

GSD3 Series DC Drives

GSD3 Introduction



GSD3-xxx-2CJ



GSD3-xxx-2CL



GSD3-24x-3N4

GSD3 Series DC Drives

Motor Rating Range @ 12/24 VAC_{IN}	1/50 – 1/12 hp
Motor Rating Range @ 120/240 VAC_{IN}	1/50 – 2/3 hp

Overview

IronHorse GSD3 series DC drives are general-purpose, economical variable-speed controllers for small DC and universal motor applications.

Models are offered with dual input voltages of 12/24 VAC or 120/240 VAC with a DC output current rating of 2 Amps, adjustable trim pot settings, and quick-connect terminal pins.

GSD3 series DC drives are available in two compact panel-mount styles – open-frame and NEMA 4 enclosed.

Features

- Dual input voltage models of 12/24 VAC or 120/240 VAC
- Full-wave bridge power supply
- Adjustable minimum speed
- Adjustable maximum speed
- Adjustable IR compensation
- Fixed acceleration (0.5 seconds)
- 5k Ω speed potentiometer with leads, knob and dial included
- 25:1 speed range
- 1% speed regulation
- Shunt field supply provided (1 Amp max):
 - 10V for 12VAC; 20V for 24VAC input, 100V for 120VAC; 200V for 240VAC input
- Overload capacity of 200% for one minute
- Transient voltage protection
- Power on/off switch (enclosed models)
- AC line fuse (120–240 VAC NEMA 4 only)

Accessories

- Replacement speed potentiometer kit
- 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
- PLC-controlled reversing
- Printing and labeling machines
- Small shop machine tools
- Spray / print reciprocating head

GSD3 Series DC Drives

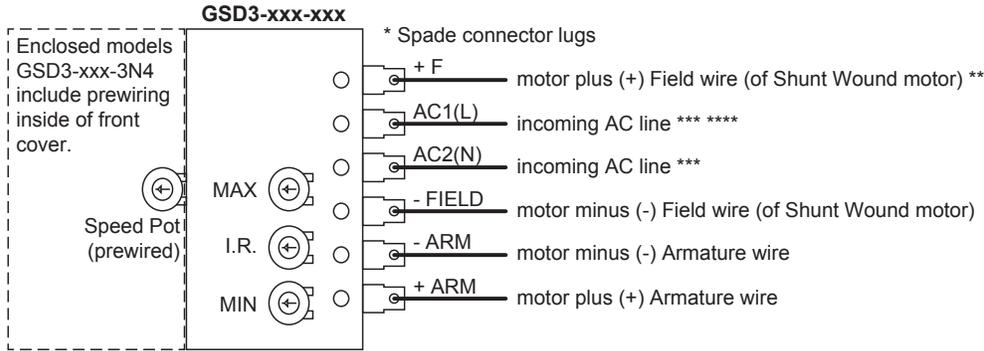
GSD3 Selection and Specifications

GSD3 Series DC Drives – Selection & Specifications						
Model	GSD3-24A-2CJ	GSD3-24A-2CL	GSD3-24A-3N4	GSD3-240-2CJ	GSD3-240-2CL	GSD3-240-3N4
Price	\$100.00	\$97.00	\$185.00	\$91.00	\$89.00	\$188.00
Package Configuration	Open frame		NEMA 4	Open frame		NEMA 4
Power Quality Form Factor	1.4					
Input Voltage	12/24 VAC ±10% @ 50/60 Hz			120/240 VAC ±10% @ 50/60 Hz		
Output Voltage	0–12 or 0–24 VDC			0–90 or 0–180 VDC		
Shunt Field Voltage & Current	10VDC @ 12 VAC 20VDC @ 24 VAC (1A max)	10VDC @ 12 VAC 20VDC @ 24 VAC (0.75A max)	100VDC @ 120 VAC 200VDC @ 240 VAC (1A max)	100VDC @ 120 VAC 200VDC @ 240 VAC (0.75A max)		100VDC @ 120 VAC 200VDC @ 240 VAC (0.75A max)
Motor Rating (hp)	1/50–1/40 @ 11V 1/25–1/20 @ 22V	1/50–1/25 @ 11V 1/25–1/12 @ 22V	1/50–1/6 @ 90V 1/25–1/3 @ 180V	1/50–1/3 @ 90V 1/25–2/3 @ 180V		1/50–1/3 @ 90V 1/25–2/3 @ 180V
Output Current (continuous)	150 mA to 2A (DC)	150 mA to 3A (DC)	150 mA to 2A (DC)	150 mA to 3A (DC)		150 mA to 3A (DC)
Current Overload Capacity	200% for 60s					
Current Limit	None					
Transient Protection	Metal Oxide Varistor (MOV)					
I.R. Compensation	Adjustable – full range					
Speed Adjustment	5kΩ potentiometer					
Speed Range	25:1					
Speed Regulation	±1% of base speed					
Maximum Speed	Adjustable from 40% to 120% of base speed					
Minimum Speed	Adjustable from 0% to 30% of maximum speed					
Acceleration	0.5s (fixed)					
Deceleration	n/a (follows the ramp of the reference)					
Dynamic Braking	No					
Plugging Capability **	No					
Electrical Connections	Spade-connector lugs					
External Fusing Required	Bussman ABC or Littlefuse 314 series ceramic fuses or equivalent GSD3-240-3N4 includes internal fusing adequate for 120 VAC line and neutral inputs Refer to wiring diagrams for external fusing requirements for other wiring configurations					
Operating Temperature	-10 to 45 °C [14 to 113 °F]	-10 to 40 °C [14 to 104 °F]	-10 to 45 °C [14 to 113 °F]	-10 to 45 °C [14 to 113 °F]		-10 to 40 °C [14 to 104 °F]
Thermal Protection	None					
Mounting Orientation	Can be mounted in any orientation					
Corrosive Gases	NOT compatible with any corrosive gases					
Weight	2.9 oz [83g]	2.6 oz [75g]	20.3 oz [575g]	2.9 oz [83g]	2.6 oz [75g]	20.3 oz [575g]
Agency Approvals	RoHS			cUL _{US} listed (E333109), RoHS		
Optional Accessories *						
Replacement Potentiometer	GSDA-5K					
Manual Reverse Switch	GSDA-MREV***					
<p>* For accessories details, refer to the "GSD Series DC Drives Accessories" section.</p> <p>** Plugging is a method of rapidly changing motor direction by reversing motor armature polarity, while the motor is still running.</p> <p>***To meet NEMA4 requirements, GSDA-MREV requires a user provided external enclosure.</p>						

