NOKIA 12 GSM MODULE

AT COMMAND GUIDE

NOKIA

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Contents

ACRONYMS AND TERMS

Acronym/term	Description
3G	3rd Generation Mobile Communications
AMR	Adaptive multi-rate
AT	ATtention (command language)
B	Byte
CBM	Cell-Broadcast Message
CCITT	International Telegraph and Telephone Consultative Committee
CSD	Circuit Switched Data
DCE	Data Circuit Terminating Equipment
DSR	Data Set Ready
DTE	Data Terminal Equipment
DTMF	Dual-tone Multifrequency
DTR	Data Terminal Ready
ECM	Error Correction Mode
EDGE	Enhanced Data Rates for Global Evolution
EGSM	Extended GSM
EOL	End of Line
FIF	Facsimile Information Field
GPRS	General Packet Radio Service
GSM	Global System for Mobile Communication
HDLC	High-level Data Link Control
HSCSD	High Speed Circuit Switched Data
Hz	Hertz
ID	Identifier
IMSI	International Mobile Subscriber Identity
M2M	Machine-to-machine
ME	Mobile Equipment
MO	Mobile-originated
PDP	Packet Data Protocol
PIN	Personal Identification Number
QoS	Quality of Service

Acronym/term	Description
RoHS	Restriction on the use of certain hazardous substances.
RTN	Retrain Negative
RX-2	Type designation for the Nokia 12 GSM module (EGSM 900/GSM 1800 MHz bands)
RX-9	Type designation for the Nokia 12 GSM module (GSM 850/GSM 1900 MHZ bands)
SMS	Short Message Service
TA	Terminal Adapter
TE	Terminal Equipment

1. ABOUT THIS DOCUMENT

This document introduces the AT commands that can be used with the Nokia 12 GSM module (hereafter Nokia 12 module). For more detailed instructions on how to use these AT commands, see the *AT Command Set for Nokia GSM Products* available at http://www.forum.nokia.com/ or http://www.americas.forum.nokia.com/.

	Note: For more information on using the Nokia 12 module, see the *Nokia 12 GSM Module Product Specification, Nokia 12 GSM Module Software Developer's Guide,* and *Nokia 12 GSM Module Java™ IMlet Programming Guide*.

2. INTRODUCTION

There are two versions of the Nokia 12 module:

- RX-2 dual-band GSM device supporting EDGE, GPRS, HSCSD, CSD and SMS in EGSM 900/GSM 1800 MHz bands

	Note: An enhanced version of the RX-2, Nokia 12i module, includes GPRS class 10, EDGE class 6, AMR voice codec, and RoHS-free hardware.

- RX-9 dual band GSM device supporting EDGE, GPRS, CSD, SMS in GSM 850/GSM 1900 MHz bands.

For more information about the Nokia 12 module, other Nokia M2M products and application development, please visit our website at http://www.forum.nokia.com/m2m or http://www.americas.forum.nokia.com/m2m.

	Note: Some AT commands related to HSCSD described or mentioned in this document are not implemented in the Nokia 12 module version RX-9 (for GSM 850 /GSM 1900 MHz network).

3. PRODUCT SUPPORT

3.1 V.250

Command	Description
ATS3	Command line termination character
ATS4	Response formatting character
ATS5	Command line editing character
ATE	Command echo
ATQ	Result code suppression
ATV	Data Circuit Terminating Equipment (DCE) response format
ATX	Result code selection and call progress monitoring control
AT&C	Circuit 109 (received line signal detector) behaviour
AT&D	Circuit 108 (data terminal ready) behaviour
AT+IFC	Data Terminal Equipment (DTE)-DCE local flow control
AT+IPR	Fixed DTE rate
AT+ILRR	DTE-DCE local port rate reporting
AT+ICF	DTE-DCE character framing

3.2 DE FACTO

Command	Description
ATS25	Detect Data Terminal Ready (DTR) change time
AT&S	Data Set Ready (DSR) signal behaviour
AT&K	Select flow control

