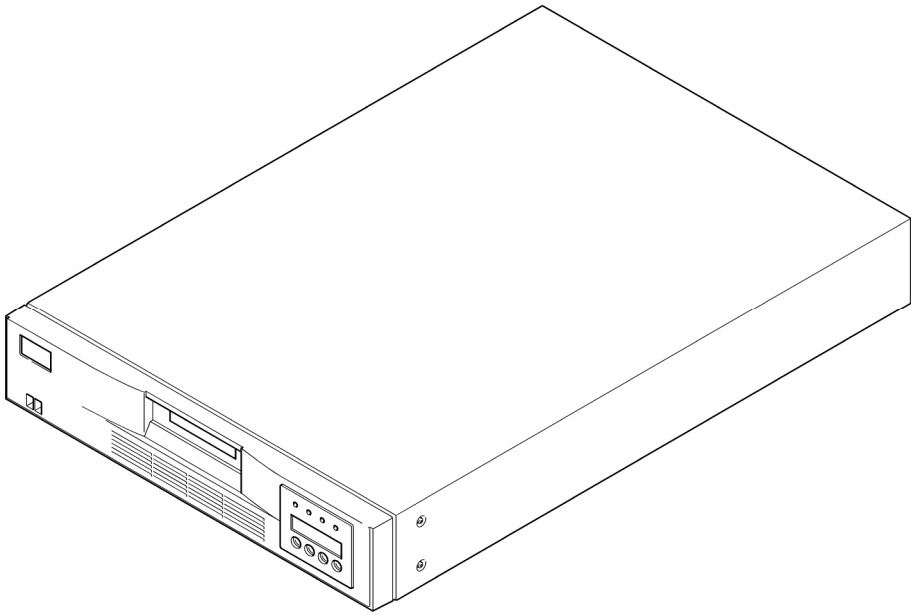
LTO Autoloader

Operator's Manual



Rev. A

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1 Warnings

IMPORTANT All safety and operating instructions should be read before this product is operated, and should be retained for future reference. This unit has been engineered and manufactured to assure your personal safety. Improper use can result in potential electrical shock or fire hazards. In order not to defeat the safeguards, observe the following basic rules for its installation, use and servicing.

- Heed warnings – All warnings on the product and in the operating instructions should be adhered to.
- Follow instructions – All operating and use instructions should be followed.

1.1 Product Warranty Caution

The 1x8 Autoloader is warranted to be free from defects in materials, parts, and workmanship and will conform to the current product specification upon delivery. For the specific details of your warranty, refer to your sales contract or contact the company from which the autoloader was purchased.

The warranty for the autoloader shall not apply to failures of any unit when:

- The autoloader is repaired or modified by anyone other than the manufacturer's personnel or approved agent.
- The autoloader is physically abused or used in a manner that is inconsistent with the operating instructions or product specification defined by the manufacturer.
- The autoloader fails because of accident, misuse, abuse, neglect, mishandling, misapplication, alteration, faulty installation, modification, or service by anyone other than the factory service center or its approved agent.
- The autoloader is repaired by anyone, including an approved agent, in a manner that is contrary to the maintenance or installation instructions supplied by the manufacturer.
- The manufacturer's serial number tag is removed.
- The autoloader is damaged because of improper packaging on return.

CAUTION **Rough handling at shipping!**

Damaging of the autoloader and loosing warranty.

If you are returning the autoloader for repair, package it in its original packaging (or in replacement packaging obtained from your vendor).

CAUTION **Untrained or unauthorized personnel!**

Damaging of the autoloader and loosing warranty.

If problems with the autoloader occur, contact your maintenance organization.

1.2 User Guide

This Operator's Manual describes how to configure and operate the LTO Autoloader via the OCP and the RMU.

This manual is for operators, system administrators and service personnel, who operate, monitor and maintain the autoloader.

The document provides details and functionality of the OCP and the RMU.

For installation, operation, maintenance, trouble shooting and specifications of the LTO Autoloader via the OCP and the RMU see LTO Autoloader – User Reference Manual.

1.2.1 Conventions used in this Specification

This specification uses the following conventions:

- Notes provide additional information or suggestions about the topic or procedure being discussed.

1.2.2 Definitions, Acronyms and Abbreviations

BCR	Barcode Reader
CDB	Command Descriptor Block
DHCP	Dynamic Host Configuration Protocol
GUI	Graphical User Interface
IP	Internet Protocol
LUN	Logical Unit Number
OCP	Operator Control Panel
RMU	Remote Management Unit
RTC	Real-Time Clock
SCSI	Small Computer System Interface
TCP	Transmission Control Protocol
VPD	Vital Product Data

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5 OCP – General Info

5.1 Physical Characteristics

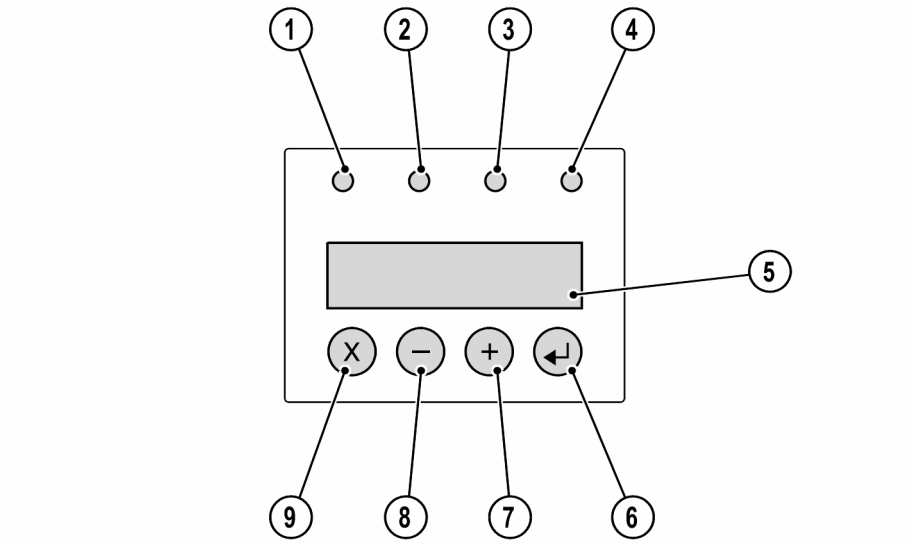


Figure 1 *OCP*

The OCP (Operator Control Panel) consists of 2 lines of 16 characters per line and 4 push button switches. The switches are labeled: CANCEL, PREVIOUS, NEXT, and ENTER.

(x) Cancel

(–) Previous

(+) Next

(↵) Enter

The circuitry to illuminate 4 external LED's has also been incorporated into the current level of hardware. These LEDs can be used to indicate Ready/Activity, Use Cleaning Tape, Media Attention, and Error. The color of each LED is given as:

LED Name	Color
Ready/Activity	Green
Clean Drive	Amber
Media Attention	Amber
Error	Red

Table 1 LED colors

5.2 Operating Modes

There are 2 basic modes that the OCP operates in. First is the User Interaction mode. This mode is employed when a user is pushing buttons on the OCP. The second mode is the System Driven mode. This is the normal mode of operation. In this mode, the OCP displays status associated with the actions that were caused from commands issued via the Drive's serial interface. Actions like Loading, Rewinding or Moving tape will be displayed. When an OCP button is pressed and released, the OCP automatically transitions to User Interaction mode. User Interaction mode will continue until 100 seconds after a user stops pushing buttons, or the requested robotic action stops, whichever is longer. At this time the OCP will return to System driven mode.

If necessary, the OCP will automatically transition to the System Driven mode. When this occurs, the LTO Autoloader must remember what the user was doing before the display mode changed. Therefore the next button pressed will only transition the OCP to the User Interaction mode from the System Driven mode.

In case of activated User security feature the User Interaction Mode is restricted to the Information and Login menu item, until a login with correct PIN is done.

For information about the User Interaction mode and rules see OCP User Interaction Mode Operation on page 32.

5.3 OCP Philosophy

During the following discussion of the OCP operation, several functional nuances may be clarified by defining several rules the OCP must abide by. These rules of operation constitute a 'philosophy'.

Any operational conflict between commands received over serial interface and those entered via the front panel will be avoided with a reservation mechanism on a 'first-come, first-served' basis. Any reservation by OCP is canceled by an OCP logout or the timeout, which cancels the User Interaction Mode.

Robotic firmware will not allow a user to select an impossible request. Those situations will include, but are not limited to:

- Importing to a full slot
- Exporting from an empty slot
- Mounting (Loading) from an empty slot
- Dismounting (Unloading) an empty drive

Any error detected by the library or drive controller and not recoverable through predetermined software algorithms, will be considered as fatal. An error code will be displayed on the LCD and the error LED will become illuminated. The error code will remain on the OCP until a push button is pressed, the OCP will return to the Home Screen.

Numeric error codes are only used for unrecoverable, fatal errors, otherwise text status messages are provided.

5.4 Power Up Display

When the LTO Autoloader powers up, or resets, it performs several internally controlled processes that allow it to get initialized and running. During those processes the OCP will display appropriate information to keep the user informed. When the LTO Autoloader finishes coming alive, it will display the Current Drive mount status in the 'Home Screen'. It also indicates that Sequential Mode is ON by posting the SEQ string

If the Drive is empty, the following status will be displayed:

```
Drive empty
12345-78     SEQ
```

If the LTO Autoloader detects that a cartridge is loaded when it first comes alive, the following status will be displayed on the OCP:

```
Drive loaded
12345-78     SEQ
```

In this example there is no cartridge in slot 6. Inventory status will be displayed as an 8-character string, with 4 blank spaces on each side.

The inventory status characters will be represented as follows:

- Slot Full – Use the slot number 1 to 8
- Slot Empty – Display a dash character '-'for a place holder.

A cartridge that is being loaded, unloaded, imported, exported, or is loaded in the drive, will be represented by the slot number alternating with the block (0xff) character. The alternating rate should be approximately 1-second per cycle, 50% duty cycle.

A cartridge that has been identified as faulty (and Media Attention LED is on) will be represented by an exclamation point (!). An invalid cartridge will be identified the same way.

Also from the example above, we define the format of the 'Home Screen' display as:

- Top line: Current Drive Status, and Activity.
- Bottom line: Inventory Status.

5.5 Note about the 4 LEDs

The 4 LEDs are also updated during Power Up and Reset sequences. Upon power up or software Reset, the LTO Autoloader will illuminate all LEDs as soon as Power-On Self-Test (POST) allows. This will help the User to verify if all LEDs are functional. When mechanical initialization starts, all LEDs will be extinguished and the Ready/Activity LED will flash at a reasonable rate of approximately 1-second per cycle, 50% duty cycle. When the mechanical initialization is complete, the Ready/Activity LED will stop flashing and be constantly illuminated. If an autoloader failure occurs, the Ready/Activity LED will be turned off and the Error LED will be illuminated. The OCP will also display an appropriate error code to help identify the failure.

The following are additional operational details of LEDs.

The "Ready/Activity" LED should be lit any time the unit is powered on and able to function (i.e. passes power-on self-test). The Ready/Activity LED should blink whenever there is autoloader **OR** drive activity.

The "Clean" LED will only be lit when a cleaning **REQUIRED** has been indicated. The LED will be turned off again after a successful drive cleaning operation.

The "Media Attention" LED will indicate that there is a piece of media which is bad/marginal, or invalid. The LED will be cleared when all marginal and invalid cartridges have been exported from the autoloader.

The "Error" LED should be lit when there is an unrecoverable (i.e. hard) drive **OR** autoloader failure. This will happen at the same time the hard error message is displayed on the screen and the LED will remain lit until the error state is resolved.

There are 2 bytes in the error message. The first error byte contains the actual error code. The second error byte will be a more detailed error code of the internal operation where the error occurred. In case of multiple errors on a single command the first error to occur will be contained in the error message.

The error trace buffer keeps track of the last 64 errors. Additional to the error message a timestamp and the initiator of the error message is stored in the error trace buffer.

See chapter OCP – Error Code Definitions on page 27 for error code definitions.

5.6 Write Protected Media

If the drive detects a write protected media, an internal bit is set and the autoloader posts the 'WP' string on the display indicating a write protected media is loaded in the drive.

The display shows the following status:

Drive loaded
12345-78 WP

As soon as the write protected media is ejected, the drive resets the internal bit and the 'WP' string on the display is cancelled

5.7 Bulk Exchange

The menu item Bulk Exchange was designed to make the autoloader more user-friendly. This item enables a user to import or export a specific amount of cartridges e.g. this item makes sense if a user wants to exchange a complete set of cartridges. Bulk Exchange operation starts with slot #1. If a cartridge is available this cartridge will be exported. It's up to the user to import a new cartridge or to move to the next slot #2. The same procedure then takes place for slot #2 to slot #8.

5.8 Operational Modes

The autoloader provides different operational modes that affect how the autoloader loads cartridges into the drive. The different modes can be selected at the configuration menu in the OCP. They are stored persistent in the NVRAM and are valid also after Power ON.

5.8.1 Automatic Mode

Automatic Mode is the default setting and allows the autoloader to switch between Random and Sequential Mode depending on the SCSI command received. In this mode Sequential Mode is activated after Power On.

Every MOVE MEDIUM, READ ELEMENT STATUS or INITIALIZE ELEMENT STATUS command disables Sequential Mode and activates Random Mode. The unit will switch back to Sequential Mode with every OCP initiated Load Command.

5.8.2 Random Mode

In Random Mode the Media Exchanger SCSI target is visible on the SCSI bus, i.e. the autoloader allows the host application software to select any cartridge in any order. Cartridges can be moved by MOVE MEDIUM commands in random order. Unload commands to the drive should not be executed.

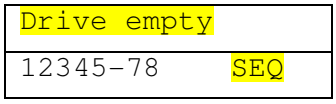
5.8.3 Sequential Mode

In Sequential Mode the Media Exchanger is no longer visible on the SCSI bus. Cartridge replacements are initiated by an 'Unload' command sent to the drive.

Sequential Mode presumes that the first cartridge was previously loaded to the drive, i.e. the operator determines the first cartridge to load by loading the desired cartridge into the drive using the 'Load Cartridge' menu item on the OCP. When the first tape is unloaded with a drive 'Unload' command, the autoloader removes the cartridge from the drive and puts it in its original slot. After that, the next cartridge in order will be moved into the drive. This queue stops if the last cartridge has been ejected und unloaded to the slot.

- If Sequential Mode is activated (menu item CONFIGURATION/CHANGE LDR MODE/TO:SEQUENTIAL), the media exchanger is not logically connected the SCSI bus and does not respond to SCSI commands. Every SCSI command (except INQUIRY and REQUEST SENSE) sent to the media exchanger is rejected with a Check Condition (sense key 02/04/8E). For further details please refer to the Media Exchanger SCSI Command Specification

In Sequential Mode the display shows the following screen where the string 'SEQ' indicates that Sequential Mode is activated:



To further determine how you want cartridges loaded into the drive while in Sequential Mode, you can set Loop Mode and Autoload Mode from the OCP.

5.8.4 Loop Mode

Loop Mode is a special type of Sequential Mode. The cartridges exchange queue will not terminate with the last cartridge but restart with the first cartridge. This mode allows endless backup operation without user interaction.

5.8.5 Autoload Mode

This is also an option of Sequential Mode and could be combined with Loop Mode. The first cartridge will be loaded automatically if the unit powers up with an empty drive. In this case user interaction via OCP is not required.

5.9 Input Modes

There are several modes to enter values in the different menu items. These values are selectable predefined values, toggle values (e.g. On/Off) and numerical values like network addresses.

5.9.1 Selectable Predefined Values

After navigating to the menu item the various predefined values can be selected with the (<) and (>) key. As soon as the display shows the correct value it will be entered by pressing the ENTER key.

5.9.2 Toggle Values

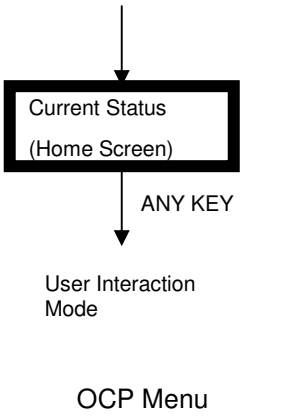
Toggle values are used to switch between two different states like *On* and *Off*. After navigating to the menu item the display shows the actual state. Pressing the ENTER button will switch to the possible new state. Pressing ENTER a second time will take over this new state. This procedure works vice-versa.

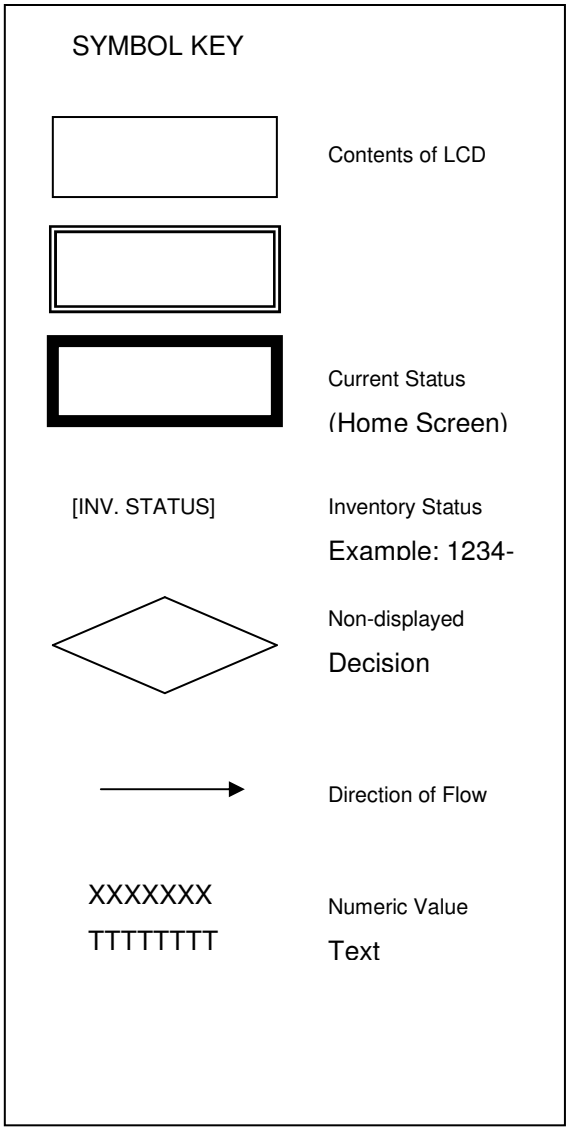
5.9.3 Numerical Values

Numerical values are needed for network addresses, PIN entries and other configuration entries. After navigating to the menu item which should be changed the actual value will be displayed and the cursor stays o> the first digit. The value can be incremented / decremented with the (<) and (>) button. After pressing the ENTER button the cursor is set to the next editable digit. It can be changed in the same way. After pressing the ENTER button at the last digit the complete entry will be stored. Pressing the CANCEL button will cancel the whole edit process and the old value is valid again.

