



APC 2S-20

Quick Installation Guide

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Contents

Copyright 2
 Notice 2
 Trademarks 2

CONTENTS 3

INTRODUCTION..... 4

FCC Warning..... 4
 FCC Caution 4
 FCC Radiation Exposure Statement 4
 Antenna Installation 4
 Antenna Compliance 4
 CE Mark Warning 5
 R&TTE Compliance Statement 5
 Safety 5
 EU Countries Intended for Use..... 5
 EU Countries Not Intended for Use 5

ABOUT THIS GUIDE 6

Prerequisite Skills and Knowledge 6
 Definitions, Acronyms and Abbreviations 6
 Technical Support 6
 Contact Us..... 6

INSTALLATION 7

Package Contents 7
 Hardware Introduction 8
 LEDs 8
 Antenna Polarization..... 9
 Assembling and Mounting the APC 2S-20..... 9

ACCESS THE APC 2S-20..... 13

Connection via WEB Browser 13
 Resetting to Factory Defaults 14

Introduction

FCC Warning

- 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 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.

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.

Contact Us

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Installation

This chapter provides installation instructions for the hardware components of the APC 2S-20.

Package Contents

The figure below displays APC 2S-20 package contents.

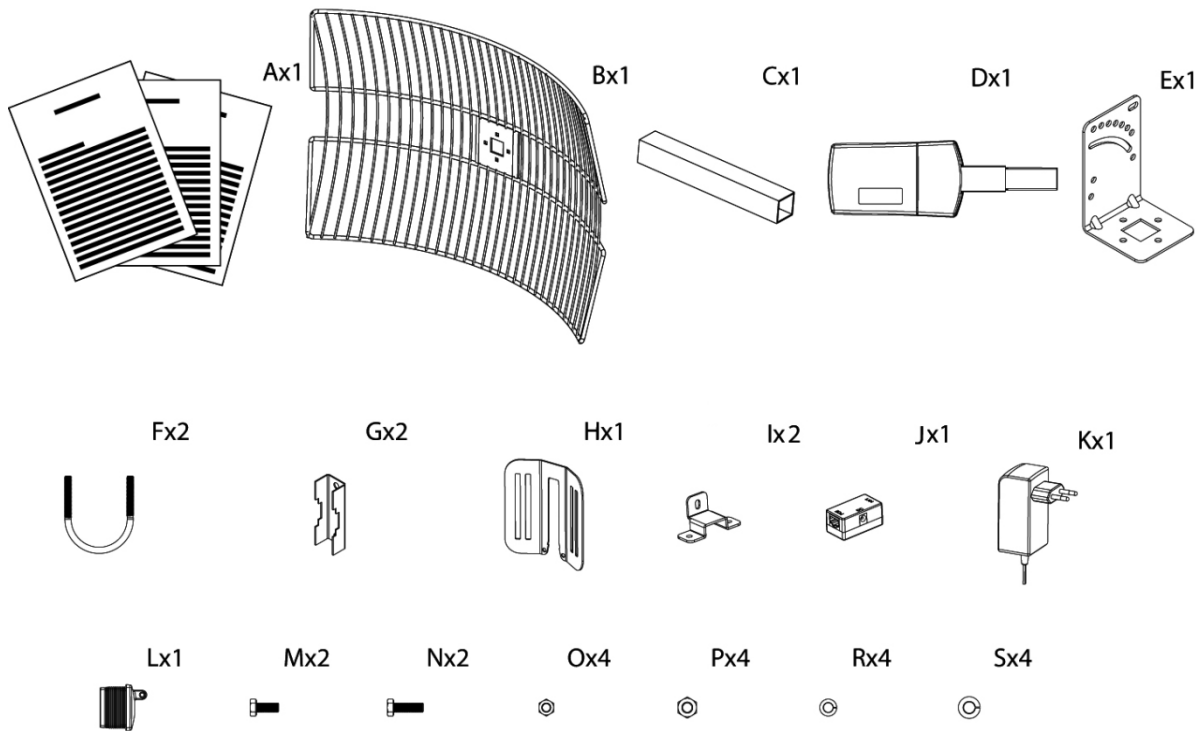


Figure 1 – APC 2S-20 Package Contents

Item	Component Name	Quantity	Item	Component Name	Quantity
A	Quick Installation Guide	1	J	Passive PoE inserter	1
B	Antenna grid	1	K	Power supply	1
C	Square pipe	1	L	ETH port rubber seal	1
D	APC 2S-20 enclosure	1	M	Bolt M5 x 12-S	2
E	Mounting frame	1	N	Bolt M5 x 16-S	2
F	U bolt M6 for pole mounting	2	O	Hexagon nut M5	4
G	Pole mounting hook	2	P	Hexagon nut M6	4
H	Reflector	1	R	Spring washer A5	4
