

WLAN Socket Modem

XM8000S, XM8000S-3V Series

Quick Start Manual

Version 100

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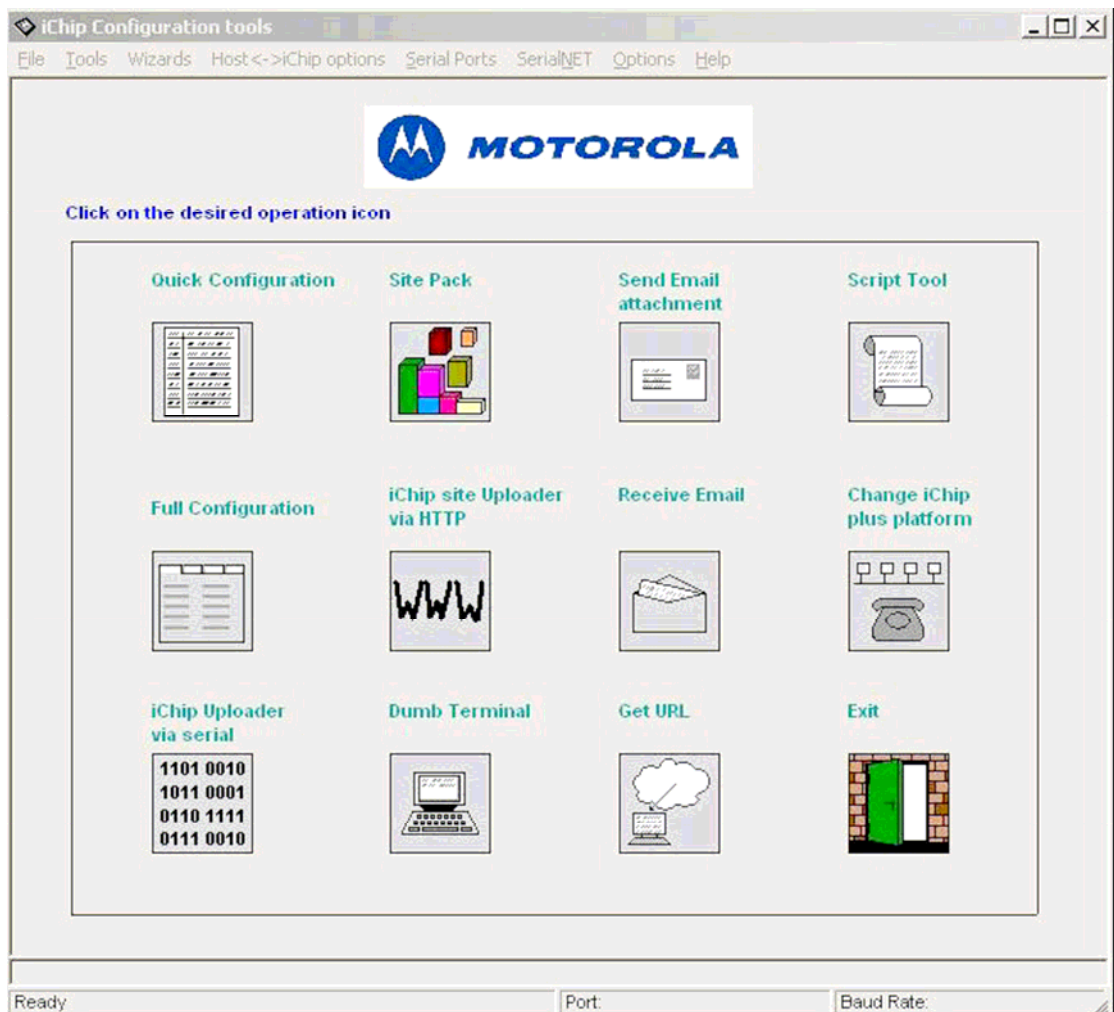
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1. W24 CONFIGURATION TOOLS

1.1 iChipConfig

The iCHIP config is the tool used for easy & quick configuration and testing for the W24 module.