4. GENERIC COMMANDS

4.1 V.250

Command	Description
ATZ	Reset to default configuration
AT&F	Set to factory-defined configuration
ATI	Request identification information
AT+GMI	Request terminal adapter (TA) manufacturer identification
AT+GMM	Request TA model identification
AT+GMR	Request TA revision identification
AT+GSN	Request TA serial number identification
AT+GCAP	Request complete capabilities list

4.2 DE FACTO

Command	Description
AT&V	View configuration
AT&W	Store configuration
AT&Y	Select power-up configuration

4.3 GSM 07.07

Command	Description
AT+CGMI	Request mobile equipment (ME) manufacturer identification
AT+CGMM	Request ME model identification
AT+CGMR	Request ME revision identification
AT+CGSN	Request ME serial number identification
AT+CSCS	Select terminal equipment (TE) character set
AT+WS46	Select wireless network (GSM phones' response is always 12, and it cannot be changed)

5. CALL CONTROL COMMANDS

5.1 V.250

Command	Description
ATD	Dial
ATA	Answer response
ATH	Hook control
ATO	Return to online data state
ATS0	Automatic answer
ATS6	Pause before blind dialling
ATS7	Connection completion timeout
ATS8	Comma dial modifier time
ATS10	Automatic disconnect delay
ATL	Monitor speaker loudness
ATM	Monitor speaker mode
AT+DS	Data compression
AT+DR	Data compression reporting

5.2 DE FACTO

Command	Description
ATB	CCITT/Bell mode
ATS1	Ring count
ATS2	Escape code character
ATS12	Escape guard time
+++	Escape sequence

5.3 GSM 07.07

Command	Description
AT+CSTA	Select type of address

Command	Description
AT+CHUP	Hang up call
AT+CBST	Select bearer service type
AT+CRLP	Radio link protocol
AT+CR	Service reporting control
AT+CEER	Extended error report
AT+CRC	Cellular result codes
AT+CSNS	Single numbering scheme
AT+CHSR	HSCSD parameters reporting **Note!** Not supported in RX-9.
AT+CHSD	HSCSD device parameters **Note!** Not supported in RX-9.
AT+CHSN	HSCSD non-transparent call configuration **Note!** Not supported in RX-9.
AT+CHSC	HSCSD current call parameters **Note!** Not supported in RX-9.
AT+CV120	V.120 rate adaptation protocol
AT+CVHU	Voice hang up control

6. NETWORK SERVICE COMMANDS (GSM 07.07)

Command	Description
AT+CREG	Network registration
AT+COPS	Operator selection
AT+CLCK	Facility lock
AT+CLIP	Calling line identification presentation
AT+CLIR	Calling line identification restriction
AT+COLP	Connected line identification presentation
AT+CCFC	Call forwarding number and conditions
AT+CCWA	Call waiting
AT+CHLD	Call related to supplementary services
AT+CUSD	Unstructured supplementary services
AT+CSSN	Supplementary service notifications
AT+CLCC	List current calls
AT+CPWD	Change passwords for the SIM/ME/network features
AT+CNUM	Subscriber number **Note!** This command is available for: - RX-2 from software release 4.15 onwards - RX-9 from software release 3.14 onwards

7. MOBILE EQUIPMENT CONTROL AND STATUS COMMANDS (GSM 07.07)

Command	Description
AT+CPIN	Enter Personal Identification Number (PIN/PUK) **Note!** Previously this command has also included PIN2/PUK2 values. From software releases 4.15 (RX-2) and 3.14 (RX-9) onwards there is a separate command (AT+CPIN2) for PIN2/PUK2.
AT+CSQ	Signal quality
AT+CPBS	Select phonebook memory storage
AT+CPBR	Read phonebook entries
AT+CPBF	Find phonebook entries
AT+CPBW	Write phonebook entry
AT+CPAS	Phone activity status
AT+CIMI	Request International Mobile Subscriber Identity (IMSI)
AT+CSVM	Set Voice Mail Number **Note!** This command is available for: - RX-2 from software release 4.15 onwards - RX-9 from software release 3.14 onwards
AT+CPIN2	Enter PIN2/PUK2 **Note!** This command is available for: - RX-2 from software release 4.15 onwards - RX-9 from software release 3.14 onwards

