

# ARX775 Programming Software

## Operators Guide

## INTRODUCTION

*This is a quick reference guide to show how to install your software and explain the procedure for programming your MRU400M repeater controller.*

### General Description

The ARX775 is a small DOS program intended to program the MRU400M Repeater Controller board frequencies and options. It comes with 4 standard configuration files that can be used or modified for different applications. The ARX775 software operates in DOS with on-screen editing and allows you to save or print your customer files.

Mouse operation is not supported by the ARX775. Navigating through the different fields and screens can be accomplished by hot keys indicated by [ ]. You may access menus by pressing ALT plus the highlighted letter, which begins each menu title. Each window or field has its own help dialog, which can be accessed by pressing the F1 key.

### Minimum Hardware Requirements

- A PC-XT compatible computer with 512 KB RAM
- A minimum of two disk drives for installation
- One serial port
- DB25 Serial cable (DB9F - DB25F or DB25F - DB25M0)

### Software Requirements

MS-DOS version 3.3 or higher / ARX775.EXE - On the ARX775 distribution disk, and MRX configuration files also on the ARX775 distribution disk.

NOTE: The ARX775 was not designed to operate under any version of Windows™ operating system. While tests to date have not demonstrated any problems running under Windows™, performance cannot be guaranteed. If you experience erratic program operation under Windows™ it is recommended that you run the program from a computer booted from DOS.

## I. INSTALLATION

### ARX775 - 720 KB (3.5") Diskette Installation

Since the ARX775 program is compact, it may be operated on the distribution diskette if desired, although installation on a hard disk is recommended.

#### Hard Disk Installation

Create a directory on your hard drive then copy the files to that new directory.

```
EXAMPLE:  C:\mkdir ARX775
           C:\cd ARX775
           C:\ARX775
           copy A:.* C:
```

You should now have ARX775.EXE on your hard drive along with 4 MRX configuration files.

### Connecting the MRU400M

1. Connect a standard DB-25 cable (not included) between the RX-232C port of the PC and the DB25F programming port of the station housing the MRU400M.
2. Be sure the station is ON before programming otherwise you will get an error message when trying to write data.

## II. START UP

To run the program, type ARX775 at the prompt. On initial startup the main screen appears. Notice the top menu bar and the highlighted characters, which signifies *hot keys*. Pressing Alt +



any highlighted character will access that particular function. The help feature is submenu driven. Select desired submenu then press F1 for help on that particular submenu.

### III. SETUP

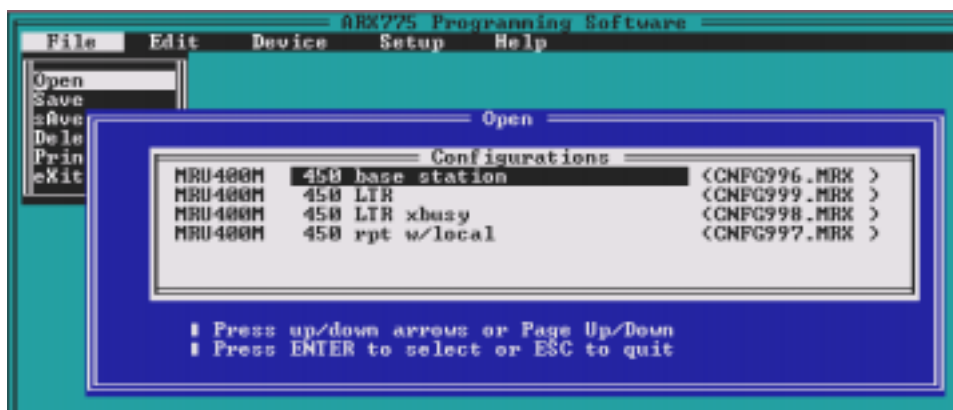
Open the Setup menu by pressing [Alt-S]. To select your Com Port press Enter and use ↑↓ arrows, ←→ arrows or the space bar to make your selection. Press F10 to save and exit the



Serial dialog screen. Use the same method to set up your choice of print outputs. You are now ready to open a file for editing purposes.

### IV. OPENING A CONFIGURATION FILE

After setting up your Com port and printer your next step is to open a configuration file. The ARX775 program comes with 4 test files, MRU400M 450 base station (CFNG996.MRX), MRU400M 450 LTR (CFNG999.MRX), MRU400M 450 LTR xbusy (CFNG998.MRX) and MRU400M 450 rpt w/local (CFNG997.MRX). DO NOT delete these files. Use your arrow keys to select the desired file then press ENTER. Go ahead and open the “450 base station file” just for practice. If you modify the file to your system configuration use “sAve as...”, to save



your changes under a new file name. Selecting Delete allows you to pick a file to delete. It is a good policy to always make backup copies of all your files.

If you have a printer installed, selecting Print sends the data to your printer port. When no printer is installed, your data will be sent to a file named “printme.txt”. You can then edit or print it later with DOS commands.

## V. Editing

Now that you have the “450 base station” file open, select Edit to set parameters for your *Station Configuration*, *Repeater*, *Accessory Port*, *Cross Busy*, and to set *Frequency 1* and *Frequency 2*.



