

XE900M 900 MHz Smart Transceiver for Base Access System

Description

Xecom combines a micro-controller and a 900 MHz transceiver to create the XE900M, Smart Transceiver. The XE900M can communicate with another Smart Transceiver or with Xecom's XE924M Base Access Point. The Base Access Point connects multiple remote systems to a single dial-up telephone line. The XE900M supplies wireless connectivity through an easy-to-use serial component.

Integrating the XE900M Smart Transceiver is as easy as integrating a serial modem into your system. The XE900M interfaces to the system host through a TTL level serial interface. The designer controls the wireless link by manipulating modem-like AT commands provided in the Smart Transceiver.

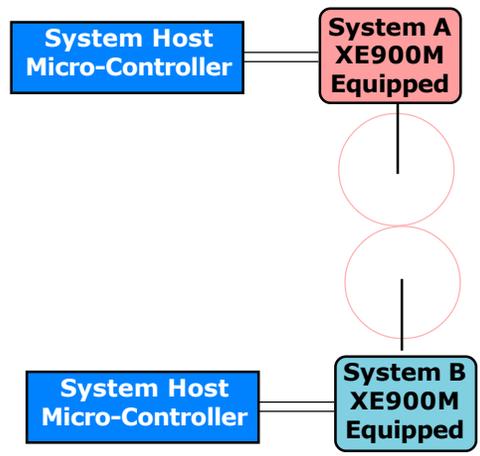
The XE900M uses 126 user-selectable communications channels in the 900 MHz ISM band. This creates a flexible communications platform for simple point-to-point communications between Smart Transceivers or a complete Base Access Network with multi-point wireless communications and Dial-up modem operation.

Features

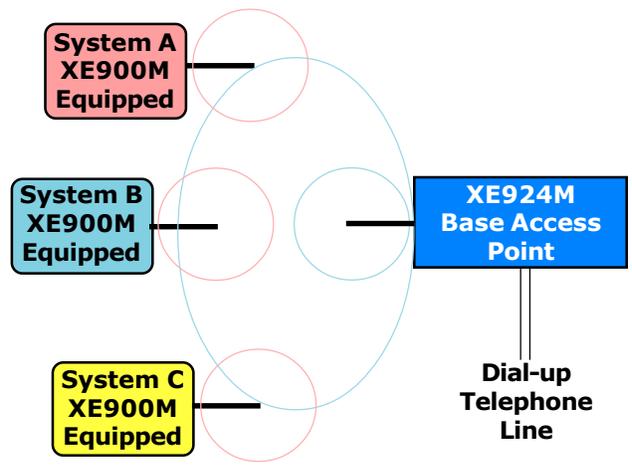
- * Small Size: 2.75" by 1.38: by 0.4"
- * Control and Configuration of the Wireless Link modem-like AT Commands.
- * 126 Carrier Frequencies from 902.5 to 927.5 MHz on ISM Band
- * SensoronAir™ allows direct connection of sensors to the Smart transceiver
- * Wireless Range; maximum 150 Feet
- * Wireless Data Rate 9600 BPS, half-duplex
- * Integrated communications controller regulates the wireless communications, error correction and host interface.
- * FCC Part 15 Compliance

