

## Embedded Laser Cutting and Engraving System

### Overview

The all-in-one embedded laser cutting & engraving control system integrates both motion control and laser control functions in one single slim compact controller. Based on high speed CPU+DSP+FPGA architecture, the controller has excellent performance, simple structure and stable operation. It is a very cost-effective product of which many critical technological researches and designs are targeted at the laser-processing field.



### Main Features

- **Dual processors and standalone controller** integrates motion control and laser control.
- Professional operating panel with powerful functions.
- **Network Control** to fulfill distributed control of multiple machines.
- Based on professional motion control technology.
- Real-time detection of limited switch signals and driver alarm signals.
- Speed optimization and trajectory optimization are used to ensure the high speed and smoothness of the large amounts of segments during the motion, thus prevent the formation of jags during the motion process.
- Using analog or digital control CO<sub>2</sub>, YAG and other types of laser tubes.
- Integrated laser power control model remove the non-linearity problem.
- Backlash compensation and laser process control resolve the “double image” problem.
- Special control algorithm to ensure the base smoothness of engraving;
- Functions can be added, removed and customized easily due to open protocols, thus further development can be achieved.



SW platform	Windows 2000/XP/Vista	Comm. Interface	USB □ (U drive), Ethernet □
Data format	PLT、DXF、BMP etc	Data capacity	128M, Expandable to 2G
No of axes	4	Dimension	280mm x 150mm x 20mm
Resolution	±0.5 pulse	Panel Size	150mm x 100mm
Motor control	Pulse+Dir or ±Pulse	Power supply	24V Icc>1A and 5V Icc>2A
Laser control mode	PWM(Duty cycle adjustable 1000 divisions), Analog(5V, 4096 divisions)	Supported laser tube type	CO <sub>2</sub> , YAG

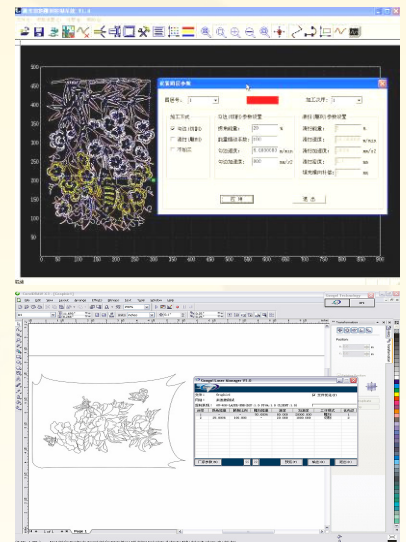
## Technical Specification

### Control system functions:

- Control panel with number keys, control keys and auxiliary function keys to facilitate parameters input
- Display with processing time, quantity, total quantity and existing processing part
- Encryption key, waterproof, cover protection, hardware limit switch, software limit, driver alarm and other alarm protection functions.
- Support auto load/unload function, rotational engraving.
- Array processing function of direct operation
- Short key for concave/convex engraving, Inner/Outer cutting.
- Support local and USB drive management of files such as file copy, file delete etc.
- Compose speed ratio, energy ratio, corner cutting power and other real-time adjusting function processing parameters
- Different power on modes can be selected: homing or back to previous position

### Data processing software functions:

- Support PLT, DXF, BMP and other popular file format
- Embedded trajectory optimization and maximum efficiency processing algorithm
- Curve-node display and off duty trajectory display
- Graphic layout editing
- Hierarchical processing
- Graphical simulated processing display
- Cutting & engraving two-axes backlash compensation function
- Processing area display, can be defined by users
- Software encryption function
- Predestined starting position can be set
- Industrial Ethernet, USB data transfer
- CORELDRAW add-on tool box



Data processing software  
and CoreDraw Add-On

### Ordering Guide

Product model	GUC-400-ESG-LASER	
Standard package	Description	Quantity
GUC-400-LASER-P01-I motion controller	Main controller : Economical all-in-one embedded motion controller	1
GTPANEL-LASER-1.1	Laser operation panel (with connecting cable)	1
CONNECTOR-LASER-1.0	External port to USB and Ethernet (with USB extension cord and Ethernet extension cable)	1
SoftDog	Encryption Key	1
CutArtist	Data processing software	1
LaserNew	Embedded system control software	1
Others	Cables, CD, user manual etc	1