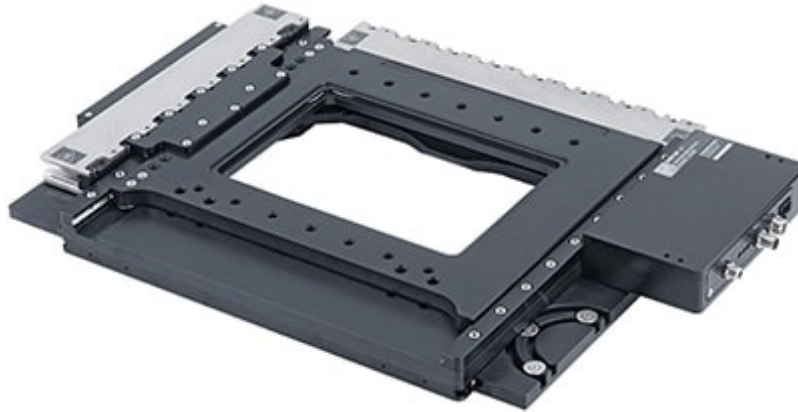


## X-ADR250B100B-SAE53D12 Datasheet



- 130 x 100 mm or 250 x 100 mm travel options
- 1 nm resolution linear encoders provide 5  $\mu$ m accuracy, 500 nm repeatability, and 50 nm minimum incremental move
- Ultra quiet linear motors provide 750 mm/s top speed and are maintenance free
- A Nucleus microscopy platform module
- Supported by  $\mu$ Manager microscopy Software
- Built-in controller saves space and simplifies cable management. Easily connect via USB and daisy chain to other Zaber products
- Digital IO for triggering external systems

## X-ADR-AE Series Overview

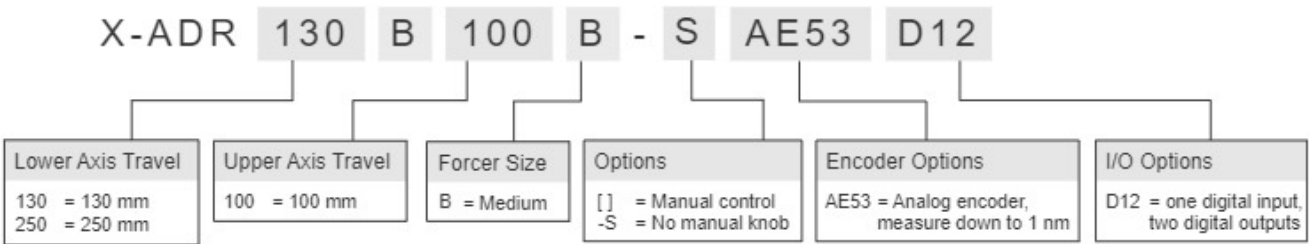
Zaber's X-ADR-AE series microscope stages are designed as replacements for manual stages on inverted microscopes or for stand-alone operation as scanning stages. Featuring non-contact linear motors and optical linear encoders, these stages offer a leap in performance over conventional screw-driven stages, making them suitable for demanding applications where speed, accuracy and reliability are of utmost importance.

Compact controllers are built directly into the stage, saving bench space and allowing the stages to be powered and controlled through a single flex rated cable. X-ADR-AE devices also include a digital input and two digital outputs for interfacing with external systems. An event-driven trigger system allows devices to be programmed for stand-alone operation based on I/O, time, or movement stimuli.

Mounting adaptors are available for breadboards and most common microscopes. Custom adaptors and plates are available upon request.

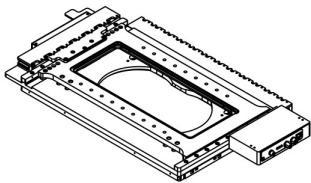
For more information visit: <https://www.zaber.com/products/scanning-microscope-stages/X-ADR-AE>

