

# GSD Series DC Drives Accessories

## GSDA Accessories for GSD Series DC Drives – Selection & Specifications

<b>GSDA Accessories for GSD Series DC Drives</b>			
<b>Model</b>	<b>Price</b>	<b>Description</b>	<b>For Use With</b>
<b><u>GSDA-5K</u></b>		IronHorse GSD series speed potentiometer kit, replacement, output up to input voltage, 5k ohm, 0.5W. For use with all GSD series DC drives. Includes potentiometer, knob, 0-100% dial and mounting hardware.	GSD - all
<b><u>GSDA-AI-A8</u></b>		IronHorse GSD8 series relay/analog combo module, Analog Input: 1-channel, current, Analog Output: 1-channel, current, Discrete Output: 1-point, relay, (1) Form C (SPDT) relay. For use with multiple GSD8 series DC drives.	All GSD8 drives except GSD8-240-5C
<b><u>GSDA-AI-V4A</u></b>		IronHorse GSD4A series analog input module, 1-channel, current/voltage, isolated, input current signal range(s) of 4–20 mA, input voltage signal range(s) of 0–5 VDC, 0–250 VDC.	All GSD4A drives
<b><u>GSDA-AI-V5</u></b>		IronHorse GSD5 series analog input module, 1-channel, current/voltage, isolated, input current signal range(s) of 4–20 mA, input voltage signal range(s) of 0–5 VDC, 0–250 VDC.	GSD5-240-10C (open-frame)
<b><u>GSDA-CM-8</u></b>		IronHorse GSD8 series communication module, ASCII, 1 port, (1) RS-232/RS-485 (RJ45) port(s). For use with IronHorse GSD8-240-5C-D and GSD8-240-10C-D DC drives.	All GSD8 drives except GSD8-240-5C
<b><u>GSDA-DP</u></b>		IronHorse GSD series digital potentiometer, 120/240 VAC input, bipolar/unipolar, NEMA 4X, aluminum housing. For use with multiple AC and DC drives.	GSD1, GSD4(A), GSD5, GSD6, GSD7
<b><u>GSDA-DP-D</u></b>		IronHorse GSD series PID digital potentiometer, 120/240 VAC input, voltage, NEMA 4X, IP67, aluminum housing. For use with multiple AC and DC drives.	GSD1 - all, GSD3-24A-xxx (12–24V), GSD4 - all, GSD5 - all, GSD6 - all, GSD7 - all
<b><u>GSDA-DP-S</u></b>		IronHorse signal conditioner, isolated, Input: 1-channel, current/voltage, Output: 1-channel, current/voltage, 120/240 VAC operating voltage, IP67, 1/8 DIN mount.	GSD1 - all, GSD3-24A-xxx (12–24V), GSD4 - all, GSD5 - all, GSD6 - all, GSD7 - all
<b><u>GSDA-MREV</u></b>		IronHorse GSD series manual reverse switch, 10A, field installable, screw terminals. For use with all GSD series DC drives.	GSD3 - all GSD4/4A - all GSD5 - all GSD8 - all
<b><u>GSDA-HTSNK-4</u></b>		IronHorse GSD series heatsink, for use with GSD4 series DC drives.	GSD4-24x-xC (open-frame)
<b><u>GSDA-HTSNK-4A</u></b>		IronHorse GSD4A series heatsink, for use with IronHorse GSD4A-240-2C and GSD4A-240-6C DC drives.	All GSD4A drives
<b><u>GSDA-PU2E</u></b>		IronHorse encoder, 5–24 VDC, NPN open collector output, 1/10/20 ppr, 61mm diameter body, NEMA 12, IP52, 6ft cable length, pigtail. For use with GSD8 series DC drives. Mounting hardware and (3) magnets included.	All GSD8 drives and GSDA-DP-D
<b><u>GSDA-PU2R</u></b>		IronHorse encoder, 5–24 VDC, NPN open collector output, 1/10/20 ppr, 61mm diameter body, NEMA 3R, IP14, 6ft cable length, pigtail. For use with GSD8 series DC drives. Mounting hardware and (3) magnets included.	All GSD8 drives and GSDA-DP-D

**NOTE: All GSDA Accessories are RoHS compliant.**

# GSD Series DC Drives Accessories

## GSDA-5K

*For use with all GSD series DC drives*

The GSDA-5K is a replacement potentiometer kit that can be used with IronHorse GSD series DC drives to control the speed of a DC motor.

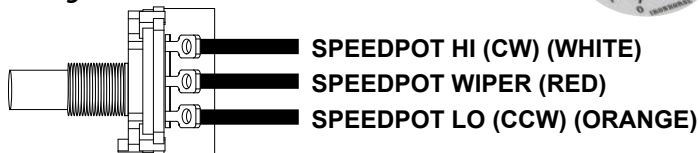
(All GSD series DC drives include a speed potentiometer.)

