MR33

Dual-band, 802.11ac Wave 2 2x2:2 MU-MIMO Access Point with dedicated security and RF management radio as well as integrated Bluetooth Low Energy beacon and scanning radio

Entry-level cloud-managed 802.11ac wireless

The Cisco Meraki MR33 is a quad-radio, cloud-managed 2x2:2 802.11ac Wave 2 access point with MU-MIMO support. Designed for next-generation deployments in offices, schools, hospitals, shops, and hotels, the MR33 provides performance, enterprise-grade security, and simple management.

The MR33 provides a maximum 1.3 Gbps* aggregate frame rate with concurrent 2.4 GHz and 5 GHz radios. A dedicated third radio provides real-time WIDS/WIPS with automated RF optimization. An integrated Bluetooth Low Energy (BLE) radio delivers beacon and scanning capabilities.

The combination of cloud management, 802.11ac Wave 2, full-time RF environment scanning, and integrated Bluetooth technology delivers the throughput, reliability, and flexibility required by demanding business applications like voice and high-definition streaming video, today and tomorrow.

MR33 and Meraki Cloud Management: A Powerful Combination

The MR33 is managed through the Meraki cloud, with an intuitive browser-based interface that enables rapid deployment without training or certifications. Since the MR33 is self-configuring and managed over the web, it can even be deployed at a remote location without on-site IT staff.

The MR33 is monitored 24x7 via the Meraki cloud, which delivers real-time alerts if the network encounters problems. Remote diagnostics tools enable real-time troubleshooting over the web, meaning multi-site, distributed networks can be managed remotely.

The MR33's firmware is always kept up to date from the cloud. New features, bug fixes, and enhancements are delivered seamlessly over the web, meaning no manual software updates to download or missing security patches to worry about.

Product Highlights

- 2x2 MU-MIMO 802.11ac Wave 2

- 1.3 Gbps* aggregate dual-band frame rate

- 24x7 real-time WIPS/WIDS, spectrum analytics, and WiFi location tracking via dedicated 3rd radio

- Integrated Bluetooth Low Energy Beacon and scanning radio

- Integrated enterprise security and guest access

- Application-aware traffic shaping

- Optimized for voice and video

- Self-configuring, plug-and-play deployment

- Sleek, low-profile design blends into any environment

Features

Aggregate data rate of up to 1.3 Gbps*
A 5 GHz 2x2:2 radio supporting 80 MHz channel widths and a 2.4 GHz 2x2:2 radio supporting 40 MHz channel widths offer a combined dual-radio aggregate frame rate of 1.3 Gbps*, with up to 866 Mbps in the 5 GHz band thanks to 802.11ac Wave 2 and 400 Mbps in the 2.4 GHz band.

Multi User Multiple Input Multiple Output (MU-MIMO)
With support for the 802.11ac Wave 2 standard, the MR33 offers MU-MIMO for more efficient transmission to multiple clients. Especially suited for enviroments with numerous mobile devices, MU-MIMO enables multiple clients to receive data simultanously. This increases the total network perfomance and the improves the end user experience.

Dedicated third radio delivers 24x7 wireless security and RF analytics
The MR33's sophisticated, dedicated dual-band third radio scans the environment continuously, characterizing RF interference and containing wireless threats like rogue access points. No more need to choose between wireless security, advanced RF analysis, and serving client data: a dedicated third radio means that all three occur in real-time, without any impact to client traffic or AP throughput.

Bluetooth low energy Beacon and scanning
An integrated Bluetooth low energy radio provides seamless deployment of BLE Beacon functionality and effortless visibility of BLE devices within range of the AP. The MR33 enables the next generation of location-aware applications and engagement right out of the box.

Automatic cloud-based RF optimization
The MR33'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. The real-time full-spectrum RF analysis data collected by the dedicated third radio is continuously fed back to the Meraki cloud. The Meraki cloud then automatically tunes the MR33's channel selection, transmit power, and client connection settings for optimal performance under the most challenging RF conditions.

Secure wireless environments using 24x7 Air Marshal
No longer choose between a wireless intrusion prevention system (WIPS) and serving client data: thanks to the dedicated third radio, Air Marshal, a highly optimized built-in WIPS, scans continuously for threats and remediates them as commanded, all without disrupting client service. Alarms and optional auto-containment of rogue APs are configured via flexible remediation policies, ensuring optimal security and performance in even the most challenging wireless environments.

