
DATAMAN 848 MANUAL

Dataman-848 Manual Preface

Dataman-848

User Manual

Dataman Programmers Ltd.
Station Road
Maiden Newton
Dorset
DT2 0AE
United Kingdom

Phone: +44/0 1300 320719

Fax: +44/0 1300 321012

<http://www.dataman.com>

Email Sales: sales@dataman.com

Email Technical support: support@dataman.com

For Sales and Technical Support in the USA and
Canada, contact:

Dataman Programmers (USA)
215 E. Michigan Avenue
Orange City, FL 32763
USA

Phone: (386) 774-7785

Fax: (386) 774-7796

Email: ussales@dataman.com

Copyright Notice

This document is the copyright of Dataman Programmers Ltd. All rights are reserved. Dataman Programmers Ltd reserves the right to make changes to the products described in this manual at any time without notice.

No part of this manual may be reproduced, copied, translated or transmitted in any form or by any means without the prior written permission of Dataman Programmers Ltd. Information provided in this manual is intended to be accurate and reliable. However, Dataman Programmers Ltd. assumes no responsibility for its use, nor for any infringements upon the rights of third parties which may result from its use.

Acknowledgements

IBM, PC AT and VGA are trademarks of International Business Machines Corporation.

MS-DOS and MS-Windows are trademarks of Microsoft Corporation.

Issue No. 1
Printed in UK, April 2000

DATAMAN 848 MANUAL

How to use this manual

Thank you for purchasing the **DATAMAN-848 Turbo Gang Programmer**. We designed this manual to help you quickly and easily set up and use your DATAMAN-848. You can use the manual in two ways:

Step by step:

The manual should be used in conjunction with the On-line help contained in the DATAMAN-848 software. Once you've installed the DATAMAN-848 and the software, you shouldn't need this manual again. You can just press 'F1' in the program and context sensitive help will guide you through the processes.

Quick Start:

Our special Quick Start section gives experienced users the information they need to set-up the DATAMAN-848 and software, and basic guidelines on using the DATAMAN-848. If you need more information, you can refer to the rest of the manual. If you have any problems, you can work through the manual step by step for easy troubleshooting.

If you have any questions, feel free to call your local distributor or sales representative.

Software update:

Please visit our web site at www.dataman.com for the latest Dataman-848 software.

DATAMAN 848 MANUAL

Packing list

Before you begin installing your DATAMAN-848, please make sure that the following materials have been shipped:

- 1* DATAMAN-848 turbo gang programmer
- 1* Parallel cable
- 2* 3.5" Floppy disk containing the DOS software

Contents

Chapter 1 Quick Start.....7
Quick Start7

Chapter 2 General Information 10
Introduction11
Features11
Using the DATAMAN-848 Software 15

Chapter 3 Installation 17
Minimum PC System Requirements18
Installing the DATAMAN-84818
Installing the DATAMAN-848 Software18
Upgrading the DATAMAN-848 Software.....18
Notes for Three Different OS Set-ups 19

Chapter 4 Command Hierarchy..... 20
DATAMAN-848 Command Hierarchy.....21

Chapter 5 Operation 23
LED Display on Each Socket.....24
LED colour key.....24
File Commands25
Save Buffer25
Load File.....26
Change Directory.....28
Exit to DOS29
Project Commands29
Save Project29
Load Project29
Device Commands.....30
Change Device30

DATAMAN 848 MANUAL

Mass-production Mode.....	31
Editing the Buffer	33
Blank checking a device	34
Reading a device	34
Programming a device	35
Verifying a device.....	35
Memory Protect.....	35
Erasing a device.....	36
Configuration	37
Options.....	38
Modify Algorithm Parameters	39
Device operation options.....	39
Module options	44
Statistic Commands.....	45
Statistic Option	46
Reset counter	47
Chapter 6 Using Adapters.....	48
Adapter requirements.....	49
Chapter 7 Error Messages.....	50
Error Messages	51

Chapter 1

DATAMAN 848 MANUAL

- 1) Select the chip type to be programmed.
Use the Hot keys "ALT-C", then type the complete part number of the chips to be programmed; or use the mouse to select the correct part number.
- 2) Load the design file into the buffer.
Use the Hot keys "ALT-L", and then specify the file name file, directory details and click on OK.
- 3) Alternatively, you can read a master chip into the buffer instead of a design file.
The default master socket is socket 0. By putting a chip into socket 0 and performing the Read operation (Hot keys ALT-R), you can transfer the chip's contents into the buffer.
You can also select any other socket as the master socket. Go to the main menu, select the module options (Hot key F5), and then select the master socket. Insert a master chip into the master socket, and carry out a Read function.
- 4) Insert 8 chips of the same type into the 8 ZIF sockets, set the device operation option (Hot key F4), and then carry out Program function (Hot keys ALT-P). This will now program the 8 chips simultaneously.
- 5) To increase throughput, a user can change the mode to Mass production mode (Hot Keys Alt-M). After entering this mode, the DATAMAN-848 will program chips automatically after they are properly inserted into the sockets. DATAMAN-848 has both a standard mass production mode and a concurrent mass production mode. Standard mode allows the DATAMAN-848 to program 8 devices at the same time. Concurrent mode divides the 8 sockets into two groups, group 1 comprised of sockets 0-3 and group 2 comprised of sockets 4-7. The chips of group 1 will be programmed

DATAMAN 848 MANUAL

when the chips are being inserted or unloaded from group2. After the programming of chips in group1 are finished, the DATAMAN-848 will automatically program the chips of group2.

A user can enable the insertion timer and adjust the timer. Enabling the timer will allow DATAMAN-848 to automatically shutdown a socket with poor contact upon timeout of a user-set timer period. DATAMAN-848 then automatically programs the chips in the remaining good sockets. The insertion timer default setting is 5 seconds. When the insertion timer is disabled, the user will have to either correct the insertion error or press the ignore key to continue programming after a socket with poor contacts is discovered.

- 6) DATAMAN-848 also automatically keeps a running total of all chips that have been programmed and all chips that have failed to program. A user can input a target quantity of chips to be programmed and an allowable number of programming failures. An alarm message option provides a message to the screen alerting the user to either the target quantity of chips being reached, or the allowable number of failures have been reached.
- 7) For a detailed explanation of the device operation options, please refer to Chapters 3 and 4.



