TOPSCCC TECHNOLOGY CO., LTD.
5F., NO.12, LANE 345, YANGGUANG ST.
114 NEIHU, TAIPEI
TAIWAN
Tel: +88 62 27999080
Fax: +88 62 26585042
info@topsccc.com

AT+i Command Set for DTU Series EX-9332D-Z/EX-9333D-Z

<Version 1.00>

Date: 7/30/2011

5F., NO.12, LANE 345, YANGGUANG ST.
114 NEIHU, TAIPEI
TAIWAN
Tel: +88 62 27999080
Fax: +88 62 26585042
info@topsccc.com

Revision History

Version	Date	Comments	Author
1.00	2011-07-30	Initial Release Version	Takaku

5F., NO.12, LANE 345, YANGGUANG ST.
114 NEIHU, TAIPEI
TAIWAN
Tel: +88 62 27999080
Fax: +88 62 26585042
info@topsccc.com

Important Notice

Due to the nature of wireless communications, transmission and reception of data can never be guaranteed. Data may be delayed, corrupted (i.e., have errors) or be totally lost. Although significant delays or losses of data are rare when wireless devices such as this device are used in a normal manner with well-constructed network, this device should not be used in situations where failure to transmit or receive data could result in damage of any kind to the user or any other party, including but not limited to personal injury, death, or loss of property. This device accepts no responsibility for damages of any kind resulting from delays or errors in data transmission, or for failure of this device to transmit or receive such data.

Safety and Hazards

Do not operate this device in areas where blasting is in progress, where explosive atmospheres may be present, near medical equipment, near life support equipment, or any equipment which may be susceptible to any form of radio interference. In such areas, this device MUST BE POWERED OFF. This device can transmit signals that could interfere with this equipment. Do not operate this device in any aircraft, whether the aircraft is on the ground or in flight and it MUST BE POWERED OFF when in an aircraft. When operating, this device can transmit signals that could interfere with various onboard systems.

Note: Some airlines may permit the use of cellular phones while the aircraft is on the ground and the door is opened.

The driver or operator of any vehicle should not operate this device while in control of a vehicle. Doing so will detract from the driver or operator's control and operation of that vehicle. In some states and provinces, operating such communications devices while in control of a vehicle is an offence.

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114 NEIHU, TAIPEI
TAIWAN
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Contents

Overview

DTU (M2M Device) is used for serial port device to transmit data transparently. The document describes how to the AT+i command set for using DTU. The aim is to help user easy and quick to test, use and disposition the DTU.

> ***Note: Though all features are documented here, new features may still be in beta stage at publication and therefore may not yet be validated. Please refer to the Customer Release Note for complete and detailed information regarding beta and validated features at time of release.***

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info@topsccc.com

General Format

AT+i<cc>[<del>[<parameter>]…]<CR>

<cc> (or <par>)	*2-4 letter command code (<cc>) or parameter name (<par>)*
<del>	*Delimiter: '=', '~', '?', ':', ','*
<parameter>	*Optional parameter or data. If <parameter> contents includes a <del>, as defined above, it must be enclosed in single (') or double (") quotes. The terminating <CR> is considered as a terminating quote as well.*
<CR>	*Carriage-Return Line terminator (ASCII 0x0D)*

Nonvolatile Parameter Database

AT+iPARS Store all Parameter Updates to Nonvolatile Database

Store all parameter value updates, currently in memory, to the nonvolatile parameter database. (Parameter values are updated with AT+i assignment commands: AT+i<param>=<value>). Following this command, all current value updates will become permanent and shall retain their value after device is powered off.

Syntax

Exec Command
AT+IPARS
Response(s)
I/OK

AT+iPARD Drop all Parameter Updates Currently in Memory

All parameter value updates, currently in memory, are dropped. Following this command, all parameters shall revert to the valued stored in the nonvolatile database.

Syntax

Exec Command
AT+IPARD
I/OK

5F., NO.12, LANE 345, YANGGUANG ST.
114 NEIHU, TAIPEI□
TAIWAN
Tel: +88 62 27999080
Fax: +88 62 26585042
info@topsccc.com

ISP Command

AT+iMIS Modem Initialization String

Permanently set the Modem Initialization String.

