Inventek Systems
Embedding Connectivity Everywhere

eS-WiFi Module
Axeda Cloud AT Commands

User Manual

Axeda AT Commands User Manual
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1. Introduction

1.1 Scope
The scope of this document is to introduce users to Inventek System's AT Command Set for the eS-WiFi Module product, and to explain how to take advantage of the AT Command Set for WiFi Communications.

1.2 AT Command Usage in the User Manual is shown as
Usage: < AT Command > < optional '=' > < data if '=' is used > < Carriage Return (CR) >

or

< AT Command > < CR >

And default values are show as

Default: <AT Command>=<Value>

1.2.1 Entering AT Commands
As mentioned above, it is common practice to drop the 'AT' in front of a device control command and just use the device control function command letters and number combinations. Inventek System has adopted this method for controlling the functions of the eS-WiFi module. In addition, Inventek System has added an '=' to the command to delimit the command from its data. For example, the AT Command to set the eS-WiFi module's IP Address would be 'C6=127.0.0.1' instead of 'ATC6=127.0.0.1.

Also, a number of AT Commands for the eS-WiFi module only use a single letter or a single letter plus number to execute the command. For instance, '?' will return available help information on the eS-WiFi module. While a 'C0' command would command the eS-WiFi module to joined a network.

The format for entering AT Commands is shown as follows:

< AT Command > < optional '=' > < data if '=' is used > < Carriage Return (CR) >

or

< AT Command > < CR >

All AT Commands must be followed by a <CR> to activate the command.

Empty string values for AT Commands are shown with 'NONE' in the User Manual.

The

Supported character sets:

Currently, the eS-WiFi module only supports 8 bit ASCII. All AT Commands must be in capital letters; however, data can contain both upper and letter case letters, and numbers.

Future support for binary data transfers to be added.

1.2.2 eS-WiFi Command Formats

Command Formats

Command	Delimiter	Payload	Delimeter
2 Char CMD	=	Req Data	\r[1]
2 Char CMD	=	F1,F2,F3[2]	\r[1]
2 Char CMD	\r[1]		

Response Formats

Delimeter	Payload	Delimeter	Return	Delimeter	Prompt
\r\n[1]	Data	\r\n[1]	OK	\r\n[1]	>sp[3]
\r\n[1]	Error Type	\r\n[1]	Usage	\r\n[1]	>sp[3]

S0 Format

Command	Delimiter	Payload
S0	\r[1]	Binary Data
		(1-1460 bytes)

Note 1: \r = Carriage Return, \n=New   Line 2: F1,F2,F3 refer separate data fields.   3: sp =space

2 Hardware Interface and Module Operation

The eS-WiFi module supports RS-232 Serial Communications Universal Serial Bus (USB), and Serial Peripheral Interface Bus (SPI). A Micro-Controller or System Host can easily interface to the eS-WiFi module using one of the support hardware interfaces.

The eS-WiFi module has two modes of operation: Human Readable Mode and Machine Readable Mode.

2.1 RS-232 Serial Communication

2.1.1 Data Mode

When the eS-WiFi module is interfaced serially, the serial interface needs to be configured for 8 bit data, no parity, and one stop bit -- (8-n-1).

2.1.2 Flow Control

The eS-WiFi module doesn't require or support Flow Control, so Flow Control should be 'None'

2.1.3 Supported Baud Rates

The eS-WiFi module supports the following serial baud rates:

Basic Rates: 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, 230400, 460800, 921600, 1152000, 1382400, 1612800, 1834200, 2073600

2.1.2 Default Serial Configuration

The eS-WiFi module is shipped with the default serial configuration of 115200 baud, 8 data bits, no party, and 1 stop bits.

