



Single-Axis Linear Motor Stage **SSA**

Technical Information





Linear Motor Stage

- Automated transport / AOI application / Precision / Semiconductor
- With Iron-core
 - Coreless Type
 - Linear Turbo LMT
 - Planar Servo Motor
 - Air Bearing Platform
 - X-Y Stage
 - Gantry Systems



Linear Motor

- Machine tool / Touch panel industry / Semiconductor industry / Laser manufacturing machine / Glass cutting machine
- Ironcore linear motor-LMFA series, LMSA series, LMSC series
 - Ironless linear motor-LMC series, LMT series



Torque Motor & Direct Drive Motor

- Machine Tools
- Torque Motor--TMRW, TMRI Series
- Inspection / Testing Equipment / Robot
- Direct Drive Motor--TMS, TMY, TMN Series



AC Servo Motor & Drive

- Semiconductor / Packaging machine / SMT / Food industry / LCD
- Drives-D1, D1-N, D2T
 - Motors-50W-2000W



Linear Actuator

- Hospital bed / Automatic window / Home care facility / Riveting / Press-fitting / Surface checks / Bending
- Servo Actuator-LAA series
 - LAM series
 - LAS series
 - LAN series
 - LAC series



Positioning Measurement System

- Cutting machines / Traditional gantry milling machines / Programmable drilling machines
- High Resolution
 - Signal Translator
 - High-precision Enclosed
 - High Efficiency Counter



Multi-Axis Robot

- Pick-and-place / Assembly / Array and packaging / Semiconductor / Electro-Optical industry / Automotive industry / Food industry
- Articulated Robot
 - Delta Robot
 - SCARA Robot
 - Wafer Robot
 - Electric Gripper
 - Integrated Electric Gripper
 - Rotary Joint



Single-Axis Robot

- Precision / Semiconductor / Medical / FPD
- KK, SK
 - KS, KA
 - KU, KE, KC



Torque Motor Rotary Table

- Aerospace / Medical / Automotive industry / Machine tools / Machinery industry
- RAB Series
 - RAS Series
 - RCV Series
 - RCH Series



Ball Screw

- Precision Ground / Rolled
- Super S series
 - Super T series
 - Mini Roller
 - Ecological & Economical lubrication Module E2
 - Rotating Nut (R1)
 - Energy-Saving & Thermal-Controlling (C1)
 - Heavy Load Series (RD)
 - Ball Spline



Linear Guideway

- Automation / Semiconductor / Medical
- Ball Type--HG, EG, WE, MG, CG
 - Quiet Type--QH, QE, QW, QR
 - Other--RG, E2, PG, SE, RC

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1. Features

- Short delivery
- User friendly
- Best price-performance ratio
- Efficient drive included
- High acceleration/velocity, which ball screw system cannot achieve
- Long stroke supported
- Multiple forcers supported

Application

Automation, Electronics Industry, Semi-conductor Industry, Packaging Industry



SSA Highlights

5000mm/s
Max.Velocity

0.1µm
High Encoder Resolution

±1µm
Optimal Repeatability

2. Model Description

LMSSA-18S100-800-GS-S-D-A0

Width code

18, 20

Motor type

S: Ironcore LMSA
C: Ironless LMC(U Type)

Rated force level (N)

100, 200, 300, 500

Stroke (mm)

200,250,300,350,400,450,500,550,600,
650,700,750,800,850,900,950,1000,1050,
1100,1150,1200 (For Max. stroke: 2700mm)

Encoder type

G: TTL digital 1µm resolution optical encoder
K: TTL digital 0.1µm resolution optical encoder
E: TTL digital 1µm resolution magnetic scale

Option

A0: Standard
Ax: Customized request
(cable chain, multiple forcers,
hall sensor...etc. Please contact
HIWIN MIKROSYSTEM)

