

GSD5 Series DC Drives

GSD5 Introduction



GSD5-240-10C



GSD5-240-10N4-x

GSD5 Series DC Drives

Motor Rating Range @ 120/240 VAC_{IN}

1/8 – 2 hp

Overview

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.

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 ($\pm 1/2\%$ with tach feedback)
- Adjustable minimum speed
- Adjustable maximum speed
- Adjustable IR compensation
- Adjustable linear acceleration
- Adjustable current limit
- Line voltage compensation
- 5k Ω 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

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

GSD5 Series DC Drives

GSD5 Selection and Specifications

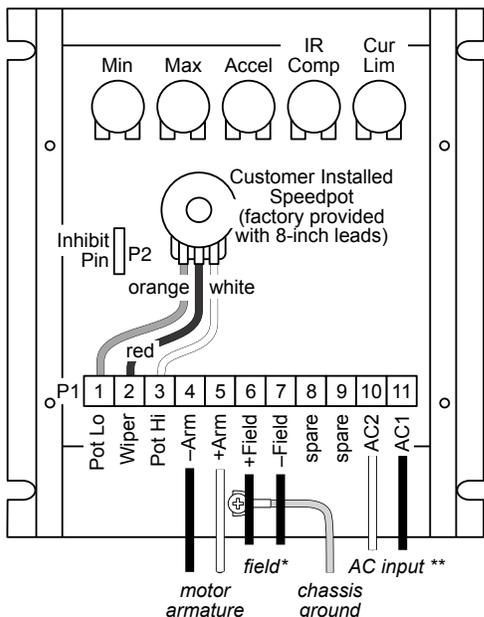
GSD5 Series DC Drives – Selection & Specifications						
Model	GSD5-240-10C	GSD5-240-10N4	GSD5-240-10N4-A	GSD5-240-10N4-R	GSD5-240-10N4-V	
Price	\$177.00	\$329.00	\$350.00	\$384.00	\$436.00	
Package Configuration	open frame	NEMA 4/12				
Power Quality Form Factor	1.4					
Special Features	None		Current follower	Manual reversing	Voltage follower	
Input Voltage (@50/60Hz)	120/240 VAC ±10%					
Output Voltage	0–90/180 VDC					
Shunt Field Voltage	100VDC @ 120VAC input; 200VDC @ 240VAC input; (1A max)					
Motor Rating (hp)	1/8 – 1 hp @ 90VDC ; 1/4 – 2 hp @ 180VDC					
Output Current (continuous)	150mA – 10.8A (DC)					
Current Overload Capacity	150% for 60s					
Current Limit (adjustable)	1–15A (DC)					
Transient Protection	Metal Oxide Varistor (MOV)					
I.R. Compensation	Adjustable					
Speed Adjustment	Potentiometer	5kΩ 2W potentiometer or 0–10VDC isolated input signal				
	Current	4–20mA with option GSDA-AI-A or -V5	n/a	4–20mA	n/a	4–20mA
	Voltage	0-5VDC, 0-250VDC with option GSDA-AI-V5	n/a	n/a	n/a	0-5VDC, 0-250VDC
Speed Range	50:1					
Speed Regulation	±1% of base speed (0.5% with tachometer feedback)					
Maximum Speed	Adjustable from 66% to 110% of base speed					
Minimum Speed	Linear ramp 0–30% of adjustable maximum speed					
Acceleration	Linear ramp adjustable 0.5–8s					
Deceleration	Follows acceleration setting					
Dynamic Braking	No					
Plugging Capability **	No					
Electrical Connections	Barrier-type terminal strip; 26–12 AWG					
External Fusing Required	Bussman ABC or Littelfuse 314 series ceramic fuses or equivalent Refer to wiring diagrams for details					
Operating Temperature	-10 to 45 °C [14 to 113 °F]					
Thermal Protection	Current limiting					
Mounting Orientation	Can be mounted in any orientation					
Corrosive Gases	NOT compatible with any corrosive gases					
Weight	16.25 oz [413g]	25.50 oz [723g]				
Agency Approvals	cUL _{US} listed (E333109), RoHS				RoHS	
Optional Accessories *						
Replacement Potentiometer	GSDA-5K					
Digital Potentiometer	GSDA-DP					
Manual Reverse Switch	GSDA-MREV***			Included	GSDA-MREV***	
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.
 ***To meet NEMA4 requirements, GSDA-MREV requires a user provided external enclosure.

