Compact USB Motorized Linear Stages 20, 80, 120mm

Integrated Controllers: USB and Manual Knob, 0.5 µm High Precision, XYZ

DATASHEET

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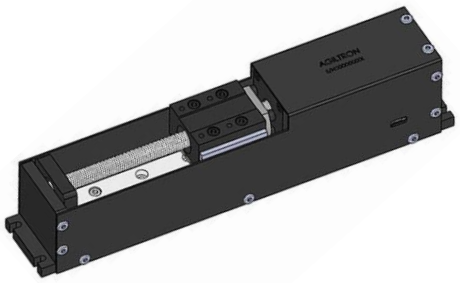

The CMLS Series Miniature Motorized Stages offer an innovative design that combines submicron precision with user-friendly operation and affordability, making them an ideal choice for programmable motion applications. These stages feature a dual-bearing design to eliminate backlash and a proprietary optical encoder, achieving nanometer-level resolution and submicron repeatability.

Each stage incorporates a built-in smart motor driver with USB/RS232 interfaces. A manual control knob is integrated into the system: pressing it switches to manual mode, rotating it initiates movement, increasing the speed as it turns, with the direction reversed when rotated past the center. An Ethernet control option is available through an additional control box. The system includes a wall-pluggable power supply and an intuitive downloadable GUI, with a command list provided for custom programming. The unit's mounting plate is compatible with optical setups. Multiple ILSM stages can be interconnected with included cables, allowing for control via a single USB/RS232 or Ethernet control GUI interface — ideal for configuring XYZ stages using various ILSM models.

Features

- All-In-One Construction
- USB Controller Integrated
- Ease Use GUI
- Power Supplier/Cable Included
- Manual Control Built-In
- XYZ Configurable
- Optical Encoder/Position Calibrators
- High Precision/Repeatability

Applications

- Optical Systems
- Mechanical Systems
- Lab Use
- Instruments

Specifications

Parameter	Min	Typical	Max	Unit
Travel Range	0		125	mm
Accuracy (unidirectional)	1	0.5		µm
Repeatability	1	0.5		µm
Incremental Move	100			nm
Acceleration			34	m/s^2
Speed	0.00001		1200	mm/s
Encoder Count	1			nm
Operating Temperature	0		50	°C
Continuous Thrust	-40		35	N
Pulse Thrust			50	N
Center Load			120	N
Moving Mass			0.2	kg
Manual Control	Push Switch	Indexed Knob		
Auton Control Interface		USB		
XYZ Interface[1]		USB		
Power Supply (included)		12VDC/3A		

[1]. Up to 3 Agiltron stages can be linked and controlled via a single USB/GUI. XYX forming brackets are available to be purchased.

