



dexter industries

DEXTER INDUSTRIES WIFI SENSOR FOR THE LEGO MINDSTORMS NXT



UDP, TCP, HTTP

CONNECTION MANAGEMENT

CONFIGURATION AND EXAMPLES

Table of Contents

1	UDP.....	3
1.1	UDP SERVER.....	3
1.1.1	<i>Command Mode</i>	3
1.1.2	<i>Auto Connect Mode</i>	3
1.2	UDP CLIENT.....	4
1.2.1	<i>Command Mode</i>	4
1.2.2	<i>Auto Connect Mode</i>	4
2	TCP.....	6
2.1	TCP SERVER.....	6
2.1.1	<i>Command Mode</i>	6
2.1.2	<i>Auto Connect Mode</i>	6
2.2	TCP CLIENT.....	7
2.2.1	<i>Command Mode</i>	7
2.2.2	<i>Auto Connect Mode</i>	8
3	HTTP GET.....	9
3.1	COMMAND MODE.....	9
3.2	AUTO CONNECT MODE.....	9
3.3	USING CONSECUTIVE CID.....	10
3.3.1	<i>Example 1: Gainspan.com</i>	10
3.4	USING SAME CID.....	11
3.4.1	<i>Example 1: Google.com</i>	11
3.4.2	<i>Example 2 : Google.com</i>	11
3.4.3	<i>Example 3: Pachube.com</i>	12
4	HTTP PUT.....	13
4.1	EXAMPLE: POSTING TO PACHUBE.COM.....	13
5	HTTP POST.....	15
5.1	HTTP GET ON PORT 80.....	15
5.2	HTTP POST ON PORT 80.....	15
5.3	HTTP GET ON PORT 3000.....	16
5.4	HTTP POST ON PORT 3000.....	16

NOTE: In the following examples, the Wifi Network SSID is assumed to be “DexterIndustries”

1 UDP

1.1 UDP Server

This section describes the steps to setup UDP Server on the Dexter Industries Sensor using either command mode or auto-connect mode.

1.1.1 Command Mode

1. Disassociate from the current network
 - ▶ `at+wd`
2. Enable DHCP: `AT+NDHCP=<disable=0/enable=1>`
 - ▶ `at+ndhcp=1`
3. Associate to an access point: `AT+WA=<SSID>[, [<BSSID>] [, <Ch>]]`
 - ▶ `at+wa=DexterIndustries,,6`
4. Start a TCP server on a specific port number: `AT+NSUDP=<port>`
 - ▶ `at+nsudp=4000`
5. Upon successful creation of the UDP server, you will see a “CONNECT <CID>” message, where CID is the newly allocated connection identifier. You can check for this new CID by issuing the command: `AT+CID=?`
 - ▶ `at+cid=?`
6. An NXTS can now connect to this UDP server by connecting to the IP.

1.1.2 Auto Connect Mode

1. Disassociate from the current network
 - ▶ `at+wd`
2. Enable DHCP: `AT+NDHCP=<disable=0/enable=1>`
 - ▶ `at+ndhcp=1`
3. Enable hardware flow control: `AT&R< disable=0/enable=1>`
 - ▶ `at&r1`
4. Set the auto connection wireless parameters for the AP profile:
`AT+WAUTO=<mode: Infrastructure=0, Ad-hoc=1>, <ssid>, <bssid>, [channel]`
 - ▶ `at+wauto=0,DexterIndustries,,6`
5. Set the network parameters for auto connection operation for the current profile:
`AT+NAUTO=<client=0/server=1>, < udp=0/tcp=1>, <destination IP>, <destination port>`
Destination IP address is optional if the Adapter is acting as a server
 - ▶ `at+nauto=1,0,,4000`
6. Enable auto connection: `ATC<enable=1/disable=0>`
 - ▶ `atc1`
7. Save the current profile: `AT&W<profile0=0/profile1=1>`
 - ▶ `at&w0`