Syntax

Read Command
AT+IMIS?
Response(s)
<str> I/OK

Write Command
AT+IMIS=<str>[;<str>…]
Response(s)
I/OK

Parameter Description

<str>	Modem initialization string.

Sample

AT+IMIS="AT+CGDCONG=1,\"IP\",\"INTERNET\"" I/OK
AT+IMIS? AT+CGDCONG=1,\"IP\",\"INTERNET\" I/OK

AT+iISPn Set ISP Phone Number

Permanently set the ISP's access phone numbers.

Syntax

Read Command
AT+IIPS<n>?
Response(s)
<num> I/OK

Write Command
AT+IISP<n>=<num>
Response(s)
I/OK

Parameter Description

<n>	1..2
<num>	Telephone number string, composed of digits, ',', '-', 'W', 'w', '*', '#', '!' or ' '. See description of the standard ATD command. Note: If a character that is defined as a Delimiter is used within the dial string, the string must be entered between apostrophes.

Sample

AT+IISP1=*99***1# I/OK
AT+IISP1? *99***1# I/OK

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114 NEIHU, TAIPEI□
TAIWAN
Tel: +88 62 27999080
Fax: +88 62 26585042
info@topsccc.com

AT+IISP2=*99#

I/OK

AT+iATH Set PPP Authentication Method

Permanently set Authentication method.

Syntax

Read Command
AT+IATH?
Response(s)
<n> I/OK

Write Command
AT+IATH=<n>
Response(s)
I/OK

Parameter Description

<n>	1	Use PAP authentication. (Default)
	2	Use CHAP authentication.

Sample

AT+IATH=1 I/OK
AT+IATH? 1 I/OK

AT+iUSRN Define Connection User Name

Permanently set connection User Name.

Syntax

Read Command
AT+IUSRN?
Response(s)
<user> I/OK

Write Command
AT+IUSRN=<user>
Response(s)
I/OK

Parameter Description

<user>	User name used to login to the ISP.

Sample

AT+IUSRN=”” I/OK
AT+IUSRN? I/OK
AT+IUSRN=wap I/OK
AT+IUSRN? wap I/OK

AT+iPWD Define Connection Password

Permanently set connection password.

Syntax

Read Command
AT+IPWD?
Response(s)
<pass> I/OK

Write Command
AT+IPWD=<pass>
Response(s)
I/OK

Parameter Description

<pass>	Password to be used when logging on to the ISP.

Sample

AT+IPWD=”” I/OK
AT+IPWD? I/OK
AT+IPWD=wap I/OK
AT+IPWD? *** I/OK

AT+iDNSn Define Domain Name Server IP Address

Permanently set the Domain Name Server IP Address.

Syntax

Read Command
AT+IDNS<n>?
Response(s)
<ip> I/OK

Write Command
AT+IDNS<n>=<ip>
Response(s)
I/OK

Parameter Description

<n>	1..2
<ip>	IP address. Will be used to communicate to the Domain Name Server on the Internet. 0.0.0.0 Empty. No DNS defined. The DNS must be defined ad-hoc. Device will retrieve a DNS IP to an empty DNS from the ISP, if the ISP supports RFC 1877 (PPP Extensions for Name Server Addresses). (Default)

Sample

AT+IDNS1=8.8.8.8 **I/OK**
AT+IDNS1? **8.8.8.8** **I/OK**
AT+IDNS2=4.4.4.4

I/OK

SerialNET Mode

AT+iSTYP SerialNET Device Socket Type

Permanently set SerialNET socket type.

Syntax

Read Command
AT+ISTYP?
Response(s)
<n> I/OK

Write Command
AT+ISTYP=<n>
Response(s)
I/OK

Parameter Description

<n>	0	TCP (Default)
	1	UDP

Sample

AT+ISTYP=1 I/OK
AT+ISTYP? 1 I/OK

AT+iTUP Triggered Internet Session Initiation

Enter triggered Internet session initiation mode.

