

# PRES A3K6

*(A3000 Disc Interface Expansion Card)*

## INTRODUCTION

The PRES Disc Interface Card allows you to connect up to three additional 3.5 or 5.25 inch drives to an A3000. The software provided allows you to control the mapping between the drive numbers and the actual drives (which may be altered freely) and the double stepping feature.

An enhanced version of rho software is available which adds a version of 65Host with a fully functional DFS (even to the extent of loading protected discs) and a RISC OS application to allow files to be copied from a DFS disc in the Desktop. The enhanced software also provides a 65Host icon on the desktop icon bar, which may be used to start 65Host and autoboot a disc. This is intended especially for people with DFS discs from earlier Acorn/BBC computers, who still need to use the files and programs on these discs. Contact your supplier for details about how to upgrade.

## WARNING

**The Disc Interface Card must be fitted inside your computer. Therefore the warranty on your A3000 may be invalidated if you fit it yourself. If you are not confident about fitting it please contact your supplier.**

**N.B. it is important to remember to remove ALL discs before switching the power supply to the computer and/or A3K2 ON OR OFF**

## FITTING

Disconnect your computer from the mains, and any peripherals before proceeding.

Unscrew slightly the two \*rows on the back panel. Do not take them out completely - just slacken them enough to allow the metal plate behind the plastic lug to

slip out. Turn the computer upside down and unscrew the single screw which is approximately in the middle of the base.

Now press the plastic lugs on the back in, and gently slide the back of the case upward, so that the lugs are free. Holding it slightly open at the back gently release the three plastic lugs which hold the two pieces of the moulding together at the front. This is best done by Inserting a flatblade screwdriver and gently levering upwards and backwards. Do not use excessive force - it will come off easily when the correct angle is attained.

Remove the lid and put it to one side.

Unscrew and remove the metal plate in the back panel, just next to the power supply.

Carefully unplug the internal drive connector from the main PCB

Now remove the Disc Interlace from it's protective packaging and holding it at right angles to the main PCB, connect the short ribbon cable from the disc buffer board to the recently vacated socket on the main PCB; then line up the pins with the sockets on the board (with the metal faceplate going were the plate just removed was). Take great care to ensure that every pin is in line with the sockets.

Once you are satisfied press gently but firmly until the pins begin to enter the sockets. Check again that every pin has entered it's socket and that no pins are overhanging at either end. Now finish the insertion by pressing the board home.

Next connect the internal disc drive lead to the double row of pins on the disc buffer board, ensuring all the pins are fully aligned before pushing the connector home.

Screw the faceplate of the card to the back of the computer.

Now reassemble the computer. Put the two halves of the case together at the front initially (you will find that the lugs at the front go back much easier than they came out) . Then gently slide the back down. Check that the lugs are located in their holes at the back, and then close the case. Check that the case is completely closed, and that no wires or other foreign material are trapped in the casing.

Now put back the three screws removed earlier, and reconnect peripherals and the mains supply.

Switch on the monitor and the computer. If a normal display is not obtained switch off again, and recheck your Installation carefully. If problems persist please contact your supplier.

## AFTER INSTALLATION

Now check that the software on the board has been recognised correctly by RISC OS. For simplicity these instructions assume that you are in the Desktop. Experienced users who are outside the Desktop environment will probably know how to use the commands provided by this software with whatever they are using.

Press F12. A white bar, with a black star on the left will appear. This allows you to type in commands for attention by the command line interpreter. Type:

*\*HELP MODULES <RETURN>*

(note, press the key marked RETURN Instead of typing R E T ...).

A number of lines of information will be displayed. Somewhere within the last few entries (press <SHIFT> to scroll the display) you should see 'DriveLatch', which is the name of the software provided with the board. It will be followed by the software version number and the date of it's issue - both of which should be quoted if you need to seek technical support.

Press <RETURN> on a line with just the "\*" displayed to return to the Desktop.

If you also have new disc drives you will need to tell RISC OS to recognise them. Press F12 again if you have already returned to the Desktop. They type:

*\*CO. Floppies n <RETURN>*

where n is the total number of disc drives you have including the internal drive. (In fact, that's a slight simplification; if you had one external drive, but it was set as drive 2 on the drive itself you would have to configure the system for three floppy drives)

## ABOUT THE DISC INTERFACE EXPANSION CARD

The card provides the necessary buffering to allow up to three additional 'floppy' (3.5 or 5.25 inch) drives to be attached to your A3000. Once this has been done, and RISC OS configured to recognise them, they may be used in place of the internal drive for any task (including special software which insists on a particular drive, or size drive - explained shortly). Usually the first new drive will be :1, and the second 2. In an A3K2 with an additional 3.5 and 5.25inch drive fitted the 5.25 will be 2.