GSD5 Series DC Drives

GSD5 Wiring Diagrams

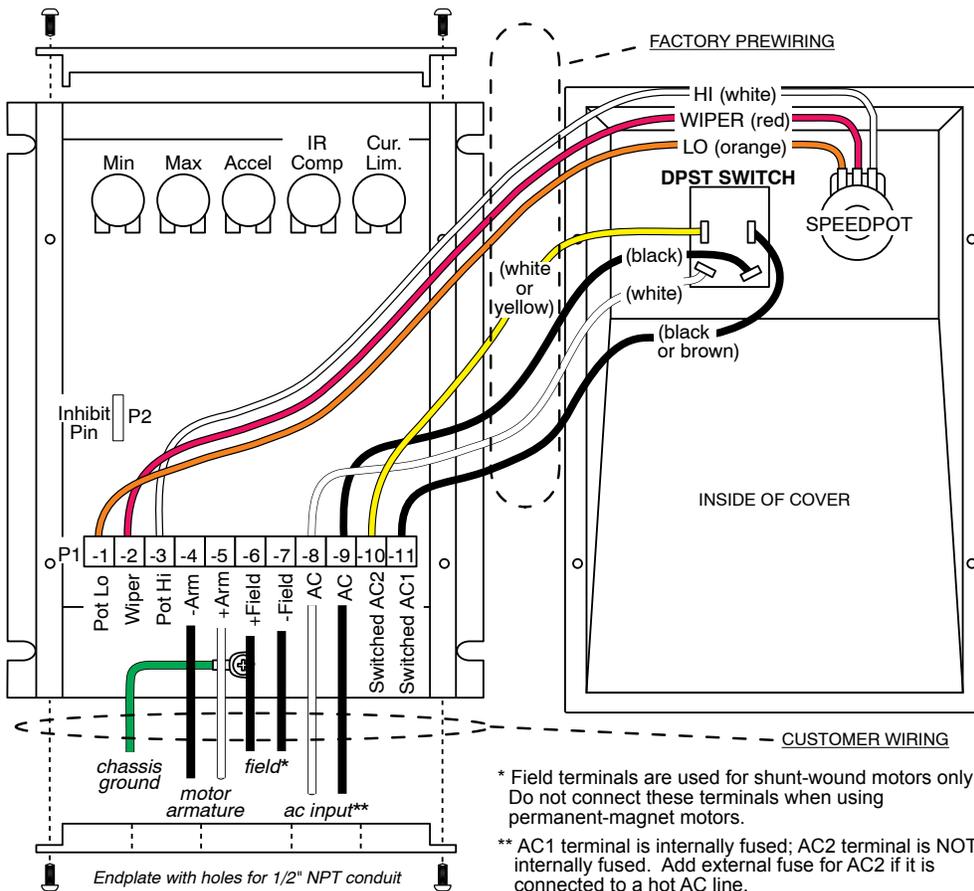
GSD5-240-10C Basic Wiring Diagram – (refer to User Manual for more detailed wiring information)



* 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)



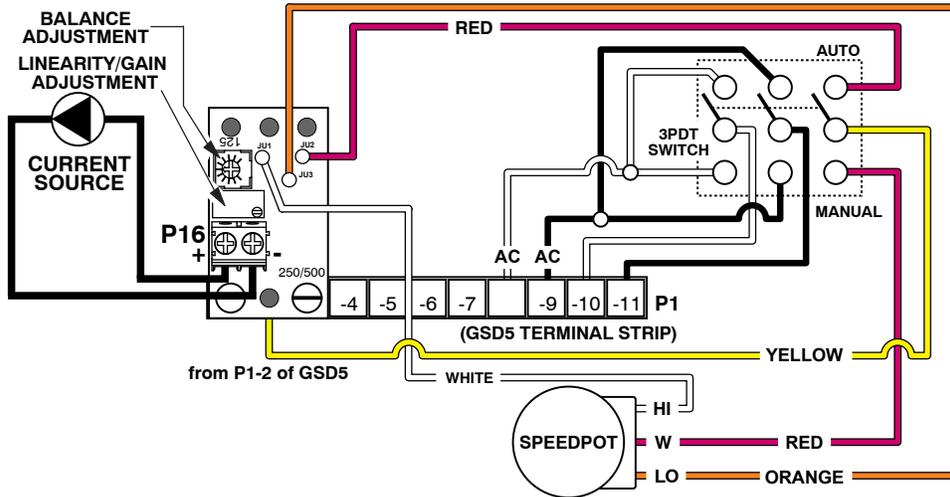
* Field terminals are used for shunt-wound motors only!
Do not connect these terminals when using permanent-magnet armatures.