Drive

D: Drive with connector

Cover

S: Standard top/side cover
N: None

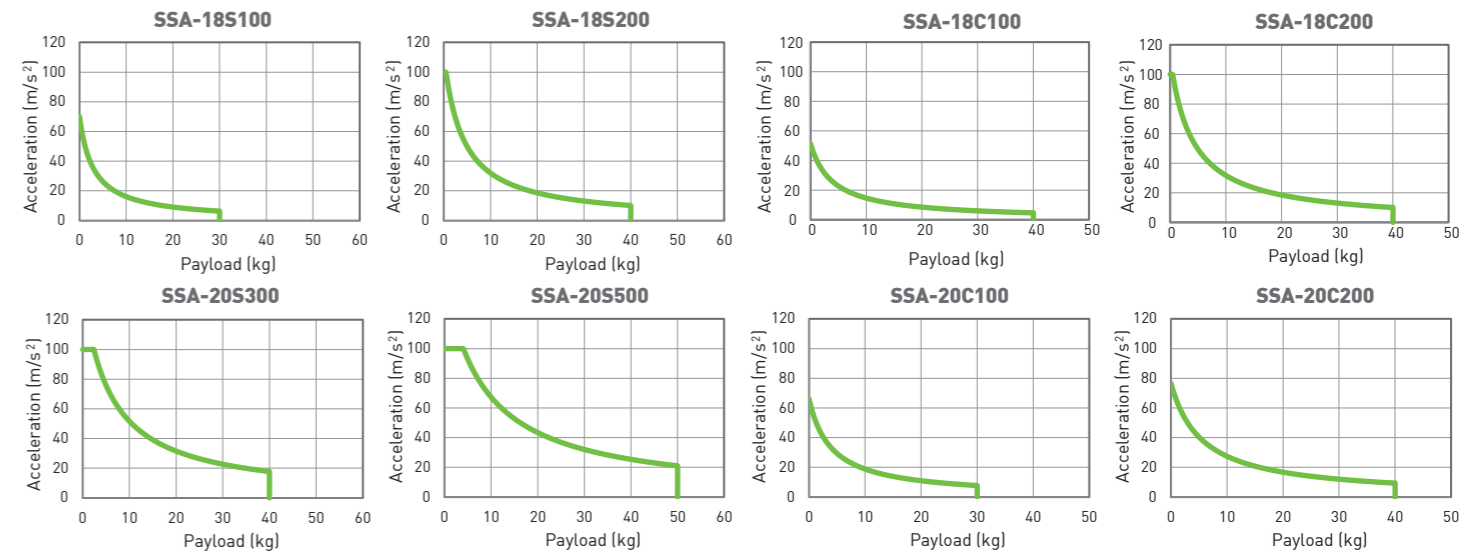
Cables length & connector

S*1: Standard
C:For other lengths and connector types,
please contact HIWIN MIKROSYSTEM

