



**KE28XX INFOTAG[®] MARKER
OPERATIONS and MAINTENANCE MANUAL**
KE2800, KE2852, KE2856



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INFOSIGHT CORPORATION

20700 U.S. Hwy 23

P.O. Box 5000

Chillicothe, Ohio 45601

+1 (740) 642-3600 Tel. (M-F 8am-5pm US Eastern Time Zone)

+1-800.401.0716 Emergency Service U.S. & Canada (outside normal business hours)

+1.740.642.4666 Emergency Service International (outside normal business hours)

+1.740.642.5001 Fax.

<http://www.infosight.com>

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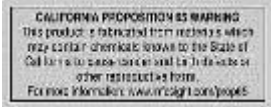
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Optical/Laser Safety

| | |
|---|--|
|  | <p>INVISIBLE LASER RADIATION AVOID EYE OR SKIN EXPOSURE TO DIRECT OR SCATTERED RADIATION CLASS 1 LASER PRODUCT, USING A CLASS 4 EMBEDDED LASER (25W or 50W, 10.57 – 10.63 μm)</p> <p><i>The laser beam Exits the Final lens 7.5 inches from the tag</i></p> |
|  | <p><i>Never attempt to operate the Laser Tag Marker without the protective covers in place.</i> <i>Never attempt to override any of the safety interlocks on the tag printer.</i> <i>Never attempt to dismantle or repair the tag printer. In case of malfunction contact an Infosight service representative.</i> <i>Any of the actions mentioned above may result in permanent eye or skin damage. Refer to Laser Safety section for more information on laser safety.</i></p> |

Labels / Warnings

| | |
|---|--|
|  | <p>Caution, Laser Radiation – See Appendix</p> |
|  | <p>Warning label located on the side near the communications ports:</p> <p>CLASS 4 INVISIBLE LASER RADIATION WHEN OPEN AVOID EYE OR SKIN EXPOSURE TO DIRECT OR SCATTERED RADIATION</p> |
|  | <p>Warning label located above the rating plate on the side of the Laser Marker:</p> <p>CLASS 1 LASER PRODUCT</p> |
| <p>Environmental Conditions</p> | <p>The Labelase® Printer is intended for Indoor use only. Altitude up to 6500 feet, operating temperature 40 to 100 degrees F, 80% maximum relative humidity, rated 220VAC 5A 50/60Hz or 110VAC 10A 50/60Hz according to Job Number (Legend plate on marker), pollution degree 2. NOTE: 220V models both sides of the incoming line voltage are fused.</p> |
| <p>CAUTION</p> | <p>If this printer is not used in the manner specified by this manual, the safety features provided may be insufficient.</p> |
|  | <p>Warning Label located on the side of the printer, near the communications ports, regarding California Proposition 65.</p> |

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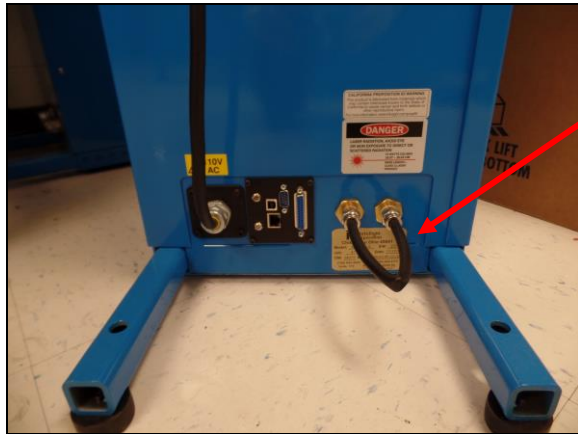
1. SYSTEM SETUP

1.1 PRINTER SETUP

The KE28XX requires either:

- 220VAC 5A (Fused at 5 amps) 50/60Hz or
- 110VAC 10A (Fused at 10 amps) 50/60Hz

Refer to the Legend Plate on your marker.



Legend Plate

Caution High Leakage Current: this device must be fitted with a Type B (twist lock) plug. Use a properly approved IEC 309 plug for 220V power connection. Unit must be connected to a branch circuit with a dedicated circuit breaker. Warning: 220V models both sides of the incoming line voltage are fused.

Recommended AC plug type is:

Woodhead 1447 for 110V

IEC 309 for 220V

Note: Complete AC Disconnect is accomplished at the power plug

UK Deviation:

Cores in this main are colored in accordance with the following code:

Green and yellow: earth, Blue: neutral, brown: live.

The KE28XX should be positioned at least a foot away from the wall to allow room for the ventilation. The three inch ventilation hose should be attached to the top of the marker to remove residue from the marking area and should be discharged outside the pulpit area. This will require an external exhaust fan.

The KE28XX LASER MARKER should be placed in a temperature controlled environment. This marker, though designed for steel mill use, should be treated as any typical computer system and printer.

1.2 AFFIXING THE KE28XX TO SOLID PLATFORM

Important:

The KE28xx support legs are designed to be anchored to the floor or concrete to prevent the unit from tipping over in the unlikely event of a force exerted upon the side surfaces of the units. Incorporated in the design of the support legs are four (4) 33/64" thru-holes. These four (4) thru-holes are to have placed through them, suitable anchor bolts to affix the KE28XX to the floor. The type of anchor bolt used will depend upon the base material the KE28XX will be set upon. Recommended anchor bolts are listed below.

