simoco radio

SRM9000-Application Note A9k-821

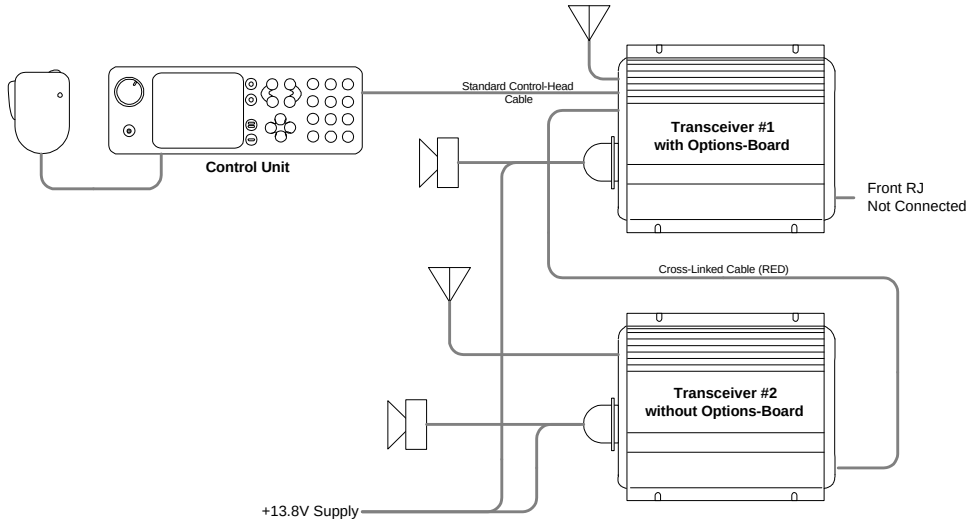
DUAL TRANSCEIVERS USING COMMON CONTROL UNIT

Applicable to models:

		9020 PMR	9025 PMR	**9030 PMR**
		9020 Trunk	9025 Trunk	**9030 Trunk**

1. General

The SRM9000 series of radios can have an Option Board installed that allows two Transceivers to be connected to one Control Head.



Facilities:

- Transceivers may be PMR or Trunked (or one of each).
- Control Unit has full control over the Primary Transceiver.
- Secondary Transceiver remains operational at all times.
- Function Button switches between Primary and Secondary Transceiver.
- Volume independently adjustable on both Transceivers.
- Selectable “Repeater” Facility
- Recommended Control Unit is SRM9030, but SRM9025 or SRM9020 types may also be used.

This Application Note describes this facility and what is required to operate in this mode.

2. Required Items:

Dual Transceiver Kit uses same Options-Board as the Dual-Control-Heads application.

The MA-DMAP option contains:
– Dual-CH/Transceiver Option Board for installation into Transceiver.
– Replacement Rear End-Cap with cutouts for option-board connectors.

Also Required:

Cross-Linked Cable : 500mm << Note: Early cables required extra Pin3-Pin3 connection to allow correct ON/OFF operation>>

Extra Speaker for Second Transceiver (not supplied with SRM9005)

plus

Second Transceiver (SRM9005)

SRM9005 E0-Band 66-88MHz, or
SRM9005 AC-Band 136-174MHz, or
SRM9005 TK-Band 400-450MHz, or
SRM9005 UW-Band 440-500MHz, or
SRM9005 WR-Band 470-530MHz, or

Hardware Setup

The “Dual Transceiver” option board can be fitted into the Transceiver by following these steps:

1. Remove the 6 screws from each end of the Transceiver and remove the plastic end-caps.
2. Fit the DB25 Ribbon cable Assy to the 26-way header on the PCB.
3. Insert the “Dual Transceiver” Option Board into the options-board slot in the lower half of the Transceiver casing.
4. Connect the short ribbon cable between the matching headers on each board (front side of Options board and Radio Main board – next to the RJ45 connector).
5. Re-fit the front plastic end-cap using one set of 6 screws removed ion step 1.
6. Fit the new rear end-cap (with DB25 Connector and the dual RJ45 cutouts) using the second set of 6 screws from step 1.