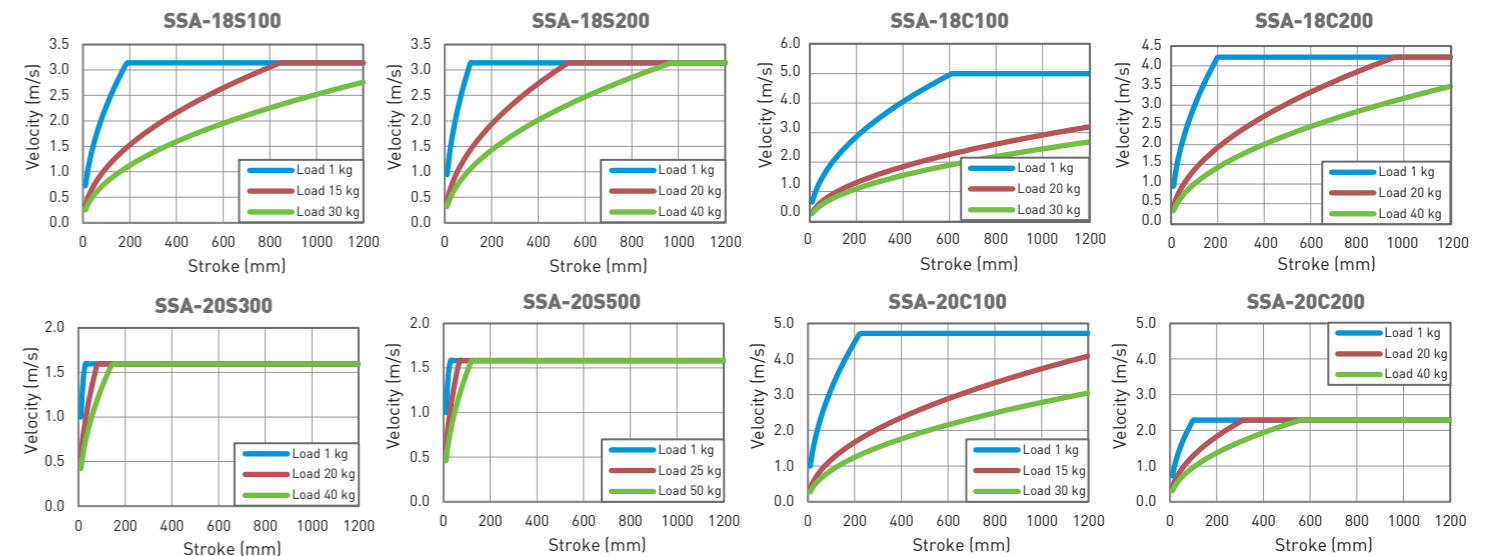
*1:Strokes≤1500mm:Motor 3m open end; limit switch: 0.3m open end; encoder: 3m D-sub-15pins.
(With Hallsensor, encoder: 3M D-sub-9pins)
Stroke>1500mm:Motor 5m open end; limit switch: 2m open end; encoder: 5m D-sub-15pins.
(With Hallsensor, encoder: 5M D-sub-9pins)

3. Sizing Diagram (Acceleration/velocity-payload curve)

Acceleration – Mass



Velocity - Stroke



*For other payload please calculate with interpolation method.
*With digital 0.1µm resolution optical scale, the max. velocity is 1.5m/s
*Voltage: 220V

5. Drive:D2T-LM

- Excellently high speed response
- High acceleration responses
- Built-in accuracy improvement feature
- Vibration Suppression Feature
- Electronic gear ratio and Encoder Emulator
- Process Description Language

Appilcation

Automation, Electronics Industry, Semi-conductor Industry, Packaging Industry

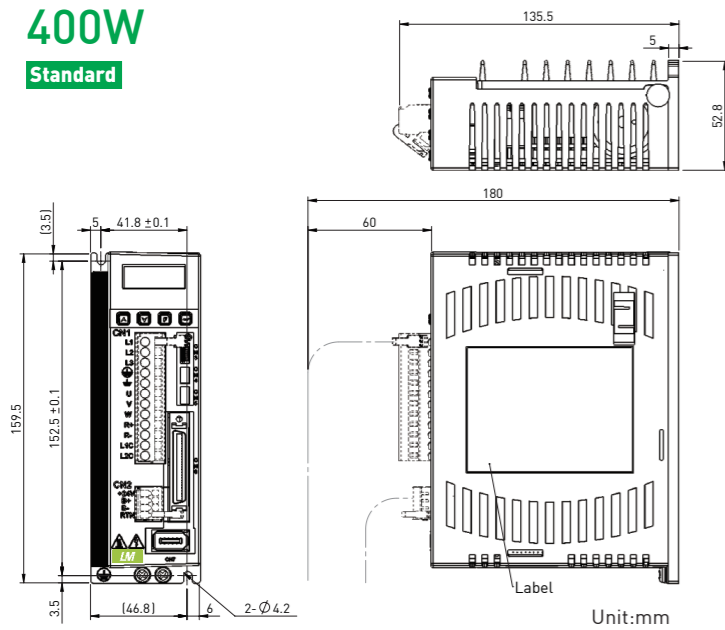


D2T-LM series including standard & EtherCAT(mega-uling) drive.

