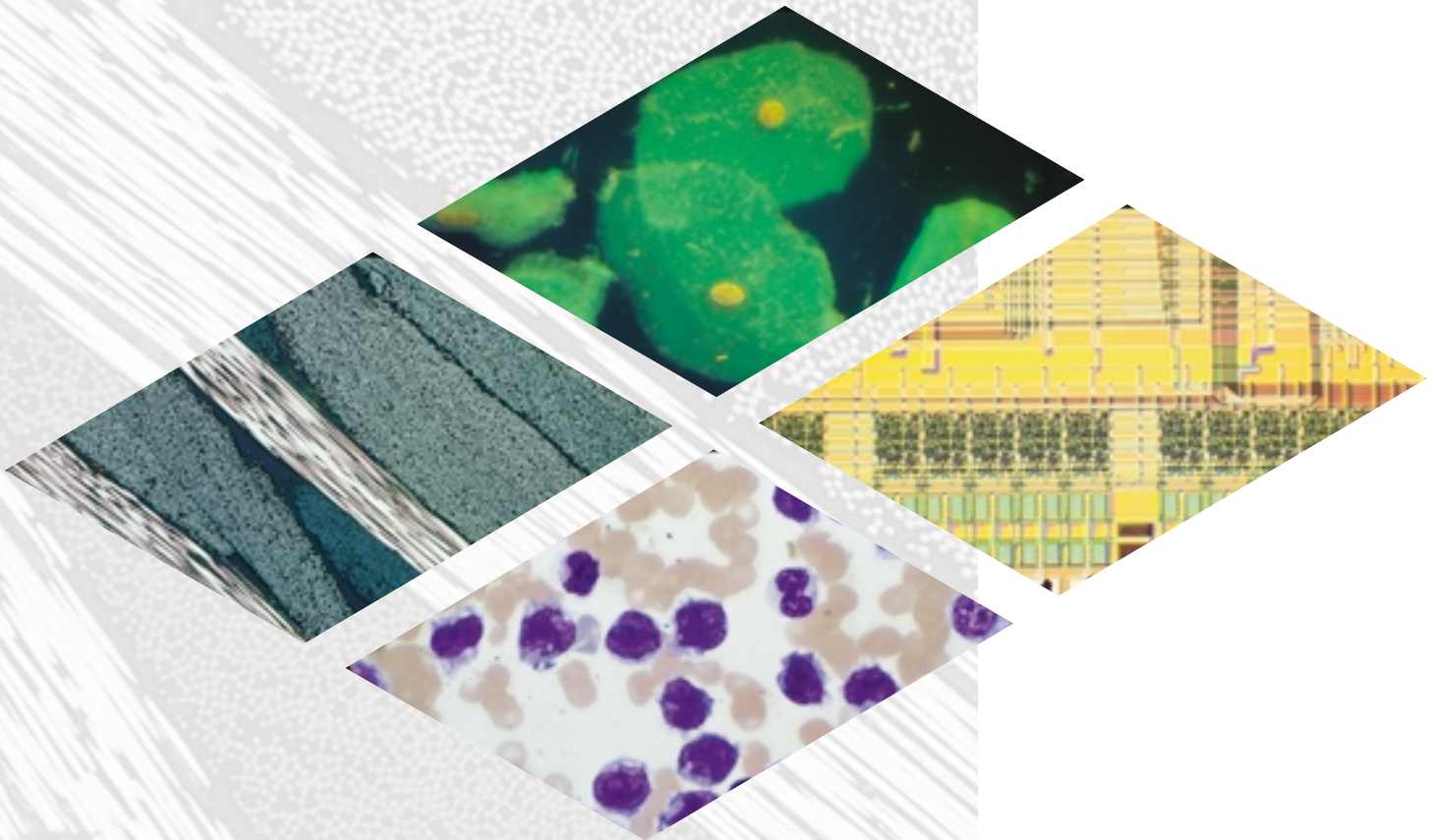
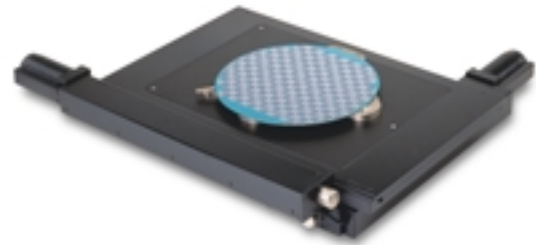


