

# FIBOCOM L610 Series

## AT Commands\_HeartBeat

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## Applicability Type

No.	Product Model	Description
1	L610 Series	NA

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## Change History

Version	Author	Assessor	Approver	Update Date	Description
V1.0.1	Yan Chuan	Ma Menghan	Wang Hailiang	2020-06-13	Standardized format
V1.0.0	Yan Chuan	Shu Min	Zhou Wei	2020-02-10	Initial version

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# 1 Heart Beat Command

## 1.1 +GTHBEN Enable/Disable Heartbeat mechanism

### 1.1.1 Description

This command enable/disable HeartBeat mechanism, it is supported that storage protection for power down.

### 1.1.2 Syntax

Command	Response/Action
+GTHBEN=<mode>[,<protocol>]	OK or +CME ERROR: <err>
+GTHBEN?	+GTHBEN: <mode>,<protocol>  OK or +CME ERROR: <err>
+GTHBEN=?	+GTHBEN: (list of supported <mode>s), (list of supported <protocol>s)  OK or +CME ERROR: <err>

### 1.1.3 Attributes

Pin Restricted	Persistent	Sync Mode	Effect Immediately	Time of Duration
Yes	Yes	Yes	Yes	< 1s

### 1.1.4 Defined Values

<mode>: mechanism enable, integer type and range 0-1

0: disable (Default)

1: enable

<protocol>: Heartbeat protocol type, integer type and range 0-1

- 0: TCP
- 1: UDP (Default)

## 1.2 +GTHBEAT, Set Heartbeat parameter

### 1.2.1 Description

This command set destination IP, port, time interval, HeartBeat data, socket id and can set GTHBEAT when GTHBEN disabled. Support storage protection for power down.

### 1.2.2 Syntax

Syntax	Response/Action
+GTHBEAT=<server_IP>,<port>,<time>,<data>[,<socket_id>]	OK or +CME ERROR: <err>
+GTHBEAT?	+GTHBEAT: <server_IP>,<port>,<time>,<data>,<socket_id>  OK or +CME ERROR: <err>
+GTHBEAT=?	+GTHBEAT: (<IP>),(list of supported <port>s),(list of supported <time>s),(data),(list of support <socket_id>s)  OK or +CME ERROR: <err>

### 1.2.3 Attributes

Pin Restricted	Persistent	Sync Mode	Effect Immediately	Time of Duration
Yes	Yes	Yes	Yes	< 1s

### 1.2.4 Defined Values

<server\_IP>: Destination server IP or hostname, string. The range of length is 1-64 bytes.

<port>: server port, int type, range 1-65535, default value is 1.

<time>: time interval between two adjacent HeartBeat packet. int type, rang 1-65535, default value is 10 seconds.

<data>: Heartbeat data that send to server, string encoded with 0-F hexadecimal digits, range 1-100 bytes.

<socket\_id>: Socket ID that used to send HeartBeat data, int type, range 1-6, default value is 1. This parameter only used for compatible with old products, in new product no practical significance.

## 1.3 +GTHBTIME, Set Reconnect time interval

### 1.3.1 Description

This command set consecutive reconnect time interval when network anomaly happened. Power-failure protection is supported, so HeartBeat mechanism will take effect even if module reboot. When network anomaly happened, module will try to connect server with <time1>-<time6> set before. If it still can't connect to server after 6 times attempt, module will reconnect server with <time6> persistently.

### 1.3.2 Syntax

Command	Response/Action
+GTHBTIME[=<time1>[,<time2>[,<time3>[,<time4>[,<time5>[,<time6>]]]]]]	OK or +CME ERROR: <err>
+ GTHBTIME?	+GTHBTIME: <time1>,<time2>,<time3>,<time4>,<time5>,<time6>  OK or +CME ERROR: <err>

### 1.3.3 Attributes

Pin Restricted	Persistent	Sync Mode	Effect Immediately	Time of Duration
Yes	Yes	Yes	Yes	< 1s

## 1.3.4 Defined Values

<time1>: The first attempt to connect to server after network anomaly happened, int type, rang 1-65535, default 2 minutes.

<time2>~<time6>: After fail to reconnect the server by <time 1> interval some times, module will try to reconnect server again by interval from <time2>-<time6>, int type, rang 1-65535, default 4, 8, 16, 32, 64 minutes for <time2>-<time6> respectively.



**Note:**

No parameter setting means all parameter values is reset to default values.

