Panasonic
INDUSTRY

AC Servo Motor & Driver MINAS A6 Family

RTEX Realtime Express EtherCAT

MINAS A6 V-frame

DC24 V 50 W 100 W 133 W
DC48 V 50 W 100 W 133 W 266 W

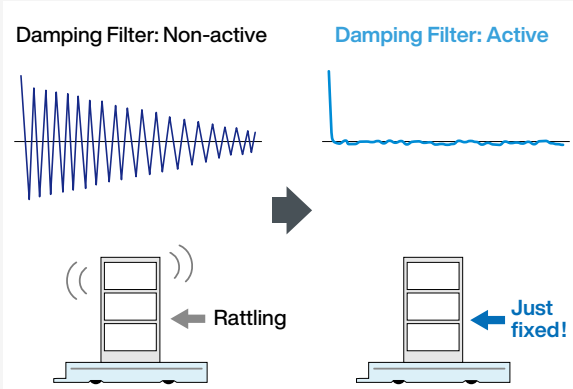
■"Driven by Battery" with DC24/DC48 V
■Best for Automatic Transfer App such as AGV, AMR, and GTP

Slim & Compact Design

Ultra-thin driver with thickness of 30 mm and compact servo motor contributes to the miniaturization and space saving of the equipment.

High Speed Response/ Anti-Vibration Function

High Speed Response/Anti-Vibration Function realizes quick and stable controls of machines.



Expanded Options by the Additional Lineups

Batteryless absolute encoder equipped model

Contributes to Maintenance-free

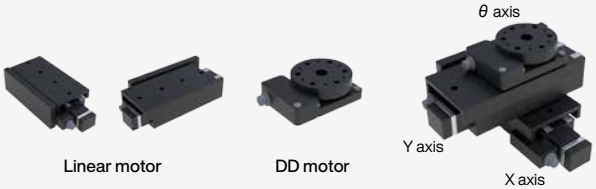
An absolute system can be configurated simply, as multi-rotation data can be logged without any external batteries.

No Battery Maintenance Required

Linear / DD motor compatible driver

Supports Linear/DD Motor Drive

The dedicated driver can drive linear motors or DD motors from our partner companies.



Line up

Enclosure: IP65 Output shaft rotating part Excluding the lead wire tip

		50 W	100 W	133 W	200 W	266 W
MHMF High inertia	24 V			60 sq.		
	Rated rotational speed (Maximum rotational speed)			2000 r/min (3500 r/min)		
	48 V	40 sq.	40 sq.		60 sq.	60 sq.
	Rated rotational speed (Maximum rotational speed)	3000 r/min (6500 r/min)			3000 r/min (4500 r/min)	2000 r/min (3000 r/min)
MQMF Middle inertia/Flat type	24 V		60 sq.	80 sq.		
	Rated rotational speed (Maximum rotational speed)		3000 r/min (6500 r/min)	2000 r/min (3500 r/min)		
	48 V		60 sq.		80 sq.	80 sq.
	Rated rotational speed (Maximum rotational speed)		3000 r/min (6500 r/min)		3000 r/min (5000 r/min)	2000 r/min (3500 r/min)
MSMF Low inertia	24 V	38 sq.	38 sq.			
	Rated rotational speed (Maximum rotational speed)	3000 r/min (5000 r/min)	3000 r/min (4600 r/min)			
	48 V	38 sq.	38 sq.			
	Rated rotational speed (Maximum rotational speed)	3000 r/min (6000 r/min)	3000 r/min (6000 r/min)			

<Table description>
60 sq. Flange sq. dimension [Unit: mm]

Encoder: 23bit absolute encoder,
We also have a lineup of batteryless absolute encoder types.

● Please check the website on the right for detailed specifications.

[Motor] Model Designation

M S M F 5 A C A 1 A 2 * — Special specifications

① ② ③ ④ ⑤ ⑥ ⑦

① Type

Symbol	Type
MSM	Low inertia (50 W to 100 W)
MQM	Middle inertia Flat type (100 W to 266 W)
MHM	High inertia (50 W to 266 W)

② Series

Symbol	Series name
F	A6 family

③ Motor rated output

Symbol	Rated output
5A	50 W
01	100 W
1E	133 W
02	200 W
2J	266 W

④ Voltage specifications

Symbol	Specifications
C	DC24 V
B	DC48 V

⑤ Rotary encoder specifications

Symbol	Format	Pulse counts	Resolution	Wires
A	Battery-less absolute	23-bit	8388608	5
L	Absolute	23-bit	8388608	7

<Note>
When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

⑥ Design order

Symbol	Specifications
1	Standard

⑦ Motor specifications: 80 mm sq. or less MSMF, MQMF, MHMF

Symbol		Shaft		Holding brake		Oil seal		Motor encoder terminal
		Round	Key-way, center tap	without	with	without	with	Lead wire
A	2	●		●		●		●
B	2	●			●	●		●
C	2	●		●			●	●
D	2	●			●		●	●
S	2		●	●		●		●
T	2		●		●	●		●
U	2		●	●			●	●
V	2		●		●		●	●

Applicable motor maximum output current value

Driver model *	Power supply (V)	Rated current [Arms]	Max. current [Arms]
MVDLN0□★△	DC24/DC48	0.6	0.9
MVDLN1□★△		1.5	2
MVDLN2□★△		2.5	4
MVDLN3□★△		4	9
MVDLN4□★△		6	19
MVDLN5□★△		9.4 (24 V) / 8.6 (48 V)	30.4

* The □ of driver model is thepower supply, and the ★ is the communication type. △ indicates individual specification symbol.
For details on the product number, See "[Driver] Model Designation" above.

