CLARiTY Laser Controller

System Manual

P/N 462446-01

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Videojet Technologies Inc.
1500 Mittel Boulevard
Wood Dale, IL
60191-1073 USA
www.videojet.com

Phone : 1-800-843-3610
Fax : 1-800-582-1343
Int'l Fax : 630-616-3629

Offices - USA: Atlanta, Chicago
Int'l: Canada, France, Germany, Ireland, Japan, Spain, Singapore, Netherlands, and The United Kingdom
Distributors Worldwide

Compliance Information

For Customers in the U.S.A.

Safety: The equipment complies to UL 60950-1. NRTL accredited certification.

Emissions: The equipment complies with USA Part 15 of the FCC Rules, subpart B, Class A. Operation of the equipment is subject to the following two conditions:

1) This equipment may not cause harmful interference, and

2) This equipment must accept any interference received, including interference that may cause undesired operation.

Warning

PERSONAL INJURY. Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules, subpart B. These limits are designed to provide responsible protection against harmful interference when the equipment is operated in a industrial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference. In such cases, the users will be required to correct the interference at their own expense.

Shielded cables must be used with this unit to ensure compliance with Class A FCC limits.

The user may find the following booklet prepared by the Federal Communications Commission helpful: How to Identify and Resolve Radio-TV Interference Problems. This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-00-00345-4.

This equipment has been tested and certified for compliance with U.S. regulations regarding safety by TÜV SÜD America.

For Customers in Canada

Emissions: The equipment complies with the Canada ICES-003 04, Class A.

Safety: The equipment complies with Canadian standard C22.2 No. 60950-1.

This equipment has been tested and certified for compliance with Canadian regulations regarding safety by TÜV SÜD America.

For Customers in the European Union

This equipment displays the CE mark to indicate conformance to the following legislation:

EU Electromagnetic Compatibility Directive 2004/108/EC

CISPR22 (Class A)	Radio disturbance characteristics: Limits and methods of measurement for IT equipment.
CISPR24	Immunity characteristics: Limits and methods of measurement for IT equipment.
EN 61000-3-2	Limits for harmonic current emissions (equipment input current up to and including 16A per phase).
EN 61000-3-3	Limitations of voltage fluctuation and flicker in low voltage supply systems for equipment and rated currents up to and including 16A per phase.

EC Low Voltage Directive 2006/95/EC

Essential health and safety requirements relating to electrical equipment designed for use within certain voltage limits.

EN 60950-1

Safety requirements for information technology equipment including electrical business equipment.

Support and Training

Contact Information

If you have any questions or need assistance, contact Videojet Technologies Inc. at 1-800-843-3610 (for all customers within the United States). Outside the U.S., customers should contact their Videojet Technologies Inc. distributor or subsidiary for assistance.

Videojet Technologies Inc.
1500 Mittel Boulevard
Wood Dale, IL 60191-1073 U.S.A.
Phone: 1-800-843-3610
Fax: 1-800-582-1343
International Fax: 630-616-3629
Web: www.videojet.com

Service Program

About Total Source Commitment

Total Source® TOTAL SERVICE PLUS RELIABILITY, is the Videojet Technologies Inc. commitment to provide you - our customer - the complete service you deserve.

The Total Source Commitment

The Videojet Total Source® Service Program is an integral part of our business in providing marks, codes, and images where, when, and how often customers specify for packages, products, or printed materials. Our commitment includes:

- Applications support
- Installation services
- Maintenance training
- Customer response center
- Technical support
- Field service
- Extended hours phone assistance
- Parts and supplies
- Repair service

Customer Training

If you wish to perform your own service and maintenance on the laser system, Videojet Technologies Inc. highly recommends you complete a Customer Training Course on the laser system.

Note: *The manuals are intended to be supplements to (and not replacements for) Videojet Technologies Inc. Customer Training.*

For more information on Videojet Technologies Inc. Customer Training Courses, call 1-800-843-3610 (within the United States only). Outside the U.S., customer should contact a Videojet subsidiary office or their local Videojet distributor for more information.

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Glossary

Introduction

1

The CLARiTY Laser Controller is designed to operate the Videojet Laser Coding and Marking systems using the CLARiTY operating system. The user interface is easy to use and minimizes set up and fault finding time.

About the Manual

This System Manual is written for the every day user of the laser system. The System Manual helps the user to understand the different parts and different marking operations of the CLARiTY Laser Controller.

Related Publications

Please refer to the system manual(s) provided with the laser and coding system. These documents contain safety, setup and operation information for each laser system.

The following manuals are available for reference:

CLARiSOFT User Manual, Part Number: 462458

CLARiSUITE Web server User Manual, Part Number: 462459

Language Codes

When you order this manual, make sure to add the 2-digit language code at the end of the part number. For example, the Danish version of the system manual is part number 462446-18. Table 1-1 on page 1-2 shows the list of language codes that you can use to identify the translated versions of this manual.

For more information, contact the Videojet distributor or subsidiary.

Code	Language
01	English (US)
02	French
03	German
04	Spanish
05	Portuguese Brazilian
06	Japanese
07	Russian
08	Italian
09	Dutch
10	Chinese (Simplified)
11	Arabic
12	Korean
13	Thai
15	Norwegian
16	Finnish
17	Swedish
18	Danish
19	Greek
20	Hebrew
21	English (UK)
23	Polish
24	Turkish
25	Czech
26	Hungarian
33	Vietnamese
34	Bulgarian
36	Chinese (Traditional)
55	Romanian
57	Serbian

Table 1-1: List of Language Codes

Content Presentation

This System Manual contains different types of information like safety guidelines, additional notes, user interface (UI) terminology and so on. To help you identify the different types of information, different writing styles are used in this manual.

Positional References

Positions and directions like left, right, front, rear, to the right and to the left are with respect to the controller when you see it from the front.

Units of Measurement

This manual uses metric units of measurement. The equivalent English measures are included in parenthesis. For example, 240 mm (9.44 inches).

Safety Information

Specific safety information is listed throughout this manual in the form of Warning and Caution statements. Pay close attention to these statements as they contain important information that help in avoiding potential hazards to yourself or to the equipment.

Warning

- The warning statements indicate hazards or unsafe practices that can cause severe personal injury or death.
- They have a triangular symbol with an exclamation mark to the immediate left of the text
- They are always preceded by the word “Warning”
- They are always found before the step or information referring to the hazard

For example:

Warning

PERSONAL INJURY. All electrical wiring and connections must comply with applicable local codes. Consult the appropriate regulatory agency for further information.

Caution

- The caution statements indicate hazards or unsafe practices that result in equipment or property damage
- They have a triangular symbol with an exclamation mark to the immediate left of the text
- They are always preceded by the word “Caution”
- They are always found before the step or information referring to the hazard

For example:

Caution

EQUIPMENT DAMAGE. Read this chapter thoroughly before attempting to install, operate, service, or maintain this equipment.

Notes

Notes provide additional information about a particular topic.

For example:

Note: *You can set the password protection for some functions to prevent any access that is not authorised.*

Abbreviations and Acronyms

Abbreviation	Expansion
AC	Alternating Current
AOS	Advanced Operating System
ASP	Analog Signal Processor
FPGA	Field Programmable Gate Array
LED	Light Emitting Diode
UI	User Interface
WYSIWYG	What You See Is What You Get

Table 1-2: Abbreviations and Acronyms

Chapters in the Manual

This manual is divided into twelve chapters. An introduction to the topics that each chapter covers is shown in Table 1-3.

Chapter No.	Chapter Name	Description
1.	Introduction	Contains the information about this manual, the main parts, the related publications, and writing styles used in this manual.
2.	Safety	Contains the safety and hazard information.
3.	Installation	Contains the information about complete laser system, controller connections, interconnecting cable and system setup.
4.	CLARiTY Operating System	Contains the information about CLARiTY operating system and updating CLARiTY operating system.
5.	Controller Operation	Contains the information about starting and stopping the controller, viewing and selecting a job for marking, line setup, modifying and deleting a job from the jobs database.
6.	Additional Controller Operations	Contains the information about availability, touch to edit, quick position edit, production audit log, set screen orientation and CLARiTY power saving.
7.	Maintenance	Contains the information on replacement instructions, service, and maintenance.
8.	Troubleshooting	Contains the operator level diagnostic and troubleshooting procedures.
9.	IPL	Contains the illustrated parts list of orderable parts.
10.	Appendix A	Contains the information about different laser products.
11.	Appendix B	Contains CLARiTY Laser Controller specifications.
12.	Appendix C	Contains information about CLARiTY Configuration Manager.

Table 1-3: List of Chapters

Safety

2

This chapter contains the following topics:

- Introduction
- Equipment safety guidelines
- Placement of the controller
- Medical emergencies

Caution

EQUIPMENT DAMAGE. Read this chapter thoroughly before attempting to install, operate, service, or maintain this equipment.

Warning

EQUIPMENT DAMAGE. This safety chapter covers the controller safety requirements. Please make sure to read the Laser System Manual safety warnings before operating the laser system.

Warning

PERSONAL INJURY. Follow the installation and operating instructions at all times. Only trained personnel should carry out maintenance or repair. Use of this equipment for any other purposes other than its intended use may lead to serious personal injury.

Introduction

The policy of Videojet Technologies Inc. is to manufacture non-contact coding systems that meet high standards of performance and reliability. Therefore, we employ strict quality control techniques to eliminate the potential for defects and hazards in our products.

The safety guidelines provided in this chapter are intended to educate the operator on all safety issues so that the operator can operate the laser system safely.

Equipment Safety Guidelines

This section contains important safety guidelines pertaining to the operation and handling of the controller and associated equipment.

Warning

PERSONAL INJURY. While performing maintenance or repair work, disconnect the mains supply unless it is absolutely necessary to leave the supply on while carrying out adjustments.

Comply with Electrical Codes

Warning

PERSONAL INJURY. All electrical wiring and connections must comply with applicable local codes. Consult the appropriate regulatory agency for further information.

Electrical Power

Warning

PERSONAL INJURY. This equipment must be installed with a locally positioned mains supply isolation device. This can be either a plug and socket or a switch connector or circuit breaker in accordance with IEC 60947-3 or IEC 60947-2.

Warning

PERSONAL INJURY. Ensure that all external energy sources, mains and mains power connector are isolated from equipment. This should be done before attempting any maintenance or repair on any part of the product.

Warning

PERSONAL INJURY. Ensure that any cables from the controller are secured to avoid chance of movement into walkways and becoming a trip hazard.

Warning

PERSONAL INJURY. There will be sections of the Printed Circuit Board (PCB) that will be permanently powered via the on-board lithium battery - therefore it is essential that the board should never be placed onto, nor stored in or on any conductive surface (including conductive, plastic bags etc.) as this would flatten the battery and/or potentially result in battery overheating. The battery is not to be replaced by the operator.

Do Not Remove Warning Label

Warning

PERSONAL INJURY. Do not, under any circumstances, remove or obstruct any warning, caution, or instruction labels present on the controller. If any part of these labels become damaged, worn or removed they must be immediately replaced.

Grounding and Bonding

Warning

PERSONAL INJURY. Always prevent static discharge from occurring. Use proper Grounding and Bonding methods. Always bond conductive equipment together with approved cables to maintain them at the same potential and minimize static discharge. Only use videojet approved metallic service trays and ground cables.

Communications

Caution

EQUIPMENT DAMAGE. Ensure that all Ethernet/communication cables are shielded (STP Cat5).

Placement of the Controller

Warning

PERSONAL INJURY. Do not place the controller in a hazardous location. Hazardous locations might cause an explosion, leading to personal injury. You must ensure compliance with all local regulations regarding equipment placement in potentially hazardous locations.

Medical Emergencies

This section provides important medical information in case of an accident.

Warning

PERSONAL INJURY. In the event of a medical emergency, contact a physician immediately.

Installation

3

This chapter contains the following topics:

- Unpack and Inspect the Laser System and the Controller
- The Complete Laser System
- CLARiTY Laser Controller Connections
- How to Connect the Laser Marking System to the CLARiTY Laser Controller
  - QMark Version 8.5.3.2.1 or later required
- How to Setup the System

Unpack and Inspect the Laser System and the Controller

Note: *For information on unpacking the laser system, refer Laser System Manual.*

1. Open the shipping box, and make sure that all the parts listed in the packing list are present in the box. If any part is missing, contact Videojet Technologies Inc.
   - Refer to Chapter, “Support and Training” for Videojet contact information.
   - Refer to Chapter, “Illustrated Parts List” for part numbers.
2. Make sure that there are no damaged parts. If you find any damaged part, contact Videojet Technologies Inc. to order a new part.

The Complete Laser System

The laser device is classified as a class 4 laser system. However the closed laser system, up to the beam outlet, acts as a class 1 laser system in normal operation.

Note: *Normal operation does not include service, maintenance and repairs.*

For information on safety, setup and operation of the laser coding and marking system, refer to relevant Laser System Manual.

It is important to review and understand the information contained in the Laser System Manual before installing or operating the laser system.

The laser system must be operated with open laser and/or open beam delivery system by specially trained personnel only. Make sure that the laser protection rules are always observed.

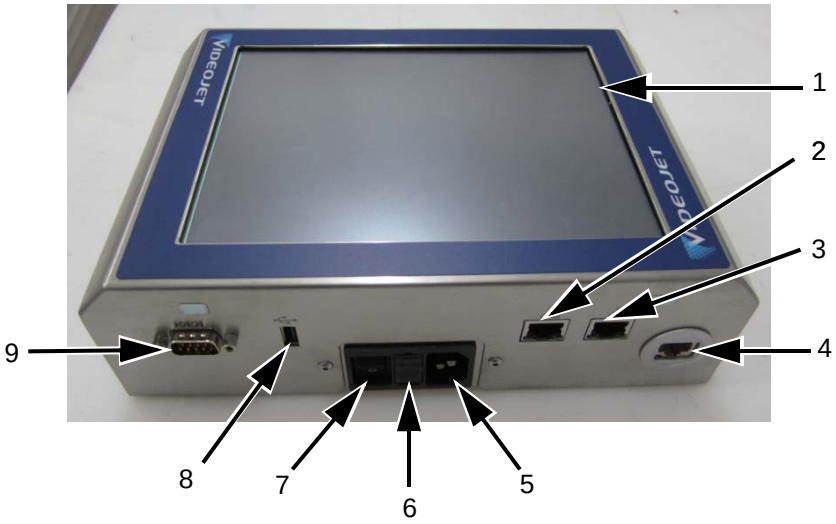
CLARiTY Laser Controller Connections

The CLARiTY Laser Controller is designed to operate the Videojet Laser Coding and Marking systems using the CLARiTY operating system. The user interface is easy to use and minimizes set up and fault finding time.

The stainless steel controller is a touch screen user interface with an internal power supply. You can load jobs, modify user editable fields, and set print parameters using the touch screen.

All communication and power supply cables are connected directly to the controller.

The controller is supplied with a standard mounting bracket.



1. Touch UI
2. Ethernet 2
3. Ethernet 1
4. Laser Ethernet Connection
5. Mains Lead Connector
6. Fuse Holder
7. Main Power Switch
8. USB
9. Serial Port (IOIOI)

Figure 3-1: Controller Connections

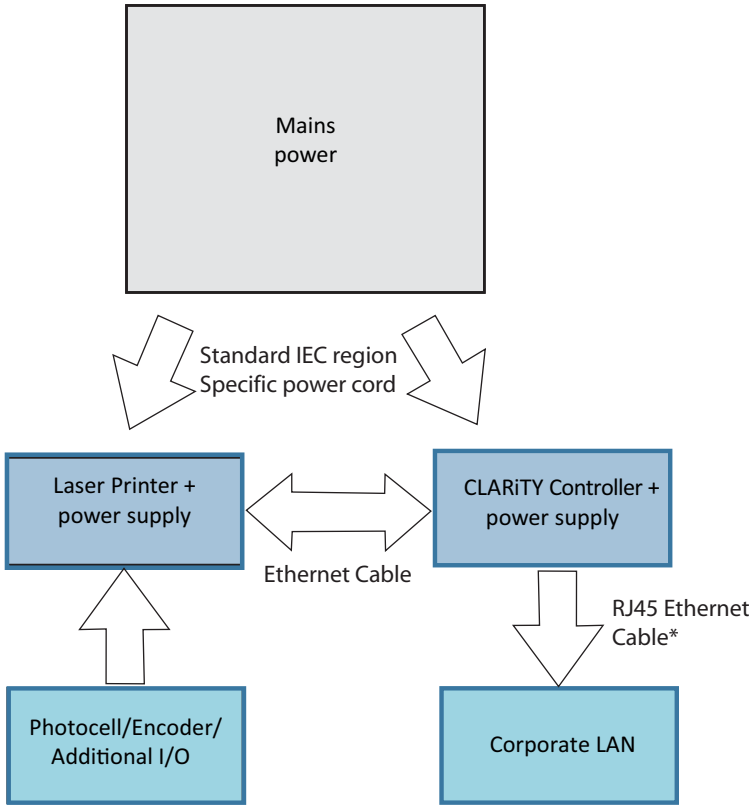
Ports	Description
Ethernet 1	Allows the user to communicate with corporate LAN or local PC through RJ45 Ethernet Cable.
Ethernet 2	Allows the user to communicate with corporate LAN or local PC through RJ45 Ethernet Cable
Laser Ethernet Connection	Allows the user to communicate with laser system through standard RJ45 Ethernet Cable
Mains Lead Connector	Connection to the mains power
Fuse Holder	Threaded holder for the AC Mains Power fuse
Main Power Switch	Turns the system ON/OFF

Table 3-1: Controller Connections

Ports	Description
USB	USB Port that allows the connection of a USB memory stick for functions such as laser system software updates, transferring Jobs and backup/restore of laser system archive or clone files
Serial Port (IOIOI)	RS-232 Serial Port for connecting to PC, PLC or other capable device (special adapter cable required)

Table 3-1: Controller Connections

Interconnecting Cable



*** - Optional**

Figure 3-2: Interconnecting Cable

How to Connect the Laser Marking System to the CLARiTY Laser Controller

To connect laser marking system to CLARiTY laser controller, proceed as follows:

1. Assemble and install the laser marking system according to the instructions provided in the Laser System Manual.
2. Setup the working distance according to the instructions provided in the Laser System Manual.
3. Mount the CLARiTY laser controller as required in proximity to the laser marking system.
4. Connect the controller to the laser marking system through the cable provided

   a. RJ45-RJ45

   b. RJ45-8pin

   Note: *The connecting cable is dependent on the laser system available.*
5. Ensure that product detector and/or encoder, if required, are connected to the laser marking system.
6. Connect the controller and the laser marking system to the mains supply.

The connection of laser marking system to the CLARiTY laser controller is complete.

How to Setup the System

Once the connections are made, you need to setup the system for marking.

Prerequisites

Before you start the system, confirm the following:

- The manual keyswitch is in OFF position (where manual keyswitch is available).
- Set the local electrical isolator switch for the laser system to ON position.
- Laser Messages are in CIFF format. Existing laser messages can be converted to CLARiTY CIFF files using the CIFF converter. See the CIFF Converter Instruction (P/N 468427-01) for additional information.

Startup Sequence

1. Switch ON the power supply to the controller.
2. Start the controller. For information on starting the controller, refer “Starting the Controller” on page 5-2.
3. Log into the UI at Level 2. Touch the *Tools* icon and touch *Setup* menu. Select Level 2 and enter the password. For information of passwords, refer “How to Set the Passwords” on page 4-19.
4. Navigate to *Tools* > *Setup* > *Control* > *Internationalisation* and select the appropriate Language and Region/Country.

Figure 3-3: Control Page

5. Once both Language and Region/Country are set up, confirm that the Measurement Units are as required.
6. If required, setup screen orientation.
7. Switch on the laser system and start the laser system as described in the Laser System Manual. Retain the Manual Keyswitch in open position.

   Note: *On connection to the Laser System, the status bar will stay at shutdown.*

   Note: *Once the manual keyswitch or software keyswitch is enabled, the starting up message will be displayed and the unit will move to OFFLINE mode.*

8 Confirm that the laser system and controller are connected. When the units are connected, the 'Printhead Not Present' note on the home screen disappears.

Note: *Warning E10517 appears. Clear the warning by selecting the status bar and following the instructions.*

Note: *If the units do not connect after a short period of time, refer to the troubleshooting section "Printhead Absent" on page 8-5.*

9 Navigate to *Tools* > *Setup* > *Control* > *Date and Time* to setup the correct date and time.

10 Perform the line setup. For information on line setup, refer "Line Setup" on page 5-11.

Note: *Always make sure that the Line Set up on the controller is as per the requirement of the PRODUCTION line. This is important especially in situations where the controller is connected to the laser which was set up using a different means or if the Laser is being replaced or when the laser is not connected to a line.*

11 Adjust the print position as required. For information on print position, refer "Print Position" on page 5-4.

12 Select a job and start the laser marking. For information on selecting a job and starting the marking, refer "Selecting a Job for Marking" on page 5-3 and "Starting the Laser Marking" on page 5-23 respectively.

Note: *If the job is not downloaded correctly, refer to "Job Download Failure" on page 8-5.*

Note: *Before marking, follow the safety instructions as mentioned in the Laser System Manual.*

CLARiTY Operating System

4

This chapter contains the following topics:

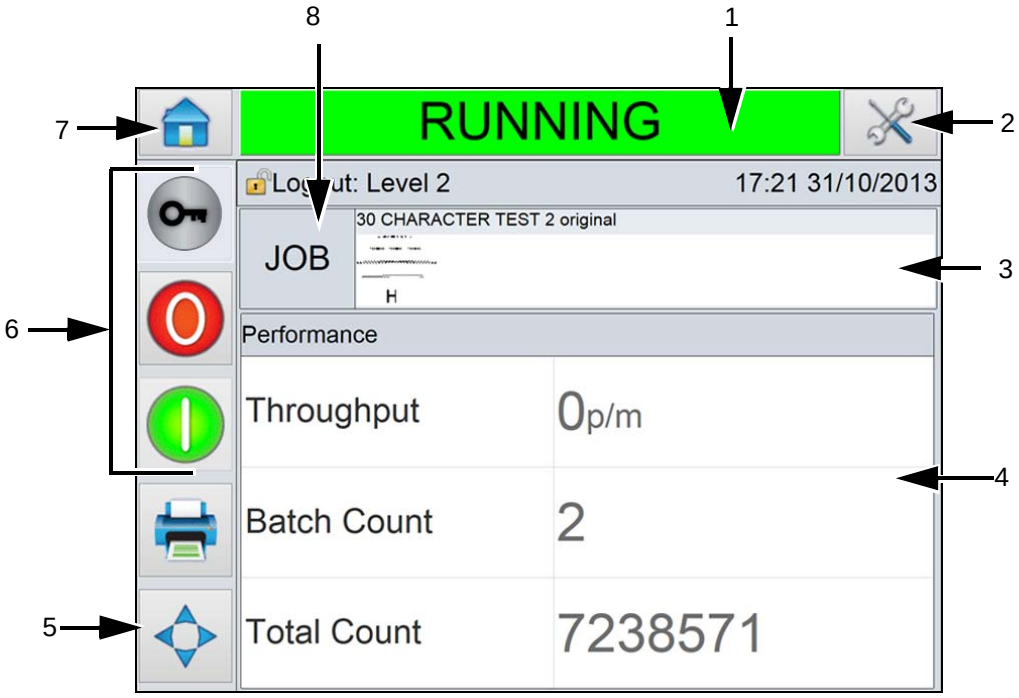
- Introduction
- Using the home page
- Using the tools page
- How to set the passwords

Introduction

CLARiTY is an icon-based operator control system. It has an easy-to-use touch screen and most areas of the display are active. All technical aspects of the laser system setup and control are accessed through the *Tools* button.

Figure 4-1 on page 4-2 shows the home page of the CLARiTY operator control system.

Using the Home Page



1. Controller Status Bar
2. Tools Button
3. Current Job Details Bar
4. Performance Information
5. Print Position
6. System Control Buttons
7. Home Button
8. Job Select Button

Figure 4-1: CLARiTY Home Page

Button	Description
Controller Status Bar	Provides information about the status of the controller: • **Starting Up**- Controller unit establishing communication with the laser marking and coding system. • **Shutdown**- Laser system is turned on and the keyswitch is disabled. • **Offline**- Laser system is turned on and keyswitch is enabled. • **Running**- Laser system is turned on and marking. Keyswitch is enabled. • Allows the user to enable/disable marking as requested. • If warnings or faults are present, it allows the user to access and review them when selected.

Table 4-1: Home Screen Buttons

Button	Description
Tools Button	Allows the user to access the *Tools* page and opens the tools menu.
Current Job Details Bar	Displays the actual job being marked. Selecting the bar will display the job preview. If touch to edit and print position options are enabled, selecting the job detail bar will allow the user to access these functions.
Performance Information	Displays the following laser system performance information: • **Throughput**: Throughput of the laser system in marking per minute since the current Job was loaded. • **Batch Count**: Number of markings since the current Job was loaded. • **Total Count**: Number of markings over the life of the controller. Selecting this area opens the performance page showing additional statistical information on the laser system throughput.
Print Position	Allows the user to adjust the marking position, scale, rotation or mark sets for the current job. If available, allows the user to select pilot laser.
Control Buttons	Allows the user to perform the following actions: • Keyswitch enable/disable (software keyswitch only). • Disable (Stop) the marking mode. • Enable (Run) the marking mode.  Keyswitch (for more information, refer Table 4-2 on page 4-4) Stop Run (mark)
Home Button	Allows the user to access the *Home* screen as shown in Figure 4-1 on page 4-2.
Job Select Button	Allows the user to select the required job from the list by opening the job select page.

Table 4-1: Home Screen Buttons (Continued)

Icon	Description
	Manual keyswitch - closed
	Manual keyswitch - opened
	Software keyswitch - disabled
	Software keyswitch - enabled

Table 4-2: Keyswitch Icons

Using the Tools Page

Touch the *Tools* icon on the home page to access the tools page (see Figure 4-2).

Figure 4-2: Tools Page

Buttons	Description
Setup Page	Permits the user to modify a small subset of the laser system setup parameters.
Diagnostics Page	Provides on-line fault finding routines and diagnostic functions.
Databases page	Provides control over the jobs database of the laser system.

Table 4-3: Tools Page

Working with Setup Page

Navigate to *Tools* > *Setup* (see Figure 4-3).

Figure 4-3: Setup Page

The *Setup* page allows you to access the following parameters:

- Printhead
- Consumables
- Control (for example, time, date, language)
- Options

Note: *Consumables and Options are not available for Laser controller.*

Working with the Printhead Setup Page

Navigate to *Tools* > *Setup* > *Printhead* (see Figure 4-4).

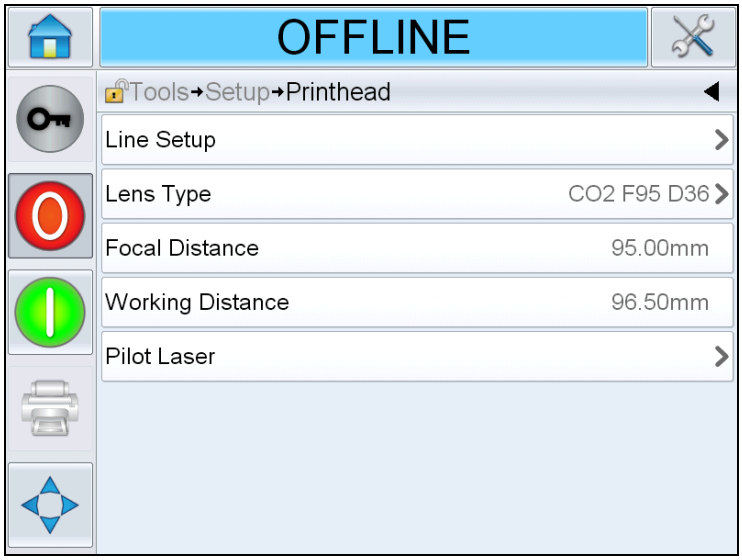


Figure 4-4: Printhead Setting

Buttons	Description
Line Setup	For information on Line Setup Wizard refer “Line Setup” on page 5-11
Lens Type	Shows a list of available lens types for the connected laser system when selected. Select the required lens from the list.
Focal Distance	Displays the focal distance of the selected lens.
Working Distance	Displays the working distance for the selected lens, that is, the distance at which the laser head needs to be mounted to the product for marking
Pilot Laser	If the pilot laser is available, allows the user to set up the laser as needed when selected.

Table 4-4: Printhead Setting

Working with the Consumables Setup Page

Navigate to *Tools* > *Setup* > *Consumables.*

Note: *Consumables page is not available for Laser controller.*

Working with the Control Setup Page

Navigate to *Tools* > *Setup* > *Control* (see Figure 4-5).

Figure 4-5: Control Page

Buttons	Description
CLARiTY Parameters Archives	Allows the user to save current laser system configurations and to restore previously saved laser system configurations. ***Note:*** *When a USB memory stick is connected to the laser system, archives can also be saved or restored to and from the USB drive as well.*
CLARiTY Printer Clones	Allows the user to create or restore a Clone file to and from the USB memory stick. A Clone file contains all of the laser system settings and Job files. ***Note:*** *Only present when a USB memory stick is inserted.*
CLARiTY Update	Allows the user to select from a list of available updates. Update files must be saved in *clarityupdate* folder on the root of the USB memory stick to be recognized. ***Note:*** *Only present when a USB memory stick containing update files is inserted.*

Table 4-5: Control Page

Buttons	Description
Set Screen Orientation	Allows the user to change the screen orientation by selecting ‘0’ or ‘180’ degrees, as required. 
Internationalisation	Allows the user to set the language of the CLARiTY screen, the international region/country which control the date/time formats and measurement units displayed within CLARiTY.
Recalibrate Touchscreen	Allows the user to recalibrate the touchscreen, if touching the screen does not accurately locate the correct CLARiTY button or Icon. The laser system requests the user to touch several crosses which are displayed on the screen, one after the other. The screen is recalibrated when the automated *process is complete.* ***Note:*** *If the calibration of the machine has too many errors and does not allow a user to navigate to this screen via the CLARiTY panel, the same functionality can be triggered from within CLARiTY Configuration manager.*
Date and Time	Allows the user to set the system date and time of the laser system.
Communications	Allows the user to reset all communication ports to factory default settings if corrupted. These default settings configure the laser system to communicate with CLARiSOFT® and CLARiTY Configuration Manager.
Contact Information	Allows the user to enter the laser system location address.

Table 4-5: Control Page (Continued)

Working with the Option Setup Page

Navigate to *Tools* > *Setup* > *Option*.

Note: *Options page is not available for Laser controller.*

Working with Diagnostics

Navigate to *Tools* > *Diagnostics* (see Figure 4-6).

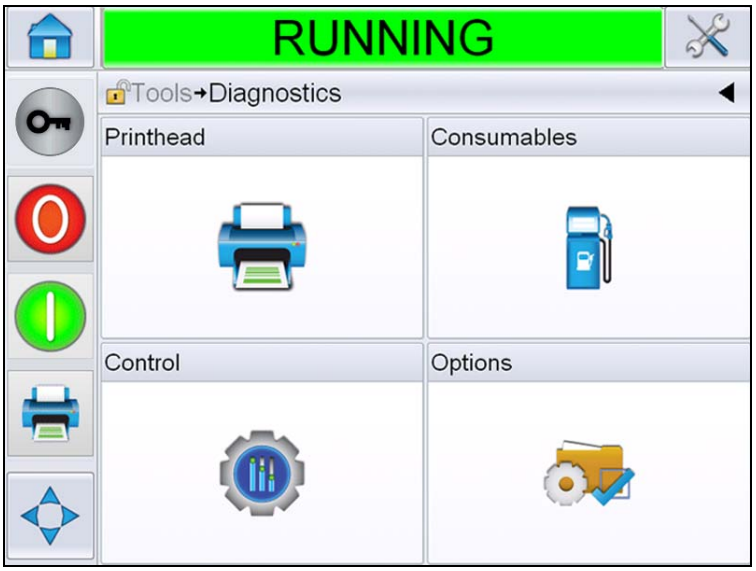


Figure 4-6: Diagnostics Page

The diagnostics page allows you to access the following pages:

- Printhead
- Consumables
- Control (for example software versions, system information, communications port status)
- Options

Note: *Consumables and Options are not available for Laser controller.*

Working with Printhead Diagnostics

Navigate to *Tools* > *Diagnostics* > *Printhead* (see Figure 4-7).