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## 2 Error Code

### 2.1 CME Error

Parameter	Description
<Err>	0, "phone failure" 1, "no connection to phone" 2, "phone-adaptor link reserved" 3, "operation not allowed" 4, "operation not supported" 5, "PH-SIM PIN required" 6, "PH-FSIM PIN required" 7, "PH-FSIM PUK required" 10, "SIM not inserted" 11, "SIM PIN required" 12, "SIM PUK required" 13, "SIM failure" 14, "SIM busy" 15, "SIM wrong" 16, "incorrect password" 17, "SIM PIN2 required" 18, "SIM PUK2 required" 19, "incorrect PUK1" 20, "memory full" 21, "invalid index" 22, "not found" 23, "memory failure" 24, "text string too long" 25, "invalid characters in text string" 26, "dial string too long" 27, "invalid characters in dial string" 30, "no network service" 31, "network timeout" 32, "network not allowed - emergency calls only"

Parameter	Description
	40, "network personalization PIN required"
	41, "network personalization PUK required"
	42, "network subset personalization PIN required"
	43, "network subset personalization PUK required"
	44, "service provider personalization PIN required"
	45, "service provider personalization PUK required"
	46, "corporate personalization PIN required"
	47, "corporate personalization PUK required"
	48, "hidden key required" (NOTE: This key is required when accessing hidden phonebook entries.)
	49, "EAP method not supported"
	50, "Incorrect parameters"
	100, "unknown"
	103, "Illegal MS"
	106, "Illegal ME"
	107, "GPRS services not allowed"
	111, "PLMN not allowed"
	112, "location area not allowed"
	113, "roaming not allowed in this location area"
	114, "GPRS services not allowed in this PLMN"
	116, "MSC temporarily not reachable"
	117, "Network failure"
	132, "Service not supported"
	133, "Service not subscribed"
	134, "service option temporarily out of order"
	135, "NS-api already used"
	148, "Unspecified GPRS error"
	149, "PDP authentication error"
	150, "invalid mobile class"
	244, "Attach failure"
	257, "Invalid error mapping"
	258, "APN not listed in APN Control List (ACL)"
	701, "incorrect security code"

Parameter	Description
	702, "max attempts reached"
	1001, "Unassigned (unallocated) number"
	1003, "No route to destination"
	1006, "Channel unacceptable"
	1008, "Operator determined barring"
	1016, "Normal call clearing"
	1017, "User busy"
	1018, "No user responding"
	1019, "User alerting, no answer"
	1021, "Call rejected"
	1022, "Number changed"
	1026, "Non selected user clearing"
	1027, "Destination out of order"
	1028, "Invalid number format (incomplete number)"
	1029, "Facility rejected"
	1030, "Response to STATUS ENQUIRY"
	1031, "Normal, unspecified"
	1034, "No circuit/channel available"
	1038, "Network out of order"
	1041, "Temporary failure"
	1042, "Switching equipment congestion"
	1043, "Access information discarded"
	1044, "requested circuit/channel not available"
	1047, "Resources unavailable, unspecified"
	1049, "Quality of service unavailable"
	1050, "Requested facility not subscribed"
	1055, "Incoming calls barred within the CUG"
	1057, "Bearer capability not authorized"
	1058, "Bearer capability not presently available"
	1063, "Service or option not available, unspecified"
	1065, "Bearer service not implemented"
	1068, "ACM equal to or greater than ACMmax"
	1069, "Requested facility not implemented"

Parameter	Description
	1070, "Only restr. digital information bearer capability"
	1079, "Service or option not implemented, unspecified"
	1081, "Invalid transaction identifier value"
	1087, "User not member of CUG"
	1088, "Incompatible destination"
	1091, "Invalid transit network selection"
	1095, "Semantically incorrect message"
	1096, "Invalid mandatory information"
	1097, "Message type non-existent or not implemented"
	1098, "Message type not compatible with protocol state"
	1099, "Information element non-existent or not implemented"
	1100, "Conditional IE error"
	1101, "Message not compatible with protocol state"
	1102, "Recovery on timer expiry"
	1111, "Protocol error, unspecified"
	1127, "Interworking, unspecified"
	1279, "Number not allowed"
	1283, "CCBS possible"

## 2.2 CMS Error

Parameter	Description
<Err>	1, "Unassigned (unallocated) number"
	8, "Operator determined barring"
	10, "Call barred"
	17, "Network failure"
	21, "Short message transfer rejected"
	22, "Memory capacity exceeded"
	27, "Destination out of service"
	28, "Unidentified subscriber"
	29, "Facility rejected"
	30, "Unknown Subscriber"
	38, "Network out of order"

Parameter	Description
	41, "Temporary failure"
	42, "Congestion"
	47, "Resources unavailable, unspecified"
	50, "Requested facility not subscribed"
	69, "Requested facility not implemented"
	81, "Invalid short message reference value"
	95, "Invalid message, unspecified"
	96, "Invalid mandatory information"
	97, "Message type non-existent or not implemented"
	98, "Message not compatible with short message protocol state"
	99, "Information element non-existent or not implemented"
	111, "Protocol error, unspecified"
	127, "Interworking unspecified"
	128, "Telematic interworking not supported"
	129, "Short message type 0 not supported"
	130, "Cannot replace short message"
	143, "Unspecified TP-PID error"
	144, "Data coding scheme (alphabet) not supported"
	145, "Message class not supported"
	159, "Unspecified TP-DCS error"
	160, "Command cannot be actioned"
	161, "Command unsupported"
	175, "Unspecified TP-Command error"
	176, "TPDU not supported"
	192, "SC busy"
	193, "No SC subscription"
	194, "SC system failure"
	195, "Invalid SME address"
	196, "Destination SME barred"
	197, "SM Rejected-Duplicate SM"
	198, "TP-VPF not supported"
	199, "TP-VP not supported"
	208, "SIM SMS storage full"

