AP61 Hardware Installation Guide

Overview

The Mist AP61 is an IP67 rated outdoor access point which delivers 4x4 MIMO with four spatial streams when operating in multi-user (MU) or single-user (SU) mode that supports the IEEE 802.11ac Wave 2 specification.

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I/O ports and Kensington lock

LED/Reset	Reset to the factory default settings
Eth0+PoE	10/100/1000 BaseT RJ45 interface that supports 802.3at PoE PD
Eth1	10/100/1000 BaseT RJ45 interface

On the AP61E, there are 4 N-type antenna connectors (Ant1-Ant4)

Mounting kit installation

Mounting kit contents:

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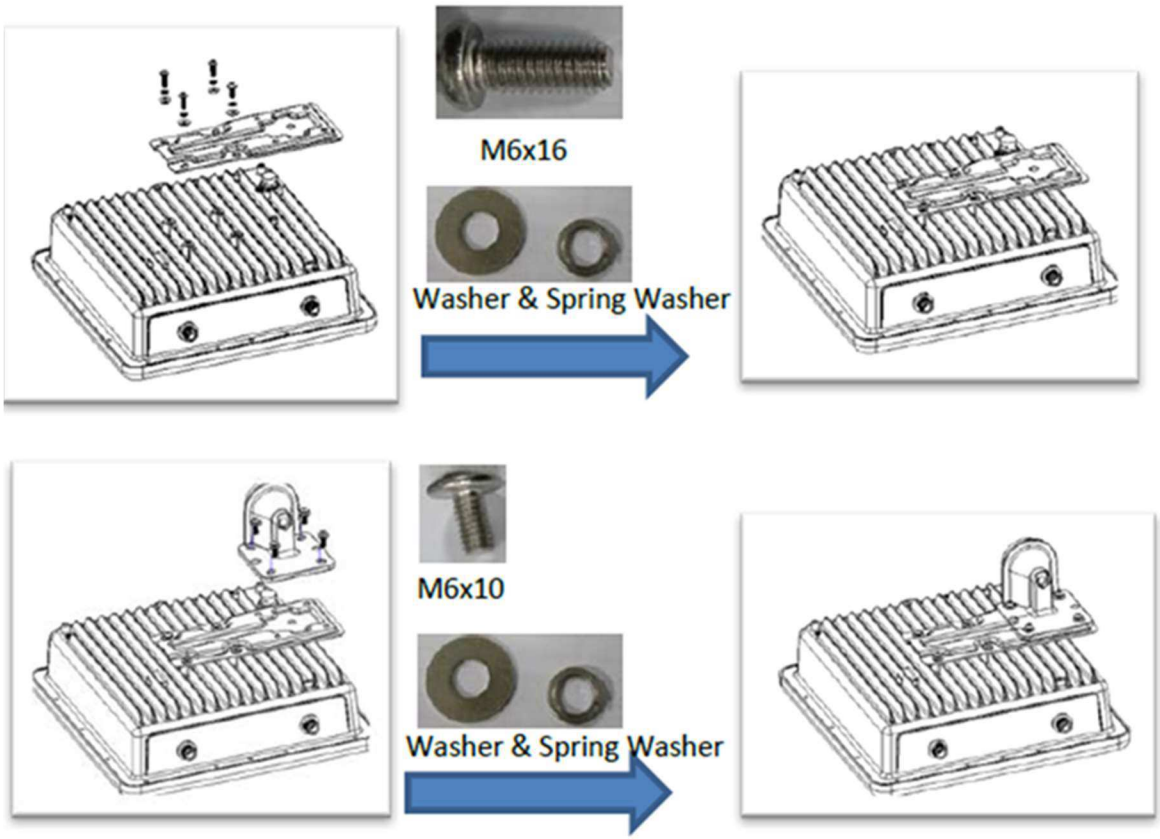
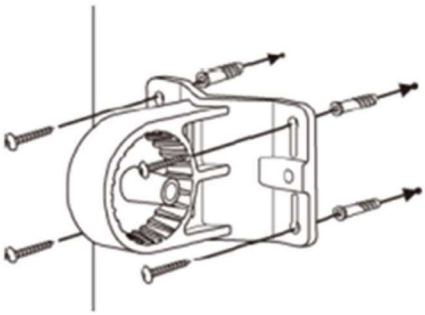
How to install the AP61 to the articulation pole:



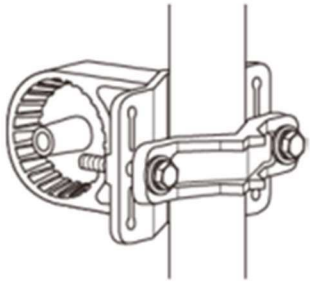
How to install the AP61 to a wall or pole:

Install T-form bracket to a wall



Fix the mount base to the wall using wood / gyprock screws.