8. MOBILE EQUIPMENT ERROR COMMAND (GSM 07.07)

Command	Description
AT+CMEE	Report mobile equipment error

9. SMS COMMANDS (GSM 07.05)

Command	Description
AT+CSMS	Select message service
AT+CPMS	Preferred message storage
AT+CMGF	Message format
AT+CSCA	Service centre address
AT+CSMP	Set text mode parameters
AT+CSDH	Show text mode parameters
AT+CSCB	Select cell broadcast message types
AT+CSAS	Save settings
AT+CRES	Restore settings
AT+CNMI	New message indications to TE
AT+CMGL	List messages
AT+CMGR	Read message
AT+CNMA	New message acknowledgement to ME/TA
AT+CMGS	Send message
AT+CMSS	Send message from storage
AT+CMGW	Write message to memory
AT+CMGD	Delete message
AT+CMGC	Send command
AT+CMMS	More messages to send
AT+CGSMS	Select service for mobile-originated (MO) short messages

10. FAX COMMANDS

10.1 ALL CLASSES

Command	Description
AT+FCLASS	DCE mode select
AT+FLO	Select flow control
AT+FPR	Serial port rate control

10.2 CLASS 1

Command	Description
AT+FDD	Double escape character replacement
AT+FMI	Request manufacturer ID
AT+FMM	Request model ID
AT+FMR	Request revision ID
AT+FRH	Receive High-level Data Link Control (HDLC) data with a supported carrier
AT+FRM	Receive data with a supported carrier
AT+FRS	Receive silence
AT+FTH	Transmit HDLC data with a supported carrier
AT+FTM	Transmit data with a supported carrier
AT+FTS	Transmit silence

10.3 CLASS 2

Command	Description
AT+FAA	Adaptive answer
AT+FAXERR	Fax error value parameter
AT+FBADLIN	Retrain Negative (RTN) threshold number of consecutive bad lines for FCQ command
AT+FBADMUL	RTN threshold error rate multiplier for FCQ command
AT+FBOR	Data bit order
AT+FBUF	DCE’s buffer characteristics

Command	Description
AT+FBUG	Session message reporting
AT+FCIG	Local polling ID string
AT+FCQ	Quality checking
AT+FCR	Capability to receive
AT+FCTCRTY	Error Correction Mode (ECM) retry count
AT+FDCC	Capabilities parameters
AT+FDCS	Negotiated current session parameters
AT+FDFFC	Data encoding format conversion parameter
AT+FDIS	Current session parameters
AT+FDR	Receive phase C data
AT+FDT	Transmit phase C data
AT+FECM	ECM control parameter
AT+FET	Transmit page punctuation
AT+FK	Terminate session
AT+FLID	Local ID string
AT+FLNFC	Page length format conversion parameter
AT+FLPL	Indicate a document to poll
AT+FMDL	Request model ID
AT+FMFR	Request manufacturer ID
AT+FMINSP	Minimum acceptable phase C speed
AT+FPHCTO	Phase C response timeout
AT+FPTS	Page transmission status parameter
AT+FRBC	Phase C receive data block size
AT+FREL	Phase C received an End of Line (EOL) alignment control parameter
AT+FREV	Request revision ID
AT+FSPL	Request to poll
AT+FTBC	Phase C transmit data block size
AT+FVRFC	Vertical resolution format conversion
AT+FWDFC	Page width format conversion

