Product Specifications

1. Product Overview

1.1 Product Name: GYHCSD HR5 Servo Drive

The HR5 Servo Motion System is a next-generation AC servo system for motion control, consisting of the HR5 Rotary Servo System and HR5 Direct Drive Servo System. It achieves submicron-level position control accuracy, significantly enhancing the precision, speed, efficiency and stability of industrial automation equipment.

Boasting high performance, high responsiveness and high safety, the product supports multiple industrial Ethernet protocols such as EtherCAT and PROFINET, and is suitable for high dynamic response application scenarios in the semiconductor, 3C electronics, printing and other industries!

- Input Voltage: AC380v
- Rated current: 11.9A
- Supports 17-bit magnetic encoder + 23-bit optical encoder; Maximum support for 27-bit high-precision encoder
- Automatic loop parameter adjustment
- Enhanced vibration suppression function
- Speed control range: 0~12000 rpm
- Operating temperature: -10°C to +40°C
- Supports Pulse, Profinet, RS485,EtherCAT communication
- Multiple control modes: position/speed/torque control

2. Technical Parameters

2.1 Parameter Table

Items			Specification
Basic Specification	Model		HR5-ER012T3
	Rated Current		11.9A
	Input Voltage		AC380v
	Size		251.7*85*75mm
	Control		IGBT PWM control, sinusoidal current drive mode; three-phase full-wave rectification
	Operation Conditions	Operation/Storage Temperature	-0℃~+40℃/-20℃~+70℃
		Humidity	<90%RH [No frost]
		Vibration/Shock resistance	≤4.9G/19.6G
		Protection Grade	IP20
		Pollution level	PD2
		Operation Altitude	≤5000m,1% capacity reduction for every 100m above 1000m
Position control	Performance	Feedforward Compensation	Support speed feedforward (0~100.0%) setting to eliminate following deviation
		Command shaping	Low-pass filtering, mean filtering for Position command
	Frequency dividing output	Output	Phase A, B, Z: Differential outputs
		Frequency division range	one rotate can divide any pulse in the range of 140 to 1048576
Speed/Torque Control	Performance	Current Loop Dynamic Characteristics	Step Response: 187.5μs (0~100%) Frequency Response: Amplitude Attenuation Bandwidth at -3dB，2000Hz (Input signals: ±25%) Phase Shift Bandwidth at -90°, 3500Hz (Input signals: ±25%)
		Speed Control Range	0~12000rpm, over 6000rpm，please contact with technical support
		Speed Loop Dynamic Characteristics	Step Response: 562.5μs(0~1000rpm) Frequency Response: -3dB Amplitude Attenuation Bandwidth, 1000Hz (command signal: ±500rpm) -90 Phase Shift Bandwidth, 630Hz (command signal: ±500rpm)
		Torque Control Accuracy	±2%
Signal	DI (Digital Input)		Configurable：forward overtravel switch, reverse overtravel switch, home position switch, etc.
	DO (Digital Output)		Configurable：Servo Ready, Speed Zero, Speed Reached, Position Reached,