Install T-form bracket to a pole



Mounting For Pole Larger than 1.5"(35mm) and Less Than 3" (80 mm)

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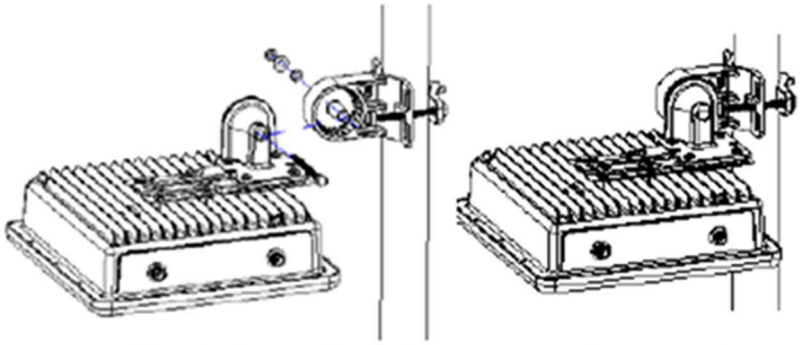
Install the AP61 to the T-form bracket on the wall or pole



Attach the articulation pole to the mount base articulation using M8x90 bolt, nut and washers.

In a wall mount installation, please use screws that have a 1/4in. (6.3mm) diameter head with a length at least 2 in. (50.8mm).

In a pole mount installation, please use the M8x80 screws to attach to the pole mount kit.

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Technical Specifications:

Feature	Description
Power options	802.3at PoE
Dimensions	AP61 – 12.2in x 12.2in x 4.2in (310mm x 310mm x 107mm) AP61E – 12.2in x 13.5in x 4.2in (310mm x 343mm x 107mm)
Weight	AP61 – 9.85 lbs (4.47 kg) AP61E – 10.1 lbs (4.59 kg)
Operating temperature	Internal antenna -20° to 65° C External antenna -20° to 65° C
Operating humidity	10% to 90% maximum relative humidity, non-condensing
Operating altitude	3,048m (10,000 ft)
Electromagnetic emissions	FCC Part 15 Class B
I/O	1 - 10/100/1000BASE-T auto-sensing RJ-45 with PoE 1 – 10/100/1000BASE-T auto-sensing RJ-45
RF	2.4GHz - 4x4:4 spatial streams 802.11ac MU-MIMO & SU-MIMO 5GHz - 4x4:4 spatial streams 802.11ac MU-MIMO & SU-MIMO 2.4GHz / 5GHz scanning radio 2.4GHz BLE with Dynamic Antenna Array
Maximum PHY rate	Total maximum PHY rate – 2533Mbps 5GHz – 1733 Mbps 2.4GHz – 800Mbps
Indicators	Multi-color status LED
Compliance standards	UL 60950-1 FCC Part 15.247, 15.407, 15.107, and 15.109

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Warranty Information

The AP61 family of Access Points comes with a limited lifetime warranty.

Ordering Information:

Access Points

AP61	Premium Outdoor Wi-Fi & BLE Array AP - Internal Antenna for the US Regulatory domain
AP61E	Premium Outdoor Wi-Fi & BLE Array AP - External Antenna for the US Regulatory domain
AP61-WW	Premium Outdoor Wi-Fi & BLE Array AP - Internal Antenna for the WW Regulatory domain
AP61E-WW	Premium Outdoor Wi-Fi & BLE Array AP - External Antenna for the WW Regulatory domain

Accessories and spare parts

SP-01	Ethernet Surge Protector
APOUT-BR1	AP outdoor mounting bracket spare

The AP61 product includes an outdoor mounting bracket kit. If you would like a second mounting bracket kit, you can optionally order the spare part.

Regulatory Compliance Information:

If you need further assistance with purchasing the power source, please contact Mist Systems, Inc.

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FCC Requirement for Operation in the United States of America:

FCC Guideline for Human Exposure

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 32cm between the radiator & your body.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution

- Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.
- This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

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Industry Canada

This device complies with RSS-247 of the Industry Canada Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Ce dispositif est conforme à la norme CNR-247 d'Industrie Canada applicable aux appareils radio exempts de licence. Son fonctionnement est sujet aux deux conditions suivantes: (1) le dispositif ne doit pas produire de brouillage préjudiciable, et (2) ce dispositif doit accepter tout brouillage reçu, y compris un brouillage susceptible de provoquer un fonctionnement indésirable.

Radiation Exposure Statement:

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 41cm between the radiator & your body.

