Laser Safety Systems

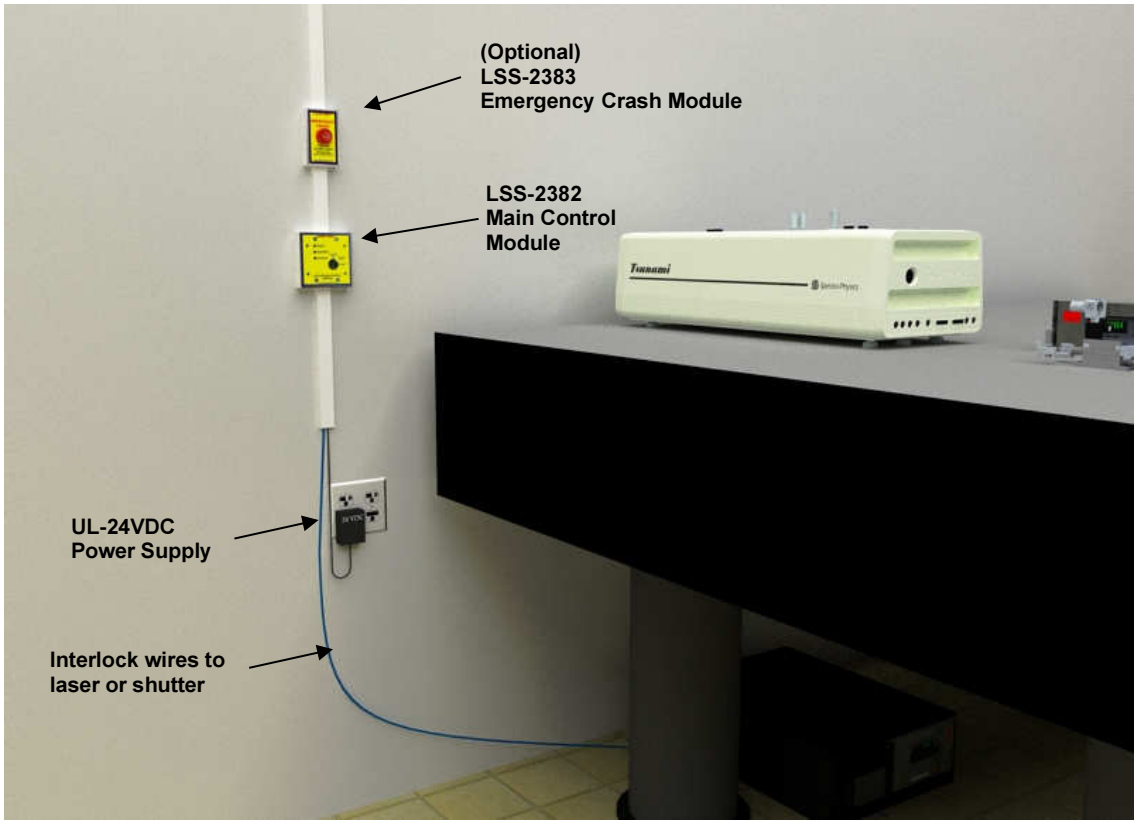
Your Engineered Laser Safety Solution

The image above shows a typical lab with a defeatable door interlock and a single laser table. Multiple doors and laser stations can be accommodated, but this document is intended to convey the simplicity of the system. The conduit surface track along the wall contains our 8-conductor main interlock cable. The cable provided with the system is UL Plenum rated. If desired, it can be run within walls or above a false drop ceiling without conduit.

When using any defeatable access controller, the laser is not secured during authorized entrance or egress. If there is a potential for exposure over Maximum Permissible Energy (MPE), a curtain labyrinth or complete curtain closure is necessary to prevent exposure to personnel in the hall during door opening.

The front door is shown from the exterior. The LSS-2380 Laser Warning Module is the starting point of our system. The module shows the armed or safe status of the room using our LED backlit hidden text display. Authorized laser workers can bypass the door interlock by entering a pass code in the keypad. The system can also accept a card reader input pulse.

