

# **PowerSDR™ 2.x CAT Command Reference Guide**

Developed and Maintained by: BobT – K5KDN

## Table of Contents

<b>POWERSDR™ 2.X CAT COMMAND REFERENCE GUIDE.....</b>	<b>1</b>
<b>TABLE OF CONTENTS.....</b>	<b>2</b>
<b>GENERAL INFORMATION .....</b>	<b>9</b>
<b>VERBOSE ERROR MESSAGES .....</b>	<b>9</b>
<b>FLEXRADIO POWERSDR COMMANDS BY FUNCTIONAL GROUP .....</b>	<b>10</b>
RECEIVE AUDIO PROCESSING AND CONTROL .....	10
RECEIVE RF PROCESSING AND CONTROL .....	10
VFO CONTROL .....	11
DSP RECEIVE FILTERS.....	12
MODULATION/DETECTION MODES.....	12
BAND SWITCHING .....	12
DISPLAY FUNCTIONS .....	13
METERING.....	13
TRANSMIT AUDIO PROCESSING AND CONTROL.....	13
CW .....	14
CAT SPECIFIC.....	14
SUBRECEIVER .....	14
MISCELLANEOUS.....	14
DIGITAL MODES .....	15
ANTENNAS .....	15
MIXER CONTROLS .....	16
FM/REPEATER CONTROLS.....	16
<b>FLEXRADIO POWERSDR 2.X CAT COMMAND SYNTAX .....</b>	<b>18</b>
ZZAx COMMANDS.....	18
ZZAC Command.....	18
ZZAD Command .....	18
ZZAG Command .....	19
ZZAI Command.....	19
ZZAR Command.....	19
ZZAS Command .....	19
ZZAU Command .....	19
ZZBx COMMANDS.....	20
ZZBA Command.....	20
ZZBB Command.....	20
ZZBD Command.....	20
ZZBG Command .....	20
ZZBI Command .....	20
ZZBM Command.....	20
ZZBP Command.....	21
ZZBR Command.....	21
ZZBS Command .....	21
ZZBT Command.....	21



# FlexRadio Systems®

Software Defined Radios

ZZBU Command .....	21
ZZBY Command .....	22
ZZCx COMMANDS .....	22
ZZCB Command .....	22
ZZCD Command .....	22
ZZCF Command .....	22
ZZCI Command .....	22
ZZCL Command .....	22
ZZCM Command .....	23
ZZCP Command .....	23
ZZCS Command .....	23
ZZCT Command .....	23
ZZCU Command .....	23
ZZDx COMMANDS .....	24
ZZDA Command .....	24
ZZDE Command .....	24
ZZDF Command .....	24
ZZDM Command .....	24
ZZDN Command .....	25
ZZDO Command .....	25
ZZDP Command .....	25
ZZDQ Command .....	25
ZZDR Command .....	25
ZZDU Command .....	26
ZZDX Command .....	27
ZZDY Command .....	27
ZZEx COMMANDS .....	27
ZZEA Command .....	27
ZZEB Command .....	28
ZZEM Command .....	28
ZZER Command .....	29
ZZET Command .....	29
ZZFx COMMANDS .....	29
ZZFA Command .....	29
ZZFB Command .....	29
ZZFD Command .....	30
ZZFH Command .....	30
ZZFI Command .....	30
ZZFJ Command .....	31
ZZFL Command .....	31
ZZFM Command .....	31
ZZFR Command .....	32
ZZFS Command .....	32
ZZFV Command .....	32
ZZFW Command .....	32
ZZFX Command .....	32
ZZFY Command .....	33
ZZGx COMMANDS .....	33
ZZGE Command .....	33
ZZGL Command .....	33
ZZGT Command .....	33



# FlexRadio Systems®

Software Defined Radios

ZZHx COMMANDS.....	34
ZZHA Command .....	34
ZZHR Command.....	34
ZZHT Command.....	34
ZZHU Command .....	34
ZZHV Command .....	34
ZZHW Command .....	35
ZZHX Command.....	35
ZZIx COMMANDS .....	35
ZZID Command.....	35
<i>The remainder of this page is intentionally blank.</i> .....	35
ZZIF Command .....	36
ZZIO Command.....	36
ZZIS Command .....	36
ZZIT Command .....	37
ZZIU Command.....	37
ZZKx COMMANDS .....	37
ZZKM Command.....	37
ZZKO Command.....	37
ZZKS Command .....	37
ZZKY Command .....	38
ZZLx COMMANDS .....	38
ZZLA Command .....	38
ZZLB Command .....	38
ZZLC Command .....	38
ZZLD Command .....	39
ZZLE Command.....	39
ZZLF Command.....	39
ZZLG Command.....	39
ZZLH Command.....	39
ZZMx COMMANDS.....	40
ZZMA Command .....	40
ZZMB Command.....	40
ZZMD Command .....	40
ZZME Command.....	41
ZZMG Command .....	41
ZZML Command .....	42
ZZMN Command .....	42
ZZMO Command .....	42
ZZMR Command.....	43
ZZMS Command.....	43
ZZMT Command.....	43
ZZMU Command .....	44
ZZMV Command.....	44
ZZMWCommand .....	44
ZZMX Command.....	44
ZZMY Command .....	44
ZZMZ Command .....	44
ZZNx COMMANDS .....	45
ZZNA Command.....	45
ZZNB Command .....	45



# FlexRadio Systems®

Software Defined Radios

ZZNC Command.....	45
ZZND Command.....	45
ZZNL Command.....	45
ZZNM Command.....	46
ZZNR Command.....	46
ZZNT Command.....	46
ZZOx COMMANDS.....	46
ZZOA Command.....	46
ZZOB Command.....	46
ZZOC Command.....	47
ZZOD Command.....	47
ZZOE Command.....	47
ZZOF Command.....	47
ZZOG Command.....	48
ZZOH Command.....	48
ZZOJ Command.....	48
ZZOS Commands.....	48
ZZOT Commands.....	49
ZZOL Commands.....	49
ZZOU Command.....	49
ZZOV Command.....	49
ZZOW Command.....	49
ZZPx COMMANDS.....	50
ZZPA Command.....	50
ZZPB Command.....	50
ZZPC Command.....	50
ZZPD Command.....	50
ZZPE Command.....	51
ZZPO Command.....	51
ZZPS Command.....	51
ZZPY Command.....	51
ZZPZ Command.....	51
ZZQx COMMANDS.....	52
ZZQM Command.....	52
ZZQR Command.....	52
ZZQS Command.....	52
ZZRx COMMANDS.....	52
ZZRA Command.....	52
ZZRB Command.....	52
ZZRC Command.....	53
ZZRD Command.....	53
ZZRF Command.....	53
ZZRH Command.....	53
ZZRL Command.....	53
ZZRM Command.....	54
ZZRS Command.....	54
ZZRT Command.....	54
ZZRU Command.....	55
ZZRV Command.....	55
ZZSx COMMANDS.....	55
ZZSA Command.....	55



# FlexRadio Systems®

Software Defined Radios

ZZSB Command .....	55
ZZSD Command .....	55
ZZSF Command .....	55
ZZSG Command .....	56
ZZSH Command .....	56
ZZSM Command .....	56
ZZSN Command .....	56
ZZSO Command .....	56
ZZSP Command .....	57
ZZSQ Command .....	57
ZZSR Command .....	57
ZZSS Command .....	57
ZZST Command .....	58
ZZSU Command .....	58
ZZSV Command .....	58
ZZSW Command .....	58
ZZSY Command .....	59
ZZSX Command .....	59
ZZSZ Command .....	59
ZZTx COMMANDS .....	59
ZZTA Command .....	59
ZZTB Command .....	60
ZZTF Command .....	60
ZZTH Command .....	61
ZZTI Command .....	61
ZZTL Command .....	61
ZZTM Command .....	61
ZZTO Command .....	61
ZZTP Command .....	62
ZZTS Command .....	62
ZZTU Command .....	62
ZZTV Command .....	62
ZZTX Command .....	63
ZZUx COMMANDS .....	63
ZZUA Command .....	63
ZZVx COMMANDS .....	63
ZZVA Command .....	63
ZZVB Command .....	63
ZZVC Command .....	64
ZZVD Command .....	64
ZZVE Command .....	64
ZZVF Command .....	64
ZZVG Command .....	65
ZZVH Command .....	65
ZZVI Command .....	65
ZZVJ Command .....	65
ZZVK Command .....	65
ZZVL Command .....	66
ZZVM Command .....	66
ZZVN Command .....	66
ZZVO Command .....	66



# FlexRadio Systems®

Software Defined Radios

ZZVP Command.....	66
ZZVQ Command.....	67
ZZVR Command.....	67
ZZVS Command.....	67
ZZVT Command.....	67
ZZVU Command.....	68
ZZVV Command.....	68
ZZVW Command.....	68
ZZVX Command.....	68
ZZVY Command.....	69
ZZVZ Command.....	69
<b>ZZWx COMMANDS .....</b>	<b>69</b>
ZZWA Command.....	69
ZZWB Command.....	69
ZZWC Command.....	70
ZZWD Command.....	70
ZZWE Command.....	70
ZZWF Command.....	70
ZZWG Command.....	70
ZZWH Command.....	71
ZZWJ Command.....	71
ZZWK Command.....	71
ZZWL Command.....	71
ZZWM Command.....	71
ZZWN Command.....	72
ZZWO Command.....	72
ZZWP Command.....	72
ZZWQ Command.....	72
ZZWR Command.....	72
ZZWS Command.....	73
ZZWT Command.....	73
ZZWU Command.....	73
ZZWV Command.....	73
ZZWW Command.....	73
<b>ZZXx COMMANDS .....</b>	<b>74</b>
ZZXC Command.....	74
ZZXF Command.....	74
ZZXS Command.....	74
ZZXT Command.....	74
<b>ZZYx COMMANDS .....</b>	<b>74</b>
ZZYA Command.....	74
ZZYB Command.....	75
ZZYC Command.....	75
<b>ZZZx COMMANDS .....</b>	<b>75</b>
ZZZB Command.....	75
<b>KENWOOD COMPATIBLE COMMAND SYNTAX .....</b>	<b>76</b>
AG Command.....	76
AI Command.....	76
BD Command.....	76
BU Command.....	76



# FlexRadio Systems®

Software Defined Radios

<i>CN Command</i> .....	77
<i>CT Command</i> .....	77
<i>DN Command</i> .....	78
<i>FA Command</i> .....	78
<i>FB Command</i> .....	78
<i>FR Command</i> .....	78
<i>FT Command</i> .....	79
<i>FW Command</i> .....	79
<i>GT Command</i> .....	79
<i>ID Command</i> .....	79
<i>IF Command</i> .....	80
<i>KS Command</i> .....	81
<i>KY Command</i> .....	81
<i>MD Command</i> .....	81
<i>MG Command</i> .....	81
<i>MO Command</i> .....	82
<i>NB Command</i> .....	82
<i>NT Command</i> .....	82
<i>OF Commands</i> .....	82
<i>OS Commands</i> .....	82
<i>PC Command</i> .....	83
<i>PR Command</i> .....	83
<i>PS Command</i> .....	83
<i>QI Command</i> .....	83
<i>RC Command</i> .....	83
<i>RD Command</i> .....	84
<i>RT Command</i> .....	84
<i>RU Command</i> .....	84
<i>RX Command</i> .....	84
<i>SH Command</i> .....	85
<i>SL Command</i> .....	86
<i>SM Command</i> .....	86
<i>SQ Command</i> .....	87
<i>TX Command</i> .....	87
<i>UP Command</i> .....	87
<i>XT Command</i> .....	87
<b>FLEXRADIO CAT COMMAND REFERENCE GUIDE REVISION RECORD</b> .....	<b>88</b>
REVISIONS FOR 2006 .....	88
REVISIONS FOR 2007 .....	88
REVISIONS FOR 2008 .....	92
REVISIONS FOR 2009 .....	94
REVISIONS FOR 2010 .....	95
REVISIONS FOR 2011 .....	97



## General Information

A CAT command consists of a prefix, a parameter list, and a terminator. Commands fall into one of three categories: **Get** (read) commands that request status information from the transceiver; **Set** (write) commands that change transceiver status; and **Answer** (response) commands that return information requested in a Get command or error codes. A correctly executed Set command does not return an Answer command.

The terminator for all CAT commands is the semicolon (;). CAT commands are not case sensitive. Get and Set commands must contain the correct number of parameter characters as shown in the accompanying tables. Most Get commands are simply the prefix followed by a termination, but there are special cases where a Get command will require parameters.

## Verbose Error Messages

ZZEM1; enables verbose error messages, otherwise the standard Kenwood “?;” will be returned on an error. With verbose messaging enabled, the following errors are returned in the format: ZZEM:the command sent:error message;;

Prefix Length Error  
Inactive Command  
Unknown Command  
Undefined Command Error  
Illegal Suffix Format  
Suffix Length Error  
Feature Not Available  
Form Must Be Open  
Value Out of Bounds

Examples are:

ZZEM:AG:Suffix Length Error;      AG s/b AG0; or AG0000 – AG0100;  
ZZEM:ZZXX:Unknown Command      ZZXX is not a valid CAT command.  
ZZEM:ZZRS:Feature Not Available      RX2 is not available

Verbose error messaging was developed to assist third party developers when troubleshooting, it is not advisable to enable it unless you know what you are doing.

## **FlexRadio PowerSDR Commands by Functional Group**

### **RECEIVE AUDIO PROCESSING AND CONTROL**

<a href="#"><u>ZZAG</u></a>	Sets or reads the Audio Gain	<a href="#"><u>AG</u></a>
<a href="#"><u>ZZBI</u></a>	Sets or reads the Binaural (BIN) status	
<a href="#"><u>ZZEA</u></a>	Sets or reads the RX EQ values	
<a href="#"><u>ZZER</u></a>	Sets or reads the RX EQ status	
<a href="#"><u>ZZLA</u></a>	Sets or reads the Main RX Gain (MultiRX Group)	
<a href="#"><u>ZZLB</u></a>	Sets or reads the Main RX Stereo Balance (MultiRX Group)	
<a href="#"><u>ZZLE</u></a>	Sets or reads the RX2 Gain (Flex5000 w/RX2 only)	
<a href="#"><u>ZZLF</u></a>	Sets or reads the RX2 Stereo Balance (Flex5000 w/RX2 only)	
<a href="#"><u>ZZLG</u></a>	Sets or reads the AutoMuteRX1onVFOBTX checkbox (F5K only)	
<a href="#"><u>ZZLH</u></a>	Sets or reads the AutoMuteRX2onVFOATX checkbox (F5K/RX2 only)	
<a href="#"><u>ZZMA</u></a>	Sets or reads the RX1 Mute (MUT) status	
<a href="#"><u>ZZMB</u></a>	Sets or reads the RX2 Mute status	
<a href="#"><u>ZZMO</u></a>	Sets or reads the Monitor (MON) status	<a href="#"><u>MO</u></a>

### **RECEIVE RF PROCESSING AND CONTROL**

<a href="#"><u>ZZAR</u></a>	Sets or reads the RX1 AGC-T	
<a href="#"><u>ZZAS</u></a>	Sets or reads the RX2 AGC-T	
<a href="#"><u>ZZGT</u></a>	Sets or reads the AGC Mode Selector	
<a href="#"><u>ZZPA</u></a>	Sets or reads the Preamp Gain setting	
<a href="#"><u>ZZPB</u></a>	Sets or reads the RX2 Preamp status	
<a href="#"><u>ZZSO</u></a>	Sets or reads the RX1 Squelch on/off status	
<a href="#"><u>ZZSQ</u></a>	Sets or reads the RX1 Squelch level	<a href="#"><u>SQ</u></a>
<a href="#"><u>ZZSV</u></a>	Sets or reads the RX2 Squelch button	
<a href="#"><u>ZZSX</u></a>	Sets or reads the RX2 Squelch Threshold	

The remainder of this page has been intentionally left blank.

## VFO CONTROL

<a href="#"><u>ZZAC</u></a>	Sets or reads the Tune Step	
<a href="#"><u>ZZAD</u></a>	Moves VFO A down by a selected step	
<a href="#"><u>ZZAU</u></a>	Moves VFO A up by a selected step	
<a href="#"><u>ZZBM</u></a>	Moves VFO B down by a selected step	
<a href="#"><u>ZZBP</u></a>	Moves VFO B up by a selected step	
<a href="#"><u>ZZFA</u></a>	Sets or reads VFO A frequency	<a href="#"><u>FA</u></a>
<a href="#"><u>ZZFB</u></a>	Sets or reads VFO B frequency	<a href="#"><u>FB</u></a>
<a href="#"><u>ZZQM</u></a>	Reads the Quick Save Memory value	
<a href="#"><u>ZZQR</u></a>	Restores the Quick Save Memory value	
<a href="#"><u>ZZQS</u></a>	Saves Frequency A, Mode, and Band to Quick Memory	<a href="#"><u>QI</u></a>
<a href="#"><u>ZZRC</u></a>	Clears the RIT frequency	<a href="#"><u>RC</u></a>
<a href="#"><u>ZZRD</u></a>	Decrements the RIT frequency	<a href="#"><u>RD</u></a>
<a href="#"><u>ZZRF</u></a>	Sets or reads the RIT frequency	
<a href="#"><u>ZZRT</u></a>	Sets or reads the RIT button status	<a href="#"><u>RT</u></a>
<a href="#"><u>ZZRU</u></a>	Increments the RIT frequency	<a href="#"><u>RU</u></a>
<a href="#"><u>ZZSA</u></a>	Moves VFO A down one Tune Step	<a href="#"><u>DN</u></a>
<a href="#"><u>ZZSB</u></a>	Moves VFO A up one Tune Step	<a href="#"><u>UP</u></a>
<a href="#"><u>ZZSD</u></a>	Decrements the Tune Step	
<a href="#"><u>ZZSG</u></a>	Moves VFO B down one Tune Step	
<a href="#"><u>ZZSH</u></a>	Moves VFO B up one Tune Step	
<a href="#"><u>ZZSP</u></a>	Sets or reads the VFO Split button status	<a href="#"><u>FT</u></a>
<a href="#"><u>ZZST</u></a>	Reads the frequency step size (Deprecated)	
<a href="#"><u>ZZSU</u></a>	Increments the Tune Step	
<a href="#"><u>ZZSW</u></a>	Sets or reads VFO A TX/VFO B TX buttons	
<a href="#"><u>ZZSY</u></a>	Sets or reads the VFO Sync Button	
<a href="#"><u>ZZSZ</u></a>	Syncs VFO A or B to the current Tune Step	
<a href="#"><u>ZZTV</u></a>	Sets or reads the TX VFO frequency when RX2 enabled	
<a href="#"><u>ZZVL</u></a>	Sets or reads the VFO Lock status	
<a href="#"><u>ZZVS</u></a>	Sets the VFO Swap status	
<a href="#"><u>ZZXC</u></a>	Clears the XIT frequency	
<a href="#"><u>ZZXF</u></a>	Sets or reads the XIT frequency	
<a href="#"><u>ZZXS</u></a>	Sets or reads the XIT button status	
<a href="#"><u>ZZZB</u></a>	Sets the Zero Beat button	

The remainder of this page has been intentionally left blank.

