FlexRadio Systems®
Software Defined Radios

Thetis

And

PowerSDR™ 3.x

CAT Command

Reference Guide

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Contents

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.

PowerSDR Commands by Functional Group

RECEIVE AUDIO PROCESSING AND CONTROL

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

RECEIVE RF PROCESSING AND CONTROL

ZZAR	Sets or reads the RX1 AGC-T	
ZZAS	Sets or reads the RX2 AGC-T	
ZZGT	Sets or reads the RX1 AGC Mode Selector	
ZZGU	Sets or reads the RX2 AGC Mode Selector	
ZZPA	Sets or reads the Preamp Gain setting	
ZZPB	Sets or reads the RX2 Preamp status	
ZZSO	Sets or reads the RX1 Squelch on/off status	
ZZSQ	Sets or reads the RX1 Squelch level	SQ
ZZSV	Sets or reads the RX2 Squelch button	
ZZSX	Sets or reads the RX2 Squelch Threshold	
ZZXN	Reads the combined RX1 status	
ZZXO	Reads the combined RX2 status	
ZZRX	Sets or Reads RX1 step attenuation	
ZZRY	Sets or Reads RX2 step attenuation	

DSP RECEIVE FILTERS

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

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	

VFO CONTROL

ZZAC	Sets or reads the Tune Step	
ZZAD	Moves VFO A down by a selected step	
ZZAU	Moves VFO A up by a selected step	
ZZBM	Moves VFO B down by a selected step	
ZZBP	Moves VFO B up by a selected step	
ZZAE	Moves VFO A down by N current tuning steps	
ZZAF	Moves VFO A up by N current tuning steps	
ZZBE	Moves VFO B down by N current tuning steps	
ZZBF	Moves VFO B up by N current tuning steps	
ZZFA	Sets or reads VFO A frequency	FA
ZZFB	Sets or reads VFO B frequency	FB
ZZFT	Sets or reads TX Frequency	
ZZQM	Reads the Quick Save Memory value	
ZZQR	Restores the Quick Save Memory value	
ZZQS	Saves Frequency A, Mode, and Band to Quick Memory	QI
ZZRC	Clears the RIT frequency	RC
ZZRD	Decrements the RIT frequency	RD
ZZRF	Sets or reads the RIT frequency	
ZZRT	Sets or reads the RIT button status	RT
ZZRU	Increments the RIT frequency	RU
ZZSA	Moves VFO A down one Tune Step	DN
ZZSB	Moves VFO A up one Tune Step	UP
ZZSD	Decrements the Tune Step	
ZZSG	Moves VFO B down one Tune Step	
ZZSH	Moves VFO B up one Tune Step	
ZZSP	Sets or reads the VFO Split button status	FT
ZZST	Reads the frequency step size (Deprecated)	
ZZSU	Increments the Tune Step	
ZZSW	Sets or reads VFO A TX/VFO B TX buttons	
ZZSY	Sets or reads the VFO Sync Button	
ZZSZ	Syncs VFO A or B to the current Tune Step	
ZZTV	Sets or reads the TX VFO frequency when RX2 enabled	
ZZVL	Sets or reads the VFO Lock status	
ZZUX	Sets or reads the VFO A Lock status	
ZZUY	Sets or reads the VFO B Lock status	
ZZVS	Sets the VFO Swap status	
ZZXC	Clears the XIT frequency	
ZZXF	Sets or reads the XIT frequency	
ZZXS	Sets or reads the XIT button status	
ZZXD	Decrements the XIT frequency	
ZZXU	Increments the XIT frequency	
ZZZB	Sets the Zero Beat button	
ZZCN	Sets or reads the VFO A Click Tune (CTUNE) status	
ZZCO	Sets or reads the VFO B Click Tune (CTUNE) status	
ZZXV	Read the combined VFO status	

NOISE REJECTION

ZZBR	Sets or reads the BCI Rejection button	
ZZNA	Sets or reads RX1 Noise Blanker 1 (NB) status	NB
ZZNB	Sets or reads RX1 Noise Blanker 2 (NB2) status	
ZZNC	Sets or reads RX2 Noise Blanker 1 status	
ZZND	Sets or reads RX2 Noise Blanker 2 status	
ZZNL	Sets or reads Noise Blanker 1 threshold	
ZZNM	Sets or reads the Noise Blanker 2 threshold	
ZZNN	Sets or reads RX1 Spectral Noise Blanker (SNB) status	
ZZNO	Sets or reads RX2 Spectral Noise Blanker (SNB) status	
ZZNR	Sets or reads the RX1 Noise Reduction (NR) status	
ZZNS	Sets or reads the RX1 Noise Reduction2 (NR2) status	
ZZNT	Sets or reads the RX1 Auto Notch Filter (ANF) status	NT
ZZNU	Sets or reads the RX2 Auto Notch Filter (ANF) status	
ZZNV	Sets or reads the RX2 Noise Reduction (NR) status	
ZZNW	Sets or reads the RX2 Noise Reduction 2 (NR2) status	
ZZSR	Sets or reads the Spur Reduction (SR) status	

MODULATION/DETECTION MODES

ZZMD	Sets or reads the current RX1 mode	
ZZME	Sets or reads the current RX2 mode	
ZZML	Returns a list of DSP modes and indexes	

BAND SWITCHING

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

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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	
ZZDQ	Sets or reads the Spectrum Grid Min Value	
ZZDR	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	
ZZMF	Sets the "multifunction" encoder control display string	
ZZYR	Sets or reads the RX1/RX2 select buttons in the collapsed display	
ZZZD	Set front panel VFO encoder step down	
ZZZE	Set front panel encoder step	
ZZZI	Set front panel indicator on/off	
ZZZP	Sets a front panel button press	
ZZZS	Query software version	
ZZZU	Set front panel VFO encoder step down	
ZZZX	Query/Set Front Panel Encoder Step	

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

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	
ZZZZ	Close the CAT Serial Port	

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	

TRANSMIT AUDIO PROCESSING AND CONTROL

ZZCP	Sets or reads the Compander (CPDR) status	
ZZCT	Sets or reads the Compander threshol	
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	
ZZXH	Sets or reads the VOX delay (hang) time	
ZZLI	Sets or reads the PureSignal (PS-A) button status	
ZZZA	Ganymede amplifier protection status and reset	

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	

CW

ZZCB	Sets or reads the Break-In checkbox status	
ZZCD	Sets or reads the Break-In Delay value	
ZZQK	Sets or reads the QSK status	
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)	
ZZAA	Sets or reads the CW Audio Peaking filter gain	
ZZAB	Sets or reads the CW Audio Peaking filter bandwidth	
ZZAP	Sets or reads the CW Audio Peaking filter on/off status	
ZZAT	Sets or reads the CW Audio Peaking filter tuning	

MISCELLANEOUS

ZZBY	Closes the console	
ZZDB	Sets or reads the Diversity (Enhanced Signal Clarity) Reference Source Button	
ZZDC	Sets or reads the Diversity (Enhanced Signal Clarity) RX2 Gain	
ZZDD	Sets or reads the Diversity (Enhanced Signal Clarity) Form Phase	
ZZDE	Sets or reads the Diversity Form Enable button	
ZZDF	Opens or closes the Diversity Form	
ZZDG	Sets or reads the Diversity (Enhanced Signal Clarity) RX1 Gain	
ZZDH	Sets or reads the Diversity (Enhanced Signal Clarity) Form Receiver Source buttons	
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	
ZZUS	Initiates a PureSignal single CAL function	
ZZUT	Turns a two-tone test on or off	

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	
ZZOX	Sets ATU Tune success or fail result	
ZZOZ	ATU Erase tuning solutions command	

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	

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

ZZAA Command

ZZAA	Sets or reads the CW Audio Peaking Filter (APF) gain								
Get	ZZAA	;							
Set	ZZAA	P1	P1	P1	P1	;			
Answer	ZZAA	P1	P1	P1	P1	;			
Notes	P1 is signed, +000 to +100 (the plus sign is required)								

ZZAB Command

ZZAB	Sets or reads the CW Audio Peaking Filter (APF) bandwidth								
Get	ZZAB	;							
Set	ZZAB	P1	P1	P1	P1	;			
Answer	ZZAB	P1	P1	P1	P1	;			
Notes	P1 is signed, +010 to +150 (the plus sign is required). This sets the bandwidth in Hz.								

