

DRIVING INDUSTRIAL DEVICE INTELLIGENCE

An innovative provider of industrial automation
core components and digital integration solutions.



marketing@flexem.com | flexem.com



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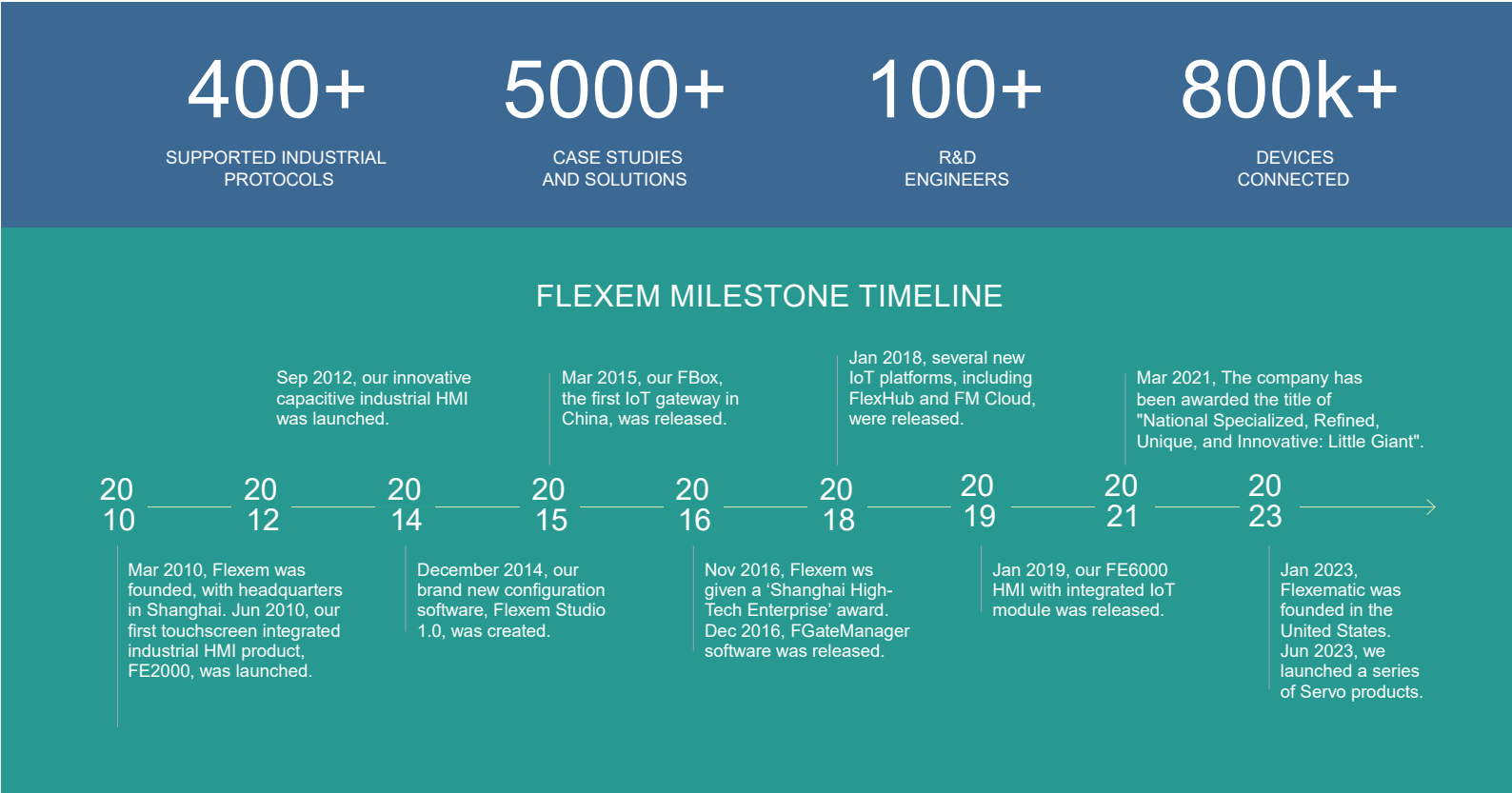
COMPANY OVERVIEW

Flexem Technology is an innovative provider of industrial automation core components and digital integration solutions.

We offer automation solutions with strong IoT capabilities to OEMs and end users across a wide range of industries and applications, including semiconductor, 3C, photovoltaic equipment, lithium battery, packaging machinery, HVAC equipment, pump control, electronic devices, oil & gas and smart agriculture.

Our wide portfolio of industrial automation and digitalization solutions - including HMIs, PLCs, remote IOs, industrial gateways, high performance servos, IoT and digital software platforms - delivers complete solutions for equipment manufacturers and end users.

Flexem was founded in 2010 in China and has become a prominent industrial automation, motion control and IoT company.



Managing

Monitoring

Accessing

Displaying

Controlling

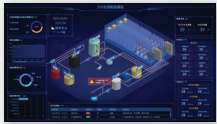
Driveing

Advanced Automation and Information Combined Solution

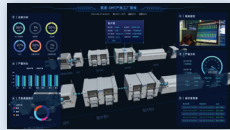
Machine Automation & IoT Solution
Digital Plant Solution

Remote Equipment Operation & Maintenance Solution
High Performance Servo Drive Solution

Equipment IoT platform - FlexCloud



Industrial SCADA software - FlexSCADA



4G, 5G, Ethernet, WiFi, NBIoT

4G GatewayLight weight GatewayFLink IoT ModuleFLink2 IoT ModuleFBox Desktop Virtual Gateway

FPad Series HMI7000 Series HMI6300 Series HMI9000 Series HMIF1 Series HMIF0 Series HMI

FC5 Series PLCFC5M Series PLCFL6 Series PLCFL7 Series PLCFL8 Series PLCRemote IO

Universal ServoDirect Drive ServoFull Featured ServoFV3S Series ServoFV3 Series ServoFD5 Series ServoMotor

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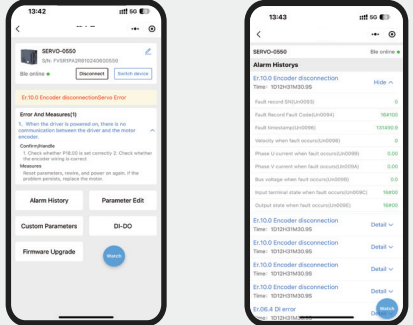
Digital Intelligence

Wireless Connectivity



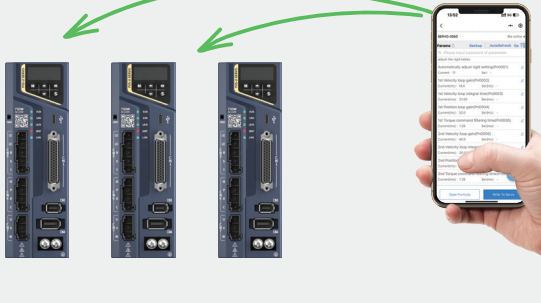
Support mobile terminal scanning device QR code; APP direct pairing or near-field Bluetooth search pairing

Smart Diagnostics



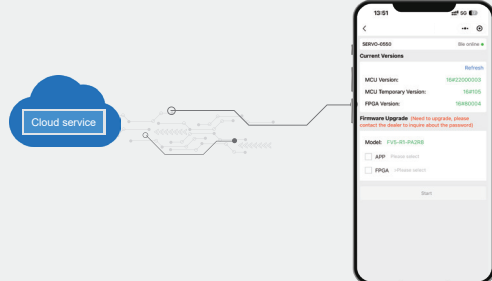
Quickly query channel parameters through APP, display device status details, and diagnose fault information quickly.

Mobile Config issuing



Complete parameter settings and function deployment on your mobile phone, No hassle with keystrokes.

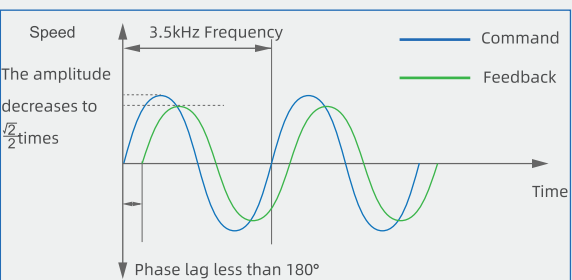
Cloud-based Upgrades



The backend has networking capability, enabling direct download and upgrade through cloud service. This improves user experience and simplifies the process of software maintenance and update.

Outstanding Performance

High Response



A speed loop bandwidth of 3.5kHz enhances the dynamic response of the mechanism and the smoothness of motor speed. A high-bandwidth speed loop allows the servo drive to respond to commands more quickly, effectively reducing the settling time for position reaching.

High Precision

Supported encoder bits

17Bit

Maximum pulse output frequency

4MHz

23 Bit

5MHz

23-bit multi-turn absolute optical encoder significantly improves equipment's repeatability and absolute positioning accuracy.

±10 arcseconds

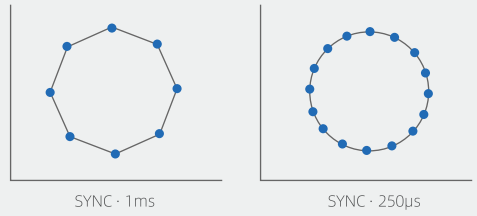
Absolute Positioning Accuracy

3.5x

Motor allowed overload range

High Speed

250µs Period



Communication interaction capability is enhanced by using high performance control chips. Faster response and more accurate motion control is realized by a shorter sync cycles.

Advanced Algorithms



Model Tracking



Friction Compensation



Vibration Suppression

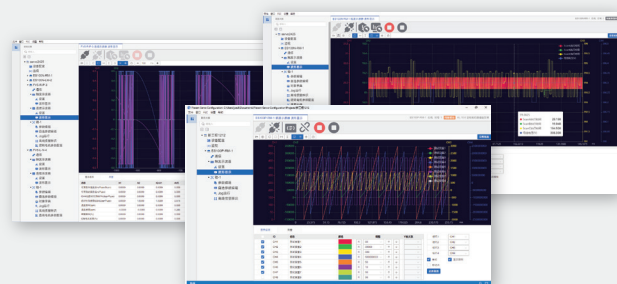


Adaptive Filter

Utilizing advanced underlying algorithms, it incorporates various advanced functions such as adaptive filtering, model tracking, vibration suppression, friction compensation, etc., to better adapt to various industry applications.

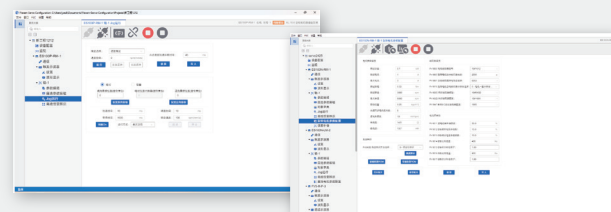
Easy to Connect, Easy to Use

Efficient Analysis



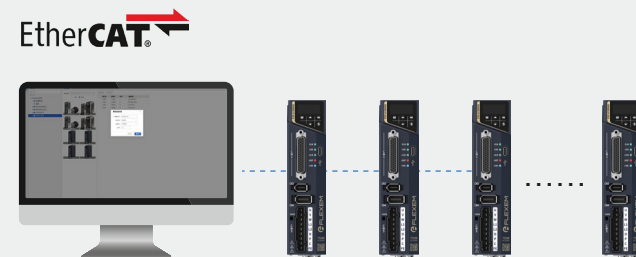
Equipped with an advanced oscilloscope supporting nearly 70 data analysis functions, it supports both trigger and continuous modes. With a minimum communication period of 62.5 microseconds, it provides clear insight into servo operation status. Additionally, it allows waveform zooming, box zooming, playback, and waveform file saving and opening for easy sharing and analysis.

User-Friendly Interface



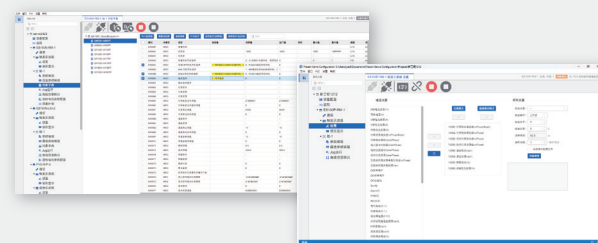
The newly designed debugging software, based on Web rendering, supports multiple functional graphical interfaces for user-friendly interaction, making it easier to use and providing better displays.

Different models parallel connection



Support for different machine models and multi-unit networking significantly increases the ease of debugging and reduces the difficulty of debugging.

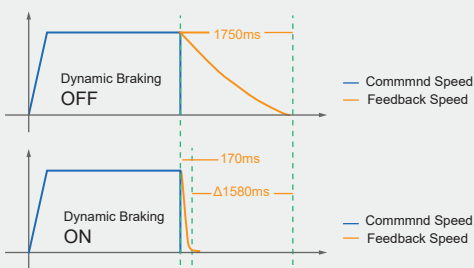
Debug Wizard



Commissioning wizard guide, graphical parameter configuration, allows users of linear motors / DD motors to quickly complete the servo parameter settings, further lowering the difficulty to use servo products.

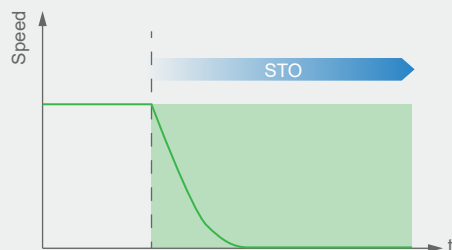
Safe and Reliable

Dynamic Braking



Dynamic braking can be used to eliminate safety hazards in the event of servo failure, emergency stops or shutdowns, and motor holding brake failure.

STO (Safety Torque Off)



Safe Torque Off (STO) provides additional safety protection to prevent the motor from unconsciously restarting or generating unintended motion. It ensures that the motor is completely stopped by disconnecting the power supply to the motor and prevents any torque output.

Fully Certified



Fully compliant with EU standards. Certified by CE, RoHS, to meet different safety, quality and environmental requirements.

Protection Level



The rotary motor meets IP67 protection level, suitable for harsh operating environments. It remains unaffected by low-pressure jets from any angle and features a safety dust-proof structure to prevent dust ingress.