6 OCP – Menu Trees

6.1 Symbols





6.2 User Go Offline Mode

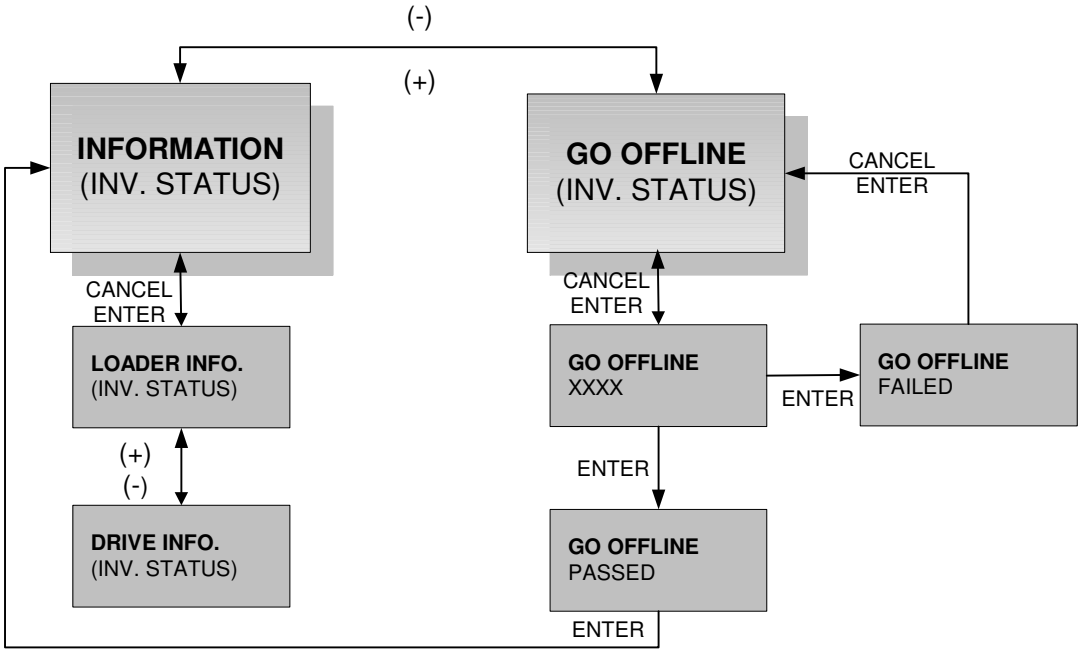


Figure 2 *Offline Mode with Protection*

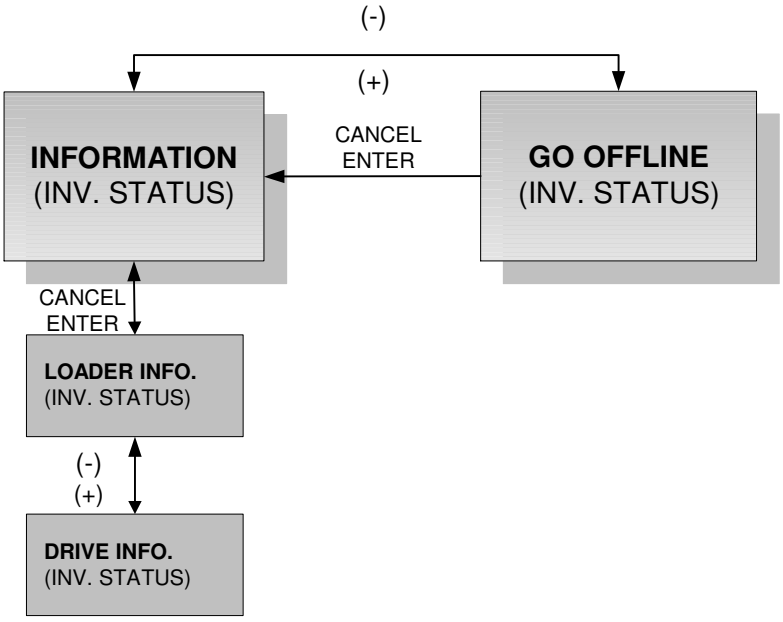


Figure 3 *Offline Mode without protection*

6.3 OCP User Interaction Mode

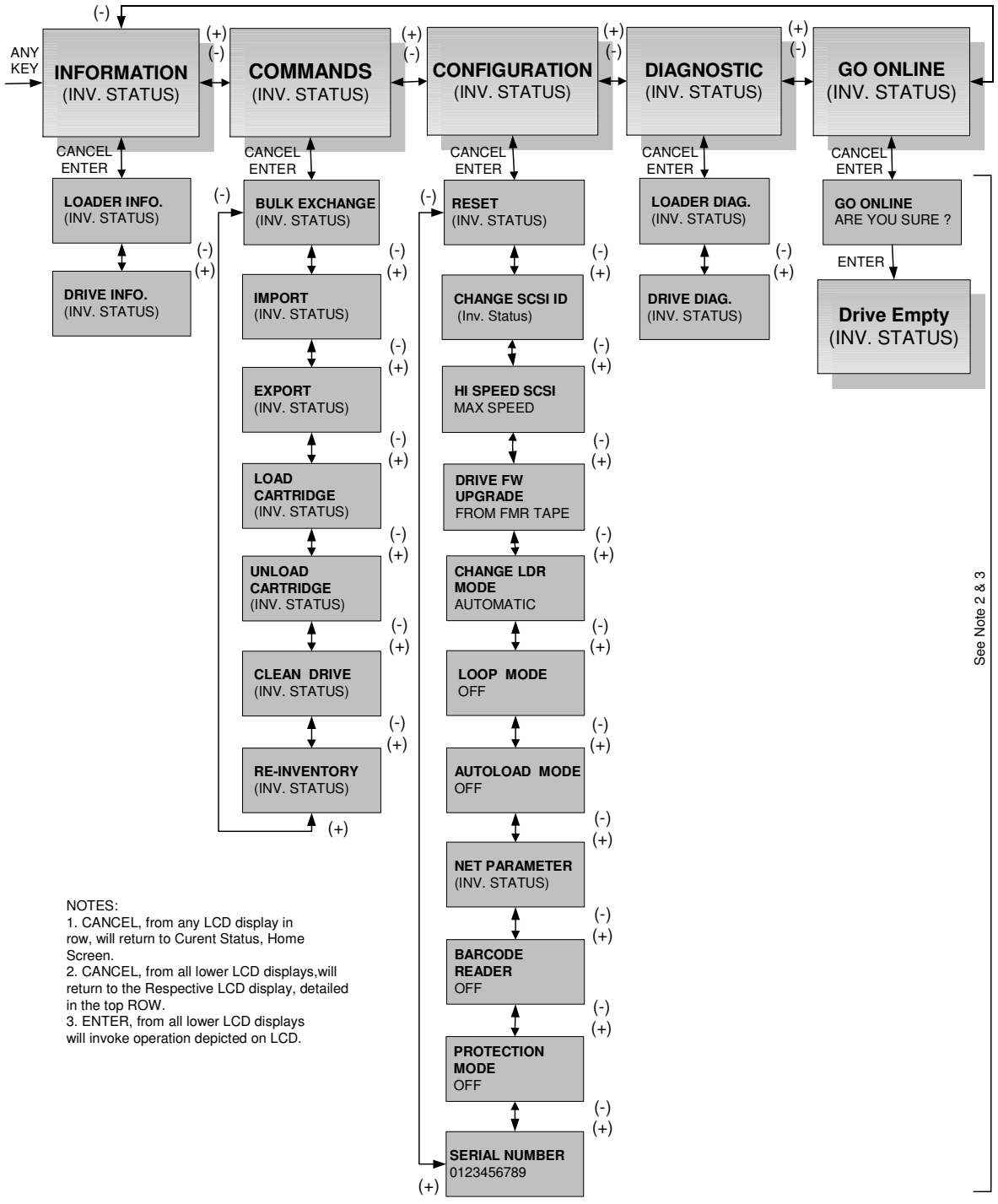


Figure 4 *Interaction Mode, overview*

6.3.1 Information

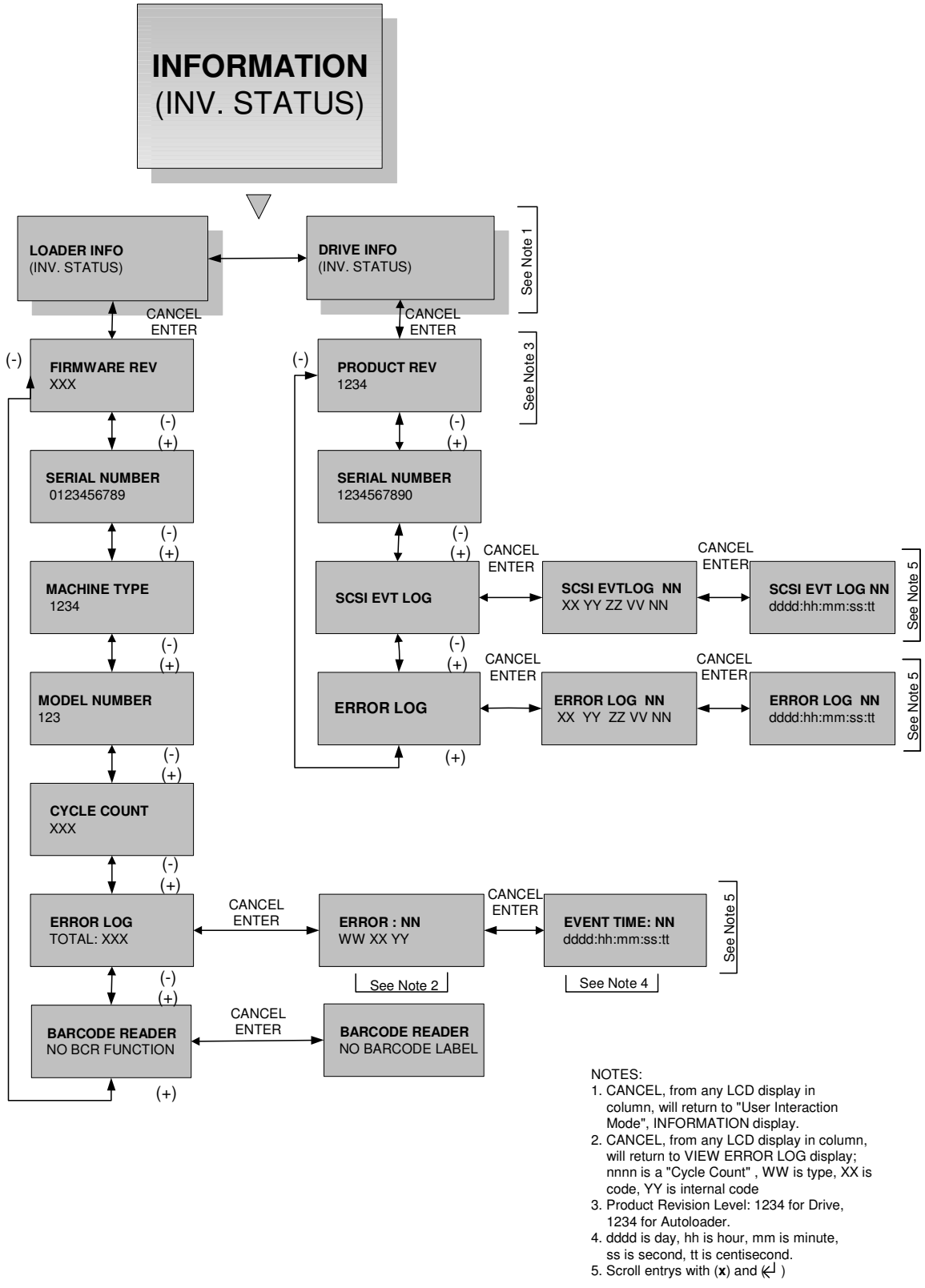


Figure 5 *Interaction Mode, Information*

6.3.2 Commands

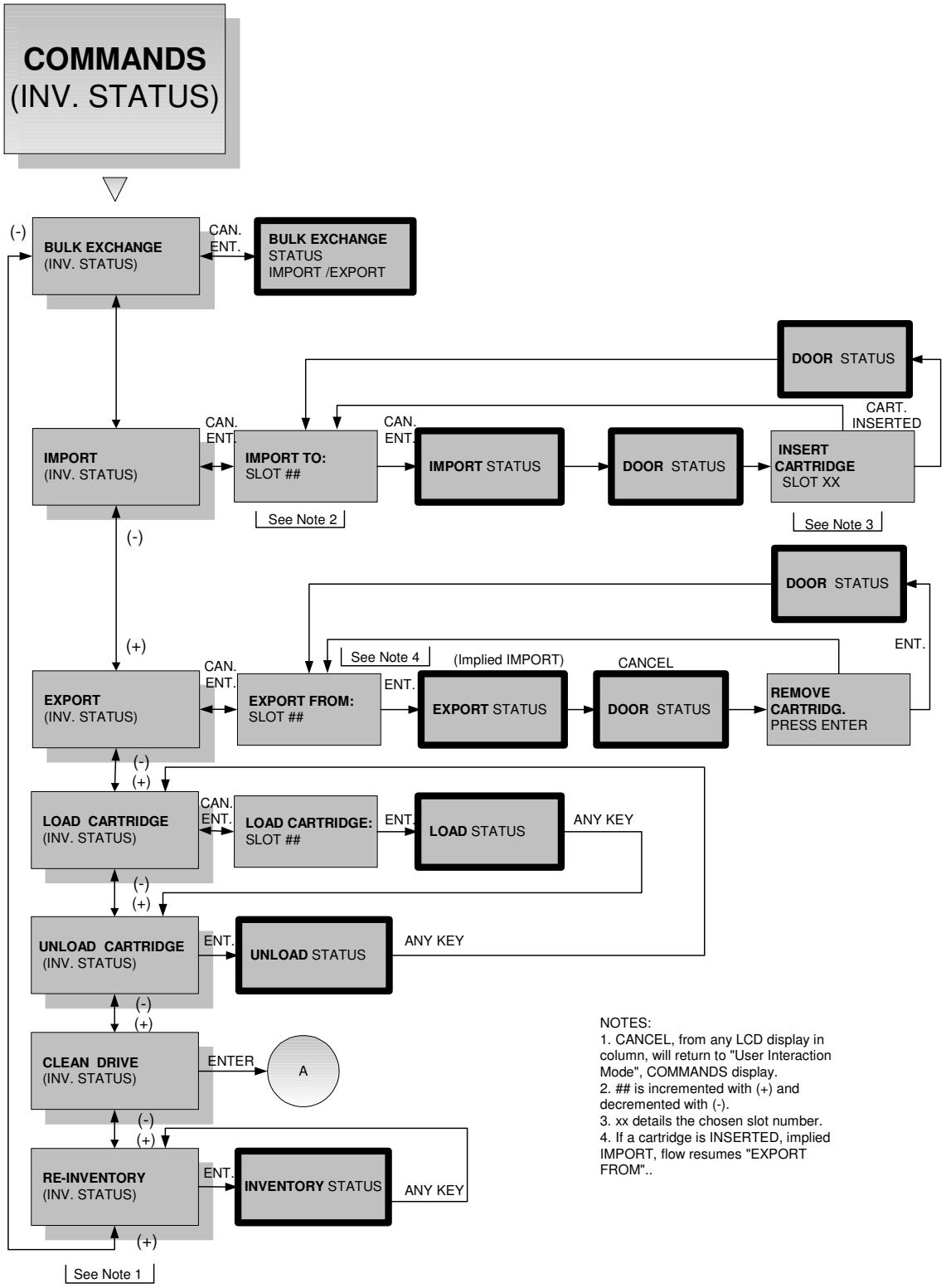


Figure 6 *Interaction Mode, Commands*

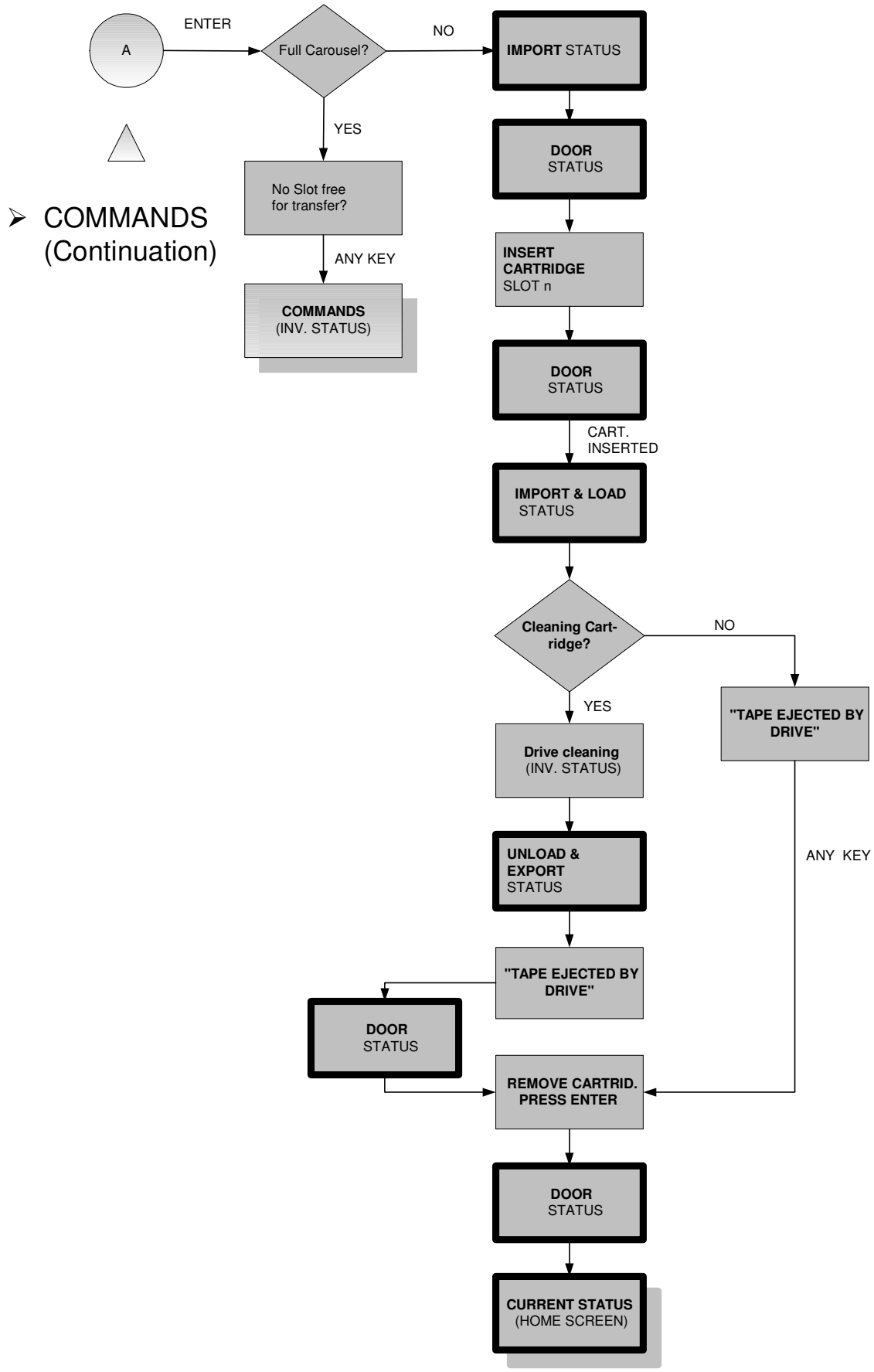


Figure 7 *Interaction Mode, Commands, continuation A*

6.3.3 Configuration

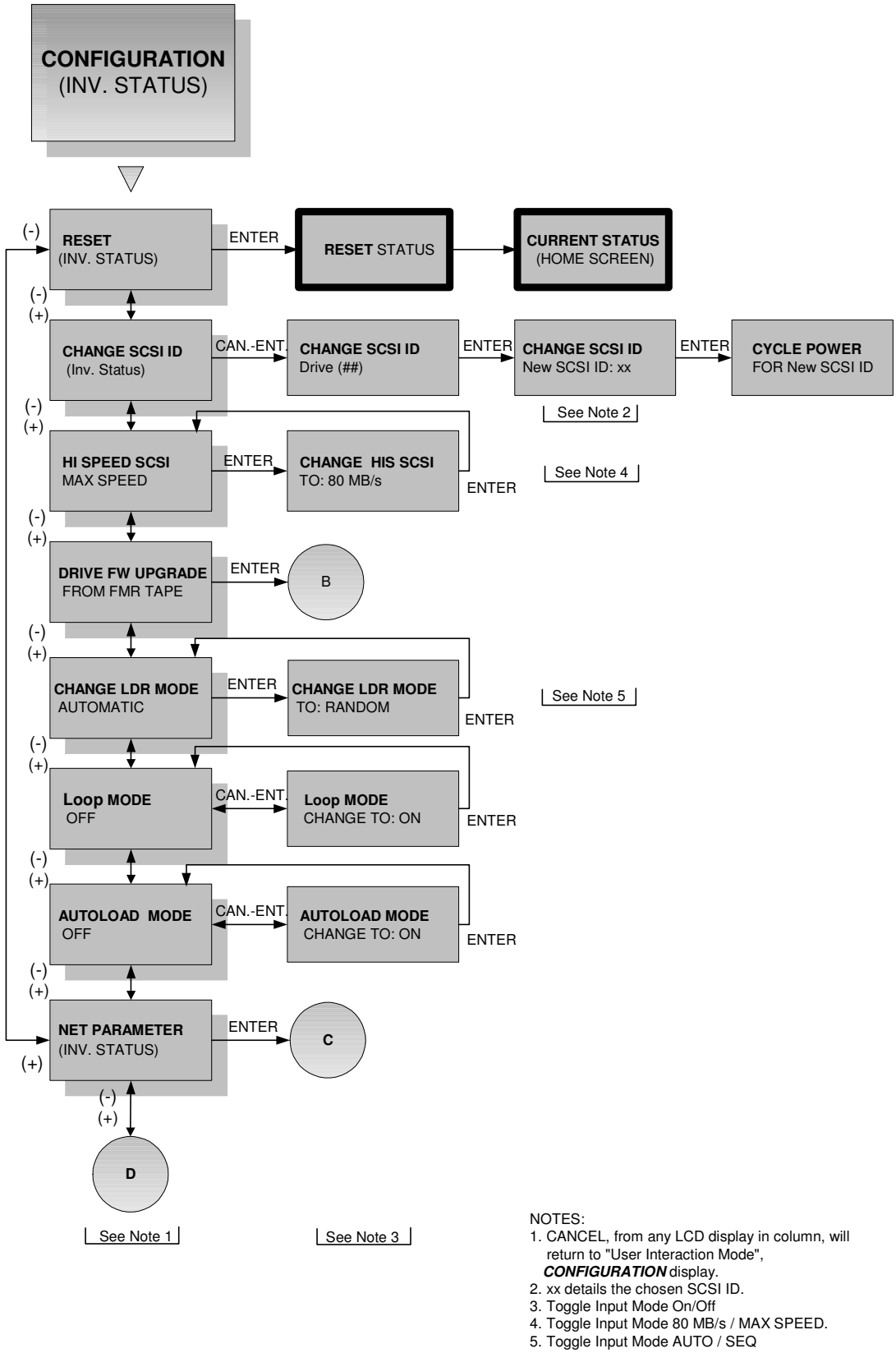


Figure 8 *Interaction Mode, Configuration*

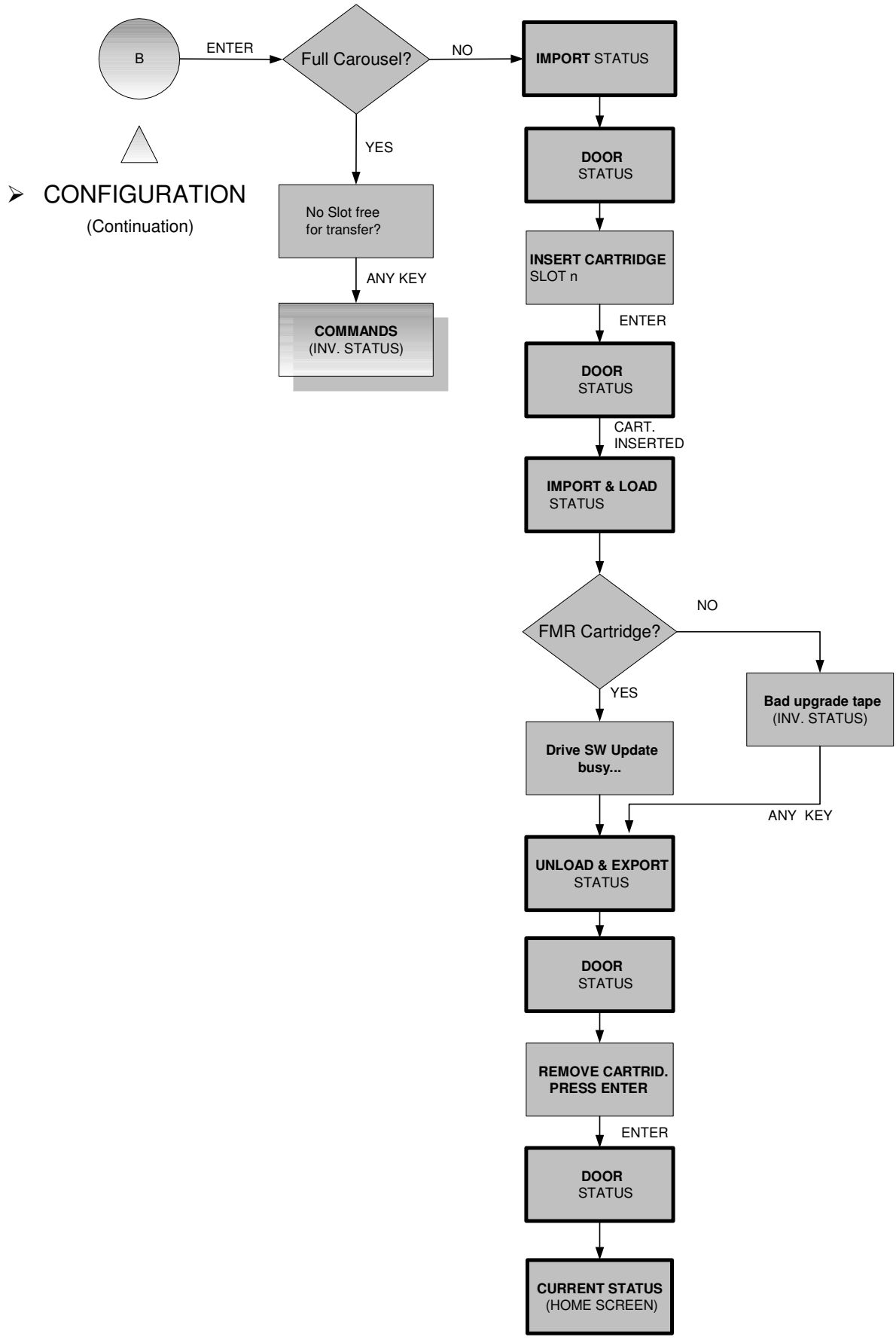
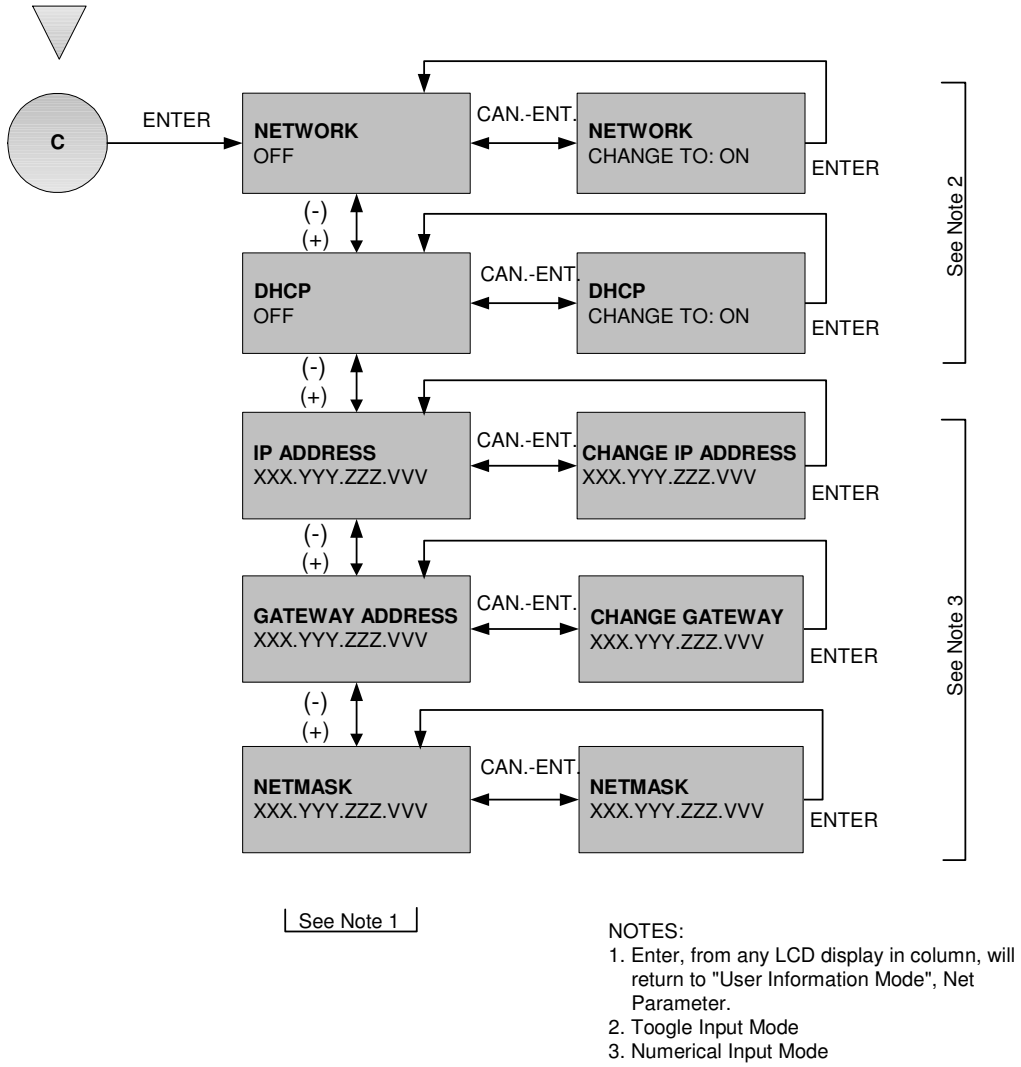


Figure 9 *Interaction Mode, Configuration, continuation B*

➢ CONFIGURATION

(Continuation)

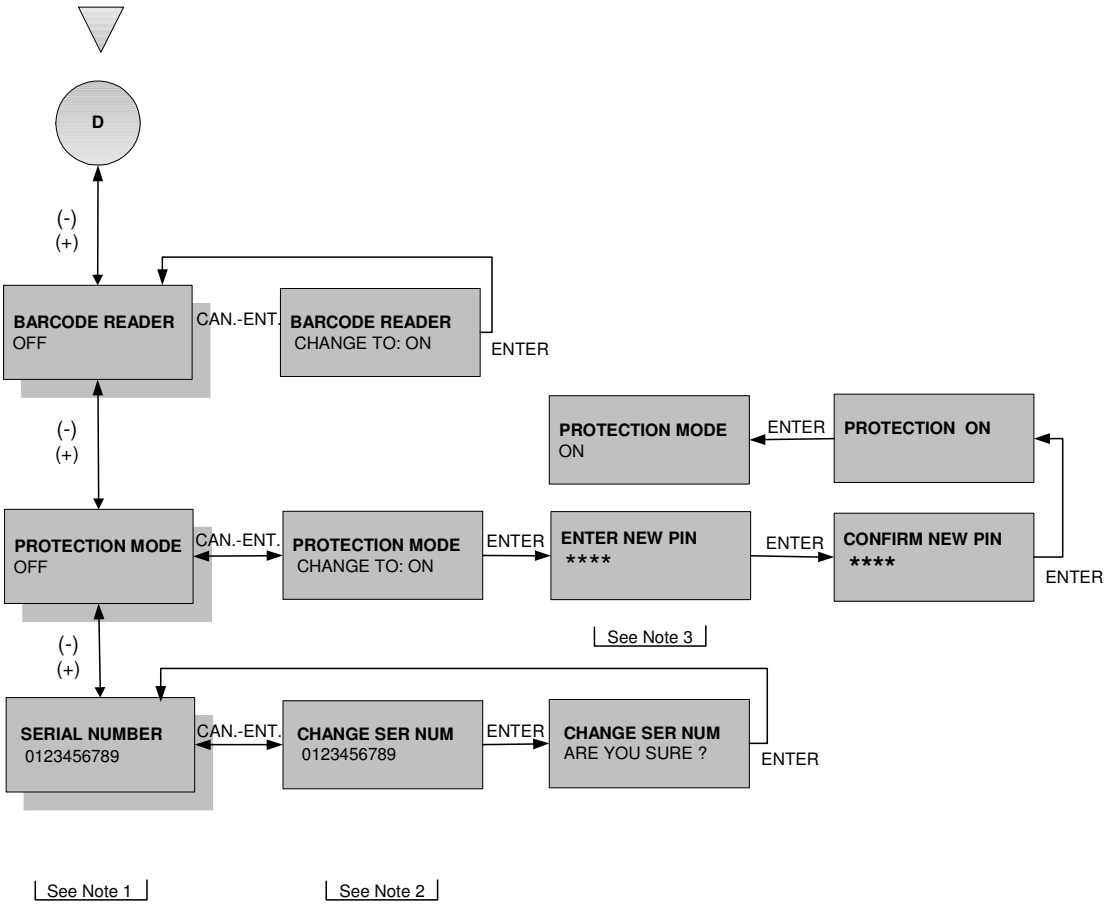


NOTES:
1. Enter, from any LCD display in column, will return to "User Information Mode", Net Parameter.
2. Toogle Input Mode
3. Numerical Input Mode

Figure 10 *Interaction Mode, Configuration, continuation C*

➢ CONFIGURATION

(Continuation)



User defined NN (+) (-) change digit.
Enter switch to next digit.

NOTES:
1. CANCEL, from any LCD display in column, will return to "User Interaction Mode", CONFIGURATION display.
2. Toggle Input Mode ON/OFF
3. ****To enable Protection Mode a new PIN is required.

Figure 11 *Interaction Mode, Configuration, continuation D*

6.3.4 Diagnostic

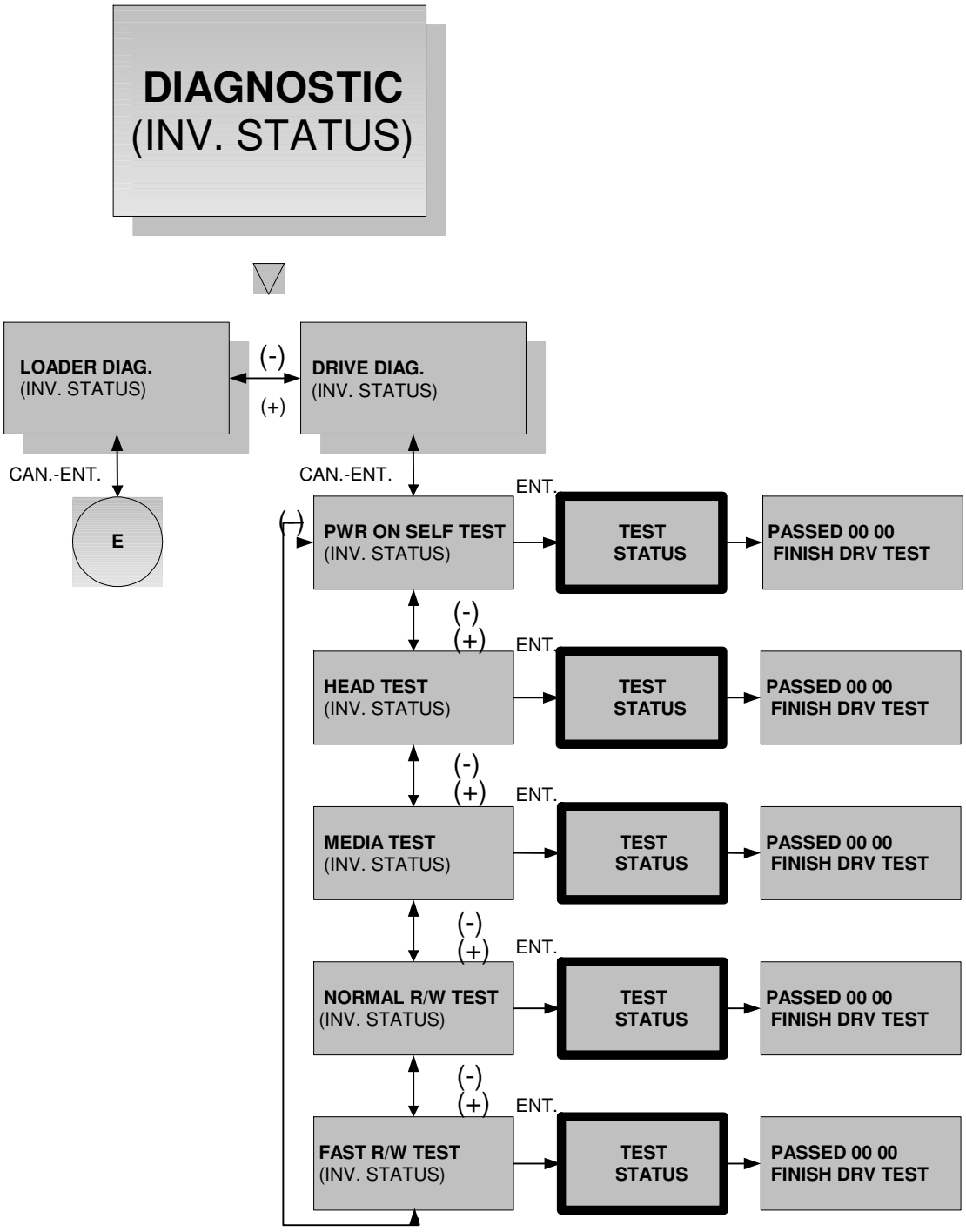


Figure 12 *Interaction Mode, Diagnostic*

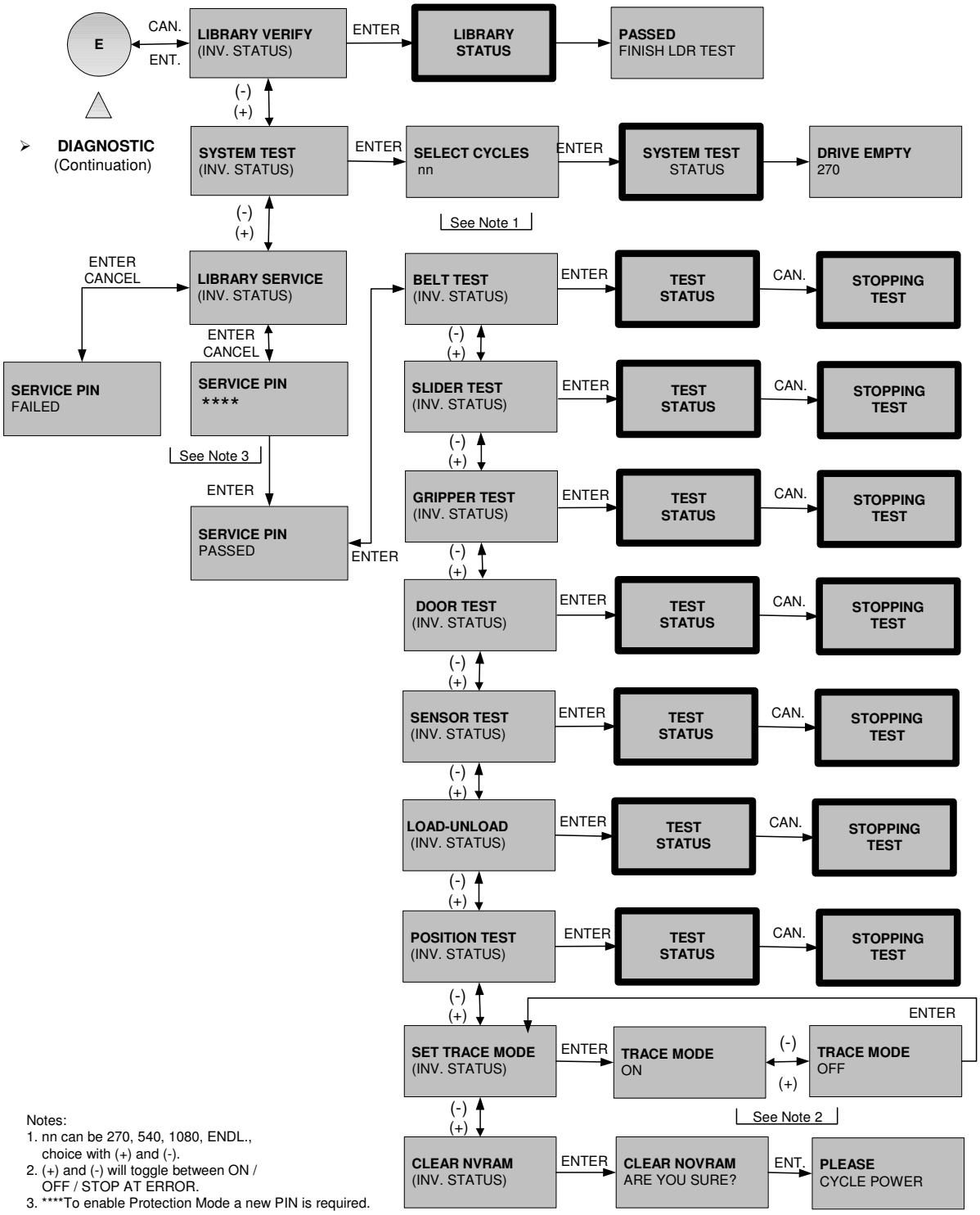


Figure 13 *Interaction Mode, Diagnostic, continuation E*

7 OCP – Error Code Definitions

7.1 Error Code 80H

No error.

7.2 Autoloader Errors 81H – 8FH

All error codes are considered fatal.

Error Code 81H

Invalid command error. This error indicates that the LTO Autoloader received an undefined command or an invalid parameter to a command.

Error Code 82H

Device status not suitable to execute this command

If the autoloader is busy, some commands can't be executed at the same time. This error will indicate a probable violation. This is not an error condition, but does result in busy being reported to the host for the requested SCSI command.

Error Code 83H

Inventory not valid.

The cartridge inventory is not valid, because of manual changes or previous fatal errors. In such case, the inventory must be updated by appropriate 'Set Slot Status' commands.

Error Code 84H

Source element not ready.

Transport source element empty

Error Code 85H

Destination element not ready.

Destination element already full.

Error Code 86H

Assigned to a rejected user attempt to access door while media removal is prevented.

Error Code 87H

Is used for several timeout conditions.

Error Code 88H

Communications error during loop-back.

Error Code 89H

Timeout detected by autoloader on BHC testing

Error Code 8AH – 8EH

Reserved

Error Code 8FH

No error after autoloader recovery.

7.3 Function Errors 90H – 9FH

Error Code 90H

Mechanical Initialization failure.

The autoloader isn't able to get into its safe mechanical init position. Manual intervention will be necessary.

Error Code 91H

Scan failure.

Fatal error during cartridge scan, building up inventory.

Error Code 92H

Preposition failed

Belt positioning error during 'Preposition' command.

Error Code 93H

Cartridge mount error.

Movement of cartridge into drive failed.

Error Code 94H

Cartridge dismount error.

Failure during cartridge removal and transport back to the slot.

Error Code 95H

Import error.

Device wasn't able to finish import of new cartridge without error.

Error Code 96H

Export error.

Fatal error during cartridge export.

Error Code 97H – 9FH

Reserved

7.4 Low Level Axis Errors A0H - AFH

Error Code A0H

Belt axis error.

Error during cartridge carrier movement (position not found).

Error Code A1H

Slider axis error.

Transport slider unable to reach estimated position.

Error Code A2H

Gripper position error.

Gripper unable to reach position.

Error Code A3H

Cartridge pick error.

Missing cartridge during pick operation of gripper.

Error Code A4H

Door function error.

Slider door in front bezel not in requested position during device operation.

Error Code A5H

Fan Error.

Autoloader processor has detected a fan error.

Error Code A6H – AF

Reserved

7.5 Electronic Hardware Errors B0H – B6H

Code	Description
B0H	ROM Error
B1H	RAM Error
B2H	NVRAM Error
B5H	Display Error
B6H	Mem. Error