Chapter 2

DATAMAN 848 MANUAL

Introduction

The DATAMAN-848 is a PC-based gang programmer that works through your PC's parallel port. It features eight fully isolated 48-pin ZIF sockets, extremely high throughput, standard 5 V and 3 V chip support, production piece counts, and device insertion and continuity checks, all within a PC-based design. Device updates are available through new software releases, giving our customers quicker and more flexible access to new chip support. DATAMAN-848 future software updates in EPROM, EEPROM, and FLASH technology will include 87C5x, 89C5x, and PIC16Cxx microprocessor support. The DATAMAN-848 was designed with flexibility in mind. If a customer has special chips that are not in our standard support list, we can provide special programs that will allow the DATAMAN-848 to perform as a customized special production gang programmer.

Features

Universal adapter for Flash chips

The DATAMAN-848 is designed to meet your future needs in high density Flash chips. Using the resources of your PC, it supports 32 K bit up to 256-M bit memory chips without upgrading its hardware. The DATAMAN-848 also has a universal adaptor that accommodates 48 pin TSOP, 44 pin PSOP, 40 pin TSOP and 32 pin TSOP Flash chips, which eliminates the need to buy multiple adapters and saves you money.

Unbeatable speed through semi-concurrent programming technology

The DATAMAN-848's on-board intelligence reduces system overhead to a minimum. It can program eight Flash chips of 8 Mb capacity (such as Intel 28F800B3, for example) within 45 seconds. An experienced programmer

DATAMAN 848 MANUAL

can program thousands of high-density chips per day. Furthermore, the DATAMAN-848 supports two programming modes. In standard programming mode, the DATAMAN-848 automatically programs all eight chips after all eight pieces have been inserted into the sockets. In semi-concurrent programming mode, a user can divide the 8 sockets into two groups (of 4 sockets each). By using the technique of programming 4 chips while simultaneously removing and inserting the other 4 chips, a customer can increase throughput. This also allows interface with the fine pitch pick and place handler for high-density fine pitch chips.

Statistic Functions

The DATAMAN-848 automatically keeps a running total of all production pieces attempted and all production pieces failed. Users can input a target quantity of chips to be programmed and an allowable number of failures. An alarm function can be enabled to send a message to the screen alerting the user to either the target quantity of chips being reached, or the allowable number of failures being reached.

Fully isolated ZIF sockets

The DATAMAN-848 has fully isolated (> 1 M ohms) circuits for each socket's address/data bus/control lines. Each socket has its own built-in Vcc and Vpp current-limiting circuitry. A defective device in one socket will not affect the devices in or programming integrity of the remaining sockets.

Device-insertion and continuity checks - No mistakes!

The DATAMAN-848 performs device-insertion and continuity checks before programming each device. It can detect poor pin contact, upside-down device insertion, incorrect position, and pin number mismatch. This function

DATAMAN 848 MANUAL

protects your wallet by preventing expensive chip damage caused by operator error.

Auto-sensing and self-programming

The DATAMAN-848 has implemented patented technology to meet mass-production requirements. When a chip fails the device insertion check, the DATAMAN-848 waits for an operator adjustable time. If the operator fails to correct the improper insertion within the selected time period, the socket with the improper insertion is shutdown and the other chips are automatically programmed.

Independent module design

The DATAMAN-848 is designed to achieve a minimum of down time. Its 8 sockets are divided into 4 identical modules having two sockets each. Each module is independent of the other three modules. If one module fails, the customer can continue to operate the other three modules without sacrificing the turnaround time to repair. Extra modules are available to customers in spare kits.

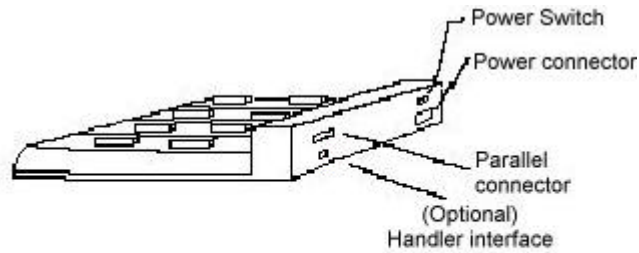
Project file "Save and Load"

You can save the program configuration project file that contains the device selection, the buffer data and all of the program setup options. This file can be recalled at any time for future use without having to go through the setup procedure again. This allows you to pass your design file to the production department without mistakes. You can also read the data from a device into the buffer from any of the 8 sockets, according to your specification.

Variable V_{CC} with one or two-pass verification

The DATAMAN-848 allows users to select the verification voltage after chip programming is completed, e.g., $V_{CC} \pm 5\%$, $V_{CC} \pm 10\%$. V_{CC} can range from 2 V to 7.5 V. Verification ensures that the chips have been properly programmed, with no data retention problems.

Dataman-848 Diagram



Device support summary

General EPROM: 27xxx series 32 K to 32 Mb with 8/16 bit data width.

Flash EPROM: supports NOR, NAND, AND, DI-NOR, and EEPROM technology

29xxx, 5 V / 3 V Flash, 28Fxxx 12 V / 5 V / 3 V Flash from all major chip vendors.

Microprocessor:

Intel 87C5x compatible, ATMEL 89C5x compatible, Micro chip PIC16Cxx.

Specification:

Socket and pin driver:

8 fully isolated 48 pin ZIF sockets with receptacle, over 1-M ohm resistance between each socket.

Four DACs for V_{CC} , V_{PP1} , V_{PP2} and V_{PP3} with 8 bit resolution.

DATAMAN 848 MANUAL

V_{CC} range 2 V to 7.5 V, resolution 50 mV

$V_{PP1, 2 \& 3}$ range 5 V to 16 V, resolution 100 mV

Overcurrent protection on all voltage sources

Logic level 5 V to 2.7 V programmable by software

Device Operation: Read, blank check, insertion/contact check, verify, check sum, erase chip, program, memory protect, edit buffer, configuration, load file, save file, project file load/save

File format: Binary, Intel HEX, Intel extended HEX, Motorola S, HP64000ABS, TEK HEX, and straight Hex

General

Power: 100 V_{AC} to 240 V_{AC} , 47-63 Hz auto switch

Power consumption: 65 W

Operation temperature: 5 to 45°C (41 to 113°F)

Safety: CE & LVD certified

Weight: 8.5 kg net, 10 kg shipping weight

Using the DATAMAN-848 Software

Menus

Accessing the menus can be done in two ways:

Use the **mouse** and click on the menu option displayed at the top of the screen. A pull-down menu will appear, and you can select the option you desire by clicking on that option.

