You may scan either the VFO or the memories of the **FT DX 3000**, and the radio will halt scanning on any station with a signal strong enough to open the receiver's squelch.

VFO SCANNING

1. Set the VFO-A to the frequency on which you would like to begin scanning.
2. Rotate the [**RF/SQL**] knob so that the background noise is just silenced.
3. Press and hold in the microphone's [**UP**] or [**DWN**] key for one second to start scanning in the specified direction on the VFO frequency.

   ADVICE:

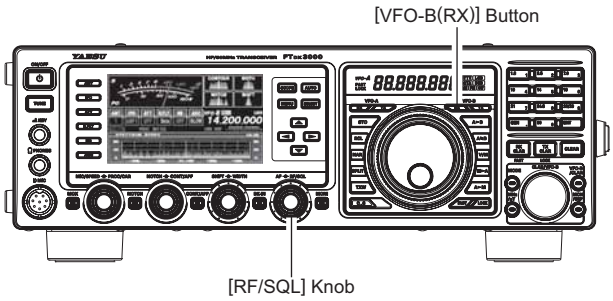
   If you would like to begin scanning on the VFO-B frequency, press the [**VFO-B**(**RX**)] Indicator/Switch first, then press and hold in the microphone's [**UP**] or [**DWN**] key for one second.
4. If the scanner halts on an incoming signal, the decimal point between the "MHz" and "kHz" digits of the frequency display will blink.

   ADVICE:

   - ❒ If the incoming signal disappears, scanning will resume in about five seconds.
   - ❒ On the SSB/CW and SSB-based Data modes, the scanner will pause on a received signal, then will step across the signal very slowly, giving you time to stop the scan, if you like. In these modes on the VFO, the scanner does not stop, however.
5. To cancel scanning, press the microphone's [**UP**] or [**DWN**] key momentarily.

ADVICE:

You may select the manner in which the scanner resumes while it has paused on a signal, using Menu item "047 MIC SCAN RESUME". The default "TIME" (5 sec) setting will cause the scanner to resume scanning after five seconds; you may change it, however, to resume only after the carrier has dropped out.



MEMORY SCAN

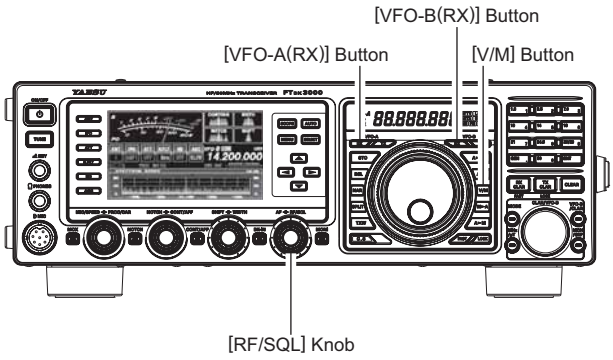
1. Set the transceiver up in the "Memory" mode by pressing the [**V/M**] button, if necessary.

   ADVICE:

   If you can not enter the "Memory" mode, check to see if the transceiver is in VFO-B mode (the green [**VFO-B**(**RX**)] Indicator/Switch is illuminated). If so, press the [**VFO-A**(**RX**)] Indicator/Switch to return operation to VFO-A. Now, press the [**V/M**] button to enter the "Memory" mode.
2. Rotate the [**RF/SQL**] knob so that the background noise is just silenced.
3. Press and hold in the microphone's [**UP**] or [**DWN**] key for one second to start scanning in the specified direction.

   ADVICE:

   - ❒ If the scanner halts on an incoming signal, the decimal point between the "MHz" and "kHz" digits of the frequency display will blink.
   - ❒ If the incoming signal disappears, scanning will resume in about five seconds.
4. To cancel scanning, press the microphone's [**UP**] or [**DWN**] key momentarily.



ADVICE:

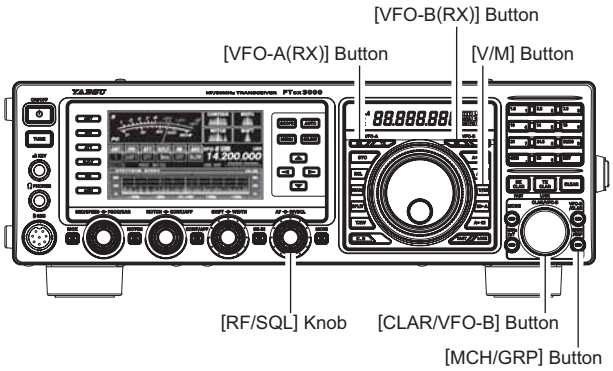
- ❒ During Memory Group operation, only the channels within the current Memory Group will be scanned.
- ❒ If the scan has paused on a signal, pressing the microphone's [**UP**] or [**DWN**] key will cause scanning to resume instantly.
- ❒ If you press the microphone's **PTT** switch during scanning, the scanner will halt at once. However, pressing the **PTT** switch during scanning will not cause transmission.
- ❒ You may select the manner in which the scanner resumes while it has paused on a signal, using Menu item "047 MIC SCAN RESUME". During memory scanning, the default "TIME" (5 sec) setting will cause the scanner to resume scanning after five seconds. However, you may change this setting to resume only after the carrier has dropped out, if you like.

QUICK POINT:

If you have no interest in scanning, and wish to prohibit the microphone's [**UP**]/[**DWN**] keys from initiating scanning, you may disable scanning control from the microphone using Menu item "046 MIC SCAN" (set it to "DISABLE").