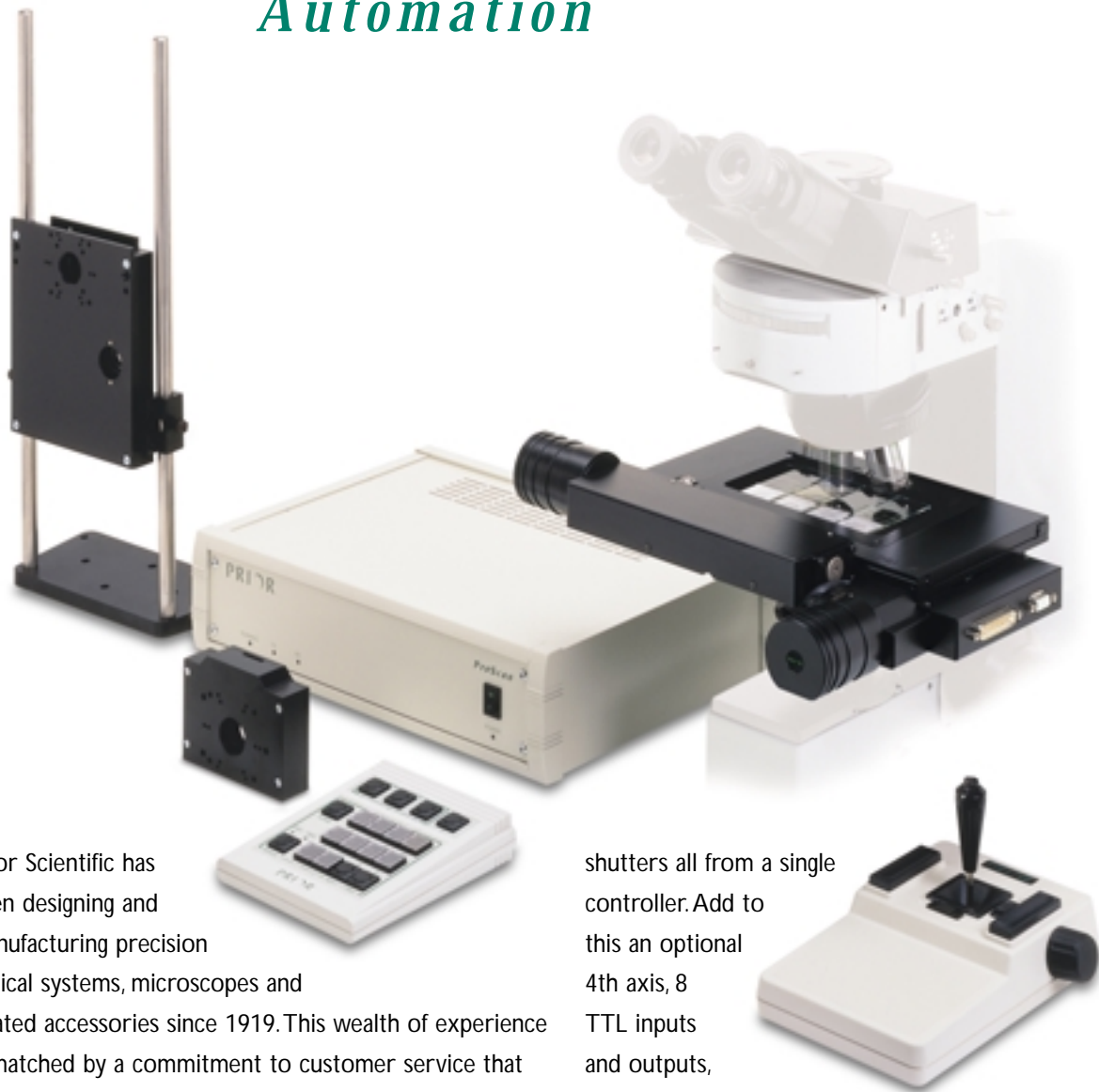
ProScan™

PRIOR
Scientific

**High Performance
Motorized Stage Systems**



ProScan Advanced Microscope Automation



Prior Scientific has been designing and manufacturing precision optical systems, microscopes and related accessories since 1919. This wealth of experience is matched by a commitment to customer service that has earned Prior an enviable reputation for excellent support. These values, plus our understanding of microscopy, provide a unique foundation for the development of an advanced range of motorized stage systems for microscopy and image analysis applications.

