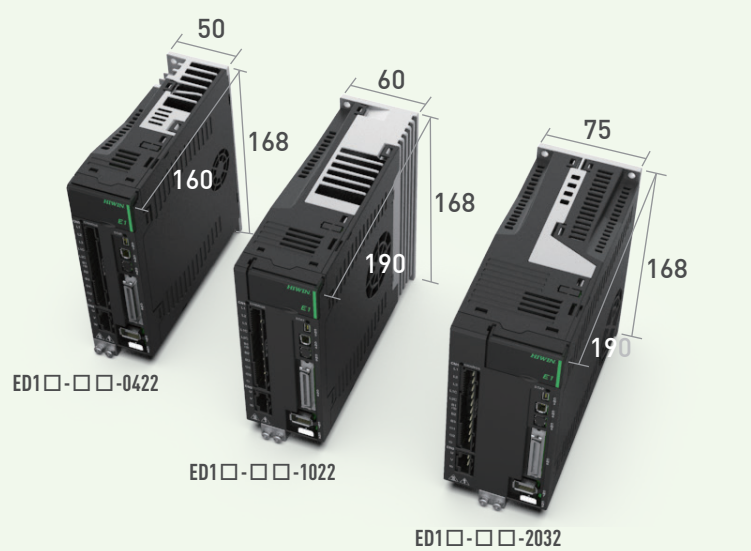


Features

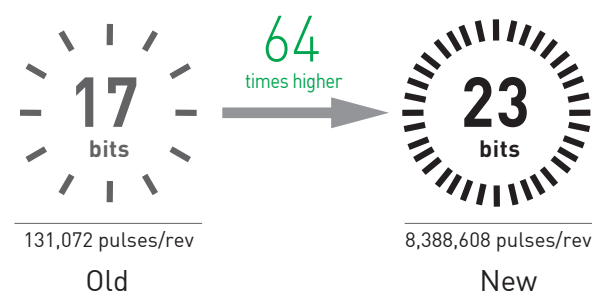
- 3.2kHz Speed Response
- Tuneless Function
- Advanced Auto-tune Function
- Ripple Compensation
- Unique Gantry Application
- Network Connectivity
- Support Variety Motors
- Built-in Safe Torque Off (STO)
- Support multiple encoder types (Digital, Analog, Tamagawa, EnDat and BiSS-C encoders).

Application

FPD Industry, Semiconductor Industry, Automation Industry, Laser Cutting Industry, PCB Industry.

