YAESU
The radio

FTDX3000 SERIA

DZIAŁANIE SYSTEMU CAT

INSTRUKCJA POLECEŃ

Tłumaczenie nie jest profesjonalne i mogą wystąpić błędy.

Istotne fragmenty przetłumaczył na własny użytek na podstawie oryginalnej instrukcji YAESU,

Krzysztof SP5KP.

YAESU MUSEN CO., LTD.

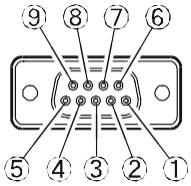
CAT (COMPUTER AIDED TRANSCEIVER) OPERATION

Przegląd

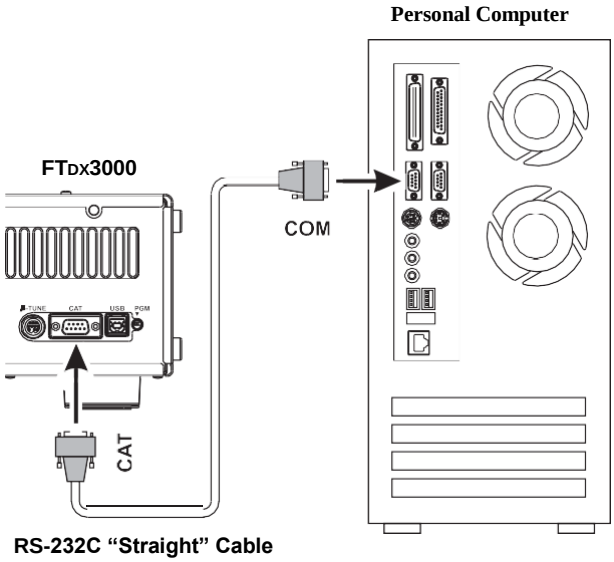
System CAT (Computer Aided Transceiver) w transceiverie FTDX3000 zapewnia kontrolę częstotliwości, VFO, pamięci i innych ustawień, takich jak dwukanałowe pamięci i odbiór różnorodności za pomocą zewnętrznego komputera per-sonal. Dzięki temu wiele operacji sterowania można w pełni zautomatyzować za pomocą pojedynczych kliknięć myszą lub operacji naciśnięcia klawisza na klawiaturze komputera. Za pomocą kabla RS-232C urządzenie nadawczo-odbiorcze FTDX3000 jest wbudowane, umożliwiające bezpośrednie połączenie z gniazda CAT z tylnym panelem do portu szeregowego komputera bez konieczności stosowania jakichkolwiek zewnętrznych skrzynek. W przypadku korzystania z kabla RS-232C ustaw pozycję menu "037 CAT SELECT" na "RS232C". Do podłączenia do złącza RS- 232C (portu szeregowego lub COM) w komputerze potrzebny jest kabel szeregowy. Zakup standardowego kabla szeregowego (nie tak zwanego typu "modemu zerowego"), upewniając się, że ma poprawną płeć i num- ber pinów (niektóre szeregowe złącza portów COM używają konfiguracji 9-pinowej, a nie 25-pinowej). Jeśli komputer używa cus ...

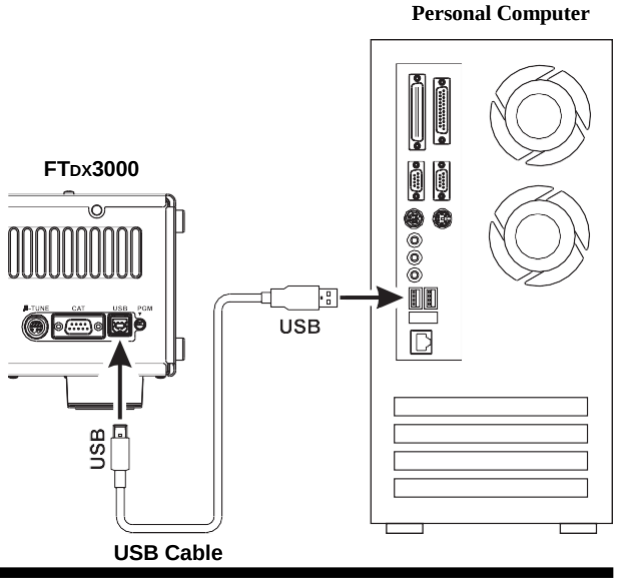
YAESU MUSEN nie produkuje oprogramowania cat system operating ze względu na szeroką gamę komputerów osobistych i systemów operacyjnych w użyciu obecnie. Jak zawsze, informacje zawarte w tym rozdziale wyjaśniają strukturę danych szeregowych i opcodes używane przez system CAT. Informacje te, wraz z krótkimi przykładami pro-gramming, ma na celu pomóc ci rozpocząć pisanie programów na własną rękę. W miarę jak będziesz bardziej zaznajomiony z obsługą CAT, możesz dostosować programy do swoich potrzeb operacyjnych i wykorzystać pełny potencjał operacyjny tego systemu.

Połączenia



PIN NO.	PIN NAME	I/O	Funkcja
☐	N/A	---	---
☐	SERIAL OUT	Output	Wyprowadza dane szeregowe z urządzenia nadawczo-odbiorczego do komputera.
☐	SERIAL IN	Input	Wprowadza dane szeregowe z komputera do urządzenia nadawczo-odbiorczego.
☐	N/A	---	---
☐	GND	---	Signal Ground
☐	N/A	---	---
☐	RTS	Input	Gdy komputer nie jest gotowy do odbierania danych, ten port przechodzi do "L", aby uniemożliwić przesyłanie danych z nadawczo-odbiorcy.
☐	CTS	Output	Gdy urządzenie nadawczo-odbiorcze nie jest gotowe do odbierania danych, ten port przechodzi do "L", aby uniemożliwić przesyłanie danych z komputera.
☐	N/A	---	---





POLECENIE Z KOMPUTER PO CAT

Polecenie sterowania komputerem składa się z polecenia alfabetycznego, różnych parametrów i terminatora, który sygnalizuje koniec polecenia sterowania. Przykład: Ustaw częstotliwość VFO-A na 14.250000 MHz.

FA 14250000 ;

Terminator parametrów polecenia

Istnieją trzy polecenia dla **FTDX3000** patrz ponizej:

Set Polecenie: Ustawianie określonego warunku (to the **FTDX3000**)

Read Polecenie: Odczytuje odpowiedź (from the **FTDX3000**)

Answer Polecenie: Przesyła warunek (from the **FTDX3000**)

Zanotuj na przykład następujący przypadek polecenia ŚT (Ustaw częstotliwość VFO-A):

- Aby ustawić częstotliwość VFO-A na 14,250000 MHz, z komputera do nadawczo-odbiorcy wysyłane jest następujące polecenie: "**FA14250000;**" (Ustaw polecenie)
- Aby odczytać częstotliwość VFO-A, do nadawczo-odbiorcy wysyłane jest następujące polecenie: "FA;" (Polecenie Odczyt)
- Po wysłaniu powyższego polecenia Odczyt do komputera jest zwracane następujące polecenie: "**FA14250000;**" (Odpowiedź, polecenie)

Polecenia alfabetyczne

Polecenie składa się z 2 znaków alfabetycznych.

Można używać wielkich lub wielkich liter. Polecenia dostępne dla tego nadawczo-odbiorcy są wymienione w"Tabele poleceń sterowania pc" na kolejnych stronach.

Parametry

Parametry są używane do określania informacji niezbędnych do wykonania żądanego polecenia.

Parametry, które mają być używane dla każdego polecenia są wstępnie terminowane. Liczba cyfr przypisanych do każdego param- eter jest również z góry określona. Zapoznaj się z "Control Com- mand List" i "Control Command Tables", aby uzyskać odpowiednie parametry.

Podczas konfigurowania parametrów należy uważać, aby nie popełnić następujących błędów.

Na przykład, gdy poprawnym parametrem jest "IS0+1000" (IF SHIFT):

IS01000;
Za mało określonych parametrów (brak kierunku (+) dla zmiany IF)
IS0+100;
Za mało cyfr (podano tylko trzy cyfry częstotliwości)
IS0_+_1000;
Niepotrzebne znaki między parametrami
IS0+10000;
Zbyt wiele cyfr (podano pięć cyfr częstotliwości)

Note: If a particular parameter is not applicable to the **FTDX3000**, the parameter digits should be filled using any character except the ASCII control codes (00 to 1Fh) and the terminator (**;**).

Terminator

Aby zasygnalizować koniec polecenia, konieczne jest użycie średnika (;). Cyfra, w której musi pojawić się ten znak specjalny, różni się w zależności od użytego polecenia.

Polecenia	Funkcja	SET	READ	ANS.	AI
AB	VFO-A TO VFO-B	O	X	X	X
AC	ANTENNA TUNER CONTROL	O	O	O	O
AG	AF GAIN	O	O	O	O
AI	AUTO INFORMATION	O	O	O	X
AM	VFO-A TO MEMORY CHANNEL	O	X	X	X
AN	ANTENNA NUMBER	O	O	O	O
BA	VFO-B TO VFO-A	O	X	X	X
BC	AUTO NOTCH	O	O	O	O
BD	BAND DOWN	O	X	X	X
BI	BREAK-IN	O	O	O	O
BP	MANUAL NOTCH	O	O	O	O
BS	BAND SELECT	O	X	X	X
BU	BAND UP	O	X	X	X
BY	BUSY	X	O	O	O
CH	CHANNEL UP/DOWN	O	X	X	X
CN	CTCSS NUMBER	O	O	O	O
CO	CONTOUR	O	O	O	O
CS	CW SPOT	O	O	O	O
CT	CTCSS	O	O	O	O
DA	DIMMER	O	O	O	X
DN	DOWN	O	X	X	X
ED	ENCORDER DOWN	O	X	X	X
EK	ENT KEY	O	X	X	X
EU	ENCORDER UP	O	X	X	X
EM	ENCODE MEMORY	O	O	O	X
EN	ENCODE	O	X	X	X
EX	MENU	O	O	O	O
FA	FREQUENCY VFO-A	O	O	O	O
FB	FREQUENCY VFO-B	O	O	O	O
FR	FUNCTION RX	O	O	O	O
FS	FAST STEP	O	O	O	O
FT	FUNCTION TX	O	O	O	O
GT	AGC FUNCTION	O	O	O	O
ID	IDENTIFICATION	X	O	O	X
IF	INFORMATION	X	O	O	O
IS	IF-SHIFT	O	O	O	O
KM	KEYER MEMORY	O	O	O	X
KP	KEY PITCH	O	O	O	O
KR	KEYER	O	O	O	O
KS	KEY SPEED	O	O	O	O
KY	CW KEYING	O	X	X	X
LK	LOCK	O	O	O	O
LM	LOAD MESSEGE	O	O	O	X
MA	MEMORY CHANNEL TO VFO-A	O	X	X	X
MC	MEMORY CHANNEL	O	O	O	X
MD	MODE	O	O	O	O
MG	MIC GAIN	O	O	O	O
ML	MONITOR LEVEL	O	O	O	O
MR	MEMORY READ	X	O	O	X
MS	METER SW	O	O	O	O
MW	MEMORY WRITE	O	X	X	X
MX	MOX SET	O	O	O	O
NA	NARROW	O	O	O	O
NB	NOISE BLANKER	O	O	O	O
NL	NOISE BLANKER LEVEL	O	O	O	O
NR	NOISE REDUCTION	O	O	O	O
OI	OPPOSITE BAND NFORMATION	X	O	O	X
OS	OFFSET (Repeater Shift)	O	O	O	O
PA	PRE-AMP (IPO)	O	O	O	O