The kit includes the following:

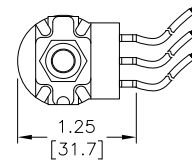
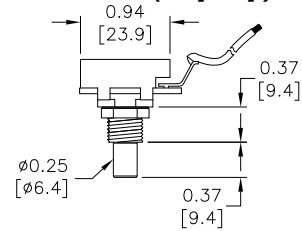
- (1) 5 k $\Omega$  potentiometer
- (3) pigtail wiring leads (8-1/2 in; 20 AWG)
- (1) adjustment knob
- (1) 0–100% dial
- (1) mounting nut and lock washer



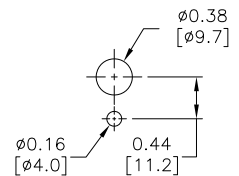
### Wiring Connections



### Dimensions (in [mm])



### MOUNTING CUTOUT



## GSDA-AI-A8

*For use with DC drives: All GSD8 series drives except GSD8-240-5C*

This option card features an Optically-Isolated 4-20 mA Current Loop Input and an Optically-Isolated 4-20 mA Current Loop Output. In addition, a non-isolated SPST switch input is provided. That switch is used to determine where the GSD8 Drive gets its "Target Speed" setting. In "Manual" mode, the GSD8 Drive uses its normal Front Panel display and Up/Down buttons to set the Target Speed (or Time). In "Auto" mode, the GSD8 Drive follows the GSDA-AI-A8's 4-20 mA Current Loop signal. In either mode, the GSDA-AI-A8's Current Loop Output provides a real-time updating 4-20 mA signal that represents the GSD8 Drive motor's Actual (Tach) Speed.

*GSDA-AI-A8 installation and wiring information is included in the GSDA-AI-A8 User Manual.*



## GSDA-AI-V4A

*For use with GSD4A-240-2C, GSD4A-240-6C DC drives*

This option card allows for the use of either a grounded or non-grounded remote DC signal such as 0–5 VDC through 0–250 VDC, 4–20 mA current, or a remote speed pot. The DC input signal type can be selected for voltage (V) or current (4–20mA) via the JP2 jumper. The GAIN trimpot is used to set full linear output in reference to the input signal range. The output of this remote signal isolation board is a linear signal that is proportional to the remote input signal being supplied.

*GSDA-AI-V4A installation and wiring information is included in the GSDA-AI-V4A DC Drives Accessory Data Sheet.*



# GSD Series DC Drives Accessories

## GSDA-AI-V5

*For use with GSD5-240-10C (open-frame) DC drives*

This option card allows for the use of either a grounded or non-grounded remote DC signal such as 0–5 VDC through 0–250 VDC, 4–20 mA, or a remote speed potentiometer. The DC input signal type can be selected for voltage (V<sub>in</sub>) or current (4–20 mA), and there is a Hi/Lo range selection to select the voltage ranges. The GAIN trim pot is used to set full linear output in reference to the input signal range. The output of this remote signal isolation board is a linear signal that is proportional to the remote input signal being supplied.

*GSDA-AI-V5 installation and wiring information is included in the GSD5 DC Drives User Manual.*



## GSDA-CM-8

*For use with all GSD8 drives except GSD8-240-5c*

This is an ASCII option card with RS-232 or RS-485 serial communications and additional features. Baud rate is configurable from 300 to 57600. In addition, the GSDA-CM-8 can output a square wave frequency from 4 pulses per minute to 9999 ppm. The analog input of the GSDA-CM-8 has been designed to use three types of analog signal sources: Potentiometer, 0 to +5 VDC, or 4 to 20 mA current source. Additionally, the GSDA-CM-8 can drive the "Auto/Manual" LED indicator to display whether the source of the Target setting comes from the analog input or from the "Front Panel" ("Manual").

*GSDA-CM-8 installation and wiring information is included in the GSDA-CM-8 User Manual.*



# GSD Series DC Drives Accessories

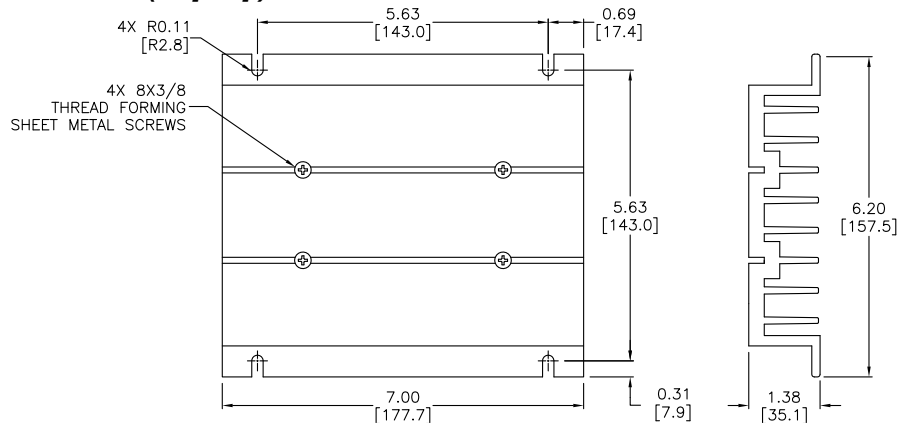
## GSDA-HTSNK-4

For use with GSD4-xxx-xC (open-frame) DC drives

Optional heatsink for open-frame GSD4-xxx-1C and GSD4-xxx-5C DC drives only.

Increases the output current capability of GSD4-240-5C drives to 10A (non-UL applications only).