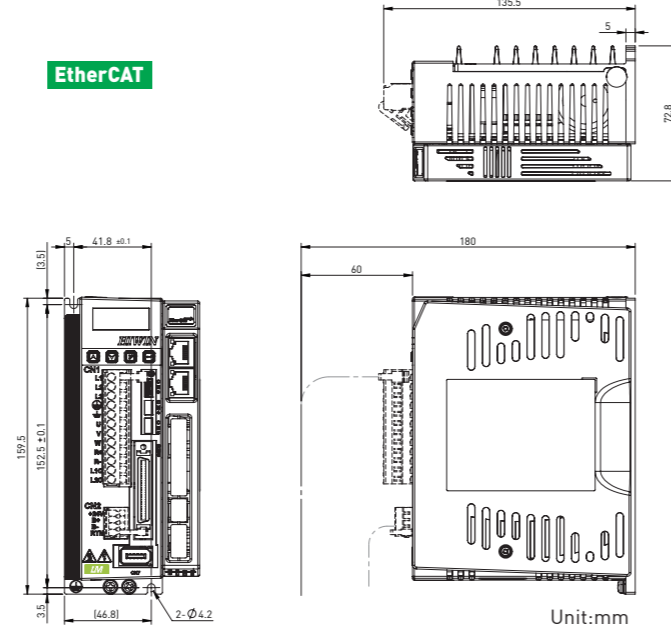
5.1 Dimensions Of Drive

400W

Standard

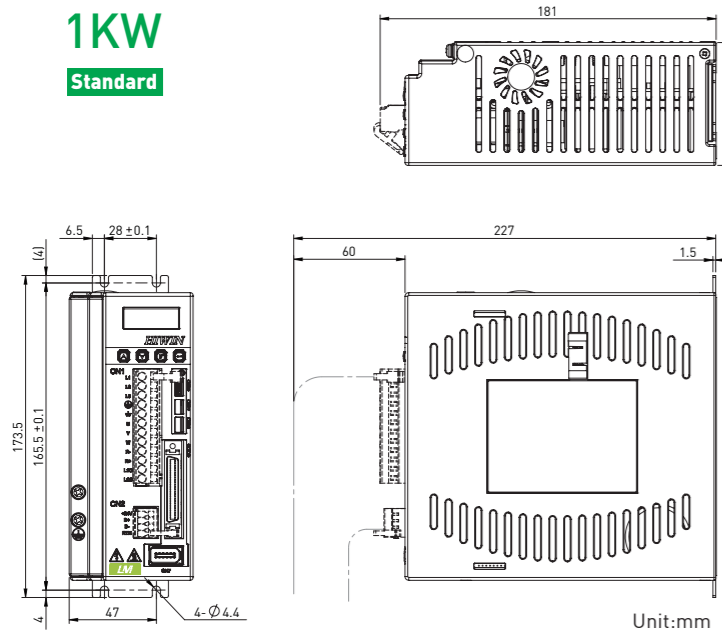


EtherCAT

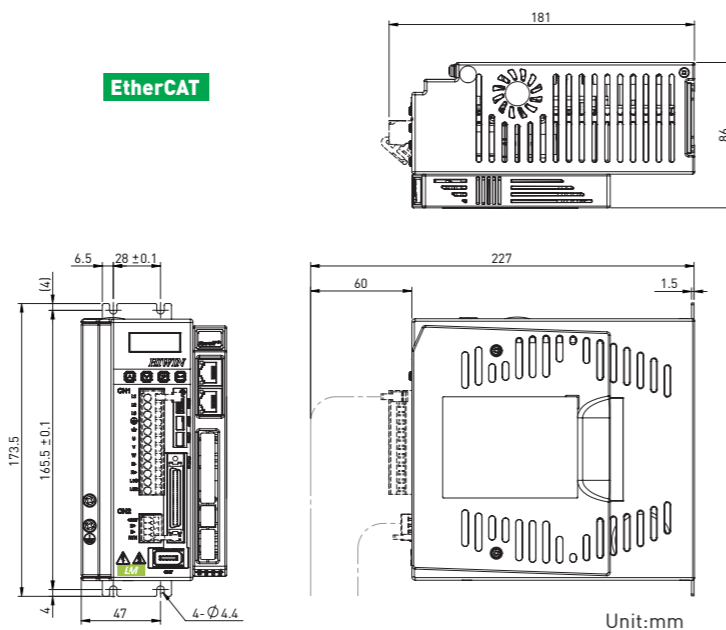


1KW

Standard



EtherCAT



5.2 D2T-LM Model Description

D 2 T - 0 4 2 3 - S - B 5 - 0 L

Rated output

04 = 400W
10 = 1.0kW

Voltage range

1/3 phase 110/220VAC

Interface

Standard S = Pulse/Analog command
EtherCAT(CoE) E = EtherCAT(CoE)
EtherCAT(mega-ulink) F = mega-ulink

