



Increase throughput  
Documentation  
Traceability  
Minimize human error

# BSD 600 *Ascent*

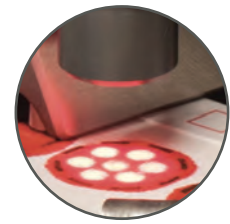
Semi-automated Punch Instrument

VALIDATION • AUTOMATION • TRACEABILITY

## The BSD600 Ascent Range

The BSD600 Ascent design builds on the proven form, function and performance of the BSD600 series. The resulting instrument is an exceptional product with the flexibility and freedom to select features most suited to the customer.

The **A2** model is fitted with a robotic positioner to allow automatic punching of multiple disks from each sample. A light targeting system illuminates the punching pattern on the sample card allowing the user to position the card for optimal punching. This pattern punching feature results in increased laboratory throughput by automatically punching multiple disks that are spaced evenly apart on each sample spot.



The **M2** model has a fixed punch head and the sample card is positioned by visual alignment before each punch activation. Punching with the M2 is fast and convenient.

**BSD Robotics**  
11 Aldinga Street  
Brendale, QLD, 4500  
Australia

Phone: U.S Sales +1 703 424 0642  
U.S Service + 1 571 531 2644  
Australia (and other) +617 3881 1834  
Latin America +57 300 929 1463  
Email: [bsd@bsdrobotics.com](mailto:bsd@bsdrobotics.com)  
Web: [bsdrobotics.com](http://bsdrobotics.com)



Manufactured in Australia by Microelectronic Systems now trading as BSD Robotics.

## BSD600 Ascent Latest Features

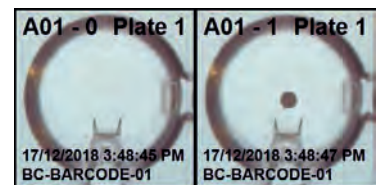
The BSD600 Ascent has additional new features inspired by customer feedback. Both features listed below are available for the M2 and A2 models.

### 1 Plate Validation Camera

- With touchscreen interface.
- Plate validation camera takes images of the plate wells before and after each punch.
- Documentation: Images are saved with vital information such as barcodes, date and timestamp, well IDs.
- Camera assist with re-calibration of the X and Y coordinates of the plate deck.



Touchscreen interface available



Saved images - before and after

### 2 Ionizer System

The ionizer system works in conjunction with the air humidification system and is software controlled. The system consists of an internal air pump and a nozzle bar which floods the plate area with ionized air to neutralize static electricity accumulation on the plates and within the instrument.

This feature is beneficial for laboratories:

- Experiencing low humidity and elevated static electricity.
- Using smaller disk sizes.
- Molecular biology applications.



Ionizer bar to combat static electricity

# Shared Features in the BSD600 Ascent range

## New Software

- Versatile, robust, and user friendly.
- Live camera plate view during a punch run to verify the correct placement of punched disks.
- Save and resume punch runs; Save templates for frequently used tests; Output data fields for LIMS integration; Saved images and platemaps; Edit plate types and many more features.



## Dual Punch Sizes

- Dual punch head for quick and seamless punching of two disk sizes during a punch run. Broad range of custom combinations from 1.0, 1.2, 1.5, 2.0, 3.0, 3.2, 3.8, 4.0, 4.7 to 6.0mm punch sizes.
- The punch head is precision engineered using long-life steel and is easily removable for cleaning.



## Auto-trigger Function

- Automatic punch function (auto-trigger) detects the presence of a sample card through an integrated sensor located on the card platform and activates the punch after a pre-set time delay.



## Air Humidification System

- Humidified air aims to reduce static electricity effects on the punched paper disks.
- The internal air pump is electronically controlled to pass positive air pressure through anti-static tubing to the punch mechanism and through the punch chute.




## Sample Barcode Reader

- Integrated sample barcode reader for scanning of sample card barcodes and traceability.
- Scanned barcodes can be included in the output files or used to prompt samples for imported worklist files.