Syntax

Read Command
AT+ITUP?
Response(s)
<n> I/OK

Write Command
AT+ITUP=<n>
Response(s)
I/OK

Parameter Description

<n>	0	Disable triggered Internet session initiation mode.
	1	Enter triggered Internet session initiation mode. Upon receiving a H/W signal trigger (Modem RING) establish a PPP Internet connection. If any characters are received on the host port prior to receiving a H/W signal, device will exit this mode and function normally. In this case, to reinstate this mode, issue AT+iTUP=1 again, reset device by issuing the AT+iDOWN command or recycle power.
	2	Always online. Whenever device is offline, it will automatically attempt to establish a PPP Internet connection. Device will disregard this mode and remain offline if the host had issued the '+++' escape sequence. (Default)

5F., NO.12, LANE 345, YANGGUANG ST.
114 NEIHU, TAIPEI□
TAIWAN
Tel: +88 62 27999080
Fax: +88 62 26585042
info@topsccc.com

Sample

AT+ITUP=2 **I/OK**
AT+ITUP? **2** **I/OK**

AT+iIATO Inactivity Timeout

Permanently set maximum inactivity timeout in seconds to signal socket disconnection in SerialNET mode. When signaled, device will close the connected SerialNET communication socket.

Device will go offline following this event.

Syntax

Read Command
AT+IIATO?
Response(s)
<n> I/OK

Write Command
AT+IIATO=<n>
Response(s)
I/OK

Parameter Description

<n>	0	No timeout limit. (Default)
	1..32768	Number of seconds of inactivity, on a connected SerialNET socket, to signal socket disconnection.

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Sample

AT+IIATO=300 **I/OK**
AT+IIATO? **300** **I/OK**

AT+iHSRV Host Server Name/IP and Port

Permanently set the host server name or IP and port number to be used in SerialNET mode.

Syntax

Read Command
AT+IHSRV?
Response(s)
<ip>:<port> I/OK

Write Command
AT+IHSRV=<ip>:<port>
Response(s)
I/OK

Parameter Description

<ip>	A server name or IP address. Server names must be resolvable by the primary or alternate DNS.	
<port>	0..65535	Port

Sample

AT+IHSRV=202.39.224.7:80 I/OK
AT+IHSRV? 202.39.224.7:80 I/OK

AT+iLPRT SerialNET Device Listen Port

Permanently set the port number on which device will listen for client connections in SerialNET mode.

Syntax

Read Command
AT+ILPRT?
Response(s)
<port> I/OK

Write Command
AT+ILPRT=<port>
Response(s)
I/OK

Parameter Description

<port>	0	No port. (Default)
	1..65535	Port number for listening.

Sample

AT+ILPRT=1001 I/OK
AT+ILPRT? 1001 I/OK

AT+iSNMD Activate SerialNET Mode

Activate SerialNET mode.

Syntax

Exec Command
AT+i[!]SNMD
Response(s)
I/OK
I/DONE

Parameter Description

!	Optional “Auto-Link” mode. When this flag is specified, device will immediately go online when activating SerialNET mode (even when serial data has not yet arrived). If the LPRT (Listen Port) parameter is defined, device will open the listen port and await a connection. If LPRT is not defined, but HSRV (Host Server) is defined, device will immediately open a SerialNET socket link to the server.

Sample

```
AT+I!SNMD
I/OK
I/DONE
```

+++ Deactivate SerialNET Mode

While device is in Internet mode, attending to the Internet communications, it is possible to break into the data communications and abort the Internet mode in an orderly manner. This is achieved by sending uart a sequence of three ASCII '+' characters ('+++') after a half second silence period. In response to this, device will shut down the Internet communications, terminate data transmission to the host and respond with an 'I/ERROR(056)' message and return to command mode. A maximum delay of 10mSec may still exist from the time the '+++' escape sequence was transmitted until device cuts off the transmission to the host.

Syntax

Exec Command
+++
Response(s)
I/ERROR(056)

Direct Socket

AT+iUP Initiate Internet Session

Initiate an Internet session by going online and establishing a PPP Internet connection.

Syntax

Exec Command
AT+iUP
Response(s)
I/OK I/ONLINE

Sample

```
AT+IUP
I/OK
I/ONLINE
```

AT+iDOWN Terminate Internet Session

Terminate an ongoing Internet session, go offline, and return to Command mode. This command is useful following a command where the stay-online flag (!) was specified.