## NOISE REJECTION

<a href="#">ZZBR</a>	Sets or reads the BCI Rejection button	
<a href="#">ZZNA</a>	Sets or reads RX1 Noise Blanker 1 (NB) status	<a href="#">NB</a>
<a href="#">ZZNB</a>	Sets or reads RX1 Noise Blanker 2 (NB2) status	
<a href="#">ZZNC</a>	Sets or reads RX2 Noise Blanker 1 status	
<a href="#">ZZND</a>	Sets or reads RX2 Noise Blanker 2 status	
<a href="#">ZZNL</a>	Sets or reads Noise Blanker 1 threshold	
<a href="#">ZZNM</a>	Sets or reads the Noise Blanker 2 threshold	
<a href="#">ZZNR</a>	Sets or reads the Noise Reduction (NR) status	
<a href="#">ZZNT</a>	Sets or reads the Auto Notch Filter (ANF) status	<a href="#">NT</a>
<a href="#">ZZSR</a>	Sets or reads the Spur Reduction (SR) status	

## DSP RECEIVE FILTERS

<a href="#">ZZFH</a>	Sets or reads the selected RX1 DSP Filter high cutoff
<a href="#">ZZFI</a>	Sets or reads the selected RX1 DSP Filter low cutoff
<a href="#">ZZFJ</a>	Sets or reads the current RX2 DSP receive filter
<a href="#">ZZFL</a>	Sets or reads the DSP Low Filter
<a href="#">ZZFR</a>	Sets or reads the selected RX2 DSP Filter high cutoff
<a href="#">ZZFS</a>	Sets or reads the selected RX2 DSP Filter low cutoff
<a href="#">ZZHA</a>	Sets or reads the Audio Filter Size
<a href="#">ZZHR</a>	Sets or reads the DSP RX Filter Phone Size
<a href="#">ZZHU</a>	Sets or reads the DSP RX Filter CW Size
<a href="#">ZZHW</a>	Sets or reads the DSP RX Filter Digital Size
<a href="#">ZZIS</a>	Sets or reads the variable filter width slider
<a href="#">ZZIT</a>	Sets or reads the variable filter shift slider
<a href="#">ZZIU</a>	Resets the variable filter shift slider
<a href="#">ZZMN</a>	Sets or reads the DSP filter names and values
<a href="#">ZZSF</a>	Sets the variable filter width and center frequency

## MODULATION/DETECTION MODES

<a href="#">ZZMD</a>	Sets or reads the current RX1 mode	<a href="#">MD</a>
<a href="#">ZZME</a>	Sets or reads the current RX2 mode	
<a href="#">ZZML</a>	Returns a list of DSP modes and indexes	

## BAND SWITCHING

<a href="#">ZZBA</a>	Moves the RX2 bandswitch down one band	
<a href="#">ZZBB</a>	Moves the RX2 bandswitch up one band	
<a href="#">ZZBD</a>	Moves the RX1 bandswitch down one band	<a href="#">BD</a>
<a href="#">ZZBG</a>	Sets or reads the Band Group (HF/VHF)	
<a href="#">ZZBS</a>	Sets or reads the RX1 Bandswitch	
<a href="#">ZZBT</a>	Sets or reads the RX2 Bandswitch	
<a href="#">ZZBU</a>	Moves the RX1 bandswitch up one band	<a href="#">BU</a>
<a href="#">ZZUA</a>	Reads the XVTR Band Button Names	

## DISPLAY FUNCTIONS

- [ZZCF](#) Sets or reads the Show CW TX Filter checkbox
- [ZZCU](#) Reads the CPU usage
- [ZZDA](#) Sets or reads the Display Average (AVG) status
- [ZZDM](#) Sets or reads the Display Mode
- [ZZDN](#) Sets or reads the Waterfall Lo Value
- [ZZDO](#) Sets or reads the Waterfall Hi Value
- [ZZDP](#) Sets or reads the Spectrum Grid Max Value
- [ZZPQ](#) Sets or reads the Spectrum Grid Min Value
- [ZZPR](#) Sets or reads the Spectrum Grid Step Value
- [ZZPD](#) Sets the Display Pan Center button
- [ZZPE](#) Sets or reads the Display Pan Position
- [ZZPO](#) Sets or reads the Display Peak button
- [ZZPY](#) Sets or reads the Display Zoom slider
- [ZZPZ](#) Sets or reads the Display Zoom buttons
- [ZZTF](#) Sets or reads the Show TX Filter checkbox

## METERING

- [ZZMR](#) Sets or reads the RX Meter mode
- [ZZMT](#) Sets or reads the TX Meter mode
- [ZZRM](#) Reads the RX Meter value
- [ZZSM](#) Reads the S Meter [SM](#)

## TRANSMIT AUDIO PROCESSING AND CONTROL

- [ZZCP](#) Sets or reads the Compander (CPDR) status
- [ZZCT](#) Sets or reads the Compander threshold
- [ZZDX](#) Sets or reads the Phone DX button status
- [ZZDY](#) Sets or reads the Phone DX Level
- [ZZEB](#) Sets or reads the TX EQ values
- [ZZET](#) Sets or reads the TX EQ button status
- [ZZGE](#) Sets or reads the Noise Gate button status
- [ZZGL](#) Sets or reads the Noise Gate threshold
- [ZZHT](#) Sets or reads the DSP TX Filter Phone Size
- [ZZHV](#) Sets or reads the DSP TX Filter CW Size
- [ZZHX](#) Sets or reads the DSP TX Filter Digital Size
- [ZZMG](#) Sets or reads the Mic Gain
- ~~[ZZPK](#) Sets or reads the Compressor (COMP) status~~ Obsolete 2/15/2008
- ~~[ZZPL](#) Sets or reads the Compressor (COMP) threshold~~ Obsolete 2/15/2008
- [ZZTH](#) Sets or reads the TX Filter High setting
- [ZZTI](#) Transmit Inhibit
- [ZZTL](#) Sets or reads the TX Filter Low setting
- [ZZTM](#) Sets or reads the TX AF Monitor
- [ZZTO](#) Sets or reads the TUN Power Level

[ZZTP](#) Sets or reads the Transmit Profile  
[ZZTU](#) Sets or reads the Tune (TUN) status  
[ZZTX](#) Sets or reads the MOX button status [RX/TX](#)  
[ZZVA](#) Sets or reads the VAC button status  
[ZZVE](#) Sets or reads the VOX button status  
[ZZVG](#) Sets or reads the VOX gain

## CW

[ZZCB](#) Sets or reads the Break-In checkbox status  
[ZZCD](#) Sets or reads the Break-In Delay value  
[ZZCI](#) Sets or reads the CW Iambic checkbox status  
[ZZCL](#) Sets or reads the CW Pitch  
[ZZCM](#) Sets or reads the CW Monitor checkbox status  
[ZZCS](#) Sets or reads the CW Speed  
[ZZKM](#) Sends a CWX macro  
[ZZKO](#) Opens or closes the CWX form  
[ZZKS](#) Sets or reads CWX CW speed [KS](#)  
[ZZKY](#) Sends text to CWX for conversion to Morse [KY](#)  
[ZZSS](#) Stops CWX sending (immediate)

## CAT SPECIFIC

[ZZAI](#) Reads or sets the Auto Information function [AI](#)  
[ZZEM](#) Enables/Disables CAT verbose error messages  
[ZZFM](#) Reads the FlexRadio Model Number  
[ZZID](#) Sets or reads the transceiver ID number  
[ZZIF](#) Reads the transceiver status word [IF](#)  
[ZZSN](#) Reads the radio serial number  
[ZZVN](#) Reads the PowerSDR software version number

## SUBRECEIVER

[ZZLC](#) Sets or reads RX1 (subreceiver) Gain  
[ZZLD](#) Sets or reads RX1 (subreceiver) Stereo Balance  
[ZZMS](#) Sets or reads the MultiRX Swap checkbox  
[ZZMU](#) Sets or reads the MultiRX button status

## MISCELLANEOUS

[ZZBY](#) Closes the console  
[ZZDE](#) Sets or reads the Diversity Form Enable button  
[ZZDF](#) Opens or closes the Diversity Form  
[ZZDU](#) Status Word  
[ZZFV](#) Reads FlexWire single byte data  
[ZZFW](#) Reads FlexWire double byte data  
[ZZFX](#) Sends FlexWire single data byte command  
[ZZFY](#) Sends FlexWire double data byte command

[ZZIO](#) Reads the transceiver installed options

[ZZPC](#) Sets or reads the Drive Level

[PC](#)

[ZZPS](#) Sets or reads the Start button status

[ZZRS](#) Sets or reads the RX2 button status

[ZZRV](#) Reads the primary input voltage

[ZZTS](#) Reads the Flex5000 Temperature Sensor

[ZZXT](#) Sets or reads the X2TR button status

## **DIGITAL MODES**

[ZZOL](#) Sets or reads the DigL Click Tune Offset

[ZZOU](#) Sets or reads the DigU Click Tune Offset

[ZZRA](#) Sets or reads the RTTY Offset Enable VFO A

[ZZRB](#) Sets or reads the RTTY Offset Enable VFO B

[ZZRH](#) Sets or reads the RTTY DIGH Offset Frequency

[ZZRL](#) Sets or reads the RTTY DIGL Offset Frequency

## **ANTENNAS**

[ZZOA](#) Sets or reads the antenna connected to RX1

[ZZOB](#) Sets or reads the antenna connected to RX2

[ZZOC](#) Sets or reads the antenna connected to the transmitter

[ZZOD](#) Sets or reads the Antenna Mode (Simple/Complex)

[ZZOE](#) Sets or reads the RX1 Loop

[ZZOF](#) Sets or reads the RCA TX relay jacks

[ZZOG](#) Sets or reads the TX relay enables

[ZZOH](#) Sets or reads the TX relay delays

[ZZOJ](#) Sets or reads the Antenna Lock Checkbox

[ZZOV](#) Sets or reads the ATU Enable Button

[ZZOW](#) Sets or reads the ATU Bypass Button

The remainder of this page has been intentionally left blank.

## MIXER CONTROLS

[ZZWA](#) Sets or reads the F5K Mixer Mic Level  
[ZZWB](#) Sets or reads the F5K Mixer Line In RCA Level  
[ZZWC](#) Sets or reads the F5K Mixer Line In Phono Level  
[ZZWD](#) Sets or reads the F5K Mixer Line In DB9 Level  
[ZZWE](#) Sets or reads the F1500/F5K Mixer Mic Select Checkbox  
[ZZWF](#) Sets or reads the F5K Mixer Line In RCA Select Checkbox  
[ZZWG](#) Sets or reads the F5K Mixer Line In Phono Select Checkbox  
[ZZWH](#) Sets or reads the F1500/F5K Mixer FlexWire/Line In DB9 Select Checkbox  
[ZZWJ](#) Sets or reads the F1500/F5K Mixer Input Mute All Button  
[ZZWK](#) Sets or reads the F5000C Mixer Internal Speaker Level  
[ZZWL](#) Sets or reads the F5K Mixer External Speaker Level  
[ZZWM](#) Sets or reads the F5K Mixer Headphone Level  
[ZZWN](#) Sets or reads the F5K Mixer Line Out RCA Level  
[ZZWO](#) Sets or reads the F5K Mixer Internal Speaker Select Checkbox  
[ZZWP](#) Sets or reads the F5K Mixer External Speaker Select Checkbox  
[ZZWQ](#) Sets or reads the F1500/F5K Mixer Headphone Select Checkbox  
[ZZWR](#) Sets or reads the F1500/F5K Mixer FlexWire/Line Out RCA Select Checkbox  
[ZZWS](#) Sets or reads the F1500/F5K Mixer Output Mute All Button  
[ZZWT](#) Sets or reads the F1500 Mixer Mic Level  
[ZZWU](#) Sets or reads the F1500 Mixer FlexWire Input Level  
[ZZWV](#) Sets or reads the F1500 Mixer Phones Output Level  
[ZZWW](#) Sets or reads the F1500 Mixer FlexWire Output Level

## FM/REPEATER CONTROLS

[ZZFD](#) Sets or reads the FM Deviation Button  
[ZZOS](#) Sets or reads the Repeater Offset Direction [OS](#)  
[ZZOT](#) Sets or reads the Repeater Offset Frequency [OF](#)  
[ZZTA](#) Sets or reads the CTCSS Enable Button [CT](#)  
[ZZTB](#) Sets or reads the CTCSS Frequency [CN](#)  
[ZZMV](#) Reads the number of memory channels  
[ZZMW](#) Deletes a memory channel  
[ZZMX](#) Restores a memory channel  
[ZZMY](#) Save configuration to a new memory channel  
[ZZMZ](#) Save configuration to an existing memory channel  
[ZZYC](#) Sets or reads the FM Mic Gain



## VAC CONTROLS

- [ZZVA](#) Sets or reads the VAC1 Enable Checkbox
- [ZZVB](#) Sets or reads the VAC1 RX Gain
- [ZZVC](#) Sets or reads the VAC1 TX Gain
- [ZZVD](#) Sets or reads the VAC1 Sample Rate
- [ZZVF](#) Sets or reads the VAC1 Stereo Checkbox
- [ZZVH](#) Sets or reads the I/Q to VAC1 Checkbox
- [ZZVI](#) Sets or reads the VAC1 Input Cable
- [ZZVJ](#) Sets or reads the I/Q to VAC1 use RX2 Checkbox
- [ZZVM](#) Sets or reads the VAC1 Driver
- [ZZVO](#) Sets or reads the VAC1 Output Cable
- [ZZVP](#) Sets or reads the VAC1 IQ Calibrate Checkbox
- [ZZVK](#) Sets or reads the VAC2 Enable Checkbox
- [ZZVQ](#) Sets or reads the VAC2 Driver
- [ZZVR](#) Sets or reads the VAC2 Input Cable
- [ZZVT](#) Sets or reads the VAC2 Output Cable
- [ZZVU](#) Sets or reads the VAC2 Sample Rate
- [ZZVV](#) Sets or reads the VAC2 Stereo Checkbox
- [ZZVW](#) Sets or reads the VAC2 RX Gain
- [ZZVX](#) Sets or reads the VAC2 TX Gain
- [ZZVY](#) Sets or reads the VAC1 Buffer Size
- [ZZVZ](#) Sets or reads the VAC2 Buffer Size
- [ZZYA](#) Sets or reads the VAC2 Direct IQ Enable Checkbox
- [ZZYB](#) Sets or reads the VAC2 IQ Calibrate Checkbox

## FlexRadio PowerSDR 2.x CAT Command Syntax

### ZZAx Commands

#### ZZAC Command

<b>ZZAC Sets or reads the Step Size (replaces ZZST)</b>									
<b>Get</b>	ZZAC	;							
<b>Set</b>	ZZAC	P1	P1	;					
<b>Answer</b>	ZZAC	P1	P1	;					
<b>Notes</b>	P1 = 00 to 14. 00 = 1 Hz 01 = 10 Hz 02 = 50 Hz 03 = 100 Hz 04 = 250 Hz 05 = 500 Hz 06 = 1 KHz 07 = 5 KHz 08 = 9 KHz 09 = 10 KHz 10 = 100 KHz 11 = 250 KHz 12 = 500 KHz 13 = 1 MHz 14 = 10 MHz  If the Step Size is set to 50 Hz, ZZAC; will return ZZAC02; If you send ZZAC03; , the Step Size will be set to 100 Hz.								

#### ZZAD Command

<b>ZZAD Moves VFO A Down By The Selected Step</b>									
<b>Set</b>	ZZAD	P1	P1	;					
<b>Notes</b>	ZZAC is write-only P1 = 00 to 14. See ZZAC for parameter list. ZZAD does not change the Step Size.								

## ZZAG Command

<b>ZZAG Sets or reads the Audio Gain control</b>										
<b>Get</b>	ZZAG	;								
<b>Set</b>	ZZAG	P1	P1	P1	;					
<b>Answer</b>	ZZAG	P1	P1	P1	;					
<b>Notes</b>	P1 = 000 to 100.									

## ZZAI Command

<b>ZZAI Sets or reads the Auto Information function</b>										
<b>Get</b>	ZZAI	;								
<b>Set</b>	ZZAI	P1	;							
<b>Answer</b>	ZZAI	P1	:							
<b>Notes</b>	P1 = 0 for Off, 1 or more for On. When On, the radio will broadcast the VFO (A or B) frequency when changed. Option checkbox on the Setup/CAT tab must be checked to allow this command.									

## ZZAR Command

<b>ZZAR Sets or reads the RX1 AGC Threshold control</b>										
<b>Get</b>	ZZAR	;								
<b>Set</b>	ZZAR	P1	P1	P1	P1	;				
<b>Answer</b>	ZZAR	P1	P1	P1	P1	;				
<b>Notes</b>	P1 = -20 to +120 (Must have + or – sign).									

## ZZAS Command

<b>ZZAS Sets or reads the RX2 AGC Threshold control</b>										
<b>Get</b>	ZZAS	;								
<b>Set</b>	ZZAS	P1	P1	P1	P1	;				
<b>Answer</b>	ZZAS	P1	P1	P1	P1	;				
<b>Notes</b>	P1 = -20 to +120 (Must have + or – sign).									

## ZZAU Command

<b>ZZAU Moves VFO A Up By The Selected Step</b>										
<b>Set</b>	ZZAU	P1	P1	;						
<b>Notes</b>	ZZAU is write-only P1 = 00 to 14. See ZZAC for parameter list. ZZAU does not change the Step Size.									

## ZZBx Commands

### ZZBA Command

<b>ZZBA Moves the RX2 band switch down one band</b>										
<b>Set</b>	ZZBA	;								
<b>Notes</b>	ZZBA is write-only									

### ZZBB Command

<b>ZZBB Moves the RX2 band switch down one band</b>										
<b>Set</b>	ZZBB	;								
<b>Notes</b>	ZZBB is write-only									

### ZZBD Command

<b>ZZBD Moves the RX1 band switch down one band</b>										
<b>Set</b>	ZZBD	;								
<b>Notes</b>	ZZBD is write-only									

### ZZBG Command

<b>ZZBG Sets or reads the Band Group (HF/VHF)</b>										
<b>Get</b>	ZZBG	;								
<b>Set</b>	ZZBG	P1	;							
<b>Answer</b>	ZZBG	P1	;							
<b>Notes</b>	P1 = 0 for HF, 1 for VHF.									

### ZZBI Command

<b>ZZBI Sets or reads the Binaural (BIN) status</b>										
<b>Get</b>	ZZBI	;								
<b>Set</b>	ZZBI	P1	;							
<b>Answer</b>	ZZBI	P1	;							
<b>Notes</b>	P1 = 0 for off, 1 for on.									

### ZZBM Command

<b>ZZBM Moves VFO B Down By The Selected Step</b>										
<b>Set</b>	ZZBM	P1	P1	;						
<b>Notes</b>	ZZBM is write-only P1 = 00 to 14. See ZZAC for parameter list. ZZBM does not change the Step Size.									

## ZZBP Command

<b>ZZBP Moves VFO B Up By The Selected Step</b>										
<b>Set</b>	ZZBP	P1	P1	;						
<b>Notes</b>	ZZBP is write-only P1 = 00 to 14. See ZZAC for parameter list. ZZBP does not change the Step Size.									

## ZZBR Command

<b>ZZBR Sets or reads the BCI Rejection button status</b>										
<b>Get</b>	ZZBR	;								
<b>Set</b>	ZZBR	P1	;							
<b>Answer</b>	ZZBR	P1	;							
<b>Notes</b>	P1 = 0 for OFF, 1 for ON.									

## ZZBS Command

<b>ZZBS Sets or reads the RX1 Band Switch</b>										
<b>Get</b>	ZZBS	;								
<b>Set</b>	ZZBS	P1	P1	P1	;					
<b>Answer</b>	ZZBS	P1	P1	P1	;					
<b>Notes</b>	P1 values: 160, 080, 060, 040, 030, 020, 017, 015, 012, 010, 006, 002 (when 2 meter transverter is installed), 888 (GEN), and 999 (WWV). VHF P1 values: V01 thru V13. Returns V00 (2M) and V01 (70cm) if VU installed.									

## ZZBT Command

<b>ZZBT Sets or reads the RX2 Band Switch</b>										
<b>Get</b>	ZZBT	;								
<b>Set</b>	ZZBT	P1	P1	P1	;					
<b>Answer</b>	ZZBT	P1	P1	P1	;					
<b>Notes</b>	P1 values: 160, 080, 060, 040, 030, 020, 017, 015, 012, 010, 006, 002 (when 2 meter transverter is installed), 888 (GEN), and 999 (WWV). VHF P1 values: V001 thru V013. Returns V00 (2M) and V01 (70cm) if VU installed.									

## ZZBU Command

<b>ZZBU Moves the RX1 band switch up one band</b>										
<b>Set</b>	ZZBU	;								
<b>Notes</b>	ZZBU is write-only									

## ZZBY Command

<b>ZZBY Closes the console</b>										
<b>Set</b>	ZZBY	;								
<b>Notes</b>	ZZBY is write-only									

## ZZCx Commands

### ZZCB Command

<b>ZZCB Sets or reads the Break In Enable checkbox status</b>										
<b>Get</b>	ZZCB	;								
<b>Set</b>	ZZCB	P1	;							
<b>Answer</b>	ZZCB	P1	;							
<b>Notes</b>	P1 = 0 for disabled, 1 for enabled.									

### ZZCD Command

<b>ZZCD Sets or reads the Break In Delay value</b>										
<b>Get</b>	ZZCD	;								
<b>Set</b>	ZZCD	P1	P1	P1	P1	;				
<b>Answer</b>	ZZCD	P1	P1	P1	P1	;				
<b>Notes</b>	P1 = 0150 to 5000									

### ZZCF Command

<b>ZZCF Sets or reads the Show TX CW Frequency checkbox status</b>										
<b>Get</b>	ZZCF	;								
<b>Set</b>	ZZCF	P1	;							
<b>Answer</b>	ZZCF	P1	;							
<b>Notes</b>	P1 = 0 for disabled, 1 for enabled.									

### ZZCI Command

<b>ZZCI Sets or reads the CW Iambic checkbox status</b>										
<b>Get</b>	ZZCI	;								
<b>Set</b>	ZZCI	P1	;							
<b>Answer</b>	ZZCI	P1	;							
<b>Notes</b>	P1 = 0 for disabled, 1 for enabled.									

### ZZCL Command

<b>ZZCL Sets or reads the CW Pitch (Setup   DSP)</b>										
<b>Get</b>	ZZCL	;								
<b>Set</b>	ZZCL	P1	P1	P1	P1	;				
<b>Answer</b>	ZZCL	P1	P1	P1	P1	;				
<b>Notes</b>	P1 = 0200 to 1200.									

## ZZCM Command

<b>ZZCM Sets or reads the CW Monitor checkbox status</b>										
<b>Get</b>	ZZCM	;								
<b>Set</b>	ZZCM	P1	;							
<b>Answer</b>	ZZCM	P1	;							
<b>Notes</b>	P1 = 0 for disabled, 1 for enabled.									

