IMID60 Package

Technical Brochure

IM-ID60- I-Mark programmable dot peen unit includes all required components for setting up a marking station:

- o Marking head assembly
- o Controller Model 200
- o I-Mark PC software (customer supplied PC required for initial programming, and may be used for monitoring over Ethernet)
- o Cable to connect marking head to controller, 10 ft.
- o Crossover cable to connect controller to PC (not required if connected directly to internet)
- o Requires 1 shop airline 1/4" NPT and 110VAC power supply.

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Mechanics and Industrial Build

The mechanics required for dot-peen marking machines are the pin assembly, and the CNC controlled motorized axes. A minimum of 2 motorized axes are required. There are a wide range of motors and axes available. The pin actuation can be controlled via electrical or air power. Additional mechanics include the mounting of the head, safety guarding, approaches, rotational axis, and part handling.

The pin assembly houses the pin and the actuation mechanism. The pin is the "hammer" of the peening process. The tip of the pin may be made from either carbide or diamond. The important point is to have a material that is harder than the substrate being peened, but not so fragile as to crack or be compromised by the impact force of the peening process. The diamond tip is most often used for aerospace 2D machine readable code marking.

Figure 1 - Plastic pin housing

The pin assembly comes in a variety of sizes and constructs. The smaller and shorter the housing, the faster the actuation. The larger and longer the housing, the stronger and deeper the mark. To ensure speed, the pin housing is made of light material. The pin housing is sometimes made from plastic as shown in Figure . Plastic housings are used to provide speed with a smaller motor and will also reduce cost. Plastic is not a good material to use in a high production environment reliably. The choice of using marking systems with plastic material in a high wear component results in high repair rates and down time. Metal pin housings (Figure 2) are an element of a more industrial design for dot-peen marking machines. The metal housing will also weigh more and require larger motors to match the speed of the plastic housing, and this in turn increases the price of the marking machine. Lower maintenance expense and longer uptimes are among the benfits of this investment.

Figure 2 - Metal pin housing

Marking Head Assembly

- o Marking window is 60 x 40 mm (2.35 x 1.59 inches)
- o Marking stylus speed of 300mm per second, which marks up to (3-5) characters per second.
- o Small marking head mountable in any position for inline integration (7" Wide x 7" deep x 5.5" tall)
- o High torque stepper motors and linear bearing rail drive system in both X and Y axes
- o Features linear rail guide ways.
- o All metal pin assembly
- o Uses carbide stylus.
- o Extreme quality construction; designed for harsh environments.

