AT Command Specification for
Anybus Wireless Bridge – Ethernet to Bluetooth

Document History

Version	Date	Description	Responsible
1	2011-03-20	Published	HMS Industrial Networks

Information about the Anybus Wireless Bridge – Ethernet to Bluetooth and other products

For further information about Anybus products, please consult www.anybus.com. The latest manuals, etc. can be downloaded from this location.

Contents

1   AT command syntax

1.1   Command Line Format

Each command line sent from the DTE to the DCE is made up of a prefix, body and terminator. As prefix for the RBEPA AT commands, only "AT" (ASCII 65, 84) and "at" (ASCII 97, 116) can be used. There is no distinction between upper and lower case characters. The body is a string of characters in the range ASCII 032-255. Control characters other than <CR> (carriage return; ASCII 13) and <BS> (back space; ASCII 8) in a command line are ignored.

The terminator is <CR>. Commands denoted with a "*" character are extended AT commands, i.e. EPA specific AT commands. Multiple commands in the same command line are not supported. Each command has to be terminated by a <CR> before a new command can be sent. A command must not be longer than 300 characters.

A command can either be:

- Read commands without parameters: AT<command>?<CR>

- Write commands without parameters: AT<command><CR>

- Read and write commands with parameters: AT<command>=<parameter1>, <parameter2>, ...<parameterN><CR>

Responses are sent back to the host and can be any of the following:

- Successful final message: <CR><LF>OK<CR><LF>

- A read command will precede the OK response with the read parameters. The form is <CR><LF><command>:<param1>,<param2>,...,<paramN><CR><LF> String results will have "" around them.

- Successful intermediate/final message with parameters follows an OK message in some commands. In these cases the OK message works as a confirm message only. <CR><LF><result_response>:<parameter1>, parameter2, ...<parameterN>

- Error message: <CR><LF>ERROR<CR><LF>

1.2   Limitations

When an AT command is issued with the store parameter set to 1, all previous values will be stored as well, regardless of whether the previous commands where issued with the store parameter set to 1 or not.

1.3   Data Types

The definition of each command specifies the data types used for values associated with the command. There are four different data types:

- String

- Integer

- IP_Addr

- MAC_Addr / Bd_Addr

These are described below:

String

A string shall consist of a sequence of displayable characters from the ISO 8859-1 (8-bit ASCII) character set, except for characters "\", """ and characters below 32 (space). A string constant shall be delimited by two double-quote (""") characters, e.g. "Donald Duck". The "\" character is used as an escape character to insert raw bytes in a string. If the double-quote character (""") is to be used within a string, e.g. "My friend "Bono" is a singer", they have to be represented as "\22". If the back-slash character ("\") is to be used within a string constant, it has to be represented as "\5C". An empty string is represented by two adjacent delimiters, "".

Integer

An integer value consists of a sequence of characters all in the range {0..9}. An integer can also be represented by as hexadecimal string, e.g. 15 can be written as "0x0000000F", excluding the double-quote characters.

IP_Addr

A valid IP address consists of four integer values separated by dots. Valid range of each integer value is {0..255}. An example IP address is "192.168.0.1", excluding the double-quote characters.

MAC_Addr / Bd_Addr

A MAC or Bd address consists of a sequence of six values, expressed in two-digit hexadecimal, in sequence. The hexadecimal values are grouped together without delimiters. An example MAC address is "00A0F7101C08", excluding the double-quote characters.

2 Standard AT Commands

2.1 AT Attention Command

Syntax	Description
AT<CR>	Attention command determining the presence of a DCE, i.e. the Ethernet Port Adapter.

Responses	Description
<CR><LF>OK<CR><LF>	Successful response.
<CR><LF>ERROR<CR><LF>	Error response.

2.2 AT* List Available Commands

Syntax	Description
AT*<CR>	Lists the supported AT commands.

Responses	Description
<CR><LF><cmd1><CR><LF><cmd2><CR><LF>...<CR><LF>OK<CR><LF>	This response is sent to the host for every supported command.

<CR><LF>OK<CR><LF>	Successful response.
<CR><LF>ERROR<CR><LF>	Error response.

2.3   AT&F Restore to Factory Settings

Syntax	Description
AT&F<CR>	This command instructs the unit to set all parameters to their defaults as specified by the manufacturer.

Responses	Description
<CR><LF>OK<CR><LF>	Successful response.
<CR><LF>ERROR<CR><LF>	Error response.

2.4   AT&F0 Restore to Factory Settings

Syntax	Description
AT&F0<CR>	See description of the AT&F Restore to Factory Settings command.

Responses	Description
<CR><LF>OK<CR><LF>	Successful response.
<CR><LF>ERROR<CR><LF>	Error response.

2.5   ATE Echo Off

Syntax	Description
ATE<CR>	Set whether or not the Ethernet Port Adapter shall echo incoming characters.

Responses	Description
<CR><LF>OK<CR><LF>	Successful response.
<CR><LF>ERROR<CR><LF>	Error response.

2.6 ATE Echo On/Off

Syntax	Description
ATE<echo_on><CR>	Set whether or not the Ethernet Port Adapter shall echo incoming characters.
ATE?	Read current echo setting.

Parameters	Type	Description
echo_on	integer	0 = Unit does not echo characters during command state and online command state. 1 = Unit echoes characters during command state and online command state.

Responses	Description
<CR><LF>echo_on<CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response.
<CR><LF>ERROR<CR><LF>	Error response.

2.7 ATQ Result Codes On/Off

Syntax	Description
ATQ<result_off><CR>	The setting of this parameter determines whether or not the unit transmits result codes to the DTE. When result codes are being suppressed, no portion of any intermediate, final, or unsolicited result code - header, result text, line terminator, or trailer - is transmitted. Information text transmitted in response to commands is not affected by the setting of this parameter.
ATQ?	Read current result code setting.

Parameters	Type	Description
result_off	integer	0 = Unit transmits result codes. 1 = Result codes are suppressed and not transmitted

Responses	Description
<CR><LF>result_off<CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response.
<CR><LF>ERROR<CR><LF>	Error response.

2.8 ATS2 Escape Character

Syntax	Description
ATS2=<esc_char><CR>	Changes the escape character to esc_char.
ATS2?	Read escape character

Parameters	Type	Description
esc_char	integer	esc_char is the ASCII value of the new escape character. E.g. 47 equals '/'. The default value is '/'. Note that the escape sequence will be "///". Hence, the character is used three times.

Responses	Description
<CR>>LF>esc_char<CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response.
<CR><LF>ERROR<CR><LF>	Error response.

2.9 **ATS3 Command Line Termination Character**

Syntax	Description
ATS3=<line_term><CR>	Write command line termination character. This setting changes the decimal value of the character recognized by the DCE from the DTE to terminate an incoming command line. It is also generated by the DCE as part of the header, trailer, and terminator for result codes and information text along with the S4 parameter The previous value of S3 is used to determine the command line termination character for entry of the command line containing the S3 setting command. However, the result code issued shall use the value of S3 as set during the processing of the command line. For example, if S3 was previously set to 13 and the command line "ATS3=30" is issued, the command line shall be terminated with a CR, character (13), but the result code issued will use the character with the ordinal value 30 in place of the CR.
ATS3?	Read command line termination character.