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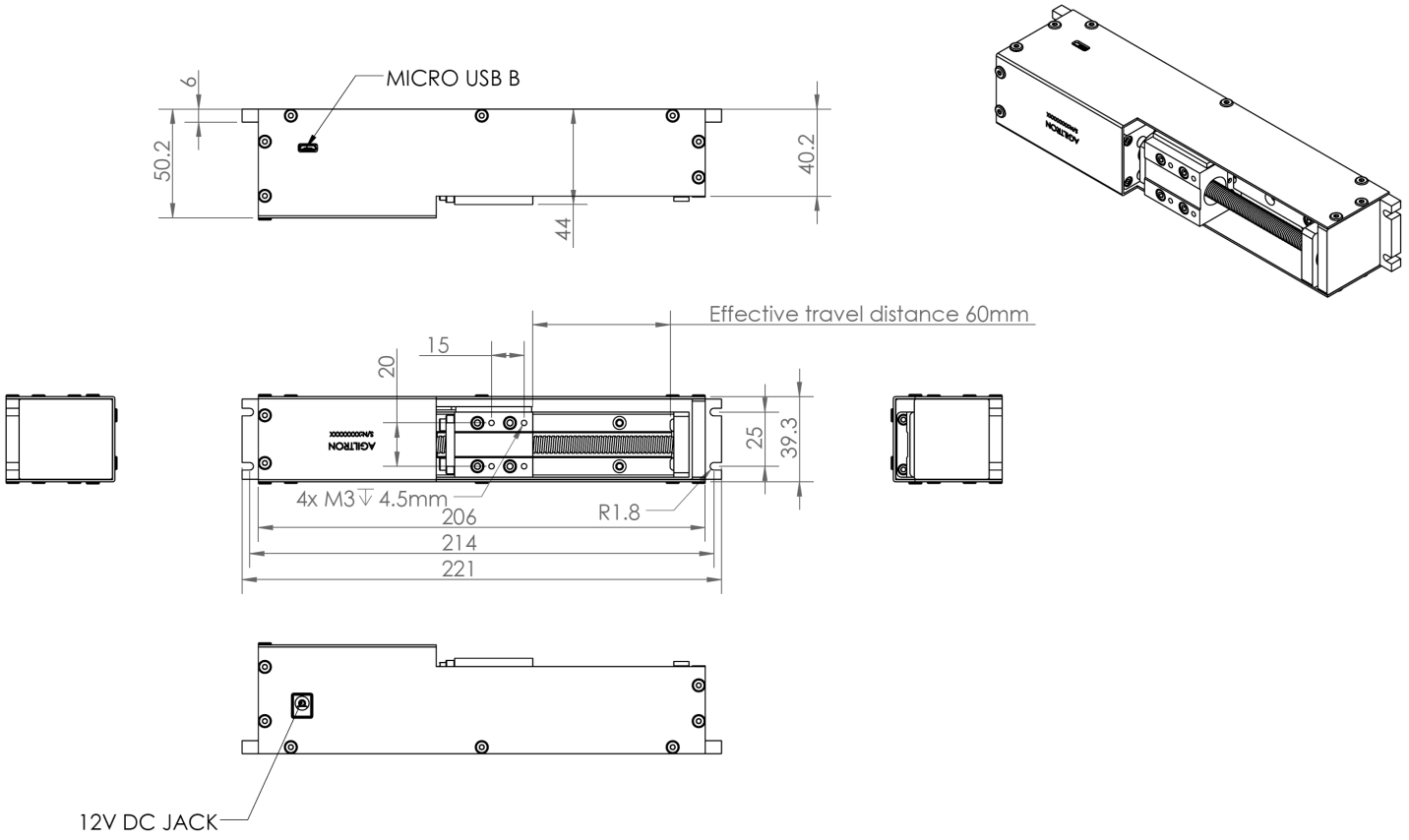
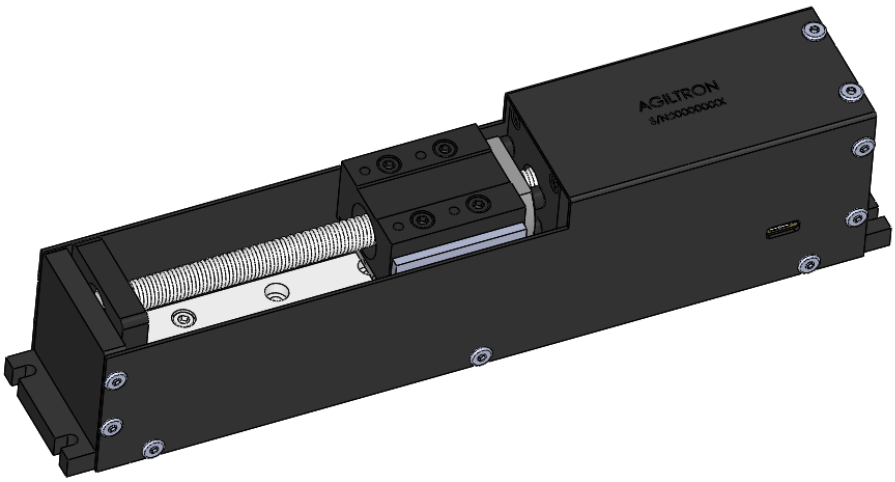
Mechanical Dimensions (mm)





*Product dimensions may change without notice. This is sometimes required for non-standard specifications.

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Mechanical Dimensions (mm)

- Mounting Plate for XY Configuration

- Moving Mounting Plate for Optical Components/Stages

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Mechanical Dimensions (mm)

- X

- XZ Stage > 120 mm movement

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Operation Instruction

- Plug in the provided power supply.
- Pull and rotate the side knob to operate the motor manually.
- Connect the device to a computer using the provided USB cable.
- Load the GUI from the provided memory stick or download it from our website.
- Run the GUI.
- If you encounter any issues, please email us at sales@photonwares.com.