Interior exit is shown above. The Push-To-Exit module permits egress without tripping the door interlock. The LSS-2388 Controller above the door shows the interlock state and access state using our LED backlit hidden text display. An audible signal is also produced during access. The audible signal may be programmed to off by the client if audible tones are not desired.



The LSS-2382 Main Control Module is placed at any convenient location in the room. Here we have shown it installed near the table to allow the user to arm and disarm the entire system from the table. System 24VDC power is introduced at this module, so it must be located within 5 feet of a power outlet. The module utilizes a high-security key for arming or lockout and has two sets of dry relay contacts that can be used to interlock up to 2 lasers or shutters. If additional laser systems need to be interlocked, our system can be expanded with one or more LSS-2384 Local Interlock Modules. The 2382 Main Control Module will permit or lock out all system modules..

This installation plan shows a surface track and surface boxes for installation. Laser Safety Systems carries a selection of Hellermann-Tyton low-voltage surface mount track, boxes, and interconnects. These components are completely compatible with a laser cleanroom environment and use a simple “peel and stick” double sided permanent tape. Using this material, the entire installation can be made without drilling any holes in the walls. Some drilling will be required at the door casing to mount the door limit switch; unless a 3M VHB tape or equivalent is used to mount the switch and magnet.

The modules can also be mounted using conventional metal boxes and conduit, or they can be dropped into the wall using “drop-in” boxes.

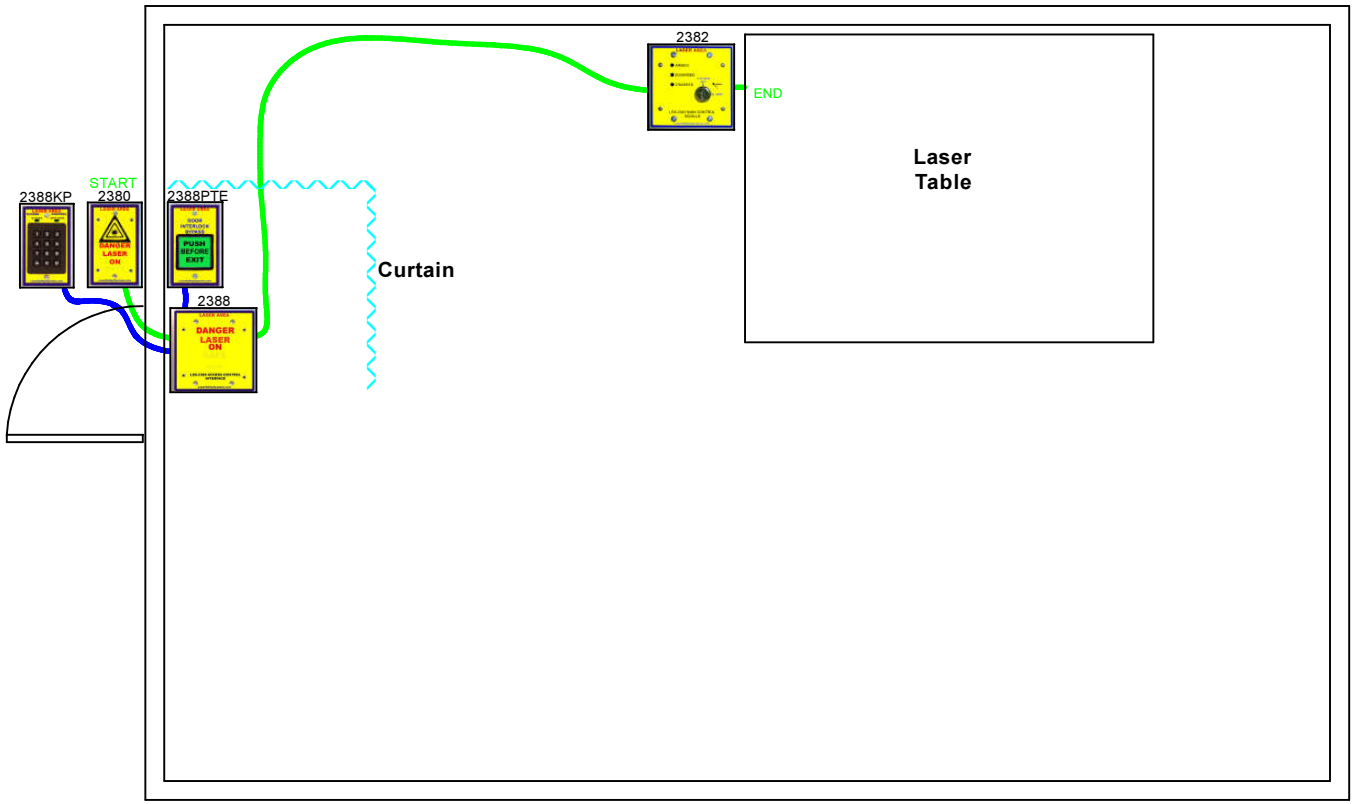
The three pages that follow are a typical example of the plan Laser Safety Systems provides to our clients after they fill out our Quote Questionnaire and give us a rough room layout diagram.