Figure 4-7: Printhead Diagnostics Page

Buttons	Description
Scanner Type	Displays the type of scanner installed on the laser.
Product Counter	Displays the total product count for this batch i.e., the number of products passing the laser coder.
Print Counter	Displays the total number of products that have been marked by the laser marking system for this batch.
Global Print Counter	Displays the total number of products marked.
Marking Time	Displays the time the laser beam is ON for one mark.
Line Speed	Displays the speed of production line. ***Note:*** *This option will only be displayed if there is product movement.*

Table 4-6: Printhead Diagnostics Page

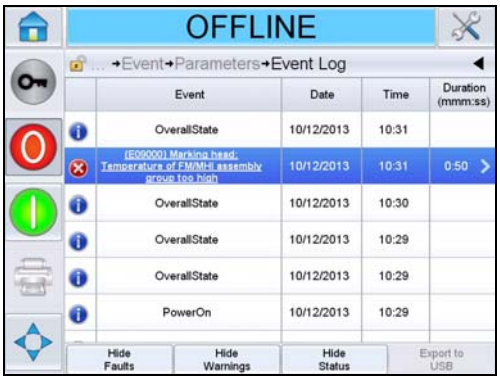
Buttons	Description
Event Log	Contains the log of events, faults and warnings over a total period of 180 days. Allows the user to select a fault or warning event on the screen for further information. Also allows the user to hide various events (such as faults or warnings) and export the information to USB as required.  For more information, refer to “Event Time” on page 6-10
Inputs	Refer to “Inputs” on page 4-12.
Relative Operating Hours	Displays the operating hours since the last service operation was reset.
Absolute Operating Hours	Displays the total number of hours laser system is in operation.
Laser System State	Displays the current Laser system status.

Table 4-6: Printhead Diagnostics Page (Continued)

Inputs

It displays information about various inputs from the laser (see Figure 4-8).

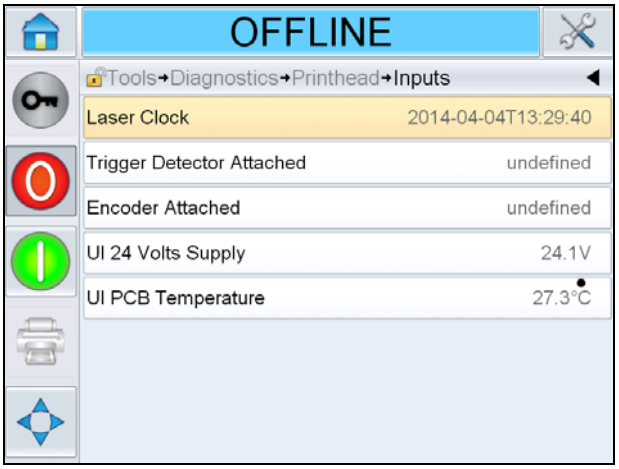


Figure 4-8: Printhead Inputs Diagnostics Page

Buttons	Description
Laser Clock	Displays the current date and time from the laser marking system.
Trigger Detector Attached	Indicates if the trigger detector is present (TRUE).
Encoder Attached	Indicates if the encoder is present (TRUE).
UI 24 Volts Supply	Displays the instantaneous voltage of the controller 24 V supply.
UI PCB Temperature	Displays the PCB temperature information.

Table 4-7: Printhead Inputs Diagnostics Page

Working with Control Diagnostics

Navigate to *Tools* > *Diagnostics* > *Control* (see Figure 4-9).

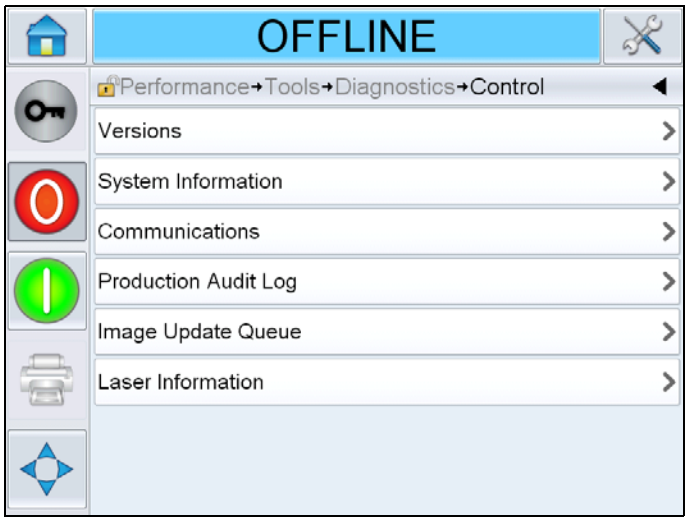


Figure 4-9: Control Parameters

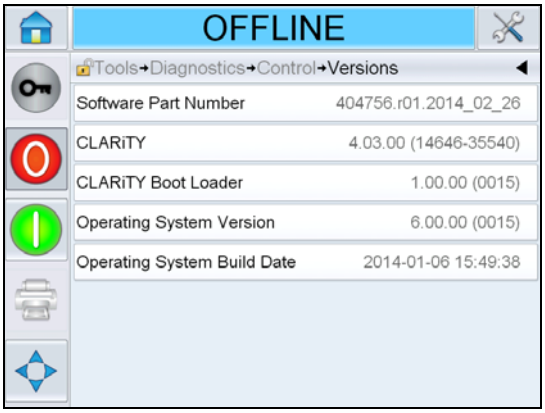
Buttons	Description
Versions	Displays the software versions of the various software components installed in the CLARiTY controller. ***Note:*** *If there is any inconsistency among the software components that are installed in the CLARiTY controller, the Software Part Number displays the message 'Incompatible Software Versions'. If this is seen, a CLARiTY software update must be performed.* 
System Information	Displays the serial number and revision number of controller Printed Circuit Board (PCB), CPU speed and system equipment reference information.

Table 4-8: Control Diagnostics Page

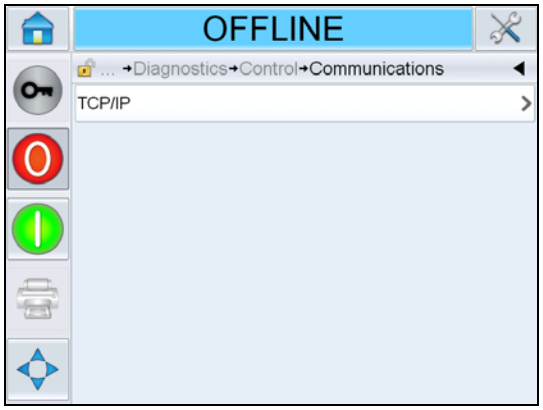
Buttons	Description
Communications	Touch Communications on the Control dialog box. Communications dialog box appears.  **TCP/IP:** Displays the configuration and status of the laser system's network port. For more information, see "TCP/IP" on page 4-15.
Production Audit Log	Refer to "Production Audit Log" on page 6-30.
Image Update Queue	Displays all Jobs currently in the laser system's queue, and the number of times each Job has been allocated to print. "No Print Limit" indicates that the currently loaded Job will continue to print until a new Job is loaded.
Laser Information	Refer to "Laser Information" on page 4-16.

Table 4-8: Control Diagnostics Page (Continued)

TCP/IP

Figure 4-10: TCP/IP Parameters

Buttons	Description
IP Address	Displays the IP Address of the controller
Laser IP Address	Displays the IP Address of the Laser system
Subnet Mask	Displays the Subnet Mask number
CLARiTY Communications	Displays the TCP/IP port number and CLARiTY network status.
Text Communications	Displays the TCP/IP port number assigned for Text Communications.

Table 4-9: TCP/IP Parameters

Laser Information

It provides information about the laser system used along with the software versions.

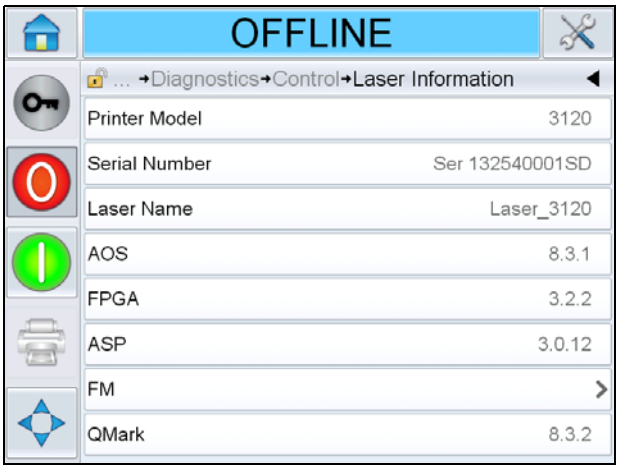


Figure 4-11: Laser Information

Buttons	Description
Printer Model	Displays the model of the laser system
Serial Number	Displays the serial number of the laser system
Laser Name	Displays the laser system name
AOS	Displays the version of AOS
FPGA	Displays the version of FPGA
ASP	Displays the version of ASP

Table 4-10: Laser Information

Buttons	Description
FM	When selected, displays the following screen: 
QMark	Displays the version of QMark

Table 4-10: Laser Information (Continued)

Working with Database

Navigate to *Tools* > *Databases* (see Figure 4-12).

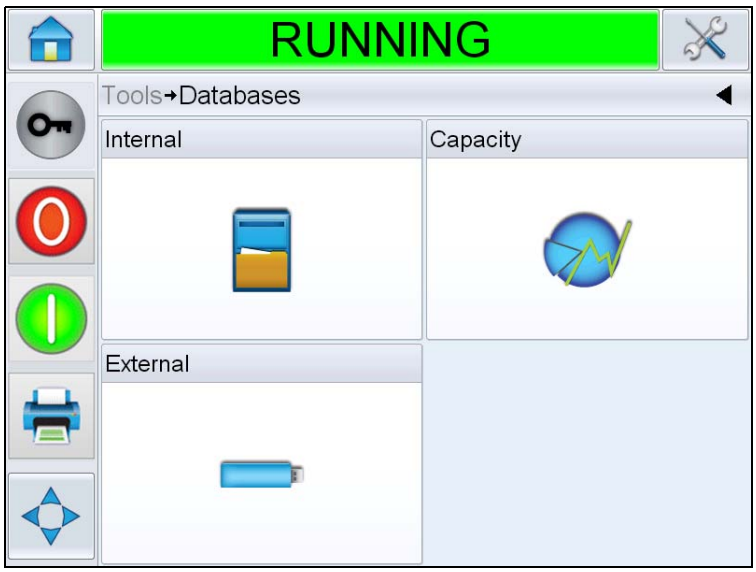


Figure 4-12: Database Page

Buttons	Description
Internal	Shows the job stored in the laser system and allows the user to transfer Jobs to the USB memory stick (if available). The user is also able to delete Jobs from the Internal database.
Capacity	Shows the estimated number of Job files that could be stored on the printer, based on the size of existing Job files, and the number of bytes of available Job storage remaining.
External	Shows the Jobs stored on the inserted USB memory stick, and allows the user to transfer Jobs to the Internal database. The user is also able to delete Jobs from the USB memory stick. ***Note:*** *Option only available when USB memory stick is inserted in printer.*

Table 4-11: Database Page

How to Set the Passwords

The passwords are set and configured through CLARiTY configuration manager.

The UI has the following access levels:

- Level 1
- Level 2
- Level 3

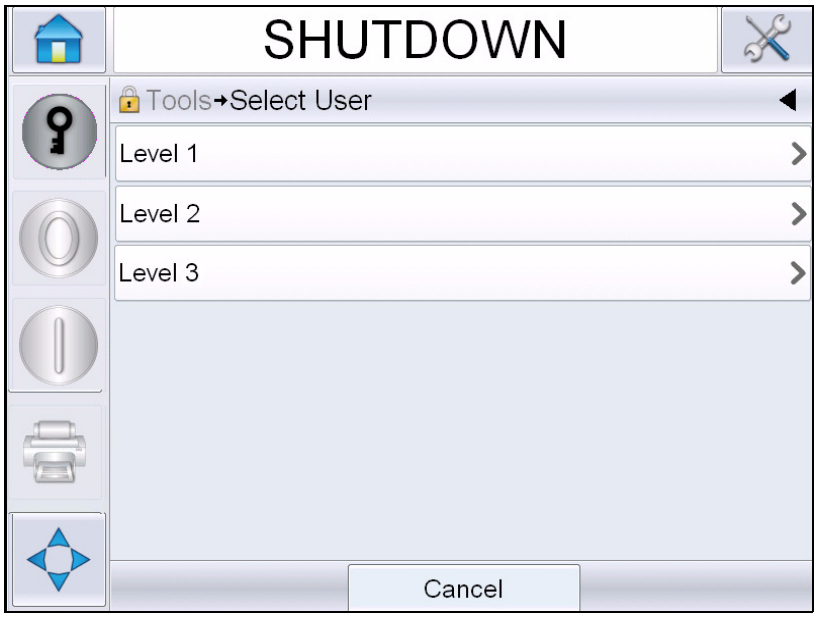


Figure 4-13: Password Levels

How to Login

When a menu requires the user to be logged in above Level 0, the user will be prompted to select the required password level.

Figure 4-14: Select Level

Login at level 1 (default password = 1111) or level 2 (default password = 2222) password. The current password level changes to selected password level from level 0.

Where access requires a higher password level, the user must first logout and then login at the required password level.

Only those functions available at the logged in password level will be visible to the user. If there are no options available to the user at that password level, a message will be displayed (see Figure 4-15).

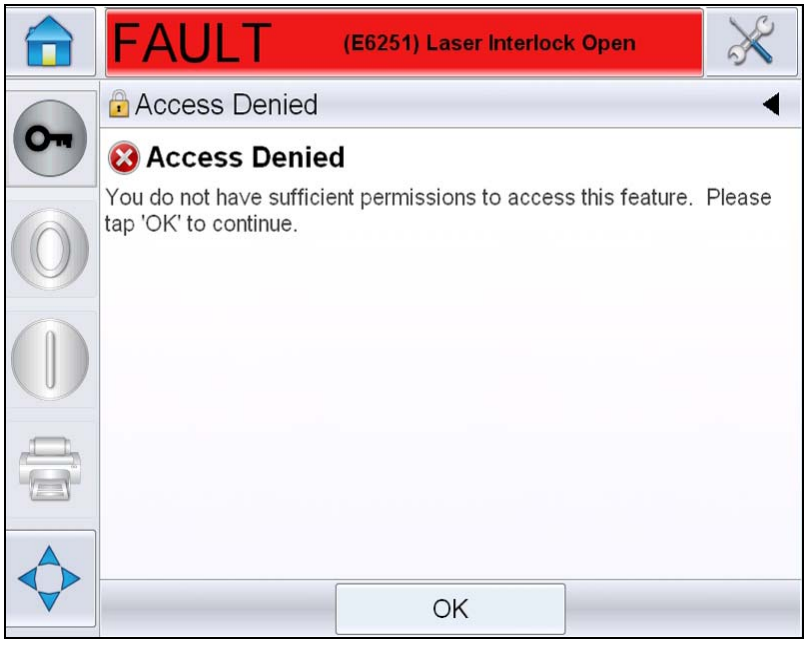
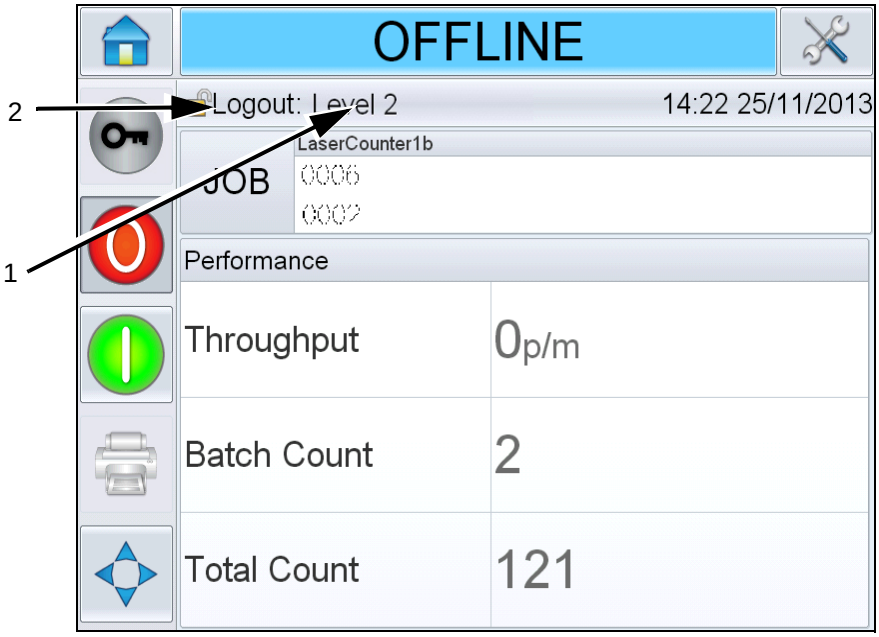


Figure 4-15: Access Denied

How to clear password

Go to home page and touch *Logout* (item 2, Figure 4-16). You will be able to logout from the level currently active (item 1).

Note: *Level 1 and Level 2 passwords will automatically logout after a default period of time. This feature can be configured in the CLARiTY Configuration Manager.*



1. Current Password Level
2. Touch to logout

Figure 4-16: Logout

Note: *For information on Performance, refer to "Availability Page" on page 6-5.*

Note: *For information on Print Position, refer to "Print Position" on page 5-4.*

Controller Operation

5

This chapter contains the following topics:

- Starting the Controller
- Selecting a Job for Marking
- Print Position
- Line Setup
- Starting the Laser Marking
- Stopping the Marking
- Viewing the Current Job or Image
- Downloading a job file
- Deleting a job from the jobs database
- Turning Off the Controller

Starting the Controller

Note: *Before starting the controller, please ensure that the laser system is started as described in the Laser System Manual.*

1 Turn the controller mains power switch ON. The CLARiTY startup screen appears (see Figure 5-1).

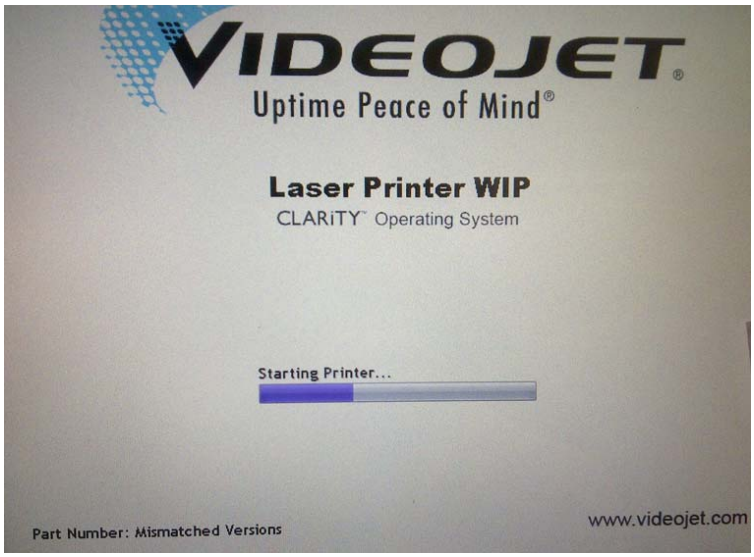


Figure 5-1: CLARiTY Startup Screen

2 Once the laser system is ON and communication is established, and if the keyswitch is disabled, status bar changes to *SHUTDOWN* (see Figure 5-2).

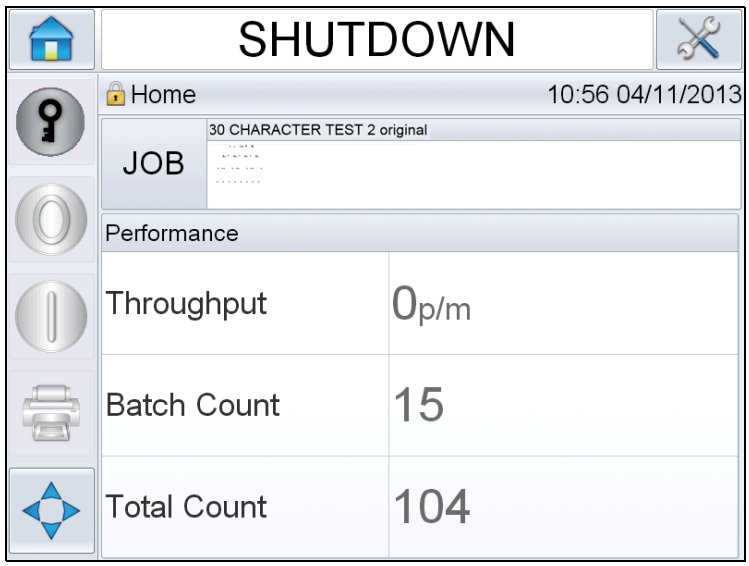


Figure 5-2: Laser System ON

Selecting a Job for Marking

3 Touch the *Job* button JOB on the home page.

Note: *Jobs are created in CLARiSOFT. Jobs can be downloaded from PC to the controller or using USB memory stick. Refer* *"Downloading a Job File" on page 5-26.*

Note: *Refer to the CIFF Converter Instruction (P/N 468427-01) to convert Laser XML messages to CIFF jobs.*

4 The list of existing jobs are displayed (see Figure 5-3).

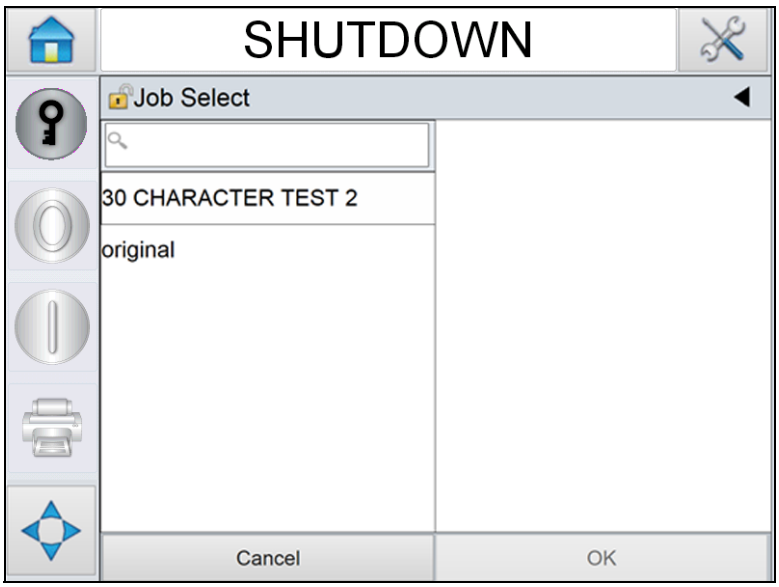


Figure 5-3: Job List

5 Select the required job from the list. The job print preview appears.

6 Touch OK, the controller selects the job ready for marking.

Note: *If the job download fails, warnings will be flagged on the unit. Review the warnings and if necessary, correct the job in CLARiSOFT and download again.*

Print Position

Touch Print Position button  at the left hand bottom side of any screen to adjust the current job parameters.

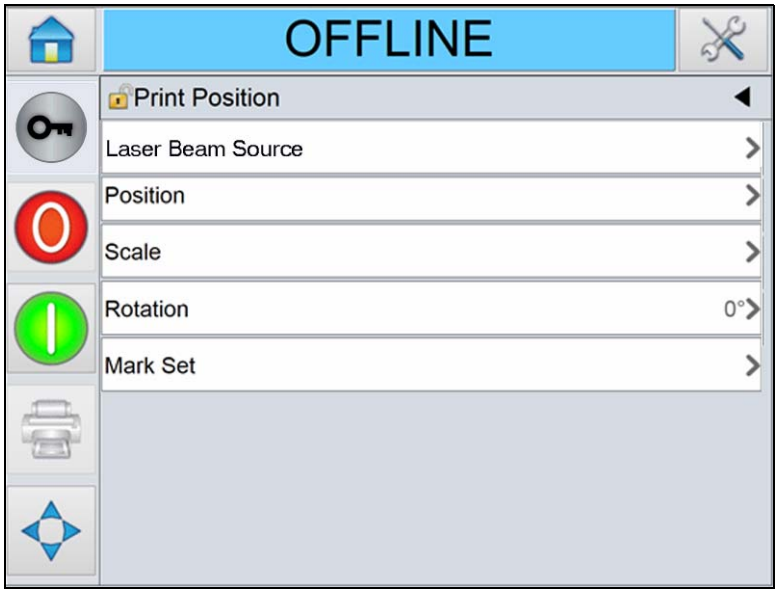


Figure 5-4: Print Position Screen

The print position page allows the user to set the following parameters:

Parameter	Description
Laser Beam Source	The user can select the beam source as pilot laser or marking laser. The pilot laser, if available, when selected will show the path of the job, without marking, when job started. Selecting marking laser will allow the laser to mark.

Table 5-1: Print Position Page parameters

Parameter	Description
Position	The Offset X and Offset Y adjustment buttons allows the user to move the position of the marking in either or both of the X or Y axis in both negative and positive direction. Position (0,0) indicates the centre of the marking or lens. Select one or both buttons to modify the position as required. 
Scale	The Scale X and Scale Y buttons allows the user to increase or decrease the scale of the marking in either or both of the X or Y axis. Scale ‘100%’ is the default value. Select one or both buttons to modify the scale as required. 

Table 5-1: Print Position Page parameters (Continued)

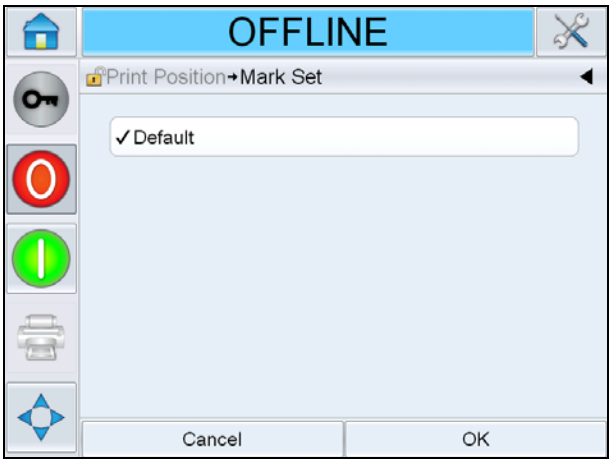
Parameter	Description
Rotation	The rotation button allows the user to rotate the job in clockwise or counter-clockwise by 360 degrees. ‘0’ degree rotation relates to both the line setup and job configuration. 
Mark Sets	A mark set is a specific set of laser print parameters where maximum and minimum values for these parameters are unique to each laser coding/marking system. Selecting mark set allows the user to adjust the job values for the particular marking job. For more information refer “Mark Sets” on page 5-7. ***Note**: If no job is selected or a job has been created outside CLARiSOFT without a valid mark set, the mark set list will be empty.*  If a job does not have a mark set available, perform the following action: 1. Load the job into CLARiSOFT and identify the Mark Sets available for the target laser. 2. Associate the appropriate Mark Set with each field of the job. 3. Once complete, transfer the job to the CLARiTY Controller where it can be selected for marking.

Table 5-1: Print Position Page parameters (Continued)

Mark Sets

Mark Sets button displays the parameters of the current job (see Figure 5-5).

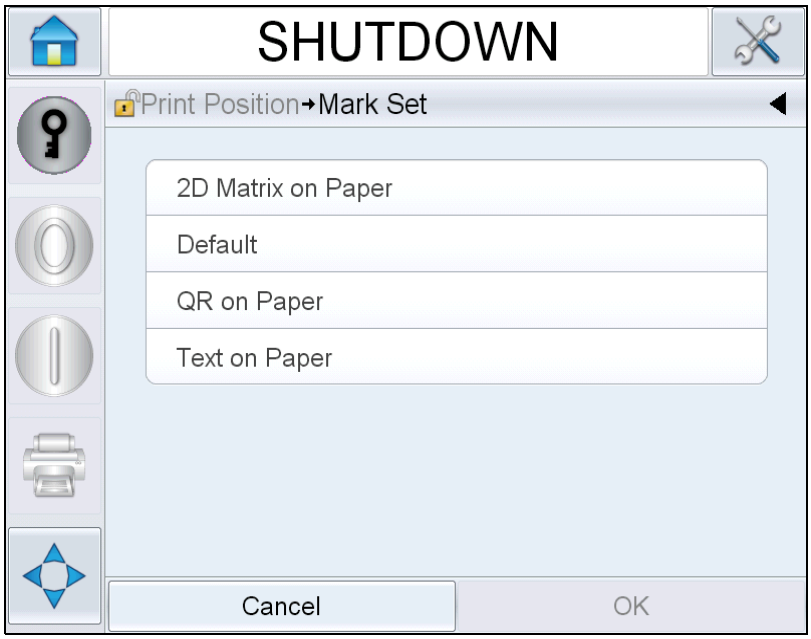


Figure 5-5: Mark Sets

Note: *The mark set(s) associated with the loaded job is displayed.*

Mark Sets Parameters

The set of available parameters for the selected Mark Set will be presented as a list of buttons (see Figure 5-6 on page 5-8).

Note: *If the laser key switch is closed, then the buttons will be read only.*

Figure 5-6: Mark Sets Parameters

Buttons	Description
Marking Speed	Allows the user to enter the marking speed in millimeter per second (mm/s). It is the speed of movement of the laser beam when marking the product. This value ranges from 1 to 30000.
Mark Delay	Allows the user to enter the mark delay in microseconds (µs). It is the delay between the marking of individual vectors within a stroke. This value ranges from 0 to 999.
Stroke Delay	Allows the user to enter the stroke delay in microseconds (µs). It is the delay between the end of a stroke and the jump to the next stroke. This value ranges from 0 to 2000.

Table 5-2: Mark Sets parameters

Buttons	Description
Jump Speed	Allows the user to enter the jump speed in millimeter per second (mm/s). It is the speed of movement of the laser beam when moving from one stroke to the next. The laser is switched off during a jump. This value ranges from 500 to 40000.
Jump Delay	Allows the user to enter the jump delay in microseconds (µs). It is the delay between the end of a jump and the start of the marking process. This value ranges from 0 to 5000.
Mark Intensity	Allows the user to enter the mark intensity in percentage (%). It is the output Mark Intensity through the current value (with 100% corresponding to the maximum Mark Intensity of the laser). This value ranges from 0 to 100.
Laser On Delay	Allows the user to enter the laser on delay in microseconds (µs). It is the delay between the attainment of the start position of a stroke and the switching-on of the laser. This value ranges from X to 1000. Where X = (20 - Jump Delay) >= (-1000)
Laser Off Delay	Allows the user to enter the laser off delay in microseconds (µs). It is the delay between the attainment of the end position of a stroke and the switching-off of the laser. This value ranges from 0 to 1000.

Table 5-2: Mark Sets parameters (Continued)

Data Entry

If a mark sets parameter button is selected, it displays a Data Entry screen (see Figure 5-7) showing the current value and the permitted range (max and min) that the input value takes.

If you modify a parameter by selecting the OK button on the Data Entry screen, the new value is stored in the CLARiTY parameter and is automatically sent to the Laser.