## X-ADR-AE Series Part Numbering & Options

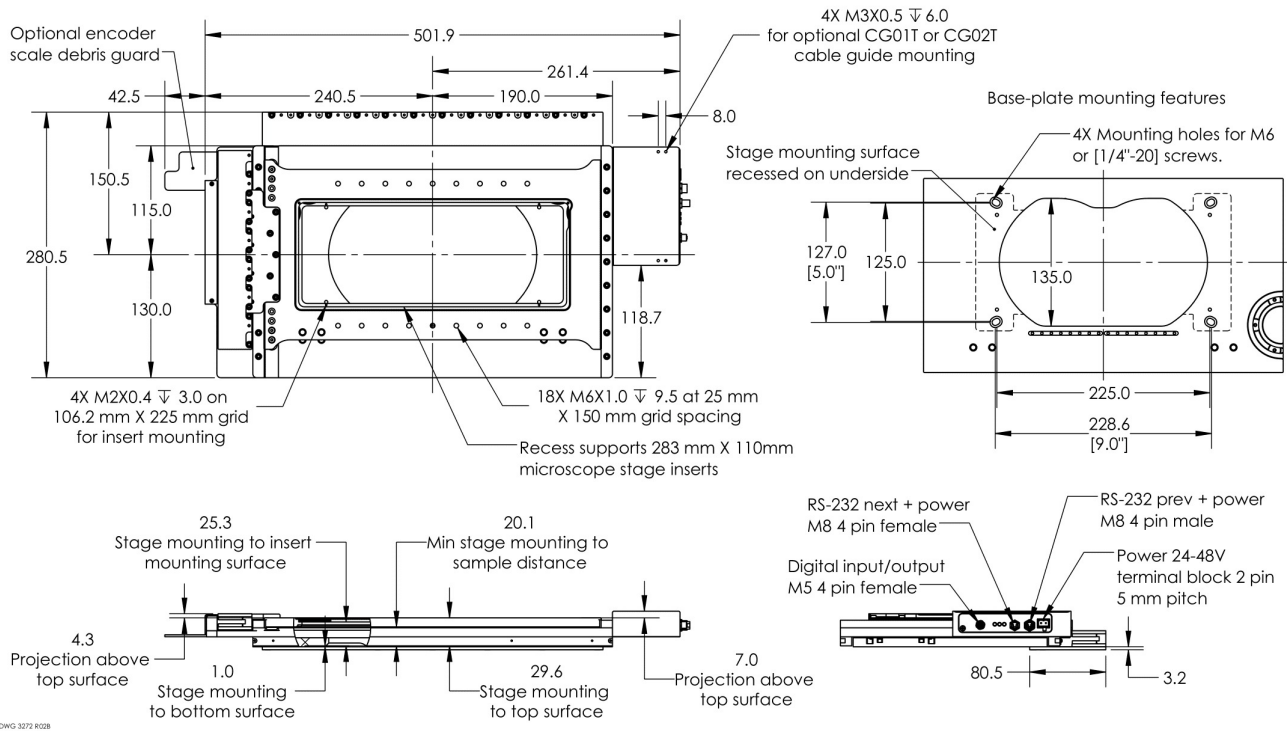


# X-ADR250B100B-SAE53D12 Drawings

**ZABER**  
X-ADR250B100B-SAE53D12  
Direct Drive XY Microscope Stage  
dimensions in mm



Adaptor plates required for most applications.  
See accessories page for details at [www.zaber.com](http://www.zaber.com)



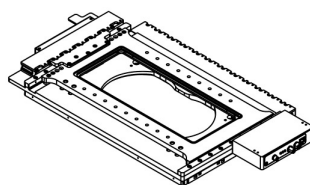
DWG 3272 R02B

# ZABER

X-ADR250B100B-SAE53D12

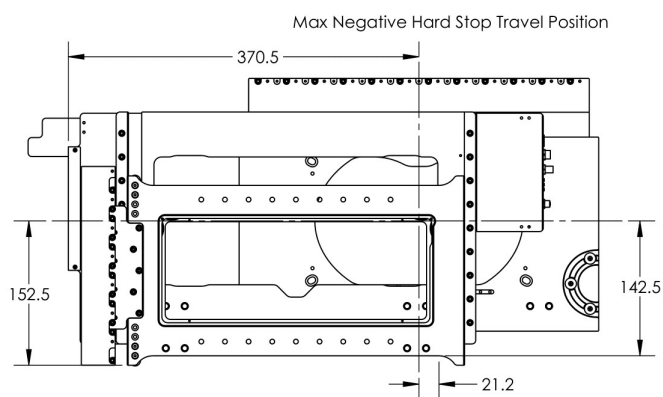
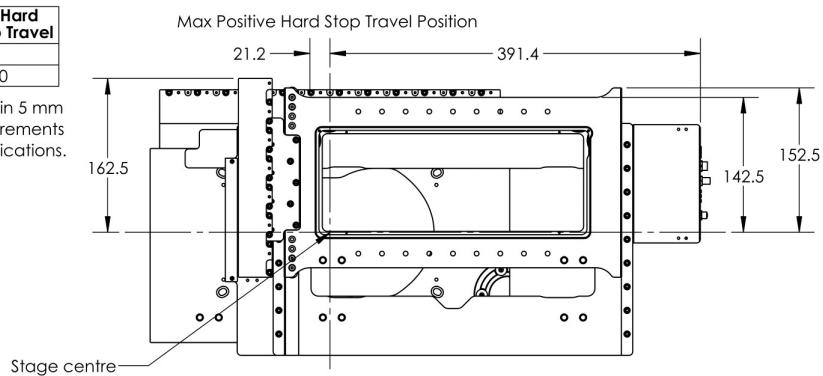
Direct Drive XY Microscope Stage

