

Quick Start Guide

60GHz Backhaul transmitter 60GHz 毫米波主幹傳輸器

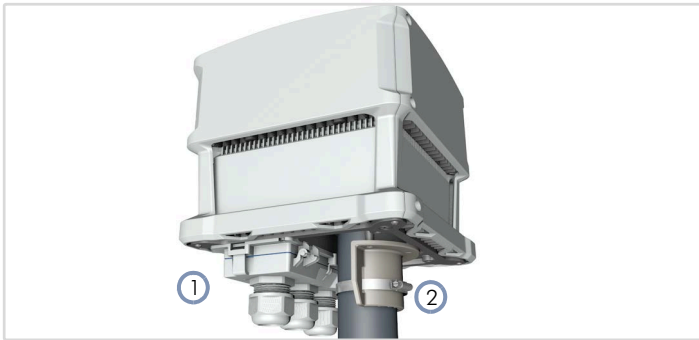
MLTG-360 , MLTG-360-XX

Package Contents

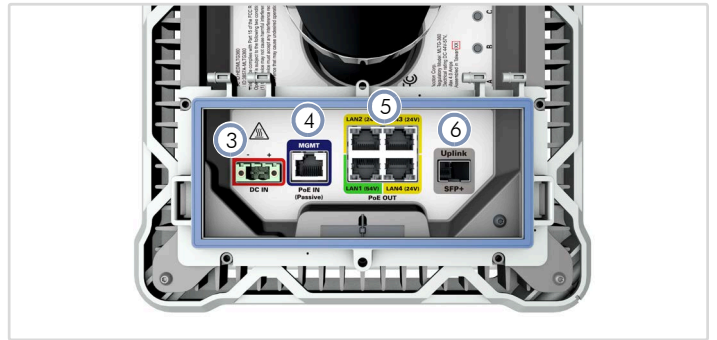


1. 60GHz Terragraph Distribution Node MLTG-360
2. Weatherproof port cover
3. Pole-mount bracket
4. Steel-band clamp — 5 cm (2 inch) diameter max.
5. Screw kit
6. DC terminal plug

Overview

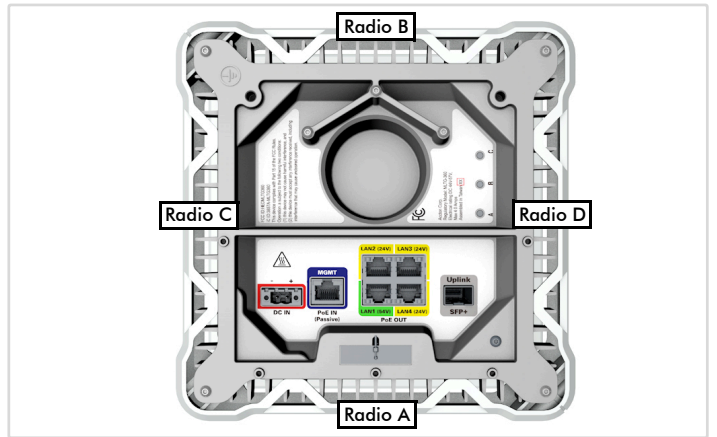


1. Port cover
2. Pole mounting bracket with steel-band clamp
3. DC power connection.
4. MGMT PoE IN Port: Connects to PoE injector and management network.



5. PoE OUT LAN Ports: Connect to LAN devices.
6. Uplink SFP+ fiber transceiver port

Product Lineup



Product Name	Position of Radios
MLTG-360	A, B, C, D
MLTG-360-3	A, C, D
MLTG-360-2R	A, D
MLTG-360-2P	C, D
MLTG-360-1	A

Installation



Warning: For a safe and reliable installation, use only the accessories and screws provided with the device. Use of other accessories and screws could result in damage to the unit. Any damages incurred by using unapproved accessories are not covered by the warranty.

Avertissement: Pour une installation sûre et fiable, utilisez uniquement les accessoires et les vis fournies avec l'appareil. L'utilisation d'autres accessoires et vis pourrait endommager l'appareil. Les dommages causés par l'utilisation d'accessoires non approuvés ne sont pas couverts par la garantie.

1 Ground the MLTG-360



Ground the MLTG-360 by connecting a ground wire to the grounding point on the MLTG-360 and to nearby good earth.



Note: Make sure the grounding and lightning protection conform to local standards.