2.2 USB (Universal Serial Bus)

The eS-WiFi module supports USB (Contact Inventek for firmware)

2.3 SPI (Serial Peripheral Interface Bus)

The eS-WiFi module supports SPI (Contact Inventek for firmware)

3. Axeda AT Command Set Version 0.0

3.1 Axeda AT Command Set List of Supported Functions

AT Command	Description
K1	**Setup and Register to Axeda Cloud Server**
K2	**Queue Actions and Send to Axeda Cloud Server**
K3	**Ping Axeda Cloud Server for Messages**
KA	**Run Axeda Cloud Demo**

Table 3.1: AT Command Set List

4. AT Command Detail Description

4.1 'K1' Setup and Register to Axeda Cloud Server

Sets the Axeda Cloud parameters

Usage: K1=<Host>,<Port>,<Model>,<Serial Number><CR>

Parameter	Description
Host	**Axeda Cloud Server ex. dev6-connect.axeda.com**
Port	**TCP Port Number**
Model	**Model name registered with Axeda**
Serial Number (50 Chars)	**Unique serial number ex. Module serial from ZS command**

Return current Axeda Cloud parameters

Usage: K1=?<CR>

	Responses
| **1** | ```
> K1=?
dev6-connect.axeda.com,10101,Inventek,00370037-33324716-
00000000,0,15
OK
>
``` |

Register with Axeda Cloud

Usage: K1<CR>

Return the number of bytes sent.

	Responses
| **1** | ```
> K1
168
OK
>
``` |

4.2 'K2' Queue Action and Send to Axeda Cloud Server

Queue and Send specific action item.

Usage: K2=<Action>,<Action specific data><CR>

Actions:

Value	Action	Arg1	Arg2	Arg3
0	Alarm	Name	Description	Severity
1	Data	Name	Type	Value
2	Event	Name	Description	NA
3	Location	Latitude	Longitude	Altitude

	Responses

Alarm	`> K2=0,Temperature,Over Limit,100`
	`379`
	`OK`
	`>`

Data	`> K2=1,Temperature,1,224`
	`288`
	`OK`
	`>`

Event	`> K2=2,Monitoring,Started"`
	`291`
	`OK`
	`>`

Location	`> K2=3,42.557399,-71.299377,250`
	`306`
	`OK`
	`>`

Default Value: None

4.3 'K3' Ping Axeda Cloud Server for Messages

Ping the Axeda Cloud Server for any outstanding messages. That is any message that have occurred since the last action has been sent

Usage: K3<CR>

Default Value: None

4.4 'KA' Run Axeda Cloud Demo

Runs the included Axeda Cloud demo
Usage: KA=<Delay>,<Temperature Limit>,<Count>

Default Value: None

Parameter	Description
Delay	**Delay in second between Temperature readings**
Temperature Limit	**°C x 10** **Ex. 22.3°C x 10 = 223**
Count	**The number of temperature reading to take.** **Range : -1,1 - 2,147,483,647** **A -1 will set 2,147,483,647**

Responses
| ```
> KA=15,300,5
Axeda Thermostat Cloud Demo:
Reporting cycle:       15 seconds
Temperature Limit High: 37.0 °C
Temperature Set High:   32.0 °C
Temperature Set Point:  30.0 °C
Temperature Set Low:    28.0 °C
Temperature Limit Low:  23.0 °C
Cycle limit:            5 cycle(s)
Time:                   Axeda Server Time

[DEMO   ] Registering, SN: 00370037-33324716-37313731
168
[DEMO   ] Location, Lat: 42.557399  Lon: -71.299377
306
[DEMO   ] Event, Monitoring, Started
289
[DEMO   ] Data, Time: 0000000052s Set Point:   300 (30.0°C/86.0°F)
286
[DEMO   ] Data, Time: 0000000052s Temperature: 251 (25.1°C/77.3°F) RC: 0
288
``` |

5. Document Revision History

Date	Name	Description	Revision	File Name
05/02/2014	SEP	Initial Creation	0.0	AT Command Set.docx
06/03/2014	SEP	Updated and added added KA command	1.0	Axeda_AT_Command_DOC_UM20077-1.0.docx

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