Polecenia	Funkcja	SET	READ	ANS.	AI
PB	PLAY BACK	O	O	O	X
PC	POWER CONTROL	O	O	O	O
PL	SPEECH PROCESSOR LEVEL	O	O	O	O
PR	SPEECH PROCESSOR	O	O	O	O
PS	POWER SWITCH	O	O	O	X
QI	QMB STORE	O	X	X	X
QR	QMB RECALL	O	X	X	X
QS	QUICK SPLIT	O	X	X	X
RA	RF ATTENUATOR	O	O	O	O
RC	CLAR CLEAR	O	X	X	X
RD	CLAR DOWN	O	X	X	X
RF	ROOFING FILTER	O	O	O	O
RG	RF GAIN	O	O	O	O
RI	RADIO INFORMATION	X	O	O	O
RL	NOISE REDUCTION LEVEL	O	O	O	O
RM	READ METER	X	O	O	X
RO	ROTATOR	O	O	O	O
RS	RADIO STATUS	X	O	O	O
RT	CLAR	O	O	O	O
RU	CLAR UP	O	X	X	X
SC	SCAN	O	O	O	O
SD	SEMI BREAK-IN DELAY TIME	O	O	O	O
SF	SUB-DIAL FUNCTION	O	O	O	O
SH	WIDTH	O	O	O	O
SM	S METER	X	O	O	O
SQ	SQUELCH LEVEL	O	O	O	O
SV	SWAP VFO	O	X	X	X
TS	TXW	O	O	O	O
TX	TX SET	O	O	O	O
UL	UNLOCK	X	O	O	O
UP	UP	O	X	X	X
VD	VOX DELAY TIME	O	O	O	O
VF	uTUNE FILTER	O	O	O	O
VG	VOX GAIN	O	O	O	O
VM	[V/M] KEY FUNCTION	O	X	X	X
VS	VFO SELECT	O	O	O	O
VX	VOX	O	O	O	O
XT	TX CLAR	O	O	O	O

AB	VFO-A TO VFO-B									
Set	1	2	3	4	5	6	7	8	9	10
	A	B	;							
Read	1	2	3	4	5	6	7	8	9	10
Answer	1	2	3	4	5	6	7	8	9	10

AC	ANTENNA TUNER CONTROL									
Set	1	2	3	4	5	6	7	8	9	10
	A	C	P1	P2	P3	;				
Read	1	2	3	4	5	6	7	8	9	10
	A	C	;							
Answer	1	2	3	4	5	6	7	8	9	10
	A	C	P1	P2	P3	;				

P1 0: Fixed
P2 0: Fixed
P3 0: Tuner "OFF"
1: Tuner "ON"
2: Tuning Start

AG	AF GAIN									
Set	1	2	3	4	5	6	7	8	9	10
	A	G	P1	P2	P2	P2	;			
Read	1	2	3	4	5	6	7	8	9	10
	A	G	P1	;						
Answer	1	2	3	4	5	6	7	8	9	10
	A	G	P1	P2	P2	P2	;			

P1 0: Fixed
P2 000 - 255

AI	AUTO INFORMATION									
Set	1	2	3	4	5	6	7	8	9	10
	A	I	P1	;						
Read	1	2	3	4	5	6	7	8	9	10
	A	I	;							
Answer	1	2	3	4	5	6	7	8	9	10
	A	I	P1	;						

P1 0: Auto Information "OFF"
1: Auto Information "ON"

This parameter is set to "0" (OFF) automatically when the transceiver is turned "OFF".

AM	VFO-A TO MEMORY CHANNEL									
Set	1	2	3	4	5	6	7	8	9	10
	A	M	;							
Read	1	2	3	4	5	6	7	8	9	10
Answer	1	2	3	4	5	6	7	8	9	10

AN	ANTENNA NUMBER									
Set	1	2	3	4	5	6	7	8	9	10
	A	N	P1	P2	;					
Read	1	2	3	4	5	6	7	8	9	10
	A	N	P1	;						
Answer	1	2	3	4	5	6	7	8	9	10
	A	N	P1	P3	P4	;				

P1 0: Fixed
P2 1: ANT "1"
2: ANT "2"
3: ANT "3"
P3 1: ANT "1"
2: ANT "2"
3: ANT "3"
P4 0: Fixed

BA	VFO-B TO VFO-A									
Set	1	2	3	4	5	6	7	8	9	10
	B	A	;							
Read	1	2	3	4	5	6	7	8	9	10
Answer	1	2	3	4	5	6	7	8	9	10

BC	AUTO NOTCH									
Set	1	2	3	4	5	6	7	8	9	10
	B	C	P1	P2	;					
Read	1	2	3	4	5	6	7	8	9	10
	B	C	P1	;						
Answer	1	2	3	4	5	6	7	8	9	10
	B	C	P1	P2	;					

P1 0:Fixed
P2 0: Auto Notch "OFF"
1: Auto Notch "ON"

BD	BAND DOWN									
Set	1	2	3	4	5	6	7	8	9	10
	B	D	P1	;						
Read	1	2	3	4	5	6	7	8	9	10
Answer	1	2	3	4	5	6	7	8	9	10

P1 0: Fixed

BI	BREAK-IN										
Set	1	2	3	4	5	6	7	8	9	10	P1 0: Break-in "OFF" 1: Break-in "ON"
	B	I	P1	;							
Read	1	2	3	4	5	6	7	8	9	10	
	B	I	;								
Answer	1	2	3	4	5	6	7	8	9	10	
	B	I	P1	;							

BP	MANUAL NOTCH										
Set	1	2	3	4	5	6	7	8	9	10	P1 0:Fixed P2 0: Manual NOTCH "ON/OFF" 1: Manual NOTCH LEVEL P3 P2=0 000: OFF 001: ON P2=1 001 - 400 (NOTCH Frequency : x 10 Hz)
	B	P	P1	P2	P3	P3	P3	;			
Read	1	2	3	4	5	6	7	8	9	10	
	B	P	P1	P2	;						
Answer	1	2	3	4	5	6	7	8	9	10	
	B	P	P1	P2	P3	P3	P3	;			

BS	BAND SELECT										
Set	1	2	3	4	5	6	7	8	9	10	P1 00: 1.8 MHz 01: 3.5 MHz 02: - - - - 03: 7 MHz 04: 10 MHz 05: 14 MHz 06: 18 MHz 07: 21 MHz 08: 24.5 MHz 09: 28 MHz 10: 50 MHz 11: GEN
	B	S	P1	P1	;						
Read	1	2	3	4	5	6	7	8	9	10	
Answer	1	2	3	4	5	6	7	8	9	10	

BU	BAND UP										
Set	1	2	3	4	5	6	7	8	9	10	P1 0: Fixed
	B	U	P1	;							
Read	1	2	3	4	5	6	7	8	9	10	
Answer	1	2	3	4	5	6	7	8	9	10	

BY	BUSY										
Set	1	2	3	4	5	6	7	8	9	10	P1 0: RX BUSY "OFF" 1: RX BUSY "ON" P2 0: Fixed
Read	1	2	3	4	5	6	7	8	9	10	
	B	Y	;								
Answer	1	2	3	4	5	6	7	8	9	10	
	B	Y	P1	P2	;						

CH	CHANNEL UP/DOWN										
Set	1	2	3	4	5	6	7	8	9	10	P1 0: Memory Channel "UP" 1: Memory Channel "DOWN"
	C	H	P1	;							
Read	1	2	3	4	5	6	7	8	9	10	
Answer	1	2	3	4	5	6	7	8	9	10	

CN	CTCSS TONE FREQUENCY										
Set	1	2	3	4	5	6	7	8	9	10	P1 0: Fixed P2 0 - 49: Tone Frequency Number (See Table 1)
	C	N	P1	P2	P2	;					
Read	1	2	3	4	5	6	7	8	9	10	
	C	N	P1	;							
Answer	1	2	3	4	5	6	7	8	9	10	
	C	N	P1	P2	P2	;					

CO	CONTOUR										
Set	1	2	3	4	5	6	7	8	9	10	P1 0:Fixed P2 0:CONTOUR/APF "ON/OFF" 1: CONTOUR FREQ 2: APF FREQ P3 P2=000: CONTOUR/APF "OFF" 01: CONTOUR "ON" 02: APF "ON" P2=1 01 - 40 (CONTOUR Frequency 100 4000Hz) P2=2 00 - 20 (APF Frequency : −250 250Hz)
	C	O	P1	P2	P3	P3	;				
Read	1	2	3	4	5	6	7	8	9	10	
	C	O	P1	P2	;						
Answer	1	2	3	4	5	6	7	8	9	10	
	C	O	P1	P2	P3	P3	;				