Déclaration d'exposition aux radiations:Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 41 cm de distance entre la source de rayonnement et votre corps.

IC Caution

The device for operation in the band 5150-5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems;

(ii) The maximum antenna gain permitted for devices in the bands 5250-5350 MHz and 5470-5725 MHz shall be such that the equipment still complies with the e.i.r.p. limit;

(iii) The maximum antenna gain permitted for devices in the band 5725-5850 MHz shall be such that the equipment still complies with the e.i.r.p. limits specified for point-to-point and non-point-to-point operation as appropriate; and

(iv) Where applicable, antenna yupe(s), antenna model (s), and worst-case tilt angle(s) necessary to remain compliant with the e.i.r.p. elevation mask requirement set forth in section 6.2.2.3 shall be clearly indicated.

Avertissement

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Le guide d’utilisation des dispositifs pour réseaux locaux doit inclure des instructions précises sur les restrictions susmentionnées, notamment :

(i) les dispositifs fonctionnant dans la bande 5150-5250 MHz sont réservés uniquement pour une utilisation à l’intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux;
(ii) le gain maximal d'antenne permis pour les dispositifs utilisant les bandes de 5250 à 5 350 MHz et de 5470 à 5725 MHz doit être conforme à la limite de la p.i.r.e;
(iii) le gain maximal d'antenne permis (pour les dispositifs utilisant la bande de 5 725 à 5 850 MHz) doit être conforme à la limite de la p.i.r.e. spécifiée pour l'exploitation point à point et l’exploitation non point à point, selon le cas;
(iv) Le cas échéant, la ou les antennes d'antenne, le (s) modèle (s) d'antenne et l'angle (s) d'inclinaison du cas le plus défavorable nécessaires pour rester conformes à l'e.i.r.p. l'exigence de masque d'élévation énoncée à la section 6.2.2.3 doit être clairement indiquée

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Professional installation instruction

1. Installation personal

   This product is designed for specific application and needs to be installed by a qualified personal who has RF and related rule knowledge. The general user shall not attempt to install or change the setting.

2. Installation location

   The product shall be installed at a location where the radiating antenna can be kept 41cm for Canada and 32cm for the US from nearby person in normal operation condition to meet regulatory RF exposure requirement.

3. External antenna

   Use only the antennas which have been approved by the applicant. The non-approved antenna(s) may produce unwanted spurious or excessive RF transmitting power which may lead to the violation of FCC/ISED limit and is prohibited.

4. Installation procedure

   Please refer to user's manual for the detail.

5. Warning

   Please carefully select the installation position and make sure that the final output power does not exceed the limit set force in relevant rules. The violation of the rule could lead to serious federal penalty.

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Instructions d'installation professionnelle

1. Installation
   Ce produit est destine a un usage specifique et doit etre installe par un personnel qualifie maitrisant les radiofrequences et les regles s'y rapportant. L'installation et les reglages ne doivent pas etre modifies par l'utilisateur final.

2. Emplacement d'installation
   En usage normal, afin de respecter les exigences reglementaires concernant l'exposition aux radiofrequences, ce produit doit etre installe de facon a respecter une distance de 41 cm pour Canada et 32 cm pour US entre l'antenne emettrice et les personnes.

3. Antenn externe.
   Utiliser uniiquement les antennes approuvees par le fabricant. L'utilisation d'autres antennes peut conduire a un niveau de rayonnement essentiel ou non essentiel depassant les niveaux limites definis par FCC/ISED, ce qui est interdit.

4. Procedure d'installation
   Consulter le manuel d'utilisation.

5. Avertissement
   Choisir avec soin la position d'installation et s'assurer que la puissance de sortie ne depasse pas les limites en vigueur. La violation de cette regle peut conduire a de serieuses penalites federales.

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DETACHABLE ANTENNA USAGE

This radio transmitter (IC: 4441A-AP61/ Model: AP61, AP61E) has been approved by ISED to operate with the antenna type listed below with maximum permissible gain indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Le présent émetteur radio (IC: 4441A-AP61 / Model: AP61, AP61E) a été approuvé par ISED pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal. Les types d'antenne non inclus dans cette liste, et dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