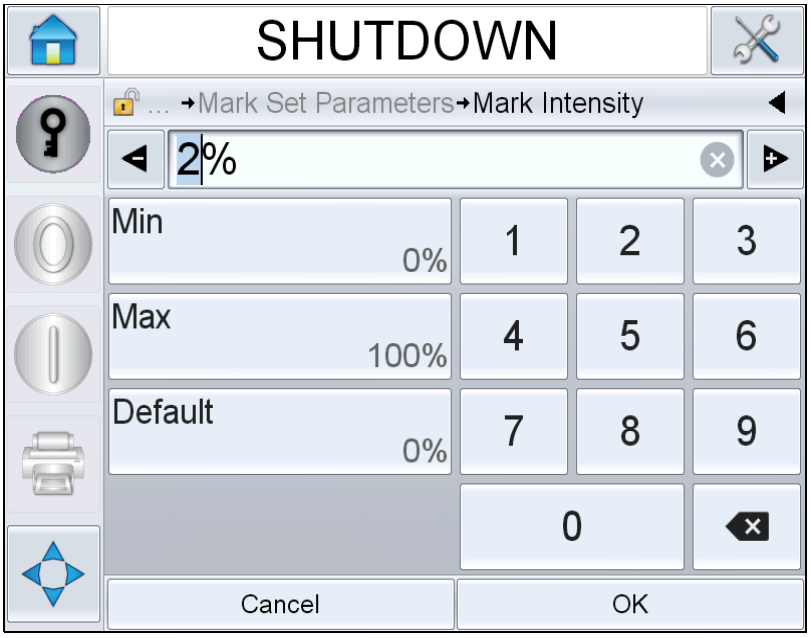


Figure 5-7: Data Entry

Completion

When you navigate away from Mark Sets Parameters screen, you will be prompted to either save or discard the changes made to the parameters.

Note: *The changes to mark sets will be saved for the job until it is removed or reloaded into the controller.*

Line Setup

Note: *The controller must not be in OFFLINE mode while transferring line setup changes to the laser unit.*

Note: *Line setup option is not available in RUNNING mode.*

Note: *On power cycle, the line setup graphic will display the equivalent top side graphic. However, the actual line setup will not change.*

Note: *Whenever the physical setup is changed, ensure that the line setup is also updated on CLARiTY.*

If an unsupported laser system is connected, a fault will be displayed. Power off the laser system and the controller.

Contact Videojet Technologies Inc. at 1-800-843-3610 (for all customers within the United States). Outside the U.S., customers should contact their Videojet Technologies Inc. distributor or subsidiary for more information.

Navigate to *Tools* > *Setup* > *Printhead* > *Line Setup*.

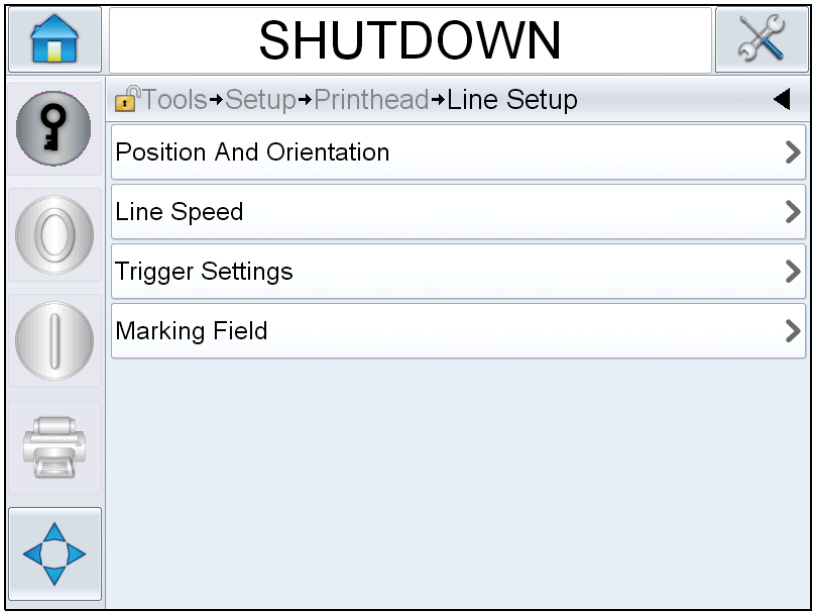


Figure 5-8: Line Setup

Buttons	Description
Position and Orientation	Allows the user to adjust the position and orientation of the laser head with respect to the product.

Table 5-3: Line Setup Buttons

Buttons	Description
Line Speed	Allows the user to adjust the speed of the production line. ***Note:*** *This option is disabled if the line movement is set to Static.*
Trigger Settings	Allows the user to adjust the following print trigger settings: • Start Delay • Blocking Delay • Trigger Mode For more information, refer “Trigger Settings” on page 5-19.
Marking Field	Defines the marking field size. Allows to switch between full marking field and user defined marking field. For more information, refer “Marking Field” on page 5-22.

Table 5-3: Line Setup Buttons (Continued)

Position and Orientation

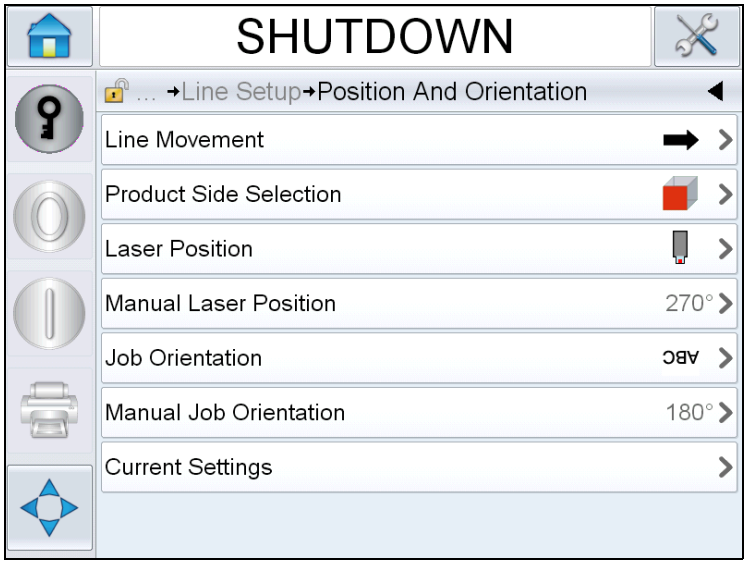


Figure 5-9: Position and Orientation

The position and orientation page allows the user to set the following parameters:

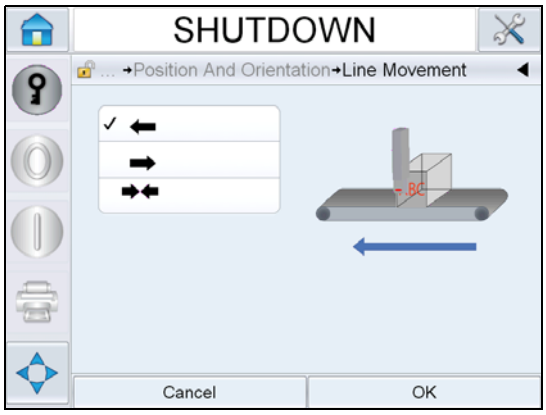
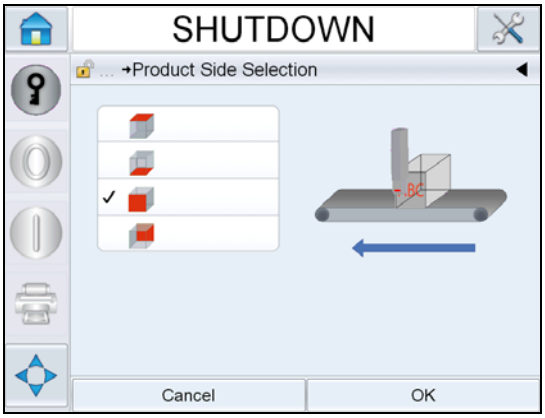
Parameter	Description
Line Movement	Allows the user to set the direction of Job relative to the laser head. Select line movement where product moves from left to right  or from right to left  or is Static  (no line movement). 
Product Side Selection	Sets the side of the product that needs to be marked. The red color indicates the side on which the marking happens.  ***Note:*** *The last two selections are only available if Line Movement is set to the Static option.*

Table 5-4: Position and Orientation Page Parameters

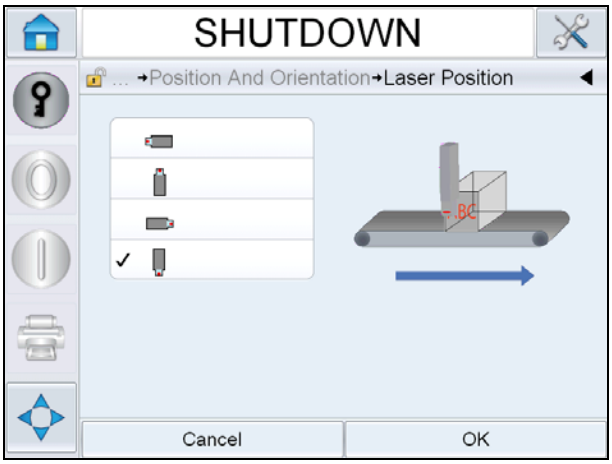
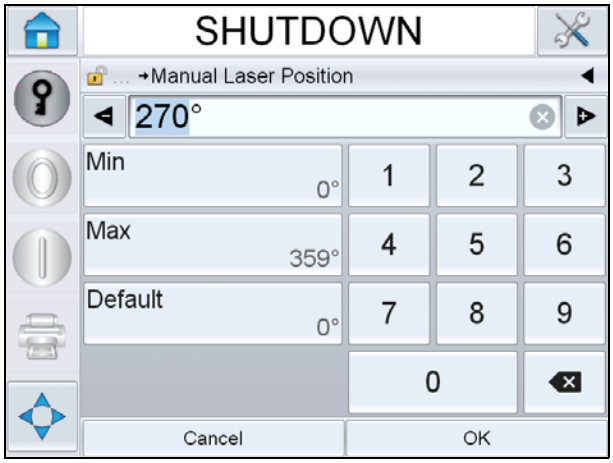
Parameter	Description
Laser Position	Allows the user to select the graphic from the four orientations available. 
Manual Laser Position	Allows the user to enter the angle precisely from 0 to 359 degrees. 

Table 5-4: Position and Orientation Page Parameters (Continued)

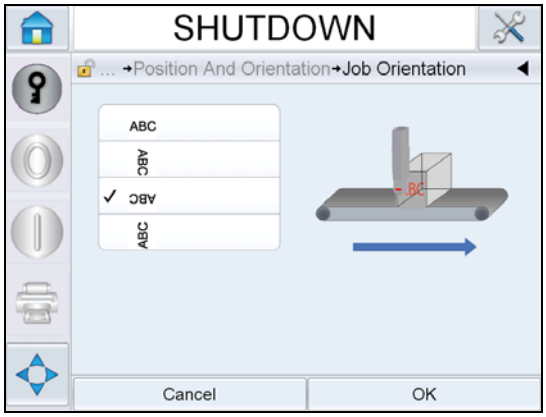
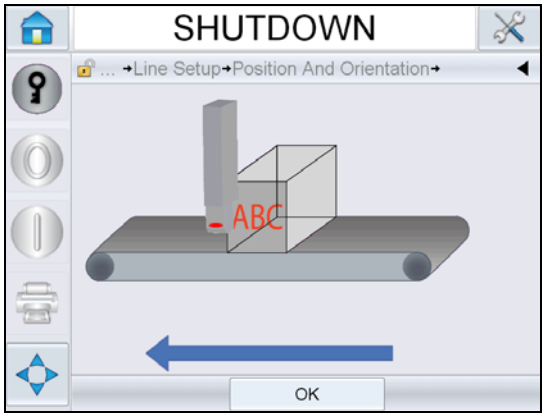
Parameter	Description
Job Orientation	Allows the user to select the orientation of the marking with respect to the product. 
Manual Job Orientation	Allows the user to enter the angle precisely from 0 to 359 degrees. 
Current Settings	Screen shows the graphic representation of the current line setup. 

Table 5-4: Position and Orientation Page Parameters (Continued)

Line Speed

This option sets the rate at which the product passes the marking head (see Figure 5-10).

Note: *This option is disabled when the line movement is set to Static.*

Note: *A wizard is available to take the user through the steps required to set up line speed when an encoder and/or a product detector are fitted.*

Note: *If there is no encoder connected to the laser, then the following options will be available:*
- *Enter or Measure Fixed Speed*
- *Configure Manually*

Note: *Before running any wizard, ensure that the line is stopped and follow the instructions in the wizard.*

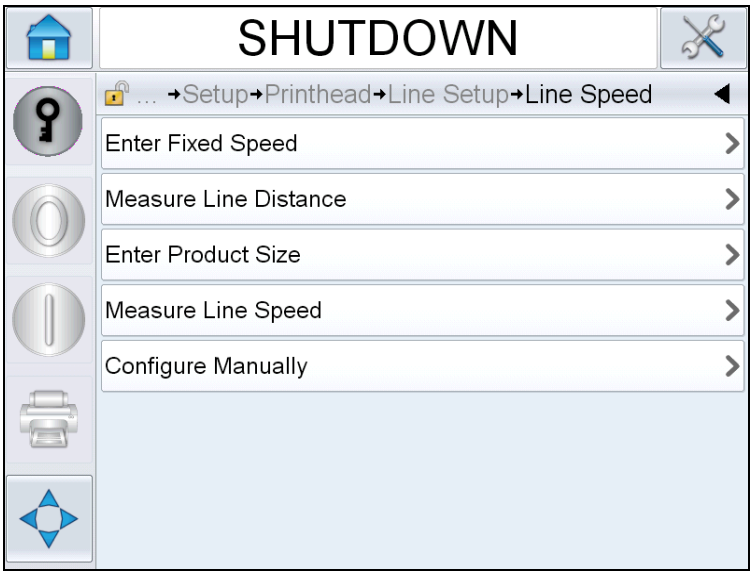


Figure 5-10: Line Speed

The line speed page allows the user to set the following parameters:

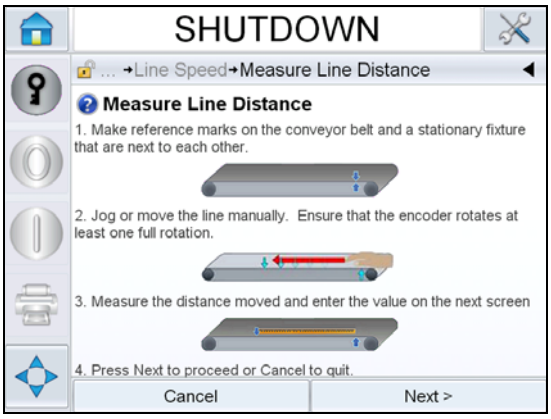
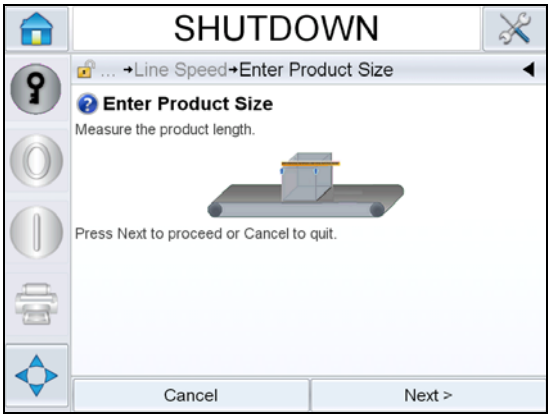
Parameter	Description
Enter or Measure Fixed Speed	Allows the user to input the line speed, either by entering it directly or measuring the speed.
Measure Line Distance	Allows the user to record the line distance moved while the laser system counts encoder pulses. ***Note**: This option is available only when encoder and/or product detector are attached.* 
Enter Product Size	Guides the user to measure the product size and input the data. ***Note:** The first product must reach the product detection (light barrier) within 5 seconds after confirmation of the product size value.* ***Note**: This option is available only when encoder and/or product detector are attached.* 

Table 5-5: Line Speed Page parameters

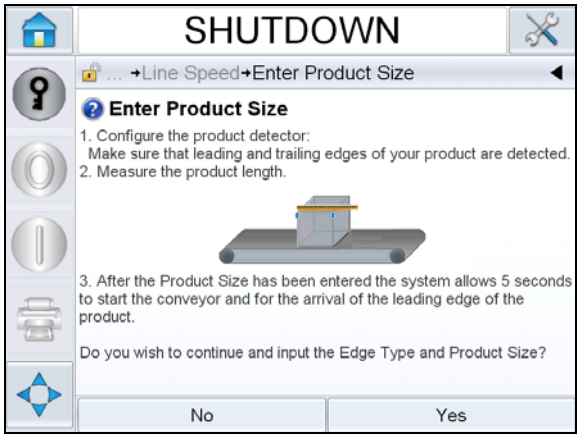
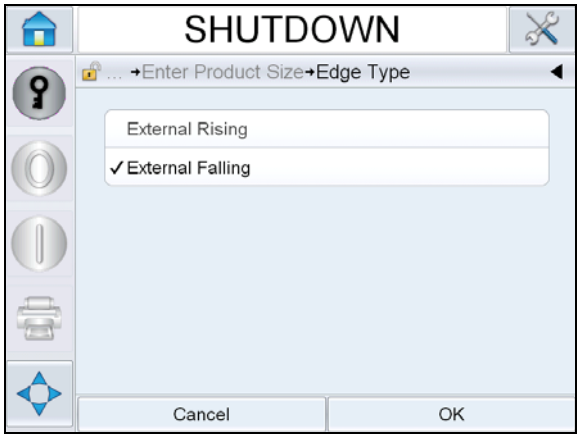
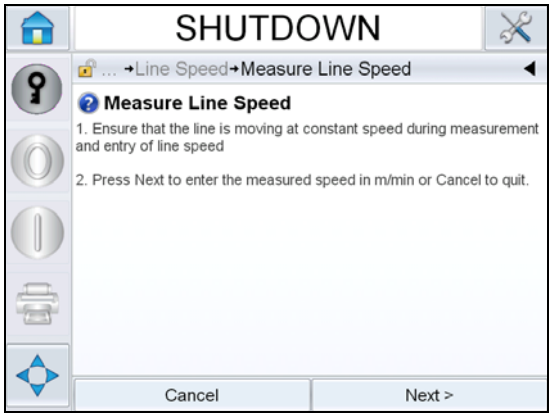
Parameter	Description
	 
Measure Line Speed	Guides the user to measure the line speed and input the measured value manually. ***Note**: This option is available only when encoder and/or product detector are attached.* 

Table 5-5: Line Speed Page parameters (Continued)

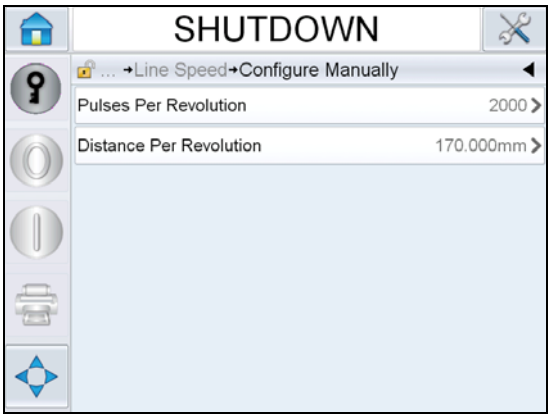
Parameter	Description
Configure Manually	Allows the user to enter the Pulses per Revolution and the Distance per Revolution values manually. ***Note**: This should be done by trained service engineers only.* 

Table 5-5: Line Speed Page parameters (Continued)

Trigger Settings

This option specifies how the product is detected and depends upon whether the products are moving past the laser on a conveyor or are placed as stationary objects manually. The availability of the individual trigger settings depends on the selected trigger type and the product movement.

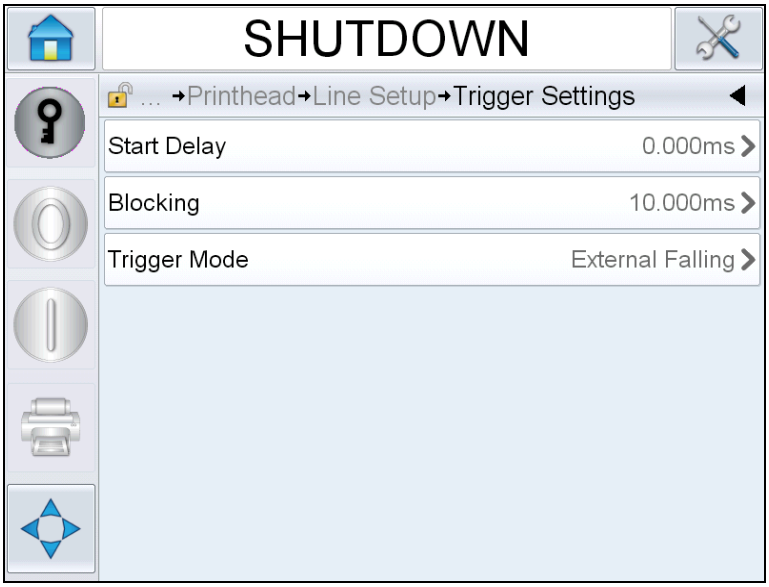


Figure 5-11: Trigger Settings

The trigger settings page allows the user to set the following parameters:

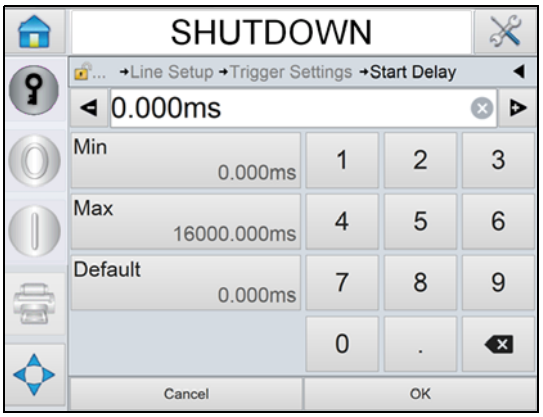
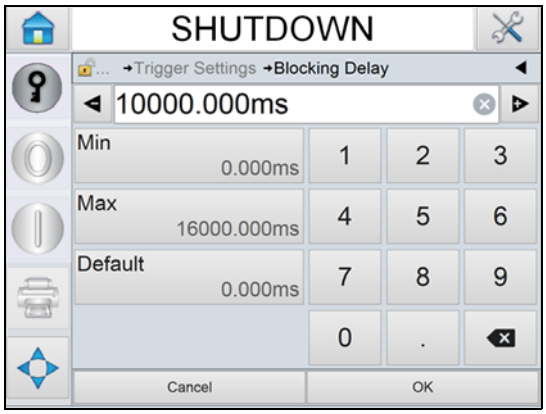
Parameter	Description
Start Delay	Start Delay defines the distance until the marking process is started, which is the distance between the center of the marking field of the laser system and the center of the marking on the product. After the trigger the product has to cover this distance before is in front of the marking head. If *No Product Movement* is selected, then the start delay defines the time between start trigger pulse and marking in milliseconds (ms). 
Blocking	Blocking defines the distance the product has to cover before the next marking can be started. If *No Product Movement* is selected, then the blocking defines the time that the product has to pass after a start trigger until a next trigger is accepted. 

Table 5-6: Trigger Settings Page parameters

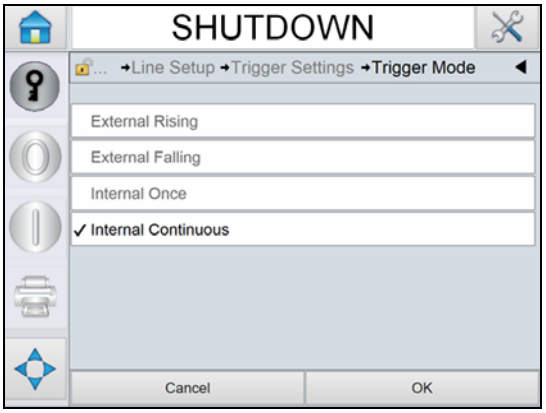
Parameter	Description
Trigger Mode	Allows the user to select one of the following settings to determine the trigger for the product marking: **External Rising**: Select the trigger mode as External Rising if the trigger pulse is to be given by the product that is entering the product detection zone. **External Falling:** Select the trigger mode as External Falling if the trigger pulse is to be given by the product that is leaving the product detection zone. **Internal Once**: If Internal once is selected then marking is started on selecting the start button. **Internal Continuous**: If Internal Continuous is selected then marking is continuous and can be stopped manually. ***Note:*** *The default value is External Rising.* ***Note:*** *If the line direction is static, then all the four modes are available, else only External Rising and External Falling modes are available.* 

Table 5-6: Trigger Settings Page parameters (Continued)

Marking Field

There may be obstacles on the line that obscure part of the laser marking area. The actual marking area of the laser is restricted to inhibit the laser in these areas.

If the maximum marking field is not being used (*Use Max Marking Field* is set to *No*), then the user can select each border to the required size. This option allows the user to increase or decrease any or all of the four borders of the laser marking area (see Figure 5-12).

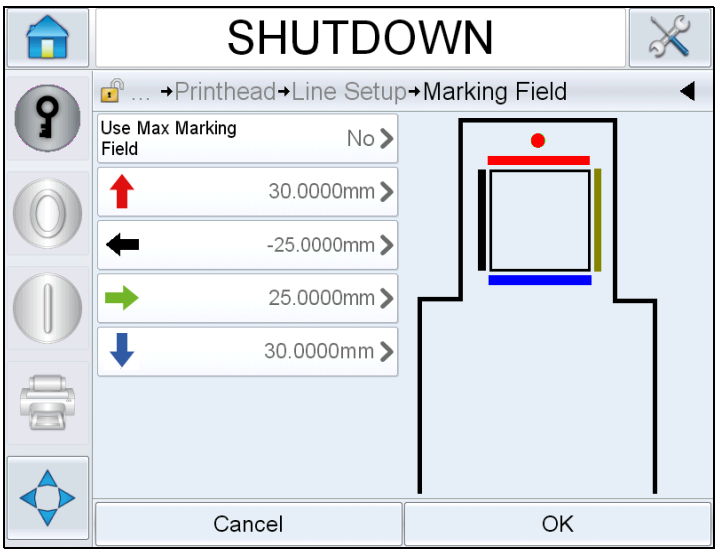


Figure 5-12: Marking Field

The border limits are determined by the edge of the marking area nearest to the border being moved and the current position of the opposite border. For example, the left border is limited by the left edge of the marking area and the current right border.

If *Use Max Marking Field* is set to *Yes*, the controller uses the maximum set marking field for marking (see Figure 5-13).

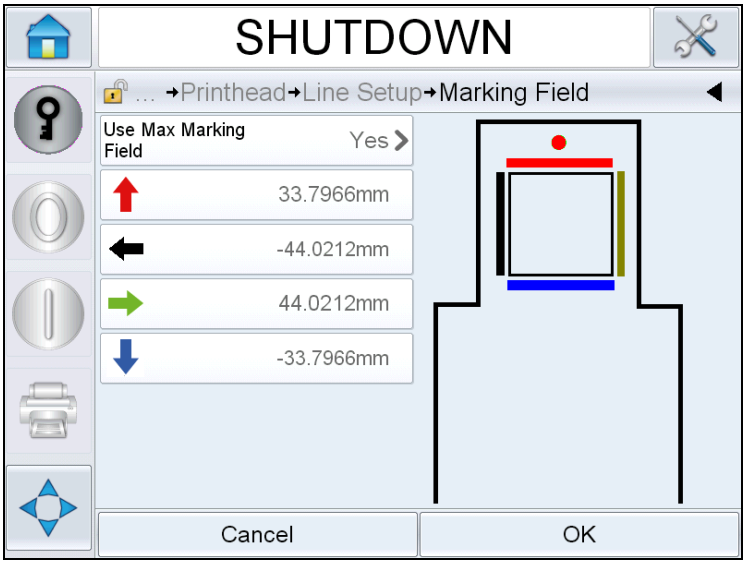


Figure 5-13: Marking Field_Max

Starting the Laser Marking

1 If the laser system has a manual keyswitch, turn to close position  . If the laser system has a software keyswitch, press the keyswitch button  on the home screen.

2 Enter the password if prompted.

Note: *There will be no password prompt if passwords are disabled or if the user has already logged in.*

3 When keyswitch status is enabled/closed, the status bar indicates *STARTING UP* and changes to *OFFLINE*. The stop and start run icons become active.

Warning

PERSONAL INJURY. Danger to Eyes and Skin. People within the area of the laser must wear suitable safety goggles against direct, reflected or diffusely scattered laser radiation.

Warning

PERSONAL INJURY. Never expose flammable materials to laser radiation. Always ensure appropriate shielding of the laser beam. Errors during marking on flammable materials (e.g. paper) might cause fire. Take suitable safety measures by installing smoke or fire detectors.

Warning

PERSONAL INJURY. Never expose reflecting surfaces to laser radiation. The reflected laser beam may cause the same dangers - in individual cases even greater dangers - as the original laser beam.

Warning

PERSONAL INJURY. Never expose unknown materials to laser radiation. Some materials (e.g. polyethylene, polypropylene, glass) are easily penetrated by the laser beam, although they seem to be opaque to human eye.

Warning

PERSONAL INJURY. Danger of explosion. Make sure that the laser area is free of explosive materials or vapors.

Note: *For more safety information, refer Laser System Manual.*

4 Touch the Run button  to start marking.

Stopping the Marking

1. Touch the Stop button  . The status bar changes to *OFFLINE*.
2. To disable the laser system, touch the software keyswitch button  to toggle to disable position or open the manual keyswitch  on the laser system. The status bar changes to *SHUTDOWN*.

Viewing the Current Job or Image

The name of the current job is displayed on the CLARiTY home page (see Figure 5-3 on page 5-3). Before starting the production line, make sure that the current job is the job that you want to mark.

To view more details of the current job, proceed as follows:

1. Touch the name of the job on the home page.
2. This will display a preview of the job.
3. To magnify the image on the screen, double touch on the image to zoom in and zoom out.

   If you are satisfied that the job is displayed correctly, you can start marking as described in "Print Position" on page 5-4. If the current job is not the job that you want to mark, refer to the instructions in "Selecting a Job for Marking" on page 5-3.
4. Touch the Back button on the navigation bar, or the Home button to return to the home page.

Downloading a Job File

A job file can be downloaded from the PC to the laser system using the following methods:

- Direct cable connection (serial port of TCP/IP)
- USB memory stick

Download Job File using TCP/IP or Serial Connection

1. Connect the communications cable (serial or ethernet) between the PC and the corresponding port of the laser system.

   ***Note**: The laser system must be turned on to download job files.*

2. Click the laser system icon from the tool bar in CLARiSOFT. The *Print* window appears (see Figure 5-14 on page 5-26).
3. Ensure that the *Real-Time Coder* is selected.
4. Ensure that the correct laser system is displayed in the *Select Output Device* menu.
5. Select *Download* under *Image Options*.

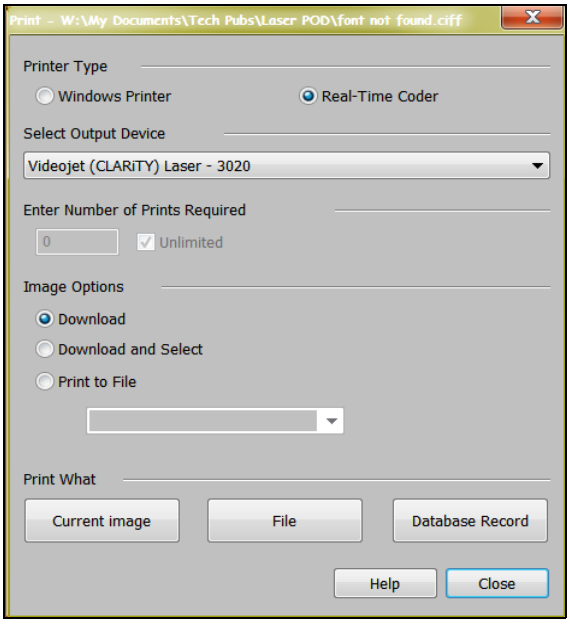


Figure 5-14: Select Output Device

6 To download only the currently opened Job file, select the *Current Image* button.

To download multiple Job files that have been saved to the PC, select the *File* button and navigate to the location on the PC where the files are saved. Highlight all of the Jobs you wish to transfer and select *Open*.

A preview or list of the selected job(s) appears (see Figure 5-15).