## ZZCP Command

<b>ZZCP Sets or reads the Comander (CMP) button status</b>										
<b>Get</b>	ZZCP	;								
<b>Set</b>	ZZCP	P1	;							
<b>Answer</b>	ZZCP	P1	;							
<b>Notes</b>	P1 = 0 for off, 1 for on.									

## ZZCS Command

<b>ZZCS Sets or reads the CW Speed</b>										
<b>Get</b>	ZZCS	;								
<b>Set</b>	ZZCS	P1	P1	;						
<b>Answer</b>	ZZCS	P1	P1	;						
<b>Notes</b>	P1 = 01 to 60									

## ZZCT Command

<b>ZZCT Sets or reads the Comander Threshold value</b>										
<b>Get</b>	ZZCT	;								
<b>Set</b>	ZZCT	P1	P1	;						
<b>Answer</b>	ZZCT	P1	P1	;						
<b>Notes</b>	P1 = 00 to 10.									

## ZZCU Command

<b>ZZCU Reads the CPU Usage</b>										
<b>Get</b>	ZZCU	;								
<b>Set</b>										
<b>Answer</b>	ZZCU	P1	P1	P1	P1	P1	P1	;		
<b>Notes</b>	P1 = 000.00 to 100.00									

## ZZDx Commands

### ZZDA Command

<b>ZZDA Sets or reads the Display Average (AVG) status</b>										
<b>Get</b>	ZZDA	;								
<b>Set</b>	ZZDA	P1	;							
<b>Answer</b>	ZZDA	P1	;							
<b>Notes</b>	P1 = 0 for off, 1 for on.									

### ZZDE Command

<b>ZZDE Sets or reads the Enhanced Signal Clarity Form Enable Button (F5K/RX2)</b>										
<b>Get</b>	ZZDE	;								
<b>Set</b>	ZZDE	P1	;							
<b>Answer</b>	ZZDE	P1	;							
<b>Notes</b>	P1 = 0 for off, 1 for on.									

### ZZDF Command

<b>ZZDF Opens or closes the Enhanced Signal Clarity Form (F5K/RX2 only)</b>										
<b>Get</b>	ZZDF	;								
<b>Set</b>	ZZDF	P1	;							
<b>Answer</b>	ZZDF	P1	;							
<b>Notes</b>	P1 = 0 for close 1 for open.									

### ZZDM Command

<b>ZZDM Sets or reads the Display Mode</b>										
<b>Get</b>	ZZDM	;								
<b>Set</b>	ZZDM	P1	;							
<b>Answer</b>	ZZDM	P1	;							
<b>Notes</b>	P1 values: 0 = Spectrum 1 = Panadapter 2 = Scope 3 = Phase 4 = Phase2 5 = Waterfall 6 = Histogram 7 = Panafall 8 = Panascope 9 = Off									



## ZZDN Command

<b>ZZDN Sets or reads the Waterfall Lo limit (Setup Form)</b>									
<b>Get</b>	ZZDN	;							
<b>Set</b>	ZZDN	P1	P2	P2	P2	;			
<b>Answer</b>	ZZDN	P1	P2	P2	P2	;			
<b>Notes</b>	P1 = + or -, P2 = -200 to +200.								

## ZZDO Command

<b>ZZDN Sets or reads the Waterfall Hi limit (Setup Form)</b>									
<b>Get</b>	ZZDO	;							
<b>Set</b>	ZZDO	P1	P2	P2	P2	;			
<b>Answer</b>	ZZDO	P1	P2	P2	P2	;			
<b>Notes</b>	P1 = + or -, P2 = -200 to +200.								

## ZZDP Command

<b>ZZDP Sets or reads the Spectrum Grid Maximum setting (Setup Form)</b>									
<b>Get</b>	ZZDP	;							
<b>Set</b>	ZZDP	P1	P2	P2	P2	;			
<b>Answer</b>	ZZDP	P1	P2	P2	P2	;			
<b>Notes</b>	P1 = + or -, P2 = -200 to +200. Note: The Spectrum Grid Min and Max controls interact, you may not be able to set either to the extreme limits.								

## ZZDQ Command

<b>ZZDP Sets or reads the Spectrum Grid Minimum setting (Setup Form)</b>									
<b>Get</b>	ZZDQ	;							
<b>Set</b>	ZZDQ	P1	P2	P2	P2	;			
<b>Answer</b>	ZZDQ	P1	P2	P2	P2	;			
<b>Notes</b>	P1 = + or -, P2 = -200 to +200. Note: The Spectrum Grid Min and Max controls interact, you may not be able to set either to the extreme limits.								

## ZZDR Command

<b>ZZDR Sets or reads the Spectrum Grid Step Size (Setup Form)</b>									
<b>Get</b>	ZZDR	;							
<b>Set</b>	ZZDR	P1	P1	;					
<b>Answer</b>	ZZDR	P1	P1	;					
<b>Notes</b>	P1 = 01 TO 40.								

## ZZDU Command

ZZDU Status Word										
Get	ZZDU	;								
Answer	ZZDU	P1	P2	P3	P4	P5	P6	P7	P8	P9
	P1	P11	P12	P13	P14	P14	P15	P15	P16	P16
	P17	P17	P18	P18	P19	P19	P19	P20	P20	P20
	P21	P21	P21	P22	P22	P22	P23	P23	P23	P24
	P24	P25	P25	P25	P26	P26	P26	P26	P27	P27
	P27	P27	P28	P28	P28	P28	P28	P29	P29	P29
	P29	P29	P30	P30	P30	P30	P30	P31	P31	P31
	P31	P31	P31	P32	P32	P32	P32	P32	P32	P32
	P32	P32	P32	P32	P33	P33	P33	P33	P33	P33
	P33	P33	P33	P33	P33					
<b>Notes</b>	<b>P values:</b>									
	P1	VFO A/B TX Button								ZZSW
	P2	VFO Split								ZZSP
	P3	TUN Button								ZZTU
	P4	MOX Button								ZZTX
	P5	RX1 Antenna								ZZOA (Note 1)
	P6	RX2 Antenna								ZZOB (Note 1)
	P7	TX Antenna								ZZOC (Note 1)
	P8	RX2 Enable								ZZRS (Note 1)
	P9	RIT Enable								ZZRT
	P10	Display Mode								ZZDM
	P11	AGC Select								ZZGT
	P12	MultiRX Enable								ZZMU
	P13	XIT Enable								ZZXS
	P14	Step Size								ZZAC
	P15	RX1 Mode								ZZMD
	P16	RX2 Mode								ZZME (Note 1)
	P17	RX2 DSP Filter								ZZFJ (Note 1)
	P18	RX1 DSP Filter								ZZFI
	P19	TX Relays								ZZOF
	P20	RX2 Band								ZZBT (Note 1)
	P21	Drive Level								ZZPC
	P22	RX1 Band								ZZBS
	P23	Audio Gain								ZZAG
	P24	CW Speed								ZZKS
	P25	Tune Power								ZZTO
	P26	Primary DC Volts								ZZRV (Note 2)
P27	S-Meter Level								ZZSM	
P28	RIT Frequency								ZZRF	
P29	Temperature Sensor								ZZTS (Note 2)	
P30	XIT Frequency								ZZXF	
P31	CPU Usage								ZZCU	
P32	VFO A Frequency								ZZFA	
P33	VFO B Frequency								ZZFB	
ZZDU is read-only. Note 1: FLEX5000 only. Note 2: FLEX3000, FLEX5000 only Parameters are colon-separated. Parameters not applying to the radio model in use return zeros.										

## ZZDX Command

<b>ZZDX Sets or reads the Phone DX button status</b>										
<b>Get</b>	ZZDX	;								
<b>Set</b>	ZZDX	P1	;							
<b>Answer</b>	ZZDX	P1	;							
<b>Notes</b>	P1 = 0 for off, 1 for on.									

## ZZDY Command

<b>ZZDY Sets or reads the Phone DX level</b>										
<b>Get</b>	ZZDY	;								
<b>Set</b>	ZZDY	P1	P1	;						
<b>Answer</b>	ZZDY	P1	P1	;		;				
<b>Notes</b>	P1 = 0 to 10.									

## ZZEx Commands

### ZZEA Command

<b>ZZEA Sets or reads the RX EQ values</b>										
<b>Get</b>	ZZEA	;								
<b>Set</b>	ZZEA	P1	P1	P1	P2	P2	P2	P3	P3	P3
		P4	P4	P4	P5	P5	P5	P6	P6	P6
		P7	P7	P7	P8	P8	P8	P9	P9	P9
		P10	P10	P10	P11	P11	P11	P12	P12	P12
		;								
<b>Answer</b>	ZZEA	P1	P1	P1	P2	P2	P2	P3	P3	P3
		P4	P4	P4	P5	P5	P5	P6	P6	P6
		P7	P7	P7	P8	P8	P8	P9	P9	P9
		P10	P10	P10	P11	P11	P11	P12	P12	P12
		;								
<b>Notes</b>	P1 = number of EQ bands (003 or 010); P2 = EQ preamp setting (-12 to 015); P3 thru P12 are the setting of each EQ band (-12 to 015). If the number of bands = 003, P6 thru P12 are all zeros.									

### ZZEB Command

<b>ZZEB Sets or reads the TX EQ values</b>										
<b>Get</b>	ZZEA	;								
<b>Set</b>	ZZEA	P1	P1	P1	P2	P2	P2	P3	P3	P3
		P4	P4	P4	P5	P5	P5	P6	P6	P6
		P7	P7	P7	P8	P8	P8	P9	P9	P9
		P10	P10	P10	P11	P11	P11	P12	P12	P12
		;								
<b>Answer</b>	ZZEA	P1	P1	P1	P2	P2	P2	P3	P3	P3
		P4	P4	P4	P5	P5	P5	P6	P6	P6
		P7	P7	P7	P8	P8	P8	P9	P9	P9
		P10	P10	P10	P11	P11	P11	P12	P12	P12
		;								
<b>Notes</b>	P1 = number of EQ bands (003 or 010); P2 = EQ preamp setting (-12 to 015); P3 thru P12 are the setting of each EQ band (-12 to 015). If the number of bands = 003, P6 thru P12 are all zeros.									

### ZZEM Command

<b>ZZEM Enables or disables CAT verbose error messages</b>										
<b>Get</b>	ZZEM	;								
<b>Set</b>	ZZEM	P1	;							
<b>Answer</b>	ZZEM	See note	;							
<b>Notes</b>	P1: 0 = OFF, 1 = ON. Not fixed length, varies with error message: Prefix Length Error Inactive Command Unknown Command Undefined Command Error Illegal Suffix Format Suffix Length Error Feature Not Available Form Must Be Open									

### ZZER Command

<b>ZZER Sets or reads the RX EQ button status</b>										
<b>Get</b>	ZZER	;								
<b>Set</b>	ZZER	P1	;							
<b>Answer</b>	ZZER	P1	;							
<b>Notes</b>	P1: 0 = OFF, 1 = ON									

### ZZET Command

<b>ZZET Sets or reads the TX EQ button status</b>										
<b>Get</b>	ZZET	;								
<b>Set</b>	ZZET	P1	;							
<b>Answer</b>	ZZET	P1	;							
<b>Notes</b>	P1: 0 = OFF, 1 = ON									

### ZZF<sub>x</sub> Commands

#### ZZFA Command

<b>ZZFA Sets or reads VFO A frequency</b>										
<b>Get</b>	ZZFA	;								
<b>Set</b>	ZZFA	P1	P1	P1	P1	P1	P1	P1	P1	P1
		P1	P1	;						
<b>Answer</b>	ZZFA	P1	P1	P1	P1	P1	P1	P1	P1	P1
		P1	P1	;						
<b>Notes</b>	P1 = frequency in Hz (11 digits). Blank digits must be 0. Example: 14,320.150 = 00014320150.									

#### ZZFB Command

<b>ZZFB Sets or reads VFO B frequency</b>										
<b>Get</b>	ZZFB	;								
<b>Set</b>	ZZFB	P1	P1	P1	P1	P1	P1	P1	P1	P1
		P1	P1	;						
<b>Answer</b>	ZZFB	P1	P1	P1	P1	P1	P1	P1	P1	P1
		P1	P1	;						
<b>Notes</b>	P1 = frequency in Hz (11 digits). Blank digits must be 0. Example: 14,320.150 = 00014320150.									

## ZZFD Command

ZZFD Sets or reads FM Deviation Button										
<b>Get</b>	ZZFD	;								
<b>Set</b>	ZZFD	P1	;							
<b>Answer</b>	ZZFD	P1	;		P1		;			
<b>Notes</b>	P1: 0 = 2500 Hz, 1 = 5000 Hz									

## ZZFH Command

ZZFH Sets or reads Selected RX1 DSP Filter High										
<b>Get</b>	ZZFH	;								
<b>Set</b>	ZZFH	P1	P1	P1	P1	P1	;			
<b>Answer</b>	ZZFH	P1	P1	P1	P1	P1	;			
<b>Notes</b>	P1 = frequency in Hz -9999 to 09999.									

## ZZFI Command

ZZFI Sets or reads the current RX1 DSP receive filter																																																																											
<b>Get</b>	ZZFI	;																																																																									
<b>Set</b>	ZZFI	P1	P1	;																																																																							
<b>Answer</b>	ZZFI	P1	P1	;																																																																							
<b>Notes</b>	<table border="0"> <thead> <tr> <th>P1 values:</th> <th>lsb/usb</th> <th>digl/digu</th> <th>am/sam/dsb</th> <th>cwl/cwu</th> </tr> </thead> <tbody> <tr><td>00</td><td>5.0K</td><td>3.0K</td><td>16K</td><td>1.0K</td></tr> <tr><td>01</td><td>4.4K</td><td>2.5K</td><td>12K</td><td>800</td></tr> <tr><td>02</td><td>3.8K</td><td>2.0K</td><td>10K</td><td>750</td></tr> <tr><td>03</td><td>3.3K</td><td>1.5K</td><td>8.0K</td><td>600</td></tr> <tr><td>04</td><td>2.9K</td><td>1.0K</td><td>6.6K</td><td>500</td></tr> <tr><td>05</td><td>2.7K</td><td>800</td><td>5.2K</td><td>400</td></tr> <tr><td>06</td><td>2.4K</td><td>600</td><td>4.0K</td><td>250</td></tr> <tr><td>07</td><td>2.1K</td><td>300</td><td>3.1K</td><td>100</td></tr> <tr><td>08</td><td>1.8K</td><td>150</td><td>2.9K</td><td>50</td></tr> <tr><td>09</td><td>1.0K</td><td>75</td><td>2.4K</td><td>25</td></tr> <tr><td>10</td><td>VAR1</td><td>VAR1</td><td>VAR1</td><td>VAR1</td></tr> <tr><td>11</td><td>VAR2</td><td>VAR2</td><td>VAR2</td><td>VAR2</td></tr> </tbody> </table> <p>These are the default values for the receive filters. If you customize your filters, your custom values will be displayed.</p>										P1 values:	lsb/usb	digl/digu	am/sam/dsb	cwl/cwu	00	5.0K	3.0K	16K	1.0K	01	4.4K	2.5K	12K	800	02	3.8K	2.0K	10K	750	03	3.3K	1.5K	8.0K	600	04	2.9K	1.0K	6.6K	500	05	2.7K	800	5.2K	400	06	2.4K	600	4.0K	250	07	2.1K	300	3.1K	100	08	1.8K	150	2.9K	50	09	1.0K	75	2.4K	25	10	VAR1	VAR1	VAR1	VAR1	11	VAR2	VAR2	VAR2	VAR2
P1 values:	lsb/usb	digl/digu	am/sam/dsb	cwl/cwu																																																																							
00	5.0K	3.0K	16K	1.0K																																																																							
01	4.4K	2.5K	12K	800																																																																							
02	3.8K	2.0K	10K	750																																																																							
03	3.3K	1.5K	8.0K	600																																																																							
04	2.9K	1.0K	6.6K	500																																																																							
05	2.7K	800	5.2K	400																																																																							
06	2.4K	600	4.0K	250																																																																							
07	2.1K	300	3.1K	100																																																																							
08	1.8K	150	2.9K	50																																																																							
09	1.0K	75	2.4K	25																																																																							
10	VAR1	VAR1	VAR1	VAR1																																																																							
11	VAR2	VAR2	VAR2	VAR2																																																																							

### ZZFJ Command

<b>ZZFJ Sets or reads the current RX2 DSP receive filter</b>									
<b>Get</b>	ZZFJ	;							
<b>Set</b>	ZZFJ	P1	P1	;					
<b>Answer</b>	ZZFJ	P1	P1	;					
<b>Notes</b>	P1 values:    lsb/usb    digl/digu    am/sam/dsb    cwl/cwu 00                    5.0K    3.0K            16K            1.0K 01                    4.4K    2.5K            12K            800 02                    3.8K    2.0K            10K            750 03                    3.3K    1.5K            8.0K           600 04                    2.9K    1.0K            6.6K           500 05                    2.7K    800             5.2K           400 06                    2.4K    600             4.0K           250 07                    *        *                *                * 08                    *        *                *                * 09                    *        *                *                * 10                    VAR1    VAR1            VAR1           VAR1 11                    VAR2    VAR2            VAR2           VAR2  These are the default values for the receive filters. If you customize your filters, your custom values will be displayed. * Not available.								

### ZZFL Command

<b>ZZFL Sets or reads Selected RX1 DSP Filter Low</b>									
<b>Get</b>	ZZFL	;							
<b>Set</b>	ZZFL	P1	P1	P1	P1	P1	;		
<b>Answer</b>	ZZFL	P1	P1	P1	P1	P1	;		
<b>Notes</b>	P1 = frequency in Hz -9999 to 09999.								

### ZZFM Command

<b>ZZFM Reads the FlexRadio Model Number</b>									
<b>Get</b>	ZZFM	;							
<b>Set</b>									
<b>Answer</b>	ZZFM	P1	;						
<b>Notes</b>	Read only. P1: 0 = SDR1000, 1 = FLEX5000, 2 = FLEX3000, 3 = FLEX1500.								

## ZZFR Command

<b>ZZFR Sets or reads Selected RX2 DSP Filter Low</b>										
<b>Get</b>	ZZFR	;								
<b>Set</b>	ZZFR	P1	P1	P1	P1	P1	;			
<b>Answer</b>	ZZFR	P1	P1	P1	P1	P1	;			
<b>Notes</b>	P1 = frequency in Hz -9999 to 09999.									

## ZZFS Command

<b>ZZFS Sets or reads Selected RX2 DSP Filter Low</b>										
<b>Get</b>	ZZFS	;								
<b>Set</b>	ZZFS	P1	P1	P1	P1	P1	;			
<b>Answer</b>	ZZFS	P1	P1	P1	P1	P1	;			
<b>Notes</b>	P1 = frequency in Hz -9999 to 09999.									

## ZZFV Command

<b>ZZFV Reads single data byte FlexWire data</b>										
<b>Get</b>	ZZFV	P1	P1	P2	P2	;				
<b>Notes</b>	Write only. P1 = 00 – FF , address P2 = 00 – FF, data Case insensitive. Address is returned with data: ZZFV95: returns ZZFV95xx where xx is the data.									

## ZZFW Command

<b>ZZFW Reads double data byte FlexWire data</b>										
<b>Get</b>	ZZFW	P1	P1	P2	P2	P3	P3	;		
<b>Notes</b>	Write only. P1 = 00 – FF, address P2 = 00 – FF, data byte 1 P3 = 00 – FF, data byte 2 Case insensitive. Address is returned with data: ZZFW95 returns ZZFW95xxxx; where xxxx is the data.									

## ZZFX Command

<b>ZZFX Sends single data byte FlexWire command</b>										
<b>Set</b>	ZZFX	P1	P1	P2	P2	;				
<b>Notes</b>	Write only. P1 = 00 – FF , address P2 = 00 – FF, data Case insensitive									



## ZZFY Command

<b>ZZFY Sends double data byte FlexWire command</b>										
<b>Set</b>	ZZFY	P1	P1	P2	P2	P3	P3	;		
<b>Notes</b>	Write only. P1 = 00 – FF, address P2 = 00 – FF, data byte 1 P3 = 00 – FF, data byte 2 Case insensitive									

## ZZGx Commands

### ZZGE Command

<b>ZZGE Sets or reads the Noise Gate Enable button status</b>										
<b>Get</b>	ZZGE	;								
<b>Set</b>	ZZGE	P1	;							
<b>Answer</b>	ZZGE	P1	;							
<b>Notes</b>	P1 = 0 for disabled, 1 for enabled.									

### ZZGL Command

<b>ZZGL Sets or reads the Noise Gate Threshold value</b>										
<b>Get</b>	ZZGL	;								
<b>Set</b>	ZZGL	P1	P1	P1	P1	;				
<b>Answer</b>	ZZGL	P1	P1	P1	P1	;				
<b>Notes</b>	P1 = -160 to 0 (- sign required except for 0000).									