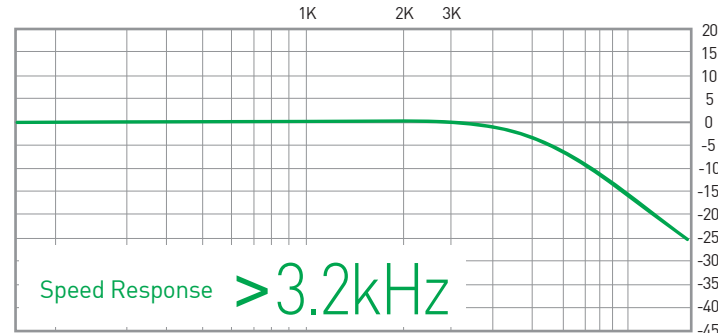


1 Improved Processing Accuracy



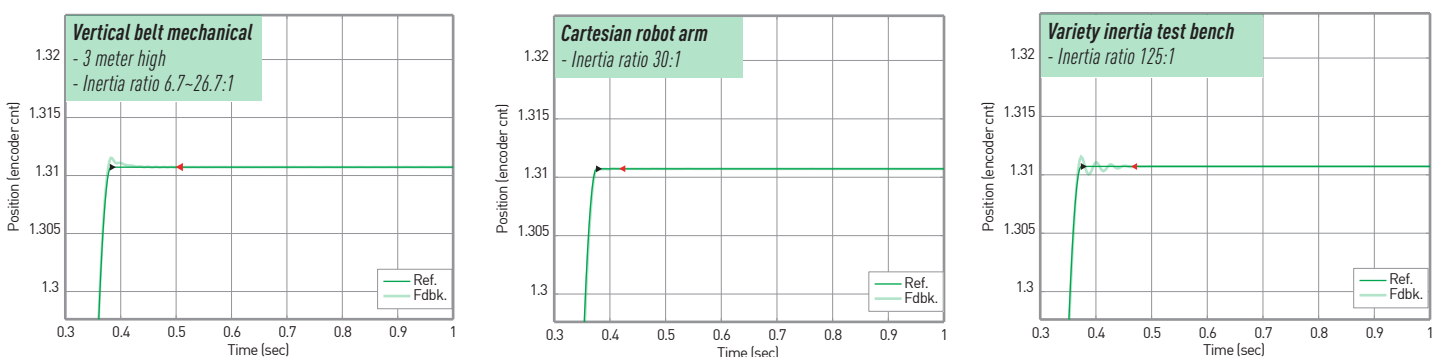
2 3.2kHz Speed Response

Higher speed response, faster settling and higher throughput.



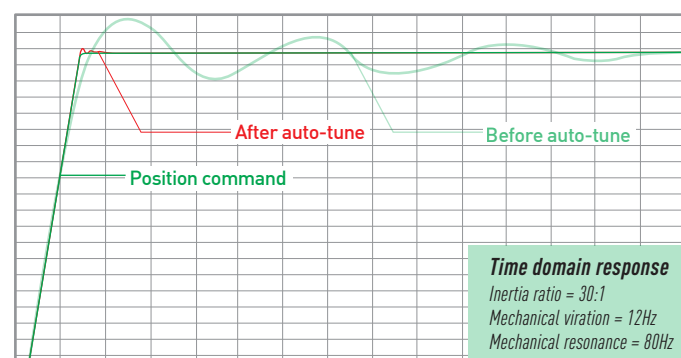
3 Tuneless Function

Brings good performance and stable movement with inertia ratio up to 250:1. Adaptive gain tuning in accordance with load changes.



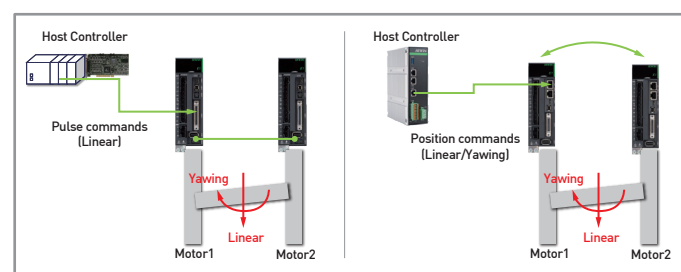
4 Advanced Auto-tune Function

Automatic gains tuning, filters adjustment, model following control activation, vibration and resonance suppression to optimize machine performance.



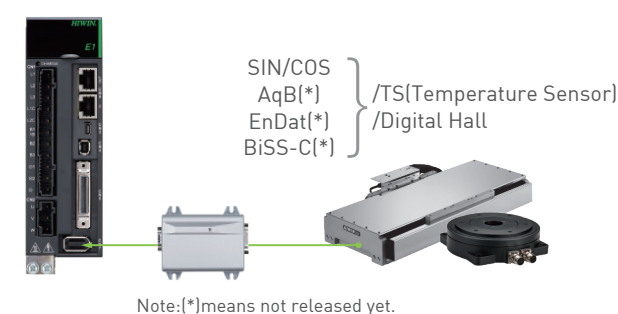
6 Unique Gantry Application

Combines two E1 drives to realize gantry algorithm which contains linear and yawing control.



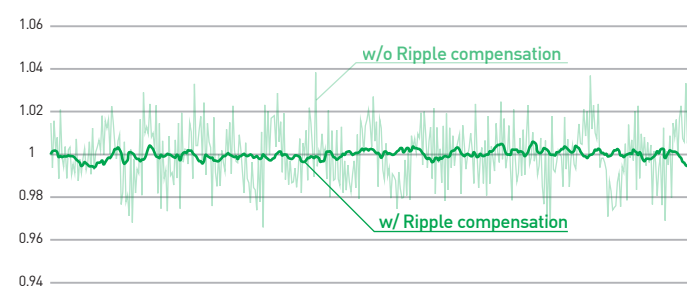
8 Feedback Interface

Built-in digital AqB and serial encoder interface for Tamagawa encoder. With ESC series encoder box E1 drive is able to support analog SIN/COS, EnDat and BiSS-C encoder.