Note: Anchor bolts used are to withstand a tension weight of at least 50 lbs. each.

| Manufacture | Description | Floor type |
|-------------|----------------------------|---------------|
| Hilti | KB II 38-3 3/8" Kwik bolt | Concrete |
| | Cast in place 3/8-16UNC 2" | Concrete |
| | 3/8" x 2" Lag bolts | Wood |
| | 3/8" x 4 " J bolts | Steel Grating |

1.3 TERMINAL SETUP

The Terminal is attached to the top DB-25 connector on the back side of the marker using the supplied cable. The terminal facilitates the interface between the user and the marker. A terminal or terminal program is required. The Terminal settings should be:

| | | |
|-----------------------|----|--------------|
| Emulation | -- | VT220 |
| Keyboard Type | -- | 108 |
| Main Port Speed | -- | 19200 |
| Data Width | -- | 8 |
| Parity | -- | None |
| Stop | -- | 1 |
| Transmit Flow Control | -- | X-ON / X-OFF |
| Receive Flow Control | -- | X-ON / X-OFF |
| Host Interface | -- | RS232 |

If a terminal was supplied with the KE28XX to enter or exit the terminal settings screen press SHIFT-F3. To check correct settings on the terminal, power on the marker by switching the key switch located on front panel to the ON position. The software contained within the marker should present the user with a bordered windowed screen.

1.4 COMMON PRINTER SETTINGS FOR VARIOUS MODELS

| Printer Model | KE2800 | KE2856/54 | KE2852/53 |
|--------------------|---------|-----------------------------|------------------------------|
| Heat: (4:1) | 10 | 50 | 150 |
| Stepper Resolution | 0.00505 | 0.00505 | 0.0103 |
| Stepper Delay | 150 | 450 | 600 |
| Mirror Resolution | 0.006 | 0.006 | 0.012627 |
| Reverse Take-up | 1 | 1 | 1 |
| Laser Off Tickle | 7 | 7 | 7 |
| Tear Off Location | 7 | 7/ Application Dependent | 7 / Application Dependent |
| Cache | ON[X] | ON[X] | ON[X] |
| High Definition | ON[X] | ON[X] | OFF [] |
| Number of Lasers | 1 | 2 | 2 |
| Pixels Per Row | 560 | 560 | 280 |
| Galvo Divider | 5 | 5 | 10 |

1.5 POWER ON

1. Insert the key into the key switch slot.
2. Turn the key to the “1” position.
3. Pull out the Red Emergency Stop (E-Stop) Jumbo Pushbutton
4. Press the Amber lighted Reset/Tag Feed Pushbutton.



1.6 LOADING NEW TAGS

1. Mount the new roll atop the circular platform to the left of the marker.
2. Feed by hand the tip of the tag stock, pushing it into first roller until it stops “the drive roller”.
3. Once reaching the drive roller press the Amber Lighted Tag Feed Pushbutton.



Reminder - The marker is not ready for use until the laser E-stop is RESET by pressing the amber reset button .

1.6.1 Tag Break Off

After pressing the orange tag feed button the tag should align itself to the breakoff location on the right side of the printer. After each print cycle the printer automatically aligns the tag stock to the breakoff location. The tag that has exited can then be bent front to back twice and the tag will break off and release itself. Each tag should be broken off individually so that there are no more than a single tag at the exit at one time. Allowing more than one printed tags to hang at the exit can cause several situations to happen that can damage the printer and cause the printer to malfunction.

Each TAG as Printed should be broken off.

2. OPERATIONS

2.1 PRINTING A TAG

Note - The following assumes the KE28XX marker has already been set up with your particular tag layout.

The KE28XX marker can be used as a stand-alone marker or data can be downloaded via RS232 data communications. For demonstration purposes, we will assume the marker will be used as a stand alone marker.

Tags can only be printed from two screens on the terminal; the MAIN SCREEN, and the OPERATOR SCREEN. At each of these screens, simply press the PRINT button located on the front panel. DO NOT hold the PRINT button in for more than 3 seconds. The Laser Marker is set up to perform a “TEST PRINT” when the PRINT button is depressed for more than 3 seconds.

2.1.1 Printing From The Operator Screen

The OPERATOR SCREEN is a supervisor selectable screen. When the laser marker is powered ON, the OPERATOR SCREEN is the screen that is displayed if this option is turned on by the supervisor.

The OPERATOR SCREEN can be customized with up to ten prompted fields. At each prompt the operator types in the required data and presses ENTER. If the supervisor has set up verification parameters, the data will be checked for accuracy before the next field can be entered. If the information is entered incorrectly (i.e. an alpha character where a numeric is supposed to be), an error message appears and prompts the operator to re-enter the information in the correct format. Once the correct data has been entered, the OPERATOR should press the PRINT button on the front control panel. A typical 6” tag will take about 20 -30 seconds, depending on model, to print. After printing the tag is fed through the presentation slot for easy break off at the nick of the tag.

2.1.2 Printing From The Main Screen

The MAIN SCREEN is the factory default screen. The MAIN SCREEN contains the pull down menus available for tag editing and laser marker setup. This screen is displayed when the marker is powered ON if the OPERATOR SCREEN is disabled.

The MAIN SCREEN can be customized with the same prompted fields as the OPERATOR SCREEN. At each prompt, type the desired information and press ENTER. Once the correct information has been entered, press the PRINT button on the front control panel to print a tag. Printing can also be accomplished by using the pull-down menu (top of screen) MARKER. Simply choose PRINT from the MARKER pull-down menu to print the desired information typed. The printed tag will be presented to the operator through the presentation slot for easy break off at the nick of the tag.

2.2 KE28XX SCREENS

The KE28XX is equipped for easy supervisor flexibility and contains many pull down screens and menus. To move quickly and easily through these screens, the software has been designed with quick keys. The quick key letters are highlighted on each screen. To use the quick keys, simply press CTRL-(highlighted letter). You can also use the arrow keypad or the TAB key to move within each window.