ZZAC Command

ZZAC	Sets or reads the Step Size (replaces ZZST)								
Get	ZZAC	;							
Set	ZZAC	P1	P1	;					
Answer	ZZAC	P1	P1	;					
Notes	P1 = 00 to 25 00 = 1 Hz 01 = 2 Hz 02 = 10 Hz 03 = 25 Hz 04 = 50 Hz 05 = 100 Hz 06 = 250 Hz 07 = 500 Hz 08 = 1 KHz 09 = 2 KHz 10 = 2.5 KHz 11 = 5 KHz 12 = 6.25KHz		13 = 9 KHz 14 = 10 KHz 15 = 12.5 KHz 16 = 15 KHz 17 = 20 KHz 18 = 25 KHz 19 = 30 KHz 20 = 50 KHz 21 = 100 KHz 22 = 250 KHz 23 = 500 KHz 24 = 1 MHz 25 = 10 MHz							
	If the Step Size is set to 50 Hz, ZZAC; will return ZZAC04; If you send ZZAC03; the Step Size will be set to 25 Hz.								

ZZAD Command

ZZAD	Moves VFO A Down By The Selected Step								
Set	ZZAD	P1	P1	;					
Notes	P1 = 00 to 14 00 = 1 Hz 01 = 10 Hz 02 = 25 Hz 03 = 50 Hz 04 = 100 Hz 05 = 250 Hz 06 = 500 Hz				07 = 1 KHz 08 = 5 KHz 09 = 9 KHz 10 = 10 KHz 11 = 100 KHz 12 = 250 KHz 13 = 500 KHz 14 = 1 MHz				
	ZZAD is write-only. P1 = 00 to 14. ZZAD does not change the Step Size.								

ZZAE Command

ZZAE	Moves VFO A Down By the selected number of tuning steps								
Set	ZZAE	P1	P1	;					
Notes	P1 = 00 to 99. ZZAE moves the VFO by 0 to 99 times the currently selected & displayed tuning step ZZAE is write-only.								

ZZAF Command

ZZAF	Moves VFO A up By the selected number of tuning steps								
Set	ZZAF	P1	P1	;					
Notes	P1 = 00 to 99. ZZAF moves the VFO by 0 to 99 times the currently selected & displayed tuning step ZZAF is write-only.								

ZZAG Command

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

ZZAI Command

ZZAI	Sets or reads the Auto Information function										
Get	ZZAI	;									
Set	ZZAI	P1	;								
Answer	ZZAI	P1	:								
Notes	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.										

ZZAP Command

ZZAP	Sets or reads the CW Audio Peaking Filter (APF) on/off status										
Get	ZZAP	;									
Set	ZZAP	P1	;								
Answer	ZZAP	P1	;								
Notes	P1 = 0 for off, 1 for on.										

ZZAR Command

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

ZZAS Command

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

ZZAT Command

ZZAT	Sets or reads the CW Audio Peaking Filter (APF) Tuning										
Get	ZZAT	;									
Set	ZZAT	P1	P1	P1	P1	;					
Answer	ZZAT	P1	P1	P1	P1	;					
Notes	P1 = -250 to +250 (the plus or minus sign is required). This specifies a frequency in Hz relative to the CW pitch.										

ZZAU Command

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

ZZBx Commands

ZZBA Command

ZZBA	Moves the RX2 band switch down one band									
Set	ZZBA	;								
Notes	ZZBA is write-only									

ZZBB Command

ZZBB	Moves the RX2 band switch down one band									
Set	ZZBB	;								
Notes	ZZBB is write-only									

ZZBD Command

ZZBD	Moves the RX1 band switch down one band									
Set	ZZBD	;								
Notes	ZZBD is write-only									

ZZBE Command

ZZBE	Moves VFO B Down By the selected number of tuning steps									
Set	ZZBE	P1	P1	;						
Notes	P1 = 00 to 99. ZZBE moves the VFO by 0 to 99 times the currently selected & displayed tuning step ZZBE is write-only.									

ZZBF Command

ZZBF	Moves VFO B up By the selected number of tuning steps									
Set	ZZBF	P1	P1	;						
Notes	P1 = 00 to 99. ZZBF moves the VFO by 0 to 99 times the currently selected & displayed tuning step ZZBF is write-only.									

ZZBG Command

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

ZZBI Command

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

ZZBM Command

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

ZZBP Command

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

ZZBR Command

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

ZZBS Command

ZZBS	Sets or reads the RX1 Band Switch									
Get	ZZBS	;								
Set	ZZBS	P1	P1	P1	;					
Answer	ZZBS	P1	P1	P1	;					
Notes	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

ZZBT	Sets or reads the RX2 Band Switch									
Get	ZZBT	;								
Set	ZZBT	P1	P1	P1	;					
Answer	ZZBT	P1	P1	P1	;					
Notes	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

ZZBU	Moves the RX1 band switch up one band									
Set	ZZBU	;								
Notes	ZZBU is write-only									

ZZBY Command

ZZBY	Closes the console									
Set	ZZBY	;								
Notes	ZZBY is write-only									

ZZCx Commands

ZZCB Command

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

ZZCD Command

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

ZZCF Command

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

ZZCI Command

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

ZZCL Command

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

ZZCM Command

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

ZZCN Command

ZZCN	Sets or reads the VFO A Click Tune (CTUNE) status										
Get	ZZCN	;									
Set	ZZCN	P1	;								
Answer	ZZCN	P1	;								
Notes	P1 = 0 for disabled, 1 for enabled.										

ZZCO Command

ZZCO	**Sets or reads the VFO B Click Tune (CTUNE) status**										
Get	ZZCO	;									
Set	ZZCO	P1	;								
Answer	ZZCO	P1	;								
Notes	P1 = 0 for disabled, 1 for enabled.										

ZZCP Command

ZZCP	**Sets or reads the Compander (CMP) button status**										
Get	ZZCP	;									
Set	ZZCP	P1	;								
Answer	ZZCP	P1	;								
Notes	P1 = 0 for off, 1 for on.										

ZZCS Command

ZZCS	**Sets or reads the CW Speed**										
Get	ZZCS	;									
Set	ZZCS	P1	P1	;							
Answer	ZZCS	P1	P1	;							
Notes	P1 = 01 to 60										

ZZCT Command

ZZCT	**Sets or reads the Compander Threshold value**										
Get	ZZCT	;									
Set	ZZCT	P1	P1	;							
Answer	ZZCT	P1	P1	;							
Notes	P1 = 00 to 10.										

ZZCU Command

ZZCU	**Reads the CPU Usage**										
Get	ZZCU	;									
Set											
Answer	ZZCU	P1	P1	P1	P1	P1	P1	;			
Notes	P1 = 000.00 to 100.00										

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ZZDx Commands

ZZDA Command

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

ZZDB Command

ZZDB	Sets or reads the Enhanced Signal Clarity Reference Source Button								
Get	ZZDB	;							
Set	ZZDB	P1	;						
Answer	ZZDB	P1	;						
Notes	P1 = 1 for receiver 1, 0 for receiver 2.								