Integrated enterprise security and guest access
The MR33 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 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.

Application-aware traffic shaping
The MR33 includes an integrated layer 7 packet inspection, classification, and control engine, enabling you to set QoS policies based on traffic type. Prioritize your mission critical applications, while setting limits on recreational traffic, e.g., peer-to-peer and video streaming.

Voice and Video optmizations
Industry standard QoS features are easy to configure like Wireless Multi Media (WMM) Access Categories, 802.1p, and DSCP.

Low-profile, sleek, and compact design
Despite its robust feature set, the MR33 is packaged in a sleek, low-profile enclosure that blends seamlessly into any environment.

Self-configuring, self-optimizing, self-healing
When plugged in, the MR33 automatically connects to the Meraki cloud, downloads its configuration, and joins the appropriate network. The MR33 then self-optimizes, determining the ideal channel, transmit power, and client connection parameters. As necessary, it will also self-heal, responding automatically to switch failures and other errors.

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*Refers to maximum over-the-air data frame rate capability of the radio chipset, and may exceed data rates allowed by IEEE Std 802.11ac-compliant operation.

MR33 Tx / Rx Tables
2.4 GHz

Operating Band	Operating Mode	Data Rate	TX Power	RX Sensitivity
2.4 GHz	802.11b	1 Mb/s 2 Mb/s 5.5 Mb/s 11 Mb/s	20dBm 20dBm 20dBm 20dBm	-96dBm -93dBm -91dBm -89dBm
2.4 GHz	802.11g	6 Mb/s 9 Mb/s 12 Mb/s 18 Mb/s 24 Mb/s 36 Mb/s 48 Mb/s 54 Mb/s	20dBm 20dBm 20dBm 19dBm 19dBm 18dBm 18dBm 18dBm	-91dBm -90dBm -88dBm -87dBm -84dBm -81dBm -76dBm -75dBm
2.4 GHz	802.11n(HT20)	MCS0/8 MCS1/9 MCS2/10 MCS3/11 MCS4/12 MCS5/13 MCS6/14 MCS7/15	20/20 dBm 20/20 dBm 19/19 dBm 19/19 dBm 18/18 dBm 18/18 dBm 18/18 dBm 18/18 dBm	-91/91 dBm -88/-88 dBm -85/-85 dBm -82/-82 dBm -79/-79 dBm -75/-75 dBm -73/-73 dBm -70/-70 dBm
2.4 GHz	802.11ac(VHT20)	MCS0/0 MCS1/1 MCS2/2 MCS3/3 MCS4/4 MCS5/5 MCS6/6 MCS7/7 MCS8/8	20/20 dBm 20/20 dBm 19/19 dBm 19/19 dBm 18/18 dBm 18/18 dBm 18/18 dBm 18/18 dBm 17/17 dBm	-90/-90 dBm -88/-88 dBm -85/-85 dBm -83/-83 dBm -81/-81 dBm -79/-79 dBm -76/-76 dBm -72/-72 dBm -70/-70 dBm
2.4 GHz	802.11n(HT40)	MCS0/8 MCS1/9 MCS2/10 MCS3/11 MCS4/12 MCS5/13 MCS6/14 MCS7/15	20/20 dBm 20/20 dBm 19/19 dBm 19/19 dBm 18/18 dBm 18/18 dBm 18/18 dBm 18/18 dBm	-89/-89 dBm -86/-86 dBm -84/-84 dBm -82/-82 dBm -77/-77 dBm -73/-73 dBm -71/-71 dBm -70/-70 dBm

2.4 GHz	802.11ac(VHT40)	MCS0/0	20/20 dBm	-88/-88 dBm
		MCS1/1	20/20 dBm	-86/-86 dBm
		MCS2/2	19/19 dBm	-83/-83 dBm
		MCS3/3	19/19 dBm	-81/-81 dBm
		MCS4/4	18/18 dBm	-78/-78 dBm
		MCS5/5	18/18 dBm	-75/-75 dBm
		MCS6/6	18/18 dBm	-71/-71 dBm
		MCS7/7	18/18 dBm	-68/-68 dBm
		MCS8/8	17/17 dBm	-65/-65 dBm
		MCS9/9	16/16 dBm	-63/-63 dBm

