

# Product Data Sheet

Range:

Title: 12mm DC Gearmotor

Type:

Model: 212-11E

12mm DC Gearmotor

24mm Type

Shown on 6mm Isometric Grid



| KEY FEATURES            |                       |
|-------------------------|-----------------------|
| Body Diameter           | 12 mm [ $\pm 0.2$ ]   |
| Body Length             | 24.1 mm [ $\pm 0.5$ ] |
| Shaft Orientation       | Inline                |
| Gear Ratio              | 10.0 :1               |
| Rated Operating Voltage | 3 V                   |
| Rated Load              | 1.8 mN·m              |
| Rated Load Speed        | 765 rpm               |

## TYPICAL DC MOTOR PERFORMANCE CHARACTERISTICS

SAMPLING

Performance Graph Currently Unavailable

SAMPLING

## ORDERING INFORMATION

The model number fully defines the model, variant and additional features of the product. Please quote this number when ordering. For stocked types, testing and evaluation samples can be ordered directly through our online store.

**FIND OUT HOW THIS PART COULD MEET YOUR SPECIFICATIONS****Email:** [enquiries@precisionmicrodrives.com](mailto:enquiries@precisionmicrodrives.com)  
**Call:** +44 (0) 1932 252482

# Looking for the perfect design?

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Precision Microdrives is an ISO 9001:2015 trusted designer and manufacturer of miniature, cost-effective, and well engineered motors and mechanisms. We are specialists in,

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- [Flexible motor & mechanism manufacturing](#)
- [Dependable quality control & after-sales support](#)
- [Industry leading motor testing and validation](#)

Our UK based motor design engineers, will support you through the complex process of specifying, developing, validating, and mass manufacturing, a custom motor or mechanism. The result? A part perfect for your application.

Delivered, On-Time & To Spec.

## SPEAK TO OUR DESIGN ENGINEERS TODAY

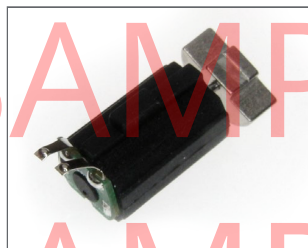
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### DESIGN FOR APPLICATION CASE STUDIES



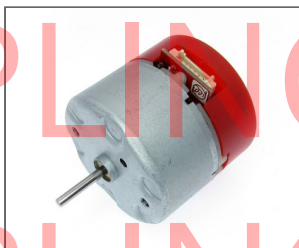
#### ENCAPSULATED VIBRATION MOTOR FOR A CPR TRAINING DUMMY

- Low volume, high value manufacturing
- Custom CNC machined enclosure
- Optimised haptic performance
- Custom PCB including EMI filters
- Part no. 334-401.001



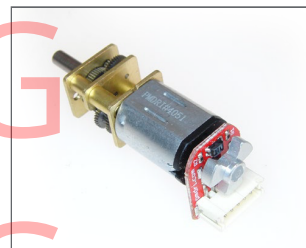
#### VIBRATION MOTOR HIGHLY OPTIMISED FOR RUGGEDISED FIRE AND POLICE EMERGENCY RADIOS

- High volume production
- Optimised for emergency services application
- Ruggedised design with custom rubber 'suspension' cover
- Custom PCB with spring legs for simplified production assembly times
- Part no. 308-104.001



#### PRECISION SPEED AND TORQUE CONTROLLED SERVO WITH INTEGRATED TUNABLE PID LOOP FOR SINGLE-USE SCIENTIFIC INSTRUMENT.

- Medium volume, high value assembly
- Proprietary PID controller converts cost-effective motor design into a precision servo
- Adapted control software including digital IO (to customer's specification)
- Part no. 132-100.001



#### CUSTOMISED PRECISION GEAR MOTOR WITH ROBUST OPTICAL ENCODER

- High volume production
- Application specific output shaft
- Tailored motor performance curves
- Rear motor shaft with noise resistant optical encoder
- Part no. 212-116.001