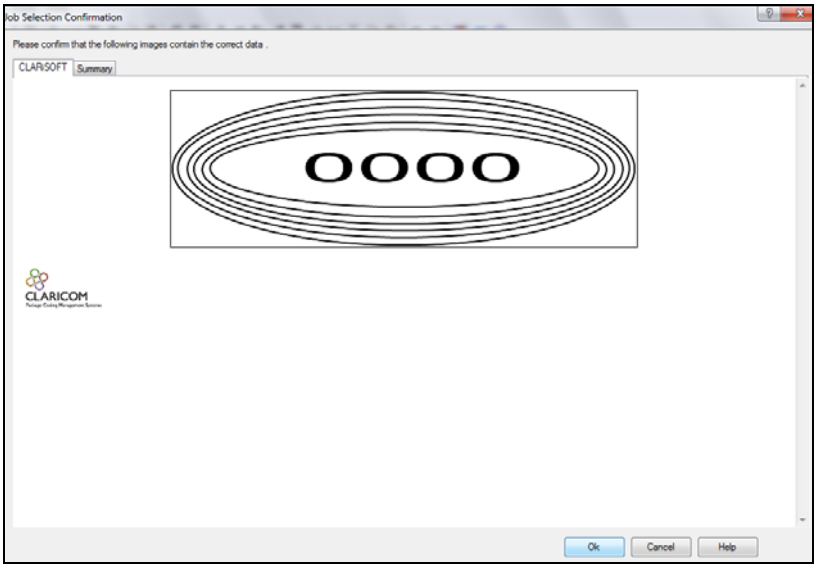


Figure 5-15: Print Preview of Job

7 Click the *OK* button.

The *Progress* window which displays the status bar appears. The status bar indicates the status of the job downloading process (see Figure 5-16).

Figure 5-16: Progress Window

Ensure the Job now exists in the laser system's database (see “Selecting a Job for Marking” on page 5-3)

8 Disconnect the communications cable between the PC and the laser system if no longer needed.

Download a Job File using USB Memory Stick

Do the following tasks to download a job file from the PC to the laser system using a USB memory stick:

1 Insert the USB memory stick into the PC.

2 On the *File* menu, click *Job Download* (see Figure 5-17). The *Download* window appears (see Figure 5-18 on page 5-29).

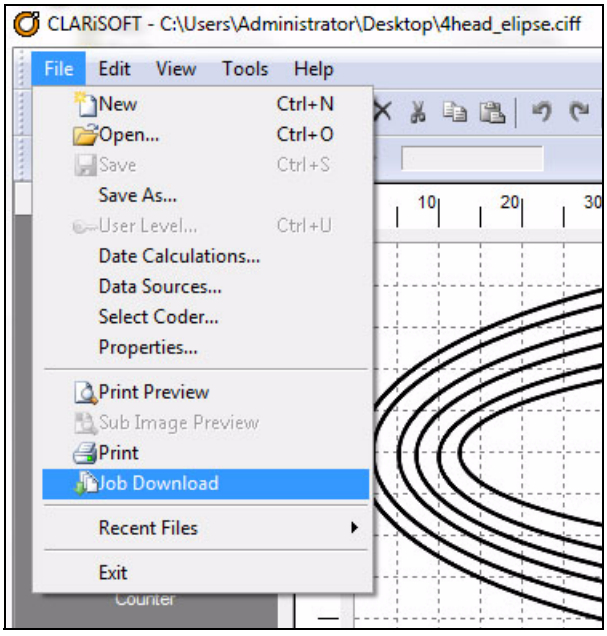


Figure 5-17: Job Download Command

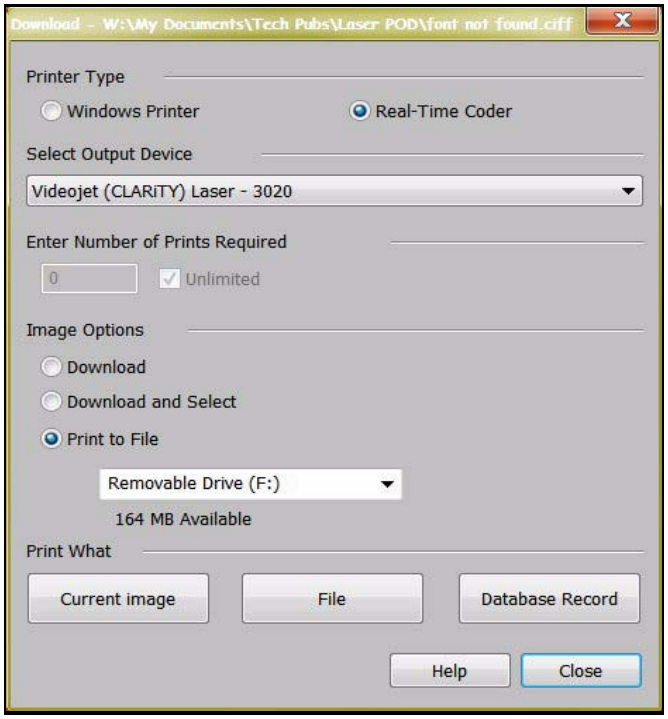


Figure 5-18: Job Download Command

3 Ensure that the *Real-Time Coder* is selected (see Figure 5-18).

4 Ensure that the correct laser system is displayed in the *Select Output Device* menu.

Note: *If you do not select the correct output device, the image will not be correct for the laser system.*

5 Select *Print to File* from Image Options.

6 Select the USB memory device to use from the drop-down menu.

Note: *The Print What options will not display until a suitable memory device is selected.*

7 To download only the currently opened Job file, select the *Current Image* button.

To download multiple Job files that have been saved to the PC, select the *File* button and navigate to the location on the PC where the files are saved. Highlight all of the Jobs you wish to transfer and select *Open*.

8 The confirmation window appears (see Figure 5-19).

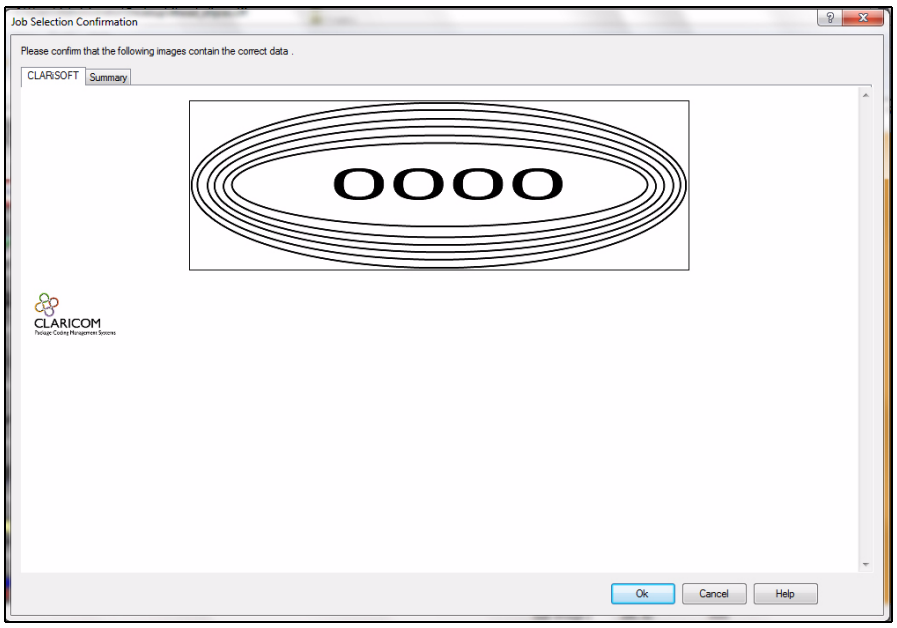


Figure 5-19: Confirmation Window

9 Click the *OK* button to continue.

After the files are downloaded, the message shown in Figure 5-20 appears.

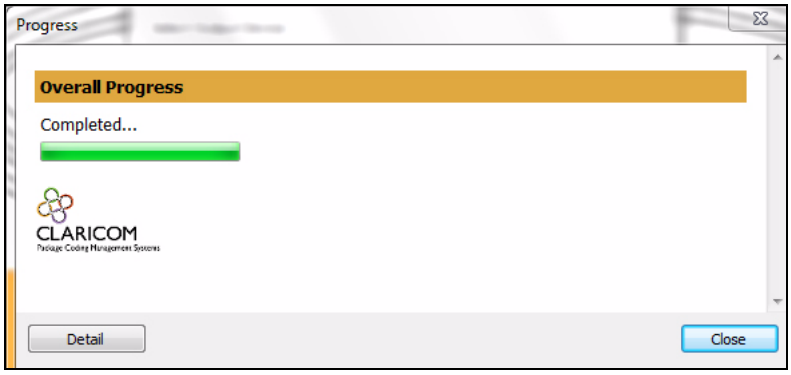


Figure 5-20: Download Complete

Caution

Failure to use the *Print to File* procedure will result in errors and rotated images.

10 Remove the USB Memory stick from the PC.

Deleting a Job from the Jobs Database

To remove jobs that are no longer required, proceed as follows:

1. Touch the *Tools* icon on the home page.
2. Touch the *Database* icon on the tools page to open the database page.
3. Select the required database (internal or external) and touch *Edit* to go to the deletion screen (see Figure 5-21). This page contains a list of all the available jobs along with details of the space available for the storage of new jobs.

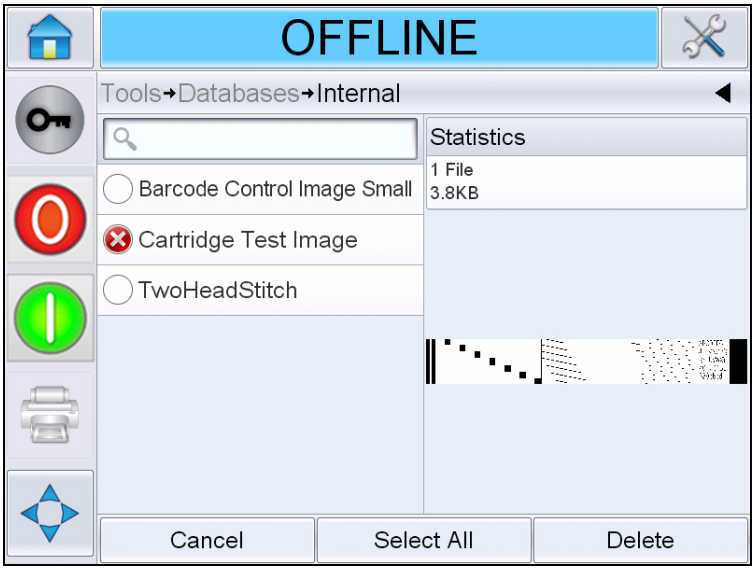


Figure 5-21: Database Delete Window

4. Touch the name of the job that you want to remove from the list of jobs. The job image appears in the preview window. Make sure that the job is the one that you want to delete.
5. Touch *Delete* to delete the job.

6 Confirm the job to be removed (see Figure 5-22).

Figure 5-22: Confirmation Screen

7 Touch *Yes* to remove the job.

8 Repeat steps 4 to 7 to remove other jobs that are not required.

Note: *You can touch Select All to remove all the jobs from the list. The job preview will not be displayed if more than one job is selected.*

9 Touch the Home icon to return to the home page.

Turning Off the Controller

Turn OFF the controller mains power switch.

To power off the laser system, follow the instructions in the Laser System Manual.

Additional Controller Operations

6

This chapter contains the following topics:

- Availability
- Availability fault table
- User editable fields
- Touch to edit
- Production audit log
- How to update controller software
- How to set the screen orientation
- How to create a job
- CLARiTY power saving

Availability

Introduction

Availability is a measurement of equipment uptime. It is the amount of time that the equipment is ready to run when required by production. This is one of the three key metrics of OEE.

The 'Availability' tool helps to isolate operational versus laser system issues and allows the user to track the laser system downtime and view the downtime statistics. The pareto of faults that allows the analysis of runtime measurement data helps the user to understand and eliminate the more frequent causes of both laser system and operational downtime.

The availability shows two basic availability metrics simultaneously:

- Laser system Availability
- Operational Availability

Note: *Operational Availability can be changed between two separate production time proxies as required by the user: "power on" and "running" mode. For more information, refer* *“Operational Availability” on page 6-3.*

$$Availability\% = \frac{Operating\ Time}{Planned\ Production\ Time}$$

Where

- Operating Time is Total Laser system Uptime
- Planned Production Time is the Actual Line Run Time Expected*.

*Based on proxy selected 'power on' or 'running'.

Laser System Availability

Laser System Availability tracks the downtime directly related to an internal error (fault) such as

- Power supply: Overtemperature Fault
- Beam Shutter Fault
- Filter Full Fault

Laser System Availability is defined as

$$Laser\ System\ Availability = 1 - \frac{Laser\ System\ Downtime}{Laser\ System\ Total\ Time}$$

‘Laser System Total Time’ is the total amount of time for which the laser system is turned on (has power applied). If the laser system is powered down when a fault is active, the amount of time that the laser system is off is also included in this laser system total time.

$$Laser\ System\ Total\ Time = (\text{'Power On' time}) + (\text{'Power Off' time in fault state})$$

'Laser System Downtime' is the amount of 'Laser System Total Time' the laser system has spent in a 'Laser System Fault State'. 'Laser System Fault State' is defined as the period where the Laser System is not available due to a fault identified as a laser system fault.

Laser System Downtime = Laser System Total time in a fault state

Operational Availability

This is a broader measure to reflect the full impact of the down time to production line. Operational Availability tracks the downtime related to faults that might be classed as "Procedural" such as:

- No encoder connected
- No template list selected
- The marking head is not connected

The impact may be due to laser system issues, operator related issues, shift changeovers and so on.

Operational Availability is defined as

$$\textit{Operational Availability} = 1 - \frac{\textit{Operation Downtime}}{\textit{Production Time}}$$

The Production Time Proxy allows the availability calculation to change between customer selected operating modes, running or laser system-on. The production time is defined based on the production time proxy chosen:

- Running: If both laser system and laser are switched ON.
- Power On: If the laser system is switched ON irrespective of the status of the laser.

If the laser system is powered down when a fault is active, the amount of time that the laser system is off is also included in the production time.

Production Time Running = (Running time) + ('Power Off' time in fault state)

Where,

Running time is the time when Laser is ON or requested to be turned ON.

Production Time Power ON = (Power 'ON' time) + ('Power Off' time in fault state)

Where,

Power 'ON' time is the time for which the laser system is switched ON irrespective of the status of the laser.

'Operation Downtime' is the amount of 'Production Time' the laser system has spent in an 'Operation Fault State'. 'Operational Fault state' is defined as the period where the laser system is not available due to a fault identified as a operational fault.

Operation Downtime = Total time in a fault state

Operation Downtime

When the laser system enters a laser system fault state (as indicated in Table 6-5 on page 6-16), the downtime counter starts. The laser system remains in this operation fault state until the fault is cleared. The operation to clear the fault is indicated in the Table 6-5 on page 6-16. If the laser system is powered down in a operation fault state, the downtime counter continues until laser system is powered on and the fault is cleared.

Availability Page

Touch *Performance* on the *Home* page.

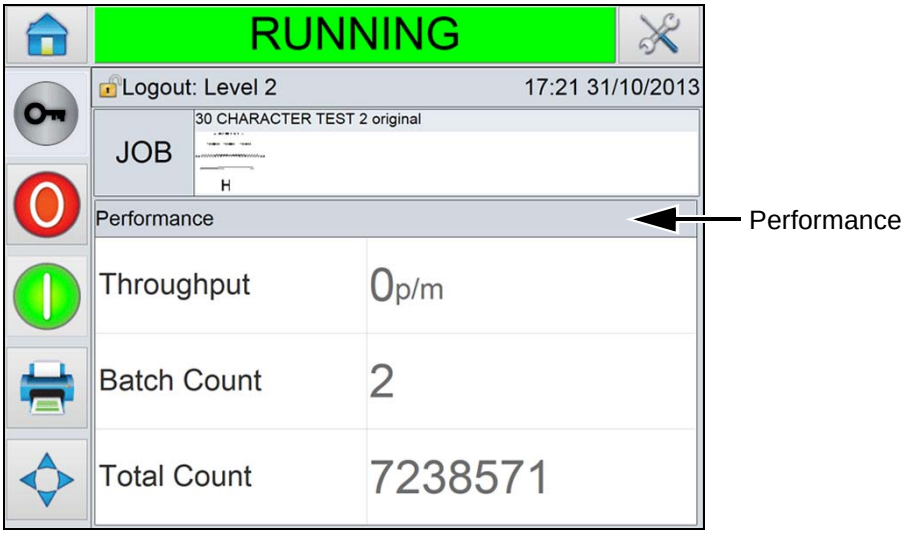


Figure 6-1: Home page

Displays the *Performance* Page. Touch *Availability* to access the availability page.

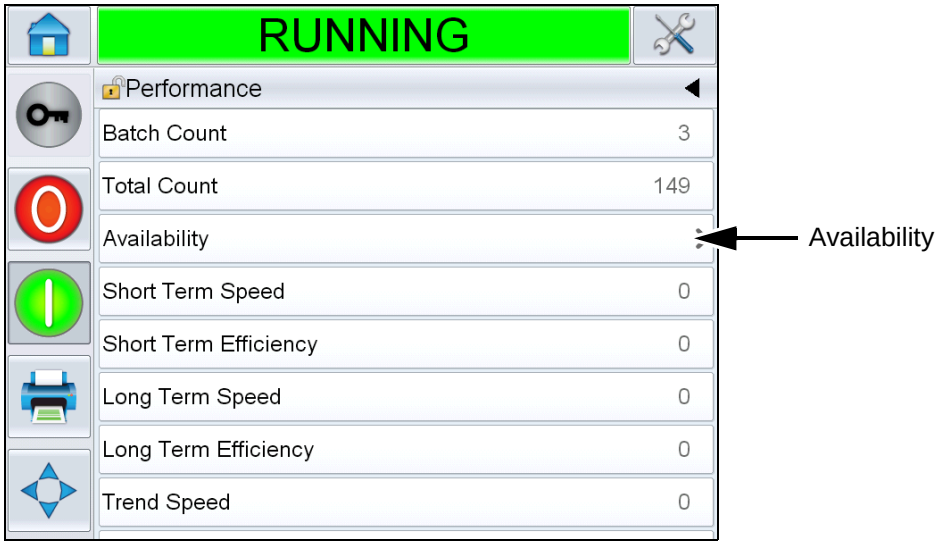


Figure 6-2: Performance

Displays the Availability page (see Figure 6-3). The user can view simultaneously the laser system availability and operational availability data against the time frame. The history of the availability data in the *Timeframe* column enables the user to correlate seasonal changes affecting availability.

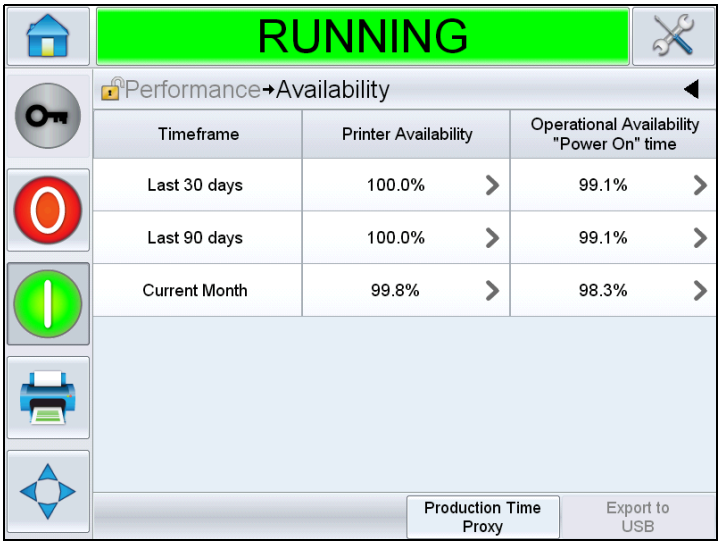


Figure 6-3: Availability

Note: *Arrows shown in the availability cells indicates the presence of data for drilling down. Select the cell to view the specific data for detailed analysis.*

Option	Description
Timeframe	Allows the user to view laser system and operational availability values for different available time frames. The history of the availability data enables the user to correlate seasonal changes affecting availability.
Laser System Availability	Shows the laser system availability data.
Operational Availability	Shows the operational availability data based on the proxy in use for the calculation, that is "Power On" time or "Running" time

Table 6-1: Availability Page options

Option	Description
Production Time Proxy	Allows laser system availability calculation to change between user selected operating modes that is either ‘running’ or ‘laser system-on’ mode.Proxy choice ensures the calculation of availability matches the operating mode of user. The operational availability column in the *Availability* page (see Figure 6-3) shows the proxy selected by the user.
Export to USB	Allows the user to export the event log to USB stick. The UI will take the user through the steps required to download to USB.
	Shows that further information is available. Touch the cell to view the *Fault Pareto* page for the selected availability data. The page displays the fault type, downtime and fault frequency (see Figure 6-4)

Table 6-1: Availability Page options (Continued)

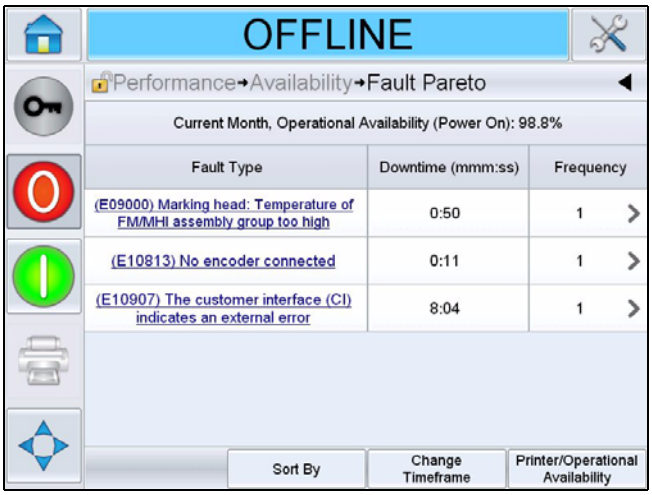


Figure 6-4: Fault Pareto for Operational Availability

Option	Description
Fault type	Description of the error code and fault. Touch the fault type to view the detailed description of the fault and possible solutions.
Downtime	The total duration of time the laser system was in this fault state.

Table 6-2: Fault Pareto

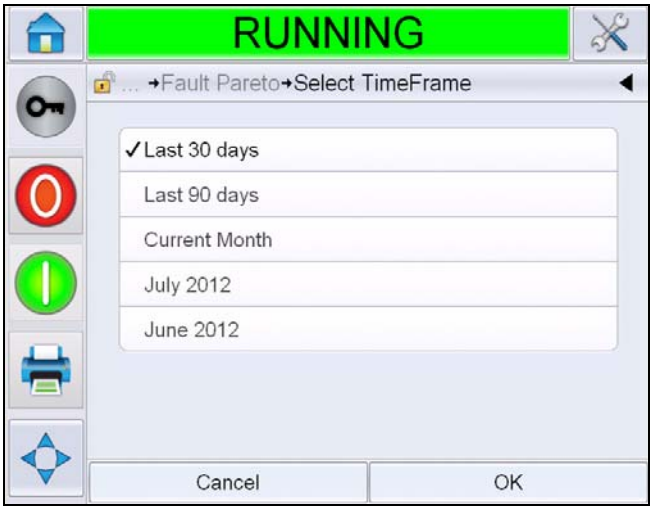
Option	Description
Frequency	The number of times the laser system had this fault in the time frame.
	
Sort By	Allows the user to sort the list based on laser system downtime or fault frequency.
	
Change Timeframe	Allows the user to view fault pareto page for different available time frames.

Table 6-2: Fault Pareto (Continued)

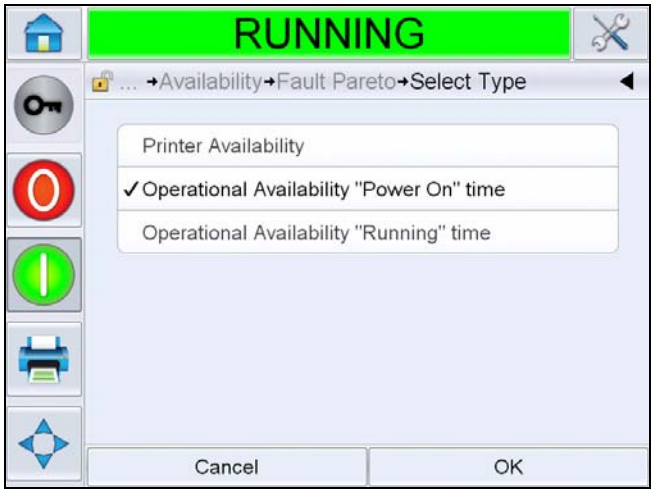
Option	Description
	
Laser system/ Operational Availability	Allows the user to toggle between laser system and operational availability fault pareto page.

Table 6-2: Fault Pareto (Continued)

Touch  to view the *Event* page (see Figure 6-5). Event page displays the date, time and duration of each occurrence of that specific fault. This page can be used to correlate the occurrence of a fault with other events in the production facility.

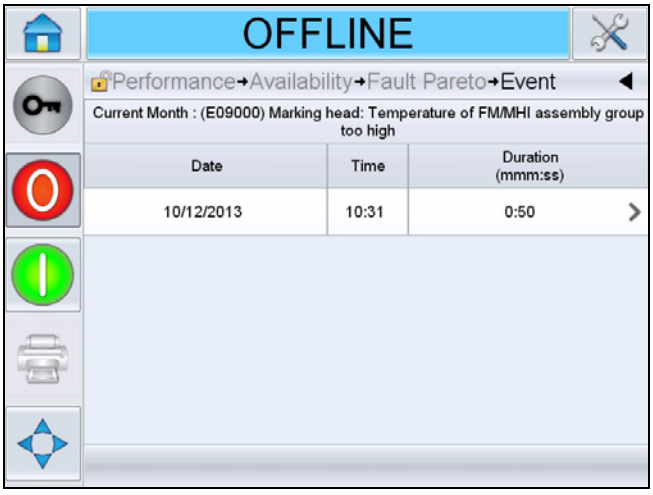


Figure 6-5: Event

Touch  to view the *Parameter* page (see Figure 6-6). Parameter page displays the detailed laser system health parameters logged when the specific fault occurred.

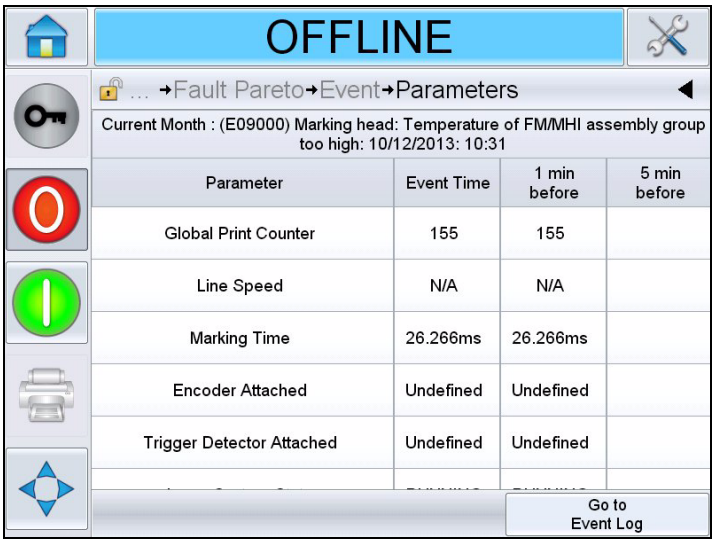


Figure 6-6: Parameter

Event Time

It is the time when the fault occurred.

Data is shown for 1 minute and 5 minutes prior to the event to illustrate data trends.

The laser system highlights the parameters which are out of range. Combining this information to all noted symptoms can expedite root cause analysis.

Touch **Go to Event Log** to view *Event log* page (see Figure 6-7 on page 6-11). You can also view this page by navigating through *Tools* > *Diagnostics* > *Printhead.*

The Event log retains all activities happening for 180 days period. It can be useful to check other laser system activities occurring at the same time as a fault to understand the fault context.

You can filter to remove status, warnings, alarms as required.

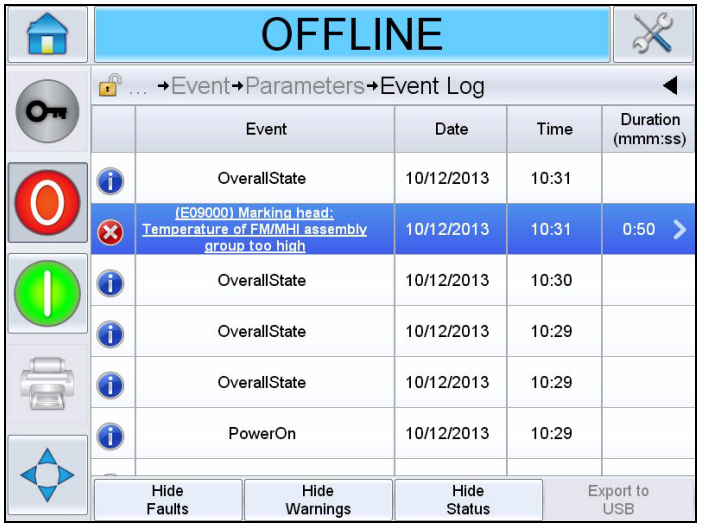


Figure 6-7: Event log

Symbol	Type
	Alarm event.
	Warning events.
	Status- a laser system event where no warnings or alarms are raised.

Table 6-3: Event Log symbols

Note: *If an event has caused downtime then the symbol*  *will be present along with the Alarm, Warning or Status symbols indicating that you can view the laser system parameters at the time of that event.*

Option	Description
Hide Alarms	Allows the user to Show/Hide any alarm events from the event log list.
Hide Warnings	Allows the user to Show/Hide any warning events from the event log list.
Hide Status	Allows the user to Show/Hide any status events from the event log list.
Export to USB	Allows the user to export the event log and associated parameter snapshots to USB stick. The UI will take the user through the steps required to download to USB.

Table 6-4: Event Log Page Option

Touch on the event message for detailed description of the fault or warning event. The user interface displays a detailed description, likely cause and resolution.

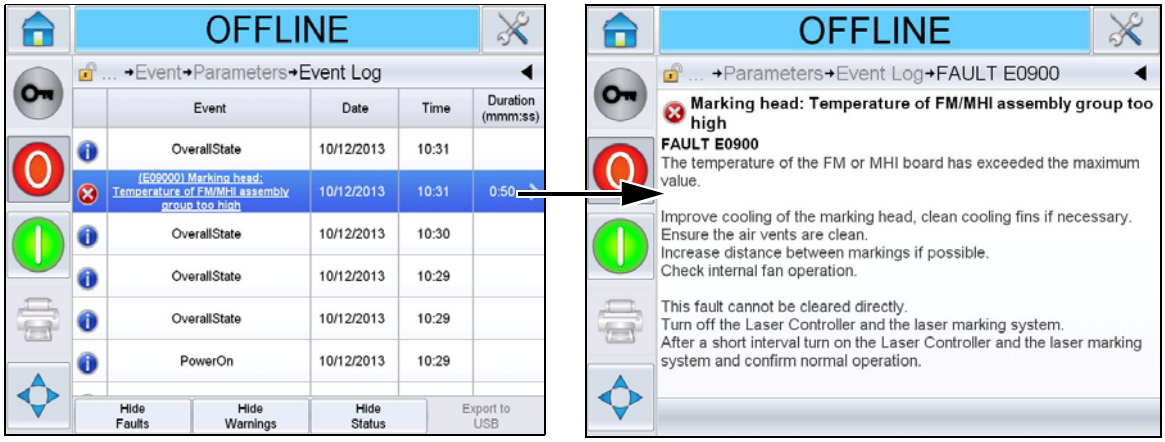


Figure 6-8: Event log diagnostics

This data can be exported to USB for further interrogation.

See “Export to USB” on page 6-13 section for information on how to export to USB stick.

