

Stand Alone MMC card programmer

Instruction Manual

Draft Copy



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Background

The MMC Memory Card is an inexpensive, small, and disposable memory device. It is easily distributable and an economical way to distribute data. The MMC Programmer was designed to allow data suppliers to quickly, easily and reliably perform MMC Card duplication. It can duplicate MMC cards without the need for a computer or other external device.

Introduction

Each MMC Programmer consists of an 110V power supply and a Programmer Card. The Programmer Card has one master MMC socket and four slaves. Indicator lights verify each operation and provide a visual indication of the status of the system. Multiple Programmers may be slaved with a simple two wire interface to allow duplication in any multiple of four cards.

How to use

The MMC programmer in stand-alone operation will allow you to make copies of up to 4 MMC cards from a single master. Currently only the Atmel AT45DCB002 MMC card is supported.

Upgrades

Upgraded models will support the following larger cards:

- ATMEL AT45DCB002 MMC card
- ATMEL
- AT45DCB004 MMC card
- ATMEL ST45DCB008 MMC card

Features

- Copy up to 4 cards per unit.
- Allows PC control of the copy operation to allow full automation of the copy process along with automatic flavoring and unique serialization of cards and data.
- Will support daisy chaining of up to 8 programming units to allow simultaneous programming of up to 32 MMC cards at a time.
- Optionally allows writing of 528 bytes per page instead of 512 bytes.

Instructions

1. Power up the unit using the supplied adapter. Both the +5v and 12V leds should be lit once power is applied. Detect and program LEDs will flash 5 times to signify unit has passed its internal self-test.

2. Place the master MMC card in the master slot labeled dataflash1. The 'detect' LED next to the master card lights up indicating that the unit has detected the card and has verified the card-type.
3. Place the mmc cards to be copied **to** into dataflash sockets 2 to 5. Any number of cards from 1 to 4 can be added. Once the cards are inserted, press the "COPY" button. The "Detect" LEDS will then light up next to the card sockets that are populated. Pressing the "QUIT" key aborts if you want to stop the copying procedure.
4. Press the "START" button to begin copying. The program LED should now be flashing on all populated card slots signifying the simultaneous copying off all the MMC cards.
5. Once the copy is complete the cards are then automatically verified. The verification process is running when the copy lite changes from a steady on to a flashing mode. Pressing the "QUIT" key aborts the process at any time. Note that if the copy 4 mode is aborted, the contents of the card are not guaranteed.
6. Once the verification is complete the "Quit" LED turns on. Note that if this LED is in the steady-state mode and both leds next to the card are lit, the copy function was completed successfully. If the quit led is flashing, the system has found a verification error on a card. The card with the error will have the program LED next to it turned off.
7. When completed, remove the MMC cards and press "QUIT" to reset.

Note that MMC cards are static sensitive devices. Proper precautions must be taken (such as anti-static pads and grounding straps) to avoid any type of static damage during handling and programming of the MMC cards. Completed cards should be placed in anti-static packaging.

DATARW – the data read/write program

Introduction:

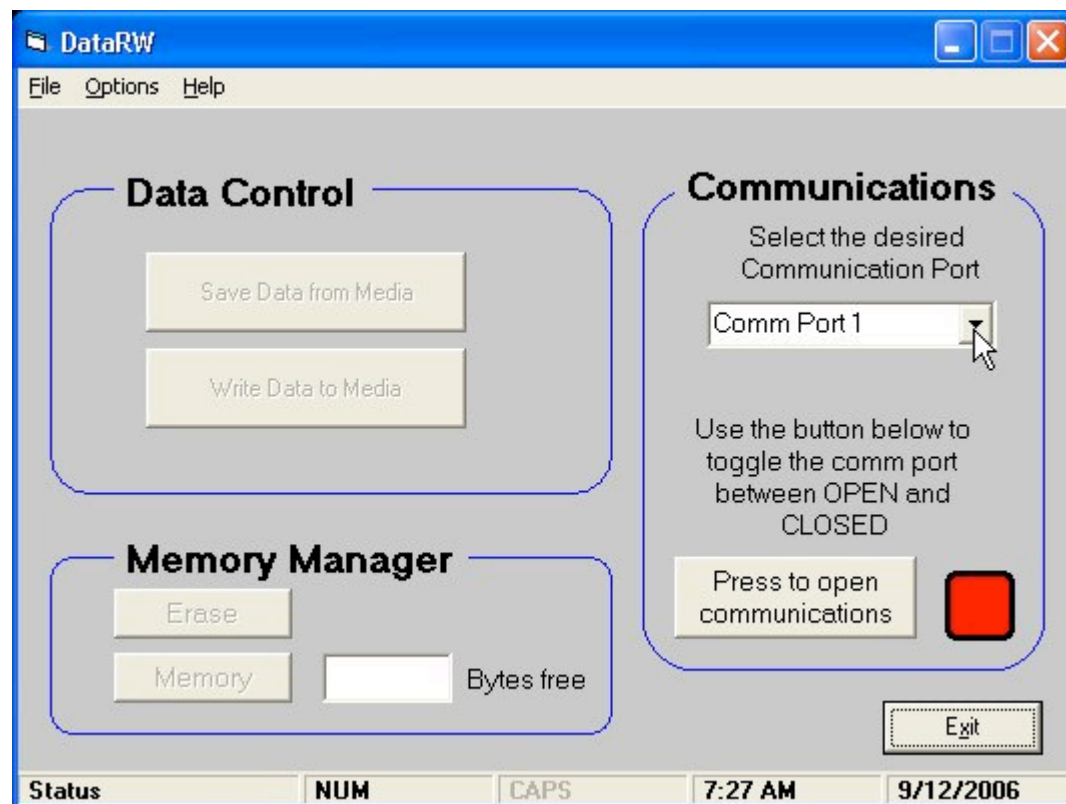
DataRW has been developed to allow data to be written to and read from a flash type media card and in this case an MMC card. The data is transferred a page at a time (512 bytes) an option for 528 bytes per page is going to be added). If there is insufficient data to complete a page, then the remainder of the page is filled with HexFF values. The user can write data to any of the pages, they must be sequential and retrieve information from any sequential data range.

DataRW has been developed to work with the InControl Systems Inc. gang programmer.

This software release is functional but does not have all the necessary error handling routines.

Main Screen

The mail screen has three main areas:



Data Control: In this area the user can either write data to the media, from a file or read data from the media, to a file.

Memory Manger: In this area the user has the ability to either erase the complete media card, in this case a 2MB, 4096 page card, or erase a range of sequential pages. Later on we may put in the capability of determining how much free space is available on the card.

Communications: In this area the user selects which comm port they wish to communicate on as well as switch the comm port off and on. The comm port has to be switched off when selecting the desired comm port number.

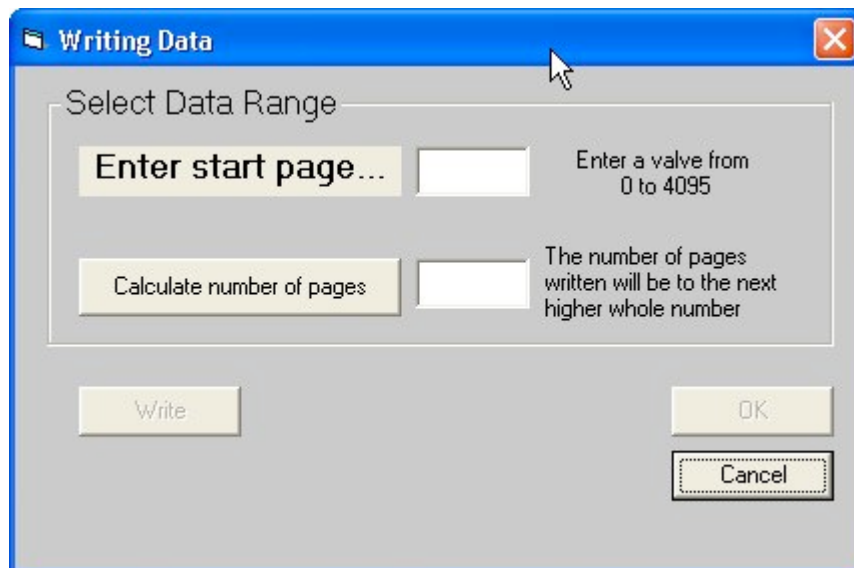
There are three pull down menus sections *File* used to exit the program, *Options* this will eventually have a Hex Editor and *Help* that has he about dialog.

Communications

Connect the gang programmer to an available comm port on your computer.

- Start the DataRW program and select the comm port number the gang programmer is connected to, the default is Comm 1.
- Select the “Push to open communications” button; this will establish communications between your computer and the gang programmer.
- To select another comm port press the “OPEN” button, this will toggle to “CLOSE” and allow you to select another comm port. Press the “CLOSE” button to toggle back to open communications.