8. Select the default profile: `AT&Y<profile0=0/profile1=1>`
 - ▶ `at&y0`
9. Power off the Dexter Industries Sensor.
10. Power on the Dexter Industries Sensor. The sensor is now in auto-connect mode where it will associate with DexterIndustries, obtain an IP address using DHCP, and listens on port 4000.
11. To exit out of the auto connection mode, enter the “+++” command, and wait for 1 second. After 1 second, the sensor will exit auto connect mode and enters command mode. Note, do not issue the “enter” symbol after “+++”.
 - ▶ `+++`

1.2 UDP Client

This section describes the steps to setup UDP Client on the Dexter Industries DIWIFI sensor using either command mode or auto-connect mode.

1.2.1 Command Mode

1. Disassociate from the current network
 - ▶ `at+wd`
2. Enable DHCP: `AT+NDHCP=<disable=0/enable=1>`
 - ▶ `at+ndhcp=1`
3. Associate to an access point: `AT+WA=<SSID>[, [<BSSID>] [, <Ch>]]`
 - ▶ `at+wa=DexterIndustries,,6`
4. Start a TCP server: `AT+NCUDP=<Dest-Address>,<Port>>[<,Src.Port>]`
 - ▶ `at+ncudp=192.168.3.101,2000`
5. Upon successful connection to the UDP server, you will see a “CONNECT <CID>” message, where CID is the newly allocated connection identifier.

1.2.2 Auto Connect Mode

1. Disassociate from the current network
 - ▶ `at+wd`
2. Enable DHCP: `AT+NDHCP=<disable=0/enable=1>`
 - ▶ `at+ndhcp=1`
3. Enable hardware flow control: `AT&R< disable=0/enable=1>`
 - ▶ `at&r1`
4. Set the auto connection wireless parameters for the AP profile:
`AT+WAUTO=<mode: Infrastructure=0, Ad-hoc=1>,<ssid>,<bssid>,[channel]`
 - ▶ `at+wauto=0,DexterIndustries,,6`
5. Set the network parameters for auto connection operation for the current profile:
`AT+NAUTO=<client=0/server=1>,< udp=0/tcp=1>,<destination IP>,<destination port>`
 - ▶ `at+nauto=0,0,192.168.3.101,2000`
6. Enable auto connection: `ATC<enable=1/disable=0>`
 - ▶ `atc1`

7. Save the current profile: *AT&W<profile0=0/profile1=1>*
 - ▶ *at&w0*
8. Select the default profile: *AT&Y<profile0=0/profile1=1>*
 - ▶ *at&y0*
9. Power off the Sensor.
10. Power on the Sensor. The sensor is now in auto-connect mode where it will associate with DexterIndustries, obtain an IP address using DHCP, and connects to UDP server on port 2000.
11. To exit out of the auto connection mode, enter the “+++” command, and wait for 1 second. After 1 second, the Sensor will exit auto connect mode and enters command mode. Note, do not issue the “enter” key after “+++”.
 - ▶ *+++*

2 TCP

2.1 TCP Server

This section describes the steps to setup TCP Server on the Dexter Industries DIWIFI sensor using either command mode or auto-connect mode.

2.1.1 Command Mode

1. Disassociate from the current network
 - ▶ `at+wd`
2. Enable DHCP: `AT+NDHCP=<disable=0/enable=1>`
 - ▶ `at+ndhcp=1`
3. Associate to an access point: `AT+WA=<SSID>[, [<BSSID>] [, <Ch>]]`
 - ▶ `at+wa=DexterIndustries,,6`
4. Start a TCP server: `AT+NSTCP=<port>`
 - ▶ `at+nstcp=2000`
5. Upon successful creation of the TCP server, you will see a “CONNECT <CID> “ message, where CID is the newly allocated connection identifier. You can check for this new CID by issuing the command: `AT+CID=?`
 - ▶ `at+cid=?`
6. User can now telnet into this server by:
 - a. Have a PC connected to the internet with Telnet or another client.
 - b. In PC's command prompt, issue the command:
`telnet <IP address from step 3> <port number set in step 6>`
For example: `telnet 192.168.3.101at 2000`
 - c. Now anything you type in the command prompt window will be communicated to the DIWIFI.

