

# DSD806 Digital Servo Drive

## Introduction

Motion Control Products Ltd (MCP)'s digital servo drive DSD806 is developed with 32-bit DSP based on advanced control algorithm. Since their input commands are PUL/DIR signals or  $\pm 10V$  analogue input, the users can upgrade stepper drives to DSD806 without changing the control systems. These drives can offer high precision, high speed and high reliability performances, and can be used widely in inkjet printers, engraving machines, packaging machines and so forth. A built-in controller can be used for testing and tuning. PC based and handheld configuration & tuning tools can meet different tuning environments or requirements.



## Features

- Input voltage: 18VDC – 80VDC
- Peak current: 18A ; continuous current: 6A (max.)
- Suitable for 50W-400W servo motors
- FOC-SVPWM technologies
- PC-based and handheld configuration tools
- Electronic gear rate from 1/255 to 255
- Self-test function with trapezoidal velocity profile
- Support PUL/DIR and CW/CCW control signals
- Opto-isolated, support single-ended and differential inputs
- Encoder output
- Following error lock range adjustable
- Over-voltage, over-current and encoder failure protections
- 10 latest failures self-record function
- Small size, surface-mount technology
- Support clock & direction or  $\pm 10V$  analogue input

## Applications

Suitable for large and medium automation machines and equipment, such as inkjet printers, engraving machines, electronics manufacturing equipment, special CNC machines, pick-and-place devices, packing devices and so on. Particularly adapt to the applications desired with high speed, high precision and low motor noise.

## Performance Specification (with LSM Series Servo Motors)

- Position following error:  $\pm 1$  count
- Maximum acceleration speed (No load): 80rpm/ms
- Maximum speed: 4000rpm
- Positioning accuracy:  $\pm 1$  count
- Velocity accuracy:  $\pm 2$ rpm
- Input frequency up to 600KHz
- Allowable low speed reaches 1rpm
- Suitable for 18-80VDC servo motors

## Electronic Specification

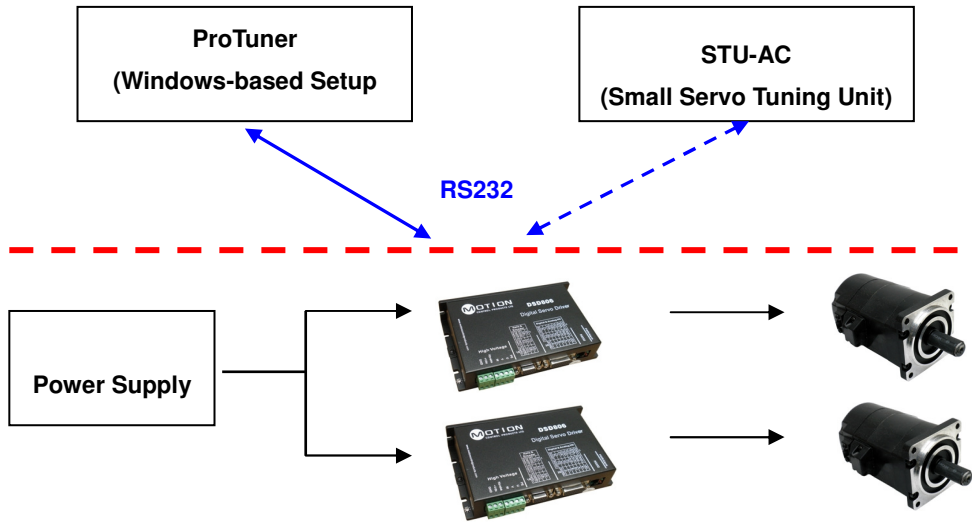
Parameters	DSD806		
	Minimum	Typical	Maximum
Continuous output current (A)	0	-	6
Input voltage (VDC)	+18	-	+80
Logical signal current (mA)	7	10	20
Pulse input frequency (KHz)	0	-	600
Isolation resistance (M $\Omega$ )	500	-	-
Current provided for encoder (mA)	-	-	100