Parameters	Type	Description
line_term	integer	0...127 (13, CR is default)

Responses	Description
<CR><LF>line_term<CR><LF>OK<CR><LF>	Successful read response
<line_term><LF>OK<line_term><LF>	Successful response.
<CR><LF>ERROR<CR><LF>	Error response.

2.10   ATS4 Response Formatting Character

Syntax	Description
ATS4=<term><CR>	Write response formatting character. This setting changes the decimal value of the character generated by the DCE as part of the header, trailer, and terminator for result codes and information text, along with the S3 parameter. If the value of S4 is changed in a command line, the result code issued in response to that command line will use the new value of S4.
ATS4?	Read response formatting character.

Parameters	Type	Description
term	integer	0...127 (10, LF is default)

Responses	Description
<CR><LF>term<CR><LF>OK<CR><LF>	Successful read response
<CR><term>OK<CR><term>	Successful response.
<CR><LF>ERROR<CR><LF>	Error response.

2.11   ATS5 Backspace character

Syntax	Description
ATS5=<backspace><CR>	Write backspace character. This setting changes the decimal value of the character recognized by the DCE as a request to delete from the command line the immediately preceding character.
ATS5?	Read backspace character.

Parameters	Type	Description
backspace	integer	0...127 (8, BS is default)

Responses	Description
<CR><LF>backspace<CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response.
<CR><LF>ERROR<CR><LF>	Error response.

2.12 ATS General Settings S Register Manipulation

Syntax	Description
ATS<register>=<value><CR>	Write to a general settings S register.
ATS<register>?	Read from a general settings S register.

Parameters	Type	Description
register	integer	Any of the registers described below.
value	integer	-2147483648...2147483647 or 0x00000000...0xFFFFFFFF. Valid values for each register is listed below.

Responses	Description
<CR><LF>value<CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response.
<CR><LF>ERROR<CR><LF>	Error response.

Register	Description
Baseband/GAP registers	
1000	Connect period in ms. 0...60000 (default 5000, could be overridden by LEM)
1001	Page timeout in ms. 80...40000 (default 2000, could be overridden by LEM)
1002	Inquiry timeout in ms. 80...60000 (default 5000, could be overridden by LEM)
1003	Enable fast connect. Increased page scan activity for faster response to incoming connections. 0: Disable fast connect

	1: Enable fast connect (default)
1004	Enable fast discovery Increased inquiry scan activity for faster detection of the device during inquiry or device discovery. 0: Disable fast discovery 1: Enable fast discovery(default)
1005	WLAN channel skipping. 4 WLAN channels can be excluded but no more than a total of 59 Bluetooth channels can be excluded. If more than 59 BT channels are being excluded, an error will be generated. The value is divided in four bytes and each byte represents one WLAN channel according to the following: Bit 0-3: number of channels to be skipped valid values are, 0x0-0xF: x * 2 -1) Bit 4-7: WLAN channel to be skipped (0x0: disable, 0x1-0xE: WLAN channel to exclude) Example: To exclude 19 BT channels around WLAN channels 1, 6 and 11 the value shall be 0x001A6ABA **Constraint:** If AT*AMCM Channel Map is configured to exclude any channels, it has higher priority after a power cycle.
1006	Packet type This is a bitmask telling the device what packets are allowed. Bit0: DM1 (default) Bit1: DH1 (default) Bit2: DM3 (default) Bit3: DH3 (default) Bit4: DM5 (default) Bit5: DH5 (default) Bit6: 2-DH1 Bit7: 3-DH1 Bit8: 2-DH3 Bit9: 3-DH3 Bit10: 2-DH5 Bit11: 3-DH5 Bit12-31: reserved
1007	Poll interval 0: poll as often as possible. **If sniff interval is set, it will be prioritized.** 1...2147483647: poll interval in micro seconds (default: 25000)

1008	Sniff interval This value must be set on the master to take effect. 0: disable, use default poll interval, which is as fast as possible (default) 1...2147483647: sniff interval in ms, **setting this will disable polling.**
1009	Inquiry Class of Device filter, see AT*AGLC Local COD. A found device must match this bitmask to be reported to the higher layers, e.g. to find all networking devices, bit 17 should be set (0x00020000 or 131072). Bit 0-1 and 24-31 are reserved and will be ignored. (default: 0x00020000, meaning that only network enabled devices will be found).
1010	Discoverable in operation mode
1011	Limited pairing timeout 0: disable (deafult) > 1: timeout in seconds before the EPA is non Pairable
1012	Master Slave Policy **Use AT command for immediate effect** 0: Always attempt master 1: Let incoming device decide (default)
1013	Low Emission Mode: Mode:Page timeout/Inquiry timeout/Connect period 0. Page timeout: 2000 ms, Inquiry timeout: 5000 ms, Connect period: 10 s 1. Page timeout: 300 ms, Inquiry timeout: 600, Connect period: 5 s 2. Page timeout: 200 ms, Inquiry timeout: 300 ms, Connect period: 3 s 3. Page timeout: 80 ms, Inquiry timeout: 80 ms, Connect period: 3 s 4-63:**RESERVED** 64. Page timeout: As specified in S register 1001, Inquiry timeout: 1002, Connect period: See 1000
1014	Pairing mode Use **AT*AGPM** (defult: 2)
1015	Connectability Mode Use **AT*AGCM** (defult: 2)
1016	Discoverability Mode USE **AT*AGDM** (defult: 3)
1017	Security Mode USE **AT*AGSM** (defult: 1)

1018	Class of Device USE **AT*AGLC** (defult: 0x020000)
1019	Server Profile USE **AT*ADDSP** (defult: 100)
1020	Link supervision timeout (default 2000)
1021	**Reserved**
1022	Max output power Max output power in dBm, the host will choose the nearest possible value that is below this (defult: 20)
1023	External Connection Control. The 0: Disable 1: Enable
Roaming registers	
1100	Reserved
1101	Reserved
1102	Link quality threshold 0..100
1103	Reserved
1104	Reserved
1105	Roaming scheme 0: Connect to name, see connect to name scheme (default) 1: Connect to next. This will simply connect to the next device configured with AT*ADWRL Write Roaming List 2: Connect by command. This will get the BD address or BD name from the command. If the BD name is specified, it will use the configured connect to name scheme.