2 Make Network Connections



RJ-45 MGMT and LAN Ports

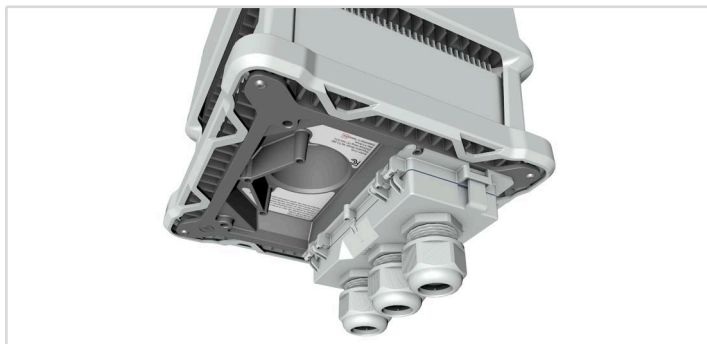
Connect outdoor-rated Category 5e or better cable to the 1000BASE-T RJ-45 MGMT PoE IN port.

(Optional) Connect other network devices to the PoE OUT 1000BASE-T LAN ports. The LAN1 port supports 54V (IEEE 802.3at) PoE out, and the LAN2-LAN4 ports support 15 W Passive PoE out, only when the MLTG360 is powered via DC Power over 94 W.

SFP+ Uplink Port

Install a 10G LAN port and then connect outdoor-rated fiber cable to the transceiver port.

3 Attach the Port Cover



Attach the weatherproof port cover to the MLTG-360 using the screws provided in the screw kit.

4 Mount the MLTG-360

a. Attach the Pole-Mount Bracket



Attach the pole-mount bracket to the MLTG-360 using the screws provided in the screw kit.

b. Mount on a Pole

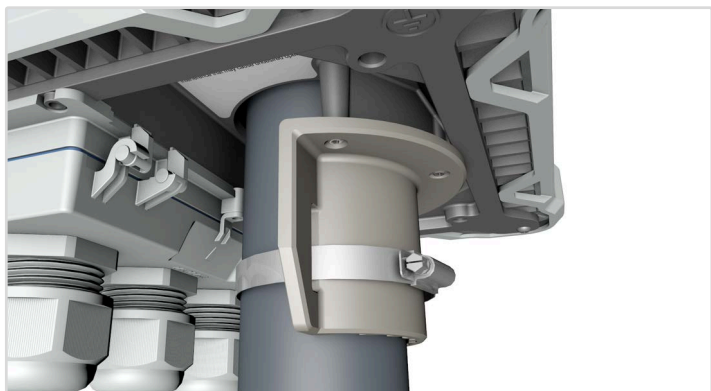


Place the MLTG-360 on the top of a 4–5 cm (1.57–2 inch) diameter pole.



Note: It is strongly recommended the MLTG-360 be mounted on the top of the pole without any obstructions above it. Where impossible, consider using the optional J-bracket mount, designed to mount the MLTG-360 aside the pole.

c. Clamp to the Pole



Feed the provided steel-band clamp through the pole-mount bracket and around the pole, and then tightly fasten it to secure the MLTG-360 to the pole.

Optional J-Mount Bracket Installation



An optional J-mount bracket is available for installation on poles of up to 10". It is sold separately as ICC-J-BRACKET.

5 Connect Power



a. DC Power

Wire the included DC terminal plug to a 44-57 VDC, 2.73 A source to provide power to the MLTG-360. Follow the wiring scheme shown on the panel with the negative pole (-) on the left and the positive pole (+) on the right.

b. Optional PoE Injector

The MGMT PoE IN port connection provides power to the unit through a PoE power injector. The PoE injector must be a passive (non-IEEE) injector that can provide 90 W at 56 V.

Sold separately as ICC-POE-90W. For indoor use only.

Altitude: Operating 10,000 feet max.

Non-Operating 40,000 feet max.

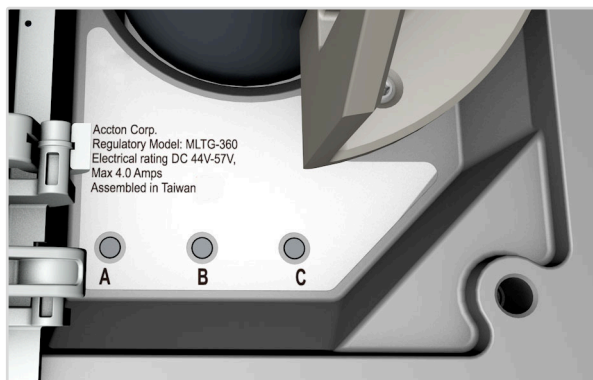
Temperature: Operating -20°C to 40°C.