There is no charge for the plan. It benefits all parties to understand the final layout and it helps us produce an accurate custom quote based on the components selected.

This document is also transmitted electronically to our clients and is useful for attaching to their Laser Operational Safety Procedure (LOSP) for future reference to the schematic and general layout.

USER MANUALS CAN BE DOWNLOADED FROM:

https://lasersafetysystems.com/technical_data



PHYSICAL LAYOUT IN LASER ROOM

GREEN LINE DEPICTS PATH OF 8-CONDUCTOR INTERLOCK CABLE

BLUE LINES INDICATE CONNECTION WIRES PROVIDED WITH LSS-2388 KIT

BILL OF MATERIALS (BOM) FOR THIS PLAN

ITEM	QUANTITY
LSS2380 Warning Module	1
LSS2382 MAIN CONTROL MODULE	1
LSS2383 EMERGENCY CRASH MODULE	0
LSS2384 LASER/SHUTTER INTERFACE RELAY MODULE	0
LSS2387 NON-DEFEATABLE ACCESS MONITOR KIT WITH 1 DOOR SWITCH	0
LSS2381 ROOM INTERLOCK CONTROL MODULE	0
LSS2388 DEFEATABLE ACCESS CONTROL KIT WITH MAIN CONTROLLER, KEYPAD, PTE, AND ONE DOOR SWITCH	1
LSS2306-12 EXTRA DOOR SWITCH FOR ADDITIONAL MONITORED DOOR LEAF	0
LAS2305 MAGNETIC LOCK (MAXIMUM OF TWO PER SYSTEM)	0
UL24V POWER SUPPLY	1
8CUL 8-CONDUCTOR INTERLOCK CABLE (FEET)	50

CREATION DATE 11/22/2023 SIZE A

ENGINEER
John Hansknecht
757-229-6109

REQUESTING PARTY
Example room layout for a simple defeatable access room interlock

