

## FT-991

### Firmware Update Information

This update adds the DG-ID function and the DP-ID function in the digital C4FM mode of the FT-991 and is compatible with the System Fusion II digital repeater DR-2X.



- By updating this firmware, the conventional functions (DSQ (digital squelch function), the group setting, and the SYNC function in the GM (Group Monitor) function) will no longer be available.
- Some items of the MENU (SETUP) are changed. Please note that the number of most menu items are changed. (For details, refer to the MENU list.)

### ☐ New Additional Features Implemented by This Firmware Update

#### Digital Group ID (DG-ID) feature

- The two-digit DG-ID numbers (00 to 99) can be set separately for Transmit and Receive. By setting both transmit and receive to “00”, communication with all the other stations in the digital C4FM mode is possible, regardless of their DG-ID number setting.
- Matching the transmit DG-ID number to the uplink DG-ID number set in the DR-2X System Fusion II digital repeater, will permit access to the digital repeater DR-2X used by the club.
- For communication only among a group of friend’s transceivers, match all the transceivers to the same DG-ID number; then only the friend’s voices will be heard. Also, by using the GM function, users can find whether stations with the same DG-ID are operating within communication range.
- The transmit and receive DG-ID numbers may be registered in the DG-ID memory (up to 10 pairs). It is convenient to attach a nickname or call sign of the club stations as tags that can be displayed for each memory.

#### Digital Personal ID (DP-ID) feature

- Every C4FM digital transmit communication contains the individual ID information (Radio ID) of each transceiver. The DP-ID function uses this individual ID information.
- By registering the DP-ID of the transceiver to the DR-2X System Fusion II digital repeater, the digital repeater may be controlled by remote operation.
- When the DP-IDs of the transceiver are registered with each other, they can communicate even if the DG-ID numbers are different.

#### Use the DG-ID feature to access the WIRES-X node station

When accessing to a WIRES-X node station, the connecting node station may be selected in accordance with the DG-ID setting of the node stations.

## How to use the Digital Group ID (DG-ID) feature

This updated FT-991 firmware permits use of 10 pairs of DG-ID memories.

### Register the DG-ID number in the DG-ID memory

After updating the FT-991 firmware, the 10 sets of DG-ID numbers in the DG-ID memory registers may be used to simplify calling all of the members in each group.

**Example:** Enter the transmit DG-ID number “50” and the receive DG-ID number “00” into the DG-ID memory “01”.

1. Press the **MODE** button, then touch [C4FM].

Press the **MODE** button once more.

2. Touch and hold [**GM**] on the LCD.

The DG-ID LIST is displayed.



- The DG-ID of memory “00” is fixed at “TX 00, RX 00” and cannot be changed.
- The transmit and receive DG-ID default number is set to “00”.
- Normally, for general operation set the DG-ID number to “00” for both transmit and receive.

3. Rotate the **MULTI** knob to select the DG-ID “01” memory register to store the TX and RX DG-ID numbers.

4. Touch [**TX**].

The transmit DG-ID number setting screen is displayed.

5. Enter the “50” for the transmit DG-ID number, by touching the keys on the LCD.



While setting the DG-ID number, touching [00] will set the DG-ID numbers to “00”.

6. Touch [**ENT**].

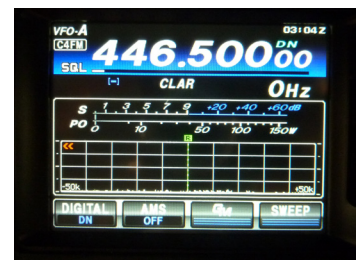
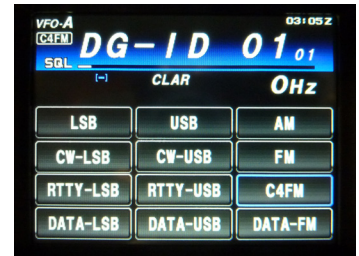
7. Touch [**RX**].

