

# DG-1

## 24-bit Digitiser





## DG-1 Digitiser

DG-1 is a digitiser designed to convert the output signals from most Bartington analogue magnetometers to digital format.

DG-1 is also small, at just 80mm long and 35mm depth.



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## Features

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- 3 input channels
- 24-bit resolution
- Digital bandwidth of 10Hz, 100Hz, 1kHz, 3kHz, 5kHz (3dB point)
- Compact size



## Product Identification

| Product name | Package | Noise              |
|--------------|---------|--------------------|
| DG-1         | TBC     | no code = Standard |

## DG-1 Specification

| Performance                              |  |
|--|--|
| Number of input channels                 | Three  |
| Input sensor mode                        | Differential/single-ended  |
| Sensor input signal ranges               | $\pm 3V, \pm 8V, \pm 10V$  |
| Input coupling                           | DC   |
| Resolution                               | 24bits   |
| Effective resolution                     | 17bits   |
| ADC Sampling Rate                        | 1.024MHz   |
| ADC data transfer rate                   | 32KHz max for all three channels (configurable)  |
| ADC anti-alias filter                    | 4.8kHz $\pm 10\%$ -3dB point   |
| Bandwidth                                | 3 different ranges – need to calculate<br>3V setting<br>8V setting<br>10V setting  |
| Scaling Error                            | $< \pm 0.2\%$  |
| Bandwidth                                | Digital – 10Hz, 100Hz, 1kHz, 3kHz, 5kHz -3dB point, selectable<br>+ 1 configurable corner frequency<br>Frequency range up to 10kHz<br>Low-Pass Filter: FIR |
| Spectral Noise                           | $\leq 175\mu V/\sqrt{Hz}$ @ 1Hz (Sample Sum Count of 8)<br>$\leq 19\mu V/\sqrt{Hz}$ @ 1Hz (Sample Sum Count of 254)  |
| Offset Error                             | $< 1.5mV$  |
| Temperature coefficient of offset        | $< 25\mu V/^{\circ}C$  |
| Temperature coefficient of scaling       | $< 80ppm/^{\circ}C$  |
| Phase delay between all digitized inputs | $< 1\mu S$   |
| Time base accuracy                       | $\pm 50ppm$  |
| Input impedance                          | 40k $\Omega$   |
| Communication Interface                  | USB 2.0 Hi-Speed, 12MBaud  |
| Functionality                            | TBC  |

### Environmental

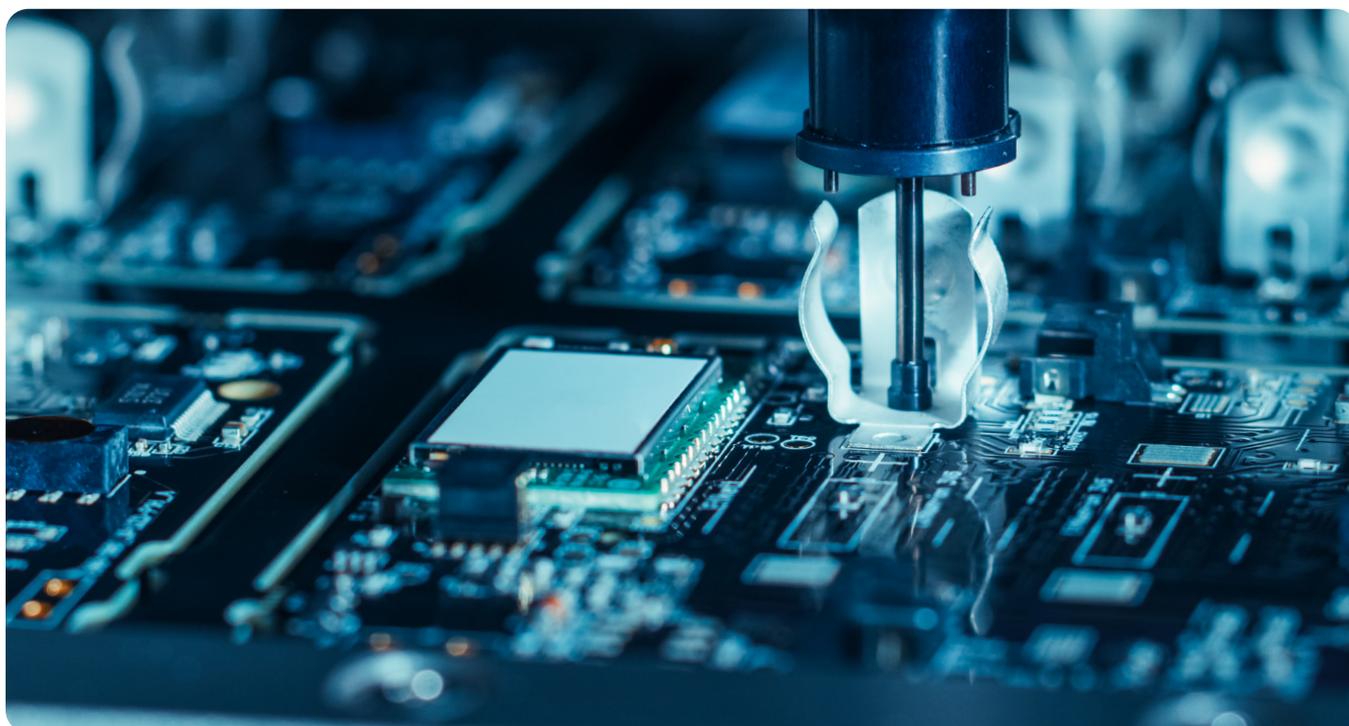
|                             |                           |
|-----------------------------|---------------------------|
| Operating temperature range | 0°C to +60°C              |
| Storage temperature range   | -10°C to +60°C            |
| Compliance                  | BS EN 61326-1:2013 & RoHS |

### Mechanical

|                    |                    |                    |
|--------------------|--------------------|--------------------|
| Enclosure Material | Anodised Aluminium |                    |
| Dimensions         | 80 x 35 x 24mm     |                    |
| Weight             | 150g               |                    |
| Connectors         | USB                | USB Type-C Cable   |
|                    | Magnetometer       | Hirose LF10WBR-12S |
| Cable length USB   | 0.5m               |                    |
| Mounting features  | 4 x M4 holes       |                    |

### Electrical

|  |                         |
|--|-------------------------|
| Supply Voltage (USB)                     | 5V $\pm$ 12%            |
| Output Voltage (to sensor)               | $\pm$ 12V               |
| Absolute max current drive output USB2.0 | $\pm$ 45mA @ $\pm$ 12V  |
| Absolute max current drive output USB3.0 | $\pm$ 150mA @ $\pm$ 12V |
| Maximum Cable Length                     | TBC                     |



## DG-1 Compatibility

| Compatible Products |                    |
|---------------------|--------------------|
| Mag-03              | CryoMag/CryoMag-IE |
| Mag-13              | Mag610/611         |
| Mag612U             | Mag614-FL          |
| Mag619U             | Mag647/712         |
| Mag646/670/710      | Mag648/649         |
| Mag690              | Mag900/901         |





The specifications of the products described in this brochure are subject to change without prior notice.

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