PMS (PROGRAMMABLE MEMORY SCANNING)

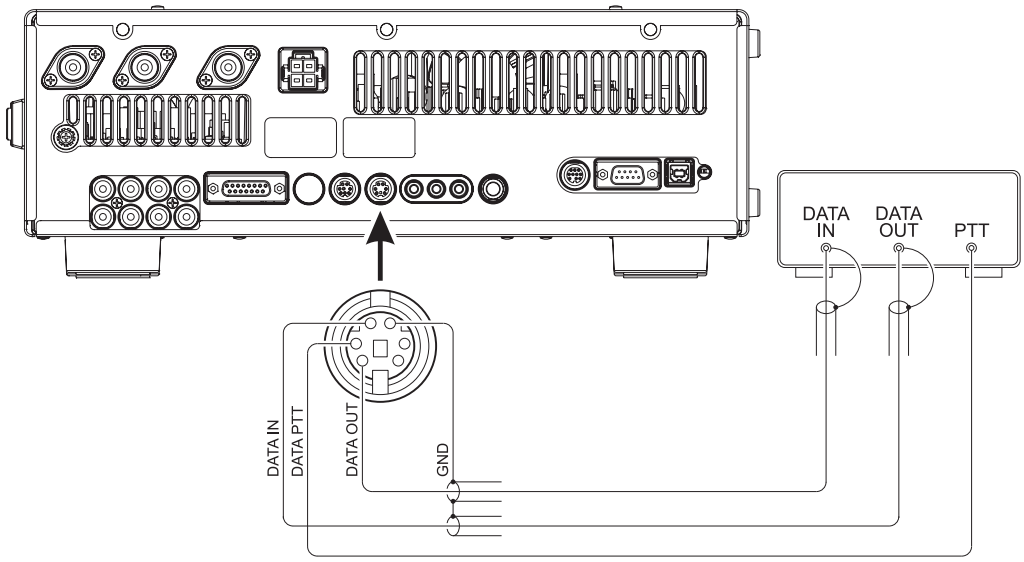
To limit scanning (and manual tuning) within a particular frequency range, you can use the Programmable Memory Scanning (PMS) feature, which utilizes nine special-purpose memory pairs ("P-1L/P-1U" through "P-9L/P-9U"). The PMS feature is especially useful in helping you to observe any operating sub-band limits, which apply to your Amateur license class.



1. Store the Lower and Upper tuning/scanning limit frequencies into the memory pair "P-1L" and "P-1U", respectively, or any other "L/U" pair of memories in the special PMS memory area. See page xx for details regarding memory storage.
2. Press the [**V/M**] button to enter the "Memory" mode.
   ADVICE:
   If you can not enter the "Memory" mode, check to see if the transceiver is in VFO-B mode (the green [**VFO-B**(**RX**)] Indicator/Switch is illuminated). If so, press the [**VFO-A**(**RX**)] Indicator/Switch to return operation to VFO-A. Now, press the [**V/M**] button to enter the "Memory" mode.
3. Press the [**MCH/GRP**] button momentarily. The imbedded LED inside the switch will glow orange.
4. Rotate the [**CLAR/VFO-B**] knob to select memory channel "P-1L" or "P-1U".
5. Rotate the [**RF/SQL**] knob so that the background noise is just silenced.
6. Turn the Main Tuning Dial knob slightly (to activate memory tuning). Tuning and scanning are now limited to the range within the P-1L/P-1U limits until you press the [**V/M**] button to return to memory channel or VFO operation.
7. Press and hold in the microphone's [**UP**] or [**DWN**] key for one second to start scanning in the specified direction.
   ADVICE:
   - ❒ If the scanner halts on an incoming signal, the decimal point between the "MHz" and "kHz" digits of the frequency display will blink.
   - ❒ If the incoming signal disappears, scanning will resume in about five seconds.
   - ❒ On the SSB/CW and SSB-based Data modes, the scanner will pause on a received signal, then will step across the signal very slowly, giving you time to stop the scan, if you like. However, in these modes on the VFO, the scanner does not stop.
   - ❒ If the scan has paused on a signal, pressing the microphone's [**UP**] or [**DWN**] key will cause scanning to resume instantly.
8. If you rotate the Main Tuning Dial knob in the opposite direction from the current scanning direction (in other words, you rotate the dial to the left when scanning toward a higher frequency), the direction of the scan will reverse.
9. If you press the microphone's **PTT** switch during scanning, the scanner will halt at once. Pressing the **PTT** switch *during scanning* will not cause transmission.

PACKET OPERATION

Packet operation is easily accomplished on the **FT DX 3000** by connecting your TNC (Terminal Node Controller) to the transceiver, per the illustration. "Packet" operation also applies to SSB-based AFSK data modes, such as PSK31, etc.



PACKET SETUP (INCLUDING SUBCARRIER FREQUENCY)

Before operation can commence, some basic setup procedures must be performed using the Menu, to configure your radio for the data mode to be used.

MENU ITEM	AVAILABLE VALUES	MENU ITEM	AVAILABLE VALUES
077 DATA TX GAIN	0 ~ 100	079 DATA VOX GAIN	0 ~ 100
078 DATA OUT LEVEL	0 ~ 100	053 DATA VOX DELAY	30 ~ 3000 (ms)

BASIC SETUP

1. Press the [**MODE**] button, to selected Packet mode. Press and hold in the [**MODE**] button to toggle the mode between "LSB" and "RTTY-LSB".

   ADVICE:

   - ❒ When both "PKT" and "LSB" icons appear on the display, the mode is LSB SSB-based Data operation which is generally used for HF operation.
   - ❒ If you need to do FM-based 1200-baud packet on the 29/50 MHz bands, press and hold in the [**RTTY/PKT**] button repeatedly until the "PKT" and "FM" icons appear on the display, to engage the "PKT-FM" mode.
   - ❒ To operate USB SSB-based Data modes, press and hold in the [**RTTY/PKT**] button repeatedly until the "PKT" and "USB" icons are shown on the display, the **FT DX 3000** is configured for Packet operation in the "USB" mode.
2. When the "transmit" command is received from the TNC, the transmitter of the **FT DX 3000** will automatically be engaged. Likewise, the command to return to receive will cause the radio to revert to the receive mode.

