GSD5 Series DC Drives

GSD5 Introduction

IronHorse GSD5 series DC drives offer superb flexibility, reliability, and value. A general purpose, economical line of drives rated to 2 horsepower, it provides the ultimate in standard features and versatility, offered in open-frame and NEMA 4/12 enclosed models.

A logical, easily-accessible layout simplifies installation and adjustment. Clean design, quality components and careful assembly are trademarks of IronHorse GSD DC drives.

Overview

Features

- Dual input voltage – 120/240 VAC, 50/60Hz
- Adjustable horsepower settings
- Barrier terminal strip
- Packaged bridge supply (full wave)
- 1% speed regulation with armature voltage feedback (±1/2% with tach feedback)
- Adjustable minimum speed
- Adjustable maximum speed
- Adjustable IR compensation
- Adjustable linear acceleration
- Adjustable current limit
- Line voltage compensation
- 5kΩ speed potentiometer with leads, knob, and dial included
- Power on/off switch (enclosed models)
- 50:1 speed range
- Overload capacity: 150% for one minute
- Transient voltage protection
- Voltage following mode or DC tachometer follower by supplying ungrounded analog input signal
- DC tachometer feedback
- Inhibit circuit – permits start and stop without breaking AC lines
- Remote start/stop via pot circuit or inhibit circuit
- Shunt field supply provided
- AC line fuse
- Enclosed models rated NEMA 4/12 with threaded conduit holes

Motor Rating Range @ 120/240 VAC_{IN} 1/8 – 2 hp

Accessories

- Replacement speed potentiometer kit
- Digital potentiometer
- Manual reverse switch
- Analog current input card
- Analog voltage input card

Detailed descriptions and specifications for GSD accessories are available in the “GSD Series DC Drives Accessories” section.

Typical Applications

- Auger feeders
- Automated door actuators
- Commercial cooking equipment
- Commercial lift
- Food production
- Industrial pumping systems
- Measurement instruments
- Miniature lathes and mills
- Packaging / material-handling equipment
- Printing and labeling machines
- Small shop machine tools
- Spray / print reciprocating head

For the latest prices, please check AutomationDirect.com.
# GSD5 Series DC Drives

