PCR-100 versus PCR-1000

Introduction

The PCR100 is the 2nd radio of the PCR class of receivers.
The PCR1000 was 1st, then the PCR100.

The PCR100 is a scaled down version of the PCR1000.
It supports AM/nFM/wFM only, no sideband.

The PCR100 uses the same command set as the PCR1000.

Radio Specs

Frequency coverage: .010 – 1300 mhz

PCR100 Modes: 02=am, 05=nfm, 06=wfm
PCR1000 Modes: 00=lsb, 01=usb, 02=am, 03=cw, 05=nfm, 06=wfm

PCR100 filters: 01=6k, 02=15k, 03=50k, 04=230k
PCR1000 filters: 00=3k, 01=6k, 02=15k, 03=50k, 04=230k

Startup commands:

You appear to try to start the PCR1000 with the following commands:

H101 - turn on the radio
G300 - turn off auto updates
H1? - query the radio

These seem to be a good start. The PCR-100 seems to give a cleaner response to commands. I have included some dump files that log the interaction between HRD and the radios.

The PCR100 always responds with data<cr><lf> whereas the PCR1000 seems to have some randomness. Although both radios use the same command language, you seem to look for something such as a <cr> or <lf> in some strange locations. I can fake out HRD and have it work the PCR100 if I add a few characters here and there.

Examples to fake out HRD:

If the PCR wants to send G000<cr><lf>,
I actually send <cr>G000<cr><lf>

If the PCR wants to send H101<cr><lf>,
I actually send <lf>H101<cr><lf>

I have written a vb6 app to get my PCR100 running. I have found that the above 3 commands also seem to work aok with the PCR100 but in order to get audio, I need to send a squelch command plus the audio volume command. The codes are the same as the PCR1000 commands.

J40xx = volume level. I set it to mid point
J41xx = squelch level. I set it to 00 at startup time

Interesting thing about the PCR100 squelch, I found that I must set the squelch level to something in order to get the audio to work. Perhaps the power-on default in the radio is set high (FF). That said, my small app at startup sends J4100 to set the squelch to zero.

The PCR1000 starts at 9600 baud and can go to 38400 with G105 command. Has anyone ever complained about the PCR getting out of sync? If you were to power off/on the PCR and not exit HRD, I believe they would be out of sync baud rates (hrd=38400 pcr=9600).

The PCR100 does not have: DSP, NB, IF shift, VSC
The PCR100 does appear to support CTCSS and Attenuator and Band Scope (audio muted while scoping).

I have verified that:

J4701 = attenuator on
J4700 = attenuator off
J4D01 = ANL on
J4D00 = ANL off

Reviews claim ‘no selectable AFC / AGC’. I am not sure if they are binary switches or simply not software controlled.

The PCR100 has software controlled audio output jacks. You can control Stereo/Mono, Speaker/Lineout

JAx0y More on this code soon.
I need to test with hardware..
The web reference I found appears to be wrong.

X=0 ??
X=1 ??
Y=0 ??
Y=1 ??

I'll verify the JA command and get back to you.

This has been said on a web page:

http://www.strongsignals.net/access/reviews/reviews.cgi?type=display&rtype=fi&class=recv&num=012

Comparing The Specifications Of Both Radios

- Same sensitivity
- Same selectivity
- Same current drain
- Same audio output
- Same conversion
- Same IFs
- Same voltage requirements

Band Scope

- The band scope is used to graphically display the activity on the frequencies adjacent to the currently tuned frequency
- The band scope on the PCR100 is almost identical to that found on the PCR1000
- The big exceptions are that it always mutes the signal while the band scope is active and it can display up to 2 MHz either side of the tuned frequency
- The width of the display can be set to ±100 kHz, ±500 kHz, ±1 MHz or ±2 MHz

http://elixcom.sk/ic-pcr100_en.php

- Unlimited Memory Channels
- Tunable Bandpass Filter
- Stereo Audio Output (external speakers required)
- Digital Auto Frequency Control (AFC) Circuit to compensate for frequency drift in FM mode
- Auto Noise Limiter (ANL) for clean sounding AM audio
- Band Scope
- Digital S-Meter
- Large Selection of Tuning Steps Available
- A Variety of Scans, including Program, Auto-Memory Write, Memory, Mode, Select and Skip
- Tone Squelch
- RF Attenuator