# Feature Comparisons between the M2 and A2 *Ascent*


M2



Fixed punch head  
Position card by visual alignment

- BSD600 Ascent Software
- Two Plate 96-well Capacity
- Dual Punch Sizes
- Auto-trigger Function
- Sample Barcode Reader
- Air Humidification System

A2



Robotic positioner to  
allow for light targeting  
and pattern punching

- BSD600 Ascent Software
- Two Plate 96-well Capacity
- Dual Punch Sizes
- Auto-trigger Function
- Sample Barcode Reader
- Air Humidification System
- + ➤ Light Targeting System
- + ➤ Automatic Pattern Punching
- + ➤ Dust Extraction System

- Light targeting system identifies optimal sample area to punch.
- Pattern punching allows punching of multiple disks from each sample (configurable for up to 7 disks).

- An external vacuum pump system which aims to reduce the amount of airborne paper dust gathered around the punch site.



# Specifications

## SAMPLE COMPATIBILITY

Compatible with all sample collection filter paper. Dried samples on filter paper, framed or unframed cards. e.g. Whatman FTA Card, FTA PlantSaver Card, Protein Saver Card, Guthrie card, Bode Buccal DNA Collector.

## PLATE DECK

Two plate capacity, 96-well standard (14mm H), deep well, or PCR plates. Compatible with tube racks.

## PUNCH HEAD

Dual (two punch sizes) manufactured from high precision steel. Custom size selections from 1.0, 1.2, 1.5, 2.0, 3.0, 3.2, 3.8, 4.0, 4.7 to 6.0mm combinations. Quick release for easy cleaning or changing punch size.

## MOBILE CHUTE

An electronically controlled two-piece assembly that connects to the plate and guides the path of paper disks to fall directly into a well.

## DISK DETECTION SYSTEM

A high-speed optoelectronic sensor is used to validate the passage of punched disks through the mobile chute.

## CLEANING PUNCH

A programmable function to perform multiple cleaning punches into a dedicated cleaning container.

## PUNCH ACTIVATION

Three ways to punch: (1) Footswitch, (2) Auto-trigger function, or (3) Software control screen.

## AUTO-TRIGGER FUNCTION

An automatic punch function senses the card on the card platform and activates the punch. A footswitch can be used in parallel with the auto-trigger turned on or off.

## AIR HUMIDIFICATION SYSTEM

An electronically controlled internal micropump provides positive air flow to assist the passage of punched disks. The air is humidified to minimize the effects of static electricity.

## SAMPLE BARCODE READER

An integrated barcode reader positioned above the card platform for quick scanning of card barcodes.

## LIGHT TARGETING SYSTEM

Precise LED illumination of punch location. Position the sample card to the most desirable location under the programmed light pattern.

## PATTERN PUNCHING

Punch multiple disks from any one sample. Programmable pattern to punch up to 7 disks with the aid of light guides. Ability to punch combinations from two different punch sizes in the same punch run.

## DUST EXTRACTION SYSTEM

An external vacuum pump aims to reduce the amount of paper dust gathered around the punch site. The extracted air is passed through a filter which is easily cleaned.

## OUTPUT FILES

Generate output files with logs of selectable fields. Output Files saved as .csv / .txt / .dat / .xml formats.

## WORKLIST FILES

A worklist may be imported to fill plates according to sample barcodes.

## IONIZER SYSTEM

For laboratories experiencing increased static, an additional ionizer system will considerably reduce punch disk errors. May be turned off for biochemical assays.

## PLATE VALIDATION CAMERA

Image is displayed prior to and after each punch to verify correct placement of each disk in the well. Text data specific to the well is saved with their image.

## HARDWARE

Windows PC with Windows 10 OS required.

## SOFTWARE

Includes one license copy of BSD600 Ascent Software.

## POWER SUPPLY

External 100-240V low leakage medical grade power adaptor. The instrument is internally powered from 24V DC.

## PHYSICAL DIMENSIONS & WEIGHT

515 W x 585 D x 425\* H mm; Weight: 25kg / 55 lbs  
(\* height does not include any tablet mount or bracket)

A2 ONLY