Export to USB

The following information can be exported to an external USB stick in a .csv format:

- Availability Metrics
- Event Log

Do the following tasks to export the data to the USB stick:

1 Insert USB stick to the external USB connector.

Note: *'Export To USB' button is activated only when a USB stick is inserted.*

Note: *Ensure that the USB stick does not have any previous exported data as you will be asked to overwrite the files (see Figure 6-9).*

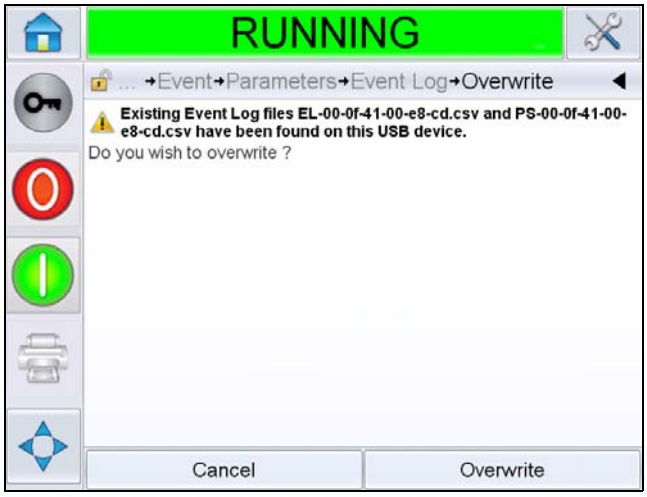


Figure 6-9: Overwrite Files

2 Export to USB.

To export Availability Metrics

a. From Home page, navigate to *Performance* > *Availability* (see Figure 6-3 on page 6-6).

b. Select *Export to USB*.

c. Confirmation page will be displayed (see Figure 6-10).

Figure 6-10: Export Availability Metrics Confirmation

d. Select *OK*.

e. On completion, success page will be displayed.

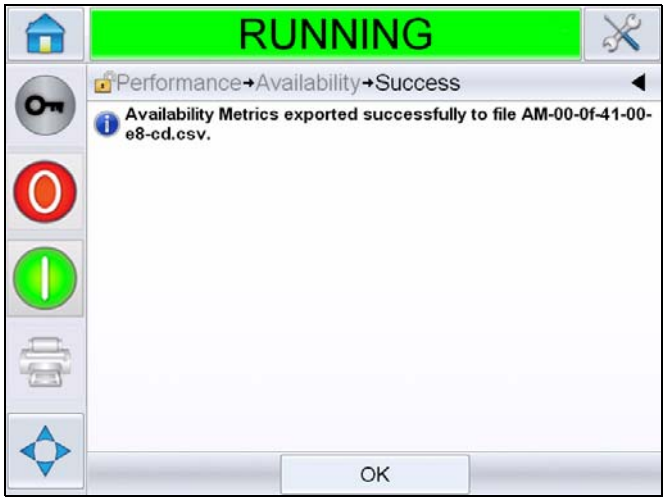


Figure 6-11: Export Success

f. Select *OK* and remove the USB stick.

To export Event Log

a. Navigate to *Tools* > *Diagnostics* > *Printhead* > *Event Log* (see Figure 6-7 on page 6-11).

b. Select *Export to USB*.

c. Confirmation page will be displayed (see Figure 6-12).

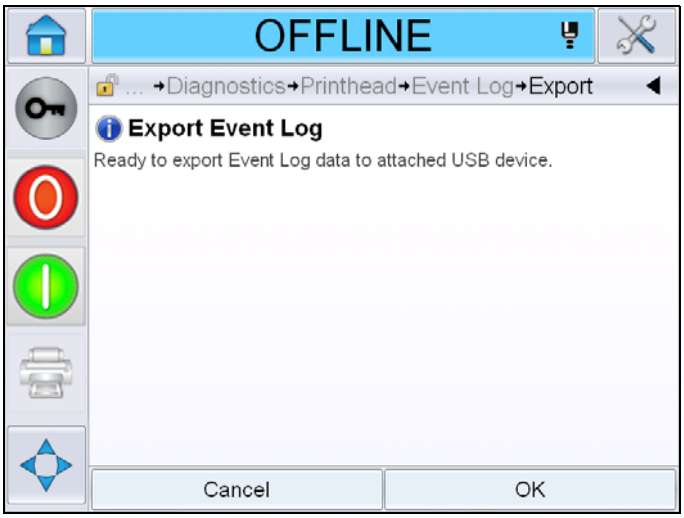


Figure 6-12: Export Event Log Confirmation

d. Select *OK*.

e. On completion, success page will be displayed.

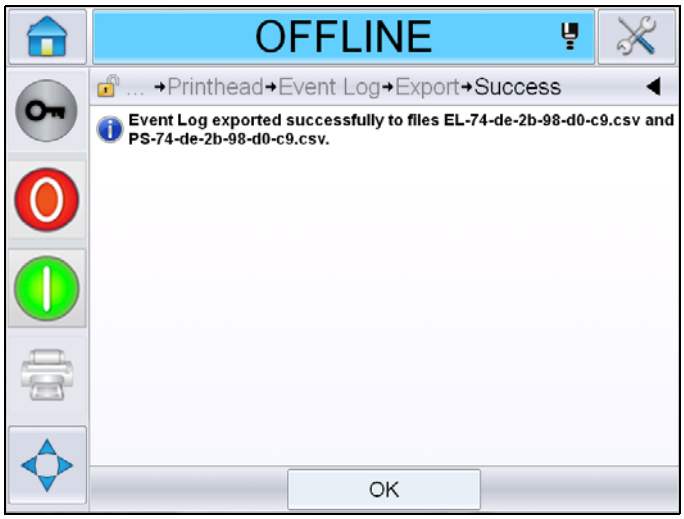


Figure 6-13: Export Success

f. Select *OK* and remove the USB stick.

3 The files can be exported into Microsoft EXCEL, or other spreadsheet tools and can be used to create graphs and logs for use in monitoring the laser performance (see Figure 6-14).

Event Id	Date	Time	Event Type	Event	Duration (minutes)
136	10/12/2013	10:52:00	INFO	OverallState	
106	10/12/2013	10:34:37	INFO	OverallState	
105	10/12/2013	10:34:37	INFO	OverallState	
104	10/12/2013	10:34:04	FAULT	(E10813) No encoder connected	0.18
103	10/12/2013	10:31:25	INFO	OverallState	
102	10/12/2013	10:31:24	FAULT	(E09000) Marking head: Temperature of FM/MHI assembly group too high	0.83
101	10/12/2013	10:30:01	INFO	OverallState	
100	10/12/2013	10:29:56	INFO	OverallState	
99	10/12/2013	10:29:51	INFO	OverallState	
98	10/12/2013	10:29:38	INFO	PowerOn	

Figure 6-14: Exported Data in Microsoft EXCEL

Availability Fault Table

This table lists the faults that affect laser and operational downtime. For detail information on Error and how to clear the error, refer Table 8-4 on page 8-6.

Fault Code	Description of Fault	Laser System Down-time (faults impacting the laser availability)	Operational Downtime (faults impacting the operational availability)
E00100	Critical error SP	Yes	Yes
E00101	Stack error SP	Yes	Yes
E00102	SP received unknown command from AOS	Yes	Yes
E00103	Timing error SP	Yes	Yes
E00104	AOS data transfer delayed	Yes	Yes
E00105	Marking aborted, product movement too fast	No	Yes
E00200	Laser not ready	Yes	Yes
E00201	Laser supply: voltage too high or too low	Yes	Yes
E00202	Laser overtemperature	Yes	Yes
E00203	Unknown laser beam source	Yes	Yes
E00204	General error	Yes	Yes

Table 6-5: Fault Table

Fault Code	Description of Fault	Laser System Down-time (faults impacting the laser availability)	Operational Downtime (faults impacting the operational availability)
E00205	Internal cooling circuit: Flow too low	No	Yes
E00206	RF circuit: VSWR fault	Yes	Yes
E00207	RF circuit: Overmodulation	Yes	Yes
E00208	RF circuit: Incorrect RF PSU power	Yes	Yes
E00209	Back reflection	Yes	Yes
E00210	Red laser emission LED defective - Hardware error	Yes	Yes
E00211	Defective element in laser supply circuit	Yes	Yes
E00212	Wrong LIC detected	Yes	Yes
E00213	Wrong HIC detected	Yes	Yes
E09000	Marking head: Temperature of FM/MHI assembly group too high	No	Yes
E09001	Marking head: Supply voltage too low	Yes	Yes
E09002	Marking head: Overpositioning of X mirror	Yes	Yes
E09003	Marking head: Overpositioning of Y mirror	Yes	Yes
E09004	Marking head: Overcurrent X mirror	Yes	Yes
E09005	Marking head: Overcurrent Y mirror	Yes	Yes
E09006	Marking head: No X mirror connected	Yes	Yes
E09007	Marking head: No Y mirror connected	Yes	Yes
E09012	Communication error ACC -> FM/MHI: Gaps in the data flow	Yes	Yes
E09021	Internal error: Cannot set control mode of the FM/MHI	Yes	Yes

Table 6-5: Fault Table (Continued)

Fault Code	Description of Fault	Laser System Down-time (faults impacting the laser availability)	Operational Downtime (faults impacting the operational availability)
E09022	Internal error: Cannot set configuration mode of the FM/ MHI	Yes	Yes
E09023	Internal error: Cannot set download mode of the FM/ MHI	Yes	Yes
E09100	No communication with mark-ing head	Yes	Yes
E09101	Internal error: Error status of the FM/MHI cannot be reset	Yes	Yes
E09102	Interrupted communication with marking head	Yes	Yes
E09103	Internal error: FM/MHI not in configuration mode, cannot executed command	Yes	Yes
E09104	No data received from the marking head	Yes	Yes
E10001	No data can be read from the system database	Yes	Yes
E10002	Backup of system database was loaded!	Yes	Yes
E10003	Cannot write (all) to the backup of the system data-base	No	Yes
E10004	Cannot write to system data-base	Yes	Yes
E10005	Cannot read backup of the system database	Yes	Yes
E10006	Overflow of system database	No	Yes
E10007	QMark update failed. Please try the update again	Yes	Yes
E10008	A change requires rebooting the laser	Yes	Yes
E10101	Version conflict (command not executed)	Yes	Yes
E10102	Unknown command	Yes	Yes

Table 6-5: Fault Table (Continued)

Fault Code	Description of Fault	Laser System Down-time (faults impacting the laser availability)	Operational Downtime (faults impacting the operational availability)
E10103	Key not found in system database	Yes	Yes
E10104	Database write error	Yes	Yes
E10105	Database read error	Yes	Yes
E10106	Template contains no data	No	Yes
E10107	Template does not exist	No	Yes
E10108	No variables in template	No	Yes
E10109	Format is invalid	No	Yes
E10111	Errors while saving	Yes	Yes
E10113	This database entry cannot be deleted since other entries depend on it	No	Yes
E10114	The transmitted object cannot be saved to the database. Please check whether your system supports the object	No	Yes
E10115	Too many variables are used in the templates. Please delete all templates you do not need	No	Yes
E10116	Error while reading directory	Yes	Yes
E10300	Data for initialization cannot be read completely from the database	Yes	Yes
E10302	Shutter does not stay open	Yes	Yes
E10303	Shutter does not stay closed	Yes	Yes
E10401	Template invalid	Yes	Yes
E10404	External text: Value can be marked only once	No	Yes
E10407	The beam shutter does not open	Yes	Yes
E10408	The beam shutter does not close	Yes	Yes
E10409	System error during preparation of marking	Yes	Yes

Table 6-5: Fault Table (Continued)

Fault Code	Description of Fault	Laser System Down-time (faults impacting the laser availability)	Operational Downtime (faults impacting the operational availability)
E10500	Cannot load database	Yes	Yes
E10501	Backup database has been loaded	Yes	Yes
E10507	Error while reading the objective file	Yes	Yes
E10508	Error while reading the laser file	Yes	Yes
E10509	Error while reading the head file	Yes	Yes
E10510	No FPGA image file available!	Yes	Yes
E10511	No SP program available!	Yes	Yes
E10512	AllprintBasic: Protocol configuration error	No	Yes
E10513	AllprintBasic: Configuration error of the serial interface	No	Yes
E10514	FM/MHI download error	Yes	Yes
E10515	FM/MHI download: File is missing	Yes	Yes
E10516	The marking head is not connected	Yes	Yes
E10518	The parameter set does not correspond to the laser type. Please replace this entry in the database	No	Yes
E10519	Please select a lens corresponding to the marking head	Yes	Yes
E10520	A marking head has been identified which is not admitted for this laser type	No	Yes
E10550	AllprintBasic: Syntax error	No	Yes
E10551	The template does not contain the requested variable	No	Yes
E10553	Illegal command in AllprintBasic command string	No	Yes

Table 6-5: Fault Table (Continued)

Fault Code	Description of Fault	Laser System Down-time (faults impacting the laser availability)	Operational Downtime (faults impacting the operational availability)
E10554	The AllprintBasic command "Error" has been executed	No	Yes
E10601	No template list selected	No	Yes
E10602	The chosen template number cannot be assigned to any template	No	Yes
E10701	Out of memory. Cannot create database object	Yes	Yes
E10702	Format error while creating a database object	Yes	Yes
E10800	DSP does not send telegrams	Yes	Yes
E10811	DSP buffer overflow	Yes	Yes
E10813	No encoder connected	No	Yes
E10814	No trigger detector connected	No	Yes
E10900	General CAN bus error	No	Yes
E10901	A CAN node has carried out an inadmissible reset	Yes	Yes
E10902	Lost connection to a CAN node	Yes	Yes
E10903	A CAN node cannot be initialized	Yes	Yes
E10906	The customer interface (CI) indicates an error of the external exhaust	No	Yes
E10907	The customer interface (CI) indicates an external error	No	Yes
E10909	A CAN node has carried out an inadmissible state change	Yes	Yes
E10913	File is missing	No	Yes
E10914	Faulty transmission to a node	No	Yes
E10915	A CAN node does not react after download or software reset	Yes	Yes
E10916	Faulty download to node	Yes	Yes

Table 6-5: Fault Table (Continued)

Fault Code	Description of Fault	Laser System Down-time (faults impacting the laser availability)	Operational Downtime (faults impacting the operational availability)
E10917	A CAN node signals unsuit-able software	Yes	Yes
E10918	A problem with the RF driver file occurred	Yes	Yes
E10919	A driver error prevents triggers being transmitted from the CAN bus	Yes	Yes
E10920	A driver error prevents control of the red emission LED	Yes	Yes
E10921	Less than two CI input bus terminals connected	Yes	Yes
E10922	Less than two CI output bus terminals connected	Yes	Yes
E10923	Ext. template selection requires at least 4 CI input bus terminals	No	Yes
E10926	Entry is missing in the database	Yes	Yes
E10929	CAN bus error	Yes	Yes
E19201	Template does not exist	No	Yes
E19202	Faulty template	Yes	Yes
E19203	Parameter set does not exist	Yes	Yes
E19204	Product registration does not exist	Yes	Yes
E19205	At least one index level does not exist in the parameter set	Yes	Yes
E19210	The direct marking cannot be carried out	No	Yes
E19301	The template sequence does not contain any template	No	Yes
E19302	The template in the template sequence does not exist	No	Yes
E19303	The heads of templates of a template sequence must be identical	No	Yes

Table 6-5: Fault Table (Continued)

Fault Code	Description of Fault	Laser System Down-time (faults impacting the laser availability)	Operational Downtime (faults impacting the operational availability)
E19304	The product registrations of templates of a template sequence must be identical	No	Yes
E19305	Product registration does not exist	No	Yes
E19306	Defective template in the template sequence	Yes	Yes
E19307	The circuit for external laser enable has been opened	No	Yes
E19308	Cannot select beam source	Yes	Yes
E19309	The clock had to be restarted. Please set the time!	Yes	Yes
E19311	Fiber Laser Extension Board has not been detected	Yes	Yes
E19312	Fiber Laser Overtemperature	Yes	Yes
E19313	The laser stop switch has been pressed	No	Yes
E19314	SL501 Laser Extension Board cannot be identified	Yes	Yes
E19413	The interlock circuit has been opened	No	Yes
E19502	Suction control error	Yes	Yes
E19504	The filter is full	No	Yes
E19509	Safety connector has a signal on unused line	No	Yes
E26100	LHC has unexpected internal errors	Yes	Yes
E29009	Beam shutter error	Yes	Yes
E33301	Power supply: Inadmissible terminal voltage	Yes	Yes
E34200	Power supply: Overtemperature	Yes	Yes
E34201	Internal cooling circuit: Temperature above/below limit value	Yes	Yes
E34203	RF driver: Temperature error	Yes	Yes

Table 6-5: Fault Table (Continued)

Fault Code	Description of Fault	Laser System Down-time (faults impacting the laser availability)	Operational Downtime (faults impacting the operational availability)
E39009	RF driver: VSWR error	Yes	Yes
E39012	Power supply: General error	Yes	Yes

Table 6-5: Fault Table (Continued)

User Editable Fields

Some jobs contain user editable fields. These fields are part of the job that can be changed. There are three types of user editable fields:

- Variable TEXT fields.
  For example, they are used for batch codes, product names, and other text jobs.
- Variable DATE fields.
  For example, they are used for sell by dates.
- Variable COUNTER fields.
  Allows you to modify the starting value for a counter.

If the selected job has a user editable field, the interface prompts the user to review this field and edit if required.

Note: *Each field has a check box. The check box is unchecked initially. As you enter the data and touch OK, the user interface automatically checks the box. You can proceed to the next step only when all the boxes are checked.*

How to Change the Text and Date Fields

To edit the user field, proceed as follows:

1. When a job is selected, the list of user editable fields in the job are displayed.

2 Touch the required field from the list to select it (the first one in the list is automatically selected). The default data for that field appears in the preview window (Figure 6-15).

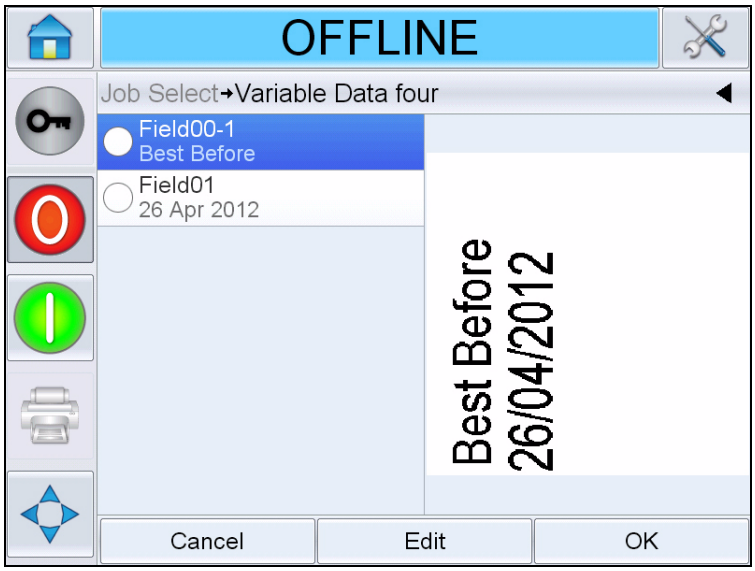


Figure 6-15: Default Data Window

3 If the information in the preview window is the information that you want to print, go to step 5. If you want to change the information, perform step 4.

4 Touch *Edit* to modify the information.

For text fields, do the following tasks:

a. Use the alpha key pad to enter the data.

The CLARiTY Operating system supports a number of standard languages for use with 'User Entered' text information.

b. Touch the 'Language Selection Key', to access the available language selections (see Figure 6-16).

Figure 6-16: Default Keypad

c. The keypad functions the same way as the keypad on a computer. Make necessary changes to the information.

For date fields, do the following tasks:

d. Touch the data window to display the Calendar page (see Figure 6-17).

Figure 6-17: Calendar Page

e. Touch the + or - button to change the month and year.

f. Touch the date on the calendar to choose the date of the month, and touch *OK*.

Note: *Any dates that are not available for selection because of pre-defined rules that may have been set in CLARiSOFT are dimmed.*

5 Touch *OK* when you are satisfied that the information in the data window is correct. The user interface checks the check box. If there are only two user editable fields in the job, the user interface automatically displays the second field. If there are three or more fields, it displays the list of user editable fields, so that you can select one.

When you touch *OK* at the final field for this job (and all the check boxes are checked) the user interface shows you the preview of the image.

6 At the preview, perform one of the following:

- If you are satisfied with the image and you want to run the new job, touch *OK*. Products will be printed with the new image until you make further changes or select a new job.
- If you are not ready to print the job, you can leave this screen as it is. You can touch *OK* at a later stage, to select the job at that time.

- If you want to step back through the job select screens to make alterations to the variable data, touch *Cancel*.
- To cancel the job selection altogether, touch *Home*  button.

Touch To Edit

To update and change user fields quickly and easily in a printing job, the user can use the '*Touch To Edit*' feature.

Note: *Touch to Edit feature is turned off by default and needs to be activated in Clarity Configuration Manager.*

1 Select the '*Current Job Details Bar*' to display the job preview.

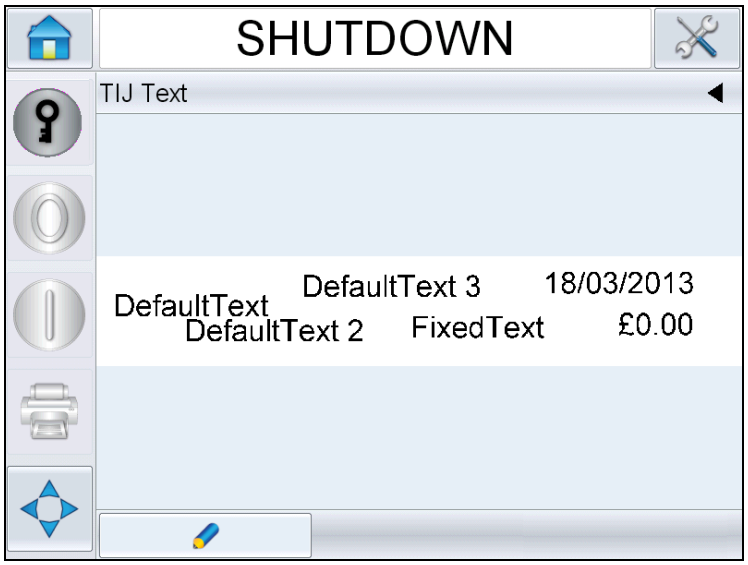


Figure 6-18: Message preview- Touch to edit

2 Touch the  button.

3 The job opens, with the user editable fields highlighted.

Note: *Only jobs that have user editable fields can be edited using Touch to Edit feature. These are set up in CLARiSOFT during message creation.*

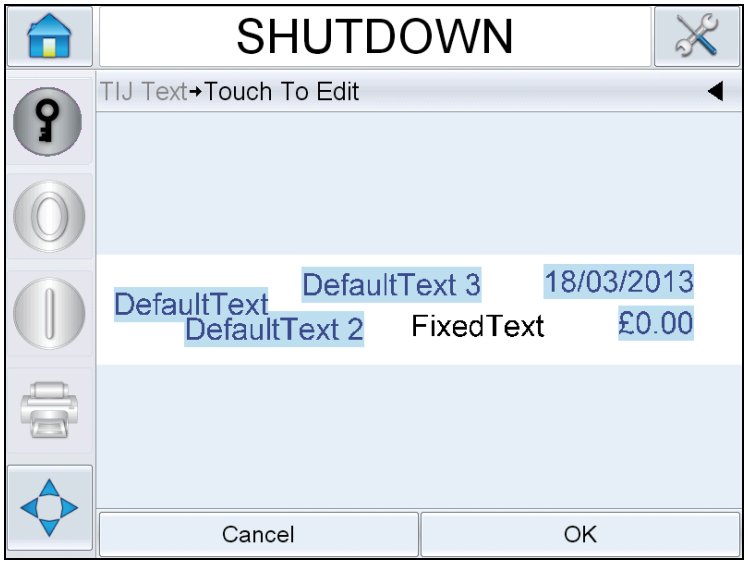


Figure 6-19: User Editable Fields Highlighted

4 To edit a user field, touch the user field.

5 The appropriate user field editor, based on the user field type, is displayed for the update.Update the user field as required and touch *OK*.

Figure 6-20: User Field Editor

6 If there are additional user fields, repeat step 4 and step 5 for each field.

7 Touch *OK* after editing all the required user fields. The job will be updated in the printer and displayed in the 'current job details bar' following the next print.

Production Audit Log

The production audit log shows the log of machine changes and user changes made.

Note: *Production Audit Log is turned off by default and needs to be activated in Clarity Configuration Manager. The logging mode can be set to "None", "Normal" or "Advanced".*

In Normal logging mode, the log entries are deleted if there are over 500 log entries and older than 90 days.

In Advanced logging mode, entries must be archived to a USB stick before logs will be deleted.

Figure 6-21 shows the audit log for both machine events and user events. The user can also filter results to show either user events only or machine events only (see Table 6-6).

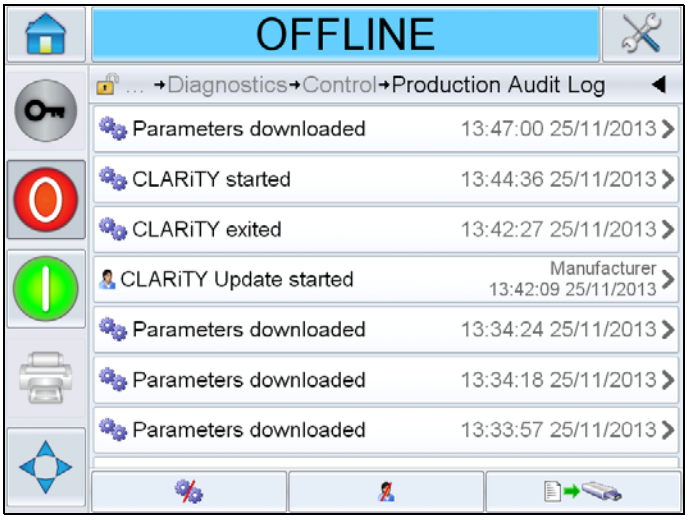


Figure 6-21: Production Audit Log

Button	Function
	Lists both machine and user events
	Lists only user events
	Lists only machine events

Table 6-6: Buttons to Filter the Log

The following machine events are logged.

- CLARiTY Started – [software version, PCB serial number]
- CLARiTY Exit
- Power Failure detected
- Fault/Warning raised – [Fault Name]
- Fault/Warning cleared – [Fault Name]
- Parameters download (CCFG)

The following user events are logged. Each user event is also labelled with name of the user performing the change when advanced passwords are turned on.

- Parameter change – [Param Name, old and new value]
- CLARITY Clone restored - [File name]
- CLARITY Archive restored - [File name]
- CLARiTY Update started – [update name]

Touch on any event log to view the details of the log (see Figure 6-22).

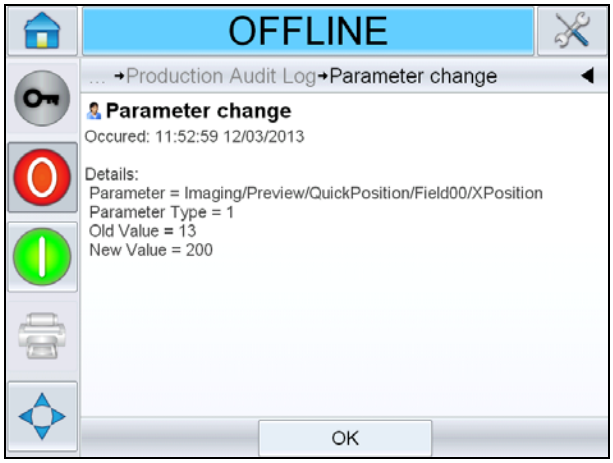


Figure 6-22: Parameter Change

How to Update Controller Software

You can update the controller software by following methods:

- USB key
- CLARiTY Configuration Manager

Updating by USB Key

1. Copy the CAB file into the *clarityupdate* folder on the root of a USB drive.
2. Plug the USB drive into the coder.
3. Follow the on-screen instructions.

*Note: If the instructions does not appear automatically after 15 seconds, navigate to **Tools > Setup > Control > CLARiTYupdate** and select the desired software update.*

Updating by CLARiTY Configuration Manager

1 Start the CLARiTY Configuration Utility. Connect it to the controller.

Note: Ensure that the CLARiTY Configuration Utility has a valid connection to the printer. This can be observed by the printer icon turning green and the Active Connection message being displayed in the status pane.

2 Right click on the name of the coder to be updated and select *CLARiTYupdate* option.

3 Locate the file with the same name as the part number above. CLARiTY update starts automatically.

4 On completion, navigate to *Tools* > *Diagnostics* > *Control* > *Versions* and ensure that all of the software versions match with those listed below.

Note: Use of a serial link for the CLARiTY update is not recommended due to the size of update and the resulting transmission time.

How to Set the Screen Orientation

Depending on the position in which the CLARiTY controller is mounted, it may be necessary to rotate the screen image by 180 degrees.

To change the screen orientation, proceed as follows:

1 Navigate to *Tools* > *Setup* > *Control*. *Control* page appears (see Figure 6-23).

Figure 6-23: Control Page

2 Touch *Set Screen Orientation* from the list. *Set Screen Orientation* page appears (see Figure 6-24).

Figure 6-24: Set Screen Orientation

3 Select 0 or 180 degrees depending on your requirement and select *OK*. The screen orientation changes.

Touch the *Home* icon to return to the home page.

How to Create a Job

Note: *Jobs are created offline on a PC using CLARiSOFT software, and are then downloaded to the printer. For more information, refer to CLARiSOFT manual.*

Jobs can be converted from Laser XML format to CIFF format using the CIFF convertor tool. Refer to CIFF convertor instructions (P/N: 462487).

CLARiTY Power Saving

This section describes the behavior of the controller in the various power saving states. It is possible to set the power saving mode of the controller. There are four modes:

- None
- Minimal
- High
- Full

The default power saving mode is set to Full.

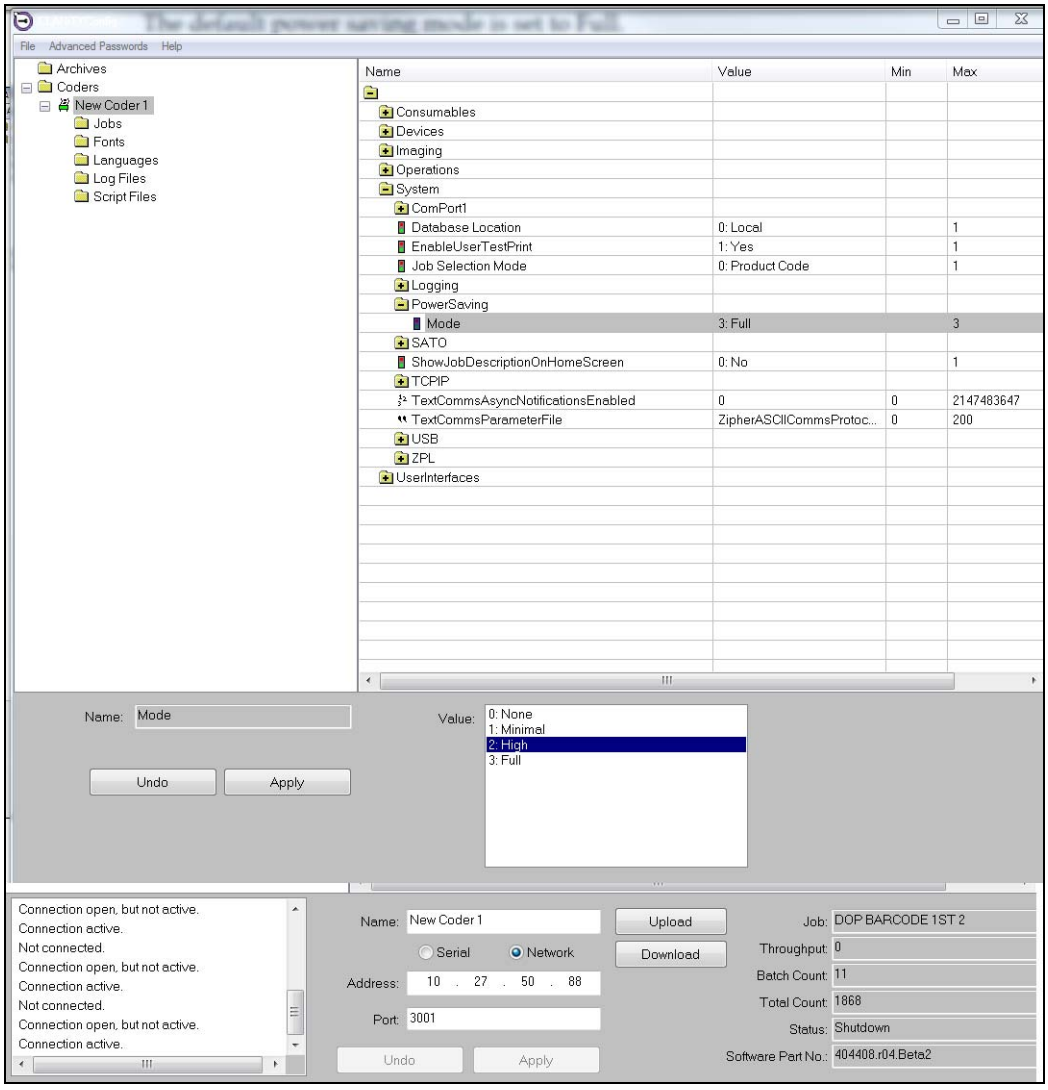


Figure 6-25: Power Saving Modes

Power Saving Mode = 0: None

User interface will not dim when power is applied.