Table 2 Hardware errors B0H – B6H

Error Codes B7H-B9H

Reserved

7.6 Drive Errors BAH – BFH

Code	Description
BAH	Drive Load Timeout
BBH	Drive Unload Timeout
BCH	Overtemperature problem
BDH	No connection to drive
BFH	Drive broken, needs repair

Table 3 Drive errors BAH – BFH

7.7 Error and Trace Log

Every New York Autoloader provides an internal Error Log. These logs are stored in different areas to avoid loose of error entries. This log data is helpful for development and service purposes. The Error log is accessible through the OCP and can be read out entry by entry. It has a storage capacity of 64 entries. It's organized as a circular buffer, so the oldest entry will be deleted at overflow.

The Event Log is also accessible through the serial connection or the optional RMU. It's capacity is about of 1800 entries, depending on the entry length. The Trace Log can contain entries about processed commands, responses, errors, asynchronous events.

7.7.1 Log Mode

The error log is available in different mode. This log level is selectable via the OCP, so the user can decide whether he/she wants error logging and what should be the behaviour in case of error.

0 = No Error Log

Error log is disabled.

1 = Errors

Errors are logged.

2 = Stop Trace Log at first error

The Trace Log will be disabled after first occurred error.

The data which should be stored in Trace Log can be controlled in a wide area through the serial monitor or the optional RMU.

Error Log Entry

Every Error Log entry consists of 2 status bytes and a timestamp. This information is shown on the bottom line of the LCD. The display can be switched between status and timestamp. A negative number in the top line shows the current position in the error log.

```
Entry: BB CC [*R*]
BB Error Code
CC Internal Error
[*R*] Recovered Error
```

In case of a recovered error a **R** will be displayed. This means that the autoloader was able to recover the occurred error without canceling the operation.

Example for Error/Event Log Display:

```
EVENT -6
93 0B
```

Sequence number –6 indicates the position in sequence list, 0 being the most recent.

Log shows a load error (Code 93 = Load error, Internal error 0B = Door Stop).

After pressing the *Enter* button the associated timestamp will be displayed in the following format :

```
ddd:hh:mm:ss:HH
```

ddd: days
hh: hours
mm: minutes
ss: seconds
HH: 1/100 second

The timestamp is set to zero at system start.

The complete Error Log can be printed out also through the serial monitor or the optional RMU. Please refer to further documentations about this.

7.8 OCP User Interaction Mode Operation

This is a typical System Driven mode display. It contains the current autoloader status on the top line and the current inventory on the second. This display is also referred to as the 'Home Screen'.

This is the most frequent display of the OCP. The following graphic depiction is of the menu structure of the OCP, starting with the Home Screen display:

Drive empty
123456-8

7.8.1 User Interaction Mode Operational Notes

Any OCP pushbutton closure will change the OCP Mode from "Current Status/Home Screen" to "User Interaction Mode".

There are two ways of returning to the Current Status/Home Screen. 1. No activity occurs on the front panel for100 seconds. And 2., CANCEL from the top level menu of "User Interaction Mode".

7.8.2 Implied Import Operation

There are a couple situations when autoloader robotics must expect a cartridge import operation, even though an export operation was requested (and not completed) via the front panel. All of these situations have a common root. Bottom line: after a successful export operation, the autoloader has the door open, and an empty slot. This is all that is needed to import another cartridge. If robotics see 'cart-present' before the export operation is concluded with an OCP key-press, an Implied Import has been requested.

When could this happen?

Operator changed his/her mind. Asked for an Export, but pushes the same cartridge back into the slot.

7.8.3 Supplemental Notes

2 Cases for Cleaning Cartridge

- A cleaning cartridge is not in the carousel. Solution: either use the OCP COMMANDS menu entry for 'CLEAN DRIVE', which handles Import, Load, Unload, and Export operations automatically OR the user must explicitly Import, Load, and Export the cleaning cartridge.
- A cleaning cartridge is somewhere in the carousel. Solution: operator must remember where it is and Load the cartridge. Unload will happen automatically.

Code Update Tape

Works similar to number 1 in supplemental notes, listed above.