### ZZGT Command

<b>ZZGT Sets or reads the AGC thumbwheel control</b>										
<b>Get</b>	ZZGT	;								
<b>Set</b>	ZZGT	P1	;							
<b>Answer</b>	ZZGT	P1	;							
<b>Notes</b>	P1 values: 0 = Fixed 1 = Long 2 = Slow 3 = Med 4 = Fast 5 = Custom									

## ZZHx Commands

### ZZHA Command

<b>ZZHA Sets or reads Audio Buffer Size</b>										
<b>Get</b>	ZZHA	;								
<b>Set</b>	ZZHA	P1	;							
<b>Answer</b>	ZZHA	P1	;							
<b>Notes</b>	P1: 0 = 256, 1 = 512, 2 = 1024, 3 = 2048, 4 = 4096									

### ZZHR Command

<b>ZZHR Sets or reads DSP RX Buffer Phone Size</b>										
<b>Get</b>	ZZHR	;								
<b>Set</b>	ZZHR	P1	;							
<b>Answer</b>	ZZHR	P1	;							
<b>Notes</b>	P1: 0 = 256, 1 = 512, 2 = 1024, 3 = 2048, 4 = 4096									

### ZZHT Command

<b>ZZHT Sets or reads DSP TX Buffer Phone Size</b>										
<b>Get</b>	ZZHT	;								
<b>Set</b>	ZZHT	P1	;							
<b>Answer</b>	ZZHT	P1	;							
<b>Notes</b>	P1: 0 = 256, 1 = 512, 2 = 1024, 3 = 2048, 4 = 4096									

### ZZHU Command

<b>ZZHU Sets or reads DSP RX Buffer CW Size</b>										
<b>Get</b>	ZZHU	;								
<b>Set</b>	ZZHU	P1	;							
<b>Answer</b>	ZZHU	P1	;							
<b>Notes</b>	P1: 0 = 256, 1 = 512, 2 = 1024, 3 = 2048, 4 = 4096									

### ZZHV Command

<b>ZZHV Sets or reads DSP TX Buffer CW Size</b>										
<b>Get</b>	ZZHV	;								
<b>Set</b>	ZZHV	P1	;							
<b>Answer</b>	ZZHV	P1	;							
<b>Notes</b>	P1: 0 = 256, 1 = 512, 2 = 1024, 3 = 2048, 4 = 4096									

## ZZHW Command

<b>ZZHW Sets or reads DSP TX Buffer Digital Size</b>										
<b>Get</b>	ZZHW	;								
<b>Set</b>	ZZHW	P1	;							
<b>Answer</b>	ZZHW	P1	;							
<b>Notes</b>	P1: 0 = 256, 1 = 512, 2 = 1024, 3 = 2048, 4 = 4096									

## ZZHX Command

<b>ZZHX Sets or reads DSP TX Buffer Digital Size</b>										
<b>Get</b>	ZZHX	;								
<b>Set</b>	ZZHX	P1	;							
<b>Answer</b>	ZZHX	P1	;							
<b>Notes</b>	P1: 0 = 256, 1 = 512, 2 = 1024, 3 = 2048, 4 = 4096									

## ZZIx Commands

### ZZID Command

<b>ZZID Sets the transceiver identification to FlexRadio</b>										
<b>Get</b>										
<b>Set</b>	ZZID	;								
<b>Answer</b>										
<b>Notes</b>	ZZID is used to remotely force the transceiver id to 900 FlexRadio).									

The remainder of this page is intentionally blank.

### ZZIF Command

<b>ZZIF Reads the FlexRadio status</b>										
<b>Get</b>	ZZIF	;								
<b>Set</b>										
<b>Answer</b>	ZZIF	P1	P1	P1	P1	P1	P1	P1	P1	P1
	P1	P1	P2	P2	P2	P2	P3	P3	P3	P3
	P3	P3	P4	P5	P6	P7	P7	P8	P9	P9
	P10	P11	P12	P13	P14	P14	P15	;		
<b>Notes</b>	P1 (11 characters) VFO A frequency in Hz. Same as FA; P2 (4 characters) Frequency step size expressed in powers of 10 (see ZZST). P3 (6 characters) RIT/XIT frequency (+nnnnn or -nnnnn). P4 (1 character) RIT status. 0 = off, 1 = on. P5 (1 character) XIT status. 0 = off, 1 = on. P6 (1 character) Channel bank number. Not used, defaulted to 0. P7 (2 characters) Channel bank number. Not used, defaulted to 00. P8 (1 character) MOX button status. 0 = off, 1 = on (transmitting). P9 (2 character) Operating mode. See ZZMD for settings. P10 (1 character) VFO Split status. Same as FR (always 0). P11 (1 character) Scan status. Not implemented, defaulted to 0. P12 (1 character) VFO Split status. Same as ZZSP. P13 (1 character) CTCSS tone. Not used, defaulted to 0. P14 (2 characters) More tone controls. Not used, defaulted to 00. P15 (1 character) Shift status. Not used, defaulted to 0.									

### ZZIO Command

<b>ZZIO Reads the installed options</b>										
<b>Get</b>	ZZIO	;								
<b>Answer</b>	ZZIS	P1	P2	P3	;					
<b>Notes</b>	P1,2,3 1 = installed, 0 = not available P1 = ATU, P2 = RX2, P3 = VU									

### ZZIS Command

<b>ZZIS Sets or reads the variable filter width slider</b>										
<b>Get</b>	ZZIS	;								
<b>Set</b>	ZZIS	P1	P1	P1	P1	P1	;			
<b>Answer</b>	ZZIS	P1	P1	P1	P1	P1	;			
<b>Notes</b>	P1 = 00000 to 10000.									

### ZZIT Command

<b>ZZIT Sets or reads the variable filter shift slider</b>										
<b>Get</b>	ZZIT	;								
<b>Set</b>	ZZIT	P1	P2	P2	P2	P2	;			
<b>Answer</b>	ZZIT	P1	P2	P2	P2	P2	;			
<b>Notes</b>	P1 = "+" or "-" P2 = 0000 to 1000 (-1000 to +1000)									

### ZZIU Command

<b>ZZIU Resets the variable filter shift slider</b>										
<b>Get</b>										
<b>Set</b>	ZZIU	;								
<b>Answer</b>							;			
<b>Notes</b>	Write only									

### ZZKx Commands

#### ZZKM Command

<b>ZZKM Sends CWX Macro</b>										
<b>Set</b>	ZZKM	P1	;							
<b>Notes</b>	P1 = 1 to 9. ZZKM is write only									

#### ZZKO Command

<b>ZZKO Opens or closes the CWX form</b>										
<b>Get</b>	ZZKO	;								
<b>Set</b>	ZZKO	P1	;							
<b>Answer</b>	ZZKO	P1	;							
<b>Notes</b>	P1 : Open = 1, Close = 0									

#### ZZKS Command

<b>ZZKS Sets or reads the CWX CW speed</b>										
<b>Get</b>	ZZKS	;								
<b>Set</b>	ZZKS	P1	P1	P1	;					
<b>Answer</b>	ZZKS	P1	P1	P1	;					
<b>Notes</b>	P1 = 001 to 099 in WPM.									

### ZZKY Command

<b>ZZKY Sends text to CWX for conversion to Morse</b>										
<b>Get</b>	ZZKY	;								
<b>Set</b>	ZZKY	P1	P2	P2	P2	P2	P2	P2	P2	P2
	P2	P2	P2	P2	P2	P2	P2	P2	P2	P2
	P2	P2	P2	P2	P2	P2	;			
<b>Answer</b>	ZZKY	P1	;							
<b>Notes</b>	Get: P1 0 = Character buffer available, 1 = Character buffer not available (>72 characters left in buffer), 2 = buffer is empty and all code has been sent. Set: P1 = space, P2 up to 24 ASCII printing characters. . Empty character positions in P2 must contain a space.									

### ZZLx Commands

#### ZZLA Command

<b>ZZLA Sets or reads the RX0 (main receiver) Gain (MultiRX Group Controls)</b>										
<b>Get</b>	ZZLA	;								
<b>Set</b>	ZZLA	P1	P1	P1	;					
<b>Answer</b>	ZZLA	P1	P1	P1	;					
<b>Notes</b>	P1 = 000 to 100.									

#### ZZLB Command

<b>ZZLB Sets or reads the RX0 Stereo Balance (MultiRX Group Controls)</b>										
<b>Get</b>	ZZLB	;								
<b>Set</b>	ZZLB	P1	P1	P1	;					
<b>Answer</b>	ZZLB	P1	P1	P1	;					
<b>Notes</b>	P1 = 000 to 100 (50 = center).									

#### ZZLC Command

<b>ZZLC Sets or reads the RX1 (subreceiver) Gain (MultiRX Group Controls)</b>										
<b>Get</b>	ZZLC	;								
<b>Set</b>	ZZLC	P1	P1	P1	;					
<b>Answer</b>	ZZLC	P1	P1	P1	;					
<b>Notes</b>	P1 = 000 to 100.									

### ZZLD Command

<b>ZZLD Sets or reads the RX1 Stereo Balance (MultiRX Group Controls)</b>										
<b>Get</b>	ZZLD	;								
<b>Set</b>	ZZLD	P1	P1	P1	;					
<b>Answer</b>	ZZLD	P1	P1	P1	;					
<b>Notes</b>	P1 = 000 to 100 (50 = center).									

### ZZLE Command

<b>ZZLE Sets or reads the RX2 Audio Gain</b>										
<b>Get</b>	ZZLE	;								
<b>Set</b>	ZZLE	P1	P1	P1	;					
<b>Answer</b>	ZZLE	P1	P1	P1	;					
<b>Notes</b>	P1 = 000 to 100 (50 = center).									

### ZZLF Command

<b>ZZLF Sets or reads the RX2 Stereo Balance</b>										
<b>Get</b>	ZZLF	;								
<b>Set</b>	ZZLF	P1	P1	P1	;					
<b>Answer</b>	ZZLF	P1	P1	P1	;					
<b>Notes</b>	P1 = 000 to 100 (50 = center).									

### ZZLG Command

<b>ZZLG Sets or reads the AutoMuteRX1onVFOBTX checkbox (F5K Only)</b>										
<b>Get</b>	ZZLG	;								
<b>Set</b>	ZZLG	P1	;							
<b>Answer</b>	ZZLG	P1	;							
<b>Notes</b>	P1: 0 = OFF, 1 = ON									

### ZZLH Command

<b>ZZLH Sets or reads the AutoMuteRX2onVFOATX checkbox (F5K Only)</b>										
<b>Get</b>	ZZLH	;								
<b>Set</b>	ZZLH	P1	;							
<b>Answer</b>	ZZLH	P1	;							
<b>Notes</b>	P1: 0 = OFF, 1 = ON									

## ZZMx Commands

### ZZMA Command

<b>ZZMA Sets or reads the RX1 Mute (MUT) status</b>										
<b>Get</b>	ZZMA	;								
<b>Set</b>	ZZMA	P1	;							
<b>Answer</b>	ZZMA	P1	;							
<b>Notes</b>	P1 = 0 for off, 1 for on. See ZZMB notes.									

### ZZMB Command

<b>ZZMB Sets or reads the RX2 Mute (MUT) status (FLEX5000/RX2 ONLY)</b>										
<b>Get</b>	ZZMB	;								
<b>Set</b>	ZZMB	P1	;							
<b>Answer</b>	ZZMB	P1	;							
<b>Notes</b>	P1 = 0 for off, 1 for on. Note: When RX1 is muted, either with ZZMA or the MUT button, both RX1 and RX2 are muted. Under the current code version, you cannot mute RX1 and have RX2 audio output.									

### ZZMD Command

<b>ZZMD Sets or reads the RX1 Operating Mode</b>										
<b>Get</b>	ZZMD	;								
<b>Set</b>	ZZMD	P1	P1	;						
<b>Answer</b>	ZZMD	P1	P1	;						
<b>Notes</b>	P1 values: 00 = LSB 01 = USB 02 = DSB 03 = CWL 04 = CWU 05 = FM 06 = AM 07 = DIGU 08 = SPEC 09 = DIGL 10 = SAM 11 = DRM									



## ZZME Command

<b>ZZME Sets or reads the RX2 Operating Mode</b>										
<b>Get</b>	ZZME	;								
<b>Set</b>	ZZME	P1	P1	;						
<b>Answer</b>	ZZME	P1	P1	;						
<b>Notes</b>	P1 values: 00 = LSB 01 = USB 02 = DSB 03 = CWL 04 = CWU 05 = FM 06 = AM 07 = DIGU 08 = SPEC 09 = DIGL 10 = SAM 11 = DRM									

## ZZMG Command

<b>ZZMG Sets or reads the Mic gain</b>										
<b>Get</b>	ZZMG	;								
<b>Set</b>	ZZMG	P1	P1	P1	;					
<b>Answer</b>	ZZMG	P1	P1	P1	;					
<b>Notes</b>	P1 = 000 to 070									

### ZZML Command

<b>ZZML Returns the list of DSP Modes and Indexes</b>										
<b>Get</b>	ZZML	;								
<b>Answer</b>	ZZML	P1	P1	P1	P1	P2	P2	P3		
		P1	P1	P2	P1	P2	P2	P3		
		P1	P1	P1	P1	P2	P2	P3		
		P1	P1	P1	P1	P2	P2	P3		
		P1	P1	P1	P1	P2	P2	P3		
		P1	P1	P1	P1	P2	P2	P3		
		P1	P1	P1	P1	P2	P2	P3		
		P1	P1	P1	P1	P2	P2	P3		
		P1	P1	P1	P1	P2	P2	P3		
		P1	P1	P1	P1	P2	P2	P3		
		P1	P1	P1	P1	P2	P2	P3	;	
<b>Notes</b>	P1 = right justified mode name; P2 = mode index(00 to 12), P3 = colon as a separator. Example: ZZML LSB00: USB01:.....DIGL09:...etc.									

### ZZMN Command

<b>ZZMN Reads the DSP Filter names and values</b>										
<b>Get</b>	ZZMN	P1	P1	;						
<b>Answer</b>	ZZMN	See below								
<b>Notes</b>	<p>P1 Values: The two-digit mode code (See ZZMD)</p> <p>The return string is 180 characters long, 12 groups of 15 characters each representing all the names and high/low values for each filter contained in the mode requested. The 15 character groups are broken down into subgroups of five characters: 1-5 are is name of the filter button, 6-10 is the high filter value, and 11-15 is the low filter value. Example: 5.0k 5150 –160 4.8k 4950 –160...;. Filter names are truncated to 5 characters.</p>									

### ZZMO Command

<b>ZZMO Sets or reads the Monitor (MON) status</b>										
<b>Get</b>	ZZMO	;								
<b>Set</b>	ZZMO	P1	;							
<b>Answer</b>	ZZMO	P1	;							
<b>Notes</b>	P1: 0 = OFF, 1 = ON									

## ZZMR Command

<b>ZZMR Sets or reads the RX Meter mode</b>									
<b>Get</b>	ZZMR	;							
<b>Set</b>	ZZMR	P1	;						
<b>Answer</b>	ZZMR	P1	;						
<b>Notes</b>	P1 Values: 0 = Signal Strength 1 = Signal Average 2 = ADC L 3 = ADC R 4 = Off								

## ZZMS Command

<b>ZZMS Sets or reads the MultiRX Swap checkbox</b>									
<b>Get</b>	ZZMS	;							
<b>Set</b>	ZZMS	P1	;						
<b>Answer</b>	ZZMS	P1	;						
<b>Notes</b>	P1: 0 = OFF, 1 = ON								

## ZZMT Command

<b>ZZMT Sets or reads the TX Meter mode</b>									
<b>Get</b>	ZZMT	;							
<b>Set</b>	ZZMT	P1	P1	;					
<b>Answer</b>	ZZMT	P1	P1	;					
<b>Notes</b>	P1 Values: 00 = Forward Power 01 = Reverse Power 02 = Mic 03 = EQ 04 = Leveler 05 = Lev Gain 06 = COMP 07 = CPDR 08 = ALC 09 = ALC COMP 10 = SWR 11 = Off								

### ZZMU Command

<b>ZZMU Sets or reads the MultiRX button status</b>										
<b>Get</b>	ZZMU	;								
<b>Set</b>	ZZMU	P1	;							
<b>Answer</b>	ZZMU	P1	;							
<b>Notes</b>	P1: 0 = OFF, 1 = ON									

### ZZMV Command

<b>ZZMV Gets the count of memory channels programmed</b>										
<b>Get</b>	ZZMV	;								
<b>Notes</b>	P1: 001 to 999; Read Only. See ZZMY for numbering scheme.									

### ZZMW Command

<b>ZZMW Deletes a memory channel by channel number</b>										
<b>Set</b>	ZZMW	P1	P1	P1	;					
<b>Notes</b>	P1: 001 to 999; Write Only. <b>No warning is given.</b> See ZZMY for numbering scheme.									

### ZZMX Command

<b>ZZMX Restores a memory channel by channel number</b>										
<b>Set</b>	ZZMX	P1	P1	P1	;					
<b>Notes</b>	P1: 001 to 999; Write Only. See ZZMY for numbering scheme.									

### ZZMY Command

<b>ZZMY Stores radio memory configuration to a new channel</b>										
<b>Set</b>	ZZMY	;								
<b>Notes</b>	Write Only. Memory channel numbers are assigned sequentially from 001 to 999. Channel numbers are stored in the Comments cell as a three digit number followed by a colon, e.g. 003:. The user may add any text after the colon as comments. A deleted channel number is not reused unless it is the highest number assigned.									

### ZZMZ Command

<b>ZZMZ Stores radio memory configuration to an existing channel</b>										
<b>Set</b>	ZZMZ	P1	P1	P1	;					
<b>Notes</b>	P1: 001 to 999; Write Only. An edit method. Typical use would be to recall a memory channel, change some parameters, and save the changes to the same channel number. <b>Destroys the only record and write the new one without warning.</b>									

## ZZNx Commands

### ZZNA Command

<b>ZZNA Sets or reads the Noise Blanker (NB) status</b>										
<b>Get</b>	ZZNA	;								
<b>Set</b>	ZZNA	P1	;							
<b>Answer</b>	ZZNA	P1	;							
<b>Notes</b>	P1 = 0 for off, 1 for on.									

### ZZNB Command

<b>ZZNB Sets or reads the Noise Blanker 2 (NB2) status</b>										
<b>Get</b>	ZZNB	;								
<b>Set</b>	ZZNB	P1	;							
<b>Answer</b>	ZZNB	P1	;							
<b>Notes</b>	P1 = 0 for off, 1 for on.									

### ZZNC Command

<b>ZZNC Sets or reads RX2 Noise Blanker (1) (F5K/RX2 only)</b>										
<b>Get</b>	ZZNC	;								
<b>Set</b>	ZZNC	P1	;							
<b>Answer</b>	ZZNC	P1	;							
<b>Notes</b>	P1 = 0 for off, 1 for on.									

### ZZND Command

<b>ZZND Sets or reads RX2 Noise Blanker (2) (F5K/RX2 only)</b>										
<b>Get</b>	ZZND	;								
<b>Set</b>	ZZND	P1	;							
<b>Answer</b>	ZZND	P1	;							
<b>Notes</b>	P1 = 0 for off, 1 for on.									

### ZZNL Command

<b>ZZNL Sets or reads the Noise Blanker 1 threshold (Setup DSP tab)</b>										
<b>Get</b>	ZZNL	;								
<b>Set</b>	ZZNL	P1	P1	P1	;					
<b>Answer</b>	ZZNL	P1	P1	P1	;					
<b>Notes</b>	P1 = 001 to 200.									

## ZZNM Command

<b>ZZNM Sets or reads the Noise Blanker 2 threshold</b>										
<b>Get</b>	ZZNM	;								
<b>Set</b>	ZZNM	P1	P1	P1	P1	;				
<b>Answer</b>	ZZNM	P1	P1	P1	P1	;				
<b>Notes</b>	P1 = 0001 to 1000.									

## ZZNR Command

<b>ZZNR Sets or reads the Noise Reduction (NR) status</b>										
<b>Get</b>	ZZNR	;								
<b>Set</b>	ZZNR	P1	;							
<b>Answer</b>	ZZNR	P1	;							
<b>Notes</b>	P1 = 0 for off, 1 for on.									

## ZZNT Command

<b>ZZNT Sets or reads the Auto Notch Filter (ANF) status</b>										
<b>Get</b>	ZZNT	;								
<b>Set</b>	ZZNT	P1	;							
<b>Answer</b>	ZZNT	P1	;							
<b>Notes</b>	P1 = 0 for off, 1 for on.									

## ZZOx Commands

### ZZOA Command

<b>ZZOA Sets or reads the antenna connected to RX1 (FLEX5000/FLEX1500 only)</b>										
<b>Get</b>	ZZOA	;								
<b>Set</b>	ZZOA	P1	;							
<b>Answer</b>	ZZOA	P1	;							
<b>Notes</b>	P1 Values F5K: 0 = N/C, 1 = Ant1, 2 = Ant2, 3 = Ant3, 4 = RX1 In. P1 Values F1500: 0 = PA, 1 = XVTX_COM, 2 = XVRX.									