Power Saving Mode = 1: Minimal

User interface will dim after 1 minute of inactivity.

Activity:

- User touching the screen
- USB keyboard input
- Raising of an warning (e.g. the moment the printer transitions from No Error into Warning)
- Presence of an error

Power Saving Mode = 2: High

User interface dims after 1 minute of inactivity.

User interface turns off after a further 14 minutes of inactivity.

Activity:

- User touching the screen
- USB keyboard input
- Printing
- Raising of a warning (e.g. the moment the printer transitions from No Error into Warning)
- Presence of an error

Power Saving Mode = 3: Full

- User interface dims after 1 minute of inactivity.
- User interface turns off after a further 14 minutes of inactivity.

Activity:

- User touching the screen
- USB keyboard input
- Raising of a warning (e.g. the moment the printer transitions from No Error into Warning)
- Presence of an error

Note: *When an error is present the screen will be at full brightness.*

Note: *When a warning occurs the printer treats it as an activity event and will dim and switch off after 15 minutes, if the warning is ignored.*

Note: *In High power saving mode, printing is treated as an activity event.*

Maintenance

7

This chapter contains the following topics:

- Replacement instructions
- Information on care
- Maintaining the power supply
- Maintaining the controller and laser system

Warning

PERSONAL INJURY. Before attempting any maintenance or repair on laser system and its environment, the laser system must be disconnected from the power supply.

Replacement Instructions

When you order a spare part kit, the replacement instructions of the respective spare part are provided along with the kit. For more information, contact Videojet Technologies Inc. Refer to Chapter , “Support and Training” for the contact information.

The replacement instructions are available for the parts included in the following table.

Spare Part
Liquid Crystal Display (LCD) (Touch Screen)
Printed Circuit Board (PCB)
Controller Spares
Main Switch Assembly
Power Supply Unit

Table 7-1: Available Instructions

Information on Care

- If the display is soiled, it can be cleaned using a commercially available screen cleaning wipe.
- Ensure any moisture is removed immediately to avoid staining or damage to the touch screen.

Maintaining the Power Supply

This section contains the information on how to replace the fuse.

Replacing the Mains Fuse

The fuses are the only user-serviceable parts in the power supply unit.

To replace the mains fuse, proceed as follows:

1. Carefully remove the fuse holder (see Figure 7-1).

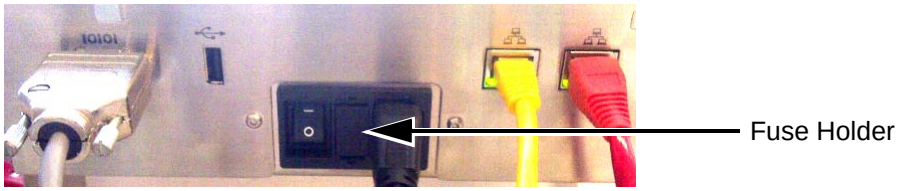


Figure 7-1: Fuse Holder removal

2. Replace the 5 A fuse if it is defective.
3. Refit the fuse holder in its original position.

Maintaining the Controller

Inspection Check point	Frequency	Measures
Controller		
Check if the touch screen is clean	As Required	Clean the touch screen by wiping with a dry soft cloth or cotton pad.
Check if the surface is clean	As Required	Clean the surface by wiping with a dry soft cloth or cotton pad.

Table 7-2: Laser System Maintenance Schedule

Note: *Refer to laser manuals for information on maintenance of lasers.*

For information on maintenance of the laser system, refer to Laser System Manual.

Troubleshooting

8

This chapter contains the following topics:

- Fault messages and warnings
- Controller fault
- Marking faults
- Additional faults
- CLARiTY error messages and warnings
- Diagnostics

Fault Messages and Warnings

If the user interface displays a fault or warning, perform the following:

- Read the fault or warning message.
- Perform the task as per the message.
- Clear the message from the display (sometimes the message clears automatically when the fault is corrected, and sometimes you have to clear it by touching the Clear button).

Reading a Fault Message or Warning

When a fault or warning occurs, CLARiTY displays the fault message in the status window at the top of all pages.

When a fault occurs, the laser system's fault output relay will open. If this relay is wired into the packaging machine's stop circuit, it can be used to ensure that the packaging machine is stopped in the event of an error. This prevents the uncoded product from being produced when the laser system has a fault.

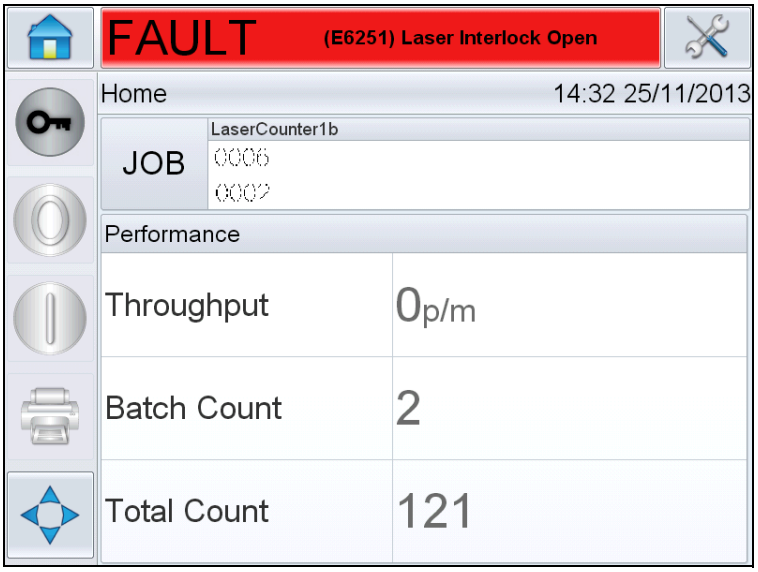


Figure 8-1: Fault Display

Several faults and warnings may occur at the same time. Faults will always be displayed first.

To view the faults/warnings in more detail and to view instructions on what to do about them, touch the red or yellow area in the status window at the top of the CLARiTY display.

Clearing a Fault Message or Warning

The instructions in this section provides information on how to clear a fault message. A similar procedure is used to clear warnings.

To view the details of the fault list, proceed as follows:

1 Touch the red FAULT message on the status bar to view the list of faults (see Figure 8-2).

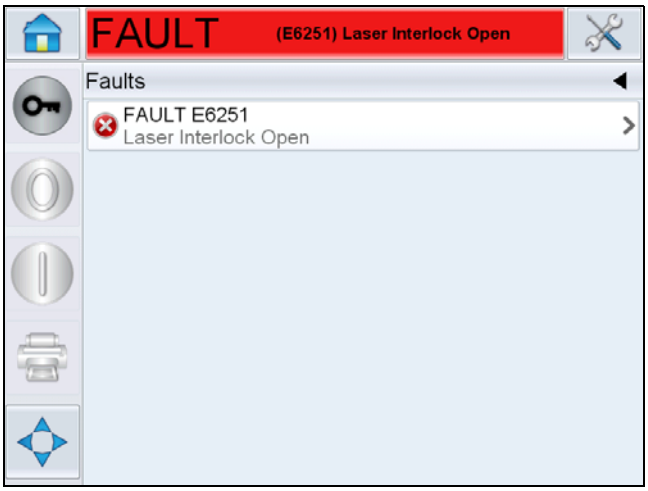


Figure 8-2: Fault Selection

2 Touch the fault name in the list.

3 The details of the fault is displayed. Follow the on screen instruction for correcting the fault.

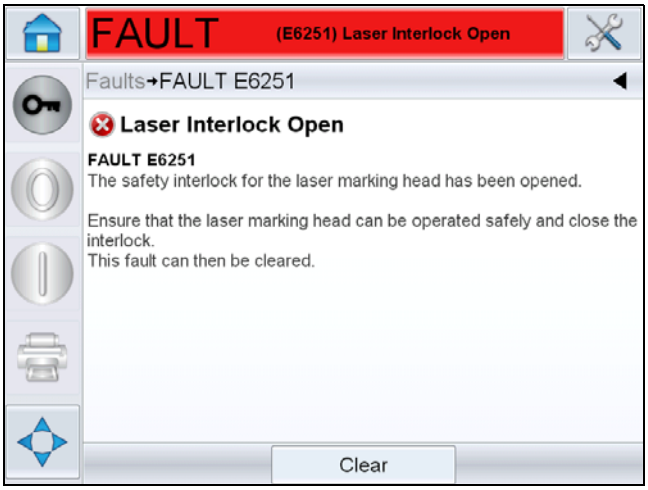


Figure 8-3: Fault Details Display

4 When you have corrected the fault, the Clear button is activated. Press *Clear* to remove the fault message.

Controller Fault

Fault	Cause	Solution
CLARiTY controller is switched OFF.	Cable not properly connected to the printer and controller.	Check and correct.
	Incorrect cable between the printer and controller.	Check and correct.
	Faulty controller unit.	Check unit and replace the components as required.

Table 8-1: Controller Fault

Marking Faults

Fault	Cause	Solution
The job is not marked.	The job is empty, i.e. there are no markable objects (such as text, time, date, counter or barcode fields) in the job.	Open, load and start a job with mark data in it.
	The job was not loaded to the print memory.	The job must be loaded to the print memory before marking.
	The status of the laser system is not on ‘Running’.	In order to start marking the START key has to be pressed.
	A shaft encoder is being used but is not activated in the system settings.	Activate the shaft encoder in the system settings.
	A shaft encoder is being used but it is activated in the system settings of the shaft encoder.	Deactivate the shaft encoder in the system settings and set the constant marking speed.
Changes made to the job are not marked.	The changes were not loaded to the print memory.	Reselect the job using the menu from the Home screen.
The job orientation is incorrect	The orientation setting has been incorrectly set.	Check the Job Orientation settings and correct.
The mark position is incorrect	Laser Position setting is incorrect.	Check the Laser Position setting and correct.

Table 8-2: Marking Faults

Note: *For information on laser system faults, refer Laser System Manual.*

Additional Faults

Fault	Cause	Solution
The job cannot be opened.	The job is not compatible with this Firmware version.	The job must be newly created for this Firmware version.
After a certain number of marks the user interface automatically switches to OFFLINE.	A counter field is marked in which the counter end value is predefined and the user interface switches to OFFLINE mode when this value is reached.	Change the specifications for the job.
	A limited mark run has been specified in the job settings	Change the specifications for the job.
Invalid Line	The line selection inputs have requested a line that is not configured.	1. Use CLARiTY Configuration Manager to check that the correct number of lines have been setup for this system. 2. Check if the line selection inputs are connected properly. 3. Touch the Clear button to clear this warning message.
No Line Selected	A mark signal has been received for a product without any line selection.	1. Check if the line selection system is functioning correctly. 2. Touch the Clear button to clear this fault message.
Printhead Absent	No communication between laser system and CLARiTY configuration manager	1. Check cable connections. 2. Restart laser system and controller. 3. Check IP address (Navigate to *Tools* > *Diagnostics* > *Control* > *Communications* > *TCP/IP*). If IP address is not at default 192.168.1.1 or as required, navigate to *Tools* > *Setup* > *Control* > *Communications* > *IPreset* and follow the instructions to reset the IP address to default.
Job Download Failure		Refer to CLARiSOFT manual and update/correct issues. Touch the Clear button to clear this fault message.

Table 8-3: Additional Faults

CLARiTY Error Messages and Warnings

Error No.	Report on CLARiTY Operator Interface
E1000	‘Job Update Failure’ - The printer was unable to update the current Job before the next print was required. This usually occurs because products are too close together. Press the ‘Clear’ button to enable printing to be restarted.
E1001	‘Count Limit Reached’ - One or more of the counters in the image has reached the end value set in the image design. Please select a new Job and press the 'Clear' button to enable printing to be restarted.
E1002	‘Operation Aborted’ - The operation of the printer was intentionally aborted by a host control system. When ready to do so, the host control system will clear this abort condition, and then this fault message will automatically clear and the printer will resume operation.
E1003	‘Realtime Clock Fault’ - There is a problem with the Real time Clock which is required for the system to operate correctly.
E1004	‘Backup battery is flat’ - The battery which powers the printer's clock is flat. This means that the date and time, the currently selected Job and some performance data will be lost when the printer is switched off.
E1005	‘Print Limit Exceeded’ - The current Job was selected with a print limit (i.e. a limit on the number of times the Job can be printed). This limit has been reached but the printer has received a further print signal that would have exceeded the limit. This error will become clearable after selecting a new job. Alternatively, a Job selection command or variable data update from an external source will also make this error clearable.
E1006	‘Image Update Failure’ - CLARiTY was unable to update the image that will be printed next. This usually occurs because products are too close together. Press the ‘Clear’ button to enable printing to be restarted.
E1007	‘Image Update Failure’ - CLARiTY was unable to update the image that will be printed next. This usually occurs because products are too close together. Press the ‘Clear’ button to enable printing to be restarted.
E1008	‘Power Failure Detected’ - A serious drop in the mains power has been detected. In order to protect the printer from damage, the high voltage circuits have been switched off. You must now repower the printer in order to resume printing. If the problem persists, contact your maintenance engineer or local service representative.
E1009	‘Corrupt MAC Address’ - The MAC address of this printer is corrupt and the printer cannot function without a valid MAC address. Contact your maintenance engineer or local service representative who will be able to correct this problem.

Table 8-4: Error Messages and Warnings

Error No.	Report on CLARiTY Operator Interface
E1010	'Invalid Line' - The line selection inputs have requested a line that is not configured. Use CLARiTY Configuration Manager to check that the correct number of lines have been setup for this system. Also check that the line selection inputs are connected properly. Press the 'Clear' button below, to clear this warning message.
E1011	'Production Disabled' - A request to print a product has been received for a line that production has been disabled on. Please press the Job button on the home screen and check that the line configuration is correct. Press the 'Clear' button below, to clear this fault message.
E1012	'No Line Selected' - A print signal has been received for a product without any line selection. Please check that the line selection system is functioning correctly. Press the 'Clear' button below, to clear this fault message.
E1013	'BETA Expired' - The beta period for the release has expired. Contact your maintenance engineer or local service representative to correct this problem.
E1014	'Time and Date may be incorrect' - The printers time and date may not be correct. The most common cause for this is that the battery used to backup the printers clock is flat. If this problem returns the next time the printer is power on then the battery should be replaced. If the battery is flat the date and time, the currently selected job and some performance data will be lost when the printer is switched off. Press the 'Clear' button below, to clear this warning message.
E1100	'Invalid Job File - bad field reference' - The Job file is invalid and needs to be corrected using Clarisoft. There is a circular reference between fields in the Job file. Use Clarisoft to check and correct the relationships between fields in this Job file. Then, download the corrected file. Press the 'Clear' button below, to clear this fault message.
E1101	'Invalid Job File - missing data source field' - The Job file is invalid and needs to be corrected using Clarisoft. A field in the Job file refers to another field for its source of data, but that field is missing from the job file. Use Clarisoft to ensure that all data source fields used in the Job file are present and correct in the Job file. Then, download the corrected file. Press the 'Clear' button below, to clear this fault message.
E1102	'Invalid Job File - duplicate named fields' - The Job file is invalid and needs to be corrected using Clarisoft. Duplicate field names were found in the Job file. Use Clarisoft. to remove or rename fields so that there are no duplicates. Then, download the corrected file. Press the 'Clear' button below, to clear this fault message.
E1103	'Invalid Job File - invalid graphic' - The Job file is invalid and needs to be corrected using Clarisoft. The Job file refers to a missing or invalid graphic bitmap file. Use Clarisoft. to check and ensure that all bitmap files, used by this Job file, display properly in Clarisoft. Then, download the corrected file. Press the 'Clear' button below, to clear this fault message.

Table 8-4: Error Messages and Warnings

Error No.	Report on CLARiTY Operator Interface
E1104	'Invalid Job File - invalid date field' - The Job file is invalid and needs to be corrected using Clarisoft. The Job file you are trying to select contains an incorrectly specified Date Calculation. The Default Offset for the date falls outside of the date range specified by the Minimum and Maximum user concession. Use Clarisoft to correct this error in the Job file. Then, download the corrected file. Press the 'Clear' button below, to clear this fault message.
E1105	'Invalid Job File - Multiple Transmitted Fields' - The Job file is invalid and needs to be corrected using Clarisoft A Transmitted Field attribute was found on more than one field. Only one field can be tagged as the transmitted field. Use Clarisoft to correct this error in the Job file. Then, download the corrected file to Clarity Press the 'Clear' button below, to clear this fault message.
E1200	'Invalid Job File - invalid barcode character' - The Job file is invalid and needs to be corrected using Clarisoft. A barcode in the Job file contains characters which are not in the character set of the barcode type being used. Use Clarisoft to check and correct the barcode fields in the Job file. Then, download the corrected file. Press the 'Clear' button below to clear this fault message.
E1201	'Invalid Job File - invalid barcode check digit' The Job file is invalid and needs to be corrected using Clarisoft. The check digit supplied for a barcode in the Job file is invalid. Use Clarisoft. to check and correct the barcode fields in the Job file. Then, download the corrected file. Press the 'Clear' button below, to clear this fault message.
E1202	'Invalid Job File - EAN barcode out of specification' - The Job file is invalid and needs to be corrected using Clarisoft. An EAN barcode in the Job file contains more than 48 characters, which is the maximum length for this type of barcode. Use Clarisoft. to check and correct the EAN barcode fields in the Job file. Then, download the corrected file. Press the 'Clear' button below, to clear this fault message
E1203	'Invalid Job File - EAN barcode out of specification' - The Job file is invalid and needs to be corrected using Clarisoft. The field for an EAN128 barcode does not contain enough data to form a valid Application Identifier. Use Clarisoft. to check and correct the EAN128 barcode fields in the Job file. Then, download the corrected file. Press the 'Clear' button below, to clear this fault message.
E1204	'Invalid Job File - EAN barcode out of specification' - The Job file is invalid and needs to be corrected using Clarisoft. An EAN128 barcode field contains an application identifier containing non-numeric data, but EAN128 application identifiers must be numeric. Use Clarisoft. to check and correct the EAN128 barcode fields in the Job file. Then, download the corrected file. Press the 'Clear' button below, to clear this fault message.

Table 8-4: Error Messages and Warnings

Error No.	Report on CLARiTY Operator Interface
E1205	'Invalid Job File - EAN barcode out of specification' - The Job file is invalid and needs to be corrected using Clarisoft. EAN128 barcode fields with an application identifier of 23 should contain a length digit following the application identifier. Use Clarisoft. to check and correct the EAN128 barcode fields in the Job file. Then, download the corrected file. Press the 'Clear' button below, to clear this fault message.
E1206	'Invalid Job File - EAN barcode out of specification' - The Job file is invalid and needs to be corrected using Clarisoft. An EAN128 barcode field in the Job file does not have the number of characters that are specified by its application identifier. Use Clarisoft. to check and correct the EAN128 barcode fields in the Job file. Then, download the corrected file. Press the 'Clear' button below, to clear this fault message.
E1207	'Invalid Job File - EAN barcode out of specification' - The Job file is invalid and needs to be corrected using Clarisoft. An EAN128 barcode field in the Job file contains variable length data followed by a separator character; separator characters should not be used to terminate data in an EAN128 barcode. Use Clarisoft. to check and correct the EAN128 barcode fields in the Job file. Then, download the corrected file. Press the 'Clear' button below, to clear this fault message.
E1208	'Invalid Job File - EAN barcode out of specification' - The Job file is invalid and needs to be corrected using Clarisoft. An EAN128 barcode field in the Job file contains data that is out of range (e.g. an hour field set to 25 or a month field set to 13). Use Clarisoft. to check and correct the EAN128 barcode fields in the Job file. Then, download the corrected file. Press the 'Clear' button below, to clear this fault message.
E1209	'Invalid Job File - EAN barcode out of specification' - The Job file is invalid and needs to be corrected using Clarisoft. An EAN128 barcode field in the Job file contains an application identifier that requires a digit to specify the position of the decimal point, but this digit is not present. Use Clarisoft. to check and correct the EAN128 barcode fields in the Job file. Then, download the corrected file. Press the 'Clear' button below, to clear this fault message
E1210	'Invalid Job File - EAN barcode out of specification' - The Job file is invalid and needs to be corrected using Clarisoft. An EAN128 barcode field in the Job file contains an application identifier that requires a check digit, but this check digit was either missing or invalid. Use Clarisoft. to check and correct the EAN128 barcode fields in the Job file. Then, download the corrected file. Press the 'Clear' button below, to clear this fault message.
E1211	'Invalid Job File - EAN barcode out of specification' The Job file is invalid and needs to be corrected using Clarisoft. An EAN128 barcode could not be rendered at a size of 165mm or less which is the maximum length for this type of barcode. Use Clarisoft. to check and correct the EAN128 barcode fields in the Job file. Then, download the corrected file. Press the 'Clear' button below, to clear this fault message.

Table 8-4: Error Messages and Warnings

Error No.	Report on CLARiTY Operator Interface
E1212	'Invalid Job File - barcode length incorrect' - The Job file is invalid and needs to be corrected using Clarisoft. A barcode field in the Job file does not have the expected number of characters. Use Clarisoft. to check and correct the barcode fields in the Job file. Then, download the corrected file. Press the 'Clear' button below, to clear this fault message.
E1213	'Invalid Job File - barcode out of limits' - The Job file is invalid and needs to be corrected using Clarisoft. A barcode field in the Job file overruns the edge of the image and it is not possible to extend the image area to accommodate the barcode Use Clarisoft. to check and correct the barcode fields in the Job file. Then, download the corrected file. Press the 'Clear' button below, to clear this fault message.
E1214	'Invalid Job File - Invalid Checksum Data' - The Job file is invalid and needs to be corrected using Clarisoft. A field in the Job file uses a checksum (e.g. an EAN13 barcode with a price verifier digit) but the data supplied to calculate the checksum were not valid. Use Clarisoft. to check and correct fields using checksums in the Job file. Then, download the corrected file. Press the 'Clear' button below, to clear this fault message.
E1215	'Invalid Job File - invalid barcode height' - The Job file is invalid and needs to be corrected using Clarisoft. The height supplied for a barcode in the Job file is smaller than the minimum allowed by the barcode specification. Use Clarisoft. to check and correct the barcode fields in the Job file. Then, download the corrected file. Press the 'Clear' button below, to clear this fault message.
E1216	'Invalid Job File - Barcode Symbology Not Installed' - The Job file contains a barcode symbology that is not installed in this printer. Use Clarisoft to remove the barcode from the Job file. Then, download the corrected file to the printer. Press the 'Clear' button below, to clear this fault message.
E1217	'Invalid Job File - Undefined Format Identifier' - The Job file is invalid and needs to be corrected using Clarisoft. A Data Matrix Barcode field in the Job file uses a Public Format ID which is not currently defined. Press the 'Clear' button below, to clear this fault message.
E1218	'Invalid Job File - Data too long' - The Job file is invalid and needs to be corrected using Clarisoft. A Data Matrix Barcode field in the Job file contains too many data characters for the selected dimensions. Press the 'Clear' button below, to clear this fault message.
E1219	'Invalid Job File - Invalid Barcode Size' - The Job file is invalid and needs to be corrected using Clarisoft. A Data Matrix Barcode field in the Job file has invalid dimensions. Press the 'Clear' button below to clear this fault message.
E1220	'Invalid Job File - Invalid Barcode ECC Type' - The Job file is invalid and needs to be corrected using Clarisoft. A Data Matrix Barcode field in the Job file has an unsupported ECC type. Only ECC 200 is currently supported. Press the 'Clear' button below to clear this fault message.

Table 8-4: Error Messages and Warnings

Error No.	Report on CLARiTY Operator Interface
E1221	‘Invalid Job File - Barcode uses unsupported coding’ - The Job file is invalid and needs to be corrected using Clarisoft. A Data Matrix Barcode field in the Job file uses a form of data compression not currently supported by CLARiTY. Press the ‘Clear’ button below to clear this fault message.
E1222	‘Invalid Job File - Barcode encoding failed’ - The Job file is invalid and needs to be corrected using Clarisoft. A Data Matrix Barcode field in the Job file failed to encode into a valid image. Press the ‘Clear’ button below to clear this fault message.
E1223	‘Invalid Job File - Invalid Date Reference’ - The Job file contains a date reference not supported by this printer. Use Clarisoft to set the 'Reference Date' for all Calculated Dates to 'Current Date'. Then, download the corrected file to the printer. Press the ‘Clear’ button below, to clear this fault message.
E1224	‘Invalid Job File - Invalid Date Rounding’ - The Job file contains a date with a rounding calculation that is not supported by this printer. Use Clarisoft to remove the Rounding for all Calculated Dates. Then, download the corrected file to the printer. Press the ‘Clear’ button below, to clear this fault message.
E1225	‘Invalid Job File - Invalid Counter’ - The Job file contains a counter that is not supported by this printer. Use Clarisoft to remove all counters from the job. Then, download the corrected file to the printer. Press the ‘Clear’ button below, to clear this fault message.
E1226	‘Invalid Job File - Invalid Price’ - The Job file contains a price field that is not supported by this printer. Use Clarisoft to remove all price fields from the job. Then, download the corrected file to the printer. Press the ‘Clear’ button below, to clear this fault message.
E1227	‘Invalid Job File - Invalid Transmitted Field’ - The Job file contains a transmitted field that is not supported by this printer. Use Clarisoft to disable the 'Transmitted Field' option for all fields in the job. Then, download the corrected file to the printer. Press the ‘Clear’ button below, to clear this fault message.
E1228	‘Invalid Job File - Invalid Graphic Field’ - The Job file contains a graphic field that is not supported by this printer. Use Clarisoft to remove all Logo and Drawing fields in the job. Then, download the corrected file to the printer. Press the ‘Clear’ button below, to clear this fault message.
E1229	‘Invalid Job File - Invalid Graphic’ - The Job file contains a graphic field that is not supported by this printer. Use Clarisoft to remove all Logo fields in the job. Then, download the corrected file to the printer. Press the ‘Clear’ button below, to clear this fault message.
E1230	‘Invalid Job File - Invalid Drawing’ - The Job file contains a Drawing field that is not supported by this printer. Use Clarisoft to remove all Drawing fields in the job. Then, download the corrected file to the printer. Press the ‘Clear’ button below, to clear this fault message.

Table 8-4: Error Messages and Warnings

Error No.	Report on CLARiTY Operator Interface
E1231	'Invalid Job File - Invalid Paragraph Field' - The Job file contains a Paragraph field that is not supported by this printer. Use Clarisoft to remove all Paragraph fields in the job. Then, download the corrected file to the printer. Press the 'Clear' button below, to clear this fault message.
E1232	'Invalid Job File - PDF417 Barcode out of Specification' - The Job file is invalid and needs to be corrected using Clarisoft. A PDF417 or Micro-PDF417 barcode field in the Job file contains more columns than the barcode symbology supports. Use Clarisoft to check and correct the PDF417 and Micro-PDF417 barcode fields in the Job file. Then, download the corrected file. Press the 'Clear' button below, to clear this fault message.
E1233	'Invalid Job File - PDF417 Barcode out of Specification' - The Job file is invalid and needs to be corrected using Clarisoft. A PDF417 or Micro-PDF417 barcode field in the Job file contains more rows than the barcode symbology supports. Use Clarisoft to check and correct the PDF417 and Micro-PDF417 barcode fields in the Job file. Then, download the corrected file. Press the 'Clear' button below, to clear this fault message.
E1234	'Invalid Job File - PDF417 Barcode out of Specification' - The Job file is invalid and needs to be corrected using Clarisoft. A PDF417 or Micro-PDF417 barcode field in the Job file contains more characters than can be encoded with the specified column and maximum row sizes. Use Clarisoft. to increase the number of columns or rows in the PDF417 and Micro-PDF417 barcode fields in the Job file. Then, download the corrected file. Press the 'Clear' button below, to clear this fault message.
E1235	'Invalid Job File - EAN13 Price Too Large' - The Job file is invalid and needs to be corrected using Clarisoft. The EAN13 barcode contains a price that is too large to be encoded within the barcode. Use Clarisoft to check and correct the maximum price value for price field that is referenced by the barcode. Press the 'Clear' button below to clear this warning message.
E1236	'Invalid Job File - Invalid Font' - The Job file contains a bitmap font field that is not supported by this printer. Use Clarisoft to remove all bitmap font fields in the job. Then, download the corrected file to the printer. Press the 'Clear' button below, to clear this warning message.
E1237	'Invalid Job File - Invalid Font' - The Job file refers to a missing or invalid bitmap font file. Use Clarisoft to check and ensure that all text fields used by this Job file, display properly in Clarisoft. Then, download the corrected file to the printer. Press the 'Clear' button below, to clear this warning message.

