APC Propeller 2
APC Propeller 5
Quick Installation Guide

Revision 1.4

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Contents

Introduction

Copyright

Notice

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Trademarks

Deliberant logo is trademark of Deliberant LLC.

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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.

Radiation Exposure Statement

This equipment complies with radiation exposure limits set forth for uncontrolled environment. This equipment must be installed and operated with minimum distance 8.7 feet between the radiator& your body.
This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Antenna Compliance

The APC Propeller 2 and APC Propeller 5 radio module contains internal antenna.

IC warning

（note：fixed antenna and dismountable antenna is either-or）

RSS:

This device complies with Industry Canada licence-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.

Fixed antenna

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

This radio transmitter (identify the device by certification number, or model number if Category II) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type 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.

For Professional installation NOTE:

This equipment is intended for fixed (non-mobile), point-to-point applications, and remote stations of point-to-multipoint systems can be used also. Any other use is prohibited.

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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For sales enquiries: sales@deliberant.com

Installation

This chapter provides installation instructions for the hardware components of the APC Propeller 2 and APC Propeller 5.

Package Contents

The figure below displays package contents of APC Propeller 2 and APC Propeller 5:
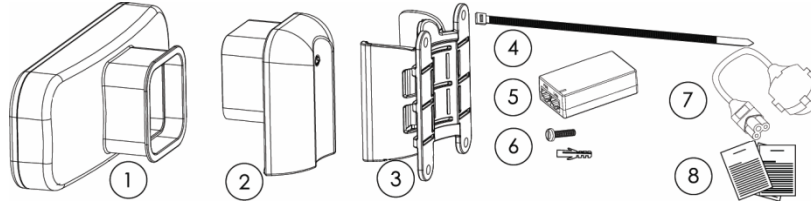

Figure 1 – Package Contents

Item	Component Name	Quantity
1	APC unit	1
2	Insert bracket	1
3	Wall/Pole mounting bracket	1
4	Plastic clamp (7.6mm x 300mm)	2
5	PoE adapter	1
6	Screw M3.5 x 32 and plastic insert	4
7	Power cord	1
8	Quick installation guide	1

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

Hardware Introduction

APC unit is housed in a plastic ultrasonically welded enclosure, ensuring a reliable sealing in a wide range of temperature and has an integrated 12dBi (APC Propeller 2) or 16dBi (APC Propeller 5) directional antenna.
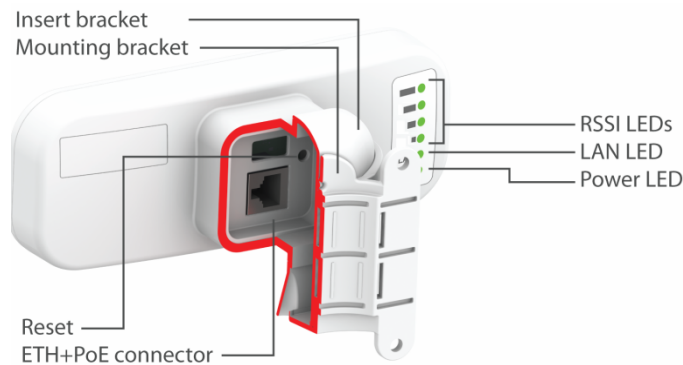

Figure 2 – Overview

The back panel of the APC contains:

- **Data/Power connector** in the form of passive PoE through standard ETH cable
- **6 LEDs**: power LED, LAN activity LED and 4 LEDs for device RSSI level indication
- **Reset** button

The label of the APC contains:

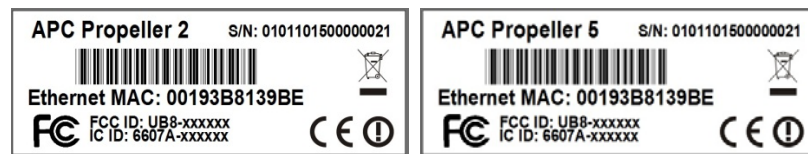- Model name.
- Serial Number
- ETH MAC address
- FCC ID
- IC ID

Figure 3 – Labels of APC Propeller 2 and APC Propeller 5

Product size and shape are subject to change without notice, and actual product appearance may differ from that depicted in the user guide.

LEDs

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

LED	Status	Indication
Power	On	APC is active/working
	Off	No power on APC
LAN	On	LAN connection exists.
	Blinking	Indicates the traffic on LAN interface.
	Off	No LAN connection.
RSSI (1, 2, 3, 4)	On	The RSSI level has reached the appropriate threshold level.
	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

APC Propeller 2 and APC Propeller 5 are integrated with a built in antenna, therefore the polarizations depends on the mounting position of the device (item 1 in the *Figure 1 – Package Contents*) on the insert bracket (item 2 in the *Figure 1 – Package Contents*).

Vertical polarization

Horizontal polarization

Figure 4 – Vertical and Horizontal Polarization of Main TX/RX Chain

APC Assembling and Mounting

The APC Propeller 2 and APC Propeller 5 units are supplied with mounting hardware for pole or wall installations. Follow the steps for APC Propeller 2 or APC Propeller 5 assembling and mounting on a preferable surface.

Step 1. Make sure that the APC unit is powered-off.

