

# Nmark™ SSaM (Synchronized Scanner and Motion)

## High-Performance Scanner Controller

Expand scanner field of view without sacrificing effective pixel resolution

Mark long vectors with one continuous pass

Draw large-scale graphics without stitching multiple exposures

Mark on a tube or other irregularly shaped object without manually repositioning

Industry standard XY2-100 interface supports scanners from multiple vendors

Single programming environment for both scanner and servo axes minimizes application complexity

CE approved and NRTL safety certification; follows the 2011/65/EU RoHS 2 Directive

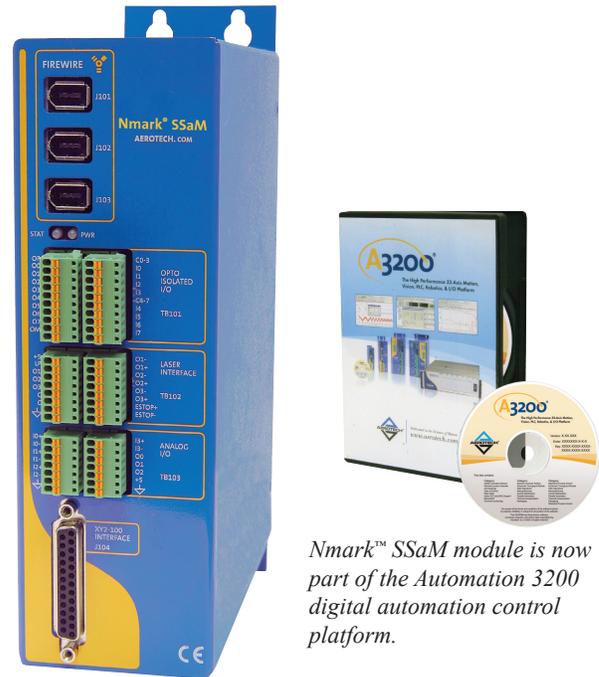
Optically isolated laser control interface with YAG and CO<sub>2</sub> operating modes

### Another Industry First From Aerotech

Aerotech's Nmark™ SSaM synchronized scanner and motion module for the Automation 3200 motion platform directly synchronizes scanner and servo motion for marking parts of unlimited size and complexity.

### Seamless Field Of View Expansion

Scanners have been used with servo axes to mark objects that exceed the operating envelope of the scanner. Applications were previously implemented using a move and expose sequence where the scanner would mark the part and the servo would reposition the part for a subsequent marking operation. This approach has limitations when a feature being marked exceeds the field of view of the scanner. Small angular and linear offsets in the servo axes produce discontinuities in the features that cross the boundary between adjacent marking fields. By combining the servo and scanner control into a single platform, it is now possible to mark large features by combining continuous motion of the servo axis with



*Nmark™ SSaM module is now part of the Automation 3200 digital automation control platform.*

simultaneous marking by the scanner.

