# 1 Plug-n-play:

This section provides an out of box experience interfacing a PC terminal port to an internet website.

1. Connect USB Debug port to PC

**Quicksilver**

**PC**

FTDI USB to UART\_0

USB

USB J1

Terminal

WiFi

2.4/5 GHz

1. Execute AT Commands from a Terminal Emulator (TeraTerm, PuTTY… )

Set Baud to 115200, Tx = CR+LF, Local Echo ON

**AT+WSCAN** 🡺 This command will list the access points that are within range

1. Connect to Access Point

**AT+WJOIN=<ssid>,<security>,<password>**

For Example: To connect to an Access Point named ArrowSSID using PK2 security and a password of ArrowPWD, enter 🡺 AT+WJOIN=ArrowSSID,WPA2\_AES\_PSK,ArrowPWD

Confirm connection when the following response is received == +WLINKUP

Check the strength of the connection:

**AT+WRSSI?**

1. Interact with the Cloud

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=====This first example requests interaction with a website, “requestinspector.com”==========

=====I have **NOT** been able to view the interactions via PC at “https://requestinspector.com”===

Following is an example communication.

* The blue bold text that starts each time with an “AT+” is what I typed.
* The red text is what came back.
* The black text preceeded with 🡺 is an explanation of the interaction

**AT+WJOIN=ArrowSSID,WPA2\_AES\_PSK,ArrowPWD**

OK

+WLINKUP

🡺 Request to join an access point named, “ArrowSSID” was accepted

**AT+WRSSI?**

OK

+WRSSI:-61

🡺 Asking how strong the signal is returns a value of -61 dB along with an indication that a connection exists.

**AT+WQUERYIP**

OK

+WQUERYIP:192.168.1.3,192.168.1.1,255.255.255.0

🡺 Asking for my own IP address

**AT+WLOOKUP=requestinspector.com,5000**

OK

+WLOOKUP:172.67.209.4

🡺 Ask for IP Address of website “requestinspector.com” and wait for up to 5 seconds (5000 milliseconds)

**AT+WPING=172.67.209.4,2** 🡨 Use the IP Address received from WLOOKUP above

OK

+WPING:REPLY=156

+WPING:REPLY=72

🡺 Send a “Ping” to the IP address, which sends a reply along with the time taken to reply in milliseconds.

**AT+WSOCKET=AF\_INET,SOCK\_STREAM,0**

OK

+WSOCKET:5220672

🡺 Request a socket of type AF\_INET using protocol SOCK\_STREAM. Socket created = 5220672

**AT+WCONNECT=5220672,172.67.209.4,80** 🡨 Use socket received from WSOCKET and IP from WLOOKUP above

OK

+WCONNECT:5220672,172.67.209.4,80,OK

+WRECV:5220672,-1

🡺 Connect using the created Socket to the IP Address of the website “requestinspector.com”

**AT+WCLOSE=5220672** 🡨 Use same socket # as used to WCONNECT above

OK

+WCLOSE:5232368

🡺 Close the connection. The connection must be closed before the radio module can go on to other tasks.

**AT+WDISC**

OK

+WLINKDOWN

🡺 Disconnect from the Access Point when done.

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===”ambidata.io” is a website used by Murata to test web connections ==========

NOTE: I was able to get this to work once using the ID and writeKey provided below. Please offer suggestions for improvement. gcarson@arrow.com .

== Website <https://ambidata.io>” shows up in Japanese. Google has option to translate to English ===

== Register to the site – it will let you interact for a short time without registering ==

Registration provides 8 channels free of charge

There must be a minimum of 5 seconds between transmissions for each channel. Anything sent at shorter intervals will be ignored.