dimensions in mm



| Axis  | Nominal Travel | Max Hard Stop Travel | Min Hard Stop Travel |
|-------|----------------|----------------------|----------------------|
| Upper | 100.0          | 105.0                | 55.0                 |
| Lower | 250.0          | 260.0                | 140.0                |

Hard stop travel limits can be reduced in 5 mm increments (upper axis) and 10 mm increments (lower axis) for space constrained applications.



DWG 3272 R02B

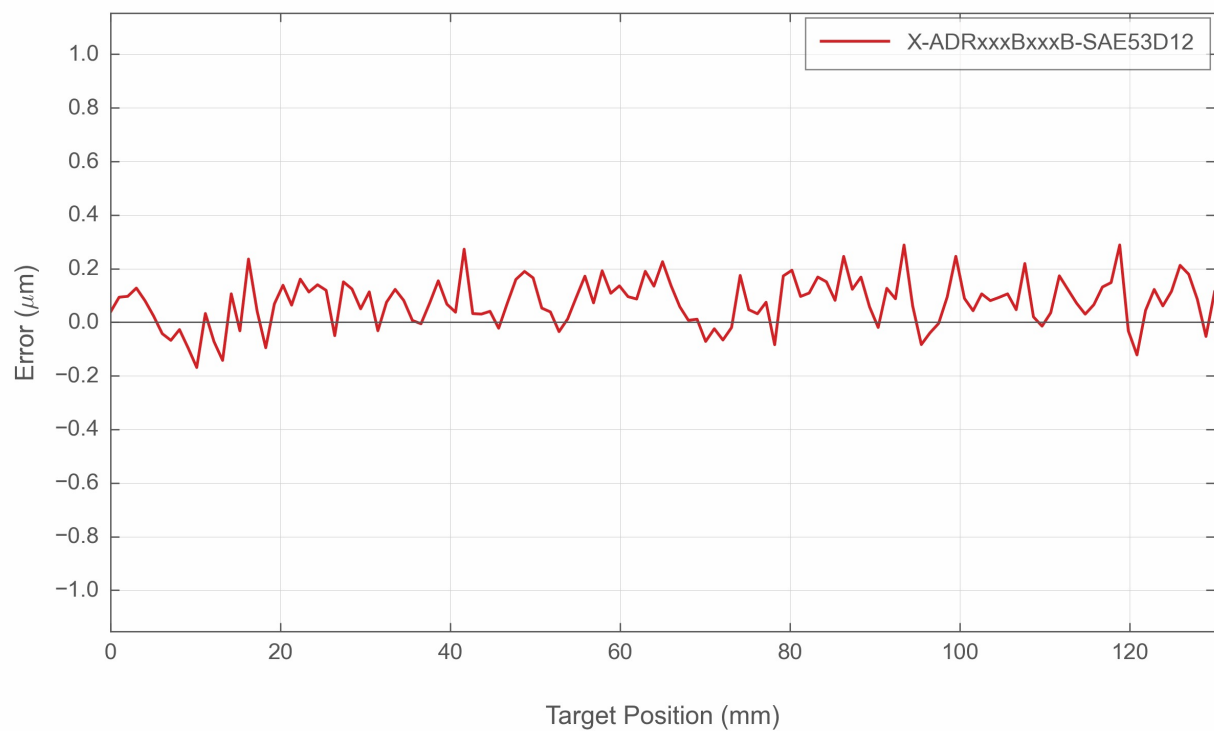
## X-ADR250B100B-SAE53D12 Specifications

