collection, and reporting with actionable insight and machine learning-driven analytics to enable accelerated service rollout and improved operational efficiency.



10G Short-Reach (SR) Transceiver



10G Long-Reach (LR) Transceiver



10G Extended-Reach (ER) Transceiver

## Features and benefits of Accedian Skylight SFP Compute Sensors

- Compatible with other IEEE-compliant interfaces where applicable.
- Certified and tested on Cisco SFP+ platform ports for superior performance, quality, and reliability.
- Tested interoperability with standard Cisco SFP+ transceivers.
- End-to-end service performance assurance features include:
  - Service Activation Testing (SAT).
  - Performance Monitoring (PM).
- Features a fully featured FPGA capable of active Layer 2-4 traffic generation and measurement.
- Ideal for cost- and space-sensitive applications by avoiding usage of additional rackspace.
- Transceiver firmware and FPGA can be upgraded in network.
- Communications with Accedian Skylight platform using IP address.
- Industrial temperature range operation.

**Table 1.** Accedian Skylight SFP Compute Sensor Portfolio

<b>SFP-10GbE Performance Monitoring, SR, MM, 850nm, 300/400/400m OM3/4/5-Temp</b>
<b>SFP-10GbE Performance Monitoring, LR, SM, 1310nm, 10km, I-Temp</b>
<b>SFP-10GbE Performance Monitoring, ER, SM, 1550nm, 40km, I-Temp</b>

## Key performance indicators using the Accedian Skylight platform and Accedian Skylight SFP Compute Sensors

Using the Accedian Skylight SFP Compute Sensors, the Accedian Skylight platform provides the following measurements and testing capability including:

- TWAMP: Two-Way Active Measurement Protocol
- ETH-DM: Ethernet Delay Measurement
- ETH-LB: Ethernet Loop Back
- ICMP Echo: Internet Control Message Protocol Echo
- UDP Echo: User Datagram Protocol Echo
- ETH-VS: Ethernet Vendor Specific

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**KPIs include:**

**1. Synthetic active assurance and testing**

**One-way delay, PDV, and IPDV (jitter)**

- Min/max/average
- Median (p50)
- Percentile 25/75/95/96/98/99
- Standard deviation

**One-way packet statistics**

- Packets lost (number and %)
- Loss bursts
- Longest loss burst
- Shortest loss burst
- Reordered packets (number and %)
- Packets duplicated (number and %)

**One-way packet field and QoS metrics**

- IP TOS max (DSCP diffserv)
- IP TOS min
- TTL max/min

**VLAN Pbit max/min**

- ETH-OAM MEG level max/min
- MOS
- R-value

**Meta metrics**

- Session ID
- Interval sequence number
- Interval timestamp (UTC)
- Interval length (Report interval)
- Up or downlink direction

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## 2. Service Activation Testing (SAT)

### Throughput validation – circuit readiness

- RFC2544 generation and reflection
- Y.1564 generation and reflection

## 3. Bandwidth metering

### Throughput metrics

- Min Throughput – Per Flow
- Average Throughput – Per Flow
- Max Throughput – Per Flow

## Accedian Skylight SFP Compute Sensor zero-touch provisioning

Zero-Touch Provisioning (ZTP) and IPv4/IPv6 management make these Accedian Skylight SFP Compute Sensors easy and secure to deploy and manage. The Accedian Skylight SFP Compute Sensor IP address can be assigned dynamically or manually.

ZTP is fully integrated with the Accedian Skylight platform. It also supports service delivery automation and scalable, real-time metrics collection and reporting of actionable insights for delivery and machine learning needed for accelerated service rollout and improved operational efficiencies.

## Performance

### TWAMP

- Maximum sessions: 4000 @ 20 PPS/session
- Maximum number of PPS: 80000 (share across the 4000 sessions)
- Maximum rate per session: 250 PPS/session @ maximum session = 320

### Traffic loopback

- TWAMP reflector @ line rate for unlimited number of stateless sessions
- TWAMP reflector @ line rate for up to 16 TWAMP stateful sessions
- User-configurable loopback Layer 2 to Layer 4 at line rate

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## RFC2544 and Y.1654

- Accedian Skylight SFP Compute Sensors support full line-rate test traffic generation.
- Accedian Skylight SFP Compute Sensors can create and analyze up to four Layer 2 or 3 unique fully fledged RFC-2544 and Y.1564 Service Activation Test (SAT) suite toward Accedian Skylight platform or third-party endpoints.
  - This allows service providers to test a service path at turn-up and revalidate on-demand the capacity of a specific path or service during maintenance windows or when troubleshooting.
- Accedian Skylight SFP Compute Sensors can be located anywhere in the network, removing the limitation and expense of required head-end test equipment.
- Accedian Skylight SFP Compute Sensors support SAT testing at line rate for any packet size with 1-usec delay measurement accuracy.

## Flowmeter

- The flowmeter capability precisely measures bandwidth and reveal transient peaks or microbursts that cause TCP throughput delays.
- Using Accedian Skylight platform, flowmeter processes per-flow bandwidth usage metrics from Accedian Skylight SFP Compute Sensor time-stamps, and byte and packet counters, to accurately report minimum and maximum average bandwidth metrics for configurable reports on sub-second sampling intervals.
- When correlated together with packet loss and other measurements, service providers can detect network bottlenecks and plan capacity-key metrics to assure and enforce the delivery of off-net services.
- The flowmeter capability separately monitors upload and download usage statistics.
- Flowmeter's per-service metering enables usage-based billing, burst detection, trending, and traffic pattern analysis.