Prior proudly introduces the ProScan system which sets new standards in automated microscopy. Modular by design, a wide range of stages is available for most modern upright and inverted microscopes. Stages may also be adapted to fit other optical inspection systems. The ProScan controller represents the latest in motor control technology and provides a wide range of advanced features designed for the most demanding applications; not least of which is the capability to control a stage, focusing motor, up to 2 filter wheels and 3

shutters all from a single controller. Add to this an optional 4th axis, 8 TTL inputs and outputs, encoder feedback for closed loop operation, an advanced autofocus routine and a comprehensive high level software command set and you can see, the standard is very high indeed. Filter wheels, shutters plus a variety of control accessories such as joysticks and digipots complete the ProScan product range.

ProScan is ideally suited to the most demanding imaging applications. A modular design means that systems are easily configured for any combination of stage, focus, filter wheel and shutter options. System performance and reliability are second to none. Furthermore, Prior's flexible, problem solving approach is why the world's leading microscope companies and imaging software manufacturers choose ProScan.



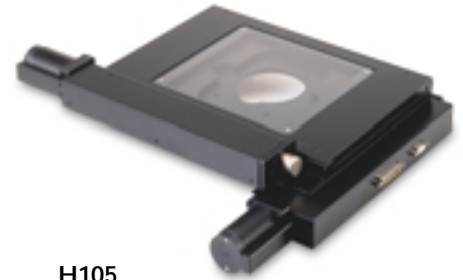
H101

Stage for upright microscopes providing a travel range of up to 112 x 73mm. Available with a choice of specimen holders, ideally suited to single and four slide applications.



H107

Stage for inverted microscopes providing a travel range of up to 112 x 109mm. Suitable for slides, microtitre (96 well) plates, petri dishes, flasks and mounted metallurgical specimens.



H105

Ideal for larger specimens, this stage provides up to 153 x 153mm of travel. Ideal for 150mm semiconductor wafers, photo masks and printed circuit boards.

ProScan Advanced Controller



Like the ProScan range of motorized stages, this advanced controller is designed and manufactured by Prior Scientific. The compact yet powerful design is capable of controlling a motorized stage, motorized focus, 2 filter wheels and 3 shutters with the speed, accuracy and precision required by the most demanding imaging applications. A 4th axis is available to control rotating specimen holders or other custom applications. 8 TTL inputs and outputs are provided as standard to control other peripherals such as camera shutters, relays and linescan cameras.

The controller is designed with simplicity in mind. A high level software command set may be accessed via one of two serial ports, unlocking the full range of facilities included with the system. Software developers can quickly and easily write the necessary code to integrate ProScan with their own applications software. Alternatively, the Touch Screen Programmable Keypad provides full system control via an easy to use, menu driven program when computer



Digipot Focus Only Control

The digipot is ideal for focus only systems. It provides a tactile feel for fine focus adjustments while separate buttons offer immediate control of focus speed and fast movements up and down, for coarse focusing.



Motorized Focus Control

ProScan is ideal for applications where motorized focus control is needed. Step sizes as small as 0.002µm give excellent resolution for precise focus and repeatable positioning in the Z-axis. For large movements when speed is required, the ProScan focus motor can be driven at speeds of up to 20 revs/s. An optional probe style encoder feedback system provides the highest accuracy and repeatability available.



Ergonomic Joysticks

Two or three axis joysticks are available with all stage systems to provide fast, responsive control of the stage. Two programmable Hot Keys are provided which can be used to put a variety of system controls at your fingertips.

Precision Motorized Stages

Features

Adjustable Limit Switches

Provide the flexibility to reduce the travel range of the stage to match your application and to avoid damaging collisions with your microscope. The limits also provide a precision reference point.

Wide Range of Specimen Holders

ProScan stages are available for a variety of applications involving specimens such as slides, microtitre (96 well) plates, petri dishes, metallurgical samples and semiconductor wafers. Specimen holders are black anodized to provide excellent wear resistance. Custom designs are always considered.

Linear Encoders

ProScan stages can be fitted with optional linear encoders for applications requiring greater accuracy and precision. Encoder output can be fed to a digital read out for measurement applications. In closed loop mode, the encoder output is fed back to the controller to provide the highest accuracy and repeatability available.

Precision Ball Screws

High accuracy ground ball screws provide smooth and maintenance free motion. The pre-loaded recirculating ball screw nuts ensure zero backlash. The whole ball screw assembly is connected to the motor with an anti-backlash coupling.