I	Pipe's frame	2	S	Spring washer A6	4



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

Hardware Introduction

APC 2S-20 is housed in a plastic ultrasonically welded enclosure, ensuring a reliable sealing in a wide range of temperature and has an integrated 20dBi directional antenna.

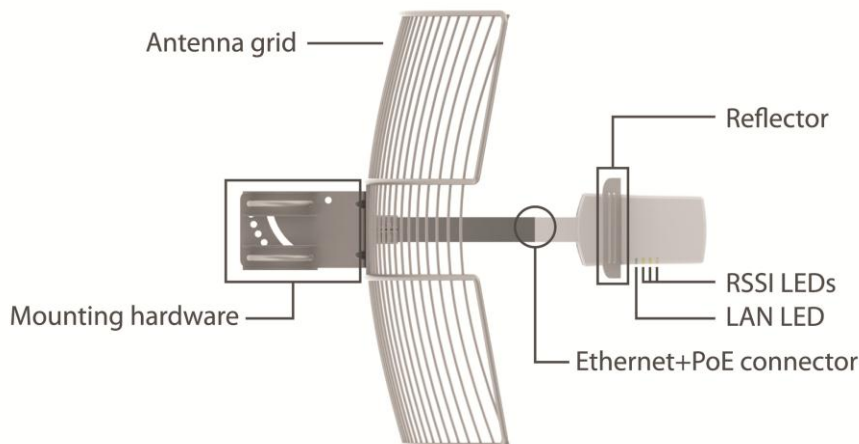


Figure 2 – APC 2S-20 Overview

The side panel of the APC 2S-20 contains:

- **Ethernet/Power connection** in the form of passive PoE through standard Ethernet cable.
- **4 LEDs:** one for LAN activity and 3 LEDs for device RSSI level indication

The back panel of the APC 2S-20 has label with following information:



Figure 3 – APC 2S-20 Label

The label of the APC 2S-20 contains:

- **Model** name. The official model name is **APC 2S-20**.
- **Serial Number**
- **Ethernet MAC** address
- **FCC ID: UB8-APC2S20**
- **IC ID: 6607-APC2S20**

LEDs

The APC 2S-20 has 4 LEDs located on the side panel: LAN and 3 RSSI LEDs (refer at the *Figure 2 – APC 2S-20 Overview* for details). The various states of the LEDs indicate different connection operations as follows:

LED	Color	Status	Indication
LAN	Green	On	LAN connection exists.
		Blinking	Indicates the traffic on LAN interface.
		Off	No LAN connection.
RSSI (1, 2, 3)	Yellow	On	The RSSI level has reached the appropriate threshold level (default RSSI threshold levels: 10, 25, 40)
		Off	The RSSI level has not reached the appropriate threshold level

Antenna Polarization

Antenna polarization is a very important consideration when installing an antenna. The vertical polarization is when electric field is perpendicular to the Earth's surface, while the horizontal polarization antennas have their electric field parallel to the Earth's surface.