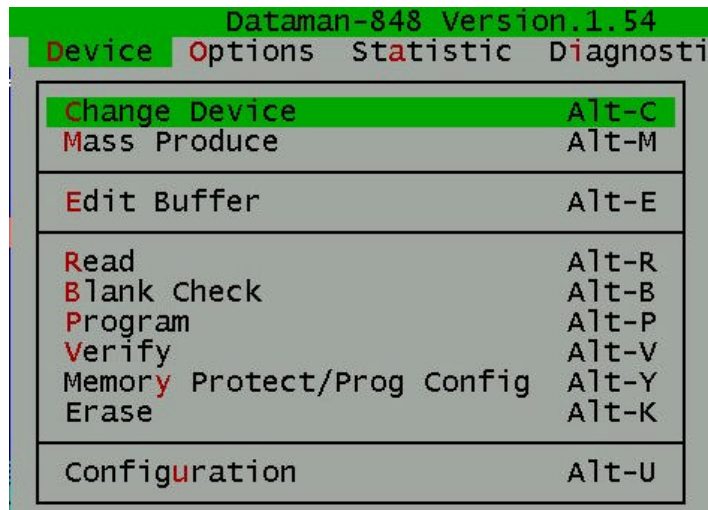
If you do not have a mouse available, you can also use the **keyboard** to access the menus. Press [F10] to activate the main menu bar.

DATAMAN 848 MANUAL

Select the sub-menu that you want to use with the left and right arrow keys, and press <ENTER> to activate the sub-menu. Use the up and down arrows to select an option to execute. Press <ENTER> to execute the command.

Hot-keys

Most of the options available on the menus can also be executed by pressing the hot keys associated with that option. To see what the hot-keys are for a certain option, look on the menu where the option is located. If hot keys are available, it will be displayed next to the option name.



Dataman-848 Version 1.54			
Device	Options	Statistic	Diagnosti
Change Device			Alt-C
Mass Produce			Alt-M
Edit Buffer			Alt-E
Read			Alt-R
Blank Check			Alt-B
Program			Alt-P
Verify			Alt-V
Memory Protect/Prog Config			Alt-Y
Erase			Alt-K
Configuration			Alt-U



Chapter 3

Minimum PC System Requirements

DOS 3.1 or higher, DOS prompt in WINDOWS 3.1/95/98

CPU: 386 and above

RAM: 4-MB minimum, 16 MB recommended

HD: 8 MB of free hard disk space.

Interface: D-25 connector with standard parallel port or ECP

Installing the DATAMAN-848

1. Switch the PC and the DATAMAN-848 off.
2. Connect the DATAMAN-848 to a parallel port using the cable supplied.
3. Switch the PC on.
4. Switch the DATAMAN-848 on.

Installing the DATAMAN-848 Software

Insert the 3 1/2-inch diskette into the PC's A: Drive.

At the DOS prompt, type: **A:\>** and hit Enter; this activates the A: Drive

Type **Install C:** ; this will create a directory called DATA848 on your computer's C drive and will install the DATAMAN-848 software in this directory.

Following successful installation, run the software by typing **DATAMAN848** at the DOS prompt and pressing **Enter**

Upgrading the DATAMAN-848 Software

DATAMAN 848 MANUAL

We provide quarterly formal releases of the DATAMAN-848 software on our website. Monthly temporary releases are also available on our website. Please download releases from our website at www.dataman.com.

Notes for Three Different OS Set-ups

MS-DOS

If the system has over 32 MB of main memory (not including 32 MB) and the DATAMAN-848 software is to be executed under MS-DOS 3.1 or higher versions, you must remove the file EMM386.SYS found in the file CONFIG.SYS.

WINDOWS 3.1 (DOS-prompt)

Please edit the pif files _default.pif and dosprmt.pif using the pif editor, which may be found in the WINDOWS main group. Change the XMS setting to 8192 KB (recommended), and set the display mode to FULL screen.

WINDOWS 95/98 (DOS-prompt)

Following successful installation, please edit the program properties of the file DATA848.exe (in the WINDOWS Explorer, highlight the file DATA848.exe and click the right mouse key), enable the check box [x] close on exit, and set the display mode to FULL screen.

Command Hierarchy



Chapter 4

DATAMAN 848 MANUAL

DATAMAN-848 Command Hierarchy

File (ALT-F)	Save Buffer	ALT-S
	Load File	ALT-L
	Change Dir	
	Dos Shell	
	Exit	ALT-X
Project (ALT-J)	Save Project	ALT-F1
	Load Project	ALT-F2
Device (ALT-D)	Change	ALT-C
	Mass Produce	ALT-M
	Edit	ALT-E
	Read	ALT-R
	Blank Check	ALT-B
	Program/Auto	ALT-P
	Verify	ALT-V
	Memory Protect	Ctrl-P
	Erase	Ctrl-E
Configuration	Ctrl-G	
Options (ALT-O)	Modify Algorithm Parameters	F3
	Device Operation Options	F4
	Module Options	F5

DATAMAN 848 MANUAL

Statistic (ALT-A)	Statistic Option	ALT-T
	Reset Counter	ALT-N
Diagnostics (ALT-I)	Self-Test	F6

Chapter 5

LED Display on Each Socket

Each of the 8 sockets in the DATAMAN-848 has a three-color LED display to indicate the status of the socket. Read this section carefully to avoid damage to chips.

Warning: Do not insert or remove a chip from a socket while the socket LED is yellow!

LED colour key

- Blank the socket is not active.
- Green the socket is active or the last operation result passed
- Yellow the socket is busy; don't do anything until the LED turns Green or Red.
- Red the last operation resulted in failure; the socket is active and awaiting another operation.

Flashing LED, 5 Hz frequency. This mode only applies to insertion and contact checks of the chips in the socket.

- Flashing Green the chip passed the continuity check.
- Flashing Yellow the socket is active and waiting for a chip to be inserted.
- Flashing Red the chip failed the insertion/continuity check, due to poor contact, incorrect chip positioning, pin count mismatch, chip upside-down, pin short-circuit, or chip damage.

DATAMAN 848 MANUAL

File Commands

Save Buffer

Menu	File Save Buffer
Hot-key	Alt-S

This option is used to save the memory buffer to a file on the hard disk.

Select a file (to overwrite!) using the mouse, or type the file name in the box provided. You can also type in a file spec. (e.g. *.hex) at the *Name* prompt. This will display all the files of the specified type, and you can then select the required file to *overwrite*.