Non-Operating -20°C to 65°C

i Note: DC power and PoE power cannot be connected at the same time.

i Note: PoE OUT on LAN Ports is only available when the MLTG-360 is powered via DC power.

6 Verify Power is On

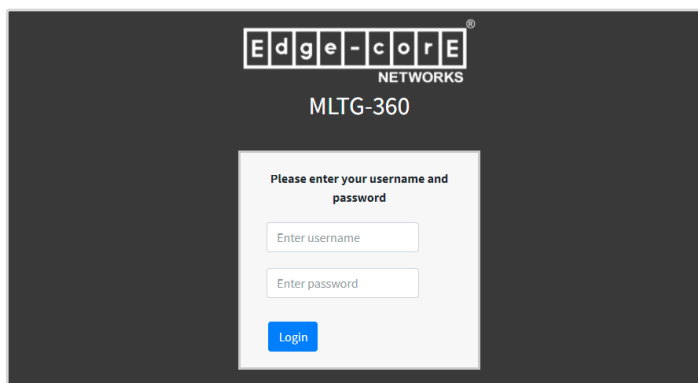


Check the LED

The "C" power LED should stay on after boot-up when operating normally.

7 Access the Web User Interface

1. Connect a PC directly to the MLTG-360's MGMT port.
2. Set the PC IP address to be on the same subnet as the MLTG-360 MGMT port default IP address. The PC address must start at 192.168.1.x with subnet mask 255.255.255.0.
3. Enter the MLTG-360's default IP address of 192.168.1.20 into the web browser address bar.
4. Log in to the web interface using default settings:
Username = admin
Password = admin



Safety and Regulatory Information

FCC Class A

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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 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 device is not to be operated on aircraft except for the conditions listed on FCC CFR 15.255 (b).

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 46 cm between the radiator and your body.

Industry Canada Statement

This Class A digital apparatus complies with Canadian ICES-003.

This device complies with ‘Innovation, Science and Economic Development (ISED) Canada’ license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

This radio transmitter [3857A-MLTG360] has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Cet appareil est conforme aux normes RSS exemptes de licence «Innovation, Science et Développement économique (ISDE) Canada». Son fonctionnement est soumis aux deux conditions suivantes: (1) cet appareil ne doit pas provoquer d'interférences, et (2) cet appareil doit accepter toute interférence, y compris les interférences susceptibles d'entraîner un fonctionnement indésirable de l'appareil.

Cet émetteur radio [3857A-MLTG360] a été approuvé par Innovation, Sciences et Développement économique Canada pour fonctionner avec les types d'antenne énumérés ci-dessous, avec le gain maximal autorisé indiqué. Les types d'antenne non inclus dans cette liste qui ont un gain supérieur au gain maximum indiqué pour tout type répertorié sont strictement interdits pour l'utilisation avec cet appareil

IMPORTANT NOTE:

IC Radiation Exposure Statement:

This equipment complies with IC RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 26 cm between the radiator and your body.

Cet équipement est conforme aux limites d'exposition aux rayonnements IC RSS-102 établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec une distance minimale de 26 cm entre le radiateur et votre corps.

This device is not to be operated on aircraft except for the conditions listed on ISED RSS-210 Annex J.1.

CE Statement

This equipment complies with EU radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 70 cm between the radiator and your body.

All operational modes:

60 GHz: 802.11ad, 802.11ay

The frequency and maximum transmitted power limit in EU are listed as below:

57-66 GHz: 40 dBm



AT	BE	BG	CH	CY	CZ
DE	DK	EE	EL	ES	FI
FR	HR	HU	IE	IS	IT
LI	LT	LU	LV	MT	NL
NO	PL	PT	RO	SE	SI
SK	TR	UK			

The abbreviations of the countries, as prescribed in above table, where any restrictions on putting into service or any requirements for authorization of use exist.



CE Mark Declaration of Conformance for EMI and Safety (EEC)

This information technology equipment is in compliance with the Directive 2014/53/EU and Directive 2014/35/EU.

The Declaration of Conformity (DoC) can be obtained from www.edge-core.com -> support -> download.