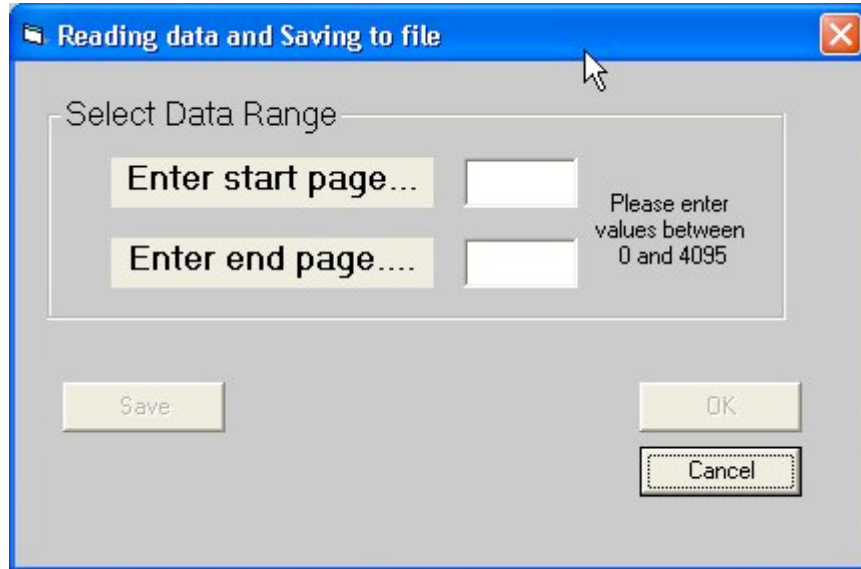
Writing Data



- With communications open select the “Write Data to Media” button in the Data Control section. This will bring up the file open dialog; either a text or binary file may be loaded.
- You will then be asked to enter the start page from which your data will be written from.

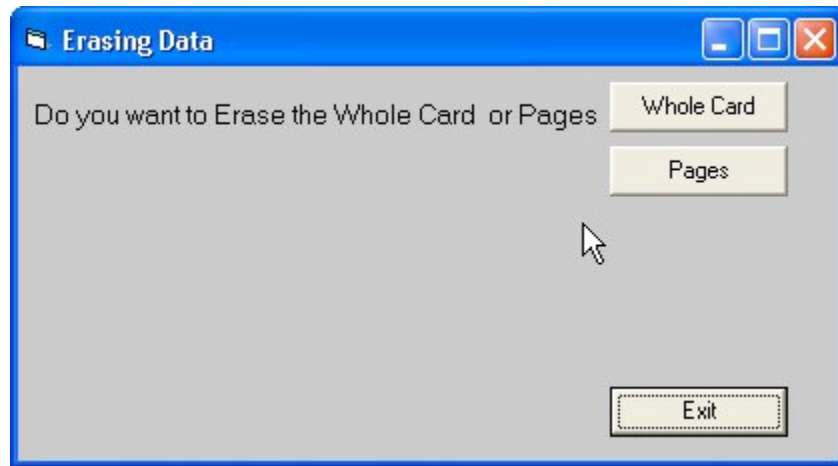
- If you want to know how many pages of information your file has, select the “Calculate number of pages” button. For fractional pages the software will pad them out to a complete page by adding HexFF bytes.
- Select the “Write” button to send the data to the media card. If a communications problem occurs try powering the gang programmer down and then back up again.

Reading Data



1. With communications open select the “Save Data from Media” button in the Data Control section. This will bring up the file save dialog, choose a text or binary file you want to save to or enter a new one. Choosing an existing file will overwrite any data.
2. Now you have a choice of what data range (page numbers) you want to save to the selected file. Enter the start page and end page, then press the “Save” button.
3. If a communications problem occurs try powering the gang programmer down and then back up again.

Erasing the Data on the Media



The Whole Card

- With communications open select the “Erase” button in the Memory Manger section.
- Now select the “Whole Card” button, then the “Start” button. By selecting the “Exit” you will go back to the main screen.
- If a communications problem occurs try powering the gang programmer down and then back up again.
- Pressing the “Abort” will stop the erase process.

Pages

- With communications open select the “Erase” button in the Memory Manger section.
- Now select the “Pages” button, a dialog box will appear asking for the range of page to erase. Enter in the page numbers and press the “Ok” button.
- Select the “Start” button to erase the pages. If a communications problem occurs try powering the gang programmer down and then back up again.
- Pressing the “Abort” will stop the erase process.

Troubleshooting

Communications Problem:

- Cycle the power to the gang programmer off then back on again.
- Exit out of the DataRW program and open it back up again.