2. W24 COMMUNICATION

2.1 AT+I Commands

- The W24 communicates with the outside world using the AT+I commands.
- The AT+i command set is the formal API (Application Program Interface) between the W24 module and the host processor.
- It is both easy to master and enjoys a very high level of portability and interoperability.
- The commands can be issued using any terminal application linked to the Module via the Serial Interface (RS232) or UART.

2.2 General AT+i Command Structure

- `AT+i<cc or par>[<parameter>...]<CR>`
- `AT+i` : Required prefix
- `<cc>` or `<par>` : 3-4 letter command-code (`<cc>`) or parameter (`<par>`)
- `` : Delimiter: '=', '~', '?', ':', ','
- `<parameter>` : Optional parameter or data.
- `<CR>` : Carriage-Return line terminator (ASCII 13)

2.3 Initial Status Report

<code>AT+I</code> <code>I/OK</code>	→ Communication check
<code>AT+iRP0</code> <code>CO2128- D</code>	→ Status Report for iChip Family
<code>AT+iRP1</code> <code>ID722b10 27.3.2008</code> <code>I/OK</code>	→ Status Report for Firmware version
<code>AT+iRP3</code> <code>0206 13.2.2008</code> <code>I/OK</code>	→ Status Report for boot block version

2.4 At+irpX Common used Commands

The +iRP commands are Status reports commands

- AT+iRP10 → Status of connection standard (B\G)
- AT+IRP14 → List of available ad-hoc networks
- AT+iRP20 → List of available AP's and ad-hoc nets

2.5 Important Settings

- AT+iMIF= <modem interface> 1-2
- AT+iBDRM=< modem baud rate>
= 0 automatic
= 1-9 different rates
- AT+iCPF=0 **AT+I** and **AT** command simultaneously
- ESC sequence from any mode '+++'
- AT+iHIF = <host interface>
= 1,2,3 UARTs
= 4,5 USB
- AT+iBDRF=<baud rate>
= 0 automatic
= 1-9 different rates
- AT+iSNSI = <baudrate, bits, parity, start/stop, flow control>
baudrate = 0 – 9, bits = 7 – 8, parity = N/E/O
start/stop = 1, flow control = 1/0

3. W24 CONNECTIONS

3.1 Configuring a WPA Connection

AT+iWLSI="test_W24"

I/OK

AT+iWLWM=1

→ WEP Disabled

I/OK

AT+iWSEC=0

→ Sets the WPA protocol type

I/OK

AT+iWLPP=3rhallel

→ WPA password string

I/OK

AT+iDOWN

→ Software reset

I/OK

I/ONLINE

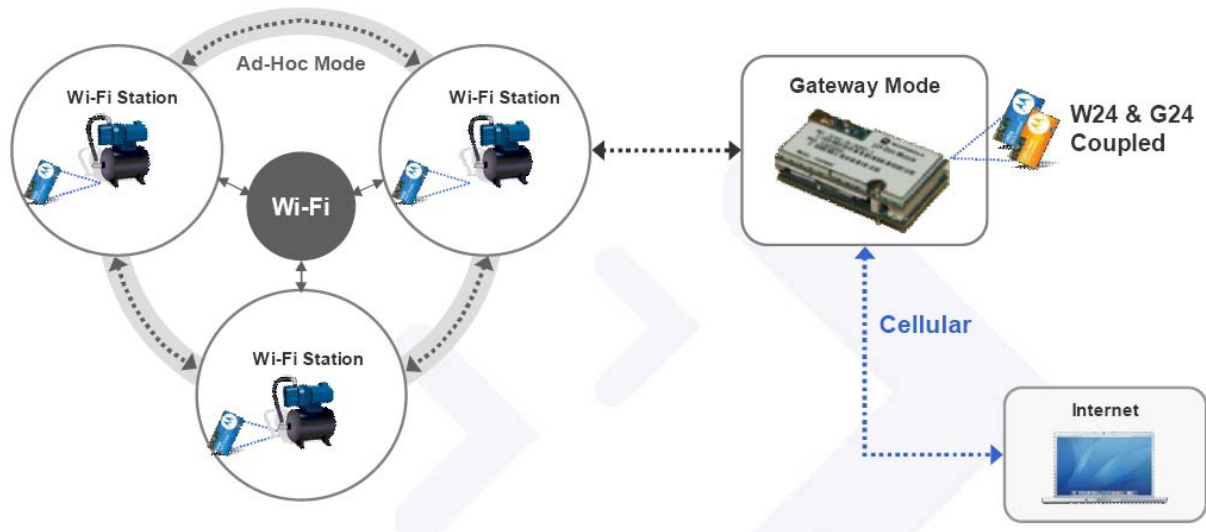
AT+iipa?