ZZDC Command

ZZDC	Sets or reads the Enhanced Signal Clarity RX2 Gain								
Get	ZZDC	;							
Set	ZZDC	P1	P1	P1	P1	;			
Answer	ZZDC	P1	P1	P1	P1	;			
Notes	P1 = receiver 1 gain, 0.000 to 5.000 (no decimal point transferred)								

ZZDD Command

ZZDD	Sets or reads the Enhanced Signal Clarity Form Phase								
Get	ZZDD	;							
Set	ZZDD	P1	P1	P1	P1	P1	P1	;	
Answer	ZZDD	P1	P1	P1	P1	P1	P1	;	
Notes	P1 = -180.00 degrees to +180.00 degrees. No decimal point, and sign is always present.								

ZZDE Command

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

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ZZDF Command

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

ZZDG command

ZZDG	Sets or reads the Enhanced Signal Clarity RX1 Gain									
Get	ZZDG	;								
Set	ZZDG	P1	P1	P1	P1	;				
Answer	ZZDG	P1	P1	P1	P1	;				
Notes	P1 = receiver 1 gain, 0.000 to 5.000 (no decimal point transferred)									

ZZDH Command

ZZDH	Sets or reads the Enhanced Signal Clarity Form Receiver Source buttons									
Get	ZZDH	;								
Set	ZZDH	P1	;							
Answer	ZZDH	P1	;							
Notes	P1 = 0 for RX1 + RX2; P1=1 for RX1; P1=2 for RX2.									

ZZDM Command

ZZDM	Sets or reads the Display Mode									
Get	ZZDM	;								
Set	ZZDM	P1	;							
Answer	ZZDM	P1	;							
Notes	P1 values: 0 = Spectrum 1 = Panadapter 2 = Scope 3 = Scope 2 4 = Phase			5 = Phase2 6 = Waterfall 7 = Histogram 8 = Panafall 9 = Panascope 10 = Off							

ZZDN Command

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

ZZDO Command

ZZDN	Sets or reads the Waterfall Hi limit (Setup Form)									
Get	ZZDO	;								
Set	ZZDO	P1	P2	P2	P2	;				
Answer	ZZD0	P1	P2	P2	P2	;				
Notes	P1 = + or -, P2 = -200 to +200.									

ZZDP Command

ZZDP	Sets or reads the Spectrum Grid Maximum setting (Setup Form)									
Get	ZZDP	;								
Set	ZZDP	P1	P2	P2	P2	;				
Answer	ZZDP	P1	P2	P2	P2	;				
Notes	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

ZZDP	Sets or reads the Spectrum Grid Minimum setting (Setup Form)									
Get	ZZDQ	;								
Set	ZZDQ	P1	P2	P2	P2	;				
Answer	ZZDQ	P1	P2	P2	P2	;				
Notes	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

ZZDR	Sets or reads the Spectrum Grid Step Size (Setup Form)									
Get	ZZDR	;								
Set	ZZDR	P1	P1	;						
Answer	ZZDR	P1	P1	;						
Notes	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					
Notes	P values:								