2.2.1 Main Screen

```
[ InfoSight Corporation - InfoTag Marking System ]
General  Tag      Marker  Setup  Monitor
SYSTEM
Current Message
Assignment : 2
Status
MODE      : ??
STATE     : IDLE
TAGS LEFT : 267
QTY REQ.  : [6      ]
COUNT   : 6
START NO:  [496749 ]
S/N Lower : [1      ]
S/N Upper : [999999 ]
Print Batch
Pause
```

The MAIN SCREEN is the factory default screen. When the laser marker is powered ON, this screen will appear. Only certain menus and fields are accessible unless the supervisor password has been entered. The MAIN SCREEN has 5 pull-down menus available at the top of the screen; GENERAL, TAG, MARKER, SETUP, MONITOR. The following is a brief description of each menu and what they contain:

1. GENERAL -
 - a. ABOUT - About the KE28XX Marker.
 - b. SUPERVISOR - Allows password access to EDIT SCREENS.
 - c. OPERATOR - To return to OPERATOR SCREEN.
 - d. REDISPLAY - Redisplays the screen should the screen become corrupted.
2. TAG -
 - a. ASSIGN - Change assignment buffers (10 tag layouts available)
 - b. EDIT - Allows you to edit the tag layout and OPERATOR SCREEN.
3. MARKER -
 - a. ON-LINE - Brings the marker on-line/off-line from the screen.
 - b. PRINT - Allows user to print from the screen.
 - c. FEED A TAG - Allows user to feed tags from screen.
4. SET UP -
 - a. MARKER - Set: tag width/length, tags per roll, heat of laser, half laser active.
 - b. COMM PORT - Set: baud rate, bits, stop, parity.
 - c. HOST - Set: protocol, offsets and lengths.

- d. UNITS - English or metric
 - e. SUPER PASSWORD - Allows user to set the supervisor password.
 - f. EDIT PASSWORD - Allows to edit supervisor password.
 - g. USER TABLE - Allows set up of shift, day, month, or year, audit tracking.
 - h. TIME/DATE - Sets time and date.
 - i. DEFAULTS - DO NOT USE. Sets system defaults.
5. MONITOR – For InfoSight field service use only!

2.2.2 Edit Screen

The EDIT SCREEN allows the Supervisor to change the tag layout (size and dimensions) of up to 20 available fields. See DESIGNING TAGS for details of designing tag layouts. The EDIT SCREEN is accessed via the Main Screen, Tag Menu, Edit Option.

```

[ InfoSight Corporation - InfoTag Marking System ]
[ Tag Editor ]
Buffer Number : [2 ]
Text
1 : [%10 ] [0.80 ] [0.55 ] [2.200 ] [1.50 ] [2.00 ] [0 ]
2 : [%20 (1,1) ] [0.00 ] [0.00 ] [0.375 ] [0.00 ] [0.00 ] [0 ]
3 : [%20 (2,1) ] [0.00 ] [0.00 ] [0.375 ] [0.00 ] [0.00 ] [0 ]
4 : [45%3S ] [0.00 ] [0.00 ] [0.375 ] [0.00 ] [0.00 ] [0 ]
5 : [ ] [0.00 ] [0.00 ] [0.375 ] [0.00 ] [0.00 ] [0 ]
6 : [ ] [0.00 ] [0.00 ] [0.375 ] [0.00 ] [0.00 ] [0 ]
7 : [ ] [0.00 ] [0.00 ] [0.375 ] [0.00 ] [0.00 ] [0 ]
8 : [ ] [0.00 ] [0.00 ] [0.375 ] [0.00 ] [0.00 ] [0 ]

START NO: [496749 ] Qty Required : [6 ] Prefix : [ ]
Lower : [1 ] Count : [6 ] Suffix : [ ]
Upper : [999999 ]
Increment : [-1 ] Slash in Zero : [ ]

[ Ok ] [ Cancel ] [ Barcodes ] [ Logos ] [ OperSetup ] [ FlagHelp ]

```

Example 2.2.2-1

| Field | Text | Special Code Description |
|-------|----------|---|
| 1 | %1O | Denotes - Print the information from line 1 of the OPERATOR SCREEN at the given dimensions in the X and Y locations and the specified height and width. |
| 2 | %2O(1,1) | Denotes - Start at the 1st character of line 2 from the OPERATOR SCREEN, and include only 1 character at the given dimensions (X, Y, Height, Width). |
| 3 | %2O(2,1) | Denotes - Start at the 2nd character and include only 1 character from line 2 of the OPERATOR SCREEN. |
| 4 | 45%3S | Denotes - Print 4 5 then a 3 digit serialized number starting at the given S/N value prompt. |

Note – Be careful to note the difference between “O” and “0” on the screens. The flags in the example above (%1O) are the letter “O”, referring to the Operator.

Note - You must go back to the MAIN SCREEN to print a tag with the new settings.

The bottom of the EDIT SCREEN has 5 prompts; OK, CANCEL, BARCODE, LOGO, OPERATOR SETUP. These keys perform the commands listed:

- 1) OK - Returns to the MAIN SCREEN and saves the new layout information.
- 2) CANCEL - Returns to MAIN SCREEN without saving the new layout information.
- 3) BARCODE Setup Screen - Allows the customization of bar codes.
- 4.) LOGO Setup Screen - Allows the customization of LOGOS
- 5) OPERATOR SETUP - Customizes and verifies prompts for the OPERATOR SCREEN.

