SDR-1000 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.									

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									

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 SDR-1000 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										
Get	FW	;								
Set	FW	P1	P1	P1	P1	;				
Answer	FW	P1	P1	P1	P1	;				
Notes	FW only accepts SDR-1000 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.									

ID Reads the transceiver ID number										
Get	ID	;								
Set										
Answer	ID	P1	P1	P1	;					
Notes	P1 defaults to 019 (TS-2000). The SDR-1000 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 SDR-1000.									

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 7 = CWL									

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	;								
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.									

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

SDR-1000 Custom Commands

ZZAG Sets or reads the SDR-1000 Audio Gain control										
Get	ZZAG	;								
Set	ZZAG	P1	P1	P1	;					
Answer	ZZAG	P1	P1	P1	;					
Notes	P1 = 000 to 100.									

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.									

ZZBS Sets or reads the 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).									

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.									

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									

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									

ZZFI	**Sets or reads the current DSP receive filter**									
Get	ZZFI	;								
Set	ZZFI	P1	P1	;						
Answer	ZZFI	P1	P1	;						
Notes	P1 values: 00 = 6.0K 01 = 4.0K 02 = 2.6K 03 = 2.1K 04 = 1.0K 05 = 500 06 = 250 07 = 100 08 = 50 09 = 25 10 = VAR1 11 = VAR2									

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 SDR-1000**									
Get										
Set	ZZID	;								
Answer										
Notes	ZZID is used to remotely force the transceiver id to 900 (SDR-1000).									

ZZIF	**Reads the SDR-1000 status**									
Get	ZZIF	P1	;							
Set										
Answer	ZZIF	P1	P2	P2	P2	P2	P2	P2	P2	P2
	P2	P2	P2	P3	P3	P3	P3	P4	P4	P4
	P4	P4	P4	P5	P6	P7	P8	P8	P9	P10
	P10	P11	P12	P13	P14	P15	P15	P16	;	
Notes	P1 = 0 P2 (11 characters) VFO A frequency in Hz. Same as FA; P3 (4 characters) Frequency step size expressed in powers of 10 (see ZZST). P4 (6 characters) RIT/XIT frequency (+nnnnn or –nnnnn). P5 (1 character) RIT status. 0 = off, 1 = on. P6 (1 character) XIT status. 0 = off, 1 = on. P7 (1 character) Channel bank number. Not used, defaulted to 0. P8 (2 characters) Channel bank number. Not used, defaulted to 00. P9 (1 character) MOX button status. 0 = off, 1 = on (transmitting). P10 (2 character) Operating mode. See ZZMD for settings. P11 (1 character) VFO Split status. Same as FR (always 0). P12 (1 character) Scan status. Not implemented, defaulted to 0. P13 (1 character) VFO Split status. Same as ZZSP. P14 (1 character) CTCSS tone. Not used, defaulted to 0. P15 (2 characters) More tone controls. Not used, defaulted to 00. P16 (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									

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	**Reserved (Mic pregain deleted in 1.3.13)**									
Get	ZZMG	;								
Set	ZZMG									
Answer	ZZMG									
Notes										

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									

ZZMT Sets or reads the TX Meter mode										
Get	ZZMT	;								
Set	ZZMT	P1	;							
Answer	ZZMT	P1	;							
Notes	P1 Values: 0 = ALC 1 = Forward Power 2 = Peak Power 3 = Reverse Power 4 = SWR (Console must be in TUN mode to set TX meter to SWR) 5 = Off									

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 (Setup DSP tab)										
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.									

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

ZZPL Sets or reads the Speech Compressor threshold (Setup Transmit tab)										
Get	ZZPL	;								
Set	ZZPL	P1	P1	;						
Answer	ZZPL	P1	P1	;						
Notes	P1 = 00 to 20.									

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									

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 SDR-1000 Console Multimeter										
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.									

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 SDR-1000 Squelch control										
Get	ZZSQ	;								
Set	ZZSQ	P1	P1	P1	;					
Answer	ZZSQ	P1	P1	P1	;					
Notes	P1 = 000 to 160.									

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: 0000 = 10e0 = 1 Hz 0001 = 10e1 = 10 Hz 0010 = 10e2 = 100 Hz 0011 = 10e3 = 1 kHz 0100 = 10e4 = 10 kHz 0101 = 10e5 = 100 kHz 0110 = 10e6 = 1 mHz 0111 = 10e7 = 10 mHz ZZST is read-only.									

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. ZZTH does not change the Setup form TX Filter High setting, the SDR-1000 will default to that setting on power up.									

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. ZZTL does not change the Setup form TX Filter Low setting, the SDR-1000 will default to that setting on power up.									

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.									

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])										
Get										
Set	ZZXC	;								
Answer										
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.									

January 3, 2006 Revisions:

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