Motor type

Linear Motor

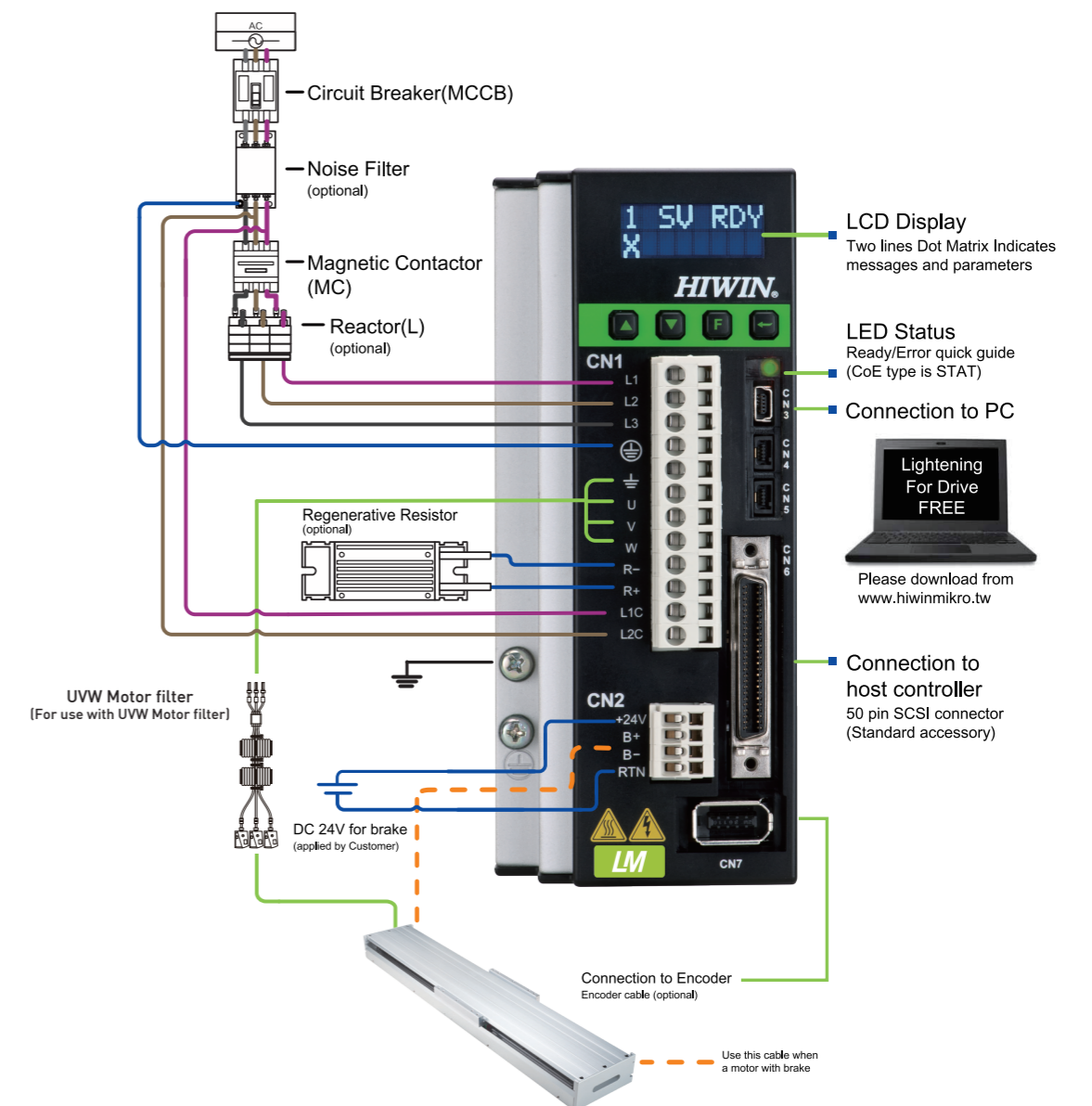
Encoder type

Digital TTL (AqB)

Frame size

B = B frame(suggestion:400W rated output)
C = C frame(suggestion:1000W rated output)

5.3 D2T-LM Interface Directions



5.4 D2T-LM Specification

Basic specifications	Input power	Main power	FrameB.C	Single/three-phase, 200 to 240V 50/60Hz	
		220V	Control power	FrameB.C	Single phase, 200 to 240V 50/60Hz
	Power output		Watt	B:400W, C:1.0kW	
			Continuous current	Frame B: 2.5Arms, C:5.1Arms	
			Peak current	Frame B: 7.5Arms, C:15.3Arms	
			Peak current time	No more 1 second	
	Environment		Temperature	Operation Temperature: 0°C~45°C (If temperature is higher than 45°C, ventilation is needed) Storage Temperature: -20°C~65°C	
			Humidity	0 to 90%RH (no frost)	
			Altitude	Under 1000 Meters	
			Vibration	1G (10 to 500Hz)	
	Pollution Degree	II			
	Control method	IGBT PWM space vector control			
Encoder		Feedback	Digital TTL		
		Frequency	5M pulse/sec, 20M count/sec(quaduple)		
		Note	Encoder must be digital AqB formate		
I/O signal connector	Control signal	Input	General purpose 10 inputs		
		Output	General purpose 5 outputs		
	Analog signal	Input	1 input (12bit A/D)		
		Output	2 outputs (Analog monitor-under construction)		
	Pulse signal	Input	2 inputs (Low speed channel, High speed channel)		
		Output	4 outputs (Line drive: 3output, open collector: 1 output)		
Brake connector	Control signal	Output	Direct brake connection. (no need of extra relay for brake) Also programmable for general purpose output		
