LASER SAFETY REQUIREMENTS

The following summarizes laser safety requirements and their impact on integrators and users of Synrad C02 lasers.

Laser Safety Standards for End Users

This Section discusses the requirements that apply to companies who purchase a Synrad Class IV Laser or a Class 1 or Class IV system that contains a Synrad laser for use in their facility. Recommendations for users are provided in the ANSI laser safety standard as discussed below, but in most states there are no legal regulations on laser safety installations. Please note, however, that OSHA inspectors can be called in and can cite facilities as part of their overall regulations to provide a safe workplace.

Class 1 installations – Facilities with Class 1 systems are exempt from most of the laser safety control measures, unless there is access to Class IV energy during maintenance or service.

Class IV installations – Control measures for Class IV include enclosing beam paths where feasible, establishing controlled access areas for trained personnel only, posting of warning signs, training and medical testing of operators, use of standard operating procedures (SOPs), protective eyewear and clothing, and protective barriers. These and other items are described in the ANSI laser safety standard that is discussed below.

Laser Hazards – There are two main concerns when evaluating the hazard from a CO2 laser. The collimated beam direct from the laser head or a mirror (without any focusing optics) contains sufficient heat energy to damage eyes, skin, or flammable materials for a considerable distance (100's of feet or more) from the source. The focused beam contains much higher power density for marking, cutting, or welding, but it is present only in a very localized area near the beam focus. Past the focus, the beam pattern expands significantly , and there is a distance beyond which the power spreads over an area that is so large that the laser beam is no longer hazardous.

ANSI Standard – Most user laser safety documents are based on the ANSI Z1365 series of standards, particularly ANSI Z136.1 Standard for the Safe Use of Lasers. That documents includes: a discussion of laser hazard evaluation with limits for Maximum Permissible Exposures (MPEs): administrative, engineering, and procedural control measures; requirements for laser safety

U.S. State Requirements - In the U.S. , user safety regulations are up to the individual states, and they are primarily based on the ANSI Z 136.1 safety standard. Those states with active laser safety control programs (and the telephone numbers for contact) are: Arizona(602)255-4845, Florida(904) 487-1004, Illinois(217)785-9975, Massachusetts(617)727-6214, New York State(718)797-7641 and Texas(512) 834-6688. Most of those state user regulations exempt facilities with Class 1 systems, but the place registration and control requirements on facilities with Class IV systems or with Class 1 systems that allow access to Class IV energy during maintenance or service.

OHSA – The Occupational Safety and Health Administration does not have specific laser safety requirements. However, if they are called into a facility, the inspectors follow published (OSHA Instruction PUB8-1.7 Guidelines for Laser Safety and Hazard Assessment) that are based on an earlier (1986) ANSI Z136.1 standard.

Please note: Only personnel familiar with laboratory laser safety procedures should operate this platform without safety shields. Protective eye wear should be worn around laser equipment. 3 Score Inc will not be held responsible for any harm or damage as a result of the use of this product. No safety shields of interlocks will be provided and are the responsibility of the customer. The customer is responsible for all regulatory approvals for the use of a class 4 laser product.

INSTALLATION:

To provide a safe and productive environment, the following operational guidelines should be followed. It is your responsibility to provide a proper operating environment.

Damage to the laser system WILL NOT be covered under warranty when due to inadequate or improper operating environment which is considered abuse. 3 Score Inc , in no event, will be liable for any damages caused, in whole or in part, by customer, or for any economic loss, physical injury, lost revenue, lost profits, lost savings or other indirect, incidental, special or consequential damages incurred by any person, even if 3 Score Inc has been told of the possibility of such damages or claims.

SYSTEM OPERATING REQUIREMENTS:

Environment (user supplied)

. The laser system MUST be installed in an office-like setting or light duty manufacturing environment. Environments open to dust can damage the laser system. It is recommended that the system is free from any type of sandblasting, sanding, oily, or any other machinery that produces airborne particles.

. Small, enclosed, non-ventilated areas should be avoided.

. We recommend that you operate the laser systems between the temperatures of 73 F (22C) to 77F (25C). This allows you to get the best results for you air-cooled systems.

. Do not store your laser system outside the temperatures of 50F (10C) to 95F (35C) as excessive cold or hot temperatures can reduce its time span as well as damage the laser cartridge.

ELECTRICAL (Customer supplied)

. 60AMP 220 VAC Single Phase Input.

Certified electrician required for fist time connection.

. Interferences and possible damages can be caused to the electronics of your laser system, when exposed to noisy and unstable electricity and voltage spikes. If you live an area where this may be common experience it is recommended that your have an electrical line stabilizer, UPS(Uninterruptible Power Supply), or a backup generator. You may also wish to connect your system to a dedicated electrical line.

. Always plug the system into a properly grounded (earthed) outlet.

		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± ANGULAR: MACH ± BEND ± TWO PLACE DECIMAL ± THREE PLACE DECIMAL ±	DRAWN		
			CHECKED		
			ENG APPR.		
			MFG APPR.		
		INTERPRET GEOMETRIC TOLERANCING PER:	Q.A.		
		MATERIAL	COMMENTS:		
NEXT ASSY	USED ON	FINISH			
APPLICATION		DO NOT SCALE DRAWING			

3Score, Inc.

TITLE: LTM100 Plus Installation

SIZE	DWG. NO.	REV
B	042207-01	

SCALE: 1:1 | SHEET 3 OF 3