2.1.2 Auto Connect Mode

1. Disassociate from the current network
 - ▶ `at+wd`
2. Enable DHCP: `AT+NDHCP=<disable=0/enable=1>`
 - ▶ `at+ndhcp=1`
3. Enable hardware flow control: `AT&R< disable=0/enable=1>`
 - ▶ `at&r1`
4. Set the auto connection wireless parameters for the AP profile:
`AT+WAUTO=<mode: Infrastructure=0, Ad-hoc=1>, <ssid>, <bssid>, [channel]`
 - ▶ `at+wauto=0,DexterIndustries,,6`
5. Set the network parameters for auto connection operation for the current profile:
`AT+NAUTO=<client=0/server=1>, <udp=0/tcp=1>, <destination IP>, <destination port>`
Destination IP address is optional if the Adapter is acting as a server
 - ▶ `at+nauto=1,1,,1000`
6. Enable auto connection: `ATC<enable=1/disable=0>`
 - ▶ `atc1`

7. Save the current profile: *AT+W<profile0=0/profile1=1>*
 - ▶ *at&w0*
8. Select the default profile: *AT&Y<profile0=0/profile1=1>*
 - ▶ *at&y0*
9. Power off the DIWIFI sensor.
10. Power on the DIWIFI sensor. The sensor is now in auto-connect mode where it will associate with DexterIndustries, obtain an IP address using DHCP, and listens on port 1000.
11. User can now telnet into this server by:
 - a. Have a PC connected to the internet.
 - b. In PC's command prompt, issue the command:
telnet <IP address from step 11> <port number set in step 6>
For example: telnet 192.168.3.100 1000
 - c. Now anything you type in the command prompt window will be communicated to the DIWIFI sensor.

To exit out of the auto connection mode and restore all settings to factory defaults:

12. Switch to command mode
 - ▶ *+++*
13. Reset to factory defaults
 - ▶ *at&f*
14. Save the current profile using the profile number in step 8
 - ▶ *at&w0*
15. Set the default profile to be the same as that in step 15
 - ▶ *at&y0*
16. Power cycle the sensor and the DIWIFI sensor will power on in command mode.

2.2 TCP Client

This section describes the steps to setup TCP Client on the DIWIFI using either command mode or auto-connect mode.

2.2.1 Command Mode

Before you start, have a PC connect to the internet and start a TCP server on a specific port number. For example, lets use port 3000.

1. Disassociate from the current network
 - ▶ *at+wd*
2. Enable DHCP: *AT+NDHCP=<disable=0/enable=1>*
 - ▶ *at+ndhcp=1*
3. Associate to an access point: *AT+WA=<SSID>[,<BSSID>][,<Ch>]]*
 - ▶ *at+wa=DexterIndustries,,6*
4. Start a TCP client: *AT+NCTCP=<Dest-Address>,<Port>*
 - ▶ *at+nctcp=192.168.3.101,3000*

Upon successful connection to the TCP server, you will see a “CONNECT <CID>” message, where CID is the newly allocated connection identifier.

2.2.2 Auto Connect Mode

Before you start, have a PC connect to the GainSpanDemoAP and start a TCP server on a specific port number. For example, let's use port 3000.