** 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.

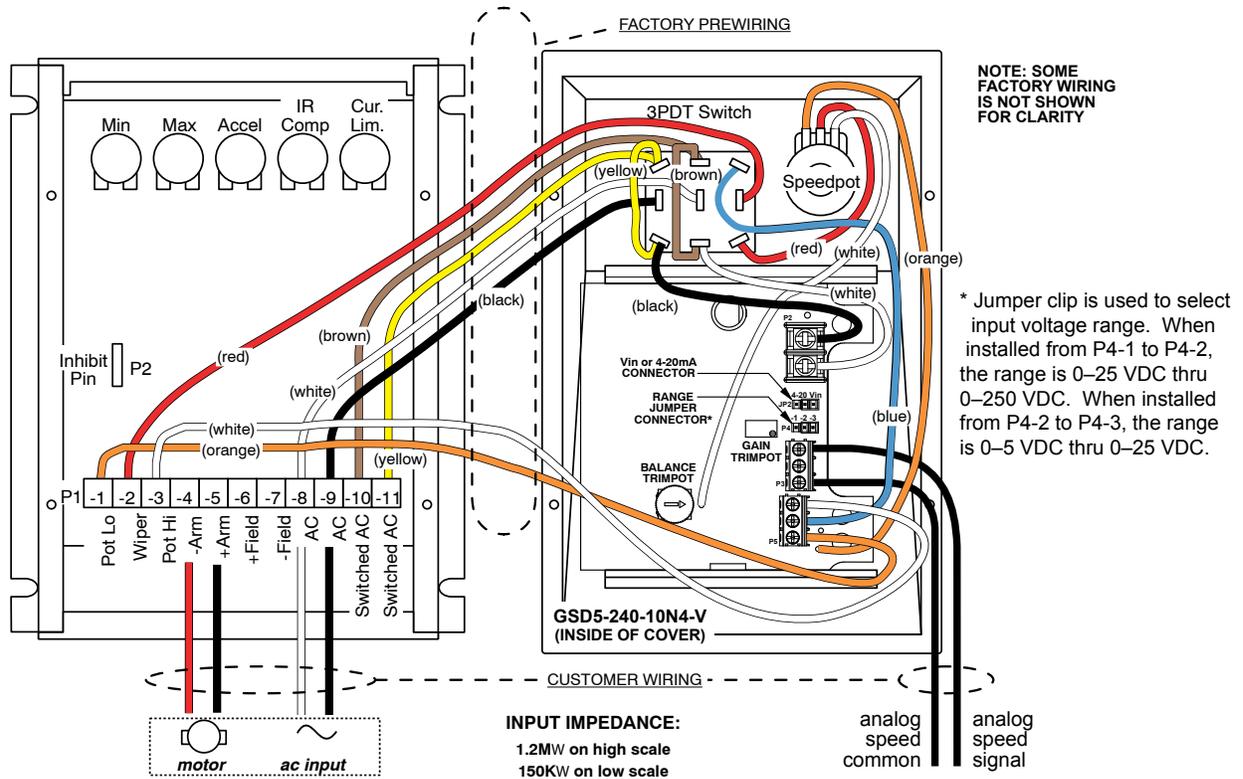
GSD5 Series DC Drives

GSD5 Wiring Diagrams

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



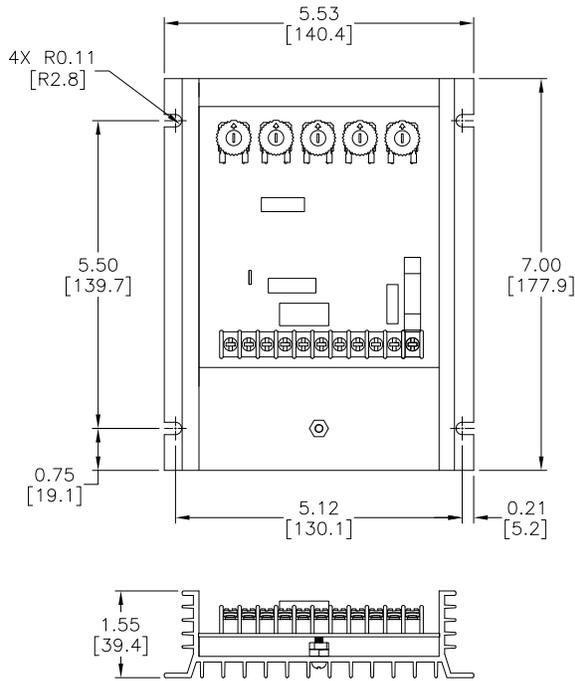
GSD5-240-10N4-V Basic Wiring Diagram – (refer to User Manual for more detailed wiring information)



GSD5 Series DC Drives

GSD5 Dimensions — dimensions = in [mm]

GSD5-240-10C Dimensions



GSD5-240-10N4-x Dimensions