Table 8-4: Error Messages and Warnings

Error No.	Report on CLARiTY Operator Interface
E1238	'Invalid Job File - Invalid Global Count Value' - The Job file uses a global counter that is not compatible with the current global count value. The current global count value is either too long for the counter specified in the job or contains characters that are not valid. The global count value will be reset when this job is selected. Use CLARiSOFT to ensure that all jobs contain the same configuration for this global counter. Press the 'Clear' button below, to clear this warning message.
E1239	'CLARiTY Data File Complete' - All data has been printed in the current CLARiTY Data File. Please select a new Job to resume printing. Note you will have to install a new CLARiTY Data file before selecting the Job if that job uses a CLARiTY Data file. Press the 'Clear' button below, to clear this fault message.
E1240	'Missing CLARiTY Data File' - There is no CLARiTY Data File installed in this printer and the selected Job uses a CLARiTY Data file to lookup the data it prints. Please select a new Job or install a CLARiTY Data file to resume printing. Press the 'Clear' button below, to clear this fault message.
E1241	'CLARiTY Data File Failed' - There is a problem with the installed CLARiTY Data file. Please select a new Job or install a new CLARiTY Data file to resume printing. Press the 'Clear' button below, to clear this fault message.
E1242	'Invalid Job File - Barcode data too long' - The Job file is invalid and needs to be corrected using Clarisoft. A QR Barcode field in the job file contains too many data characters for the selected dimensions. Press the 'Clear' button below, to clear this fault message.
E1243	'Invalid Job File - Avoidance Date' - The Job file contains a calculated date that is an avoidance date. Use Clarisoft to check and correct the calculated dates in the job. Then, download the corrected file to the printer. Select a valid Job and then press 'Clear' button below, to clear this fault message.
E1500	'Log File Corruption' - Corruption has been detected in the log file. Please navigate to *Tools* > *Diagnostics* > *Control* > *Log Files* for more details. Press the 'Clear' button below, to clear this warning message.
E1501	'Log File Space Critical' - The available space for logging has reached a critical level. Please archive the log file or delete unnecessary files from the Job database to free up some space. This fault message will clear automatically when the free space is increased.
E1502	'Log File Space Limited' - The available space for logging becoming limited. Please archive the log file or delete unnecessary files from the Job database to free up some space. Press the 'Clear' button below, to clear this warning message
E1503	'Logging Space Exhausted' - The available space for logging is exhausted. Please archive the log file to free up some space. Press the 'Clear' button below, to clear this fault message

Table 8-4: Error Messages and Warnings

Error No.	Report on CLARiTY Operator Interface
E1504	‘Log File Save Failed’ - Failed to save log file information. Some log file information has been lost. Press the ‘Clear’ button below, to clear this fault message.
E1505	‘Logging Job Events Disabled’ - Logging of Job events has been disabled. This is because Job selections and Job updates are happening too frequently. The printer can only log Job events once every 10 seconds. Logging of Job events can be re-enabled via the IncludeJobEvents parameter in CLARiTY Configuration manager if the frequency of Job events is reduced. Press the ‘Clear’ button below, to clear this warning message.
E1601	‘Barcode Fault’ - The barcode scanner cannot read the barcodes printed onto the labels. Check printhead is clean and printing clear barcodes onto the labels. Check that labels are applying properly to the packs, and that they are not wrinkled. Check that the barcode scanner is not obstructed from scanning the barcodes. If the problem persists, call your maintenance engineer or local service representative. Press the ‘Detail’ button below for maintenance assistance. When ready, press the ‘Clear’ button below.
	The barcode scanner has reported multiple consecutive no reads which exceeds the pre-set limit. This can be caused by very poor print quality, or poor label application, resulting in barcodes which cannot be scanned. It can also be caused by physical obstruction of the scanner, or a hardware fault in the printhead or scanner. Check that labels are being applied correctly to the pack. Check that the applied label is not wrinkled on the pack. Check that the printhead is clean and printing visibly clear barcodes. If possible, verify the printed barcodes with a separate barcode verifier. Check the scanner mounting, and for obstruction preventing the scanner seeing the barcodes. If the problem persists, call your local service representative. Once resolved and ready, press the ‘Clear’ button below.
E1602	‘BarcodeFault’ - The barcode scanner has read a different barcode than the one printed onto the label. The barcode scanner may not be mounted correctly. Call your maintenance engineer or local service representative. Press the Detail button below for maintenance assistance. When ready, press the ‘Clear’ button below.
	The barcode scanner has read a different barcode to the one printed on the label. This could be due to the scanner seeing another barcode in its field of view - check the mounting and configuration of the scanner. This could also be due to a print error, or a communications error with the scanner, or a hardware fault with the scanner. Power off and check cabling between labeller and scanner, then re-try. If the problem persists, call your local service representative. Once resolved and ready, press the ‘Clear’ button below.
E1603	‘Miss-read reported’ - The Barcode Scanner has reported a Miss-Read. Consider recalibrating the scanner. Press the ‘Clear’ button below, to clear this fault message.

Table 8-4: Error Messages and Warnings

Error No.	Report on CLARiTY Operator Interface
E1604	‘No-read reported’ - The Barcode Scanner has reported a No-Read. Consider recalibrating the scanner. Press the ‘Clear’ button below, to clear this warning message.
E1605	‘Barcode verify queue empty’ - The Barcode Scanner has been gated when there was no barcode to verify. Press the ‘Clear’ button below, to clear this fault message
E4040	‘Allowed Login Attempts Exceeded’ - A user enter an incorrect password repeatedly and has been disabled.
E6200	‘Job Download failed’ - Download of Job "%1" to laser marking head failed. Check communication between controller and laser and reselect job for download. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E6201	‘Job Conversion failed’ - Conversion of Job "%1" to XML Template failed. This indicates that the job may have been taken from a non-laser marking system. Review the warnings and resolve the issues in Clarisoft, and reload the job. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E6202	‘Unsupported Field Type’ - Field "%1" is of a type that is not supported for inclusion within an XML Template. Review the field for unsupported laser content in Clarisoft, and reload the job. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E6203	‘Requested font not available on the laser’ - Requested font "%1" is not available on the laser marking head. A copy of the font "%1" should be downloaded to the laser and the job re-selected. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E6204	‘Unsupported Field Parameter - Inverse’ - Field "%1" has the Inverse parameter set. This is not supported for inclusion within an XML Template. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E6205	‘Unsupported Field Parameter - Mirror’ - Field "%1" has the Mirror parameter set. This is not supported for inclusion within an XML Template. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E6206	‘Unsupported Field Parameter - Transmitted Field’ - Field "%1" has the Transmitted Field parameter set. This is not supported for inclusion within an XML Template. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E6207	‘Invalid Counter Field’ - Counter field "%1" cannot be read from the Ciff file. Review the field for unsupported laser content in Clarisoft, and reload the job. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.

Table 8-4: Error Messages and Warnings

Error No.	Report on CLARiTY Operator Interface
E6208	‘Unsupported Date Format Code’ - Date field "%1" contains an unsupported date format code. Review the field for unsupported laser content in Clarisoft, and reload the job. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E6209	‘Unsupported Time Format Code’ - Time field "%1" contains an unsupported time format code. Review the field for unsupported laser content in Clarisoft, and reload the job. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E6210	‘Unsupported Date Rounding Mode’ - Date field "%1" is set to an unsupported Date Rounding mode. Review the field for unsupported laser content in Clarisoft, and reload the job. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E6211	‘Unsupported Barcode’ - Barcode field "%1" is of a type that is not supported for inclusion within an XML Template. Please remove the barcode field, or change it to a supported barcode type. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E6212	‘Mismatch between Job and connected laser marking head’ - This Job has been created for %1. This does not match the configuration of the connected laser marking head. You may encounter marking field warnings or incomplete print. Use the scaling and positioning adjustments to adjust the message. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E6250	‘Laser in Service Mode’ - The laser marking head is in Service Mode. This warning will clear automatically once the laser marking head is no longer in Service Mode.
E6251	‘Laser Interlock Open’ - The safety interlock for the laser marking head has been opened. Ensure that the laser marking head can be operated safely and close the interlock. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E6252	‘Laser Interlock Timeout’ - The timeout for the safety interlock of the laser marking head has expired. Ensure that the laser marking head can be operated safely and close the interlock. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E6253	‘Laser Fatal Error’ - The laser marking head has reported a fatal error. Determine the cause for the fatal error and rectify. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E6254	‘Laser Error Level 1’ - The laser marking head has reported a clearable level 1 error. Determine the cause for the error and rectify. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.

Table 8-4: Error Messages and Warnings

Error No.	Report on CLARiTY Operator Interface
E6255	‘Laser Error Level 2’ - The laser marking head has reported a clearable level 2 warning. Determine the cause for the warning and rectify. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E6256	‘Laser Shutterlock Open’ - The shutter on the laser marking head has been opened. Ensure that the laser marking head can be operated safely and close the shutter. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E00001	‘Parts of the marking are beyond the marking field’ - Parts of the marking are beyond the user-defined marking field. Reduce size of the overall message by reducing the scaling factor. Expand marking field to maximum size. Select objective with higher focal length, thereby increasing the maximum possible marking field. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E00002	‘Incomplete marking, product movement too fast’ - Product has exited the marking field before marking could be completed. Increase distance of start delay. Usually this requires the sensors to be adjusted. Optimize mark set parameters so that the marking can be executed faster. Reduce size of the message so that it can be marked faster. Select a speed-optimized single line font. If possible, increase the marking field by selecting a lens with a longer focal distance. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E00003	‘AOS does not send data after trigger (>10ms)’ - After the trigger it took more than 10ms before the AOS sent marking data. Contact your local service representative or support team who will be able to provide assistance. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E00004	‘Delayed data from the AOS’ - During the marking process it took more than 500µs before the AOS sent new data. If the AOS does not send the vector data as fast as they are marked, artificial pauses are added to the marking. This causes the laser to be switched off even within a vector stroke and switched on again as soon as data is available. In this situation, Laser-On-Delay and Laser-Off-Delay are used. Increase the values of the start delay or trigger delay and the distance between the marking field and the product sensor. This way more data can be processed before the marking execution is started. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.

Table 8-4: Error Messages and Warnings

Error No.	Report on CLARiTY Operator Interface
E00005	‘Trigger lost’ - Trigger queue overflow, a new trigger had to be rejected. That means that the trigger signals are coming in faster than they can be processed. The trigger queue is a buffer for trigger signals. If it is full and more signals are coming in this warning is displayed. Since the trigger signals are coming faster than they can be processed the marking time has to be reduced. If the marking time cannot be reduced any more the throughput has to be reduced. This may also be caused by mis-triggers or double triggers due to dirty product detector optics. Clean the lens of the product detector, and recalibrate it for your product. Ensure the blocking parameter in Line Setup is set to 90% of the product width. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E00006	‘Incorrect index step selected’ - Internal error: A not initialized index step has been selected. The system uses the previously selected index step. Contact your local service representative or support team who will be able to provide assistance. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E00007	‘Debug use only’ - Contact your local service representative or support team who will be able to provide assistance. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E00008	‘Debug use only’ - Contact your local service representative or support team who will be able to provide assistance. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E00100	‘Critical error SP’ - Fatal internal error: A not initialized interrupt has been called or similar. Contact your local service representative or support team who will be able to provide assistance. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E00101	‘Stack error SP’ - Fatal internal error: Stack overflow. Contact your local service representative or support team who will be able to provide assistance. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E00102	‘SP received unknown command from AOS’ - Internal communication error on the ACC. In most cases this error indicates a version conflict. Check your Qmark version, and use a new MMC if necessary. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E00103	‘Timing error SP’ - Fatal internal error: Internal timing was not met. Contact your local service representative or support team who will be able to provide assistance. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.

Table 8-4: Error Messages and Warnings

Error No.	Report on CLARiTY Operator Interface
E00104	‘AOS data transfer delayed’ - During marking the AOS transfer of data has been delayed. The marking operation is aborted. Change the mark set parameters so that the marking is carried out slower. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E00105	‘Marking aborted, product movement too fast’ - The marking has been aborted because less than 50 vectors were marked before the product left the marking field. Usually this is caused by the marking process being to slow. It is also possible that the start distance is too small and the marking is started too late. The start distance should always be long enough so that no part of the marking is in the marking field at the time the laser is triggered. Enlarge the start distance correspondingly, usually by moving the sensors farther from the marking field. Optimize the mark set parameters so that the marking can be carried out faster. Reduce template size so that it can be marked faster. Select a speed-optimized single line font. If possible, increase the marking field by selecting a lens with a longer focal distance. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E00200	‘Laser not ready’ - Faulty cable to voltage supply of the laser. Relay for voltage supply of the laser did not switch. No enable for RF PSU (50 W laser only). Faulty connecting cable between laser and ACC. Check Laser tube LED "Laser Ready". If it is off after switching the laser on there is no voltage supply of the laser. The cause can be a broken cable or a defective relay. Check cable and relay and replace if necessary. If the laser tube LED is on, the cable between laser and ACC might be defective. Select a font which has been speed optimized. Check cable and replace if necessary. 50 W laser system. Check 48 VDC to RF PSU. Check enable signal. Check RF PSU. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E00201	‘Laser supply: voltage too high or too low’ - Faulty power supply module or incorrect voltage setting. Check voltage, adjust setting if necessary (30V to ACC3, 48V to RF PSU) or exchange power supply module. If the voltage is OK check power contacts in the laser head. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E00202	‘Laser overtemperature’ - Insufficient cooling. Broken umbilical. Check cooling system. Check signal cable between ACC and laser/heatswitches. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.

Table 8-4: Error Messages and Warnings

Error No.	Report on CLARiTY Operator Interface
E00203	‘Unknown laser beam source’ - Incorrect entry in system database; OS sends invalid laser type ID. Contact your local service representative or support team who will be able to provide assistance. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E00204	‘General error’ - Fault in the RF circuit. Voltage too high/low. Check voltage, adjust setting if necessary (30V to ACC3, 48V to RF PSU) or exchange power supply module. Check umbilical for electrical continuity. Overtemperature (>60 °C). When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E00205	‘Internal cooling circuit: Flow too low’ - Problems within the cooling circuit of the system. Faulty coolant flow switch. Check coolant level and pump operation. Check coolant flow switch and cable. Check fuseboard operation, ACC interface and cables to ACC. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E00206	‘RF circuit: VSWR fault’ - Mis-match between RF PSU and laser tube. Faulty RF cable or laser tube. Faulty RF PSU. Check RF cable. Check RF PSU operation. Check laser tube operation. Check ACC interface board operation and cables. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E00207	‘RF circuit: Overmodulation’ - System software error. RF PSU faulty. Faulty cables between ACC, ACC interface board and RF PSU. Check modulation output to RF PSU. Check cable between ACC and RF PSU. Check RF PSU operation. Check ACC interface board operation. Check ACC operation. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E00208	‘RF circuit: Incorrect RF PSU power’ - Faulty RF PSU. Faulty ACC interface board or faulty cables. No jump link on JP1 on ACC interface board. Check RF PSU operation. Check ACC interface board operation. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.

Table 8-4: Error Messages and Warnings

Error No.	Report on CLARiTY Operator Interface
E00209	‘Back reflection’ - Closed beam path, laser light is reflected back into the laser. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E00210	‘Red laser emission LED defective - Hardware error’ - The red laser emission LED is not functioning. Please check and replace the LED. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E00211	‘Defective element in laser supply circuit’ - Hardware error. Hardware must be checked. Contact your local service representative or support team who will be able to provide assistance. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E00212	‘Wrong LIC detected’ - Contact your local service representative or support team who will be able to provide assistance. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E00213	‘Wrong HIC detected’ - Contact your local service representative or support team who will be able to provide assistance.
E09000	‘Marking head: Temperature of FM/MHI assembly group too high’ - The temperature of the FM or MHI board has exceeded the maximum value. Improve cooling of the marking head, clean cooling fins if necessary. Ensure the air vents are clean. Increase distance between markings if possible. Check internal fan operation. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E09001	‘Marking head: Supply voltage too low’ - The supply voltage of the marking head is too low (<16V). Check voltage supply at the marking head, at the power supply module in the control unit and at the marking head connector. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.

Table 8-4: Error Messages and Warnings

Error No.	Report on CLARiTY Operator Interface
E09002	‘Marking head: Overpositioning of X mirror’ - Due to an error the X mirror was brought to a position beyond the admitted maximum area. Check X mirror. Check wiring in the marking head. Ensure your message is inside the marking window. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E09003	‘Marking head: Overpositioning of Y mirror’ - Due to an error the Y mirror was brought to a position beyond the admitted maximum area. Check Y mirror. Check wiring in the marking head. Ensure your message is inside the marking window. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E09004	‘Marking head: Overcurrent X mirror’ - The current consumption of the X mirror is too high. Check X mirror. Check wiring in the marking head. Can be caused by overpositioning. Reduce jump speed marking parameter. Review and optimize mark set parameters. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E09005	‘Marking head: Overcurrent Y mirror’ - The current consumption of the Y mirror is too high. Check Y mirror. Check wiring in the marking head. Can be caused by overpositioning. Reduce jump speed marking parameter. Review and optimize mark set parameters. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E09006	‘Marking head: No X mirror connected’ - The X mirror is not connected correctly to the FM/MHI board. A cable might be loose or broken. Check connection between X mirror and FM/MHI board. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E09007	‘Marking head: No Y mirror connected’ - The Y mirror is not connected correctly to the FM/MHI board. A cable might be loose or broken. Check connection between Y mirror and FM/MHI board. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.

Table 8-4: Error Messages and Warnings

Error No.	Report on CLARiTY Operator Interface
E09008	‘Parts of the marking are not within the marking field of the marking head’ - Parts of the marking are outside the ellipse representing the maximum marking field of the marking head. Reduce size of marking. Select lens with higher focal length. Reposition template fields and make sure all items are within the marking field. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E09012	‘Communication error ACC -> FM/MHI: Gaps in the data flow’ - Faulty communication between ACC and FM/MHI. Check connection between ACC and marking head (optical fibre or LVDS connection). When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E09016	‘Communication error ACC -> FM/MHI: inadmissible command’ - ACC sent a command to the marking head which is not admitted in the current mode. Contact your local service representative or support team who will be able to provide assistance. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E09017	‘Communication error ACC -> FM/MHI: unknown command’ - ACC sent an unknown command to the marking head. Contact your local service representative or support team who will be able to provide assistance. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E09018	‘Communication error ACC -> FM/MHI: Protocol error’ - ACC did not keep to protocol. Contact your local service representative or support team who will be able to provide assistance. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E09021	‘Internal error: Cannot set control mode of the FM/MHI’ - The FM/MHI cannot change to control mode. This indicates an error in the communication between ACC and FM/MHI. Check connection between ACC and marking head. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E09022	‘Internal error: Cannot set configuration mode of the FM/MHI’ - The FM/MHI cannot change to configuration mode. This indicates an error in the communication between ACC and FM/MHI. Check connection between ACC and marking head or MHI. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.

Table 8-4: Error Messages and Warnings

Error No.	Report on CLARiTY Operator Interface
E09023	‘Internal error: Cannot set download mode of the FM/MHI’ - The FM/MHI cannot change to download mode. This indicates an error in the communication between ACC and FM/MHI. Check connection between ACC and marking head or MHI. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E09100	‘No communication with marking head’ - No marking head connected. Faulty power supply of marking head. Faulty connection between ACC and FM/MHI. Faulty FM/MHI. Check power supply of marking head. Check connection between ACC and marking head or MHI. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E09101	‘Internal error: Error status of the FM/MHI cannot be reset’ - The error flags on the FM/MHI cannot be reset. This indicates an error in the communication between ACC and FM/MHI. Check connection between ACC and marking head or MHI. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E09102	‘Interrupted communication with marking head’ - There have been errors on the ACC while receiving data from the FM/MHI. Faulty connection between ACC and FM/MHI. Faulty FM/MHI. Check connection between ACC and marking head or MHI. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E09103	‘Internal error: FM/MHI not in configuration mode, cannot executed command’ - Tried to execute a command in the control mode that is only admitted in the configuration mode. Contact your local service representative or support team who will be able to provide assistance. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.

Table 8-4: Error Messages and Warnings

Error No.	Report on CLARiTY Operator Interface
E09104	‘No data received from the marking head’ - The ACC receives permanently or temporarily no data from the marking head because the connection to the marking head has been separated or the power supply of the marking head failed. Check connection between ACC and marking head or MHI. Check power supply of marking head. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E10001	‘No data can be read from the system database’ - Faulty connection to the EEPROM of the system database. Check whether EEPROM has been inserted correctly. Check connection between ACC and Panel-IO. Check whether EEPROM of Panel-IO has been inserted correctly. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E10002	‘Backup of system database was loaded!’ - Several entries are missing in the system database. Therefore the backup of the system database has been loaded. Check entries of system database and correct if necessary. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E10003	‘Cannot write (all) to the backup of the system database’ - Not enough space left on the MMC (MultiMediaCard). Check space on MMC and reduce application database if necessary. 1024 Bytes are required. Remove unused fonts and templates from the laser system. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E10004	‘Cannot write to system database’ - Faulty connection to the EEPROM of the system database. Check the state of the system database and save all data. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.

Table 8-4: Error Messages and Warnings

Error No.	Report on CLARiTY Operator Interface
E10005	‘Cannot read backup of the system database’ - The backup has not been generated at the previous start of the system or it has been deleted. Check memory space of the MMC (MultiMediaCard). This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E10006	‘Overflow of system database’ - By changing or adding an entry to the system database the admissible size has been exceeded. Shorten entries of variable length and retry changes. The following settings can have an impact: SmartGraph, Configuration, dialog "System Settings" name in the field "Identification" YAG systems: Number of digits after the decimal point for the ageing factor SmartGraph, Configuration, dialog "Marking head" Number of digits after the decimal point in the fields Mounting position, Working distance, Marking head and Pilot laser. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E10007	‘QMark update failed. Please try the update again’ - Please try to update QMark again using the web interface. If that fails a second time, contact your local service representative or support team who will be able to provide assistance. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E10008	‘A change requires rebooting the laser’ - Please reboot the laser to apply your changes. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E10101	‘Version conflict (command not executed)’ - An unknown command has been sent to the ACC via the Ethernet interface. If the Ethernet communication has been disturbed, separate the connection and then connect again. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E10102	‘Unknown command’ - An unknown command has been sent to the ACC via the Ethernet interface. Check program which is sending the command. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E10103	‘Key not found in system database’ - The database entry requested via Ethernet does not exist. Check program which is sending the command. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.

Table 8-4: Error Messages and Warnings

Error No.	Report on CLARiTY Operator Interface
E10104	‘Database write error’ - Transmission error while transmitting a database object via Ethernet or version conflict between database object and AOS. Repeat transfer; check version. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E10105	‘Database read error’ - Database entry required for executing a command received via Ethernet is missing. Check the database entries. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E10106	‘Template contains no data’ - Template information has been requested via Ethernet. The corresponding template contains no data. Check template and save it. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E10107	‘Template does not exist’ - Template information has been requested via Ethernet. The corresponding template does not exist in the application database. Check template and save it. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E10108	‘No variables in template’ - The variables requested via Ethernet do not exist in the template. Check template. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E10109	‘Format is invalid’ - Via Ethernet a command with missing or incorrectly formatted parameters has been sent. Correct the format of the command. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E10111	‘Errors while saving’ - The MMC (MultiMediaCard) is full, not inserted correctly or defective. Check MMC. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E10113	‘This database entry cannot be deleted since other entries depend on it’ - Other database entries depend on this entry. Delete the depending entries first.
E10114	‘The transmitted object cannot be saved to the database. Please check whether your system supports the object’ - Version conflict. Check versions and make an update if necessary. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E10115	‘Too many variables are used in the templates. Please delete all templates you do not need’ - Number of variables or number of templates too high. Reduce number of variables or templates. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E10116	‘Error while reading directory’ - The MMC (MultiMediaCard) on the ACC cannot be read. Check MMC. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.

Table 8-4: Error Messages and Warnings

Error No.	Report on CLARiTY Operator Interface
E10300	‘Data for initialization cannot be read completely from the database’ - Defective system database or customer database. The MMC (MultiMediaCard) is full or damaged. Check whether the EEPROM has been inserted correctly. Check connection between ACC and Panel-IO. Check whether the EEPROM of the Panel-IO has been inserted correctly. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E10301	‘The parameter set contains inadmissible settings which are automatically adjusted before marking’ - The application database belongs to a different laser system, and as such some parameters are out of range for this laser system. To avoid the automatic adjustment of the settings you can modify the parameter set manually. If you save the corrected parameter set to the database the error message will no longer appear. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E10302	‘Shutter does not stay open’ - Defective beam shutter. Improper galvo/FM board operation. Exchange beam shutter. Check galvo/FM board operation. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E10303	‘Shutter does not stay closed’ - Defective beam shutter. Improper galvo/FM board operation. Exchange beam shutter. Check galvo/FM board operation. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E10304	‘Marking process interrupted by interlock’ - Interlock has been opened. Close the interlock to continue. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E10305	‘Key switch has been opened while marking’ - Keyswitch has been opened. Close the keyswitch to continue. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E10401	‘Template invalid’ - The template selected for marking is defective or does not exist. Check template and used parameters, product registration and (if existing) logos. Select template again. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E10404	‘External text: Value can be marked only once’ - For an external text the property "Prompt Once (error)" has been set and it has been tried to mark an external text with the same value twice. Change the contents of the external text or change the property "Prompt Once (error)" to "Prompt Once (warning)". When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.

Table 8-4: Error Messages and Warnings

Error No.	Report on CLARiTY Operator Interface
E10405	The parameter set contains incorrect values. Contact your local service representative or support team who will be able to provide assistance. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E10407	‘The beam shutter does not open’ - The beam shutter got jammed or is not identified. Improper galvo/FM board operation. Check the beam shutter. Check the shutter cable. Check the plug-in connections on the board. Check galvo/FM board operation. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E10408	‘The beam shutter does not close’ - The beam shutter got jammed or is not identified. Improper galvo/FM board operation. Check the beam shutter. Check the shutter cable. Check the plug-in connections on the board. Check galvo/FM board operation. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E10409	‘System error during preparation of marking’ - Internal error during preparation of marking. Contact your local service representative or support team who will be able to provide assistance. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E10410	‘The parameter set of the active template has been adjusted to the system’ - The parameter set of the active template contains inadmissible settings for the laser. The application database possibly belongs to a different laser system. When the database has been saved this message will no longer appear. Possibly the settings of the concerned parameter set have to be modified manually. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E10411	‘External text: Value can only be marked once’ - For an external text the property "Prompt Once (warning)" has been set and it has been tried to mark the external text with the same value twice. Change the contents of the external text or change the property "Prompt Once (warning)". When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E10500	‘Cannot load database’ - The application database and its backup cannot be loaded. A new database file has to be written to the MMC. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E10501	‘Backup database has been loaded’ - The application database is defective. Please save the database.

Table 8-4: Error Messages and Warnings

Error No.	Report on CLARiTY Operator Interface
E10502	‘System Message’ - Error during determination of the current template or its variables. Probably the database does not contain any templates. If the database contains no template: create and add a new template and save the database. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E10503	‘The database format has changed. Please save system’ - An older database has been loaded by a new AOS. Saving the database it is automatically converted to the new format. Then the warning message will no longer be displayed. After conversion the database cannot be read by an older AOS. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E10504	‘Not all previously used templates have been saved’ - New templates have been added to the database and selected for marking. Then the system has been booted without saving the changed database. Save the database after creating or importing new templates. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E10505	‘The template used last was not saved’ - A new template has been added to the database and selected for marking. Then the system has been booted without saving the changed database. Save the database after creating or importing new templates. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E10506	‘Invalid value of absolute operating hours in SRAM’ - The battery backing up the SRAM is running down. Check battery and replace if necessary. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E10507	‘Error while reading the objective file’ - The objective file does not exist in the comp directory of the MMC (MultiMediaCard). The MMC is not inserted correctly. Check MMC, if necessary reinstall software on MMC. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E10508	‘Error while reading the laser file’ - The laser file does not exist in the comp directory of the MMC (MultiMediaCard). The MMC is not inserted correctly. Check MMC, if necessary reinstall software on MMC. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E10509	‘Error while reading the head file’ - The head file does not exist in the comp directory of the MMC (MultiMediaCard). The MMC is not inserted correctly. Check MMC, if necessary reinstall software on MMC. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.

Table 8-4: Error Messages and Warnings

Error No.	Report on CLARiTY Operator Interface
E10510	‘No FPGA image file available!’ - The file fpgaimgX.h is missing on the MMC (MultiMediaCard). Check the contents of the MMC. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E10511	‘No SP program available!’ - The file smartspX.sp is missing on the MMC (MultiMediaCard). Check the contents of the MMC. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E10512	‘AllprintBasic: Protocol configuration error’ - The AllprintBasic command string in the AOS database ("Config","Input") contains a configuration error for the serial protocol. Modify the protocol settings on the PC with AllprintBasic and import again via SmartGraph into the AOS database. Then reboot the ACC. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E10513	‘AllprintBasic: Configuration error of the serial interface’ - The AllprintBasic command string in the AOS database ("Config","Input") contains a configuration error for the serial interface. Modify the interface parameters on the PC with AllprintBasic and import again via SmartGraph into the AOS database. Then reboot the ACC. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E10514	‘FM/MHI download error’ - A program has to be transmitted from the MMC to the FM/MHI. During this download an error occurred. Check connection between ACC and FM/MHI. Check FM/MHI. Check ACC. Reboot. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E10515	‘FM/MHI download: File is missing’ - The required file does not exist on the MMC (MultiMediaCard). Faulty connection between ACC and FM/MHI. Copy the missing file to the MMC. Check connection. Check for latest version of Qmark. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E10516	‘The marking head is not connected’ - Faulty connection to the marking head. No marking head connected. Check connection between ACC and FM/MHI. Connect marking head. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.

Table 8-4: Error Messages and Warnings

Error No.	Report on CLARiTY Operator Interface
E10517	‘According to the system database there is no marking head connected’ - The system database contains the entry 'MARKING_HEAD_ATTACHED=0'. Thus the marking head is not addressed. If you want to mark a marking head must be connected and the entry in the system database has to be changed to 'MARKING_HEAD_ATTACHED=1'. Please contact the technical support group. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E10518	‘The parameter set does not correspond to the laser type. Please replace this entry in the database’ - A database has been copied to the MMC which does not correspond to the laser type. Copy a suitable database to the MMC. or create a new suitable database using the Smart Graph offline. Add a parameter set having the same name and transfer it to the laser. In this way all parameter sets of the laser database need to be replaced. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E10519	‘Please select a lens corresponding to the marking head’ - A lens and laser head mismatch has been detected. Please select the appropriate lens installed for this system. If you receive this error and the head/lens configuration has not changed, it may indicate an FM board or marking head failure. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E10520	‘A marking head has been identified which is not admitted for this laser type’ - A laser type and marking head mismatch has been detected. Please select the appropriate lens installed for this system. If you receive this error and the head or laser configuration has not changed, it may indicate a hardware failure. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E10550	‘AllprintBasic: Syntax error’ - The AllprintBasic command string in the AOS database ("Config","Input") contains a syntax error. Test the command string on the PC with AllprintBasic, correct it and import again via SmartGraph into the AOS database. Then reboot the ACC. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.

Table 8-4: Error Messages and Warnings

Error No.	Report on CLARiTY Operator Interface
E10551	‘The template does not contain the requested variable’ - The variable to be modified in the AllprintBasic command string does not exist in the template. Check the corresponding template or the AllprintBasic command string and modify if necessary. If the command string has been changed the ACC must be rebooted. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E10552	‘AllprintBasic - MsgBox’ - This is a regular message, no error. The AllprintBasic command string triggered the output of this message. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E10553	‘Illegal command in AllprintBasic command string’ - This AllprintBasic version does not support the command. Check command string and change if necessary. If the string has been changed you have to reboot the ACC. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E10554	‘The AllprintBasic command "Error" has been executed’ - Depending on the AllprintBasic program. Depending on the AllprintBasic program. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E10555	‘The AllprintBasic command "Warning" has been executed’ - Depending on the AllprintBasic program. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E10601	‘No template list selected’ - The external template selection has failed because no template list has been selected. Create and select a template list using Smart Graph. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E10602	‘The chosen template number cannot be assigned to any template’ - The external template selection has failed because the selected template number cannot be assigned to any template in the template list. Check template list. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E10701	‘Out of memory. Cannot create database object’ - Internal error or database is too large. If the message is no longer displayed after rebooting, there might be an internal error. Inform the technical support group. If the message is still displayed after rebooting all elements not needed should be deleted from the database. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E10702	‘Format error while creating a database object’ - Version conflict between database object and AOS. Check versions of Smart Graph and QMark and carry out an update if necessary. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.

Table 8-4: Error Messages and Warnings

Error No.	Report on CLARiTY Operator Interface
E10800	‘DSP does not send telegrams’ - The DSP has not been initialized correctly or the connection to the DSP is faulty. Restart the system. If the error persists, contact your local service representative or support team who will be able to provide assistance. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E10811	‘DSP buffer overflow’ - Internal communication error. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation. Contact your local service representative or support team who will be able to provide assistance.
E10812	‘Invalid SmartSP telegram’ - Internal communication error. Contact your local service representative or support team who will be able to provide assistance. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E10813	‘No encoder connected’ 1) In the product registration an encoder was selected although no encoder is connected. 2) In the product registration an encoder was selected which has been removed during operation. Connect encoder or deselect encoder in line setup. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E10814	‘No trigger detector connected’ 1) In the product registration external trigger was selected although no trigger detector is connected. 2) In the product registration a trigger detector was selected which has been removed during operation. Connect trigger detector or deselect external trigger in the line setup. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E10899	‘Incomplete marking, product movement too slow’ - The marking has been aborted to prevent burning because the conveyor belt is moving too slow or has stopped. Please check the conveyor. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E10900	‘General CAN bus error’ - Faulty wiring. Strong source of interferences nearby. Faulty assemblies. Check wiring of CAN bus. Eliminate source of interference. Replace faulty assemblies. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.