Ordering Information (Part Number) System

	S1	☐	☐	☐	☐	☐	1	☐
Prefix	**Type**	**Travel**	**Precision**	**Package**	**Moving ***	**XYZ Bracket**		**Ethernet Control Box**
CMMS-		20 mm = 2 80 mm = 8 120 mm = 1 Special = 0	Regular = 1 Special = 0	Regular = 1 Special = 0	X = 1 XY = 2 XYZ = 3 XYZ (120mm) = 4 Special = 0	Non = 1 Y = 2 Z = 3 Two parallel X = 4 Special = 0		Non = 1 Yes = 2

Notes:

* For movements less than 120nm, two X-axis stages are cross-stacked on top of each other to form XY. For movements greater than 120nm, two X-axis stages are positioned at the bottom, with one cross-stacked X stage on top to form XY stage with enhanced stability.

** The End Optic Plate is designed to mount optical components, as illustrated in the X-stage drawing.

Red is special order that takes longer time to deliver

- Y Bracket: Forms an XY stage – $95.
- Z Bracket: Creates an XZ stage or an XYZ stage when combined with the Y Bracket – $155.
- Ethernet Control Box: Enables remote control of the XYZ stage – $890.

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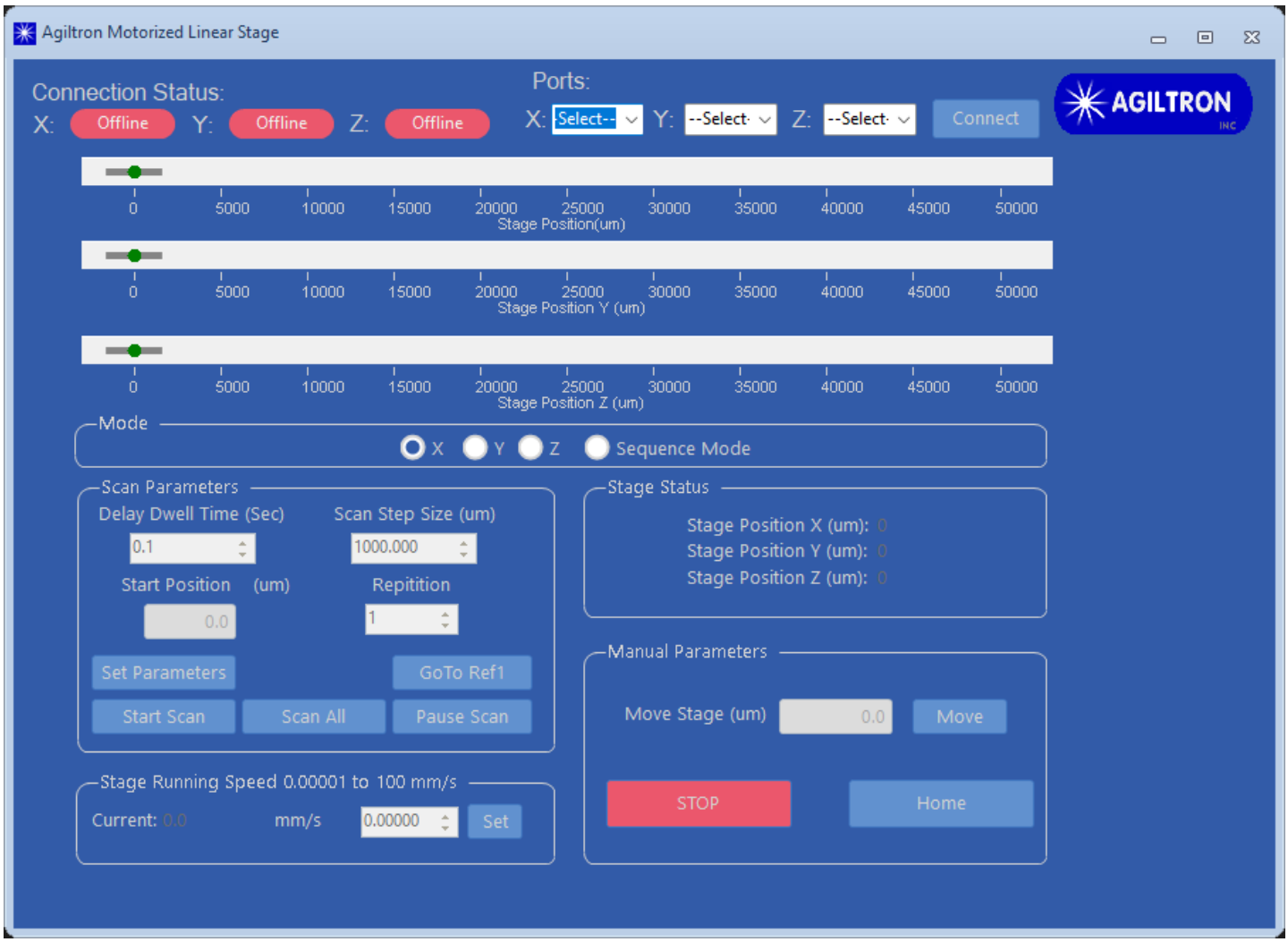
GUI



