



APC 2M-90

Quick Installation Guide

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Introduction

FCC Warning

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.
- 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.

FCC Caution

To assure continued compliance, any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

FCC Radiation Exposure Statement

To comply with FCC RF exposure requirements in section 1.1307, a minimum separation distance of 3.9 feet is required between the antenna and all occupational persons, and a minimum separation distance of 8.7 feet is required between the antenna and all public persons.

Antenna Installation

WARNING: It is installer's responsibility to ensure that when using the authorized antennas in the United States (or where FCC rules apply), only those antennas certified with the product are used. The use of any antenna other than those certified with the product is expressly forbidden in accordance to FCC rules CFR47 part 15.204. The installer should configure the output power level of antennas, according to country regulations and per antenna type. Professional installation is required of equipment with connectors to ensure compliance with health and safety issues.

Antenna Compliance

The APC 2M-90 radio module contains internal dual-polarized 90° sector antenna.

CE Mark Warning

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

R&TTE Compliance Statement

This equipment complies with all the requirements of the Directive 1999/5/EC of the European Parliament and the Council of 9 March 1999 on Radio Equipment and Telecommunication Terminal Equipment and the Mutual Recognition of their Conformity (R&TTE).

The R&TTE Directive repeals and replaces in the directive 98/13/EEC (Telecommunications Terminal Equipment and Satellite Earth Station Equipment) As of April 8, 2000.

Safety

This equipment is designed with the utmost care for the safety of those who install and use it. However, special attention must be paid to the dangers of electric shock and static electricity when working with electrical equipment. All guidelines of this manual and of the computer manufacturer must therefore be allowed at all times to ensure the safe use of the equipment.

EU Countries Intended for Use

The ETSI version of this device is intended for home and office use in Austria, Belgium, Denmark, Finland, France (with Frequency channel restrictions), Germany, Greece, Ireland, Italy, Luxembourg, The Netherlands, Portugal, Spain, Sweden and United Kingdom.

The ETSI version of this device is also authorized for use in EFTA member states Iceland, Liechtenstein, Norway and Switzerland.

EU Countries Not Intended for Use

None

About this Guide

Prerequisite Skills and Knowledge

To use this document effectively, you should have a working knowledge of Local Area Networking (LAN) concepts and wireless Internet access infrastructures.

Definitions, Acronyms and Abbreviations

The following typographic conventions and symbols are used throughout this document:



Additional information that may be helpful but which is not required.



Important information that should be observed.

bold Menu commands, buttons, input fields, links, and configuration keys are displayed in bold

italic References to sections inside the document are displayed in italic.

`code` File names, directory names, form names, system-generated output, and user typed entries are displayed in constant-width type

Technical Support

If you encounter problems when installing or using this product, please consult the Deliberant website at www.deliberant.com for:

- Direct contact to the Deliberant support centers.
- Frequently Asked Questions (FAQ).
- Download area for the latest software, user documentation and product updates.

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Installation

This chapter provides installation instructions for the hardware components of the APC 2M-90.

Package Contents

The figure below displays APC 2M-90 package contents.