### Making the Difficult Easy

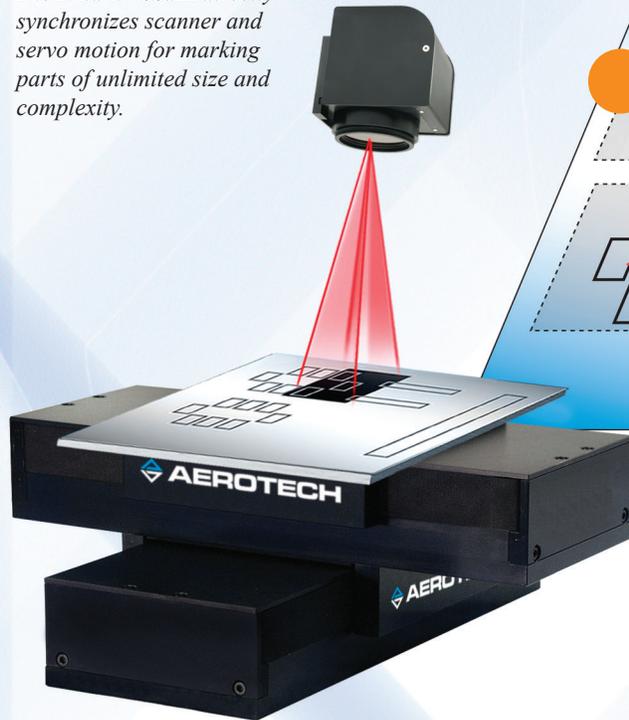
Direct, coordinated control of scanner and servo axes eliminates the programming overhead associated with gluing together two separate control systems, resulting in reduced implementation time and increased marking efficiency. Scanner motion can be combined with rotary axis motion to mark on the face or edge of cylindrical profiles. Rectangular bitmaps that exceed the scanner field of view width can be marked in one continuous operation. Complex operations comprised of many small features distributed across a large area can be marked in a continuous fashion with a significant reduction in processing time.

### Full Featured I/O

Nmark™ SSaM has support for CO<sub>2</sub> and YAG lasers with specialized functions such as first-pulse suppression and tickle frequency outputs. Control signals can be configured as sinking or sourcing, 5-24 VDC, allowing for easy interface to many different laser manufacturers. General purpose analog and digital I/O is also provided for control or monitoring functions such as laser power, door interlocks, pump operation, and material handling. Two high speed encoder inputs are available for synchronization with moving material applications (marking on the fly).

## Nmark SSaM ADVANTAGES

The Nmark™ SSaM directly synchronizes scanner and servo motion for marking parts of unlimited size and complexity.



- 1 Dynamic field of view movement allows marking of non-repetitive patterns over large areas, greatly expanding the scanner operating envelope.
- 2 Continuous marking of long objects through combined servo and scanner motion eliminates line breaks that can occur when stitching together adjacent marking fields.