900MHz Smart Transceiver Applications

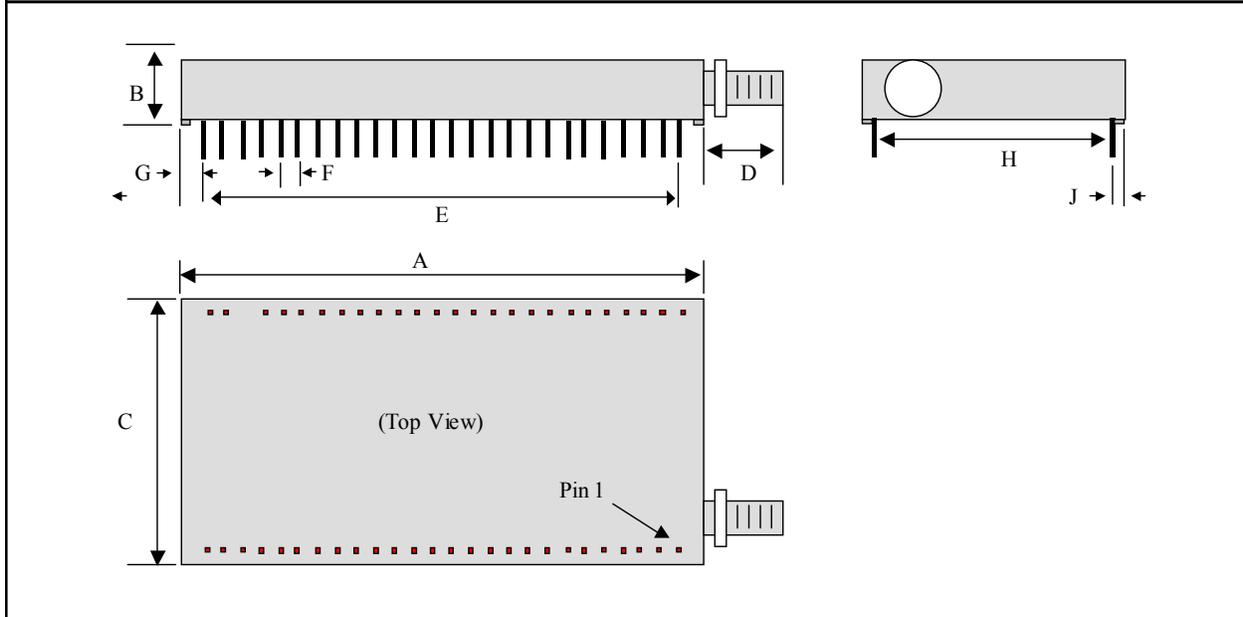
Point to Point Wireless Connection



900MHz Base Access System



XE900M MECHANICAL SPECIFICATIONS



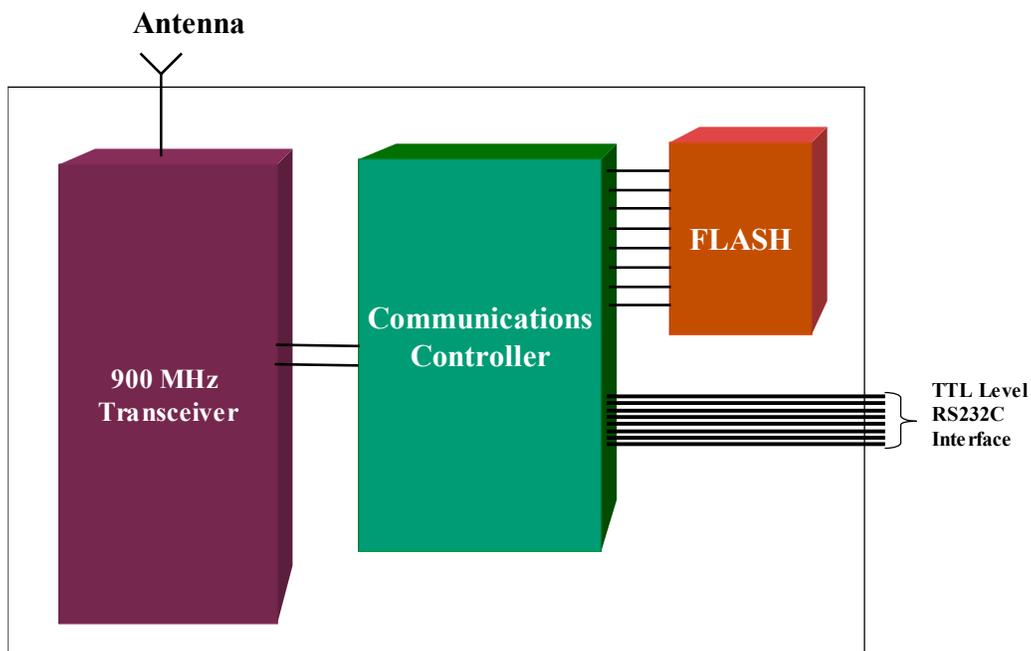
PIN	Inches		MM	
	MIN	MAX	MIN	MAX
A	2.740	2.760	69.60	70.10
B	0.400	0.420	10.16	10.67
C	1.370	1.390	34.80	35.31
D	5.300	0.510	13.46	12.95
E	2.490	2.510	63.25	63.37
F	0.090	0.110	2.29	2.79
G	0.115	0.135	2.92	3.43
H	1.190	1.210	30.23	30.73
J	0.130	0.150	3.30	3.81

Pin Description:

Pins are gold plated

Pin Dimensions .025 inches square, .minimum 090 inches long

XE900M BLOCK DIAGRAM



XE900M PIN CONFIGURATION

		XE900M		
RGND	■ 1		52	■ RGND
RESERVED	■ 2		51	■ RESERVED
RGND	■ 3		50	■ RGND
RESERVED	■ 4		49	■ RESERVED
RGND	■ 5		48	■ RGND
RESERVED	■ 6		47	■ RESERVED
RGND	■ 7		46	■ RGND
RESERVED	■ 8		45	■ RESERVED
RGND	■ 9		44	■ RGND
RGND	■ 10		43	■ RGND
I/O_1	■ 11		42	■ RESERVED
I/O_2	■ 12		41	■ I/O_0
I/O_3	■ 13		40	■ A/D_0
VDD	■ 14		39	■ RGND
DGND	■ 15		38	■ /CTS
/RST_VPP	■ 16		37	■ RESERVED
VCC	■ 17		36	■ /DCD
A.D_1/Vref	■ 18		35	■ RESERVED
/DSR(RB1)	■ 19		34	■ /DTR
RESERVED	■ 20		33	■ RESERVED
RXD	■ 21		32	■ /RTS
RESERVED	■ 22		31	■ RESERVED
TXD	■ 23		30	■ RESERVED
RESERVED	■ 24			
/RI	■ 25		28	■ RESERVED
RESERVED	■ 26		27	■ RESERVED

XE900M PIN CONFIGURATION

SIGNAL	PINS	DESCRIPTION
RGND	1, 3, 5, 7, 9, 10, 39, 43 44, 46, 48, 50, 52	RGND provides the common reference point for all high frequency signals.
RESERVED	2, 4, 6, 8, 20, 22, 24, 26 27, 28, 30, 31, 33, 35, 37, 42, 45, 47, 49, 51	These pins are reserved for future use. No connections should be made to these pins.
I/O_1	11	I/O_1 is a programmable I/O connected to RB5 of the XE900M's internal micro-controller.
I/O_2	12	I/O_2 is a programmable I/O connected to RB6 of the XE900M's internal micro-controller.
I/O_3	13	I/O_3 is a programmable I/O connected to RB7 of the XE900M's internal micro-controller.
VDD	14	VDD provides power to the communications controller
DGND	15	DGND provides the ground reference for the modem and communications controller circuitry in the XE900M.
RST_PV	16	RST_PV provides a hardware reset line for the XE900M's communications controller.
VCC	17	VCC provides power to the 900 Mhz transceiver.
AD_1/Vref	18	Programmable I/O pin from the embedded communications controller. Can be used as an analog input or to supply a precision analog reference voltage.
/DSR	19	/DSR supplies the Data Set Ready output from the XE900M. DSR is an active low output.
RXD	21	/RXD is the serial data output from the XE900M. A Mark condition on /RXD is active low.
TXD	23	/TXD is the serial data input to the XE900M. A Mark condition on /RXD is active low.
/RI	25	/RI is an active low output which indicates that a wireless link has been requested.
NO PIN	29	This pin is intentionally removed.
/RTS	32	/RTS is an active low input to the XE900M. It can be used to stop the flow of data from the XE900M to the host. When /RTS is inactive the XE900M will not pass data to the host.
/DTR	34	/DTR connects to the Data Terminal Ready line from the host. It is an active low input to the XE900M.
/CTS	38	/CTS provides the Clear to Send output from the XE900M. The XE900M deactivates /CTS to stop the flow of data from the host and prevent a buffer overflow. This is an active low output.

XE900M PIN CONFIGURATION

AD_0	40	Programmable I/O pin from the embedded communications controller. Can be used as a 10-bit analog input.
I/O_0	41	I/O_0 is a programmable I/O connected to RB3 of the XE900M's internal micro-controller.

ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-25° C to +85° C
Operating Temperature Range ¹	0° C to +70° C

¹ Units may be screened for operation from -40 to +85C. An extra charge will be applied for this screening.