1106	Connect to name scheme 0: Connect to name. This will make an inquiry and then get the name of the found devices. When a matching name is found, a connection attempt will be done. If the connection fails, it will try with the next found and so on. (default) 1: Connect to first name (first found). This will make a limited inquiry searching for 1 unit, get the name of the found unit and, if the name matches, connect to it. 2: Connect to best name (highest RSSI value). This will make an inquiry, sort the devices regarding to the RSSI value. Then it will start from the device with best RSSI value, get the name and connect if it matches the desired name. If it fails, it will go to the next device and so on. 3: **Reserved**
1107	**Reserved**
1108	**Reserved**
1109	Max inquiry output power. This is the maximum output power allowed during inquiry (default: 20)
1110	**Reserved**
Miscellaneous	
1200	Time in seconds before the LEDs is turned off. 0 will disable the feature.
1201	**Reserved**
1202	**Reserved**
1203	Disable Link configuration if broadcast
1204	**RESERVED**
1205	**RESERVED**
1206	**RESERVED**

1207	Event Subscriber Protocol Value deciding how events should be sent. 0: disable (default) 1: Messages sent by AT over TCP 2: Messages sent by AT over Layer-2 (mac_address must be specified, using AT*AMESS) 3: Syslog 4: **Reserved** 5 - 255: reserved
1208	Event Subscriber Port / Ethernet type (default: 0)
1209	Wireless Interface Disable **Use AT*AMWID** (default: 0)
1210	Bridge Cache Timeout Time in seconds before mac address cache table in the bridge throws away an entry. (default: 2)
1211	Bit mask representing SMART LED Mode when smart mode is finished Bit 0: RSSI Bit 1: Link Quality Bit 2-31: Reserved (default: 0x00000000)
1212	Smart LED Update timeout in seconds (default: 0)
1213	Enable User Management 0: disable (default) 1: enable
1214	Smart mode button push functionality 0: Disconnect/connect (default) 1: Toggle ALL LEDs 2: Reset
1215	Smart mode button hold functionality 0: Disconnect/connect (default) 1: Toggle ALL LEDs 2: Reset
1216	External trigger push functionality 0: Disconnect/connect (default) 1: Toggle ALL LEDs 2: Reset
1217	External trigger hold functionality 0: Disconnect/connect (default) 1: Toggle ALL LEDs

	2: Reset
Profinet	
1900	**Reserved**
1901	**Reserved**
1902	Profinet prioritization: 0: Disable (default) 1: Enable
1903	**Reserved**
1904	Ethernet type to prioritize if Profinet prioritization is enabled
Network	
5000	Turn on/off TCP keep-alive packets. It is important to understand that sending frequent keep-alive packets usually isn't a good solution to detect dropped connections. Detecting dead links should be done on a higher level, i.e. in the user application protocol. There is a lot of information available on the subject on the web. 0 = TCP keep-alive packets turned off (default)1 = TCP keep alive packets turned on
5001	Time in milliseconds for a TCP connection to be idle before a keep-alive packet is sent. 0...2147483647 (default 7200000 = 2 hours)
5002	Time in milliseconds between keep-alive packets after a keep-alive packet has been lost. 0...2147483647 (default 75000 = 75 seconds)
5003	Number of lost keep-alive packets to wait before a TCP connection is reset. 1...255 (default 9)

3   GAP Commands

3.1   AT*AGDM Discoverability Mode

Syntax	Description
AT*AGDM=<discoverability_mode>, <store_in_startup_database><CR>	Write the current GAP discoverability mode.
AT*AGDM?<CR>	Read the current GAP discoverability mode.

Parameters	Type	Description
discoverability_mode	integer	1: GAP non-discoverable mode 2: GAP limited discoverable mode 3: GAP general discoverable mode (default value)
store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AGDM:<discoverability_mode> <CR><LF>OK<CR><LF>	Successful read response.
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error response.

3.2 AT*AGCM Connectability Mode

Syntax	Description
AT*AGCM=<connectability_mode>, <store_in_startup_database><CR>	Write GAP connectability mode.
AT*AGCM?<CR>	Read GAP connectability mode.

Parameters	Type	Description
connectablilty_mode	integer	1: GAP non-connectable mode 2: GAP connectable mode (default value)
store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AGCM:<connectability_mode> <CR><LF>OK<CR><LF>	Successful read response.
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error response.

3.3   AT*AGPM Pairing Mode

Syntax	Description
AT*AGPM=<pairing_mode>, <store_in_startup_database><CR>	Writes the GAP pairing mode.
AT*AGPM?<CR>	Reads the pairing mode.

Parameters	Type	Description
pairing_mode	integer	1: GAP non-pairable mode. 2: GAP pairable mode (default value).
store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AGPM:<pairing_mode> <CR><LF>OK<CR><LF>	Successful read response.
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error response.

3.4   AT*AGSM Security Mode

Syntax	Description
AT*AGSM=<security_mode>, <store_in_startup_database><CR>	Writes the GAP security mode.
AT*AGSM?<CR>	Reads the GAP security mode.

Parameters	Type	Description
security_mode	integer	1: Link level authentication and encryption disabled (GAP security mode 1 with encryption disabled). (default value) 2: Link level authentication and encryption enabled (GAP security mode 3 with encryption enabled).
store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AGSM:<security_mode><CR><LF>OK<CR><LF>	Successful read response.
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error response.

3.5 AT*AGRCD Read Connected devices

Syntax	Description
AT*AGRCD?<CR>	Retrieves the Bluetooth addresses of every connected device.

Parameters	Type	Description
bd_addr	Bd_Addr	Bluetooth device address of a connected device.
connection_handle	integer	The connection handle identifies the connection.

Responses	Description
<CR><LF>*AGRCD:<bd_addr>,<connection_handle>	This response is sent for every connected device.
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error response.

3.6 AT*AGND Name Discovery

Syntax	Description
AT*AGND=<bd_addr><CR>	Retrieves the device name of a remote device given its Bluetooth device address.

Parameters	Type	Description
bd_addr	Bd_Addr	Bluetooth device address of the device from which to retrieve the name.
device_name	string	Null terminated string of maximum 240 characters (8-bit ASCII).

Responses	Description
<CR><LF>*AGND:<device_name><CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

3.7 AT*AGDD Device Discovery

Syntax	Description
AT*AGDD=<inquiry_Type>,<inquiry_length><CR>	Performs device discovery.

Parameters	Type	Description
inquiry_type	integer	1: Limited inquiry 2: General inquiry
inquiry_length	integer	Maximum amount of time specified before the inquiry is halted. Range: 1-48Time = inquiry_length*1.28 secondsRange in seconds: 1.28-61.44 Ignored by the EPA, use LEM settings to control this
no_of_devices	integer	Value in range {0..255}. Number of devices discovered during the inquiry procedure.
bd_addr	Bd_Addr	Bluetooth device address of a discovered device.
cod	integer	See the AT*AGLC Local COD command.
device_name_valid	integer	1: device_Name parameter valid. 0: Device was discovered, but its name could not be retrieved. device_name is invalid and should be ignored.
device_name	string	Name of discovered device. ASCII represented string of maximum 240 bytes.
rssi	integer	RSSI of a discovered device

Responses	Description
<CR><LF>*AGDD:<no_of_devices><CR><LF>OK<CR><LF>	Successful response
*AGDDE:<bd_addr>, <cod>, <device_name_valid>, <device_name><CR><LF>	This response is sent for every found device.
<CR><LF>ERROR<CR><LF>	Error message.

3.8 AT*AGI Inquiry

Syntax	Description
AT*AGI=<inquiry_type>,<inquiry_length>, <max_no_of_devices_to_find><CR>	Performs an inquiry procedure to find any discoverable devices in the vicinity.

