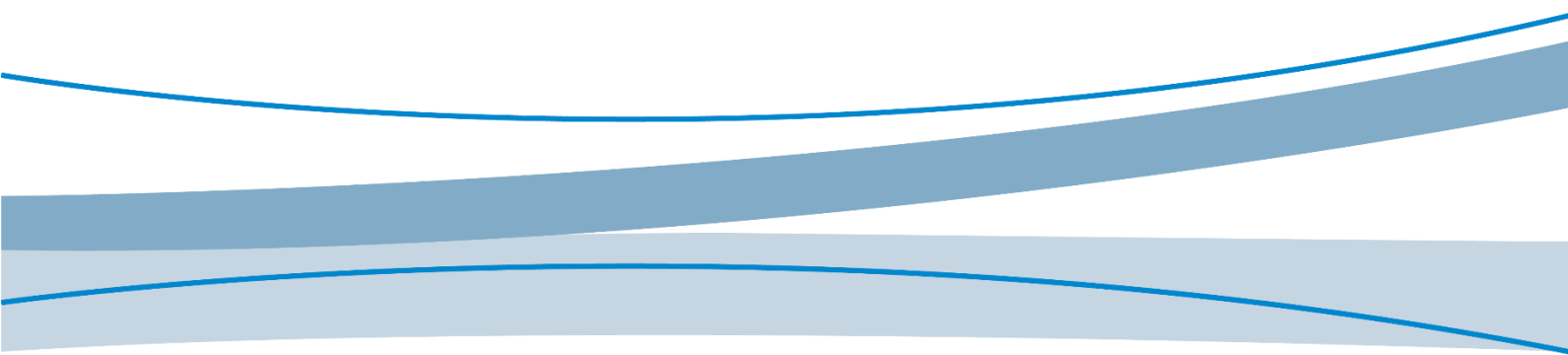




# MTC AT Commands User Manual

## Heartbeat

V1.2



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# Applicable Model

No.	Applicable Model	Description
1	L61x Series	NA
2	LC61x Series	NA
3	LG61x Series	NA
4	MC61x Series	NA
5	MG61x Series	NA
6	NL66x Series	NA
7	MC11x Series	NA
8	MG11x Series	NA
9	MC10x Series	NA
10	LC11x Series	NA
11	L71x Series	NA
12	LE13x Series	NA
13	LE17x Series	NA
14	LE23x Series	This feature is not supported in LE230-CN-1D2
15	LE27x Series	This feature is not supported in LE270-CN-1D2、LE270-CN-1D21
16	LE37x Series	This feature is not supported in LE370-CN-1D7
17	FG13x Series	NA
18	MS18x Series	NA
19	MC661 Series	NA
20	MG66x Series	NA
21	MC91x Series	NA

# Change History

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V1.2 (2025-03-07)	Delete the MA510 product
V1.1 (2024-11-22)	Partial AT Format Modification
V1.0 (2024-04-24)	Initial version

# 1 Heartbeat

## 1.1 +GTHBEN, enable or disable heartbeat

### Description

This command is used to enable or disable heartbeat and support power-down save.

### Format

Type	Command	Response
Setting command	AT+GTHBEN=<mode>[,<protocol>]	Response 1: OK
		Response 2: ERROR
Read current settings	AT+GTHBEN?	Response 1: +GTHBEN: <mode>,<protocol>
		OK
		Response 2: ERROR
Query command parameter range	AT+GTHBEN=?	Response 1: +GTHBEN: (list of supported <mode>s), (list of supported <protocol>s)
		OK
		Response 2: ERROR

### Parameter

Name	Description	Value
mode	Enable or disable heartbeat	0: close (default) 1: enable
protocol	Protocol used by heartbeat	0: TCP 1: UDP (default)

### Characteristic

Require SIM Card Normal	Yes	Require Network Registration	Yes
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Require Data Connection	No	Async or Sync Command	Sync command
Require Restart to Take Effect	No	Require Data Store at Power Down	Yes
Max Response Duration (ms)	3000	Max Result Returning Duration (ms)	3000

### Example

**AT+GTHBEN=1,0** 1

OK

**AT+GTHBEN?** 2

+GTHBEN: 1,0

OK

**AT+GTHBEN=?** 3

+GTHBEN: (0,1),(0,1)

OK

1 Set to enable heartbeat and protocol TCP.

2 Query heartbeat current status.

3 Query GHTBEN use method.

## 1.2 +GTHBEAT, set heartbeat parameters

### Description

This command sets the target IP, port, reporting period, heartbeat data and socket ID. It can be set in the heartbeat off state and supports power-down storage.

### Format

Type	Command	Response
Setting command	AT+GTHBEAT=<server IP>,<port>,<reporting period>,<data>[,<socket_id>]	Response 1: OK  Response 2: ERROR
Read current settings	AT+GTHBEAT?	Response 1: +GTHBEAT: <server_IP>,<port>,<reporting period>,<data>,<socket_id>

Type	Command	Response
		OK
		Response 2: ERROR
Query command parameter range	AT+GTHBEAT=?	Response 1: +GTHBEAT: (<IP address>), (supported port range), (supported time range), (data), (socket_id value range)
		OK
		Response 2: ERROR

#### Parameter

Name	Description	Value
Server IP	Server IP	Type: string Range: 1 byte to 64 bytes
port	Server port	Range: 1 to 65535 Default value: 1
reporting period	Indicates the interval between two adjacent heartbeat packets	Type: integer Range: 1~65535 Default value: 10 seconds
data	Heartbeat data to be sent to the server. The value is a string of 0-F hexadecimal digits	Type: integer Range: 1~100
socket_id	The socket ID used to send heartbeat data	Type: integer Range: 1~6 Default value: 1  This parameter is only used for compatibility with old products and has no practical significance in new products.