XE900M ELECTRICAL SPECIFICATIONS

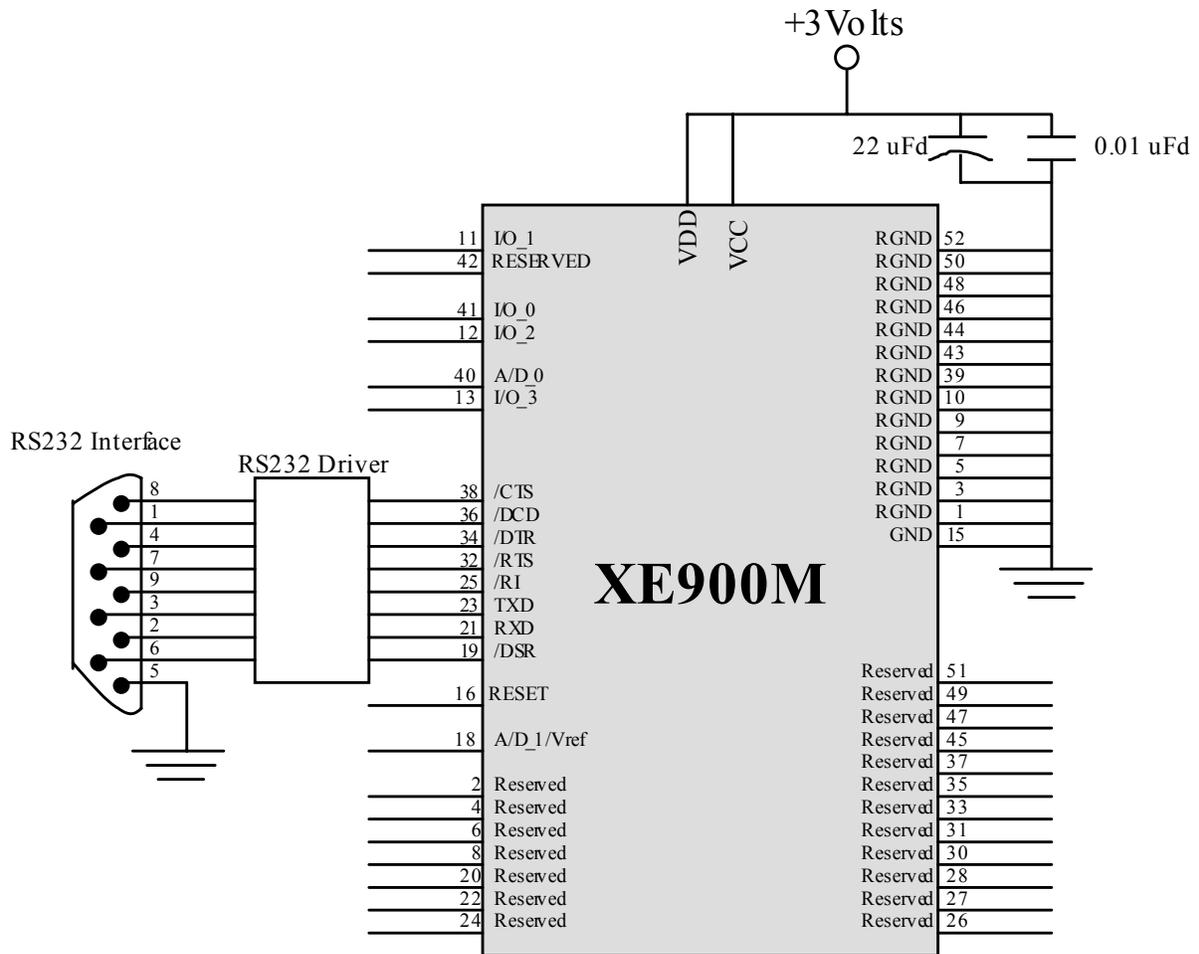
Parameter	Min	Typ	Max	Units	Comments
VCC	2.85	3.0	3.15	Volts	
ICC			TBD	ma	Transmit Mode
VDD	2.85	3.0	3.15	Volts	
IDD			TBD	ma	Transmit Mode
Output Power	-3	0	+4	dBm	50 Ohm Load
Wireless Receive Sensitivity		-94		dBm	
Antenna Output		50		Ohms	
RX to TX reversal			5	ms	
TX to RX reversal			6	ms	
Voh	2.4			Volts	
Vol			0.4	Volts	
Vih	2.0		VCC+0.3	Volts	
Vil	-0.3		0.8	Volts	

XE900M COMMUNICATIONS FREQUENCIES

The XE900M utilizes 126, 200 KHz channels for data transfer. The communications channel is selected by Register S110. The address for the communications channels are shown below.

<u>Channel Address</u>	<u>Frequency (MHz)</u>						
1	902.5	33	908.9	65	915.3	97	921.7
2	902.7	34	909.1	66	915.5	98	921.9
3	902.9	35	909.3	67	915.7	99	922.1
4	903.1	36	909.5	68	915.9	100	922.3
5	903.3	37	909.7	69	916.1	101	922.5
6	903.5	38	909.9	70	916.3	102	922.7
7	903.7	39	910.1	71	916.5	103	922.9
8	903.9	40	910.3	72	916.7	104	923.1
9	904.1	41	910.5	73	916.9	105	923.3
10	904.3	42	910.7	74	917.1	106	923.5
11	904.5	43	910.9	75	917.3	107	923.7
12	904.7	44	911.1	76	917.5	108	923.9
13	904.9	45	911.3	77	917.7	109	924.1
14	905.1	46	911.5	78	917.9	110	924.3
15	905.3	47	911.7	79	918.1	111	924.5
16	905.5	48	911.9	80	918.3	112	924.7
17	905.7	49	912.1	81	918.5	113	924.9
18	905.9	50	912.3	82	918.7	114	925.1
19	906.1	51	912.5	83	918.9	115	925.3
20	906.3	52	912.7	84	919.1	116	925.5
21	906.5	53	912.9	85	919.3	117	925.7
22	906.7	54	913.1	86	919.5	118	925.9
23	906.9	55	913.3	87	919.7	119	926.1
24	907.1	56	913.5	88	919.9	120	926.3
25	907.3	57	913.7	89	920.1	121	926.5
26	907.5	58	913.9	90	920.3	122	926.7
27	907.7	59	914.1	91	920.5	123	926.9
28	907.9	60	914.3	92	920.7	124	927.1
29	908.1	61	914.5	93	920.9	125	927.3
30	908.3	62	914.7	94	921.1	126	927.5
31	908.5	63	914.9	95	921.3		
32	908.7	64	915.1	96	921.5		