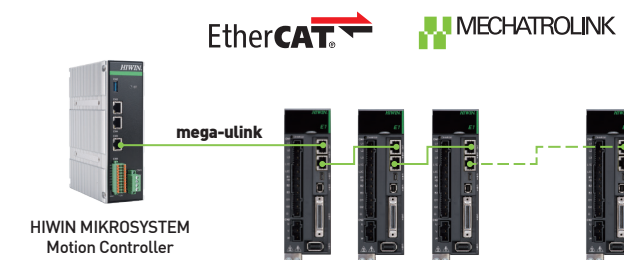
5 Ripple Compensation

Delivers more smooth movement by reducing velocity ripple caused by motor cogging. Servo loop gains are not necessary to change.



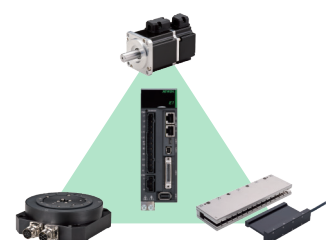
7 Network Connectivity

Supports Mechatrolink-III, EtherCAT interfaces and HIWIN mega-ulink communication.



9 Support Variety Motors

One drive type for linear motor, AC servo motor and direct-drive motor.



10 Built-in Safe Torque Off (STO)

Motor power is cut-off when STO is activated.

Model Description

ED1 X - X X - X X X X - X X

Type
S:Standard
F:Fieldbus

Control Interface
V:Voltage command+Pulse
E:EtherCAT
H:mega-ulink
L:MECHATROLINK III

Special Function
G:Gantry
N:Without special function

Watt

04:400W
10:1KW
20:2KW

ESC - X X - X X X

Type
AN:Analog
SA:Absolute
SS:Full model(AN+SA)

Motor Type
A:AC Servo motor
0:Linear /Direct /AC Servo Motor

AC Voltage
2:220Vac

AC Phase
1:Single phase
2:Single/Three phase
3:Three phase

HIWIN MIKROSYSTEM New Generation Servo Products



HIWIN®

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HIWIN MIKROSYSTEM CORP.

No.6, Jingke Central Rd.,
Taichung Precision Machinery Park,
Taichung 40852, Taiwan
Tel: +886-4-23550110
Fax: +886-4-23550123
www.hiwinmikro.tw
business@hiwinmikro.tw

Global Sales And Customer Service Site

HIWIN GmbH
OFFENBURG, GERMANY
www.hiwin.de
www.hiwin.eu
info@hiwin.de

HIWIN Srl
BRUGHERIO, ITALY
www.hiwin.it
info@hiwin.it

HIWIN KOREA
SUWON · CHANGWON, KOREA
www.hiwin.kr
info@hiwin.kr

HIWIN JAPAN
KOBE · TOKYO · NAGOYA · NAGANO ·
TOHOKU · SHIZUOKA · HOKURIKU ·
HIROSHIMA · FUKUOKA · KUMAMOTO,
JAPAN
www.hiwin.co.jp
info@hiwin.co.jp