Some older 5.25 disc drives only had 40 tracks of storage (occupying the same space which present drives store 80 tracks in). The Disc Interface Expansion Card

provides a means of reading discs produced by 40 track drives by allowing you to have 'double-stepping' on physical drive number 2. This means that for every step of the head generated by the computer, the Disc Interface Expansion Card will generate an additional one (In fact, It actually generates two half-pulses).

Since the double stepping is only available on physical drive 2, it is this one which we recommend as the preferred location of a 5.25 inch drive.

However there are occasions where you really need the 5.25 inch drive to be drive 0, for example when running commercial software under the PC Emulator.

This is catered for in the Disc Interface Expansion Card's ability to alter the mapping between the drive numbers which you use, and the physical drives themselves. Thus you can easily set your system so that the 5.25 drive (physical drive 2) responds as : 0, and the internal drive responds as :2 ... or any other permutation. You cannot however assign two drives to the same drive number.

## THE DRIVELATCH MODULE

The controlling software is in the form of a module, which is loaded from the expansion card into the module area when a reset occurs. The software retains the previous setting of the board in the computer's battery-backed memory, so your settings will be retained with power switched off and over resets of the computer.

If the memory location becomes corrupt the software will restore the default map-ping, which is that all hardware drives respond to their real drive numbers, and double stepping is turned off.

The module provides two commands.

*\*STATUS DriveLatch*

and

*\*CONFIGURE DriveLatch*

Both may be used from the Desktop, in the manner described above.

*\*STATUS DriveLatch*

This command displays the present setting of the drive mapping. Alternately you can use

## ***\*STATUS***

which displays all the parameters held in the battery-backed memory.

The result will be

**DriveLatch a b c d s**

displayed where a,b,c and d are numbers between 0 and 3, and s is 4 or 8.

a is the hardware drive which will respond to :0

b is the hardware drive which will respond to :1

c is the hardware drive which will respond to :2

d is the hardware drive which will respond to :3

s is the double stepping state: 8 ls 80 track mode, 4 ls 40 track mode

The default setting would be displayed as:

**DriveLatch 0 1 2 3 8**

meaning that :0 accesses hardware drive 0, :1 accesses drive 1, and so on. Double stepping is turned off.

## ***\*CONFIGURE DriveLatch***

This command allows you to alter the drive mapping. It's syntax, in full is:

**[ <drive number> [ <drive number> [ <drive number> [ <drive number> ] ] ] ] [ 4 | 8 ]**

[ ] is an optional section <drive number> is replaced by a number from 0-3 4|8 means 4 or 8, but not both.

The drive numbers are hardware drive numbers, which relate to the position of the number in the sequence: thus the first number is the hardware drive which will respond to :0, the next for :1 and so on.

That looks quite complicated, but in practice becomes very simple to use. There

are a few 'golden rules' to remember:

The double stepping can be altered without changing or specifying anything else, just do

*\*Configure DriveLatch 4*

to double step or

*\*Configure DriveLatch 8*

to step normally.

You can use '4' or '8' along with other parameters, but the '4' or '8' must always be the last number.

You need only specify as many drive numbers as you need to change. Others will be left unchanged if possible, or altered with as little change as possible. Thus If you want to specify :0 accessing hardware drive 1 and :1 accessing hardware drive 0, you could use

*\*Configure DriveLatch 1 0*

and the settings for :2 and :3 would not be altered.

When a change is necessary the software will transpose drive numbers. Thus starting from

DriveLatch 0 1 2 3 8

*\*Configure DriveLatch 2*

would result in

DriveLatch 21038

If you do specify the same drive more than once an error will be reported.

This transposition technique allows three drives to be changed without affecting the fourth. Thus starting from

## DriveLatch 01238

### *\*Configure DriveLatch 201*

would achieve

## DriveLatch 2013

The fourth drive number, in fact, never needs to be specified. The software can determine it from the ones used already.