FV5 Servo Driver



- FV5-R1 series**

 - Standard Rotary Servo
 - Serial communications
 - 17-bit
 - 12-bit analog
- FV5-R3 series**

 - Advanced Rotary Servo
 - Serial communications
 - 17-bit & 23-bit
 - ABZ encoder
 - 12-bit analog
- FV5-E1 series**

 - Standard Direct-drive Servo
 - Hall sensor
 - ABZ encoder
 - 12-bit analog
- FV5-E3 series**

 - Advanced Direct-drive Servo
 - Biss-C encoder
 - ABZ encoder
 - 12-bit analog
- FV5-U3 series**

 - Rotary Servo & Direct-drive Servo
 - 17-bit & 23-bit
 - Biss-C encoder, ABZ encoder
 - High speed DI & DO
 - High precision 16-bit analog
 - Safe Torque Off (STO)
 - UL certification

Functional Parameters	FV5-R1 Series		FV5-R3 Series		FV5-E1 Series		FV5-E3 Series		FV5-U3 Series	
	P	N	P	N	P	N	P	N	P	N
Matching motor type	Rotary Motor		Rotary Motor		Direct-Drive Motor		Direct-Drive Motor		Rotary & Direct-Drive Motor	
Tamagawa 17-Bit	✓	✓	✓	✓	✗	✗	✓	✓	✓	✓
Tamagawa 23-Bit	✗	✗	✓	✓	✗	✗	✓	✓	✓	✓
Biss-C	✗	✗	✗	✗	✗	✗	✓	✓	✓	✓
Nikon	✗	✗	✗	✗	✗	✗	✓	✓	✓	✓
Endat	✗	✗	✗	✗	✗	✗	✓	✓	✓	✓
ABZ	✗	✗	✗	✗	✓	✓	✓	✓	✓	✓
Hall	✗	✗	✗	✗	✓	✓	✗	✗	✗	✗
ABZ full closed-loop	✗	✗	✓	✓	✗	✗	✓	✓	✓	✓
DDR	✗	✗	✗	✗	✓	✓	✓	✓	✓	✓
DDL	✗	✗	✗	✗	✓	✓	✓	✓	✓	✓
Universal rotation	✓	✓	✓	✓	✗	✗	✓	✓	✓	✓
Normal Digital Input	8	5	8	5	8	5	8	5	6	3
Normal Digital Output	5	4	5	4	5	4	5	4	5	2
High-Speed Digital Input (Probe)	✗	✗	✗	✗	✗	✗	✗	✗	2	2
High-Speed Digital Output (Flying trigger)	✗	✗	✗	✗	✗	✗	✗	✗	✗	2
12-bit Analog Inputs	1	✗	1	✗	1	✗	1	✗	1	✗
16-bit Analog Inputs	✗	✗	✗	✗	✗	✗	✗	✗	1	1
Low-Speed Pulse Input	✓	✗	✓	✗	✓	✗	✓	✗	✓	✗
High-Speed Pulse Input	✓	✗	✓	✗	✓	✗	✓	✗	✓	✗
Ethercat Communication	✗	✓	✗	✓	✗	✓	✗	✓	✗	✓
RS485 Communication	✓	✗	✓	✗	✓	✗	✓	✗	✓	✗
USB Communication (Debugging)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Encoder Differential Output	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Encoder Z-phase Pulse OC Output	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Dynamic Braking	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
STO	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓
Built-in Braking Resistor	≥1KW Built-in	≥1KW Built-in	≥750W Built-in	≥750W Built-in	≥1KW Built-in	≥1KW Built-in	≥750W Built-in	≥750W Built-in	≥750W Built-in	≥750W Built-in
Motor Temperature Protection	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓
Built-in 24V Power Supply	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
RoHS Certification	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CE Certification	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
UL Certification	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓
Bluetooth	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Functional Parameters	FV3S-R1 Series		FV3S-R3 Series		FV3-R1 Series		FD5-R1 Series		FD5-U1 Series	
	P	N	P	N	P	N	P	N	P	N
Matching motor type	Rotary Motor		Rotary Motor		Rotary Motor		Direct-Drive Motor		Rotary & Direct-Drive Motor	
Tamagawa 17-Bit	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Tamagawa 23-Bit	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓
Biss-C	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓
Nikon	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓
Endat	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓
ABZ	✗	✗	✗	✗	✓	✓	✗	✗	✓	✓
Hall	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓
ABZ full closed-loop	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓
DDR	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓
DDL	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓
Universal rotation	✓	✓	✓	✓	✗	✗	✓	✓	✓	✓
Normal Digital Input	6	4	6	4	6	4	4	3	4	3
Normal Digital Output	4	4	4	4	4	4	4	4	4	4
High-Speed Digital Input (Probe)	✗	✗	✗	✗	✗	✗	2	2	2	2
High-Speed Digital Output (Flying trigger)	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
12-bit Analog Inputs	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
16-bit Analog Inputs	✗	✗	✗	✗	✗	✗	1	1	1	1
Low-Speed Pulse Input	✓	✗	✓	✗	✓	✗	✓	✗	✓	✗
High-Speed Pulse Input	✗	✗	✗	✗	✗	✗	✓	✗	✓	✗
Ethercat Communication	✗	✓	✗	✓	✗	✓	✗	✓	✗	✓
RS485 Communication	✗	✗	✓	✗	✓	✗	✓	✗	✓	✗
USB Communication (Debugging)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Encoder Differential Output	✓	✗	✓	✗	✓	✗	✓	✗	✓	✗
Encoder Z-phase Pulse OC Output	✓	✗	✓	✗	✓	✗	✓	✗	✓	✗
Dynamic Braking	✗	✗	✓	✓	✗	✗	✗	✗	✗	✗
STO	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
Built-in Braking Resistor	≥1KW Built-in	≥1KW Built-in	≥750W Built-in	≥750W Built-in	≥1KW Built-in	≥1KW Built-in	✗	✗	✗	✗
Motor Temperature Protection	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓
Built-in 24V Power Supply	✓	✓	✓	✓	✓	✓	✗	✗	✗	✗
CE Certification	✓	✓	✓	✓	✗	✗	✗	✗	✗	✗
Bluetooth	✓	✓	✓	✓	✓	✓	✗	✗	✗	✗

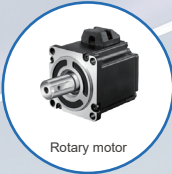
Functional Parameters	FV5L-E1 Series		FV5L-U3 Series	
	P	N	P	N
Matching motor type	Rotary Motor		Rotary & Direct-Drive Motor	
Tamagawa 17-Bit	✗	✗	✓	✓
Tamagawa 23-Bit	✗	✗	✓	✓
Biss-C	✗	✗	✓	✗
Nikon	✗	✗	✓	✗
Endat	✓	✓	✓	✗
ABZ	✓	✓	✓	✓
Hall	✓	✓	✗	✗
ABZ full closed-loop	✓	✓	✓	✓
DDR	✓	✓	✓	✗
DDL	✓	✓	✓	✗
Universal rotation	✗	✗	✓	✓
Normal Digital Input	8	5	6	3
Normal Digital Output	5	4	5	2
High-Speed Digital Input (Probe)	✗	✗	2	2
High-Speed Digital Output (Flying trigger)	✗	✗	✗	2
12-bit Analog Inputs	1	✗	1	✗
16-bit Analog Inputs	✗	✗	✗	1
Low-Speed Pulse Input	✓	✗	✓	✗
High-Speed Pulse Input	✓	✗	✓	✗
Ethercat Communication	✗	✓	✗	✓
RS485 Communication	✗	✗	✓	✗
USB Communication (Debugging)	✓	✓	✓	✓
Encoder Differential Output	✓	✓	✓	✓
Encoder Z-phase Pulse OC Output	✓	✓	✓	✓
Dynamic Braking	✓	✓	✓	✓
STO	✗	✗	✗	✓
Built-in Braking Resistor	≥1KW Built-in	≥1KW Built-in	≥750W Built-in	≥750W Built-in
Motor Temperature Protection	✓	✓	✓	✓
Built-in 24V Power Supply	✓	✓	✓	✓
RoHS Certification	-	-	-	-
CE Certification	✓	✓	✓	✓
UL Certification	✗	✗	✗	✗
Bluetooth	✓	✓	✓	✓

Full Featured Servo Products





Linear motors



Rotary motor



DD motors



Voice coil motors



Full featured



Supports flyingshot function



Support a variety of motors



Support Safe Torque Off (STO)



Supports probe function



UL certification

Full Featured Servo Products

Naming convention

FV5

U3

P

A

2R8

A

00

1

2

3

4

5

6

7

Software Configuration: Default - Standard Software;
01-01#Customized Software;02-02#Customized Software

Hardware Configuration: Default - Standard Hardware
B - Customi Hardware

Rated output current: Single phase 240V: 1R1-1.1A;1R6-1.6A;2R8-2.8A;3R0-3.0A;4R5-4.5A;5R5-5.5A;6R0-6.0A
Three phase 240V: 7R6-7.6A;8R0-8.0A;010-10.0A;012-12.0A
Three phase 480V: 3R5-3.5A;5R4-5.4A;6R0-6.0A; 8R0-8.0A;8R4-8.4A;010-10.0A;
012-12.0A;017-17.0A;021-21.0A; 026-26.0A

Input power: A-Single phase 220V
C-Three phase 220V
T-Three phase 380V

Control Mode: P - Pulse Type
N - EtherCAT Bus Type

Matched motor: Supports Linear Motors / DD Motors / Voice Coil Motors / 23 Bit&17 Bit Rotary motor
(ABZ Encoder + Biss-C Encoder / Tamagawa,Nikon Protocol Communication Encoder)

Product Type: FV5 - High-Performance Servo

Electrical connection

Transistor Digital Display Panel 1

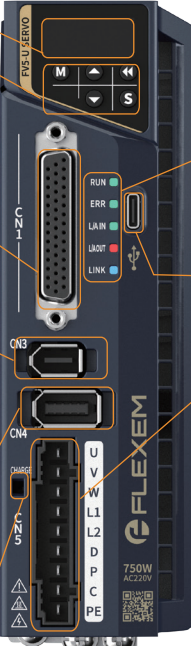
Settings Button 2

CN1 - Control Signal Interface 3

CN3-Serial Communication Encoder Interface 4

CN4-Wire-saving encoder port 5

Main Circuit Power indicator 6



Working Status Indicator 7

Type-C USB Software Debugging Port 8

L1/L2 Main Circuit Power Input
U/V/W Motor Power Input
P/C External Brake Resistor Interface
PE Ground Terminal 9

Product Specifications

FV5-U3-*□□□□-***		A1R1	A1R6	A2R8	A3R0	A4R5	A5R5	A6R0	C7R6	C8R0	C010	C012
Rated current (Arms)		1.1	1.6	2.8	3.0	4.5	5.5	6	7.6	8	10.0	12.0
Maximum output current (Arms)		3.9	5.9	10.1	10	13.5	16.9	18.0	23.0	23.0	27.0	32.0
Input power supply (V)		Single phase AC200V-240V,-10% ~ 10%,50/60Hz							Three phase AC200V-240V,-10% ~ 10%,50/60Hz			
Rated power (W)		100	200	400	400	600	750	1000	1000	1200	1400	1500
Communication port	Background communication	Type-c USB										
	EtherCAT Communication	FV5-U3-N***** model support										
	RS485 Communication	FV5-U3-P*****model support										
Encoder interface	CN3	Biss-C Encoder / Tamagawa,Nikon Protocol Communication Encoder										
	CN4	ABZ Encoder										
IO Specification	AI	The FV5-U3-N***** model supports 1 channel (16-bit per channel); the FV5-U3-P***** model supports 2 channels (16-bit per channel plus 12-bit per channel)										
	Normal Digital Input	The FV5-U3-N***** model supports 3 points; the FV5-U3-P***** model supports 6 points										
	High-Speed Digital Input	The FV5-U3-N***** model supports 2 points; the FV5-U3-P***** model supports 2 points										
	Normal Digital Output	The FV5-U3-N***** model supports 2 points; the FV5-U3-P***** model supports 5 points										
	High-Speed Digital Output	The FV5-U3-N***** model supports 2 points										
	Low-Speed Pulse Input	Only the FV5-U3-P***** model supports: Collector input mode: 200kpps										
	High-Speed Pulse Input	Only the FV5-U3-P***** model supports: Differential input mode: 4Mpps										
STO		FV5-U3-N*****model support										
Encoder Differential Output		Full range support										
Encoder Z-phase Pulse OC Output		Full range support										
Dynamic Braking		Full range support										
Motor Temperature Protection		Full range support										
Brake function		External braking resistor					Built-in braking resistor					
Built-in braking resistor resistance (Ω)		—	—	—	—	—	50	50	25	25	25	25
Built-in braking resistor capacity (W)		—	—	—	—	—	50	50	80	80	80	80
Minimum external braking resistor resistance (Ω)		40	40	40	40	40	40	40	20	20	15	15
Installation size		SIZE-A	SIZE-A	SIZE-A	SIZE-A	SIZE-A	SIZE-B	SIZE-B	SIZE-C	SIZE-C	SIZE-C	SIZE-D

