

System Specifications

OPTICS	
Coding	2-bit binary barcodes (digital)
White Light Source	White LED for barcode decoding
Green Light Source	Green LED for fluorescence excitation
Optics(Detection)	CCD imager
A/D Resolution	14 bits
Objective Lens	5x magnification
PERFORMANCE	
Dynamic Range	≥ 3.0 logs
Detection Limit	Limit of detection (LOD) shall be < 0.1 fmol based on GAPDH oligo target
Daily Start-Up	≤ 2 minutes
Reading Time	35 minutes per 96 wells (22 seconds per well)
Number of Tests	96 samples with 128 tests per sample, and up to 12,288 test data points
OPERATION ENVIRONMENT	
Temperature	15-35°C
PHYSICAL CHARACTERISTICS	
Power	100-240V, 50/60Hz
Dimensions	35cm W x 48cm D x 25cm H
Weight	19kg (42.0lbs)
Connection	USB, HDMI, Ethernet
*Products are currently intended for Research Use Only.	

Product Information

Part #	Name	Description	# of Reactions
44-B0302-NNNN-50K	4096-BMB-C	Carboxyl BMB with barcode NNNN, NNNN = 0000-4,095	1000
44-B0312-NNNN-50K	4096-BMB-P	P-Carboxyl BMB with barcode NNNN, NNNN = 0000-4,095	1000
44-B0303-NNNN-50K	4096-BMB-A	Amino BMB with barcode NNNN, NNNN = 0000-4,095	1000
44-B0322-NNNN-50K	4096-BMB-SA	Streptavidin coated BMB with barcode NNNN, NNNN = 0000-4,095	1000

- 1.5mL tube: contains about 50,000 beads each, with each tube sufficient for processing ten 96-well microplates.
- Custom packaging size of ~1M BMB/tube and ~10M/tube are available upon request.
- BMB size: 68 x 35 x 5 µm
- BMBs have a density of 1.19 g/cm³ and are easy to suspend in a solution.

Multiplex MDx and Immunoassay Reader

- Digital Multiplex Barcoded Magnetic Beads
- As Easy-to-Use as an ELISA Plate Reader
- Reduce Testing Time & Costs

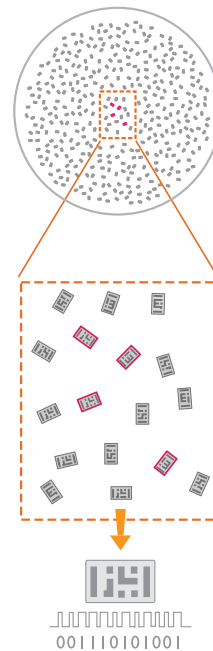
4,096 Different Barcodes with up to 128 Targets per Assay



## Barcoded Magnetic Beads

**B**arcoded Magnetic Beads (BMB)s combine well-established semiconductor manufacturing processes with proven molecular and immunochemistry methodologies into a breakthrough digital technology. This platform is capable of detecting multiple analytes or biomarkers in one test, thereby significantly increasing the throughput of detection by conventional assays. The BMBs are fabricated by encasing paramagnetic material with biocompatible polymers. This results in a highly stable surface chemistry where the paramagnetic material exhibits magnetic properties for ease of washing, separation, and recovery. The BMB barcode patterns are designated to give a high contrast signal, enabling very accurate identification. The beads are functionalized for coupling with nucleic acids, proteins, or other probe molecules, allowing high multiplex assays to be carried out in homogeneous media.

One of the image frames on the bottom of a 96-well microplate following target reaction, a mixture of BMBs can be simultaneously decoded and fluorescence (e.g. red) detected with proven optical technology.