ADVICE:

- ❒ If you need to adjust the output level from the "DATA OUT" pin (pin 5) of the **RTTY/PKT** jack on the rear panel of the transceiver, please use Menu item "051 DATA OUT LVL". For the input level from the TNC, as applied to the DATA IN pin (pin 1) of the **RTTY/PKT** jack, please use Menu item "050 DATA DT GAIN".
- ❒ During Packet operation via the rear panel's **RTTY/PKT** jack, the front panel **MIC** jack is cut off, so you won't have a "live microphone" problem during data operation.

NOTE:

If you anticipate making data transmissions of longer than a few minutes, we recommend that you reduce the transmitter power to 1/3 ~ 1/2 of its normal maximum via the Menu item "111 TGEN TX PWR".

QUICK POINT:

RTTY/PKT Jack Specifications

DATA IN (Pin 1)

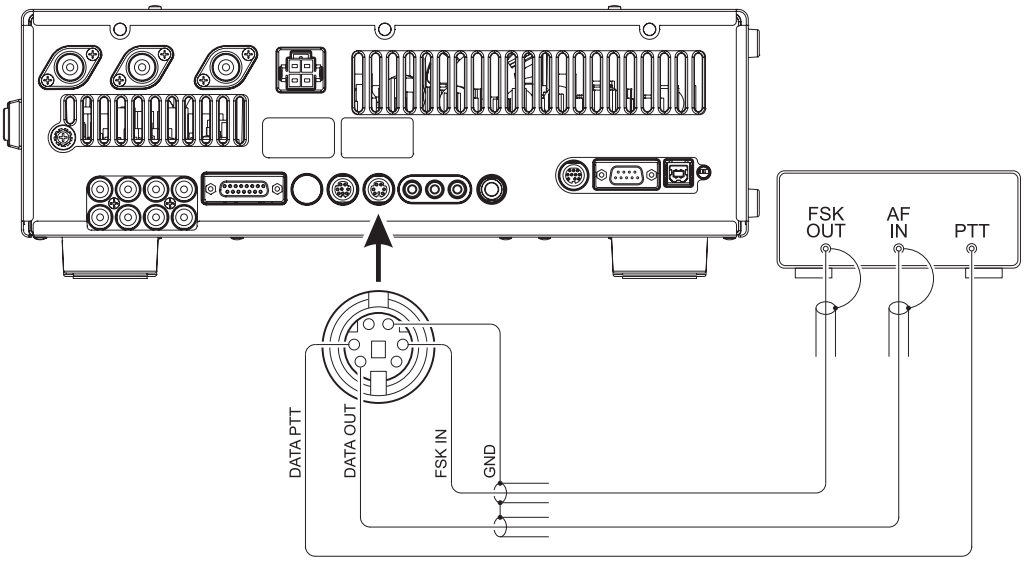
Nominal Input Level: 50 mVp-p
Impedance: 10 k-Ohms

DATA OUT (Pin 5)

Maximum Output Level: 100 mVp-p
Impedance: 10 k-Ohms

RTTY (RADIO TELETYPE) OPERATION

Most RTTY operation today is accomplished using a TNC or other computer-based system that utilizes AFSK tones. As such, the previous discussion on LSB-mode "Packet" operation will apply for Baudot operation, as well. For RTTY operation using a Terminal Unit (TU) or the "FSK" output from a TNC, please see the discussion below. See also the illustration for details regarding connection to your TU.



SETTING UP FOR RTTY OPERATION

Before commencing RTTY operation, please direct your attention to the setup steps shown in the chart to the right.

MENU ITEM	AVAILABLE VALUES
059 RTTY R PLRTY	nor (normal) / rEU (reverse)
060 RTTY T PLRTY	nor (normal) / rEU (reverse)
061 RTTY OUT LEL	0 ~ 100
062 RTTY SHIFT	170/200/425/850 (Hz)
063 RTTY TONE	1275/2125 (Hz)

BASIC SETUP

1. To engage RTTY operation using "LSB" injection, which is generally used in the Amateur service. Press the [**RTTY/PKT**] button repeatedly until both the "RTTY" and "LSB" icons appear on the display.
2. To switch to USB-side injection in RTTY, press and hold in the [**RTTY/PKT**] button. Both the "RTTY" and "USB" icons will appear on the display.
3. When you begin typing on your TU or computer keyboard, the command to transmit should automatically be sent to the transceiver, causing it to enter the transmit mode.

NOTE:
If you anticipate making data transmissions of longer than a few minutes, we recommend that you reduce the transmitter power to 1/3 ~ 1/2 of its normal maximum via the Menu item "111 TGEN TX PWR".

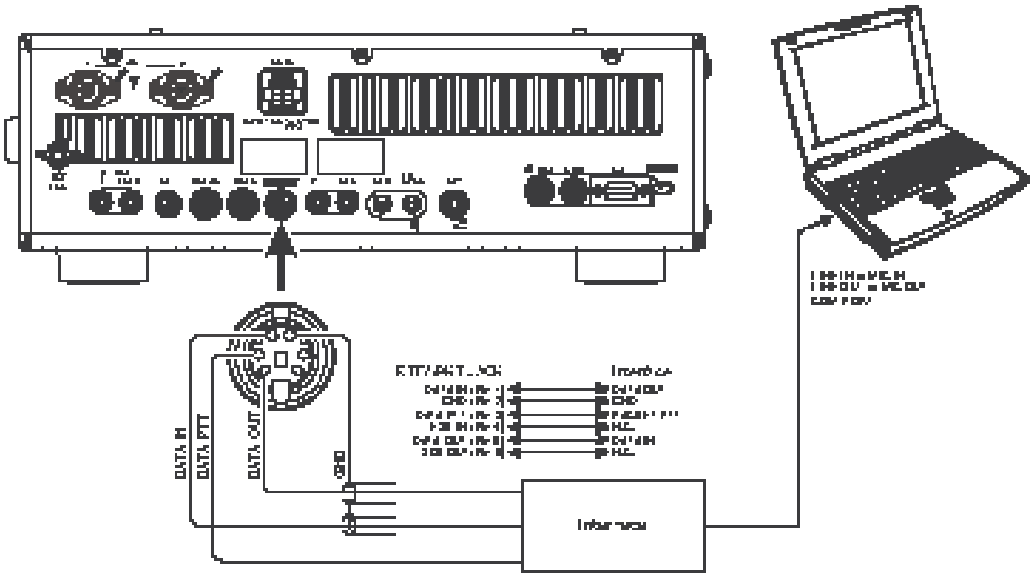
ADVICE:

- If you need to adjust the output level from the "DATA OUT" pin (pin 5) of the **RTTY/PKT** jack on the rear panel of the transceiver, please use Menu item "061 RTTY OUT LVL". For the input level from the TU, there is no adjustment of the FSK input level (Pin 4) of the **RTTY/PKT** jack. Please make any needed level adjustments at the TU side.
- The Mark/Space Shift utilized in most Amateur RTTY operation is 170 Hz. Other shifts may be configured, however, using Menu item "062 RTTY SHIFT". The **FT DX 3000** is set up for "high tone" operation (centered on 2125 Hz) by default, but you may configure it for low tone (1275 Hz) operation using Menu item "063 RTTY TONE".
- You may find that you are unable to decode some RTTY stations, even if they are of sufficient signal strength. If this is observed, there may be a Mark/Space polarity problem between your station and the other station. If so, try setting Menu item "059 RTTY R PLRTY" to "rEU" ("Reverse") to see if that permits copy. A separate Menu Item permits reversal of your transmitter's Mark/Space polarity: "060 RTTY T PLRTY".

QUICK POINT:
In the **FT DX 3000**, "RTTY" is a mode defined as being an "FSK" mode, whereby the closing and opening of a keying line (to ground) causes the Mark/Space tones to alternate. The RTTY mode is not an AFSK based mode in this transceiver, and the AFSK output tones from a TNC will not cause Mark/Space shifting to occur. Use the "Packet" mode for AFSK-based Baudot and other data modes.

MISCELLANEOUS AFSK-BASED DATA MODES

The **FT DX 3000** may also be used for a host of other SSB-based Data modes. Please set up your system using the illustration as a guideline.



QUICK POINT:

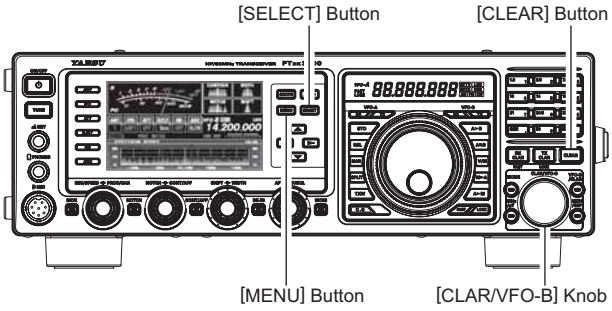
When you have configured Menu item "114 TGEN VOX SEL" to "dAtA," the transceiver will operate in a "VOX" mode, and it is not necessary to connect a PTT line. This makes for very convenient interfacing to computer Sound Cards, etc.

MENU MODE

The Menu system of the **FT DX 3000** provides extensive customization capability, so you can set up your transceiver just the way you want to operate it. The Menu items are grouped by general utilization category, and are numbered from "001 FAST DELAY" to "195 QPSK POLARITY REV".

USING THE MENU

1. Press and hold in the [**MENU**] button for one second, to engage the Menu mode.
   The display will show the Menu Number, Menu Group Name, and Menu Item.
2. Rotate the [**CLAR/VFO-B**] knob or press the ▲/▼ button to select the Menu item you wish to modify.
3. Press the [**SELECT**] button, then rotate the [**CLAR/VFO-B**] knob or press the ▲/▼ button to change the current setting of the selected Menu item.
   ADVICE:
   Press the [**CLEAR**] button (located the upper right of the [**CLAR/VFO-B**] knob) momentarily to reset the selected Menu item to the factory default value.
4. When you have finished making your adjustments, press the [**SELECT**] button, then press the [**MENU**] button to save the new setting and exit to normal operation. If you only *momentarily* press the [**MENU**] button, the new settings will *not* be retained.



MENU MODE RESET

You may reset all the Menu settings to their original factory defaults, if desired.

1. Turn the front panel [**POWER**] switch off.
2. Press and hold in the [**MENU**] button, and while holding it in, press the [**POWER**] switch to turn the transceiver back on. Now release the [**MENU**] button.

