



Cellular Engine MC35

The extra compact module for voice and data transmission

Application Note: **GPRS Commands**

Author: J. T. Version: 00.01 Date: 28.02.01

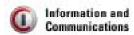
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1 GPRS AT-Commands in accordance with GSM 07.07	
1.1 Commands specific to MTs supporting the GPRS	3
1.2 AT+CGATT GPRS attach and detach	3
1.3 AT+CGACT PDP context activate or deactivate	3
1.4 AT+CGDATA Enter data state	4
1.5 AT+CGDCONT Define PDP Context	5
1.6 AT+CGQMIN Quality of Service Profile (Minimum accepta	able)6
1.7 AT+CGQREQ Quality of Service Profile (Requested)	8
1.8 Modem compatibility commands to MTs supporting the G	PRS 10
1.9 ATA Manual acceptance of a network request for PDP co	ntext activation 10
1.10 ATD *99# Request GPRS service	11
1.11 ATD *98# Request GPRS IP service	12
1.12 ATH Manual rejection of a network request for PDP co	ntext activation 12
1.13 ATSO Automatic response to a network request for PDI	2 context activation 13





1 GPRS AT-Commands in accordance with GSM 07.07

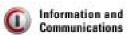
1.1 Commands specific to MTs supporting the GPRS

This clause defines commands that a TE (Terminal Equipment, i.e. an application running on a controlling PC) may use to control a GPRS MT (Mobile Termination, the Wireless Module).

1.2 AT+CG	GATT GPRS attach and detach		
Test command AT+CGATT=?	The test command is used for requesting information on the supported GPRS service states.		
	Response +CGATT: (list of supported <state>s) OK/ERROR/+CME ERROR</state>		
	Parameter <state> See write command</state>		
Read command AT+CGATT?	The read command returns the current GPRS service state. Response		
	+CGACT: <state> OK/ERROR/+CME ERROR</state>		
	Parameter <state> See write command</state>		
Write command AT+CGATT= [<state>]</state>	The execution command is used to attach the MT to, or detach the MT from the GPRS service. After the command has completed, the MT remains in V.25ter command state. If the MT is already in the requested state, the command is ignored and the OK response is returned. Any active PDP contexts will be automatically deactivated when the attachment state changes to detached.		
	Parameter <state> indicates the state of GPRS attachment 0 - detached 1 - attached</state>		
	Response OK/ERROR/+CME ERROR		
Reference GSM 07.07			

1.3 AT+CGA	ACT PDP context activate or deactivate
	The test command is used for requesting information on the supported PDP context activation states. Response +CGACT: (list of supported <state>s) OK/ERROR/+CME ERROR</state>





	_	• • •				
	Parameter					
	<state></state>		e command			
Read command AT+CGACT?	The read comm PDP contexts. Response	and returi	ns the curren	t activation states	for all the	e defined
	+CGACT: <	cid>,	<state></state>	[<cr><lf>+CG</lf></cr>	ACT:	<cid>,</cid>
	<state>1</state>					
	OK/ERROR/+CM	E ERROR				
	Parameter	0				
	<cid></cid>		e command e command			
Write command	<state></state>				·" I DDI	
AT+CGACT= [<state> [,<cid>[,]</cid></state>	This command is used to activate or deactivate the specified PDP c (s). After the command has completed, the MT remains in V command state. If any PDP context is already in the requested stat state for that context remains unchanged. If the MT is not GPRS att when the activation form of the command is executed, the MT performs a GPRS attach and them attempts to activate the specontexts. If no <cid>s are specified the activation/deactivation form command activates/deactivates all defined contexts. Response OK/ERROR/+CME_ERROR</cid>			V.25ter state, the attached MT first specified		
	Parameter					
	<state></state>	indicates 0 – dead 1 – activ	tivated	DP context activation	า	
	<cid></cid>	PDP Con a particuthe TE-N commar	ntext Identifier lar PDP conte IT interface ar lds. le range of sup	is a numeric parame at definition. The para d is used in other PE ported cids is returna	ameter is l OP context	ocal to
	Response +CGACT: (list o	f eunnarte	2d <a+>+0>0</a+>)		
	OK/ERROR/+CM)		
Reference	OR/ERROR/+CM	E ERRUR				
GSM 07.07						
U.10 IVICE	1					