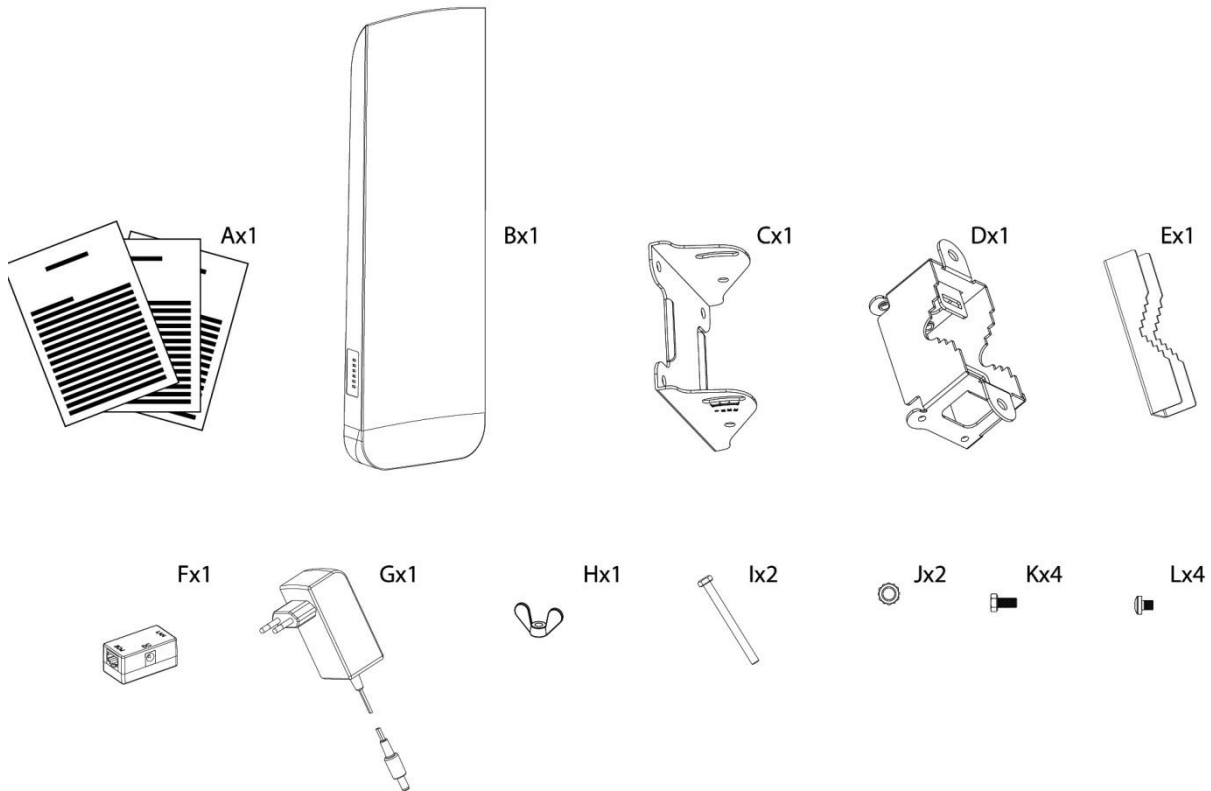


Figure 1 – APC 2M-90 Package Contents

| Item | Component Name | Quantity |
|------|------------------------------|----------|
| A | Quick Installation Guide | 1 |
| B | APC 2M-90 enclosure | 1 |
| C | Mounting frame part 1 | 1 |
| D | Mounting frame part 2 | 1 |
| E | Mounting frame part 3 | 1 |
| F | PoE injector | 1 |
| G | AC adapter | 1 |
| H | Nut for grounding stud | 1 |
| I | Pole mounting M6x17 hex bolt | 2 |
| J | Self-locking nut M6 | 2 |
| K | Hex bolt M5x10 | 4 |
| L | Hex bolt M4x5 | 4 |



If any of these items are missing or damaged, please contact your reseller.

Hardware Introduction

APC 2M-90 is housed in a plastic ultrasonically welded enclosure, ensuring a reliable sealing in a wide range of temperature and has an integrated 16dBi sector antenna.

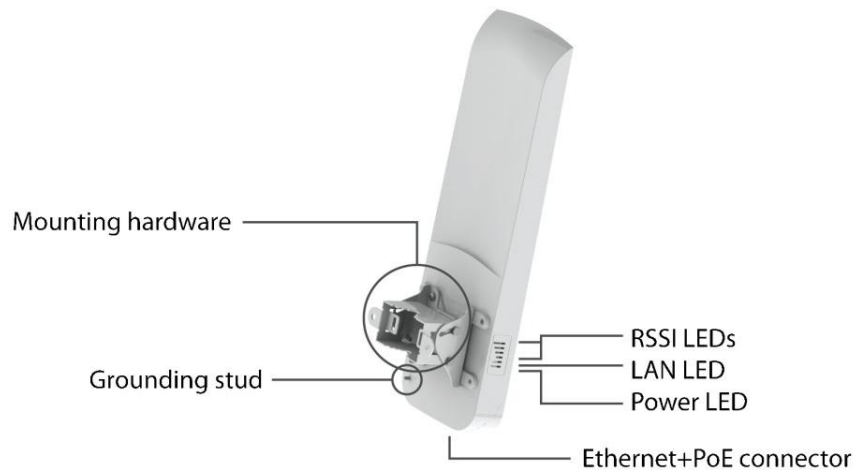


Figure 2 – APC 2M-90 Overview

The side panel of the APC 2M-90 contains:

- **Ethernet/Power connection** in the form of passive PoE through standard Ethernet cable.
- **6 LEDs:** Power, LAN activity and 4 LEDs for device RSSI level indication.