All open sockets shall be closed.

Device effectively executes a software reset.

Syntax

Exec Command
AT+iDOWN
Response(s)
I/OK
I/DONE

Sample

```
AT+IDOWM
I/OK
I/DONE
```

AT+iIPA Active IP Address

Report the active IP address.

Syntax

Read Command
AT+IIPA?
Response(s)
<ip> I/OK

Parameter Description

<ip>	The IP address of the device assigned by ISP.

Sample

```
AT+IIPA?
10.12.167.239
I/OK
```

Notes

The IP address is always 0.0.0.0 when the device is offline.

AT+iSTCP Open and Connect a TCP Socket

Open a TCP (Transmission Control Protocol) client socket and attempts to connect it to the specified <port> on a server defined by <host>.

Syntax

Exec Command
AT+iSTCP:<host>,<port>[,<lport>]
Response(s)
I/<sock handle>

Parameter Description

<host>	The server name may be any legal Internet-server name, which can be resolved by the device's DNS (Domain Name Server) settings. The server name may also be specified as an absolute IP address given in DOT form.
<port>	0..65535 It is assumed that the server system is "listening" on the specified port.
<lport>	May be optionally specified to force device to use lport as the local port when opening the TCP socket. If unspecified, device will allocate a port from its internal pool.
<sock handle>	Upon successfully opening and connecting the TCP socket to the <host>:<port>, a socket handle is returned. The socket handle <sock handle> is in the range 0..9 and is used to reference the socket in all following socket commands.

Sample

AT+ISTCP: 202.39.224.7,80 **I/000**
AT+ISTCP: 202.39.224.7,80,1025 **I/001**

Notes

Device uses port range [1025 .. 2048] when assigning default local ports. The host should refrain from specifying local ports in this range to ensure that Error 218 is not generated as a result of requesting local ports that overlap internal assignments.

AT+iSUDP Open a Connectionless UDP Socket

Open a UDP (User Datagram Protocol) socket and sets the remote system's <host>:<port> address.

Syntax

Exec Command
AT+iSUDP:<host>,<rport>[,<lport>]
Response(s)
I/<sock handle>

Parameter Description

<host>	The remote system's name may be any legal Internet server name, which may be resolved by the device's DNS (Domain Name Server) settings. The server name may also be specified as an absolute IP address given in DOT form. When the <host> is defined, the resulting UDP socket will be created and connected. If <host>='0.0.0.0', the socket is created but remains unconnected. The first UDP packet to arrive will automatically latch the senders IP port, in effect connecting the socket.
<rport>	Specifies the remote system's port.
<lport>	Specifies the local port to use. If unspecified, device will allocate a port from its internal pool.
<sock handle>	Upon successfully opening and connecting the UDP socket to the <host>:<port>, a socket handle is returned. The socket handle <sock handle> is in the range 0..9 and is used to reference the socket in all following socket commands.

5F., NO.12, LANE 345, YANGGUANG ST.
114 NEIHU, TAIPEI
TAIWAN
Tel: +88 62 27999080
Fax: +88 62 26585042
info@topsccc.com

Sample

AT+ISUDP: 202.39.224.7,80 **I/000**
AT+ISUDP: 202.39.224.7,80,1025 **I/001**

AT+iLTCP Open a TCP Listen Socket

Opens a TCP listen socket on the local IP address and the specified port <port>. <backlog> specifies the maximum number of remote concurrent connections allowed through the listen socket.

Syntax

Exec Command
AT+iLTCP:<port>,<backlog>
Response(s)
I/<sock handle>

Parameter Description

<port>	0..65535 Listening port to be used by a remote system when connecting to device.
<backlog>	1..10 Specifies the maximum number of active connections that may be concurrently established through the listen socket.
<sock handle>	Upon successfully opening a TCP listen socket, a socket handle is returned. The socket handle <sock handle> is in the range 10..11 and is used to reference the socket in all following socket commands.