Step 2. **I**nsert the UTP cable into the APC unit's ETH port through the insert bracket (tem 2 in the *Figure 1 – Package Contents*) and as displayed in the picture below:
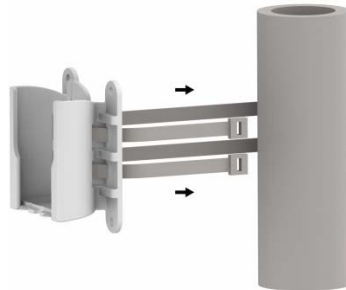

It is recommended to use shielded STP Ethernet cable to reduce exposure of the electromagnetic noise.

Step 3. Connect unit with the insert bracket (item 2 in the *Figure 1 – Package Contents*):
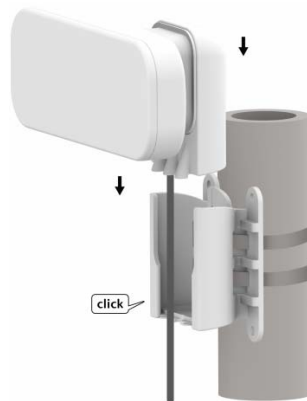
Pole Mounting

Step 1.   Make sure that the APC unit is powered-off.

Step 2.   Attach APC mounting bracket (item 3 in the *Figure 1 – Package Contents*) to the pole using plastic clamps (item 4 in the *Figure 1 – Package Contents*) as displayed below:

Step 3.   Attach the assembled unit to a mounting bracket and push it downwards until it clicks into position:

Step 4.   Power-up the APC unit. The green Power LED must be on (refer at the respective section *LEDs*). Dependently on link quality, up to four green LEDs will switch on indicating that link between two units was established successfully.
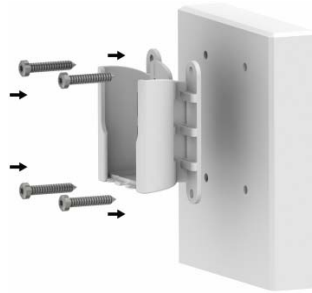
Avoid standing directly in front of an operating antenna.

Wall Mounting

Step 1.   Make sure that the APC unit is powered-off.

Step 2.   Attach APC mounting bracket (item 3 in the *Figure 1 – Package Contents*) to the wall using screws (item 6 in the *Figure 1 – Package Contents*) as displayed below:

Step 3.   Attach the assembled unit to a mounting bracket and push it downwards until it clicks into position:

Step 4.   Power-up the APC unit. The green Power LED must be on (refer at the respective section *LEDs*). Dependently on link quality, up to four green LEDs will switch on indicating that link between two units was established successfully.
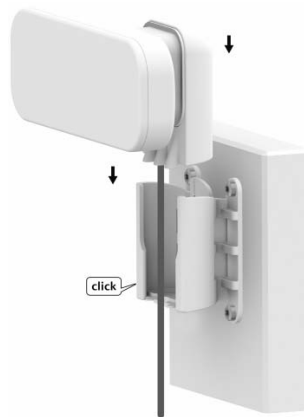
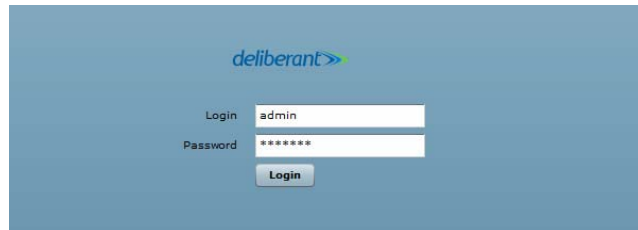Avoid standing directly in front of an operating antenna.

APC Management

The first connection to the APC Propeller 2 or APC Propeller 5 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 management interfaces.

Access the APC

The default IP address of the APC Propeller 2 and APC Propeller 5 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 (i.e. `192.168.2.10`) with mask `255.255.255.0`. Connect the APC Ethernet interface in to the same physical network as your PC. Open the Web browser and type the default IP address of the APC: https://192.168.2.66/

Step 2   Enter the APC administrator login details to access the Web management:

The default administrator login settings for all APC Propeller 2 and APC Propeller 5 are:

Login: **admin**

Password: **admin01**

Step 3   After successful administrator log on you will see the main page of the APC Web management interface. The APC Propeller 2 or APC Propeller 5 now is ready for configuration. For further instructions on Web management refer to the respective document APC User Guide.

APC Recovery

The APC Propeller 2 and APC Propeller 5 units have following recovery options:

- **Reset button** (refer at the *Figure 2 – Overview*). Press and hold the Reset button using a pen or a paper clip for 1 second to reboot the device; press and hold the Reset button for more than 5 seconds to set the device to factory defaults.
- **Resetting to defaults via Ping** (follow the instructions on Resetting APC via Ping section).
- **TFTP recovery mode.** Power-off the unit, then press and hold the Reset button (refer at the *Figure 2 – Overview*), power-on the unit and hold Reset button for more than 5 seconds – the APC unit will boot in recovery mode.

Resetting APC via Ping

APC Propeller 2 and APC Propeller 5 have 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 program is started. The reset program 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 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:
>
> **For Linux users**: `AA:BB:CC:DD:EE:FF`
>
> **For Windows users**: `AA-BB-CC-DD-EE-FF`

Step 5.   Start pinging the APC 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, and let the device boot as usual. The device should start up with factory default settings.