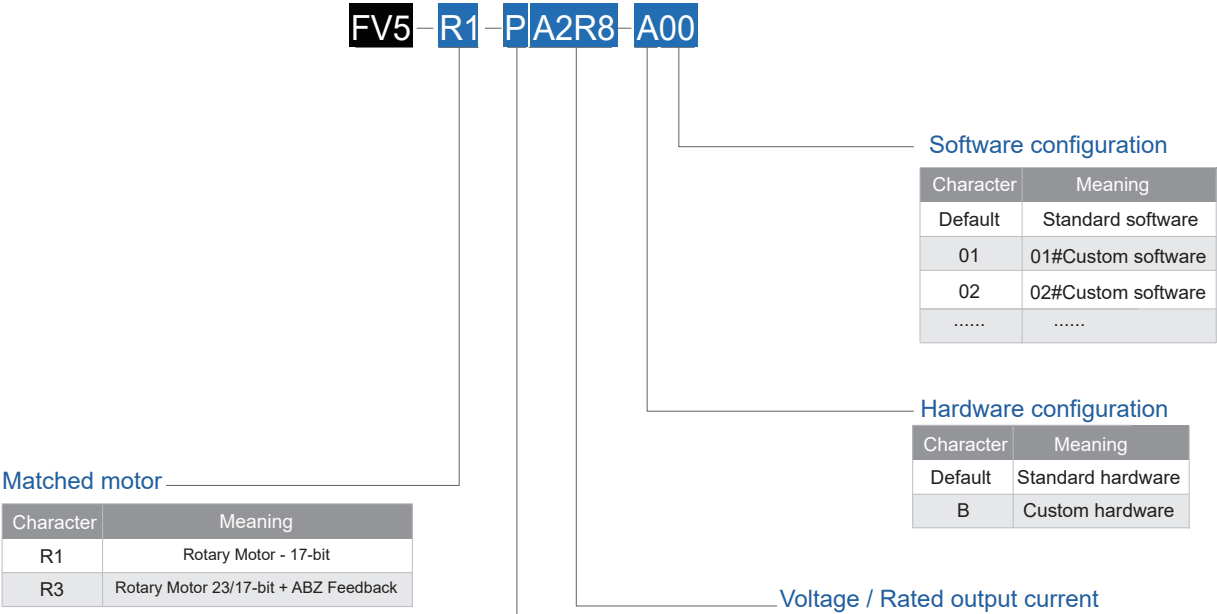
FV5-U3-*□□□□-***		T3R5	T5R4	T6R0	T8R0	T8R4	T010	T012	T017	T021	T026
Rated current (Arms)		3.5	5.4	6.0	8.0	8.4	10.0	12.0	17.0	21.0	26.0
Maximum output current (Arms)		11.0	14.0	15.0	20.0	20.0	21.0	30.0	42.5	52.5	65.0
Input power supply (V)		Three phase AC380V-440V , -10% ~ 10%, 50/60Hz									
Rated power (W)		1000	1500	1500	2000	2000	2500	3000	5000	6000	7500
Communication port	Background communication	Type-c USB									
	EtherCAT Communication	FV5-U3-N***** model support									
	RS485 Communication	FV5-U3-P*****model support									
Encoder interface	CN3	Biss-C Encoder / Tamagawa,Nikon Protocol Communication Encoder									
	CN4	ABZ Encoder									
IO Specification	AI	The FV5-U3-N***** model supports 1 channel (16-bit per channel); the FV5-U3-P***** model supports 2 channels (16-bit per channel plus 12-bit per channel)									
	Normal Digital Input	The FV5-U3-N***** model supports 3 points; the FV5-U3-P***** model supports 6 points									
	High-Speed Digital Input	The FV5-U3-N***** model supports 2 points; the FV5-U3-P***** model supports 2 points									
	Normal Digital Output	The FV5-U3-N***** model supports 2 points; the FV5-U3-P***** model supports 5 points									
	High-Speed Digital Output	The FV5-U3-N***** model supports 2 points									
	Low-Speed Pulse Input	Only the FV5-U3-P***** model supports: Collector input mode: 200kpps									
	High-Speed Pulse Input	Only the FV5-U3-P***** model supports: Differential input mode: 4Mpps									
STO		FV5-U3-N*****model support									
Encoder Differential Output		Full range support									
Encoder Z-phase Pulse OC Output		Full range support									
Dynamic Braking		Full range support									
Motor Temperature Protection		Full range support									
Brake function		Built-in braking resistor									
Built-in braking resistor resistance (Ω)		100	100	100	50	50	50	50	50	50	50
Built-in braking resistor capacity (W)		80	80	80	80	80	80	80	80	80	80
Minimum external braking resistor resistance (Ω)		80	60	60	45	45	40	40	35	25	25
Installation size		SIZE-C	SIZE-C	SIZE-C	SIZE-D	SIZE-D	SIZE-D	SIZE-D	SIZE-E	SIZE-E	SIZE-E

U3 Product Specifications

Model	Motor type	Control mode	Input power supply(V)	Continuous current(A)	Peak current (A)	Output power (W)		Installation size	Encoder type
						Single phase	Three phase		
FV5-U3-NA1R1	DD motors, linear motors, Voice coil motors,Rotary motor	EtherCAT bus type	Single phase 220	1.1	3.9	100	—	SIZE-A	Biss-C Tamagawa Protocol Nikon Protocol ABZ Incremental Type
FV5-U3-NA1R6		EtherCAT bus type	Single phase 220	1.6	5.9	200	—	SIZE-A	
FV5-U3-NA2R8		EtherCAT bus type	Single phase 220	2.8	10.1	400	—	SIZE-A	
FV5-U3-NA3R0		EtherCAT bus type	Single phase 220	3.0	10	400	—	SIZE-A	
FV5-U3-NA4R5		EtherCAT bus type	Single phase 220	4.5	13.5	600	—	SIZE-A	
FV5-U3-NA5R5		EtherCAT bus type	Single phase 220	5.5	16.9	750	—	SIZE-B	
FV5-U3-NA6R0		EtherCAT bus type	Single phase 220	6.0	18.0	1000	—	SIZE-B	
FV5-U3-NC010		EtherCAT bus type	Three phase 220	10.0	23	—	1400	SIZE-D	
FV5-U3-NC012		EtherCAT bus type	Three phase 220	12.0	32	—	1500	SIZE-D	
FV5-U3-NC7R6		EtherCAT bus type	Three phase 220	7.6	23	—	1000	SIZE-C	
FV5-U3-NC8R0		EtherCAT bus type	Three phase 220	8.0	23	—	1200	SIZE-C	
FV5-U3-NT3R5		EtherCAT bus type	Three phase 380	3.5	11	—	1000	SIZE-C	
FV5-U3-NT5R4		EtherCAT bus type	Three phase 380	5.4	14	—	1500	SIZE-C	
FV5-U3-NT6R0		EtherCAT bus type	Three phase 380	6.0	15	—	1500	SIZE-C	
FV5-U3-NT8R0		EtherCAT bus type	Three phase 380	8.0	20	—	2000	SIZE-D	
FV5-U3-NT8R4		EtherCAT bus type	Three phase 380	8.4	20	—	2000	SIZE-D	
FV5-U3-NT010		EtherCAT bus type	Three phase 380	10.0	21	—	2500	SIZE-D	
FV5-U3-NT012		EtherCAT bus type	Three phase 380	12.0	30	—	3000	SIZE-D	
FV5-U3-NT017		EtherCAT bus type	Three phase 380	17.0	42.5	—	5000	SIZE-E	
FV5-U3-NT021		EtherCAT bus type	Three phase 380	21.0	52.5	—	6000	SIZE-E	
FV5-U3-NT026		EtherCAT bus type	Three phase 380	26.0	65.0	—	7500	SIZE-E	
FV5-U3-PA1R1	DD motors, linear motors, Voice coil motors,Rotary motor	Pulse type	Single phase 220	1.1	3.9	100	—	SIZE-A	Biss-C Tamagawa Protocol Nikon Protocol ABZ Incremental Type
FV5-U3-PA1R6		Pulse type	Single phase 220	1.6	5.9	200	—	SIZE-A	
FV5-U3-PA2R8		Pulse type	Single phase 220	2.8	10.1	400	—	SIZE-A	
FV5-U3-PA3R0		Pulse type	Single phase 220	3.0	10	400	—	SIZE-A	
FV5-U3-PA4R5		Pulse type	Single phase 220	4.5	13.5	600	—	SIZE-A	
FV5-U3-PA5R5		Pulse type	Single phase 220	5.5	16.9	750	—	SIZE-B	
FV5-U3-PA6R0		Pulse type	Single phase 220	6.0	18	1000	—	SIZE-B	
FV5-U3-PC010		Pulse type	Three phase 220	10.0	23	—	1400	SIZE-D	
FV5-U3-PC012		Pulse type	Three phase 220	12.0	32	—	1500	SIZE-D	
FV5-U3-PC7R6		Pulse type	Three phase 220	7.6	23	—	1200	SIZE-C	
FV5-U3-PC8R0		Pulse type	Three phase 220	8.0	23	—	1500	SIZE-C	
FV5-U3-PT3R5		Pulse type	Three phase 380	3.5	11	—	1000	SIZE-C	
FV5-U3-PT5R4		Pulse type	Three phase 380	5.4	14	—	1500	SIZE-C	
FV5-U3-PT6R0		Pulse type	Three phase 380	6.0	15	—	1500	SIZE-C	
FV5-U3-PT8R0		Pulse type	Three phase 380	8.0	20	—	2000	SIZE-D	
FV5-U3-PT8R4		Pulse type	Three phase 380	8.4	20	—	2000	SIZE-D	
FV5-U3-PT010		Pulse type	Three phase 380	10.0	21	—	2500	SIZE-D	
FV5-U3-PT012		Pulse type	Three phase 380	12.0	30	—	3000	SIZE-D	
FV5-U3-PT017		Pulse type	Three phase 380	17.0	42.5	—	5000	SIZE-E	
FV5-U3-PT021		Pulse type	Three phase 380	21.0	52.5	—	6000	SIZE-E	
FV5-U3-PT026		Pulse type	Three phase 380	26.0	65.0	—	7500	SIZE-E	

Rotary Servo Drive

Naming convention



Rotary servo electrical specification

Drive model FV5-R*-*□□□□-***	A1R1	A1R6	A2R8	A5R5	A6R0	C7R6	C012
Rated power (W)	100	200	400	750	1000	1000	1500
Input voltage specifications	Single-phase AC200V-240V, -10%~ 10%, 50/60Hz					Three-phase AC200V-240V, -10%~ 10%, 50/60Hz	
Continuous output current (Arms)	1.1	1.6	2.8	5.5	6.0	7.6	12.0
Maximum output current (Arms)	3.9	5.9	10.1	16.9	18.0	23.0	28.0
Brake function (R1)	External braking resistor					Built-in braking resistor	
Brake function (R3)	External braking resistor			Built-in braking resistor			
Built-in braking resistor resistance (Ω)	-	-	-	-	50	25	25
Built-in braking resistor capacity (W)	-	-	-	-	50	80	80
Minimum external braking resistor resistance (Ω)	40	40	40	40	40	20	15
Installation size	SIZE-A	SIZE-A	SIZE-A	SIZE-B	SIZE-B	SIZE-C	SIZE-D

Note:FV5-R1-NA5R5, FV5-R1-NA6R0 do not have built-in brake resistors

Drive model FV5-R*-*□□□□-***	T3R5	T5R4	T8R4	T012	T017	T021	T026
Rated power (W)	1000	1500	2000	3000	4400	5500	7500
Input voltage specifications	Three-phase AC380V-440V, -10%~ 10%, 50/60Hz						
Continuous output current (Arms)	3.5	5.4	8.4	12	17.0	21.0	26.0
Maximum output current (Arms)	11.0	14.0	20.0	30	42.5	52.5	65.0
Brake function (R1)	Built-in braking resistor						
Brake function (R3)	Built-in braking resistor						
Built-in braking resistor resistance (Ω)	100	100	50	50	35	35	35
Built-in braking resistor capacity (W)	80	80	80	80	100	100	100
Minimum external braking resistor resistance (Ω)	80	60	45	40	35	25	25
Installation size	SIZE-C	SIZE-C	SIZE-D	SIZE-D	SIZE-E	SIZE-E	SIZE-E

R1 series rotary servo model

Model	Description
FV5-R1-PA1R1	100W-Universal pulse servo drive
FV5-R1-PA1R6	200W-Universal pulse servo drive
FV5-R1-PA2R8	400W-Universal pulse servo drive
FV5-R1-PA5R5	750W-Universal pulse servo drive
FV5-R1-PA6R0	1000W-Universal pulse servo drive
FV5-R1-PC7R6	1000W-Universal pulse servo drive
FV5-R1-PC012	1500W-Universal pulse servo drive
FV5-R1-PT3R5	1000W-Universal pulse servo drive
FV5-R1-PT5R4	1500W-Universal pulse servo drive
FV5-R1-PT8R4	2000W-Universal pulse servo drive
FV5-R1-PT012	3000W-Universal pulse servo drive
FV5-R1-PT017	4400W-Universal pulse servo drive
FV5-R1-PT021	5500W-Universal pulse servo drive
FV5-R1-PT026	7500W-Universal pulse servo drive
FV5-R1-NA1R1	100W-Universal EtherCAT bus servo drive
FV5-R1-NA1R6	200W-Universal EtherCAT bus servo drive
FV5-R1-NA2R8	400W-Universal EtherCAT bus servo drive
FV5-R1-NA5R5	750W-Universal EtherCAT bus servo drive
FV5-R1-NA6R0	1000W-Universal EtherCAT bus servo drive
FV5-R1-NC7R6	1000W-Universal EtherCAT bus servo drive
FV5-R1-NC012	1500W-Universal EtherCAT bus servo drive
FV5-R1-NT3R5	1000W-Universal EtherCAT bus servo drive
FV5-R1-NT5R4	1500W-Universal EtherCAT bus servo drive
FV5-R1-NT8R4	2000W-Universal EtherCAT bus servo drive
FV5-R1-NT012	3000W-Universal EtherCAT bus servo drive
FV5-R1-NT017	4400W-Universal EtherCAT bus servo drive
EAS-R1-NT021	5500W-Universal EtherCAT bus servo drive
FV5-R1-NT026	7500W-Universal EtherCAT bus servo drive