The receive DG-ID number setting screen is displayed.

8. Touch [**00**] to set the receive DG-ID to “00”.

9. Touch [**ENT**].

10. To change the tag, touch [**BACK**] to write the setting to the DG-ID list.



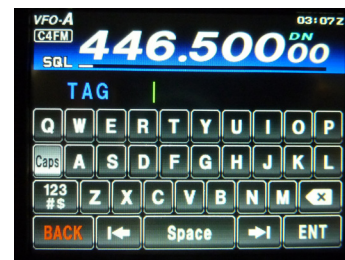
11. Touch **[TAG]**.

The DG-ID tag input screen is displayed.

Use the keys on the LCD to input the characters of the DG-ID tag. Up to 8 characters can be entered.

12. Touch **[ENT]** to save the setting and return to the DG-ID LIST screen.

13. Touch **[BACK]** to return to normal operation.



- Note that when the receive DG-ID number of the transceiver is set to a DG-ID number other than "00", received signals that do not have the same DG-ID number may not be heard.



- The transmit and receive DG-ID default numbers are set to "00".
- Normally, for general operation set the DG-ID number to "00" for both transmit and receive.

## Recall and use the DG-ID number registered in the DG-ID memory

1. Press the **[MODE]** button, then touch **[C4FM]**.

Press the **[MODE]** button once more.

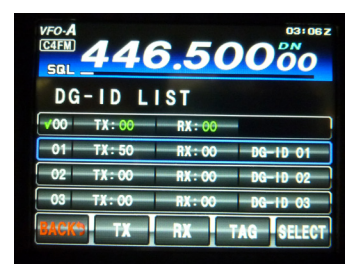
2. Touch and hold **[GM]** on the LCD.

The DG-ID LIST is displayed.

3. Rotate the **MULTI** knob to select the DG-ID memory number "01".

4. Touch **[SELECT]**.

A check mark is attached to the selected DG-ID list number, and the number and tag are shown in green.

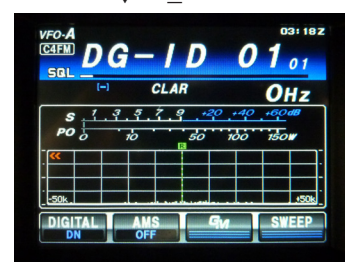


5. Touch **[BACK]** to return to normal operation.

- This completes the recalling of the DG-ID.
- When using the DG-ID memory, the tag of the DG-ID memory being used is displayed every 3 seconds.
- If the DG-ID memory is "00", the DG-ID memory tag is not displayed.



Normal Screen (Frequency)



Normal Screen (DG-ID Tag)



Normally, for general operation set the DG-ID list register number to "00". DG-ID number "00" can not be changed. The transmit and receive DG-ID number of register "00" cannot be changed.

## Use the GM (Group Monitor) with the DG-ID function.

1. Touch [**GM**] to turn the GM (Group Monitor) function ON, in order to find if other Group Member stations are operating within communications range.
  - The “GM” icon is shown at the upper left of the display.
  - The other stations must also turn the GM function ON.
  - The call sign, the distance and the direction of up to 24 stations operating with the GM function ON, set to the same DG-ID number, and that are within the communication range, may be tracked.
  - Rotate the **MULTI** knob to select the other stations.
2. Touch [**GM**] to turn the GM (Group Monitor) function OFF.



If the receive DG-ID number is set to other than "00", note that signals without the same DG-ID number cannot be heard.

## Digital Personal ID (DP-ID) feature

### Registering the DP-ID to a DR-2X digital repeater



To register the transceiver DP-ID in the System Fusion II, DR-2X C4FM digital repeater, refer to the instruction manual of the DR-2X.

After registering the transceiver's DP-ID to the DR-2X repeater, the settings and functions of the DR-2X can be remotely controlled. Remote control cannot be performed from a transceiver that has not been registered with the DP-ID, so it is possible to securely manage repeaters.