5F., NO.12, LANE 345, YANGGUANG ST.
114 NEIHU, TAIPEI
TAIWAN
Tel: +88 62 27999080
Fax: +88 62 26585042
info@topsccc.com

Sample

```
AT+ILTCP:1026,6
I/010
```

Notes

Once the listen socket is open, it will automatically accept remote connect requests until the maximum allowed. When a remote system

connects through the listen socket, a new TCP socket is spawned internally and is ready to send and receive data. See the AT+iLSST command for details on retrieving the handles of active sockets connected through a listen socket. When a connected socket is closed, the listen socket will allow a new connection in its place.

AT+iLSST Get a Listen Socket's Active Connection Status

Retrieve handles of active socket connections, established through the listen socket identified by <hn>.

Syntax

Exec Command
AT+iLSST:<hn>
Response(s)
I/(<hn$_1$>,…,<hn$_{Backlog}$>)

Parameter Description

<hn>	10..11 A TCP listen socket handle of an open listen socket. Must have been obtained by a previous AT+iLTCP command during the current Internet session.	
<hn$_i$>	i=1..Backlog A list of active socket handles. The list shall contain <backlog> elements	
	>=0	A handle to an active connected socket
	-1	No connection has been established.
Backlog	Used when opening the listen socket identified by <hn>.	

Sample

AT+ILSST:10
I/(-1,-1,-1,-1,-1,-1)

AT+iSST Get a Single Socket Status Report

Retrieve a socket status report for a single socket.

Syntax

Exec Command
AT+iSST:<hn>
Response(s)
I/(<sockstat>)

Parameter Description

<hn>	A TCP/UDP socket handle of an opened socket. Must have been obtained by a previous execution of an AT+iSTCP or AT+iSUDP command during the current Internet mode session. Or a socket accepted by a listen socket.	
<sockstat>	>=0	Number of bytes pending in socket <hn>'s input buffer
	<0	Socket Error code

Sample

AT+ILSST:000
I/(000)

AT+iSCS Get a Socket Connection Status Report

Retrieve a socket's connection status report.

Syntax

Exec Command
AT+iSCS:<hn>
Response(s)
I/(<sockstat>)

Parameter Description

<hn>	A TCP/UDP socket handle of an open socket. Must have been obtained by a previous execution of an AT+iSTCP or AT+iSUDP command during the current Internet mode session. Or a socket accepted by a listen socket.	
<sockstat>	000	Socket is connected and with no associated errors.
	<0	Socket Error code

Sample

AT+ILSST:000
I/(000)

AT+iSSND[%] Send a Byte Stream to a Socket

Send a byte stream of size <sz> to the socket specified by the socket handle <hn>.

Syntax

Exec Command
AT+iSSND[%]:<hn>,<sz>:<stream>
Response(s)
I/OK

Parameter Description

<hn>	A TCP/UDP socket handle of an open socket. Must have been obtained by a previous execution of an AT+iSTCP or AT+iSUDP command during the current Internet mode session. Or a socket accepted by a listen socket.
<sz>	0..4GB. The exact size of the byte stream that follows.
<stream>	An 8-bit byte stream of exactly size <sz> to be sent to the specified socket. If <sz> is larger than 256 bytes, device assumes Host flow control. Depending on the setting of the FLW parameter, the flow control mode is either software or hardware. Under software flow control mode, the Host processor must respond to device's flow control characters. Under hardware flow control, the ~CTS/~RTS RS232 control signals must be connected and the host must respond to device's ~CTS signal. The host may send data only when the ~CTS signal is asserted (active low).
%	When the auto-flush ('%') flag is specified, the socket is automatically flushed immediately after receiving the <stream>. Otherwise, data will be transmitted to the Internet only in integral quantities of the specified MTU (Maximum Transfer Unit) or when the AT+iSFSH command is issued.

5F., NO.12, LANE 345, YANGGUANG ST.
114 NEIHU, TAIPEI
TAIWAN
Tel: +88 62 27999080
Fax: +88 62 26585042
info@topsccc.com

Sample

```
AT+ISSND%:000,5:01234
I/OK
```

AT+iSRCV Receive a Byte Stream from a Socket's Input Buffer

Receive a byte stream from the TCP/UDP socket specified by the socket handle <hn>. Receive data is valid only if it already resides in device's socket input buffer at the time this command is issued.