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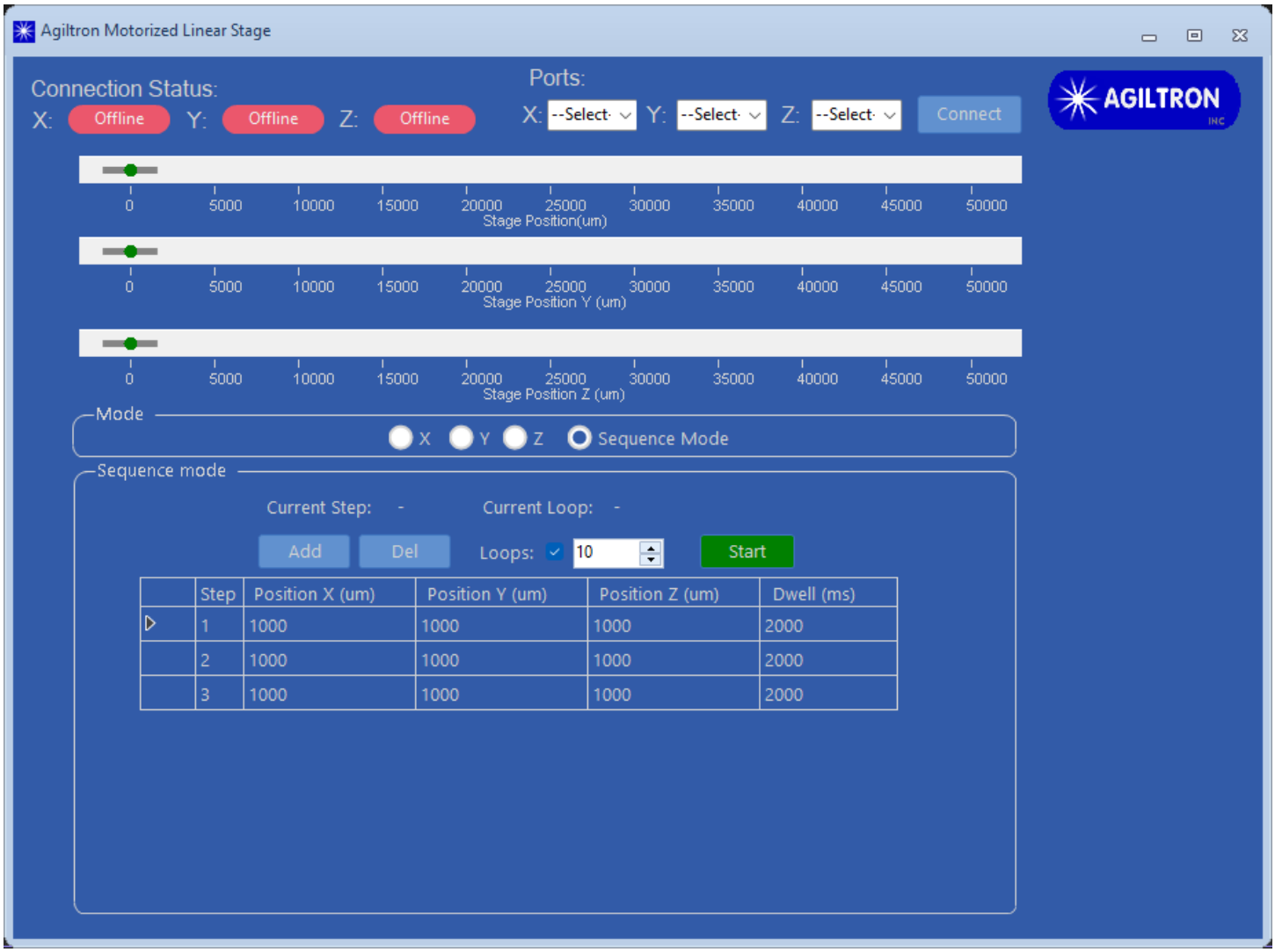

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