FLEXRADIO CAT COMMAND DICTIONARY

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.

Kenwood Compatible Commands

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

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

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

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 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 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 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	**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	**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	**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. P9 will return a space if a non-Kenwood mode is selected on the FlexRadio.									

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

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 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 = FMN 5 = AM 6 = RTTY (DIGL) 7 = CWL 9 = FSK-R (DIGU)									

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

NB Sets or reads the Noise Blanker 1 (NB1) status

Get	NB	;								
Set	NB	P1	;							
Answer	NB	P1	;							
Notes	P1 = 0 for on, 1 for off.									

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

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 Sets or reads the Speech Compressor (COMP) status										
Get	PR	;								
Set	PR	P1	;							
Answer	PR	P1	;							
Notes	P1 = 0 for on, 1 for off.									

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

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

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

RT Sets or reads the RIT button status

Get	RT	;								
Set	RT	P1	;							
Answer	RT	P1	;							
Notes	P1 = 0 for on, 1 for off.									

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

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, FMN, DRM, SAM) 00 = 2500 01 = 3000 02 = 4000 03 = 5000 SH has no effect in RTTY, PSK, or SPEC.									

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, FMN, DRM, SAM) 00 = 0 01 = 100 02 = 200 03 = 500 SL has no effect in RTTY, PSK, or SPEC.									

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

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

FlexRadio Custom Commands

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 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.									

ZZAR Sets or reads the 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).									

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

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

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

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

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

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

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

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

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.									

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 = Phase 4 = Phase2 5 = Waterfall 6 = Histogram 7 = Off									

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.									

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 Sets or reads theTX 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.									

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

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

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 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.									

ZZFH Sets or reads 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 Sets or reads the current DSP receive filter										
Get	ZZFI	;								
Set	ZZFI	P1	P1	;						
Answer	ZZFI	P1	P1	;						
Notes	P1 values:	lsb/usb/digl/digu		am/fmn/sam/dsb		cwl/cwu				
	00	5.0K		16K		1.0K				
	01	4.4K		12K		800				
	02	3.8K		10K		750				
	03	3.3K		8.0K		600				
	04	2.9K		6.6K		500				
	05	2.7K		5.2K		400				
	06	2.4K		4.0K		250				
	07	2.1K		3.1K		100				
	08	1.8K		2.9K		50				
	09	1.0K		2.4K		25				
	10	VAR1		VAR1		VAR1				
	11	VAR2		VAR2		VAR2				
	These are the default values for the receive filters. If you customize your filters, your custom values will be displayed.									

ZZFL Sets or reads DSP Filter High										
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 Reads the FlexRadio Model Number										
Get	ZZFM	;								
Set										
Answer	ZZFM	P1	;							
Notes	Read only. P1: 0 = SDR1000, 1 = FLEX5000.									

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 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 Sets or reads the 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									

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

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

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

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.									

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	**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	**Resets the variable filter shift slider**									
Get										
Set	ZZIU	;								
Answer							;			
Notes	Write only									

ZZKS	**Sets or reads the CWX CW speed**									
Get	ZZKS	;								
Set	ZZKS	P1	P1	P1	;					
Answer	ZZKS	P1	P1	P1	;					
Notes	P1 = 010 to 060 in WPM									

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.									

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

ZZMD	**Sets or reads the 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 = FMN 06 = AM 07 = DIGU 08 = SPEC 09 = DIGL 10 = SAM 11 = DRM									

ZZMG	**Sets or reads the Mic gain**									
Get	ZZMG	;								
Set	ZZMG	P1	P1	P1	;					
Answer	ZZMG	P1	P1	P1	;					
Notes	P1 = 000 to 070									

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…;									

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

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 = Off									

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

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 = Mic 03 = EQ 04 = Leveler 05 = Lev Gain 06 = COMP 07 = CPDR 08 = ALC 09 = ALC COMP 10 = SWR 11 = Off									

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

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

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

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	**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.									