Controller Model 200

- NEMA 1 industrial enclosure 14" W x 8" H x 6" D
- Sixteen (16) 24vdc optically isolated digital I/O fully programmable with software for controlling external hardware devices to help save costs in automated applications. (8 inputs and 8 outputs)
- Binary select feature for selecting and executing up to 32 multiple programs via the I/O
- Ethernet 10/100 BaseT communications for programming and integratng into system network (can be used with static IP setup or in DHCP mode on a network)
- I-Mark high resolution networkable motor drives for stepper or servo motor control with 10a peak motor output per axis. (Up to 4-axes per controller)
- Digital current and servo loops with line driver encoder for controlling servo motors
- Closed or open loop stepper motor control with micro stepping capability.
- Industrial Harting interface connectors for marking head and I/O
- Serial data port for input (RS232)
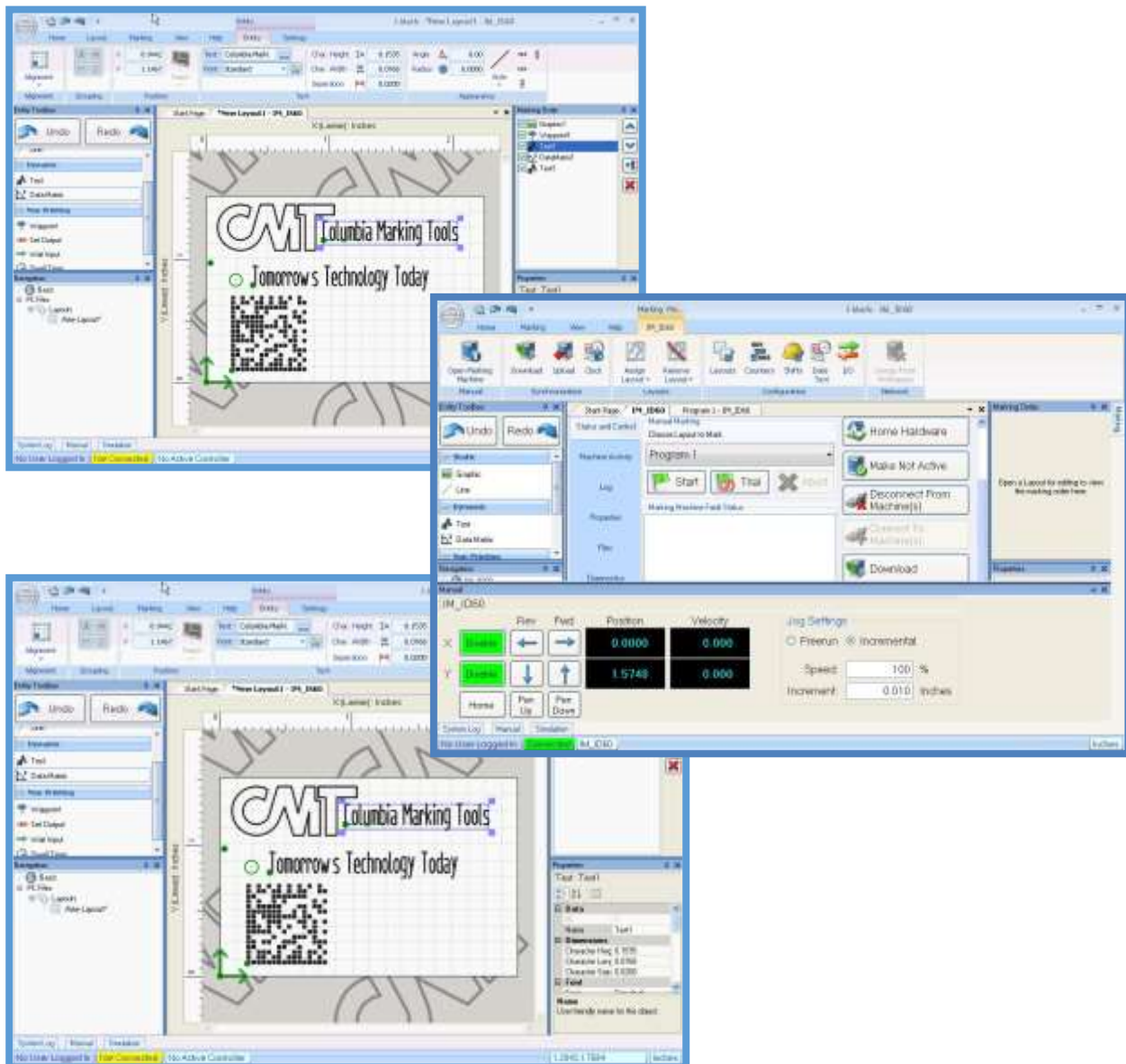
I-Mark Software

CMT's I-Mark software comes free. No additional cost for the easy to use graphical software. This windows based software uses all the same features as in other software packages – SAVE, SAVE AS, UNDO, REDO, OPEN, CLOSE Etc….

I-Mark

I-MARK Software including:

- o Intuitive graphical user interface for mark layout / program creation.
- o Drag and Drop functionality for easy program creation and entity sizing.
- o Generate fixed or dynamic text entities. Including dates, times, counters, serial numbers, text placeholders, shift codes or Ascii characters.
- o Dynamically adjustable character height, width, and separation features
- o Multiple font support including OCR
- o Advanced 2d data matrix code printing with built in depth/position control tools
- o Programmable user way points and digital I/O within the marking sequence for creation of fully automated workstations.
- o Programmable Dot Peen or Scribe type marking.
- o Import DWG/DXF drawing files for background imaging or graphical printing.
- o Advanced axis jogging with position feedback for part setup and mark position teaching. Also includes printing simulator for testing mark position before printing
- o Advanced fault and production data logging locally and over a network
- o Machine controller page with advanced diagnostics and I/O monitoring