LASER SAFETY SYSTEMS
3017 ROAST DUCK LANE
JOHNS ISLAND, SOUTH CAROLINA 29455 USA

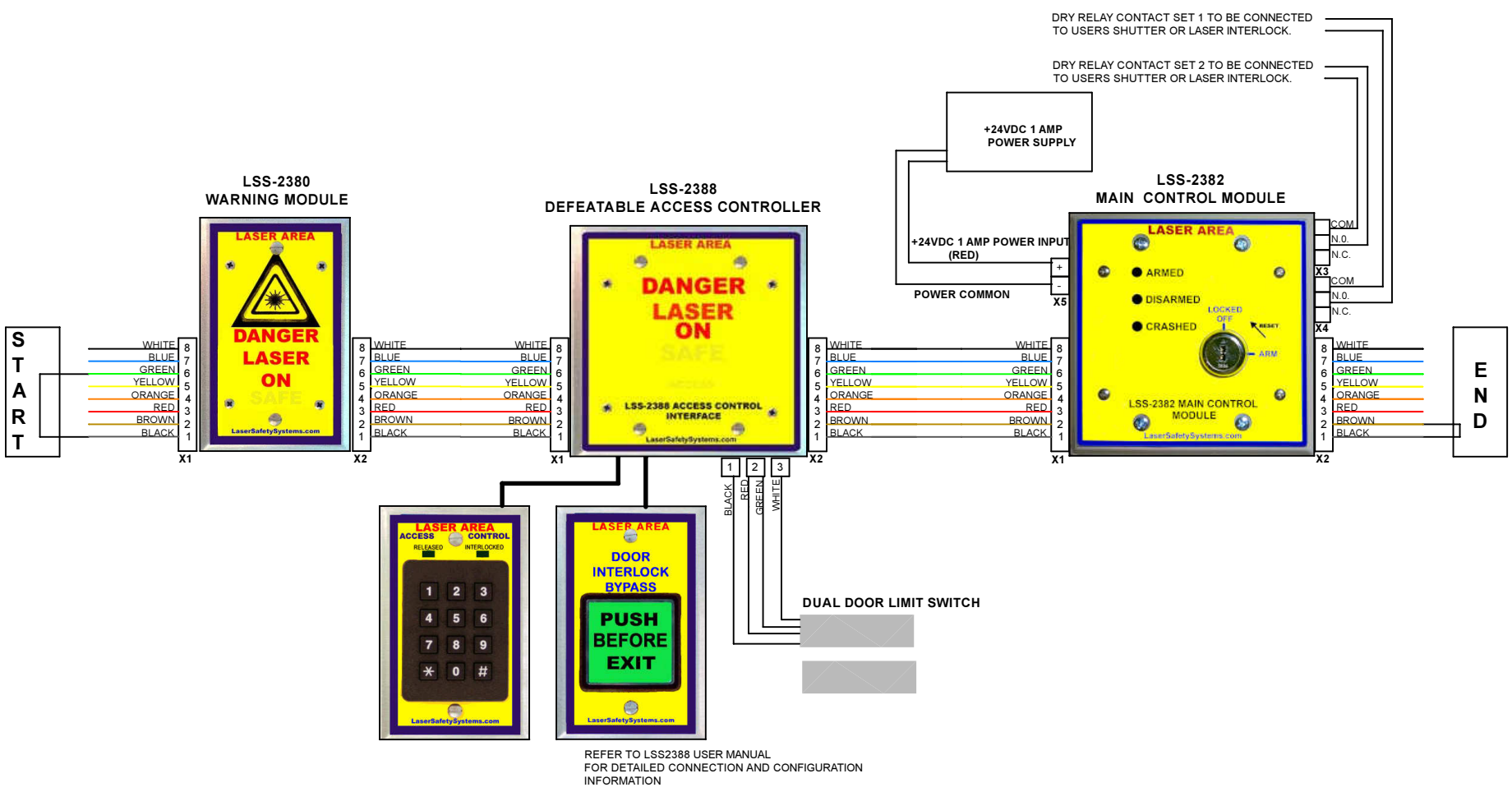
PAGE TITLE
LASER ROOM
LASER INTERLOCK MODULE
LAYOUT

DRAWING TITLE
Example client defeatable.dwg

REV. —

REVISION DATE 11/27/2023 2:50 PM

SHEET 1 OF 3



Note: Modules can be placed in any order desired as long as the start and end are terminated. The schematic layout shown above is only a suggestion. X1 and X2 connections are interchangeable. There is no directional significance to wire entry/exit.

CREATION DATE	11/22/2023
SIZE	A
ENGINEER	John Hansknecht 757-229-6109
REQUESTING PARTY	Example room layout for a simple defeatable access room interlock