Parameters	Type	Description
inquiry_type	integer	1: Limited inquiry 2: General inquiry
inquiry_length	integer	Maximum amount of time specified before the inquiry is halted. Range: 1-48Time = inquiry_length*1.28 secondsRange in seconds: 1.28-61.44 The EPA ignores this. Use Low Emission Mode and/or the S registers to customize this.
max_no_of_devices_to_find	integer	0: No limitation on the number of devices to find. 1-255: Maximum number of devices to find.
Bd_addr	Bd_Addr	Bluetooth device address of a found device.
cod	integer	See the AT*AGLC Local COD command.
rssi	integer	Received signal strength of a found device

Responses	Description
<CR><LF>*AGI:<bd_addr>,<cod>,<rssi>	This response is sent for every found device.
<CR><LF>OK<CR><LF>	Successful response.
<CR><LF>ERROR<CR><LF>	Error message.

3.9 AT*AGUB Unbond

Syntax	Description
AT*AGUB=<bd_addr><CR>	This command un-bonds a previously bonded device.

Parameters	Type	Description
bd_addr	Bd_Addr	Bluetooth device address of the device subject to un-bond. If address FFFFFFFFFFFF is selected, all bonded devices will

	be removed.

Responses	Description
<CR><LF>OK<CR><LF>	Successful response.
<CR><LF>ERROR<CR><LF>	Error message.

3.10 AT*AGBD Read Bonded Devices

Syntax	Description
AT*AGBD?<CR>	Read the bonded devices.

Parameters	Type	Description
no_of_bonded_devices	integer	Number of bonded devices.
bd_addr	Bd_Addr	Bluetooth device address of the device from which to retrieve the name.
device_name_valid	integer	0: device_Name parameter valid. 1: Device is bonded but its name is not available. Device_Name is parameter invalid.
device_name	integer	Name of discovered device. Null terminated ASCII represented string.

Responses	Description
<CR><LF>*AGBD:<no_of_devices> <CR><LF>OK<CR><LF>	Successful response
*AGBDE:<bd_addr>, <device_name_valid>, <device_name> <CR><LF>	This response is sent for every found device.
<CR><LF>ERROR<CR><LF>	Error message.

3.11 AT*AGFP Fixed Pin

Syntax	Description
AT*AGFP=<pin_code>, <store_in_startup_database><CR>	Write the fixed PIN code used by the Ethernet Port Adapter during bond.
AT*AGFP?<CR>	Read the fixed PIN code used by the Ethernet Port Adapter during bond and pairing.

Parameters	Type	Description
pin_code	string	The PIN code can be either a string of one to sixteen alphanumerical characters or a byte array of one to sixteen bytes. Default value is "0"
store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AGFP:<pin_code> <CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response.
<CR><LF>ERROR<CR><LF>	Error message.

3.12 AT*AGLN Local Name

Syntax	Description
AT*AGLN=<device_name>, <store_in_startup_database><CR>	Write the local Bluetooth device name.
AT*AGLN?<CR>	Read the local Bluetooth device name.

Parameters	Type	Description
device_name	string	Max 240 characters. The default name is "Bluetooth Device".
store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AGLN:<device_name> <CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

3.13 AT*AGLC Local COD

Syntax	Description
AT*AGLC=<cod>, <store_in_startup_database><CR>	Write the Local Class Of Device code.
AT*AGLC?<CR>	Read the Local Class Of Device code.

Parameters	Type	Description
cod	integer	Valid values for this parameter are specified in the Bluetooth Assigned Numbers Document, www.bluetooth.com. The parameter has been divided into three segments, a service class segment, a major device class segment and a minor device class segment (bits 2-7). Extract from the Bluetooth Assigned Numbers Document: **Service class** (bit mask, bits 13-23): Bit 16: Positioning (Location identification) Bit 17: Networking (LAN, Ad hoc, etc) Bit 18: Rendering (Printing, Speaker, etc) Bit 19: Capturing (Scanner, Microphone, etc) Bit 20: Object Transfer (v-Inbox, v-Folder, etc) Bit 21: Audio (Speaker, Microphone, Headset service, etc) Bit 22: Telephony (Cordless telephony, Modem, Headset service) Bit 23: Information (WEB-server, WAP-server, etc) **Major device class** (number, bits 12-8): 00000: Miscellaneous 00001: Computer (desktop, notebook, PDA, etc) 00010: Phone (cellular, cordless, modem, etc) 00011: LAN/Network Access point 00100: Audio/Video (headset, speaker, stereo, video display, VCR) 00101: Peripheral (mouse, joystick, keyboards) 00110: Imaging (printing, scanner, camera, etc) 11111: Uncategorized, specific device code not specified The default value is 131072 (Bit 17, Networking).
store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AGLC:<cod> <CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

3.14   AT*AGMSP MasterSlaveRole Policy

Syntax	Description
AT*AGMSP?<CR>	Reads the role policy of the device.

Parameters	Type	Description
role_policy	integer	0: Always attempt to become master on incoming connections. 1: Always let the connecting device select master/slave role on incoming connections (default value).
store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AGMSP:<role_policy> <CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

3.15   AT*AGRSS Read RSSI

Syntax	Description
AT*AGRSS=<bd_addr><CR>	This request returns the current received signal strength, RSSI, for the connection between the ECI Controller and the remote device identified by the 'bd_addr' parameter.

Parameters	Type	Description
bd_addr	Bd_Addr	Identifies a device that the Ethernet Port Adapter is currently communicating with.
rssi	integer	< 0: The received signal strength is rssi dB below the optimal signal range. 0: The received signal strength is within the optimal signal range. >0: The received signal strength is rssi dB above the optimal signal range.

Responses	Description
<CR><LF>*AGRSS:<rssi> <CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error response.

3.16   AT*AGLQ Read Link Quality

Syntax	Description
AT*AGLQ=<bd_addr><CR>	This request returns the current received signal strength, RSSI, for the connection between the ECI Controller and the remote device identified by the 'bd_addr' parameter.

Parameters	Type	Description
bd_addr	Bd_Addr	Identifies a device that the Ethernet Port Adapter is currently communicating with.
link_quality	integer	Percentage value of bit error rate.

Responses	Description
<CR><LF>*AGLQ:<link_quality> <CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

4 Network Layer Commands

4.1 AT*ANIP IP Settings

Syntax	Description
AT*ANIP=<ip_addr>, <netmask>, <gw>, <store_in_startup_database><CR>	Write IP address and related information. The information set by this command will not be valid until after the module is restarted. The AT*ANIP? Command will therefore return the old IP settings until you restart the module.
AT*ANIP?	Read IP address and related information currently in use.

Parameters	Type	Description
ip_addr	IP_Addr	IP address for the device (default 192.168.0.99)
netmask	IP_Addr	Netmask for the device (default 255.255.0.0)
gw	IP_Addr	The IP address of the gateway (default 192.168.0.1)
store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*ANIP:<ip_addr>,<netmask>, <gw><CR><LF>OK<CR><LF>	Successful read response.
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error response.

4.2 AT*ANDHCP DCHP Activation

Syntax	Description
AT*ANDHCP=<dhcp_mode>, store_in_startup_database ><CR>	Activate/deactivate DHCP. If activated, this will take precedence over settings made with AT*ANIP.
AT*ANDHCP?	Read the current DHCP setting

Parameters	Type	Description

dhcp_mode	integer	0 = Off, use static IP address (default) 1 = On, acquire an IP address using DHCP
store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*ANDHCP:<on> <CR><LF>OK<CR><LF>	Successful read response.
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error response.

