

# **Omnii-Comm™**

## **Debug Commands**



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Debug Commands  
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## Section 1

### Overview

#### *1.1 What is this*

This document describes the debug commands that are available for use with the MARC Omnii-Comm™ while the module is running. Debug commands are entered by connecting a serial port of a PC to a Configuration port on the Omnii-Comm and typing command characters on the keyboard while running a terminal emulation program such as OmniTalk, FT Procom, Hyperterminal or the Emulator mode from Omnii-Config for Windows. This is the same connection you would normally make to configure the Omnii-Comm.

Debug commands allow you to examine and change memory locations in the Omnii-Comm and perform other tasks such as Start and Stop Polling, Dump areas of memory and other tasks as listed in this document.

## Section 2

### Commands

#### 2.1 Command List (Alphabetical)

KEY	PARAM1	PARAM2	PARAM3	Description
^E				"Exit" to monitor (development mode only)
^Q				"Quit" Stop polling
^S				"Start" Start polling
C	Address			"See" Examine and Change Serial EEPROM
D	Begaddx	Endaddx		"Dump" an area of memory
E	Address			"Examine" and Change EEPROM Memory
F	Begaddx	Endaddx	Value	"Fill" an area of memory with a constant
I				"Info" Display system information
L				"Load" a .S19 file
M	Address			"Modify" a byte
N	Page			Set RAM Page for Viewing
P	Begaddx	Endaddx		"Punch" (make a .S19) an area of memory
R				"Run" Start Polling
S	Begaddx	Destaddx	Length	"Save" a block of memory to EEPROM
T	Connector	Side	Format	"Trace" Echo Serial Port characters to debug
V	Address			"View" 16 consecutive memory locations
W	Begaddx	Dstaddx	Length	"Write" a block of memory to Serial EEPROM
X				Stop Trace

**Notes:**

- 1. Enter all addresses as a 4 digit hex number**
- 2. Enter any byte value as a 2 digit hex number**
- 3. Enter Length as a 4 digit hex number**
- 4. Do not type any spaces or dashes, spaces and dashes will be echoed for easier reading**
- 5. Terminate commands with the Enter key**
- 6. Advance to the next byte or advance 16 bytes using Space key**
- 7. Decrement to the previous byte or decrement 16 bytes using Backspace key**
- 8. Repeat same byte or 16 bytes using Semicolon key**

## 2.2 Memory Examine and Change Commands

Use the following commands to view and optionally change memory locations in the Omnii-Comm.

**CAUTION: Changing memory locations on a running system can result in a system crash or invalid data. Use extreme caution when entering memory addresses to prevent changing the wrong location. If a mistake is made, terminate by typing a non hex character or the enter key.**

### 2.2.1 “M” Read/Change RAM

Use the “M” command to determine the current value of a RAM location and optionally change it. Enter MXXXX where XXXX is a 4 digit hex address. The Omnii-Comm will echo the command followed by a space and the address entered. When the 4<sup>th</sup> character of the address is entered, the Omnii-Comm will move to a new line, send the current RAM Page, a dash, the address entered and the current value. To change the value type a new two digit hex value and the Omnii-Comm will change the value, increment the address and display the next location. Terminate the session with the enter key. Backspace will show the previous address; space will move to the next address with no changes.

**NOTE: There is no restriction on the memory addresses you can enter. If you change a location that is being used by the system, unpredictable operation will occur.**

### 2.2.2 “V” View RAM

Use the “V” command to view the current contents of 16 consecutive memory locations. Enter VXXXX where XXXX is a 3 digit hex address. The Omnii-Comm will echo the command followed by a space and the address entered. When the 4<sup>th</sup> character of the address is entered, the Omnii-Comm will move to a new line, send the current RAM Page, a dash, the address entered and then 16 2 digit hex values which are the current contents of 16 memory locations starting at the address entered. After the 16 hex values have been sent the Omnii-Comm will send 16 characters which are the ASCII characters for the 16 memory locations. If the value stored in a non printable ASCII character, a period will be displayed. Terminate the session with the enter key. Backspace will show the previous 16 locations; space will move to the next 16 locations.

### 2.2.3 “N” Change RAM Page

Use the “N” command to change the current RAM Page. Enter NYY where YY is the new page number in hex. Valid numbers for YY are from 00 to 0C. RAM memory is organized into 15 8K byte pages in the Omnii-Comm. The first 3 pages are used by the Omnii-Comm as working RAM and addressed from \$0000 to \$5FFF. RAM Addresses from \$6000 to \$7000 are mapped into “pages” that are swapped into and out of the memory map using a page address register. The Configuration files and any related configuration data such as parsing lists, setpoint tables, VRTU tables etc. are always on Page 0. Pages 1 thru 6 are reserved for use by the Omnii-Comm. Pages 7 thru 12 are “usually” available for whatever functions you want. Some protocols do make use of these higher pages so use them with caution.

### 2.2.4 “F” Fill RAM

Use the “F” command to change a block of RAM to a constant hex value. Enter FXXXYYYZZ where XXXX is a 4 digit hex starting address, YYYY is a 4 digit ending address and ZZ is the hex value that will be stored in all the locations. This command is commonly used to zero out a block of RAM memory.