MR33 Tx / Rx Tables
5 GHz

Operating Band	Operating Mode	Data Rate	TX Power	RX Sensitivity
5 GHz	802.11a	6 Mb/s	21dBm	-90dBm
		9 Mb/s	21dBm	-87dBm
		12 Mb/s	20dBm	-86dBm
		18 Mb/s	20dBm	-85dBm
		24 Mb/s	20dBm	-84dBm
		36 Mb/s	20dBm	-79dBm
		48 Mb/s	20dBm	-74dBm
		54 Mb/s	20dBm	-71dBm
5 GHz	802.11n(HT20)	MCS0/8	21/21 dBm	-88/-88 dBm
		MCS1/9	21/21 dBm	-85/-85 dBm
		MCS2/10	20/20 dBm	-83/-83 dBm
		MCS3/11	20/20 dBm	-79/-79 dBm
		MCS4/12	20/20 dBm	-76/-76 dBm
		MCS5/13	20/20 dBm	-72/-72 dBm
		MCS6/14	20/20 dBm	-71/-71 dBm
		MCS7/15	19/19 dBm	-69/-69 dBm
5 GHz	802.11n(VHT20)	MCS0/0	21/21 dBm	-88/-88 dBm
		MCS1/1	21/21 dBm	-86/-86 dBm
		MCS2/2	20/20 dBm	-83/-83 dBm
		MCS3/3	20/20 dBm	-79/-79 dBm
		MCS4/4	20/20 dBm	-77/-77 dBm
		MCS5/5	20/20 dBm	-75/-75 dBm
		MCS6/6	20/20 dBm	-72/-72 dBm
		MCS7/7	19/19 dBm	-70/-70 dBm
		MCS8/8	18/18 dBm	-67/-67 dBm

		MCS0/8	21/21 dBm	-85/-85 dBm
5 GHz	802.11n(HT40)	MCS1/9	21/21 dBm	-84/-87 dBm
		MCS2/10	20/20 dBm	-84/-84 dBm
		MCS3/11	20/20 dBm	-79/-79 dBm
		MCS4/12	19/19 dBm	-77/-77 dBm
		MCS5/13	19/19 dBm	-72/-72 dBm
		MCS6/14	19/19 dBm	-70/-70 dBm
		MCS7/15	19/19 dBm	-68/-68 dBm
5 GHz	802.11n(VHT40)	MCS0/0	21/21 dBm	-85/-85 dBm
		MCS1/1	21/21 dBm	-82/-82 dBm
		MCS2/2	20/20 dBm	-79/-79 dBm
		MCS3/3	20/20 dBm	-77/-77 dBm
		MCS4/4	19/19 dBm	-74/-74 dBm
		MCS5/5	19/19 dBm	-70/-70 dBm
		MCS6/6	19/19 dBm	-68/-68 dBm
		MCS7/7	19/19 dBm	-67/-67 dBm
		MCS8/8	18/18 dBm	-64/-64 dBm
		MCS9/9	17/17 dBm	-63/-63 dBm
5 GHz	802.11ac(VHT80)	MCS0/0	20/20 dBm	-83/-83 dBm
		MCS1/1	20/20 dBm	-81/-81 dBm
		MCS2/2	19/19 dBm	-79/-79 dBm
		MCS3/3	19/19 dBm	-76/-76 dBm
		MCS4/4	18/18 dBm	-73/-73 dBm
		MCS5/5	18/18 dBm	-70/-70 dBm
		MCS6/6	18/18 dBm	-67/-67 dBm
		MCS7/7	18/18 dBm	-66/-66 dBm
		MCS8/8	17/17 dBm	-62/-62 dBm
		MCS9/9	17/17 dBm	-60/-60 dBm