8 RMU

This chapter specifies the user interface of the Remote Management Unit (RMU) of the LTO Autoloader product family. It covers the user interface and user pages with full details and functionality. It also explains to the customer how the RMU GUI looks and feels.

8.1 Overview

The RMU provides remote access to the autoloader or an IP network via a web browser. All available functions are accessible without the need of a dedicated or separate software.

- Future versions of this documentation may include additional functionality and may include additional information regarding alternatively supported drives. The manufacturer reserves the right to extend the functionality of the RMU following the technological trade-offs.

The following list is a short and incomplete overview of the RMU functions:

- Autoloader, drive and media configuration and status information
- Ability to modify the configuration of the autoloader
- Configure the logging and tracing
- Administrate passwords
- Setting time and date
- Setup event notification
- Reset the autoloader
- Reset, save and reload of configuration information
- Run autoloader operations
- Perform diagnostic tests
- Update loader and drive firmware
- Show logging and tracing information for autoloader & drive

In addition to these functions, the RMU Interface offers Help pages and Support information.

This document describes a general and basic implementation of the RMU. Most customers will want to customize the RMU Interface to match their own needs and requirements.

Some end users will have a RMU version in their own national language instead of the English version. Creating a new language version can be done by the manufacturer or the customer.

The RMU supports three types of users:

- **Normal users:** Users who need general configuration and status information of the autoloader.
- **System administrators:** For users who maintain their backup device autoloader through the use of the RMU remotely.
- **Service personnel or experts:** Like engineers who will use the RMU as a tool for troubleshooting and analyzing exceptional situations remotely (i.e. level 2-3 support).

The primary target user of the RMU is the system administrator, who will frequently use the RMU to monitor and maintain his autoloaders.

Every user type corresponds with an access level (1, 2 or 3). To get the right access level the user has to login with the correct password for this access level.

8.2 Saving/Restoring Vital Product Data on the RMU

Items saved on RMU:

- SCSI ID
- Operating Mode
- SCSI Drive Speed
- BCR Enablement
- Machine Serial Number

If an RMU is installed, the values listed above can be saved in the RMU. After all values are set to the desired values, you will be instructed by the configuration instructions to access the Reset page in the Configuration Menu on the RMU to save these values on the actual RMU module.

These items are saved for use at a later date like the base autoloader unit need to be replaced. This RMU feature allows for quick VPD restore rather than having to manually reinstall each desired value using the OCP.

The Reset page also contains a ″restore″ button selection. In addition, if any of these items are changed at any time after install, press the ″save″ button on the above mentioned RMU page to always save the latest values. Machine serial number and World Wide Node Name (WWNN) are saved from the original machine and restored to VPD of the replacement machine to enable various network hosts to see the ″same″ autoloader without having to re-configure the network.

8.3 User Interface Pages

The following section describes the web pages and their functionality. The web pages are made up from static and dynamic text.

8.3.1 Login

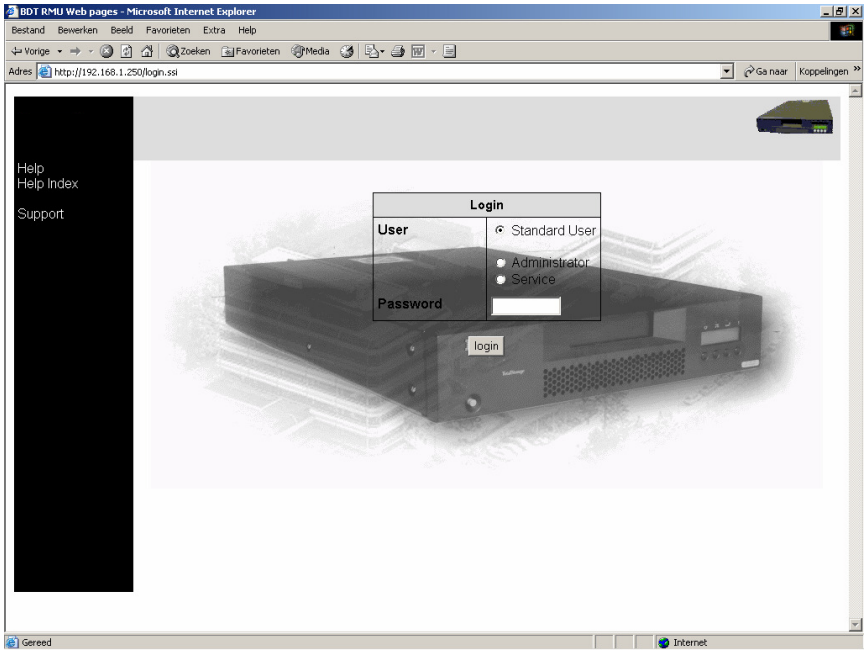


Figure 14 *Login*

To begin with, RMU access requires a login. There are 3 access levels for logging in.

The names can be changed by clicking User under Configuration in the Work Items list.

After successful login, the user will see the pertinent information according to the user level:

Standard User (Level 1): Default password: std001

- Information Menu
- Status Menu

Administrator (Level 2): Default password: adm001

- Information Menu
- Status Menu
- Configuration Menu
- Maintenance Menu (exception: Advanced Diagnostics)
- Log Menu

Service (Level 3): Default password: ser001

- Information Menu
- Status Menu
- Configuration Menu
- Maintenance Menu
- Log Menu

For access, cookies are used to store the session data and the current access level. For every other page accessed, this cookie is used to get information about the client session and make sure that the user has the correct access level to access the requested page. On this page, an image can be displayed in the white area behind the Login table.

8.3.2 Information

Loader

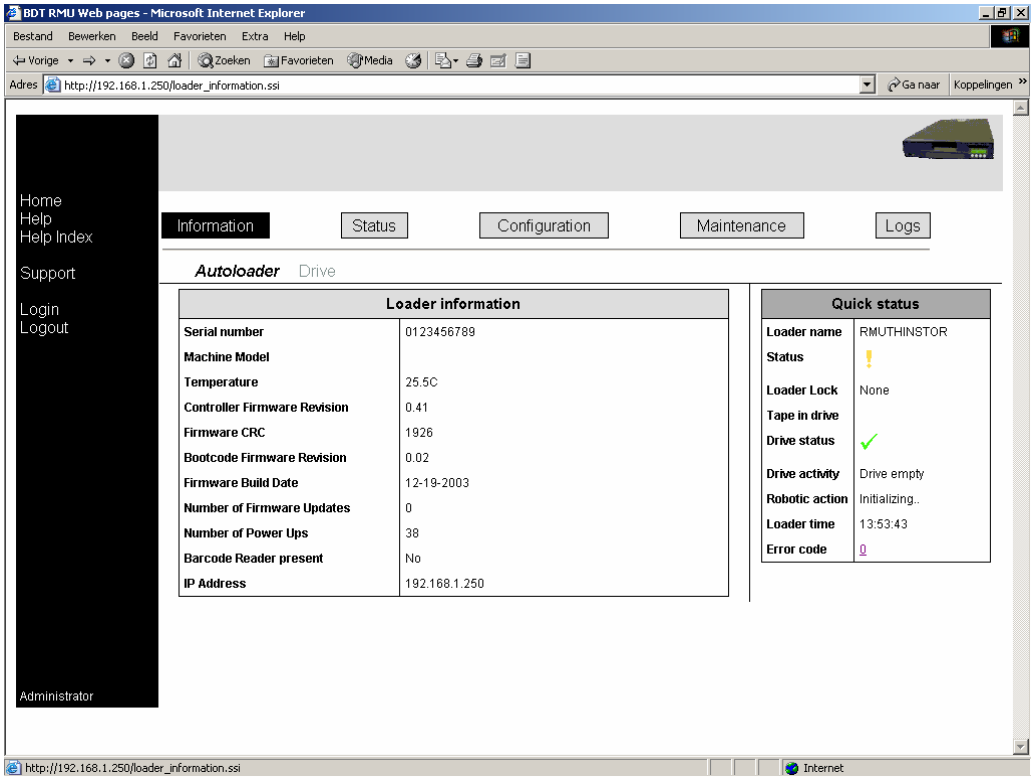


Figure 15 *Loader Information*

The information page shows general status of the Loader. This page is accessible by all 3 user levels. No changes can be made by the user.

The "Quick Status" table displays the current status of the autoloader:

- Name: Displays the name of the autoloader
- Status: Indicates the overall status of the autoloader by icon.
- Lock: Displays a lock when the administrator is in the process of making configuration changes. Valid values for "Loader Lock" are None, RMU, SCSI, OCP and MONITOR.
- Cartridge in drive: Displays the slot number of the tape currently mounted in the tape drive.
- Drive Status: Indicates by icon the overall status of the tape drive. The green "ok" icon indicates that the loader is fully operational and that no user intervention is required. The orange/yellow question mark indicates that user intervention is necessary but that the loader is still operational. The red cross indicates that user intervention is required and that the loader is not operational.
- Drive Activity: Indicates the current activity of the tape drive.
- Robotic Action: Indicates the current activity of the autoloader's robotics.
- Time: Indicates the total amount of time the autoloader has been in operation.
- Drive Error Code: Displays the code of the last error that occurred. Clicking on this code will take the user to a description of the code.

- Clicking on the "?" in the upper right corner above the Quick Status table displays helpful information on the active RMU window.

Drive

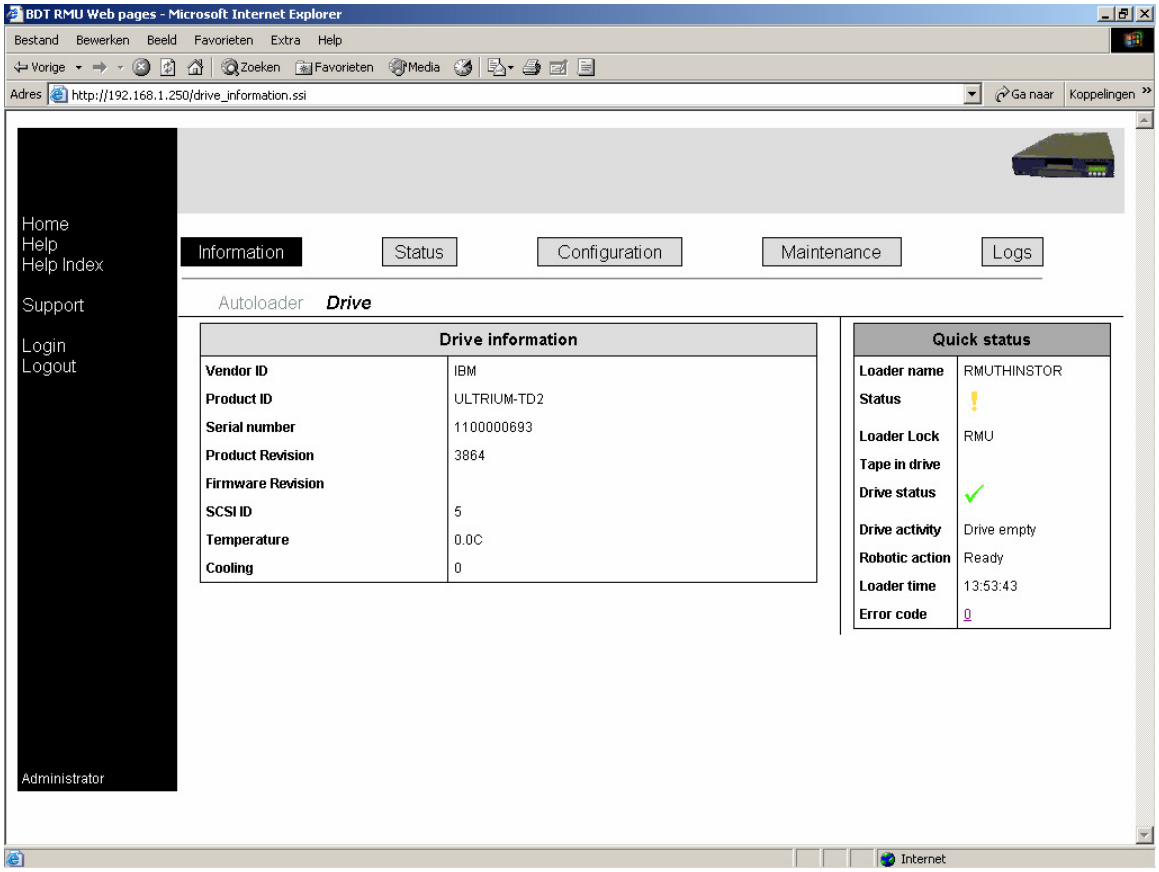


Figure 16 *Drive Information*

The Drive Information page shows general status of the drive and is accessible by all 3 user levels. No changes can be made by the user.

8.3.3 Status

Autoloader

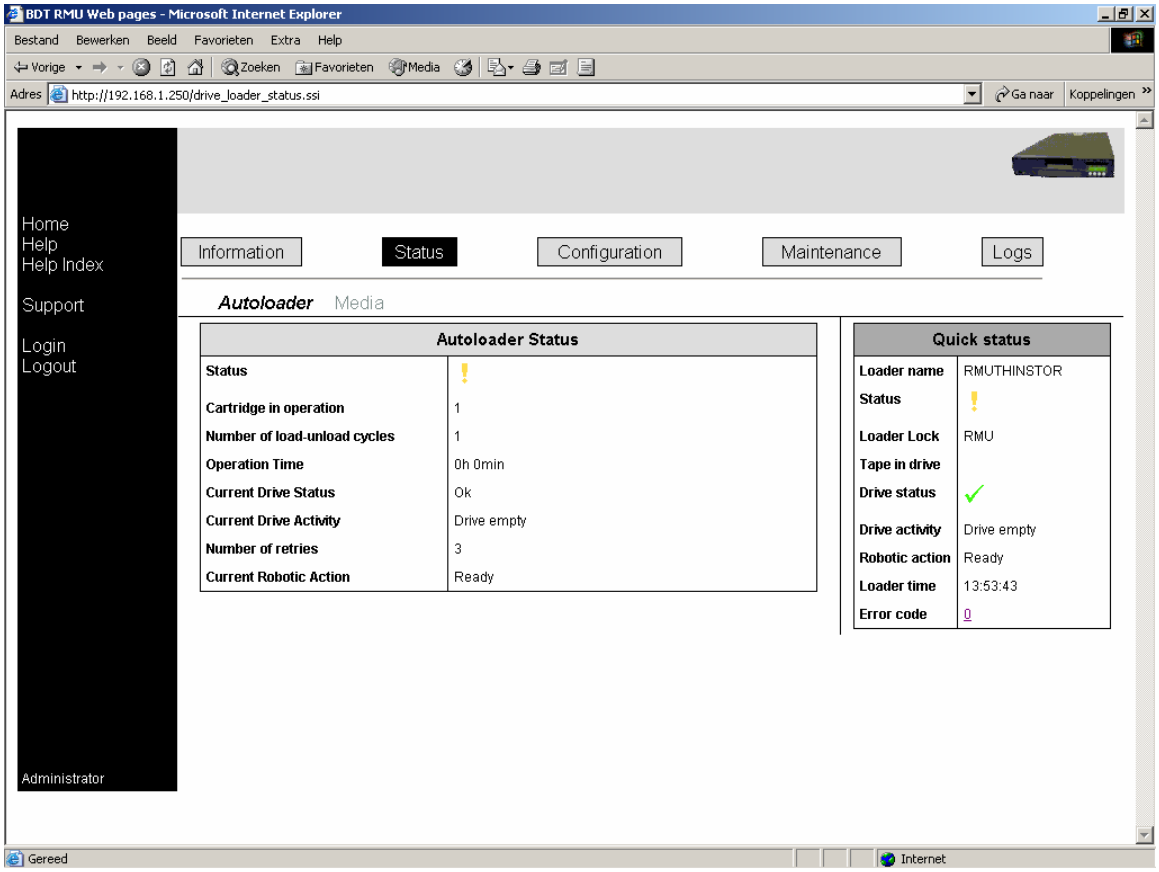


Figure 17 *Autoloader Status*

The status screen is split in two parts by a sub menu. The first submenu is the Autoloader status and the second submenu is the current status of the inventory in the autoloader.

Media

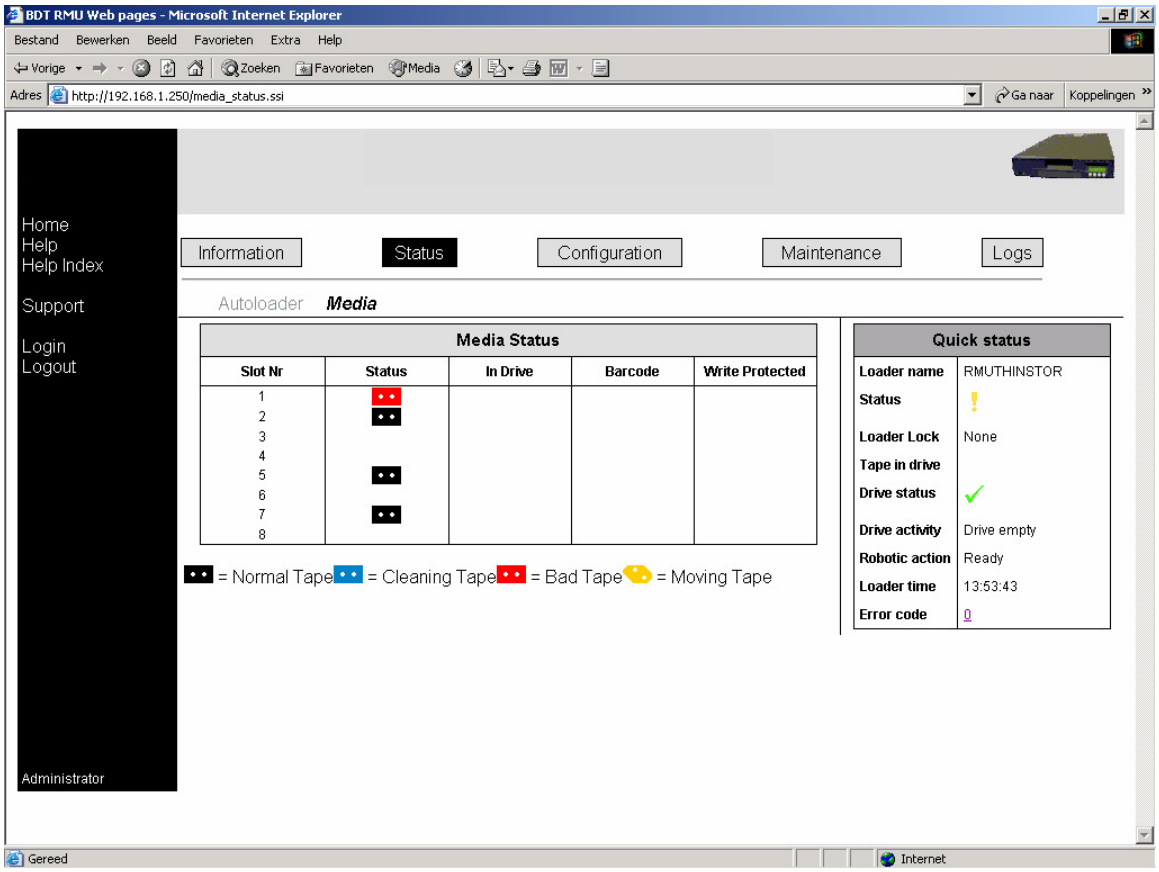


Figure 18 *Media Status*

This screen displays the current status of the inventory of the autoloader. The status shows the following: slot status, cartridge type, cartridge present, barcode label information, BCR (barcode reader) status and write protection. When a cartridge is selected for an action (like a move medium) the yellow moving cartridge symbol is displayed.

8.3.4 Configuration

Device

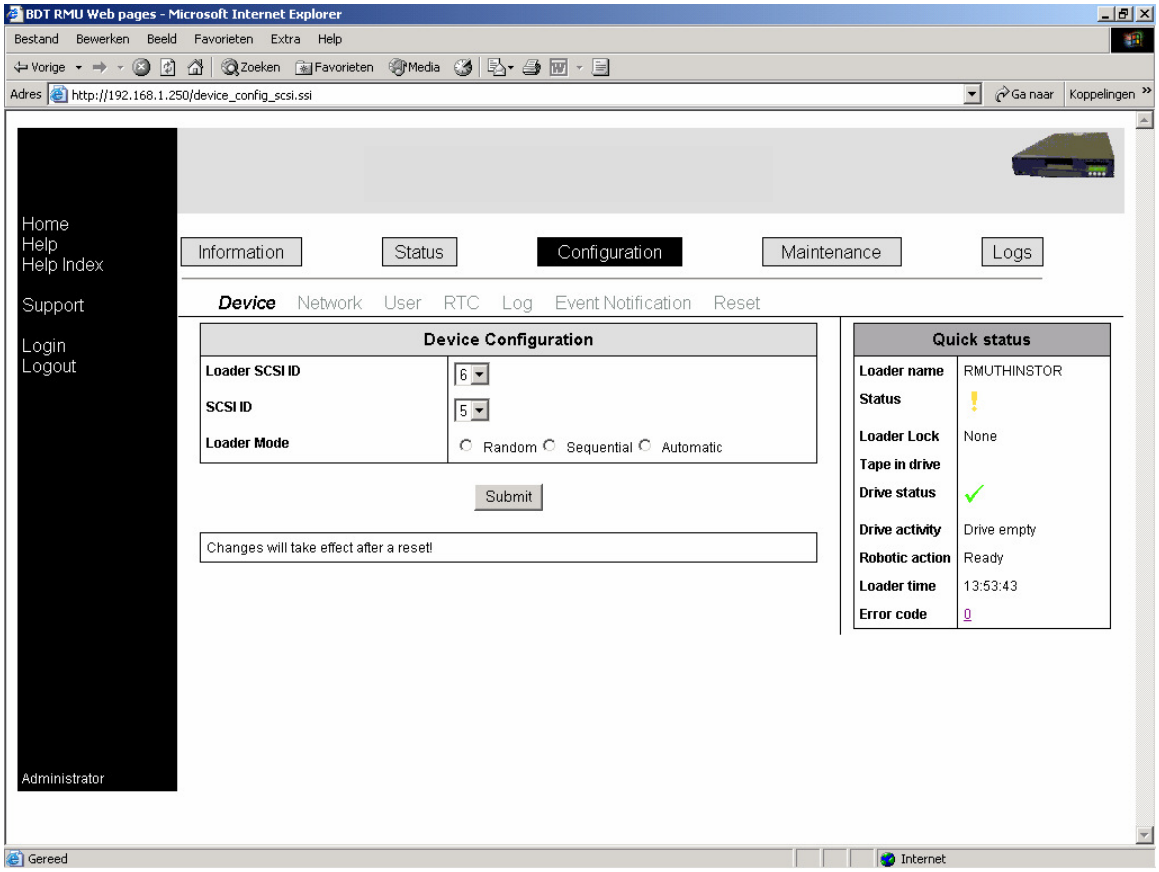


Figure 19 *Device Configuration*

The Device configuration section allows device configuration of 3 different configurations:

- Dual SCSI configuration(as shown above)
- Single SCSI (LUN) configuration

The appropriate mode will reflect one of the three configurations.