CS	CW SPOT										
Set	1	2	3	4	5	6	7	8	9	10	P1 0: OFF 1: ON
	C	S	P1	;							
Read	1	2	3	4	5	6	7	8	9	10	
	C	S	;								
Answer	1	2	3	4	5	6	7	8	9	10	
	C	S	P1	;							

CT	CTCSS									
Set	1	2	3	4	5	6	7	8	9	10
	C	T	P1	P2	;					
Read	1	2	3	4	5	6	7	8	9	10
	C	T	P1	;						
Answer	1	2	3	4	5	6	7	8	9	10
	C	T	P1	P2	;					

P1 0: Fixed
P2 0: CTCSS "OFF"
1: CTCSS ENC/DEC "ON"
2: CTCSS ENC "ON"

TABLE 1

TABLE 1 (CTCSS TONE CHART)

00	67.0 Hz	09	91.5 Hz	18	123.0 Hz	27	162.2 Hz	36	189.9 Hz	45	229.1 Hz
01	69.3 Hz	10	94.8 Hz	19	127.3 Hz	28	165.5 Hz	37	192.8 Hz	46	233.6 Hz
02	71.9 Hz	11	97.4 Hz	20	131.8 Hz	29	167.9 Hz	38	196.6 Hz	47	241.8 Hz
03	74.4 Hz	12	100.0 Hz	21	136.5 Hz	30	171.3 Hz	39	199.5 Hz	48	250.3 Hz
04	77.0 Hz	13	103.5 Hz	22	141.3 Hz	31	173.8 Hz	40	203.5 Hz	49	254.1 Hz
05	79.7 Hz	14	107.2 Hz	23	146.2 Hz	32	177.3 Hz	41	206.5 Hz	---	---
06	82.5 Hz	15	110.9 Hz	24	151.4 Hz	33	179.9 Hz	42	210.7 Hz	---	---
07	85.4 Hz	16	114.8 Hz	25	156.7 Hz	34	183.5 Hz	43	218.1 Hz	---	---
08	88.5 Hz	17	118.8 Hz	26	159.8 Hz	35	186.2 Hz	44	225.7 Hz	---	---

DA	DIMMER									
Set	1	2	3	4	5	6	7	8	9	10
	D	A	P1	P1	P2	P2	P3	P3	;	
Read	1	2	3	4	5	6	7	8	9	10
	D	A	;							
Answer	1	2	3	4	5	6	7	8	9	10
	D	A	P1	P1	P2	P2	P3	P3	;	

P1 00 - 15: VFO-A Display Brightness Level
P2 00 - 15: Keypad Brightness Level
P3 00 - 15: TFT Display Brightness Level

DN	MIC DWN									
Set	1	2	3	4	5	6	7	8	9	10
	D	N	;							
Read	1	2	3	4	5	6	7	8	9	10
Answer	1	2	3	4	5	6	7	8	9	10

ED	ENCORDER DOWN									
Set	1	2	3	4	5	6	7	8	9	10
	E	D	P1	P2	P2	;				
Read	1	2	3	4	5	6	7	8	9	10
Answer	1	2	3	4	5	6	7	8	9	10

P1 0: MAIN ENCORDER
1: SUB ENCORDER
4: MIC/SPEED ENCORDER
5: PROC/CAR ENCORDER
6: NOTCH ENCORDER
7: CONT ENCORDER
P2 01-99: Steps

EK	ENT KEY									
Set	1	2	3	4	5	6	7	8	9	10
	E	K	;							
Read	1	2	3	4	5	6	7	8	9	10
Answer	1	2	3	4	5	6	7	8	9	10

EU	ENCORDER UP									
Set	1	2	3	4	5	6	7	8	9	10
	E	U	P1	P2	P2	;				
Read	1	2	3	4	5	6	7	8	9	10
Answer	1	2	3	4	5	6	7	8	9	10

P1 0: MAIN ENCORDER
1: SUB ENCORDER
4: MIC ENCORDER
5: PROC ENCORDER
6: NOTCH ENCORDER
7: CONT ENCORDER
P2 01-99: Steps

EX	MENU									
Set	1	2	3	4	5	6	7	8	nn	**
	E	X	P1	P1	P1	P2	P2	~	P2	;
Read	1	2	3	4	5	6	7	8	9	10
	E	X	P1	P1	P1	;				
Answer	1	2	3	4	5	6	7	8	nn	**
	E	X	P1	P1	P1	P2	P2	~	P2	;

P1 : 001-196 (MENU Number)
P2 : Parameter (See Table 2 and Table 4)

TABLE 2

P1	FUNCTION	P2
001	AGC FAST-DELAY	20 ~ 4000 msec (20 msec/step)
002	AGC MID DELAY	20 ~ 4000 msec (20 msec/step)
003	AGC SLOW DELAY	20 ~ 4000 msec (20 msec/step)
004	AGC AGC SLOPE	0: NORMAL 1: SLOPE
005	DISPLAY MY CALL	Max 12 characters
006	DISPLAY MY CALL TIME	0 ~ 5sec
007	DISPLAY DIMMER VFO	0 ~ 15
008	DISPLAY DIMMER BACKLIGHT	0: 1 1: 2
009	DISPLAY DIMMER TFT	0 ~ 15
010	DISPLAY BAR DISPLAY SELECT	0: CLAR 1: CW TUNE 2: uTUNE
011	DISPLAY METER TYPE SELECT	0: ANALOG 1: BAR
012	DISPLAY BAR MTR PEAK HOLD	0: OFF 1: 0.5 sec 2: 1.0 sec 3: 2.0 sec
013	DISPLAY ROTATOR START UP	0: 0° 1: 90° 2: 180° 3: 270°
014	DISPLAY ROTATOR OFFSET ADJ	-30° ~ 0° (P2=30 ~ 00, 2° step)
015	DVS RX OUT LEVEL	0 ~ 100
016	DVS TX OUT LEVEL	0 ~ 100
017	KEYER F KEYER TYPE	0: OFF 1: BUG 2: ELEKEY 3: ACS
018	KEYER F CW KEYER	0: NORNAL 1: REVERSE
019	KEYER R KEYER TYPE	0: OFF 1: BUG 2: ELEKEY 3: ACS
020	KEYER F CW KEYER	0: NORNAL 1: REVERSE
021	KEYER ELEKEY TYPE	0: ELEKEY-A 1: ELEKEY-B
022	KEYER CW WEIGHT	25 (1:2.5) ~ 45 (1:4.5)
023	KEYER BEACON TIME	OFF/1 ~ 690sec (0: OFF)
024	KEYER NUMBER STYLE	0: 1290 1: AUNO 2: AUNT 3: A2NO 4: A2NT 5: 12NO 6: 12NT
025	KEYER CONTEST NUMBER	0000 ~ 9999
026	KEYER CW MEMORY 1	0: TEXT 1: MESSAGE
027	KEYER CW MEMORY 2	0: TEXT 1: MESSAGE
028	KEYER CW MEMORY 3	0: TEXT 1: MESSAGE
029	KEYER CW MEMORY 4	0: TEXT 1: MESSAGE
030	KEYER CW MEMORY 5	0: TEXT 1: MESSAGE
031	GENERAL ANT SELECT	0: BAND 1: STACK
032	GENERAL ANT3 SETTING	0: TRX 1: R3/1 2: R3/2
033	GENERAL NB LEVEL	000 ~ 100
034	GENERAL BEEP LEVEL	000 ~ 100
035	GENERAL MONITOR LEVEL	000 ~ 100
036	GENERAL RF/SQL VR	0: RF 1: SQL
037	GENERAL CAT SELECT	0: RS232C 1: USB
038	GENERAL CAT RATE	0: 4800 bps 1: 9600 bps 2: 19200 bps 3: 38400 bps
039	GENERAL CAT TIME OUT TIMER	0: 10 msec 1: 100 msec 2: 1000 msec 3: 3000 msec
040	GENERAL CAT RTS	0: DISABLE 1: ENABLE
041	GENERAL MEM GROUP	0: DISABLE 1: ENABLE
042	GENERAL QUICK SPLIT FREQ	−20 ~ +00 (or −00) ~ +20 kHz
043	GENERAL TX TIME OUT TIMER	00 (OFF) ~ 30 min
044	GENERAL µTUNE DIAL STEP	0: DIAL STEP-2 1: DIAL STEP-1
045	GENERAL MIC SCAN	0: DISABLE 1: ENABLE
046	GENERAL SCAN RESUME	0 PAUSE 1: TIME
047	GENERAL FREQ ADJ	−25 ~ +00 (or −00) ~ +25
048	MODE-AM AM LCUT FREQ	00: OFF 1: 100Hz ~ 19: 1000Hz (50Hz steps)
049	MODE-AM AM LCUT SLOPE	0: 6dB/oct 1: 18dB/oct
050	MODE-AM AM HCUT FREQ	00: OFF 01: 700Hz ~ 67: 4000Hz (50Hz steps)
051	MODE-AM AM HCUT SLOPE	0: 6dB/oct 1: 18dB/oct
052	MODE-AM AM MIC GAIN	MCVR/FIX(0 ~ 100) (P2 = 1000: MCVR, 0000 ~ 0100: FIX(0 ~ 100))
053	MODE-AM AM MIC SEL	0: FRONT 1: DATA 2: USB
054	MODE-CW CW PITCH	00: 300 01: 350 ~ 14: 1000 15: 1050Hz (50Hz steps)
055	MODE-CW CW LCUT FREQ	00: OFF 1: 100Hz ~ 19: 1000Hz (50Hz steps)
056	MODE-CW CW LCUT SLOPE	0: 6dB/oct 1: 18dB/oct
057	MODE-CW CW HCUT FREQ	00: OFF 01: 700Hz ~ 67: 4000Hz (50Hz steps)
058	MODE-CW CW HCUT SLOPE	0: 6dB/oct 1: 18dB/oct
059	MODE-CW CW AUTO MODE	0: OFF 1: 50 MHz 2: ON
060	MODE-CW CW BFO	0: USB 1: LSB 2: AUTO
061	MODE-CW CW BK-IN	0: SEMI BREAK-IN 1: FULL BREAK-IN
062	MODE-CW CW BK-IN DELAY	30 ~ 3000 msec (10 msec/step)
063	MODE-CW CW WAVE SHAPE	0: 1 1: 2 2: 4 3: 6 msec
064	MODE-CW CW FREQ DISPLAY	0: DIRECT FREQ 1: PITCH OFFSET
065	MODE-CW PC KEYING	0: OFF 1: ON
066	MODE-CW QSK	0: 15 msec 1: 20 msec 2: 25 mesc 3: 30 msec
067	MODE-DATA DATA MODE	0: PSK 1: OTHER
068	MODE-DATA DATA TONE	0: 1000 1: 1500 2: 2000Hz
069	MODE-DATA OTHER DISP (SSB)	-3000 ~ 0 ~ +3000Hz (10Hz steps) (P2 = -3000 ~ x0000 ~ +3000)
070	MODE-DATA OTHER SHIFT (SSB)	-3000 ~ 0 ~ +3000Hz (10Hz steps) (P2 = -3000 ~ x0000 ~ +3000)
071	MODE-DATA DATA LCUT FREQ	00: OFF 1: 100Hz ~ 19: 1000Hz (50Hz steps)
072	MODE-DATA DATA LCUT SLOPE	0: 6dB/oct 1: 18dB/oct
073	MODE-DATA DATA HCUT FREQ	00: OFF 01: 700Hz ~ 67: 4000Hz (50Hz steps)
074	MODE-DATA DATA HCUT SLOPE	0: 6dB/oct 1: 18dB/oct
075	MODE-DATA DATA IN SELECT	0: DATA 1: USB
076	MODE-DATA DATA MIC GAIN	MCVR/FIX(0 ~ 100) (P2 = 1000: MCVR, 0000 ~ 0100: FIX(0 ~ 100))
077	MODE-DATA DATA OUT LEVEL	0 ~ 100
078	MODE-DATA DATA VOX GAIN	000 ~ 100
079	MODE-DATA DATA VOX DELEY	30 ~ 300 ~ 3000 msec (10 msec/step)
080	MODE-FM FM LCUT FREQ	00: OFF 1: 100Hz ~ 19: 1000Hz (50Hz steps)
081	MODE-FM FM LCUT SLOPE	0: 6dB/oct 1: 18dB/oct
082	MODE-FM FM HCUT FREQ	00: OFF 01: 700Hz ~ 67: 4000Hz (50Hz steps)
083	MODE-FM FM HCUT SLOPE	0: 6dB/oct 1: 18dB/oct
084	MODE-FM FM MIC GAIN	MCVR/FIX(0 ~ 100) (P2 = 1000: MCVR, 0000 ~ 0100: FIX(0 ~ 100))
085	MODE-FM FM MIC SEL	0: FRONT 1: DATA 2: USB
086	MODE-FM RPT SHIFT(28MHz)	0 ~ 100 ~ 1000 kHz (10 kHz/step)
087	MODE-FM RPT SHIFT(50MHz)	0 ~ 100 ~ 1000 ~ 4000 kHz (10 kHz/step)
088	MODE-FM TONE FREQ	67.0 ~ 254 Hz
089	MODE-RTY RTTY LCUT FREQ	00: OFF 1: 100Hz ~ 19: 1000Hz (50Hz steps)
090	MODE-RTY RTTY LCUT SLOPE	0: 6dB/oct 1: 18dB/oct