→ get IP number if connected

IP #

I/OK

4. AD-HOC AND GATEWAY MODES



4.1 Ad-hoc mode / Client

```

at+iwlsi?
!w24
I/OK
at+iwlch?
11
I/OK
at+iwlsi?
!w24
I/OK
at+iwlch?
11
I/OK
at+idip?
192.168.0.1
I/OK
at+iDPSZ?
100
I/OK
at+iDSLTL?
10000
I/OK
at+idip?
192.168.0.1
I/OK
at+iipa?
192.168.0.1
I/OK
at+irp14
MAC Address IP Address
002075141025 192.168.0.2
I/OK
    
```

4.2 Router mode / Coupled configuration

AT+iWLCH=11

AT+iWLSI=!<Name>

AT+iMTYP=2 - GSM/GPRS modem type

AT+iISP1=<ISP/provider dial number>(usually *99#)

AT+iMIS="at+cgdcont=1,\"ip\", \"<APN>\""

AT+iDPSZ=100,

AT+iDSLTL=10000 - DHCP server definitions

AT+iDIP=x.x.x.x (for example 192.168.0.1)

AT+iSTRR- start router mode

AT+iUP – Initiate internet session

AT+iSTPR - stop router mode

NOTE: Only for automatic iRouter mode use the command AT+iARS=1

at+iipa?

0.0.0.0

I/OK

at+idns1?

0.0.0.0

I/OK

at+idns2?

0.0.0.0

I/OK

at+iup

I/OK

I/ONLINE

at+iipa?

172.25.95.230

I/OK

at+idns1?

193.254.160.1

I/OK

at+idns2?

193.254.160.130

I/OK

5. EMAILS

5.1 Email configuration

at+iSMTP="mail.bezeqint.net" → SMTP server name/IP
I/OK
 at+iPOP3="pop.bezeqint.net" → POP3 server name/IP
I/OK
 AT+iMBX="demo1@xmodus.com" → Mailbox user name
I/OK
 AT+iMPWD="111111" → Mailbox password
I/OK
 AT+iLVS=0 → Leave on server flag

5.2 Email sending

I/OK
 AT+iTOA="demo1@xmodus.com" → Email destination
I/OK
 AT+iSBJ:"test Mail" → Email subject
I/OK
 AT+iREA="demo1@xmodus.com" → Reply-to email address
I/OK
 at+iema:This xmodus hands on exercise on W24. → Mail send/Body
I/OK
I/ONLINE

5.3 Email receiving

at+irm1 → Retrieve Mail list
I/OK
1 1339 Mon, 14 May 2007 13:46:14 +0300 (IDT) Email
I/ONLINE
 at+irmh:1 → Retrieve Mail header
I/OK
I/ONLINE
 at+irmm:1 → Retrieve Mail
I/OK
I/RCV
 This xmodus hands on exercise on W24.
I/EOM - End of Message
I/ONLINE

6. FTP

- FTP (File Transfer Protocol) is defined as a protocol for file transfer between hosts over a network.
- A primary function of the Internet is to enable users to move files from one computer to another computer across the Internet
- Users access the FTP server using an FTP client. The FTP client allows users to place files on the server and to grab copies of these files from the server
- W24 supports AT+i commands to:
 - log into an FTP server
 - navigate within the existing file system on the server
 - create new directories, retrieve lists of the directories and files in an existing directory
 - create and transfer data to files,
 - retrieve data from files and delete files
 - It is also possible to use the FTP client in order to retrieve data or instructions that were stored on the remote system by other computers or devices.