#### DR-2X Remote Control Feature

- Activate the repeater operation
- Deactivate the repeater operation
- Set the repeater to C4FM mode
- Set the transmit power
- Voice Message Control (Rec / Play / Stop)
- Set the Emergency Call

#### Register the transceivers

1. Press the **[MODE]** button, then touch **[C4FM]**.

Press the **[MODE]** button once more.

2. Touch and hold **[DIGITAL]** on the LCD.

The DP-ID List is displayed.

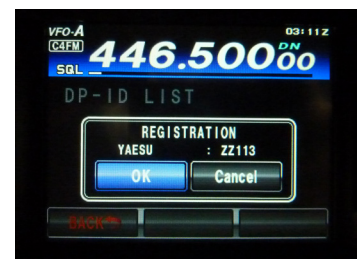
3. While the DP-ID list is displayed, a transmission in the digital C4FM mode from the other transceiver will register the DP-ID. When a signal from the other station is received, the call sign and the radio ID are displayed on the LCD.



- When a signal from the already registered transceiver is received, the display of DP-ID list does not change.
- When registering a transceiver already registered with a different call sign, the call sign registered in the DP-ID list is changed to register the new call sign.

4. Touch **[OK]** to save the setting.

- When registering in the DP-ID list is finished, the display returns to the DP-ID list screen.
- To continue operating without registering the DP-ID, touch **[Cancel]**.
- If registering several DP-IDs, repeat steps 3 to 4.
- A maximum of 24 stations may be registered.





5. Touch **[BACK]** to return to normal operation.

Register the DP-ID of all the transceivers in the group to another transceiver using the same operation.



- Once the DP-ID is registered, the DP-ID is stored until the DG-ID is deleted.
- Register with another transceiver while the transceivers are near each other.

## Deleting the registered DP-ID

1. Press the **[MODE]** button, then touch **[C4FM]**.

Press the **[MODE]** button once more.

2. Touch and hold **[DIGITAL]** on the LCD.

The DP-ID List is displayed.

3. Rotate the **MULTI** knob to select the call sign to be deleted.

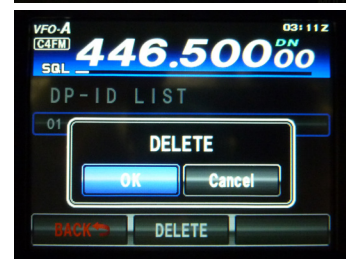
4. Touch **[DELETE]**.

The confirmation screen is displayed.

5. Touch **[OK]** to delete the call sign.

- When deleting in the DP-ID list is finished, the display returns to the DP-ID list screen.
- To return to normal operation without deleting the DP-ID, touch **[Cancel]**.
- If deleting several DP-IDs, repeat steps 3 to 5.

6. Touch **[BACK]** to return to normal operation.



## How to set the DG-ID feature to access the WIRES-X node station

1. Press the **[MENU]** (**SETUP**) button to engage the Menu mode.

2. Rotate the **MULTI** knob to select "153 WIRES DG-ID".

3. Touch **[SELECT]** on the LCD.

4. Rotate the **MULTI** knob to select the WIRES-X DG-ID setting.

AUTO: May connect to the node station available in your area.

01 to 99: May connect to the node station whose DG-ID matches.



The default setting is "AUTO".

5. Touch **[BACK]** to return to normal operation.

## Setup (Menu) Mode List

A new Menu Mode item [153 WIRES DG-ID] is added and existing Menu Mode items [088 DIGITAL SQL TYPE] / [089 DIGITAL SQL CODE] are removed.