2.2.3 BARCODE SETUP SCREEN

The barcode setup screen allows the user to define the barcode symbology and appearance of the barcode. The example below denotes - Print a Code 128 (type b,c) barcode linking the input data from fields 2 and 3 from the EDIT SCREEN with a scale of 2 (number of scan lines) at the given X, Y locations and the given height rotated at 90 degrees.

```

[ InfoSight Corporation - InfoTag Marking System ]
[ Tag Editor ]
[ Tag Barcode Editor ]
1  Symbology      Scale      X          Y          Height     Link      Rot
2  1 : [ 128bc   ]v      [2 ]      [8.00 ] [0.00 ] [0.400 ] [23 ] [90 ]
3  2 : [ None    ]      [3 ]      [0.00 ] [0.00 ] [0.375 ] [1 ] [0 ]
4  3 : [ None    ]      [3 ]      [0.00 ] [0.00 ] [0.375 ] [1 ] [0 ]
5  4 : [ None    ]      [3 ]      [0.00 ] [0.00 ] [0.375 ] [1 ] [0 ]
6  5 : [ None    ]      [3 ]      [0.00 ] [0.00 ] [0.375 ] [1 ] [0 ]
7  6 : [ None    ]      [3 ]      [0.00 ] [0.00 ] [0.375 ] [1 ] [0 ]
8  7 : [ None    ]      [3 ]      [0.00 ] [0.00 ] [0.375 ] [1 ] [0 ]
8  8 : [ None    ]      [3 ]      [0.00 ] [0.00 ] [0.375 ] [1 ] [0 ]

```


2.2.4 LOGO SETUP SCREEN

The Logo Setup Screen allows the user to setup logos to be printed.

```
[ InfoSight Corporation - InfoTag Marking System ]
[ Tag Editor ]
[ Tag Logo Editor ]

1
2 1 : [None ]v      [0.00 ] [0.00 ] [1.000 ] [1.00] [0 ]
3 2 : [None ]      [0.00 ] [0.00 ] [1.000 ] [1.00] [0 ]
4 3 : [None ]      [0.00 ] [0.00 ] [1.000 ] [1.00] [0 ]
5 4 : [None ]      [0.00 ] [0.00 ] [1.000 ] [1.00] [0 ]
6 5 : [None ]      [0.00 ] [0.00 ] [1.000 ] [1.00] [0 ]
7 6 : [None ]      [0.00 ] [0.00 ] [1.000 ] [1.00] [0 ]
8 7 : [None ]      [0.00 ] [0.00 ] [1.000 ] [1.00] [0 ]
8 8 : [None ]      [0.00 ] [0.00 ] [1.000 ] [1.00] [0 ]

Ok Cancel

Ok Cancel Barcodes Logos OperSetup FlagHelp
```

2.2.5 OPERATOR SETUP SCREEN

The OPERATOR SCREEN is designed for the normal manual use of the marker. To provide ease of use, the OPERATOR SCREEN has 8 supervisor selectable prompts on the screen. At each prompt, the operator types in the required data in the correct format and presses RETURN or ENTER to enter the data.

To move from the OPERATOR SCREEN to the MAIN SCREEN, press CTRL-X, this step requires the supervisor password to enter the MAIN SCREEN.

The supervisor can design the look and prompts available on the Operator Screen. The example below is the Operator Setup Screen (accessed via the Edit Screen, OperSetup Option).

```

[ InfoSight Corporation - InfoTag Marking System ]
[ Tag Editor ]
[ Operator Setup Editor ]

1      Active   Prompt           Verify           Auto Clear
2  1 :   [X]    [HEAT # : ]    [#####]        [X]
3  2 :   [X]    [SEQ NUM: ]    [##]            [X]
4  3 :   [ ]    [           ]    [ ]            [ ]
5  4 :   [ ]    [           ]    [ ]            [ ]
6  5 :   [ ]    [           ]    [ ]            [ ]
7  6 :   [ ]    [           ]    [ ]            [ ]
8  7 :   [ ]    [           ]    [ ]            [ ]
8  8 :   [ ]    [           ]    [ ]            [ ]

Qty Req [X]      [START NO: ] [X]      Lower [ ]      Upper [ ]

      [ Ok ]      [ DEFAULT ]      [ Cancel ]

```

There are 8 available prompt fields. The prompts in this example are explained below.

The first line will print HEAT # : on the OPERATOR SCREEN and limit the operator to entering only 4 numbers.

The second line will print SEQ NUM: on the OPERATOR SCREEN and limit the operator to entering only 2 numbers.

Both will auto clear once the operator starts to type.

The following describes each heading:

ACTIVE - Toggle field (RETURN). Makes prompt show up on OPERATOR SCREEN

PROMPT - Up to a 10 character messages for each prompt.

VERIFY - Verifies information typed is accurate using special characters:

\$ - Alpha Upper Case Characters (A,B,C,D...)

- Numeric Digits (1,2,3,4...)

? - Any Character (A,B,C,1,2,3,?,/,%...)

* - Any Character for any length up to the next instruction.

[] -The Characters in the brackets are the only valid characters, exactly as typed.

AUTO CLEAR - Clears the data field when the operator starts to type in the data.

Also causes a clear after each cycle print completed

At the bottom of the OPERATOR SETUP SCREEN has 3 prompts; OK, CANCEL, DEFAULTS.

The following explains each:

OK - Returns to the EDIT SCREEN and saves the operator input layouts.

CANCEL - Returns to the EDIT SCREEN without saving the operator layouts.

DEFAULTS - Restores the operator setups to the defaults.

3. DESIGNING TAGS

3.1 TAG DESIGN

Tags are designed using the Tag Edit screen. As in above screen it can be seen that up to 20 sets of characters along with up to eight different barcodes along with eight logos. The characters, barcodes, and logos can be sized and rotated independently. This can all be done with the tag edit screen. Character sizes range from 0.1 inches to 2.5 inches per character.