1. Disassociate from the current network
 - ▶ `at+wd`
2. Enable DHCP: `AT+NDHCP=<disable=0/enable=1>`
 - ▶ `at+ndhcp=1`
3. Set the UART communication parameter:
`ATB=<baudrate>[[,<bitsperchar>],[,<parity>]][,<stopbits>]]`
 - ▶ `atb=9600,8,n,2`
4. Enable hardware flow control: `AT&R<disable=0/enable=1>`
 - ▶ `at&r1`
5. Set the auto connection wireless parameters for the AP profile:
`AT+WAUTO=<mode: Infrastructure=0, Ad-hoc=1>,<ssid>,<bssid>,[channel]`
 - ▶ `at+wauto=0,DexterIndustries,,6`
6. Set the network parameters for auto connection operation for the current profile:
`AT+NAUTO=<client=0/server=1>,<udp=0/tcp=1>,<destination IP>,<destination port>`
 - ▶ `at+nauto=0,1,192.168.3.101,3000`
7. Enable auto connection: `ATC<enable=1/disable=0>`
 - ▶ `atc1`
8. Save the current profile: `AT&W<profile0=0/profile1=1>`
 - ▶ `at&w0`
9. Select the default profile: `AT&Y<profile0=0/profile1=1>`
 - ▶ `at&y0`
10. Power off the Dexter Industries DIWIFI Sensor.
11. Power on the DIWIFI sensor. The board is now in auto-connect mode where it will associate with **the internet**, obtain an IP address using DHCP, and connect to the TCP server at 192.168.3.101 on port 3000. If connection to the server is successful, you will see “CONNECT <CID>” followed by “you’ve connected” message. Anything you type in TeraTerm will be received by the TCP server. Here’s an example:
12. To exit out of the auto connection mode, enter the “+++” command, and wait for 1 second. After 1 second, the DIWIFI sensor will exit auto connect mode and enters command mode. Note, do not issue the “enter” key after “+++”.
 - ▶ `+++`

3 HTTP GET

This section describes the steps to perform a HTTP GET command using the DIWIFI sensor stack.

3.1 Command Mode

1. Disassociate from the current network
 - ▶ `at+wd`
2. Enable DHCP
 - ▶ `at+ndhcp=1`
3. Perform network scan
 - ▶ `at+ws`
4. If AP security is open, then skip this step. If AP is using WPA-PSK/TKIP, then set the WPA passphrase with the following command:
 - ▶ `at+wwpa=<WPA-PASSWORD>`
5. Associate to a specified SSID, BSSID, and channel. `at+wa=<SSID>,<BSSID>,<CHANNEL>`
 - ▶ `at+wa=DexterIndustries,,6`
6. Query DNS server for the IP address of hostname URL
 - ▶ `at+dnslookup=www.dexterindustries.com`
7. Configure the HTTP header parameter “GSN_HTTP_HEADER_USER_AGENT”
 - ▶ `at+httpconf=20,User-Agent: Mozilla/5.0 (Windows; U; Windows NT 5.1; en-US; rv:1.9.1.9) Gecko/20100315 Firefox/3.5.9`
8. Configure the HTTP header connection parameter “GSN_HTTP_HEADER_CONNECTION”. If it is a one-time HTTP GET, set the parameter to “close”
 - ▶ `at+httpconf=3, close`
 - If user wants to do consecutive HTTP GET on the same CID, and given that a server do keep the connection open after HTTP GET is complete, set the parameter to “keep alive”
 - ▶ `at+httpconf=3, keep-alive`
9. Configure the HTTP header host parameter “GSN_HTTP_HEADER_HOST”
 - ▶ `at+httpconf=11,76.12.140.77`
10. Open HTTP client connection. This will return a unique CID.
 - ▶ `at+httpopen=76.12.140.77`
11. Send HTTP request to the server using the CID from the previous step
 - `at+httpsend=<CID>, <type: get=1, post=3>, <timeout>, <page>[,size of the content]`
 - ▶ `at+httpsend=0,1,10,/`

3.2 Auto connect mode

1. Disassociate from the current network
 - ▶ `at+wd`
2. Enable DHCP
 - ▶ `at+ndhcp=1`
3. Perform network scan
 - ▶ `at+ws`