1.4 AT+CG	DATA Enter data state
Test command AT+CGDATA=?	The test command is used for requesting information on the supported layer 2 protocols to be used between the TE and MT.
	Response +CGDATA: (list of supported <l2p>s) OK/ERROR/+CME ERROR</l2p>
	Parameter <l2p> See write command</l2p>
Write command +CGDATA=[<l2p >,[<cid>[,<ci d>[,]]]]</ci </cid></l2p 	INDCASSARY TO ASTANISH COMMINICATION NATWAAN THA LE AND THA NATWORK





	+CGDATA command in the AT command line shall not be processed by the MT.				
	Parameter <l2p></l2p>	layer 2 protocol to be used between the TE and MT			
	<cid></cid>	PDP Context Identifier is a numeric parameter which specifies a particular PDP context definition. The parameter is local to the TE-MT interface and is used in PDP context-related commands.			
	· ·	the MT issues the intermediate result code CONNECT and online data state:			
		parameter value is unacceptable to the MT, the MT returns +CME ERROR response:			
Reference GSM 07.07					

1.5 AT+CGE	CONT Define P	PDP Context		
Test command AT+CGDCONT=?	The test command returns values supported as a compound value. If the MT supports several PDP types, the parameter value ranges for each <pdp_type> are returned on a separate line.</pdp_type>			
	•	_		
	<pdp_type>:</pdp_type>	See write command See write command numeric parameter that controls PDP data compression		
	<h_comp>:</h_comp>	0 off numeric parameter that controls PDP header compression 0 off		
Read command AT+CGDCONT?	The read comma	nd returns the current settings for each defined context.		
		<pre><cid>, <pdp_type>, <apn>, <pdp_addr>, <head_comp> [<cr><lf>+CGDCONT:]</lf></cr></head_comp></pdp_addr></apn></pdp_type></cid></pre>		
	<apn>: <pdp_addr>:</pdp_addr></apn>	See write command		
	<d_comp>: <h_comp>:</h_comp></d_comp>	See test command See test command		

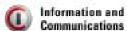




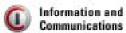
Write command AT+CGDCONT= [<cid> [,<pdp_type> [,<apn> [,<pdp_addr>]</pdp_addr></apn></pdp_type></cid>	identified by the form of the set context number <	pecifies PDP context parameter values for a PDP context (local) context identification parameter, <cid>. A special command, +CGDCONT= <cid> causes the values for <cid> to become undefined.</cid></cid></cid>
]]]	Parameter	This DDD Contact Identification is a new series account to the
	<cid>:</cid>	This PDP Context Identifier is a numeric parameter which specifies a particular PDP context definition. The parameter is local to the TE-MT interface and is also used in other PDP context-related commands.
	<pdp_type>:</pdp_type>	Packet Data Protocol type is a string parameter which specifies the type of packet data protocol: IP Internet Protocol (IETF STD 5)
	<apn>:</apn>	Access Point Name is a string parameter (framed by quotation marks) which is a logical name that is used to select the GGSN or the external packet data network. If the value is null or omitted, then the subscription value will be requested.
	<pdp_addr>:</pdp_addr>	String parameter that identifies the MT in the address space applicable to the PDP (e.g. IP V4 address for PDP type IP). If the value is null or omitted, then a value may be provided by the TE during the PDP startup procedure or, failing that, a dynamic address will be requested.
	Response OK/ERROR/+CME	ERROR
Reference GSM 07.07		

1.6 AT+CG	QMIN Quality of	Service Profile (Minimum acceptable)		
Test command AT+CGQMIN=?	The test command returns values supported as a compound value. If the MT supports several PDP types, the parameter value ranges for each PDP type are returned on a separate line. Response +CGQMIN: <pdp_type>, (list of supported <pre>precedence>s</pre>), (list of supported <reliability>s), (list of supported <pre>cpeak>s</pre>), (list of supported <mean>s) [<cr><lf>+CGQMIN:] OK/ERROR/+CME ERROR</lf></cr></mean></reliability></pdp_type>			
	Parameter			
		See write command		
	_	See write command		
	-	See write command		
	<reliability></reliability>	See write command		
	<peak></peak>	See write command		
	<mean></mean>	See write command		