**PHYSICAL SPECIFICATION**

| PARAMETER            | CONDITIONS                                                 | SPECIFICATION      |
|----------------------|------------------------------------------------------------|--------------------|
| Body Diameter        | Max body diameter or max face dimension where non-circular | 12 mm [+/- 0.2]    |
| Body Length          | Excl. shafts, leads and terminals                          | 24.1 mm [+/- 0.5]  |
| Unit Weight          |                                                            | 9.5 g              |
| No. of Output Shafts |                                                            | 1                  |
| Shaft Diameter       |                                                            | 3 mm [+ 0 /- 0.03] |
| Shaft Length         | Measured from motor body face                              | 10 mm [+/- 0.3]    |
| Shaft Orientation    |                                                            | Inline             |

**CONSTRUCTION SPECIFICATION**

| PARAMETER          | CONDITIONS | SPECIFICATION        |
|--------------------|------------|----------------------|
| Motor Construction |            | Iron Core            |
| Gear Ratio         |            | 10.0 :1              |
| Commutation        |            | Precious Metal Brush |
| No. of Poles       |            | 3                    |
| Bearing Type       |            | Sintered Bronze      |

**OPERATIONAL SPECIFICATION**

| PARAMETER               | CONDITIONS                                         | SPECIFICATION |
|-------------------------|----------------------------------------------------|---------------|
| Rated Operating Voltage |                                                    | 3 V           |
| Rated Load              | Maximum continuous torque                          | 1.8 mN·m      |
| Rated Load Speed        | At rated voltage under fixed torque at rated load  | 765 rpm       |
| N/L Speed               | Measured at rated voltage                          | 1,000 rpm     |
| Max. N/L Current        | At rated voltage. Measured at no load              | 56 mA         |
| Max. Stall Current      | Momentary stall condition current at rated voltage | 470 mA        |
| Max. Rated Load Current | At rated voltage and at rated load                 | 165 mA        |

**Important:** The characteristics of the motor is the typical operating parameters of the product. The data herein offers design guidance information only and supplied batches are validated for conformity against the specifications on the previous page.

**TYPICAL PERFORMANCE CHARACTERISTICS**

| PARAMETER                   | CONDITIONS       | SPECIFICATION |
|-----------------------------|------------------|---------------|
| Typical N/L Current         | At rated voltage | 38 mA         |
| Typical Terminal Resistance |                  | 7 Ohm         |
| Typical Terminal Inductance |                  | 1,300 uH      |

**FIND OUT HOW THIS PART COULD MEET YOUR SPECIFICATIONS**

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ENVIRONMENTAL CHARACTERISTICS