HIWIN s.r.o.
BRNO, CZECH REPUBLIC
www.hiwin.cz
info@hiwin.cz

HIWIN CHINA
SUZHOU, CHINA
www.hiwin.cn
info@hiwin.cn

HIWIN USA
CHICAGO, U.S.A.
www.hiwin.com
info@hiwin.com

HIWIN SINGAPORE
SINGAPORE
www.hiwin-sg
info@hiwin-sg

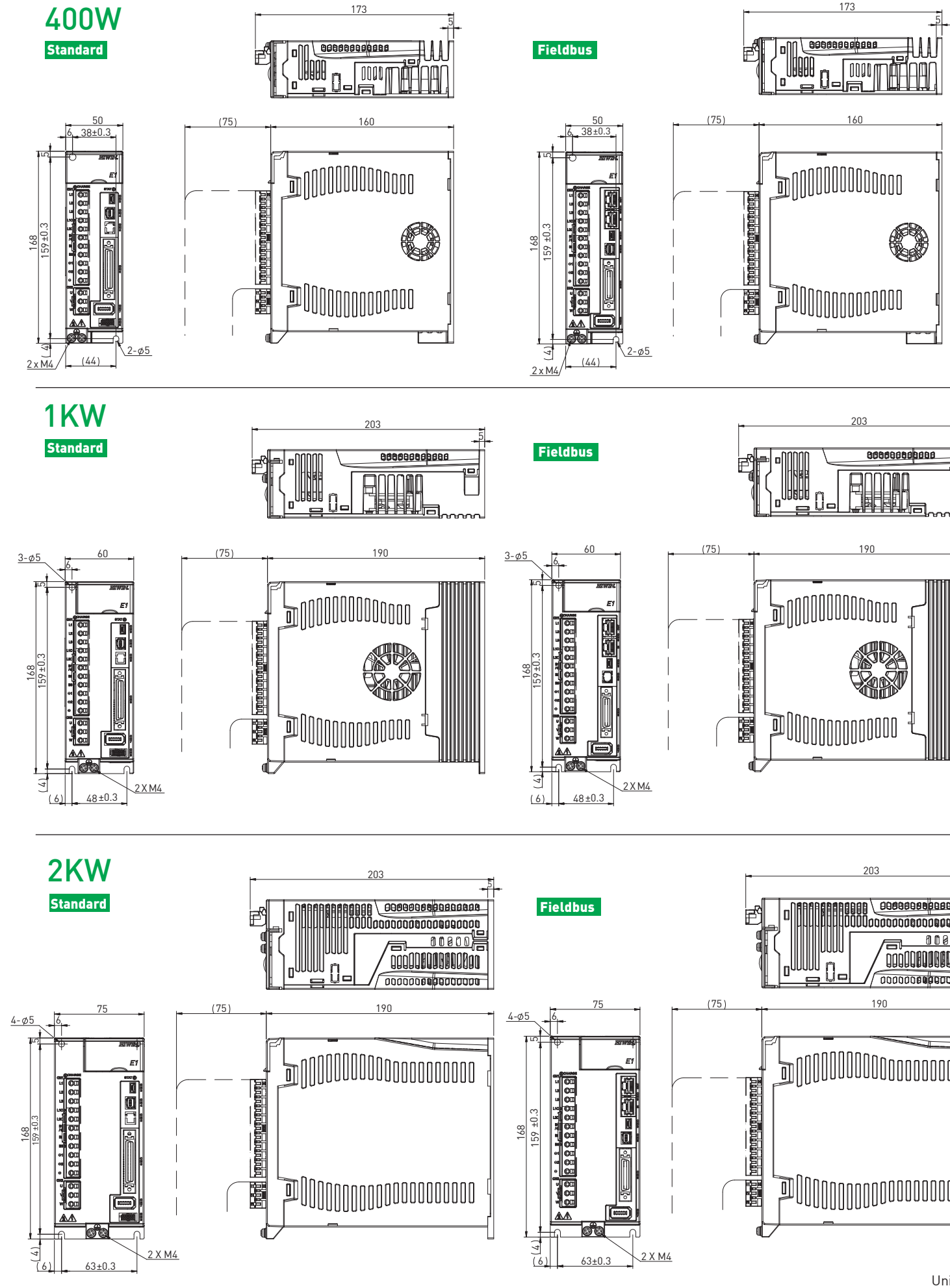
Mega-Fabs Motion Systems, Ltd.
HAIFA, ISRAEL
www.mega-fabs.com
info@mega-fabs.com