	Dynamic brake		Need external brake resister		
Communication function		USB	Connection with PC, 115200bps		
Front panel		Dot matrix 2*8 characters LCD with 4 buttons LED(green, red)			
Control mode		Switching among the following modes is possible (1)Position control (2)Velocity control (3)Torque control (4)Position/Velocity control (5)Position/Torque control (6)Velocity/Torque control			
Functional specification	Control input	(1)Axis enable; (2)Left and right limit switch; (3)Home OK, start err. map; (4)Reset amplifier; (5)Near home sensor; (6)Clear error; (7)Switch to secondary CG and vpg;(8)Inhibit pulse command; (9)Switch HI/LO pulse input; (10)Abort motion; (11)Switch to secondary mode; (12)Start homing; (13)Electronic gear select (DIV1/DIV2)			
		Control output	(1)Brake; (2)Servo ready; (3)Axis disable; (4)In-position; (5)Moving; (6)Homed;(7)Emulated index; (8)Zero speed detected; (9)Errors		
	Max. command pulse frequency		Dedicated interface for Photo-coupler(single end input): 500kpps Dedicated interface for line drive(differential input): 4Mpps(16M cnt/s with AqB)		
	Pulse input	Input pulse signal format	(1)Pulse and Direction (2)Pulse Up/Pulse Down (3)Quadrature(AqB)		
		Electronic gear (Division/ Multiplication of command pulse)	Gear ratio : pulses/counts pulses : 1~2, 147, 483, 647 counts : 1~2, 147, 483, 647		
	Smoothing filter		Smooth factor : 1~500 (0: no smoothing filter)		