| Built-in Controller        |  |
|----------------------------|--|
| Lower Travel Range         | 250 mm (9.843")                                |
| Upper Travel Range         | 100 mm (3.937")                                |
| Accuracy (unidirectional)  | 5 $\mu$ m (0.000197")                          |
| Repeatability              | < 0.5 $\mu$ m (< 0.000020")                    |
| Minimum Incremental Move   | 50 nm  |
| Maximum Speed              | 750 mm/s (29.528"/s)                           |
| Minimum Speed              | 0.61 nm/s                                      |
| Speed Resolution           | 0.61 nm/s                                      |
| Encoder Type               | Linear analog encoder                          |
| Encoder Count Size         | 1 nm   |
| Peak Thrust                | 35 N (7.8 lb)                                  |
| Maximum Continuous Thrust  | 13 N (2.9 lb)                                  |
| Communication Interface    | RS-232   |
| Communication Protocol     | Zaber ASCII (Default)                          |
| Data Cable Connection      | Locking 4-pin M8                               |
| Maximum Centered Load      | 30 N (6.7 lb)                                  |
| Maximum Cantilever Load    | 500 N-cm (708.1 oz-in)                         |
| Guide Type                 | Crossed-Roller Bearing                         |
| Typical Velocity Stability | $\pm$ 0.12% at 100 mm/s with a 0.55 kg payload |
| Pitch                      | 0.025° (0.436 mrad)                            |
| Roll                       | 0.01° (0.174 mrad)                             |
| Yaw                        | 0.01° (0.174 mrad)                             |
| Power Supply               | 24-48 VDC                                      |
| Maximum Current Draw       | 2300 mA  |
| Motor Type                 | Moving Magnet Track Linear Motor               |
| Force Constant             | 5.5 N/A (1.2 lbs/A)                            |
| Limit or Home Sensing      | Optical Index Mark                             |
| Axes of Motion             | 2  |
| LED Indicators             | Yes  |
| Mounting Interface         | Separate mounting adaptors available           |

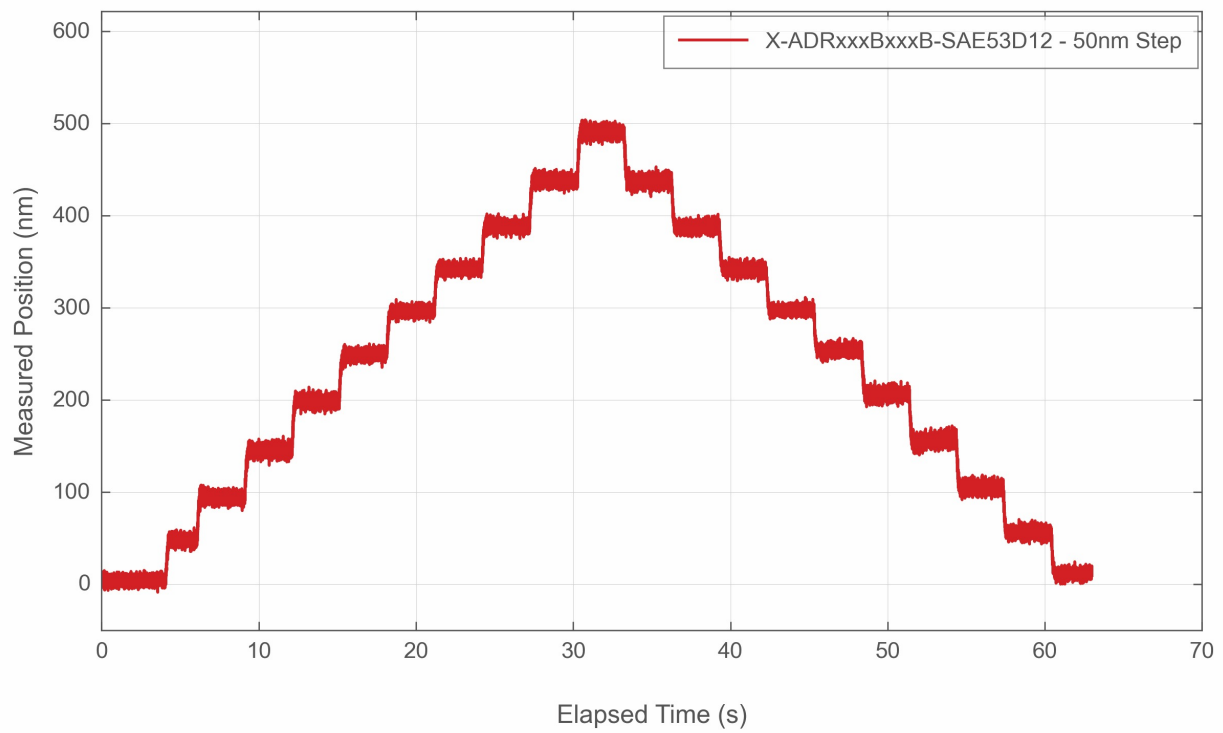
| Built-in Controller         |                    |
|-----------------------------|--------------------|
| Lower Moving Mass           | 3.9 kg (8.580 lbs) |
| Upper Moving Mass           | 1.5 kg (3.300 lbs) |
| Digital Input               | 1                  |
| Digital Output              | 2                  |
| Operating Temperature Range | 0 to 50 °C         |
| RoHS Compliant              | Yes                |
| CE Compliant                | Yes                |
| Vacuum Compatible           | No                 |
| Weight                      | 6.2 kg (13.669 lb) |