### ZZOB Command

<b>ZZOB Sets or reads the antenna connected to RX2 (FLEX5000 only)</b>										
<b>Get</b>	ZZOB	;								
<b>Set</b>	ZZOB	P1	;							
<b>Answer</b>	ZZOB	P1	;							
<b>Notes</b>	P1 Values: 0 = N/C, 1 = Ant1, 5 = RX2In, 6 = RX1Tap									

### ZZOC Command

<b>ZZOC Sets or reads the transmitter antenna (FLEX5000/FLEX1500 only)</b>										
<b>Get</b>	ZZOC	;								
<b>Set</b>	ZZOC	P1	;							
<b>Answer</b>	ZZOC	P1	;							
<b>Notes</b>	P1 Values F5K: 1 = Ant1, 2 = Ant2, 3 = Ant3. P1 Values F1500: 1 = PA, 2 = XVTX/COM.									

### ZZOD Command

<b>ZZOD Sets or reads the current antenna mode (FLEX5000/F1500 only)</b>										
<b>Get</b>	ZZOD	;								
<b>Set</b>	ZZOD	P1	;							
<b>Answer</b>	ZZOD	P1	;							
<b>Notes</b>	P1 Values: 0 = Simple, 1 = Complex									

### ZZOE Command

<b>ZZOE Sets or reads the RX1 loop (FLEX5000 only)</b>										
<b>Get</b>	ZZOE	;								
<b>Set</b>	ZZOE	P1	;							
<b>Answer</b>	ZZOE	P1	;							
<b>Notes</b>	P1 Values: 0 = Loop Disabled, 1 = Loop Enabled									

### ZZOF Command

<b>ZZOF Sets or reads the TX relays energized on transmit (FLEX5000/F1500 only)</b>										
<b>Get</b>	ZZOF	;								
<b>Set</b>	ZZOF	P1	P2	P3	;					
<b>Answer</b>	ZZOF	P1	P2	P3	;					
<b>Notes</b>	F5K P1 = RCATX1, P2 = RCATX2, P3 = RCATX3. 1 = Enabled, 0 = Disabled, all positions must be represented: ZZOF010 = TX2 enabled, TX1 and TX2 disabled. ZZOF111 = all enabled, ZZOF000 = all disabled.  F1500 P1: FlexWire PTT Out 0 = disabled, 1 = enabled. Command must be sent with three characters: ZZOF100 or ZZOF000.									

## ZZOG Command

<b>ZZOG</b> Sets or reads the TX relay delays enabled on transmit (FLEX5000/F1500 only)										
<b>Get</b>	ZZOG	;								
<b>Set</b>	ZZOG	P1	P2	P3	;					
<b>Answer</b>	ZZOG	P1	P2	P3	;					
<b>Notes</b>	<p>F5K P1 = TX1, P2 = TX2, P3 = TX3. 1 = Enabled, 0 = Disabled, all positions must be represented: ZZOG010 = TX2 enabled, TX1 and TX2 disabled. ZZOG111 = all enabled, ZZOG000 = all disabled.</p> <p>F1500 P1: FlexWire PTT Out Delay 0 = disabled, 1 = enabled. Command must be sent with three characters: ZZOG100 or ZZOG000.</p>									

## ZZOH Command

<b>ZZOH</b> Sets or reads the TX relay delay times (FLEX5000/F1500 only)										
<b>Get</b>	ZZOH	P1	;							
<b>Set</b>	ZZOH	P1	P2	P2	P2	P2	;			
<b>Answer</b>	ZZOH	P1	P2	P2	P2	P2	;			
<b>Notes</b>	<p>F5K P1 = TX relay number, P2 = delay in milliseconds. Example: ZZOH20100 Sets relay 2 to 100 ms. Delay range must be 0000 to 9999.</p> <p>F1500 P1 = 1, P2 same as F5K.</p>									

## ZZOJ Command

<b>ZZOJ</b> Sets or reads the Antenna Lock Checkbox (FLEX5000/F1500 Only)										
<b>Get</b>	ZZOJ	;								
<b>Set</b>	ZZOJ	P1	;							
<b>Answer</b>	ZZOJ	P1	;							
<b>Notes</b>	P1 = 0 for off, 1 for on.									

## ZZOS Commands

<b>ZZOS</b> Sets or reads the FM Offset Direction										
<b>Get</b>	ZZOS	;								
<b>Set</b>	ZZOS	P1	;							
<b>Answer</b>	ZZOS	P1	;							
<b>Notes</b>	P1: 0 = Simplex, 1 = High, 2 = Low									



### ZZOT Commands

<b>ZZOT Sets or reads the FM Repeater Offset Frequency</b>										
<b>Get</b>	ZZOT	;								
<b>Set</b>	ZZOT	P1	P1	P1	P1	P1	P1	P1	P1	P1;
<b>Answer</b>	ZZOT	P1	P1	P1	P1	P1	P1	P1	P1	P1;
<b>Notes</b>	P1 = 000000000 to 999999999 Hz. 001000000 = 1.0 MHz, 000600000 = 600 KHz. Must have leading zeros.									

### ZZOL Commands

<b>ZZOL Sets or reads the DigL Click Tune Offset</b>										
<b>Get</b>	ZZOL	;								
<b>Set</b>	ZZOL	P1	P1	P1	P1	;				
<b>Answer</b>	ZZOL	P1	P1	P1	P1	;				
<b>Notes</b>	P1 = 0000 to 9999									

### ZZOU Command

<b>ZZOU Sets or reads the DigU Click Tune Offset</b>										
<b>Get</b>	ZZOU	;								
<b>Set</b>	ZZOU	P1	P1	P1	P1	;				
<b>Answer</b>	ZZOU	P1	P1	P1	P1	;				
<b>Notes</b>	P1 = 0000 to 9999									

### ZZOV Command

<b>ZZOV Sets or reads ATU Enable Button (when ATU equipped)</b>										
<b>Get</b>	ZZOV	;								
<b>Set</b>	ZZOV	P1	;							
<b>Answer</b>	ZZOV	P1	;							
<b>Notes</b>	P1: 0 = Off, 1 = On. Sending a "1" to ZZOV is the same as sending a "0" to ZZOW (ATU bypass).									

### ZZOW Command

<b>ZZOW Sets or reads ATU Bypass Button (when ATU equipped)</b>										
<b>Get</b>	ZZOW	;								
<b>Set</b>	ZZOW	P1	;							
<b>Answer</b>	ZZOW	P1	;							
<b>Notes</b>	P1: 0 = Off, 1 = On. Sending a "0" to ZZOW is the same as sending a "1" to ZZOV (ATU Enabled and will cause the ATU to tune).									

## ZZPx Commands

### ZZPA Command

<b>ZZPA Sets or reads the Preamplifier (Preamp) setting</b>																																	
<b>Get</b>	ZZPA	;																															
<b>Set</b>	ZZPA	P1	;																														
<b>Answer</b>	ZZPA	P1	;																														
<b>Notes</b>	P1 values; <table style="width:100%; border:none;"> <tr> <td style="width:25%;">SDR-1000</td> <td style="width:25%;">FLEX5000x</td> <td style="width:25%;">FLEX3000</td> <td style="width:25%;">FLEX1500</td> </tr> <tr> <td>0 = Off</td> <td>0 = Off</td> <td>0 = Attn</td> <td>0 = -10</td> </tr> <tr> <td>1 = Low</td> <td>1 = On</td> <td>1 = Off</td> <td>1 = 0</td> </tr> <tr> <td>2 = Med</td> <td></td> <td>2 = Pre1[1]</td> <td>2 = +10</td> </tr> <tr> <td>3 = High</td> <td></td> <td>3 = Pre2[1]</td> <td>3 = +20</td> </tr> <tr> <td></td> <td></td> <td></td> <td>4 = +30</td> </tr> </table> <p>[1] If TRX board less than Rev G, both Pre1 and Pre2 available above 2 MHz, neither available below 2 MHz. If TRX board Rev G or higher, neither available below 7 MHz, Pre1 available above 7 MHz but below 13 MHz, and both available above 13 MHz.</p>									SDR-1000	FLEX5000x	FLEX3000	FLEX1500	0 = Off	0 = Off	0 = Attn	0 = -10	1 = Low	1 = On	1 = Off	1 = 0	2 = Med		2 = Pre1[1]	2 = +10	3 = High		3 = Pre2[1]	3 = +20				4 = +30
SDR-1000	FLEX5000x	FLEX3000	FLEX1500																														
0 = Off	0 = Off	0 = Attn	0 = -10																														
1 = Low	1 = On	1 = Off	1 = 0																														
2 = Med		2 = Pre1[1]	2 = +10																														
3 = High		3 = Pre2[1]	3 = +20																														
			4 = +30																														

### ZZPB Command

<b>ZZPB Sets or reads RX2 Preamp status (F5K/RX2 only)</b>									
<b>Get</b>	ZZPB	;							
<b>Set</b>	ZZPB	P1	;						
<b>Answer</b>	ZZPB	P1	;						
<b>Notes</b>	P1 = 0 for off, 1 for on.								

### ZZPC Command

<b>ZZPC Sets or reads the PA Drive level</b>									
<b>Get</b>	ZZPC	;							
<b>Set</b>	ZZPC	P1	P1	P1	;				
<b>Answer</b>	ZZPC	P1	P1	P1	;				
<b>Notes</b>	P1 = 000 to 100								

### ZZPD Command

<b>ZZPD Sets the Display Pan Center button</b>									
<b>Set</b>	ZZPD	;							
<b>Notes</b>	Write-only								

## ZZPE Command

<b>ZZPE Sets or reads the Display Pan Position</b>										
<b>Get</b>	ZZPE	;								
<b>Set</b>	ZZPE	P1	P1	P1	P1	;				
<b>Answer</b>	ZZPE	P1	P1	P1	P1	;				
<b>Notes</b>	P1 = 0000 to 1000									

## ZZPO Command

<b>ZZPO Sets or reads the Display Peak button</b>										
<b>Get</b>	ZZPO	;								
<b>Set</b>	ZZPO	P1	;							
<b>Answer</b>	ZZPO	P1	;							
<b>Notes</b>	P1 = 0 for Off, 1 for On									

## ZZPS Command

<b>ZZPS Sets or reads the Start button</b>										
<b>Get</b>	ZZPS	;								
<b>Set</b>	ZZPS	P1	;							
<b>Answer</b>	ZZPS	P1	;							
<b>Notes</b>	P1 = 0 for Off, 1 for On									

## ZZPY Command

<b>ZZPY Sets or reads the Display Zoom slider</b>										
<b>Get</b>	ZZPY	;								
<b>Set</b>	ZZPY	P1	P1	P1	;					
<b>Answer</b>	ZZPZ	P1	P1	P1	;					
<b>Notes</b>	P1: 010 (minimum zoom) to 240 (maximum zoom)									

## ZZPZ Command

<b>ZZPZ Sets or reads the Display Zoom buttons</b>										
<b>Get</b>	ZZPZ	;								
<b>Set</b>	ZZPZ	P1	;							
<b>Answer</b>	ZZPZ	P1	;							
<b>Notes</b>	P1: 0 = 0.5X, 1 = 1X, 2 = 2X, 3 = 4X									

## ZZQx Commands

### ZZQM Command

<b>ZZQM Reads the Quick Save Memory value</b>										
<b>Get</b>	ZZQM	;								
<b>Set</b>										
<b>Answer</b>	ZZQM	P1	P1	P1	P1	P1	P1	P1	P1	P1
		P1	P1	;						
<b>Notes</b>	P1 = frequency in Hz (11 digits). Example: 14,320.150 = 00014320150.									

### ZZQR Command

<b>ZZQR Restores the Quick Save Memory (QR)</b>										
<b>Get</b>										
<b>Set</b>	ZZQR	;								
<b>Answer</b>										
<b>Notes</b>	ZZQR is write-only									

### ZZQS Command

<b>ZZQS Saves Frequency A, Band, and Mode to Quick Memory</b>										
<b>Set</b>	ZZQS	;								
<b>Notes</b>	Write-only									

## ZZRx Commands

### ZZRA Command

<b>ZZRA Sets or reads the RTTY Offset Enable VFO A status</b>										
<b>Get</b>	ZZRA	;								
<b>Set</b>	ZZRA	P1	;							
<b>Answer</b>	ZZRA	P1	;							
<b>Notes</b>	P1 = 0 for Off, 1 for On									

### ZZRB Command

<b>ZZRB Sets or reads the RTTY Offset Enable VFO B status</b>										
<b>Get</b>	ZZRB	;								
<b>Set</b>	ZZRB	P1	;							
<b>Answer</b>	ZZRB	P1	;							
<b>Notes</b>	P1 = 0 for Off, 1 for On									

## ZZRC Command

<b>ZZRC Clears the RIT frequency</b>										
<b>Set</b>	ZZRC	;								
<b>Notes</b>	Write-only									

## ZZRD Command

<b>ZZRD Decrements the RIT Frequency</b>										
<b>Get</b>	ZZRD	;								
<b>Set</b>	ZZRD	P1	P1	P1	P1	P1	;			
<b>Answer</b>										
<b>Notes</b>	ZZRD without parameters decrements the RIT frequency by 10 Hz in CW and 50 Hz in SSB. P1 (00000 – 99999) will set the RIT Frequency (also see ZZRF). Answer is always blank or an error message.									

## ZZRF Command

<b>ZZRF Sets or reads the RIT frequency</b>										
<b>Get</b>	ZZRF;									
<b>Set</b>	ZZRF	P1	P2	P2	P2	P2	;			
<b>Answer</b>	ZZRF	P1	P2	P2	P2	P2	;			
<b>Notes</b>	P1 = polarity (+ or -) P2 = frequency in Hz.									

## ZZRH Command

<b>ZZRH Sets or reads the RTTY DIGH Offset Frequency</b>										
<b>Get</b>	ZZRH;									
<b>Set</b>	ZZRH	P1	P2	P2	P2	P2	;			
<b>Answer</b>	ZZRH	P1	P2	P2	P2	P2	;			
<b>Notes</b>	P1 = polarity (+ or -) P2 = frequency in Hz.									

## ZZRL Command

<b>ZZRL Sets or reads the RTTY DIGL Offset Frequency</b>										
<b>Get</b>	ZZRL;									
<b>Set</b>	ZZRL	P1	P2	P2	P2	P2	;			
<b>Answer</b>	ZZRL	P1	P2	P2	P2	P2	;			
<b>Notes</b>	P1 = polarity (+ or -) P2 = frequency in Hz.									

### ZZRM Command

<b>ZZRM Reads the Console meter values</b>										
<b>Get</b>	ZZRM	P1	;							
<b>Set</b>										
<b>Answer</b>	ZZRM	P1	P2	P2	P2	P2	P2	P2	P2	P2
	P2	P2	P2	P2	P2	P2	P2	P2	P2	P2
	P2	P2	;							
<b>Notes</b>	P1 Values: 0 = Signal Strength 1 = Average Strength 2 = ADC_L 3 = ADC_R 4 = ALC 5 = Forward Power 6 = Peak Power no longer used, will return “?;” 7 = Reverse Power 8 = SWR P2 is padded left with spaces.  ZZRM is read-only. SWR only works in TUN.									

### ZZRS Command

<b>ZZRS Sets or reads the RX2 enable button status</b>										
<b>Get</b>	ZZRS	;								
<b>Set</b>	ZZRS	P1	;							
<b>Answer</b>	ZZRS	P1	;							
<b>Notes</b>	P1 = 0 for Off, 1 for On									

### ZZRT Command

<b>ZZRT Sets or reads the RIT enable button status</b>										
<b>Get</b>	ZZRT	;								
<b>Set</b>	ZZRT	P1	;							
<b>Answer</b>	ZZRT	P1	;							
<b>Notes</b>	P1 = 0 for Off, 1 for On									

## ZZRU Command

<b>ZZRU Increments the RIT Frequency</b>										
<b>Get</b>	ZZRU	;								
<b>Set</b>	ZZRU	P1	P1	P1	P1	P1	;			
<b>Answer</b>										
<b>Notes</b>	ZZRU without parameters increments the RIT frequency by 10 Hz in CW and 50 Hz in SSB. P1 (00000 – 99999) will set the RIT Frequency (also see ZZRF). Answer is always blank or an error message.									

## ZZRV Command

<b>ZZRV Reads the primary input voltage</b>										
<b>Get</b>	ZZRV	;								
<b>Answer</b>	ZZRV	P1	P1	P1	P1					
<b>Notes</b>	Read-only; returns nn.n									

## ZZSx Commands

### ZZSA Command

<b>ZZSA Moves VFO A down one Tune Step</b>										
<b>Set</b>	ZZSA	;								
<b>Notes</b>	Write-only									

### ZZSB Command

<b>ZZSB Moves VFO A up one Tune Step</b>										
<b>Set</b>	ZZSB	;								
<b>Notes</b>	Write-only									

### ZZSD Command

<b>ZZSD Decrements the Tune Step</b>										
<b>Set</b>	ZZSD	;								
<b>Notes</b>	Write-only									

### ZZSF Command

<b>ZZSF Sets the variable filter width and center (KD5TFD filters)</b>										
<b>Get</b>										
<b>Set</b>	ZZSF	P1	P1	P1	P1	P2	P2	P2	P2	;
<b>Answer</b>										
<b>Notes</b>	P1 = center frequency in Hz. P2 = width in Hz. ZZSF is write-only.									

## ZZSG Command

<b>ZZSG Moves VFO B down one Tune Step</b>										
Set	ZZSG	;								
Notes	Write-only									

## ZZSH Command

<b>ZZSH Moves VFO B up one Tune Step</b>										
Set	ZZSH	;								
Notes	Write-only									

## ZZSM Command

<b>ZZSM Reads the S-Meter</b>										
Get	ZZSM	P1	;							
Set										
Answer	ZZSM	P1	P2	P2	P2	;				
Notes	P1: 0 = RX1, 1 = RX2 P2 = 000 to 260 ZZSM does not actually read the S Meter, it reads the signal strength in dBm. S9 = -73 dBm. Each increment of ZZSM is approximately equal to 0.5 dBm. The range of the reading is -140 dBm to -10 dBm, a 130 dBm range with a scale factor of 2 (P2 max = 260). Use ZZSM/2 - 140 to get the actual RX signal strength in dBm.									

## ZZSN Command

<b>ZZSN Reads the radio serial number</b>										
Get	ZZSN	;								
Answer	ZZSN	P1	P1	P1	P2	P1	P1	P1	P1	P1
Notes	P1 Example: ZZSN2105-3456 ZZSN is read only.									

## ZZSO Command

<b>ZZSO Sets or reads the Squelch on/off status</b>										
Get	ZZSO	;								
Set	ZZSO	P1	;							
Answer	ZZSO	P1	;							
Notes	P1 = 0 for off, 1 for on.									



## ZZSP Command

<b>ZZSP Sets or reads the VFO Split (SPLT) status</b>										
<b>Get</b>	ZZSP	;								
<b>Set</b>	ZZSP	P1	;							
<b>Answer</b>	ZZSP	P1	;							
<b>Notes</b>	P1 = 0 for off, 1 for on.									

## ZZSQ Command

<b>ZZSQ Sets or reads the Squelch control</b>										
<b>Get</b>	ZZSQ	;								
<b>Set</b>	ZZSQ	P1	P1	P1	;					
<b>Answer</b>	ZZSQ	P1	P1	P1	;					
<b>Notes</b>	P1: 000 to 160 except FM mode 000 to 100.									

## ZZSR Command

<b>ZZSR Sets or reads the Spur Reduction button status</b>										
<b>Get</b>	ZZSR	;								
<b>Set</b>	ZZSR	P1	;							
<b>Answer</b>	ZZSR	P1	;							
<b>Notes</b>	P1 = 0 for OFF, 1 for ON.									

## ZZSS Command

<b>ZZSS Stops CWX sending (immediate)</b>										
<b>Set</b>	ZZSS	;								
<b>Notes</b>	Write only									

## ZZST Command

<b>ZZST Reads the frequency step size (Deprecated, use ZZAC for new designs)</b>										
<b>Get</b>	ZZST	;								
<b>Set</b>										
<b>Answer</b>	ZZST	P1	P1	P1	P1	;				
<b>Notes</b>	P1 values are expressed in BCD powers of 10 except for non-decade frequencies: 0000 = 10e0 = 1 Hz 0001 = 10e1 = 10 Hz 1000 = special default for 50 Hz 0010 = 10e2 = 100 Hz 1001 = special default for 250 Hz 1010 = special default for 500 Hz 0011 = 10e3 = 1 kHz 1011 = special default for 5 kHz 1100 = special default for 9 kHz 0100 = 10e4 = 10 kHz 0101 = 10e5 = 100 kHz 0110 = 10e6 = 1 MHz 0111 = 10e7 = 10 MHz ZZST is read-only.									

## ZZSU Command

<b>ZZSU Increments the Tune Step</b>										
<b>Set</b>	ZZSU	;								
<b>Notes</b>	Write-only									

## ZZSV Command

<b>ZZSV Sets or reads the RX2 Squelch button</b>										
<b>Get</b>	ZZSV	;								
<b>Set</b>	ZZSV	P1	;							
<b>Answer</b>	ZZSV	P1	;							
<b>Notes</b>	P1: 0 = Off, 1 = On.									