## Platform support

Accedian Skylight SFP Compute Sensors are supported on Cisco platforms. For more details, refer to the [Transceiver Module Group \(TMG\) Compatibility Matrix](#).

## Technical specifications

**Table 2.** Cabling specification

Cisco Skylight SFFPM	Wavelength (nm)	Cable Type	Optical Connector	Core Size (um)	Model Bandwidth (MHz/km)	Cable Distance
S10G-10G-SR-PM-D-I	850	MMF	LC Duplex	50	2000 (OM3)	300m
				50	4700 (OM3)	400m
				50	4700 (OM4)	400m
S10G-10G-LR-PM-D-I	1310	SMF	LC Duplex	G.652	-	10km
S10G-10G-ER-PM-D-I	1550	SMF	LC Duplex	G.652	-	40km

**Table 3.** Optical transmit and receive specifications

Cisco Skylight SFFPM	Transmit Power (dBm)		Receive Power (dBm)		Link Budget (dB)	Transmit and Receive Wavelengths (nm)
	Maximum	Minimum	Maximum	Minimum		
S10G-10G-SR-PM-D-I	-1	-6	0	-10	4	840-860
S10G-10G-LR-PM-D-I	0	-7	.5	-14.4	7.4	1260-1355
S10G-10G-ER-PM-D-I	4	-4.7	-1	-14.1	9.4	1350-1565

**Table 4.** General specification

Cisco Skylight SFFPM	Bail Color	Power (W)	Size (H x W x D) mm
S10G-10G-SR-PM-D-I	Beige	2.6	8.5 x 13.4 x 64.5
S10G-10G-LR-PM-D-I	Blue	2.7	8.5 x 13.4 x 64.5
S10G-10G-ER-PM-D-I	Red	3.0	8.5 x 13.4 x 70.3

### IEEE-1588 PTP

- Class B

### Encryption

- The control protocol is encrypted for authentication and after that the control protocol is signed. The encryption is Grain128a

### GR-3108

- Class 2

### Export classification

- 5A991.b



## Management

- SFF-8742
- Accedian Skylight platform

## Firmware update

- Via Accedian Skylight platform

## Module weight

- Weight: Typically 75 grams or less

## Environmental conditions (noncondensing)

- Operating temperature range:
  - Industrial temperature range -40 to 85C (-40 to 185F): S10G-LR-PM-D-I, S10G-ER-PM-D-I
  - Extended temperature range -5 to 85C (-10 to 185F): S10G-SR-PM-D-I
- Storage temperature range: -40 to 85C (-40 to 185F)

## Ordering information

PID	Description
<b>S10G-SR-PM-D-I</b>	SFP-10GbE Performance Monitoring, SR, MM, 850nm, 300/400/400m OM3/4/5, I-Temp
<b>S10G-LR-PM-D-I</b>	SFP-10GbE Performance Monitoring, LR, SM, 1310nm, 10km, I-Temp
<b>S10G-ER-PM-D-I</b>	SFP-10GbE Performance Monitoring, ER, SM, 1550nm, 40km, I-Temp

## Warranty

Standard warranty: 1 year

- Expedited replacement available via a Cisco SMARTnet service support contract

## Regulatory and standards compliance

### Standards:

- GR-20-CORE: Generic Requirements for Optical Fiber and Optical Fiber Cable.
- GR-326-CORE: Generic Requirements for Single-Mode Optical Connectors and Jumper Assemblies.
- GR-1435-CORE: Generic Requirements for Multifiber Optical Connectors.
- IEEE 802.3: 10-Gigabit Ethernet.
- SFP+ MSA SFF-8431 (Optical Transceivers, Active Optical Cables, and Passive Twinax cables).

### Safety:

- Laser Class 1 21CFR-1040 LN#50 7/2001
- Laser Class 1 IEC60825-1

## Product sustainability

**Table 5.** Product sustainability

Sustainability topic	Reference	
<b>General</b>	Information on product-material-content laws and regulations	<a href="#">Materials</a>
	Information on electronic waste laws and regulations, including our products, batteries, and packaging	<a href="#">WEEE compliance</a>
	Information on product takeback and reuse program	<a href="#">Cisco Takeback and Reuse Program</a>
	Sustainability inquiries	Contact: <a href="mailto:csr_inquiries@cisco.com">csr_inquiries@cisco.com</a>
	Countries and regions supported	Regulatory compliance
<b>Power</b>	Power (including pluggable)	Power consumption
<b>Material</b>	Product packaging weight and materials	Contact: <a href="mailto:environment@cisco.com">environment@cisco.com</a>

## Cisco Capital

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## Additional information

For more information about Accedian Skylight SFP Compute Sensors, contact your sales

representative or visit <https://www.cisco.com/site/us/en/products/networking/optics-transceiver-modules/index.html>.

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## Document history

**Table 6.** Document history

New or revised topic	Described In	Date
1 <sup>st</sup> publication	-	February 2024
Update temperature range	<a href="#">Environmental conditions</a>	April 2024

**Americas Headquarters**  
Cisco Systems, Inc.  
San Jose, CA

**Asia Pacific Headquarters**  
Cisco Systems (USA) Pte. Ltd.  
Singapore

**Europe Headquarters**  
Cisco Systems International BV Amsterdam,  
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