3.2 TAG LAYOUT SOFTWARE

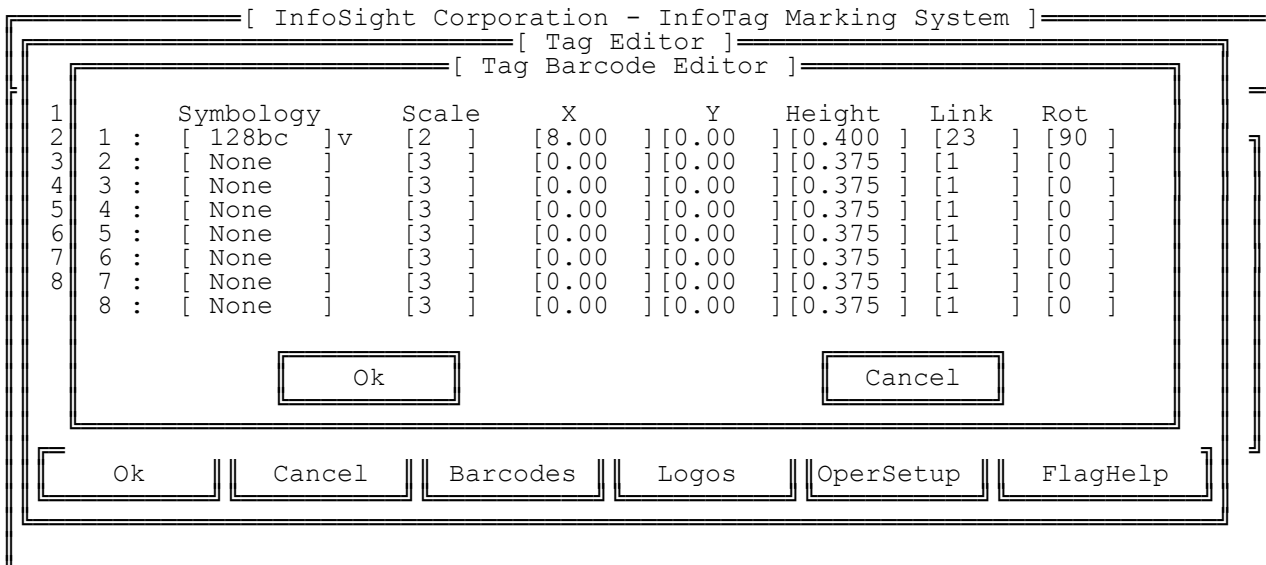
Tags may also be designed using the tag layout software available free from InfoSight. Contact the factory to obtain this software. The software is only available in a windows environment.

InfoSight phone number: 1.888.642.3600 (outside the USA call +1.740.642.3600)

3.3 BARCODE EXAMPLES

Barcode types:

- Code 128
- Interleaved 2 of 5
- Code 39
- Numbra
- Code 39N
- Code 391
- Data Matrix



The above example denotes - Print a Code 128 (type b,c) barcode linking the input data from fields 2 and 3 from the EDIT SCREEN with a scale of 2 (number of scan lines) at the given X, Y locations and the given height rotated at 90 degrees.

3.4 SERIAL NUMBERING

Serial numbering of tags is accomplished in the Edit screen filling out the appropriate data fields. These data fields are self-explanatory.

3.5 LOGO AND IMAGE DOWNLOAD

Logos may be downloaded via the host connected using a separate utility available from InfoSight.

Image downloads are explained in the Extended Protocol Manual.

4. MAINTENANCE

4.1 PERIODIC MAINTENANCE

1. Periodic (1 per month) replacement or cleaning of filters on side panel.
2. Removal of debris buildup in laser channel using brush or vacuum. **DO NOT** use a blower of any type.
3. Galvonmeter mirror cleaning.
4. Final lens Cleaning - White vinegar
5. Check Heat Exchanger fluid level.

4.2 LASER OPTICS CLEANING AND ALIGNMENT

Laser optics alignment should be performed by a qualified technician.

Print test Tag by pressing the print button and holding it in until print starts and then release it. At the bottom edge of the test tag will be a thin line.

Adjust galvo mirror until the line is at the edge of the tag. Tighten the mirror clamp then check for alignment again. Clean all optics with white vinegar and return all covers.

4.3 CLEANING OPTICS

Gently wipe the surface of each optic with a cloth that will not leave any fibers and is not abrasive. The cleaning solution that is recommended is **white vinegar**. **DO NOT RUB HARD.** Drag the cotton across the surface just fast enough so the liquid evaporates right behind the cotton. This should leave no streaks. For optics that are severely contaminated call InfoSight for replacement. After cleaning replace top cover.

Do not use compressed air to clean optics!

4.4 TROUBLE SHOOTING

Service during normal business hours (Monday-Friday, 8am-5pm):

1.888.642.3600 (outside the USA call +1.740.642.3600)

Emergency after-hours service:

1.800.401.0716 (outside the USA call +1.740.642.4666)