Network

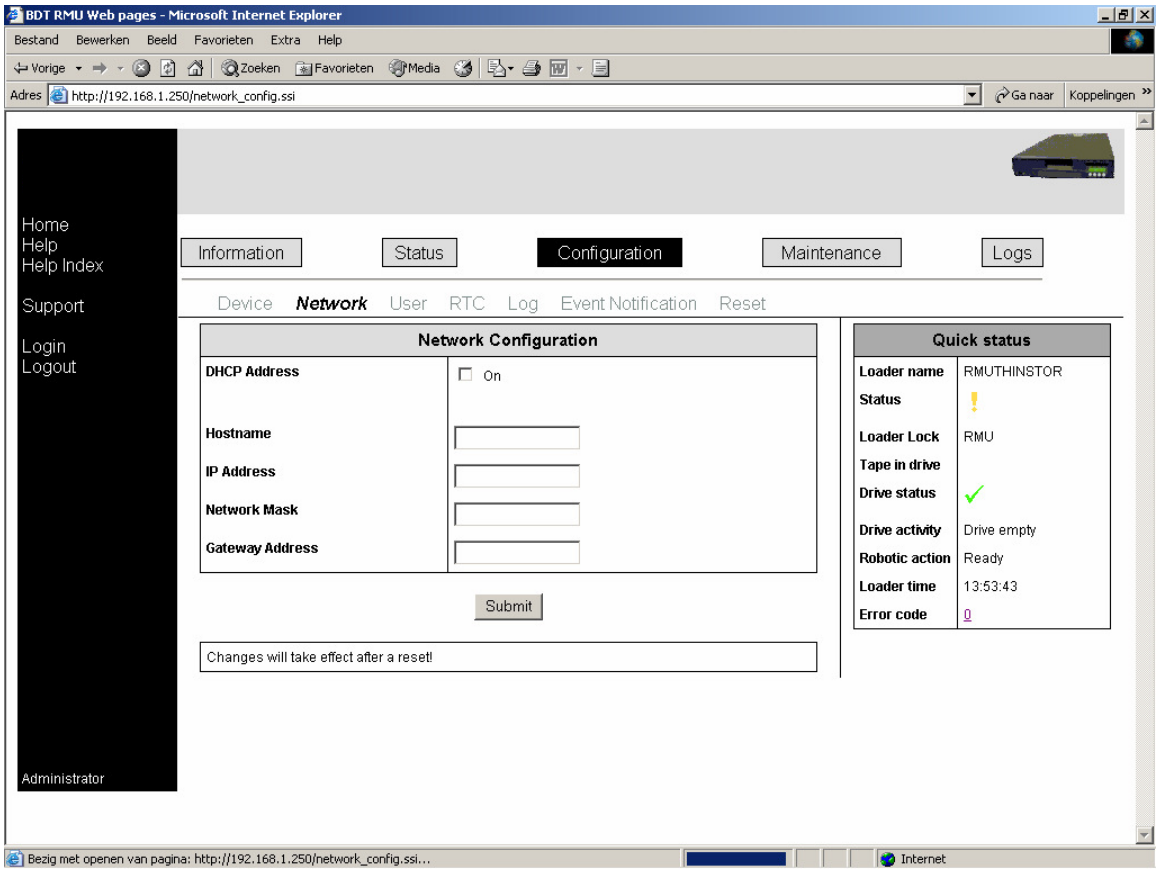


Figure 20 *Network Configuration*

The Network configuration page allows users to configure and edit the Hostname, IP address, Network Mask and Gateway Address.

- All changes will require a reset. If DHCP mode is selected, the manual entries are disabled and are not used.

After submitting the appropriate information, a pop-up box will confirm each action. The pop-up box is displayed only for changes.

User

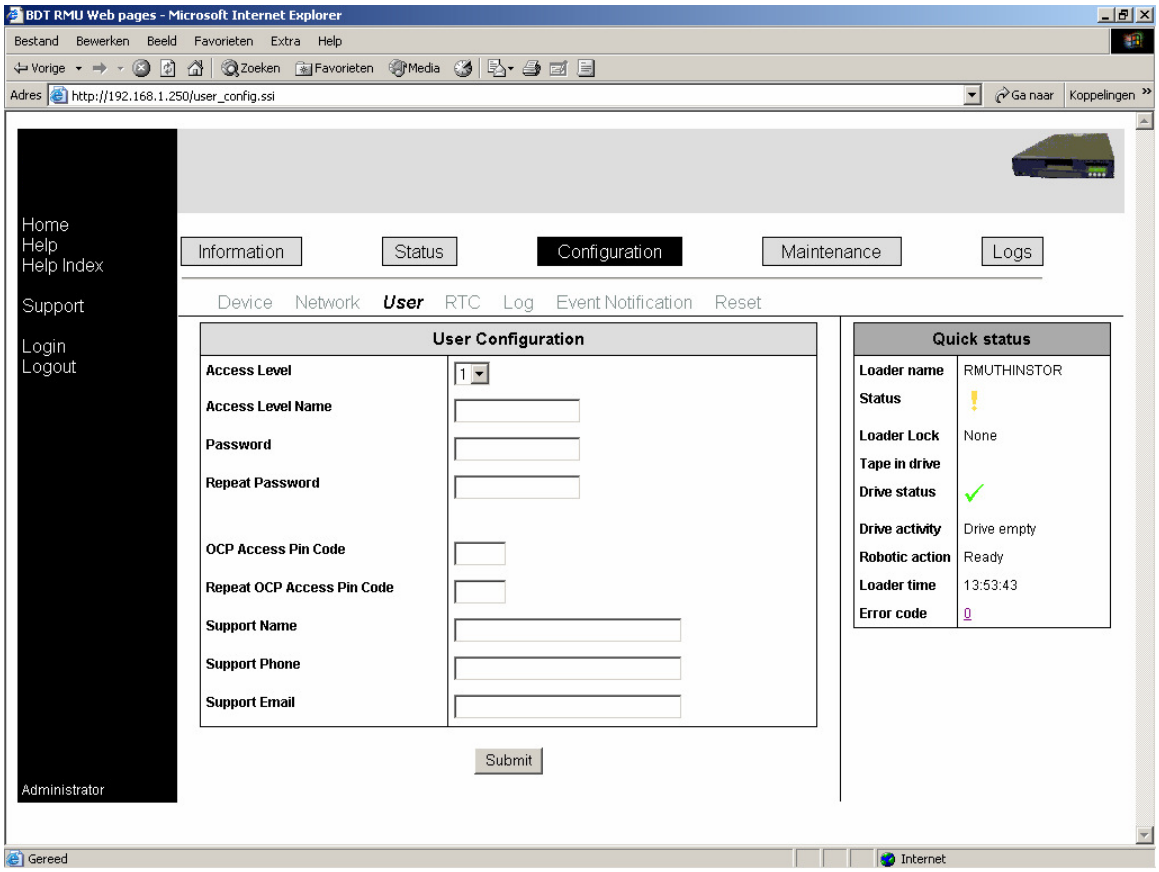


Figure 21 *User Configuration*

For user administration this page is used. There are three user levels available in the system. In this page the name for each access level can be changed as well as the password. The names entered here will be used on the login screen (see Login on page 36). The currently logged in access level name is displayed at the bottom of the left banner on each page (after a successful login).

OCP access pin code is used to control access to the OCP panel.

The support information (contact name, phone number and email address) must be entered in order to set up the specific customer support information.

RTC

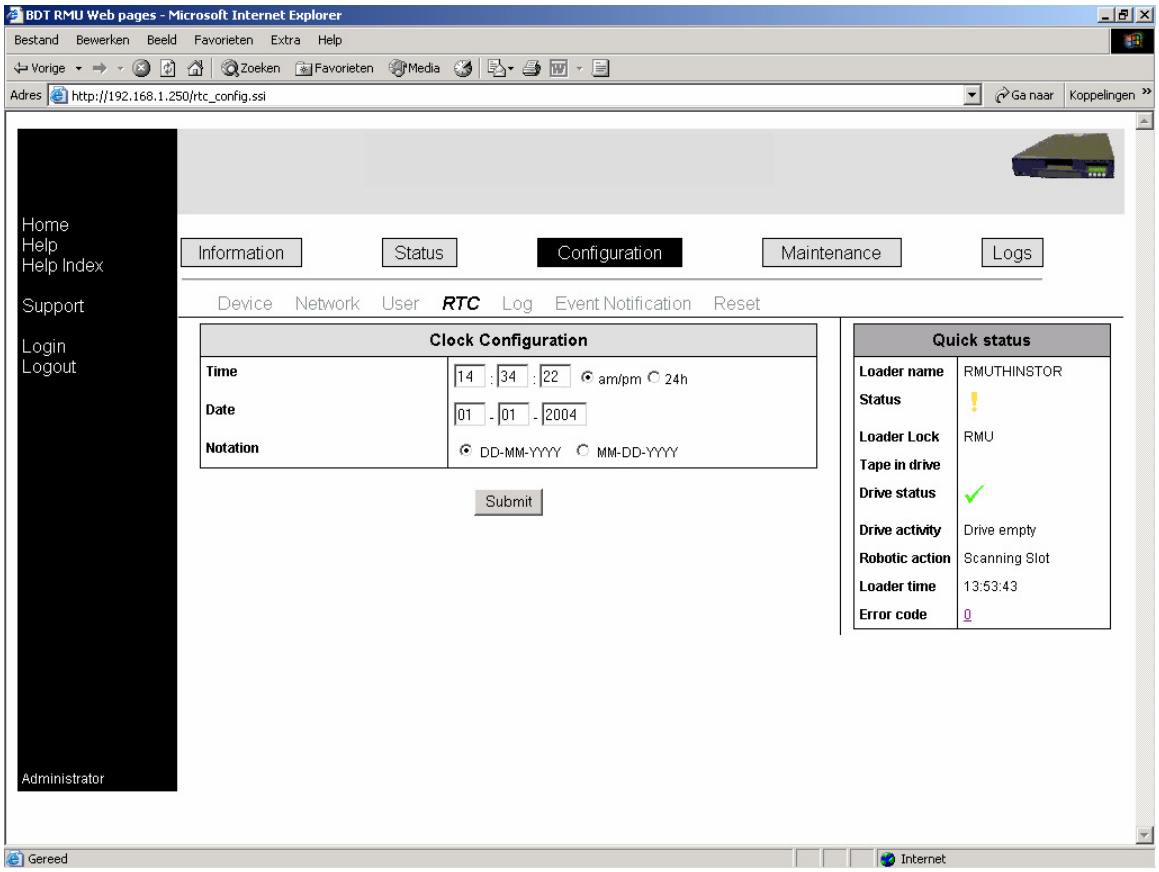


Figure 22 *Clock Configuration*

The Clock Configuration page allows users to select and edit the real-time clock of the system in 2 different formats: standard or 24 h & the month or day listed first.

Log

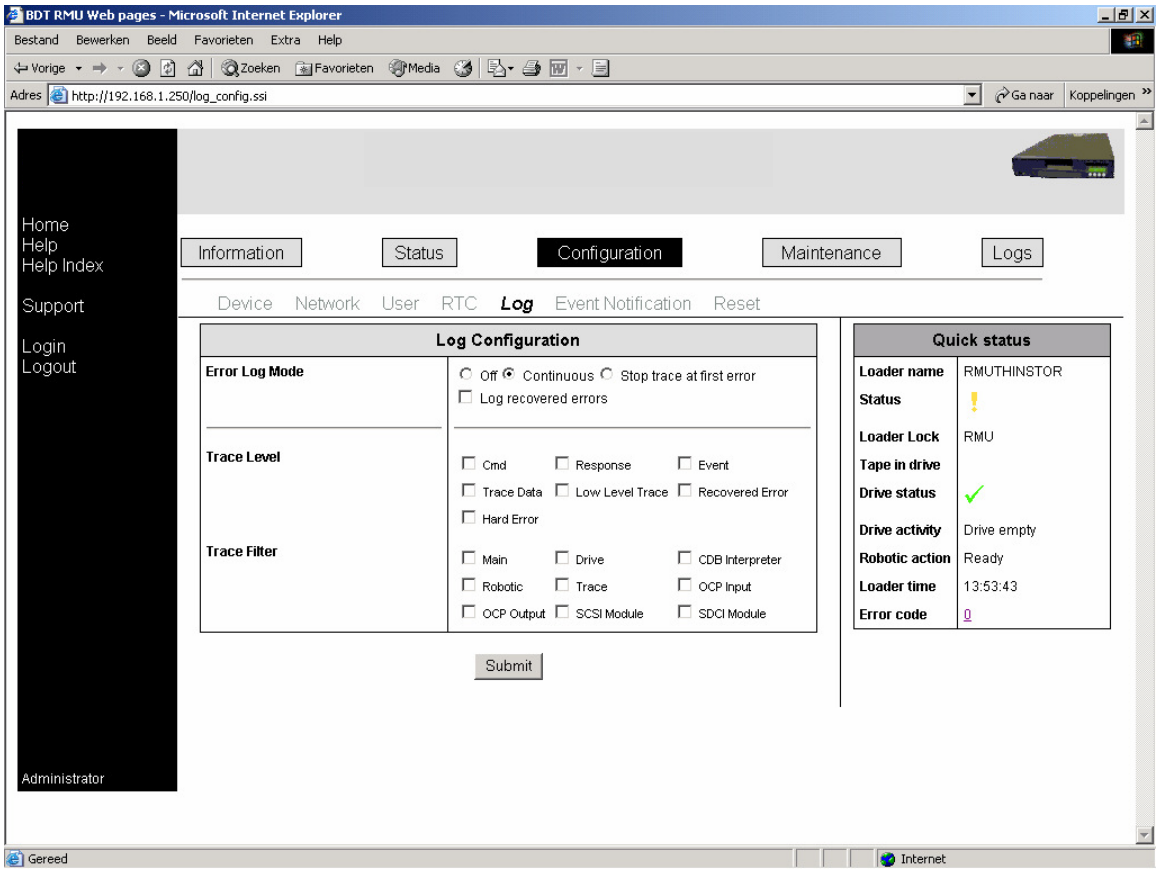


Figure 23 *Log Configuration*

This page shows the current log configuration. Error and trace logs can be enabled or disabled through filtering options.

- The filters apply during log entries in the database and are not retrieve filters. So when filtering out events from the CDB interpreter will not store any events from the CDB Unit into the log database and hence there is no way the logs can be retrieved from the system.

Only the level 3 user can access the Trace level and Trace filter options and are not available to other users.

Event Notification

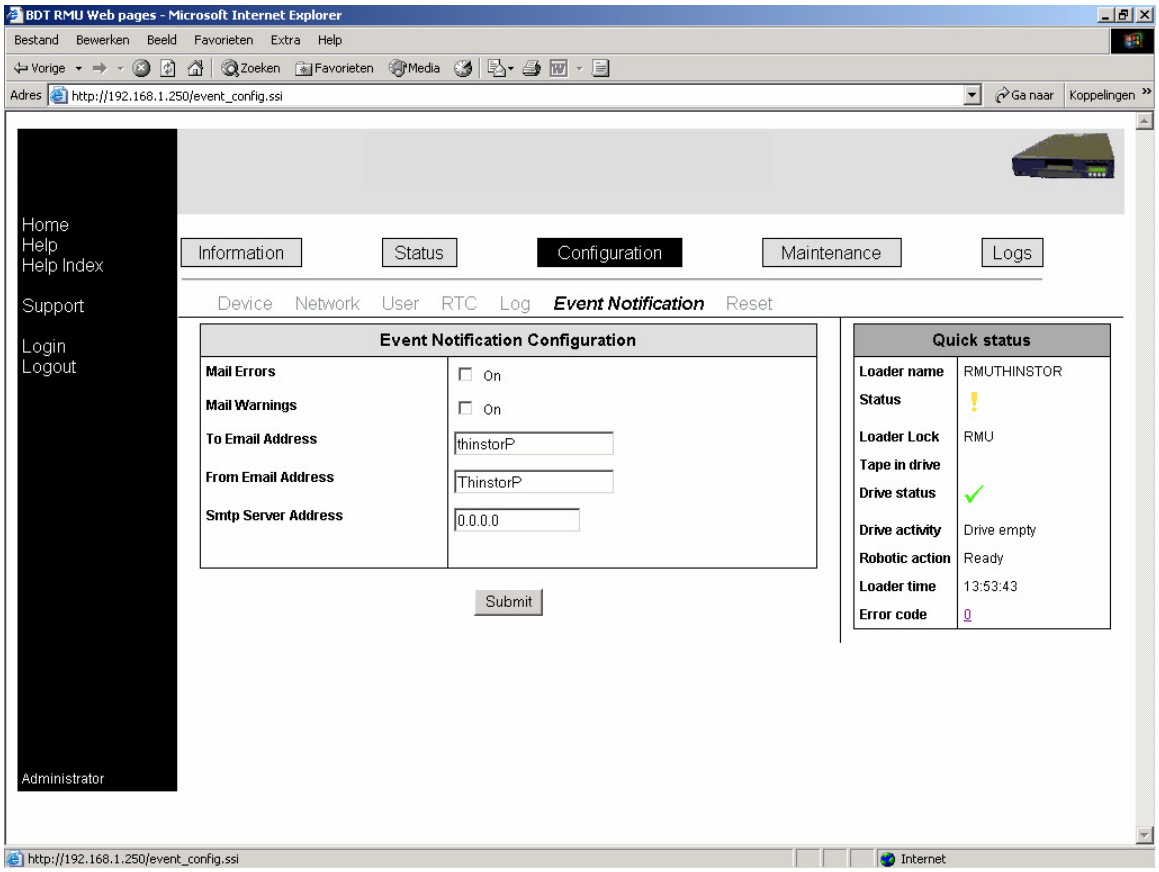


Figure 24 *Event Notification Configuration*

The Event Notification page is used to set up the event notifications for emailing errors and warnings to users.

Reset

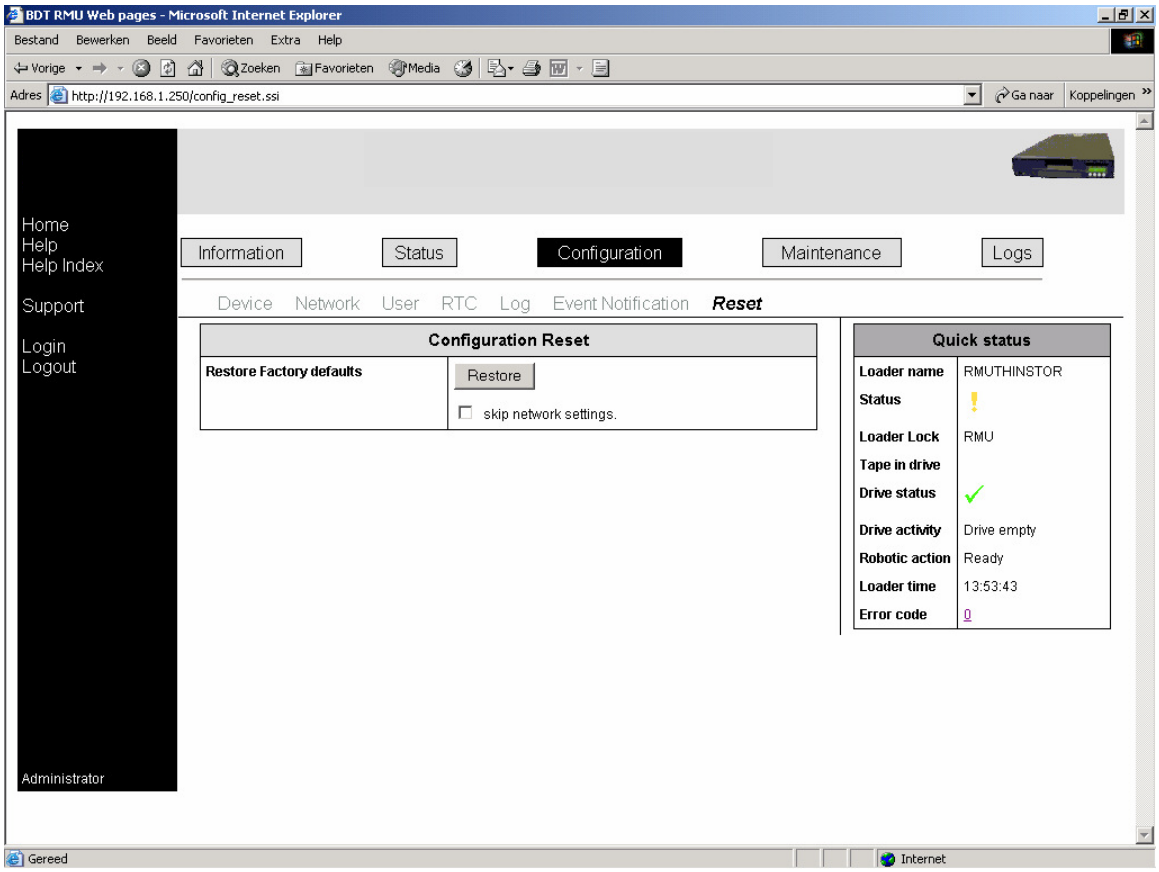


Figure 25 *Configuration Reset*

The Configuration Reset page provides a means to reset to the factory default settings of the autoloader. It can however happen that the factory default IP address and other Ethernet-TCP/IP settings don't match the current network topology. If this would be reset to the factory defaults the connections to the RMU module would be lost, and hence the only access to the autoloader would be via the OCP panel. It's also possible to reconfigure the TCP/IP part at the OCP panel. To overcome this problem network settings can be eliminated in the factory default reset procedure.

- This is not a complete reset of the autoloader, but a reset of the current autoloader configuration.

Furthermore, the configuration can be saved to a file, or loaded from a file.

When pressing the restore, load or save button a pop-up box is shown that asks for confirmation of your action. This pop-up box is only shown when making changes to operation critical settings.