XE900M TYPICAL APPLICATION SCHEMATIC



Antenna - Xecom recommends the Linx Technologies right angle antenna, ANT-916-CS-RCL-ND

XE900M COMMUNICATIONS CONTROLLER

Hardware:

The XE900M uses a simple micro-controller to supervise communications. This micro-controller determines when the communications link is available, formats data for the 900 MHz network, and manages the host system interface.

Base Access Network

The Base Access Network includes up to 128 remote systems. All systems communicate with the XE924M Base Access Point using Xecom's XE900M Smart Transceiver. The XE900M and XE924M communicate over a half-duplex channel on a single, user selected carrier frequency. The user selects the carrier frequency from 126 available frequencies in the 900 MHz ISM band. The communications controller manages this channel preventing collisions, correcting errors, and reversing the data direction.

Carrier Sense Multiple Access (CSMA)

To prevent collisions between network nodes the XE900M uses a Carrier Sense Multiple Access protocol for each network transceiver. In normal communications all nodes on the network, including the XE924M Base Access Point, listen for communications activity before initiating a session. If a wireless link already exists between the XE924M and one of the XE900M equipped nodes, the node waits until that session is complete before initiating a wireless link.

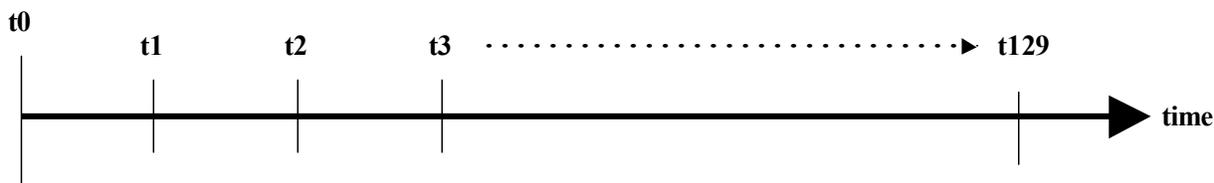
Count-off Function

The count-off function permits the Base Access Point to quickly check the status of all network nodes. When the count-off command, AT#C: or AT#C=, is broadcast by the Base Access Point each node responds in a predetermined time slot. The time slot is determined by the address assigned to the node. The node's response to the count-off command contains a user-programmable 8 byte data packet. This data packet is programmed with the AT#E: or AT#E= command. The count-off function can also be initiated from an XE900M acting as the network hub.

Data Packets

The XE900M places all data presented by the system host into packets for transmission across the wireless link. The XE924M also places all data coming across the telephone line into the same type packets. These packets provide addressing and error correction for the wireless communications. The communications controllers in the XE900M and XE924M place the data in packets only for the wireless link. The data is extracted from the packets before being sent to the modem or system host.

COUNT-OFF FEATURE



- t0: Base Access Point broadcasts "Count-off" command.
- t1: First smart transceiver equipped node (address 2) transmits status.
- t2: Next smart transceiver equipped node (address 3) transmits status.
- t3: Next smart transceiver equipped node (address 4) transmits status.
- ⋮
- t129 Final smart transceiver equipped node (address 128) transmits status.

Sensor-on-Air™

The XE900M includes Xecom's Sensor-on-Air™ feature. This feature permits direct connection of sensors to the XE900M smart transceiver. All control functions for the sensors and digital I/O's are performed by the communications controller within the Smart transceiver.

Sensor I/O Lines

The XE900M includes 6 I/O lines supporting the Sensor-on-Air function. There are two analog inputs connected to a 10-bit analog to digital converter. These analog inputs normally use VCC as their reference voltage; however if only one precision analog input is needed A/D2 can be used to provide an external reference voltage. The XE900M also includes 4 digital I/O lines which can be programmed as either inputs or outputs.