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Approved antenna(s) list

For Model: AP61

Radio 1- WLAN - 2.4GHz + 5GHz (Internal antenna)					
Antenna Set	Transmitter Circuit	Antenna Net Gain (dBi)	Frequency Range (GHz)	Antenna Type	Connecter Type
1	Chain (0)	3.87	2.4~2.4835	PIFA	i-pex(MHF)
		4.94	5.15~5.25		
		4.66	5.25~5.35		
		4.25	5.47~5.725		
		4.42	5.725~5.85		
	Chain (1)	3.91	2.4~2.4835	PIFA	i-pex(MHF)
		4.23	5.15~5.25		
		4.54	5.25~5.35		
		4.66	5.47~5.725		
		4.70	5.725~5.85		
	Chain (2)	3.93	2.4~2.4835	PIFA	i-pex(MHF)
		4.53	5.15~5.25		
		4.86	5.25~5.35		
		4.95	5.47~5.725		
		4.94	5.725~5.85		
	Chain (3)	3.81	2.4~2.4835	PIFA	i-pex(MHF)
		4.50	5.15~5.25		
		4.92	5.25~5.35		
		4.71	5.47~5.725		
		4.90	5.725~5.85		

Radio 2- WLAN RX only - 2.4GHz + 5GHz (Scanning radio antenna)				
Antenna No.	Antenna Net Gain (dBi)	Frequency Range (GHz)	Antenna Type	Connecter Type
1	3.85	2.4~2.4835	PIFA	i-pex(MHF)
	4.61	5.15~5.25		
	4.71	5.25~5.35		
	4.72	5.47~5.725		
	4.73	5.725~5.85		
Radio 3 - Bluetooth				
Antenna No.	Antenna Net Gain (dBi)	Frequency Range (GHz)	Antenna Type	Connecter Type
1	3.56	2.4~2.4835	Omni	i-pex(MHF)
2	5.01	2.4~2.4835	Patch	i-pex(MHF)

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Approved antenna(s) list

For Model: AP61E

Radio 1 - WLAN - 2.4GHz + 5GHz (External antenna)							
Antenna Set	Transmitter Circuit	Brand	Model	Antenna Net Gain (dBi)	Frequency Range (GHz)	Antenna Type	Connecter Type
1	Chain (0)	PCTEL	FPMI2458-DP4NM	6	2.4~2.4835	Sector	N-Type
				5	5.15~5.25		
				5	5.25~5.35		
				5	5.47~5.725		
				5	5.725~5.85		
	Chain (1)	PCTEL	FPMI2458-DP4NM	6	2.4~2.4835	Sector	N-Type
				5	5.15~5.25		
				5	5.25~5.35		
				5	5.47~5.725		
				5	5.725~5.85		
	Chain (2)	PCTEL	FPMI2458-DP4NM	6	2.4~2.4835	Sector	N-Type
				5	5.15~5.25		
				5	5.25~5.35		
				5	5.47~5.725		
				5	5.725~5.85		
	Chain (3)	PCTEL	FPMI2458-DP4NM	6	2.4~2.4835	Sector	N-Type
				5	5.15~5.25		
				5	5.25~5.35		
				5	5.47~5.725		
				5	5.725~5.85		

Antenna Set	Transmitter Circuit	Brand	Model	Antenna Net Gain (dBi)	Frequency Range (GHz)	Antenna Type	Connecter Type
2	Chain (0)	PCTEL	MPMI2458-4-NM	4	2.4~2.4835	Omnidirectional	N-Type
				4	5.15~5.25		
				4	5.25~5.35		
				4	5.47~5.725		
				4	5.725~5.85		
	Chain (1)	PCTEL	MPMI2458-4-NM	4	2.4~2.4835	Omnidirectional	N-Type
				4	5.15~5.25		
				4	5.25~5.35		
				4	5.47~5.725		
				4	5.725~5.85		
	Chain (2)	PCTEL	MPMI2458-4-NM	4	2.4~2.4835	Omnidirectional	N-Type
				4	5.15~5.25		
				4	5.25~5.35		
				4	5.47~5.725		
				4	5.725~5.85		
	Chain (3)	PCTEL	MPMI2458-4-NM	4	2.4~2.4835	Omnidirectional	N-Type
				4	5.15~5.25		
				4	5.25~5.35		
				4	5.47~5.725		
				4	5.725~5.85		

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Radio 2 - WLAN RX only - 2.4GHz + 5GHz (Scanning radio antenna)					
Antenna No.	Transmitter Circuit	Antenna Net Gain (dBi)	Frequency Range (GHz)	Antenna Type	Connecter Type
1	Chain (0)	3.85	2.4~2.4835	PIFA	i-pex(MHF)
		4.61	5.15~5.25		
		4.71	5.25~5.35		
		4.72	5.47~5.725		
		4.73	5.725~5.85		
Radio 3 - Bluetooth					
Antenna No.	Transmitter Circuit	Antenna Net Gain (dBi)	Frequency Range (GHz)	Antenna Type	Connecter Type
1	Chain (0)	3.56	2.4~2.4835	Omni	i-pex(MHF)
2	Chain (1)	5.01	2.4~2.4835	Patch	i-pex(MHF)

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