The APC 2S-20 unit's polarization depends on the holes on which the mounting frame is fixed to the antenna grid:

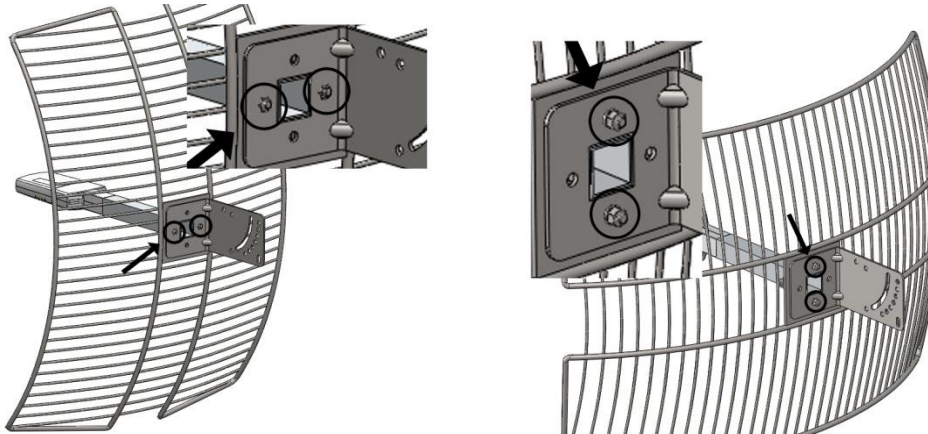
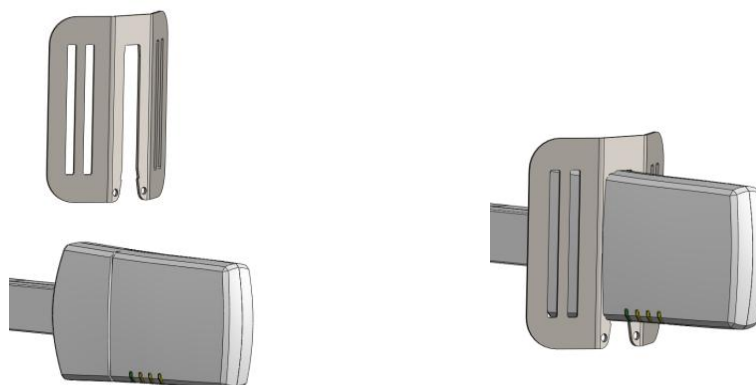