ViewText

Certain file types contain header information. Click on this box to see this information. This will display information similar to the following:

```
ABEL(tm) 3.00a FutureNet Div, Data I/O Corp. JEDEC file for:
P16V8R
Created on: 15-Sep-94 04:17 PM
PROM8908 pin configuration Ver 3.0
ADVANTECH CO. LTD. 4 NOV 1991*
QP20* QF2194*
L0000
01101111111111111111111111111111
00000000000000000000000000000000
```

Output File Format

Select the file format of the output file.

From Buffer Mode

This mode functions as follows:

Normal

Every byte is written to the output file.

File shuffling

Odd

Every Odd byte is written to the output file.

Even

Every Even byte is written to the output file.

The following four options are used to write the buffer into four different files:

1st byte of 4

This writes the bytes 1, 5, 9, 13, ... into the output file.

2nd byte of 4

This writes the bytes 2, 6, 10, 14, ... into the output file.

3rd byte of 4

This writes the bytes 3, 7, 11, 15, ... into the output file.

4th byte of 4

This writes the bytes 4, 8, 12, 16, ... into the output file.

Load File

Menu

File | Load File

Hot-keys

Alt-L

This option loads a file from disk into the memory buffer. The type of files that can be loaded for a device depends on the device type.

DATAMAN 848 MANUAL

Select a file to load using the mouse, or type the filename in the box provided. You can also type in a file spec. (e.g. *.hex) at the *Name* prompt. This will display all the files of the specified type, and you can then select the required file to load.

ViewText

Certain file types contain header information. Click on this box to see this information. This will display information similar to the following:

```
ABEL(tm) 3.00a FutureNet Div, Data I/O Corp. JEDEC
file for: P16V8R
Created on: 15-Sep-94 04:17 PM
PROM8908 pin configuration Ver 3.0
ADVANTECH CO. LTD. 4 NOV 1991*
QP20* QF2194*
L0000
01101111111111111111111111111111
00000000000000000000000000000000
```

Auto Format Detected

The software automatically detects the format of the file that is to be loaded. If the desired format of the file differs from the format detected, select the correct file format.

From File Mode

This option indicates which bytes must be read in the input file. Select the required format.

To Buffer Mode

This option indicates where the byte previously read is to be written. This enables you to 'build' the memory buffer from several files.

From File Address

If only a selected range is to be read from the input file, fill in the address that will contain the first byte into this box, and the size of the buffer to be read in **Size**.

To Buffer Address

If the data read is to be copied into a specific area of the buffer, fill in the starting address here.

Size

This box contains the buffer size. By default it is the same size as the device size. If you want to download a file into memory that is bigger than the active device, insert the size here (or in Options | Operation Options).

Clear Buffer Options

Four options are available during memory buffer data loading. The default option is to clear the buffer to its blank state prior to data loading.

Disable

This option leaves the original buffer data unchanged, but then overwrites it with the contents of the newly loaded file.

Blank state

This option clears the buffer to the device blank state (using command 00 or FF, depending on device selection), then overwrites the buffer during file loading.

0x00

First clears the buffer of its contents using command 00, then overwrites the buffer with the new file contents

0xFF

First clears the buffer of its contents using command FF, then overwrites the buffer with the new file contents.

Change Directory

Menu
Hot-key

File | Change Directory
None

DATAMAN 848 MANUAL

Change the default directory to another directory.

Exit to DOS

Menu File | Exit to DOS
Hot-key Alt-X

Quit the DATAMAN-848 program and exit to DOS.

Project Commands

Save Project

Menu Project | Save Project
Hot-key Alt-F1

This option saves the current setup of the DATAMAN-848 software into a project file. The file includes devices selected, buffer data, operation options setup and device configuration setup. You can also attach a footnote to this project file. The project file acts as a macro, eliminating the need to go through each procedure during future programming sessions.

Load Project

Menu Project | Load Project File
Hot-key Alt-F2

This option loads the desired project file. After the project file has been loaded, you can immediately program the chip using the data and setup functions selected.

Device Commands

Change Device

DATAMAN 848 MANUAL

Menu	Device Change Device
Hot-key	Alt-C

This option is used to select a new device as the active device. It is important to select the correct device, as the algorithms used to program devices are device-specific. The following screen will appear:

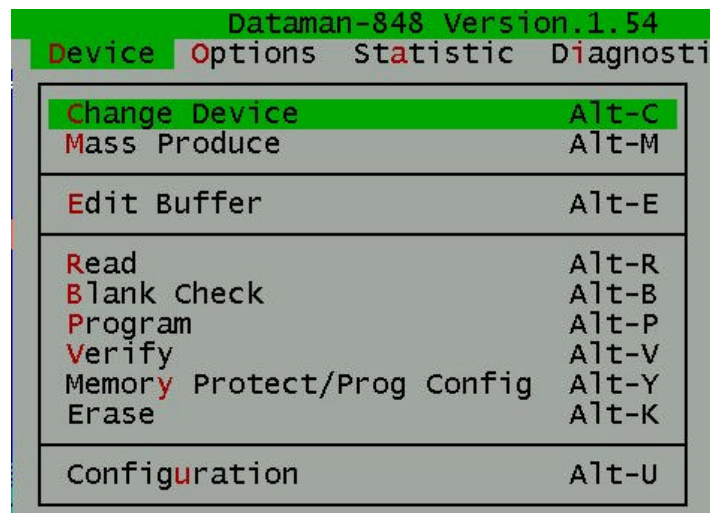


Figure 4.1 Screen for selecting Change Device

1. Select the type of device that will be the active device.

Mouse

Click on 'All', 'EPROM' or 'MPU'.

Keyboard

Press TAB until the cursor is flashing in the 'Type' box. Use the up and down arrows to go to the appropriate type.

Press the space bar to select the type.

DATAMAN 848 MANUAL

2. Enter the part number, the manufacturer number, or parts of both in the 'Search' box.

Mouse

Click on 'Search'. Type in the characters.

Keyboard

Press TAB until the cursor flashes in the 'Search' box. Type in the known characters.

All the devices that satisfy this partial information will be displayed.

Use the mouse to select a device, and click 'Ok'. If you are not using a mouse, use the TAB key to skip between the various screens, and use the arrow keys to move around in each screen.