No.	Menu Function	Available Settings	Default Value
001	AGC FAST DELAY	20 - 4000 (20msec/step)	300msec
002	AGC MID DELAY	20 - 4000 (20msec/step)	700msec
003	AGC SLOW DELAY	20 - 4000 (20msec/step)	3000msec
004	HOME FUNCTION	SCOPE/FUNCTION	SCOPE
005	MY CALL INDICATION	OFF - 5sec	1sec
006	DISPLAY COLOR	BLUE/GRAY/GREEN/ORANGE/PURPLE/RED/SKY BLUE	BLUE
007	DIMMER LED	1/2	2
008	DIMMER TFT	0 - 15	8
009	BAR MTR PEAK HOLD	OFF/0.5/1.0/2.0 (sec)	OFF
010	DVS RX OUT LEVEL	0 - 100	50
011	DVS TX OUT LEVEL	0 - 100	50
012	KEYER TYPE	OFF/BUG/ELEKEY-A/ELEKEY-B/ELEKEY-Y/ACS	ELEKEY-B
013	KEYER DOT/DASH	NOR/REV	NOR
014	CW WEIGHT	2.5 - 4.5	3.0
015	BEACON INTERVAL	OFF/1 - 240sec/270 - 690sec	OFF
016	NUMBER STYLE	1290/AUNO/AUNT/A2NO/A2NT/12NO/12NT	1290
017	CONTEST NUMBER	0 - 9999	1
018	CW MEMORY 1	TEXT/MESSAGE	TEXT
019	CW MEMORY 2	TEXT/MESSAGE	TEXT
020	CW MEMORY 3	TEXT/MESSAGE	TEXT
021	CW MEMORY 4	TEXT/MESSAGE	TEXT
022	CW MEMORY 5	TEXT/MESSAGE	TEXT
023	NB WIDTH	1/3/10msec	3msec
024	NB REJECTION	10/30/50dB	30dB
025	NB LEVEL	0 - 10	5
026	BEEP LEVEL	0 - 100	50
027	TIME ZONE	-12:00 - 0:00 - +14:00	0:00
028	GPS/232C SELECT	GPS1/GPS2/RS232C	GPS1
029	232C RATE	4800/9600/19200/38400 (bps)	4800bps
030	232C TOT	10/100/1000/3000 (msec)	10msec
031	CAT RATE	4800/9600/19200/38400 (bps)	4800bps
032	CAT TOT	10/100/1000/3000 (msec)	10msec
033	CAT RTS	ENABLE/DISABLE	ENABLE
034	MEM GROUP	ENABLE/DISABLE	DISABLE
035	QUICK SPLIT FREQ	-20 - 20kHz	5kHz
036	TX TOT	OFF/1 - 30 (min)	OFF (10×)
037	MIC SCAN	ENABLE/DISABLE	ENABLE
038	MIC SCAN RESUME	PAUSE/TIME	TIME
039	REF FREQ ADJ	-25 - 0 - 25	0
040	CLAR MODE SELECT	RX/TX/TRX	RX
041	AM LCUT FREQ	OFF/100Hz - 1000Hz (50Hz/step)	OFF
042	AM LCUT SLOPE	6dB/oct / 18dB/oct	6dB/oct
043	AM HCUT FREQ	700Hz - 4000Hz (50Hz/step) / OFF	OFF
044	AM HCUT SLOPE	6dB/oct / 18dB/oct	6dB/oct
045	AM MIC SELECT	MIC/REAR	MIC
046	AM OUT LEVEL	0 - 100	50
047	AM PTT SELECT	DAKY/RTS/DTR	DAKY
048	AM PORT SELECT	DATA/USB	DATA
049	AM DATA GAIN	0 - 100	50
050	CW LCUT FREQ	OFF/100Hz - 1000Hz(50Hz/step)	250Hz
051	CW LCUT SLOPE	6dB/oct / 18dB/oct	18dB/oct