TABLE 3

P1	FUNCTION	P2
091	MODE-RTY RTTY HCUT FREQ	00: OFF 01: 700Hz ~ 67: 4000Hz (50Hz steps)
092	MODE-RTY RTTY HCUT SLOPE	0: 6dB/oct 1: 18dB/oct
093	MODE-RTY RTTY SHIFT PORT	0: REAR 1: USB
094	MODE-RTY RTTY POLARITY-R	0: NOR 1: REV
095	MODE-RTY RTTY POLARITY-T	0: NOR 1: REV
096	MODE-RTY RTTY OUT LEVEL	0 ~ 100
097	MODE-RTY RTTY SHIFT	1: 170 Hz 1: 200 Hz 2: 425 Hz 3: 850 Hz
098	MODE-RTY RTTY MARK FREQ	1: 1275 Hz 2: 2125 Hz
099	MODE-SSB SSB LCUT FREQ	00: OFF 1: 100Hz ~ 19: 1000Hz (50Hz steps)
100	MODE-SSB SSB LCUT SLOPE	0: 6dB/oct 1: 18dB/oct
101	MODE-SSB SSB HCUT FREQ	00: OFF 01: 700Hz ~ 67: 4000Hz (50Hz steps)
102	MODE-SSB SSB HCUT SLOPE	0: 6dB/oct 1: 18dB/oct
103	MODE-SSB SSB MIC SEL	0: FRONT 1: DATA 2: USB
104	MODE-SSB SSB TX BPF	0: 50 ~ 3000 1: 100 ~ 2900 2: 200 ~ 2800 3: 300 ~ 2700 4: 400 ~ 2600 (Hz) 5: 3000WB
105	MODE-SSB LSB RX CARRIER	-200Hz ~ 0 ~ +200Hz (10Hz steps) (P2= -200 ~ x000 ~ +200)
106	MODE-SSB USB RX CARRIER	-200Hz ~ 0 ~ +200Hz (10Hz steps) (P2= -200 ~ x000 ~ +200)
107	RX DSP APF WIDTH	0: NARROW 1: MEDIUM 2: WIDE
108	RX DSP CONTOUR LEVEL	–40 ~ 0 ~ +20 (P2= –40 ~ x00 ~ +20)
109	RX DSP CONTOUR WIDTH	01 ~ 11
110	RX DSP DNR LEVEL	1 ~ 15
111	RX DSP IF NOTCH WIDTH	0: NARROW 1: WIDE
112	RX DSP HF CW SHAPE	0: SOFT 1: SHARP
113	RX DSP HF CW SLOPE	0: STEEP 1: MEDIUM 2: GENTLE
114	RX DSP 6M CW SHAPE	0: SOFT 1: SHARP
115	RX DSP 6M CW SLOPE	0: STEEP 1: MEDIUM 2: GENTLE
116	RX DSP HF PSK SHAPE	0: SOFT 1: SHARP
117	RX DSP HF PSK SLOPE	0: STEEP 1: MEDIUM 2: GENTLE
118	RX DSP HF FSK SHAPE	0: SOFT 1: SHARP
119	RX DSP HF FSK SLOPE	0: STEEP 1: MEDIUM 2: GENTLE
120	RX DSP HF SSB SHAPE	0: SOFT 1: SHARP
121	RX DSP HF SSB SLOPE	0: STEEP 1: MEDIUM 2: GENTLE
122	RX DSP 6M SSB SHAPE	0: SOFT 1: SHARP
123	RX DSP 6M SSB SLOPE	0: STEEP 1: MEDIUM 2: GENTLE
124	SCOPE SCPE MODE	0: CENTER 1: CENTER-WF 2: FIX 3: FIX-WF
125	SCOPE SCPE SPEED	0: FAST 1: SLOW
126	SCOPE SCPE AUTO TIME	0: OFF 1: 3 2: 5 3: 10 4: 30 5: 60 (sec)
127	SCOPE START DIAL SPEED	0: 0.5k 1: 1k 2: 2k 3: 4k 4: 8k 5: 16k
128	SCOPE SPAN FREQ	0: 20k 1: 50k 2: 100k 3: 200k 4: 500k 5: 1000k
129	SCOPE FIX 1.8MHz	1.800MHz ~ 1.999MHz (1kHz steps)
130	SCOPE FIX 1.8MHz SPAN	2: 20k 3: 50k 4: 100k 5: 200k 6: 500k 7: 1000kHz
131	SCOPE FIX 3.5MHz	3.500MHz ~ 3.999MHz (1kHz steps)
132	SCOPE FIX 3.5MHzSPAN	2: 20k 3: 50k 4: 100k 5: 200k 6: 500k 7: 1000kHz
133	SCOPE FIX 5.0MHz	5.250MHz ~ 5.499MHz (1kHz steps)
134	SCOPE FIX 5.0MHz SPAN	2: 20k 3: 50k 4: 100k 5: 200k 6: 500k 7: 1000kHz
135	SCOPE FIX 7.0MHz	7.000MHz ~ 7.299MHz (1kHz steps)
136	SCOPE FIX 7.0MHz SPAN	2: 20k 3: 50k 4: 100k 5: 200k 6: 500k 7: 1000kHz
137	SCOPE FIX 10MHz	10.100MHz ~ 10.149MHz (1kHz steps)
138	SCOPE FIX 10MHz SPAN	2: 20k 3: 50k 4: 100k 5: 200k 6: 500k 7: 1000kHz
139	SCOPE FIX 14MHz	14.000MHz ~ 14.3499Hz (1kHz steps)
140	SCOPE FIX 14MHz SPAN	2: 20k 3: 50k 4: 100k 5: 200k 6: 500k 7: 1000kHz
141	SCOPE FIX 18MHz	18.000MHz ~ 18.199MHz (1kHz steps)
142	SCOPE FIX 18MHzSPAN	2: 20k 3: 50k 4: 100k 5: 200k 6: 500k 7: 1000kHz
143	SCOPE FIX 21MHz	21.000MHz ~ 21.449MHz (1kHz steps)
144	SCOPE FIX 21MHz SPAN	2: 20k 3: 50k 4: 100k 5: 200k 6: 500k 7: 1000kHz
145	SCOPE FIX 24MHz	24.800MHz ~ 24.989MHz (1kHz steps)
146	SCOPE FIX 24MHz SPAN	2: 20k 3: 50k 4: 100k 5: 200k 6: 500k 7: 1000kHz
147	SCOPE FIX 28MHz	28.000MHz ~ 29.699MHz (1kHz steps)
148	SCOPE FIX 28MHz SPAN	2: 20k 3: 50k 4: 100k 5: 200k 6: 500k 7: 1000kHz
149	SCOPE FIX 50MHz	50.000MHz ~ 53.999MHz (1kHz steps)
150	SCOPE FIX 50MHzSPAN	2: 20k 3: 50k 4: 100k 5: 200k 6: 500k 7: 1000kHz
151	TUNING CW DIAL STEP	0: 1 1: 5Hz 2: 10Hz
152	TUNING DATA DIAL STEP	0: 1 1: 5Hz 2: 10Hz
153	TUNING AM/FM DIAL STEP	0: 10 1: 100Hz
154	TUNING RTTY DIAL STEP	0: 1 1: 5Hz 2: 10Hz
155	TUNING SSB DIAL STEP	0: 1 1: 5Hz 2: 10Hz
156	TUNING AM CH STEP	0: 2.5 1: 5 2: 9 3: 10 4: 12.5kHz
157	TUNING FM CH STEP	0: 2.5 1: 6.25 2: 10 3: 12.5 4: 20 5: 25kHz
158	TUNING 1MHz/100kHz SELECT	0: 1MHz 1: 100kHz
159	TX AUDIO PRMTRC EQ1 FREQ	1: 100 2: 200 3: 300 4: 400 5: 500 6: 600 7: 700
160	TX AUDIO PRMTRC EQ1 LEVEL	-20 ~ 0 ~ +10 (P2 = -20 ~ x00 ~ +10)
161	TX AUDIO PRMTRC EQ1 BWTH	1 ~ 10
162	TX AUDIO PRMTRC EQ2 FREQ	1: 700 2: 800 3: 900 4: 1000 5: 1100 6: 1200 7: 1300 8: 1400 9: 1500
163	TX AUDIO PRMTRC EQ2 LEVEL	-20 ~ 0 ~ +10 (P2 = -20 ~ x00 ~ +10)
164	TX AUDIO PRMTRC EQ2 BWTH	1 ~ 10
165	TX AUDIO PRMTRC EQ3 FREQ	1: 1500 2: 1600 3: 1700 4: 1800 5: 1900 6: 2000 18: 3200
166	TX AUDIO PRMTRC EQ3 LEVEL	-20 ~ 0 ~ +10 (P2 = -20 ~ x00 ~ +10)
167	TX AUDIO PRMTRC EQ3 BWTH	1 ~ 10
168	TX AUDIO P-PRMTRC EQ1 FREQ	1: 100 2: 200 3: 300 4: 400 5: 500 6: 600 7: 700
169	TX AUDIO P-PRMTRC EQ1 LEVEL	-20 ~ 0 ~ +10 (P2 = -20 ~ x00 ~ +10)
170	TX AUDIO P-PRMTRC EQ1 BWTH	1 ~ 10
171	TX AUDIO P-PRMTRC EQ2 FREQ	1: 700 2: 800 3: 900 4: 1000 5: 1100 6: 1200 7: 1300 8: 1400 9: 1500
172	TX AUDIO P-PRMTRC EQ2 LEVEL	-20 ~ 0 ~ +10 (P2 = -20 ~ x00 ~ +10)
173	TX AUDIO P-PRMTRC EQ2 BWTH	1 ~ 10
174	TX AUDIO P-PRMTRC EQ3 FREQ	1: 1500 2: 1600 3: 1700 4: 1800 5: 1900 6: 2000 18: 3200
175	TX AUDIO P-PRMTRC EQ3 LEVEL	-20 ~ 0 ~ +10 (P2 = -20 ~ x00 ~ +10)
176	TX AUDIO P-PRMTRC EQ3 BWTH	1 ~ 10
177	TX GNRL TX PWR/PROC CONTROL	0: TX PWR 1: PROC
178	TX GNRL EXT AMP TUNING PWR	0: 10 1: 20 2: 50 3: 100
179	TX GNRL TUNER SELECT	0: INTERNAL 1: EXTERNAL
180	TX GNRL VOX SELECT	0: MIC 1: DATA