Cast Aluminium Plate

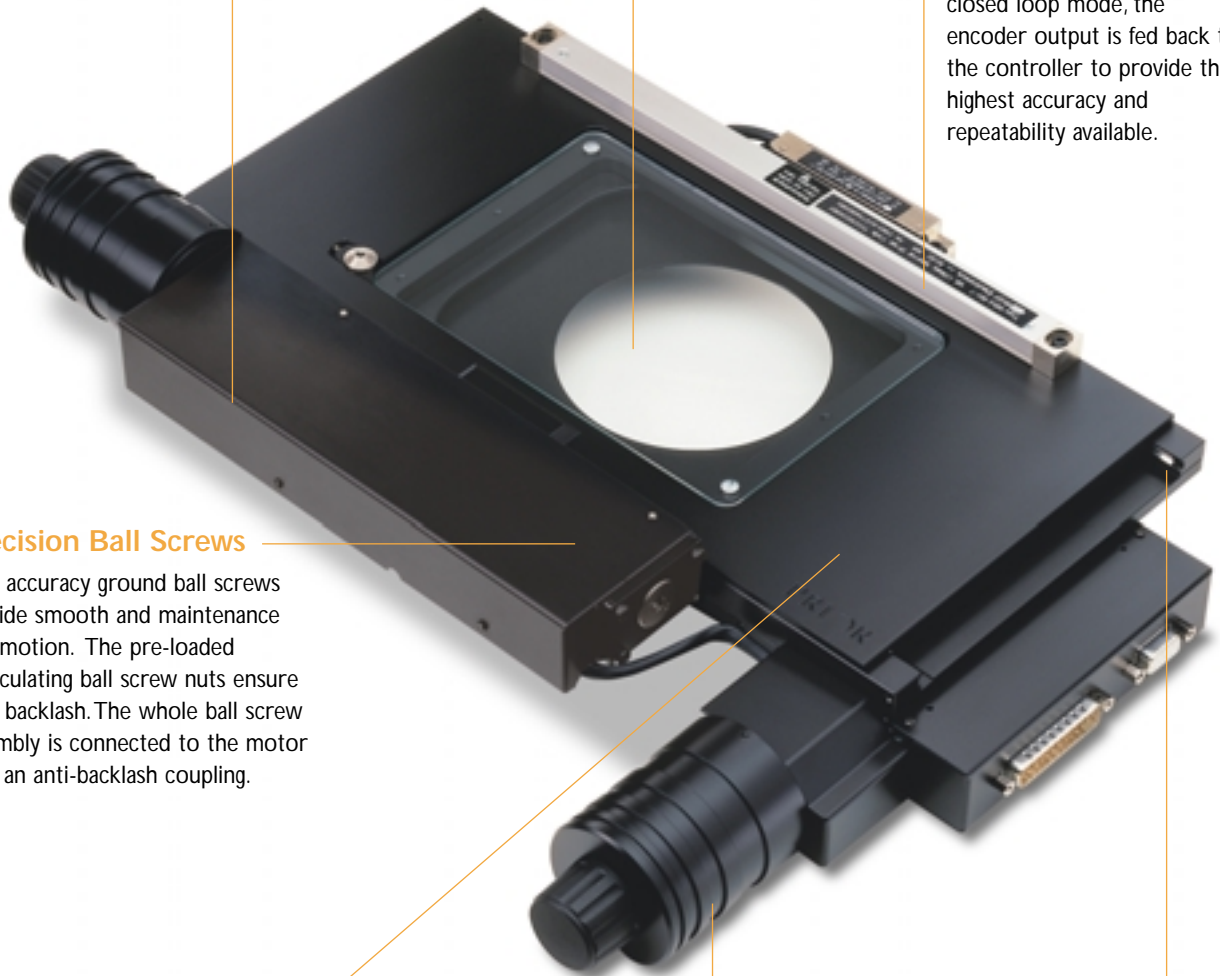
Prior stages are precision machined out of special cast aluminium plates which are lightweight and provide excellent dimensional stability.

Precision Stepper Motors

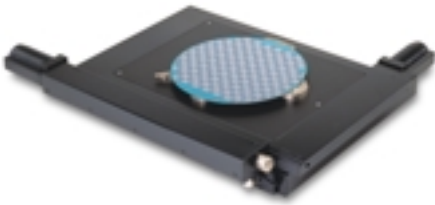
Quiet and precise stepper motors ensure precise positioning of the stage while the use of micro-stepping provides very smooth motion even at low speeds. Motor characteristics offer high acceleration and speeds up to 60 mm/s with 2mm pitch screws.