## ZZSW Command

<b>ZZSW Sets or reads the VFO A TX/VFO B TX Buttons</b>										
<b>Get</b>	ZZSW	;								
<b>Set</b>	ZZSW	P1	;							
<b>Answer</b>	ZZSW	P1	;							
<b>Notes</b>	P1: 0 set VFO A to TX, 1 sets VFO B to TX. ZZSW transmits status if Kenwood AI enabled.									

### ZZSY Command

<b>ZZSY Sets or reads the VFO Sync Button</b>										
<b>Get</b>	ZZSY	;								
<b>Set</b>	ZZSY	P1	;							
<b>Answer</b>	ZZSY	P1	;							
<b>Notes</b>	P1: 0 = VFO Sync off; 1 = VFO Sync on.									

### ZZSX Command

<b>ZZSX Sets or reads the RX2 Squelch Threshold</b>										
<b>Get</b>	ZZSX	;								
<b>Set</b>	ZZSX	P1	P1	P1	;					
<b>Answer</b>	ZZSX	P1	P1	P1	;					
<b>Notes</b>	P1: 000 to 160 except FM mode 000 to 100.									

### ZZSZ Command

<b>ZZSZ Syncs VFO A or B to the current step size</b>										
<b>Set</b>	ZZSZ	P1	;							
<b>Notes</b>	P1: 0 = VFO A, 1 = VFO B. Example: if VFO A frequency is 14,123.123 and the step size is 10 Hz, ZZSZ0; will set VFO A to 14,123.130.									

## ZZTx Commands

### ZZTA Command

<b>ZZTA Sets or reads the CTCSS Enable Button</b>										
<b>Get</b>	ZZTA	;								
<b>Set</b>	ZZTA	P1	;							
<b>Answer</b>	ZZTA	P1	;							
<b>Notes</b>	P1 = 0 for disabled, 1 for enabled.									

### ZZTB Command

<b>ZZTB Sets or reads the CTCSS Tone Frequency</b>										
<b>Get</b>	ZZTB	;								
<b>Set</b>	ZZTB	P1	P1	;						
<b>Answer</b>	ZZTB	P1	P1	;						
<b>Notes</b>	P1: 01 = 67.0                      21 = 131.8                      41 = 206.5 02 = 69.3                      22 = 136.5                      42 = 210.7 03 = 71.9                      23 = 141.3                      43 = 218.1 04 = 74.4                      24 = 146.2                      44 = 225.7 05 = 77.0                      25 = 151.4                      45 = 229.1 06 = 79.7                      26 = 156.7                      46 = 233.6 07 = 82.5                      27 = 159.8                      47 = 241.8 08 = 85.4                      28 = 162.2                      48 = 250.3 09 = 88.5                      29 = 165.5                      49 = 254.1 10 = 91.5                      30 = 167.9 11 = 94.8                      31 = 171.3 12 = 97.4                      32 = 173.8 13 = 100.0                      33 = 177.3 14 = 103.5                      34 = 179.9 15 = 107.2                      35 = 183.5 16 = 110.9                      36 = 186.2 17 = 114.8                      37 = 189.9 18 = 118.8                      38 = 192.8 19 = 123.0                      39 = 199.5 20 = 127.3                      40 = 203.5									

### ZZTF Command

<b>ZZTF Sets or reads the Show TX Filter checkbox status</b>										
<b>Get</b>	ZZTF	;								
<b>Set</b>	ZZTF	P1	;							
<b>Answer</b>	ZZTF	P1	;							
<b>Notes</b>	P1 = 0 for disabled, 1 for enabled.									

## ZZTH Command

<b>ZZTH Sets or reads the TX Filter High setting</b>										
<b>Get</b>	ZZTH	;								
<b>Set</b>	ZZTH	P1	P1	P1	P1	P1	;			
<b>Answer</b>	ZZTH	P1	P1	P1	P1	P1	;			
<b>Notes</b>	P1 = 00500 to 20000.									

## ZZTI Command

<b>ZZTI Transmit Inhibit</b>										
<b>Set</b>	ZZTI	P1	;							
<b>Notes</b>	P1: 1 = Transmit Inhibited, 0 = Transmit Enabled. You must follow a ZZTI1 with a ZZTI0 to re-enable the transmitter.									

## ZZTL Command

<b>ZZTL Sets or reads the TX Filter Low setting</b>										
<b>Get</b>	ZZTL	;								
<b>Set</b>	ZZTL	P1	P1	P1	P1	;				
<b>Answer</b>	ZZTL	P1	P1	P1	P1	;				
<b>Notes</b>	P1 = 0000 to 2000.									

## ZZTM Command

<b>ZZTM Sets or reads the TX AF Monitor</b>										
<b>Get</b>	ZZTM	;								
<b>Set</b>	ZZTM	P1	P1	P1	;					
<b>Answer</b>	ZZTM	P1	P1	P1	;					
<b>Notes</b>	P1 = 000 to 100.									

## ZZTO Command

<b>ZZTO Sets or reads the TUN power setting</b>										
<b>Get</b>	ZZTO	;								
<b>Set</b>	ZZTO	P1	P1	P1	;					
<b>Answer</b>	ZZTO	P1	P1	P1	;					
<b>Notes</b>	P1 = 000 to 100.									

## ZZTP Command

<b>ZZTP Sets or reads the Transmit Profile</b>										
<b>Get</b>	ZZTP	;								
<b>Set</b>	ZZTP	P1	P1	;						
<b>Answer</b>	ZZTP	P1	P1	;						
<b>Notes</b>	P1: 00 = Conventional 01 = DX/Contest 02 = ESSB 03 = AM  Above only correct if no custom profiles saved. P1 is equal to the index value of the profile name in the Transmit Profile drop down list.									

## ZZTS Command

<b>ZZTS Reads the FLEX5000 Temperature Sensor</b>										
<b>Get</b>	ZZTS	;								
<b>Answer</b>	ZZTS	P1	P1	P1	P1	P1	;			
<b>Notes</b>	P1 = two places below 100 degrees, one place above 100 degrees: 28.92 or 103.1.									

## ZZTU Command

<b>ZZTU Sets or reads the Tune (TUN) status</b>										
<b>Get</b>	ZZTU	;								
<b>Set</b>	ZZTU	P1	;							
<b>Answer</b>	ZZTU	P1	;							
<b>Notes</b>	P1 = 0 for off, 1 for on. Console power must be on for TUN to function.									

## ZZTV Command

<b>ZZTV Sets or reads the transmit VFO frequency when RX2 enabled</b>										
<b>Get</b>	ZZTV	;								
<b>Set</b>	ZZTV	P1	P1	P1	P1	P1	P1	P1	P1	P1
		P1	P1	;						
<b>Answer</b>	ZZTV	P1	P1	P1	P1	P1	P1	P1	P1	P1
		P1	P1	;						
<b>Notes</b>	P1 = frequency in Hz (11 digits). Blank digits must be 0. Example: 14,320.150 = 00014320150. Only works when RX2 enabled and Split or MultiRX modes selected. F5K only.									

## ZZTX Command

<b>ZZTX Sets or reads the MOX button status</b>										
<b>Get</b>	ZZTX	;								
<b>Set</b>	ZZTX	P1	;							
<b>Answer</b>	ZZTX	P1	;							
<b>Notes</b>	P1 = 0 for off, 1 for on.									

## ZZUx Commands

### ZZUA Command

<b>ZZUA Reads the XVTR Band Button Names</b>										
<b>Get</b>	ZZUA	;								
<b>Answer</b>	ZZUA	P1	P1	P1	P1	P1	P2	P2	P2	P2
		P2	P3	P3	P3	P3	P4	P4	P4	P4
		P4	P5	P5	P5	P5	P6	P6	P6	P6
		P6	P7	P7	P7	P7	P8	P8	P8	P8
		P8	P9	P9	P9	P9	P10	P10	P10	P10
		P10	P11	P11	P11	P11	P12	P12	P12	P12
		P12	P13	P13	P13	P13	P14	P14	P14	P14
		P14	;							
<b>Notes</b>	P1 thru P14 equal exactly 70 character spaces and must contain either an ASCII character or a space. Each group of five characters contains the name of the corresponding n-1 XVTR button name: P1 = button 0.									

## ZZVx Commands

### ZZVA Command

<b>ZZVA Sets or reads the VAC1 button status</b>										
<b>Get</b>	ZZVA	;								
<b>Set</b>	ZZVA	P1	;							
<b>Answer</b>	ZZVA	P1	;							
<b>Notes</b>	P1 = 0 for OFF, 1 for ON.									

### ZZVB Command

<b>ZZVB Sets or reads the VAC1 RX Gain</b>										
<b>Get</b>	ZZVB	;								
<b>Set</b>	ZZVB	P1	P1	P1	;					
<b>Answer</b>	ZZVB	P1	P1	P1	;					
<b>Notes</b>	P1 = -40 to +40 (positive values must lead with sign or "0")									

### ZZVC Command

<b>ZZVC Sets or reads the VAC1 TX Gain</b>										
<b>Get</b>	ZZVC	;								
<b>Set</b>	ZZVC	P1	P1	P1	;					
<b>Answer</b>	ZZVC	P1	P1	P1	;					
<b>Notes</b>	P1 = -40 TO +40 (positive value must lead with sign or "0")									

### ZZVD Command

<b>ZZVD Sets or reads the VAC1 Sample Rate</b>										
<b>Get</b>	ZZVD	;								
<b>Set</b>	ZZVD	P1	;							
<b>Answer</b>	ZZVD	P1	;							
<b>Notes</b>	P1 : 0 = 6000 1 = 8000 2 = 11025 3 = 12000 4 = 24000 5 = 22050 6 = 44100 7 = 48000 8 = 96000 9 = 192000									

### ZZVE Command

<b>ZZVE Sets or reads the VOX button status</b>										
<b>Get</b>	ZZVE	;								
<b>Set</b>	ZZVE	P1	;							
<b>Answer</b>	ZZVE	P1	;							
<b>Notes</b>	P1 = 0 for OFF, 1 for ON.									

### ZZVF Command

<b>ZZVF Sets or reads the VAC1 Stereo button status</b>										
<b>Get</b>	ZZVF	;								
<b>Set</b>	ZZVF	P1	;							
<b>Answer</b>	ZZVF	P1	;							
<b>Notes</b>	P1 = 0 for OFF, 1 for ON.									



### ZZVG Command

<b>ZZVG Sets or reads the VOX Gain value</b>										
<b>Get</b>	ZZVG	;								
<b>Set</b>	ZZVG	P1	P1	P1	P1	;				
<b>Answer</b>	ZZVG	P1	P1	P1	P1	;				
<b>Notes</b>	P1 = 0000 to 1000.									

### ZZVH Command

<b>ZZVH Sets or reads the I/Q TO VAC1 Checkbox</b>										
<b>Get</b>	ZZVH	;								
<b>Set</b>	ZZVH	P1	;							
<b>Answer</b>	ZZVH	P1	;							
<b>Notes</b>	P1 = 0 for OFF, 1 for ON.									

### ZZVI Command

<b>ZZVI Sets or reads the VAC1 Input Cable</b>										
<b>Get</b>	ZZVI	;								
<b>Set</b>	ZZVI	P1	P1	;						
<b>Answer</b>	ZZVI	P1	P1	;						
<b>Notes</b>	P1 = 00 to 99, actual input cable depends on VAC driver selected									

### ZZVJ Command

<b>ZZVJ Sets or reads the IQ to VAC1 Use RX2 Checkbox</b>										
<b>Get</b>	ZZVJ	;								
<b>Set</b>	ZZVJ	P1	;							
<b>Answer</b>	ZZVJ	P1	;							
<b>Notes</b>	P1 = 0 for OFF, 1 for ON. ZZVH must be set before ZZVJ will work.									

### ZZVK Command

<b>ZZVK Sets or reads the VAC2 enable status</b>										
<b>Get</b>	ZZVK	;								
<b>Set</b>	ZZVK	P1	;							
<b>Answer</b>	ZZVK	P1	;							
<b>Notes</b>	P1 = 0 for OFF, 1 for ON.									

ZZVL Command

<b>ZZVL Sets or reads the VFO Lock status</b>										
<b>Get</b>	ZZVL	;								
<b>Set</b>	ZZVL	P1	;							
<b>Answer</b>	ZZVL	P1	;							
<b>Notes</b>	P1 = 0 for off, 1 for on.									

ZZVM Command

<b>ZZVM Sets or reads the VAC1 Driver</b>										
<b>Get</b>	ZZVM	;								
<b>Set</b>	ZZVM	P1	P1	;						
<b>Answer</b>	ZZVM	P1	P1	;						
<b>Notes</b>	P1 = 00 to 99. When you change driver you must reset the I/O cables									

ZZVN Command

<b>ZZVN Reads the PowerSDR software version number</b>										
<b>Get</b>	ZZVN	;								
<b>Set</b>										
<b>Answer</b>	ZZVN	P1	;							
<b>Notes</b>	Returns ZZVN001.3.14.0; twelve total characters including decimal points.									

ZZVO Command

<b>ZZVO Sets or reads the VAC1 Output Cable</b>										
<b>Get</b>	ZZVO	;								
<b>Set</b>	ZZVO	P1	P1	;						
<b>Answer</b>	ZZVO	P1	P1	;						
<b>Notes</b>	P1 = 00 to 99, actual output cable depends on VAC driver selected									

ZZVP Command

<b>ZZVP Sets or reads the VAC1 IQ Calibrate Checkbox</b>										
<b>Get</b>	ZZVP	;								
<b>Set</b>	ZZVP	P1	;							
<b>Answer</b>	ZZVP	P1	;							
<b>Notes</b>	P1 = 0 for off, 1 for on.									

## ZZVQ Command

<b>ZZVQ Sets or reads the VAC2 Driver</b>										
<b>Get</b>	ZZVQ	;								
<b>Set</b>	ZZVQ	P1	P1	;						
<b>Answer</b>	ZZVQ	P1	P1	;						
<b>Notes</b>	P1 = 00 to 99. When you change driver you must reset the I/O cables									

## ZZVR Command

<b>ZZVR Sets or reads the VAC2 Input Cable</b>										
<b>Get</b>	ZZVR	;								
<b>Set</b>	ZZVR	P1	P1	;						
<b>Answer</b>	ZZVR	P1	P1	;						
<b>Notes</b>	P1 = 00 to 99, actual input cable depends on VAC driver selected									

## ZZVS Command

<b>ZZVS Sets the VFO Swap status</b>										
<b>Get</b>										
<b>Set</b>	ZZVS	P1	;							
<b>Answer</b>										
<b>Notes</b>	P1 values: 0 = A>B 1 = A<B 2 = A<>B ZZVS is write-only.									

## ZZVT Command

<b>ZZVT Sets or reads the VAC2 Output Cable</b>										
<b>Get</b>	ZZVT	;								
<b>Set</b>	ZZVT	P1	P1	;						
<b>Answer</b>	ZZVT	P1	P1	;						
<b>Notes</b>	P1 = 00 to 99, actual output cable depends on VAC driver selected									

### ZZVU Command

<b>ZZVU Sets or reads the VAC1 Sample Rate</b>										
<b>Get</b>	ZZVU	;								
<b>Set</b>	ZZVU	P1	;							
<b>Answer</b>	ZZVU	P1	;							
<b>Notes</b>	P1 : 0 = 6000 1 = 8000 2 = 11025 3 = 12000 4 = 24000 5 = 22050 6 = 44100 7 = 48000 8 = 96000 9 = 192000									

### ZZVV Command

<b>ZZVV Sets or reads the VAC2 Stereo button status</b>										
<b>Get</b>	ZZVV	;								
<b>Set</b>	ZZVV	P1	;							
<b>Answer</b>	ZZVV	P1	;							
<b>Notes</b>	P1 = 0 for OFF, 1 for ON.									

### ZZVW Command

<b>ZZVW Sets or reads the VAC2 RX Gain</b>										
<b>Get</b>	ZZVW	;								
<b>Set</b>	ZZVW	P1	P1	P1	;					
<b>Answer</b>	ZZVW	P1	P1	P1	;					
<b>Notes</b>	P1 = -40 to +40 (positive values must lead with sign or "0")									

### ZZVX Command

<b>ZZVX Sets or reads the VAC2 TX Gain</b>										
<b>Get</b>	ZZVX	;								
<b>Set</b>	ZZVX	P1	P1	P1	;					
<b>Answer</b>	ZZVX	P1	P1	P1	;					
<b>Notes</b>	P1 = -40 TO +40 (positive value must lead with sign or "0")									

## ZZVY Command

<b>ZZVY Sets or reads the VAC1 Buffer Size</b>										
<b>Get</b>	ZZVY	;								
<b>Set</b>	ZZVY	P1	;							
<b>Answer</b>	ZZVY	P1	;							
<b>Notes</b>	P1 : 0 = 512 1 = 1024 2 = 2048									

## ZZVZ Command

<b>ZZVZ Sets or reads the VAC2 Buffer Size</b>										
<b>Get</b>	ZZVZ	;								
<b>Set</b>	ZZVZ	P1	;							
<b>Answer</b>	ZZVZ	P1	;							
<b>Notes</b>	P1 : 0 = 512 1 = 1024 2 = 2048									

## ZZWx Commands

### ZZWA Command

<b>ZZWA Sets or reads the F5K Mixer Mic Level</b>										
<b>Get</b>	ZZWA	;								
<b>Set</b>	ZZWA	P1	P2	P2	P2	;				
<b>Answer</b>	ZZWA	P1	P2	P2	P2	;				
<b>Notes</b>	P1 = polarity (+ or -) P2 = +000 to -128									

### ZZWB Command

<b>ZZWB Sets or reads the F5K Mixer Line In RCA Level</b>										
<b>Get</b>	ZZWB	;								
<b>Set</b>	ZZWB	P1	P2	P2	P2	;				
<b>Answer</b>	ZZWB	P1	P2	P2	P2	;				
<b>Notes</b>	P1 = polarity (+ or -) P2 = +000 to -128									

## ZZWC Command

<b>ZZWC Sets or reads the F5K Mixer Line In Phono Level</b>										
<b>Get</b>	ZZWC	;								
<b>Set</b>	ZZWC	P1	P2	P2	P2	;				
<b>Answer</b>	ZZWC	P1	P2	P2	P2	;				
<b>Notes</b>	P1 = polarity (+ or -) P2 = +000 to -128									

## ZZWD Command

<b>ZZWD Sets or reads the F5K Mixer Line In DB9 Level</b>										
<b>Get</b>	ZZWD	;								
<b>Set</b>	ZZWD	P1	P2	P2	P2	;				
<b>Answer</b>	ZZWD	P1	P2	P2	P2	;				
<b>Notes</b>	P1 = polarity (+ or -) P2 = +000 to -128									

## ZZWE Command

<b>ZZWE Sets or reads the F1500/F5K Mixer Mic Select Checkbox</b>										
<b>Get</b>	ZZWE	;								
<b>Set</b>	ZZWE	P1	;							
<b>Answer</b>	ZZWE	P1	;							
<b>Notes</b>	P1: 0 = Off, 1 = On. Note: The F1500 Mic and FlexWire mixer inputs are mutually exclusive, i.e., only one can (and must) be enabled. Use only P1 = 1 for the F1500, P1 = 0 is not valid. See ZZWH. Set one or the other.									

## ZZWF Command

<b>ZZWF Sets or reads the F5K Mixer Line In RCA Select Checkbox</b>										
<b>Get</b>	ZZWF	;								
<b>Set</b>	ZZWF	P1	;							
<b>Answer</b>	ZZWF	P1	;							
<b>Notes</b>	P1: 0 = Off, 1 = On.									

## ZZWG Command

<b>ZZWG Sets or reads the F5K Bal Line In Select Checkbox</b>										
<b>Get</b>	ZZWG	;								
<b>Set</b>	ZZWG	P1	;							
<b>Answer</b>	ZZWG	P1	;							
<b>Notes</b>	P1: 0 = Off, 1 = On.									

## ZZWH Command

<b>ZZWH Sets or reads the F1500/F5K FlexWire/Mixer Line In DB9 Select Checkbox</b>										
<b>Get</b>	ZZWH	;								
<b>Set</b>	ZZWH	P1	;							
<b>Answer</b>	ZZWH	P1	;							
<b>Notes</b>	P1: 0 = Off, 1 = On. The F1500 Mic and FlexWire mixer inputs are mutually exclusive, i.e., only one can (and must) be enabled. Use only P1 = 1 for the F1500, P1 = 0 is not valid. See ZZWE. Set one or the other.									

## ZZWJ Command

<b>ZZWJ Sets or reads the F1500/F5K Mixer Input Mute All Button</b>										
<b>Get</b>	ZZWJ	;								
<b>Set</b>	ZZWJ	P1	;							
<b>Answer</b>	ZZWJ	P1	;							
<b>Notes</b>	P1: 0 = Off, 1 = On.									