### STEP RATES

It is possible that you may experience errors when using the 5.25 inch drive, particularly when double-stepping.

This is caused by the physical limitations of the drive. In general 3.5 inch drives can move their head faster than 5.25 inch drives, because there is less distance to travel, amongst other things.

When double stepping the head is expected to achieve two head steps in the time allowed for one step in normal stepping.

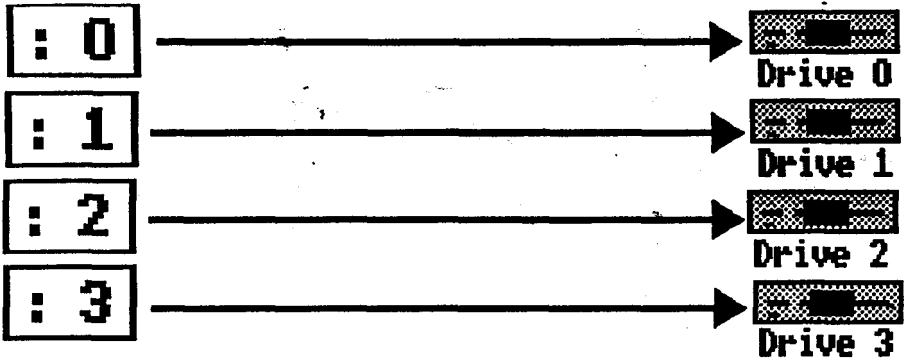
Should you experience problems you should try slowing the step rate of that drive. Refer to the User Guide for details ('\*Configure Step' - page 320 in the present Issue).

On any drive which is proving unreliable for double stepping you should halve the step speed. However, the minimum speed possible on the Archimedes is 12mS -which is still quite fast in 5.25 inch disc drive terms, so it is possible that some drives may still not work.

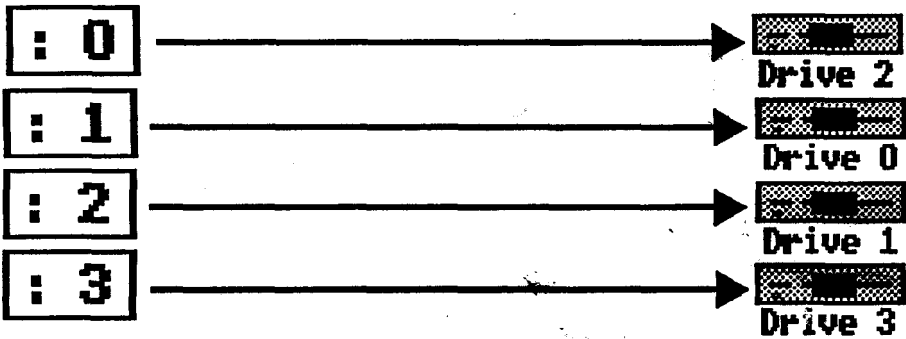
If you have to alter step rates, you should do it for every drive number which that drive is likely to appear as. Thus if it is hardware drive 2, and is sometimes used as :0 under the PC Emulator, you should change the step settings of both :0 and :2.

The settings only take effect after a CTRL-Break or CTRL-reset.

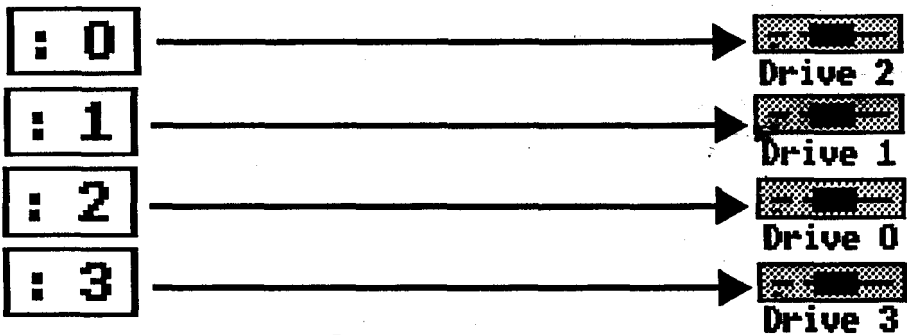




Standard mapping: DriveLatch 0 1 2 3 8



Setting after Configure DriveLatch 201.  
(Previous setting is irrelevant here)



Mapping after Configure DriveLatch 2,  
(Previous Setting was 0 1 2 3 8)