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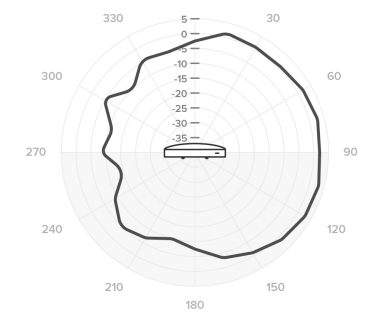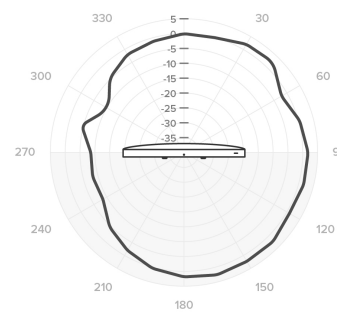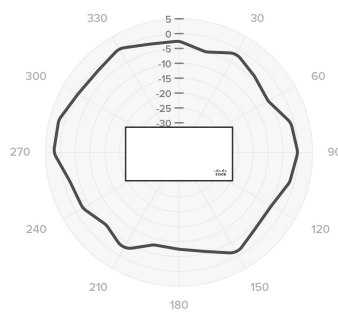
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Radiation Pattern for 2.4GHz Antennas
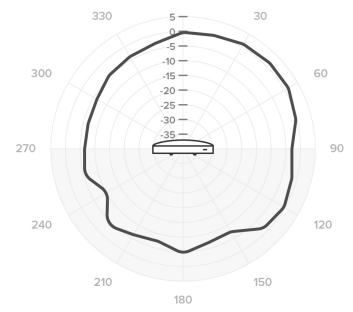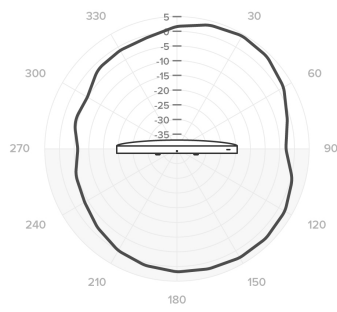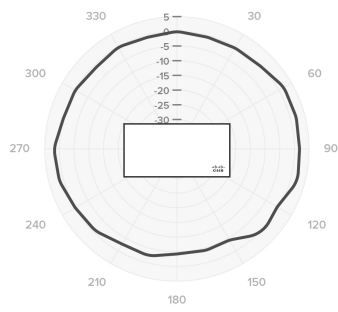
MR33

Radiation Pattern for 5GHz Antennas

Specifications

Radios

2.4 GHz 802.11b/g/n/ac client access radio

5 GHz 802.11a/n/ac client access radio

2.4 GHz & 5 GHz WIDS/WIPS, spectrum analysis, and location analytics radio

2.4 GHz Bluetooth Low Energy (BLE) radio with beacon and BLE scanning support

Concurrent operations of all four radios

Supported frequency bands (country-specific restrictions apply):
2.412-2.484 GHz
5.150-5.250 GHz (UNII-1)
5.250-5.350 GHZ (UNII-2)
5.470-5.600, 5.660-5.725 GHz (UNII-2e)
5.725 -5.825 GHz (UNII-3)

802.11ac and 802.11n Capabilities

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

SU-MIMO and MU-MIMO support

Maximal ratio combining (MRC) & Beamforming

20 and 40 MHz channels (802.11n), 20, 40, and 80 MHz channels (802.11ac)

Up to 256 QAM on both 2.4 GHz and 5 GHz bands

Packet aggregation

Power

Power over Ethernet: 37 - 57 V (802.3af compatible)

Alternative 12 V DC input

Power consumption: 11W max (802.3af)

Power over Ethernet injector and DC adapter sold separately

Mounting

All standard mounting hardware included

Desktop, ceiling, and wall mount capable

Ceiling tile rail (9/16, 15/16 or 1 ½" flush or recessed rails), assorted cable junction boxes

Bubble level on mounting cradle for accurate horizontal wall mounting

Physical Security

Two security screw options (included)

Kensington lock hard point

Concealed mount plate with anti-tamper cable bay

Environment

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

Humidity: 5 to 95% non-condensing

Physical Dimensions

8.5" x 4.3" x 1.3" (215 mm x 110 mm x 32 mm), not including deskmount feet or mount plate

Weight: 13.2 oz (376.5 g)

Antenna

Integrated omni-directional antennas (3.8 dBi gain at 2.4 GHz, 3.9 dBi gain at 5 GHz)

Interfaces

1x 10/100/1000 BASE-T Ethernet (RJ45)

1x DC power connector (5.5 mm x 2.5 mm, center positive)