Velocity control	Vibration suppression filter(VSF)		VSF can remove the vibration frequency that occurs during movement. It can reduce the vibration caused by the system's structure and improve the machine's productivity.		
	Control input		(1)Axis enable; (2)Left and right limit switch; (3)Home OK, start err. map; (4)Reset amplifier; (5)Near home sensor; (6)Clear error; (7)Invert V command		
	Control output		(1)Brake; (2)Servo ready; (3)Axis disable; (4)In-position		
	PWM input	Velocity command input	Speed command input can be provided by means of duty cycle of PWM input. Parameter are used for scale setting and command polarity.		
Torque control	Analog Input	Velocity command input	Speed instruction can be set with analog voltage method, parameters can set ratio and direction +/-10V.		
	Zero speed clamp		Zero speed clamp input is possible.		
	Control input		(1)Axis enable; (2)Left and right limit switch; (3)Home OK, start err. map; (4)Reset amplifier; (5)Near home sensor; (6)Clear error		
	Control output		(1)Brake; (2)Servo ready; (3)Axis disable; (4)In-position		
PWM input	Torque command input	Torque command input can be provided by means of duty cycle of PWM input. Parameter are used for scale setting and command polarity.			
Analog Input	Torque command input	Torque command input can be provided by means of analog voltage. Parameter are used for scale setting and command polarity.			
Speed limit function		Speed limit value with parameter is possible.			
Emulated encoder feedback output		Set up of any value is possible (frequency up to 18M cnt/s)			
Protective function		(1)Motor short detection; (2)Over voltage(>390Vdc±5%); (3)Position error too big; (4)Encoder error; (5)Soft thermal threshold reached; (6)Motor maybe disconnect; (7)Amplifier over temperature(IGBT>80°C±3°C); (8)Under voltage; (9)5V for encoder card fail;(10)Phase init. error			
Error log		Errors and warnings are saved in non-volatile memory.			
Common	PDL(Process Description Language)		Max:32KBytes Max. Variables 800Bytes Variables : (1) floating:32bits, (2)integer:16 &32bits, (3)support matrex and pointer		
	Running cycle		66.67us		
	Tasks in parallel processing		4 tasks in parallel processing		
	Flow control		Including if, else, while, for, goto &till flow control		
	Processing		Including number, logic & comparing processing		
	Parallel processing		Including Lock & Unlock to run parallel processing		
Max. words length:		(1)variables 17, (2)label 24, (3) processor 24			
Method:		Established compensation table to compensate encoder error by linear interpolation			
Samples:		Maximum 5,000 point			
Storage:		Flash ROM, Disc file			
Unit:		count			
Activation:		Activated internally by home complete, or activated externally by input signal			
Regenerative Resistor	Resistor	Need external install			
	Active voltage	+HV > 370Vdc			
	Drop-out voltage	+HV > 360Vdc			
	DC link voltage	FrameB:820uF	FrameC:1,410uF		

MEMO

MEMO

MEMO

A series of horizontal dotted lines for writing.

Single-Axis Linear Motor Stage Technical Information

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