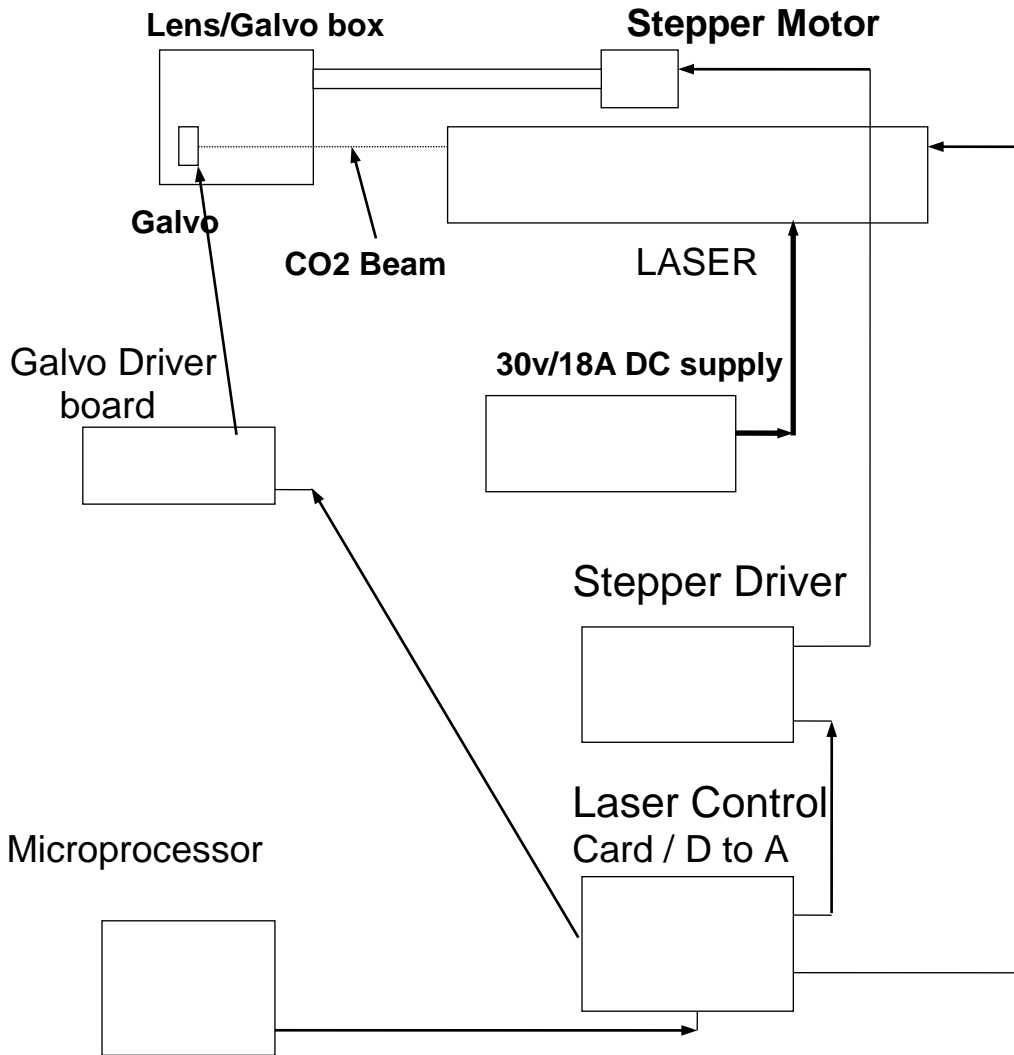
- Problem: Marker does not respond to print button.
Solution: Check E-Stop
Check key switch
- Problem: No laser printing on tag (Blank tag)
Solution: Check Heat exchanger fluid level
- Problem: E-Stop won't light.
Solution: Pull E-Stop button
Check key switch
- Problem: Out of tag message on screen.
Solution: Out of tag stock.
- Problem: Tag exiting to far or not far enough.
Solution: Check Stepper resolution.
Check Stepper Rate.
- Problem: No display on terminal.
Solution: Check terminal configuration.
19200 baud , No parity , 8 data bit, 1 stop , VT220
Cable from Ke28xx should be plugged into MAIN on back of terminal.
- Problem: Light print across entire tag.
Solution: Lens/Mirrors require servicing
- Problem: Excessive amount of dust inside.
Solution: Replace filter on sides of marker.
Check to make sure vent is unobstructed.
- Problem: Incorrect information printed on tag.
Solution: %1O or %2O is typed in incorrect using a zero instead of an O (OH)
- Problem: Fine lines in tag print.
Solution: Stepper motor rate set to low in MARKER SETUP ADVANCED Screen.
Lens cleaning
- Problem: Barcode too long for tag size.
Solution: Reduce number of characters in barcode data.
Use more efficient barcode symbology.
Reduce barcode scale.

5. APPENDIX

- A. Laser Subsystem
- B. Serial Port Connection
- C. Extended Protocol
- D. Laser Safety
- E. Declaration of Conformity
- F. Engineering Drawings

Appendix A -Laser Subsystem

Functional Block Diagram



The laser Subsystem is described above in the block diagram. The system is controlled by the microprocessor card in the STD bus rack. The Laser is a CO2 laser.

Appendix B – Serial Port Connection

Laser Serial port connection to an IBM-PC or equivalent.

Cable pinouts:

| PC-DB25 | InfoSight | PC-DB9 | Infosight |
|------------------|-------------|-------------|-----------|
| * TX 2 -----+ | | RX 2 ----- | 2 TX |
| RX 3 ----- ----- | 2 TX | TX 3 ----- | 3 RX |
| | +----- 3 RX | RTS 7 --+ | |
| RTS 4 --+ | | CTS 8 --+ | |
| CTS 5 --+ | | GND 5 ----- | 7 GND |
| | | DSR 6 --+ | |
| GND 7 ----- | 7 GND | DTR 4 --+ | |
| DSR 6 --+ | | | |
| DTR 20 --+ | | | |

* 2 & 3 are crossed.

Note: Preferred handshake protocol is Xon-Xoff.

XON is DC1 CTL-Q or 11h or 17 decimal
XOFF is DC3 CTL-S or 13h or 19 decimal

Appendix C - Sample of Extended Protocol

- 1.) Set marker to receive information for buffer # 1
Transmit: 0x01 "A" 0x02 "1" 0x03 0x0D
Receive: 0x01 "A" (0x06) 0x02 0x03 XXX 0x0D
(0x15)
- 2.) Send data to operator field #1 (6 digit heat #)
Transmit: 0x01 "1" 0x02 "160819" 0x03 0x0D
Receive: 0x01 "1" (0x06) 0x02 0x03 XXX 0x0D
(0x15)
- 3.) Send data to operator field #2 (2 digit sequence #)
Transmit: 0x01 "2" 0x02 "01" 0x03 0x0D
Receive: 0x01 "2" (0x06) 0x02 0x03 XXX 0x0D
(0x15)
- 4.) Send data to operator field #3 (2 digit width #)
Transmit: 0x01 "3" 0x02 "54" 0x03 0x0D
Receive: 0x01 "3" (0x06) 0x02 0x03 XXX 0x0D
(0x15)
- 5.) Send GO command
Transmit: 0x01 "G" 0x02 0x03 0x0D
Receive: 0x01 "G" (0x06) 0x02 0x03 XXX 0x0D
(0x15)

NOTE:

- 1.) 0x06 in the response message means message received ok.
0x15 in the response message means message received is not ok or faulty.
- 2.) XXX are three asc characters that comprise the BCC checksum
- 3.) Sending the BCC checksum is optional. (See Extended Protocol section)
- 4.) XON - CTL Q 11h
XOFF - CTL S 13h

LASER SAFETY

Proprietary InfoSight Corp.