Security

Integrated layer 7 firewall with mobile device policy management

Real-time WIDS/WIPS with alerting and automatic rogue AP containment with Air Marshal

Flexible guest access with device isolation

VLAN tagging (802.1Q) and tunneling with IPSec VPN

PCI compliance reporting

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

EAP-TLS, EAP-TTLS, EAP-MSCHAPv2, EAP-SIM

TKIP and AES encryption

Enterprise Mobility Management (EMM) & Mobile Device Management (MDM) integration

Quality of Service

Advanced Power Save (U-APSD)

WMM Access Categories with DSCP and 802.1p support

Layer 7 application traffic identification and shaping

Mobility

PMK, OKC, and 802.11r for fast Layer 2 roaming

Distributed or centralized layer 3 roaming

LED Indicators

2 Ethernet status

1 power/booting/firmware upgrade status

Warranty

Lifetime hardware warranty with advanced replacement included

Ordering Information

MR33-HW: Meraki MR33 Cloud Managed 802.11ac AP

MA-PWR-30W-XX: Meraki AC Adapter for MR Series (XX = US, EU, UK or AU)

MA-INJ-4-XX: Cisco Meraki 802.3at Power over Ethernet Injector (XX = US, EU, UK or AU)

Note: Meraki Enterprise license required.

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ThunderIT for the REMC SAVE Contract

ThunderIT offers products and services for REMC SAVE contract customers at a discounted price in accordance to the REMC price list.

Overview for the REMC SAVE contract

REMC SAVE provides large volume contracts for a variety of educational resources, including furniture, school and office supplies, software and digital services, and technology.

The program saves time and money by providing bids compliant with the Michigan Revised School Code that also provides local school districts with the authority to purchase using REMC contracts. The legislation that established REMCs (Michigan Compiled Laws Act 451 Section 380.671), and State Board of Education Rules, enables REMCs to bid on behalf of local school districts and also provide local school districts with the authority to purchase using REMC contracts. All items and vendors are awarded through a sealed bid process by the REMC SAVE Bid Project and approved by the REMC Association.

REMC SAVE is provided as a project of the REMC Association of Michigan for all Michigan schools. REMC SAVE provides large-volume contracts for a variety of educational resources. By using REMC SAVE contracts, Michigan schools have saved more than $1 billion since 1990. Every dollar saved through REMC SAVE today is one more dollar to invest in instruction tomorrow.

ThunderIT services the following REMC districts; REMC 1, REMC 2N, REMC 2C, REMC 2S, REMC 3, REMC 4, REMC 5, REMC 6, REMC 7, REMC 8, REMC 9, REMC 10, REMC 11, REMC 12W, REMC 12E, REMC 13, REMC 14W, REMC 14E, REMC 15, REMC 16, REMC 17, REMC 18S, REMC 18N, REMC 19W, REMC 19E, REMC 20, REMC 21, REMC 22

ThunderIT services the following REMC customers; AKIVA HEBREW DAY SCHOOL, BIRNEY MIDDLE SCHOOL, BUSSEY CTR-EARLY CHILDHOOD DEV, DEVRY UNIVERSITY - SOUTHFIELD – CENTRAL, HAMILTON ACADEMY CENTRAL OFFICE, LEONHARD ELEMENTARY SCHOOL, MCINTYRE ELEMENTARY SCHOOL, OAKLAND INTERNATIONAL ACADEMY

Other REMC contract holders include: Inacomp Technical Services Group, Sentinel Technologies, Software Services Group, Insight Direct USA, Information Systems Intelligence, Netech, Secant Technologies, CDW Logistics Inc (CDWG)

ThunderIT offers a variety of Solutions & Services to meet your every need

Digital Workplace

Transform your digital workplace and empower employees to drive your business forward. We deliver flexible, tailored, end-to-end solutions to keep your workforce engaged and productive. With an innovative approach centered around exceptional user experiences.

Smart Spaces

We provide smart workspace solutions to help you deliver consistent network performance and give guests, employees and students an uninterrupted experience.

Secure Network Solutions

Our security solutions help protect your network and critical data from cybersecurity threats

Safe Environments

We believe that employee, student, and customer safety is paramount in any environment. That's why our solutions provide a cloud based platform to help you intuitively manage and monitor physical locations to ensure a safe experience for everyone.