Syntax

Exec Command
AT+iSRCV:<hn>[,<max>]
Response(s)
I/<sz>[:<stream>]

Parameter Description

<hn>	A TCP/UDP socket handle of an open socket. Must have been obtained by a previous execution of an AT+iSTCP or AT+iSUDP command during the current Internet mode session. Or a socket accepted by a listen socket.
<max>	Optionally specifies the maximum number of bytes to transfer. Additional bytes may remain in the socket input buffer following this command. If <max> is not specified, all available bytes residing in the socket input buffer shall be returned.
<sz>	The exact size of the binary data stream to follow. If the socket input buffer is empty, device returns I/0. In this case the ':' and <binary data stream> are omitted. <sz> is guaranteed to be equal or less than <max>, when specified.
<stream>	An 8-bit byte stream received in the buffer.

5F., NO.12, LANE 345, YANGGUANG ST.
114 NEIHU, TAIPEI□
TAIWAN
Tel: +88 62 27999080
Fax: +88 62 26585042
info@topsccc.com

Sample

AT+ISRCV:000

I/0

AT+iGPNM Get Peer Name for a Specified Socket

Retrieve Peer Name (<IP>:<Port>) of a remote connection to a TCP/UDP socket specified by the socket handle <hn>.

Syntax

Exec Command
AT+iGPNM:<hn>
Response(s)
I/(<ip>:<port>)

Parameter Description

<hn>	A TCP/UDP socket handle of an open socket. Must have been obtained by a previous execution of an AT+iSTCP or AT+iSUDP command during the current Internet mode session. Or a socket accepted by a listen socket.
<ip>	The remote peer's IP address for this connection.
<port>	The remote peer's port for this connection.

Sample

AT+IGPNM:000
I/(202.39.224.7: 80)

AT+iSDMP Dump Socket Buffer

Dump all buffered data currently accumulated in a socket's inbound buffer. The socket remains open.

Syntax

Exec Command
AT+iSDMP:<hn>
Response(s)
I/OK

Parameter Description

<hn>	A TCP/UDP socket handle of an open socket. Must have been obtained by a previous execution of an AT+iSTCP or AT+iSUDP command during the current Internet mode session. Or a socket accepted by a listen socket.

Sample

AT+ISDUMP:000
I/OK

AT+iSFSH[%] Flush Socket's Outbound Data

Flush (immediately send) accumulated data in a socket's outbound buffer.

Syntax

Exec Command
AT+iSFSH[%]:<hn>
Response(s)
I/OK

Parameter Description

<hn>	A TCP/UDP socket handle of an open socket. Must have been obtained by a previous execution of an AT+iSTCP or AT+iSUDP command during the current Internet mode session. Or a socket accepted by a listen socket.
%	When the flush-and-acknowledge ('%') flag is specified and <hn> is a TCP socket handle, device will both flush and wait for the peer receipt acknowledgment of all outstanding outbound data. Common errors associated with this flag are 215 (carrier lost) and 203 (socket closed by peer in an orderly manner or did not receive ACK after 10 tries to retransmit unacknowledged data).

Sample

AT+ISFSH%:000
I/OK

AT+iSCLS Close Socket

Close a TCP/UDP socket. If the socket was the only open socket and the stay-online flag (‘!’) was not specified, device will terminate the Internet session and go offline.

Syntax

Exec Command
AT+i[!]SCLS:<hn>
Response(s)
I/OK I/DONE or I/ONLINE

Parameter Description

<hn>	A TCP/UDP socket handle of an open socket. Must have been obtained by a previous execution of an AT+iSTCP or AT+iSUDP command during the current Internet mode session. Or a socket accepted by a listen socket.
!	Stay On-Line after completing the command.

Sample

AT+I!SCLS:000 I/ONLINE
AT+ISCLS:001 I/DONE

Notes

A socket will always be flushed before being closed. TCP sockets are disconnected from the remote host server in an orderly manner.

Special Modem Commands

AT+iMCM Issue Intermediate Command to Modem

Enter Modem Command mode.

Syntax

Exec Command
AT+iMCM
Response(s)
I/OK

Sample

```
AT+IMCM
I/OK
```

Notes

Modem's response(s), including command echo, if it is enabled.