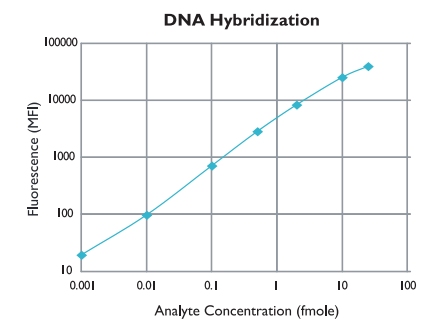
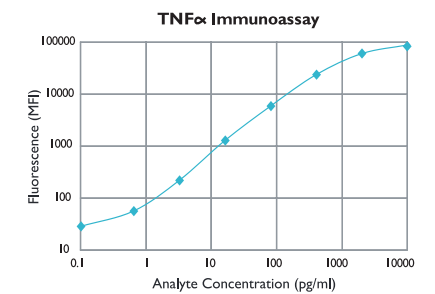


## BioCode® 2500 Analyzer

**T**he BioCode® 2500 Analyzer has been developed for affordability and ease-of-use. Following the reaction, the barcodes and the fluorescent signal of the beads are detected once the beads have settled to the bottom of each well. Up to 128 analytes can be tested in each well.

The BioCode® 2500 Analyzer as an XY transitional stage to rapidly scan the entire 96-well microplate. The CCD camera reads the barcode using bright field imaging and quantifies the analyte by reading the fluorescence signal intensity. The software of the BioCode® 2500 Analyzer displays the barcode fluorescence intensity for each BMB in a user-friendly report.

Ultra Sensitivity/ Broad Dynamic Range



- Reduce Testing Time & Costs
- Reduce Sample Volume
- ~30 Minutes per 96-Well Microplate
- Provide More Data With Comprehensive Information

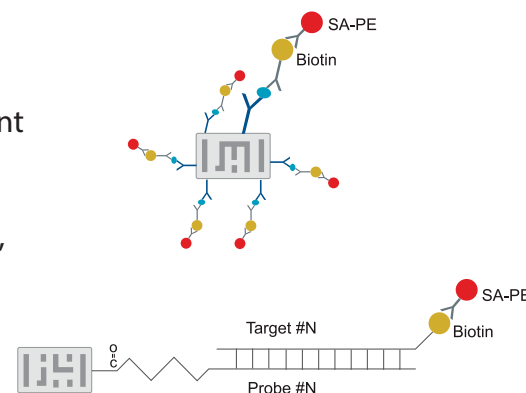
**D**igitally barcoded magnetic beads are highly stable and demonstrate low, non-specific binding characteristics in biological assays. Applied BioCode currently offers three different functionalized Barcoded Magnetic Beads.

**Carboxyl beads** - enables covalent attachment of nucleic acids, and other ligands on the bead surface. Carboxyl beads permit probes and specific primers to bind to the bead surface via amino-modified 5' termini.

**P-Carboxyl beads** - enables covalent attachment of proteins, peptides, and other ligands on the bead surface. P-Carboxyl beads enable proteins to bind to the bead surface covalently via amino groups.

**Amino beads** - enables covalent attachment of proteins, peptides, and other ligands with the characteristics of high stability and low non-specific binding. Amino beads enable proteins to bind to the bead surface covalently via carboxyl groups.

**Streptavidin beads** - designed for high affinity binding to biotinylated molecules. This simple and flexible immobilization chemistry enables rapid assay development for a variety of applications.



## BMBs for Proteins or Nucleic Acids

**C**reating your own multiplex biomarker assays for protein or nucleic acid-based detection with new assay development tools from Applied BioCode.

The nucleic acid coupling kit contains all necessary reagents and detailed instructions for coupling oligonucleotide or DNA probes to distinct Barcode Magnetic Beads. The kit facilitates unique barcode designation of your favorite detection probes, and custom-made multiplex assay development easier for genetic biomarkers, gene expression and infectious disease testing.

The protein-to-bead conjugation kit contains necessary reagents and detailed instructions for coupling proteins or antibodies to distinct Barcoded Magnetic Beads. By facilitating unique barcode designation of your favorite proteins or antibodies. The kit makes multiplex immunoassays easier and affordable while increasing productivity for your laboratory personnel.



## Multiplex Biomarker Assay Development Tools