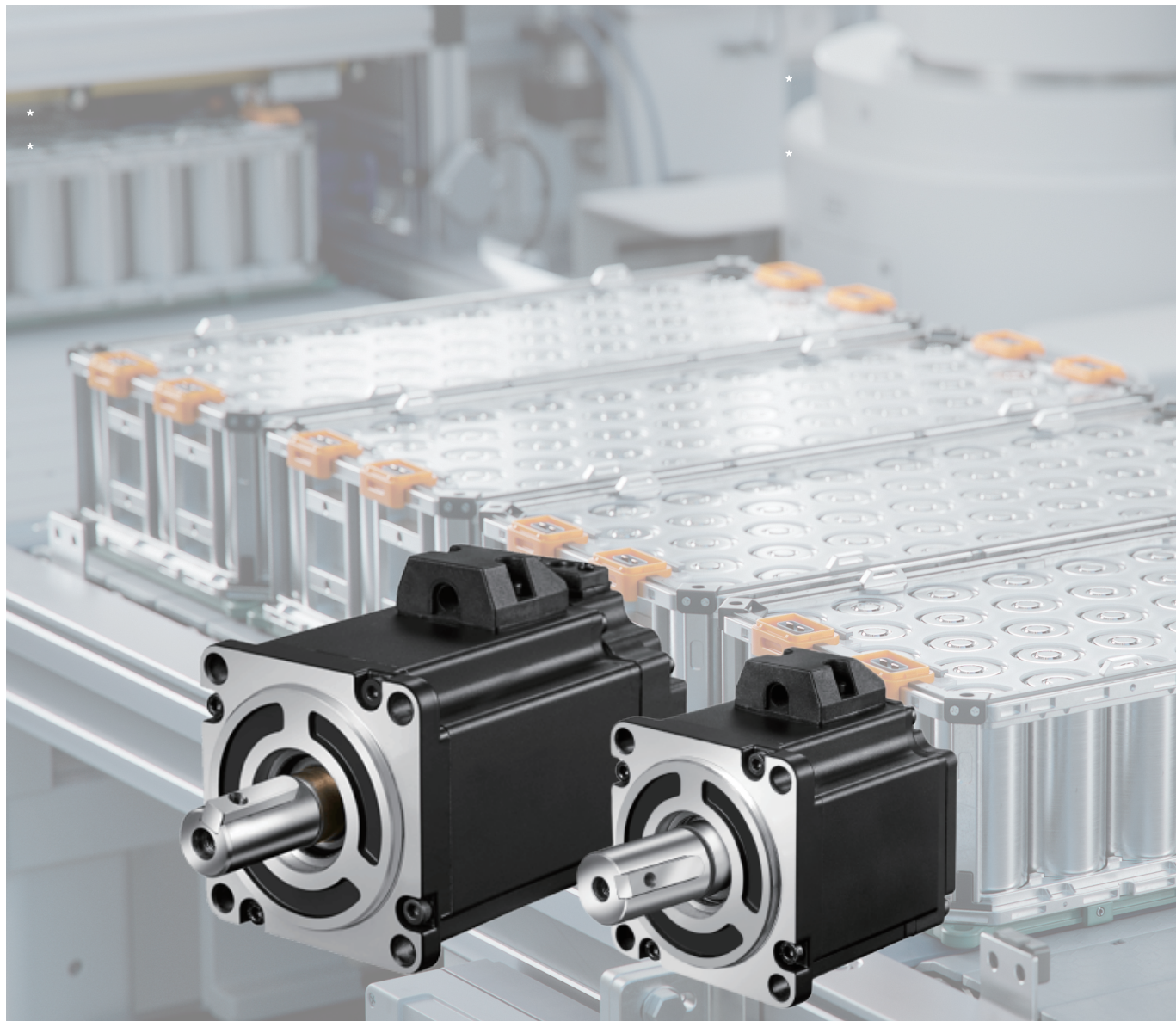
Note:
FV5-R1-***** supports motors with 17-bit magnetic encoders.

R3 series rotary servo model

Model	Description
FV5-R3-PA1R1	100W-High performance pulse servo drive
FV5-R3-PA1R6	200W-High performance pulse servo drive
FV5-R3-PA2R8	400W-High performance pulse servo drive
FV5-R3-PA5R5	750W-High performance pulse servo drive
FV5-R3-PA6R0	1000W-High performance pulse servo drive
FV5-R3-PC7R6	1000W-High performance pulse servo drive
FV5-R3-PC012	1500W-High performance pulse servo drive
FV5-R3-PT3R5	1000W-High performance pulse servo drive
FV5-R3-PT5R4	1500W-High performance pulse servo drive
FV5-R3-PT8R4	2000W-High performance pulse servo drive
FV5-R3-PT012	3000W-High performance pulse servo drive
FV5-R3-PT017	4400W-High performance pulse servo drive
FV5-R3-PT021	5500W-High performance pulse servo drive
FV5-R3-PT026	7500W-High performance pulse servo drive
FV5-R3-NA1R1	100W-High performance EtherCAT bus servo drive
FV5-R3-NA1R6	200W-High performance EtherCAT bus servo drive
FV5-R3-NA2R8	400W-High performance EtherCAT bus servo drive
FV5-R3-NA5R5	750W-High performance EtherCAT bus servo drive
FV5-R3-NA6R0	1000W-High performance EtherCAT bus servo drive
FV5-R3-NC7R6	1000W-High performance EtherCAT bus servo drive
FV5-R3-NC012	1500W-High performance EtherCAT bus servo drive
FV5-R3-NT3R5	1000W-High performance EtherCAT bus servo drive
FV5-R3-NT5R4	1500W-High performance EtherCAT bus servo drive
FV5-R3-NT8R4	2000W-High performance EtherCAT bus servo drive
FV5-R3-NT012	3000W-High performance EtherCAT bus servo drive
FV5-R3-NT017	4400W-High performance EtherCAT bus servo drive
FV5-R3-NT021	5500W-High performance EtherCAT bus servo drive
FV5-R3-NT026	7500W-High performance EtherCAT bus servo drive

Note:
FV5-R3-***** supports motors with 23-bit optical / 17-bit magnetic encoders and supports ABZ feedback.

Rotary motor



High-performance: high-speed / high-overload

Maximum speed: 6000 rpm
3.5 times rated torque (maximum)

High-precision-17bit/23bit encoder

With the 17-bit single-turn absolute magnetic encoder, it can operate in oily environment for a significant period of time.
With the 23-bit multi-turn absolute optical encoder, its repeatable positioning accuracy can reach +/- 1 arcsec.

High protection level - IP65

Suitable for operating in harsh environments, EAM-W series waterproof motor protection level up to IP65

Waterproof level:

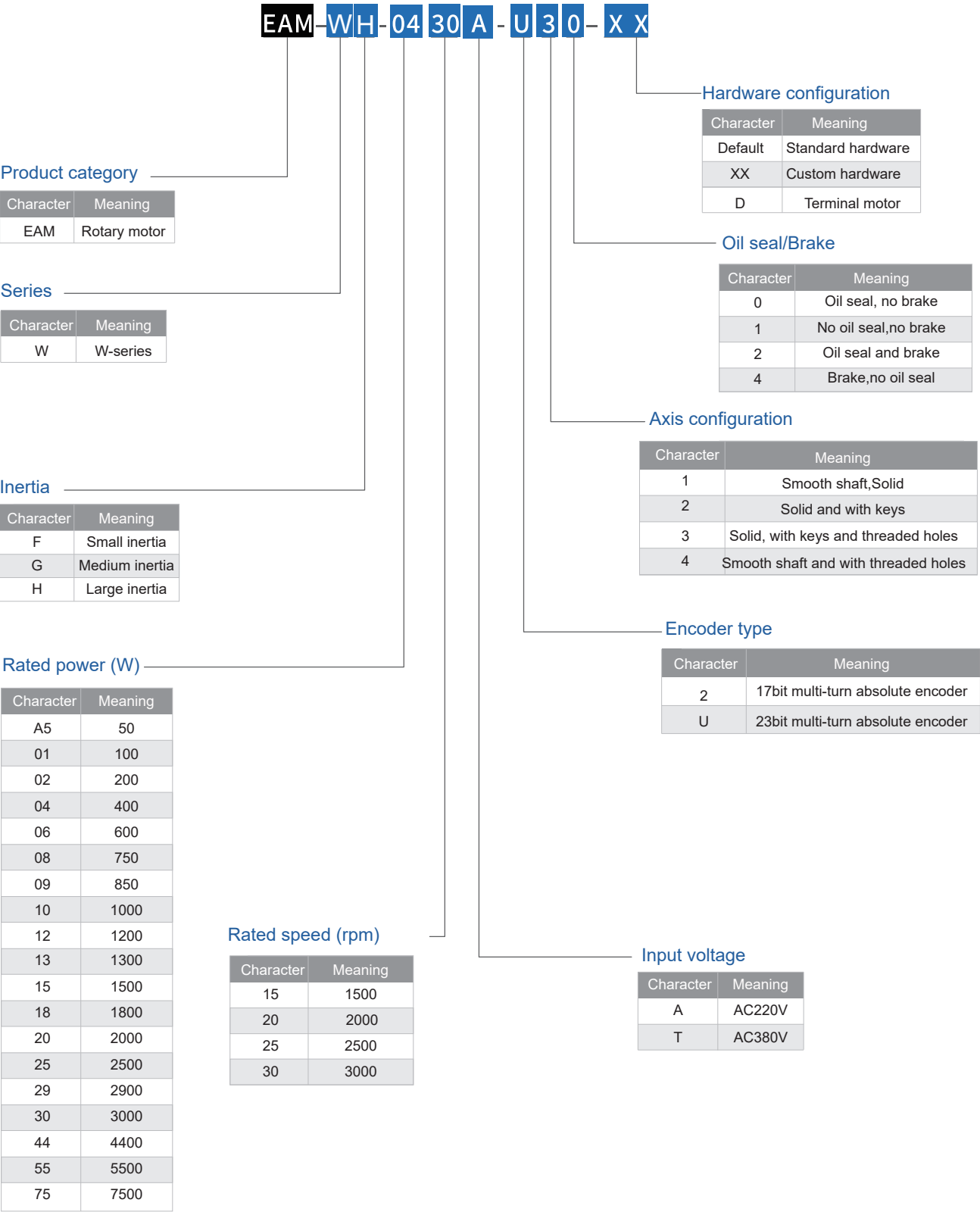
Protected against low-pressure spray from all angles

Protection level against physical contact:

Exceptional dustproof structure, preventing dust from entering

Rotating motor

Naming convention



AC Rotary Motor Parameters

Model (High inertia)	Flange dimensions	Rated power (W)	Rated torque (Nm)	Max. torque (Nm)	Rated current (Arms)	Max.current (Arms)	Rated rotational speed (rpm)	Max.rotational speed (rpm)	Rotational inertia kg.m²×10 ⁻⁴	Voltage (V)	IP Level
EAM-WH-A530A-□3▲-D	40	50	0.16	0.48	0.6	1.8	3000	6000	0.035 (0.038)	220	IP67
EAM-WH-0130A-□3▲-D	40	100	0.32	0.96	1	3	3000	6000	0.053 (0.056)	220	
EAM-WH-0230A-□3▲-D	60	200	0.64	1.92	1.4	4.2	3000	6000	0.29 (0.32)	220	
EAM-WH-0430A-□3▲-D	60	400	1.27	3.81	2.8	8.4	3000	6000	0.53 (0.56)	220	
EAM-WH-0830A-□3▲-D	80	750	2.4	7.2	3.8	11.4	3000	6000	1.62 (1.72)	220	
EAM-WH-1030A-□3▲-D	80	1000	3.2	9.6	5.5	16.5	3000	6000	2.1 (2.2)	220	
Model (Medium inertia)	Flange dimensions	Rated power (W)	Rated torque (Nm)	Max. torque (Nm)	Rated current (Arms)	Max.current (Arms)	Rated rotational speed (rpm)	Max.rotational speed (rpm)	Rotational inertia kg.m²×10 ⁻⁴	Voltage (V)	IP Level
EAM-WG-0915A-□3▲	130	850	5.39	16.17	6.9	20.7	1500	3000	10.9 (12.13)	220	IP65
EAM-WG-0915T-□3▲	130	850	5.39	16.17	4	12	1500	3000	10.9 (12.13)	380	
EAM-WG-1315A-□3▲	130	1300	8.34	25.02	10.7	32.1	1500	3000	16.9 (18.13)	220	
EAM-WG-1315T-□3▲	130	1300	8.34	25.02	6	18	1500	3000	16.9 (18.13)	380	
EAM-WG-1815A-□3▲	130	1800	11.5	28.7	13.8	34.4	1500	3000	21.4 (22.63)	220	
EAM-WG-1815T-□3▲	130	1800	11.5	34.5	8.5	21.2	1500	3000	21.4 (22.63)	380	
EAM-WG-2915T-□3▲	180	2900	18.6	55.8	11.9	35.7	1500	3000	62.5 (69.5)	380	
EAM-WG-4415T-□3▲	180	4400	28.4	85.2	16.5	49.5	1500	3000	88.5 (94.5)	380	
EAM-WG-5515T-□3▲	180	5500	35	105	20.8	62.4	1500	3000	114.4 (120.4)	380	
EAM-WG-7515T-□3▲	180	7500	48	120	26	65	1500	3000	136.6 (142.6)	380	
Model (Low inertia)	Flange dimensions	Rated power (W)	Rated torque (Nm)	Max. torque (Nm)	Rated current (Arms)	Max.current (Arms)	Rated rotational speed (rpm)	Max.rotational speed (rpm)	Rotational inertia kg.m²×10 ⁻⁴	Voltage (V)	IP Level
EAM-WF-0230A-□3▲	60	200	0.64	2.24	1.5	5.8	3000	7000	0.094 (0.105)	220	IP65
EAM-WF-0430A-□3▲	60	400	1.27	4.45	2.5	9.8	3000	6000	0.145 (0.157)	220	
EAM-WF-0630A-□3▲	60	600	1.91	5.73	3.5	10.5	3000	5000	0.39	220	
EAM-WF-0830A-□3▲	60	750	2.39	8.37	4.5	17.5	3000	6000	0.64(0.74)	220	
EAM-WF-1020A-□3▲	130	1000	4.77	9.6	5.8	11.6	2000	3000	6.2(7.41)	220	
EAM-WF-1020T-□3▲	130	1000	4.77	9.6	3.5	7	2000	3000	6.2(7.41)	380	
EAM-WF-1530A-□3▲	100	1500	4.78	14.34	10	31	3000	6000	3.1(3.83)	220	
EAM-WF-1530T-□3▲	100	1500	4.78	14.34	5	16	3000	6000	3.1 (3.83)	380	
EAM-WF-2030A-□3▲	100	2000	6.37	19.11	11.6	36	3000	5000	3.93 (4.66)	220	

Note:
When □ is U: Supports 23-bit optical encoder, requires FV5-R3 driver
When ▲ is 0: Motor without holding brake
When ▲ is 2: Motor with holding brake
(The values after the rotating inertia indicates motors with holding brake)