Testing :
Plug the Control Unit into the Front RJ45 connector and ensure that the radio operates normally. Then plug the Control Unit into each of the rear RJ45 connectors and ensure that radio operates the same.

Finally connect equipment as shown in figure on page-1. Ensure that the Control Unit and the second Transceiver are connected to the Option Board RJ45 connectors (order is not important as either can be Control Unit or Transceiver).

Ensure that the Control Unit can change between the Transceivers (change which is the ‘Primary’ Transceiver)

3. Configurations

Primary vs Secondary Radio

The Control-Unit can control only one radio at a time.

The "**Primary**" radio is the one that is controlled. The user can only Transmit on the *Primary* radio.

The *Primary* radio may be selected as either Transceiver#1 or Transceiver#2, by pressing the "**Radio Select**" button.

The "**Secondary**" radio is the one that is not currently controlled. The Secondary radio is fully operational, but the Control-Unit simply does not have ability to change it (at the moment).

PTT is always on the *Primary* radio.

Tips: When programming the "Radio Select" function on both radios:

- The function should be programmed to same Function-Button (eg. F1)
- Change the Buttons text label to tell the user which radio is currently being controlled. eg.

Both Radios are Conventional-PMR Radios

If both radios are PMR Transceivers, then operation will be basically as described above.

When the Control Unit is controlling a radio, it is as if were connected to that Transceiver only.

The Volume can be set separately on each Transceiver.
With a 9020 or 9025 Controller, the volume settings remain independent when switching between Transceivers.
With the 9030 Control Head the volume is set to the Volume Knob setting when the Volume is altered.

The "Radio-Select" button allows Control to be switched between the two Transceivers.

When Control is switched between Transceivers, the selected Transceiver updates itself according to the current Control Head status (ie. Display, PTT state, Mic-Cradle state, etc).

Repeater-Mode

When the "Repeater Mode" Function is programmed to a Function-Button (recommend same FB on each radio), the two transceivers will go into a Two-way repeat mode.

A signal received on one radio will be Transmitted on the other radio. (Operation can be customised by selection of Tx-only or Rx-only channels prior to activating the REPEAT function.)

In Repeater-Mode :

- The Control Head can PTT on the *Primary* Radio.
  This PTT will temporarily interrupt audio from the secondary radio (if currently receiving).
- The volume level (for both radios) is fixed at approximately mid-range.
  Received audio can be heard at the receiving radios Loudspeaker.
- The “Radio Select” button allows Control to be switched between the two Transceivers.
- The User can switch off Repeater-Mode by pressing the “Repeater Mode” Button.
  Previous settings (eg Volume) are restored in exit from Repeater-Mode.

Both Radios are Trunked Radios

When the Control Unit is controlling a radio, it is as if were connected to that Transceiver only.

The Volume can be set separately on each Transceiver.
With a 9020 or 9025 Controller, the volume settings remain independent when switching between Transceivers.
With the 9030 Control Head the volume is set to the Volume Knob setting when the Volume is altered.

The “Radio Select” button allows Control to be switched between the two Transceivers.

When Control is switched between Transceivers, the selected Transceiver updates itself according to the current Control Head status (ie. Display, PTT state, Mic-Cradle state, etc).

If one of the radios is in a call, then switching control to the other Transceiver (via the “Radio Select” button) leaves the first radio continuing the call.

There is no equivalent to “Repeater-Mode” in Trunk.

One Radio is Trunked and the other is PMR

When the Control Unit is controlling a radio, it is as if were connected to that Transceiver only.

The Volume can be set separately on each Transceiver.
With a 9020 or 9025 Controller, the volume settings remain independent when switching between Transceivers.
With the 9030 Control Head the volume is set to the Volume Knob setting when the Volume is altered.

The “Radio Select” button allows Control to be switched between the two Transceivers.

When Control is switched between Transceivers, the selected Transceiver updates itself according to the current Control Head status (ie. Display, PTT state, Mic-Cradle state, etc).