## ZZWK Command

<b>ZZWK Sets or reads the F5000C Mixer Internal Speaker Level</b>										
<b>Get</b>	ZZWK	;								
<b>Set</b>	ZZWK	P1	P1	P1	;					
<b>Answer</b>	ZZWK	P1	P1	P1	;					
<b>Notes</b>	P1 = 128 TO 255 Only valid with FLEX5000C +									

## ZZWL Command

<b>ZZWL Sets or reads the F5K Mixer External Speaker Level</b>										
<b>Get</b>	ZZWL	;								
<b>Set</b>	ZZWL	P1	P1	P1	;					
<b>Answer</b>	ZZWL	P1	P1	P1	;					
<b>Notes</b>	P1 = 128 TO 255									

## ZZWM Command

<b>ZZWM Sets or reads the F5K Mixer Headphone Level</b>										
<b>Get</b>	ZZWM	;								
<b>Set</b>	ZZWM	P1	P1	P1	;					
<b>Answer</b>	ZZWM	P1	P1	P1	;					
<b>Notes</b>	P1 = 128 TO 255									

## ZZWN Command

<b>ZZWN Sets or reads the F5K Mixer Line Out RCA Level</b>										
<b>Get</b>	ZZWN	;								
<b>Set</b>	ZZWN	P1	P1	P1	;					
<b>Answer</b>	ZZWN	P1	P1	P1	;					
<b>Notes</b>	P1 = 128 TO 255									

## ZZWO Command

<b>ZZWO Sets or reads the F5K Mixer Internal Speaker Select Checkbox</b>										
<b>Get</b>	ZZWO	;								
<b>Set</b>	ZZWO	P1	;							
<b>Answer</b>	ZZWO	P1	;							
<b>Notes</b>	P1: 0 = Off, 1 = On. Only valid with FLEX5000C +									

## ZZWP Command

<b>ZZWP Sets or reads the F5K Mixer External Speaker Select Checkbox</b>										
<b>Get</b>	ZZWP	;								
<b>Set</b>	ZZWP	P1	;							
<b>Answer</b>	ZZWP	P1	;							
<b>Notes</b>	P1: 0 = Off, 1 = On.									

## ZZWQ Command

<b>ZZWQ Sets or reads the F1500/F5K Mixer Headphone Select Checkbox</b>										
<b>Get</b>	ZZWQ	;								
<b>Set</b>	ZZWQ	P1	;							
<b>Answer</b>	ZZWQ	P1	;							
<b>Notes</b>	P1: 0 = Off, 1 = On.									

## ZZWR Command

<b>ZZWR Sets or reads the F1500/F5K Mixer FlexWire/Line Out RCA Select Checkbox</b>										
<b>Get</b>	ZZWR	;								
<b>Set</b>	ZZWR	P1	;							
<b>Answer</b>	ZZWR	P1	;							
<b>Notes</b>	P1: 0 = Off, 1 = On.									



### ZZWS Command

<b>ZZWS Sets or reads the F1500/F5K Mixer Output Mute All Button</b>										
<b>Get</b>	ZZWS	;								
<b>Set</b>	ZZWS	P1	;							
<b>Answer</b>	ZZWS	P1	;							
<b>Notes</b>	P1: 0 = Off, 1 = On.									

### ZZWT Command

<b>ZZWT Sets or reads the F1500 Mixer Mic Level</b>										
<b>Get</b>	ZZWT	;								
<b>Set</b>	ZZWT	P1	P1	P1	;					
<b>Answer</b>	ZZWT	P1	P1	P1	;					
<b>Notes</b>	P1 = 000 to 119									

### ZZWU Command

<b>ZZWU Sets or reads the F1500 Mixer FlexWire Input Level</b>										
<b>Get</b>	ZZWU	;								
<b>Set</b>	ZZWU	P1	P1	P1	;					
<b>Answer</b>	ZZWU	P1	P1	P1	;					
<b>Notes</b>	P1 = 000 to 119									

### ZZWV Command

<b>ZZWV Sets or reads the F1500 Phones Out Level</b>										
<b>Get</b>	ZZWV	;								
<b>Set</b>	ZZWV	P1	P1	P1	;					
<b>Answer</b>	ZZWV	P1	P1	P1	/					
<b>Notes</b>	P1 = 000 to 127									

### ZZWW Command

<b>ZZWW Sets or reads the F1500 Mixer FlexWire Out Level</b>										
<b>Get</b>	ZZWW	;								
<b>Set</b>	ZZWW	P1	P1	P1	;					
<b>Answer</b>	ZZWW	P1	P1	P1	/					
<b>Notes</b>	P1 = 000 to 127									

## ZZXx Commands

### ZZXC Command

<b>ZZXC</b> Clears the XIT frequency (XIT[0])										
<b>Set</b>	ZZXC	;								
<b>Notes</b>	ZZXC is write-only.									

### ZZXF Command

<b>ZZXF</b> Sets or reads the XIT frequency										
<b>Get</b>	ZZXF	;								
<b>Set</b>	ZZXF	P1	P2	P2	P2	P2	;			
<b>Answer</b>	ZZXF	P1	P2	P2	P2	P2	;			
<b>Notes</b>	P1 = polarity (+ or -) P2 = frequency in Hz.									

### ZZXS Command

<b>ZZXS</b> Sets or reads the XIT enable button										
<b>Get</b>	ZZXS	;								
<b>Set</b>	ZZXS	P1	;							
<b>Answer</b>	ZZXS	P1	;							
<b>Notes</b>	P1: 0 = Off, 1 = On.									

### ZZXT Command

<b>ZZXT</b> Sets or reads the External Control (X2TR) button status										
<b>Get</b>	ZZXT	;								
<b>Set</b>	ZZXT	P1	;							
<b>Answer</b>	ZZXT	P1	;							
<b>Notes</b>	P1 = 0 for OFF, 1 for ON.									

## ZZYx Commands

### ZZYA Command

<b>ZZYA</b> Sets or reads the VAC2 Direct IQ Checkbox										
<b>Get</b>	ZZYA	;								
<b>Set</b>	ZZYA	P1	;							
<b>Answer</b>	ZZYA	P1	;							
<b>Notes</b>	P1 = 0 for OFF, 1 for ON.									

## ZZYB Command

<b>ZZYB Sets or reads the VAC2 IQ Calibrate Checkbox</b>										
<b>Get</b>	ZZYB	;								
<b>Set</b>	ZZYB	P1	;							
<b>Answer</b>	ZZYB	P1	;							
<b>Notes</b>	P1 = 0 for OFF, 1 for ON.									

## ZZYC Command

<b>ZZYC Sets or reads the FM Mic Gain</b>										
<b>Get</b>	ZZYC	;								
<b>Set</b>	ZZYB	P1	P1	;						
<b>Answer</b>	ZZYB	P1	P1	;						
<b>Notes</b>	P1 = 0 to 70									

## ZZZx Commands

### ZZZB Command

<b>ZZZB Clicks the Zero Beat (0 Beat) button</b>										
<b>Set</b>	ZZZB	;								
<b>Notes</b>	Write-only.									

## Kenwood Compatible Command Syntax

### AG Command

<b>AG Sets or reads the AF Gain thumbwheel control</b>										
<b>Get</b>	AG	P1	;							
<b>Set</b>	AG	P1	P2	P2	P2	;				
<b>Answer</b>	AG	P1	P2	P2	P2	;				
<b>Notes</b>	P1 = 0 for main transceiver, 1 for future sub receiver. P2 = 000 to 255 (scaled 0 to 100 in software). A Set value of 127 = 50 on the AF Gain thumbwheel. Also see ZZAG.									

### AI Command

<b>AI Sets or reads the Auto Information function</b>										
<b>Get</b>	AI	;								
<b>Set</b>	AI	P1	;							
<b>Answer</b>	AI	P1	:							
<b>Notes</b>	P1 = 0 for Off, 1 or more for On. When On, the radio will broadcast the VFO (A or B) frequency when changed. Option checkbox on the Setup/CAT tab must be checked to allow this command.									

### BD Command

<b>BD Moves the transceiver down one band</b>										
<b>Get</b>										
<b>Set</b>	BD	;								
<b>Answer</b>										
<b>Notes</b>	BD is write-only									

### BU Command

<b>BU Moves the transceiver up one band</b>										
<b>Get</b>										
<b>Set</b>	BU	;								
<b>Answer</b>										
<b>Notes</b>	BU is write-only									

### CN Command

<b>CN Sets or reads the CTCSS Tone Frequency</b>									
<b>Get</b>	CN	;							
<b>Set</b>	CN	P1	P1	;					
<b>Answer</b>	CN	P1	P1	;					
<b>Notes</b>	P1: 01 = 67.0                      21 = 131.8                      41 = 206.5 02 = 69.3                      22 = 136.5                      42 = 210.7 03 = 71.9                      23 = 141.3                      43 = 218.1 04 = 74.4                      24 = 146.2                      44 = 225.7 05 = 77.0                      25 = 151.4                      45 = 229.1 06 = 79.7                      26 = 156.7                      46 = 233.6 07 = 82.5                      27 = 159.8                      47 = 241.8 08 = 85.4                      28 = 162.2                      48 = 250.3 09 = 88.5                      29 = 165.5                      49 = 254.1 10 = 91.5                      30 = 167.9 11 = 94.8                      31 = 171.3 12 = 97.4                      32 = 173.8 13 = 100.0                      33 = 177.3 14 = 103.5                      34 = 179.9 15 = 107.2                      35 = 183.5 16 = 110.9                      36 = 186.2 17 = 114.8                      37 = 189.9 18 = 188.8                      38 = 192.8 19 = 123.0                      39 = 199.5 20 = 127.3                      40 = 203.5								

### CT Command

<b>CT Sets or reads the CTCSS Enable Button</b>									
<b>Get</b>	CT	;							
<b>Set</b>	CT	P1	;						
<b>Answer</b>	CT	P1	;						
<b>Notes</b>	P1 = 0 for disabled, 1 for enabled.								

### DN Command

<b>DN Moves VFO A down by the increment set in step size</b>										
<b>Get</b>										
<b>Set</b>	DN	;								
<b>Answer</b>										
<b>Notes</b>	DN is write-only									

### FA Command

<b>FA Sets or reads VFO A frequency</b>										
<b>Get</b>	FA	;								
<b>Set</b>	FA	P1	P1	P1	P1	P1	P1	P1	P1	P1
		P1	P1	;						
<b>Answer</b>	FA	P1	P1	P1	P1	P1	P1	P1	P1	P1
		P1	P1	;						
<b>Notes</b>	P1 = frequency in Hz (11 digits). Blank digits must be 0. Example: 14,320.150 = 00014320150.									

### FB Command

<b>FB Sets or reads VFO B frequency</b>										
<b>Get</b>	FB	;								
<b>Set</b>	FB	P1	P1	P1	P1	P1	P1	P1	P1	P1
		P1	P1	;						
<b>Answer</b>	FB	P1	P1	P1	P1	P1	P1	P1	P1	P1
		P1	P1	;						
<b>Notes</b>	P1 = frequency in Hz (11 digits). Blank digits must be 0. Example: 14,320.150 = 00014320150.									

### FR Command

<b>FR Sets or reads the transceiver receive VFO</b>										
<b>Get</b>	FR	;								
<b>Set</b>	FR	P1	;							
<b>Answer</b>	FR	P1	;							
<b>Notes</b>	Added for third-party compatibility. P1 = 0 since the FlexRadio VFO A is always the receive VFO.									

## FT Command

<b>FT Sets or reads the transceiver transmit VFO</b>										
<b>Get</b>	FT	;								
<b>Set</b>	FT	P1	;							
<b>Answer</b>	FT	P1	;							
<b>Notes</b>	P1 = 0 for VFO A, 1 for VFO B.									

## FW Command

<b>FW Sets or reads the DSP receive filter width (obsolete 4/4/2007, not active)</b>										
<b>Get</b>	FW	;								
<b>Set</b>	FW	P1	P1	P1	P1	;				
<b>Answer</b>	FW	P1	P1	P1	P1	;				
<b>Notes</b>	FW only accepts FlexRadio filter widths. See ZZFI for values.									

## GT Command

<b>GT Sets or reads the AGC time constant thumbwheel control</b>										
<b>Get</b>	GT	;								
<b>Set</b>	GT	P1	P1	P1	;					
<b>Answer</b>	GT	P1	P1	P1	;					
<b>Notes</b>	P1: Fixed = 000, Long = 001, Slow = 002, Med = 003, 004 = Fast, 005 = Custom.									

## ID Command

<b>ID Reads the transceiver ID number</b>										
<b>Get</b>	ID	;								
<b>Set</b>										
<b>Answer</b>	ID	P1	P1	P1	;					
<b>Notes</b>	P1 defaults to 019 (TS-2000). The FlexRadio id code (900) may be selected remotely using ZZID. ID is read-only.									

IF Command

<b>IF Reads the transceiver status</b>										
<b>Get</b>	IF	;								
<b>Set</b>										
<b>Answer</b>	IF	P1	P1	P1	P1	P1	P1	P1	P1	P1
	P1	P1	P2	P2	P2	P2	P3	P3	P3	P3
	P3	P3	P4	P5	P6	P7	P7	P8	P9	P10
	P11	P12	P13	P14	P14	P15	;			
<b>Notes</b>	<p>P1 (11 characters) VFO A frequency in Hz. Same as FA;            P2 (4 characters) Frequency step size expressed in powers of 10 (see ZZST).            P3 (6 characters) RIT/XIT frequency (+nnnnn or -nnnnn).            P4 (1 character) RIT status. 0 = off, 1 = on.            P5 (1 character) XIT status. 0 = off, 1 = on.            P6 (1 character) Channel bank number. Not used, defaulted to 0.            P7 (2 characters) Channel bank number. Not used, defaulted to 00.            P8 (1 character) MOX button status. 0 = off, 1 = on (transmitting).            P9 (1 character) Operating mode. See MD for settings.            P10 (1 character) VFO Split status. Same as FR (always 0).            P11 (1 character) Scan status. Not implemented, defaulted to 0.            P12 (1 character) VFO Split status. Same as FT.            P13 (1 character) CTCSS tone. Not used, defaulted to 0.            P14 (2 characters) More tone controls. Not used, defaulted to 00.            P15 (1 character) Shift status. Not used, defaulted to 0.</p> <p>P9 will return a space if a non-Kenwood mode is selected on the FlexRadio.</p>									



### KS Command

<b>KS Sets or reads CWX CW speed</b>										
<b>Get</b>	KS	;								
<b>Set</b>	KS	P1	P1	P1	;					
<b>Answer</b>	KS	P1	P1	P1	1					
<b>Notes</b>	P1 010 – 060 in WPM									

### KY Command

<b>KY Sends text to CWX for conversion to Morse</b>										
<b>Get</b>	KY	;								
<b>Set</b>	KY	P1	P2	P2	P2	P2	P2	P2	P2	P2
		P2	P2	P2	P2	P2	P2	P2	P2	P2
		P2	P2	P2	P2	P2	;			
<b>Answer</b>	KY	P1	;							
<b>Notes</b>	Get: P1 0 = Character buffer available, 1 = Character buffer not available (> 72 characters in the buffer). Set: P1 = space, P2 up to 24 ASCII printing characters. Empty character positions in P2 must contain a space.									

### MD Command

<b>MD Sets or reads the transceiver operating mode</b>										
<b>Get</b>	MD	;								
<b>Set</b>	MD	P1	;							
<b>Answer</b>	MD	P1	;							
<b>Notes</b>	P1 values: 1 = LSB 2 = USB 3 = CWU 4 = FM 5 = AM 6 = RTTY (DIGL) 7 = CWL 9 = FSK-R (DIGU)									

### MG Command

<b>MG Sets or reads the Microphone Gain thumbwheel control</b>										
<b>Get</b>	MG	;								
<b>Set</b>	MG	P1	P1	P1	;					
<b>Answer</b>	MG	P1	P1	P1	;					
<b>Notes</b>	P1 = 000 to 100.									

### MO Command

<b>MO Sets or reads the Monitor (MON) status</b>										
<b>Get</b>	MO	;								
<b>Set</b>	MO	P1	;							
<b>Answer</b>	MO	P1	;							
<b>Notes</b>	P1 = 0 for off, 1 for on.									

### NB Command

<b>NB Sets or reads the Noise Blanker 1 (NB1) status</b>										
<b>Get</b>	NB	;								
<b>Set</b>	NB	P1	;							
<b>Answer</b>	NB	P1	;							
<b>Notes</b>	P1 = 0 for off, 1 for on.									

### NT Command

<b>NT Sets or reads the Automatic Notch Filter (ANF) status</b>										
<b>Get</b>	NT	;								
<b>Set</b>	NT	P1	;							
<b>Answer</b>	NT	P1	;							
<b>Notes</b>	P1 = 0 for off, 1 for on.									

### OF Commands

<b>OF Sets or reads the FM Repeater Offset Frequency</b>										
<b>Get</b>	OF	;								
<b>Set</b>	OF	P1	P1	P1	P1	P1	P1	P1	P1	P1;
<b>Answer</b>	OF	P1	P1	P1	P1	P1	P1	P1	P1	P1;
<b>Notes</b>	P1 = 000000000 to 999999999 Hz. 001000000 = 1.0 MHz, 000600000 = 600 KHz. Must have leading zeros.									

### OS Commands

<b>OS Sets or reads the FM Offset Direction</b>										
<b>Get</b>	OS	;								
<b>Set</b>	OS	P1	;							
<b>Answer</b>	OS	P1	;							
<b>Notes</b>	P1: 0 = Simplex, 1 = High, 2 = Low									

## PC Command

<b>PC Sets or reads the PA Power (PWR) status</b>										
<b>Get</b>	PC	;								
<b>Set</b>	PC	P1	P1	P1	;					
<b>Answer</b>	PC	P1	P1	P1	;					
<b>Notes</b>	P1 = 000 to 100.									

## PR Command

<b>PR Reads the Speech Compressor (COMP) status (Non-functional)</b>										
<b>Get</b>	PR	;								
<b>Answer</b>	PR	P1	;							
<b>Notes</b>	P1 = 0 For HRD compatibility only, does not change radio.									

## PS Command

<b>PS Sets or reads the Power Button status</b>										
<b>Get</b>	PS	;								
<b>Set</b>	PS	P1	;							
<b>Answer</b>	PS	P1	;							
<b>Notes</b>	P1: 0 = Standby, 1 = On.									

## QI Command

<b>QI Sets the Quick Save memory (QS)</b>										
<b>Get</b>										
<b>Set</b>	QI	;								
<b>Answer</b>										
<b>Notes</b>	QI is write-only.									

## RC Command

<b>RC Clears the RIT frequency (RIT[0])</b>										
<b>Get</b>										
<b>Set</b>	RC	;								
<b>Answer</b>										
<b>Notes</b>	RC is write-only.									

### RD Command

<b>RD Decrements the RIT Frequency</b>										
<b>Get</b>	RD	;								
<b>Set</b>	RD	P1	P1	P1	P1	P1	;			
<b>Answer</b>										
<b>Notes</b>	RD without parameters decrements the RIT frequency by 10 Hz in CW and 50 Hz in SSB. P1 (00000 – 99999) will set the RIT Frequency (also see ZZRF). Answer is always blank or an error message.									

### RT Command

<b>RT Sets or reads the RIT button status</b>										
<b>Get</b>	RT	;								
<b>Set</b>	RT	P1	;							
<b>Answer</b>	RT	P1	;							
<b>Notes</b>	P1 = 0 for off, 1 for on.									

### RU Command

<b>RU Increments the RIT Frequency</b>										
<b>Get</b>	RU	;								
<b>Set</b>	RU	P1	P1	P1	P1	P1	;			
<b>Answer</b>										
<b>Notes</b>	RD without parameters increments the RIT frequency by 10 Hz in CW and 50 Hz in SSB. P1 (00000 – 99999) will set the RIT Frequency (also see ZZRF). Answer is always blank or an error message.									

### RX Command

<b>RX Sets the transceiver to Receive mode (MOX off)</b>										
<b>Get</b>										
<b>Set</b>	RX	;								
<b>Answer</b>										
<b>Notes</b>	RX is write-only.									

## SH Command

<b>SH Sets or reads the variable DSP Filter high frequency</b>									
<b>Get</b>	SH	;							
<b>Set</b>	SH	P1	P1	;					
<b>Answer</b>	SH	P1	P1	;					
<b>Notes</b>	<p>SSB Modes (USB, LSB, CWU and CWL) in Hz</p> <ul style="list-style-type: none"> <li>00 = 1400</li> <li>01 = 1600</li> <li>02 = 1800</li> <li>03 = 2000</li> <li>04 = 2200</li> <li>05 = 2400</li> <li>06 = 2600</li> <li>07 = 2800</li> <li>08 = 3000</li> <li>09 = 3400</li> <li>10 = 4000</li> <li>11 = 5000</li> </ul> <p>DSB Modes (AM, DSB, FM, DRM, SAM)</p> <ul style="list-style-type: none"> <li>00 = 2500</li> <li>01 = 3000</li> <li>02 = 4000</li> <li>03 = 5000</li> </ul> <p>SH has no effect in RTTY, PSK, or SPEC.</p>								

### SL Command

<b>SL Sets or reads the variable DSP filter low frequency</b>										
<b>Get</b>	SL	;								
<b>Set</b>	SL	P1	P1	;						
<b>Answer</b>	SL	P1	P1	;						
<b>Notes</b>	SSB Modes (USB, LSB, CWU and CWL) in Hz 00 = 0 01 = 50 02 = 100 03 = 200 04 = 300 05 = 400 06 = 500 07 = 600 08 = 700 09 = 800 10 = 900 11 = 1000  DSB Modes (AM, DSB, FM, DRM, SAM) 00 = 0 01 = 100 02 = 200 03 = 500  SL has no effect in RTTY, PSK, or SPEC.									