Use your  $\uparrow\downarrow$  arrow keys to highlight your edit function, then press Enter. You can also make your selection by pressing the character that is highlighted.

Your first step is to setup your Station Configuration

### Station Configuration

In this screen you will setup which Module Band, Station ID, Station Call Sign, Morse Speed



(WPM), ID Mode, ID interval, Tx Timeout, Rx Mute and DCS Rx/Tx Polarity.

### Module Band

Your left/right arrow keys give you the different modules to choose from. The “450 base station” configuration is set for 450-494MHz range. The other selections available are “Disable”, “136-174MHz”, “350-400MHz”, “400-450MHz”, “470-520MHz”, “800MHz” and “900MHz”.

## Station ID

Automatic Morse code station identification may be enabled or disabled. Again use left/right arrow keys to toggle your selection. You can enter your station call sign up to 10 characters in length. Morse Speed allows you to set the character rate for your call sign to be sent to either 11 or 22 words per minute. In the ID Mode there are two settings for when you want the call sign to be sent. If you select "Tx Activity", your ID will be sent only if there has been transmit activity within the last ID interval. When using "Fixed Interval", you can set the ID interval from 1 to 90 minutes apart.

## Transmit Timeout

The station is equipped with a 3 level priority time-out timer. The timer resets when the PTT source unkeys or a higher priority PTT goes active. The highest priority level is LTR or local Mic PTT. The second level is accessory port device PTT and the lowest level is internal conventional repeater PTT. The duration may be set from 1 to 9 minutes, or enter 0 to disable the feature.

## Receive Mute

You can enable or disable the auxiliary receive audio from being muted during local and Aux. PTT. This function is normally enabled for base station mode.

## DCS Polarity

This option allows you to set the digital coded squelch to Normal or Inverted polarity. If the repeater doesn't decode DCS properly the first time change this selection.

Now that you have completed setting up the Station Configuration press F10 to save. Pressing the Esc key will prompt you with message asking if you really want to abandon your changes.

## Repeater

Selecting Repeater opens the Conventional Repeater Parameters dialog screen that allows you to



enable or disable the internal conventional function. If you are using the repeater in base station, LTR only, or external repeater controller operation, select 'NO' to disable.

## TX Hold

Select the TX hold time, from 0 – 9 seconds using your left/right arrow keys. This sets the repeater hang time, or duration, that the internal conventional repeater will remain keyed between mobile transmissions. It does not apply to any other keying sources. TX hold Encode can be disabled to prevent sending CTCSS/DCS during the repeater transmit hold time or, as some manufactures refer to as drop out time.

The repeater can also be set for a courtesy tone of 500, 1000 or 1500Hz, that is sent when a conventional repeater user unkeys. It is not sent with any other keying source (LTR, Local PTT or Aux. PTT). Press F10 to save your settings.

## Accessory Port

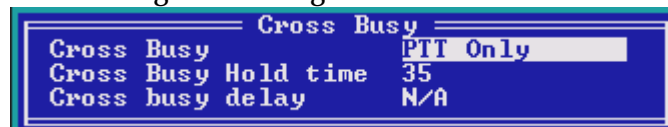
There are four Auxiliary settings, 2 output and 2 input. The Aux outputs 1 & 2 can be set to indicate either valid RX audio (CSQ/CTCSS/DCS), TX in use (channel unavailable) or Disabled (output is inactive).

For Aux. inputs 1 & 2 the selections include, conventional repeater disable, LTR cross busy input, disable CTCSS/DCS encode, monitor (carrier squelch), F2 channel select or Disabled, which sets input inactive.



## Cross Busy

This output tells the LTR logic that the channel is unavailable. It's always active during the Local, conventional repeat, and Auxiliary PTT. It can also be activated by RSSI and/or an Aux input. Cross Busy selections are PTT Only, AUX IN, RSSI or RSSI OR AUX IN. The Cross Busy Hold time is for LTR channels that are shared with conventional repeater users. Time can be set from 0 to 9.9 seconds for holding off trunking users between conventional transmissions. It's



typically set longer than the co-channel repeater TX hold time. Also for LTR repeaters sharing a channel with conventional users, a Cross-busy delay of .4 to 9.9 seconds can be added before a busy will be indicated to the LTR controller. This only applies to RSSI cross-busy setting, and is typically used to ignore short bursts of interference. When Cross Busy is set for PTT Only or AUX IN, Cross-busy delay is not available.

## Frequency 1 & 2

These selections are for setting your repeater for channel 1 and 2 receive/transmit frequencies, Encode / Decode CTCSS or DCS codes and to disable or enable the Busy Channel Lockout feature. Before entering a frequency, be sure the correct RF module is selected in the Station Configuration.

## Summary

After all entries have been made you should save your changes. Then you can move on to the Device menu to Write your data to the repeater. If you encounter a problem or your repeater is not working on the programmed frequencies, go back and Read the data from the repeater to make sure all our entries were correct.

## Technical Support

You can contact the Relm Technical Support for Uniden PRC products at 800-445-5017 or send an email to [service@relm.com](mailto:service@relm.com).