6.1 FTP supported commands

Open FTP link to FTP Server (AT+IFOPN)

Retrieve File List from Server (AT+IFDL / AT+IFDNL)

Change Directory on Server (AT+IFCWD)

Retrieve File Contents from Server (AT+IFRCV)

Create a New Directory on Server (AT+IFMKD)

Open a New File on Server (AT+IFSTO)

Open an existing File on Server for Append (AT+IFAPN)

Send Binary Data to an open File on Server (AT+IFSND)

Close a File on Server After Binary Data Send (AT+IFCLF)

Delete File on Server (AT+IFDEL)

Close FTP Session (AT+IFCLS)

6.2 Generate a file on a remote server

Generate a file on a remote server and store application data (scenario):

Step 1: Open FTP server and Login (FOPN)

Step 2: Select the destination directory (FCWD) or create a new one (FMKD)

Step 3: Open a new destination file (FSTO) or an existing file when appending (FAPN)

Step 4: Store application data in file (FSND)

Step 5: Repeat Step 4 until no more data to send

Step 6: Close destination File (FCLF)

Step 7: Go to step 3 if more files need to be stored in same directory or to step 2 if a new directory needs to be selected or created first

Step 8: When done, close the FTP session (FCLS)

6.3 FTP sample commands

AT+iFOPN:172.20.0.51,21:User_name,Pass → Open FTP Socket

I/OK

AT+iFDL:000 → Request for File List in the directory

I/OK

drwxr-xr-x 1 ftp ftp 0 Aug 31 2006 _general

I/ONLINE

AT+iFMKD:000,"\\ConnectOne\test1" → FTP Make Directory

I/OK

AT+iFCWD:000,"\\ConnectOne\test1" → FTP Change Working Directory

I/OK

AT+iFSTO:000,"text.txt" → FTP Open File for Storage

I/OK

AT+iFSND:000,10:1234567890 → Write into Opened File

I/OK

AT+iFCLF:000 → Close Opened File

I/OK

AT+iFRCV:000,text.txt → Retrieve File

I/OK

I/O

1234567890

AT+iFDEL:000,"text.txt" → Delete File

I/OK

AT+iFCLS:000 → Close FTP Connection

I/OK

I/ONLINE

7. SERIAL NET

SerialNET is a mode of operation within W24 command set that enables conversion of serial data to TCP/IP packets without any modification of the host device application.

Its main purpose is to allow simple devices, which normally interact over a serial line, to interact in a similar fashion across a network.

When XM8000S is put in SerialNET mode, it acts as a router between the device's serial port and the network.

SerialNET mode in XM8000S includes components to handle both server and client local devices. XM8000S under SerialNET mode will route full-duplex data between a networked terminal and both types of devices (Client & Server).

7.1 Working in SerialNET mode

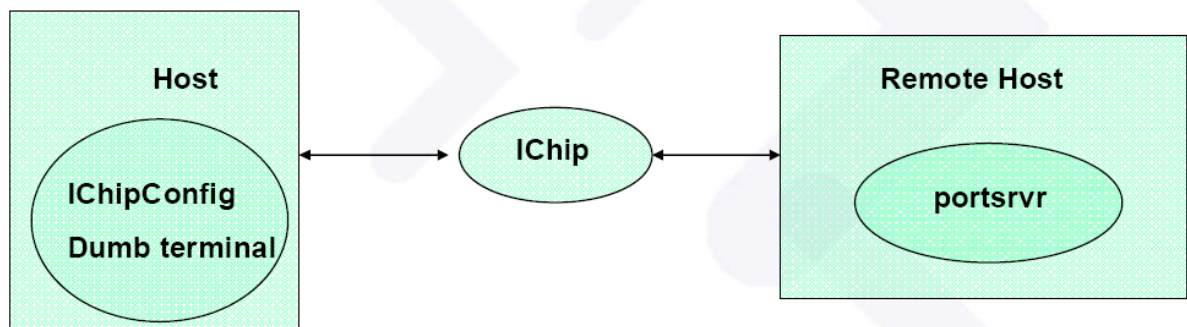
Note: Once in SerialNET mode, no additional AT+i commands can be sent