### Pin Function

Power Connector x1				Motor connector x2			
Pin.	Name	Description	I/O	Pin.	Name	Description	I/O
1	GND	Power ground	GND	1	PE	Motor case ground	PE
2	VDC	DC Power input (18-80 VDC)	I	2	U	Motor phase U	O
3	RBrake	Brake resistor connection (VDC-RBrake)	I	3	V	Motor phase V	O
				4	W	Motor phase W	O
Motor Feedback Connector				Command and I/O Signal Connector			
Pin.	Name	Description	I/O	Pin.	Name	Description	I/O
1	EA+	Encoder channel A+ input	I	1	EN+	Enable signal input +	I
2	EB+	Encoder channel B+ input	I	2	EN-	Enable signal input -	I
3	EGND	Signal ground	GND	3	PUL+	Pulse signal input +	I
4	HallW+	Hall sensor W+ input	I	4	PUL-	Pulse signal input -	I
5	HallU+	Hall sensor U+ input	I	5	DIR+	Direction control signal input +	I
6	FG	Ground terminal for shield	GND	6	DIR-	Direction control signal input -	I
7	EZ+	Encoder channel Z+ input	I	7	FL	Positive limit signal input	I
8	EZ-	Encoder channel Z- input	I	8	RL	Negative limit signal input	I
9	HallV+	Hall sensor V+ input	I	9	SGND	Signal ground	GND
10	HallV-	Hall sensor V- input	I	10	Pend+	In position signal output +	I
11	EA-	Encoder channel A- input	I	11	Pend-	In position signal output -	I
12	EB-	Encoder channel B- input	I	12	ALM+	Alarm signal output +	O
13	VCC	+5V @ 200mA max.	O	13	ALM-	Alarm signal output -	O
14	HallW-	Hall sensor W- input	I	14	+REF	Reference signal input +	I
15	HallU-	Hall sensor U- input	I	15	-REF	Reference signal input -	I
				16	NC	Not connected	-
				17	FG	Ground terminal for shield	GND
				18	SGND	Signal ground	GND
RS232 Communication Interface				19	+5V	+5V Power supply	O
Pin.	Name	Description	I/O	20	A+	Encoder channel A+ output	O
1	NC	Not connected	-	21	A-	Encoder channel A- output	O
2	+5V	Power for STU-AC	O	22	B+	Encoder channel B+ output	O
3	TxD	RS223: Transmit	O	23	B-	Encoder channel B- output	O
4	GND	Signal ground	GND	24	Z+	Encoder channel Z+ output	O
5	RxD	RS232: Receive	I	25	Z-	Encoder channel Z- output	O
6	NC	Not connected	-	26	SGND	Signal ground	GND

## Multiform Parameter Visible Tuning Tools

Motion Control Products Ltd develops multiform parameter visible tuning tools to meet different tuning environments and requirements. The user can tune the DSD806 with two different tuning tools, including ProTuner (windows-based setup software) and STU-AC (small servo tuning unit).



### ProTuner (Windows-based Setup Software)

- Upload & download parameter settings
- Digital oscilloscope for real-time current, velocity, position following error display. Can read any point's value with the mouse when the curves are locked
- PID parameter settings for position loop
- PI parameter settings for velocity loop
- PI parameter settings for current loop
- Motor parameter configuration
- Electronic gear rate setting from 1/255 to 255
- Position following error range setting
- Encoder resolution setting
- Parameter settings for self motion test (with trapezoidal velocity profile)
- Read the latest 10 failure events and clear the events

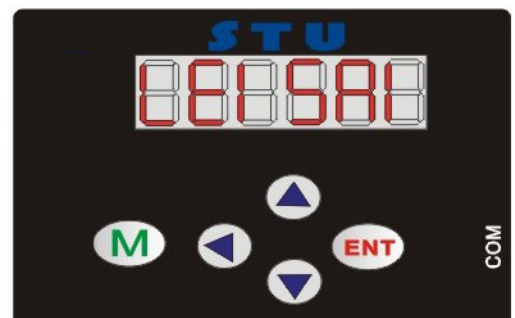


\*\* 1 PC RS232 interface is required.

\*\* MCP offers special cable for communications between ProTuner and the drive.

### STU-AC (Small Servo Tuning Unit)

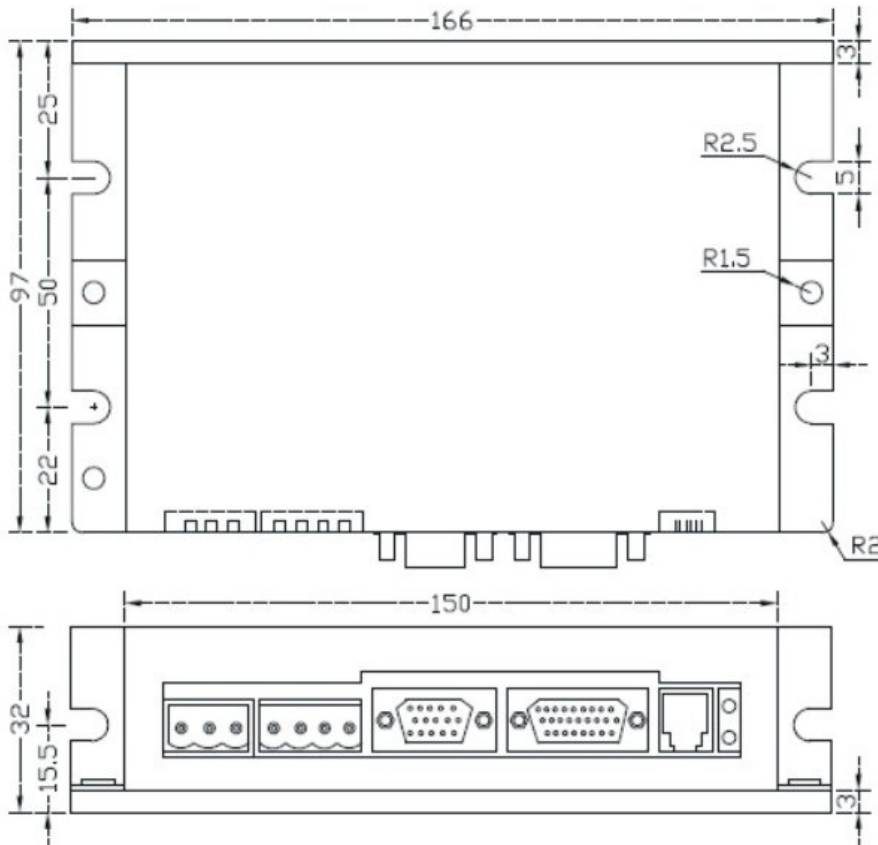
- Similar to most HMI of servo drives from other manufacturers
- PID parameter settings for position loop
- Electronic gear rate setting from 1/255 to 255
- Position following error range setting
- Real-time current, velocity, position following error display
- Parameter settings for self motion test (with trapezoidal velocity profile)