If the modem is online, device will put the modem in command mode by issuing the '+++' escape sequence. Then device will enter Modem Command mode. In this mode, all following commands shall be transferred as-is to the modem. Modem replies shall be relayed back to the host processor. Device will not implement any translations or functional handling of the commands. Modem Command mode will be exited after the host issues the ATO command. Device will transfer the ATO command to the modem and relay the modem's response back to the host.

Modem command shall also be exited if the host issues an AT+i followed by a <CR>. In this case, device will just reply with I/OK.

PING

AT+iPGT PING Timeout

Permanently set the timeout in milliseconds, after which device will reissue a PING request that has not been replied to.

Syntax

Read Command
AT+iPGT?
Response(s)
<n> I/OK

Write Command
AT+iPGT=<n>
Response(s)
I/OK

Parameter Description

<n>	0	Use default 2000 milliseconds timeout. (Default)
	1..65535	Milliseconds.

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Tel: +88 62 27999080
Fax: +88 62 26585042
info@topsccc.com

Sample

AT+IPGT=5000 **I/OK**
AT+IPGT? **5000** **I/OK**

AT+iPDSn Define PING Destination Server

Permanently set the PING destination server name or IP. SerialNET mode.

Syntax

Read Command
AT+iPDSn?
Response(s)
<nps> I/OK

Write Command
AT+iPDSn=<nps>
Response(s)
I/OK

Parameter Description

<n>	1	Define the primary destination server.
	2	Define the secondary destination server.
<nps>	The server name or IP address.	

Sample

AT+IPDS1="" I/OK
AT+IPDS1=202.39.224.7 I/OK
AT+IPDS1? 202.39.224.7 I/OK

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114 NEIHU, TAIPEI
TAIWAN
Tel: +88 62 27999080
Fax: +88 62 26585042
info@topsccc.com

Notes

The server name or IP address, will be PING'ed in order to verify device's online status, when device is in "Always Online" mode. If the primary server does not respond, device will try the secondary server (if it exists). When both servers do not respond to PING requests, device will retry to establish the connection by going offline and then online again.

AT+iPFR PING Destination Server Polling Frequency

Permanently set the time interval, in seconds, upon which device will issue a PING request to one of the PING destination servers.

Syntax

Read Command
AT+iPFR?
Response(s)
<n> I/OK

Write Command
AT+iPFR=<n>
Response(s)
I/OK

Parameter Description

<n>	0	Disabled PING polling. (Default)
	1..65535	Seconds.

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114 NEIHU, TAIPEI
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Sample

AT+IPFR=300 **I/OK**
AT+IPFR? **300** **I/OK**

AT+iPING Send a PING Request to a Remote Server

Sends a two byte ICMP PING request packet to the remote host defined by host. Direct Socket mode.

Syntax

Exec Command
AT+iPING:<host>
Response(s)
I/<rrt>

Parameter Description

<host>	Logical name of the target host or a host IP address. The host name may be any legal Internet-server name, which can be resolved by device's DNS (Domain Name Server) settings. The host name may also be specified as an absolute IP address given in DOT form.
<rrt>	Upon successfully receiving an ICMP PING reply from the host, the round trip time in milliseconds is returned (RRT). Device will allow up to <PGT> milliseconds for a PING reply. If a reply will not be received within <PGT> milliseconds, device will send two more PING requests, allowing <PGT> milliseconds for a reply on each of the requests before reporting an error.

5F., NO.12, LANE 345, YANGGUANG ST.
114 NEIHU, TAIPEI
TAIWAN
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info@topsccc.com

Sample

```
AT+IPING:www.google.com
I/OK
```

Baud Rate

AT+iBDRM Define a Fixed Baud Rate for Modem Connection

Set the baud rate on modem connection. This parameter is saved to nonvolatile memory and activated after every power-up. For command mode and SerialNET mode both.

Syntax

Read Command
AT+IBDRM?
Response(s)
<rate> I/OK

Write Command
AT+IBDRM=<rate>
Response(s)
I/OK

Parameter Description

<rate>	3	Set baud rate to 2400.
	4	Set baud rate to 4800.
	5	Set baud rate to 9600. (Default)
	6	Set baud rate to 19200.
	7	Set baud rate to 38400.
	8	Set baud rate to 57600.
	9	Set baud rate to 115200.