4.3　AT*ANHN Hostname

Syntax	Description
AT*ANHN=<hostname>, <store_in_startup_database><CR>	Write the hostname used with dynamic DNS.
AT*ANHN?	Read the hostname used with dynamic DNS.

Parameters	Type	Description
hostname	string	Any string (default: "EPA")
store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*ANHN:<hostname> <CR><LF>OK<CR><LF>	Successful read response.
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error response.

4.4　AT*ANDNS DNS Settings

Syntax	Description
AT*ANDNS=<dns1>,<dns2>,<store><CR>	Write the name server information.

AT*ANDNS?	Read the name server information.

Parameters	Type	Value
dns1	IP_Addr	Primary DNS server. If DNS is not used, set this parameter to 0.0.0.0 (default 0.0.0.0).
dns2	IP_Addr	Secondary DNS server. If DNS is not used or if only one server is used, set this parameter to 0.0.0.0 (default 0.0.0.0).
store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*ANDNS:<dns1>,<dns2> <CR><LF>OK<CR><LF>	Successful read response.
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error response.

5   Data Mode Commands

5.1   AT*ADLNK Get link status

Syntax	Description
AT*ADLNK?<CR>	Retrieves the Bluetooth addresses of the first connected device. Use "at*agrcd?"

Parameters	Type	Value
bd_addr	Bd_Addr	Bluetooth device address of a connected device.
connection_handle	integer	The connection handle identifies the connection.

Responses	Description
<CR><LF>*ADLNK:<connection_handle>, <bd_addr><CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

5.2 AT*ADC Connect

Syntax	Description
AT*ADC<CR>	Connect to a previously configured remote peer.

Parameters	Type	Value
connection_handle	integer	The connection handle identifies the connection. The connection handle is used when closing the connection. A negative number means that the connection failed. However, it will continue trying to connect.

Responses	Description
<CR><LF>*ADC:<connection_handle> <CR><LF>OK<CR><LF>	Successful response.
<CR><LF>ERROR<CR><LF>	Error response.

5.3 AT*ADCP Connect

Syntax	Description
AT*ADCP=<bd_addr>, <role_and_profile>, <server_channel>, <must_be_master><CR>	Connect to a service enabled on a remote device.

Parameters	Type	Value
bd_addr	Bd_Addr	Bluetooth device address of the device to connect to.
role_and_profile	integer	0-99: reserved 100: PAN User role, PAN Profile 101: Network Access Point role, PAN Profile 102: Reserved 103: PAN, This will first try to connect to PANU, and if it fails, connect to NAP 104-255: Reserved
server_chan	integer	This is ignored by the EPA
must_be_master	integer	0: The remote device may choose to become master or slave. 1: This device must be master of the new connection. This is ignored by the EPA

Responses	Description
<CR><LF>*ADCP:<connection_handle>	Successful response.

<CR><LF>OK<CR><LF>	
<CR><LF>ERROR<CR><LF>	Error response.

5.4 AT*ADCPN Connect to name

Syntax	Description
AT*ADCPN=<name>, <role_and_profile>, <server_channel>, <must_be_master><CR>	Connect to a service enabled on a remote device.

Parameters	Type	Value
name	string	Case sensitive substring of remote name to connect to, e.g. if specified to EPA it will try to connect to EPA, EPAx, xEPA and xEPAx, but not to epa.
role_and_profile	integer	0-99: Reserved 100: PAN User role, PAN Profile 101: Network Access Point role, PAN Profile 102: Reserved 103: PAN, This will first try to connect to PANU, and if it fails, connect to NAP 104-255: Reserved
server_chan	integer	Ignored by the EPA
must_be_master	integer	Ignored by the EPA

Responses	Description
<CR><LF>*ADCPN:<connection_handle> <CR><LF>OK<CR><LF>	Successful response.
<CR><LF>ERROR<CR><LF>	Error response.

5.5 AT*ADAC Accept Connection

Syntax	Description
AT*ADAC=<bd_addr>, <accept_connection><CR>	Accept or reject a connection attempt. This must be sent to answer the *ADCI Connect Indication within 5 seconds

Parameters	Type	Value
bd_addr	Bd_Addr	The BD Address received in the *ADCI event.
<accept_connection>	integer	0: Reject connection 1: Accept connection

Responses	Description
<CR><LF>OK<CR><LF>	Successful response.
<CR><LF>ERROR<CR><LF>	Error response.

5.6 AT*ADCC Close Connection

Syntax	Description
AT*ADCC=<connection_handle><CR>	Close an existing data mode connection.

Parameters	Type	Value
connection_handle	integer	The connection handle identifies the connection.

Responses	Description
<CR><LF>OK<CR><LF>	Successful response.
<CR><LF>ERROR<CR><LF>	Error response.

5.7 AT*ADMRP Read Max Number of Remote Peers

Syntax	Description
AT*ADMRP?<CR>	For the BT EPA, this will always return 1

Parameters	Type	Value
max_remote_peers	integer	Max number of remote peers

Responses	Description
<CR><LF>*ADMRP:<max_remote_peers><CR><LF>OK<CR><LF>	Successful response. Note: The parameter always has the value of one for the BT EPA
<CR><LF>ERROR<CR><LF>	Error response.

5.8 AT*ADRDRP Read Default Remote Peer

Syntax	Description
AT*ADRDRP=<peer_id><CR>	This command reads the Bluetooth device address and device name of the selected default remote peer (peer id).

Parameters	Type	Value
peer_id	integer	This parameter is ignored by the Ethernet Port Adapter
bd_addr	Bd_Addr	Bluetooth device address of the default remote peer.
connect_scheme	integer	This parameter is ignored in the Ethernet Port Adapter, use ATS commands to set paging and inquiry times as well as Always Connected period
update_remote_peer_on_inc oming	integer	Ignored by the Ethernet Port Adapter
device_name	string	Maximum 240 characters.

Responses	Description
<CR><LF>*ADRDRP:<bd_addr>, <connect_scheme>, <update_remote_peer_on_incoming>, <device_name> <CR><LF>OK<CR><LF>	Successful read response.
<CR><LF>ERROR<CR><LF>	Error response.

5.9 AT*ADWDRP Write Default Remote Peer

Syntax	Description
AT*ADWDRP=<peer_id>, <address>, <connect_scheme>, <update_remote_peer_on_incoming>, <device_name>, <store_in_startup_database><CR>	This command writes the Bluetooth device address, connect scheme and device name of the currently selected default remote peer.

Parameters	Type	Value
peer_id	integer	This parameter is ignored by the Ethernet Port Adapter
address	string	Address to the service on the remote peer. On the form of <protocol>://bd_addr:port. i.e. panu://001122334455:0 (port is ignored) <protocol> can be one of the following for the Bluetooth EPA: PANU: Will try to connect to PANU role of the remote device NAP: Will try to connect to NAP role of remote device PAN: Will try to automatically choose remote profile

connect_scheme	integer	This parameter is ignored in the Ethernet Port Adapter, use ATS commands to set paging and inquiry times as well as Always Connected period
update_remote_peer_on_incoming	integer	Ignored by the Ethernet Port Adapter
device_name	string	Name of remote device to connect to. The protocol of the remote device is filled out in the address field, i.e to connect to a PANU service of a device with the Bluetooth name EPA, you should enter the following command: AT*ADWDRP=0,panu://,0,0,EPA,1
store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>OK<CR><LF>	Successful response.
<CR><LF>ERROR<CR><LF>	Error response.