The back panel of the APC 2M-90 has a label with following information:

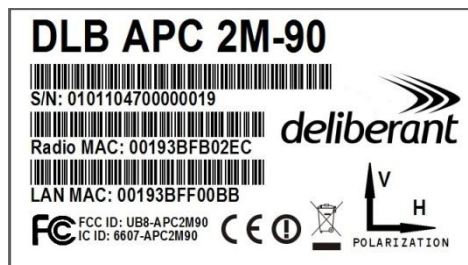


Figure 3 – APC 2M-90 Label

The label of the APC 2M-90 contains:

- **Model name.** The official model name is **DLB APC 2M-90**.
- **Serial Number**
- **Radio MAC** address
- **LAN MAC** address
- **FCC ID: UB8-APC2M90**
- **IC ID: 6607- APC2M90**

LEDs

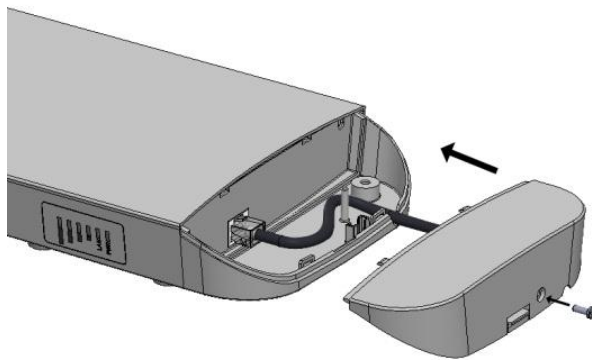
The APC 2M-90 has 6 LEDs located on the side panel: power, LAN and 4 RSSI LEDs (refer at the *Figure 2 – APC 2M-90 Overview* for details). The various states of the LEDs indicate different connection operations as follows:

| LED | Color | Status | Indication |
|-------------------|--------|----------|--|
| Power | Green | On | APC 2M-90 is active/working |
| | | Off | No power on APC 2M-90 |
| LAN | Green | On | LAN connection exists. |
| | | Blinking | Indicates the traffic on LAN interface. |
| | | Off | No LAN connection. |
| RSSI (1, 2, 3, 4) | Yellow | On | The RSSI level has reached the appropriate threshold level (default RSSI threshold levels: 10, 25, 35, 50) |
| | | Off | The RSSI level has not reached the appropriate threshold level |

Assembling and Mounting the APC 2M-90

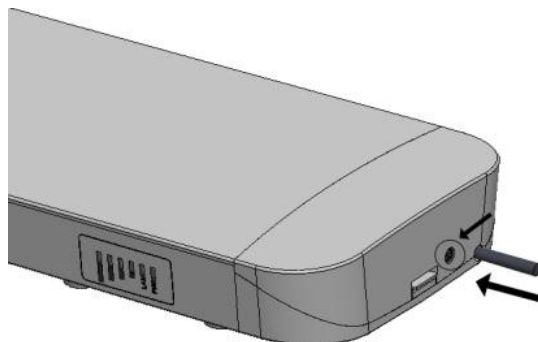
The APC 2M-90 units are supplied with mounting hardware for pole with diameters in the range 30mm to 55mm installations. Follow the steps for APC 2M-90 assembling:

- Step 1.** Make sure that the APC unit is powered-off.
- Step 2.** Open the unit's cover and insert the UTP cable into the unit's ETH port as displayed in the picture below:

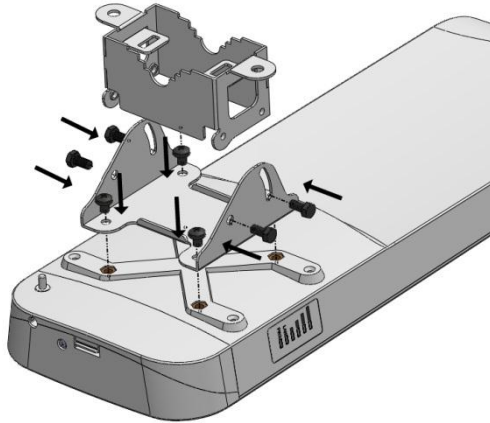


It is recommended to use shielded STP Ethernet cable to reduce exposure of the electromagnetic noise.