Sample

AT+IBDRM=5 **I/OK**
AT+IBDRM? **5** **I/OK**

AT+iBDRF Define a Fixed Baud Rate on Host Connection

Set the baud rate on host serial connection. This parameter is saved to nonvolatile memory and activated only after power-up. For command mode.

Syntax

Read Command
AT+IBDRF?
Response(s)
<rate> I/OK

Write Command
AT+IBDRF=<rate>
Response(s)
I/OK

Parameter Description

<rate>	3	set baud rate to 2400.
	4	set baud rate to 4800.
	5	set baud rate to 9600. (Default)
	6	set baud rate to 19200.
	7	set baud rate to 38400.
	8	set baud rate to 57600.
	9	set baud rate to 115200.

Sample

AT+IBDRF=5 **I/OK**
AT+IBDRF? **5** **I/OK**

AT+iSNSI SerialNET Device Serial Interface

Permanently set serial interface settings for SerialNET mode.

Syntax

Read Command

AT+ISNSI?

Response(s)

<settings_str>

I/OK

Write Command

AT+ISNSI=<settings_str>

Response(s)

I/OK

5F., NO.12, LANE 345, YANGGUANG ST.
114 NEIHU, TAIPEI
TAIWAN
Tel: +88 62 27999080
Fax: +88 62 26585042
info@topsccc.com

Parameter Description

<settings_str>	"<baud>,<data_bits>,<parity>,<stop_bits>,<flow>"		
	<baud>	0	Set baud rate to 300.
		1	Set baud rate to 600.
		2	Set baud rate to 1200.
		3	Set baud rate to 2400.
		4	Set baud rate to 4800.
		5	Set baud rate to 9600. (Default)
		6	Set baud rate to 19200.
		7	Set baud rate to 38400.
		8	Set baud rate to 57600.
		9	Set baud rate to 115200.
	<data_bits>	7	7 bits.
		8	8 bits. (Default)
	<parity>	n (lower case)	No parity. (Default)
		e (lower case)	Even parity.
		o (lower case)	Odd parity.
	<stop_bits>	1	1 stop bit. (Default)
		2	2 stop bits.
	<flow>	0	No flow control. (Default)
		1	Hardware flow control.

TOPSCCC TECHNOLOGY CO., LTD.
5F., NO.12, LANE 345, YANGGUANG ST.
114 NEIHU, TAIPEI
TAIWAN
Tel: +88 62 27999080
Fax: +88 62 26585042
info@topsccc.com

Sample

AT+ISNIS=”5,8,n,1,0” I/OK
AT+IBDRM? 5,8,N,1,0 I/OK

Notes

The parity must use lower case.

AT+i Result Code Summary

String		
I/OK	Command was successfully executed.	
I/BUSY	Device Busy. Command discarded.	
I/DONE	Device completed Internet activity. Returned to command mode.	
I/ONLINE	Device completed an Internet activity and returned to command mode. Device will issue this response when it has remained on-line as a result of the stay-online flag (!).	
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
	61	Internal memory failure
	62	User aborted the system
	63	~CTSH needs to be LOW to change to H/W flow control.
	67	Command ignored as irrelevant
	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.
	75	Access denied to ISP server

	94	In “Always Online” mode, connection was lost and reestablished
	95	A Watchdog reset event had occurred and restarted device
	100	Error restoring default parameters
	101	No ISP access numbers defined
	102	No USRN defined
	103	No PWD entered
	104	No DNS defined
	111	Serial data overflow
	112	Command illegal when modem online
	115	SerialNET could not be started due to missing parameters
	200	Socket does not exist
	202	Socket not in use
	203	Socket Down
	204	No available sockets
	206	PPP open failed for socket
	207	Error creating socket
	208	Socket send error
	209	Socket receive error
	210	PPP down for socket
	212	Socket flush error
	215	No carrier error on socket operation
	216	General exception
	217	Out of Memory
	218	An STCP (Open Socket) command specified a local port number that is already in use.
	401	No IP address
	561	Remote peer closed the SerialNET socket
	570	PING destination not found
	571	No reply to PING request