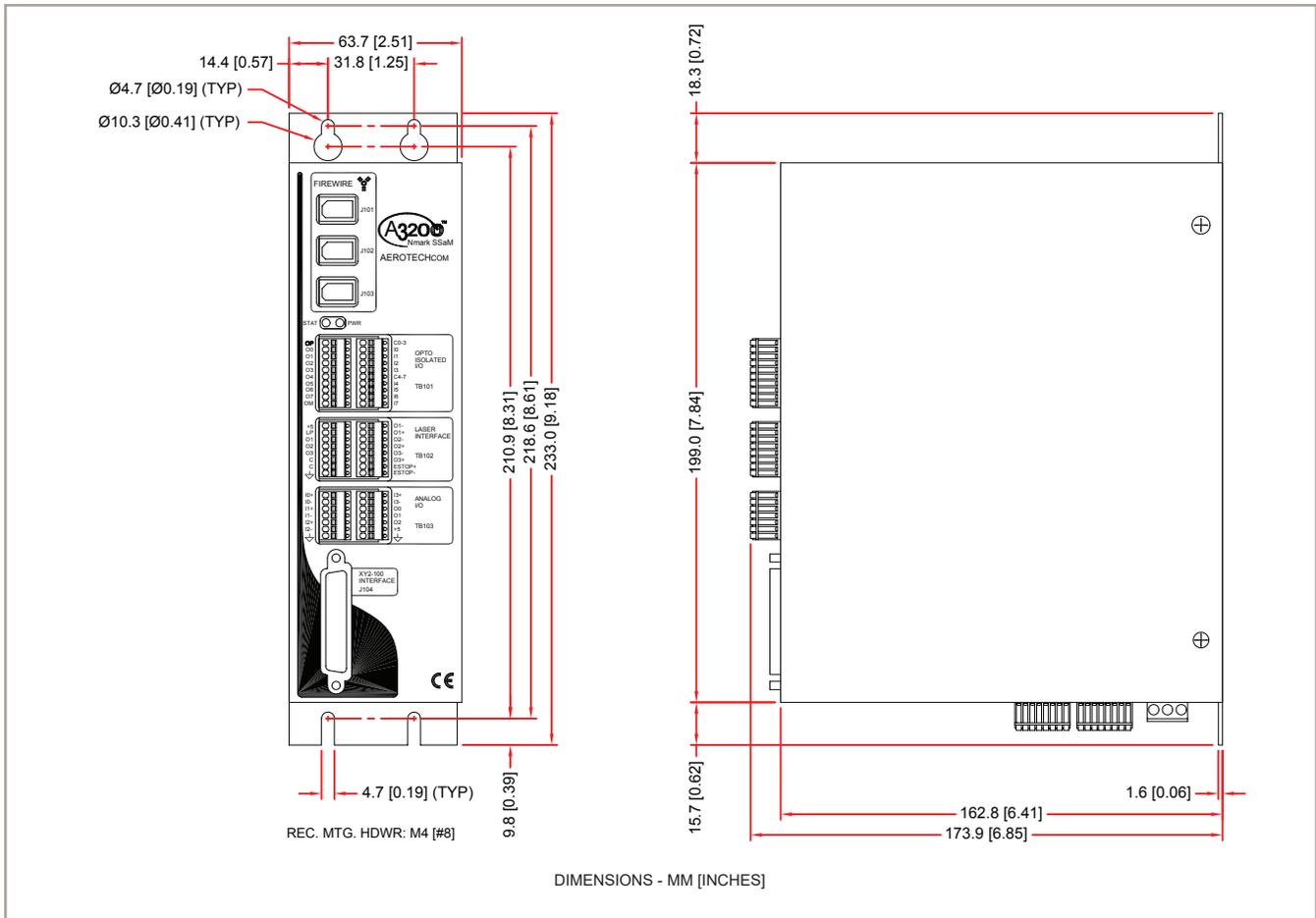
## Nmark SSaM FEATURES

| Features                        | Details  |
|---------------------------------|--|
| Scanner Interface               | XY2-100 <sub>(1)</sub>   |
| Number of Scanner Axes          | Three  |
| Laser Control Outputs           | Three (5-24 VDC, sinking or sourcing)                                |
| General Purpose Digital Outputs | Eight (5-24VDC, opto-isolated, sinking or sourcing)                  |
| General Purpose Digital Inputs  | Eight (5-24VDC, opto-isolated, sinking or sourcing)                  |
| Analog Inputs                   | Three (differential input, $\pm 10$ VDC, 16-bit resolution)          |
| Analog Outputs                  | Three (single ended, $\pm 10$ VDC, 16-bit resolution)                |
| Encoder Inputs                  | Two channel square wave, RS-422, with reference input                |
| Standards                       | CE approved, NRTL safety certification, EU 2015/863 RoHS 3 directive |

Notes:

1. SSaM module does not provide DC power supply to the scanner. An appropriately sized external power supply is required.

## Nmark SSaM DIMENSIONS



## Nmark SSaM ORDERING INFORMATION

### Ordering Example

| NMARK  | -SSAM                 | -SRC                       | -3AX               |
|--------|-----------------------|----------------------------|--------------------|
| Series | Product Configuration | Laser Output Configuration | Scanner Axis Count |
|        | -SSAM                 | -SRC<br>-SINK              | -3AX               |

### Nmark Series (required)

NMARK Scanner control module for Automation 3200 systems

### Product Configuration (required)

-SSAM Scanner and servo axes coordinated at the position command level with 100 kHz data stream across an XY2-100 serial interface

### Laser Output Configuration (optional)

-SRC Configure laser outputs as sourcing outputs  
-SINK Configure laser outputs as sinking outputs

### Scanner Axis Count (optional)

-3AX Support for a 3rd axis of control (default is 2 axes) across the XY2-100 interface