TABLE 4

P1	FUNCTION	P2
181	TX GNRL VOX GAIN	0 ~ 100
182	TX GNRL VOX DELAY	30 ~ 300 ~ 3000 msec (10 msec/step)
183	TX GNRL ANTI VOX GAIN	0 ~ 100
184	TX GNRL EMERGENCY FREQ TX	0: DISABLE 1: ENABLE
185	AF SCOPE FFT DISPLAY MODE	0: SPECTRUM 1: WATER FALL 2: SPECTRUM-WF
186	AF SCOPE FFT ATT	0: 0 1: 10 2: 20 dB
187	DEC CW CW DECODE BW	0: 25 1: 50 2: 100 3: 250Hz
188	E/D RTTY RX USOS	0: DISABLE 1: ENABLE
189	E/D RTTY TX USOS	0: DISABLE 1: ENABLE
190	E/D RTTY RX NEW LINE CODE	0: CR, LF, CR+L 1: CR+LF
191	E/D RTTY TX AUTO CR+LF	0: DISABLE 1: ENABLE
192	E/D RTTY TX DIDDLE	0: OFF 1: BLANK 2: LTRS
193	E/D RTTY BAUDOT CODE	0: CCIT 1: US
194	E/D PSK PSK MODE	0: BPSK 1: QPSK
195	E/D PSK DECODE AFC RANGE	0: ±8 1: ±15 2: ±30
196	E/D PSK QPSK POLARITY REV	0: RX-N, TX-N 1: RX-R, TX-N 2: RX-N, TX-R 3: RX-R, TX-R

EM	**ENCODE MEMORY**										
Set	1	2	3	4	5	6	7	~	54	55	P1 0: RTTY 1: PSK P2: 1 - 5 : Memory Channel P3: Message Characters (up to 50 characters)
	E	**M**	P1	P2	P3	P3	P3	~	P3	;	
Read	1	2	3	4	5	6	7	8	9	10	
	E	**M**	P1	P2	;						
Answer	1	2	3	4	5	6	7	~	54	55	
	E	**M**	P1	P2	P3	P3	P3	~	P3	;	

EN	**ENCODE**										
Set	1	2	3	4	5	6	7	~	54	55	P1 0: RTTY 1: PSK P2: 1: Message Memory "1" Playback 2: Message Memory "2" Playback 3: Message Memory "3" Playback 4: Message Memory "4" Playback 5: Message Memory "5" Playback
	E	**N**	P1	P2	;						
Read	1	2	3	4	5	6	7	8	9	10	
Answer	1	2	3	4	5	6	7	~	54	55	

FA	**FREQUENCY VFO-A**										
Set	1	2	3	4	5	6	7	8	9	10	P1 0030000 - 60000000 (Hz)
	F	**A**	P1	P1	P1	P1	P1	P1	P1	P1	
	11	12	13	14	15	16	17	18	19	20	
	;										
Read	1	2	3	4	5	6	7	8	9	10	
	F	**A**	;								
Answer	1	2	3	4	5	6	7	8	9	10	
	F	**A**	P1	P1	P1	P1	P1	P1	P1	P1	
	11	12	13	14	15	16	17	18	19	20	
	;										

FB	**FREQUENCY VFO-B**										
Set	1	2	3	4	5	6	7	8	9	10	P1 0030000 - 60000000 (Hz)
	F	**B**	P1	P1	P1	P1	P1	P1	P1	P1	
	11	12	13	14	15	16	17	18	19	20	
	P1	P1	P1	;							
Read	1	2	3	4	5	6	7	8	9	10	
	F	**B**	;								
Answer	1	2	3	4	5	6	7	8	9	10	
	F	**B**	P1	P1	P1	P1	P1	P1	P1	P1	
	11	12	13	14	15	16	17	18	19	20	
	P1	P1	P1	;							

FR	**FUNCTION RX**										
Set	1	2	3	4	5	6	7	8	9	10	P1 0: VFO-A Band Receiver: "RX", VFO-B Band Receiver: "OFF" 1: VFO-A Band Receiver: "Mute", VFO-B Band Receiver: "OFF" 4: VFO-A Band Receiver: "OFF", VFO-B Band Receiver: "RX" 5: VFO-A Band Receiver: "OFF", VFO-B Band Receiver: "Mute"
	F	**R**	P1	;							
Read	1	2	3	4	5	6	7	8	9	10	
	F	**R**	;								
Answer	1	2	3	4	5	6	7	8	9	10	
	F	**R**	P1	;							

FS	**FAST STEP**										
Set	1	2	3	4	5	6	7	8	9	10	P1 0: VFO-A FAST Key "OFF" 1: VFO-A FAST Key "ON" 2: VFO-B FAST Key "OFF" 3: VFO-B FAST Key "ON" 4: VFO-A FAST Key "OFF", VFO-B FAST Key "OFF" 5: VFO-A FAST Key "ON", VFO-B FAST Key "OFF" 6: VFO-A FAST Key "OFF", VFO-B FAST Key "ON" 7: VFO-A FAST Key "ON", VFO-B FAST Key "ON"
	F	**S**	P1	;							
Read	1	2	3	4	5	6	7	8	9	10	
	F	**S**	;								
Answer	1	2	3	4	5	6	7	8	9	10	
	F	**S**	P1	;							

FT — FUNCTION TX

	1	2	3	4	5	6	7	8	9	10
Set	F	T	P1	;						
Read	F	T	;							
Answer	F	T	P2	;						

P1 0: VFO-A Band: TX/RX (Toggle)
1: VFO-B Band: TX/RX (Toggle)
2: VFO-A Band Transmitter: TX
3: VFO-B Band Transmitter: TX
P2 0: VFO-A Band Transmitter: TX
1: VFO-B Band Transmitter: TX

GT — AGC FUNCTION

	1	2	3	4	5	6	7	8	9	10
Set	G	T	P1	P2	;					
Read	G	T	P1	;						
Answer	G	T	P1	P3	;					

P1 0: Fixed
P2 0: AGC "OFF"
1: AGC "FAST"
2: AGC "MID"
3: AGC "SLOW"
4: AGC "AUTO"

P3 0: AGC "OFF"
1: AGC "FAST"
2: AGC "MID"
3: AGC "SLOW"
4: AGC "AUTO-FAST"
5: AGC "AUTO-MID"
6: AGC "AUTO-SLOW"

ID — IDENTIFICATION

	1	2	3	4	5	6	7	8	9	10
Set										
Read	I	D	;							
Answer	I	D	P1	P1	P1	P1	;			

P1 0462: FTDX3000

IF — INFORMATION

	1	2	3	4	5	6	7	8	9	10
Set										
Read	I	F	;							
Answer	I	F	P1	P1	P1	P2	P2	P2	P2	P2
	11	12	13	14	15	16	17	18	19	20
	P2	P2	P2	P3	P3	P3	P3	P3	P4	P5
	21	22	23	24	25	26	27	28	29	30
	P6	P7	P8	P9	P9	P10	;			