8.3.5 Maintenance

Operations

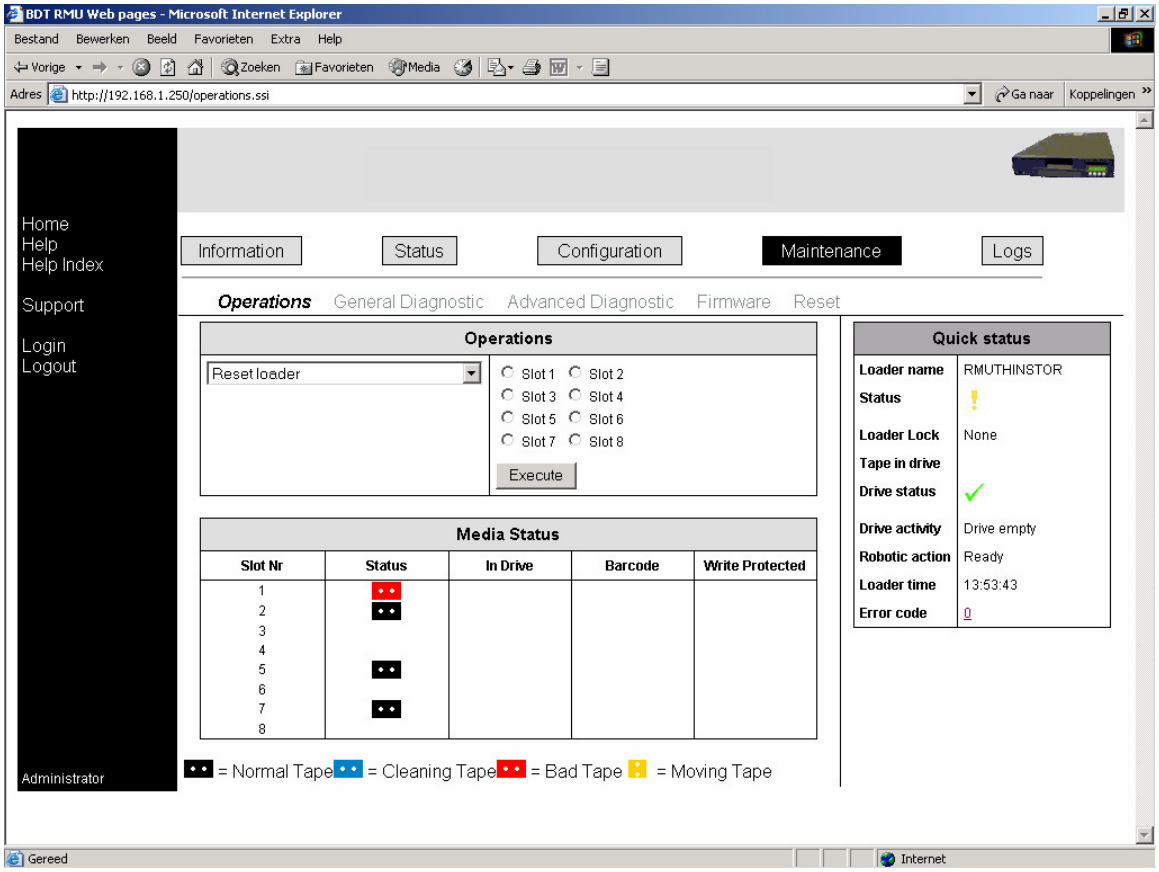


Figure 26 *Operations*

The Operations page allows users at the system administrator level to run several predefined operations. These same operations can be selected via the OCP panel. Each operation is selected from the list; depending on the operation selected, a slot number may also be required. All available slots are either enabled or disabled according to the inventory status of the media. By pressing the execute button the operation will be executed. There is no stop button to stop the selected operation and the user has to wait for the end of the operation.

The media status screen can be very helpful for selecting the appropriate slots and is user friendly. It also visualizes the cartridge movement and position.

General Diagnostic

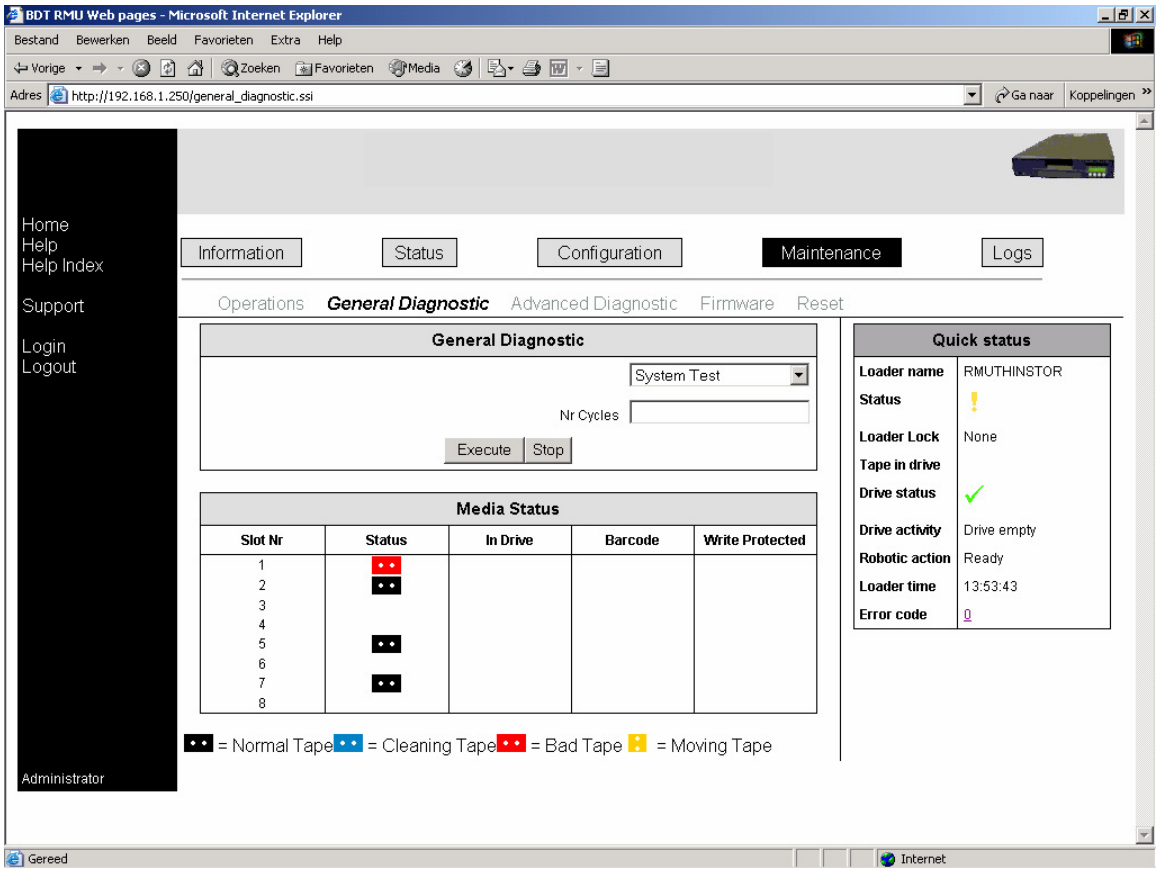


Figure 27 *General Diagnostic*

The General Diagnostic page provides the system administrator with some general tests in order to check the reliability of the autoloader. To run system tests, select the number of test cycles and click on the "Execute" button. To cancel a test before its normal completion click on the "stop" button.

Advanced Diagnostic

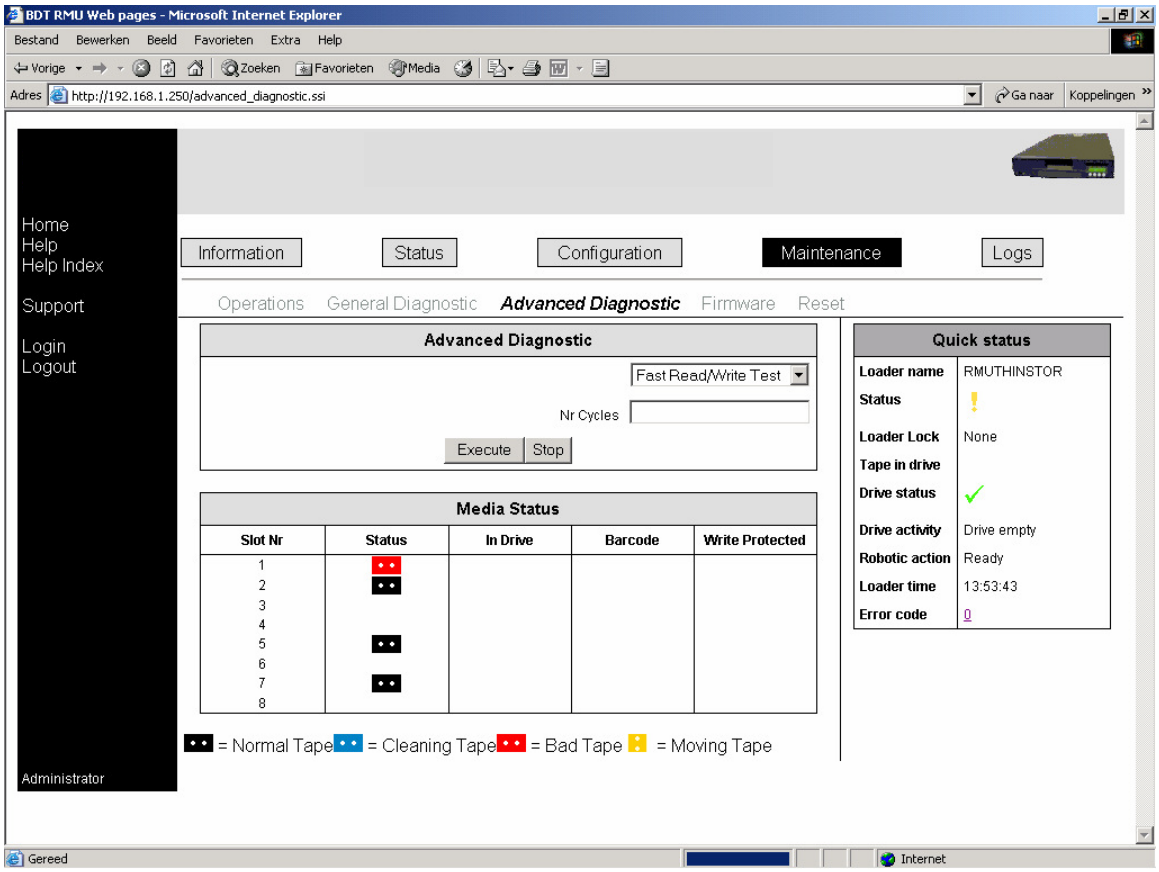


Figure 28 *Advanced Diagnostic*

The advanced diagnostic page can only be accessed from a service engineer in order to execute specific loader and drive tests. These tests are useful for performing detailed tests of the various components, i.e. robotic, drive R/W, etc.

Firmware

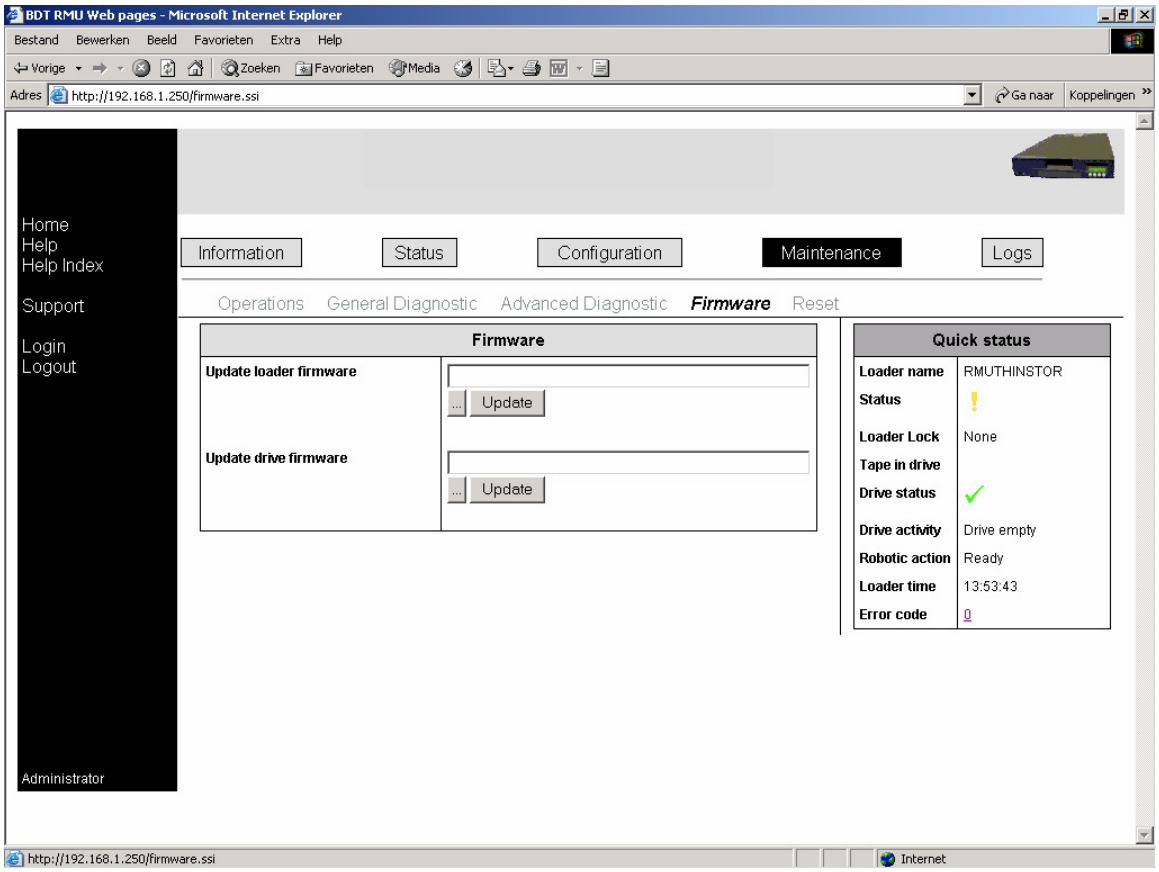


Figure 29 *Firmware*

To support network based firmware upgrades for both the drive and the autoloader, the Firmware section may be used. By utilizing the first button, the user can select the appropriate file from a PC or network attached server in order to perform a firmware upgrade. Using the "Update" button, the file is uploaded to the autoloader or drive and stored there. There are no options to backup the current firmware file, so the user must ensure that he has access to older firmware revisions.

When pressing the update buttons, a pop-up box is shown, that asks for confirmation of your action. This pop-up box is only shown when making changes to operation critical settings.

Reset

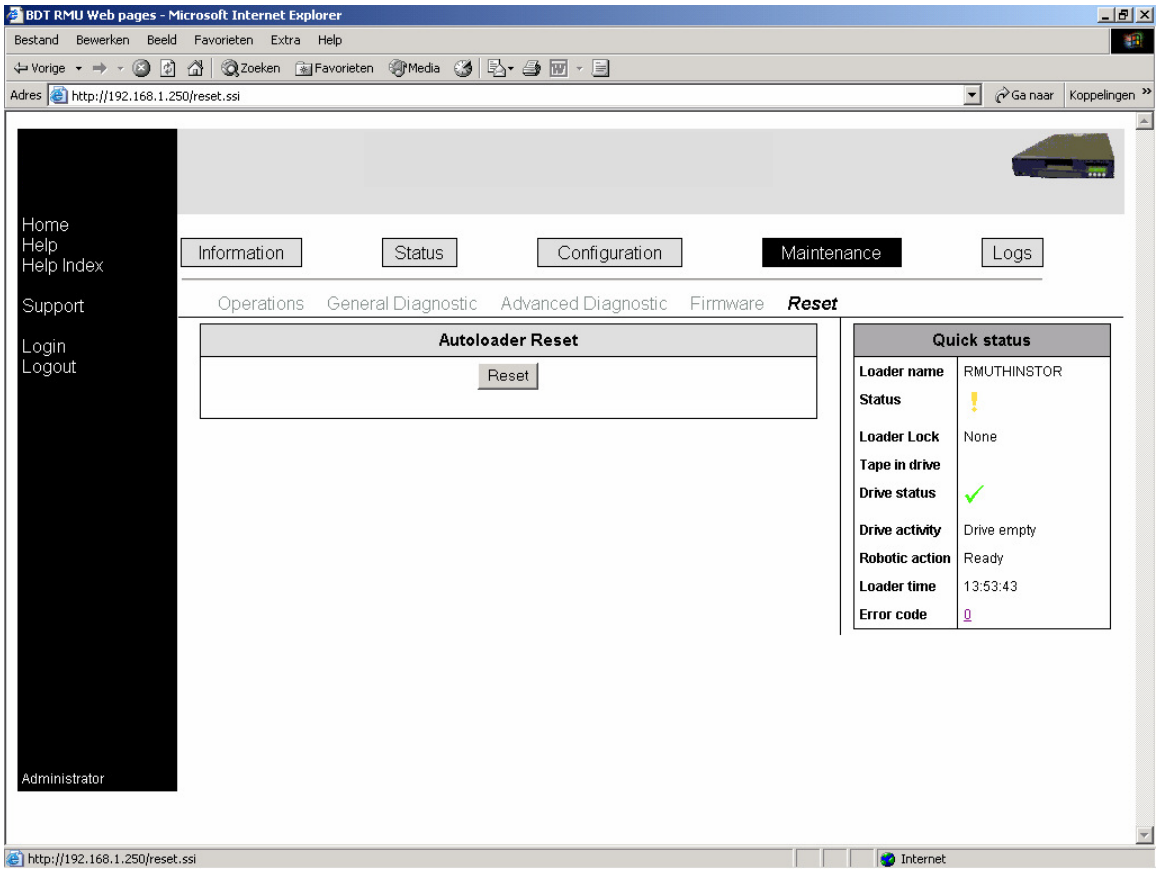


Figure 30 *Autoloader Reset*

The Autoloader Reset page is used to perform an autoloader reset. During an autoloader reset the connection to the autoloader can be lost and the user should reload the page manually. Alternatively, the user can wait for the automated page refresh that occurs at regular intervals.

When pressing the reset button, a pop-up box will be displayed confirming the action.

8.3.6 Logs

Loader

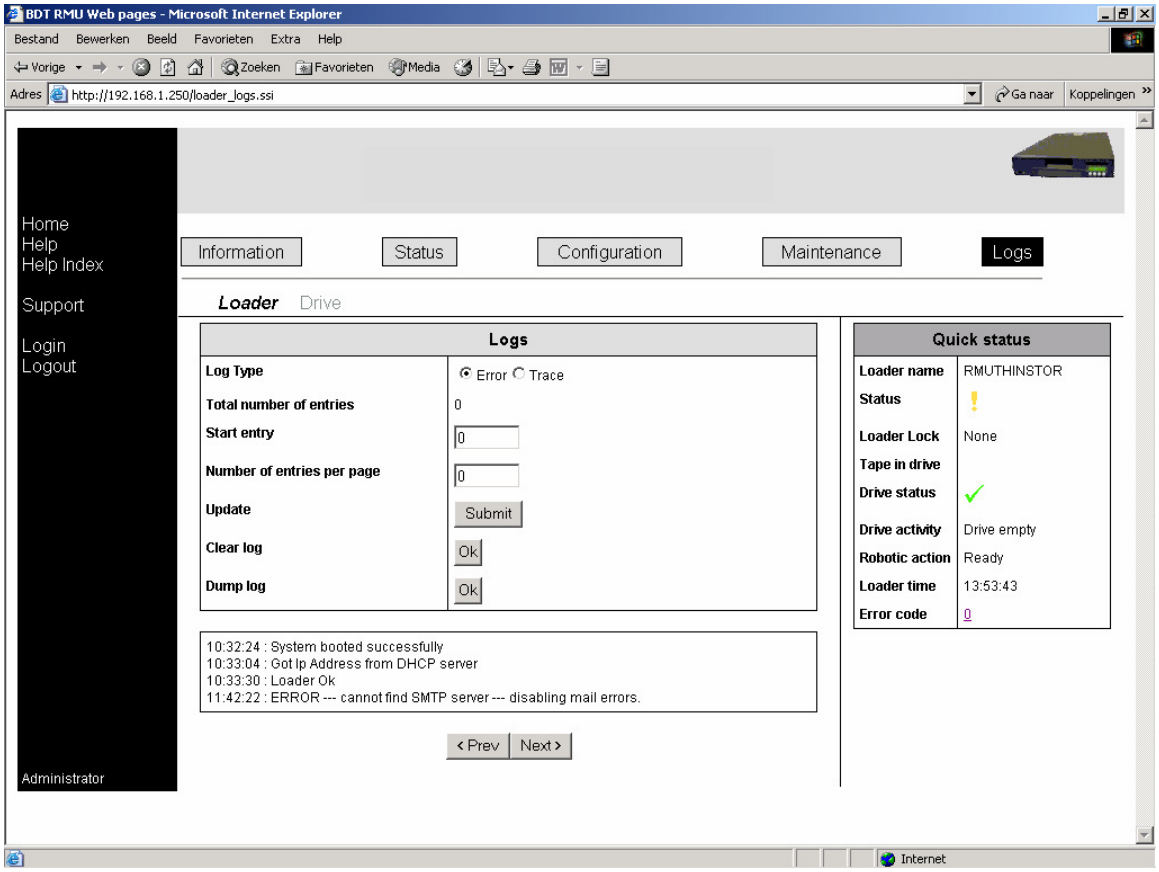


Figure 31 *Loader Logs*

The autoloader Logs page displays the autoloader specific log entries of the system. The user can select error or trace logs with the ability to browse the log entries, specify the number of entries per page and start number of entries displayed. Also, the log entries can be stored to a file or deleted (only trace logs) from the system.