04/23/97

InfoSight Corp.
20700 U.S. Rt. 23
Chillicothe, Oh 45601
740-642-3600
740-642-5001
<http://www.infosight.com>

04/23/97

Laser Safety

Section I: Introduction to

Lasers, like arc welders, are a source of intense light that require certain precautions to insure a safe, comfortable, compliant, working environment. This is especially true since the laser included in this marking equipment operates in the infrared (invisible) portion of the light spectrum. The enclosure surrounding the marking area is designed to prevent human exposure to the light emitted by the laser. The following information is the procedures taken to design a safe, efficient environment for laser marking equipment.

Laser products are categorized into one of four classes based upon the power of the laser light that is accessible to any person during normal operation. These classes range from Class 1, the lowest class requiring no additional safeguards other than those provided by the manufacturer, to Class 4, the highest class that requires additional operator and working environment safeguards for safe operation.

Class 1 laser marking systems include enclosures integral to the workstation that are constructed to prevent human access to the laser beam. Class 1 systems are safe in all working environments; they are installed and operated the same as any other industrial machine tool. Class 1 laser systems do not require the use of any special laser safety equipment by operators or bystanders during their normal operation.

Class 4 laser marking systems do not incorporate protective enclosures. Extra precautions are required with this type.

The laser marking system designed by InfoSight Corporation for the marking of tags complies with Class 1 during normal use because of the numerous interlocks provided (detailed in section II).

The Laser during Service and/or alignment is a Class 4. The service is done by a **Qualified Laser Service/Safety Technician!** Because of the Class 4 classification, InfoSight will provide such a person to be available to the end user of this marker.

The Power output of the laser used is 25 or 50 watts. It is a C02 infrared (invisible) laser with a wavelength of 10.57 to 10.63 microns. The Radiant energy and the wavelength are less than Class 1 requirements during normal operation.

Laser Safety

Section II: Types of safety interlocks.

There are various types of safety features provided on the InfoSight laser tag marker.

The first type is **Mechanical Switches**. These switches remove power supplied to the laser marker, and can be seen in the drawings in the appendix.

Switch A -- Large Red, easily accessible, operator Emergency Stop PUSH Button.
Switch B -- Key switch

The second type are the **Optical Sensors**. Sensors monitor whether tag material is in place and the marker is able to move the tag material. These two sensors are monitored by the marking microprocessor.

The third type is **Mechanical Design**. Here, narrow slots are provided to eliminate the chance of chances of laser radiation. The beam path is entirely enclosed in a metal shield, with suitable material that will absorb the heat produced by the beam emitting from the CO2 laser.

The fourth type is the **Password Security Access Software** written into the marking systems microprocessor. This Software requires a **supervisor password** to change layout of tags or to alter the operating parameters of the marker itself.

Laser Safety

The features above and precautions described above taken by InfoSight are in place with the safety of the user in mind. Should you have any questions or suggestions please do not hesitate to call.

Internal Laser Specifications (25 Watt)

| | |
|------------------------------------|---|
| Laser Type..... | 25 watt CO ₂ pulsed wave |
| Laser Classification..... | Class IV during service (Title 21 CFR, Part 1040 U.S., FDA) |
| Wave Length | 10.57 to 10.63 microns |
| Power Output: | |
| Typical | 25 watts (@ 5kHz) |
| Minimum on delivery | 18 watts (@ 5kHz) |
| End of life..... | 15 watts (@ 5kHz) |
| Power Stability | after 30 sec. warm-up: ±5% |
| Mode..... | TEM ₀₀ equivalent - 95% purity |
| Beam size | 3.5mm |
| Divergence (mR)..... | 5 |
| Polarization | Random |
| Modulation | to 5 kHz |
| Pulse Repetition frequency | 5 kHz |
| Electrical Control..... | TTL input (+3.5 V) to 20 kHz |
| Electrical Input | 28 VDC version (48-2-28) 28-32 VDC, 16A max |
| Tickle pulse..... | 1.0 μS (@ 5kHz) |
| Thermal shutdown temperature | 140° F ± 2.7°F, 60° C ± 1.5°C |
| Laser tube life expectancy | 35,000 hrs. |
| Laser shelf life (no use) | 14 years |

Internal Laser Specifications (50 Watt)

| | |
|----------------------------------|---|
| Laser Type..... | 50 watt CO ₂ pulsed wave |
| Laser Classification..... | Class IV during service (Title 21 CFR, Part 1040 U.S., FDA) |
| Wave Length | 10.57 to 10.63 microns |
| Power Output: | |
| Typical | 50 watts (@ 5kHz) |
| Minimum on delivery | 40 watts (@ 5kHz) |
| End of life..... | 40 watts (@ 5kHz) |
| Power Stability | after 30 sec. warm-up: ±5% |
| Mode..... | TEM ₀₀ equivalent - 95% purity |
| Beam size | 3.5mm |
| Divergence (mR)..... | 5 |
| Polarization | Random |
| Modulation | to 5 kHz |
| Pulse Repetition frequency | 5 kHz |
| Electrical Control..... | TTL input (+3.5 V) to 20 kHz |

| | |
|------------------------------------|--|
| Electrical Input | 28 VDC version (48-5-28) 28-32 VDC, 28A max |
| Tickle pulse..... | 1.0 μ S (@ 5kHz) |
| Thermal shutdown temperature | 140° F \pm 2.7°F, 60° C \pm 1.5°C |
| Laser tube life expectancy | 35,000 hrs. |
| Laser shelf life (no use) | 14 years |