P1 000-117 (Memory Channel) P2 VFO-A Frequency (Hz)
P3 Clarifier Direction +: Plus Shift, -: Minus Shift
Clarifier Offset: 0000 - 9999 (Hz)
P4 0: RX CLAR "OFF" 1: RX CLAR "ON"
P5 0: TX CLAR "OFF" 1: TX CLAR "ON"
P6 MODE 1: LSB 2: USB 3: CW 4: FM 5: AM 6: FSK (RTTY-LSB)
7: CW-R 8: PKT-L 9: FSK-R (RTTY-USB) A: PKT-FM
B: FM-N C: PKT-U
P7 0: VFO 1: Memory 2: Memory Tune 3: Quick Memory Bank (QMB) 4: QMB-MT
P8 0: CTCSS "OFF" 1: CTCSS ENC/DEC 2: CTCSS ENC
P9: 00 (Fixed)
P10 0: Simplex 1: Plus Shift 2: Minus Shift

IS — IF-SHIFT

	1	2	3	4	5	6	7	8	9	10
Set	I	S	P1	-/+	P2	P2	P2	P2	;	
Read	I	S	P1	;						
Answer	I	S	P1	-/+	P2	P2	P2	P2	;	

P1 0:Fixed
P2: --1000 ~ +1000 Hz

KM — KEYER MEMORY

	1	2	3	4	5	6	7	~	53	**
Set	K	M	P1	P2	P2	P2	P2	~	P2	;
Read	K	M	P1	;						
Answer	K	M	P1	P2	P2	P2	P2	~	P2	;

P1 1 - 5 : Keyer Memory Channel Number
P2: Message Characters (up to 50 characters)

KP — KEY PITCH

	1	2	3	4	5	6	7	8	9	10
Set	K	P	P1	P1	;					
Read	K	P	;							
Answer	K	P	P1	P1	;					

P1 00: 300 Hz - 75: 1050 Hz (10Hz steps)

KR — KEYER

	1	2	3	4	5	6	7	8	9	10
Set	K	R	P1	;						
Read	K	R	;							
Answer	K	R	P1	;						

P1 0: KEYER "OFF"
1: KEYER "ON"

KS KEY SPEED

	1	2	3	4	5	6	7	8	9	10
Set	K	S	P1	P1	P1	;				
Read	K	S	;							
Answer	K	S	P1	P1	P1	;				

P1 004 - 060 (WPM)

KY CW KEYING

	1	2	3	4	5	6	7	8	9	10
Set	K	Y	P1	;						
Read										
Answer										

P1 1: Keyer Memory "1" Playback
2: Keyer Memory "2" Playback
3: Keyer Memory "3" Playback
4: Keyer Memory "4" Playback
5: Keyer Memory "5" Playback
6: Message Keyer "1" Playback
7: Message Keyer "2" Playback
8: Message Keyer "3" Playback
9: Message Keyer "4" Playback
A: Message Keyer "5" Playback

LK LOCK

	1	2	3	4	5	6	7	8	9	10
Set	L	K	P1	;						
Read	L	K	;							
Answer	L	K	P1	;						

P1 0: VFO-A DIAL Lock "OFF"
1: VFO-A DIAL Lock "ON"
2: VFO-B DIAL Lock "OFF"
3: VFO-B DIAL Lock "ON"
4: VFO-A DIAL Lock "OFF", VFO-B DIAL Lock "OFF"
5: VFO-A DIAL Lock "ON", VFO-B DIAL Lock "OFF"
6: VFO-A DIAL Lock "OFF", VFO-B DIAL Lock "ON"
7: VFO-A DIAL Lock "ON", VFO-B DIAL Lock "ON"

LM LOAD MESSEGE

	1	2	3	4	5	6	7	8	9	10
Set	L	M	P1	P2	;					
Read	L	M	P1	;						
Answer	L	M	P1	P2	;					

P1 0: DVS P2 P1=0 P1=1
1: P/B 0: DVS (Recording Stop) 0: P.B (Recording Stop)
1: DVS (CH "1" Recording Start/Stop) 1: P.B (Recording Start) 2: DVS (CH "2" Recording Start/Stop)
3: DVS (CH "3" Recording Start/Stop)
4: DVS (CH "4" Recording Start/Stop)
5: DVS (CH "5" Recording Start/Stop)

MA MEMORY CHANNEL TO VFO-A

	1	2	3	4	5	6	7	8	9	10
Set	M	A	;							
Read										
Answer										

MC MEMORY CHANNEL

	1	2	3	4	5	6	7	8	9	10
Set	M	C	P1	P1	P1	;				
Read	M	C	;							
Answer	M	C	P1	P1	P1	;				

P1 000 - 117: Memory Channel Number
000 - 099: Regular Memory Channel
100: P-1L
101: P-1U
116: P-9L
117: P-9U

MD OPERATING MODE

	1	2	3	4	5	6	7	8	9	10
Set	M	D	P1	P2	;					
Read	M	D	P1	;						
Answer	M	D	P1	P2	;					

P1 0: Fixed
P2 MODE 1: LSB 2: USB 3: CW 4: FM 5: AM 6: FSK (RTTY-LSB)
7: CW-R 8: PKT-L 9: FSK-R (RTTY-USB) A: PKT-FM
B: FM-N C: PKT-U D: AM-N

MG MIC GAIN

	1	2	3	4	5	6	7	8	9	10
Set	M	G	P1	P1	P1	;				
Read	M	G	;							
Answer	M	G	P1	P1	P1	;				

P1 000 - 100

ML MONITOR LEVEL

	1	2	3	4	5	6	7	8	9	10
Set	M	L	P1	P2	P2	P2	;			
Read	M	L	P1	;						

P1 0: MONI "ON/OFF"
1: MONI Level

P2 P1=0
000: MONI "OFF"
001: MONI "ON"

Answer	1	2	3	4	5	6	7	8	9	10	P1=1 001 - 100
	M	**L**	P1	P2	P2	P2	;				

MR — MEMORY CHANNEL READ

Set	1	2	3	4	5	6	7	8	9	10	
Read	1	2	3	4	5	6	7	8	9	10	
	M	**R**	P1	P1	P1	;					
Answer	1	2	3	4	5	6	7	8	9	10	
	M	**R**	P2	P2	P2	P3	P3	P3	P3	P3	
	11	12	13	14	15	16	17	18	19	20	
	P3	P3	P3	P4	P4	P4	P4	P4	P5	P6	
	21	22	23	24	25	26	27	28	29	30	
	P7	P8	P9	P10	P10	P11	;				

P1 Memory Channel Number(001 117) P2 Current Memory Channel
P3 Memory Channel Frequency (Hz)
P4 Clarifier Direction +: Plus Shift, -: Minus Shift
Clarifier Offset: 0000 - 9999 (Hz)
P5 0: RX CLAR "OFF" 1: RX CLAR "ON"
P6 0: TX CLAR "OFF" 1: TX CLAR "ON"
P7 MODE 1: LSB 2: USB 3: CW 4: FM 5: AM 6: FSK (RTTY-LSB)
7: CW-R 8: PKT-L 9: FSK-R (RTTY-USB) A: PKT-FM
B: FM-N C: PKT-U
P8 0: VFO 1: Memory
P9 0: CTCSS "OFF" 1: CTCSS ENC/DEC 2: CTCSS ENC
P10: Tone Number (See Table 1) P11 0: Simplex 1: Plus Shift 2: Minus Shift

MS — METER SW

Set	1	2	3	4	5	6	7	8	9	10	
	M	**S**	P1	;							
Read	1	2	3	4	5	6	7	8	9	10	
	M	**S**	;								
Answer	1	2	3	4	5	6	7	8	9	10	
	M	**S**	P1	;							

P1 0: COMP
1: ALC
3: SWR
4: ID
5: VDD

MW — MEMORY CHANNEL WRITE

Set	1	2	3	4	5	6	7	8	9	10	
	M	**W**	P1	P1	P1	P2	P2	P2	P2	P2	
	11	12	13	14	15	16	17	18	19	20	
	P2	P2	P2	P3	P3	P3	P3	P3	P4	P5	
	21	22	23	24	25	26	27	28	29	30	
	P6	P7	P8	P9	P9	P10	;				
Read	1	2	3	4	5	6	7	8	9	10	
Answer	1	2	3	4	5	6	7	8	9	10	

P1 Memory Channel Number(001 117) P2 Memory Channel Frequency (Hz)
P3 Clarifier Direction +: Plus Shift, -: Minus Shift
Clarifier Offset: 0000 - 9999 (Hz)
P4 0: RX CLAR "OFF" 1: RX CLAR "ON"
P5 0: TX CLAR "OFF" 1: TX CLAR "ON"
P6 MODE 1: LSB 2: USB 3: CW 4: FM 5: AM 6: FSK (RTTY-LSB)
7: CW-R 8: PKT-L 9: FSK-R (RTTY-USB) A: PKT-FM
B: FM-N C: PKT-U
P7 0: (Fixed)
P8 0: CTCSS "OFF" 1: CTCSS ENC/DEC 2: CTCSS ENC
P9: 0: (Fixed)
P10 0: Simplex 1: Plus Shift 2: Minus Shift

MX — MOX SET

Set	1	2	3	4	5	6	7	8	9	10	
	M	**X**	P1	;							
Read	1	2	3	4	5	6	7	8	9	10	
	M	**X**	;								
Answer	1	2	3	4	5	6	7	8	9	10	
	M	**X**	P1	;							

P1 0: MOX "OFF"
1: MOX "ON"

NA — NARROW

Set	1	2	3	4	5	6	7	8	9	10	
	N	**A**	P1	P2	;						
Read	1	2	3	4	5	6	7	8	9	10	
	N	**A**	P1	;							
Answer	1	2	3	4	5	6	7	8	9	10	
	N	**A**	P1	P2	;						