10.4 CLASS 2.0

Command	Description
AT+FAA	Adaptive answer
AT+FBO	Data bit order
AT+FBS	Buffer size
AT+FBU	HDLC frame reporting
AT+FCC	Capabilities parameters
AT+FCQ	Copy quality checking
AT+FCR	Capability to receive
AT+FCS	Current session results
AT+FCT	Phase C response timeout
AT+FDR	Receive phase C data
AT+FDT	Transmit phase C data
AT+FEA	Phase C receive EOL alignment
AT+FFC	Data encoding format conversion
AT+FHS	Call termination status
AT+FIE	Procedure interrupt enable
AT+FIP	Initialize facsimile parameters
AT+FIS	Current session parameters
AT+FKS	Terminate session
AT+FLI	Local ID string
AT+FLP	Indicate a document to poll
AT+FMI	Request manufacturer ID
AT+FMM	Request model ID
AT+FMR	Request revision ID
AT+FMS	Minimum phase C speed
AT+FNR	Negotiation message reporting
AT+FNS	Non-standard frame Facsimile Information Field (FIF) octet string
AT+FPI	Local polling ID string
AT+FPP	Packet protocol command
AT+FPS	Page status
AT+FRQ	Receive quality threshold
AT+FRY	ECM retry count
AT+FSP	Request to poll

11. VOICE COMMANDS

Command	Description
AT+FCLASS	DCE mode
AT+VTS	Dual-tone Multifrequency (DTMF) generation

12. GPRS COMMANDS (GSM 07.07)

Command	Description
AT+CGDCONT	Define Packet Data Protocol (PDP) context
AT+CGATT	GPRS attach or detach
AT+CGACT	PDP context activate or deactivate
AT+CGDATA	Enter data state
AT+CGREG	GPRS network registration status
AT+CGEQREQ	3G quality of service (QoS) profile (requested)
AT+CGEQMIN	3G quality of service profile (minimum acceptable)
AT+CGEQNEG	3G quality of service profile (negotiated)

13. NOKIA-SPECIFIC COMMANDS

Command	Description	Value
ATS47	Force fax class 2/2.0 error correction mode	Value range is 0 – 2, and the default value is 0. 0 = disabled 1 = enabled with 64 byte frames 2 = enabled with 256 byte frames
ATS48	Force fax 14.4 kB	Value range is 0 – 1, and the default value is 0. Value 0 is recommended if the network or the mobile equipment in question does not support the 14.4kB service. 0 = disabled 1 = enabled
AT*NAUTODISC	Automatic Disconnect	The command can be used to set the maximum time limit for 'silent time' in non-transparent data transfer. That is, if there is no data traffic in either direction for the defined period of time, the call is automatically disconnected. The time parameter given is in minutes. The value range is 0 – 255, and value 0 means that automatic disconnect is not used.
AT+CRST	Reset command for the Nokia 12 module	
AT*NAUTOPIN	AUTOPIN functionality configuration	Value range is 0 – 1, and the default value is 0. 0 = off 1 = on **Note!** This command is available for: - RX-2 from software release 5.01 (Nokia 12i module) onwards - RX-9 from software release 3.32 onwards
AT*NEONS	Reads the enhanced operator name from the SIM card.	Response: *NEONS: <name>

Command	Description	Value
	card.	<name>: operator name **Note!** This command is not supported in RX-2. However, the command is available for RX-9 from software release 3.14 onwards.
AT*NPLAN	Reads the preferred language list (see table below) from SIM.	Response: *NPLAN: <language> <CR><LF>*NPLAN: <language> <language>: preferred language from SIM. **Note!** This command is available for: - RX-2 from software release 4.15 onwards - RX-9 from software release 3.14 onwards
AT*NCSP	Reads the customer service profile from the SIM card.	Command syntax: *NCSP= <service group> Response: *NCSP: <service group>, <service1>, <status> <CR><LF>*NCSP: <service group>, <service2>, <status> <service group>: customer profile service group <service1>, <service2>: service for service group <status>: 0 disabled 1 enabled Test command syntax: *NCSP=? Response: *NCSP: (list of supported <service group>s) **Note!** This command is not supported in RX-2. However, the command is available for RX-9 from software release 3.14 onwards.
AT*NSYSPRO	This command sets the AT command port (port 1) temporarily (until	No parameters. **Note!** When the Nokia 12 module is reset, port 1 returns to the previous mode (HW detection, AT command).