5.10   AT*ADRL Roaming List

Syntax	Description
AT*ADRL?	Read the list of Access Points used for roaming.

Parameters	Type	Value
Index	integer	Position in the roaming list
bd_aadr	Mac_Addr	BD address of the remote peer.
store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*ADRL:<position><bd_addr>	This response is sent for every AP in the list.
<CR><LF>OK<CR><LF>	Successful response.
<CR><LF>ERROR<CR><LF>	Error response.

5.11   AT*ADRRL Read Roaming List

Syntax	Description
AT*ADRRL=<index><CR>	This command reads the BSSID of the selected AP in the roaming list.

Parameters	Type	Value
index	integer	Position in the roaming list.
bd_addr	Mac_Addr	BD address of remote device.

Responses	Description
<CR><LF>*ADRRL:<index>,<mac_addr><CR><LF>OK<CR><LF>	Successful read response.
<CR><LF>ERROR<CR><LF>	Error response.

5.12   AT*ADWRL Write Roaming List

Syntax	Description
AT*ADWRL=<index>,<bd_addr>, <store_in_startup_database><CR>	This command writes the BSSID of the AP in the roaming list.

Parameters	Type	Value
index	integer	Position in the roaming list.
bd_addr	Mac_Addr	BD address of remote device.
store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>OK<CR><LF>	Successful response.
<CR><LF>ERROR<CR><LF>	Error response.

5.13   AT*ADDSP Default Server Profile

Syntax	Description
AT*ADDSP=<role_and_profile>, <store_in_startup_database><CR>	This command sets the default server profile. A reset is required before this is used..
AT*ADDSP?<CR>	Read currently configured default server profile.

Parameters	Type	Value
role_and_profile	integer	0-99: Reserved 100: PAN User role, PAN Profile 101: Network Access Point role, PAN Profile 102-255: Reserved
store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*ADDSP:<role_and_profile> <CR><LF>OK<CR><LF>	Read response
<CR><LF>OK<CR><LF>	Successful response.
<CR><LF>ERROR<CR><LF>	Error response.

6   Informational Commands

6.1   AT*AILBA Read Local BD Address

Syntax	Description
AT*AILBA?<CR>	Reads the Bluetooth Device Address of the local device.

Parameters	Type	Value
bd_addr	Bd_Addr	Local Bluetooth device address.

Responses	Description
<CR><LF>*AILBA:<bd_addr>, <CR><LF>OK<CR><LF>	Successful response

<CR><LF>ERROR<CR><LF>	Error message.

6.2 AT*AILVI Local version

Syntax	Description
AT*AILVI?<CR>	This command reads the local version information to the Ethernet Port Adapter.

Parameters	Type	Value
manufacturer	string	Ethernet Port Adapter manufacturer.
sw_ver	string	Ethernet Port Adapter software version.
host_stack sw_ver	string	Bluetooth host stack version.
link_manager_sw_ver	string	Bluetooth link manager version.
bluetooth_hardware_manufa cturer	string	Bluetooth hardware manufacturer.

Responses	Description
<CR><LF>*AILVI:<manufacturer>, < sw_ver>, <host_stack_sw_ver>, <link_manager_sw_ver>, <bluetooth_hardware_manufacturer> <CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

7 Miscellaneous Commands

7.1 AT*AMLI Log in

Syntax	Description
AT*AMLI=<password><CR>	Log in to the AT command interface Note: The Use User management S register must be set to enable usermanagement.

Parameters	Type	Value
password	String	A null terminated string of up to 15 bytes

Responses	Description
<CR><LF>OK<CR><LF>	Successful response

| <CR><LF>ERROR<CR><LF> | Error message. |

7.2 AT*AMLO Log Out

Syntax	Description
AT*AMLO=<log_out><CR>	Log out from the AT command interface.

Parameters	Type	Value
log_out	Integer	For a successful log out this shall be 1

Responses	Description
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

7.3 AT*AMPW Password

Syntax	Description
AT*AMPW=<password>,<store_in_startup_database><CR>	Set password to the AT command interface

Parameters	Type	Value
password	String	A null terminated string of up to 15 bytes
store_in_startup_database	Integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

7.4 AT*AMGD General data

Syntax	Description
AT*AMGD=<data><CR>	Write any data, this will be stored between power cycles.
AT*AMGD?<CR>	Read previously written data.

Parameters	Type	Value
data	String	Any 31 bytes long data that should be stored.

Responses	Description
<CR><LF><data><CR><LF> OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

7.5 AT*AMRP Read TX Power

Syntax	Description
AT*AMRP?<CR>	Read the current output power used by the Ethernet Port Adapter when communicating.

Responses	Description
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

7.6 AT*AMMP Max Output Power

Syntax	Description
AT*AMMP=<max_output_power>, <store_in_startup_database><CR>	Set the maximum output power to be used by the Ethernet Port Adapter when communicating.
AT*AMMP?<CR>	Read the maximum output power used by the Ethernet Port Adapter when communicating.

Parameters	Type	Value
max_output_power	integer	This value is dependent of the Bluetooth chip. The actual output power can be less of the value specified here.
store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AMMP:<max_output_power> <CR><LF>OK<CR><LF>	Successful read response

<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

7.7 AT*AMWS Watchdog Settings

Syntax	Description
AT*AMWS=<bt_write_timeout>, <bt_inactivity_timeout>, <bt_connect_timeout>, <bt_disconnect_reset>, <reset>, <store_in_startup_database><CR>	Write watchdog parameters.
AT*AMWS?<CR>	Read current watchdog settings. Watchdog settings are only active in data mode and not AT or ECI mode.

Parameters	Type	Value
bt_write_timeout	integer	Time in seconds before EPA disconnects if out of credits. 0: Disabled (default value) > 0: Timeout in seconds NOT SUPPORTED
bt_inactivity_timeout	integer	Time in seconds before EPA disconnects if no activity. 0: Disabled (default value) > 0: Timeout in seconds NOT SUPPORTED
bt_connect_timeout	integer	Max connection time in seconds before a connection is terminated. 0: Disabled (default value) > 0: Timeout in seconds NOT SUPPORTED
bt_disconnect_reset	integer	0: Disabled (default value) 1: An EPA enabled, as a server will reset on a terminated connection. NOT SUPPORTED
reset	integer	If set to 1 the EPA will reset immediately. All other parameters will be ignored.
store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AMWS: <bt_write_timeout>, <bt_inactivity_timeout>, <bt_connect_timeout>, <bt_disconnect_reset>, <reset> <CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

7.8 AT*AMLEM Low Emission Mode

Syntax	Description
AT*AMLEM=<low_emission_mode><CR>	Write Low Emission Mode.
AT*AMLEM?<CR>	Read current Low Emission Mode.