PCR-1000 serial port LOG (works ok with HRD)

to radio: H
to radio: 1
to radio: 0
to radio: 1
to radio: <lf>

from radio: <lf>
from radio: G
from radio: 0
from radio: 0

to radio: G
to radio: 3
to radio: 0
to radio: 0
to radio: <lf>

from radio: <cr>
from radio: G
from radio: 0
from radio: 0
from radio: 0
from radio: <cr>
from radio: <lf>

to radio: H
to radio: 1
to radio: ?
to radio: <lf>

from radio: <lf>
from radio: H
from radio: 1
from radio: 0
from radio: 1
from radio: <cr>
from radio: <lf>

to radio: G
to radio: 1
to radio: 0
to radio: 5
to radio: <lf>

PCR100 Serial port LOG – Does not communicate well with HRD

to radio: H
to radio: 1
to radio: 0
to radio: 1
to radio: <lf>

from radio: G
from radio: 0
from radio: 0
from radio: 0
from radio: ý

to radio: G
to radio: 3
to radio: 0
to radio: 0
to radio: <lf>

from radio: G
from radio: 0
from radio: 0
from radio: 0
from radio: <cr>
from radio: <lf>

to radio: H
to radio: 1
to radio: ?
to radio: <lf>

from radio: H
from radio: 1
from radio: 0
from radio: 1
from radio: <cr>
from radio: <lf>

to radio: H
to radio: 1
to radio: 0
to radio: 1
to radio: <lf>

from radio: G

from radio: 0
from radio: 0
from radio: 0
from radio: <cr>
from radio: <lf>

to radio: G
to radio: 3
to radio: 0
to radio: 0
to radio: <lf>

from radio: G
from radio: 0
from radio: 0
from radio: 0
from radio: <cr>
from radio: <lf>

to radio: H
to radio: 1
to radio: ?
to radio: <lf>

from radio: H
from radio: 1
from radio: 0
from radio: 1
from radio: <cr>
from radio: <lf>

to radio: H
to radio: 1
to radio: 0
to radio: 1
to radio: <lf>

from radio: G
from radio: 0
from radio: 0
from radio: 0
from radio: <cr>
from radio: <lf>

to radio: G
to radio: 3

to radio: 0
to radio: 0
to radio: <lf>

from radio: G
from radio: 0
from radio: 0
from radio: 0
from radio: <cr>
from radio: <lf>

to radio: H
to radio: 1
to radio: ?
to radio: <lf>

from radio: H
from radio: 1
from radio: 0
from radio: 1
from radio: <cr>
from radio: <lf>

to radio: H
to radio: 1
to radio: 0
to radio: 1
to radio: <lf>

from radio: G
from radio: 0
from radio: 0
from radio: 0
from radio: <cr>
from radio: <lf>

to radio: G
to radio: 3
to radio: 0
to radio: 0
to radio: <lf>

from radio: G
from radio: 0
from radio: 0
from radio: 0

from radio: <cr>
from radio: <lf>

to radio: H
to radio: 1
to radio: ?
to radio: <lf>

from radio: H
from radio: 1
from radio: 0
from radio: 1
from radio: <cr>
from radio: <lf>

Guesses to what is required to make a PCR100 work with HRD

1. Use the PCR1000 code as a starting point.
2. Remove the buttons for modes/filters/functions not supported
3. Send the squelch and audio settings at startup.
4. Allow HRD to accept the format of the responses data<cr><lf>