Group	No.	Menu Function	Available Values	Default Setting
AGC	001	FAST-DELAY	20 ~ 4000 (20 msec/steps)	300
AGC	002	MID-DELAY	20 ~ 4000 (20 msec/steps)	700
AGC	003	SLOW-DELAY	20 ~ 4000 (20 msec/steps)	3000
AGC	004	AGC-SLOPE	NORMAL/SLOPE	NORMAL
DISPLAY	005	MY CALL	Max 12 characters	YAESU
DISPLAY	006	MY CALL TIME	0 ～ 5sec	0
DISPLAY	007	SPLIT INDICATER	BTX/BTX&BDISP	BTX
DISPLAY	008	DIMMER-VFO	0 ~ 15	8
DISPLAY	009	DIMMER-BACKLIT	0 ~ 15	8
DISPLAY	010	DIMMER-TFT	0 ~ 15	8
DISPLAY	011	BAR DISPLAY SELECT	CLAR/CW TUNE/VRF･µtune	CW-TUNE
DISPLAY	012	METER TYPE SELECT	ANALOG/BAR	ANALOG
DISPLAY	013	BAR MTR PEAK HOLD	OFF/0.5/1.0/2.0 (sec)	OFF
DISPLAY	014	ROTATOR START UP	0/90/180/270°	0°
DISPLAY	015	ROTATOR OFFSET ADJ	-30 ~ 0	0
DVS	016	RX OUT LEVEL	0 ~ 100	50
DVS	017	TX OUT LEVEL	0 ~ 100	50
KEYER	018	F-KEYER TYPE	OFF/BUG/ELEKEY/ACS	ELEKEY
KEYER	019	F-CW KEYER	NOR/REV	NOR
KEYER	020	R-KEYER TYPE	OFF/BUG/ELEKEY/ACS	ELEKEY
KEYER	021	R-CW KEYER	NOR/REV	NOR
KEYER	022	CW WEIGHT	2.5 ~ 3.0 ~ 4.5	3.0
KEYER	023	BEACON TIME	OFF/1 ~ 690sec	OFF
KEYER	024	NUMBER STYLE	1290/AUNO/AUNT/A2NO/A2NT/12NO/12NT	1290
KEYER	025	CONTEST NUMBER	0 ~ 9999	1
KEYER	026	CW MEMORY 1	TEXT/MESSAGE	MESSAGE
KEYER	027	CW MEMORY 2	TEXT/MESSAGE	MESSAGE
KEYER	028	CW MEMORY 3	TEXT/MESSAGE	MESSAGE
KEYER	029	CW MEMORY 4	TEXT/MESSAGE	MESSAGE
KEYER	030	CW MEMORY 5	TEXT/MESSAGE	MESSAGE
GENERAL	031	ANT SELECT	BAND/STACK	BAND
GENERAL	032	ANT3 SETTING	TRX / R3/1 / R3/2	TRX
GENERAL	033	NB LEVEL	0 ~ 100	50
GENERAL	034	BEEP LEVEL	0 ~ 100	50
GENERAL	035	MONITOR LEVEL	0 ~ 100	50
GENERAL	036	RF/SQL VR	RF/SQL	RF
GENERAL	037	MODE SELECT	KEY/ENCODER	Key
GENERAL	038	CAT SELECT	RS232C/USB	USB
GENERAL	039	CAT RATE	4800/9600/19200/38400bps	4800
GENERAL	040	CAT TIME OUT TIMER	10/100/1000/3000 (msec)	10
GENERAL	041	CAT RTS	ENABLE/DISABLE	ENABLE
GENERAL	042	MEM GROUP	ENABLE/DISABLE	DISABLE
GENERAL	043	QUICK SPLIT FREQ	-20 ~ +20 kHz	+5
GENERAL	044	TX TIME OUT TIMER	OFF/1 ~ 30min	OFF
GENERAL	045	uTUNE DIAL STEP	DIAL STEP-2/DIAL STEP-1	DIAL STEP-1
GENERAL	046	MIC SCAN	ENABLE/DISABLE	ENABLE
GENERAL	047	MIC SCAN RESUME	PAUSE/TIME	TIME
GENERAL	048	FREQ ADJ	-25 ~ 0 ~ +25	0
MODE-AM	049	AM LCUT FREQ	OFF/100Hz ~ 1000Hz (50Hz/steps)	OFF
MODE-AM	050	AM LCUT SLOPE	6dB/oct / 18dB/oct	6
MODE-AM	051	AM HCUT FREQ	700Hz ~ 4000Hz (50Hz/steps) / OFF	OFF
MODE-AM	052	AM HCUT SLOPE	6dB/oct / 18dB/oct	6
MODE-AM	053	AM MIC GAIN	MCVR/FIX (0 ~ 100)	30
MODE-AM	054	AM MIC SEL	FRONT/DATA/USB	FRONT
MODE-CW	055	CW PITCH	300 ~ 1050Hz (10Hz STEP)	700Hz
MODE-CW	056	CW LCUT FREQ	OFF/100Hz ~ 1000Hz (50Hz/steps)	300
MODE-CW	057	CW LCUT SLOPE	6dB/oct / 18dB/oct	18
MODE-CW	058	CW HCUT FREQ	700Hz ~ 4000Hz (50Hz/steps) / OFF	1000
MODE-CW	059	CW HCUT SLOPE	6dB/oct / 18dB/oct	6
MODE-CW	060	CW AUTO MODE	OFF/50M/ON	OFF