E1
E1 Series Servo Drive

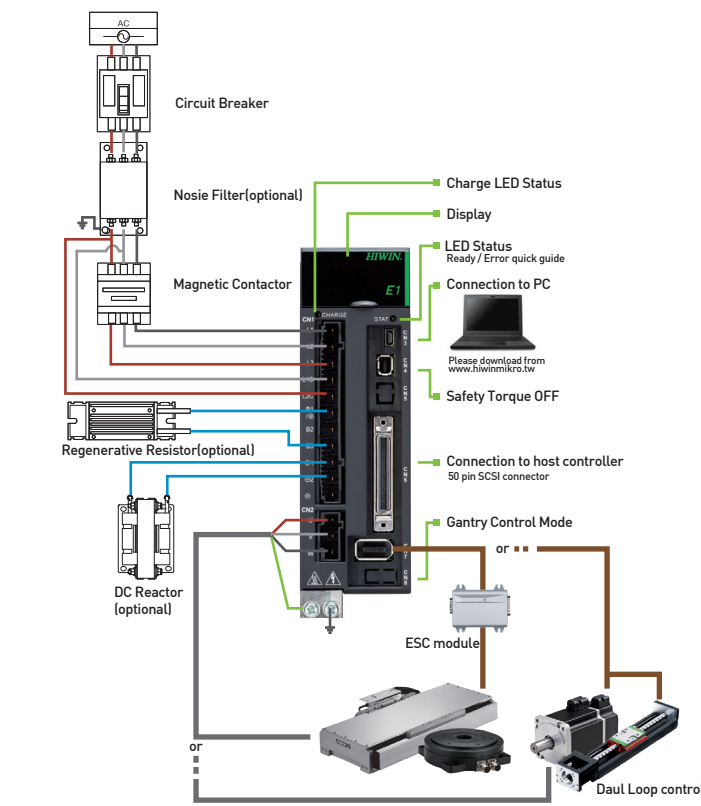
Product Dimension

	400W	1KW	2KW
Input Power	Rated Voltage (Line to line) AC 200 Vrms~AC 240 Vrms · 50~60Hz		
	Phase Voltage of Main Power (Line to line) 1 Ø/AC 200 Vrms~AC 240 Vrms		3Ø/AC 200 Vrms~AC 240 Vrms
	Current (Arms) 1.5	5	11.3
	Current (A-amp) 2.1	7.1	15.98
Output Power	Control Power 1 Ø, AC 90 V~AC 240 V, 50~60 Hz		
	Phase Voltage 3 Ø/AC 240 Vrms		
	Rated Power (W) 400	1K	2K
	Peak Current (Arms)/[A-amp] 10/14.1	23.3/33	42/59.4
	Rated Current (Arms) 2.5	5.6	12
	Frame B	C	D
	Cooling Method Fan cooling		
	Control Method IGBT PWM space vector control		
	PWM Modulation Frequency 16 KHz		8 KHz
	Applicable Motor AC/DM/LM		
STAT LED Indicator Red: Error / Green: Servo ready			
CHARGE LED Indicator Red: Control power is turned on. / No light: Control power is not supplied.			
Built-in Regenerative Resistor -	40 Ohm / 40 W	12 Ohm / 60 W	
Dynamic Brake Built-in dynamic brake / Delay time of relay: 20 ms			
Internal Dynamic Brake Resistor -		10 Ohm	
Analog Output Channel: 2 / Resolution: 12 bit / Output voltage range: ±10 V / Accuracy: ±2% / Max. output current: ± 10 mA			
Control Function			
Position Mode	Command Source Pulse command from controller		
	Signal Type Pulse/Direction, CW/CCW, A/B phase		
	Isolated Circuit High-speed photocoupler		
	Input Signal Differential input or single-ended input		
Max. Input Bandwidth Differential: 5 Mpps / Single-ended: 200 kpps			
Electronic Gear Gear ratio: pulses / counts, Pulses: 1~1,073,741,824, Counts: 1~1,073,741,824			
Velocity Mode Analog Input	Command Source DC voltage command from controller		
	Impedance 14K Ohm		
	Signal Format ±10 Vdc		
Max. Input Bandwidth 100 Hz			
Specification 16 bit A/D input (V-REF+/-)			
Torque Mode Analog Input	Command Source DC voltage command from controller		
	Impedance 14K Ohm		
	Signal Format ±10 Vdc		
	Max. Input Bandwidth 100 Hz		
Specification 16 bit A/D input (T-REF+/-)			