## GSD5 Selection and Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>GSD5-240-10C</th>
<th>GSD5-240-10N4</th>
<th>GSD5-240-10N4-A</th>
<th>GSD5-240-10N4-R</th>
<th>GSD5-240-10N4-V</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Price</strong></td>
<td>$138.00</td>
<td>$181.00</td>
<td>$251.00</td>
<td>$272.00</td>
<td>$275.00</td>
</tr>
<tr>
<td><strong>Package Configuration</strong></td>
<td>open frame</td>
<td>NEMA 4/12</td>
<td></td>
<td></td>
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<tr>
<td><strong>Power Quality Form Factor</strong></td>
<td>1.4</td>
<td></td>
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<tr>
<td><strong>Special Features</strong></td>
<td>none</td>
<td>current follower</td>
<td>manual reversing</td>
<td>voltage follower</td>
<td></td>
</tr>
<tr>
<td><strong>Input Voltage (@50/60Hz)</strong></td>
<td>120/240 VAC ±10%</td>
<td></td>
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<tr>
<td><strong>Output Voltage</strong></td>
<td>0–90/180 VDC</td>
<td></td>
<td></td>
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<tr>
<td><strong>Shunt Field Voltage</strong></td>
<td>100VDC @ 120VAC input; 200VDC @ 240VAC input; (1A max)</td>
<td></td>
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<tr>
<td><strong>Motor Rating (hp)</strong></td>
<td>1/8 – 1 hp @ 90VDC; 1/4 – 2 hp @ 180VDC</td>
<td></td>
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<tr>
<td><strong>Output Current (continuous)</strong></td>
<td>150mA – 10.8A (DC)</td>
<td></td>
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<tr>
<td><strong>Current Overload Capacity</strong></td>
<td>150% for 60s</td>
<td></td>
<td></td>
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<tr>
<td><strong>Current Limit (adjustable)</strong></td>
<td>1–15A (DC)</td>
<td></td>
<td></td>
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<tr>
<td><strong>Transient Protection</strong></td>
<td>Metal Oxide Varistor (MOV)</td>
<td></td>
<td></td>
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<tr>
<td><strong>I.R. Compensation</strong></td>
<td>adjustable</td>
<td></td>
<td></td>
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<tr>
<td><strong>Speed Adjustment</strong></td>
<td>5k±2W potentiometer or 0–10VDC isolated input signal</td>
<td></td>
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<tr>
<td><strong>Speed Range</strong></td>
<td>50:1</td>
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<tr>
<td><strong>Speed Regulation</strong></td>
<td>±1% of base speed (0.5% with tachometer feedback)</td>
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<tr>
<td><strong>Maximum Speed</strong></td>
<td>adjustable from 66% to 110% of base speed</td>
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<tr>
<td><strong>Minimum Speed</strong></td>
<td>linear ramp 0–30% of adjustable maximum speed</td>
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<tr>
<td><strong>Acceleration</strong></td>
<td>linear ramp adjustable 0.5–8s</td>
<td></td>
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<tr>
<td><strong>Deceleration</strong></td>
<td>adjustable 0.06–80s (dependent on acceleration time setting)</td>
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<tr>
<td><strong>Dynamic Braking</strong></td>
<td>no</td>
<td></td>
<td></td>
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<tr>
<td>**Plugging Capability **</td>
<td>no</td>
<td></td>
<td></td>
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<tr>
<td><strong>Electrical Connections</strong></td>
<td>barrier-type terminal strip; 26–12 AWG</td>
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<tr>
<td><strong>External Fusing Required</strong></td>
<td>Bussman ABC or Littlefuse 314 series ceramic fuses or equivalent</td>
<td>Refer to wiring diagrams for details</td>
<td></td>
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<tr>
<td><strong>Operating Temperature</strong></td>
<td>-10 to 45 °C [14 to 113 °F]</td>
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<tr>
<td><strong>Thermal Protection</strong></td>
<td>current limiting</td>
<td></td>
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<tr>
<td><strong>Mounting Orientation</strong></td>
<td>can be mounted in any orientation</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>Corrosive Gases</strong></td>
<td>NOT compatible with any corrosive gases</td>
<td></td>
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<tr>
<td><strong>Weight</strong></td>
<td>16.25 oz [413g]</td>
<td>25.50 oz [723g]</td>
<td></td>
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<tr>
<td><strong>Agency Approvals</strong></td>
<td>UL-US listed (E333109), RoHS</td>
<td></td>
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<td></td>
<td>RoHS</td>
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</tbody>
</table>

**Optional Accessories** *

- **Replacement Potentiometer**: GSDA-5K
- **Digital Potentiometer**: GSDA-OP
- **Manual Reverse Switch**: GSDA-MREV – included – – – –
- **Analog Current Input Card**: GSDA-AI-A – included – – –
- **Analog Voltage Input Card**: GSDA-AI-V5 – – – included

* For accessories details, refer to the “GSD Series DC Drives Accessories” section.

** Plugging is a method of rapidly changing motor direction by reversing motor armature polarity, while the motor is still running.
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GSD5 Wiring Diagrams

GSD5-240-10C Basic Wiring Diagram – (refer to User Manual for more detailed wiring information)

- Field terminals are used for shunt-wound motors only! Do not connect these terminals when using permanent-magnet motors.

- AC1 terminal is internally fused; AC2 terminal is NOT internally fused. Add external fuse for AC2 if it is connected to a hot AC line.

GSD5-240-10N4 Basic Wiring Diagram – (refer to User Manual for more detailed wiring information)

- Field terminals are used for shunt-wound motors only! Do not connect these terminals when using permanent-magnet motors.

- AC1 terminal is internally fused; AC2 terminal is NOT internally fused. Add external fuse for AC2 if it is connected to a hot AC line.

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GSD5-240-10N4-A Basic Wiring Diagram – (refer to User Manual for more detailed wiring information)

GSD5-240-10N4-V Basic Wiring Diagram – (refer to User Manual for more detailed wiring information)

NOTE: SOME FACTORY WIRING IS NOT SHOWN FOR CLARITY

* Jumper clip is used to select input voltage range. When installed from P4-1 to P4-2, the range is 0–25 VDC thru 0–250 VDC. When installed from P4-2 to P4-3, the range is 0–5 VDC thru 0–25 VDC.
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GSD5 Dimensions  — \textit{dimensions = in [mm]}

\textbf{GSD5-240-10C Dimensions}

\textbf{GSD5-240-10N4-x Dimensions}

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