Figure 4 – Vertical and Horizontal Antenna Polarization

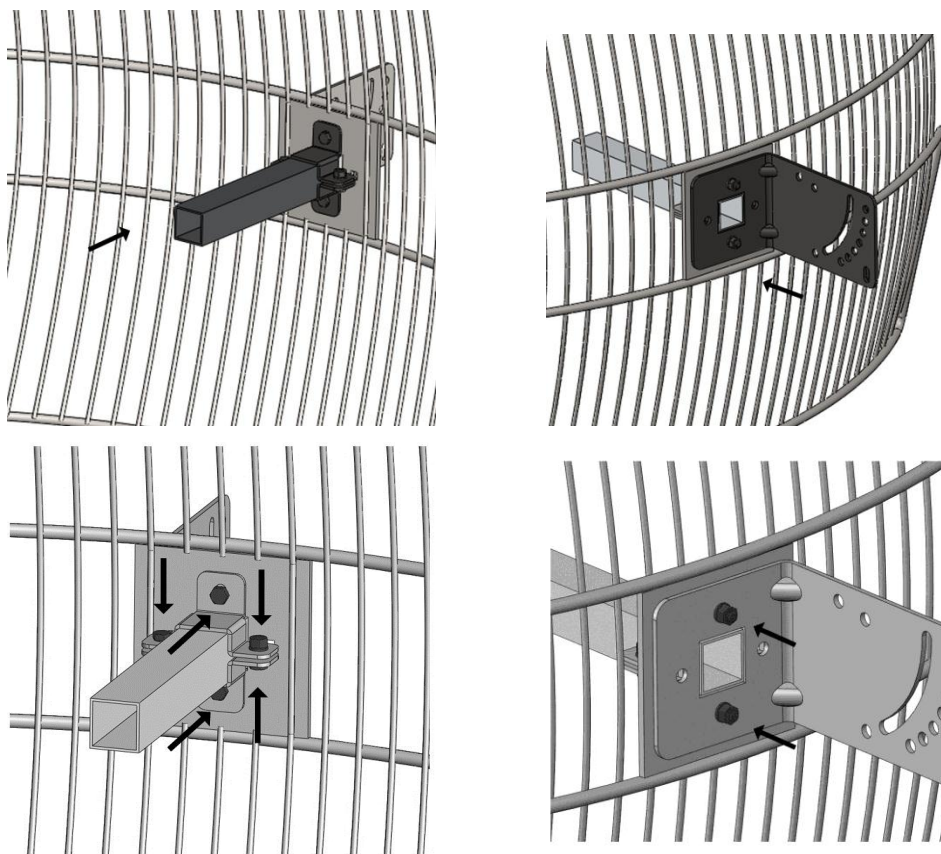
Assembling and Mounting the APC 2S-20

The APC 2S-20 units are supplied with mounting hardware for pole with diameters in the range 30mm to 50mm installations. After the unit is attached, its position is fixed with the single bolt. Follow the steps for APC 2S-20 assembling:

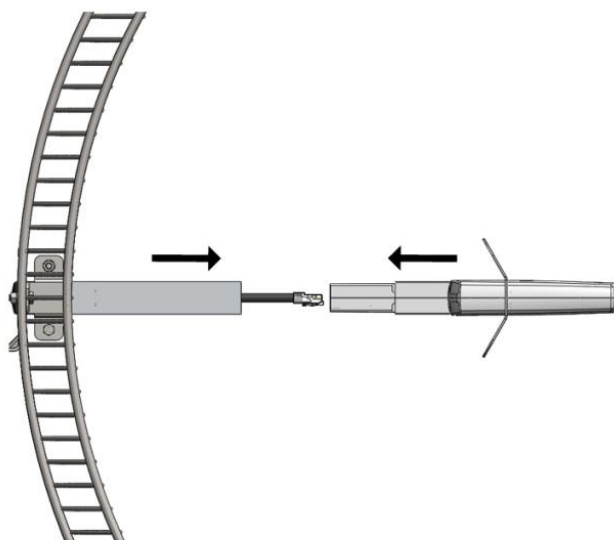
- Step 1.** Make sure that the APC unit is powered-off.
- Step 2.** Attach the reflector (item H in the *Figure 1 – APC 2S-20 Package Contents*) on the unit and push it downwards until it clicks into position:



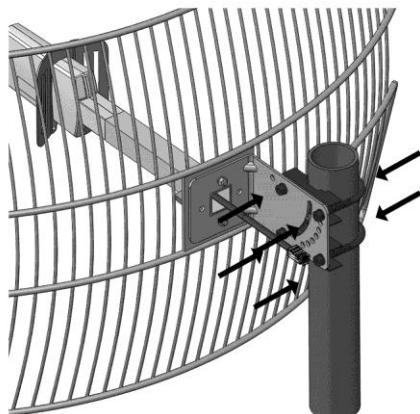
Step 3. Attach a mounting frame to the antenna grid (items E and B in the *Figure 1 – APC 2S-20 Package Contents*) together with the pipe and pipe's frame details (items C and I in the *Figure 1 – APC 2S-20 Package Contents*) and fix them with four hexagon bolts, spring washers and nuts (items M, N, R and O in the *Figure 1 – APC 2S-20 Package Contents*).



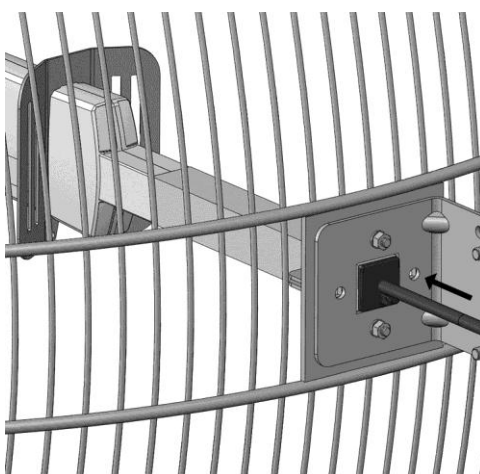
Step 4. Insert the UTP cable into the unit's ETH port and fix the APC 2S-20 unit on the pipe (items C and D in the *Figure 1 – APC 2S-20 Package Contents*):