- Step 3.** Close the unit's cover and fix it with the cover's bolt:

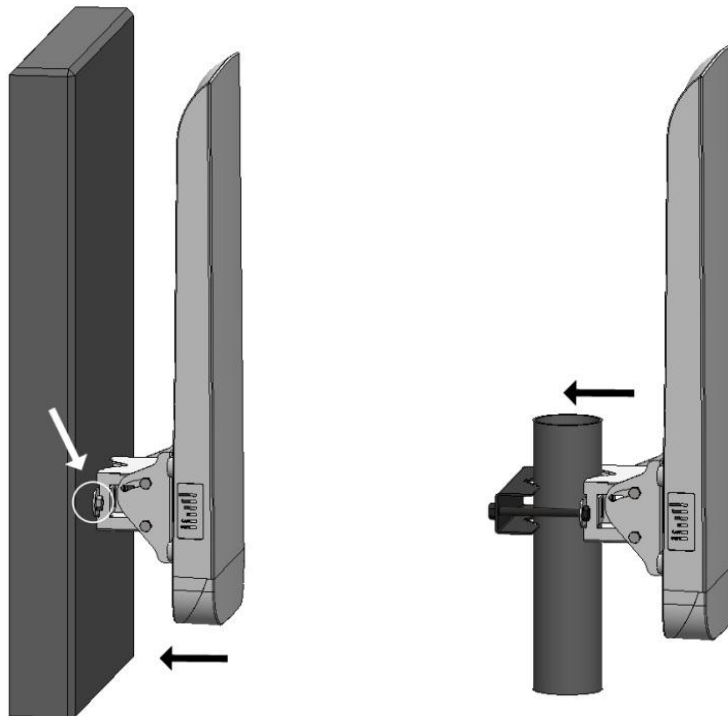


- Step 4.** Attach the mounting hardware to the device: first fix mounting hardware part 1 with four Hex bolts M4x5 (items C and L in the *Figure 1 – APC 2M-90 Package Contents*), then attach the mounting hardware part 2 and fix it with four Hex bolts M5x10 (items D and K in the *Figure 1 – APC 2M-90 Package Contents*).

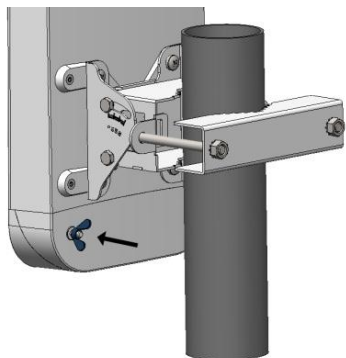


It is recommended not to tighten the unit to its mounting bracket until the alignment process of the antenna is complete.

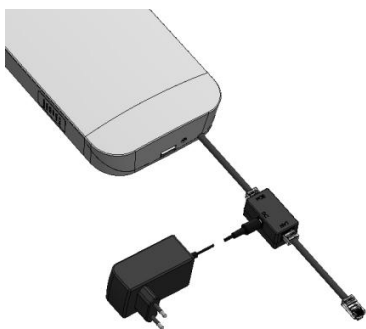
- Step 5.** For wall mounting simply fix the unit's mounting hardware on the wall with bolts (not included in the package).
For pole mounting attach mounting hardware part 3 (item E in the *Figure 1 – APC 2M-90 Package Contents*) and the unit on a pole and fix them with M6 bolts and nuts (items I and J in the *Figure 1 – APC 2M-90 Package Contents*):



- Step 6.** Ground the APC 2M-90 unit. The unit must be properly grounded to protect against lightning. The grounding wire must be attached to the grounding stud and tightened with the nut (item H in *the Figure 1 – APC 2M-90 Package Contents*):

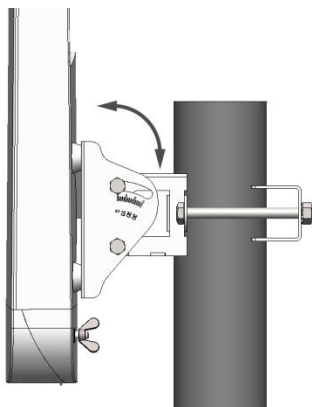


- Step 7.** Connect AC adapter into PoE injector (items F and G in *the Figure 1 – APC 2M-90 Package Contents*) together with UTP cables as displayed in the picture below:



- Step 8.** Power-up the unit. The green power LED must be on (refer at the respective section *LEDs*). Depending on link quality, up to four yellow LEDs will switch on, indicating that link between two units was established successfully.