If one of the radios is in a call, then switching control to the other Transceiver (via the “Radio Select” button) leaves the first radio continuing the call.

There is no equivalent to “Repeater-Mode” in mixed PMR/Trunk setup.

4. Programmer Setup

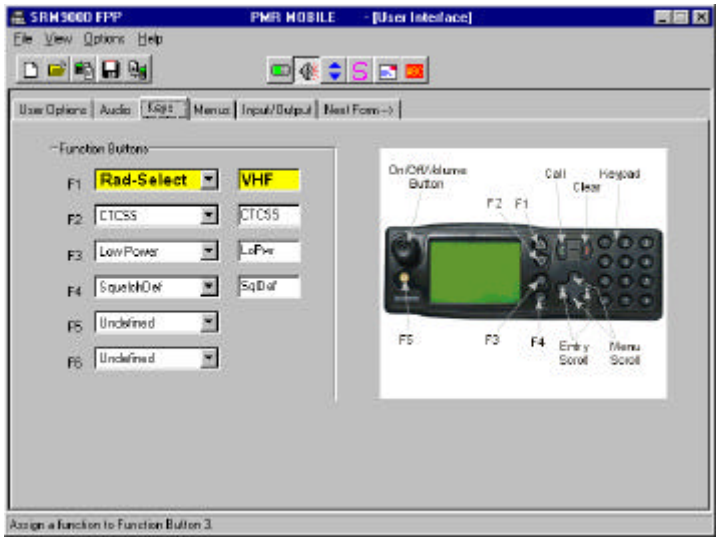
Both radios should have the ‘Radio Select’ button programmed to the same button.

This button is used to swap ‘Control’ from one Transceiver to the other.

On the SRM9030 the Button-Label can be used to indicated the *Controlled* radio.

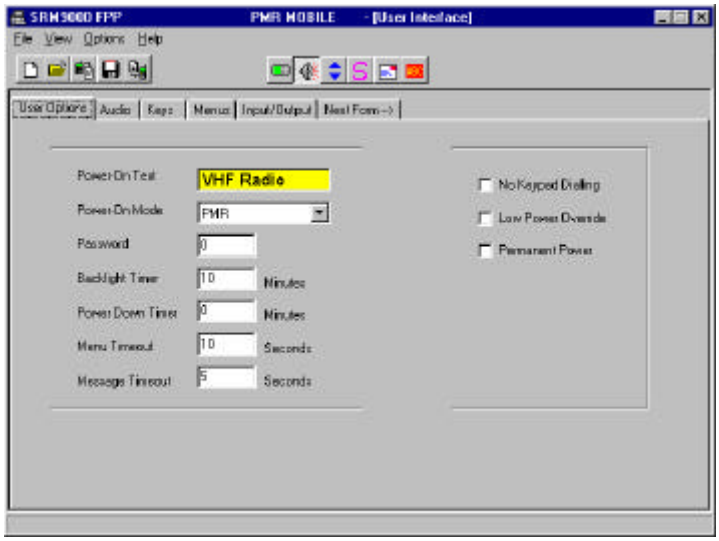
If **SRM9030 Control Head** is used the following settings are recommended:

- Program ‘Radio Select’ Function to the F1 button
  and use the Button Label to identify the radio .
  eg.



SRM9025/20 Control Units could also be used with the following recommended settings:

- Program ‘Radio Select’ Function to the F3 button (FCN)
- Since there are no button-labels on the 9025/20, use the ‘Power-Up Text’ to identify the selected Transceiver at switch-on.
  eg.



Compatability:

Revision 1.20 of this Document:

Software for the MA-DMAP Options board that supports functionality described above is in file: 9kGd120-Dual-Ch&Tr.BIN (which is distributed with FPP V2.89 and later).

Previous versions of MA-DMAP Board SW supported operation as described in Rev1.00 of this document.
Major changes are:

- Automatic Head-Switching disabled.
- Volume can be set independently on each radio.