### Dimensions ( in [mm] )



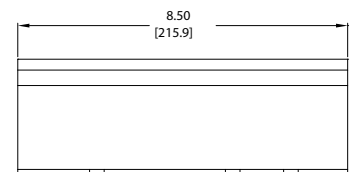
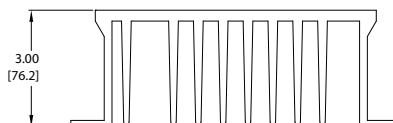
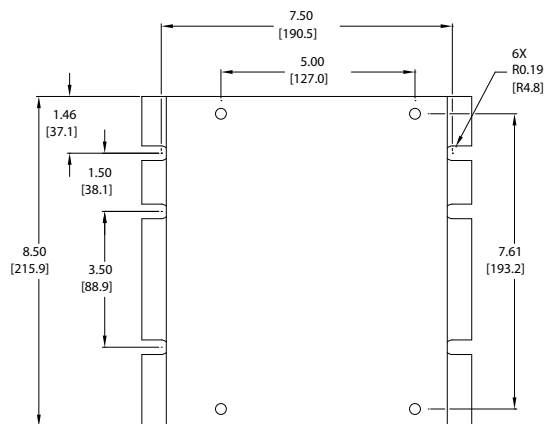
## GSDA-HTSNK-4A

For use with GSD4A DC drives

Optional heatsink for open-frame GSD4A-240-2C and GSDA-240-6C drives only.

Increases the output current capability.

### Dimensions ( in [mm] )



# GSD Series DC Drives Accessories

## GSDA-MREV

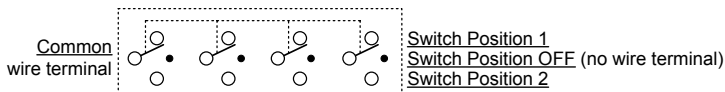
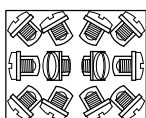
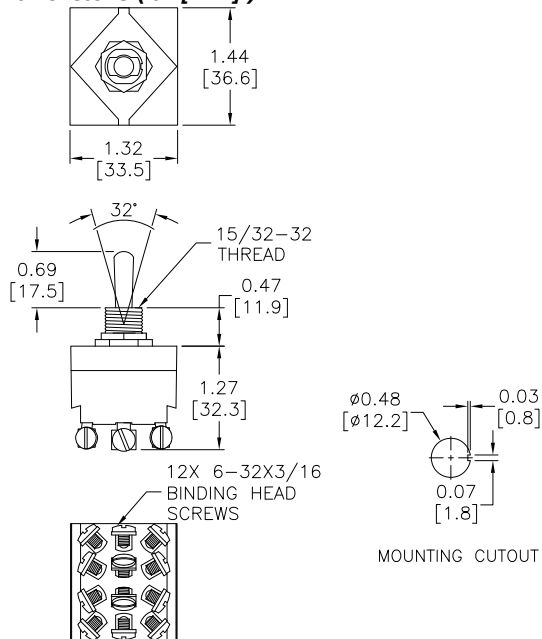
For use with DC drives: GSD3 (all), GSD4/4a (all), GSD5 (all), GSD8 (all)

The GSDA-MREV Manual Reversing Switch is a 4PDT 10A-rated center-blocked manual switch that can be used with IronHorse GSD series DC drives to manually reverse the direction of a DC motor. When switched between the Forward and Reverse positions, the blocked center position causes a delay which protects the DC drive from any voltage that may be on the motor armature terminals. The center position is OFF/NEUTRAL and is not connected to a wiring terminal. If GSDA-MREV is used in conjunction with a NEMA4x model drive, a user supplied enclosure separate from the drive must be used.

Use the GSDA-MREV switch to manually reverse a DC motor without damaging the drive.



Dimensions (in [mm])



## GSDA-PU2E/GSDA-PU2R

For use with all GSD8 drives, and GSDA-DP-D

The PU2E and PU2R pickups are an economical way to monitor motor speed. The PU2E is designed for indoor use, while the PU2R is for wash down or outdoor use. Both provide one pulse per revolution. They operate from a +5V power supply, producing a 5V square wave whose frequency is proportional to speed. This signal is fed into the device speed control as a speed or position reference for the microprocessor.

GSDA-PU2E/PU2R installation and wiring information is included in the GSDA-PU2E/PU2R Accessory Data Sheet.



# GSD Series DC Drives Accessories

## GSDA-DP

For use with DC drives: GSD1 (all), GSD3-24A-xxx (12-24V), GSD4 (all), GSD5 (all), GSD6 (all), GSD7 (all)

The GSDA-DP digital potentiometer is a compact, microprocessor-based unit capable of being either field or factory configured for a number of industrial user interface / control signal needs. The GSDA-DP allows the user to adjust the displayed value via the front-panel push buttons. As the displayed value is raised or lowered, the output signal from the GSDA-DP follows proportionally according to the unit's configuration. These units support both unipolar and bipolar output and are capable of automatically inverting, scaling, and offsetting the output as needed. The GSDA-DP series is ideal for volume OEM applications requiring specialized inputs and outputs.

The GSDA-DP's durable 1/8 DIN aluminum housings can be easily mounted in a panel or control cabinet.