Parameters	Type	Value
low_emission_mode	integer	Low Emission modes: 0: (Default) Connection period: 10 000 ms Paging timeout: 2000 ms Inquiry timeout: 5000ms 1: Connection period: 5000ms Paging timeout: 300 ms Inquiry timeout: 600 ms 2: Connection period: 3000ms Paging timeout: 200 ms Inquiry timeout: 300 ms 3: Connection period: 3000ms Paging timeout: 80 ms Inquiry timeout: 80 ms 4 - 63: Reserved 64: User specified times, see the ATS General Settings S Register Manipulation command
store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet

		Port Adapter will be updated.

Responses	Description
<CR><LF>*AMLEM:<low_emission_mode><CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

7.9 AT*AMWID Wireless interface disable

Syntax	Description
AT*AMWID=<disable><store_in_startup_database><CR>	Write Event and Status subscriber.
AT*AMWID? <CR>	Read Event and Status subscriber.

Parameters	Type	Value
disable	Integer	0: use default 1: disable wireless interface. This will cause connectability and discoverability to change as well
store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AMWID:<disable><CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

*7.10   AT*AMESS Event and Status Subscriber*

Syntax	Description
AT*AMESS=<mac_addr>, <ip_addr>, <port>, <protocol>, <store_in_startup_database><CR>	Write Event and Status subscriber.
AT*AMESS? <CR>	Read Event and Status subscriber.

Parameters	Type	Value
mac_addr	MAC_Addr	MAC address of event subscriber.
IP_Addr	IP_Addr	IP address of event subscriber.
port	Integer	Port number of event subscriber 0: use default
protocol	Integer	Value deciding how events should be sent. 0: disable (default) 1: Messages sent by AT over TCP 2: Messages sent by AT over Layer-2 (mac_address must be specified, FFFFFFFFFFFF means that it will be broadcasted) 3: Syslog 4 - 255: reserved
store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AMESS: <mac_addr>, <ip_addr>, <port>, <port> <CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

7.11 AT*AMSMF SMART Mode (Button) functionality

Syntax	Description
AT*AMSMF=<short_mode>,<long_mode>, <store_in_startup_database><CR>	Write SMART button functionality.
AT*AMSMF? <CR>	Read SMART button functionality.

Parameters	Type	Value
short_mode	Integer	Push functionality 0: Trigger roaming (disconnect/connect) 1: Toggle Leds 2: Soft reset
long_mode	Integer	Hold functionality 0: Trigger roaming (disconnect/connect) 1: Toggle Leds 2: Soft reset
store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AMSMF: <short_mode>,<long_mode><CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

7.12 AT*AMSMFL SMART Mode Function List

Syntax	Description
AT*AMSMFL=<smart_mode_1>, <smart_mode_2>,<smart_mode_3>, <smart_mode_4>,<smart_mode_5>, <smart_mode_6>,<smart_mode_7>, <smart_mode_8>,<smart_mode_9>, <smart_mode_10>,<smart_mode_11>, <smart_mode_12>,<smart_mode_13>, <smart_mode_14>,<smart_mode_15>, <store_in_startup_database><CR>	Write sequence of SMART button functionality modes. Example: "AT*AMSMFL=15,2,3,4,5,6,0,0,0,0,0,0,0,0,0,1" will limit the number of SMART modes to 6. The first mode indicated by the "A" LED will be 15 (see list below), the second, indicated by the "B" LED will be 2 and the third, indicated by "A" and "B", will be 3 and so on. See the product guide for more details.

AT*AMSMFL? <CR>	Read SMART button function list.

Parameters	Type	Value
smart_mode_#	Integer	0: End Smart mode function list 1 - 15 SMART functionality: 1: Exit Smart mode 2: Reset to factory defaults 3: Reset IP settings to factory defaults 4: Wait for Automatic configuration 5: Initiate Automatic configuration - PANU - PANU 6: Initiate Automatic configuration - PANU - PANU with Profinet optimizations 7: Initiate Automatic configuration - PANU - NAP 8: Reserved 9: Reserved 10: Reserved 11: Reserved 12: Reserved 13: Reserved 14: Reserved 15: Configuration mode 16 - 255: Reserved Default: 15,2,3,4,5,6,7
store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AMSMFL:<smart_mode_1>, <smart_mode_2>,<smart_mode_3>, <smart_mode_4>,<smart_mode_5>, <smart_mode_6>,<smart_mode_7>, <smart_mode_8>,<smart_mode_9>, <smart_mode_10>,<smart_mode_11>, <smart_mode_12>,<smart_mode_13>, <smart_mode_14>,<smart_mode_15> <CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

7.13   AT*AMSSC SNMP Sys Contact

Syntax	Description
AT*AMSSC=<sys_contact>, <store_in_startup_database><CR>	Write SNMP Sys Contact.
AT*AMSSC? <CR>	Read SNMP Sys Contact.

Parameters	Type	Value
sys_contact	String	Any String up to 32 characters
store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AMSSC: <sys_contact><CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

7.14   AT*AMSSL SNMP Sys Location

Syntax	Description
AT*AMSSL=<sys_location> <store_in_startup_database><CR>	Write SNMP Sys Location.
AT*AMSSL? <CR>	Read SNMP Sys Location.

Parameters	Type	Value
sys_location	String	Any String up to 32 characters
store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AMSSL: <sys_location><CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

7.15 AT*AMSSS SNMP Sys Services

Syntax	Description
AT*AMSSS? <CR>	Read SNMP Sys Services.

Parameters	Type	Value
sys_services	Integer	Represents the system services defined by SNMP

Responses	Description
<CR><LF>*AMSSS: <sys_services><CR><LF>OK<CR><LF>	Successful read response
<CR><LF>ERROR<CR><LF>	Error message.

7.16 AT*AMSBN SNMP Basic Name/Sys Name

Syntax	Description
AT*AMSBN=<basic_name>, <store_in_startup_database><CR>	Write SNMP Sys Name.
AT*AMSBN? <CR>	Read SNMP Basic Name.

Parameters	Type	Value
basic_name	String	Any String up to 32 characters
store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AMSBN: <basic_name><CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

7.17   AT*AMSSD SNMP Sys Description

Syntax	Description
AT*AMSSD=<basic_description>, <store_in_startup_database><CR>	Write SNMP System Description.
AT*AMSBD? <CR>	Read SNMP System Description.

Parameters	Type	Value
basic_description	String	Any String up to 32 characters
store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AMSBD:<basic_description> <CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

7.18   AT*AMSRC SNMP Read Community (Public Community)

Syntax	Description
AT*AMSRC=<community>, <store_in_startup_database><CR>	Write SNMP Public Community.

Parameters	Type	Value
community	String	Any String up to 12 character. The EPA currently only supports 1 community that has both read and write access. This is not used by the EPA
store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

7.19 AT*AMSWC SNMP Write Community (Private Community)

Syntax	Description
AT*AMSWC=<community>, <store_in_startup_database><CR>	Write SNMP Private Community.

Parameters	Type	Value
community	String	Any String up to 12 characters
store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

7.20 AT*AMSEID SNMP Enterprise ID

Syntax	Description
AT*AMSEID?<CR>	Read SNMP Enterprise Id.

Parameters	Type	Value
id	Integer	Integer representing your company

Responses	Description
<CR><LF>*AMSEID: <id><CR><LF>OK<CR><LF>	Successful read response
<CR><LF>ERROR<CR><LF>	Error message.