Product Match Table

FV5-R1&R3-Rotary Servo Drive and Servo Motor

Flange	Power (W)	Servo motor	Servo Drive
40	50	EAM-WH-A530A-□3▲	FV5-R*-*A1R1
	100	EAM-WH-0130A-□3▲	FV5-R*-*A1R1
60	200	EAM-WH-0230A-□3▲	FV5-R*-*A1R6
	400	EAM-WH-0430A-□3▲	FV5-R*-*A2R8
80	750	EAM-WH-0830A-□3▲	FV5-R*-*A5R5
	1000	EAM-WH-1030A-□3▲	FV5-R*-*A6R0
100	2000	EAM-WF-2030A-□3▲	FV5-U3-*C012
	1500	EAM-WF-1530T-□3▲	FV5-U3-*T012
110	1200	EAM-WG-1230A-□3▲	FV5-R*-*C7R6
	1500	EAM-WH-1530A-□3▲	FV5-R*-*C012
	1800	EAM-WH-1830A-□3▲	FV5-R*-*C012
130	850	EAM-WG-0915A-□3▲	FV5-R*-*C7R6
	1300	EAM-WG-1315A-□3▲	FV5-R*-*C012
	1800	EAM-WG-1815A-□3▲	FV5-R*-*C012
	850	EAM-WG-0915T-□3▲	FV5-R*-*T5R4
	1300	EAM-WG-1315T-□3▲	FV5-R*-*T5R4
	1800	EAM-WG-1815T-□3▲	FV5-R*-*T8R4
	3000	EAM-WG-3030T-□3▲	FV5-R*-*T012
180	2900	EAM-WG-2915T-□3▲	FV5-R*-*T012
	4400	EAM-WG-4415T-□3▲	FV5-R*-*T017
	5500	EAM-WG-5515T-□3▲	FV5-R*-*T021
	7500	EAM-WG-7515T-□3▲	FV5-R*-*T026

FV5-R1&R3-Rotary Servo Drive and Terminal motor

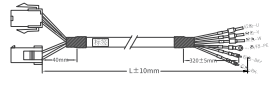
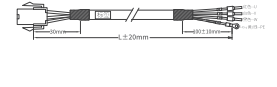
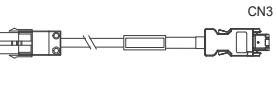
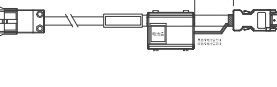
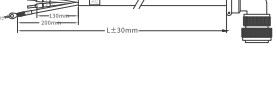
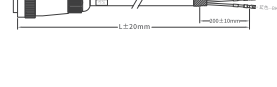
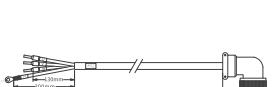
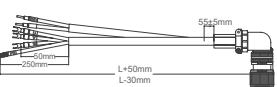
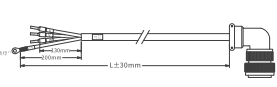
Flange	Power (W)	Terminal-type motor	Servo Drive
40	50	EAM-WH-A530A-□3▲-D	FV5-R*-*A1R1
	100	EAM-WH-0130A-□3▲-D	FV5-R*-*A1R1
60	200	EAM-WH-0230A-□3▲-D	FV5-R*-*A1R6
	400	EAM-WH-0430A-□3▲-D	FV5-R*-*A2R8
80	750	EAM-WH-0830A-□3▲-D	FV5-R*-*A5R5
	1000	EAM-WH-1030A-□3▲-D	FV5-R*-*A6R0

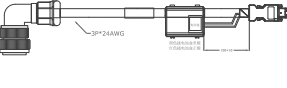
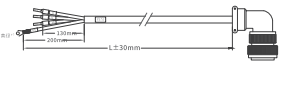
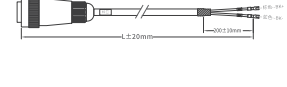
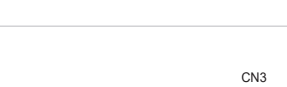
Product Match Table

FV5-U3-Rotary Servo Drive and Servo Motor

Flange	Power (W)	Servo motor	Servo Drive
40	50	EAM-WH-A530A-□3▲	FV5-U3-*A1R1
	100	EAM-WH-0130A-□3▲	FV5-U3-*A1R1
60	200	EAM-WH-0230A-□3▲	FV5-U3-*A1R6
	400	EAM-WH-0430A-□3▲	FV5-U3-*A2R8
80	750	EAM-WH-0830A-□3▲	FV5-U3-*A5R5
	1000	EAM-WH-1030A-□3▲	FV5-U3-*A6R0
100	2000	EAM-WF-2030A-□3▲	FV5-U3-*C012
	1500	EAM-WF-1530T-□3▲	FV5-U3-*T012
110	1200	EAM-WG-1230A-□3▲	FV5-U3-*C7R6
	1500	EAM-WH-1530A-□3▲	FV5-U3-*C012
	1800	EAM-WH-1830A-□3▲	FV5-U3-*C012
130	850	EAM-WG-0915A-□3▲	FV5-U3-*C7R6
	1300	EAM-WG-1315A-□3▲	FV5-U3-*C012
	1500	EAM-WG-1515A-□3▲	FV5-U3-*C7R6
	1800	EAM-WG-1815A-□3▲	FV5-U3-*C012
	850	EAM-WG-0915T-□3▲	FV5-U3-*T5R4
	1300	EAM-WG-1315T-□3▲	FV5-U3-*T5R4
	1500	EAM-WG-1515T-□3▲	FV5-U3-*T5R4
	1800	EAM-WG-1815T-□3▲	FV5-U3-*T8R4
	3000	EAM-WG-3030T-□3▲	FV5-U3-*T012
180	2900	EAM-WG-2915T-□3▲	FV5-U3-*T012
	4400	EAM-WG-4415T-□3▲	FV5-U3-*T017
	5500	EAM-WG-5515T-□3▲	FV5-U3-*T021
	7500	EAM-WG-7515T-□3▲	FV5-U3-*T026

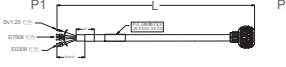
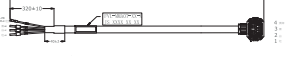
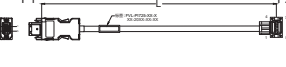
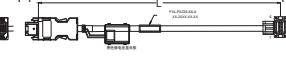
Cables and other accessories

Flange Dimensions	Motor	Cables	Motor Type	Length (L)	Cable Model	Illustration
40 60 80	EAM-WH-A530A-□3▲	Power cable	Motor with brake	3m	FVL-MBA00-03-E (-T)	
	EAM-WH-0130A-□3▲			5m	FVL-MBA00-05-E (-T)	
	EAM-WH-0230A-□3▲			10m	FVL-MBA00-10-E (-T)	
	EAM-WH-0430A-□3▲		Motor without brake	3m	FVL-MMA00-03-E (-T)	
	EAM-WH-0830A-□3▲			5m	FVL-MMA00-05-E (-T)	
	EAM-WH-1030A-□3▲			10m	FVL-MMA00-10-E (-T)	
	EAM-WH-A530A-□3▲	Encoder cable	single-turn absolute encoder (CN3)	3m	FVL-PI720-03-E (-T)	
	EAM-WH-0130A-□3▲			5m	FVL-PI720-05-E (-T)	
	EAM-WH-0230A-□3▲			10m	FVL-PI720-10-E (-T)	
	EAM-WH-0430A-□3▲		multi-turn absolute encoder (with battery) (CN3)	3m	FVL-PA720-03-E (-T)	
	EAM-WH-0830A-332			5m	FVL-PA720-05-E (-T)	
	EAM-WH-1030A-□3▲			10m	FVL-PA720-10-E (-T)	
110 130	EAM-WG-1230A-□3▲	Power cable	Motor with brake	3m	FVL-MMC01-03-E (-T) Power cable	
	EAM-WH-1530A-□3▲				FVL-MSA02-03-E (-T) Brake cable	
	EAM-WH-1830A-□3▲				FVL-MMC01-05-E (-T) Power cable	
	EAM-WG-1515A-□3▲			5m	FVL-MSA02-05-E (-T) Brake cable	
	EAM-WG-3030A-□3▲				FVL-MMC01-10-E (-T) Power cable	
	EAM-WH-1515T-□3▲				FVL-MSA02-10-E (-T) Brake cable	
	EAM-WG-3030T-□3▲		Motor without brake	3m	FVL-MMC01-03-E (-T)	
					FVL-MMC01-05-E (-T)	
				10m	FVL-MMC01-10-E (-T)	
100 130	EAM-WG-0915A-□3▲	Power cable	Motor with brake	3m	FVL-MBC01-03-E(-T) Brake and Power cable	
	EAM-WG-1315A-□3▲			5m	FVL-MBC01-05-E (-T) Brake and Power cable	
	EAM-WG-1815A-□3▲			10m	FVL-MBC01-10-E (-T) Brake and Power cable	
	EAM-WG-0915T-□3▲		Motor without brake	3m	FVL-MMC01-03-E (-T)	
	EAM-WG-1315T-□3▲			5m	FVL-MMC01-05-E (-T)	
	EAM-WG-1815T-□3▲			10m	FVL-MMC01-10-E (-T)	

Flange Dimensions	Motor	Cables	Motor Type	Length (L)	Cable Model	Illustration
100 110 130	EAM-WG-1230A-□3▲	Encoder cable	single-turn absolute encoder (CN3)	3m	FVL-PI721-03-E (-T)	
	EAM-WH-1530A-□3▲			5m	FVL-PI721-05-E (-T)	
	EAM-WH-1830A-□3▲			10m	FVL-PI721-10-E (-T)	
	EAM-WG-0915A-□3▲			3m	FVL-PA721-03-E (-T)	
	EAM-WG-1315A-□3▲			5m	FVL-PA721-05-E (-T)	
	EAM-WG-1515A-□3▲			10m	FVL-PA721-10-E (-T)	
	EAM-WF-2030A-□3▲		multi-turn absolute encoder (with battery) (CN3)	3m	FVL-PA721-03-E (-T)	
	EAM-WG-1815A-□3▲			5m	FVL-PA721-05-E (-T)	
	EAM-WG-0915T-□3▲			10m	FVL-PA721-10-E (-T)	
	EAM-WG-1315T-□3▲			3m	FVL-PA721-03-E (-T)	
	EAM-WG-1515T-□3▲			5m	FVL-PA721-05-E (-T)	
	EAM-WF-1530T-□3▲			10m	FVL-PA721-10-E (-T)	
	EAM-WG-1815T-□3▲			3m	FVL-PA721-03-E (-T)	
	EAM-WG-3030T-□3▲			5m	FVL-PA721-05-E (-T)	
180	EAM-WG-2915T-□3▲ EAM-WG-4415T-□3▲ EAM-WG-5515T-□3▲ EAM-WG-7515T-□3▲	Power cable	Motor with brake	3m	FVL-MMC02-03-E (-T) Power cable	
					FVL-MSA01-03-E (-T) Brake cable	
					FVL-MMC02-05-E (-T) Power cable	
				5m	FVL-MSA01-05-E (-T) Brake cable	
					FVL-MMC02-10-E (-T) Power cable	
					FVL-MSA01-10-E (-T) Brake cable	
			Motor without brake	3m	FVL-MMC02-03-E (-T)	
				5m	FVL-MMC02-05-E (-T)	
				10m	FVL-MMC02-10-E (-T)	
		Encoder cable	single-turn absolute encoder (CN3)	3m	FVL-PI721-03-E (-T)	
				5m	FVL-PI721-05-E (-T)	
			multi-turn absolute encoder (with battery) (CN3)	10m	FVL-PI721-10-E (-T)	
				3m	FVL-PA721-03-E (-T)	
			multi-turn absolute encoder (with battery) (CN3)	5m	FVL-PA721-05-E (-T)	
				10m	FVL-PA721-10-E (-T)	

Note:
-E represents standard cable, -T represents flexible cable.
For FV5-R3/U3 using ABZ feedback (full closed-loop function), encoder cable must be configured to connect to CN4, or use conversion cable FVL-PE700-01-E.

Cables and other accessories

Flange	Terminal-type motor	Cable	Motor Type	Length (L)	Cable Model	Illustration
40 60 80	EAM-WH-A530A-□3▲-D EAM-WH-0130A-□3▲-D EAM-WH-0230A-□3▲-D EAM-WH-0430A-□3▲-D EAM-WH-0830A-□3▲-D EAM-WH-1030A-□3▲-D	Power cable	Motor with brake	3m	FVL-MBA05-03-E(-T)	
				5m	FVL-MBA05-05-E(-T)	
				10m	FVL-MBA05-10-E(-T)	
			Motor without brake	3m	FVL-MMA05-03-E(-T)	
				5m	FVL-MMA05-05-E(-T)	
				10m	FVL-MMA05-10-E(-T)	
		Encoder cable	single-turn absolute encoder (CN3)	3m	FVL-PI725-03-E(-T)	
				5m	FVL-PI725-05-E(-T)	
				10m	FVL-PI725-10-E(-T)	
			multi-turn absolute encoder (with battery) (CN3)	3m	FVL-PA725-03-E(-T)	
				5m	FVL-PA725-05-E(-T)	
				10m	FVL-PA725-10-E(-T)	

Accessories for Rotary cable

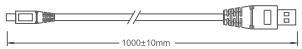
Flange Dimensions	Attachment Type		Attachment Model	Illustration
40/60/80	Combined attachment for motor without holding brake	FVU-T10	FVU-M00	
			FVU-P00	
	Combined attachment for motor with holding brake	FVU-T11	FVU-M00	
			FVU-P00	
			FVU-M01	
	Connector for power cable		FVU-M00	
	Connector for brake cable		FVU-M01	
	Connector for encoder cable AMP-9P		FVU-P00	
	Connector for encoder cable 1394-10P		FVU-P02	
	110/130	Connector for power cable		FVU-M02
180	Connector for power cable		FVU-M03	
180	Connector for brake cable		FVU-M04	
110/130	Connector for brake cable		FVU-M05	
110/130/180	Connector for aviation plug-in encoder cable		FVU-P01	
	Accessories for battery		FVU-B00	
Used for 130 flange motors with holding brake only: WG-0915;WG-1315;WG-1515;WG-1815	Power cable plug (7-core with brake)		FVU-M06	

Note:
For FV5-R3/U3 using ABZ feedback (full closed-loop function), encoder cable must be configured to connect to CN4, or use conversion cable FVL-PE700-01-E.