### Standard Features

- Microprocessor-based design combines the ultimate in responsiveness and accuracy in one package
- Non-volatile memory stores adjustable parameters even when power has been removed
- Adjustable parameters include display range, output range, output polarity, alarm options, etc.
- Internal program-enable jumper selectively prevents tampering with unit's configuration
- Optional keyswitch mode prevents unauthorized changes (purchase GCX1420, etc. separately)
- Universal power supply accepts line voltages inputs from 85–265 VAC @ 50–60 Hz without switches or jumpers. The unit automatically adjusts as needed
- Transient voltage protection prolongs unit's life in harsh industrial environments
- Self-contained power supply for external sensor, limited to 5V @ 50 mA
- 1/8 DIN durable aluminum housing for panel mounting
- Large 4-digit, 1/2 inch LED display
- Lexan membrane and gasket (which are included) meet NEMA 4X standards when used with NEMA 4X enclosures
- Wide operating ambient temperature range of -10 to +45 °C (14 to 113 °F)
- Multiple operating modes including:
  - Rate Mode\* – Displays in rate and non-rate units such as rpm, gallons per second, and percent
  - Time Mode\* – Displays in time units such as HH:MM, MM:SS, SS:TT, or other units
  - Rate and Time Modes operate inversely from each other

## GSDA-DP – Specifications

<b>Electrical</b>	<b>Line Input Voltage</b>	85–265 VAC
	<b>Line Input Frequency</b>	48–62 Hz
	<b>Display Range</b>	0.001–9999
	<b>Units of Operation</b>	User programmable, any Unit
	<b>Onboard Power Supply (externally accessible)</b>	5V @ 50mA
	<b>Pot Lo/Hi Supply VDC Range (external supply)</b>	0–2 VDC through 0–24 VDC
	<b>Pot Wiper VDC Range</b>	Pot Lo +50 mV through Pot Hi -50 mV
	<b>Pot Circuit Current Draw</b>	2 mA @ 12V
	<b>Pot Circuit Isolation</b>	>500 MΩ
	<b>Isolated Alarm Relay Output Ratings</b>	250 VAC @ 5A; Form C
	<b>Resolution of D-A Converter</b>	10 bits
	<b>Analog Output</b>	Any unipolar or bipolar voltage range (based on input voltage) up to 24 VDC
<b>Mechanical</b>	<b>Display Type</b>	LED, red, 4-Digit, 1/2 inch height
	<b>Housing Type (with supplied gasket in NEMA 4X panel)</b>	1/8 DIN NEMA 4X
	<b>Connector Style</b>	12-position 5mm European style
	<b>Terminal Block Torque Setting</b>	4.4 lb in max [0.5 N·m]
	<b>Faceplate Material</b>	Polycarbonate with Lexan overlay
	<b>Housing Material</b>	Aluminum
<b>Environmental</b>	<b>Weight</b>	14.4 oz [408.22g]
	<b>Operating Temperature Range</b>	-10 to +45 °C [14 to 113 °F]
<b>Regulatory</b>	<b>Operating Humidity Range</b>	95% non-condensing
	<b>Agency Approvals</b>	RoHS

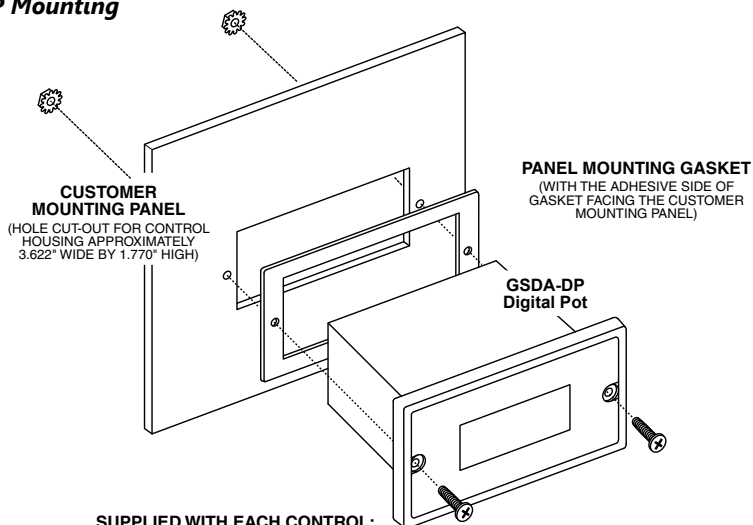
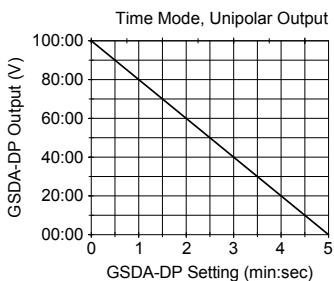
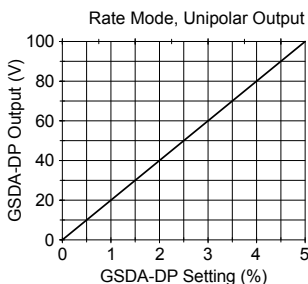
# GSD Series DC Drives Accessories

## GSDA-DP

### GSDA-DP Mounting

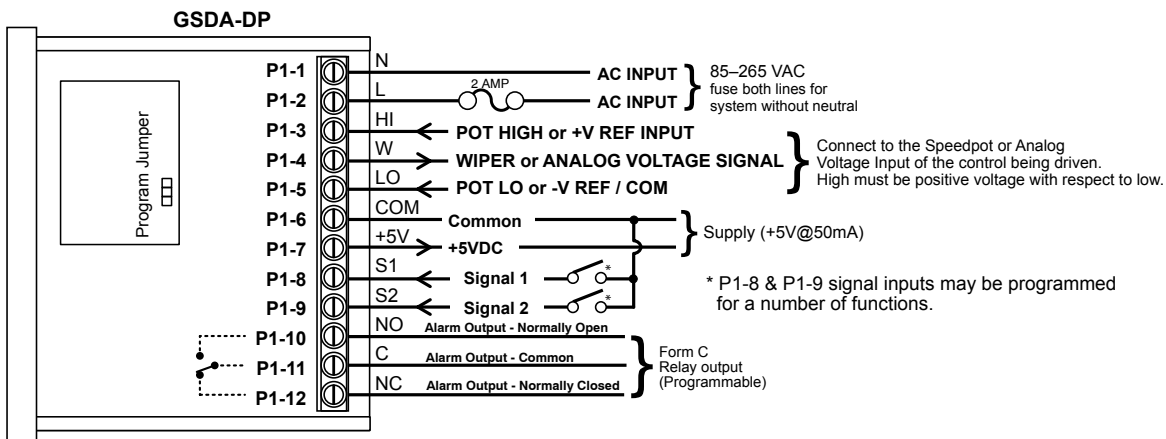
#### GSDA-DP Operation Modes

Rate and Time mode cycle times operate inversely from each other.