Drive

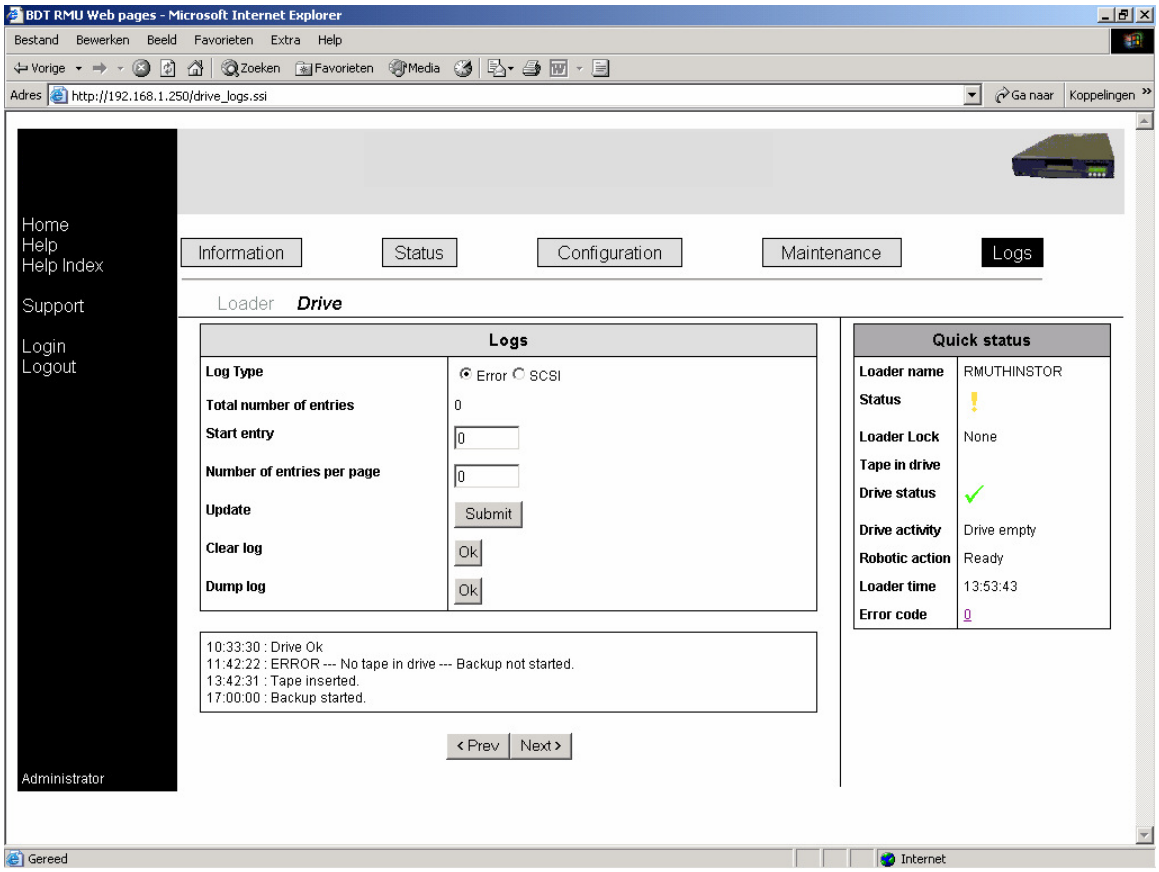


Figure 32 *Drive logs*

The user can select either SCSI or Error logs for the drive.

8.4 Support

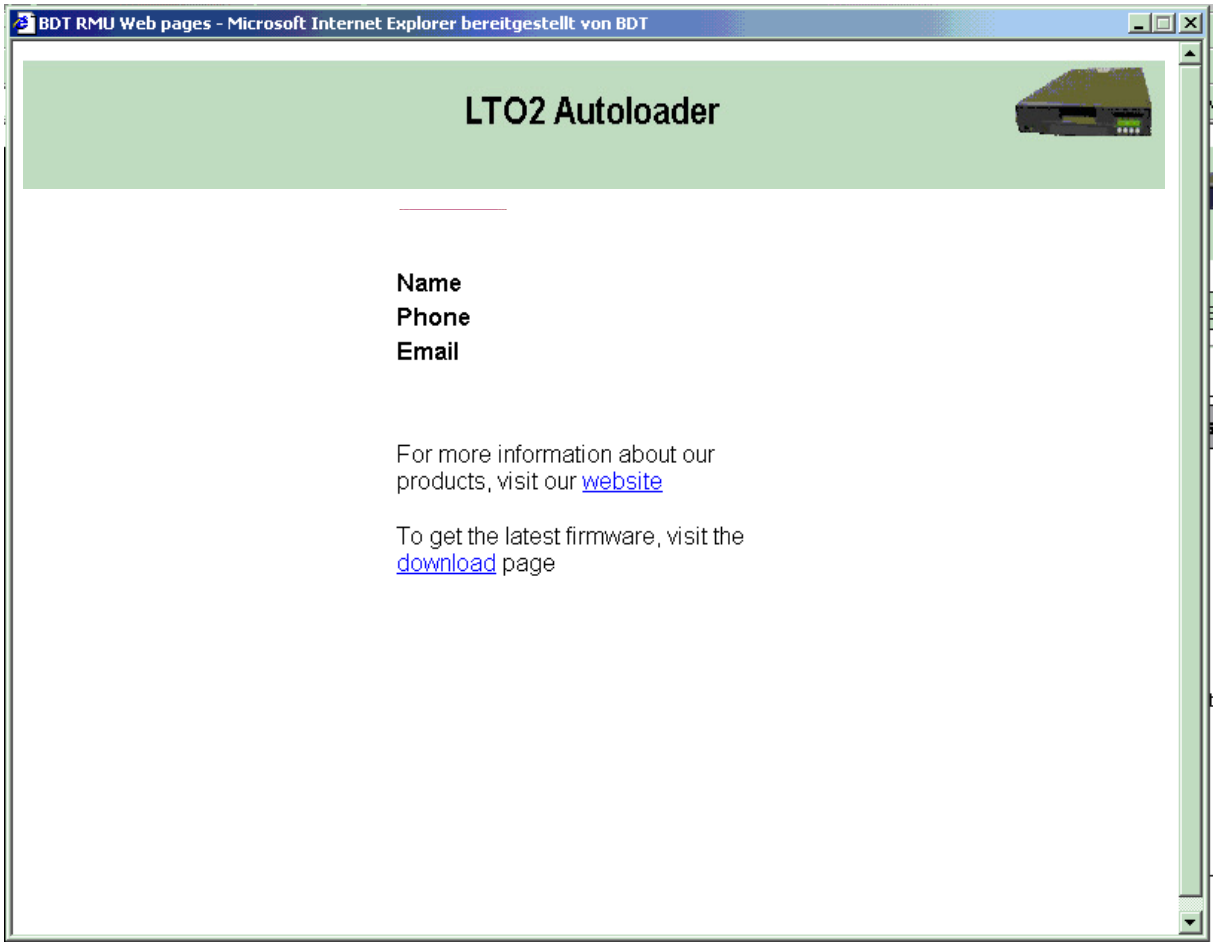


Figure 33 *Support page*

The support page shows the contact information on how the user can contact the support personnel. The support page is opened in a separate browser window.

The information of this page is configurable by the customer and end-user.

8.5 RMU Help Pages

8.5.1 Help Index

A general Help index page with links to all the available index pages is available.

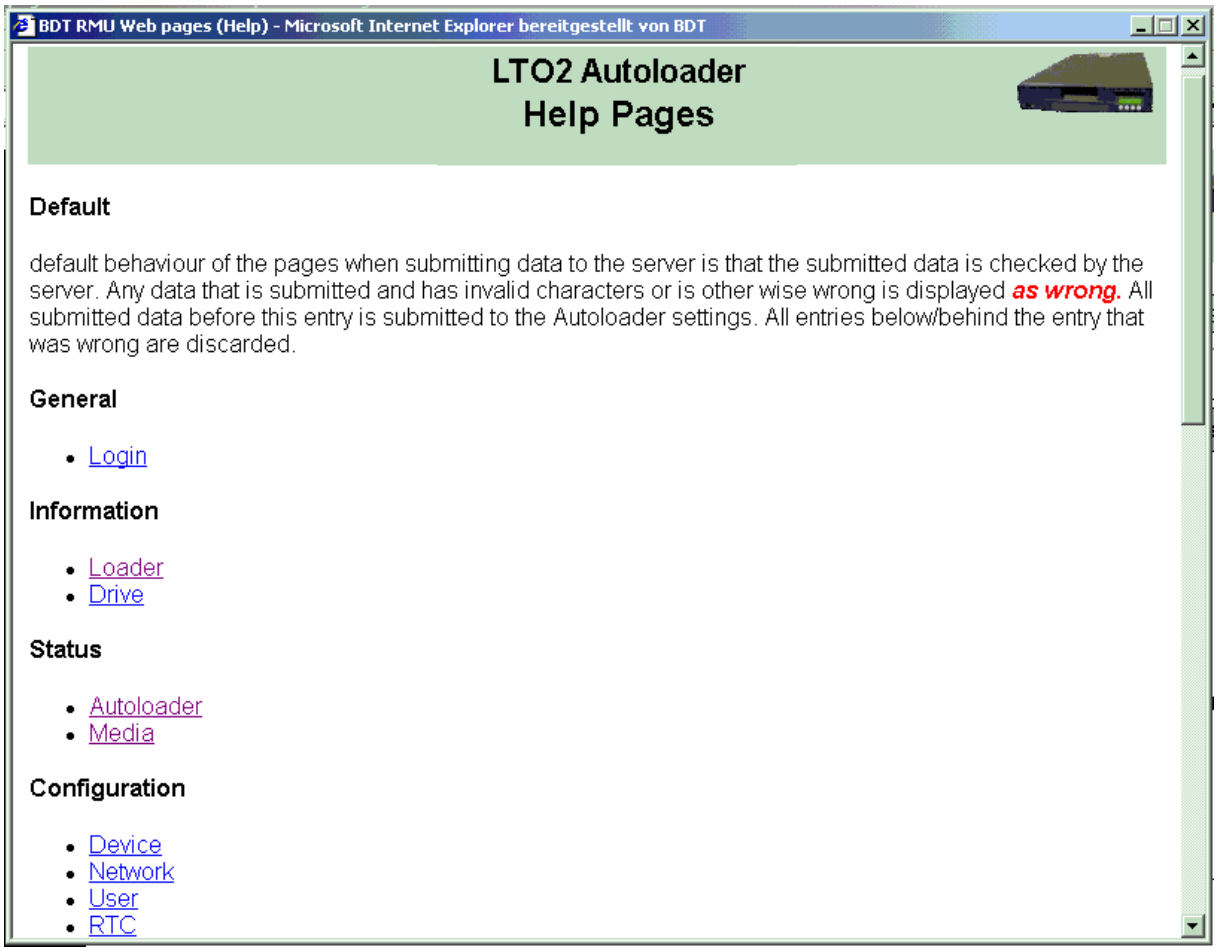


Figure 34 *Help Index*

This window is used to display an index to all the help pages etc.