Japan VCCI-A Statement

この装置は、クラスA機器です。この装置を住宅環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

VCCI – A

BSMI (Taiwan)



警告使用者：
此為甲類資訊技術設備，於居住環境中使用時，可能會造成射頻擾動，在此種情況下，使用者會被要求採取某些適當的對策。

BSMI Taiwan

警告使用者：
此為甲類資訊技術設備，於居住環境中使用，可能會造成射頻擾動，在此種情況下，使用者會被要求採取某些適當的對策。

電氣方面的安全性

- 為避免可能的電擊造成嚴重損害，再搬動產品之前，請先將產品電源線暫時從電源插座中拔掉。
- 當您要加入硬體裝置到系統中或者要移除系統中的硬體裝置時，請務必先連接該裝置的訊號線，然後再連接電源線。可能的話，在安裝硬體裝置之前先拔掉產品的電源供應器電源線。
- 當您要從主機板連接或拔除任何的訊號線之前，請確定所有電源線已事先拔掉。
- 請確定電源供應器的電壓設定已調到本國 / 本區域所使用的電壓標準值。若您不確定您所屬區域的供應電壓值為何，那麼請就近詢問當地的電力公司人員。
- 如果電源供應器已損壞，請不要嘗試自行修復。請將之交給專業技術服務人員或經銷商來處理。

操作方面的安全性

- 在使用產品之前，請確定所有的排線、電源線都已正確地連接好。若您發現有重大的瑕疵，請盡速連絡您的經銷商。
- 為避免發生電氣短路情形，請務必將所有沒用到的螺絲、迴紋針及其他零件收好，不要遺留在主機板上或產品主機中。
- 灰塵、溼氣以及劇烈的溫度變化都會影響主機板的使用壽命，因此請盡量避免放置在這些地方。
- 請勿將產品主機放置在容易搖晃的地方。
- 若在本產品的使用上有任何的技術性問題，請和經過檢定或有經驗的技術人員聯絡。

使用注意事項

- 在您開始操作本系統之前，請務必詳閱以下注意事項，以避免因為人為的疏忽造成系統損傷甚至人體本身的安全。
- 使用前，請檢查產品各部份組件是否正常，以及電源線是否有任破損，或是連接不正確的情形發生。
- 如果有任何破損情形，請盡速與您的授權經銷商聯絡，更換良好的線路。
- 產品放置的位置請遠離灰塵過多，溫度過高，太陽直射的地方。
- 保持機器在乾燥的環境下使用，雨水、溼氣、液體等含有礦物質將會腐蝕電子線路。
- 使用時，請務必保持周遭散熱空間，以利散熱。
- 使用前，請檢查各項周邊設備是否都已經連接妥當再開機。
- 避免邊吃東西邊使用，以免污染機件造成故障。
- 請避免讓紙張碎片、螺絲及線頭等小東西靠近產品之連接器、插槽、孔位等處，避免短路及接觸不良等情況發生。
- 請勿將任何物品塞入產品內，以避免引起機件短路或電路損毀。
- 產品開機一段時間之後，散熱片及部份 IC 表面可能會發熱、發燙，請勿用手觸摸，並請檢查系統是否散熱不良。
- 在安裝或移除周邊產品時請先關閉電源。
- 電源供應器如果發生損壞，切勿自行修理，請交由授權經銷商處理。
- 產品的機殼、鐵片大部份都經過防割傷處理，但是您仍必須注意避免被某些細部鐵片尖端及邊緣割傷，拆裝機殼時最好能夠戴上手套。

當你有一陣子不使用產品時，休假或是颱風天，請關閉電源之後將電源線拔掉。

NCC 警語

取得審驗證明之低功率射頻器材，非經核准，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。低功率射頻器材之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。前述合法通信，指依電信管理法規定作業之無線電通信。低功率射頻器材須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

「警告使用者：這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。」

Warnings and Cautionary Messages



Warning: Hot surface. Do not touch!



Warning: This product does not contain any serviceable user parts.

Warning: Installation and removal of the unit must be carried out by qualified personnel only.

Warning: When selecting a fiber SFP+ device, considering safety, please make sure that it can function at a temperature that is not less than the recommended maximum operational temperature of the product. You must also use an approved Laser Class 1 SFP+ transceiver.



Caution: Wear an anti-static wrist strap or take other suitable measures to prevent electrostatic discharge when handling this equipment.

Caution: Do not plug a phone jack connector in the RJ-45 port. This may damage this device.

Caution: Use only twisted-pair cables with RJ-45 connectors that conform to FCC standards.

