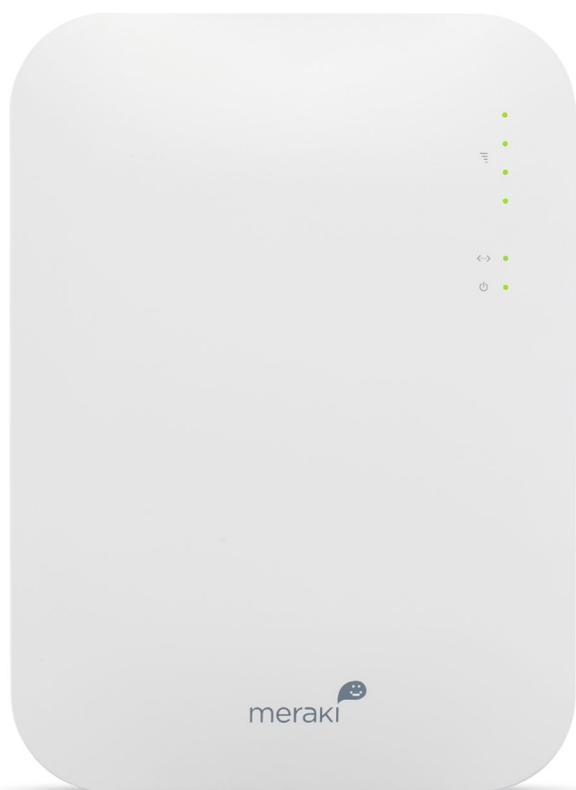


# MR16

Dual-Radio 802.11n Access Point



## High performance cloud-managed wireless LAN

The Meraki MR16 is an enterprise class, dual-concurrent 802.11n access point designed for high-density deployments in large offices, schools, hospitals, hotels and large retail stores. The MR16 features dual-concurrent, dual-band operation and advanced 802.11n technologies such as MIMO and beam forming, delivering the high throughput and reliable coverage required by the most demanding business applications like voice and video.

### MR16 and Meraki Cloud Management: A Powerful Combo

The MR16 is managed via the Meraki cloud, with an intuitive browser-based interface that lets you get up and running quickly without training or certifications. Since the MR16 is self-configuring and managed over the web, you can even deploy the MR16 at a remote location without on-site IT staff.

The MR16 is monitored 24x7 via the cloud, which delivers real-time alerts if your network encounters problems. Remote diagnostics tools enable real-time troubleshooting over the web, meaning multi-site, distributed networks can be managed remotely.

The MR16's firmware is always kept up to date from the cloud. New features, bug fixes, and enhancements are delivered seamlessly over the web, so you never have to manually download software updates or worry about missing security patches.

### Product Highlights

- Dual-concurrent 802.11n radios, up to 600 Mbps throughput
- Enhanced transmit power and receive sensitivity
- Self-healing, zero-configuration mesh
- Integrated enterprise security and guest access
- Application-aware traffic shaping
- Self-configuring, plug-and-play deployment
- Sleek, low profile design blends into office environments
- Optimized for voice and video
- Real-time WIPS with Air Marshal

# Features

## Dual enterprise class 802.11n radios, up to 600 Mbps

The MR16 features two powerful radios and advanced RF design for enhanced receive sensitivity. Combined with 802.11n technologies including 2x2 MIMO and transmit beamforming, the MR16 delivers up to 600 Mbps throughput and up to 50% increased range compared to typical enterprise-class 802.11n access points, meaning fewer access points are required for a given deployment. In addition, dual-concurrent 802.11n radios and band steering technology allow MR16 to automatically serve legacy 802.11b/g clients with the 2.4 GHz radio and newer 802.11n clients to the 5 GHz band to provide maximum speed to all clients.

## Application-aware traffic shaping

The MR16 includes an integrated layer 7 packet inspection, classification, and control engine, enabling you to set QoS policies based on traffic type. Integrated support for Wireless Multi Media (WMM) and 802.1p DSCP tagging. Prioritize your mission critical applications, while setting limits on recreational traffic, e.g. peer-to-peer and video streaming.