Configuring the XE900M for Sensor Operation

The communications controller within the XE900M is programmed to control the sensor I/O lines through its serial interface. AT commands issued through the serial port define the functions of the analog and digital I/O lines. See below for descriptions of the commands used to program the Sensor-on-Air functions. This information is then stored in the Flash memory on the XE900M. After configuration the XE900M can be installed in the application and the XE900M's communications controller will use the information stored in Flash memory to operate the sensors.

Sensor-on-Air Configuration Commands

Below are descriptions of the AT commands and registers used to program the Sensor-on-Air functions.

S107 - Defines the function of the programmable I/O lines. There are two analog input lines, ADC0 and ADC1, which can also be defined as digital I/O lines if needed. ADC1 can also be set as a high accuracy voltage reference. The four programmable digital I/O lines, DIO0, DIO1, DIO2, and DIO3; can be set as either inputs or outputs. The value of this command is stored in flash memory within the XE900M.

AT&IAn? - This command allows the local host to read the value of Analog Input "n."

AT&IDn? - This command allows the local host to read the status of Digital I/O "n."

AT&IDn=z - This command allows the host equipment to set the condition of the local digital output "n." When z=0 the output is set to a logic low; when z=1 the output is set to a logic high.

AT#IxxxAn? - This command allows the value of Analog Input "n" on node address "xxx" to be read remotely.

AT#IxxxDn? - This command allows the status of Digital I/O "n" on node address "xxx" to be read remotely.

AT#IxxxDn=z - This command allows the condition of the local digital output "n" on node address "xxx" to be set remotely. When z=0 the output is set to a logic low; when z=1 the output is set to a logic high.

XE900M AT COMMANDS

XE900M Host Interface

The XE900M interfaces to its host system using modem like AT commands. These AT commands control the configuration of the XE900M and the wireless link.

Command Line Format

Command lines issued to the XE900M follow a strict format. Each command begins with the prefix AT and ends with a carriage return. The XE900M communications controller accepts commands at data rates from 1200 to 115200 BPS. The modem uses the AT command prefix to automatically determine the speed and parity of the incoming characters.

Command Prefix - Each command, except the A/ command, begins with the AT prefix. The "A" and "T" may be either both upper case or both lower case but cannot be of different cases. The prefix identifies parity of the commands sent to the XE900M by the host. The speed of the incoming serial data is determined by measuring the width of the incoming bytes. Parity is determined by comparing the parity bits of the "A" and the "T" characters.

Command Line - Commands may be strung together in a single command line of up to 36 characters. Commands in the command string are executed in the sequence they appear.

Omitted Parameters - Most commands include a parameter which determines the function setting. When the command parameter is omitted from the command string, it is assumed to be a 0.

Result Codes - The modem normally issues a result code after each action. Result codes may be provided as full words, one or two digit numeric codes, or may be disabled all together. Each result code ends with a carriage return when numeric result codes are chosen. When full word result codes are chosen, a Line Feed and Carriage Return precede and follow each result code.

Disconnect Sequence - A three character sequence initiates a disconnect of the wireless link. The sequence “~” is assigned to disconnect the link.

AT Commands

An asterisk indicates the factory default

A **Answer Command** - forces the smart transceiver respond to a summons from another wireless device.

Dn **Initiate a Wireless Link** - attempts to establish a connection with the transceiver at address n.

En **Echo Characters** - determines if the XE900M will echo the characters received on its serial interface during command mode.

n=0 Characters not Echoed

n=1 Characters Echoed *

In **Identification** - displays product identification code.

n=0 Display Product Code

n=1 Display Product Name

n=2 Display Model Number

n=3 Display Copyright

n=4 Display Firmware Revision

Qn **Result Code Display** - determines if results codes will be displayed.

n=0 Display Result Codes *

n=1 Do not Display Result Codes

Sn= **Set Value of Register Sn**

Sn? **Read Value of Register Sn**

Vn **Response Type** - selects Full Word or Numeric responses

n=0 Numeric Responses

n=1 Full Word Responses *

Zn **Reset** - executes a soft Reset

n=0 Reset to Values Stored in User Profile 0 *

n=1 Reset to Values Stored in User Profile 1

&Cn **DCD Options** - sets the operation of the DCD serial interface signal from the XE900M

n=0 DCD Always Active

n=1 DCD Active during wireless Link *

Embedded Wireless AT Commands

&Dn DTR Options - determines how the XE900M will react to the status of DTR from the host.