Laser Specifications:

| | |
|----------------------------|--|
| Type of laser | 25 or 50 watt CO2 PULSED WAVE (RF Excited) |
| LASER Classification | Class I During normal operation |
| Wave length | 10.6 microns |
| Mode | TEM ₀₀ 95% purity |
| Polarization | Linear-vertical 50:1 extinction min. |
| Pulse Repetition frequency | 5 kHz |
| Emergent beam size | 3.5 mm |
| Divergent beam size | |
| Tickle pulse | 1.0 us @ 5 kHz |
| Power Supply | 30vdc @ 16/32 amps |
| Laser Tube life expectancy | >20,000 hours |
| Thermal shutdown | 50 degrees C |

Certifications:

EMC Emissions

- ICES-003 Issue 4 Class A Digital Apparatus emissions requirements (Canada)
- CFR 47 FCC Part 15 Subpart B Class A emissions requirements (USA)
- EN 55011:2007/A2:2007 Group 1 Class A ISM emissions requirements (EU)
- EN 61000-3:2006 Limits for harmonic current emissions (equipment input current up to and including 16A per phase)
- EN 61000-2-2:2008 Limitation of voltage fluctuations and flicker in low-voltage supply systems for equipment with rated current up to and including 16A

EMC Immunity:

- EN 61326:2006 EMC requirements for Electrical equipment for measurement, control, and laboratory use – General Use

Safety

- IEC 61010-1:2001 and EN6100-1:2001 Including Group and National differences as they apply for AU, CA, US, CH, JP, and KR
- IEC 60825-1:2007 (2nd Edition)

Declaration of Conformity
InfoSight Corporation
20700 US Rt 23 Chillicothe, Ohio 45601
(740) 642-3600 TEL (740) 642-5001 FAX

InfoSight hereby declares the equipment specified conforms to the Classification(s), Directive(s) and Standard(s) set forth in this document.

InfoSight produces laser systems within one of two classes as identified and classified by the CDRH. These are Class I and Class IV. (see CDRH 21 CFR (J) 1040.1 - 1040 .5). End user of the equipment should be familiar with ANSI, CDRH and OSHA standards for radiation emitting devices as they apply to them also.

ANSI Z136.1 - 1993

We will provide adequate data to the LSO (Laser Safety Officer) enabling LSO to designate NHZ (nominal hazard zone) as required pursuant to Class IV 3.4.1

CDRH 21 CFR (J) 1040.1 1040.5

OSHA Publication 8-1.7
Section II Chapter 6

Certifications:

EMC Emissions

ICES-003 Issue 4 Class A Digital Apparatus emissions requirements (Canada)

CFR 47 FCC Part 15 Subpart B class A emissions requirements (USA)

EN 55011:2007/A2:2007 Group 1 Class A ISM emissions requirements (EU)

EN 61000-3-2:3006 Limits for harmonic current emissions

(equipment input current up to and including 16A per phase)

EN 31000-3-3:2008 Limitation of voltage fluctuations and flicker in low-voltage supply systems for equipment with rated current up to an including 16A

EMC Immunity:

EN 61326:2006 EMC requirements for Electrical equipment for measurement, control and laboratory use
– General Use

Safety

IEC 61010-1:2001 and EN6100-1:2001

Including Group and National differences as they apply for AU, CA, US, CH, JP, and KR

IEC 60825-1:2007 (2nd Edition)

Note: InfoSight design guidelines are drawn from ANSI and CDRH



1.1.1 KE2800 Declaration of Conformity

Declaration of conformity
Konformitätserklärung
Déclaration de conformité
Declaración de Conformidad
Verklaring de overeenstemming
Dichiarazione di conformità

We/Wir/ Nous/WIJ/Noi: **InfoSight Corporation**
20700 US Rt 23
Chillicothe, Ohio 45601 USA

declare under our sole responsibility that the product,
erklären, in alleniniger Verantwortung, daß dieses Produkt,
déclarons sous notre seule responsabilité que le produit,
declaramos, bajo nuestra sola responsabilidad, que el producto,
verklaren onder onze verantwoordelijkheid, dat het product,
dichiariamo sotto nostra unica responsabilità, che il prodotto,

KE2800

to which this declaration relates is in conformity with the following standard(s) or other normative documents.
auf das sich diese Erklärung bezieht, mit der/den folgenden Norm(en) oder Richtlinie(n) übereinstimmt.
auquel se réfère cette déclaration est conforme à la (aux) norme(s) ou au(x) document(s) normatif(s).
al que se refiere esta declaración es conforme a la(s) norma(s) u otro(s) documento(s) normativo(s).
waarnaar deze verklaring verwijst, aan de volende norm(en) of richtlijn(en) beantwoordt.
a cui si riferisce questa dichiarazione è conforme alla/e seguente/i norma/o documento/i normativo/i.

EMC Emissions:

EMC Emissions

- ICES-003 Issue 4 Class A Digital Apparatus emissions requirements (Canada)
- CFR 47 FCC Part 15 Subpart B class A emissions requirements (USA)
- EN 55011:2007/A2:2007 Group 1 Class A ISM emissions requirements (EU)
- EN 61000-3-2:3006 Limits for harmonic current emissions
(equipment input current up to and including 16A per phase)
- EN 31000-3-3:2008 Limitation of voltage fluctuations and flicker in low-voltage supply systems for
equipment with rated current up to an including 16A

EMC Immunity:

- EN 61326:2006 EMC requirements for Electrical equipment for measurement, control and laboratory use
– General Use

Safety

- IEC 61010-1:2001 and EN6100-1:2001
Including Group and National differences as they apply for AU, CA, US, CH, JP, and KR
- IEC 60825-1:2007 (2nd Edition)

Edward S. ONeal
2/15/2013
Chillicothe, Ohio

APPENDIX F – Engineering Drawings

- General Arrangement
- Electrical Drawings