### SM Command

<b>SM Reads the S-Meter</b>										
<b>Get</b>	SM	P1	;							
<b>Set</b>										
<b>Answer</b>	SM	P1	P2	P2	P2	P2	;			
<b>Notes</b>	P1 = 0 for main transceiver. P2 = 0000 to 0030 where 0015 = S9. Current code needs improvement for readings above S9. SM is read-only.									

### SQ Command

<b>SQ Sets or reads the Squelch (SQL) thumbwheel control</b>										
<b>Get</b>	SQ	P1	;							
<b>Set</b>	SQ	P1	P2	P2	P2	;				
<b>Answer</b>	SQ	P1	P2	P2	P2	;				
<b>Notes</b>	P1 = 0 for main transceiver. P2 = 000 to 255 (scaled in software to 0 – 160, SQ0127; = 80 on the control).									

### TX Command

<b>TX Sets the transceiver to Transmit mode (MOX on)</b>										
<b>Get</b>										
<b>Set</b>	TX	;								
<b>Answer</b>										
<b>Notes</b>	TX is write-only. Not totally compatible with Kenwood but is modified to maintain compatibility with third-party software.									

### UP Command

<b>UP Moves VFO A up by the increment set in step size</b>										
<b>Get</b>										
<b>Set</b>	UP	;								
<b>Answer</b>										
<b>Notes</b>	UP is write-only									

### XT Command

<b>XT Sets or reads the XIT status</b>										
<b>Get</b>	XT	;								
<b>Set</b>	XT	P1	;							
<b>Answer</b>	XT	P1	;							
<b>Notes</b>	P1 = 0 for off, 1 for on.									

## **FlexRadio CAT Command Reference Guide Revision Record**

### **Revisions for 2006**

January 3, 2006 Revisions:

Corrected typo in MD.  
 Changed ZZMD to reflect DIGU and DIGL.  
 Added ZZTH and ZZTL commands.

### **Revisions for 2007**

February 25, 2007 Revisions

Added DN and UP commands.  
 Added special codes in ZZST for new console step size frequencies.  
 Corrected various typos.

March 20, 2007 Revisions:

Added:	ZZAR	AGC RF GAIN
	ZZBR	BCI REJECTION
	ZZCB	BREAK IN ENABLE
	ZZCD	BREAK IN DELAY
	ZZCF	SHOW CW TX FREQ
	ZZCI	IAMBIC ON/OFF
	ZZCM	CW MONITOR ON/OFF
	ZZCT	COMPANDER THRESHOLD VALUE
	ZZGE	NOISE GATE ENABLE BUTTON
	ZZGL	NOISE GATE LEVEL VALUE
	ZZSR	SPUR REDUCTION ON/OFF
	ZZTF	SHOW TX FILTER
	ZZVA	VAC ON/OFF
	ZZVE	VOX ENABLE
	ZZVG	VOX GAIN VALUE
	ZZXT	X2TR ON/OFF

Updated: ZZFI (DSP Rx Filters) to reflect current console values.  
 (Dictionary update only, no change to CAT code).



April 4, 2007 Revisions:

Updated:	GT	AGC Gain
	ZZIU	Filter Slider
	ZZMT	TX Meter Functions
Obsolete:	FW	DSP Filter Width

August 25, 2007 Revisions:

Updated	MD	Added MD9 for DigU
Added	KY	Send Morse
	KS	Get/Set Morse speed

September 16, 2007 Changes:

Updated	GT	Added 005 for "Custom"
	ZZIF	Removed P1 to match IF
	ZZMT	Added new meter functions
	ZZPA	Added FLEX5000 values
	ZZVS	Added IF -> V

Added:

ZZBD	Moves the bandswitch down one band
ZZBU	Moves the bandswitch up one band
ZZER	Sets or reads the RXEQ button status
ZZET	Sets or reads the TXEQ button status
ZZFA	Sets or reads VFO A
ZZFB	Sets or reads VFO B
ZZKS	Sets or reads CWX CW speed
ZZKY	Sends text to CWX for conversion to Morse
ZZMG	Sets or reads the Mic gain
ZZMO	Sets or reads the Monitor (MON) button status
ZZMS	Sets or reads the MultiRX swap checkbox status
ZZMT	Sets or reads the TX Meter mode
ZZMU	Sets or reads the MultiRX button status
ZZNA	Sets or reads Noise Blanker 1 button status
ZZNT	Sets or reads the Auto Notch Filter button status
ZZPC	Sets or reads the Drive level
ZZPD	Sets the Display Pan Center button
ZZPK	Sets or reads the Compressor (COMP) button status

ZZPL	Sets or reads the Compressor Threshold
ZZPA	Sets or reads the Preamp gain
ZZPO	Sets or reads the Display Peak button status
ZZPS	Sets or reads the Power button status
ZZPZ	Sets or reads the Display Zoom buttons
ZZQS	Saves the quick save memory value
ZZRC	Clears the RIT frequency
ZZRT	Sets or reads the RIT button status
ZZSA	Moves VFO A down one Tune Step
ZZSB	Moves VFO A up one Tune Step
ZZSD	Moves the mouse wheel tuning step down
ZZSU	Moves the mouse wheel tuning step up
ZZTP	Sets or reads the TX Profile
ZZTX	Sets or reads the MOX button status
ZZXS	Sets or reads the XIT button status
ZZZB	Zero beats the current signal

September 26, 2007 Changes:

Added	ZZFH	Set TX Filter High
	ZZFL	Set TX Filter Low

Corrected minor typos.

October 18, 2007 Changes:

Added	ZZHA	Sets/reads Audio Buffer Size
	ZZHR	Sets/reads DSP RX Buffer Size
	ZZHT	Sets/reads DSP TX Buffer Size

October 20, 2007 Changes:

Added:	ZZFM	Reads the FlexRadio Model Number.
--------	------	-----------------------------------

October 23, 2007 Changes:

Added	ZZEA	Reads or sets the RX EQ
	ZZEB	Reads or sets the TX EQ

October 25, 2007 Changes:

Corrected duplicate. ZZFL/ZZFH now read DSP Filter Hi/Lo

October 31, 2007 Changes:

Added	ZZVB	Reads or sets the VAC RX Gain
	ZZVC	Reads or sets the VAC TX Gain
	ZZVD	Reads or sets the VAC Sample Rate
	ZZVF	Reads or sets the VAC Stereo button

November 21, 2007 Changes:

Added:	ZZUA	Reads the XVTR Band Button Names
Changed:	ZZBS	Added VHF XVTR band buttons to command.

November 29, 2007 Changes:

Added:	ZZOA	Reads or sets the antenna connected to RX1
	ZZOB	Reads or sets the antenna connected to RX2
	ZZOC	Reads or sets the antenna connected to the transmitter
	ZZOD	Reads or sets the current antenna mode
	ZZOE	Reads or sets the RX1 Loop
	ZZOF	Reads or sets the RCA TX relay jacks
	ZZMN	Reads the DSP filter names and values

December 4, 2007 Changes:

Added	AI	Reads or sets the Auto Information function
	ZZAI	Same as above

December 12, 2007 Changes:

Modified:	KY	KY1 represents >72 characters in the buffer
	ZZKY	Added KY2: buffer empty and all chars sent

## Revisions for 2008

January 16, 2008 Changes:

Added            ZZDX            Sets or reads the Phone DX button status

February 13, 2008 Changes:

Added            ZZWA            Sets or reads the Mixer Mic Level  
                     ZZWB            Sets or reads the Mixer Line In RCA Level  
                     ZZWC            Sets or reads the Mixer Line In Phono Level  
                     ZZWD            Sets or reads the Mixer Line In DB9 Level  
                     ZZWE            Sets or reads the Mixer Mic Select Checkbox  
                     ZZWF            Sets or reads the Mixer Line In RCA Select Checkbox  
                     ZZWG            Sets or reads the Mixer Line In Phono Select Checkbox  
                     ZZWH            Sets or reads the Mixer Line In DB9 Select Checkbox  
                     ZZWJ            Sets or reads the Mixer Input Mute All Button  
                     ZZWK            Sets or reads the Mixer Internal Speaker Level  
                     ZZWL            Sets or reads the Mixer External Speaker Level  
                     ZZWM            Sets or reads the Mixer Headphone Level  
                     ZZWN            Sets or reads the Mixer Line Out RCA Level  
                     ZZWO            Sets or reads the Mixer Internal Speaker Select Checkbox  
                     ZZWP            Sets or reads the Mixer External Speaker Select Checkbox  
                     ZZWQ            Sets or reads the Mixer Headphone Select Checkbox  
                     ZZWR            Sets or reads the Mixer Line Out RCA Select Checkbox  
                     ZZWS            Sets or reads the Mixer Output Mute All Button

February 15, 2008 Changes:

Obsolete:        PR                Sets or reads the Speech Compressor status  
                     ZZPK            Sets or reads the Speech Compressor status  
                     ZZPL            Sets or reads the Speech Compressor threshold

March 30, 2008 Changes:

Added:           ZZTS            Reads the Flex5000 Temperature Sensor  
                     ZZRA            Sets or reads the RTTY Offset Enable VFO A  
                     ZZRB            Sets or reads the RTTY Offset Enable VFO B  
                     ZZRH            Sets or reads the RTTY DIGH Offset Frequency  
                     ZZRL            Sets or reads the RTTY DIGL Offset Frequency

April 25, 2008 Changes:

Added:           ZZTI            Transmit Inhibit

April 28, 2008 Changes:

Corrected      ZZWA, ZZWB, ZZWC, ZZWD Mixer Input Levels.

July 5, 2008 Changes:

Added:          ZZHU            Reads or sets the DSP Buffer CW RX Size  
                   ZZHV            Reads or sets the DSP Buffer CW TX Size  
                   ZZHW            Reads or sets the DSP Buffer Digital RX Size  
                   ZZHX            Reads or sets the DSP Buffer Digital TX Size  
                   RD                Decrements RIT  
                   RU                Increments RIT  
                   ZZRD            Decrements RIT  
                   ZZRU            Increments RIT

Changed:       ZZHR            Reads or sets the DSP Buffer Phone RX Size  
                   ZZHT            Reads or sets the DSP Buffer Phone TX Size

December 20, 2008 Changes

Corrected      ZZFL            Was: High, Is: Low

Changed:       ZZOA            Reads or sets RX1 Antenna  
                   ZZOB            Reads or sets RX2 Antenna  
                   ZZOC            Reads or sets TX Antenna

Added:          ZZOG            Reads or sets TX Relay Delay Enable  
                   ZZOH            Reads or sets TX Relay Delays  
                   ZZRS            Reads or sets the RX2 Button

January 30, 2008 Changes

Deleted:       ZZPK            Obsolete Speech Processor command  
                   ZZPL            Obsolete Speech Processor command

Added:          ZZFX            Sends FlexWire single data byte command  
                   ZZFY            Sends FlexWire double data byte command  
                   ZZOJ            Reads or sets the Antenna Lock checkbox  
                   ZZTO            Sets or reads TUN Power (missing in Dict. Only)  
                   ZZVH            Sets or reads I/Q to VAC checkbox (missing Dict. Only)

## Revisions for 2009

### March 20, 2009 Changes

Added:	ZZFV	Reads FlexWire single data byte
	ZZFW	Reads FlexWire double data byte

### June 19, 2009 Changes

Added:	ZZSS	Stops CWX sending
Modified:	ZZPA	Added FLEX3000

### December 23, 2009 Changes

Added	ZZSW	Reads or sets VFO A TX/VFO B TX Buttons
Modified	ZZSM	Added index "1" for RX2 S-Meter

### January 3, 2010 Changes

Added	ZZSM	Added note concerning AI command
-------	------	----------------------------------

## Revisions for 2010

### January 11, 2010 Changes

Added	ZZSG	Move VFO B one tune step down
	ZZSH	Move VFO B one tune step up

### February 3, 2010 Changes

Added	ZZVI	Set or read the VAC input cable
	ZZVM	Set or read the VAC driver
	ZZVO	Set or read the VAC output cable

### February 24, 2010 Changes

Added	ZZRV	Reads the primary input voltage
-------	------	---------------------------------

### April 1, 2010 Changes

Added	ZZBY	Closes the console
-------	------	--------------------

### April 5, 2010 Changes

Added	ZZAC	Sets or reads the Step Size
	ZZAD	Moves VFO A down by a selected step size
	ZZAU	Moves VFO A up by a selected step size
	ZZBM	Moves VFO B down by a selected step size
	ZZBP	Moves VFO B up by a selected step size
Deprecated	ZZST	

### April 11, 2010 Changes

Modified	ZZFM	Added FLEX3000 and FLEX1500 to models.
----------	------	--

### April 22, 2010 Changes

Modified	ZZRM	Added FnK models, removed Peak Power.
----------	------	---------------------------------------

### April 29, 2010 Changes

Added	ZZKM	Sends a CWX macro.
-------	------	--------------------

### August 20, 2010 Changes

Added	ZZDU	Status Word
	ZZBT	RX2 Band
	ZZFJ	RX2 DSP RX Filter
	ZZME	RX2 Mode

September 21, 2010 Changes

Added:       ZZSN       Reads the radio serial number  
               ZZVJ       Sets/Reads the IQ to VAC use RX2 checkbox  
               ZZBA       Moves the RX2 bandswitch down one band  
               ZZBB       Moves the RX2 bandswitch up one band  
               ZZTV       Sets/Reads the TX VFO frequency when RX2 enabled

Changed:     Corrected several typos

October 1, 2010 Changes

Changed:     ZZPA       Added values for FLEX1500

October 17, 2010 Changes

Added:       ZZTM       Set/Read the AF TX Monitor  
 Changed:     ZZVN       Extended length to 12 characters

December 7, 2010 Changes

Changed:     ZZOA       Extended to cover the FLEX1500  
               ZZOC       Extended to cover the FLEX1500     “  
               ZZOD       Extended to cover the FLEX1500  
               ZZOF       Extended to cover the FLEX1500  
               ZZOG       Extended to cover the FLEX1500  
               ZZOH       Extended to cover the FLEX1500  
               ZZOJ       Extended to cover the FLEX1500

December 26, 2010 Changes:

Changed:     ZZWE       Extended to cover the FLEX1500  
               ZZWH       Extended to cover the FLEX1500  
               ZZWJ       Extended to cover the FLEX1500  
               ZZWQ       Extended to cover the FLEX1500  
               ZZWR       Extended to cover the FLEX1500  
               ZZWS       Extended to cover the FLEX1500  
               ZZWT       Added for the FLEX1500 Mixer  
               ZZWU       Added for the FLEX1500 Mixer  
               ZZWV       Added for the FLEX1500 Mixer  
               ZZWW       Added for the FLEX1500 Mixer



## Revisions for 2011

February 3, 2011 Changes:

Changed: ZZSM Clarified explanation

February 8, 2011 Changes:

Added: ZZOL Sets or reads the DigL Click Tune Offset  
 ZZOU Sets or reads the DigU Click Tune Offset  
 ZZSY Sets or reads the VFO Sync Button

February 16, 2011 Changes:

Changed ZZDU Fixed typo P8 should reference ZZTS

February 24, 2011 Changes:

Added: ZZDE Sets or reads the Diversity Form Enable Button  
 ZZDF Opens or closes the Diversity Form  
 ZZNC Sets or reads the RX2 NB Button  
 ZZND Sets or reads the RX2 NB2 Button  
 ZZPB Sets or reads the RX2 Preamp Button

February 27, 2011 Changes:

Added ZZAS Sets or reads the RX2 AGC-T control

March 6, 2011 Changes:

Added ZZPY Sets or reads the Display Zoom slider

April 12, 2011 Changes:

Added ZZDY Sets or reads the Phone DX Level  
 ZZLA Sets or reads RX0 Gain  
 ZZLB Sets or reads RX0 Stereo Balance  
 ZZLC Sets or reads RX1 Gain  
 ZZLC Sets or reads RX1 Stereo Balance  
 Modified ZZDM Added 2.0 Panadapter modes  
 ZZTM Corrected typo

May 1, 2011 Changes:

Added ZZPE Sets or reads the Display Pan Position

May 5, 2011 Changes:

Added ZZKO Opens or closes the CWX Form

June 26, 2011 Changes:

Added ZZLE Sets or reads RX2 Audio Gain  
 ZZLF Sets or reads RX2 Stereo Balance

July 1, 2011 Changes:

Modified	ZZDE	Changed nomenclature to Enhanced Signal Clarity
	ZZDF	Changed nomenclature to Enhanced Signal Clarity

July 8, 2011 Changes:

Modified	ZZOA	Corrected typo
	ZZFI	Deleted FMN mode
	ZZFJ	Delete FMN mode, DSP filter selections removed from console
		Replaced all instances of FMN with FM

July 13, 2011 Changes:

Added	ZZEM	Enable/Disable CAT verbose error messages
	ZZIO	Read the installed options

Modified:

Added verbose error message code to ZZAS, ZZBA, ZZBB, ZZBT, ZZDE, ZZDF, ZZFJ, ZZLE, ZZME, ZZNC, ZZND, ZZOA, ZZOB, ZZOC, ZZOD, ZZOE, ZZOF, ZZOG, ZZOH, ZZOJ, ZZPB, ZZRS, ZZRV, ZZSN, ZZTS, ZZTV, ZZWA, ZZWB, ZZWC, ZZWD, ZZWE, ZZWF, ZZWG, ZZWH, ZZWJ, ZZWK, ZZWL, ZZWM, ZZWN, ZZWO, ZZWP, ZZWQ, ZZWR, ZZWS, ZZWT, ZZWU, ZZWV, ZZWW

July 16, 2011 Changes:

Added:	ZZOS	Sets or reads the Repeater Offset Direction
	ZZOT	Sets or reads the Repeater Offset Frequency
	ZZTA	Sets or reads the CTCSS Enable button
	ZZTB	Sets or reads the CTCSS Frequency
	ZZFD	Sets or reads the FM Deviation button

August 1, 2001 Changes:

Added:	ZZMV	Reads the number of memory channels programmed
	ZZMW	Deletes a memory channel
	ZZMX	Restores a memory channel
	ZZMY	Saves configuration to a new memory channel
	ZZMZ	Saves configuration to an existing memory channel

August 9, 2011 Changes:

Added:	ZZML	Gets the list of DSP modes and indexes
	ZZSV	Sets or reads the RX2 Squelch button
	ZZSZ	Sets or reads the RX2 Squelch Threshold

August 16, 2011 Changes:

Modified: Corrected typo in ZZKM  
Corrected range in ZZKS  
Corrected FM squelch range ZZSQ/ZZSX

August 23, 2011 Changes:

Modified: Fixed name length bug in ZZMN

August 26, 2011 Changes:

Modified Corrected typo in ZZQS  
Corrected range in ZZVB and ZZVC

Added ZZDN Reads or sets the Waterfall Lo value  
ZZDO Reads or sets the Waterfall Hi value  
ZZDP Reads or sets the Spectrum Grid Max value  
ZZDQ Reads or sets the Spectrum Grid Min value  
ZZDR Reads or sets the Spectrum Grid Step value  
ZZMB Reads or sets the RX2 mute status

August 31, 2011 Changes:

Modified ZZMX Corrected typos  
ZZMY Corrected typo

September 1, 2011 Changes:

Modified Corrected typos in MO, NB, NT, PR, RT, XT

October 6, 2011 Changes:

Added ZZLG Reads or sets the AutoMuteRX1onVFOBTX checkbox  
ZZLH Reads or sets the AutoMuteRX2onVFOATX checkbox

October 16 2011 Changes:

Added ZZOV Reads or sets the ATU Enable Button  
ZZOW Reads or sets the ATU Bypass Button

Modified Corrected description for ZZWG

January 25, 2012 Changes:

Modified All VAC1 commands to reference Setup Form

Added: ZZVP, ZZVY Additional VAC1 controls

Added ZZVK, ZZVQ, ZZVR, ZZVT, ZZVU, ZZVV,  
ZZVW, ZZVX, ZZVZ, ZZYA, and ZZYB for VAC2 control

Added: ZZYC, FM Mic Gain



May 10, 2012 Changes:

Modified                ZZSZ should be ZZSX in Functional Groups and Command Ref

Added:                 ZZSZ Syncs VFO A or B to the current step size.

June 30, 2012 Changes:

Modified                Fixed typo in ZZSA

September 26, 2012 Changes:

Modified                Corrected F3K text in ZZPA

October 23, 2012 Changes:

Modified                ZZBT/ZZBS text to reflect V/U readings

December 15, 2012 Changes

Added:                 ZZFR Sets or reads the current RX2 DSP filter high

ZZFS Sets or reads the current RX2 DSP filter low