DICIMICIA	_	Application Note	Communications
Read command AT+CGQMIN?			
	Parameter <cid> <pdp_type> <pre> <pre> <delay> <reliability> <peak> <mean></mean></peak></reliability></delay></pre></pre></pdp_type></cid>	See write command	
Write command AT+CGQMIN= [<cid>[, <pre>cprecedence > [,<delay>[, <reliability> [,<peak> [,<mean>]]]]]]]</mean></peak></reliability></delay></pre></cid>	which is checked Activate PDP Coprofile for the parameter, < cid> causes the minimum.	allows the TE to specify a minimum by the MT against the negotiated prontext Accept message. The set context identified by the (local) context identified by the command imum acceptable profile for context and in this case no check is made again.	rofile returned in the ommand specifies a ontext identification d, +CGQMIN= <cid> to</cid>
	Parameter <cid> <pdp_type></pdp_type></cid>	numeric PDP Context Identifier string parameter of Packet Data Protocol IP	type
	<pre><precedence></precedence></pre>	numeric parameter for the precedence cl one network subscribed value 13	ass
	<delay></delay>	numeric parameter for the delay class one network subscribed value 14	
	<reliability></reliability>	numeric parameter for the reliability class one network subscribed value 15	3
	<peak></peak>	numeric parameter for the peak throughp one network subscribed value 17	out class
	<mean></mean>	numeric parameter for the mean through 0 network subscribed value 112	put class
	on the HLR-store	ers are not defined, the parameter de d subscribed default values. ameters in GSM 03.60 paragraph 15.	·
	Response OK/ERROR/+CME	ERROR	
Reference GSM 07.07			



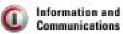
				- Communications
1.7 AT+CG	GREQ Quality of	Service Profile (R	equested)	
Test command AT+CGQREG=?	MT supports seve	d returns values sup ral PDP types, the pa on a separate line.	-	-
	supported <dela< td=""><td>P_type>, (list of supp y>s), (list of supp >s), (list of supporte ERROR</td><td>orted <reliab< td=""><td>ility>s) , (list of</td></reliab<></td></dela<>	P_type>, (list of supp y>s), (list of supp >s), (list of supporte ERROR	orted <reliab< td=""><td>ility>s) , (list of</td></reliab<>	ility>s) , (list of
	<pre><pre><pre><delay> <reliability> <peak></peak></reliability></delay></pre></pre></pre>	See write command See write command See write command See write command See write command See write command		
Read command AT+CGQREG?	The read commar Response +CGQREG: <cic< td=""><td>nd returns the current d>, <precedence> > [<cr><lf>+CGQF</lf></cr></precedence></td><td>, <delay>,</delay></td><td></td></cic<>	nd returns the current d>, <precedence> > [<cr><lf>+CGQF</lf></cr></precedence>	, <delay>,</delay>	
	<pdp_type> <pre><pre><pre><delay></delay></pre></pre></pre></pdp_type>	See write command See write command See write command See write command See write command		

See write command

See write command

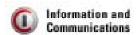
<peak> <mean>





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Write command AT+CGQREG= [<cid>[, <pre>cprecedence > [,<delay>[, <reliability> [,<peak> [,<mean>]]]]]]]</mean></peak></reliability></delay></pre></cid>	used when the Mathematic the network. The set comman context identification command, +CGC	llows the TE to specify a Quality of /T sends an Activate PDP Context d specifies a profile for the context ation parameter, <cid>. A specified QREQ= <cid> causes the request become undefined.</cid></cid>	t Request message to identified by the (local) cial form of the set
	Parameter <cid> <pdp_type></pdp_type></cid>	numeric PDP Context Identifier string parameter of Packet Data Protocol IP	col type
	<pre><precedence></precedence></pre>	numeric parameter for the precedence $\underline{0}$ network subscribed value 13	class
	<delay></delay>	numeric parameter for the delay class 0 network subscribed value 14	
	<reliability></reliability>	numeric parameter for the reliability class of network subscribed value 15	ass
	<peak></peak>	numeric parameter for the peak through network subscribed value 17	hput class
	<mean></mean>	numeric parameter for the mean throu 0 network subscribed value 112	ghput class
	on the HLR-store	ers are not defined, the parameter d subscribed default values. ameters in GSM 03.60 paragraph 1	
	Response OK/ERROR/+CME	ERROR	
Reference GSM 07.07			





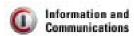
1.8 Modem compatibility commands to MTs supporting the GPRS

This subclause describes how existing AT commands, designed for use with a modem, may be used to control a GPRS MT. This is to provide backwards compatibility with existing communications software.

1.9 ATA Ma	anual acceptance of a network request for PDP context activation
Execute command ATA	The V.25ter 'A' (Answer) command may be used to accept a network request for a PDP context activation announced by the unsolicited result code. When a network request is indicated (MT -> TE): RING or +CRING: GPRS <pdp_type>,<pdp_addr>,<l2p> The application can then issue a manual acceptance (TE -> MT ATA</l2p></pdp_addr></pdp_type>
	Response To confirm acceptance of the command (MT -> TE): CONNECT and enters V.25ter online data state Note: It is an error to issue the 'ATA' command when there is no outstanding network request.
Reference GSM 07.07	Note: ATA is used as a standard V.25ter AT-Command, too.