P values:

```
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

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

ZZDY Command

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

ZZEx Commands

ZZEA Command

ZZEA	Sets or reads the RX EQ values									
Get	ZZEA	;								
Set	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
		;								
Answer	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
		;								
Notes	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

ZZEB	Sets or reads the TX EQ values									
Get	ZZEA	;								
Set	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
		;								
Answer	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
		;								
Notes	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

ZZEM	Enables or disables CAT verbose error messages									
Get	ZZEM	;								
Set	ZZEM	P1	;							
Answer	ZZEM	See note	;							
Notes	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

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

ZZET Command

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

ZZFx Commands

ZZFA Command

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

ZZFB Command

ZZFB	Sets or reads VFO B frequency									
Get	ZZFB	;								
Set	ZZFB	P1	P1	P1	P1	P1	P1	P1	P1	P1
		P1	P1	;						
Answer	ZZFB	P1	P1	P1	P1	P1	P1	P1	P1	P1
		P1	P1	;						
Notes	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									
Get	ZZFD	;								
Set	ZZFD	P1	;							
Answer	ZZFD	P1	;		P1		;			
Notes	P1: 0 = 2500 Hz, 1 = 5000 Hz									

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ZZFH Command

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

ZZFI Command

ZZFI	**Sets or reads the current RX1 DSP receive filter**								
Get	ZZFI	;							
Set	ZZFI	P1	P1	;					
Answer	ZZFI	P1	P1	;					
Notes	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 .8K 150 2.9K 50 09 1.0K 75 2.4K 25 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.								

ZZFJ Command

ZZFJ	Sets or reads the current RX2 DSP receive filter									
Get	ZZFJ	;								
Set	ZZFJ	P1	P1	;						
Answer	ZZFJ	P1	P1	;						
Notes	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

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

ZZFM Command

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

ZZFR Command

ZZFR Sets or reads Selected RX2 DSP Filter High									
Get	ZZFR	;							
Set	ZZFR	P1	P1	P1	P1	P1	;		
Answer	ZZFR	P1	P1	P1	P1	P1	;		
Notes	P1 = frequency in Hz -9999 to 09999.								

ZZFS Command

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

ZZFT Command

ZZFT Sets or reads TX frequency									
Get	ZZFT	;							
Set	ZZFT	P1	P1	P1	P1	P1	P1	P1	P1	P1
		P1	P1	;					
Answer	ZZFT	P1	P1	P1	P1	P1	P1	P1	P1	P1
		P1	P1	;					
Notes	P1 = frequency in Hz (11 digits). Blank digits must be 0. Example: 14,320.150 = 00014320150.								

ZZFV Command

ZZFV Reads single data byte FlexWire data									
Get	ZZFV	P1	P1	P2	P2	;			
	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

ZZFW Reads double data byte FlexWire data									
Get	ZZFW	P1	P1	P2	P2	P3	P3	;	
Notes	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

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

ZZFY Command

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

ZZGx Commands

ZZGE Command

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

ZZGL Command

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

ZZGT Command

ZZGT	Sets or reads the RX1 AGC thumbwheel control									
Get	ZZGT	;								
Set	ZZGT	P1	;							
Answer	ZZGT	P1	;							
Notes	P1 values: 0 = Fixed 1 = Long 2 = Slow				3 = Med 4 = Fast 5 = Custom					

ZZGU Command

ZZGT	Sets or reads the RX2 AGC thumbwheel control									
Get	ZZGU	;								
Set	ZZGU	P1	;							
Answer	ZZGU	P1	;							
Notes	P1 values: 0 = Fixed 1 = Long 2 = Slow				3 = Med 4 = Fast 5 = Custom					

ZZHx Commands

ZZHA Command

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

ZZHR Command

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

ZZHT Command

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

ZZHU Command

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

ZZHV Command

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

ZZHW Command

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

ZZHX Command

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

ZZIx Commands

ZZID Command

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

ZZIF Command

ZZIF	Reads the FlexRadio status									
Get	ZZIF	;								
Set										
Answer	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	;		
Notes	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. Due to limitations in the space available, P2 will only report step sizes through 12.5 KHz (ZZAC12). P2 will report 1111 (indeterminate step) for anything above 12.5 KHz.									

ZZIO Command

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

ZZIS Command

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

ZZIT Command

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

ZZIU Command

| ZZIU | Resets the | | ble filter shift slider | | | | | | | |
varia										
Get										
Set	ZZIU	;								
Answer							;			
Notes	Write only									

ZZKx Commands

ZZKM Command

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

ZZKO Command

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

ZZKS Command

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

ZZKY Command

ZZKY	Sends text to CWX for conversion to Morse									
Get	ZZKY	;								
Set	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	;			
Answer	ZZKY	P1	;							
Notes	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

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

ZZLB Command

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

ZZLC Command

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

ZZLD Command

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

ZZLE Command

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

ZZLF Command

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

ZZLG Command

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

ZZLH Command

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

ZZLI Command

ZZLI	Sets or reads the PureSignal (PS-A) Button status										
Get	ZZLI	;									
Set	ZZLI	P1	;								
Answer	ZZLI	P1	;								
Notes	P1: 0 = OFF, 1 = ON										

ZZMx Commands

ZZMA Command

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

ZZMB Command

ZZMB	Sets or reads the RX2 Mute (MUT) status (FLEX5000/RX2 ONLY)										
Get	ZZMB	;									
Set	ZZMB	P1	;								
Answer	ZZMB	P1	;								
Notes	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

ZZMD	Sets or reads the RX1 Operating Mode								
Get	ZZMD	;							
Set	ZZMD	P1	P1	;					
Answer	ZZMD	P1	P1	;					
Notes	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

ZZME	Sets or reads the RX2 Operating Mode								
Get	ZZME	;							
Set	ZZME	P1	P1	;					
Answer	ZZME	P1	P1	;					
Notes	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				

ZZMF Command

ZZMF	Sets a string into the title bar for a "multifunction" encoder								
Set	ZZMF	P1a	P1b	P2a	P2b	P3a	P3b	P4a	P4b
		P5a	P5b	P6a	P6b	P7a	P7b	P8a	P8b
		P9a	P9b	P10a	P10b	P11a	P11b	P12a	P12b
		P13a	P13b	P14a	P14b	P15a	P15b	;	
Notes	ZZMF transfers a 15 character ASCII string. P1a, P1b to P15a, P15b are two digit codes for each ASCII character. Each gives a number 0-99; add 32 to get the ADCII code. For example "32" gives ASCII character "A" ZZMF is write-only.								

ZZMG Command

ZZMG	Sets or reads the Mic gain								
Get	ZZMG	;							
Set	ZZMG	P1	P1	P1	;				
Answer	ZZMG	P1	P1	P1	;				
Notes	P1 = -96 to 070								

ZZML Command

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

ZZMN Command

ZZMN	Reads the DSP Filter names and values								
Get	ZZMN	P1	P1	;					
Answer	ZZMN	See below							
Notes	P1 Values: The two-digit mode code (See ZZMD) 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.								

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ZZMO Command

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

ZZMR Command

ZZMR	Sets or reads the RX Meter mode									
Get	ZZMR	;								
Set	ZZMR	P1	;							
Answer	ZZMR	P1	;							
Notes	P1 Values: 0 = Signal Strength 1 = Signal Average 2 = ADC L				3 = ADC R 4 = ADC 2 L 5 = ADC 2 R 6 = Off					

ZZMS Command

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

ZZMT Command

