

## Nanomotion offers 5 types of amplifiers to facilitate best performance of the motors.

**AB1A-** is the standard, heavy duty amplifier, widely used.

**AB1A-3U-** a board level AB1A amplifier card, in 3U format for motherboard interface.

**AB2-** facilitates additional ultra high resolution capabilities (UHR), down to 1 nanometer, using the unique DC mode.

**AB4-** a compact amplifier, powered by 12V supply.

**AB5-** the innovative linearized amplifier, yields excellent motion performance with any standard controller firmware.

**AB5-3U-** a board level AB5 amplifier card, in 3U format for motherboard interface.



| unique functionality              | <b>AB1A</b><br>nanomotion basic | <b>AB1A-3U</b><br>board level 3U format | <b>AB2</b><br>DC mode for ultra high resolution | <b>AB4</b><br>compact amplifier package | <b>AB5</b><br>linear response, operates with standard servo | <b>AB5-3U</b><br>linear response operates with standard servo |
|-----------------------------------|---------------------------------|---|---|---|---|---|
| <b>Supply Voltage (Vdc)</b>       | 48                              | 48                                      | 24  | 12                                      | 24  | 24  |
| <b>Packaging</b>                  | panel mount box                 | board level 3u format                   | panel mount box                                 | small panel mount box                   | panel mount box   | board level 3U format   |
| <b>Max # of HR Elements (1)</b>   | 32                              | 32                                      | 16  | 4                                       | 32  | 32  |
| <b>Max Motor Cable Length (3)</b> | 15                              | 15                                      | 20  | 20                                      | 20  | 20  |
| <b>Input Signals (2)</b>          | ±10Vdc                          | ±10Vdc                                  | ±10Vdc  | ±10Vdc spi digital                      | ±10Vdc  | ±10Vdc  |
| <b>Modes of Operation</b>         | velocity step gate              | velocity step gate                      | velocity step gate                              | velocity step gate UHR position         | velocity step gate  | velocity step gate  |

|                       | <b>AB1A, AB1A-3U</b> |                       | <b>AB2, AB5, AB5-3U</b> |                       | <b>AB4</b>    |                       |
|-----------------------|----------------------|-----------------------|-------------------------|-----------------------|---------------|-----------------------|
|                       | regular cable        | low capacitance cable | regular cable           | low capacitance cable | regular cable | low capacitance cable |
| <b>1HR element</b>    | 0.5 to 5             | 0.5 to 8              | 0.5 to 10               | 0.5 to 20             | 0.5 to 10     | 0.5 to 20             |
| <b>2HR elements</b>   | 0.5 to 5             | 0.5 to 8              | 0.5 to 10               | 0.5 to 20             | 0.5 to 10     | 0.5 to 20             |
| <b>4 HR elements</b>  | 0.5 to 10            | 0.5 to 15             | 0.5 to 10               | 0.5 to 20             | 0.5 to 10     | 0.5 to 20             |
| <b>8 HR elements</b>  | 0.5 to 10            | 0.5 to 15             | 0.5 to 10               | 0.5 to 20             | NA            | NA                    |
| <b>16 HR elements</b> | 0.5 to 10            | 0.5 to 15             | 0.5 to 10               | 0.5 to 20             | NA            | NA                    |
| <b>32 HR elements</b> | 0.5 to 10            | 0.5 to 15             | 0.5 to 10 (AB5)         | 0.5 to 20 (AB5)       | NA            | NA                    |
| <b>1 ST element</b>   | 3                    | 3                     | NA                      | 0.5 to 10             | NA            | 0.5 to 10m            |
| <b>2 LS elements</b>  | 0.5 to 5             | NA                    | NA                      | NA                    | NA            | NA                    |
| <b>4 LS elements</b>  | 0.5 to 5             | NA                    | NA                      | NA                    | NA            | NA                    |
| <b>8 LS elements</b>  | 0.5 to 5             | NA                    | NA                      | NA                    | NA            | NA                    |