Tools: [iChipConfig](#)/ [HyperTerminal](#), [Server](#)

There are two ways to connect in SerialNET :

→ To a remote listening socket

→ From a remote host in to the XM8000S



7.2 Serial Net Settings

Server Side	Client Side
+icpf=1	+icpf=1
+iwlch=3	+iwlch=3
+iwlsci=!Name	+iwlsci=!Name
+idip=192.186.0.1	+idip=192.186.0.2
+idown	+idown
+iping=192.186.0.2	+iping=192.186.0.1
+isnsi=9,8,N,1,1 (could be that you have to write in "")	+isnsi=9,8,N,1,1 (could be that you have to write in "")
+ilprt=9000	+ilprt=0 (default)
	+ihsrv=192.186.0.1:9000
+imttf=100	+imttf=100
+i!snmd	+i!snmd

7.3 SerialNET Mode

AT+iHIF = < host interface (uart = 2 / USB)>

AT+iBDRF = <baud rate of the host interface>

AT+iSNSI = <baud rate, Bits, Parity, Start/ Stop bit, Flow control> port settings for serial port and then do:

AT+iHSRV = <server_name:Port>

AT+iSTYP = <socket type> TCP/UDP

NOTE: note that XM8000S cannot be operated in SerialNET mode when the HIF parameter is set to automatic mode.

AT+iLPRT = <1-65535> default is 0 =no listening port and finally:

AT+iSNMD=1

Get out of SerialNet Mode with '+++'

Notes: Once in SerialNET mode, no additional AT+i commands may be sent predefined fixed baud rate must be specified before switching over to SerialNET mode. SerialNET mode will extend across power down.

8. EMBEDDED WEB SERVER

XM8000S has a built in web server that handles web interaction independently of its host processor stored in non-volatile memory.

Hosts two on-chip websites:

- Dedicated
- Application (maximum website size of 64K)

Benefits:

- Ability to build web-based products
- Monitoring
- Configuring

AT+iWWW // retrieves the address of the internal website

The internal website address is: <http://<IP>/w24>

AT+iRLNK:"http://www.walla.com/"

9. REMOTE PARAMETER UPDATES

- The W24 remote parameter update file (RPF) allows users to remotely modify various non-volatile parameters in W24 products.
- The file's size must not exceed 10k
- By default, receiving and processing a parameters update file is disabled in the W24
- To enable this option, the RPG parameter must be set to some value.
- +iRPG can be used as a password to secure parameter updates
 - not contain a value, the update process is effectively disabled
 - (*), it is fully enabled
 - contains a value, the update process is restricted
- A remote parameters update file can be uploaded to W24 using W24's internal configuration site.

9.1 Sample RPF Remote Parameter File

```
RP_GROUP="111" RP_DEST="00010001"
RP_START_FROM_FACTORY_DEFAULTS=YES
# MODEM PARAMETERS:
MIS="ATX4E1&C1&D2M2L2"
XRC=1
BDRM=8
# CONNECTION PARAMETERS:
ISP1="7777555"
ISP2="036666555"
USRN="name"
PWD="pass"
DNS1=192.115.106.10
DNS2=192.115.106.11
ATH=1
SMTP="smtp.com"
EMA="name@domain"
# POP3 PARAMETERS:
MBX="pop_name"
MPWD="pop_pass"
POP3="pop3.com"
LVS=0
FLS="mymail"
```