ZZMT	Sets or reads the TX Meter mode									
Get	ZZMT	;								
Set	ZZMT	P1	P1	;						
Answer	ZZMT	P1	P1	;						
Notes	P1 Values: 00 = Forward Power 01 = Reverse Power 02 = Forward SWR 03 = Mic 04 = EQ 05 = Leveler 06 = Lev Gain				07 = CFC 08 = CFC Comp 09 = COMP 10 = ALC 11 = ALC COMP 12 = SWR 13 = Off					

ZZMU Command

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

ZZMV Command

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

ZZMW Command

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

ZZMX Command

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

ZZMY Command

ZZMY	Stores radio memory configuration to a new channel									
Set	ZZMY	;								
Notes	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

ZZMZ	Stores radio memory configuration to an existing channel									
Set	ZZMZ	P1	P1	P1	;					
Notes	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. **Destroys the only record and write the new one without warning.**									

ZZNx Commands

ZZNA   Command

ZZNA	Sets or reads the RX1 Noise Blanker (NB) status										
Get	ZZNA	;									
Set	ZZNA	P1	;								
Answer	ZZNA	P1	;								
Notes	P1 = 0 for off, 1 for on. ZZNA, ZZNB encode the selected noise blanker with settings as follows: Noise blanker off: ZZNA0; Noise blanker: ZZNA1; Noise Blanker 2: ZZNB1;										

ZZNB Command

ZZNB	Sets or reads the RX1 Noise Blanker 2 (NB2) status										
Get	ZZNB	;									
Set	ZZNB	P1	;								
Answer	ZZNB	P1	;								
Notes	P1 = 0 for off, 1 for on. ZZNA, ZZNB encode the selected noise blanker with settings as follows: Noise blanker off: ZZNA0; Noise blanker: ZZNA1; Noise Blanker 2: ZZNB1;										

ZZNC Command

ZZNC	Sets or reads RX2 Noise Blanker (1) (F5K/RX2 only)										
Get	ZZNC	;									
Set	ZZNC	P1	;								
Answer	ZZNC	P1	;								
Notes	P1 = 0 for off, 1 for on. ZZNC, ZZND encode the selected noise blanker with settings as follows: Noise blanker off: ZZNC0; Noise blanker: ZZNC1; Noise Blanker 2: ZZND1;										

ZZND	Sets or reads RX2 Noise Blanker (2) (F5K/RX2 only)									
Get	ZZND	;								
Set	ZZND	P1	;							
Answer	ZZND	P1	;							
Notes	P1 = 0 for off, 1 for on. ZZNC, ZZND encode the selected noise blanker with settings as follows: Noise blanker off: ZZNC0; Noise blanker: ZZNC1; Noise Blanker 2: ZZND1;									

ZZNL Command

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

ZZNM Command

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

ZZNN Command

ZZNN	Sets or reads the RX1 Spectral Noise Blanker (SNB) status									
Get	ZZNN	;								
Set	ZZNN	P1	;							
Answer	ZZNN	P1	;							
Notes	P1 = 0 for off, 1 for on.									

ZZNO Command

ZZNO	Sets or reads the RX1 Spectral Noise Blanker (SNB) status									
Get	ZZNO	;								
Set	ZZNO	P1	;							
Answer	ZZNO	P1	;							
Notes	P1 = 0 for off, 1 for on.									

ZZNR Command

ZZNR	Sets or reads the RX1 Noise Reduction (NR) status										
Get	ZZNR	;									
Set	ZZNR	P1	;								
Answer	ZZNR	P1	;								
Notes	P1 = 0 for off, 1 for on. ZZNR, ZZNS encode the selected noise reduction with settings as follows: NR off: ZZNR0; NR: ZZNR1; NR 2: ZZNS1;										

ZZNS Command

ZZNS	Sets or reads the RX1 Noise Reduction 2 (NR2) status										
Get	ZZNS	;									
Set	ZZNS	P1	;								
Answer	ZZNS	P1	;								
Notes	P1 = 0 for off, 1 for on. ZZNR, ZZNS encode the selected noise reduction with settings as follows: NR off: ZZNR0; NR: ZZNR1; NR 2: ZZNS1;										

ZZNT Command

ZZNT	Sets or reads the RX1 Auto Notch Filter (ANF) status										
Get	ZZNT	;									
Set	ZZNT	P1	;								
Answer	ZZNT	P1	;								
Notes	P1 = 0 for off, 1 for on.										

ZZNU Command

ZZNU	Sets or reads the RX2 Auto Notch Filter (ANF) status										
Get	ZZNU	;									
Set	ZZNU	P1	;								
Answer	ZZNU	P1	;								
Notes	P1 = 0 for off, 1 for on.										

ZZNV Command

ZZNV	Sets or reads the RX2 Noise Reduction (NR) status									
Get	ZZNV	;								
Set	ZZNV	P1	;							
Answer	ZZNV	P1	;							
Notes	P1 = 0 for off, 1 for on. ZZNV, ZZNW encode the selected noise reduction with settings as follows: NR off: ZZNV0; NR: ZZNV1; NR 2: ZZNW1;									

ZZNW Command

ZZNW	Sets or reads the RX2 Noise Reduction 2 (NR) status									
Get	ZZNW	;								
Set	ZZNW	P1	;							
Answer	ZZNW	P1	;							
Notes	P1 = 0 for off, 1 for on. ZZNV, ZZNW encode the selected noise reduction with settings as follows: NR off: ZZNV0; NR: ZZNV1; NR 2: ZZNW1;									

ZZOx Commands

ZZOA Command

ZZOA	Sets or reads the antenna connected to RX1 (FLEX5000/FLEX1500 only)									
Get	ZZOA	;								
Set	ZZOA	P1	;							
Answer	ZZOA	P1	;							
Notes	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

ZZOB	Sets or reads the antenna connected to RX2 (FLEX5000 only)									
Get	ZZOB	;								
Set	ZZOB	P1	;							
Answer	ZZ0B	P1	;							
Notes	P1 Values: 0 = N/C, 1 = Ant1, 5 = RX2In, 6 = RX1Tap									

ZZOC Command

ZZOC	Sets or reads the transmitter antenna (FLEX5000/FLEX1500 only)										
Get	ZZOC	;									
Set	ZZOC	P1	;								
Answer	ZZ0C	P1	;								
Notes	P1 Values F5K: 1 = Ant1, 2 = Ant2, 3 = Ant3. P1 Values F1500: 1 = PA, 2 = XVTX/COM.										

ZZOD Command

ZZOD	Sets or reads the current antenna mode (FLEX5000/F1500 only)										
Get	ZZOD	;									
Set	ZZOD	P1	;								
Answer	ZZ0D	P1	;								
Notes	P1 Values: 0 = Simple, 1 = Complex										

ZZOE Command

ZZOE	Sets or reads the RX1 loop (FLEX5000 only)										
Get	ZZOE	;									
Set	ZZOE	P1	;								
Answer	ZZ0E	P1	;								
Notes	P1 Values: 0 = Loop Disabled, 1 = Loop Enabled										

ZZOF Command

ZZOF	Sets or reads the TX relays energized on transmit (FLEX5000/F1500 only)										
Get	ZZOF	;									
Set	ZZOF	P1	P2	P3	;						
Answer	ZZ0F	P1	P2	P3	;						
Notes	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

ZZOG	**Sets or reads the TX relay delays enabled on transmit (FLEX5000/F1500 only)**									
Get	ZZOG	;								
Set	ZZOG	P1	P2	P3	;					
Answer	ZZ0G	P1	P2	P3	;					
Notes	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. F1500 P1: FlexWire PTT Out Delay 0 = disabled, 1 = enabled. Command must be sent with three characters: ZZOG100 or ZZOG000.									

ZZOH Command

ZZOH	**Sets or reads the TX relay delay times (FLEX5000/F1500 only)**									
Get	ZZOH	P1	;							
Set	ZZOH	P1	P2	P2	P2	P2	;			
Answer	ZZ0H	P1	P2	P2	P2	P2	;			
Notes	F5K P1 = TX relay number, P2 = delay in milliseconds. Example: ZZOH20100 Sets relay 2 to 100 ms. Delay range must be 0000 to 9999. F1500 P1 = 1, P2 same as F5K.									

ZZOJ Command

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

ZZOL Commands

ZZOL	**Sets or reads the DigL Click Tune Offset**									
Get	ZZOL	;								
Set	ZZOL	P1	P1	P1	P1	;				
Answer	ZZ0L	P1	P1	P1	P1	;				
Notes	P1 = 0000 to 9999									

ZZOS Commands

ZZOS	Sets or reads the FM Offset Direction								
Get	ZZOS	;							
Set	ZZOS	P1	;						
Answer	ZZ0S	P1	;						
Notes	P1: 0 = Simplex, 1 = High, 2 = Low								

ZZOT Commands

ZZOT	Sets or reads the FM Repeater Offset Frequency								
Get	ZZOT	;							
Set	ZZOT	P1	P1	P1	P1	P1	P1	P1	P1;
Answer	ZZ0T	P1	P1	P1	P1	P1	P1	P1	P1;
Notes	P1 = 000000000 to 999999999 Hz. 001000000 = 1.0 MHz, 000600000 = 600 KHz. Must have leading zeros.								

ZZOU Command

ZZOU	Sets or reads the DigU Click Tune Offset								
Get	ZZOU	;							
Set	ZZOU	P1	P1	P1	P1	;			
Answer	ZZ0U	P1	P1	P1	P1	;			
Notes	P1 = 0000 to 9999								

ZZOV Command

ZZOV	Sets or reads ATU Enable Button (when ATU equipped)								
Get	ZZOV	;							
Set	ZZOV	P1	;						
Answer	ZZ0V	P1	;						
Notes	P1: 0 = Off, 1 = On. Sending a "1" to ZZOV is the same as sending a "0" to ZZOW (ATU bypass).								

ZZOW Command

ZZOW	Sets or reads ATU Bypass Button (when ATU equipped)								
Get	ZZOW	;							
Set	ZZOW	P1	;						
Answer	ZZOW	P1	;						
Notes	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).								

ZZOX Command

ZZOX	ATU Tune success/fail									
Set	ZZOX	P1	;							
Notes	P1=0: no tune solution found. P1=1: successful tune solution found. Write only.									

ZZOZ Command

ZZOZ	ATU Erase tuning solutions									
Set (by PC)	ZZOZ	P1	;							
Notes	P1=0: do not erase. P1=1: erase ANT1 tune solutions P1=2: erase ANT2 tune solutions P1=3: erase ANT3 tune solutions Write only, command issued by PC.									

ZZPx Commands

ZZPA Command

ZZPA	Sets or reads the Preamplifier (Preamp) setting									
Get	ZZPA	;								
Set	ZZPA	P1	;							
Answer	ZZPA	P1	;							
Notes	P1 value	SDR-1000	FLEX5000x	FLEX3000	FLEX1500	HPSDR				