4. If AP security is open, then skip this step. If AP is using WPA-PSK/TKIP, then set the WPA passphrase with the following command:
 - ▶ `at+wwpa=<WPA-PASSWORD>`
5. Set the Auto connection wireless parameters with the command:
`at+wauto=<MODE>,<SSID>,<BSSID>,<CHANNEL>`
 - ▶ `at+wauto=0,DexterIndustries,,6`
6. Enable auto connection: `ATC<enable=1/disable=0>`
 - ▶ `atc1`
7. Save the current profile: `AT&W<profile0=0/profile1=1>`
 - ▶ `at&w0`
8. Select the default profile: `AT&Y<profile0=0/profile1=1>`
 - ▶ `at&y0`
9. Power off the Evaluation Board
10. Power on the Evaluation Board. The board is now in auto-connect mode where it will associate with the internet, and obtain an IP address using DHCP.
11. Switch to command mode
 - ▶ `+++`
12. Query DNS server for the IP address of hostname URL
 - ▶ `at+dnslookup=www.dexterindustries.com`
13. Configure the HTTP header parameter “GSN_HTTP_HEADER_USER_AGENT”
 - ▶ `at+httpconf=20,User-Agent: Mozilla/5.0 (Windows; U; Windows NT 5.1; en-US; rv:1.9.1.9) Gecko/20100315 Firefox/3.5.9`
14. Configure the HTTP header connection parameter “GSN_HTTP_HEADER_CONNECTION”. If it is a one-time HTTP GET, set the parameter to “close”
 - ▶ `at+httpconf=3, close`
 - If user wants to do consecutive HTTP GET on the same CID, and given that a server do keep the connection open after HTTP GET is complete, set the parameter to “keep alive”
 - ▶ `at+httpconf=3, keep-alive`
15. Configure the HTTP header host parameter “GSN_HTTP_HEADER_HOST”
 - ▶ `at+httpconf=11,76.12.140.77`
16. Open HTTP client connection. This will return a unique CID.
 - ▶ `at+httpopen=76.12.140.77`
17. Send HTTP request to the server using the CID from the previous step
`at+httpsend=<CID>, <type: get=1, post=3>, <timeout>, <page>[,size of the content]`
 - ▶ `at+httpsend=0,1,10,/`

3.3 Using consecutive CID

If the HTTP server close the connection after the HTTP GET is complete, then user must issue a HTTP OPEN prior to every HTTP GET. DexterIndustries.com is an example of such server.

3.3.1 Example 1: Gainspan.com

```
at+wd
at+ndhcp=1
at+wa= DexterIndustries,,6
```

```
at+dnslookup=www.dexterindustries.com
at+httpconf=20,User-Agent: Mozilla/5.0 (Windows; U; Windows NT 5.1; en-US; rv:1.9.1.9)
Gecko/20100315 Firefox/3.5.9
at+httpconf=3, keep-alive
at+httpconf=11,76.12.140.77
at+httpopen=76.12.140.77          ← This returned CID=0
at+httpsend=0,1,10,/
at+httpopen=76.12.140.77          ← This returned CID=1
at+httpsend=1,1,10,/
at+httpopen=76.12.140.77          ← This returned CID=2
at+httpsend=2,1,10,/
```

3.4 Using same CID

If the HTTP server keeps the connection open after HTTP GET is complete, then user can issue consecutive HTTP GET using the same CID. Google.com is an example of such server.

3.4.1 Example 1: Google.com

```
at+wd
at+ndhcp=1
at+wa=DexterIndustries,,6
at+dnslookup=www.google.com
at+httpconf=20,User-Agent: Mozilla/5.0 (Windows; U; Windows NT 5.1; en-US; rv:1.9.1.9)
Gecko/20100315 Firefox/3.5.9
at+httpconf=3, keep-alive
at+httpconf=11,72.14.234.104
at+httpopen=72.14.234.104        ← This returned CID=0
at+httpsend=0,1,10,/
at+httpsend=0,1,10,/
at+httpsend=0,1,10,/
```