7.21 AT*AMCM Channel Map

Syntax	Description
AT*AMCM= <channel0to15>, <channel16to31>, <channel32to47>, <channel48to63>, <channel64to78>, <store_in_startup_database><CR>	Write channel map. This will write to the same settings as the corresponding S register
AT*AMCM? <CR>	Read currently configured channel map.

Parameters	Type	Value
channel0to15	Integer	Bit mask used to enable or disable channels 0 to 15 (Bit 0 = Channel 0). Default value is 0xFFFF.
channel16to31	Integer	Bit mask used to enable or disable channels 16 to 31. Default value is 0xFFFF. (Bit 0 = Channel 16)
channel32to47	Integer	Bit mask used to enable or disable channels 32 to 47 (Bit 0 - Channel 32). Default value is 0xFFFF.
channel48to63	Integer	Bit mask used to enable or disable channels 48 to 63 (Bit 0 = Channel 48). Default value is 0xFFFF.
channel64to78	Integer	Bit mask used to enable or disable channels 64 to 78 (Bit 0 = Channel 64). Default value is 0x7FFF.
store_in_startup_database	integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AMCM: <channel0to15>, <channel16to31>, <channel32to47>, <channel48to63>, <channel64to78> <CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

7.22 AT*AMRCM Read Channel Map

Syntax	Description
AT*AMRCM=<mac_addr>, <channel0to15>, <channel16to31>, <channel32to47>, <channel48to63>, <channel64to78>CR>	Write channel map. The channel map only has effect when the Ethernet Port Adapter acts as master.

Parameters	Type	Value
mac_addr	MAC_Addr	Connection to read channel map from
channel0to15	Integer	Bit mask used to enable or disable channels 0 to 15 (Bit 0 = Channel 0). Default value is 0xFFFF.
channel16to31	Integer	Bit mask used to enable or disable channels 16 to 31. Default value is 0xFFFF. (Bit 0 = Channel 16)
channel32to47	Integer	Bit mask used to enable or disable channels 32 to 47 (Bit 0 - Channel 32). Default value is 0xFFFF.
channel48to63	Integer	Bit mask used to enable or disable channels 48 to 63 (Bit 0 = Channel 48). Default value is 0xFFFF.
channel64to78	Integer	Bit mask used to enable or disable channels 64 to 78 (Bit 0 = Channel 64). Default value is 0x7FFF.

Responses	Description
<CR><LF>*AMCM: <channel0to15>, <channel16to31>, <channel32to47>, <channel48to63>, <channel64to78> <CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

7.23   AT*AMTL TCP Listener

Syntax	Description
AT*AMTL=<enable>,<port>, <store_in_startup_database><CR>	Write the operational power mode.
AT*AMTL?	Read the operational power mode.

Parameters	Type	Value
enable	Integer	0 = Disables TCP Listener 1 = Enables TCP Listener. When enabled, it will always enter at mode at startup
port	Integer	TCP port to listen for incoming connections
store_in_startup_database	Integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AMTL:<enable>,<port> <CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

7.24   AT*AMHL HTTP Listener

Syntax	Description
AT*AMHL=<enable>,<port>, <store_in_startup_database><CR>	Write the operational power mode.

AT*AMHL?	Read the operational power mode.

Parameters	Type	Value
enable	Integer	0 = Disables HTTP Listener 1 = Enables HTTP Listener
port	Integer	TCP port to listen for incoming connections
store_in_startup_database	Integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AMHL:<enable>,<port> <CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

7.25   AT*AMSR SNMP Receiver

Syntax	Description
AT*AMSR=<enable>,<port>, <store_in_startup_database><CR>	Write the operational power mode.
AT*AMSR?	Read the operational power mode.

Parameters	Type	Value
enable	Integer	0 = Disables SMNP Receiver 1 = Enables SNMP Receiver
port	Integer	UDP port to listen for incoming packets
store_in_startup_database	Integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AMSR:<enable>,<port> <CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

7.26 AT*AMLCR Link Config Receiver

Syntax	Description
AT*AMLCR=<enable>,<eth_type>, <store_in_startup_database><CR>	Write the operational power mode.
AT*AMLCR?	Read the operational power mode.

Parameters	Type	Value
enable	Integer	0 = Disables Link Config Receiver 1 = Enables Link Config Receiver
eth_type	Integer	Ethernet type that will be passed up the AT parser
store_in_startup_database	Integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AMLC:<enable>,<eth_type><CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

7.27 AT*AMTU MTU Size

Syntax	Description
AT*AMTU=<mtu_length>,<store_in_startup_database><CR>	Write the network MTU size.
AT*AMTU?	Read the network MTU size.

Parameters	Type	Value
mtu_length	Integer	Valid range is 64…1472 (1472 default)
store_in_startup_database	Integer	0: The setting will only be valid for the current power cycle. 1: The Ethernet Port Adapter will remember the setting between power cycles. The settings database in the Ethernet Port Adapter will be updated.

Responses	Description
<CR><LF>*AMTU:<mtu_length><CR><LF>OK<CR><LF>	Successful read response
<CR><LF>OK<CR><LF>	Successful response
<CR><LF>ERROR<CR><LF>	Error message.

8   Events

8.1   *ADCPO Connection Up

Event	Description
*ADCPO:<connection_handle>,<role_and_profile>,<bd_addr><CR><LF>	A connection to a remote device has been disconnected.

Parameters	Type	Value
connection_handle	integer	Identifies the connection.
role_and_profile	integer	Will always be 100 for the Since PANU is the only supprted role
bd_addr	Bd_Addr	Bluetooth address of the previously connected device

8.2   *ADCCO Connection Closed

Event	Description
*ADCCO:<connection_handle>, <reason>, <bd_addr><CR><LF>	A connection to a remote device has been disconnected.

Parameters	Type	Value
connection_handle	integer	Identifies the connection.
reason	integer	0: Disconnected by command1: Disconnected by link loss255: Reason unknown
bd_addr	Bd_Addr	Bluetooth address of the previously connected device

8.3 *ADCI Connect Indication

Event	Description
*ADCI:<bd_addr><role_and_profile><CR><LF>	A remote device are trying to connect. An AT*ADAC must be sent to respond

Parameters	Type	Value
bd_addr	Bd_Addr	Bluetooth address of the previously connected device
role_and_profile	integer	Will always be 100 for the Since PANU is the only supprted role

8.4 *AMLQW Link Quality Warning

Event	Description
*AMLQW:<bd_addr><remote_bd_addr><CR><LF>	Link quality below threshold value, see ATS General Settings S Register Manipulation (Roaming)

Parameters	Type	Value
bd_addr	Bd_Addr	Local Bluetooth device address
remote_bd_addr	Bd_Addr	Bluetooth address of the remote device

8.5 *AMDST Digital Signal Transition

Event	Description
*ADDST:<mac_addr><CR><LF>	An external digital signal was detected.

Parameters	Type	Value
mac_addr	Mac_Addr	MAC address of the device.

9 Licenses

This product contains software under the following licenses

/*

* Copyright (c) 2001-2004 Swedish Institute of Computer Science.

* All rights reserved.

*

* Redistribution and use in source and binary forms, with or without modification,