- n=0 Ignore the Status of DTR *
- n=1 Not Used
- n=2 DTR Required for a Wireless Connection
- n=3 Execute a Soft Reset when DTR removed.

&F Restore Factory Settings - returns all configuration commands and registers to their factory default values.

&IAn? Read Local Analog Input “n” - This command allows the host equipment to read the values of the local analog inputs.

- n=0 Read input ADC0
- n=1 Read input ADC1

&IDn? Read Local Digital Input “n” - This command allows the host equipment to read the status of the local digital inputs.

- n=0 Read input DIO0
- n=1 Read input DIO1
- n=2 Read input DIO2
- n=3 Read input DIO3
- n=4 Read input DIO4 (pin shared with ADC0)
- n=5 Read input DIO5 (pin shared with ADC1)

&IDn=z Set Local Digital Output “n” - This command allows the host equipment to set the condition of the local digital outputs. When z=0 the output is set to a logic low; when z=1 the output is set to a logic high.

- n=0 Set output DIO0
- n=1 Set output DIO1
- n=2 Set output DIO2
- n=3 Set output DIO3
- n=4 Set output DIO4 (pin shared with ADC0)
- n=5 Set output DIO5 (pin shared with ADC1)

&Kn Flow Control - selects the type of flow control to be used between the system host and the XE900M

- n=0 Flow Control Disabled
- n=3 RTS/CTS, hardware Flow Control
- n=4 XON/XOFF, in-band Flow Control *

&Sn Data Set Ready - sets the operation of the DSR interface signal from the XE900M

- n=0 DSR Always On *
- n=1 DSR Active during Wireless Link

&V View Active Configuration - sends the active configuration data to the system host.

&Wn Store Current Configuration - loads the current XE900M configuration into either User Profile 0 or User Profile 1.

- n=0 load configuration into User Profile 0
- n=1 load configuration into User Profile 1

#B Wireless Broadcast Mode - initiates wireless broadcast mode for diagnostic purposes.

#C: Count-Off Request (ASCII) - Initiates a “count-off” sequence in the network with node status to be reported in ASCII format.

#C= Count-Off Request (Hex) - Initiates a “count-off” sequence in the network with node status to be reported in hexadecimal format.

#E: Count-Off Response (ASCII) - Programs the nodes 8 byte response to a “count-off” request from the network hub in ASCII format.

#E= Count-Off Response (Hex) - Programs the nodes 8 byte response to a “count-off” request from the network hub in hexadecimal format.

#IxxxAn? Read Analog Input “n” at Node Address xxx - This command allows analog input values at any node to be read remotely.

- n=0 Read input ADC0
- n=1 Read input ADC1

#IxxxDn? Read Digital Input “n” at Node Address xxx - This command allows the status of the digital inputs at any node to be read remotely.

- n=0 Read input DIO0
- n=1 Read input DIO1
- n=2 Read input DIO2
- n=3 Read input DIO3
- n=4 Read input DIO4 (pin shared with ADC0)
- n=5 Read input DIO5 (pin shared with ADC1)

Embedded Modem AT Commands

<p>#IxxxDn=z Set Digital Output “n” at Node Address xxx</p> <p>- This command allows the condition of the digital outputs to be modified remotely. When z=0 the output is set to a logic low; when z=1 the output is set to a logic high.</p> <p>n=0 Set output DIO0 n=1 Set output DIO1 n=2 Set output DIO2 n=3 Set output DIO3 n=4 Set output DIO4 (pin shared with ADC0) n=5 Set output DIO5 (pin shared with ADC1)</p>	<p>#Ln Check RSSI Level - Displays current Wireless received signal levels</p> <p>n=0 Display a single value * n=1 Display 4 Values n=2 Display continuous values</p>
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XE900M Responses

<u>Numeric</u>	<u>Full Word</u>	<u>Description</u>
0	OK	Successfully executed command line
1	CONNECT RF	Wireless Connection Established
2	RING	Wireless Link Request Detected
3	DISCONNECT	Failed to Establish or Lost Wireless Link
4	ERROR	Error in command line
7	BUSY	Link Request Time Out has occurred
9	WAIT	Wireless Link is not available

XE900M Configuration Registers

S0 Answer Wireless Link Request - S0 determines if the XE900M will automatically respond to a wireless link request.

S0=0 No Automatic response to link requests

S0=1 Automatically respond to link requests

S2 Wireless Disconnect Character - S2 sets the ASCII character to be used in the link disconnect sequence. The default character is the tilde “~”.