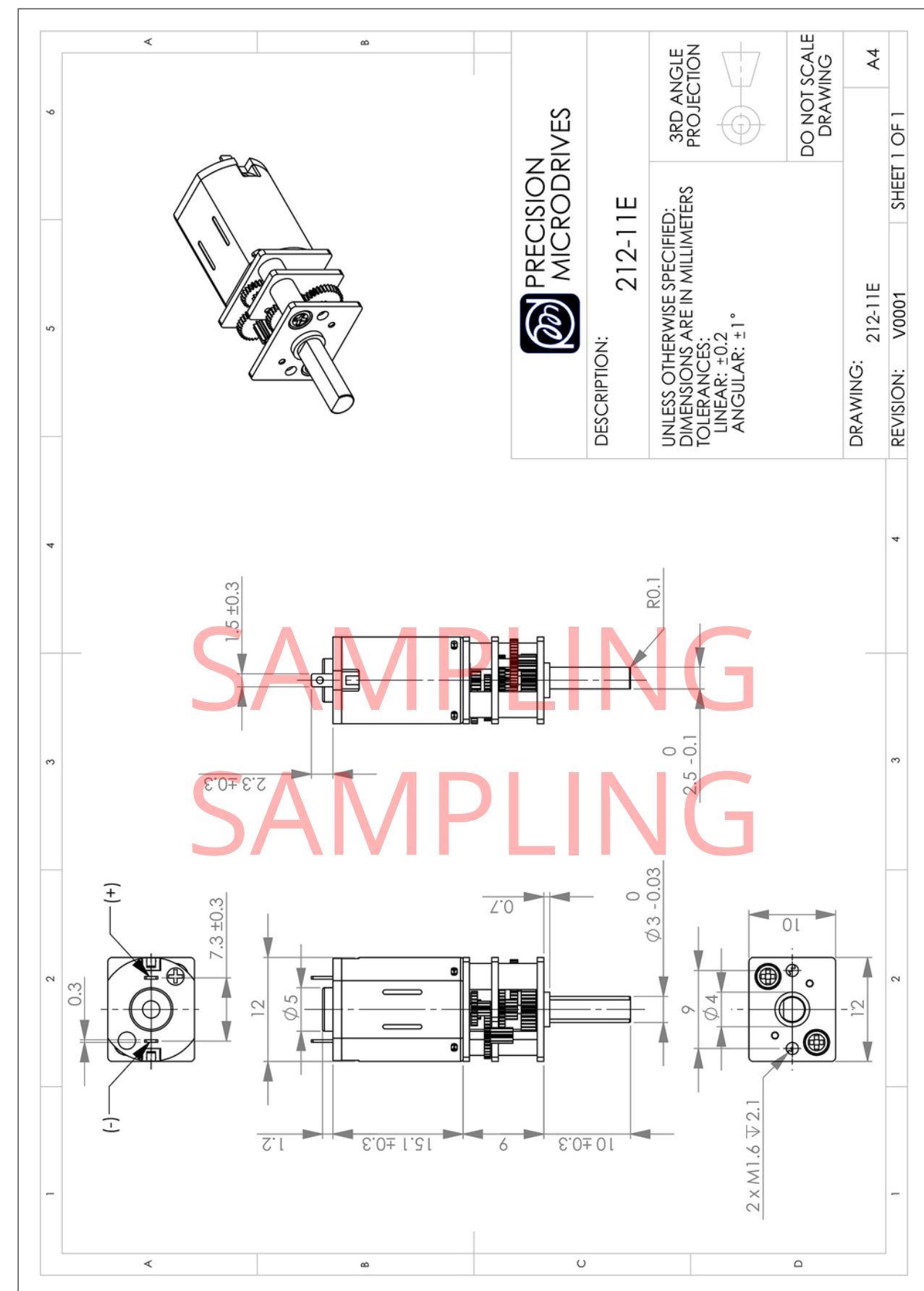
| PARAMETER                           | CONDITIONS | SPECIFICATION |
|-------------------------------------|------------|---------------|
| Max. Operating Temp.                |            | 50 Deg.C      |
| Min. Operating Temp.                |            | -10 Deg.C     |
| Max. Storage & Transportation Temp. |            | 80 Deg.C      |
| Min. Storage & Transportation Temp. |            | -40 Deg.C     |

SAMPLING  
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## PRODUCT DIMENSIONAL SPECIFICATION



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### HOW TO ORDER

Call or email us with your order requirements at:

Email: [enquiries@precisionmicrodrives.com](mailto:enquiries@precisionmicrodrives.com)

Phone: **+44 (0) 1932 252482**

Please quote the full part number when ordering or making an enquiry. Some products can be ordered in smaller volumes directly from our website: [www.precisionmicrodrives.com](http://www.precisionmicrodrives.com)

### DATASHEET REVISION AND VERSION NUMBERING

We aim to provide our customer with the most detailed product information available. Sometimes changes are necessary, and these will be controlled by our engineering change request and notification process. To track datasheet versions we use both a 'production revision number' and a 'document version number'. These can be found at the bottom of every page. In some cases, such as documentation errors, the document version number can increase without triggering a product revision.

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  - 1.2. support or sustain life, and whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury to the user or a third party.
2. A critical component is any component of a life support device or any other system or machine whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

### BATCH NUMBERING, MANUFACTURING, TRACEABILITY AND LABELLING

Every part manufactured by Precision Microdrives is at minimum identified and traced via a batch number. Where physically practical, we try to make each part with a batch number. In addition, some parts carry a lot code or barcode serial numbers. If traceability is a core requirement for your purchase, let us know and we'll outline the production options for you.

### STANDARD QUALITY CONTROLS AND ISO 9001

Precision quality control is one of our 3 key competitive advantages. All motors that we produce undergo 100% line inspection followed by strict and detailed batch sample testing in accordance with ISO 2859. All of the processes operated at Precision Microdrives are managed within our ISO 9001 quality system.



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