Controls Connections for I-Mark

Marker interface cable connection. Connect the marking interface cable to the controller and then to your marking head.
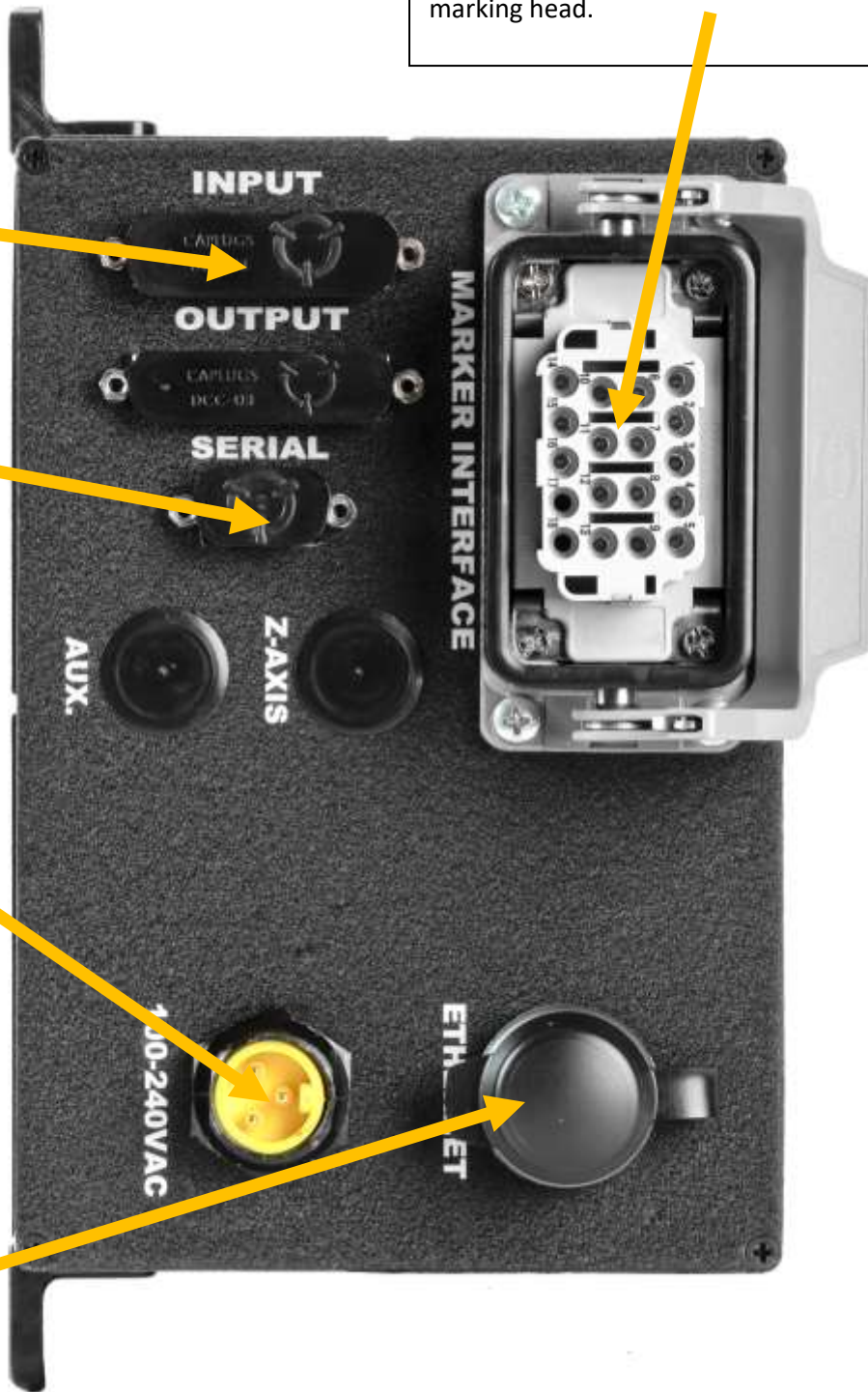
I/O connection. 25 Pin D-Sub connector for digital I/O communication to a PLC.

Serial port. Connection for RS232 serial data cable to send serial data strings to the controller.

Power Cable connection. Connect the power cable provided to the controller and then to 120Vac.

Ethernet. Connect to either PC LAN network or directly with CA5 patch to marking head.

Connection examples for IMID60 integration into automated production.

I-Mark Integration Timing / Sequence Diagram

Standard Operation

Input / Output	Description
Output pin-3	Ready
Input pin-2	Start
Output pin-4	Marking
Output pin-5	Complete
Output pin-3	Ready

Operation With Fault / E-Stop Recovery

Input / Output	Description
Output pin-3	Ready
Input pin-2	Start
Output pin-4	Marking
Output pin-6	Faulted
Input pin-3	Reset
Output pin-3	Ready
Input pin-2	Start
Output pin-4	Marking
Output pin-5	Complete
Output pin-3	Ready

Operation With Serial Data String

Input / Output	Description
Output pin-3	Ready
Serial Port	"send ASCII data"
Input pin-2	Start
Output pin-4	Marking
Output pin-5	Complete
Output pin-3	Ready

Inputs	
Outputs	