

Pioneer CAC-V180M command set

LEVEL III - COMMAND PROTOCOL MANUAL

This document is not official. These information are based on personal tests and basic reverse-engineering from the CAC-V3000 manual.

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Author: DUPRE Jonathan (<http://www.jonathandupre.fr>)

GitHub: <https://github.com/duprej/ccv>

1. Limitations

- Like the CAC-V3000 and 3200, the unit does not play CD-RW discs (unit too old). CD-RW technology was introduced later (in 1997).
- All disc magazines has to be installed for operation. The unit doesn't accept commands if one disc magazine is absent or not fully pushed. "E11" error message is returned.
- No hot swap operation: you can't eject a disc magazine and load another CD's or disc magazines when the unit is performing (playing a CD). Even if the current played CD is in another disc magazine.
- No eject-proof protection by default: disc magazines are not locked by usual serial commands. Pressing any of the 3 buttons on the front panel for ejecting a disc magazine cancel performing. Current played CD is stopped and returned in disc magazine before any disc magazine ejection. A specific command has to be send for explicitly disable/enable front buttons (key lock).

2. Serial parameters

Configure the software with theses values (4800 8N1):

Speed	Parity	Data bits	Stop bits
4800 bauds	None	8	1

3. Protocol

The command set and protocol is 99% the same as the CAC-V3000/3200. Please read CAC-V3000 serial programming documentation first. So far, remember that the CAC-V180M is an entry level changer and it does not offer all the features of the V3000. In the command line, the only difference is there is no need to select the player address with the PS prefix in the command-line (1PS, 2PS, nPS...).

The V180M has only one playing unit :). As usual in Pioneer Level III programming world: simply send ASCII text followed by a carriage return (written <C/R> or “\r”).

3.1 Command-line syntax

Commands can be combined and chained into a command-line. A command-line is composed of one or many commands with a maximum length of 20 characters. The command-line ends with a carriage return.

FORMAT: (ARG)CMD + (ARG)CMD ... + (ARG)CMD + <C/R>

EXAMPLE: 12ZSSA4SEPL<C/R>:

- 12ZS = Select (load) the CD number 12
- SA = Start CD rotation
- 4SE = Search for track number 4
- PL = Start playing

Notice: command-line is not case-sensitive and spaces are stripped-out.

Examples: 12ZSSA4SEPL = 12zsSa4sePL = 12 zs SA4Se Pl

3.2 Commands

Each one has always two characters. Some can require an argument. In this case the argument is placed before the command. Commands are divided into two categories:

- Execution Commands: tell the auto-changer to do something, give orders.
- Request Commands: request an information. Begins with the “?” char.

Here is the CAC-V3000 command set. Non-working commands on CAC-V180M are grayed.

#	Execution Commands	Arg.	
1	DISC SELECT	disc addr. [1-18]	ZS
2	DISC RETURN		ZR
3	START		SA
4	SEARCH	addr.	SE
5	STOP MARKER	addr.	SM
6	PLAY	addr.	PL
7	REJECT		RJ
8	PAUSE	addr.	PA
9	SCAN FORWARD		NF
10	SCAN REVERSE		NR
11*	BLOCK		BK
12*	TIME		TM
13*	TRACK		TR
14*	INDEX		IX
15	CLEAR		CL
16*	LEADOUT SYMBOL		LO
17	COMMUNICATION MODE		CM
18	SPEED		SP
19	AUTO-CUE SEARCH		QS
20	AUTO-CUE STOP		QT
21	CUE LEVEL SET		QL
22	LIMIT TIME SET		LT
23	VOLUME		VL
24	DURATION		DU
25	FADE IN/OUT		FD
26	CHANGER RESET		!!

#	Request Commands	
1	JOB STATUS REQUEST	?J
2	PLAYER ACTIVE MODE REQUEST	?P
3	DISC NUMBER REQUEST	?Z
4	MECHANISM ERROR REQUEST	?E
5	BLOCK NUMBER REQUEST	?B
6	TIME CODE REQUEST	?T
7	TRACK NUMBER REQUEST	?R
8	INDEX NUMBER REQUEST	?I
9	TOC INFORMATION REQUEST	?Q
10	CATALOG NUMBER REQUEST	?G
11	CDP MODEL NAME REQUEST	?X
12	COMMUNICATION MODE REQUEST	?M
13	PLAY TIME REQUEST	?A
14	DISC STATUS REQUEST	?K

#	Special V180M commands	
1	MAGAZINE OUT (EJECT) After moving the selector to 18, the address (magazine number) that causes the ejection of the magazine, is to be specified prior of the command. Example: 2ZO (to eject the 2 nd magazine from the top)	ZO
2	KEY LOCK Activates or deactivate the keys on the front panel. 0: Activate 1: Deactivate Example: 1KL	KL

* = “commands” used as parameter for PL, SE and SM commands. Placed before the value.

EXAMPLES (prerequisites: CD loaded and rotation is started = 1ZSSA):

Search for track 4: **4SE** (*TR is implicit*) or **TR4SE** (*explicit TR*) or **TR0004SE** (*leading 0s accepted*)

Search for absolute time 22 minutes 11 seconds 66th frame: **TM221166SE**

Search for block 2541: **BK2541SE**

Set the stop marker to the lead-out: **LOSMPL** (LO is the argument of the SM command)

3.3 Message returns

The auto-changer respond always in capital letters (uppercase).

Answer	Description
R	OK “complete message”. The whole command-line is finished correctly.
E00	COMMUNICATION ERROR Command-line length sent > 20 characters. RS-232C transmission error.
E04	FEATURE NOT AVAILABLE Unknown command or bad syntax. Parameter out of range: trying to access track 21 on a 20 tracks CD.
E11	DISC NOT EXIST At least one magazine is missing. Mechanism not ready: asking for playing but no CD loaded (ZS). CD is missing (empty slot).
E99	PANIC Disc is unreadable (bad format, no CDDA).

4. Communication modes & time lag

It seems that the only communication mode accepted is CM 3. This is also the default mode at power up. The CM 7 is not available on the CAC-V180M. So the player return the “R” message only after the whole completion of the command-line is done. This cause may takes some seconds to respond on the serial port.