<table>
<thead>
<tr>
<th>AT Command</th>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT+i</td>
<td>Command prefix</td>
<td>Required to precede all commands</td>
</tr>
<tr>
<td>FD</td>
<td>Factory Defaults</td>
<td>Restore Device</td>
</tr>
<tr>
<td>UP</td>
<td>Connect to Internet</td>
<td></td>
</tr>
<tr>
<td>Down</td>
<td>Reset</td>
<td></td>
</tr>
<tr>
<td>En</td>
<td>Echo Mode</td>
<td>n=0 no echo n=1 Echo all</td>
</tr>
<tr>
<td>MACA</td>
<td>Return MAC address</td>
<td></td>
</tr>
<tr>
<td>IPA</td>
<td>Get IP</td>
<td>?</td>
</tr>
<tr>
<td>IPG</td>
<td>Get Gateway</td>
<td>?</td>
</tr>
<tr>
<td>SNET</td>
<td>Get Subnet Mask</td>
<td>?</td>
</tr>
<tr>
<td>WWW</td>
<td>Start Web Server</td>
<td></td>
</tr>
</tbody>
</table>

Socket connection use something called handles(<hn>) these are used to identify each client connection connected to the server. The connections are assigned a handle when they connect the handles start at 000 and increment up 001,002,....

<sz> is the exact size of the byte string in char. So if you would like to send “HELLO\n” this would require a size of 5.

[%] cause the flush of the TCP buffer after the stream is sent. You can omit this in the ssnd command but you must then flush the buffer manually using: AT+iSFSH%:<hn>

<table>
<thead>
<tr>
<th>Addition Commands Used for Sockets</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>StCP</td>
<td>Connect to TCP Server (Client) :host,port</td>
</tr>
<tr>
<td>LTCP</td>
<td>Open TCP listening Socket(Server) :port,#ofConnections</td>
</tr>
<tr>
<td>LSST</td>
<td>Get List of Connection Handles :10 or your &lt;hn&gt;</td>
</tr>
<tr>
<td>Ssnd%</td>
<td>Send byte string :&lt;hn&gt;&lt;sz&gt;:stream</td>
</tr>
<tr>
<td>SRCV</td>
<td>Receive Byte String :&lt;hn&gt;</td>
</tr>
<tr>
<td>SCLS</td>
<td>Clear Screen :&lt;hn&gt;</td>
</tr>
</tbody>
</table>

**Response String**

<table>
<thead>
<tr>
<th>Denotation</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>I/OK</td>
<td>Command was successfully executed.</td>
</tr>
<tr>
<td>I/BUSY</td>
<td>iChip busy. Command discarded.</td>
</tr>
<tr>
<td>I/DONE</td>
<td>iChip completed Internet activity; returned to command mode, or entered SerialNET mode.</td>
</tr>
<tr>
<td>I/ONLINE</td>
<td>iChip completed Internet activity and returned to command mode, or entered SerialNET mode. iChip</td>
</tr>
</tbody>
</table>
issues this response when it has remained online as a result of the stay online flag (!) or as a result of the web server being online.

I/OFFLINE
iChip in LAN mode entered SerialNET Always Online mode but failed to detect a LAN link at time of entry.

I/RCV
Marks beginning of e-mail retrieve mode, with XFH=1. iChip does not respond to any commands, except for (+++) (Break).

I/PART
Marks beginning of MIME attachment part.

I/EOP
Marks end of MIME attachment part.

I/EOM
Marks end of e-mail message during retrieve.

I/MBE
This flag is returned when attempting to retrieve mail from an empty mailbox.

I/UPDATE
iChip is downloading a new firmware version. Allow up to 5 minutes to complete.

I/ERROR(nnn) nnn
Command error encountered. Command discarded.

41 Illegal delimiter
42 Illegal value
43 CR expected
44 Number expected
45 CR or ‘,’ expected
46 DNS expected
47 ‘;’ or ‘~’ expected
48 String expected
49 ‘;’ or ‘=’ expected
50 Text expected
51 Syntax error
52 ‘,’ expected
53 Illegal command code
54 Error when setting parameter
55 Error when getting parameter value
56 User abort
57 Error when trying to establish PPP
58 Error when trying to establish SMTP
59 Error when trying to establish POP3
60 Single session SMTP
61 Internal memory failure
62 User aborted the system
63 ~CTSH needs to be LOW to change to hardware flow control.
64 User aborted last command using ‘---’
65 RESERVED
66 RESERVED
67 Command ignored as irrelevant
68 iChip serial number already exists
69 Timeout on host communication
70 Modem failed to respond
71 No dial tone response
72 No carrier modem response
73 Dial failed
74 Modem connection with ISP lost -or- LAN connection lost -or- WLAN connection lost
75 Access denied to ISP server
76 Unable to locate POP3 server
77 POP3 server timed out
78 Access denied to POP3 server
79 POP3 failed
80 No suitable message in mailbox
Unable to locate SMTP server

SMTP server timed out