Mass-production Mode

Menu
Hot-key

Device | Mass Produce
Alt-M

The DATAMAN-848 is a mass-production programmer for manufacturing. When placed in mass production mode, all keyboard and mouse functions are disabled and the operator needs only to insert the chips into the ZIF sockets, wait until the green LED next to each socket lights up, remove the programmed chips and insert new chips. Anyone can do the job well without special training or skills. Since all keyboard and mouse functions are disabled, the possibility of errors being caused by pressing the wrong keys or changing the buffer's contents are eliminated.

In mass production mode, the DATAMAN-848 first performs an insertion test and an ID check on newly inserted chips. It then automatically programs the chip. In mass production, the DATAMAN-848 can be set to either of two modes: standard mode or concurrent mode. In

DATAMAN 848 MANUAL

standard mode, DATAMAN-848 programs the devices in all 8 ZIF sockets at one time. In concurrent mode, on the other hand, the sockets are divided into two groups. Sockets 0-3 comprise group1 and sockets 4-7 comprise group 2. During operation under concurrent mode, group 1 devices are being programmed while the operator unloads and inserts chips in the group 2 sockets.

Note: The insertion test **must** be enabled to use mass-production mode!

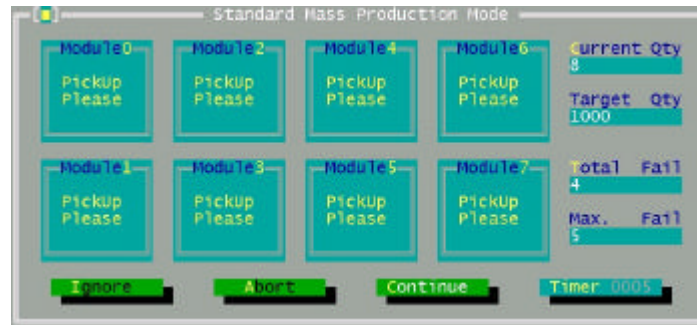


Figure 4.2 Standard mass production mode screen

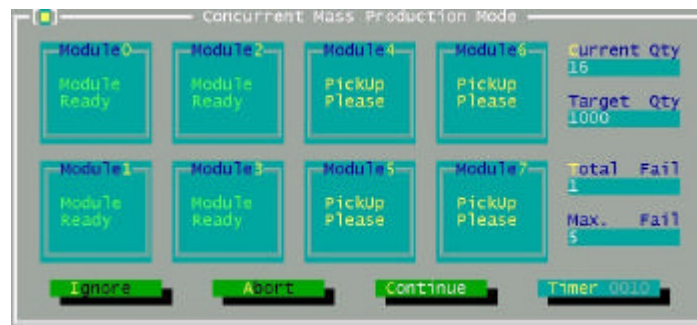


Figure 4.3 Concurrent mass production mode screen

DATAMAN 848 MANUAL

An insertion timer is included for use with the insertion test. When a chip fails an insertion test and the insertion timer is disabled, the DATAMAN-848 will alert the operator to the failure and require either that the problem be corrected or that the operator acknowledge the failure before continuing with programming. When a chip fails and the insertion timer is enabled, the DATAMAN-848 waits the amount of time set into the insertion timer. This is to give the operator time to correct the error. If the error is not corrected in time, the error socket shuts down and all the devices in good sockets are programmed. The insertion timer default time is 5 seconds.

Editing the Buffer

Menu
Hot-key

Device | Edit
Alt-E

This function is used to edit the memory buffer. The memory buffer contains the last file downloaded from disk into memory. If no file has been downloaded from disk into memory since the DATAMAN-848 was switched on, the memory buffer will contain "garbage".

The screen that is displayed is dependent on the type of device that is currently active.

The purposes of the buttons displayed are as follows:

Radix

This button controls the display of the memory address in Hex/decimal format. If the address is currently displayed in decimal format, clicking this button will convert and display the address in Hex.

Fill

This option is used to fill a block of memory with a specified value. It needs the starting address, the ending address and the value to be copied into this block of memory.

DATAMAN 848 MANUAL

Copy

This function copies a block in memory to a new address. It requires the starting address, the ending address and the address the block must be copied to.

Search

This function searches for a specified "search-string". It requires input of the search-string to search for.

Undo

As you make changes to the memory buffer, the changes on the current page are highlighted. If you choose this option, it will reverse all changes made to the highlighted areas.

As soon as the changed memory positions move off the screen, or get deselected by another command, the Undo command will not undo the changes.

Blank Checking a device

Menu
Hot-key

Device | Blank Check
Alt-B

This option checks if the active device is in its erase state. It will return a message stating "Device not blank!" at the first occurrence of data in the device. The address where the data is found will also be displayed.

Reading a device

Menu
Hot-key

Device | Read
Alt-R

This option reads a master chip into the memory buffer for duplication of the master chip. Prior to executing this command, a master socket must be designated and the master chip inserted into the master socket. The default master socket is socket 0.

DATAMAN 848 MANUAL

Programming a device

Menu
Hot-key

Device | Program/Auto
Alt-P

This option programs the active device with the contents of the memory buffer. When the programming is complete, verification will take place. The type of verification depends on the 'verification options' set in the Options|Operation options menu.

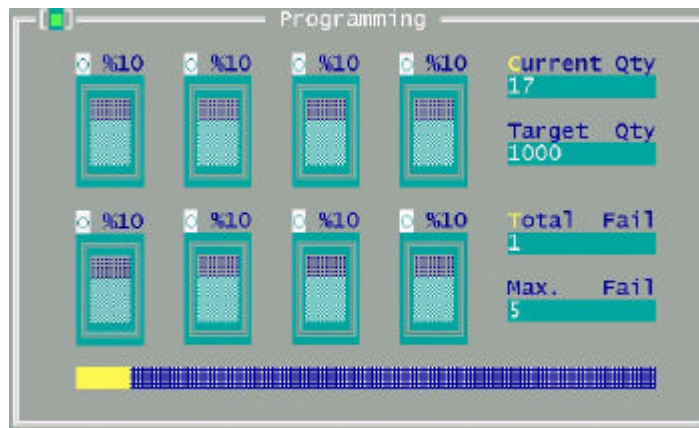


Figure 4-4 Programming progress screen

Verifying a device

Menu
Hot-key

Device | Verify
Alt-V

This function compares the contents of the active device with the contents of the memory buffer. It will display an error message and the address if it finds an address where

the data differs. It will also abort the process when this happens.