Table 8-4: Error Messages and Warnings

Error No.	Report on CLARiTY Operator Interface
E10901	‘A CAN node has carried out an inadmissible reset’ - The CAN bus node is defective. Defective wiring. Check the CAN bus node. Check wiring of CAN bus. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E10902	‘Lost connection to a CAN node’ - The CAN bus node is defective. Defective wiring. Check the CAN bus node. Check wiring of CAN bus. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E10903	‘A CAN node cannot be initialized’ - The CAN bus node is defective. Defective wiring. Check the CAN bus node. Check wiring of CAN bus. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E10904	‘The customer interface (CI) is not supplied with 24 V by the customer’ - The power supply of the customer interface is not available or switched off. Check if power is supplied between terminals X16.1 and X16.5 of customer interface on ACC board. For units equipped with CAN-IO, connect bus terminal KL9110 pin 2 or pin 6 to external 24 V and pin3 or pin7 to external GND. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E10905	‘The CAN bus detected a not implemented event’ - Depending on the event a function to be implemented in the future has been used (e.g. CI terminal: reserved). Contact your local service representative or support team who will be able to provide assistance. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E10906	‘The customer interface (CI) indicates an error of the external exhaust’ - External exhaust defective or incorrect wiring of CI terminal. Repair external exhaust or connect the corresponding CI terminal to 24 V. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E10907	‘The customer interface (CI) indicates an external error’ - Detection of external error or incorrect wiring of the CI terminal. Remove external error or connect the corresponding CI terminal to 24 V. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.

Table 8-4: Error Messages and Warnings

Error No.	Report on CLARiTY Operator Interface
E10908	‘External STOP from the CI’ - The STOP input is supplied constantly with 0 V so that the START input is not evaluated. Connect STOP input to 24 V. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E10909	‘A CAN node has carried out an inadmissible state change’ - The CAN node has probably carried out a reset. Check wiring of CAN bus. Check CAN node. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E10913	‘File is missing’ - The file is supposed to be on the MMC (MultiMediaCard). Copy desired file to the MMC. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E10914	‘Faulty transmission to a node’ - Erroneous wiring of CAN bus. Check wiring of CAN bus. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E10915	‘A CAN node does not react after download or software reset’ - Defective connections. Defective CAN node. Check wiring of CAN bus. Check corresponding CAN node. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E10916	‘Faulty download to node’ - Defective wiring of CAN bus. The corresponding node is faulty. Required program not available on MMC (MultiMediaCard). Check wiring of CAN bus. Check corresponding CAN bus node, if necessary update of MDB of the CAN bus node. Transmit missing program to MMC. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E10917	‘A CAN node signals unsuitable software’ - Defective wiring of CAN bus. The corresponding node is faulty. Required program not available on MMC (MultiMediaCard). Check wiring of CAN bus. Check corresponding CAN bus node, if necessary update of MDB of the CAN bus node. Transmit missing program to MMC. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E10918	‘A problem with the RF driver file occurred’ - The RF driver file on the MMC (MultiMediaCard) is faulty. Check RF driver file on MMC. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.

Table 8-4: Error Messages and Warnings

Error No.	Report on CLARiTY Operator Interface
E10919	‘A driver error prevents triggers being transmitted from the CAN bus’ - Internal error. Contact your local service representative or support team who will be able to provide assistance. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E10920	‘A driver error prevents control of the red emission LED’ - Internal error. Contact your local service representative or support team who will be able to provide assistance. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E10921	‘Less than two CI input bus terminals connected’ - Not enough input bus terminals existing. Equip system with two input bus terminals. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E10922	‘Less than two CI output bus terminals connected’ - Not enough output bus terminals existing. Equip system with two output bus terminals. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E10923	‘Ext. template selection requires at least 4 CI input bus terminals’ - To use the external template selection at least 4 input bus terminals must be available at the customer interface. Add two input bus terminals. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E10926	‘Entry is missing in the database’ - Defective database. Complete or exchange database. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E10929	‘CAN bus error’ - Faulty line of CAN bus. Check CAN bus cable and connections. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E10930	‘Connected customer interface is ignored due to a database entry’ - A customer interface is connected to the system. However, in the system database (CI_CAN_IO) it has been defined that no customer interface is to be used. If the system does not require a customer interface it should be removed. If it is required the entry CI_CAN_IO of the database has to be set to '1'. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E19201	‘Template does not exist’ - The template does not exist in the database. Create or transmit the corresponding template. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.

Table 8-4: Error Messages and Warnings

Error No.	Report on CLARiTY Operator Interface
E19202	‘Faulty template’ - The template selected for marking is defective or does not exist. Check template and used parameters, product registration and (if existing) logos. Select template again. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E19203	‘Parameter set does not exist’ - The parameter mark set required by a template is missing. Assign an existing mark set to the template or add the required parameter set to the database. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E19204	‘Product registration does not exist’ - The product registration required by a template is missing. Assign an existing product registration to the template or add the required product registration to the database. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E19205	‘At least one index level does not exist in the parameter set’ - The template uses an index level which does not exist in the parameter set. Add the missing index level to the parameter set or assign an existing index level to all elements of the concerned template. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E19210	‘The direct marking cannot be carried out’ - Faulty connection between PC and ACC. Check the Ethernet connection between PC and ACC. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E19301	‘The template sequence does not contain any template’ - Template sequences are not supported yet. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E19302	‘A template in the template sequence does not exist’ - Template sequences are not supported yet. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E19303	‘The heads of templates of a template sequence must be identical’ - Template sequences are not supported yet. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E19304	‘The product registrations of templates of a template sequence must be identical’ - Template sequences are not supported yet. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E19305	‘Product registration does not exist’ - Template sequences are not supported yet. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E19306	‘Defective template in the template sequence’ - Template sequences are not supported yet. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.

Table 8-4: Error Messages and Warnings

Error No.	Report on CLARiTY Operator Interface
E19307	‘The circuit for external laser enable has been opened’ - The circuit for the external laser enable is open. This can be caused by an open emergency switch. Close the circuit for external laser enable. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E19308	‘Cannot select beam source’ - Error in the CAN communication. Check CAN bus. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E19309	‘The clock had to be restarted. Please set the time!’ - The clock did stop and has already been restarted. The battery voltage might be too low. Set the time. If this happens every time after power cycle, exchange the battery. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E19311	‘Fiber Laser Extension Board has not been detected’ - No board or wrong board connected to the ACC. Check connection to FLEB. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E19312	‘Fiber Laser Overtemperature’ - Faulty fan. Clogged ventilating slots. Check cooling and ambient temperature. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E19313	‘The laser stop switch has been pressed’ - The laser stop switch has been pressed. Release laser stop switch. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E19314	‘SL501 Laser Extension Board cannot be identified’ - No or incorrect board connected to the ACC. Check connection to SLEB. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E19413	‘The interlock circuit has been opened’ - The interlock circuit has been opened. Close the interlock circuit.
E19502	‘Suction control error’ - Contact your local service representative or support team who will be able to provide assistance. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E19503	‘The filter is full’ - Check the filter condition and replace if necessary. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.

Table 8-4: Error Messages and Warnings

Error No.	Report on CLARiTY Operator Interface
E19504	‘The filter is full’ - Check the filter condition and replace if necessary. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E19505	‘The Safety circuit is open’ - Close the safety circuit to continue. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E19506	‘The front panel keyswitch is open’ - Close the keyswitch to continue. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E19507	‘The customer interface (CI) keyswitch is open’ - Close the keyswitch to continue. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E19508	‘The front panel stop button was pressed’ - Release the stop button to continue. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E19509	‘Safety connector has a signal on unused line’ - The configured safety circuit does not match the circuit attached. Contact your local service representative or support team who will be able to provide assistance. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E19510	‘The Key switch is closed. It can not be opened by software’ - In systems with combined hardware/sofware key-switch the key-switch cannot be opened by the software, if the hardware key switch is closed. To control the key-switch by software, please open the hardware key-switch first. Contact your local service representative or support team who will be able to provide assistance. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E26100	‘LHC has unexpected internal errors’ - Program error. Contact your local service representative or support team who will be able to provide assistance. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E29009	‘Beam shutter error’ - Defective beam shutter. Defective cable between beam shutter and LHC. Check beam shutter and cable. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.

Table 8-4: Error Messages and Warnings

Error No.	Report on CLARiTY Operator Interface
E33301	‘Power supply: Inadmissible terminal voltage’ - While starting: Short circuit at the output of the power supply. During operation: 1) Defective pump chamber. 2) Electr. malfunction of cooler. Check wiring between power supply and diode for short circuit. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E34200	‘Power supply: Overtemperature’ - The temperature within the power supply module is too high. Check cooling system. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E34201	‘Internal cooling circuit: Temperature above/below limit value’ - Internal cooling circuit is faulty. A possibly connected external chiller has insufficient cooling power. Broken cable of the signal line (X6.1). Check internal cooling circuit. Check external chiller. Check cables. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E34203	‘RF driver: Temperature error’ - Defective cooling system. Broken cable between RF driver and LPC. Defective RF driver. Check cooling system. Check cables. Exchange RF driver. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E39009	‘RF driver: VSWR error’ - Defective cable between RF driver and Q-switch. Defective cable between RF driver and LPC. RF power supply is defective. Check wiring. Exchange RF driver. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E39012	‘Power supply: General error’ - An internal monitoring function of the power supply has detected an error. Alltec DN-A power supply: Short circuit during operation. Check power supply and exchange if necessary. This fault cannot be cleared directly. Turn off the Laser Controller and the laser marking system. After a short interval turn on the Laser Controller and the laser marking system and confirm normal operation.
E55000	‘Defective customer interface (CI): The arrangement of the bus terminals has been changed’ - The hardware configuration of the CI has been changed. (Beckhoff error). Check the bus terminals of the customer interface. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.

Table 8-4: Error Messages and Warnings

Error No.	Report on CLARiTY Operator Interface
E55001	‘Defective customer interface (CI): Incompatible bus terminal’ - The bus terminal used is not supported. (Beckhoff error). Check the bus terminals of the customer interface. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E55002	‘Defective customer interface (CI): EEPROM error’ - An error occurred while saving the configuration to the EEPROM. (Beckhoff error). Check the bus terminals of the customer interface. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E55003	‘Defective customer interface (CI): Connection error between bus terminals’ - There has been a communication error between the Beckhoff terminals. (Terminal ERROR) (Beckhoff error). Check the bus terminals of the customer interface. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E55004	‘Customer interface (CI): Unknown error’ - The bus coupler of the customer interface (CI) has sent an undocumented error. Check the bus terminals of the customer interface. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E58100	‘Customer interface (CI): CAN bus warning limit exceeded’ - The bus coupler of the customer interface received too many error frames successively. Check the bus terminals of the customer interface. Check wiring of CAN bus. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E58101	‘Customer interface (CI): CAN bus OFF’ - The CAN bus has not been connected correctly to the bus coupler of the customer interface. Check wiring of the CAN bus. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E58102	‘Customer interface (CI): CAN bus transmission buffer overflow’ - The CAN bus has not been connected correctly to the bus coupler of the customer interface. Check wiring of the CAN bus. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E58103	‘Customer interface (CI): CAN bus receiving buffer overflow’ - Internal error of bus coupler. Exchange bus coupler. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E58104	‘Customer interface (CI): CAN bus incorrect PDO length’ - Internal communication error. Contact your local service representative or support team who will be able to provide assistance. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.
E58105	‘Customer interface (CI): Sync of CAN bus delayed or failed’ - The CAN bus has not been connected correctly to the bus coupler of the customer interface. Check wiring of the CAN bus. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.

Table 8-4: Error Messages and Warnings

Error No.	Report on CLARiTY Operator Interface
E58106	'Customer interface (CI): Guarding of CAN bus delayed or failed' - The CAN bus has not been connected correctly to the bus coupler of the customer interface. Check wiring of the CAN bus. When the fault is corrected, a 'Clear' button will appear below. Clear this fault and resume operation.

Table 8-4: Error Messages and Warnings

Note: *For training support on advanced applications, call Videojet Technologies Inc. at 1-800-843-3610 (for all customers within the United States). Outside the U.S., customers should contact their Videojet Technologies Inc. distributor or subsidiary for assistance.*

Diagnostics

The diagnostic screens show the current value of different parameters which help you in troubleshooting the laser system. To access the diagnostics screen, Navigate to *Tools* > *Diagnostics* (Figure 8-4). For more information, refer "Working with Diagnostics" on page 4-9.

Figure 8-4: Diagnostics Page

Illustrated Parts List

9

The illustrations and the associated tables provide detailed information about the parts of controller. This information is useful for ordering the spare parts for the controller.

Standard Controller Assembly

A

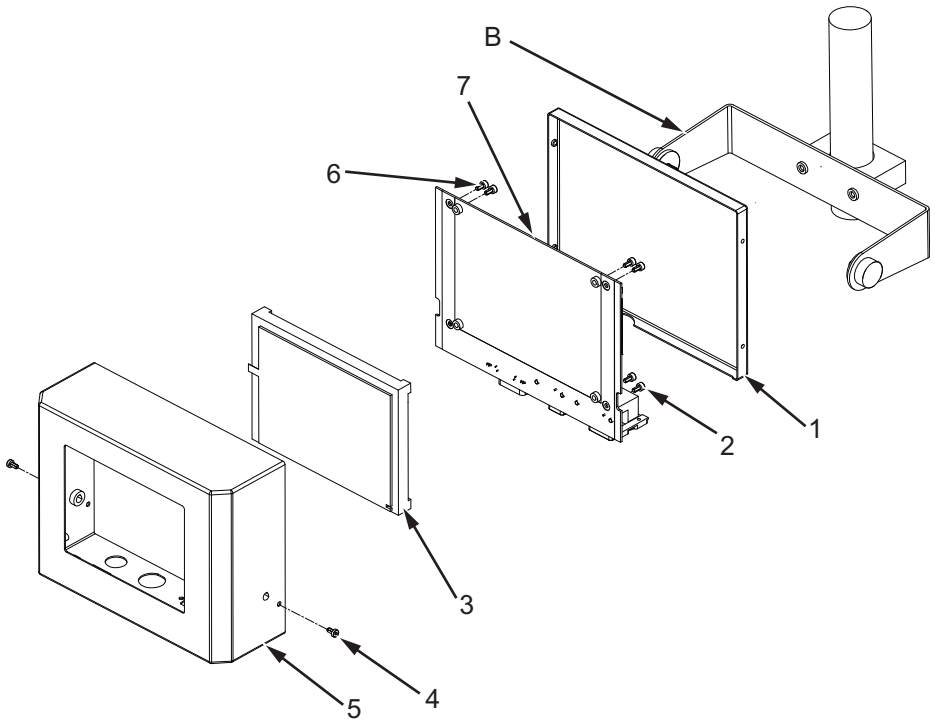


Figure 9-1: Standard Controller Assembly

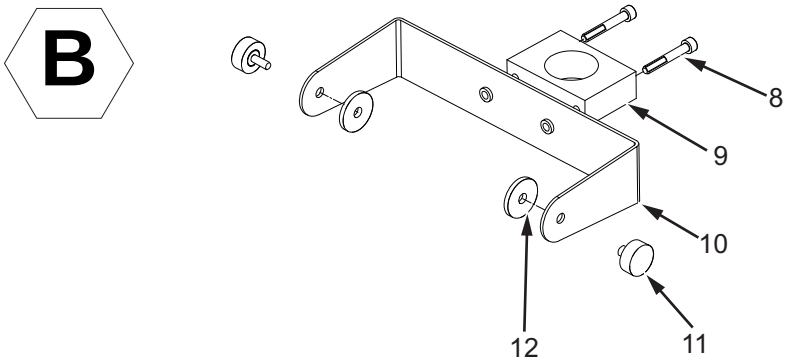


Figure 9-2: Yoke Assembly

Item Number	P/N	Description	Qty
A	406058	Controller	1
1		Bottom Case	1
2		Screw	2
3	405208	CLARiTY LCD 8.4 Display and Touch Screen	1
4		Screw	2
5		Top Case	1
6		Screw	6
7	406124	Control PCB	1
B	404457	Yoke assembly	
8		Screw	2
9		Tube Mounting Bracket	1
10		Yoke Bracket	1
11		Handwheel	2
12		Washer	2
13*	406377	Spare Memory Card	1
14*	402797	CLARiTY LCD Cable 8.4	1
15*	406373	Spare Mains Switch Assembly	1

Table 9-1: Controller

Item Number	P/N	Description	Qty
16*	406123	Power Supply Unit	1
17*		Mains Lead, IEC (See Table 9-2 for part numbers of different languages)	3
18*	216030	Fuse Kit	Set of 10

Table 9-1: Controller (Continued)

** - Item is not shown in the figure.*

Part Number	Description
704432	IEC Mains Lead - US Canada
704434	IEC Mains Lead - Europe
704435	IEC Mains Lead - Japan
704436	IEC Mains Lead - Italy
704437	IEC Mains Lead - China
704438	IEC Mains Lead - India/South Africa
704439	IEC Mains Lead - UK
704440	IEC Mains Lead - Switzerland
704441	IEC Mains Lead - Denmark
704442	IEC Mains Lead - Brazil/Philippines

Table 9-2: Mains Lead, IEC - Parts List

Laser System to Controller Cables

Item Number	Part Number	Description	Quantity
1*	AL-65970	Network cable 3 Meter [RoHS] (RJ45 to RJ45)	1

Table 9-3: Cables

Item Number	Part Number	Description	Quantity
2*	AL-74763	Cable, Adaptor, RJ45 to 8 PIN	1

Table 9-3: Cables

** - Item is not shown in the figure.*

Note: *For information on Illustrated Parts Lists of the laser system, refer Laser System Manual.*

Laser Products

A

Limitations

Note: *The CLARiTY controller will not support all print functions currently available on the lasers. Major unsupported features are as follows:*

- 1D Barcode fields
- Graphic fields
- Logo fields
- Pre loading of prompt fields with data
- Custom Fonts

Specifications

B

This chapter contains the following topics:

- Technical drawings
- Technical specifications
- System specifications
- Networking and External Communications
- Terminals

Technical Drawings

CLARiTY Controller

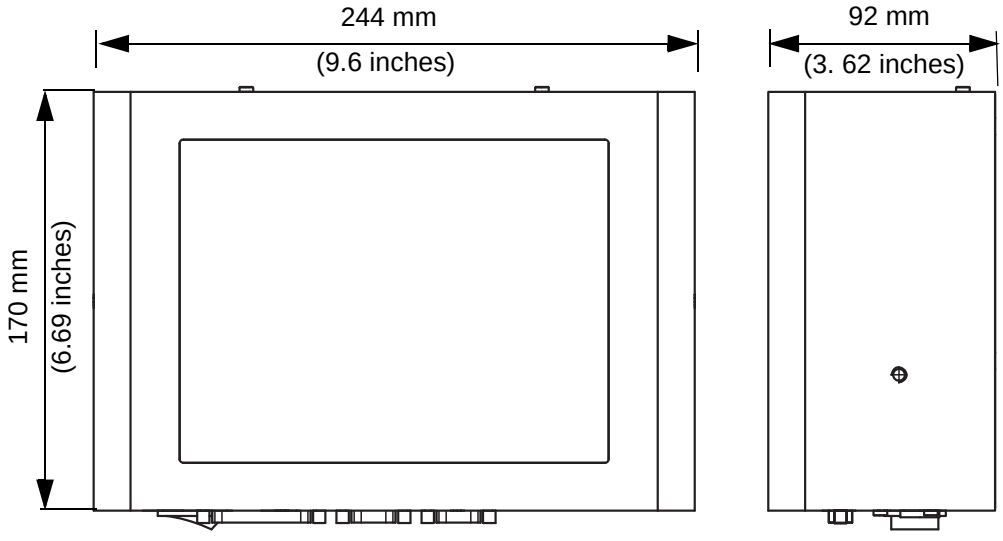


Figure B-1. CLARiTY Controller Dimensions

Technical Specifications

Table B-1 lists the technical specifications of the CLARiTY controller.

Technical Specification	Length (L) in mm	Width (W) in mm	Height (H) in mm	Screen
Controller / User interface (CLARiTY)	92	244	170	8.4″ TFT SVGA

Table B-1: Technical Specifications

System Specifications

Table B-2 lists the system specifications.

System Specifications	Description
Operator Interface	Full color LCD touch-panel CLARiTY Interface
	Job selection and database support as standard. WYSIWYG mark preview.
Operator Interface Languages	Operator Interface is available in the languages listed in Table 1-1 on page 1-2.
Password protection	Three user-levels
System Configuration Software	CLARiTY configuration manager
	Offline set up and parameter storage available as standard
Diagnostics	On-board diagnostics as standard
On-board Memory	SD Card

Table B-2: System Specifications

Networking and External Communications

Table B-3 lists the networking and external communication systems and its components.

Networking and External Communications	Component
External Data Communication	RS232 point-to-point communications
	Ethernet 10/100 base TX network communications
	Binary and ASCII Comms Protocols and Windows and Drivers
	Host PC mode (Remote database) using CLARiNET®
	USB Port
Network Control Software	CLARiCOM® CLARiNET® laser system independent network management software

Table B-3: Networking and External Communications

Terminals

Power Supply

Table B-4 lists the power supply performance values.

Value	Range
Power Supply Requirements	90 - 264 V (100 - 240 VAC), 50-60 Hz, 24 V @ 25 W

Table B-4: Power Supply Performance

Temperature and Humidity

Attributes	Range
Temperature Range	5 ^{O}C - 45 ^{O}C
Rate of change ambient temperature	Maximum 10 ^{O}C per hour
Humidity	10 to 90% Relative, non condensing

Table B-5: Temperature

Environment

The laser controller is provided with IP 40 rating.

CLARiTY Configuration Manager

C

Introduction

CLARiTY Configuration Manager lists all the configurable parameters of the printer.

CLARiTY Configuration Manager

Menu						Options	Value	Min	Max	Unit	Comments
Availability	AvailabilityScreen	ProxyType	value				1	0	1		
	Pareto Collection	Sort By				0: Sort By Downtime			1		
						1: Sort By Frequency					
	EventLog	Progress	Value				0	0	100		
		Result	Value				0	0	3		
		Status	Value				0	0	3		
Devices	PHds	1	Configuration	Angle			0	-360	360	degree	
				Consecutive Delay			100000	0	16000000	ms	
				Consecutive Distance			100000	0	16000000	mm	
				Consecutive Trigger Source		0: auto			8		
						1: trigger 1 raise					
						2: trigger 1 fall					
						3: trigger 2 raise					
						4: trigger 2 fall					
						5: trigger 3 raise					
						6: trigger 3 fall					
						7: program					
						8: none					
				DistPerRot			1000	0	2147483647		
				FixedSpeed			1000	0	2000000	mm/s	
				Mounting Position			270	-360	360	degree	
				PulsesPerRot			2048	0	1000000		

Table C-1: CLARiTY Configuration Manager

Menu						Options	Value	Min	Max	Unit	Comments
				RotDirMonitor		0: left			2		
						1: right					
						2: none					
				StartDelay			0	0	16000000	ms	
				StartDistance			0	0	16000000	mm	
				StartTrigger-Source		0: auto			7		
						1: trigger 1 raise					
						2: trigger 1 fall					
						3: trigger 2 raise					
						4: trigger 2 fall					
						5: trigger 3 raise					
						6: trigger 3 fall					
						7: program					
				StopDelay			0	0	16000000	ms	
				StopDistance			0	0	16000000	mm	
				StopTigger-Source		0: auto			8		
						1: trigger 1 raise					
						2: trigger 1 fall					
						3: trigger 2 raise					
						4: trigger 2 fall					
						5: trigger 3 raise					
						6: trigger 3 fall					
						7: program					
						8: none					
				Type		0: No Product Movement			2		
						1: Fixed Speed					
						2: Encoder					
			Line Setup	LineSpeed	DistancePer-Revolution		150000	1	10000000		
					FixedSpeed		99999	0	300000	mm/s	

Table C-1: CLARiTY Configuration Manager (Continued)

Menu						Options	Value	Min	Max	Unit	Comments
					PulsesPer-Revolution		40	1	1000000		
				Position Orientation	HeadRotation	0			3		
						1					
						2					
						3					
					JobOrienta-tionManual		180	0	359	degree	
					LaserPosi-tionManual		270	0	359	degree	
					LineMove-ment	0			2		
						1					
						2					
					ProductSide Selection1	0			5		
						1					
						2					
						3					
						4					
						5					
					ProductSide Selection2	0			3		
						1					
						2					
						3					
				Trigger Settings	Blocking TriggerDelay		10000	0	16000000	ms	
					BlockingTrig-gerDistance		10000	0	16000000	mm	
					StartTrigger-Delay		0	0	16000000	ms	
					StartTrigger-Distance		88662	0	16000000	mm	

Table C-1: CLARiTY Configuration Manager (Continued)

Menu						Options	Value	Min	Max	Unit	Comments
					TriggerMode	0: External Rising			3		
						1: External Falling					
						2: Internal Once					
						3: Internal Continuous					
Imaging	CLARiTY Data File	Character Set				0: ASCII			2		
						1: UTF8					
						2: Unicode					
	DateCodes	"Day Of Month Codes					<1>,<2>,<3>, <4>,<5>, …..	0	2048		Set up required date and time codes
		"Day of Week Codes					<A>,<B>,<C>, <D>,<E>, ….	0	512		
		"Hour Codes					<A>,<B>,<C>, <D>,<E>, ….	0	1024		
		"Minute Codes					<AG>,<AH>,<AI>,<AJ>, …	0	4096		
		"Month Codes					<JA>,<FE>, <MR>,<AL>, <MA>, …	0	512		
		"Week Of Year Codes					<1>,<2>,<3>, <4>,<5>, …..	0	4096		
		"Year of Decade Codes					<A>,<B>,<C>, <D>,<E>, ….	0	512		
	Line Selection	EnableLine-Selection				0: No			1		
						1: Yes					
		LineSelection-Mode				0: Communica-tions			2		
						1: Binary Inputs					
						2: Binary Hot Bit Inputs					
		Number of Lines					4	2	16	No. of lines	

Table C-1: CLARiTY Configuration Manager (Continued)

Menu						Options	Value	Min	Max	Unit	Comments
	PrintHeadMapping	Printhead1			Draft 12		1	1	4		
		Printhead2					1	1	4		
		Printhead3					3	1	4		
		Printhead4					4	1	4		
	Printer Codes	"Equipment Reference					1	0	255		
		"Factory Reference					1	0	255		
		"Line Reference					1	0	255		
	ResetPrintLimitOn-Startup					0: No			1		
						1: Yes					
	Shift Codes	Number Of Shifts					0	0	168	Number	Set up shift requirement
	Start Of Day						'+00:00:00	'-23:59:59	'+23:59:59		
	Start Of Hour Of Week						'+00:00:00	'-167:00:00	'+167:00:00		
	"TimerCode-Encryption						ABCDEFGHIJ	10	10		
	Update Queue	MaxQueue-Length					1	1	20	Number	
System	ComPort1	BaudRate				'0: 110			12		Baud rate selection
						'1: 300					
						'2: 600					
						3: 1200					
						4: 2400					
						5: 4800					
						6: 9600					
						7: 14400					
						8: 19200					
						9: 38400					
						10: 56000					
						11: 57600					

Table C-1: CLARiTY Configuration Manager (Continued)

Menu						Options	Value	Min	Max	Unit	Comments
						12: 115200					
		FlowControl				0: None			2		
						1: Software					
						2: Hardware					
		Usage				0: None			3		
						1: Text Communications					
						2: CLARiTY					
						5. Transmitted Field					
	Database Location					0: Local			1		Select the required location for the job files
						1: Remote					
	EnableUserTest-Print					0: No			1		
						1: Yes					
	Job Selection Mode					0: Product Code			1		
						1: Tiered					
	Logging	IncludeJob-Events				0: No			1		
						1: Yes					
		LoggingMode				0: None			2		
						1: Normal					
						2: Advanced					
	PowerSaving	Mode				0: None			3		Select the required power saving mode for the controller interface
						1: Minimal					
						2: High					
						3: Full					

Table C-1: CLARiTY Configuration Manager (Continued)

Menu						Options	Value	Min	Max	Unit	Comments
	ServiceInformation	"AddressLine1						0	99	No. of Characters	
		"AddressLine2						0	99	No. of Characters	
		"AddressLine3						0	99	No. of Characters	
		"AddressLine4						0	99	No. of Characters	
		"Customer-Name						0	99	No. of Characters	
		"PrinterLoca-tion						0	99	No. of Characters	
		"SerialNumber						0	99	No. of Characters	
		"Telephone-Number						0	99	No. of Characters	
	ShowJobDescrip-tionOnHome-Screen					0: No			1		Select yes to show the job description if provided for the print job
						1: Yes					
	TCPIP	BinaryCom-msNetwork-Port					3001	0	256000		
		"DefaultGate-way						0	15		
		"IPAddress					0.0.0.0	7	15		
		"SubnetMask					255.255.255.0	7	15		
		TextCommuni-cations	JobSelection-Mode			0: Normal			1		
						1: Selection per print					
			NetworkPort				0	0	256000		
	TextCommsAsync-Notifications Enabled						0	0	214783647		
	"TextComms ParameterFile						ZipherASCII-CommsProto-col.xml	0	200		

Table C-1: CLARiTY Configuration Manager (Continued)

Menu						Options	Value	Min	Max	Unit	Comments
	USB	PromptOn-CLARiTYData-FileDetect				0: No 1: Yes			1		Select yes to prompt if printer detects a CLARiTY Data file on the usb
		PromptOn-CLARiTYPa-rameterArchiv eDetect				0: No 1: Yes			1		Select yes to prompt if printer detects a CLARiTY archive file on the usb
		PromptOn-CLARiTYPrint-erCloneDetect				0: No 1: Yes			1		Select yes to prompt if printer detects a CLARiTY printer clone file on the usb
		PromptOn-CLARiTYUp-dateDetect				0: No 1: Yes			1		Select yes to prompt if printer detects a CLARiTY software update file on the usb
User Interfaces	CLARiTY	"Language					English	0	100		Select required language
		Measuremen-tUnits				0: Metric 1: Imperial			1		Select units - inches or mm
		Passwords	Enable Passwords			0: Disable 1: Normal 2: Advanced			2		Select the preferred password level
		Recalibrate Touchscreen									
		TouchToEdit	Enabled			0: Disable 1: Enable			1		
	CLARiTYConfig	"Archive					Not Archived	0	100		
		"LastUpdated					05/30/2012 10:02:37	0	100		
	WebServer	Enabled				0: No 1: Yes			1		Select yes to enable Web Server

Table C-1: CLARiTY Configuration Manager (Continued)

Glossary

Availability

The amount of time that an equipment is ready to run when required for production.

Job or Image

Job is the set of characters, that is required to be marked on the product label.

Label: Job or Image

Scanner Head Model

After the laser beam is expanded by the telescope it reaches the marking head. Two movable mirrors deflect the laser beam such that it passes over the lines of the opened template on the product. The lines are divided into vectors (X and Y coordinates) that is horizontal and vertical.

LCD

LCD is a thin, flat display device made up of any number of color or monochrome pixels arrayed in front of a light source or reflector.

Line Select

Line Select mode allows the controller to hold multiple jobs in RAM, which in turn allows the user to select the jobs for marking. Line selection mode allows up to 16 jobs to be configured on the laser system.

BCD mode: Line Select

Refresh the Print Memory

The print memory is updated automatically within CLARiTY.

Repeat Mark

When Repeat marking is enabled, the laser system will continue to mark even if the product is queued.

Repeat mark: Multi-mark mode