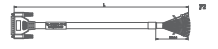
Accessories for Terminal motor cable

Flange	Attachment Type	Attachment Model	Illustration
40/60/80	Motor-side power connector (with/without brake)	FVU-M09	
	Motor-side encoder cable terminal	FVU-P08	
40/60/80/110/130/180	Driver-side encoder cable 1394-10P connector	FVU-P02*	
	Driver-side encoder cable 1394-6P connector	FVU-P03	

Accessories for communication cable

Model	Description	Illustration
FVL-CN702-01-E	Communication cable for connecting servo drive and PC	 1000±10mm
FVL-CN701-A3-E	Communication cable for connecting multiple servo drives (0.3m)	 300±10mm
FVL-PE700-01-E	Servo driver ABZ function (CN4) Adapter (1m)	

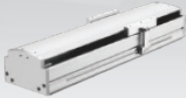
Accessories for control cable

Model	Description	Illustration
FVL-CA701P-01-E	Servo driver P (Pulse) type CN1-Input/Output control signal adapter (1m)	
FVL-CA701N-01-E	Servo driver N (Bus) type CN1-Input/Output control signal adapter (1m)	
FVU-C01	CN1 terminal accessories	

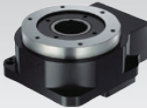
Direct-Drive Servo Drive



Supports various motors



Linear motors



DD motors



Voice coil motors



Multiple control modes



Support for various linear motors



Power interruption brake function



Supports flyingshot function



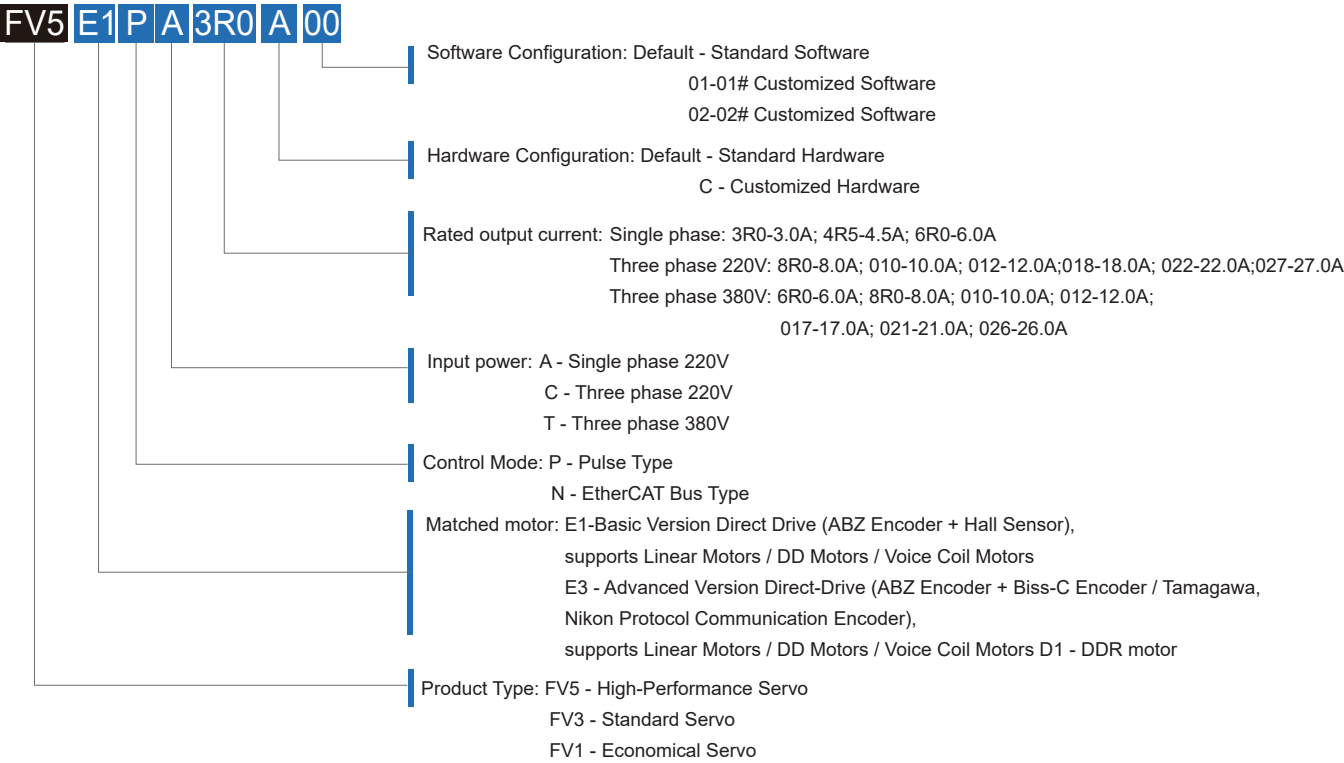
Multiple commutation methods



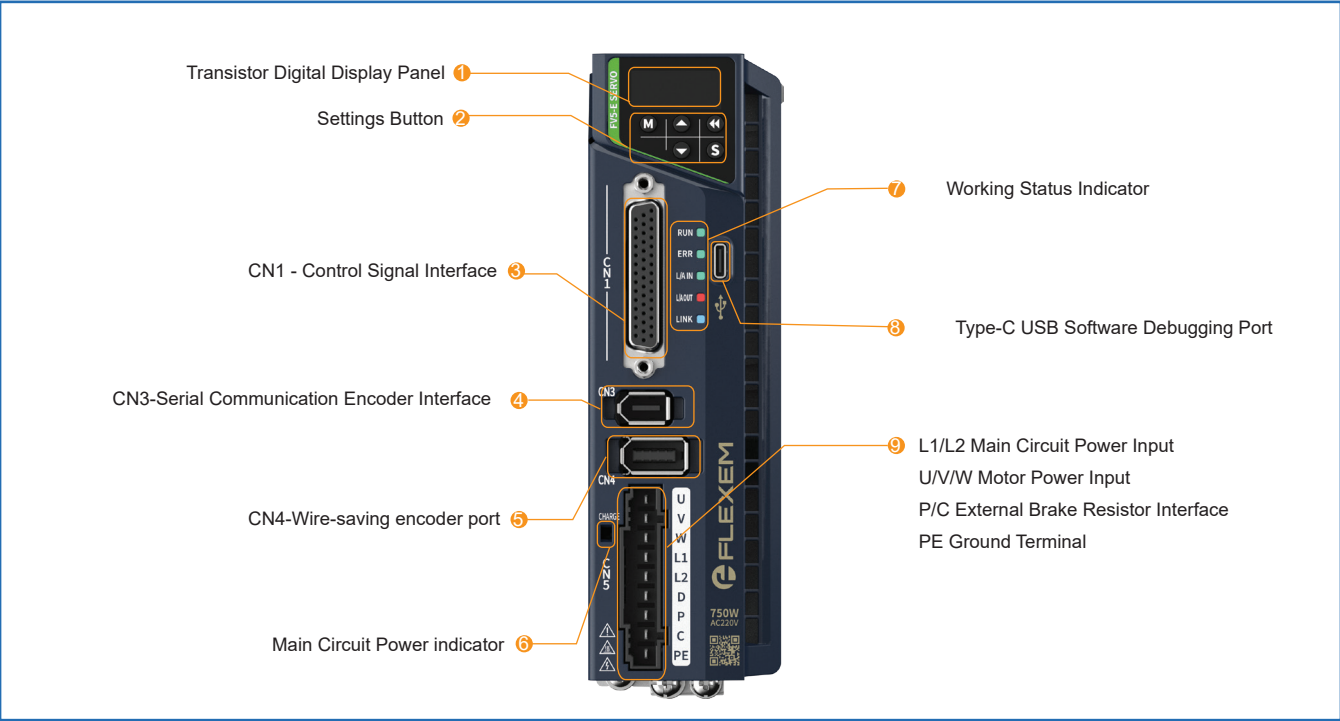
Various advanced features

DD Servo Drive

Naming convention



Electrical connection



E1&E3 Product Specifications

FV5-E*-*□□□□-***		A3R0	A4R5	A6R0	A8R0	C010	C012	C018	C022	C027	T6R0	T8R0	T010	T012	T017*	T021*	T026*
Rated current (Arms)		3	4.5	6	8	10	12	18	22	27	6	8	10	12	17	21	26
Maximum output current (Arms)		10	13.5	18	23	27	32	45	55	67.5	15	20	21	30	42.5	52.5	65
Input power supply (V)		Single phase AC220V, -10%~10%,50/60Hz			Three phase AC220V, -10%~10%,50/60Hz						Three phase 380V, -10%~10%,50/60Hz						
Rated power (W)	Single phase	400	600	800	850	980	1150	-	-	-	-	-	-	-	-	-	-
	Three phase	-	-	-	1200	1400	1600	2000	2500	5000	1500	2000	2500	3000	5000	6000	7500
Communication port	Background communication	Type-c USB															
	EtherCAT Communication	FV5-E*-N***** model support															
	RS485 Communication	FV5-E*-P***** model support															
Encoder interface	CN3	FV5-E1 series models support Hall sensors; FV5-E3 series models support SSI encoders (Biss-C, EnDat)															
	CN4	Full range supports ABZ incremental encoders and motor temperature sensors															
IO Specification	AI	FV5-E*-P*****model support 1channel (1channel 12Bit)															
	Normal Digital Input	FV5-E*-P*****model support 8 channel ; FV5-E*-N*****model support 5 channel															
	High-Speed Digital Input	Not Supported															
	Normal Digital Output	FV5-E*-P*****model support 5 channel;FV5-E*-P*****model support 4 channel															
	High-Speed Digital Output	Not Supported															
	Low-Speed Pulse Input	FV5-E*-P***** model supports: Collector input mode: 200kpps															
	High-Speed Pulse Input	FV5-E*-P*****model supports: Differential input mode: 4Mpps															
STO		Not Supported															
Encoder Differential Output		Full range support															
Encoder Z-phase Pulse OC Output		Full range support															
Dynamic Braking		Full range support															
Motor Temperature Protection		Full range support															
Brake function(E1)		External braking resistor				Built-in braking resistor											
Brake function(E3)		External braking resistor				Built-in braking resistor											
Built-in braking resistor resistance (Ω)		—	—	50	25	25	25	25	25	25	100	50	50	50	50	50	50
Built-in braking resistor capacity (W)		—	—	50	80	80	80	80	80	80	80	80	80	80	80	80	80
Minimum external braking resistor resistance (Ω)		40	40	40	20	15	15	20	20	20	60	45	40	40	35	25	25
Installation size		SIZE-A	SIZE-A	SIZE-B	SIZE-C	SIZE-D	SIZE-D	SIZE-E	SIZE-E	SIZE-E	SIZE-C	SIZE-D	SIZE-D	SIZE-D	SIZE-E	SIZE-E	SIZE-E

Note: 5000W, 6000W, 7500W are upcoming product models.

E1 Series Direct-Drive Servo Parameters

Model	Motor type	Control mode	Input power supply (v)	Continuous current (A)	Peak current (A)	Output power (W)		Installation size	Encoder type
						Single phase	Three phase		
FV5-E1-PA3R0	DD motors, linear motors	Pulse type	Single phase 220	3.0	10	400	—	SIZE-A	ABZ incremental Hall
FV5-E1-PA4R5	DD motors, linear motors	Pulse type	Single phase 220	4.5	13.5	600	—	SIZE-A	
FV5-E1-PA6R0	DD motors, linear motors	Pulse type	Single phase 220	6.0	18	800	—	SIZE-B	
FV5-E1-PC8R0	DD motors, linear motors	Pulse type	Three phase 220	8.0	23	850	1200	SIZE-C	
FV5-E1-PC010	DD motors, linear motors	Pulse type	Three phase 220	10.0	27	980	1400	SIZE-D	
FV5-E1-PC012	DD motors, linear motors	Pulse type	Three phase 220	12.0	30	1150	1600	SIZE-D	
FV5-E1-PT6R0	DD motors, linear motors	Pulse type	Three phase 380	6.0	15	—	1500	SIZE-C	
FV5-E1-PT8R0	DD motors, linear motors	Pulse type	Three phase 380	8.0	20	—	2000	SIZE-D	
FV5-E1-PT010	DD motors, linear motors	Pulse type	Three phase 380	10.0	21	—	2500	SIZE-D	
FV5-E1-PT012	DD motors, linear motors	Pulse type	Three phase 380	12.0	23	—	3000	SIZE-D	
FV5-E1-PT017	DD motors, linear motors	Pulse type	Three phase 380	17.0	42.5	—	4500	SIZE-E	
FV5-E1-PT021	DD motors, linear motors	Pulse type	Three phase 380	21.0	52.5	—	5500	SIZE-E	
FV5-E1-PT026	DD motors, linear motors	Pulse type	Three phase 380	26.0	65	—	7500	SIZE-E	
FV5-E1-NA3R0	DD motors, linear motors	EtherCAT bus type	Single phase 220	3.0	10	400	—	SIZE-A	ABZ incremental Hall
FV5-E1-NA4R5	DD motors, linear motors	EtherCAT bus type	Single phase 220	4.5	13.5	600	—	SIZE-A	
FV5-E1-NA6R0	DD motors, linear motors	EtherCAT bus type	Single phase 220	6.0	18	800	—	SIZE-B	
FV5-E1-NC8R0	DD motors, linear motors	EtherCAT bus type	Three phase 220	8.0	23	850	1200	SIZE-C	
FV5-E1-NC010	DD motors, linear motors	EtherCAT bus type	Three phase 220	10.0	27	980	1400	SIZE-D	
FV5-E1-NC012	DD motors, linear motors	EtherCAT bus type	Three phase 220	12.0	30	1150	1600	SIZE-D	
FV5-E1-NT6R0	DD motors, linear motors	EtherCAT bus type	Three phase 380	6.0	15	-	1500	SIZE-C	
FV5-E1-NT8R0	DD motors, linear motors	EtherCAT bus type	Three phase 380	8.0	20	-	2000	SIZE-D	
FV5-E1-NT010	DD motors, linear motors	EtherCAT bus type	Three phase 380	10.0	21	-	2500	SIZE-D	
FV5-E1-NT012	DD motors, linear motors	EtherCAT bus type	Three phase 380	12.0	23	-	3000	SIZE-D	
FV5-E1-NT017	DD motors, linear motors	EtherCAT bus type	Three phase 380	17.0	42.5	-	4500	SIZE-E	
FV5-E1-NT021	DD motors, linear motors	EtherCAT bus type	Three phase 380	21.0	52.5	-	5500	SIZE-E	
FV5-E1-NT026	DD motors, linear motors	EtherCAT bus type	Three phase 380	26.0	65	-	7500	SIZE-E	