More information @ <https://github.com/AmbientDataInc/Ambient_ESP8266_lib>

Open a Brower @ [https://ambidata.io/bd/board.html?id=39352](https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fambidata.io%2Fbd%2Fboard.html%3Fid%3D39352&data=04%7C01%7Cgcarson%40arrow.com%7Cbf7349eed835422a9a6b08d9fcf3d77c%7C0beb0c359cbb4feb99e5589e415c7944%7C1%7C0%7C637818946501214883%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000&sdata=3P2ppe8G63YvvS1UQeCrorzaxuFN2hoqrThQ33KcF9k%3D&reserved=0) 🡨 After logging into ambient.io, you will create your own ID here and “writeKey” below.

**AT+WJOIN=ArrowSSID,WPA2\_AES\_PSK,ArrowPWD** 🡨 Connect to an access point

**AT+WQUERYIP** 🡨 WQueryIP setus up an IP address for the radio module.

**AT+WLOOKUP=ambidata.io,5000** 🡨 Get the IP address of website ambidata.io

**AT+WSOCKET=AF\_INET,SOCK\_STREAM,0** 🡨 Setup a Socket for communication

**AT+WCONNECT=5220864,54.65.206.59,80** 🡨 Connect with socket to IP address of ambidata.io. Use Socket # from response to WSOCKET command. Use IP address from response to WLOOKUP command.

Note: The following six lines can be entered at once by copying then right clicking in Tera Term followed by an “Enter”. Please update a few items first. I highlighted the items to check.

**AT+WSEND=5220864,169**

**POST /api/v2/channels/48321/dataarray**

**Host: ambidata.io**

**Content-Type: application/json**

**Content-Length: 56**

**{"writeKey": "a9ba31c8224d4d4c", "data": [{"d1": 100}]}**

🡨 The previous 6 lines send a value of 100 to a graph for the user with the matching writeKey

* First number is SOCKET that was provided in response to the “AT+WSOCKET…” command.
* Second number to change is the Channel ID from your Ambient.io. Login, Create a channel to obtain a Channel ID
* Third Number to change is the write Key. Best I can tell, that translates to “Light key” and provided when a channel is created in Ambient.IO

**AT+WCLOSE=5220864** 🡨 Close each socket after the transmission is complete.

Observe the following on the Terminal Window:

|  |
| --- |
| **AT+WLOOKUP=ambidata.io,5000**  OK  +WLOOKUP:54.65.206.59  **AT+WSOCKET=AF\_INET,SOCK\_STREAM,0**  OK  +WSOCKET:5220864  **AT+WCONNECT=5220864,54.65.206.59,80**  OK  +WCONNECT:5220864,54.65.206.59,80,OK  **AT+WSEND=5220864,169**  **POST /api/v2/channels/48321/dataarray**  **Host: ambidata.io**  **Content-Type: application/json**  **Content-Length: 56**  **{"writeKey": "a9ba31c8224d4d4c", "data": [{"d1": 100}]}**  +WRECV:5220864,149  HTTP/1.1 200 OK  x-powered-by: Express  access-control-allow-origin: \*  date: Thu, 03 Mar 2022 08:33:55 GMT  connection: close  content-length: 0  +WRECV:5220864,-1  **AT+WCLOSE=5220864**  OK |

**Appendix:**

**Can’t find the COM port.**

Graphical user interface, text, application

Description automatically generated

**Select the “WICED USB Serial Port B” Properties by double-clicking it or right-clicking the select “Properties”**

Graphical user interface, text, application, email

Description automatically generated

**Check the “Load VCP” box to enable a Virtual COM Port.**

**Unplug then re-plug the WICED kit to see the COM port show up in Device Manager**

Graphical user interface, text, application

Description automatically generated

**AMBIENT.IO**

**Create an account to obtain a User Key**

Graphical user interface, text, application, email

Description automatically generated

**Select [Make a channel]**

**To Create two more keys**

Graphical user interface, text, application, email

Description automatically generated

**Select Download**

**Carson 2022\_05\_23**

User key:  4be0a5f97b66dc51ff

Channel ID: 50443

Lead key: 53aab3dec6bb7526

Light key: 05f39ce70798a9de

**Tried setting a Device Key**

Graphical user interface, text, application, email

Description automatically generated

Make a board = 42209

Graphical user interface, text, application, email

Description automatically generated