## Automatic cloud-based RF optimization with spectrum analysis

The MR16's sophisticated, automated RF optimization means that there is no need for the dedicated hardware and RF expertise typically required to tune a wireless network. An integrated spectrum analyzer monitors the airspace for neighboring WiFi devices as well as non-802.11 interference – microwave ovens, Bluetooth headsets, etc. The Meraki cloud then automatically optimizes the MR16's channel selection, transmit power, and client connection settings, providing optimal performance even under challenging RF conditions.

## Integrated enterprise security and guest access

The MR16 features integrated, easy-to-use security technologies to provide secure connectivity for employees and guests alike. Advanced security features such as AES hardware-based encryption and WPA2-Enterprise authentication with 802.1X and Active Directory integration provide wire-like security while still being easy to configure. One-click guest isolation provides secure, Internet-only access for visitors. Our policy firewall (Identity Policy Manager) enables group or device-based, granular access policy control. Meraki Teleworker VPN makes it easy to extend the corporate LAN to remote sites, without requiring all clients and devices to have client VPN software. PCI compliance reports check network settings against PCI requirements to simplify secure retail deployments.

## Secure wireless environments using Air Marshal

Meraki wireless comes equipped with Air Marshal, a built-in wireless intrusion prevention system (WIPS) for threat detection and attack remediation. APs will scan their environment opportunistically or in real-time based on intuitive user-defined preferences. Alarms and auto-containment of malicious rogue APs are configured via flexible remediation policies, ensuring optimal security and performance in even the most challenging wireless environments.

## High performance mesh

The MR16's advanced mesh technologies like multi-channel routing protocols and multiple gateway support enable scalable, high throughput coverage of hard-to-wire areas with zero configuration. Mesh also improves network reliability - in the event of a switch or cable failure, the MR16 will automatically revert to mesh mode, providing continued gateway connectivity to clients.

## Self-configuring, self-optimizing, self-healing

When plugged in, the MR16 automatically connects to the Meraki cloud, downloads its configuration, and joins the appropriate network. It self optimizes, determining the ideal channel, transmit power, and client connection parameters. And it self heals, responding automatically to switch failures and other errors.

## Low profile, environmentally friendly design

Despite its incredible power and feature set, the MR16 is the lowest profile 802.11n access point available - at just one inch thick, it blends seamlessly into any environment. In addition to looking great, the MR16 is earth friendly: we've eliminated excess packaging and documentation, and 90% of the access point materials are recyclable. A maximum power draw of only 10.5 watts and a cloud-managed architecture mean that pollution, material utilization and your electric bill are kept to a minimum.

# Specifications

## Radios

One 802.11b/g/n and one 802.11a/n radio

Dual concurrent operation in 2.4 and 5 GHz bands

Max throughput rate 600 Mbit/s

Operating Bands:

FCC (US)	EU (Europe)
2.412-2.484 GHz	2.412-2.484 GHz
5.150-5.250 GHz (UNII-1)	5.150-5.250 GHz (UNII-1)
5.725 -5.825 GHz (UNII-3)	5.250-5.350, 5.470-5.725 GHz (UNII-2)

## 802.11n Capabilities

2 x 2 multiple input, multiple output (MIMO) with two spatial streams

Maximal ratio combining (MRC)

Beamforming

20 and 40 MHz channels

Packet aggregation

Cyclic shift diversity (CSD) support

## Power

Power over Ethernet: 24 - 57 V (802.3af compatible)

12V DC

Power consumption: 10.5 W max

Power over Ethernet injector and DC adapter sold separately

## Mounting

All standard mounting hardware included

Desktop and wall mount

Ceiling tile rail (9/16, 15/16 or 1 1/2" flush or recessed rails), assorted cable junction boxes

## Physical Security

Security screw included

Kensington lock hard point

Anti-tamper cable bay

Concealed mount plate

## Environment

Operating temperature: 32 °F to 104 °F (0 °C to 40 °C)

Humidity: 5 to 95% non-condensing

## Physical Dimensions

7.3" x 5.8" x 1.0" (185 mm x 147 mm x 25 mm) not including deskmount feet or mount plate

Weight: 17 oz (0.48 kg)

## Antenna

Integrated omni-directional antennas

Gain: 3 dBi @ 2.4 GHz, 5 dBi @ 5 GHz

## Interfaces

1x 100/1000Base-T Ethernet (RJ45) with 48V DC 802.3af PoE

1x DC power connector (5mm x 2.1mm, center positive)