- Read the latest 10 failure events and clear the events

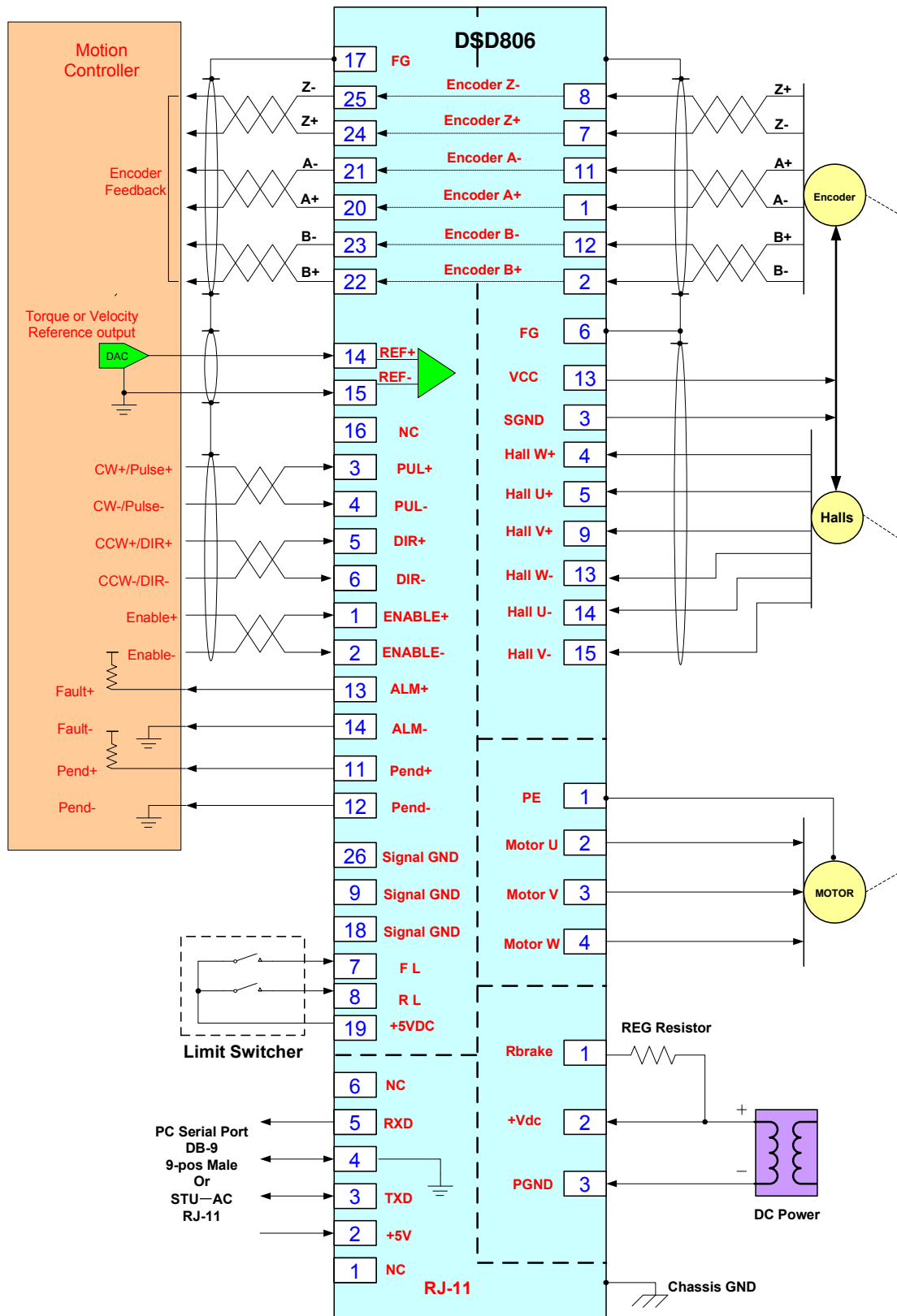
\*\* MCP offers special cable for communications between the STU-AC and the drive.

### **Mechanical Specifications (unit: mm)**



### **Typical Connections**

A typical connection of LSM60 servo motor with Motion Control Products Ltd's DSD806 digital servo drive is shown in the next page:



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