#### Characteristic



Require SIM Card Normal	Yes	Require Network Registration	Yes
Require Data Connection	No	Async or Sync Command	Sync command
Require Restart to Take Effect	No	Require Data Store at Power Down	Yes
Max Response Duration (ms)	3000	Max Result Returning Duration (ms)	3000

### Example

**AT+GTHBEAT="10.10.0.1",1,2000,"ff"** ❶

OK

**AT+GTHBEAT?** ❷

+GTHBEAT: "10.10.0.1",1,2000,"ff",3

OK

**AT+GTHBEAT=?** ❸

+GTHBEAT: (IP),(1-65535),(1-65535),(data),(1-6)

OK

❶ Set server IP, port, reporting period and heartbeat data.

❷ Query heartbeat parameters.

❸ Query GHTBEAT use method.

## 1.3 +GTHBTIME, set reconnect interval

### Description

This command sets the reconnection interval according to which reconnection will continue when the network is interrupted, and the heartbeat function can continue to work after the module restarts. In case of network exception, the module will initiate connection to the server in turn according to the time interval from <time1> to <time6>. If the module is still connected to the server by using <time6>, the module will always use <time6> for reconnection.

### Format

Type	Command	Response
Setting command	AT+GTHBTIME[=<time1>[,<time2>[,<time3>[,<time4>[,<time5>[,<time6>]]]]]]	Response 1: OK  Response 2: ERROR

Type	Command	Response
Read current settings	AT+GTHBTIME?	<p>Response 1: +GTHBTIME: &lt;time1&gt;,&lt;time2&gt;,&lt;time3&gt;,&lt;time4&gt;,&lt;time5&gt;,&lt;time6&gt;</p> <p>OK</p> <p>Response 2: ERROR</p>

#### Parameter

Name	Description	Value
time1	Reconnection time	Type: integer Range: 1 to 65535 Default value: 2 minutes
time2 to time6	Reconnection time	Range: 1 to 65535 After using time1 to initiate reconnection to the server fails, the module will continue to initiate connection to the server. The time interval for initiating connection is time2 to time6. The default value is 4, 8, 16, 32, or 64 minute.

#### Characteristic

Require SIM Card Normal	Yes	Require Network Registration	Yes
Require Data Connection	No	Async or Sync Command	Sync command
Require Restart to Take Effect	No	Require Data Store at Power Down	Yes
Max Response Duration (ms)	3000	Max Result Returning Duration (ms)	3000

#### Example

**AT+GTHBTIME=6,6,6,6,6,6**

①

OK

**AT+GTHBTIME?**

②

+GTHBTIME: 6,6,6,6,6,6

OK

- ① Set heartbeat reconnect timer.
- ② Query heartbeat reconnect timer settings.

## 1.4 +GTFACHTIME, set time to detect module FACH status

### Description

This command sets the time to detect if the module is in the FACH state, and the module enters the FACH state while sleeping. If the module is still in FACH state after this time, the module will send a heartbeat packet to the server.

### Format

Type	Command	Response
Setting command	AT+GTFACHTIME[=<fachtime>]	Response 1: OK
		Response 2: ERROR
Read current settings	AT+GTFACHTIME?	Response 1: +GTFACHTIME: <fachtime>
		OK
		Response 2: ERROR



This command is valid on WCDMA networks.

Unset parameters will be set to default values.

This command is only supported in some projects, please contact technical support for specific support.

### Parameter

Name	Description	Value
fachtime	Fach time, set timer to detect FACH state.	Type: integer Range: 1 to 65535 Default value: 5s

### Characteristic

Require SIM Card Normal	Yes	Require Network Registration	Yes
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Require Data Connection	No	Async or Sync Command	Sync command
Require Restart to Take Effect	No	Require Data Store at Power Down	Yes
Max Response Duration (ms)	3000	Max Result Returning Duration (ms)	3000

### Example

**AT+GTFACHTIME=5** 1

OK

**AT+GTFACHTIME?** 2

+GTFACHTIME: 5

OK

1 Set heartbeat fachtime.

2 Query current fachtime.

## 1.5 +GTHBRECONN, heartbeat reconnection

### Description

This command is used to enable or disable heartbeat reconnecting mechanism of module, and to set reconnecting retry times and retry delay time when it set reconnecting mechanism, and to set mechanism is enabled, module will retry to establish TCP connection after a delay time (including 0, which means no delay), until the connection is established successfully, if the last connecting is failed or is disconnected from connected state. If retry times is set zero, reconnecting mechanism will not take effect. If the retry time is set to zero, the reconnect mechanism will not take effect.



The heartbeat reconnect mechanism is not enabled by default. To enable the reconnection mechanism, follow the parameter time and length. It must be set to non-zero.

This command is only supported in some projects, please contact technical support for specific support.

### Format

Type	Command	Response
Setting command	AT+GTHBRECONN=<times>[,<delay>]	Response 1: OK  Response 2: ERROR
Read current settings	AT+GTHBRECONN?	Response 1:

Type	Command	Response
		+GTHBRECONN:<times>,<delay>
		OK
		Response 2: ERROR
Query command parameter range	AT+GTHBRECONN=?	+GTHBRECONN:(0- 0xFFFFFFFFE)[,(0-0xFFFFFFFFE)]
		OK

#### Parameter

Name	Description	Value
times	Maximum number of reconnection	- -
delay	Time interval after connection timeout	- -

#### Characteristic

Require SIM Card Normal	Yes	Require Network Registration	Yes
Require Data Connection	No	Async or Sync Command	Sync command
Require Restart to Take Effect	No	Require Data Store at Power Down	Yes
Max Response Duration (ms)	3000	Max Result Returning Duration (ms)	3000

#### Example

None