P1 Fixed
P2 0: OFF
1: ON

NB — NOISE BLANKER STATUS

Set	1	2	3	4	5	6	7	8	9	10	
	N	**B**	P1	P2	;						
Read	1	2	3	4	5	6	7	8	9	10	
	N	**B**	P1	;							
Answer	1	2	3	4	5	6	7	8	9	10	
	N	**B**	P1	P2	;						

P1 Fixed
P2 0: Noise Blanker "OFF"
1: Noise Blanker "ON"
2: Noise Blanker (Wide) "ON"

NL — NOISE BLANKER LEVEL

Set	1	2	3	4	5	6	7	8	9	10	
	N	**L**	P1	P2	P2	P2	;				
Read	1	2	3	4	5	6	7	8	9	10	
	N	**L**	P1	;							
Answer	1	2	3	4	5	6	7	8	9	10	
	N	**L**	P1	P2	P2	P2	;				

P1 Fixed
P2 000 - 100

NR — NOISE REDUCTION

Set	1	2	3	4	5	6	7	8	9	10	
	N	**R**	P1	P2	;						
Read	1	2	3	4	5	6	7	8	9	10	
	N	**R**	P1	;							
Answer	1	2	3	4	5	6	7	8	9	10	
	N	**R**	P1	P2	;						

P1 Fixed
P2 0: Noise Reduction "OFF"
1: Noise Reduction "ON"

OI — OPPOSITE BAND INFORMATION

	1	2	3	4	5	6	7	8	9	10
Set										
Read	1	2	3	4	5	6	7	8	9	10
	O	**I**	;							
Answer	1	2	3	4	5	6	7	8	9	10
	O	**I**	P1	P1	P1	P2	P2	P2	P2	P2
	11	12	13	14	15	16	17	18	19	20
	P2	P2	P2	P3	P3	P3	P3	P3	P4	P5
	21	22	23	24	25	26	27	28	29	30
	P6	P7	P8	P9	P9	P10	;			

P1 Current Memory Channel(001 117) P2 VFO-B Frequency (Hz)
P3 Clarifier Direction +: Plus Shift, –: Minus Shift
Clarifier Offset: 0000 - 9999 (Hz)
P4 0: RX CLAR "OFF" 1: RX CLAR "ON"
P5 0: TX CLAR "OFF" 1: TX CLAR "ON"
P6 MODE 1: LSB 2: USB 3: CW 4: FM 5: AM 6: FSK (RTTY-LSB)
7: CW-R 8: PKT-L 9: FSK-R (RTTY-USB) A: PKT-FM
B: FM-N C: PKT-U
P7 0: VFO 1: Memory
P8 0: CTCSS "OFF" 1: CTCSS ENC/DEC 2: CTCSS ENC
P9: Tone Number (See Table 1)
P10 0: Simplex 1: Plus Shift 2: Minus Shift

OS — OFFSET (REPEATER SHIFT)

	1	2	3	4	5	6	7	8	9	10
Set	**O**	**S**	P1	P2	;					
Read	1	2	3	4	5	6	7	8	9	10
	O	**S**	P1	;						
Answer	1	2	3	4	5	6	7	8	9	10
	O	**S**	P1	P2	;					

P1 Fixed
P2 0: Simplex
1: Plus Shift
2: Minus Shift
□: This command can be activated only with an FM mode.

PA — PRE-AMP (IPO)

	1	2	3	4	5	6	7	8	9	10
Set	**P**	**A**	P1	P2	;					
Read	1	2	3	4	5	6	7	8	9	10
	P	**A**	P1	;						
Answer	1	2	3	4	5	6	7	8	9	10
	P	**A**	P1	P2	;					

P1 0:Fixed
P2 0: IPO

1: AMP 1
2: AMP 2

PB — PLAY BACK

	1	2	3	4	5	6	7	8	9	10
Set	**P**	**B**	P1	P2	;					
Read	1	2	3	4	5	6	7	8	9	10
	P	**B**	P1	;						
Answer	1	2	3	4	5	6	7	8	9	10
	P	**B**	P1	P2	;					

P1 0: DVS 1: P/B
P2 P1=0
0: DVS (Playback Stop)
1: DVS (CH "1" Playback Start/Stop)
DVS (CH "2" Playback Start/Stop)
3: DVS (CH "3" Playback Start/Stop)
4: DVS (CH "4" Playback Start/Stop)
5: DVS (CH "5" Playback Start/Stop)
P1=1
0: P.B (Playback Stop)
1: P.B (Playback Start) 2:

PC — POWER CONTROL

	1	2	3	4	5	6	7	8	9	10
Set	**P**	**C**	P1	P1	P1	;				
Read	1	2	3	4	5	6	7	8	9	10
	P	**C**	;							
Answer	1	2	3	4	5	6	7	8	9	10
	P	**C**	P1	P1	P1	;				

P1 005 -100

PL — SPEECH PROCESSOR LEVEL

	1	2	3	4	5	6	7	8	9	10
Set	**P**	**L**	P1	P1	P1	;				
Read	1	2	3	4	5	6	7	8	9	10
	P	**L**	;							
Answer	1	2	3	4	5	6	7	8	9	10
	P	**L**	P1	P1	P1	;				

P1 000 - 100

PR — SPEECH PROCESSOR

	1	2	3	4	5	6	7	8	9	10
Set	**P**	**R**	P1	P2	;					
Read	1	2	3	4	5	6	7	8	9	10
	P	**R**	P1	;						
Answer	1	2	3	4	5	6	7	8	9	10
	P	**R**	P1	P2	;					

P1 0: Speech Processor "OFF"
1: Parametric Microphone Equalizer "ON"

P2 1: "OFF"
2: "ON"

PS — POWER SWITCH

	1	2	3	4	5	6	7	8	9	10
Set	**P**	**S**	P1	;						
Read	1	2	3	4	5	6	7	8	9	10
	P	**S**	;							
Answer	1	2	3	4	5	6	7	8	9	10
	P	**S**	P1	;						

P1 0: POWER "OFF"
1: POWER "ON"

To polecenie wymaga początkowo wysyłanych fikcyjnych danych. Następnie po jednej sekundzie i przed dwiema sekundami polecenie jest wysyłane.

QI	QMB STORE									
Set	1	2	3	4	5	6	7	8	9	10
	Q	**I**	;							
Read	1	2	3	4	5	6	7	8	9	10
Answer	1	2	3	4	5	6	7	8	9	10

QR	QMB RECALL									
Set	1	2	3	4	5	6	7	8	9	10
	Q	**R**	;							
Read	1	2	3	4	5	6	7	8	9	10
Answer	1	2	3	4	5	6	7	8	9	10

QS	QUICK SPLIT									
Set	1	2	3	4	5	6	7	8	9	10
	Q	**S**	;							
Read	1	2	3	4	5	6	7	8	9	10
Answer	1	2	3	4	5	6	7	8	9	10

RA	RF ATTENUATOR									
Set	1	2	3	4	5	6	7	8	9	10
	R	**A**	P1	P2	;					
Read	1	2	3	4	5	6	7	8	9	10
	R	**A**	P1	;						
Answer	1	2	3	4	5	6	7	8	9	10
	R	**A**	P1	P2	;					

P1 0:Fixed
P2 0: OFF
1: 6 dB
2: 12 dB
3: 18 dB

RC	CLAR CLEAR									
Set	1	2	3	4	5	6	7	8	9	10
	R	**C**	;							
Read	1	2	3	4	5	6	7	8	9	10
Answer	1	2	3	4	5	6	7	8	9	10

RD	CLAR DOWN									
Set	1	2	3	4	5	6	7	8	9	10
	R	**D**	P1	P1	P1	P1	;			
Read	1	2	3	4	5	6	7	8	9	10
Answer	1	2	3	4	5	6	7	8	9	10

P1 0000 - 9999 (Hz)

RF	ROOFING FILTER									
Set	1	2	3	4	5	6	7	8	9	10
	R	**F**	P1	P2	;					
Read	1	2	3	4	5	6	7	8	9	10
	R	**F**	P1	;						
Answer	1	2	3	4	5	6	7	8	9	10
	R	**F**	P1	P3	;					

P1 0:Fixed
P2 0: AUTO
1: 15 kHz
2: 6 kHz
3: 3 kHz
4: 600 Hz
5: 300 Hz
P3 1: 15 kHz
2: 6 kHz
3: 3 kHz
4: AUTO - 15 kHz
5: AUTO - 6kHz
6: AUTO - 3 kHz
7: 600 Hz
8: 300 Hz
9: AUTO - 600 Hz
A: AUTO - 300 Hz

RG	RF GAIN									
Set	1	2	3	4	5	6	7	8	9	10
	R	**G**	P1	P2	P2	P2	;			
Read	1	2	3	4	5	6	7	8	9	10
	R	**G**	P1	;						
Answer	1	2	3	4	5	6	7	8	9	10
	R	**G**	P1	P2	P2	P2	;			

P1 0: Fixed
P2 000 - 255

RI	RADIO INFORMATION									
Set	1	2	3	4	5	6	7	8	9	10
Read	1	2	3	4	5	6	7	8	9	10
	R	**I**	P1	;						
Answer	1	2	3	4	5	6	7	8	9	10

P1 0: Hi-SWR
1: MIC-EQ
3: REC
4: PLAY
5: VFO-A TX
6: VFO-B TX
8: VFO-B-RX
P2 0: OFF
1: ON

	R	**I**	P1	P2	;					7: VFO-A RX

RL	NOISE REDUCTION LEVEL										
Set	1	2	3	4	5	6	7	8	9	10	P1 0:Fixed P2 01 - 15
	R	**L**	P1	P2	P2	;					
Read	1	2	3	4	5	6	7	8	9	10	
	R	**L**	P1	;							
Answer	1	2	3	4	5	6	7	8	9	10	
	R	**L**	P1	P2	P2	;					

RM	READ METER										
Set	1	2	3	4	5	6	7	8	9	10	P1 0: Zależy od panelu przedniego METER 1: S 2: Zależy od panelu przedniego METER {COMP /ALC /SWR /ID/VDD } 3: COMP 4: ALC 5: PO 6: SWR 7: ID 8: VDD P2 0 - 255
Read	1	2	3	4	5	6	7	8	9	10	
	R	**M**	P1	;							
Answer	1	2	3	4	5	6	7	8	9	10	
	R	**M**	P1	P2	P2	P2	;				