Parameter	Description
	209, "No SMS storage capability in SIM"
	210, "Error in MS"
	211, "Memory Capacity Exceeded"
	212, "SIM Application Toolkit Busy"
	213, "SIM data download error"
	224, "TP_FCS_APPL_ERR_START"
	254, "TP_FCS_APPL_ERR_STOP"
	255, "TP_FCS_UNSPECIFIED"
	300, "ME failure"
	301, "SMS service of ME reserved"
	302, "operation not allowed"
	303, "operation not supported"
	304, "Invalid PDU mode param"
	305, "invalid text mode parameter"
	310, "SIM not inserted"
	311, "SIM PIN required"
	312, "PH-SIM PIN necessary"
	313, "SIM failure"
	314, "SIM busy"
	315, "SIM wrong"
	317, "SIM PIN2 required"
	318, "SIM PUK2 required"
	319, "incorrect PUK1"
	320, "memory failure"
	321, "invalid memory index"
	322, "memory full"
	330, "SMSC address unknown"
	331, "no network service"
	332, "network timeout"
	340, "no +CNMA acknowledgement expected"
	512, "MN_SMS_RP_ACK"
	513, "MN_SMS_TIMER_EXPIRED"
	514, "MN_SMS_FORW_AVAIL_FAILED"

Parameter	Description
	515, "MN_SMS_FORW_AVAIL_ABORTED"
	516, "MS invalid TP-Message-Type-Indicator"
	517, "MS no TP-Status-Report in Phase 1"
	518, "MS no TP-Reject-Duplicate in Phase 1"
	519, "MS no TP-Reply-Path in Phase 1"
	520, "MS no TP-User-Data-Header in Phase 1"
	521, "MS missing TP-Validity-Period"
	522, "MS invalid TP-Service-Centre-Time-Stamp"
	523, "MS missing TP-Destination-Address"
	524, "MS invalid TP-Destination-Address"
	525, "MS missing Service-Centre-Address"
	526, "MS invalid Service-Centre-Address"
	527, "MS invalid alphabet"
	528, "MS invalid TP-User-Data-Length"
	529, "MS missing TP-User-Data"
	530, "MS TP-User-Data too long"
	531, "MS no Command-Request in Phase 1"
	532, "MS Cmd-Req invalid TP-Destination-Address"
	533, "MS Cmd-Req invalid TP-User-Data-Length"
	534, "MS Cmd-Req invalid TP-User-Data"
	535, "MS Cmd-Req invalid TP-Command-Type"
	536, "MN MNR creation failed"
	537, "MS CMM creation failed"
	538, "MS network connection lost"
	539, "MS pending MO SM transfer"
	540, "RP-Error OK"
	541, "RP-Error OK no icon display"
	542, "SMS-PP Unspecified"
	543, "SMS rejected By SMS CONTROL"

## 2.3 TCP/IP Error

Parameter	Description
<Err>	2000, "TCPIP Param wrong "
	2001, "TCPIP not supported in ppp mode"
	2002, "TCPIP dns convert to ip fail"
	2003, "TCPIP socket number limited"
	2004, "TCPIP invalid operation"
	2005, "TCPIP protocol error"
	2006, "TCPIP send data too long"
	2007, "TCPIP send data memory failed"
	2008, "TCPIP service not in correct state "
	2009, "TCPIP pdp not defined "
	2010, "TCPIP new socket failed"
	2011, "TCPIP socket bind fail"
	2012, "TCPIP socket connect fail"
	2013, "TCPIP socket send fail "
	2014, "TCPIP socket close fail"
	2015, "TCPIP get socket receive buffer failed"
	2016, "TCPIP receive data failed"
	2017, "TCPIP socket used"
	2018, "TCPIP get send buffer size failed"
	2019, "TCPIP socket send data failed"
	2020, "TCPIP socket send data size limited"
	2021, "TCPIP socket set listening mode failed"
	2022, "TCPIP socket listen fail"
	2023, "TCPIP socket error"
	2024, "TCPIP socket not opened "
	2025, "TCPIP tcp stack config failed"
	2026, "TCPIP socket no data to send "
	2027, "TCPIP socket send invalid data state"
	2028, "TCPIP socket close client"
	2029, "TCPIP ping error "
2030, "TCPIP ppp not connected "	

Parameter	Description
	2031, "TCPIP mipcall not active"
	2032, "TCPIP etcpip not active"
	2033, "TCPIP not def4 "

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