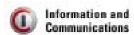


1.10 ATD *99	# Request	t GPRS service		
Execute command ATD*99* <calle d_address="">*<l 2p="">*<cid># ATD*99**<l2p>*<cid># ATD*99***<cid># ATD*99***<cid>#</cid></cid></cid></l2p></cid></l></calle>	This command causes the MT to perform whatever actions are necessary to establish communication between the TE and the external PDN. The V.25ter 'D' (Dial) command causes the MT to enter the V.25ter online data state and, with the TE, to start the specified layer 2 protocol. No further commands may follow on the AT command line. GPRS attachment and PDP context activation procedures may take place prior to or during the PDP startup if they have not already been performed using the +CGATT (see 1.2) and +CGACT (see 1.3) commands.			
	Response To confirm state: CONNECT	acceptance of the command to entering the V.25ter online data		
		layer 2 protocol has terminated, either as a result of an orderly of the PDP or an error, the MT enters V.25ter command state		
	Parameter <called_a< td=""><td>ddress> IP V4 address in the form w.x.y.z,</td></called_a<>	ddress> IP V4 address in the form w.x.y.z,		
	<l2p></l2p>	layer 2 protocol to be used between the TE and MT PPP		
	<cid>:</cid>	digit string which specifies a particular PDP context definition (see +CGDCONT command).		
		+CGDCONT, +CGQREQ, etc. commands may be used prior to for cid, PDP type, APN, QoS etc		
Reference GSM 07.07	Note ATD is use	ed as a standard V.25ter AT-Command, too.		



1.11 ATD *98	Request GPRS IP service
Execute command ATD *98[* <cid>]#</cid>	This command causes the MT to perform whatever actions are necessary to establish communication between the TE and the external PDN. The V.25ter 'D' (Dial) command causes the MT to enter the V.25ter online data state and, with the TE, to start the layer 2 protocol.
	Response To confirm acceptance of the command to entering the V.25ter online data state: CONNECT
	When the layer 2 protocol has terminated, either as a result of an orderly shut down of the PDP or an error, the MT enters V.25ter command state and return NO CARRIER.
	Parameter <cid>: a digit string which specifies a particular PDP context definition (see +CGDCONT command).</cid>
	Note: The +CGDCONT, +CGQREQ, etc. commands may be used prior to set values for cid, PDP type, APN, QoS etc
Reference GSM 07.07	Note: ATD is used as a standard V.25ter AT-Command, too.

1.12 ATH M	anual rejection of a network request for PDP context activation			
Execute command ATH	Response The V.25ter 'H' or 'H0' (On-hook) command may be used to reject a			
	network request for PDP context activation announced by the unsolicited result code			
	RING or +CRING: GPRS <pdp_type>,<pdp_addr></pdp_addr></pdp_type>			
	The MT responds with			
	OK.			
Reference	Note			
GSM 07.07	1. In contrast to GSM 07.07 it is possible to cancel a connection with ATH after a break. This is done for compatibility reasons due to the "dial-up network" ("DFÜ-Netzwerk") drivers of Microsoft® Windows®.			
	2. ATH is used as a standard V.25ter AT-Command, too.			



1.13 ATS0 activa	Automatic response to a network request for PDP context tion
Read command ATS0?	Response <n> OK Parameter See write command</n>
Write command ATS0= <n></n>	The V.25ter 'S0=n' (Automatic answer) command may be used to turn off (n=0) and on (n>0) the automatic response to a network request for a PDP context activation. When the 'S0=n' (n>0) command is received, the MT attempts to perform a GPRS attach if it is not already attached. The MT will announce a network request for PDP context activation by issuing the unsolicited result code RING or +CRING: GPRS <pdp_type>,<pdp_addr> Response The MS confirms acceptance of the command to entering the V.25ter online data state: CONNECT</pdp_addr></pdp_type>
	In case of an error the response is related to ME functionality: Error/+CME ERROR: <err> Note: The 's0=n'(n=0) command does not perform an automatic GPRS detach.</err>
	Parameter <n>: indicates the state of automatic response </n>
Reference GSM 07.07	Note: ATS0 is used as a standard V.25ter AT-Command, too.