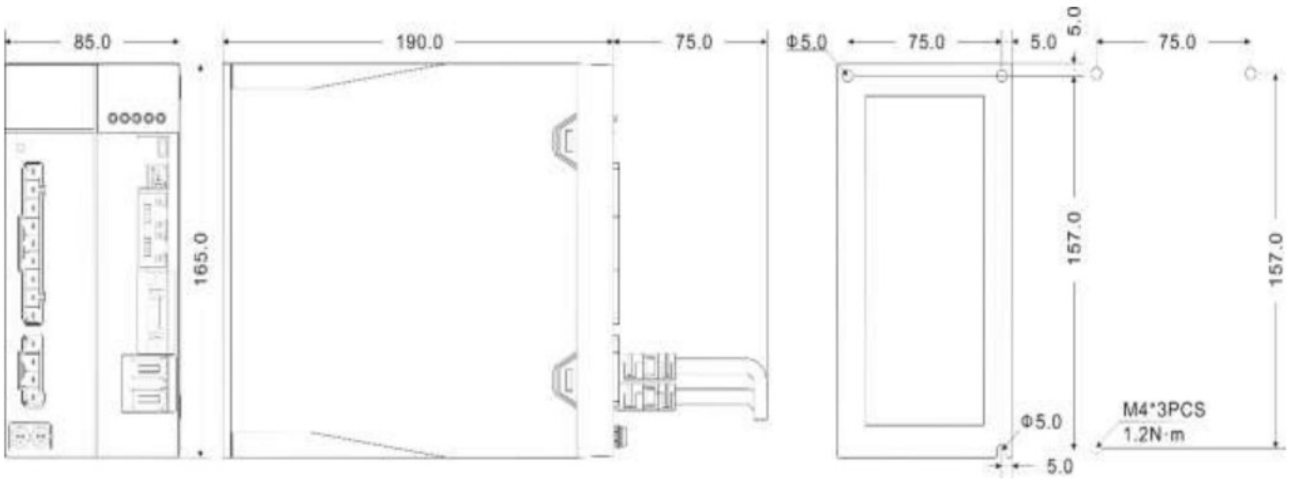
		Position Approaching, Torgue Limit Active, Warning, Servo Error, etc.
Features	Electronic Gear	Built-in two sets of electronic gear ratios, support gear ratio switching function
	Limit Protection	The forward overtravel limit switch and reverse overtravel limit switch will immediately stop the system when activated.
	Protection Functions	Overcurrent, Overvoltage, Undervoltage, Overload, Stall, Main Circuit Detection Abnormal, Heat Sink Overheating, Overspeed, Encoder Abnormal, Parameter Abnormal, etc.
	LED Display	5-digit LED Display, POWER LED CHARGE
	Wave suppression	The system is equipped with four notch filters, ranging from 50Hz to 5000Hz, all of which can be adaptively configured.
	Ease of Use	Self-tuning, speed observer, model following
	Debugging Interface	USB
	Others	Status display, alarm logging, JOG operation, etc.

2.2 Interface Information Table

Type	Interface ID	Cores Qty.	Interface Definition	Remarks
Main Power Supply (Independent Wiring)	Power	-	Main Power Supply	L1/L2/L3/PE
Control Power Supply (Independent Wiring)	Power	-	Control Circuit Power Supply	L/N/PE
MINI USB	CN1	5	Parameter Configuration / Debugging	VBUS/D-/D+/GND
STO	CN2	8	Safety Loop Control, Emergency Stop Trigger	Internal power-/Internal power+/STO1-/STO1+/STO2/STO2+/STO_OUT-/STO_OUT+
EtherCAT IN/OUT	CN3/CN4	8	Receive Upper-Level EtherCAT Bus Signals / Cascade Lower-Level EtherCAT Devices	TX+/TX-/RX+/RX-/RJ45
I/O Interface	CN5	20	6DI/3DO Configuration, Encoder Analog Output	DO1+/DO1-/DO3+/DO3-/DI1/DI_COM/DI2/DI3/DI4/DI5/ DI6/HDI1/HDI2/DO2+/DO2-/GND/PAO+/PAO-/PBO+/PBO-
First Encoder Connector	CN6	10	Connect Motor Spindle Encoder (Supports BISS Protocol)	5V/GND/A+/A-/B+/B-/Z+ (CLK+) /Z- (CLK-) /SD+ (DATA+) /SD- (DATA-)
Second Encoder Connector	CN7	10	Connect Linear Scale / Bus Encoder for Full-Closed-Loop Feedback; Hall Signal / Motor Temperature Detection	5V/GND/SEC_A+ (RS485A+) /SEC_A- (RS485A-) /SEC_B+ (RS485B+) /-SEC_B- (RS485B-) /SEC_Z+ (HALL_U) / SEC_Z- (HALL_V) /HALL_W/MTR_TEMP

3. Overall Dimensions

3.1 Dimension Drawing



Main View | Left View | Back View | Mounting HoleDiagram

3.2 Appearance Photos