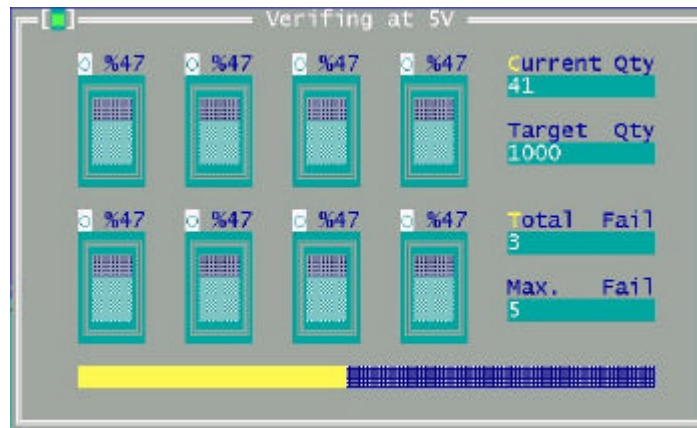


Figure 4-5 Device verification screen

Memory Protect

Menu Device | Memory Protect
Hot-key CTRL-P

This function is a device-specific command; it appears on the main menu only after chips having this capability are selected. The function must be configured before use. When properly configured, it can be selected and will automatically set memory protection on the chips immediately after they have been programmed.

Erasing a device

Menu Device | Erase
Hot-key CTRL-E

This function is a device-specific command; it appears on the main menu only after electronically erasable chips

DATAMAN 848 MANUAL

have been selected. The function can be used to erase a desired memory range from a chip.

Configuration

Menu
Hot-key

Device | Configuration
CTRL-G

This function is a device-specific command for a single Flash chip with a software protect block, an option register, configure word and lock bit. The function must be configured before use. When used, the memory protect configuration data will be burned into the chip's memory and will protect specified memory blocks.

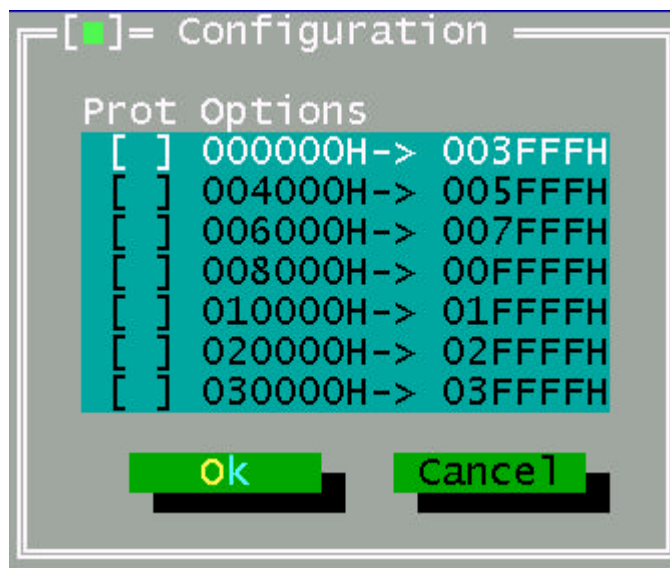


Figure 4-6 Example of device specific configuration screen

Options

Modify Algorithm Parameters

Menu Options | Parameters modify
Hot-key F3

This function allows a user to modify the programming parameters of the chips being programmed. With the programming parameters for the

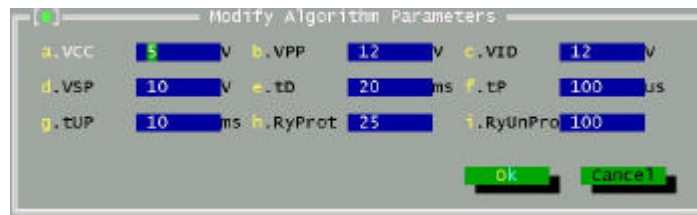


Figure 4-7 Example screen: Modify algorithm parameters

selected chip appearing on screen, the user activates the "modify algorithm screen" and changes the parameters by moving the cursor to the corresponding field and changing the value to the desired value. If a value entered exceeds the allowable limits for a given parameter, a warning will be flashed, together with allowable limits, after the user attempts to confirm the setting by pressing "OK".

Warning: Only experienced users should use this option, as it can damage the device if it is used incorrectly.

If you want to program a device that is not supported by the DATAMAN-848, do the following:

1. Select a device that uses the same programming algorithm as the device in question.

DATAMAN 848 MANUAL

2. Modify the device programming parameters.
3. Program the device.

As the programming parameters are for temporary use only, they cannot be saved. After you select a new device or exit the DATAMAN-848 software the original parameters will automatically be restored.

Device operation options

Menu Options | Operation options
Hot-key F4

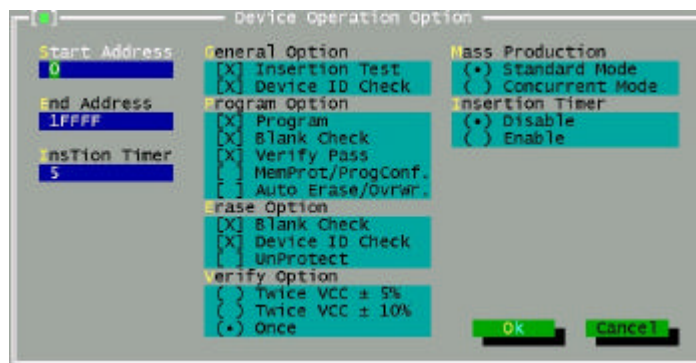


Figure 4-8 Example screen: Device-specific operation options

The following options can be set:

Start address, End address

This is the start and the end address of the edit buffer. If you want to program a certain area of a device, you can change the start and end addresses accordingly.

DATAMAN 848 MANUAL

This option is only displayed when the device can be programmed in this way.

When the end address is calculated, it divides the buffer size by (device-bits/8-bits). A 16 bit device, of which the buffer size is 80 (Hex), will therefore have an end address of 3F.

When selecting a start or an end-address, you should align the buffer on the right boundary: single-word for 8-bit devices, double-word for 16-bit devices, etc.

Erase start/end address

This option is for electronically erasable Flash chips only. The default setting of this option will erase the entire chip. However, a user can specify ranges of blocks to be erased; data in the remaining blocks will be unchanged. A user should reference the chip data book or configuration menu when setting the ranges of blocks to be erased.

Insertion Timer Enable/Disable

When the insertion timer is disabled and an error is detected during insertion testing, the DATAMAN-848 waits for the operator to either correct the error condition or to acknowledge and bypass the error.