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PAGE TITLE
LASER ROOM LASER INTERLOCK SCHEMATIC

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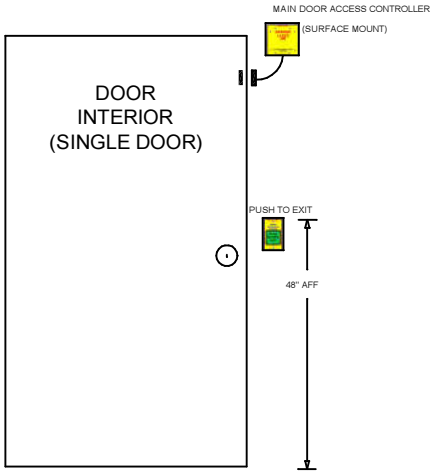
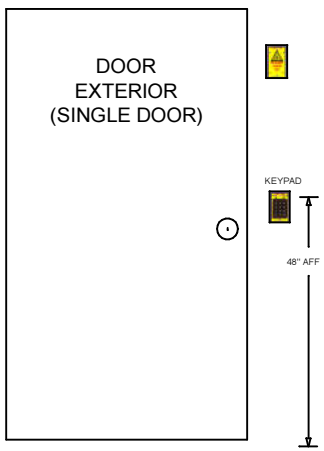
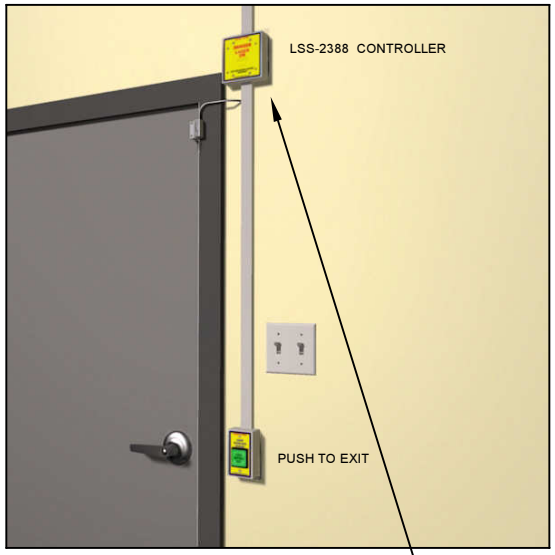
SHEET	2 OF 3

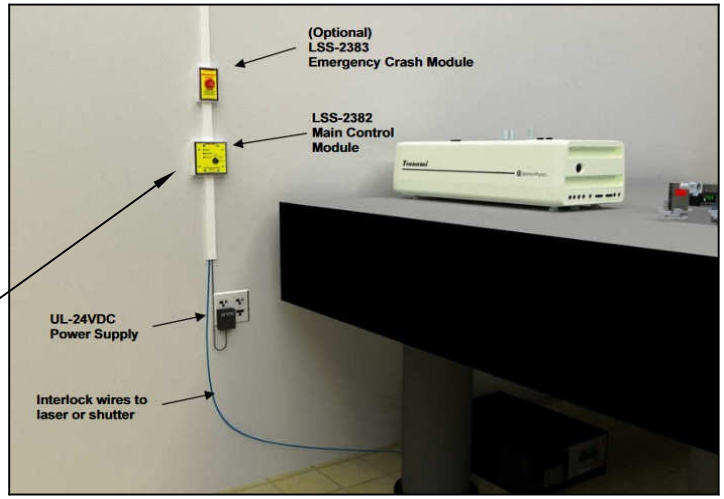
LSS-2388 DEFEATABLE
ACCESS CONTROL



LSS-2388 DEFEATABLE
ACCESS CONTROL







Hellermann-Tyton low-voltage surface mount boxes are **HIGHLY RECOMMENDED** for clean aesthetics when module has I/O signals coming outside of wall.
Laser Safety Systems carries this product.
Modules with room I/O are:
LSS-2382 mounts on Hellermann-Tyton TSRW-JBD
LSS-2388 mounts on Hellermann-Tyton TSRW-JBD
LSS-2384 mounts on Hellermann-Tyton TSRS-JB2
LSS-2387 mounts on Hellermann-Tyton TSRW-JB2

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REQUESTING PARTY Example room layout for a simple defeatable access room interlock	

LASER SAFETY SYSTEMS
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PAGE TITLE
LASER ROOM
LASER INTERLOCK MODULE
TYPICAL PLACEMENT

DRAWING TITLE Example client defeatable.dwg — REV. —

REVISION DATE 11/29/2023 4:03 PM — SHEET 3 OF 3