	0	Off	Off	Attn	-10	-20dB				
	1	Low	On	Off	0	0dB				
	2	Med		Pre1[1]	+10	-10dB				
	3	High		Pre2[1]	+20	-				
	4	+30				-30dB				
	[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.									

ZZPB Command

ZZPB	Sets or reads RX2 Preamp status									
Get	ZZPB	;								
Set	ZZPB	P1	;							
Answer	ZZPB	P1	;							
Notes	Pre V3.3.6: P1 = 0 for off, 1 for on. From V3.3.6 onwards: Provides attenuation setting in 10dB steps P1=1: 0dB; P1= 2: -10dB; P1=0: -20dB; P1=4: -30dB									

ZZPC Command

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

ZZPD Command

ZZPD	Sets the Display Pan Center button									
Set	ZZPD	;								
Notes	Write-only									

ZZPE Command

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

ZZPO Command

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

ZZPS Command

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

ZZPY Command

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

ZZPZ Command

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

ZZQx Commands

ZZQK Command

ZZQK	Sets or reads the QSK status									
Get	ZZQK	;								
Set	ZZQK	P1	;							
Answer	ZZQK	P1	;							
Notes	P1 = 0 for Off, 1 for On (note setting to 0 causes semi break-in to be selected)									

ZZQM Command

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

ZZQR Command

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

ZZQS Command

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

ZZRx Commands

ZZRA Command

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

ZZRB Command

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

ZZRC Command

ZZRC	Clears the RIT frequency									
Set	ZZRC	;								
Notes	Write-only									

ZZRD Command

ZZRD	Decrements the RIT Frequency									
Get	ZZRD	;								
Set	ZZRD	P1	P1	P1	P1	P1	;			
Answer										
Notes	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

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

ZZRH Command

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

ZZRL Command

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

ZZRM Command

ZZRM	Reads the Console meter values									
Get	ZZRM	P1	;							
Set										
Answer	ZZRM	P1	P2	P2	P2	P2	P2	P2	P2	P2
	P2	P2	P2	P2	P2	P2	P2	P2	P2	P2
	P2	P2	;							
Notes	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

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

ZZRT Command

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

ZZRU Command

ZZRU	Increments the RIT Frequency									
Get	ZZRU	;								
Set	ZZRU	P1	P1	P1	P1	P1	;			
Answer										
Notes	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

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

ZZRX Command

ZZRX	Sets or Reads RX1 Step Attenuation									
Get	ZZRX	;								
Set	ZZRX	P1	P1	;						
Answer	ZZRX	P1	P1	;						
Notes	Step attenuation is in 1dB steps, 0 to 31dB									

ZZRY Command

ZZRY Sets or Reads RX2 Step Attenuation										
Get	ZZRY	;								
Set	ZZRY	P1	P1	;						
Answer	ZZRY	P1	P1	;						
Notes	Step attenuation is in 1dB steps, 0 to 31dB									

ZZSx Commands

ZZSA Command

ZZSA Moves VFO A down one Tune Step										
Set	ZZSA	;								
Notes	Write-only									

ZZSB Command

ZZSB Moves VFO A up one Tune Step										
Set	ZZSB	;								
Notes	Write-only									

ZZSD Command

ZZSD Decrements the Tune Step										
Set	ZZSD	;								
Notes	Write-only									

ZZSF Command

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

ZZSG Command

ZZSG Moves VFO B down one Tune Step										
Set	ZZSG	;								
Notes	Write-only									

ZZSH Command

ZZSH	**Moves VFO B up one Tune Step**										
Set	ZZSH	;									
Notes	Write-only										

ZZSM Command

ZZSM	**Reads the S-Meter**									
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

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

ZZSO Command

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

ZZSP Command

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

ZZSQ Command

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

ZZSR Command

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

ZZSS Command

ZZSS	Stops CWX sending (immediate)								
Set	ZZSS	;							
Notes	Write only								

ZZST Command

ZZST	Reads the frequency step size (Deprecated, use ZZAC for new designs)								
Get	ZZST	;							
Set									
Answer	ZZST	P1	P1	P1	P1	;			
Notes	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

ZZSU	**Increments the Tune Step**										
Set	ZZSU	;									
Notes	Write-only										

ZZSV Command

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

ZZSW Command

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

ZZSX Command

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

ZZSY Command

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

ZZSZ Command

ZZSZ Syncs VFO A or B to the current step size											
Set	ZZSZ	P1	;								
Notes	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

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

ZZTB Command

ZZTB	Sets or reads the CTCSS Tone Frequency										
Get	ZZTB	;									
Set	ZZTB	P1	P1	;							
Answer	ZZTB	P1	P1	;							
Notes	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

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

ZZTH Command

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

ZZTI Command

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

ZZTL Command

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

ZZTM Command

ZZTM	**Sets or reads the TX AF Monitor**									
Get	ZZTM	;								
Set	ZZTM	P1	P1	P1	;					
Answer	ZZTM	P1	P1	P1	;					
Notes	P1 = 000 to 100.									

ZZTO Command

ZZTO	**Sets or reads the TUN power setting**									
Get	ZZTO	;								
Set	ZZTO	P1	P1	P1	;					
Answer	ZZTO	P1	P1	P1	;					
Notes	P1 = 000 to 100.									

ZZTP Command

ZZTP	Sets or reads the Transmit Profile									
Get	ZZTP	;								
Set	ZZTP	P1	P1	;						
Answer	ZZTP	P1	P1	;						
Notes	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

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

ZZTU Command

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

ZZTV Command

ZZTV	Sets or reads the transmit VFO frequency when RX2 enabled								
Get	ZZTV	;							
Set	ZZTV	P1	P1	P1	P1	P1	P1	P1	P1	P1
		P1	P1	;						
Answer	ZZTV	P1	P1	P1	P1	P1	P1	P1	P1	P1
		P1	P1	;						
Notes	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

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

ZZUx Commands

ZZUA Command

ZZUA	**Reads the XVTR Band Button Names**									
Get	ZZUA	;								
Answer	ZZUA	P1	P1	P1	P1	P1	P2	P2	P2	P2
	P2	P3	P3	P3	P3	P3	P4	P4	P4	P4
	P4	P5	P5	P5	P5	P5	P6	P6	P6	P6
	P6	P7	P7	P7	P7	P7	P8	P8	P8	P8
	P8	P9	P9	P9	P9	P9	P10	P10	P10	P10
	P10	P11	P11	P11	P11	P11	P12	P12	P12	P12
	P12	P13	P13	P13	P13	P13	P14	P14	P14	P14
	P14	;								
Notes	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.									

ZZUS Command

ZZUS	**Initiates a PureSignal single CAL function**									
Set	ZZUS	;								
Notes	Initiated with a command ZZUS; returns no response. ZZUS is read-only.									

ZZUT Command

ZZUT	**Turns a two-tone test on or off.**									
Get	ZZUT	;								
Set	ZZUT	P1	;							
Answer	ZZUT	P1	;							
Notes	P1 = 0 for off, 1 for on.									

ZZUX Command

ZZUX	Sets or reads the VFO A Lock status									
Get	ZZUX	;								
Set	ZZUX	P1	;							
Answer	ZZUX	P1	;							
Notes	P1 = 0 for off, 1 for on.									

ZZUY Command

ZZUY	Sets or reads the VFO B Lock status									
Get	ZZUY	;								
Set	ZZUY	P1	;							
Answer	ZZUY	P1	;							
Notes	P1 = 0 for off, 1 for on.									

ZZVx Commands

ZZVA Command

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

ZZVB Command

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

ZZVC Command

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

ZZVD Command

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

ZZVE Command

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

ZZVF Command

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

ZZVG Command

ZZVG	**Sets or reads the VOX Gain value**											
Get	ZZVG	;										
Set	ZZVG	P1	P1	P1	P1	;						
Answer	ZZVG	P1	P1	P1	P1	;						
Notes	P1 = 0000 to 1000.											

ZZVH Command

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

ZZVI Command

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

ZZVJ Command

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

ZZVK Command