No.	Menu Function	Available Settings	Default Value
052	CW HCUT FREQ	700Hz - 4000Hz(50Hz/step) / OFF	1200Hz
053	CW HCUT SLOPE	6dB/oct / 18dB/oct	18dB/oct
054	CW OUT LEVEL	0 - 100	50
055	CW AUTO MODE	OFF/50M/ON	OFF
056	CW BK-IN TYPE	SEMI/FULL	SEMI
057	CW BK-IN DELAY	30 - 3000 (msec)	200msec
058	CW WAVE SHAPE	2/4 (msec)	4msec
059	CW FREQ DISPLAY	DIRECT FREQ/PITCH OFFSE	PITCH OFFSE
060	PC KEYING	OFF/DAKY/RTS/DTR	OFF
061	QSK DELAY TIME	15/20/25/30(msec)	15msec
062	DATA MODE	PSK/OTHERS	PSK
063	PSK TONE	1000/1500/2000(Hz)	1000Hz
064	OTHER DISP (SSB)	-3000 - 0 - 3000(10Hz/step)	0Hz
065	OTHER SHIFT (SSB)	-3000 - 0 - 3000(10Hz/step)	0Hz
066	DATA LCUT FREQ	OFF/100 - 1000(Hz)(50Hz/step)	300Hz
067	DATA LCUT SLOPE	6dB/oct / 18dB/oct	18dB/oct
068	DATA HCUT FREQ	700Hz - 4000Hz(50Hz/step)/OFF	3000Hz
069	DATA HCUT SLOPE	6dB/oct / 18dB/oc	18dB/oct
070	DATA IN SELECT	REAR/MIC	REAR
071	DATA PTT SELECT	DAKY/RTS/DTR	DAKY
072	DATA PORT SELECT	DATA/USB	DATA
073	DATA OUT LEVEL	0 - 100	50
074	FM MIC SELECT	MIC/REAR	MIC
075	FM OUT LEVEL	0 - 100	50
076	FM PKT PTT SELECT	DAKY/RTS/DTR	DAKY
077	FM PKT PORT SELECT	DATA/USB	DATA
078	FM PKT TX GAIN	0 - 100	50
079	FM PKT MODE	1200/9600	1200
080	RPT SHIFT 28MHz	0 - 1000kHz (10kHz/step)	100kHz
081	RPT SHIFT 50MHz	0 - 4000kHz (10kHz/step)	1000kHz
082	RPT SHIFT 144MHz	0 - 4000kHz (10kHz/step)	600kHz
083	RPT SHIFT 430MHz	0 - 10000kHz (10kHz/step)	5000kHz
084	ARS 144MHz	OFF/ON	ON
085	ARS 430MHz	OFF/ON	ON
086	DCS POLARITY	Tn-Rn/Tn-Riv/Tiv-Rn/Tin-Riv	Tn-Rn
087	RADIO ID	Displays the unique transceiver ID (The ID is unique to each transceiver and cannot be changed.)	*****
088	GM DISPLY	DISTANCE/STRENGTH	DISTANCE
089	DISTANCE	km/mile	mile
090	AMS TX MODE	AUTO/MANUAL/DN/VW/ANALOG	AUTO
091	STANDBY BEEP	ON/OFF	ON
092	RTTY LCUT FREQ	OFF/100Hz - 1000Hz (50Hz/step)	300Hz
093	RTTY LCUT SLOPE	6dB/oct / 18dB/oct	18dB/oct
094	RTTY HCUT FREQ	700Hz - 4000Hz (50Hz/step) / OFF	3000Hz
095	RTTY HCUT SLOPE	6dB/oct / 18dB/oct	18dB/oct
096	RTTY SHIFT PORT	SHIFT/DTR/RTS	SHIFT
097	RTTY POLARITY-RX	NOR/REV	NOR
098	RTTY POLARITY-TX	NOR/REV	NOR
099	RTTY OUT LEVEL	0 - 100	50
100	RTTY SHIFT FREQ	170/200/425/850 (Hz)	170Hz
101	RTTY MARK FREQ	1275/2125 (Hz)	2125Hz
102	SSB LCUT FREQ	OFF/100Hz - 1000Hz (50Hz/step)	100Hz
103	SSB LCUT SLOPE	6dB/oct / 18dB/oct	6dB/oct
104	SSB HCUT FREQ	700Hz - 4000Hz (50Hz/step) / OFF	3000Hz