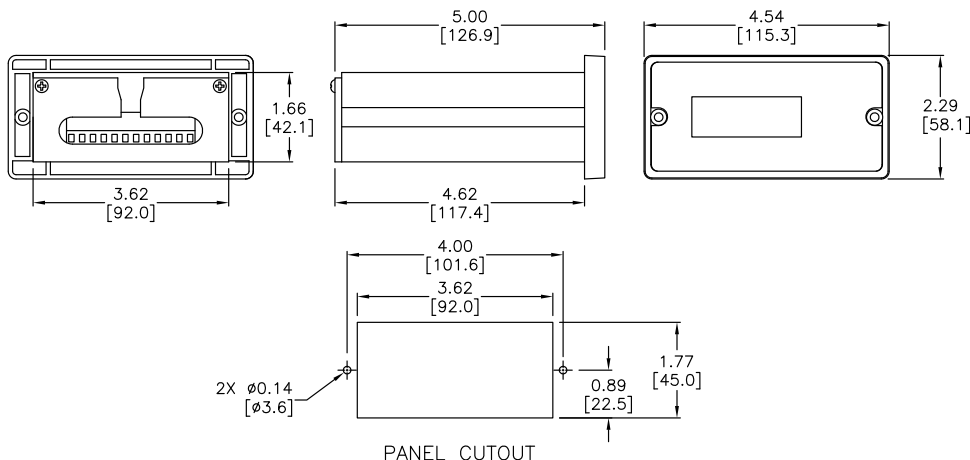


- SUPPLIED WITH EACH CONTROL:**
- 1) GASKET
  - 2) (2) 6-32 X 3/4 PANHEAD BLACK OXIDE STAINLESS SCREWS
  - 3) (2) #6 NUT WITH LOCKWASHER

### GSDA-DP Wiring



### GSDA-DP Dimensions ( in [mm] )



# GSD Series DC Drives Accessories

## GSDA-DP-D

For use with GSD1 (all), GSD3-24A-xxx (12-24V), GSD4 (all), GSD5 (all), GSD6 (all), GSD7 (all)

The GSDA-DP-D motor speed control is a compact, microprocessor-based unit capable of being either field or factory configured for a number of motion control needs. The control is designed around a velocity form PID algorithm and provides a DC speedpot signal to an external drive. A flexible open-loop mode is also available for applications where using a speed pickup is not practical or desired. The GSDA-DP-D is easily configured to operate as a digital speed controller, time-based process controller, or as a ratiometric follower controller in master-slave systems. Featuring a Modbus expansion slot architecture, it is ideal for volume OEM adjustable speed control applications requiring specialized inputs and outputs.



### Standard Features

- Microprocessor-based design allows for incredible flexibility
- Modbus expansion to accommodate a wide variety of I/O
- Digital closed-loop algorithm ensures accuracy of plus or minus 1/2 RPM of set speed or equivalent
- Digital open-loop operation available
- Non-volatile memory stores settings without batteries
- Factory or field programmable via front-panel keypad
- Universal power supply accepts line voltages inputs from 85-265 VAC @ 50-60 Hz without switches or jumpers. The unit automatically adjusts as needed
- Transient voltage protection
- Flexible user inputs support Inhibit, Emergency-Stop, and Jog functionality
- Speed pickup input compatible with a variety of signal input types
- Self-contained power supply for external devices (5V @ 50 mA)
- Two separate programmable alarm outputs with Form C contacts
- 1/8 DIN durable aluminum housing for panel mounting
- Large 4-digit, 1/2 inch LED display, with user-settable decimal point (colon displayed in Time mode)
- Polycarbonate membrane and gasket (included) meet NEMA 4X standards when used with NEMA 4X enclosures