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

ZZVL Command

ZZVL	Sets or reads the VFO Lock status										
Get	ZZVL	;									
Set	ZZVL	P1	;								
Answer	ZZVL	P1	;								
Notes	P1 = 0 for off, 1 for on. Function changed from V3.4.8: ZZVL implements a round-robin toggle for VFO A and B locks: Unlocked, VFOA locked, VFOA&B locked, Unlocked. Separate commands have been added for independent access to VFO A and B locks– ZZUX and ZZUY.										

ZZVM Command

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

ZZVN Command

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

ZZVO Command

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

ZZVP Command

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

ZZVQ Command

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

ZZVR Command

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

ZZVS Command

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

ZZVT Command

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

ZZVU Command

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

ZZVV Command

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

ZZVW Command

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

ZZVX Command

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

ZZVY Command

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

ZZVZ Command

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

ZZWx Commands

ZZWA Command

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

ZZWB Command

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

ZZWC Command

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

ZZWD Command

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

ZZWE Command

ZZWE	Sets or reads the F1500/F5K Mixer Mic Select Checkbox								
Get	ZZWE	;							
Set	ZZWE	P1	;						
Answer	ZZWE	P1	;						
Notes	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

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

ZZWG Command

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

ZZWH Command

ZZWH Sets or reads the F1500/F5K FlexWire/Mixer Line In DB9 Select Checkbox											
Get	ZZWH	;									
Set	ZZWH	P1	;								
Answer	ZZWH	P1	;								
Notes	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

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

ZZWK Command

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

ZZWL Command

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

ZZWM Command

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

ZZWN Command

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

ZZWO Command

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

ZZWP Command

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

ZZWQ Command

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

ZZWR Command

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

ZZWS Command

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

ZZWT Command

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

ZZWU Command

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

ZZWV Command

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

ZZWW Command

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

ZZXx Commands

ZZXC Command

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

ZZXD Command

ZZXD	Decrements the XIT Frequency									
Get	ZZXD	;								
Set	ZZXD	;								
Answer										
Notes	ZZXD decrements the XIT frequency by 10 Hz									

ZZXF Command

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

ZZXH Command

ZZXH	Sets or reads the VOX Delay (Hang) value									
Get	ZZXH	;								
Set	ZZXH	P1	P1	P1	P1	;				
Answer	ZZXH	P1	P1	P1	P1	;				
Notes	P1 = 0000 to 4000. This is the "hang" time in milliseconds.									

ZZXN Command

ZZXN	**Reads the Combined RX 1 Status**									
Get	ZZXN	;								
Answer	ZZXN	P1	P1	P1	P1	;				
Notes	P1 = 0000 to 8191. This combines settings for NB1/2, NR1/2, SNB, ANF, AGC, Atten, Squelch into a single 13 bit binary word. Bits 2-0: AGC Speed (see ZZGT) Bits 5-3: Attenuation (see ZZPA) Bit 6: Squelch on/off (see ZZSO) Bit 7: NB0 (see ZZNA) Bit 8: NB1 (see ZZNB) Bit 9: NR0 (see ZZNR) Bit 10: NR1 (see ZZNS) Bit 11: SNB (see ZZNN) Bit 12: ANF (see ZZNT) ZZXN is read-only.									

ZZXO Command

ZZXO	**Reads the Combined RX 2 Status**									
Get	ZZXO	;								
Answer	ZZXO	P1	P1	P1	P1	;				
Notes	P1 = 0000 to 8191. This combines settings for NB1/2, NR1/2, SNB, ANF, AGC, Atten, Squelch into a single 13 bit binary word. Bits 2-0: AGC Speed (see ZZGU) Bits 5-3: Attenuation (see ZZPB) Bit 6: Squelch on/off (see ZZSV) Bit 7: NB0 (see ZZNC) Bit 8: NB1 (see ZZND) Bit 9: NR0 (see ZZNV) Bit 10: NR1 (see ZZNW) Bit 11: SNB (see ZZNO) Bit 12: ANF (see ZZNU) ZZXO is read-only.									

ZZXS Command

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

ZZXT Command

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

ZZXU Command

ZZXU	**Increments the XIT Frequency**										
Get	ZZXU	;									
Set	ZZXU	;									
Answer											
Notes	ZZXU increments the XIT frequency by 10 Hz										

ZZXV Command

ZZXV	**Reads the Combined VFO Status**										
Get	ZZXV	;									
Answer	ZZXV	P1	P1	P1	;						
Notes	P1 = 0000 to 1023. This combines settings for RIT, LOCK, SPLIT, CTUNE, MOX, TUNE, XIT and SYNC into a single 9 bit binary word. Bit 0: RIT on/off (see ZZRT) Bit 1: VFO A LOCK status (see ZZUX) Bit 2: VFO B LOCK status (see ZZUY) Bit 3: SPLIT status (see ZZSP) Bit 4: VFO A CTUNE status (see ZZCN) Bit 5: VFO B CTUNE status (see ZZCO) Bit 6: MOX status (see ZZTX) Bit 7: TUNE status (see ZZTU) Bit 8: XIT on (see ZZXS) Bit 9: VFO Sync on (see ZZSY) ZZXV is read-only.										

ZZYx Commands

ZZYA Command

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

ZZYB Command

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

ZZYC Command

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

ZZYR   Command

ZZYR Sets or reads the RX1 / RX2 select buttons in the collapsed display										
Get	ZZYR	;								
Set	ZZYR	P1	;							
Answer	ZZYR	P1	;							
Notes	P1 = 0 for RX1, 1 for RX2.									

ZZZx Commands

ZZZA Command

ZZZA Amplifier Trip report & reset message										
Set (by amplifier)	ZZZA	P1	P1 ;							
Set (by PC)	ZZZA	3	2	;						
Notes	P1=00: normal operation P1=01: tripped- excessive reverse power P1=02: tripped – excessive drain current P1=04: tripped – PSU voltage out of spec P1=08: tripped – high heatsink temperature P1=16: tripped – high forward power Write-only. The ZZZA message can also be sent by the PC. ZZZA32; is a command to reset the "tripped" state. The amplifier will respond with ZZZA00; if the trip was successfully cleared.									

ZZZB Command

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

ZZZD Command

ZZZD	Front panel VFO encoder steps Down									
Set	ZZZD	P1	P1	;						
Notes	P1: 0-99: number of steps DOWN to VFO frequency Write only.									

ZZZE Command

ZZZE	Front Panel Encoder Step									
Set	ZZZE	P1	P1	P2	;					
Notes	P1 is a 2 digit encoder number: 01 to 49 (clockwise turn) 51 to 99 (anticlockwise turn) P2=number of steps ZZZE is Write-only.									

ZZZI Command

ZZZI	Front Panel Indicator on/off									
Set	ZZZI	P1	P1	P2	;					
Notes	P1 is a 2 digit indicator number: 01 to 99 P2=0: indicator off; P2=1: indicator lit ZZZI is Write-only, and signals <u>from</u> PC <u>to</u> target device only.									

ZZZP Command

ZZZP	Front Panel Button Press									
Set	ZZZP	P1	P1	P2	;					
Notes	P1 is a 2 digit button number: 01 to 99 P1=01-08: encoder button; P1=21-28: softkey button; P1=29-99: other button P2=0: button released; P2=1: button pressed; P2=2: button "long pressed" ZZZP is Write-only.									

ZZZS Command

ZZZS	Query External device software version								
Get	ZZZS	;							
Response	ZZZS	P1	P1	P2	P2	P3	P3	P3	;
Notes	P1: 2 digit device type (0 to 99) P1=01: Andromeda front panel; P1=02: Aries ATU; p1=03: Ganymede amplifier protection unit P2: 2 digit hardware version (0 to 99) P3: 3 digit software version (0 to 999)								

ZZZU Command

ZZZU	Front panel VFO encoder steps Up								
Set	ZZZU	P1	P1	;					
Notes	P1: 0-99: number of steps UP to VFO frequency Write only.								

ZZZX Command

ZZZX	Query/Set Front Panel Encoder Step								
Get	ZZZX	;							
Set	ZZZX	P1	P1	P2	;				
Response	ZZZX	P1	P1	P2	;				
Notes	P1: 2 digit setting for VFO encoder increment per click step P2: 1 digit setting for other encoder increment per click (typically 1,2 or 4)								