No.	Menu Function	Available Settings	Default Value
105	SSB HCUT SLOPE	6dB/oct / 18dB/oct	6dB/oct
106	SSB MIC SELECT	MIC/REAR	MIC
107	SSB OUT LEVEL	0 - 100	50
108	SSB PTT SELECT	DAKY/RTS/DTR	DAKY
109	SSB PORT SELECT	DATA/USB	DATA
110	SSB TX BPF	100-3000/100-2900/200-2800/300-2700/400-2600	300-2700
111	APF WIDTH	NARROW/MEDIUM/WIDE	MEDIUM
112	CONTOUR LEVEL	-40 - 0 - 20	-15
113	CONTOUR WIDTH	1 - 11	10
114	IF NOTCH WIDTH	NARROW/WIDE	WIDE
115	SCP DISPLAY MODE	SPECTRUM/WATER FALL	SPECTRUM
116	SCP SPAN FREQ	50/100/200/500/1000 (kHz)	100kHz
117	SPECTRUM COLOR	BLUE/GRAY/GREEN/ORANGE/PURPLE/RED/SKY BLUE	BLUE
118	WATER FALL COLOR	BLUE/GRAY/GREEN/ORANGE/PURPLE/RED/ SKY BLUE/MULTI	MULTI
119	PRMTRC EQ1 FREQ	OFF/100 - 700 (100/step)	OFF
120	PRMTRC EQ1 LEVEL	-20 - 0 - 10	5
121	PRMTRC EQ1 BWTH	1 - 10	10
122	PRMTRC EQ2 FREQ	OFF/700 - 1500 (100/step)	OFF
123	PRMTRC EQ2 LEVEL	-20 - 0 - 10	5
124	PRMTRC EQ2 BWTH	1 - 10	10
125	PRMTRC EQ3 FREQ	OFF/1500 - 3200 (100/step)	OFF
126	PRMTRC EQ3 LEVEL	-20 - 0 - 10	5
127	PRMTRC EQ3 BWTH	1 - 10	10
128	P-PRMTRC EQ1 FREQ	OFF/100 - 700 (100/step)	200
129	P-PRMTRC EQ1 LEVEL	-20 - 0 - 10	0
130	P-PRMTRC EQ1 BWTH	1 - 10	2
131	P-PRMTRC EQ2 FREQ	OFF/700 - 1500 (100/step)	800
132	P-PRMTRC EQ2 LEVEL	-20 - 0 - 10	0
133	P-PRMTRC EQ2 BWTH	1 - 10	1
134	P-PRMTRC EQ3 FREQ	OFF/1500 - 3200 (100/step)	2100
135	P-PRMTRC EQ3 LEVEL	-20 - 0 - 10	0
136	P-PRMTRC EQ3 BWTH	1 - 10	1
137	HF TX MAX POWER	5 - 100	100
138	50M TX MAX POWER	5 - 100	100
139	144M TX MAX POWER	5 - 50	50
140	430M TX MAX POWER	5 - 50	50
141	TUNER SELECT	OFF/INTERNAL/EXTERNAL/ATAS/LAMP	INTERNAL
142	VOX SELECT	MIC/DATA	MIC
143	VOX GAIN	0 - 100	50
144	VOX DELAY	30 - 3000 (msec)	500msec
145	ANTI VOX GAIN	0 - 100	50
146	DATA VOX GAIN	0 - 100	50
147	DATA VOX DELAY	30 - 3000 (msec)	100msec
148	ANTI DVOX GAIN	0 - 100	0
149	EMERGENCY FREQ TX	DISABLE/ENABLE	DISABLE
150	RPT/WIRES FREQ	MANUAL/PRESET	MANUAL
151	PRESET FREQUENCY	144.000.00 - 148.000.00	145.375.00 146.550.00 (USA )
152	SEARCH SETUP	HISTORY/ACTIVITY	HISTORY
153	WIRES DG-ID	AUTO/01 - 99	AUTO