## X-ADR-AE Series Charts

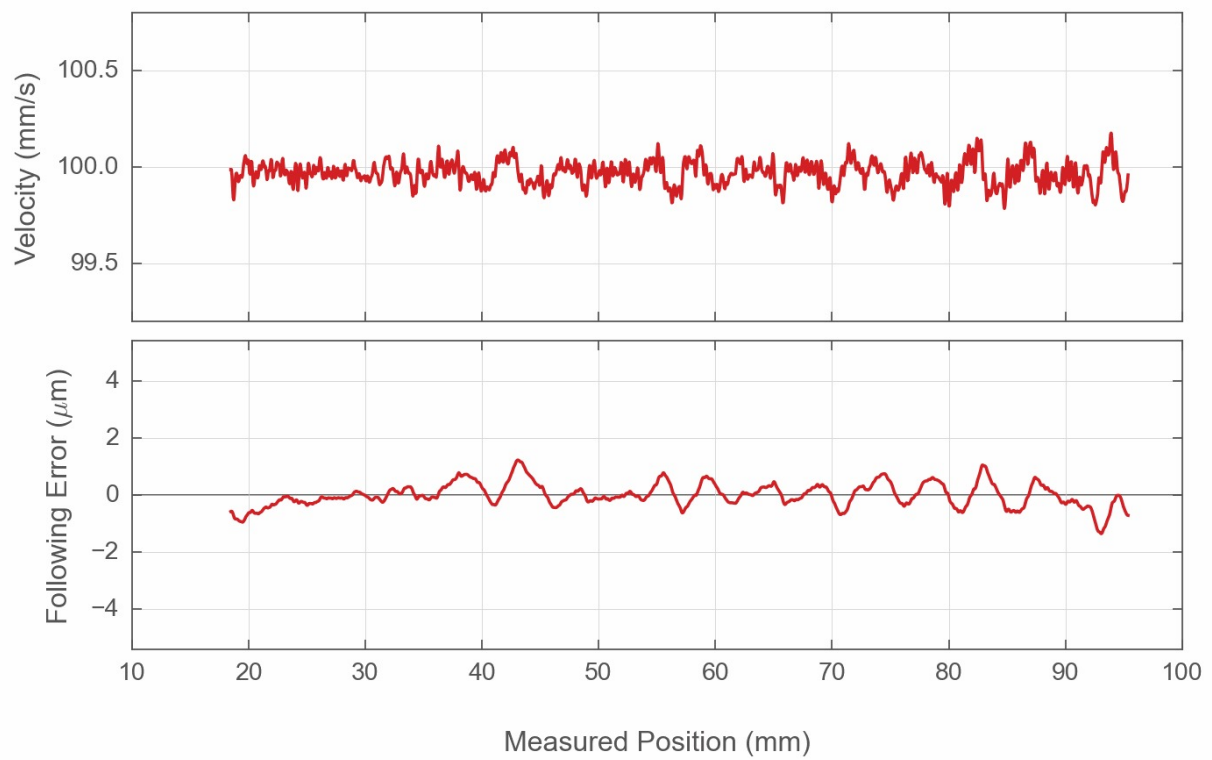
Typical Accuracy



### Typical Minimum Incremental Move



### Typical Velocity Stability and Following Error



## Contact

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