Range: 0-255

Default: 126

S12 Disconnect Guard Timer - S12 sets the value of the guard timer in milliseconds before and after the disconnect sequence. If any characters other than the disconnect sequence are received within the window defined by S12 the link will not be disconnected.

Range: 0-255

Default: 40

Units: Milliseconds

S14 Bit-mapped Register - S14 stores the values of the ATE, ATQ and ATV commands.

S21 Bit-mapped Register - S21 stores the values of the AT&D, AT&C and XY&S commands.

S23 Serial Interface Data rate - S23 stores the serial interface data rate.

Range 0-10

0 = Autobaud

1 = Set serial data rate to 1200 BPS

2 = Set serial data rate to 2400 BPS

3 = Set serial data rate to 4800 BPS

4 = Set serial data rate to 9600 BPS

5 = Set serial data rate to 14400 BPS

6 = Set serial data rate to 19200 BPS

7 = Set serial data rate to 28800 BPS

8 = Set serial data rate to 38400 BPS

9 = Set serial data rate to 57600 BPS

10 = Set serial data rate to 115200 BPS

S39 Bit-mapped Register - S29 stores the value of the AT&K command.

S105 XE900M ID Number - S105 sets the ID number for the XE900M. Each unit on the Base Access Network is required to have a unique ID number. The ID number of the Base Access Point is always 1.

Range: 2-254

S106 Set Noise Threshold - S106

S107 I/O Configuration - S107 is a bit-mapped register which defines the local programmable I/O lines.

Bit 0 = 0 - ADC0 and ADC1 used as Programmable I/O
= 1 - ADC0 and ADC1 defined for Analog use

Bit 1 = 0 - ADC0 and ADC1 both used as analog inputs
= 1 - ADC0 used as an analog input; ADC1 used as a high accuracy voltage reference.

Bit 2 = 0 - DIO0 used as an output
= 1 - DIO0 used as an input

Bit 3 = 0 - DIO1 used as an output
= 1 - DIO1 used as an input

Bit 4 = 0 - DIO2 used as an output
= 1 - DIO2 used as an input

Bit 5 = 0 - DIO3 used as an output
= 1 - DIO3 used as an input

Bit 6 = 0 - DIO4 used as an output (Bit 0 = 0)
= 1 - DIO4 used as an input

Bit 7 = 0 - DIO5 used as an output (Bit 0 = 0)
= 1 - DIO5 used as an input

Default: 193

S108 Transmit Level Control - S108 sets the transmit level for the XE900M.

Range: 0-63

Default: 4

Units:

S110 Set Frequency Channel - S110 selects the frequency channel for wireless communications. 126 channels are spaced at 200KHz intervals from 902.5 to 927.5 Mhz

Range: 0-125

Default: 71 (916.5 MHz)

Terms of Sale

Devices sold by XECOM are covered by the warranty provisions appearing in its Terms of Sale only. XECOM makes no warranty, express, statutory, implied, or by description regarding the information set forth herein, or regarding the freedom of the described devices from patent infringement. XECOM makes no warranty of merchantability or fitness for any purposes. XECOM reserves the right to discontinue production and change specifications and prices at any time and without notice. This product is intended for use in normal commercial applications. Applications requiring extended temperature range, unusual environmental requirements, or high reliability applications, such as military, medical life-support or life-sustaining equipment, are specifically not recommended without additional processing and authorization by XECOM for such application.

Xecom assumes no responsibility for the use of any circuitry other than circuitry embodied in a Xecom product. No other circuits, patents, or licenses are implied.

Life Support Policy

Xecom's products are not authorized for use as Critical Components in Life Support Devices or Systems.

Life Support Devices or Systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and whose failure to perform, when properly used in accordance with instructions provided in the labeling, can be reasonably expected to result in significant injury to the user.

A **Critical Component** is any component of a life support device or system whose failure to perform can be reasonably expected to cause failure of the life support device or system, or to affect its safety or effectiveness.

FCC Part 15 Compliance

The XE900M is designed to comply with FCC Part 15 rules, however, it is not FCC approved. The XE900M is not eligible for FCC approval because it is a component which requires the addition of other components to function. These other components include the power supply, antenna, and printed circuit board. Any of these other components could affect FCC Part 15 compliance if not properly designed.

Approvals may be required of your system before it can be sold in the United States or other countries. The XE900M is subject to rules governing both intended and unintended radiation. The 900 MHz transceiver must transmit its signal in compliance with FCC Part 15 rules governing intended radiation. Part 15 rules also govern unintended radiation sources such as the serial interface cable connected to the XE900M. Your system will have to be approved before it can be sold; however, because the XE900M utilizes the 900 MHz ISM band, your customers will not require an FCC license.

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