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

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

ZZOA	**Sets or reads the antenna connected to RX1 (FLEX5000 only)**									
Get	ZZOA	;								
Set	ZZOA	P1	;							
Answer	ZZ0A	P1	;							
Notes	P1 Values: 0 = Ant 1, 1 = Ant 2, 2 = Ant 3, 3 = RX1 In.									

ZZOB Sets or reads the antenna connected to RX2 (FLEX5000 only)										
Get	ZZOB	;								
Set	ZZOB	P1	;							
Answer	ZZ0B	P1	;							
Notes	P1 Values: Not defined yet, waiting for RX2 testing									

ZZOC Sets or reads the antenna connected to the transmitter (FLEX5000 only)										
Get	ZZOC	;								
Set	ZZOC	P1	;							
Answer	ZZ0C	P1	;							
Notes	P1 Values: 0 = Ant 1, 1 = Ant 2, 2 = Ant 3.									

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

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

ZZPA Sets or reads the Preamplifier (Preamp) setting										
Get	ZZPA	;								
Set	ZZPA	P1	;							
Answer	ZZPA	P1	;							
Notes	P1 values; SDR-1000 FLEX5000x 0 = Off 0 = Off 1 = Low 1 = On 2 = Med 3 = High									

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

ZZPK Sets or reads Compressor (COMP) status										
Get	ZZPK	;								
Set	ZZPK	P1	;							
Answer	ZZPK	P1	;							
Notes	P1 = 0 for off, 1 for on.									

ZZPL Sets or reads the Speech Compressor threshold										
Get	ZZPL	;								
Set	ZZPL	P1	P1	;						
Answer	ZZPL	P1	P1	;						
Notes	P1 = 00 to 20.									

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

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									

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

ZZQS Saves VFO A frequency to Quick Memory										
Set	ZZQR	;								
Notes	Write-only									

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

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.									

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 7 = Reverse Power 8 = SWR P2 is padded left with spaces. ZZRM is read-only.									
*****	Developers: P1 0-3 are functional, balance needs rewrite for new meter functions in the transmit mode.									

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									

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

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

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

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.									

ZZSM Reads the S-Meter										
Get	ZZSM	P1	;							
Set										
Answer	ZZSM	P1	P2	P2	P2	;				
Notes	P1 = 0 P2 = 000 to 260 Each increment of ZZSM is approximately equal to 0.5 dBm.									

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 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 Sets or reads the Squelch control										
Get	ZZSQ	;								
Set	ZZSQ	P1	P1	P1	;					
Answer	ZZSQ	P1	P1	P1	;					
Notes	P1 = 000 to 160.									

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.									

ZZST Reads the frequency step size										
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 1010 = 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 Increments the Tune Step										
Set	ZZSU	;								
Notes	Write-only									

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 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.									

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.									

ZZTP Sets or reads the Transmit Profile										
Get	ZZTP	;								
Set	ZZTP	P1	P1	;						
Answer	ZZTP	P1	P1	;						
Notes	P1: 0 = Conventional 1 = DX/Contest 2 = ESSB 3 = 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.									

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.									

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

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.									

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

ZZVB Sets or reads the VAC RX Gain										
Get	ZZVB	;								
Set	ZZVB	P1	P1	P1	;					
Answer	ZZVB	P1	P1	P1	;					
Notes	P1 = -40 to +20 (positive values must lead with sign or "0"									

ZZVC Sets or reads the VAC TX Gain										
Get	ZZVC	;								
Set	ZZVC	P1	P1	P1	;					
Answer	ZZVC	P1	P1	P1	;					
Notes	P1 = -40 TO +20 (positive value must lead with sign or "0"									

ZZVD Sets or reads the VAC 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									

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

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.									

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

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

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.									

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

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.									

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

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

FLEXRADIO CAT COMMAND REVISION RECORD

January 3, 2006 Revisions:

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

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

January 16, 2008 Changes:

Added	ZZDX	Sets or reads the Phone DX button status