8.5.2 Login

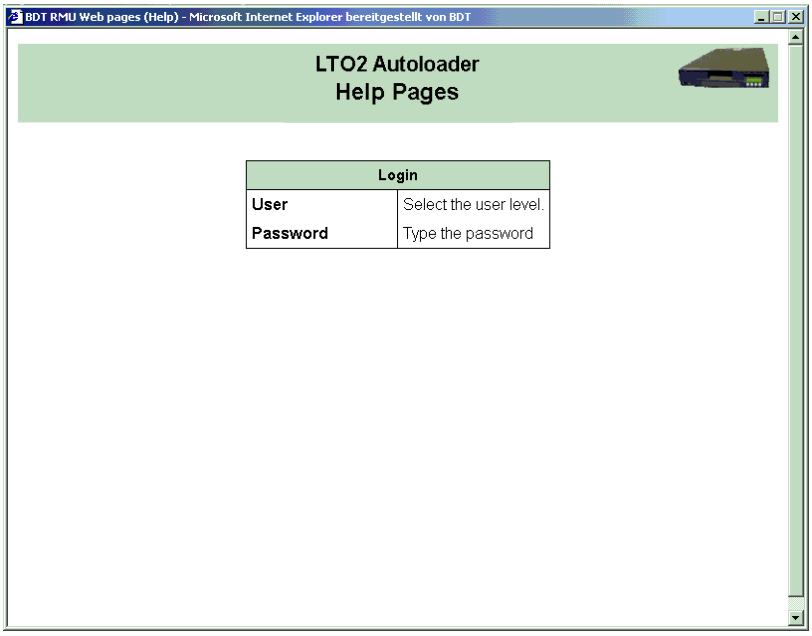


Figure 35 *Help Login*

8.5.3 Information

Loader

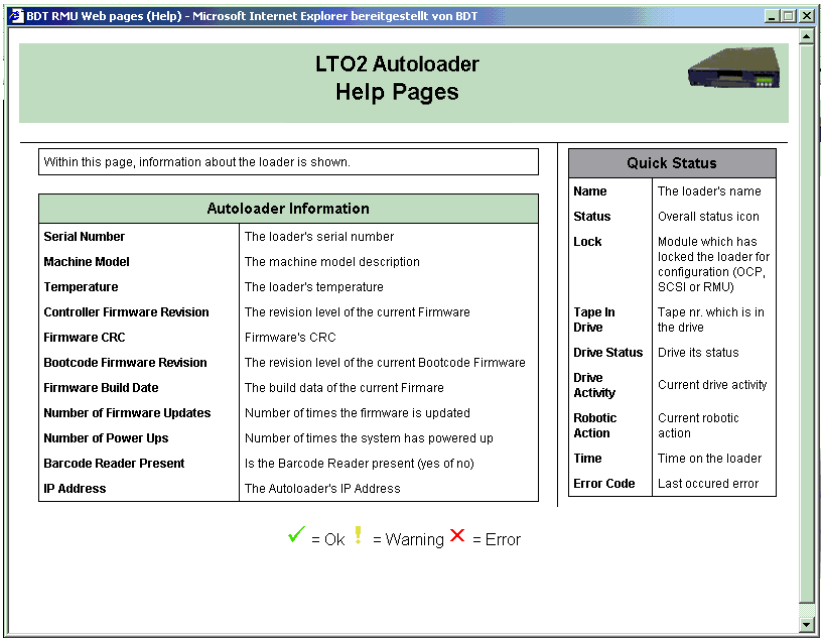


Figure 36 *Help, Autoloader Information*

Drive

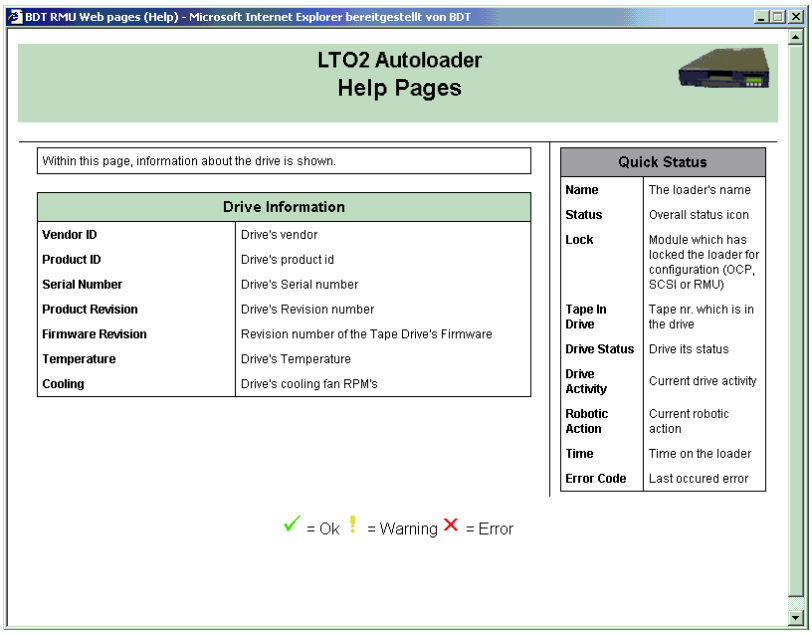


Figure 37 *Help, Drive Information*

8.5.4 Status

Autoloader

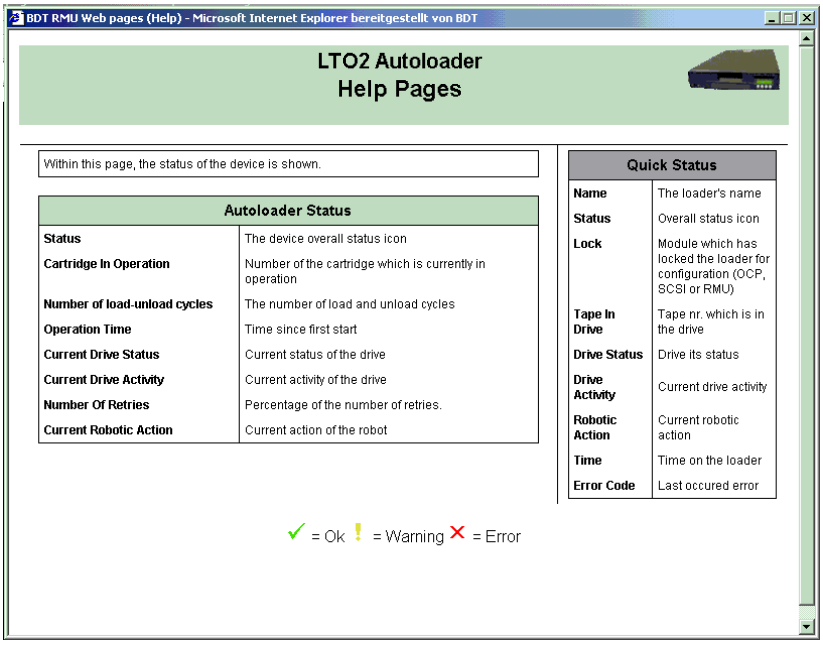


Figure 38 *Help, Autoloader Status*

Media

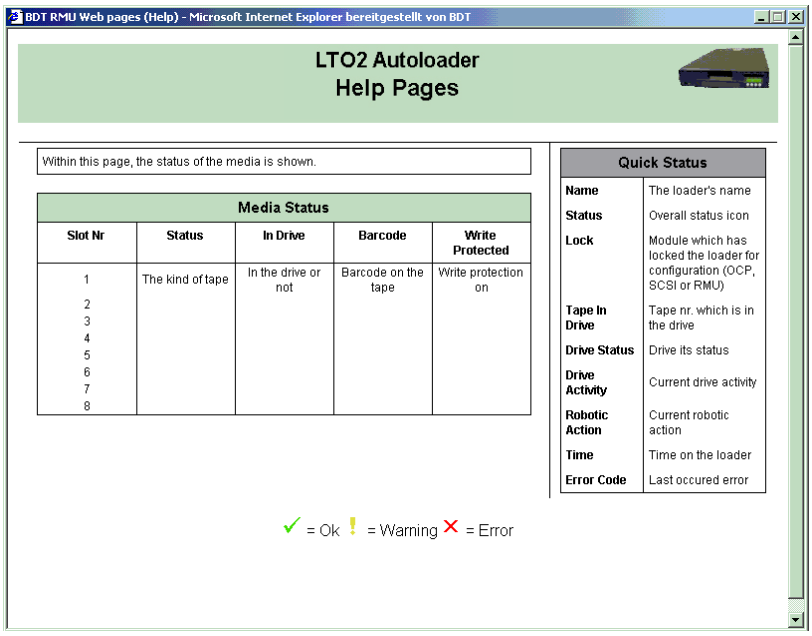


Figure 39 *Help, Media Status*

8.5.5 Configuration

Device

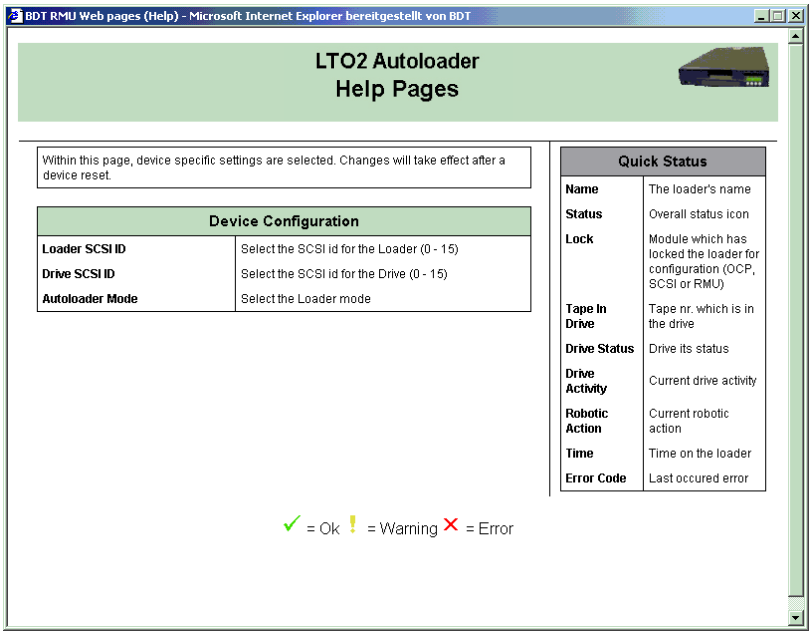


Figure 40 *Help, Device Configuration*

Network

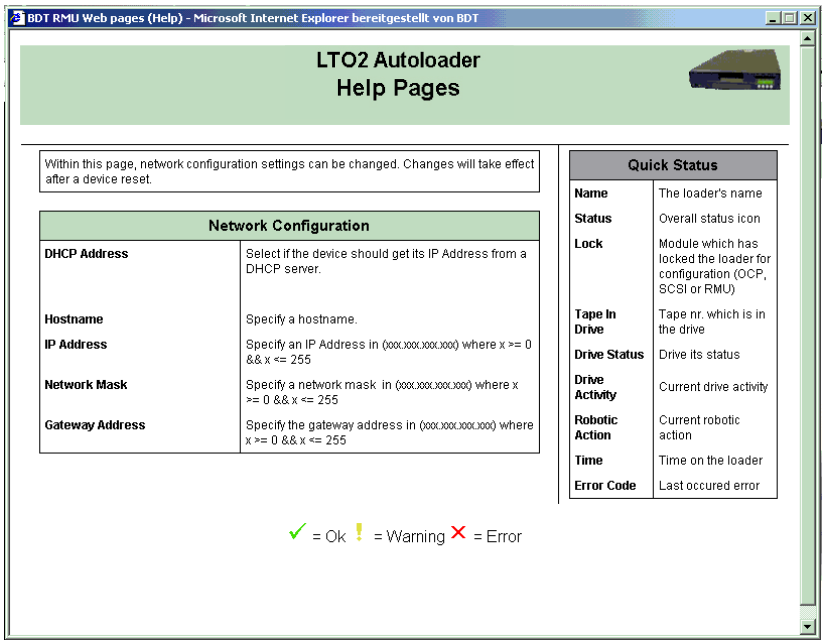


Figure 41 *Help, Network Configuration*

User

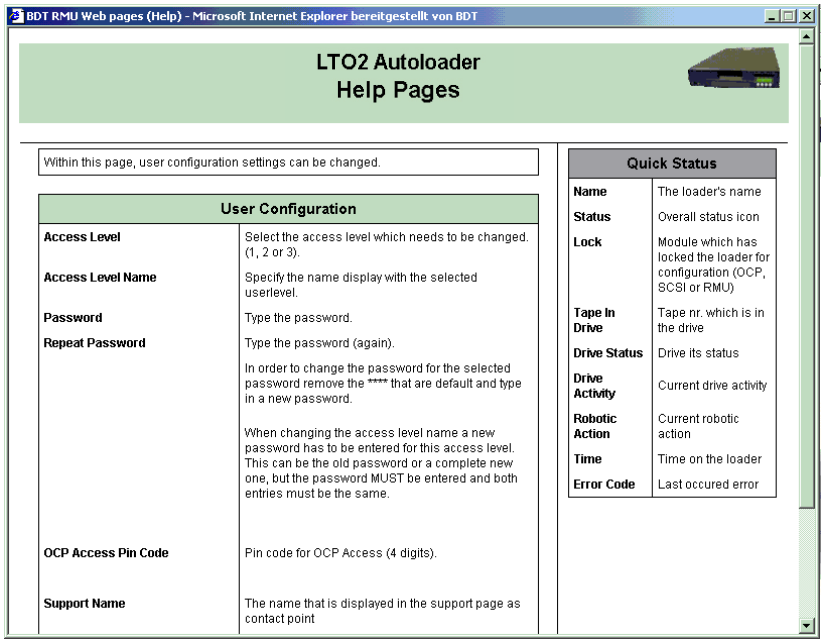


Figure 42 *Help, User Configuration*

RTC

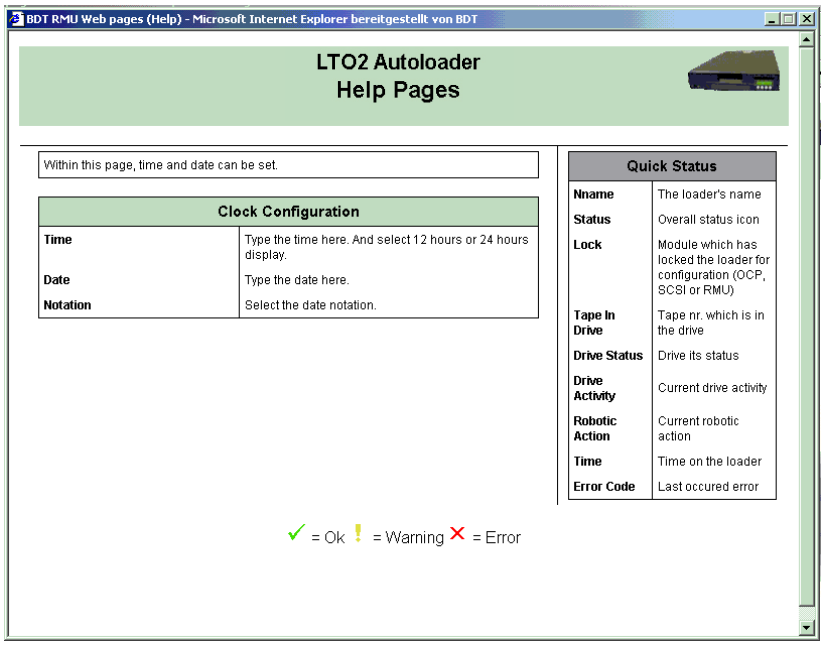


Figure 43 *Help, Clock Configuration*

Log

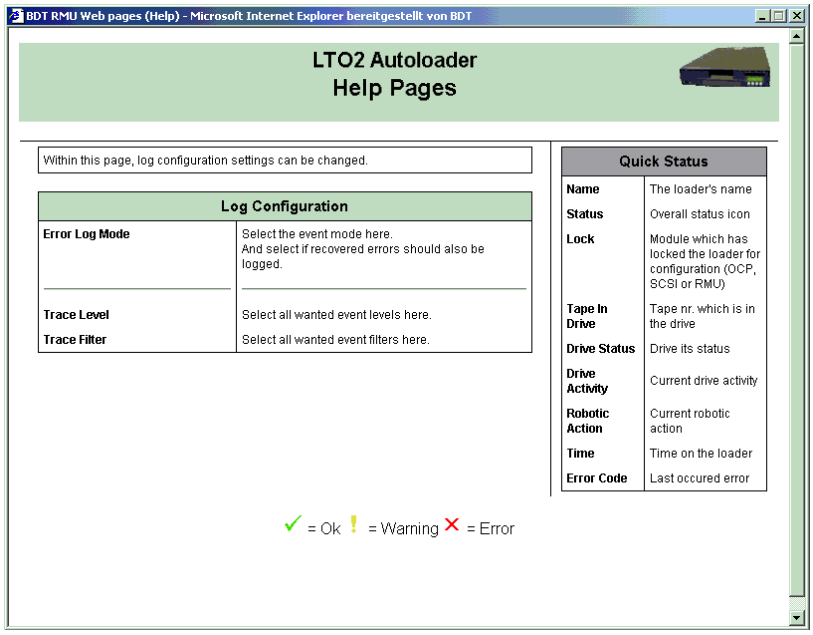


Figure 44 *Help, Log Configuration*

Event notification

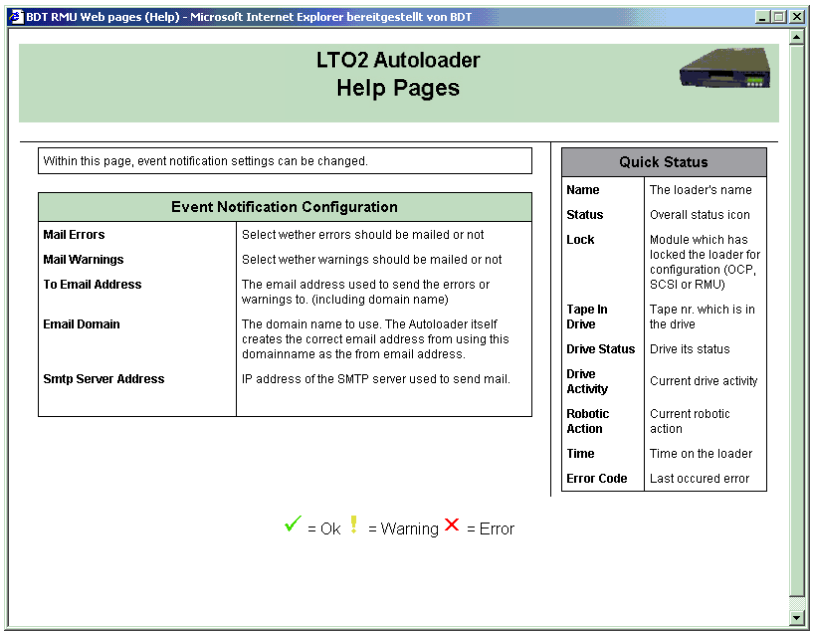


Figure 45 *Help, Event Notification Configuration*

Reset

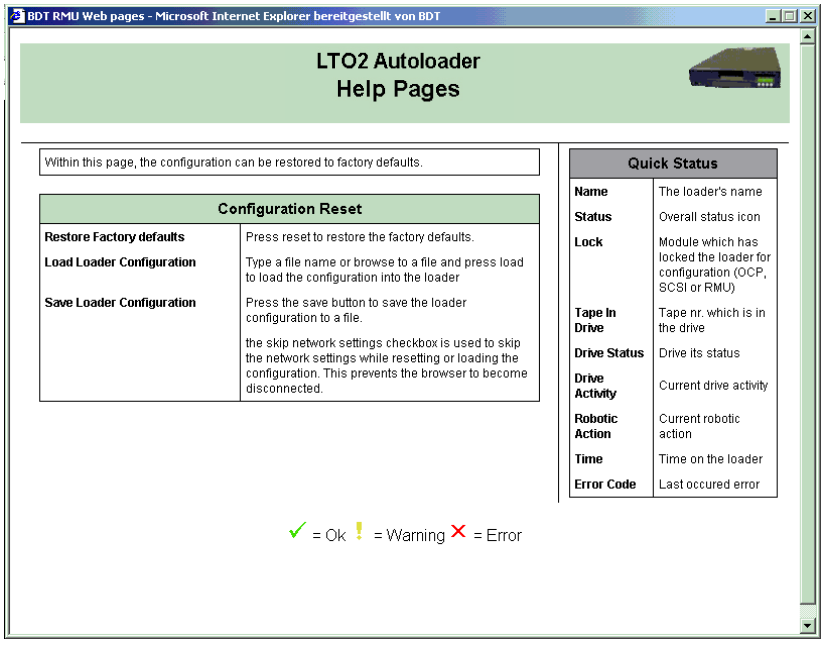


Figure 46 *Help, Configuration Reset*

8.5.6 Maintenance

Operations

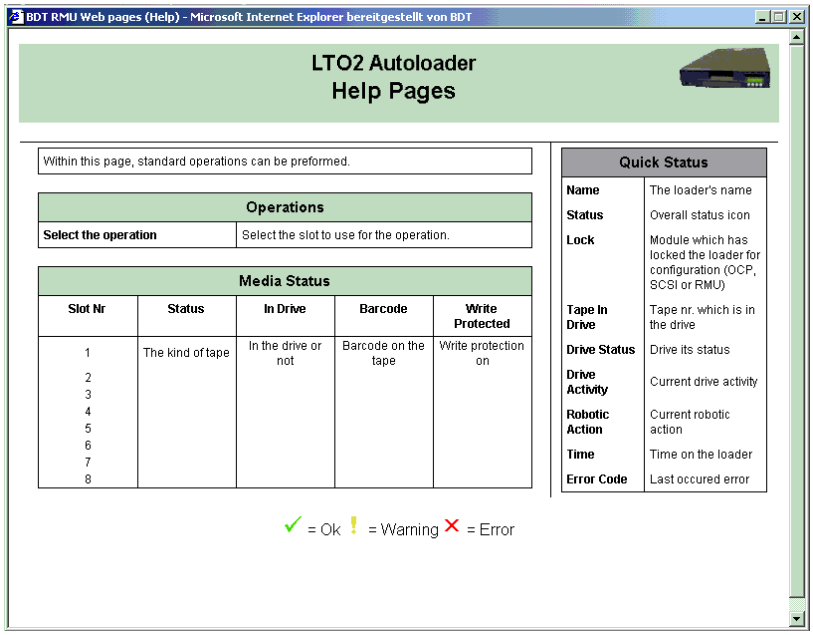


Figure 47 *Help, Operations*

General Diagnostic

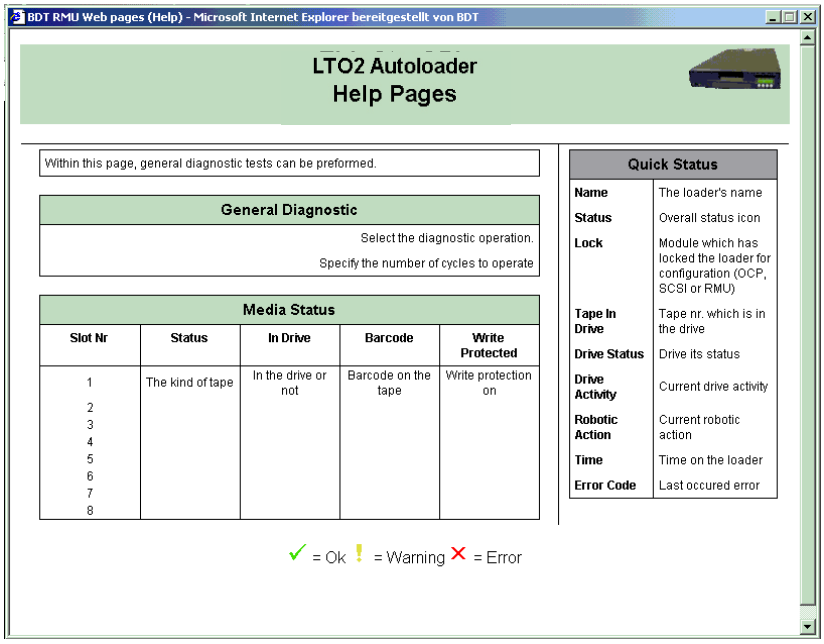


Figure 48 *Help, General Diagnostic*

Advanced Diagnostic

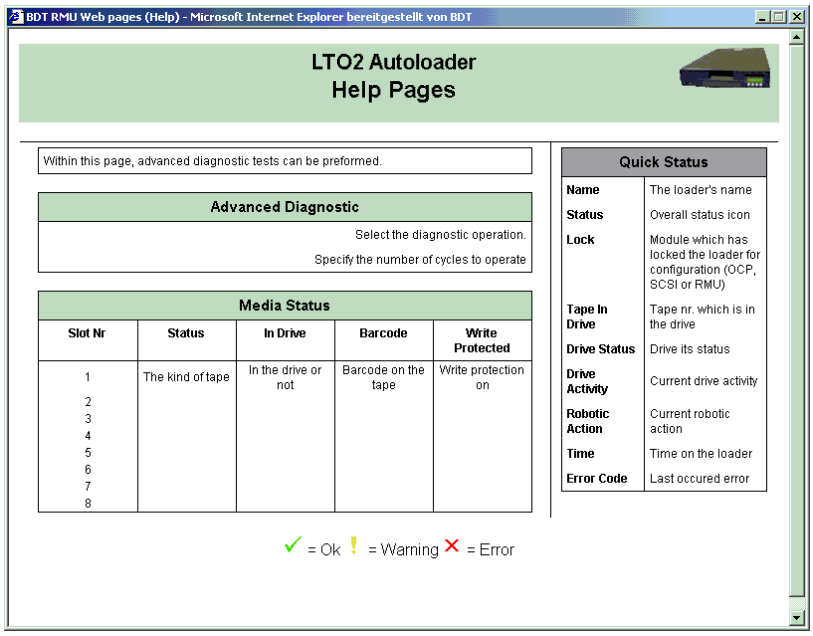


Figure 49 *Help, Advanced Diagnostic*

Firmware

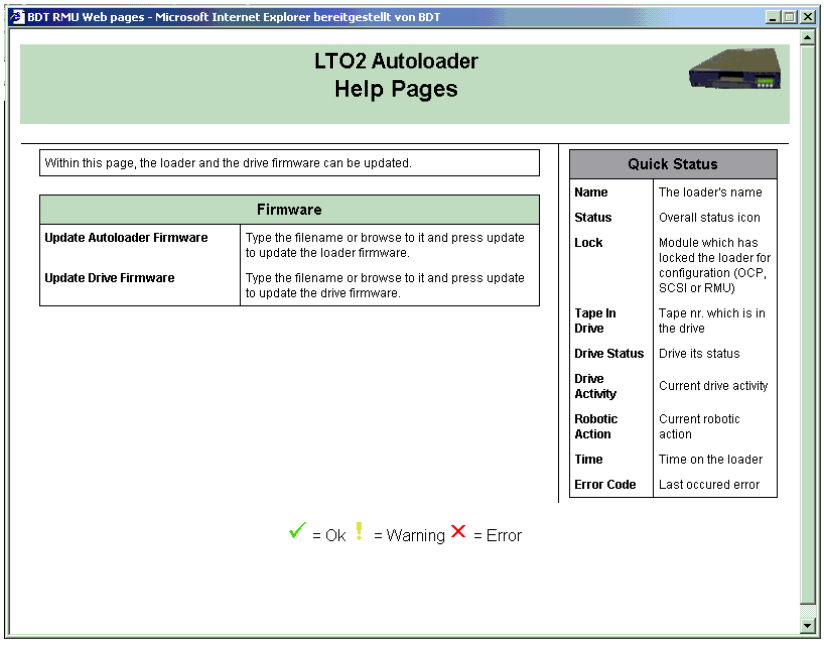


Figure 50 *Help, Firmware*

Reset

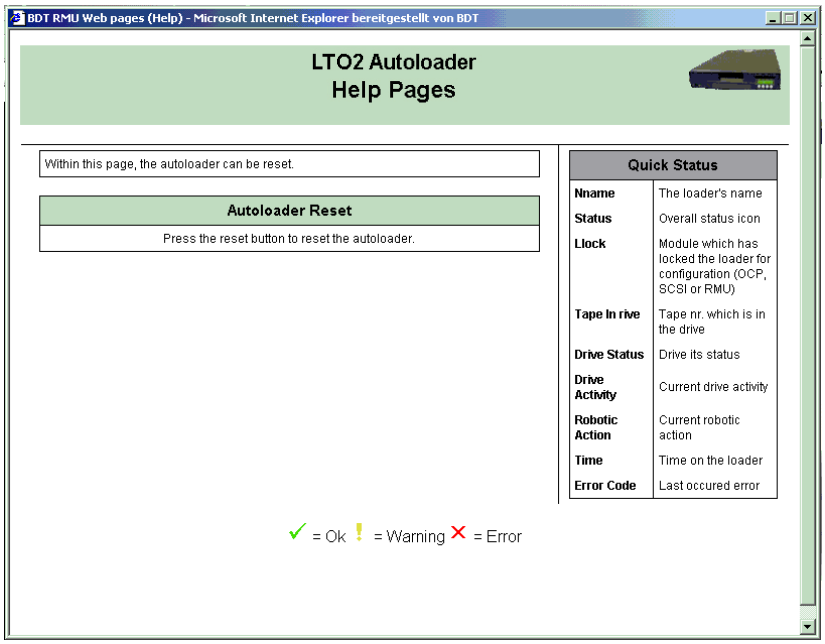


Figure 51 *Help, Autoloader Reset*

8.5.7 Logs

Loader

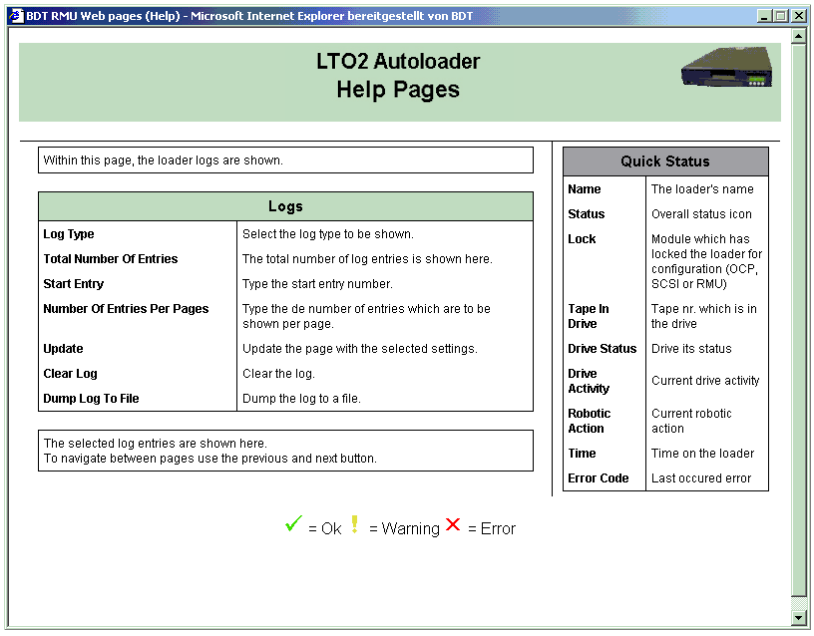


Figure 52 *Help, loader logs*

Drive

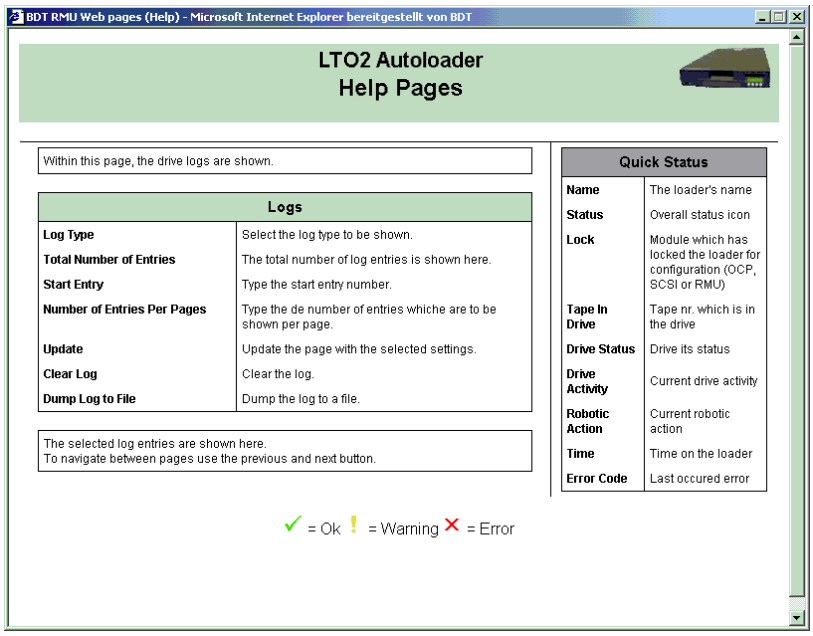


Figure 53 *Help, drive logs*

8.6 RMU Error code and hint pages

In the Quick Status table, an error code may be displayed if there is a failure or hardware problem. The generated error code will be displayed as a link. The user may click on this link where a separate browser window will open. The error code and error description will be displayed at that time. The user can use the error code description in order to resolve a failure or hardware problem.

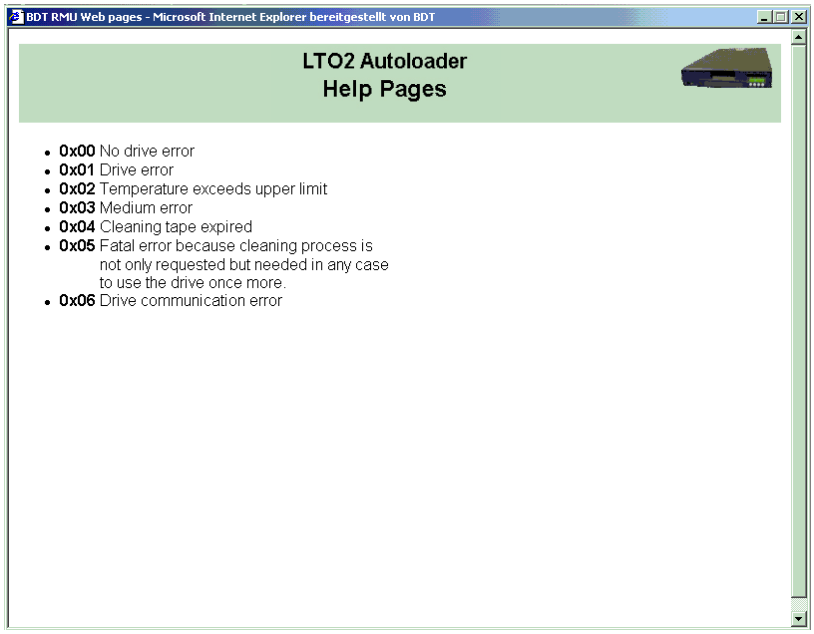


Figure 54 *Error Description*

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