MENU MODE

MODE-CW	061	CW BFO	USB/LSB/AUTO	USB
MODE-CW	062	CW BK-IN	SEMI/FULL	SEMI
MODE-CW	063	CW BK-IN DELAY	30 ~ 3000msec	200msec
MODE-CW	064	CW WAVE SHAPE	1/2/4/6msec	4
MODE-CW	065	CW FREQ DISPLAY	DIRECT FREQ/PITCH OFFSET	PITCH OFFSET
MODE-CW	066	PC KEYING	OFF/DTR/RTS	OFF
MODE-CW	067	QSK	15/20/25/30msec	15
MODE-DAT	068	DATA MODE	PSK/OTHERS	PSK
MODE-DAT	069	PSK TONE	1000/1500/2000Hz	1000
MODE-DAT	070	OTHER DISP (SSB)	-3000 ~ 0 ~ +3000Hz (10Hz/steps)	0
MODE-DAT	071	OTHER SHIFT (SSB)	-3000 ~ 0 ~ +3000Hz (10Hz/steps)	0
MODE-DAT	072	DATA LCUT FREQ	OFF/100Hz ~ 1000Hz (50Hz/steps)	300
MODE-DAT	073	DATA LCUT SLOPE	6dB/oct / 18dB/oct	18
MODE-DAT	074	DATA HCUT FREQ	700Hz ~ 4000Hz (50Hz/steps) / OFF	3000
MODE-DAT	075	DATA HCUT SLOPE	6dB/oct / 18dB/oct	18
MODE-DAT	076	DATA IN SELECT	DATA/USB	DATA
MODE-DAT	077	DATA TX GAIN	0 ~ 100	50
MODE-DAT	078	DATA OUT LEVEL	0 ~ 100	50
MODE-DAT	079	DATA VOX GAIN	0 ~ 100	50
MODE-DAT	080	DATA VOX DELAY	30 ~ 300 ~ 3000msec	300
MODE-FM	081	FM LCUT FREQ	OFF/100Hz ~ 1000Hz (50Hz/steps)	250
MODE-FM	082	FM LCUT SLOPE	6dB/oct / 18dB/oct	18
MODE-FM	083	FM HCUT FREQ	700Hz ~ 4000Hz (50Hz/steps) / OFF	OFF
MODE-FM	084	FM HCUT SLOPE	6dB/oct / 18dB/oct	6
MODE-FM	085	FM MIC SEL	FRONT/DATA/USB	FRONT
MODE-FM	086	FM MIC GAIN	MCVR/FIX(0 ~ 100)	50
MODE-FM	087	RPT SHIFT(28MHz)	0 ~ 100 ~ 1000kHz (10Hz/steps)	100
MODE-FM	088	RPT SHIFT(50MHz)	0 ~ 100 ~ 1000 ~ 4000kHz (10Hz/steps)	1000
MODE-FM	089	TONE FREQ	67.0 ~ 254.1Hz	67.0
MODE-RTY	090	RTTY LCUT FREQ	OFF/100Hz ~ 1000Hz (50Hz/steps)	300
MODE-RTY	091	RTTY LCUT SLOPE	6dB/oct / 18dB/oct	18
MODE-RTY	092	RTTY HCUT FREQ	700Hz ~ 4000Hz (50Hz/steps) / OFF	3000
MODE-RTY	093	RTTY HCUT SLOPE	6dB/oct / 18dB/oct	18
MODE-RTY	094	RTTY SHIFT PORT	REAR/USB	REAR
MODE-RTY	095	POLARITY-R	NOR/REV	NOR
MODE-RTY	096	POLARITY-T	NOR/REV	NOR
MODE-RTY	097	RTTY OUT LEVEL	0 ~ 100	50
MODE-RTY	098	RTTY SHIFT	170/200/425/850 (Hz)	170
MODE-RTY	099	RTTY MARK FREQ.	1275/2125 (Hz)	2125
MODE-SSB	100	SSB LCUT FREQ	OFF/100Hz ~ 1000Hz (50Hz/steps)	100
MODE-SSB	101	SSB LCUT SLOPE	6dB/oct / 18dB/oct	6
MODE-SSB	102	SSB HCUT FREQ	700Hz ~ 4000Hz (50Hz/steps) / OFF	3000
MODE-SSB	103	SSB HCUT SLOPE	6dB/oct / 18dB/oct	6
MODE-SSB	104	SSB MIC SELECT	FRONT/DATA/USB	FRONT
MODE-SSB	105	SSB-TX-BPF	50-3000/100-2900/200-2800/300-2700/400-2600 (Hz)/3000WB	300-2700
MODE-SSB	106	LSB RX-CARRIER	-200Hz ~ 0 ~ +200Hz (10Hz/steps)	0
MODE-SSB	107	USB RX-CARRIER	-200Hz ~ 0 ~ +200Hz (10Hz/steps)	0
RX DSP	108	APF-WIDTH	NARROW/MEDIUM/WIDE	MEDIUM
RX DSP	109	CONTOUR-LEVEL	-40 ~ 0 ~ 20	-15
RX DSP	110	CONTOUR-WIDTH	1 ~ 11	10
RX DSP	111	DNR LEVEL	1 ~ 15	3
RX DSP	112	IF-NOTCH-WIDTH	NARROW/WIDE	WIDE
RX DSP	113	HF-CW — SHAPE	SOFT/SHARP	SOFT
RX DSP	114	HF-CW — SLOPE	STEEP/MEDIUM/GENTLE	MEDIUM
RX DSP	115	6M-CW — SHAPE	SOFT/SHARP	SOFT
RX DSP	116	6M-CW — SLOPE	STEEP/MEDIUM/GENTLE	MEDIUM
RX DSP	117	HF-PSK — SHAPE	SOFT/SHARP	SHARP
RX DSP	118	HF-PSK — SLOPE	STEEP/MEDIUM/GENTLE	MEDIUM
RX DSP	119	HF-FSK — SHAPE	SOFT/SHARP	SHARP
RX DSP	120	HF FSK SLOPE	STEEP/MEDIUM/GENTLE	MEDIUM
RX DSP	121	HF SSB SHAPE	SOFT/SHARP	SHARP