Next Generation WiFi

Power new and improved user experiences with our managed wifi solutions, offering faster speeds for enhanced application experience and more capacity for high density indoor and outdoor environments.

Remote Work Solutions

With our remote work solutions, working away from the office is no big deal. Give employees a secure, optimized connection to your entire network from anywhere.

Hybrid Workforce

We provide a seamless hybrid workforce solution that embraces change and operational scale. Give your employees and customers unrivaled experiences with a cloud platform that unifies best-in-class technologies.

Free Network Evaluation & Demo

ThunderIT offers a FREE Network Evaluation and/or product Demo to help ensure you are well informed and confident when choosing the right Cisco Meraki solution for your needs. During our call we'll architect a custom built Cisco Meraki solution for your business or environment.

Migration & Deployment

ThunderIT offers Migration and Deployment Services for your Cisco Meraki solution. Our experienced team of IT Professionals can configure, deploy and support your products to meet your needs. Our custom solutions ensure maximum efficiency and provide a clear path for your business going forward.

Managed Security

ThunderIT offers the best and most cost-effective solution to lower your risk in a heightened threat environment. Our team of certified Cisco engineers are ready to ensure that your network is secure, and your firewall is optimally configured to defend your business.

Mobile device management (MDM) Services

Our Mobile Device Management (MDM) solution unifies management of thousands of endpoint devices in a secure cloud platform, driving your organization's mobility initiatives, while maintaining an environment of agility and security.

Support & Monitoring

ThunderIT offers network support and monitoring services that are designed to fit the needs of every customer.

FAQs for the REMC SAVE Contract

Q: Does REMC SAVE meet the legal requirement for competitive bidding? A: The legislation that established REMCs (Michigan Compiled Laws Act 451 Section 380.671), and State Board of Education Rules, enables REMCs to bid on behalf of local school districts and also provide local school districts with the authority to purchase using REMC contracts. All items are competitively bid by REMC SAVE and awarded by the REMC Association.

Q: Who can Use REMC SAVE contracts? A: The following agencies are eligible to purchase using REMC SAVE contracts: PreK-12 Public, Charter (PSA) and Non-Public Schools, Community Colleges, Universities and Colleges, Public Libraries, Museums, State, County, and Local Government Agencies, Educational Non-profit Organizations and Health Care Facilities. Personal purchases at awarded bid pricing are at the discretion of the vendors.

Q: What is REMC SAVE? A: REMC SAVE is a free service of the REMC Association for all Michigan schools. There are 3 staff of REMC SAVE, and they conduct all of the bids and maintain vendor contracts. You can ask your local REMC Center questions. Find your local REMC Center by scrolling down the REMC SAVE home screen to view the map for your region or look up by zip code.

Q: How do I provide feedback? A: Your local REMC SAVE contact will always listen to any feedback you wish to provide. If you have feedback about the product, scroll down the home screen at remcsave.org and click 'View All Vendors' and you can complete a vendor evaluation form.

Q: What if my company wishes to become an awarded vendor? A: Go to vendorcenter.remcbids.org and create an account by clicking Login or Register in the upper right corner. Follow the directions! The only requirement is that you need five Michigan K12 school references. Customers can send their vendor recommendations to their local REMC contact or email remcsave@remc.org

Q: How are the vendors and products selected? A: Products and Vendors are awarded through a competitive bid process. REMC SAVE staff analyzes all bids and make recommendations to the REMC SAVE Advisory Committee for award. Once the REMC SAVE Advisory Committee votes on the award recommendations, they are then voted on by the REMC Association Board of Directors for final award.

Q: Where do I send my order or contact an awarded vendor? To contact vendors, navigate to the vendor listing by scrolling down the home screen and click 'view all vendors,' or navigate to https://www.remcsave.org/vendors. Click on the vendor name to find their contact information.

Q: What do I need to include on my purchase order? Please make sure your purchase order is itemized and includes the REMC item number, the model number/name, the reseller product number (if available), the quantity of each item to be purchased, and the unit price. A quote may be attached, but the purchase order should still be itemized. Sometimes the item numbers for the warranties, accessories, and upgrades are located on the spec sheet, linked from the awarded item page – be sure to include on the Purchase Order.