GSD3 Series DC Drives

GSD3 Wiring Diagrams

GSD3-24x-xxx Basic Wiring Diagram – (refer to User Manual for more detailed wiring information)



* For wiring connections, use customer-supplied Sta-Kon 0.25 in x 0.25 in spade connectors or similar.

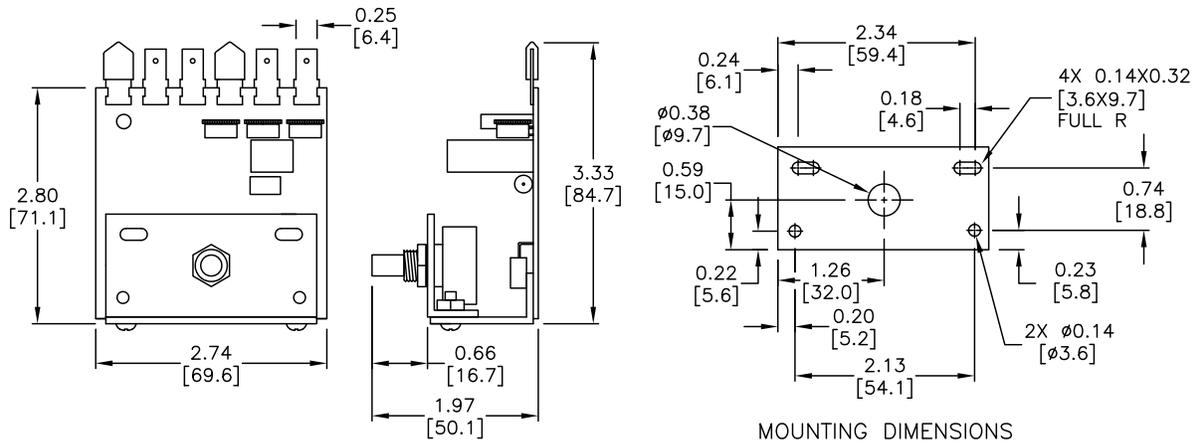
** +F connection is only for Shunt Wound motor; NOT for Permanent Magnet motor.
For motors with dual voltage field, i.e. 50/100V or 100/200V, connect the highest value.

*** Use normal-blow fuses in series with all ungrounded (hot) AC inputs, rated to 125% of motor current.
NOTE: Fuse both AC input lines for 240 VAC input, where both lines are hot. For line-to-neutral circuits, fuse the hot input line and connect it to AC1.

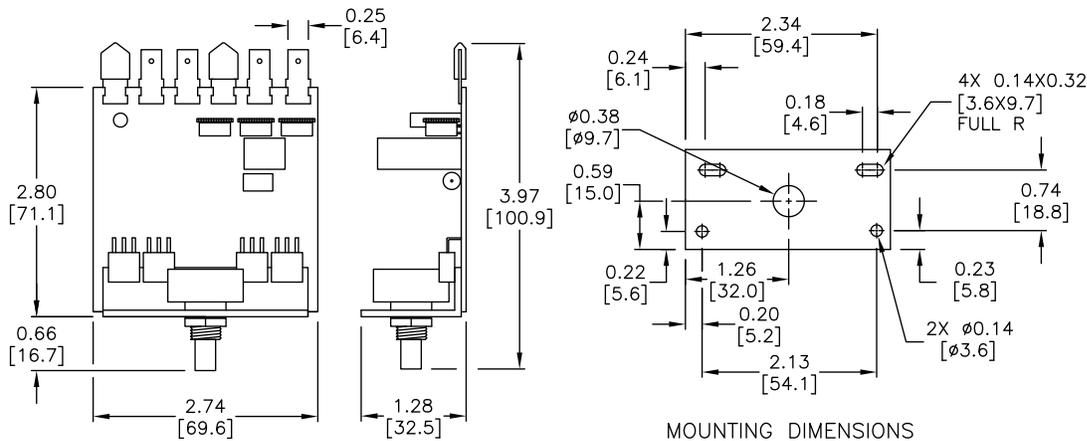
**** GSD3-240-3N4 drives include a replaceable built-in fuse wired in line with AC1.
(Fuse is 250VAC, 6.3A Littlefuse 21606.30 or equivalent.)

GSD3 Dimensions — dimensions = in [mm]

GSD3-24x-2CJ Dimensions



GSD3-24x-2CL Dimensions



GSD3 Series DC Drives

GSD3 Dimensions — dimensions = in [mm]

GSD3-24x-3N4 Dimensions