## Security

Integrated policy firewall (Identity Policy Manager)

Mobile device policies

Air Marshal: Real-time WIPS (wireless intrusion prevention system) with alarms

Rogue AP containment

Guest isolation

Teleworker VPN with IPsec

PCI compliance reporting

WEP, WPA, WPA2-PSK, WPA2-Enterprise with 802.1X

TKIP and AES encryption

VLAN tagging (802.1q)

## Quality of Service

Wireless Quality of Service (WMM/802.11e)

DSCP (802.1p)

Layer 7 application traffic shaping and firewall

## Mobility

PMK and OKC credential support for fast Layer 2 roaming

L3 roaming

## LED Indicators

4 signal strength

1 Ethernet connectivity

1 power/booting/firmware upgrade status

## Regulatory

FCC (US), IC (Canada), CE (Europe),

C-Tick (Australia/New Zealand), Anatel (Brazil), SRMC (China)

Cofetel (Mexico), DGT NCC (Taiwan), TK (Turkey)

RoHS

## Mean Time Between Failure (MTBF)

450,000 hours

## Certifications

Wi-Fi Alliance

## Guarantee

Lifetime hardware warranty with advanced replacement included

## Ordering Information

MR16-HW Meraki MR16 Cloud Managed AP

POE-INJ-3-XX Meraki 802.3af Power over Ethernet Injector (XX = US, EU, UK or AU)

AC-MR-1-XX Meraki AC Adapter for MR Series (XX = US, EU, UK or AU)

Note: Meraki Enterprise license required.

## RF Performance Table

Operating Band	Operating Mode	Data Rate	TX Power (dBm)	RX Sensitivity
2.4 GHz	802.11b	1 Mb/s	23	-96
		2 Mb/s	23	-94
		5.5 Mb/s	22	-95
		11 Mb/s	21	-92
2.4 GHz	802.11g	6 Mb/s	20	-95
		9 Mb/s	26	-94
		12 Mb/s	25	-93
		18 Mb/s	25	-93
		24 Mb/s	24	-90
		36 Mb/s	24	-87
		48 Mb/s	23	-83
		54 Mb/s	21	-81
2.4 GHz	802.11n (HT20)	MCS0/8 HT20	22	-96
		MCS1/9 HT20	22	-94
		MCS2/10 HT20	21	-92
		MCS3/11 HT20	21	-89
		MCS4/12 HT20	21	-85
		MCS5/13 HT20	21	-82
		MCS6/14 HT20	20	-81
MCS7/15 HT20	19	-79		
2.4 GHz	802.11n (HT40)	MCS0/8 HT40	21	-93
		MCS1/9 HT40	21	-91
		MCS2/10 HT40	21	-89
		MCS3/11 HT40	21	-86
		MCS4/12 HT40	21	-82
		MCS5/13 HT40	21	-79
		MCS6/14 HT40	19	-78
MCS7/15 HT40	18	-77		
5 GHz	802.11a	6 Mb/s	24	-97
		9 Mb/s	24	-96
		12 Mb/s	23	-94
		18 Mb/s	23	-92
		24 Mb/s	22	-90
		36 Mb/s	21	-87
		48 Mb/s	20	-85
		54 Mb/s	20	-83
5 GHz	802.11n (HT20)	MCS0/8 HT20	23	-98
		MCS1/9 HT20	23	-96
		MCS2/10 HT20	22	-93
		MCS3/11 HT20	21	-90
		MCS4/12 HT20	21	-84
		MCS5/13 HT20	20	-82
		MCS6/14 HT20	19	-80
MCS7/15 HT20	15	-79		
5 GHz	802.11n (HT40)	MCS0/8 HT40	23	-94
		MCS1/9 HT40	22	-93
		MCS2/10 HT40	21	-91
		MCS3/11 HT40	20	-88
		MCS4/12 HT40	19	-85
		MCS5/13 HT40	18	-81
		MCS6/14 HT40	18	-78
MCS7/15 HT40	14	-76		

\* Maximum hardware capability shown above. Transmit power is configurable in increments of 1 dB and is automatically limited by the Meraki cloud to comply with local regulatory settings.

## Signal Coverage Patterns