3.4.2 Example 2 : Google.com

1. Associate with AP
AT+NDHCP=1
AT+WWPA=password
AT+WA=DexterIndustries,,01
2. Start TCP Client to Google's IP and port 80
AT+NCTCP=72.14.234.104,80
3. Send data to remote server by using the <ESC>S sequence and the CID number:
Enter the [ESC] key
Enter the [S] key
Enter the [CID number from step 3]
4. Copy the highlighted text (the new line should also be copied), and paste it on Tera Term (via the "Edit" menu, choose "Paste" Option)
GET / HTTP/1.1

```
User-Agent: Mozilla/5.0 (Windows; U; Windows NT 5.1; en-US; rv:1.9.1.9) Gecko/20100315  
Firefox/3.5.9  
Host: 72.14.234.104:80  
Accept: */*  
Connection: keep-alive  
[new line]  
[new line]
```

5. Indicate end of transmission by using the <ESC>E sequence:
Enter the [ESC] key
Enter the [E] key
6. The output of HTTP GET will now be displayed as output on the NXT. Since Google's HTTP server keeps the connection open, to issue another HTTP GET, just repeat step 4-6.

3.4.3 Example 3: Pachube.com

1. Associate with AP
AT+NDHCP=1
AT+WPA=password
AT+WA=DexterIndustries,,01
2. Start TCP Client to Pachube.com's IP and port 80
AT+NCTCP= 173.203.98.29,80
3. Send data to remote server by using the <ESC>S sequence and the CID number:
Send the [ESC] key
Send the [S] key
Send the [CID number from step 3]
4. Copy the highlighted text (the new line should also be copied), and paste it on Tera Term (via the "Edit" menu, choose "Paste" Option)
GET /v2/feeds/11366.csv HTTP/1.1
User-Agent: curl/7.19.5 (i486-pc-linux-gnu) libcurl/7.19.5 OpenSSL/0.9.8g zlib/1.2.3.3
libidn/1.15
Host: api.pachube.com
Accept: */*
X-PachubeApiKey:
103338a658c84debc9d4d0609362056882b6ccea312d3de7fbde57e592630007
Connection: keep-alive
[new line]
[new line]
5. Indicate end of transmission by using the <ESC>E sequence:
Enter the [ESC] key
Enter the [E] key
6. The output of HTTP GET will now be displayed as output on TeraTerm. To issue another HTTP GET, just repeat step 4-6.

4 HTTP PUT

This section describes the steps to perform a HTTP PUT command using the Dexter Industries DIWIFI sensor stack.

4.1 Example: Posting to Pachube.com

1. Associate with AP
AT+NDHCP=1
AT+WPA=password
AT+WA=DexterIndustries,,01
2. Start TCP Client to Pachube's IP and port 80
AT+NCTCP=173.203.98.29,80
3. Send data to remote server by using the <ESC>S sequence and the CID number:
Enter the [ESC] key
Enter the [S] key
Enter the [CID number from step 3]
4. Copy the highlighted text, and paste it on Tera Term (via the "Edit" menu, choose "Paste" Option)
PUT /v2/feeds/11366.csv HTTP/1.1
User-Agent: curl/7.19.5 (i486-pc-linux-gnu) libcurl/7.19.5 OpenSSL/0.9.8g zlib/1.2.3.3
libidn/1.15
Host: api.pachube.com
Accept: */*
X-PachubeApiKey:
103338a658c84debc9d4d0609362056882b6ccaa312d3de7fbde57e592630007
Content-Length: 4
Content-Type: application/x-www-form-urlencoded

1,44
5. Indicate end of transmission by using the <ESC>E sequence:
Enter the [ESC] key
Enter the [E] key
6. You should now see the data "1,44" on <http://pachube.com/feeds/11366>
7. Close current connection:
AT+NCLOSE=0
8. Start a connection to Pachube's IP and port 80
AT+NCTCP=173.203.98.29,80
9. Send data to remote server by using the <ESC>S sequence and the CID number:
Enter the [ESC] [S][CID number from step 9]
10. Copy the highlighted text, and paste it on Tera Term (via the "Edit" menu, choose "Paste" Option)
PUT /v2/feeds/11366.csv HTTP/1.1
User-Agent: curl/7.19.5 (i486-pc-linux-gnu) libcurl/7.19.5 OpenSSL/0.9.8g zlib/1.2.3.3
libidn/1.15
Host: api.pachube.com
Accept: */*