ZZZZ Command

ZZZZ	Close the CAT Serial Port, terminating the connection								
Set	ZZZZ	;							
Notes	Write-only.								

Kenwood Compatible Command Syntax

AG Command

AG	Sets or reads the AF Gain thumbwheel control								
Get	AG	P1	;						
Set	AG	P1	P2	P2	P2	;			
Answer	AG	P1	P2	P2	P2	;			
Notes	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	Sets or reads the Auto Information function										
Get	AI	;									
Set	AI	P1	;								
Answer	AI	P1	:								
Notes	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

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

BU Command

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

CN Command

CN Sets or reads the CTCSS Tone Frequency											
Get	CN	;									
Set	CN	P1	P1	;							
Answer	CN	P1	P1	;							
Notes	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

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

DN Command

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

FA Command

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

FB Command

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

FR Command

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

FT Command

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

FW Command

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

GT Command

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

ID Command

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

IF	**Reads the transceiver status**									
Get	IF	;								
Set										
Answer	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	;			
Notes	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. Due to limitations in the space available, P2 will only report step sizes through 12.5 KHz (ZZAC12). P2 will report 1111 (indeterminate step) for anything above 12.5 KHz. P9 will return a space if a non-Kenwood mode is selected on the FlexRadio.									

KS Command

KS	**Sets or reads CWX CW speed**									
Get	KS	;								
Set	KS	P1	P1	P1	;					
Answer	KS	P1	P1	P1	1					
Notes	P1 010 – 060 in WPM									

KY Command

KY	Sends text to CWX for conversion to Morse									
Get	KY	;								
Set	KY	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	;			
Answer	KY	P1	;							
Notes	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

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

MG Command

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

MO Command

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

NB Command

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

NT Command

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

OF Command

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

OS Command

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

PC Command

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

PR Command

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

PS Command

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

QI Command

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

RC Command

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

RD Command

RD	Decrements the RIT Frequency										
Get	RD	;									
Set	RD	P1	P1	P1	P1	P1	;				
Answer											
Notes	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

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

RU Command

RU	Increments the RIT Frequency										
Get	RU	;									
Set	RU	P1	P1	P1	P1	P1	;				
Answer											
Notes	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

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

SH Command

SH	Sets or reads the variable DSP Filter high frequency										
Get	SH	;									
Set	SH	P1	P1	;							
Answer	SH	P1	P1	;							

Notes	SSB Modes (USB, LSB, CWU and CWL) in Hz
	  00 = 1400
	  01 = 1600
	  02 = 1800
	  03 = 2000
	  04 = 2200
	  05 = 2400
	  06 = 2600
	  07 = 2800
	  08 = 3000
	  09 = 3400
	  10 = 4000
	  11 = 5000
						DSB Modes (AM, DSB, FM, DRM, SAM)
						  00 = 2500
						  01 = 3000
						  02 = 4000
						  03 = 5000
						
						SH has no effect in RTTY, PSK, or SPEC.					

SL Command

SL	Sets or reads the variable DSP filter low frequency										
Get	SL	;									
Set	SL	P1	P1	;							
Answer	SL	P1	P1	;							

Notes	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

SM	Reads the S-Meter									
Get	SM	P1	;							
Set										
Answer	SM	P1	P2	P2	P2	P2	;			
Notes	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

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

TX Command

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

UP Command

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

XT Command

XT	Sets or reads the XIT status									
Get	XT	;								
Set	XT	P1	;							
Answer	XT	P1	;							
Notes	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
ZZTL/ZZTH still read TX 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

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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

March 6, 2014 Changes
Modified   ZZAC, ZZAD, ZZAU, ZZBM, ZZBP for additional step sizes.
IF, ZZIF Added note about step size limits.

Revision 3 Changes

3.x (unknown version & date)

- Added CAT command ZZZZ

3.3.6 (2015-11-16)

- Added CAT command for Spectral Noise Blanker
  - ZZNN RX1
  - ZZNO RX2.
- Extended CAT command ZZPB to set & get 10dB, 20dB, and 30dB settings.

3.3.14 (2017-3-26)

- Added the following CAT Commands: --
  - ZZLI - Sets or Reads the PureSignal (PS-A) button status –
  - ZZNS - Sets or Reads the RX1 NR2 button status –
  - ZZNV - Sets or Reads the RX2 NR button status –
  - ZZNW - Sets or Reads the RX2 NR2 button status

3.4.1 (2017-4-1)

- Four new CAT commands have been added to support the CW Audio Peaking Filter: --
  - ZZAP Audio Peaking Filter On/Off –
  - ZZAT APF Tune –
  - ZZAB APF Bandwidth –
  - ZZAA APF Gain

3.4.8 (2018-3-2)
CAT interface: Added two functions to individually lock the two VFOs:

- ZZUX and ZZUY locks/unlocks VFOA and VFOB, respectively. 1=lock, 0=unlock
- ZZVL now implements a round-robin toggle for VFO locks: Unlocked, VFOA locked, VFOA&B locked, Unlocked.
- ZZUS initiates a PureSignal single cal function
- ZZUT turns a two-tone test on or off (1 or 0)
- ZZGU sets RX2 AGC speed
- ZZAF,ZZAE sets VFOA N tune steps up,down respectively
- ZZBF,ZZBE sets VFOB N tune steps up,down respectively
- ZZXH sets VOX delay
- ZZCN/CO sets VFO A/B CTUN state
- ZZNU sets RX2 ANF state
- ZZXN gets combined RX1 status
- ZZXO gets combined RX2 status
- ZZXV gets combined VFO status
- Documentation for ZZAC, ZZAD, ZZAU, ZZBM, ZZBP changed to reflect revised step sizes

3.5.1
CAT interface:

- ZZDE enabled
- ZZDB, ZZDC, ZZDD, ZZDG, ZZDH added (access to diversity form controls)
- ZZND corrected to set noise Blanker 2, not SNB
- ZZRX, ZZRY added to access RX1 & 2 step attenuation
- ZZCT changed to access the full 20dB compander range
- Two additional bits added to ZZXV
- ZZMG Mic Gain range changed to be -96 to +70
- ZZXD, ZZXU added: decrement & increment XIT frequency by one step
- ZZMF added to display "multifunction" encoder setting
- Added ZZYR to set/display the RX1/RX2 select button in the collapsed display

Thetis Status

2.6.7
All CAT Commands from PowerSDR 3.4.9
Additional CAT commands:

- ZZDE enabled
- ZZDB, ZZDC, ZZDD, ZZDG, ZZDH added (access to diversity form controls)
- ZZND corrected to set noise Blanker 2, not SNB
- ZZRX, ZZRY added to access RX1 & 2 step attenuation
- ZZCT changed to access the full 20dB compander range
- Two additional bits added to ZZXV
- ZZMG Mic Gain range changed to be -96 to +70
- ZZXD, ZZXU added: decrement & increment XIT frequency by one step
- ZZMF added to display "multifunction" encoder setting
- Added ZZYR to set/display the RX1/RX2 select button in the collapsed display
- Added ZZZP for front panel button press

2.6.8
Additional CAT commands:

- ZZZU, ZZZD added (front panel VFO encoder steps)
- ZZZE added (front panel other encoder steps)
- ZZZI added (front panel indicator)
- ZZZP added (front panel pushbutton)
- ZZZX added (front panel encoder step resolution)
- ZZZS added (external device query type, hardware and software version)

2.6.9
Additional CAT commands:
- ZZZA added (Ganymede amplifier protection & control)

- ZZOX added (ATU tune success/fail)
- ZZOZ added (erase ATU tuning solutions)

2.8.11

Additional CAT commands:
- ZZFT added (TX Frequency)