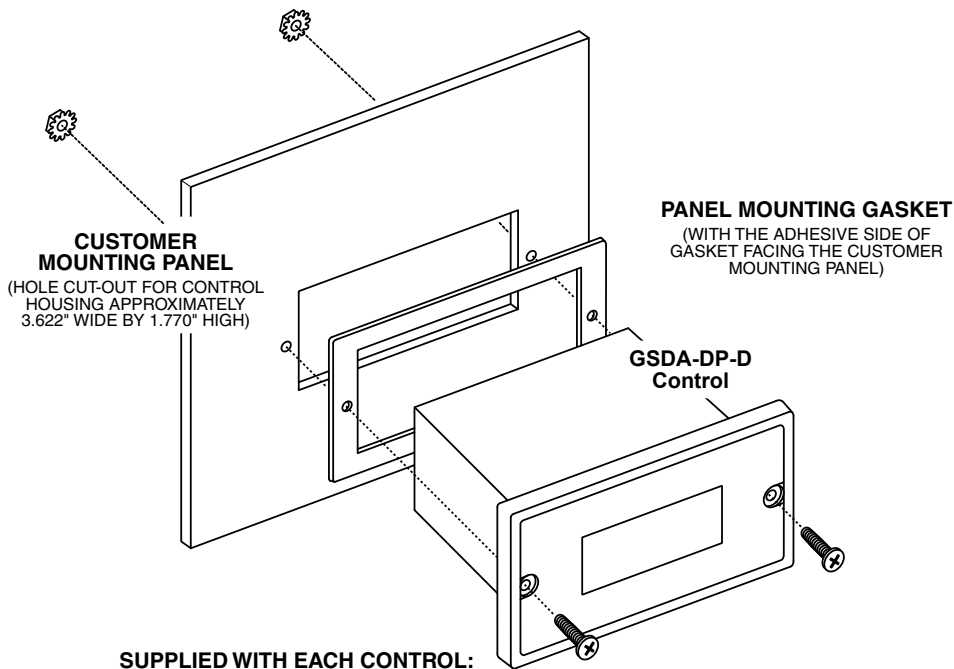
## GSDA-DP-D – Specifications

<b>Electrical</b>	<b>Line Input Voltage</b>	85–265 VAC
	<b>Line Input Frequency</b>	48–62 Hz
	<b>Signal Input Voltage Range</b>	5 VDC to 24 VDC (square wave, referenced to P1-6 COMMON)
	<b>Speed Pickup Input Frequency Range (S1 and S2 Inputs)</b>	0–600,000 pulses per minute @ 5V square wave
	<b>Display Range</b>	0.001–9,999
	<b>Units of Operation</b>	User programmable, any unit
	<b>Sensor/Pickup Power Supply</b>	5V @ 50 mA
	<b>Isolated Alarm Relay Output Rating</b>	250 VAC @ 5A
	<b>Voltage Difference between PotLo and PotHi Inputs</b>	2 VDC to 24 VDC
	<b>Pot Wiper Output Voltage Range</b>	PotLo +50 mVDC to PotHi -50mVDC
<b>Mechanical</b>	<b>Display Type</b>	LED, red, 4-Digit, 1/2 inch height
	<b>Housing Type (with supplied gasket in NEMA 4X panel)</b>	1/8 DIN NEMA 4X
	<b>Connector Style</b>	12-position 5mm European style
	<b>Terminal Block Torque Setting</b>	4.4 lb-in [0.5 N-m] max
	<b>Faceplate Material</b>	Polycarbonate with polycarbonate overlay
	<b>Housing Material</b>	Aluminum
	<b>Weight</b>	15.30 oz [433.86 g]
<b>Environmental</b>	<b>Operating Temperature Range</b>	-10 to +45 °C [14 to 113 °F]
	<b>Operating Humidity Range</b>	95% non-condensing
<b>Regulatory</b>	<b>Agency Approvals</b>	RoHS
<b>Accessories</b>	<b>GSDA-PU2E/PU2R</b>	Hall-effect pickup, single channel
	<b>GSDA-AI-A8</b>	Input/Output option card
	<b>GSDA-CM-8</b>	Serial communications option card