Command	Description	Value
	the Nokia 12 module is reset) to System Protocol mode.	The AT*NSYSPRO command does not change the settings of port 1 permanently. Instead it makes it possible to use the System Protocol temporarily to set parameters via port 1, which is normally reserved only for AT commands. **Note!** This command is available for: - RX-2 from software release 5.01 onwards - RX-9 from software release 3.32 onwards

AT*NPLAN languages:

<language indicator>	Language
0	German
1	English
2	Italian
3	French
4	Spanish
5	Dutch
6	Swedish
7	Danish
8	Portuguese
9	Finnish
10	Norwegian
11	Greek
12	Turkish
13	Hungarian
14	Polish
255	Unspecified language

AT*NCSP values:

Service group		Service	
value		value	
	Call offering	0	Call transfer

Service group		Service	
		1	Not reachable
		2	No reply
		3	Busy
		4	Unconditional
1	Call restriction	0	Incoming (if roaming) calls
		1	Incoming calls
		2	Outgoing international calls except those directed to the home PLMN country
		3	Outgoing international calls
		5	Outgoing calls
2	Other supplementary service	0	Advice of Charge
		1	Closed User Group
		2	Multiparty
3	Call completion	0	Call completion to busy
		1	Call waiting
		2	Call hold
4	Teleservices	0	SMS validity period
		1	SMS protocol ID
		2	SMS delivery confirmation
		3	SMS reply path
		4	SMS cell broadcast
		5	SMS mobile-originated
		6	SMS mobile-terminated
5	Common personal communication network handset specification (CPHS) teleservices	0	Alternate line service
6	CPHS features	0	Reserved for future use
		1	Reserved for future use
		2	Reserved for future use
		3	Reserved for future use
7	Number identification	0	Block Calling line (CLI) - CLI per call mode - default

Service group		Service	
			send CLI
		1	Send CLI - CLI per call mode - default block CLI
		2	Malicious Call Indicator
		3	Connected Line Identification Presentation
		4	Connected Line Identification Restriction
		5	Calling Line Identification Presentation
8	Value added services	0	Language
		1	Reserved for future use
		2	Data
		3	Fax
		4	SMS mobile-originated email
		5	SMS mobile-originated paging
		6	Restriction of menu options for Voice Mail or other similar menus
		7	Restriction of menu options for manual PLMN selection

14. RESULT CODES

14.1 V.250

Command	Description
+DR	Data compression result

14.2 GSM 07.07

Command	Description
+CSSI	Intermediate supplementary service notification
+COLP	Connected line identification report
+CR	Data service report
+CRING	Distinctive ring
+CLIP	Calling line identification report
+CSSU	Unsolicited supplementary service notification
+CCWA	Call waiting
+CUSD	Network initiated unstructured supplementary service data
+CME	ERROR Mobile equipment error
+CHSR	HSCSD parameters report **Note!** Not supported in RX-9.
+CREG	Network registration

14.3 GSM 07.05

Command	Description
+CMTI	New SMS-DELIVER indication
+CMT	New SMS-DELIVER
+CBM	New Cell-Broadcast Message (CBM)
+CDSI	New SMS-STATUS-REPORT indication
+CDS	New SMS-STATUS-REPORT
+CMS	ERROR Message service failure

REFERENCES

The following Nokia M2M customer documents are available at http://www.forum.nokia.com/m2m or http://www.americas.forum.nokia.com/m2m.

/1/ Nokia 12 GMS Module Software Developer's Guide

/2/ Nokia 12 GSM Module Java™ IMlet Programming Guide

/3/ Nokia 12 GSM Module Product Specification

/4/ AT Command Set for Nokia GSM Products