RX DSP	122	HF SSB SLOPE	STEEP/MEDIUM/GENTLE	MEDIUM
RX DSP	123	6M SSB SHAPE	SOFT/SHARP	SOFT
RX DSP	124	6M SSB SLOPE	STEEP/MEDIUM/GENTLE	MEDIUM
SCOPE	125	SCOPE MODE	CENTER/FIX	FIX
SCOPE	126	SCOPE AUTO TIME	OFF/3/5/10sec	3sec
SCOPE	127	SCOPE AUTO SPEED	SLOW/MID/FAST	MID
SCOPE	128	CENTER SPAN FREQ	20k/50k/100k/200k/500k/1000kHz	100kHz
SCOPE	129	FIX 1.8MHz	1.800MHz ~ 1.999MHz (1kHz/steps)	1.800MHz
SCOPE	130	FIX 1.8MHz SPAN	20k/50k/100k/200k/500k/1000kHz	200kHz
SCOPE	131	FIX 3.5MHz	3.500MHz ~ 3.999MHz (1kHz/steps)	3.500MHz
SCOPE	132	FIX 3.5MHz SPAN	20k/50k/100k/200k/500k/1000kHz	500kHz
SCOPE	133	FIX 5.0MHz	5.250MHz ~ 5.499MHz (1kHz/steps)	5.250MHz
SCOPE	134	FIX 5.0MHz SPAN	20k/50k/100k/200k/500k/1000kHz	200kHz
SCOPE	135	FIX 7.0MHz	7.000MHz ~ 7.299MHz (1kHz/steps)	7.000MHz
SCOPE	136	FIX 7.0MHz SPAN	20k/50k/100k/200k/500k/1000kHz	500kHz
SCOPE	137	FIX 10MHz	10.100MHz ~ 10.149MHz (1kHz/steps)	10.100MHz
SCOPE	138	FIX 10MHz SPAN	20k/50k/100k/200k/500k/1000kHz	50kHz
SCOPE	139	FIX 14MHz	14.000MHz ~ 14.3499Hz (1kHz/steps)	14.000MHz
SCOPE	140	FIX 14MHz SPAN	20k/50k/100k/200k/500k/1000kHz	500kHz
SCOPE	141	FIX 18MHz	18.000MHz ~ 18.199MHz (1kHz/steps)	18.068MHz
SCOPE	142	FIX 18MHz SPAN	20k/50k/100k/200k/500k/1000kHz	100kHz
SCOPE	143	FIX 21MHz	21.000MHz ~ 21.449MHz (1kHz/steps)	21.000MHz
SCOPE	144	FIX 21MHz SPAN	20k/50k/100k/200k/500k/1000kHz	500kHz
SCOPE	145	FIX 24MHz	24.800MHz ~ 24.989MHz (1kHz/steps)	24.890MHz
SCOPE	146	FIX 24MHz SPAN	20k/50k/100k/200k/500k/1000kHz	100kHz
SCOPE	147	FIX 28MHz	28.000MHz ~ 29.699MHz (1kHz/steps)	28.000MHz
SCOPE	148	FIX 28MHz SPAN	20k/50k/100k/200k/500k/1000kHz	1000kHz
SCOPE	149	FIX 50MHz	50.000MHz ~ 53.999MHz (1kHz/steps)	50.000MHz
SCOPE	150	FIX 50MHz SPAN	20k/50k/100k/200k/500k/1000kHz	1000kHz
TUNING	151	DIAL STEP	1/5/10Hz	10Hz
TUNING	152	DIAL CW FINE	ENABLE/DISABLE	DISABLE
TUNING	153	1MHz/100kHz SELECT	1MHz/100kHz	1MHz
TUNING	154	AM CH STEP	2.5/5/9/10/12.5kHz	5kHz
TUNING	155	FM CH STEP	5/6.25/10/12.5/25kHz	5kHz
TUNING	156	FM DIAL STEP	10/100Hz	100Hz
TX AUDIO	157	F-PRMTRC EQ1-FREQ	OFF/100/200/300/400/500/600/700	OFF
TX AUDIO	158	F-PRMTRC EQ1-LEVEL	-20 ~ 0 ~ +10	+5
TX AUDIO	159	F-PRMTRC EQ1-BWTH	1 ~ 10	10
TX AUDIO	160	F-PRMTRC EQ2-FREQ	OFF/700/800/900/1000/1100/1200/1300/1400/1500	OFF
TX AUDIO	161	F-PRMTRC EQ2-LEVEL	-20 ~ 0 ~ +10	+5
TX AUDIO	162	F-PRMTRC EQ2-BWTH	1 ~ 10	10
TX AUDIO	163	F-PRMTRC EQ3-FREQ	OFF/1500/1600/1700/1800/1900/2000/3200	OFF
TX AUDIO	164	F-PRMTRC EQ3-LEVEL	-20 ~ 0 ~ +10	+5
TX AUDIO	165	F-PRMTRC EQ3-BWTH	1 ~ 10	10
TX AUDIO	166	P-PRMTRC EQ1-FREQ	OFF/100/200/300/400/500/600/700	200
TX AUDIO	167	P-PRMTRC EQ1-LEVEL	-20 ~ 0 ~ +10	0
TX AUDIO	168	P-PRMTRC EQ1-BWTH	1 ~ 10	2
TX AUDIO	169	P-PRMTRC EQ2-FREQ	OFF/700/800/900/1000/1100/1200/1300/1400/1500	800
TX AUDIO	170	P-PRMTRC EQ2-LEVEL	-20 ~ 0 ~ +10	0
TX AUDIO	171	P-PRMTRC EQ2-BWTH	1 ~ 10	1
TX AUDIO	172	P-PRMTRC EQ3-FREQ	OFF/1500/1600/1700/1800/1900/2000/3200	2100
TX AUDIO	173	P-PRMTRC EQ3-LEVEL	-20 ~ 0 ~ +10	0
TX AUDIO	174	P-PRMTRC EQ3-BWTH	1 ~ 10	1
TX GNARL	175	TX MAX POWER	5 ~ 100W	100
TX GNARL	176	AM CAR	0 ~ 100	50
TX GNARL	177	EXT AMP TUNING PWR	10/20/50/100	100
TX GNARL	178	TUNER SELECT	INT/EXT	INT
TX GNARL	179	VOX SELECT	MIC/DATA	MIC
TX GNARL	180	VOX GAIN	0 ~ 100	50
TX GNARL	181	VOX DELAY	30 ~ 3000msec	500msec
TX GNARL	182	ANTI VOX GAIN	0 ~ 100	50

MENU MODE

TX GNARL	183	EMERGENCY FREQ TX	ENABLE/DISABLE	DISABLE
AF SCOPE	184	FFT DISPLAY MODE	SPECTRAM/WATER FALL	WATER FALL
AF SCOPE	185	FFT ATT	0/10/20dB	10dB
DECODE CW	186	CW DECODE BW	25/50/100/250Hz	100Hz
DECODE CW		CW DECODE LEVEL	0 ~ 255	0
ENC/DEC RTY	187	RX USOS	OFF/ON	ON
ENC/DEC RTY	188	TX USOS	OFF/ON	ON
ENC/DEC RTY	189	RX NEW LINE CODE	CR,LF,CR+LF/CR+LF	CR, LF, CR+LF
ENC/DEC RTY	190	TX AUTO CR+LF	OFF/ON	ON
ENC/DEC RTY	191	TX DIDDLE	OFF/BLANK/LTRS	BLANK
ENC/DEC RTY	192	BAUDOT CODE	CCITT/US	US
ENC/DEC PSK	193	PSK MODE	BPSK/QPSK	BPSK
ENC/DEC PSK	194	DECODE AFC RANGE	±8/±15/±30Hz	±15Hz
ENC/DEC PSK	195	QPSK POLARITY REVERSE	RX-N,TX-N/RX-R,TX-N,RX-N,TX-R/RX-R,TX-R	RX-N,TX-N