X-PachubeApiKey:
103338a658c84debc9d4d0609362056882b6ccaa312d3de7fbde57e592630007
Content-Length: 4
Content-Type: application/x-www-form-urlencoded

0,19

11. Indicate end of transmission by using the <ESC>E sequence:
Enter the [ESC] key
Enter the [E] key
12. You should now see the data “0,19” on <http://pachube.com/feeds/11366>
13. To post another set of data points to Pachube, just repeat step 8-12

5 HTTP POST

Lets HTTP POST to the HTTP server. The following assumption is made:

- HTTP Server address = 192.168.3.101
- HTTP server web page = <http://192.168.3.101/html/sample1.html>
- The post contains exactly 28 bytes

5.1 HTTP get on port 80

```
at+ndhcp=1
at+wa=DexterIndustries,,6
at+httpopen=192.168.3.101
at+httpconf=20,User-Agent: Mozilla/5.0 (Windows; U; Windows NT 5.1; en-US; rv:1.9.1.9)
Gecko/20100315 Firefox/3.5.9
at+httpconf=11,192.168.3.101
at+httpconf=3, keep-alive
at+httpsend=0,1,10,/html/sample.html
```

5.2 HTTP post on port 80

```
at+ndhcp=1
at+wa=DexterIndustries,,6
at+httpopen=192.168.3.101
at+httpconf=0,image/gif, image/x-xbitmap, image/jpeg, image/pjpeg, application/x-shockwave-flash,
application/vnd.ms-excel, application/vnd.ms-powerpoint, application/msword, application/x-ms-
application, application/x-ms-xbap, application/vnd.ms-xpsdocument, application/xaml+xml, application/x-
silverlight, */*
at+httpconf=20,Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.1; SV1; .NET CLR 2.0.50727; .NET
CLR 3.0.04506.648; .NET CLR 3.5.21022; OfficeLiveConnector.1.3; OfficeLivePatch.0.0)
at+httpconf=7,application/x-www-form-urlencoded
at+httpconf=11,192.168.3.101
at+httpconf=2,gzip,deflate
at+httpconf=17,http://192.168.3.101/html/sample1.html
at+httpconf=5,28
at+httpconf=3,Keep-Alive
at+httpsend=0,3,20,/html/welcome.php,28
[Send ESC key]
[Send Shift H key]
[Send CID number]
Send the 28 byte text here.
```

5.3 HTTP get on port 3000

```
at+ndhcp=1
at+wa=DexterIndustries,,6
at+httpopen=192.168.3.101,3000
at+httpconf=20,User-Agent: Mozilla/5.0 (Windows; U; Windows NT 5.1; en-US; rv:1.9.1.9)
Gecko/20100315 Firefox/3.5.9
at+httpconf=11,192.168.3.101
at+httpconf=3, keep-alive
at+httpsend=0,1,10,/html/sample.html
```

5.4 HTTP post on port 3000

```
at+ndhcp=1
at+wa=DexterIndustries,,6
at+httpopen=192.168.3.101,3000
at+httpconf=20,Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.1; SV1; .NET CLR 2.0.50727; .NET
CLR 3.0.04506.648; .NET CLR 3.5.21022; OfficeLiveConnector.1.3; OfficeLivePatch.0.0)
at+httpconf=7,application/x-www-form-urlencoded
at+httpconf=11,192.168.3.101
at+httpconf=2,gzip,deflate
at+httpconf=17,http://192.168.3.101/html/sample1.html
at+httpconf=5,28
at+httpconf=3,Close
at+httpsend=0,3,20,/html/welcome.php,28
[Send ESC key]
[Send Shift H key]
[Send the CID number]
Send the 28 bytes of your communication.
```

Want more information? Visit our website for the DI Wifi sensor for LEGO MINDSTORMS NXT here:
<http://www.dexterindustries.com/wifi.html>

And visit the wiki for the wifi sensor here:
<http://dexterindustries.com/manual/wifi>