When the insertion timer is enabled, the DATAMAN-848 waits a specified period for the operator to correct the condition, and if no correction is made, shuts down the socket(s) reporting the error and completes programming of the remaining sockets.

Insertion Timer

This option sets the time-out interval for the insertion test. When the insertion timer is enabled and an insertion error is detected, if the operator fails to correct the problem within the interval set, the DATAMAN-848 will automatically shutdown the error socket and complete programming of the remaining sockets. If multiple errors

DATAMAN 848 MANUAL

exist in different sockets and the operator corrects one of the sockets, the timer resets and waits the specified time for each succeeding error. Time-out intervals can be set from 1 to 999 seconds. The default value is 5 seconds.

Insertion Test

This option performs the device-insertion check of the chips in the sockets. The insertion check includes poor pin contact, pin count mismatch (the pin count of the chip designated in the software does not match the pin count of the actual chip in the socket), device in wrong position, device upside-down, short-circuit between pins, and chip damage. Results are displayed at each socket's LED

Device ID Check

This option performs a device signature and manufacturer match test. With the chip selected and plugged into a socket, DATAMAN-848 checks the device ID and displays the results of each check on the LED display.

Verify Passes

Checking this option will instruct the DATAMAN-848 to perform device verification with the buffer data when programming is complete. When verify passes is enabled, one of the three verify options (as described below) must be set.

Verifying Options

The following three options are available for verification of data retention following programming: verify twice with 5% V_{cc} , verify twice with 10% V_{cc} , and verify once with V_{cc} . These options will only be enabled if the 'Verify passes' option (see above) is enabled.

(.) **Twice $V_{cc} \pm 5\%$**

DATAMAN 848 MANUAL

When this option is selected, the DATAMAN-848 will do two verify passes on the device: one using $V_{CC} + 5\%$, the other $V_{CC} - 5\%$.

Example:

IF V_{CC} is 5.0 V, the DATAMAN-848 will do one verify pass using a V_{CC} of 4.75 V, and one using a V_{CC} of 5.25 V.

(·) Twice $V_{CC} \pm 10\%$

When this option is selected, the DATAMAN-848 will do two verify passes on the device: one using $V_{CC} + 10\%$, the other $V_{CC} - 10\%$.

Example:

IF V_{CC} is 5.0 V, the DATAMAN-848 will do one verify pass using a V_{CC} of 4.5 V, and one using a V_{CC} of 5.5 V.

(·) Once

If this option is selected, the DATAMAN-848 will do one verify pass using V_{CC} .

Blank Check on Program Option

This option performs a device blank check test before programming. This option can be disabled for brand new chips to save time. For electronically erasable chips, enabling the auto-erase / overwrite option will allow the DATAMAN-848 to automatically erase the chips if they are not already blank.

Protect on Program Option

This option automatically sets the memory protect on newly programmed chips. Failure to set this protection allows the chips to be readable or software erasable.

Auto-erase / Overwrite on Program Option

DATAMAN 848 MANUAL

This option only applies to chips that are electronically erasable. It causes DATAMAN-848 to automatically erase non-blank chips prior to programming.

Blank Check on Erasing Option

This option causes DATAMAN-848 to automatically perform a blank check on a device after performing an Erase operation on it. This assures that a chip has been erased completely.

Device ID Check on Erasing Option

Some chips feature an option that allows the device ID information to be erased when the chip undergoes an erase operation. This option must be disabled prior to erasing the chip; otherwise, DATAMAN-848 will report an ID mismatch error and stop operation.

Unprotect on Erasing Option

Some Flash chips have a software protection feature which, when enabled, prohibits erasure of the chip's memory. The unprotect option on these chips must be enabled before trying to erase these chips.

Standard Mode on Mass Production

In this mode, the 8 sockets of the DATAMAN-848 work as a group. Insertion testing and programming is performed on all 8 sockets simultaneously.

Concurrent Mode on Mass Production

In this mode, the 8 sockets of the DATAMAN-848 are divided into two groups. Sockets 0 to 3 comprise group 1 and sockets 4 to 7 comprise group 2. The user can extract programmed chips and insert new chips in group 2 while programming the chips in group 1. Once programming is completed, the chips in group 2 are programmed while the chips in group 1 are removed and replaced with new chips. The process is then repeated.

DATAMAN 848 MANUAL

Use of the concurrent mode can help increase throughput. This is because an eight-chip programming cycle for high-density chips requires a very long time under the standard mode, and the operator is idle for this whole period. Use of the concurrent mode also allows the DATAMAN-848 to interface with the fine pitch pick and place handler, increasing throughput for high-density fine pitch chips.

Module options

Menu **Options | Module options**
Hot-key **F5**

This option is used to select the master socket location (default slot 0), and enable/disable the sockets.

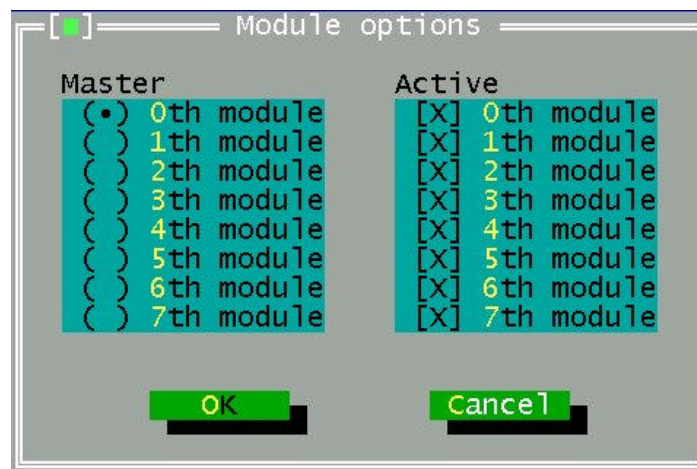


Figure 4-9 Master socket selection, active socket selection

DATAMAN 848 MANUAL

Statistic Commands

DATAMAN-848 can keep track of chip-programming failures. The lower right-hand corner of the Run Time Viewer screen contains two entries: Current Quantity and Total Fail. These quantities automatically increment for every chip DATAMAN-848 attempts to program, and for every programming failure. Failures counted include chips that fail device ID check, blank check, verify pass, protect, and unprotect. The user can input a target quantity of chips to be programmed in a production run, and an allowable number of failures. An alarm feature can be set so that when the target quantity or the allowable failures is reached, an alarm message is displayed on the screen to alert the operator.