Crossed Roller Bearings

Provide smooth and accurate linear motion for loads of up to 2Kg on open frame stages and 100Kg on solid stages.



Trim off this edge (15mm) where marked by trims



H116

Provides a travel range of up to 255 x 215mm. The H116 is suitable for large specimens such as 200mm semiconductor wafers and flat panel displays. As with all Prior stages, a range of specimen holders is available.



H112

One of Prior's larger stages, the H112 provides up to 302 x 302mm of travel, ideal for 300mm semiconductor wafers.



HT5050

One of a range of solid frame stages, the HT5050 provides 50 x 50mm of travel. Designed for hardness testing machines, the HT stages can withstand loads of up to 100Kg.

based software packages are not required. Furthermore, a 'plug & play' feature means that all system components are automatically detected and configured on power up.

ProScan provides several advanced features for more demanding applications. For the highest accuracy and repeatability available, encoders and linear scales can be fitted to most stages and motorized focus mechanisms. The encoder output is then fed back to the controller to provide highly accurate closed loop capability. The Touchscreen keypad can then be used as a digital read out for direct measurement applications. The optional



autofocus feature provides a unique software algorithm which quickly focuses the specimen. Available in NTSC and PAL formats, six ranges of autofocus can be specified to match the focusing routine to the objective magnification.

For non-uniform specimens the area of the specimen to be focused can be selected using pre-set quadrants or the user defined focus zone. Furthermore, ProScan defies obsolescence by using flash technology which permits easy changes and upgrades of the software command set by reprogramming the controller from your own PC.



Touch Screen Programmable Keypad

The Programmable Keypad features touch screen technology and a comprehensive yet intuitive software package which provides complete programmability and control of the whole ProScan system. A range of menus allow for programming of raster, snake and user-defined patterns which can be input, stored and recalled. Information on the current stage position is always available and points of interest can be saved for later review. Patterns and saved points can be downloaded to a PC for further analysis.

High Speed Filter Wheels and Shutters

The Filter Wheel system delivers smooth, high speed operation and changes filters in as little as 55ms. Two wheels are available to accept ten 25mm or eight 32mm diameter filters. The filter wheel can be fitted to the excitation and emission ports of your microscope and up to 2 filter wheels and 3 shutters can be operated from 1 controller via a serial port or an optional filter wheel keypad. An optional sliding filter holder can be fitted for neutral density or infrared filters.



Trim off this edge (15mm) where marked by trims

Specifications

Power	Universal mains input 115/230 VAC, 50-60Hz	Step Size	As small as 0.04µm in X and Y and 0.002µm in Z
Computer Interface	RS-232C	Repeatability	Typically +/- 1µm depending on stage or +/- 0.3µm with linear scales
Communications Protocol	8 bit word, 1 stop bit, no parity, no handshake, baud rate of 9600, 19200 or 38400	Linear Slides	Crossed roller bearings
Dimensions	Width 350mm; Height 98mm; Depth 265mm;	Drive Screws	Zero backlash, ground recirculating ball screws, 2mm or 5mm pitch
Weight	3.5Kg (7.75 lbs)	Limit Switches	Adjustable in x and y axes (optional in z)
Stage Speed	up to 60mm/s	Accuracy	As good as 3µm depending on stage
		Flatness	5µm

Specials and OEM Systems



At Prior Scientific we control the design and manufacturing process for all our automated microscopy products. This way, we can be sure of offering the most flexible service. This approach along with our commitment to customer service means that Prior Scientific is uniquely positioned to provide complete systems to match your exact specifications.

The Design Engineering Department employs the latest in Computer Aided 3D modelling along with many years experience in the design and manufacture of scientific instruments. It is here that quality and reliability are designed into our products.

Advanced CNC machines and Computer Aided Manufacture



systems are used to produce high quality components.

In assembly, experienced instrument makers build complete stage and controller assemblies with care and attention to detail.

It is this blend of skills, experience and flexibility that have established Prior as one of the world's leading manufacturers of automated microscopy products. Whether you need a standard product or a custom design, a single unit or OEM quantities Prior Scientific is the right choice!

ProScan

Advanced Microscope Automation

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S c i e n t i f i c

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Specifications subject to change without notice.