NOTE

SPECIFICATIONS

General

Rx Frequency Range:	30 kHz - 56 MHz (operating) 1.8 MHz - 54 MHz (specified performance, Amateur bands only)
Tx Frequency Ranges:	1.8 MHz - 54 MHz (Amateur bands only)
Frequency Stability:	±0.5 ppm (after 1 minute @+77 °F to +122 °F [–10 °Cto +50 °C])
Operating Temperature Range:	+14 °F to +122 °F (–10 °C to +50 °C)
Emission Modes:	A1A (CW), A3E (AM), J3E (LSB, USB), F3E (FM), F1B (RTTY), F1D (PACKET), F2D (PACKET)
Frequency Steps:	1/10 Hz (SSB, CW, & AM), 100 Hz (FM)
Antenna Impedance:	50 Ohms, unbalanced 16.7 - 150 Ohms, unbalanced (1.8 MHz - 29.7 MHz) 25 - 100 Ohms, unbalanced (50 MHz - 54 MHz) (Tuner ON, 1.8 MHz - 50 MHz Amateur bands, TX only)
Power Consumption (Approx.):	Rx (no signal) 1.8 A Rx (signal present) 2.1 A Tx (100 W) 23 A
Supply Voltage:	DC 13.8 V ± 10% (Negative Ground)
Dimensions (WxHxD):	14.4” x 4.5” x 12.3” (365 x 115 x 312 mm)
Weight (Approx.):	22.0 lbs (10 kg)

Transmitter

Power Output:	5 - 100 watts (2 - 25 watts AM carrier)
Modulation Types:	J3E (SSB): Balanced, A3E (AM): Low-Level (Early Stage), F3E (FM): Variable Reactance
Maximum FM Deviation:	±5.0 kHz/±2.5 kHz
Harmonic Radiation:	Better than –60 dB (1.8 MHz - 29.7 MHz Amateur bands: Harmonics) Better than –50 dB (1.8 MHz - 29.7 MHz Amateur bands: Others) Better than –65 dB (50 MHz Amateur band)
SSB Carrier Suppression:	At least 60 dB below peak output
Undesired Sideband Suppression:	At least 60 dB below peak output
3rd-order IMD:	–31 dB @14 MHz 100 watts PEP
Bandwidth:	3 kHz (LSB/USB), 500 Hz (CW), 6 kHz (AM), 16 kHz (FM)
Audio Response (SSB):	Not more than –6 dB from 300 to 2700 Hz
Microphone Impedance:	600 Ohms (200 to 10 kOhms)

Receiver

Circuit Type: Double-conversion Superheterodyne

Intermediate Frequencies: 9.000 MHz/30 kHz (24 kHz for AM/FM)

Sensitivity:
SSB (BW: 2.4 kHz, 10 dB S+N/N)
- 4 µV (0.5 - 1.8 MHz) (IPO "ON")
- 0.16 µV (1.8 - 30 MHz) (RF AMP 2 "ON")
- 0.125 µV (50 - 54 MHz) (RF AMP 2 "ON")

AM (BW: 6 kHz, 10 dB S+N/N, 30 % modulation @400 Hz)
- 28 µV (0.5 - 1.8 MHz) (IPO "ON")
- 2 µV (1.8 - 30 MHz) (RF AMP 2 "ON")
- 1 µV (50 - 54 MHz) (RF AMP 2 "ON")

FM (BW: 15 kHz, 12 dB SINAD)
- 0.5 µV (28 - 30 MHz) (RF AMP 2 "ON")
- 0.35 µV (50 - 54 MHz) (RF AMP 2 "ON")

There is no specification for frequency ranges not listed.

Selectivity (WIDTH: Center):

Mode	–6 dB	–60 dB
CW/RTTY/PKT	0.5 kHz or better	750 Hz or less
SSB	2.4 kHz or better	3.6 kHz or less
AM	6 kHz or better	5 kHz or less
FM	15 kHz or better	25 kHz or less

Image Rejection: 70 dB or better (1.8 MHz - 30 MHz Amateur bands)
60 dB or better (50 MHz - 54 MHz Amateur band)

Maximum Audio Output: 2.5 W into 4 Ohms with 10% THD

Audio Output Impedance: 4 to 8 Ohms (4 Ohms: nominal)

Conducted Radiation: Less than 4 nW

Specifications are subject to change, in the interest of technical improvement, without notice or obligation, and are guaranteed only within the amateur bands.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- ❒ Increase the separation between the equipment and receiver.
- ❒ Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- ❒ Consult the dealer or an experienced radio/TV technician for help.

1. Changes or modifications to this device not expressly approved by YAESU MUSEN could void the user's authorization to operate this device.
2. This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions; (1) this device may not cause harmful interference, and (2) this device must accept any interference including interference that may cause undesired operation.
3. The scanning receiver in this equipment is incapable of tuning, or readily being altered, by the User to operate within the frequency bands allocated to the Domestic public Cellular Telecommunications Service in Part 22.

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

DECLARATION BY MANUFACTURER

The scanner receiver is not a digital scanner and is incapable of being converted or modified a digital scanner receiver by any user.

WARNING: MODIFICATION OF THIS DEVICE TO RECEIVE CELLULAR RADIOTELEPHONE SERVICE SIGNALS IS PROHIBITED UNDER FCC RULES AND FEDERAL LAW.

YAESU
The radio

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