Statistic Option

Menu	Statistic Statistic Option
Hot-key	Alt-T

This command controls the setting of the Statistic Option. Select the command using the mouse or tab key, or the hot-key Alt-T.

The screen shown below will appear. Use the mouse or tab between screen entries. Fill in the desired quantities for Target Quantity and Maximum Fail, and indicate your choice for alarm enablement or disablement. Select the OK button and press enter to confirm your selections.

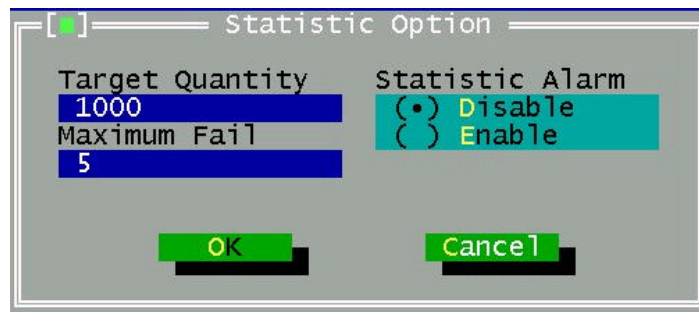


Figure 10 Statistic option selection screen

Reset counter

Menu Statistic | Reset Counter
Hot-key Alt-N

This command clears the statistic report in the lower right corner of the screen.



Chapter 6

Adapter requirements

The Dataman-848 supports all 48-pin TSOP, 44-pin PSOP, 40-pin TSOP, and 32-pin TSOP pin packages. Please note that you will have to order adapters for non-DIL chip packages. Below is a list of the current adapters available for the Dataman-848. Further adapters will become available after release of new chip support.

- PLCC3232-11 32-pin PLCC adapter for EPROM/Flash, 1 MB and above
- PLCC3228-11 32-pin PLCC adapter for EPROM/Flash, below 512 KB
- PLCC2020-01 20 pin PLCC adapter.
- PLCC4440-01 44-pin PLCC adapter for 44-pin PLCC package 16-bit EPROM
- SDP-UNIV-44 44-pin PLCC adapter for 44-pin PLCC package 87C5X Microcontrollers
- GDP-PLCC-4401 44-PIN PLCC adapter for 44-pin PLCC package for PIC16CXX Microcontrollers
- SDP-UNIV-28TS 28-pin universal TSOP (8 mm x 14 mm) adapter.
- SDP-UNIV-32TS 32-pin universal TSOP (8 mm x 20 mm) adapter.
- SDP-UNIV-40TS 40-pin universal TSOP (10 mm x 20 mm) adapter.
- SDP-UNIV-40TS/W 40-pin universal TSOP (10 mm x 14 mm) adapter.
- SDP-UNIV-44PS 44-pin universal PSOP adapter.
- SDP-UNIV-48TS 48-pin universal TSOP (12 mm x 20 mm) adapter.
- SDP-UNIV-48TS/W 48-pin universal TSOP (12 mm x 14 mm) adapter.
- SDP-UNIV-48TSS 48-pin universal TSSOP adapter (10 mm x 14 mm) 0.4 mm pitch.

DATAMAN 848 MANUAL

SDP-i320-48U 48 pin uBGA adapter for Intel 28F320B3/C3,
28F160B3/C3 (0.75mm pitch).

SDP-F016-56TS 56-pin TSOP adapter for Intel/Sharp
28F016/32 Flash

SDP-F320-56SS 56-pin SSOP adapter for Intel
28F160/320S3/S5

GDP-3224-100Q 100 pin QFP adapter for STV0680

GDP-130X-48-TSS 48 pin TSSOP adapter for SHARP LRS
1306/8

GDP-F320-56SS 56 pin SSOP adapter for Intel
28F320/640/128J3

GDP-F640-56TS 56 pin TSOP adapter for Intel
28F320/640J5/J3

GDP-DIP-001 DIP adapter for Motorola HC705P6/A,
HC705P9, ATMEL 90S44XX & AT90S85XX

GDP-DIP-002 DIP adapter for Altera EPC1/2, Atmel
17CXXX & Atmel 17LVXXX

GDP-PLCC-4401 PLCC to DIP adapter for Motorola 44 pin
PLCC 68HC705C8/A

GDP-TQFP-4401 TQFP adapter for Motorola 44 pin PLCC
68HC705C8/A

Error Messages

Chapter 7

DATAMAN 848 MANUAL

This function is not supported in demo mode!

When the DATAMAN-848 is not activated, some functions may be disabled.

Illegal range of erase address setting! Retry again!

The address range for an erase command must match the sector edge.

Time-Out error !

The DATAMAN-848 has not responded and the system has timed out.

Cannot open file: XXXXXXXX !

The file was not found or a disk error has occurred.

Device ID Code unmatched!

The devices do not match the ID code of the device algorithm selected in the software.

File write error!

DATAMAN 848 MANUAL

Illegal file name or disk error has occurred.

The DATAMAN-848 detected an error when writing a file to disk.

Check that there is enough space on the disk to hold the file. Also check that the disk is not write-protected. This might happen on a network if you are a user that does not have rights to the directory you want to save the file to. Use another directory or disk.

File read incomplete!

File format was unmatched or a disk error occurred during file being read.

DATAMAN-848 not found, Do you want to retry?

The DATAMAN-848 software does not detect the DATAMAN-848 on one of the parallel ports. Press enter to retry. Press Esc to enter demo mode.

Make sure the power on the DATAMAN-848 is on. Also check the parallel connection between the PC and the DATAMAN-848. If the DATAMAN-848 shares the parallel port with another device, remove the other device or move the DATAMAN-848 to its own port.

DATAMAN-848 power off or disconnected from PC!

DATAMAN 848 MANUAL

The DATAMAN-848 software does not detect the DATAMAN-848 on one of the parallel ports.

Make sure the power on the DATAMAN-848 is on. Also check the parallel connection between the PC and the DATAMAN-848 and between the PC and the printer. If the DATAMAN-848 shares the parallel port with another device, remove the other device or move the DATAMAN-848 to its own port.

The following list of error messages uses the code XXXX, where XXXX can be Read; Verify/ Blank Check; Program; Erase; or Memory Protect. Aborted has the same meaning as user break.

XXXX Aborted !

XXXXX error found !

XXXX error on Module X Address XXXXh !