# GSD Series DC Drives Accessories

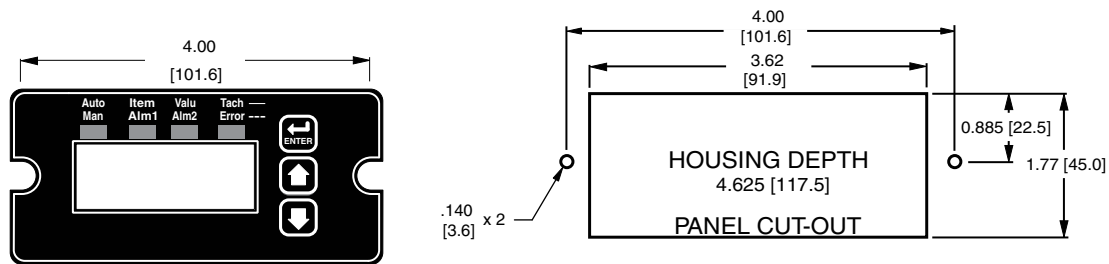
## GSDA-DP-D

### **GSDA-DP-D Mounting**

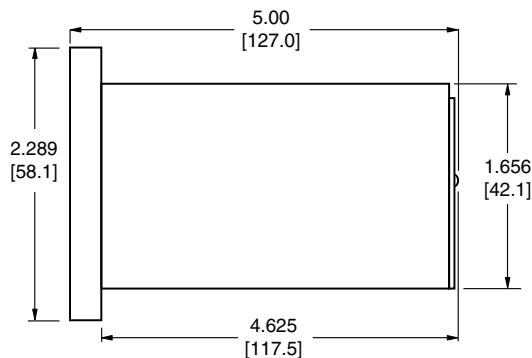


- 1) GASKET
- 2) (2) 6-32 X 3/4 PANHEAD BLACK OXIDE STAINLESS SCREWS
- 3) (2) #6 NUT WITH LOCKWASHER

### **GSDA-DP-D Dimensions ( in [mm] )**



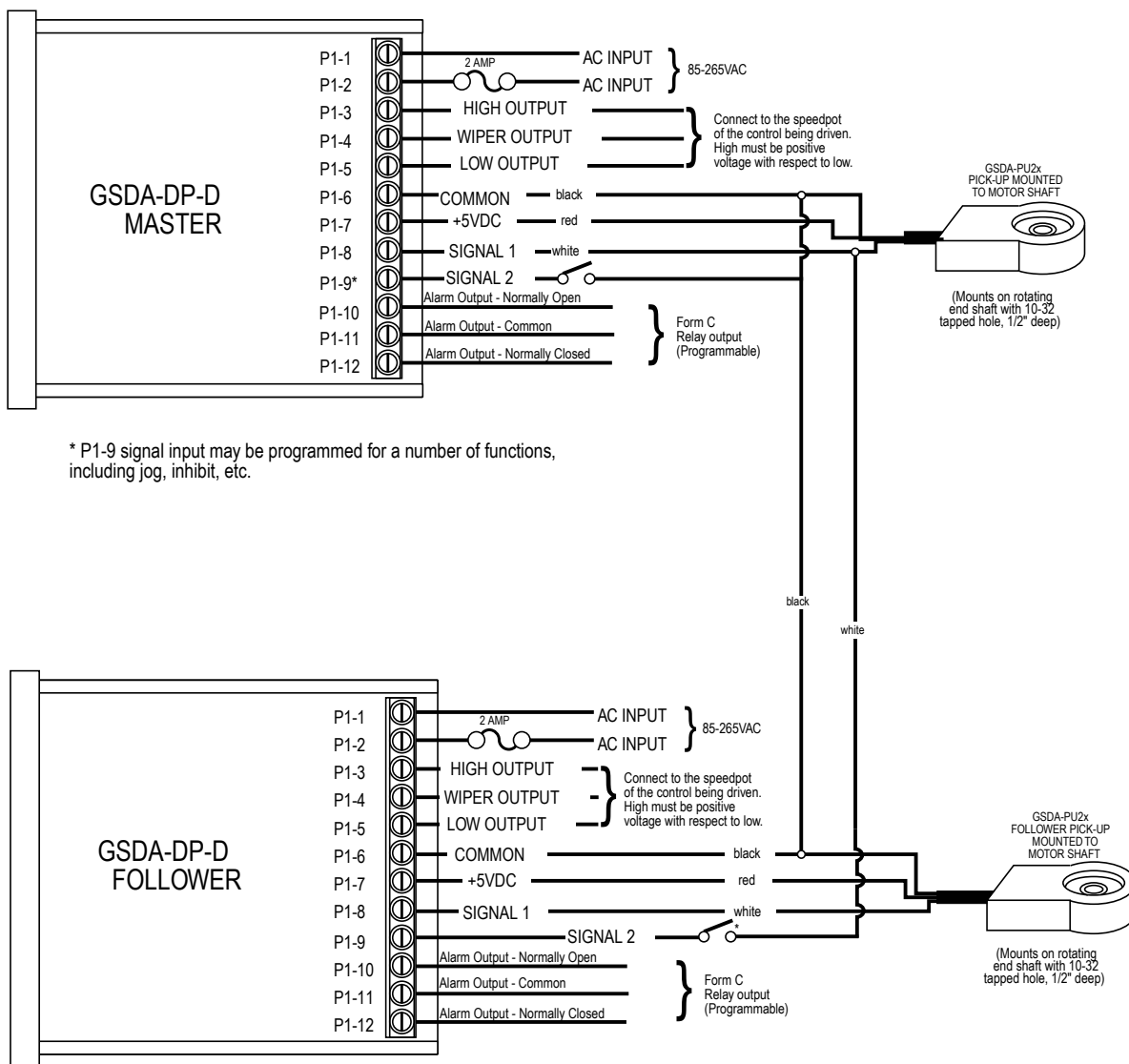
### **GSDA-DP-D Dimensions**



# GSD Series DC Drives Accessories

## GSDA-DP-D

### GSDA-DP-D Wiring



\* Optional Inhibit Switch

NOTE: Speed pickups shown above are not required for open-loop operation.

# GSD Series DC Drives Accessories

## GSDA-DP-S

For use with GSD1 (all), GSD3-24A-xxx (12-24V), GSD4 (all), GSD5 (all), GSD6 (all), GSD7 (all)

The GSDA-DP-S is a panel mounted, multi-purpose signal conditioner that allows the operator easy access to make adjustments to system operations. The GSDA-DP-S may be used in OEM equipment designs, plant operation or laboratory applications. Most other signal conditioners are DIN rail mounted inside a panel and designed to be set up once but many applications require frequent adjustments to meet application needs. The unique front-panel design of the GSDA-DP-S addresses this by making output adjustment easily accessible via convenient up and down pushbuttons and a large, easy to read LED display.