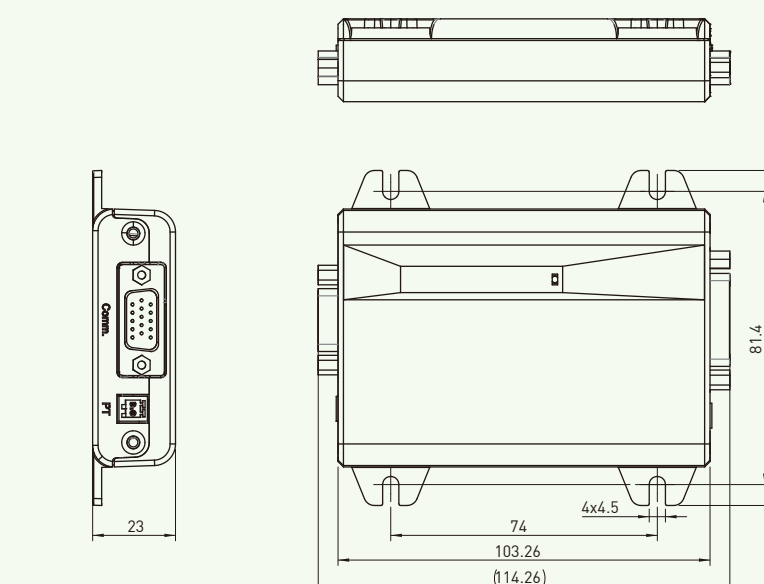
	400W	1KW	2KW
Encoder Feedback	Control Mode - Position mode - Velocity mode - Torque mode - Full closed loop mode (Dual loop mode)		
	Power Supply +5.1 Vdc±5%, 400 mA		
	Signal Format Serial signal - Resolution: 23 bit (Single-turn / multiturn absolute encoder) Bandwidth: 5 MHz Incremental signal - AqB and Z phase signals (Digital differential TTL signal) The maximum input bandwidth of each phase is 5 MHz.		
	Safety Function Encoder power malfunction detection / Short circuit protection / Undervoltage protection / Overvoltage protection		
	Position Counting Range -2,147,483,648~2,147,483,647 (32 bit)		
	Max. Bandwidth of Differential Input Full closed loop (Quadruple frequency, 20 M counts/s)		
	Linear Motor / Torque Motor Encoder smart cube (ESC) must be connected, depending on encoder type.		
Encoder Output			
Emulated Encoder Output	Z Phase 1. Serial and digital (AqB) encoders are supported. 2. The width of output signal can be adjusted by parameter. 3. Differential signal output 4. Z phase open collector output is supported. 5. Two output methods can be selected. -Only outputs one Z phase signal for the total travel distance. -Outputs one Z phase signal per one revolution.		
	A/B Phase 1. Serial and digital (AqB) encoders are supported. 2. Differential signal output. The maximum output bandwidth is 18 M count/s. 3. The scaling of output can be adjusted. For instance, ten encoder counts = one emulated encoder count.		
General-purpose I/O	Computer Communication Standard USB2.0 (Mini USB type) Connect the servo drive with your computer to set parameters, monitor physical quantities and execute trial operations via Thunder.		
	Input The functions of general-purpose inputs (I1~I10, photocoupler) can be defined by user. 24 V/5 mA (Each input pin)		
	Output The functions of general-purpose outputs (O1~O5, photocoupler) can be defined by user. 24 V/0.1 A (Each output pin)		
Regenerative Energy Protection	Position Trigger (PT) Differential signal output. It is configured and activated by parameters.		
	Regenerative Resistor 400 W: Without built-in regenerative resistor and should be connected with an external regenerative resistor if needed. 1 KW: With built-in regenerative resistor and connected with an external regenerative resistor to increase regenerative capacity.		
	Protection of Regenerative Resistor Enabled +HV > 380 Vdc		
	Protection of Regenerative Resistor Disabled +HV < 370 Vdc		
Environment	Tolerance ±5%		
	Optional Function Gantry control		
	Insulation Voltage Impedance between main power and ground is 1,500 Vac. (A minute)		
	Operating Temperature 0~45°C		
	Storage Temperature -20°C~65°C		
	Humidity Operating and storage temperature: 20 to 85%RH (Non-condensing)		
	Altitude Altitude 1,000 M or lower above sea level		
Vibrating Less than 5.88m/s ² 10 to 60Hz			
IP Rating IP20			



Interface Directions



Excelnt Smart Cube(ESC)



Items	Specifications	
Power Supply Voltage	+5.0 V ±5%	
Maximum Current	120 mA Typ. 450 mA max	
Encoder Type	Digital Halls	Incremental
	Hall U/V/W	Sin. / Cos. / Ref. (1.2Vp-p Diff.)
Signal frequency	2kHz Max.	1MHz Max. (up to 15m cable length)
Signal Resolution		[Resolution ≤ 1/4096 pitch]
Input signal format	5V CMOS / TTL	Differential (RS-422)
Motor thermal protection	PTC	
Operating temperature	+5°C to +45°C	
Storage temperature	-20°C to +85°C	
IP Level	IP20	

Unit: mm