- Step 9.** After the link was established, align antenna for the maximum performance: loosen bolts on unit's frame, run the **Antenna Alignment** tool in the Web management interface (or observe the RSSI LEDs) and move the unit in the vertical and horizontal panes until the maximum RSSI visible on the Antenna Alignment graph is achieved. After the maximum RSSI level is reached, tighten down frame's bolts in the optimal position.



Avoid standing directly in front of an operating antenna while aligning.

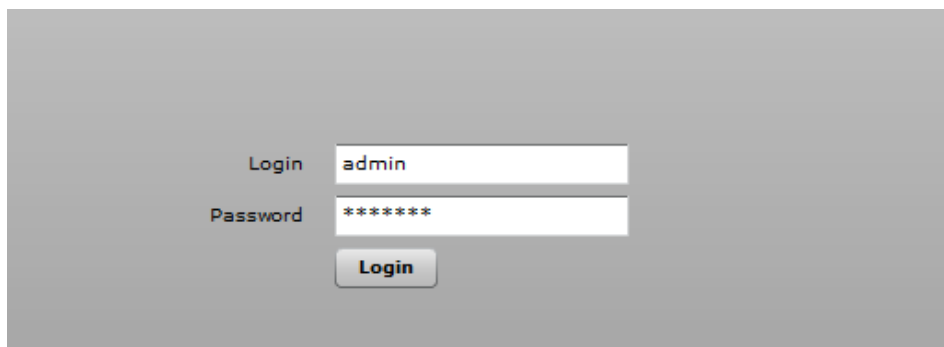
Access the APC 2M-90

The first connection to the APC 2M-90 can be made using a standard Ethernet cable connected directly to your PC. See next sections for the instructions on how to access the APC 2M-90 management interfaces.

Connection via WEB Browser

The default IP address of the APC 2M-90 is 192.168.2.66 with a subnet mask of 255.255.255.0.

Step 1. Configure your PC with a static IP address on the 192.168.2.0 subnet with mask 255.255.255.0. Connect the APC 2M-90 Ethernet interface in to the same physical network as your PC. Open the Web browser and type the default IP address of the APC 2M-90: <http://192.168.2.66/>



Step 2. Enter the APC 2M-90 administrator login details to access the Web management:



The default administrator login settings for all APC 2M-90 are:

Login: **admin**

Password: **admin01**

Step 3. After successful administrator log in you will see the main page of the APC 2M-90 Web management interface. The APC 2M-90 now is ready for configuration.

Resetting to Factory Defaults

APC 2M-90 has the capability of being reset to defaults by pinging the device with a certain packet size when the device is booting. During the device startup, after the Ethernet interface drivers are loaded, the reset daemon starts. The daemon suspends startup process for 3 seconds and waits for ICMP "echo request" packet in length of 369 bytes. If the packet received, the reset daemon sets the device to default configuration.



It is recommended to connect PC to the device via switch, as depending on PC OS settings, the ARP table might be flushed during wired link status change (connecting the device that will be reset).

Steps to reset to default settings:

- Step 1.** Power off the APC 2M-90 device.
- Step 2.** Obtain the device MAC address.
- Step 3.** Connect a PC to the same physical subnet as the device.
- Step 4.** Execute 'arp -s' command to assign the IP address (IP address should be from the same subnet as PC) to the device MAC address:

```
arp -s <IP address to assign> <device MAC address>
```



Note that syntax of MAC address differs depending on OS:

- Linux OS: AA:BB:CC:DD:EE:FF
- Windows OS: AA-BB-CC-DD-EE-FF

- Step 5.** Start pinging the APC 2M-90 device:
For Linux users: ping <IP address> -s 369
For Windows users: ping <IP address> -l 369 -t -w 200
- Step 6.** Power up device and wait about 30sec or more (depending on device hardware).
- Step 7.** Stop pinging the APC 2M-90, and let the device boot as usual. The device should start up with factory default settings.