### Standard Features

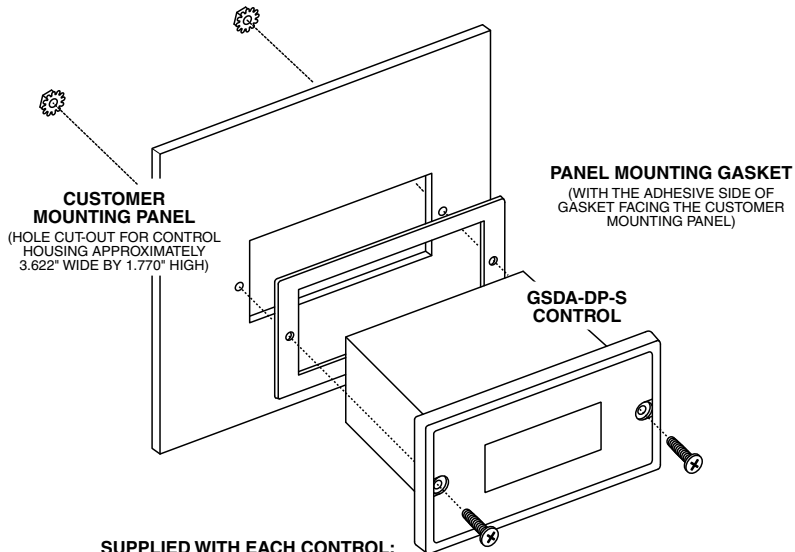
- Microprocessor design digital accuracy and repeatability
- Digital design offers long-term stability in a variety of environments
- Dual-Mode operation: Signal Scaling or Signal Generation
- Works in either voltage or current output modes
- Universal power supply accepts voltages of 85-265 VAC@50-60 Hz without switches or jumper settings
- Transient voltage protection protects device in harsh industrial environments
- 1/8 DIN panel mount is rated up to NEMA 4X in similarly rated panel
- Large 4 digit, 1/2 inch LED display is easy to read in indoor or outdoor applications
- Euro style terminal strip standard
- Wide operating temperature -10 to +45 °C (14 to 113 °F)
- Jumper selectable signal type - Voltage or Current (mA) signal
- Configurable input to lock out operator changes once set

GSDA-DP-S – Specifications			
Electrical	<b>Line Input Voltage</b>		85–265 VAC
	<b>Line Input Frequency</b>		48–62 Hz
	<b>Voltage Signal Input</b>		0–10 VDC
	<b>Voltage Signal Output</b>	<b>Minimum</b>	0.1–5 VDC
		<b>Maximum</b>	0.1–20 VDC, 10 mA
	<b>mA Signal Input</b>		4–20 mA
	<b>mA Signal Output</b>		4–20 mA
	<b>Display Range</b>	<b>Default</b>	0–100.0%
		<b>Maximum</b>	-9999–9999
	<b>Units of Operation</b>		Programmable
<b>Onboard Power Supply (Externally Accessible)</b>		5V @ 500 mA	
<b>Voltage Regulated Supply Output Range</b>		24 VDC ± 5%, 200 mA	
Mechanical	<b>Display Type</b>		LED, red, 4 digit, 1/2 inch height
	<b>Housing Type (with supplied gasket in NEMA 4X panel)</b>		1/8" DIN NEMA 4X
	<b>Connector Style</b>		3.5mm and 5mm European style
	<b>Terminal Block Torque Setting</b>		4.4 in-lb [0.5 N·m] maximum
	<b>Faceplate Material</b>		Polycarbonate with Lexan overlay
	<b>Housing Material</b>		Aluminum
	<b>Weight</b>		14.4 oz [408.22g]
Environmental	<b>Operating Temperature Range</b>		-10 to 45 °C [14 to 113 °F]
	<b>Operating Humidity Range</b>		95%, non-condensing
Regulatory	<b>Agency Approvals</b>		RoHS

# GSD Series DC Drives Accessories

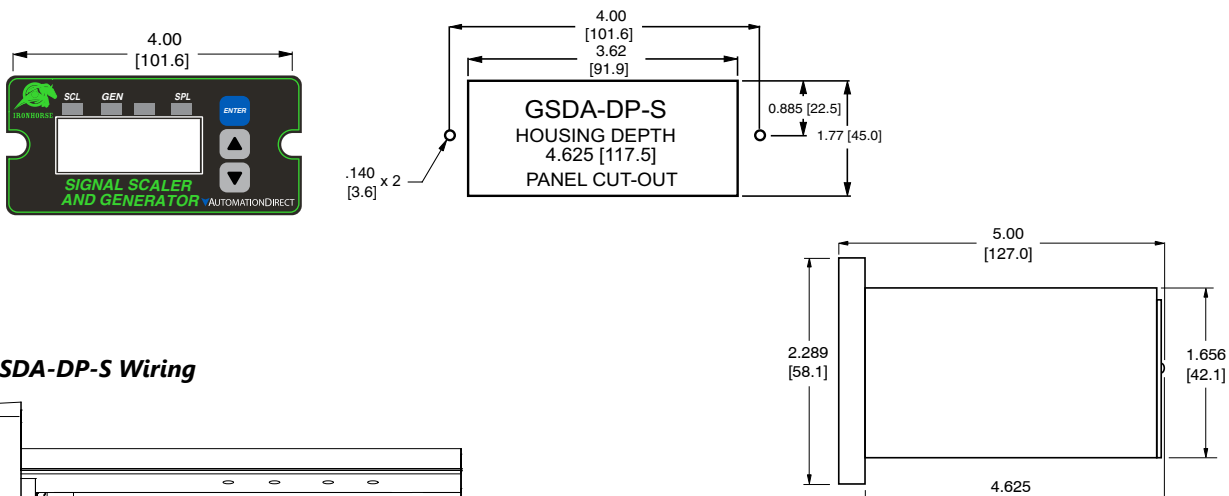
## GSDA-DP-S

### GSDA-DP-S Mounting



- SUPPLIED WITH EACH CONTROL:**
- 1) GASKET
  - 2) (2) 6-32 X 3/4 PANHEAD BLACK OXIDE STAINLESS SCREWS
  - 3) (2) #6 NUT WITH LOCKWASHER

### GSDA-DP-S Dimensions ( in [mm] )



### GSDA-DP-S Wiring