### 2.2.5 “E” Read/Change EEPROM

Use the “E” command to determine the current value of an EEPROM location and optionally change it. Enter EXXXX where XXXX is a 4 digit hex address between \$F800 and \$FFFF. If EEPROM memory is available (some Omnii-Comm products do not have EEPROM memory) the Omnii-Comm will echo the command followed by a space and the address entered. When the 4<sup>th</sup> character of the address is entered, the Omnii-Comm will move to a new line and send the address entered and the current value. To change the value type a new two digit hex value and the Omnii-Comm will change the value, increment the address and display the next location. Terminate the session with the enter key. Backspace will show the previous address; space will move to the next address with no changes. If EEPROM memory is not available the Omnii-Comm will echo WHAT?

### 2.2.6 “C” Read/Change Serial EEPROM

Use the “C” command to determine the current value of a Serial EEPROM location and optionally change it. Enter CXXXX where XXXX is a 4 digit hex address between \$0000 and \$2FFF. If Serial EEPROM memory is available (some Omnii-Comm products do not have Serial EEPROM memory) the Omnii-Comm will echo the command followed by a space and the address entered. When the 4<sup>th</sup> character of the address is entered, the Omnii-Comm will move to a new line and send the address entered and the current value. To change the value type a new two digit hex value and the Omnii-Comm will change the value, increment the address and display the next location. Terminate the session with the enter key. Backspace will show the previous address; space will move to the next address with no changes. If Serial EEPROM memory is not available the Omnii-Comm will echo WHAT?

## 2.3 Load and Save Memory Commands

### 2.3.1 “L” Load a block of memory

Use the “L” command to load a block of RAM memory from a Motorola formatted (.S19) text file. When the L command is entered the Omnii-Comm debug port will stop looking for commands and start looking for strings that conform to the Motorola .S19 load records. These strings always start with the letter S and the number 1 or 9. Control will be sent back to the debug program when the S9 record is received. The last line of all load load modules is a S9 record. Sending the following string will return control to the debug port S9030000FC

### 2.3.2 “P” Punch a block of memory

Use the “P” command to receive a Motorola formatted text file of the memory address range specified in the command. Enter PXXXXYYYY where XXXX is a 4 digit beginning memory address and YYYY is a 4 digit ending memory address. The file can be saved and reloaded using the L command.

### 2.3.3 “D” Dump a block of memory

Use the “D” command to receive a dump of memory. This command functions like the V command described in Section 2.2.2 except that memory addresses will be continually sent until the end address is reached. Enter DXXXXYYYY where XXXX is a 4 digit beginning memory address and YYYY is a 4 digit ending address.

### 2.3.4 “S” Save to EEPROM

Use the “S” command to move a block of RAM memory to EEPROM memory. Enter SXXXXYYYYZZZZ where XXXX is the beginning RAM address, YYYY is the beginning EEPROM address and ZZZZ is a 4 digit length. All numbers are in hex. The move will begin automatically when the 4<sup>th</sup> digit of the length field is entered. When completed, the Omnii-Comm prompt will be returned.

### 2.3.5 “W” Save to Serial EEPROM

Use the “W” command to move a block of RAM memory to Serial EEPROM memory. Enter WXXXXYYYYZZZZ where XXXX is the beginning RAM address, YYYY is the beginning Serial EEPROM address and ZZZZ is a 4 digit length. All numbers are in hex. The move will begin automatically when the 4<sup>th</sup> digit of the length field is entered. When completed, the Omnii-Comm prompt will be returned.

## **2.4 Control Commands**

### **2.4.1 “R” Run**

Use the “R” command to restart the Omnii-Comm. This is a cold start of the Omnii-Comm. Any communication in progress will be stopped, RAM initialized and the program restarted from the beginning. This command does not need any other parameters.

### **2.4.2 ^Q Stop Polling**

Use the ^Q (CTL Q) command to stop polling. This command will bring the Omnii-Comm to a graceful stop. That is, polling will stop after the current poll is completed.

### **2.4.3 ^S Start Polling**

Use the ^S (CTL S) command to start polling. This command enables polling but does not reinitialize RAM or the serial ports.

### **2.4.4 “^E” Exit to Monitor**

Use the ^E command to exit to the hardware monitor (MAID11). This command is available only in Development mode. It is not available in the Release mode.

## **2.5 Miscellaneous Commands**

### **2.5.1 “T” Trace Serial Data**

Use the “T” command to view serial port messages. Enter TXYZ where X is the connector number to monitor (1 thru 5), Y is either T for Transmit, R for Receive or B for both and Z is A for ASCII formatting or H for hex formatting. All characters received or sent from the targeted connector will be echoed to the debug port.

### **2.5.2 “X” Stop Trace**

Use the “X” command to stop all T commands.

### **2.5.3 “I” Get Information**

Use the “I” command to get system information. Type I and you will see the following 5 line display:

```
MARC PART #224-002-42.13 Omnii-Comm Development mode/MARC Version  
Gate Array Version: 86  
No EEPROM  
No Serial EEPROM  
Active Configuration File is N2SE3-c.DBA
```

The part number and current mode are on the first line. The Gate Array Version is on the second line, The type of non volatile memory available and the current configuration file will also be listed.