RO	ROTATOR										
Set	1	2	3	4	5	6	7	8	9	10	P1 0: OFF 1: Przeciwnie do ruchu wskazówek zegara 2: Zgodnie ze wskazówkami zegara 3: SPEED 1 % DOWN 4: SPEED 1 % UP P2 DIRECTION (0 - 450) P3 SPEED (0 - 100 %)
	R	**O**	P1	;							
Read	1	2	3	4	5	6	7	8	9	10	
	R	**O**	;								
Answer	1	2	3	4	5	6	7	8	9	10	
	R	**O**	P1	P2	P2	P2	P3	P3	P3	;	

RS	RADIO STATUS										
Set	1	2	3	4	5	6	7	8	9	10	P1 0: NORMAL MODE 1: MENU MODE
Read	1	2	3	4	5	6	7	8	9	10	
	R	**S**	;								
Answer	1	2	3	4	5	6	7	8	9	10	
	R	**S**	P1	;							

RT	CLAR										
Set	1	2	3	4	5	6	7	8	9	10	P1 0: RX Clarifier “OFF” 1: RX Clarifier “ON”
	R	**T**	P1	;							
Read	1	2	3	4	5	6	7	8	9	10	
	R	**T**	;								
Answer	1	2	3	4	5	6	7	8	9	10	
	R	**T**	P1	;							

RU	RX CLARIFIER PLUS OFFSET										
Set	1	2	3	4	5	6	7	8	9	10	P1 0000 - 9999 (Hz)
	R	**U**	P1	P1	P1	P1	;				
Read	1	2	3	4	5	6	7	8	9	10	
Answer	1	2	3	4	5	6	7	8	9	10	

SC	SCAN										
Set	1	2	3	4	5	6	7	8	9	10	P1 0: Scan “OFF” 1: Scan “ON” (UP ward) 2: Scan “ON” (DOWN ward)
	S	**C**	P1	;							
Read	1	2	3	4	5	6	7	8	9	10	
	S	**C**	;								
Answer	1	2	3	4	5	6	7	8	9	10	
	S	**C**	P1	;							

SD	CW BREAK-IN DELAY TIME										
Set	1	2	3	4	5	6	7	8	9	10	P1 0030 - 3000 mS
	S	**D**	P1	P1	P1	P1	;				
Read	1	2	3	4	5	6	7	8	9	10	
	S	**D**	;								
Answer	1	2	3	4	5	6	7	8	9	10	
	S	**D**	P1	P1	P1	P1	;				

SF	SUB-DIAL FUNCTION										
Set	1	2	3	4	5	6	7	8	9	10	P1 1: MHz 2: GRP 3: MCH
	S	**F**	P1	;							
Read	1	2	3	4	5	6	7	8	9	10	

	S	**F**	;								4:DIAL-B 5: CLAR 6: MODE 7: uTUNE
Answer	1	2	3	4	5	6	7	8	9	10	
	S	**F**	P1	;							

SH	WIDTH										
Set	1	2	3	4	5	6	7	8	9	10	P1 0:Fixed P2 00 (See Table 5)
	S	**H**	P1	P2	P2	;					
Read	1	2	3	4	5	6	7	8	9	10	
	S	**H**	P1	;							
Answer	1	2	3	4	5	6	7	8	9	10	
	S	**H**	P1	P2	P2	;					

TABLE 5

COMMAND	BANDWIDTH					
P2	SSB (Narrow)	SSB (Wide)	CW (Narrow)	CW (Wide)	RTTY/PSK (Narrow)	RTTY/PSK (Wide)
00	1500 Hz	2400 Hz	500 Hz	2400 Hz	500 Hz	2400 Hz
01	200 Hz	—	50 Hz	—	50 Hz	—
02	400 Hz	—	100 Hz	—	100 Hz	—
03	600 Hz	—	150 Hz	—	150 Hz	—
04	850 Hz	—	200 Hz	—	200 Hz	—
05	1100 Hz	—	250 Hz	—	250 Hz	—
06	1350 Hz	—	300 Hz	—	300 Hz	—
07	1500 Hz	—	350 Hz	—	350 Hz	—
08	1650 Hz	—	400 Hz	—	400 Hz	—
09	1800 Hz	1800 Hz	450 Hz	—	450 Hz	—
10	—	1950 Hz	500 Hz	500 Hz	500 Hz	500 Hz
11	—	2100 Hz	—	800 Hz	—	800 Hz
12	—	2200 Hz	—	1200 Hz	—	1200 Hz
13	—	2300 Hz	—	1400 Hz	—	1400 Hz
14	—	2400 Hz	—	1700 Hz	—	1700 Hz
15	—	2500 Hz	—	2000 Hz	—	2000 Hz
16	—	2600 Hz	—	2400 Hz	—	2400 Hz
17	—	2700 Hz	—	—	—	—
18	—	2800 Hz	—	—	—	—
19	—	2900 Hz	—	—	—	—
20	—	3000 Hz	—	—	—	—
21	—	3200 Hz	—	—	—	—
22	—	3400 Hz	—	—	—	—
23	—	3600 Hz	—	—	—	—
24	—	3800 Hz	—	—	—	—
25	—	4000 Hz	—	—	—	—

SM	S-METER READING										
Set	1	2	3	4	5	6	7	8	9	10	P1 0: Fixed P2 000 - 255
Read	1	2	3	4	5	6	7	8	9	10	
	S	**M**	P1	;							
Answer	1	2	3	4	5	6	7	8	9	10	
	S	**M**	P1	P2	P2	P2	;				

SQ	SQUELCLH LEVEL										
Set	1	2	3	4	5	6	7	8	9	10	P1 0: Fixed P2 000 - 255
	S	**Q**	P1	P2	P2	P2	;				
Read	1	2	3	4	5	6	7	8	9	10	
	S	**Q**	P1	;							
Answer	1	2	3	4	5	6	7	8	9	10	
	S	**Q**	P1	P2	P2	P2	;				

SV	SWAP VFO										
Set	1	2	3	4	5	6	7	8	9	10	
	S	**V**	;								
Read	1	2	3	4	5	6	7	8	9	10	
Answer	1	2	3	4	5	6	7	8	9	10	

TS	TXW										
Set	1	2	3	4	5	6	7	8	9	10	P1 0: TXW "OFF" 1: TXW "ON"
	T	**S**	P1	;							
Read	1	2	3	4	5	6	7	8	9	10	
	T	**S**	;								
Answer	1	2	3	4	5	6	7	8	9	10	
	T	**S**	P1	;							

TX	TX SET										
Set	1	2	3	4	5	6	7	8	9	10	P1 0: RADIO TX "OFF" CAT TX "OFF" 1: RADIO TX "OFF" CAT TX "ON" 2: RADIO TX "ON" CAT TX "OFF" (Answer)
	T	**X**	P1	;							
Read	1	2	3	4	5	6	7	8	9	10	
	T	**X**	;								
Answer	1	2	3	4	5	6	7	8	9	10	
	T	**X**	P1	;							

UL	PLL UNLOCK STATUS										
Set	1	2	3	4	5	6	7	8	9	10	P1 0: PLL "Lock" 1: PLL "Unlock"
Read	1	2	3	4	5	6	7	8	9	10	
	U	**L**	;								
Answer	1	2	3	4	5	6	7	8	9	10	
	U	**L**	P1	;							

UP	UP										
Set	1	2	3	4	5	6	7	8	9	10	
	U	**P**	;								
Read	1	2	3	4	5	6	7	8	9	10	
Answer	1	2	3	4	5	6	7	8	9	10	

VD	VOX DELAY TIME										
Set	1	2	3	4	5	6	7	8	9	10	P1 0030 - 3000 mS (10 mS multiples)
	V	**D**	P1	P1	P1	P1	;				
Read	1	2	3	4	5	6	7	8	9	10	
	V	**D**	;								
Answer	1	2	3	4	5	6	7	8	9	10	
	V	**D**	P1	P1	P1	P1	;				

VF	VRF FILTER										
Set	1	2	3	4	5	6	7	8	9	10	P1 0: Fixed P2 0: OFF 1: ON 2: Default set P3 +: Plus Shift -: Minus Shift P4 0 - 9 P5 000 - 255 P6 1: µTUNE
	V	**F**	P1	P2	P3	P4	;				
Read	1	2	3	4	5	6	7	8	9	10	
	V	**F**	P1;								
Answer	1	2	3	4	5	6	7	8	9	10	
	V	**F**	P1	P2	P5	P5	P5	P6	;		

VG	VOX GAIN										
Set	1	2	3	4	5	6	7	8	9	10	P1 000 - 100
	V	**G**	P1	P1	P1	;					
Read	1	2	3	4	5	6	7	8	9	10	
	V	**G**	;								
Answer	1	2	3	4	5	6	7	8	9	10	
	V	**G**	P1	P1	P1	;					

VM	VFO-A TO MEMORY CHANNEL										
Set	1	2	3	4	5	6	7	8	9	10	
	V	**M**	;								
Read	1	2	3	4	5	6	7	8	9	10	
Answer	1	2	3	4	5	6	7	8	9	10	

VS	VFO SELECT										
Set	1	2	3	4	5	6	7	8	9	10	P1 0: VFO-A 1: VFO-B
	V	**S**	P1	;							
Read	1	2	3	4	5	6	7	8	9	10	
	V	**S**	;								
Answer	1	2	3	4	5	6	7	8	9	10	
	V	**S**	P1	;							

VX	VOX STATUS										
Set	1	2	3	4	5	6	7	8	9	10	P1 0: VOX "OFF" 1: VOX "ON"
	V	**X**	P1	;							
Read	1	2	3	4	5	6	7	8	9	10	
	V	**X**	;								
Answer	1	2	3	4	5	6	7	8	9	10	
	V	**X**	P1	;							

XT	TX CLAR										
Set	1	2	3	4	5	6	7	8	9	10	P1 0: TX CLAR "OFF" 1: TX CLAR "ON"
	X	**T**	P1	;							
Read	1	2	3	4	5	6	7	8	9	10	
	X	**T**	;								
Answer	1	2	3	4	5	6	7	8	9	10	
	X	**T**	P1	;							

YAESU
The radio

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