

ENI Operation

3.3.2.5 MW-5D Commands

The MW-5D has a set of low-level commands which are used to control and monitor the status of the system. These commands are intended to be used for creating software control programs for the MW-5D. However, the user can use these commands individually for testing and debugging the system.

The commands are grouped into four categories:

.Basic Monitor Commands.

Mode Selection Commands.

Tune Control Commands.

Status Readback Commands.

Many of the commands have options available which are shown in brackets « » after the command. When these options are used the brackets should **not** be included in the command. For example, if you wish to view Help Screen Number 3, type HEL 3 not HEL <3>.

Basic Monitor Commands

This set of commands allow limited access to the Controller software:

Command	Function
HEL <n>	Displays on-line help screens. HEL by itself will show a menu of available help screens. To view a specific help screen use the <n> option where <n> is the number of the specific screen.
CHK <x-y>	Calculates the checksum of the selected program range from x to y. The checksum is a simple additive type where each byte is added to the next for a final total. If you use the address range of 0000-FFFF, the last four digits of the number returned should match the firmware number listed on the ROM label in the Controller unit.
ICE <n>	This command is used for RS-422 bus switching. <n> is a value from 0-15 corresponding to the address of the Controller you wish to select. The Controller address is selected by DIP switches inside the Controller unit (See Section 3.3.2.3).
!!	This command is called "Link Release" and is used for RS-422 bus switching. When two exclamation marks are sent in a row all listening Controllers will tri-state their RS-422 output. This is done to avoid data collisions if multiple Controllers are being used. The proper way to switch from one Controller to another is to execute Link Release (!!) and then use the IDE command to select the new Controller.

Mode Selection Commands

The following commands are used to select the control mode of the MW-5D:

Command	Function
REM	Places the MW-5D into Analog Remote Control mode. When using this mode the tune control commands will have no effect. Use of these commands will return the standard error prompt. However, all readback commands will still function. Control is accomplished via analog signals on the Remote Interface (See Section 3.3.3).
LOC	Places the MW-5D into Local Control mode. In this mode the tune control commands are used to control the system. Analog signals on the Remote Interface port are ignored.
TLR	Toggles the MW-5D between LOC and REM mode.
TAM	When operating in LOC mode this command will toggle the MW-5D between Auto Tune mode and Manual Tune mode. This command will return the - standard error response if used in REM mode.

Tune Control Commands

These commands provide control of the tuning functions for the MW-5D system. All commands with the <n> option allow parameters to be passed. If parameters are omitted it will be assumed to have a value of 0.

Command	Function
SCO <n>	Sets the C1 tuning capacitor position. <n> is a decimal number from 0-99 representing the position in percent meshed. This command can only be used in manual tune mode.
SCT <n>	Sets the C2 tuning capacitor position. <n> is a decimal number from 0-99 representing the position in percent meshed. This command can only be used in manual tune mode.
GO1 <n>	Sets the C1 tuning capacitor position. <n> is a hex number from 00-63 representing the position in percent meshed. This command can only be used in manual tune mode.
GO2 <n>	Sets the C2 tuning capacitor position. <n> is a hex number from 00-63 representing the position in percent meshed. This command can only be used in manual tune mode.
ICO	*Increments the C1 tuning capacitor by one step.
DCO	*Decrements the C1 tuning capacitor by one step.
ICT	*Increments the C2 tuning capacitor by one step.
DCT	*Decrements the C2 tuning capacitor by one step. *These commands can only be used in manual tune mode.
ADJ	Displays a menu which allows for adjustment of the C1 and C2 tuning capacitors while simultaneously monitoring their position. Adjustment is made by pressing keys on the keyboard. This command is only available in manual tune mode and is intended for debugging use only.
IPR	Increases the preset location by one.
D P R	Decrements the preset location by one. In manual tune mode these commands will cycle through preset locations 0-9. In auto tune mode these commands cycle through preset locations 0-9 and special modes A-C. Each time one of these commands is executed in auto tune mode the tuning capacitor positions will be instantly recalled from the new location.
STO <n>	Stores the present C1 and C2 tuning capacitor positions in a specified preset location . <n> is a value from 0-9 or <=> which specifies the preset location. If <=> is used the capacitor positions will be stored in the currently selected preset location. This command can only be used in manual tune mode.
RCL <n>	Recalls the C1 and C2 tuning capacitor positions from a specified preset location. <n> is a value from 0-9 or <=> which specifies the preset location. If <=> is used the capacitor positions will be recalled from the currently selected preset location. This command can only be used in manual tune mode.