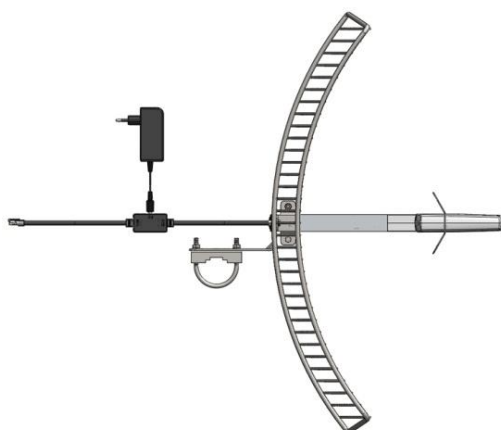
- Step 5.** For the pole mounting attach APC 2S-20 unit on pole with two U bolts in a required position and tighten with the hexagon M6 nuts and spring washers (items F, P and S in the *Figure 1 – APC 2S-20 Package Contents*):



- Step 6.** Place a rubber seal (item L in the *Figure 1 – APC 2S-20 Package Contents*) on the UTP cable and insert it into the mounting bracket's hole:



- Step 8.** Connect power adapter into PoE injector together with UTP cables as displayed in the picture below:



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

- Step 9.** Power-up the unit. The green LAN LED must be on (refer at the respective section *LEDs*). Depending on link quality, up to three yellow LEDs will switch on, indicating that link between two units was established successfully.
- Step 10.** After the link was established, align antenna for the maximum performance. Run the **Antenna Alignment** tool in the Web management interface and move the antenna in the horizontal and vertical panes until the maximum RSSI visible on the Antenna Alignment graph is achieved. After the maximum RSSI level is reached, tighten down the unit's U bolts in the optimal position.



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

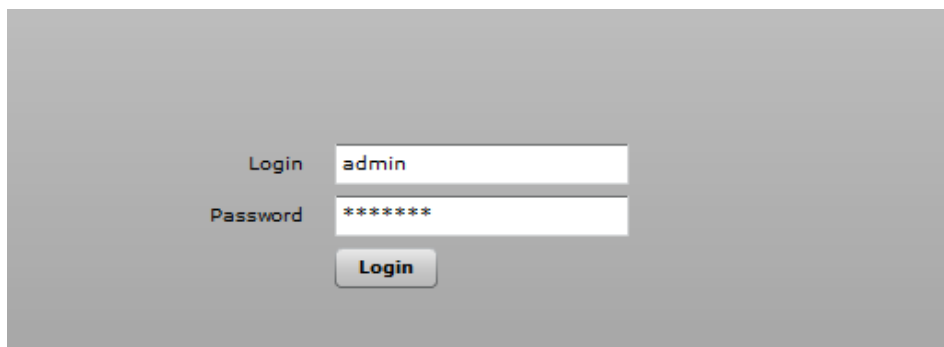
Access the APC 2S-20

The first connection to the APC 2S-20 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 2S-20 management interfaces.

Connection via WEB Browser

The default IP address of the APC 2S-20 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 2S-20 Ethernet interface in to the same physical network as your PC. Open the Web browser and type the default IP address of the APC 2S-20: <http://192.168.2.66/>



- Step 2.** Enter the APC 2S-20 administrator login details to access the Web management:



The default administrator login settings for all APC 2S-20 are:

Login: **admin**

Password: **admin01**

- Step 3.** After successful administrator log in you will see the main page of the APC 2S-20 Web management interface. The APC 2S-20 now is ready for configuration. For further instructions on Web management refer to the respective document APC 2S-20 User Guide.

Resetting to Factory Defaults

APC 2S-20 has the capability of being reset to defaults by pinging the device with a certain packet size when the device is booting. During the startup of the device, when the drivers of the ethernet interfaces are loaded, the reset daemon is started. The daemon suspends startup process for 3 seconds and waits for ICMP "echo request" packet of length 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 2S-20 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 pingging the APC 2S-20 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 pingging the APC 2S-20, and let the device boot as usual. The device should start up with factory default settings.