E3 Series Direct-Drive Servo Parameters

Model	Motor type	Control mode	Input power supply (v)	Continuous current (A)	Peak current (A)	Output power (W)		Installation size	Encoder type
						Single phase	Three phase		
FV5-E3-PA3R0	DD motors, linear motors	Pulse type	Single phase 220	3.0	10	400	—	SIZE-A	ABZ Incremental Type Biss-C EnDat Tamagawa Protocol Nikon Protocol
FV5-E3-PA4R5	DD motors, linear motors	Pulse type	Single phase 220	4.5	13.5	600	—	SIZE-A	
FV5-E3-PA6R0	DD motors, linear motors	Pulse type	Single phase 220	6.0	18	800	—	SIZE-B	
FV5-E3-PC8R0	DD motors, linear motors	Pulse type	Three phase 220	8.0	23	850	1200	SIZE-C	
FV5-E3-PC010	DD motors, linear motors	Pulse type	Three phase 220	10.0	27	980	1400	SIZE-D	
FV5-E3-PC012	DD motors, linear motors	Pulse type	Three phase 220	12.0	30	1150	1600	SIZE-D	
FV5-E3-PT6R0	DD motors, linear motors	Pulse type	Three phase 380	6.0	15	—	1500	SIZE-C	
FV5-E3-PT8R0	DD motors, linear motors	Pulse type	Three phase 380	8.0	20	—	2000	SIZE-D	
FV5-E3-PT010	DD motors, linear motors	Pulse type	Three phase 380	10.0	21	—	2500	SIZE-D	
FV5-E3-PT012	DD motors, linear motors	Pulse type	Three phase 380	12.0	23	—	3000	SIZE-D	
FV5-E3-PT017	DD motors, linear motors	Pulse type	Three phase 380	17.0	42.5	—	4500	SIZE-E	
FV5-E3-PT021	DD motors, linear motors	Pulse type	Three phase 380	21.0	52.5	—	5500	SIZE-E	
FV5-E3-PT026	DD motors, linear motors	Pulse type	Three phase 380	26.0	65	—	7500	SIZE-E	
FV5-E3-NA3R0	DD motors, linear motors	EtherCAT bus type	Single phase 220	3.0	10	400	—	SIZE-A	ABZ Incremental Type Biss-C EnDat Tamagawa Protocol Nikon Protocol
FV5-E3-NA4R5	DD motors, linear motors	EtherCAT bus type	Single phase 220	4.5	13.5	600	—	SIZE-A	
FV5-E3-NA6R0	DD motors, linear motors	EtherCAT bus type	Single phase 220	6.0	18	800	—	SIZE-B	
FV5-E3-NC8R0	DD motors, linear motors	EtherCAT bus type	Three phase 220	8.0	23	850	1200	SIZE-C	
FV5-E3-NC010	DD motors, linear motors	EtherCAT bus type	Three phase 220	10.0	27	980	1400	SIZE-D	
FV5-E3-NC012	DD motors, linear motors	EtherCAT bus type	Three phase 220	12.0	30	1150	1600	SIZE-D	
FV5-E3-NT6R0	DD motors, linear motors	EtherCAT bus type	Three phase 380	6.0	15	-	1500	SIZE-C	
FV5-E3-NT8R0	DD motors, linear motors	EtherCAT bus type	Three phase 380	8.0	20	-	2000	SIZE-D	
FV5-E3-NT010	DD motors, linear motors	EtherCAT bus type	Three phase 380	10.0	21	-	2500	SIZE-D	
FV5-E3-NT012	DD motors, linear motors	EtherCAT bus type	Three phase 380	12.0	23	-	3000	SIZE-D	
FV5-E3-NT017	DD motors, linear motors	EtherCAT bus type	Three phase 380	17.0	42.5	-	4500	SIZE-E	
FV5-E3-NT021	DD motors, linear motors	EtherCAT bus type	Three phase 380	21.0	52.5	-	5500	SIZE-E	
FV5-E3-NT026	DD motors, linear motors	EtherCAT bus type	Three phase 380	26.0	65	-	7500	SIZE-E	

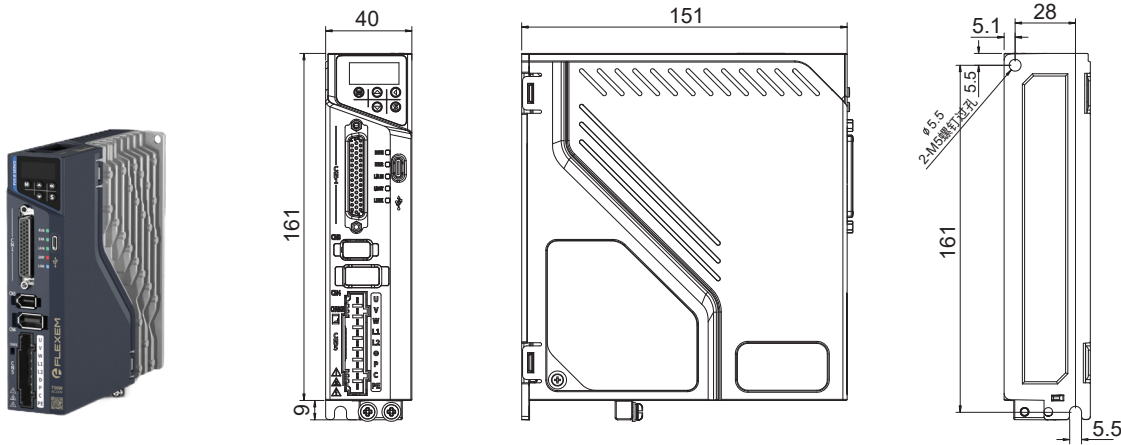
Accessories for direct-drive servo drive

Model	Description	Illustration
FVL-CN701-A3-E	Communication cable for connecting multiple servo drives (0.3m)	
FVL-CN702-01-E	Communication cable for connecting servo drive and PC (1m)	
FVL-PE702-A2-T	Renishaw/Lamotion DB15 grating ruler adapter cable (0.2m)	
FVL-PE703-A2-T	Lamotion DB15 grating ruler adapter cable (0.2m)	
FVL-PE700-01-E	Servo driver ABZ function (CN4) Adapter (1m)	
FVU-C01	CN1 terminal accessories	
FVU-P02	CN4 Terminal Accessories 1394-10 Core	
FVU-P03	CN3 Terminal Accessories 1394-6 Core	