MOD <n> Sets the tuning capacitors starting point for auto tune mode by changing the current preset location.

<n> is one of the standard preset locations 0-9 or special locations A-C.

If this command is executed in manual tune mode the current preset location will not change until the TAM command is used to switch to auto tune mode.

The three special preset locations available in Auto Tune mode are described as follows:

PRESET A Always starts tuning from MAX/MAX C1 = 99 and C2 = 99.

PRESET B Tuning capacitors will start from the position they were at when RF power was last turned off; typically the last tuned position. This is called the STAY mode.

PRESET C Starts tuning from a preset position as set by analog voltages on the Remote Interface port.

Status Readback Commands

This set of commands is used to read back information on the current state of the MW-5D. Commands shown with the dash

option <-> can be followed by a dash for continuous readback. To stop the continuous readback of these commands press the ESC key on the keyboard or send the ESC character (\$1 B) from your software.

Command	Function
RDC <->	Returns the DC bias voltage on the system.
RPP <->	Returns the peak-to-peak voltage measured at the output stud. This command is only useful if the optional Vpp circuit is installed in the Controller unit. If the circuit is not installed garbage values will be returned.
RCO <->	Returns the current position of the C1 tuning capacitor in terms of percent meshed (0-99).
RCT <->	Returns the current position of the C2 tuning capacitor in terms of percent meshed (0-99).
RPS	Returns a two digit hex number which represents the current operating status of the MW-5D. <u>The first digit (most significant digit) shows the current operating mode. Values range from 1-3:</u> 1 = Manual Tune Mode 2 = Analog Remote Control Mode 3 = Auto Tune Mode <u>The second digit (least significant digit) shows the currently selected preset location. Values representing the preset location range from 0-9 and A-C.</u>
ACT <->	Returns status information on the MW-5D in a batch format for quick processing. The information sent is a packet of all five commands described above. The packet is sent in the following order: RDC RPP RCO RCT RPS

This command is intended mostly for software programming as the fields in the packet are **not separated by any spaces. Each field is five** characters long except RPS which is only two characters.

Status ReadBack Commands, Continued :

Command	Function
RFV <=>	<p>Returns a 16-bit value formatted as 4 hex digits. The first digit is the most significant digit and the last digit is the least significant digit. This value is known as the "Fault Vector".</p> <p>Bit definitions are as follows:</p> <p><u>Digit 1</u></p> <p>Bit 15 Spare Bit 14 Controller Hardware Fault Bit 13 Code ROM Fault Bit 12 External RAM Fault (DS1225)</p> <p><u>Digit 2</u></p> <p>Bit 11 Internal RAM Fault (80C552) Bit 10 Spare Bit 9 Spare Bit 8 Spare</p> <p><u>Digit 3</u></p> <p>All bits are currently unused.</p> <p><u>Digit 4</u></p> <p>All bits are currently unused.</p> <p>If the <=> option is used the faults are returned in plain English instead of a hex number. This is useful for debugging purposes.</p>
RUT <=>	<p>Returns the amount of time the MW-5D has been powered on. If RUT is typed alone the value returned is the amount of time in hours only. If the <=> option is used the value returned will be in the HH.MM.SS format.</p>
RVE	<p>Returns the version number of the software installed in your Controller unit. This should match the version number printed on the ROM label in the Controller unit.</p>