Caution: The device must be installed in a restricted-access location.



Avertissement: Surface chaude. Ne pas toucher!



Avertissement: Ce produit ne contient aucun composant susceptible d'être réparé par l'utilisateur.

Avertissement: L'installation et la dépose de l'unité ne doivent être réalisées que par du personnel qualifié.

Avertissement: Lorsque vous utilisez un dispositif fibre de type SFP+, en ce qui concerne la sécurité, assurez-vous qu'il puisse fonctionner à une température inférieure à la température maximale de fonctionnement recommandée du produit. Utilisez également un émetteur-récepteur laser SFP+ de classe 1 agréé.



Attention: La manipulation de cet équipement requiert le port d'un bracelet antistatique ou l'utilisation d'autres mesures pour éviter toute décharge électrostatique.

Attention: Ne branchez pas un connecteur téléphonique dans le port RJ-45. Vous risqueriez d'endommager l'appareil.

Attention: Ne branchez que des fils torsadés par paires conformes aux normes FCC sur les connecteurs RJ-45.

Attention: le périphérique doit être installé dans un emplacement à accès restreint.

限用物質含有情況標示聲明書

Declaration of the Presence Condition of the Restricted Substances Marking

設備名稱：60 GHz 接收器

型號 (型式)：MLTG-360

Equipment Name

Type Designation (Type)

單元 Unit	限用物質及其化學符號 Restricted substances and its chemical symbols					
	鉛 (Pb)	汞 (Hg)	鎘 (Cd)	六價鉻 (Cr ⁶⁺)	多溴聯苯 (PBB)	多溴二苯醚 (PBDE)
電路板組件 PCBA	—	○	○	○	○	○
機殼 Chassis	○	○	○	○	○	○
組合線 Cable ass'y	○	○	○	○	○	○
電源供應器 Power Supply	—	○	○	○	○	○

備 考 1: "超出 0.1 wt %" 及 "超出 0.01 wt %" 係指限用物質之百分比含量超出百分比含量基準值。

Note 1: "Exceeding 0.1 wt %" and "exceeding 0.01 wt %" indicate that the percentage content of the restricted substance exceeds the reference percentage value of presence condition.

備 考 2: "○" 係指該項限用物質之百分比含量未超出百分比含量基準值。

Note 2: "○" indicates that the percentage content of the restricted substance does not exceed the percentage of reference value of presence.

備 考 3: "—" 係指該項限用物質為排除項目。

Note 3: The "—" indicates that the restricted substance corresponds to the exemption.

Hardware Specifications

AP Chassis

Size (WxDxH)	19.9 x 19.9 x 20.0 cm (7.83 x 7.83 x 7.87 in)
Weight	3.9 kg (8.6 lb) with bracket
Temperature	Operating: -20° C to 55° C (-4° F to 131° F) Storage: -40° C to 70° C (-40° F to 158° F)
Humidity	Operating: 5% to 95% (non-condensing)

Network Interfaces

Ports	1 x MGMT PoE IN RJ-45 Port: 1000BASE-T, PoE PD 1 x Uplink Port: 10G SFP+ 4 x LAN RJ-45 Ports: 1000BASE-T (PoE OUT)
60 GHz	4 x 60GHz Radios, 802.11ad/ay

Power Supply

PoE Input Power	ICC-POE-90W: 52–57 VDC, 1.44 A (Passive PoE)
Power Consumption	75 W max. (without PoE out) 94 W (including PoE out)

Regulatory Compliances

Radio	EN 302 567 V2.1.1 EN 62311 (MPE) 47 CFR FCC Part 15.255 ICES-003 Issue 6 Class A RSS-247 RSS-210 Issue 10 RSS-Gen Issue 5 RSS-102 Issue 5 (MPE) MIC Article 2 Paragraph 1 Item 19—4-2 NCC LP0002
Emissions	EN 301 489-1 V2.1.1 EN 301 489-17 V3.1.1 Part 15 subpart B Class A (ANSI C63.4-2014) ICES-003 Issue 6 VCCI-CISPR 32 CNS 15936
Safety	EN 62368-1: 2014+ A11: 2017 IEC 60950-1: 2005, AMD1: 2009, AMD2: 2013 IEC 60950-22: 2016 IEC 60529-1: 1989+ AMD1: 1999+ AMD2: 2013CSV (IP66) UL/CUL 62368-1, 2nd Ed UL/CUL 60950-22 2nd Edition CNS 15598-1