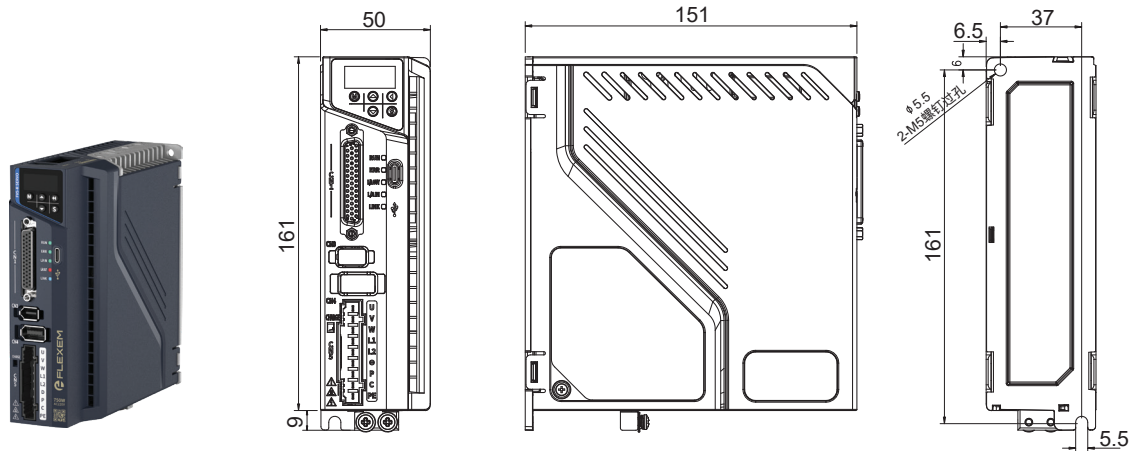
Dimensions

Unit: mm

SIZE-A

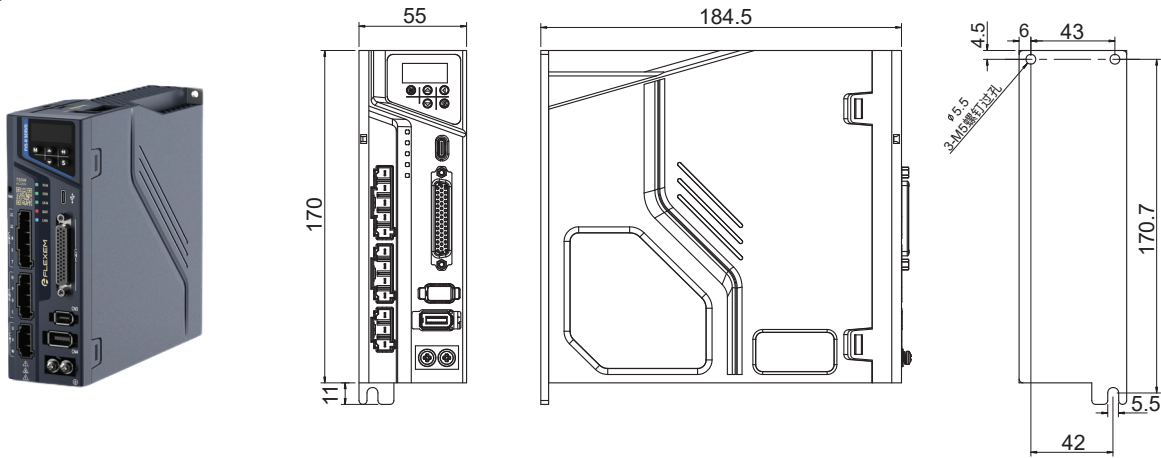


SIZE-B

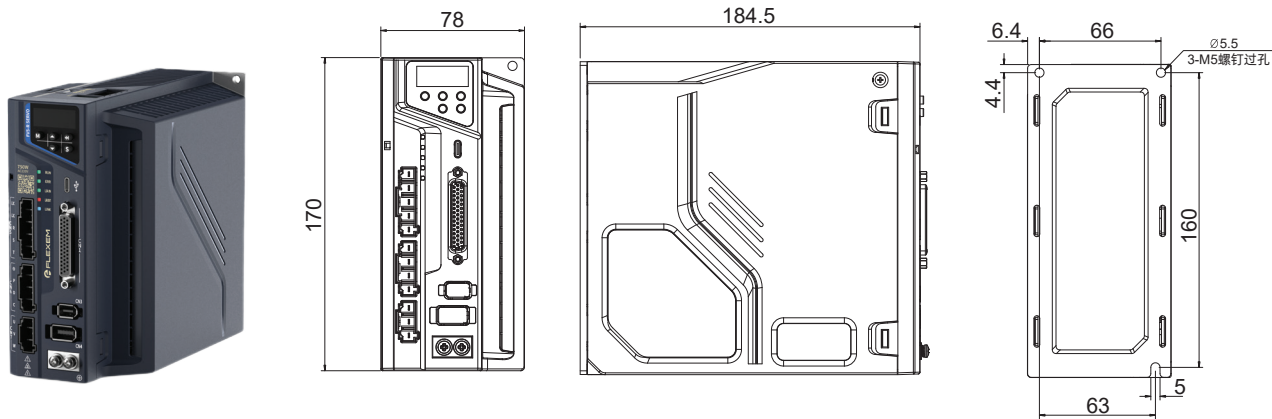


Dimensions

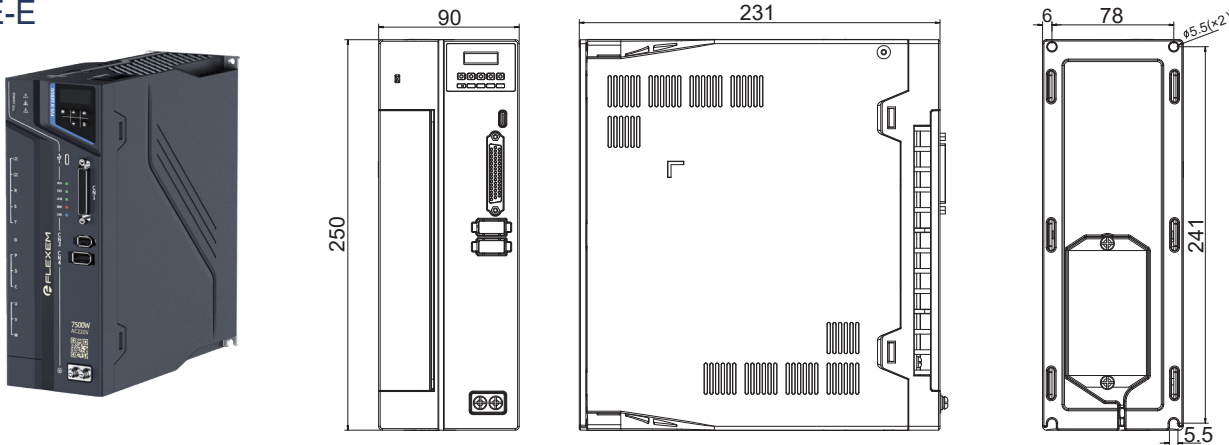
SIZE-C



SIZE-D

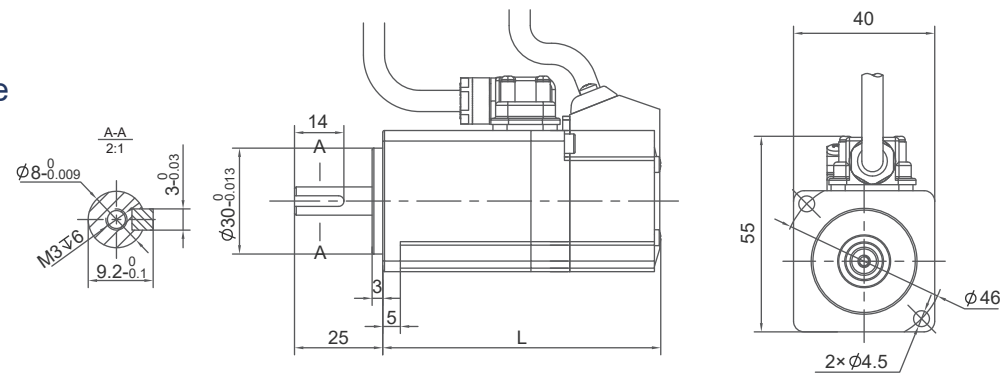


SIZE-E



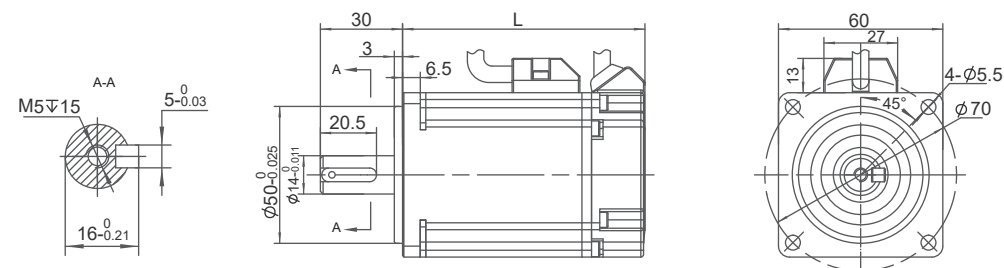
Dimensions

40 Flange



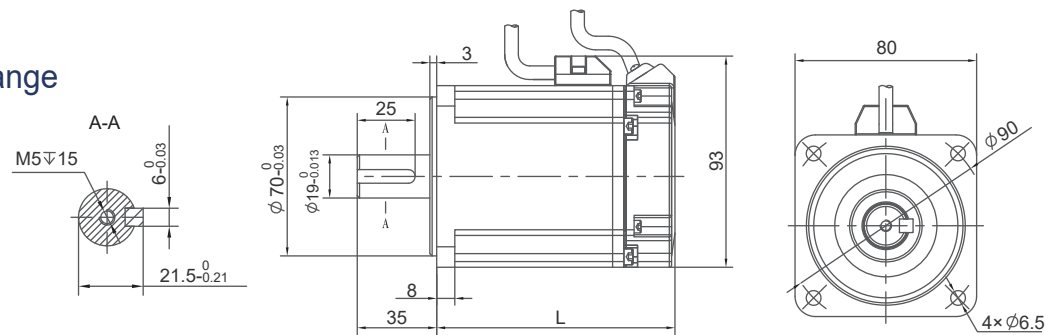
Model	Brake	Length (mm)	Weight (kg)
EAM-WH-A530A-□30	None	68.5	0.4
EAM-WH-A530A-□32	Available	101.5	0.55
EAM-WH-0130A-□30	None	79.5	0.5
EAM-WH-0130A-□32	Available	112.5	1.0

60 Flange



Model	Brake	Length (mm)	Weight (kg)
EAM-WH-0230A-□30	None	77.2	1.0
EAM-WH-0230A-□32	Available	109.2	1.3
EAM-WH-0430A-□30	None	93.7	1.3
EAM-WH-0430A-□32	Available	125.7	1.7

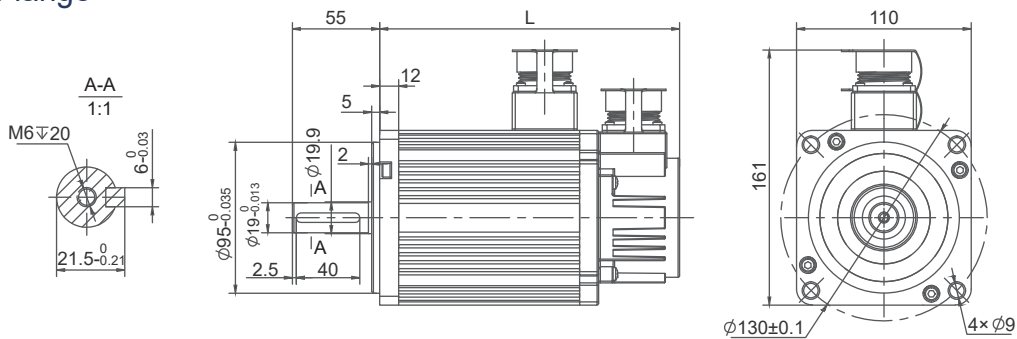
80 Flange



Model	Brake	Length (mm)	Weight (kg)
EAM-WH-0830A-□30	None	105	2.5
EAM-WH-0830A-□32	Available	142	3.5
EAM-WH-1030A-□30	None	119	3.2
EAM-WH-1030A-□32	Available	156	4.2

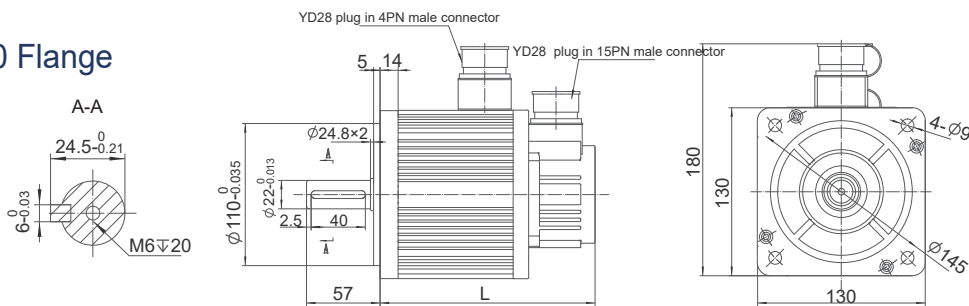
Dimensions

110 Flange



Model	Brake	Length (mm)	Weight (kg)
EAM-WG-1230A-□30	None	189	5.2
EAM-WG-1230A-□32	Available	264	6.7
EAM-WH-1530A-□30	None	204	6.0
EAM-WH-1530A-□32	Available	279	7.5
EAM-WH-1830A-□30	None	219	6.65
EAM-WH-1830A-□32	Available	294	8.15

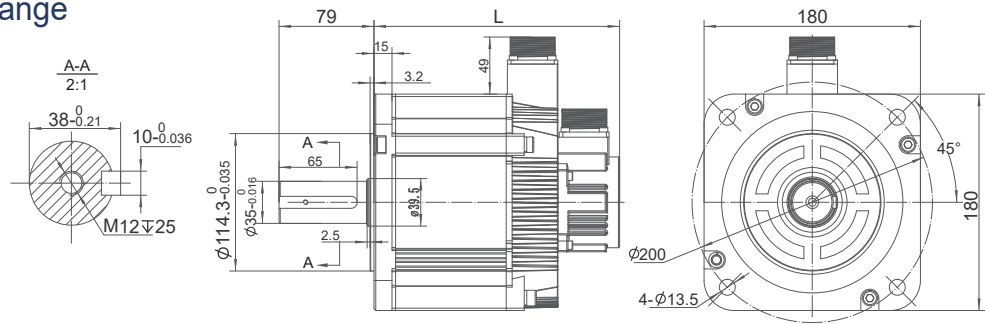
130 Flange



Model	Brake	Length (mm)	Weight (kg)
EAM-WG-0915A-□30	None	179	6.6
EAM-WG-0915A-□32	Available	224	7.1
EAM-WG-1315A-□30	None	152.5	7.6
EAM-WG-1315A-□32	Available	204.5	7.1
EAM-WG-1815A-□30	None	170	8.3
EAM-WG-1815A-□32	Available	222	8.3
EAM-WG-0915T-□30	None	179	6.6
EAM-WG-0915T-□32	Available	224	7.1
EAM-WG-1315T-□30	None	152.5	7.1
EAM-WG-1315T-□32	Available	204.5	7.1
EAM-WG-1815T-□30	None	170	8.3
EAM-WG-1815T-□32	Available	222	8.3
EAM-WG-3030T-□30	None	231	10.1
EAM-WG-3030T-□32	Available	282	12.1

Dimensions

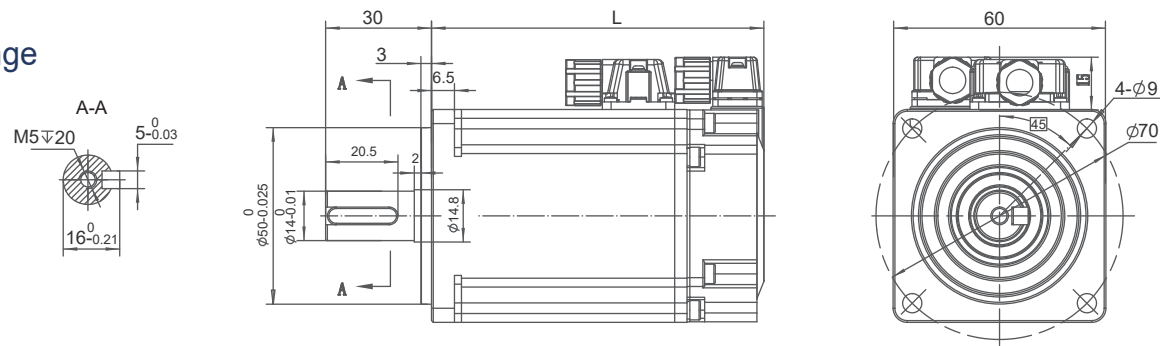
180 Flange



Model	Brake	Length (mm)	Weight (kg)
EAM-WG-2915T-□30	None	205	16.7
EAM-WG-2915T-□32	Available	252	21.2
EAM-WG-4415T-□30	None	232	21.1
EAM-WG-4415T-□32	Available	279	25.6
EAM-WG-5515T-□30	None	260	25.6
EAM-WG-5515T-□32	Available	307	30.1
EAM-WG-7515T-□30	None	284	30.8
EAM-WG-7515T-□32	Available	331	35.3

Dimensions

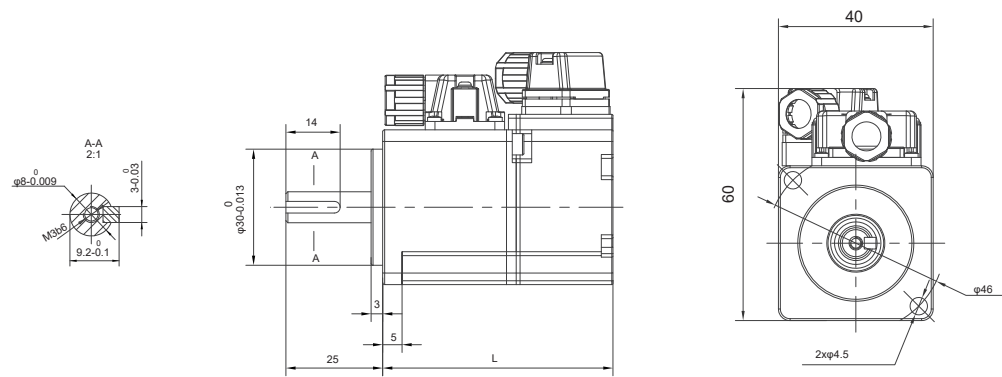
60 Flange



Model	Brake	L (mm)	Weight (kg)
EAM-WH-0230A-□30-D	None	77.2	1
EAM-WH-0230A-□32-D	Available	109.2	1.3
EAM-WH-0430A-□30-D	None	93.7	1.3
EAM-WH-0430A-□32-D	Available	125.7	1.7

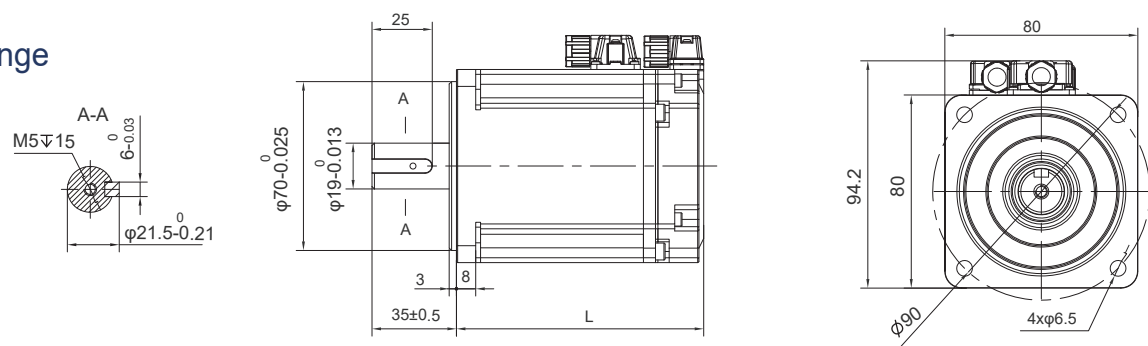
Terminal Motor

40 Flange



Model	Brake	L (mm)	Weight (kg)
EAM-WH-A530A-□30-D	None	67.5	0.4
EAM-WH-A530A-□32-D	Available	100.5	0.8
EAM-WH-0130A-□30-D	None	77.5	0.5
EAM-WH-0130A-□32-D	Available	110.5	0.9

80 Flange



Model	Brake	L (mm)	Weight (kg)
EAM-WH-0830A-□30-D	None	102.5	2.5
EAM-WH-0830A-□32-D	Available	139.5	3.5
EAM-WH-1030A-□30-D	None	116.5	3.2
EAM-WH-1030A-□32-D	Available	153.5	4.2