[Driver] Specifications

●Pulse train / Modbus type

Driver Model	MVDLN5CS△*1	MVDLN5BS△*1
Power-supply voltage (V)	DC24	DC48
Rated output current (Arms)	9.4	8.6
Maximum output current (Ao-p)	43	
Control mode	(1) Position control (2) Internal speed control (3) Torque control (4) Position / speed control (5) Position / torque control (6) Full close control	
Control input / output	General purpose 5 inputs / General purpose 3 outputs Analog 1 input (16bit AD converter) / Analog 1 output (± 10 V) Pulse signal input 1 / output 3	
Communication function	USB, RS232, RS485 (Modbus communication support)	
Safety function	Not supported	

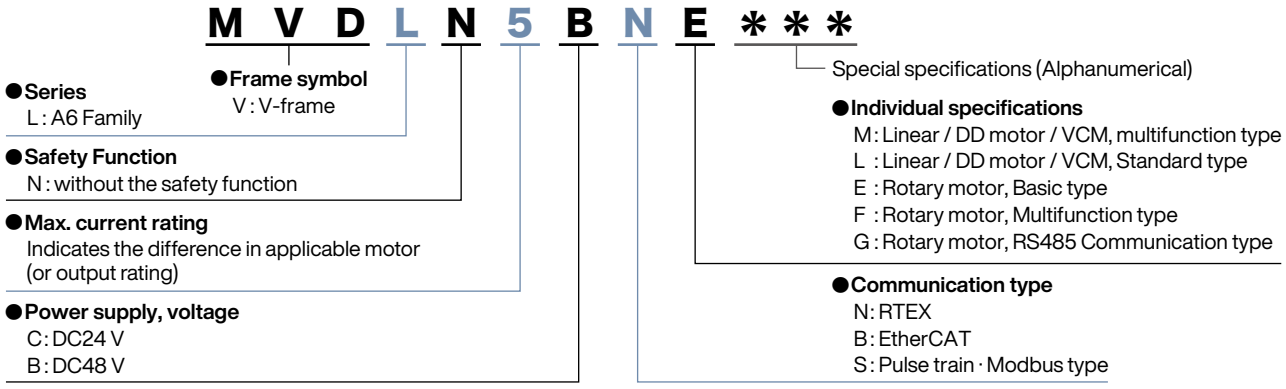
*1 Individual specification symbols are entered for the △ in the driver model.

●Network compatible driver

Driver Model	MVDLN5□★E*1,2		MVDLN5□★△*1,2,3	
	For rotary motors		For linear / DD motors	
Power-supply voltage (V)	DC24	DC48	DC24	DC48
Rated output current (Arms)	9.4	8.6	9.4	8.6
Maximum output current (Ao-p)	43		43	
Control input	8		8	
Control output	3 (one has fixed ALM output)		3 (one has fixed ALM output)	
Pulse output	3		3	
Feedback scale input	Not supported		AB phase origin signal differential input type Panasonic serial communication	
CS input	Not supported		Supports CS signals (CS1, 2, 3)	
Dynamic brake	Available			
Regenerative processing function	Not supported			
Inrush current control	Not supported			
Safety function	Not supported			

*1 The symbol of DC24 V "C" or DC48 V "B" is entered for □ of the driver part number.
*2 The symbol of the communication type (RTEX "N" or EtherCAT "B") is entered for ★ in the driver part number.
*3 The △ in the driver part number indicates the individual specification (linear/DD motor/VCM multi-function type "M" or linear/DD motor/VCM standard type "L").

[Driver] Model Designation

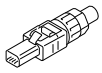
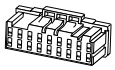
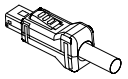
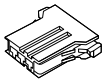
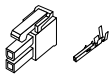
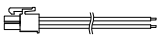


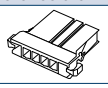
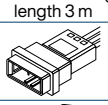
Corresponding rotary motor combination table

Driver			Corresponding rotary motor rated output (W)				
EtherCAT	DC24 V	MVDLN4CBE	50				
		MVDLN5CBE		100	133		
	DC48 V	MVDLN4BBE	50	100			
		MVDLN5BBE				200	266
RTEX	DC24 V	MVDLN4CNE	50				
		MVDLN5CNE		100	133		
	DC48 V	MVDLN4BNE	50	100			
		MVDLN5BNE				200	266
Pulse-train / Modbus type	DC24 V	MVDLN4CSF / MVDLN4CSG	50				
		MVDLN5CSF / MVDLN5CSG		100	133		
	DC48 V	MVDLN4BSF / MVDLN4BSG	50	100			
		MVDLN5BSF / MVDLN5BSG				200	266

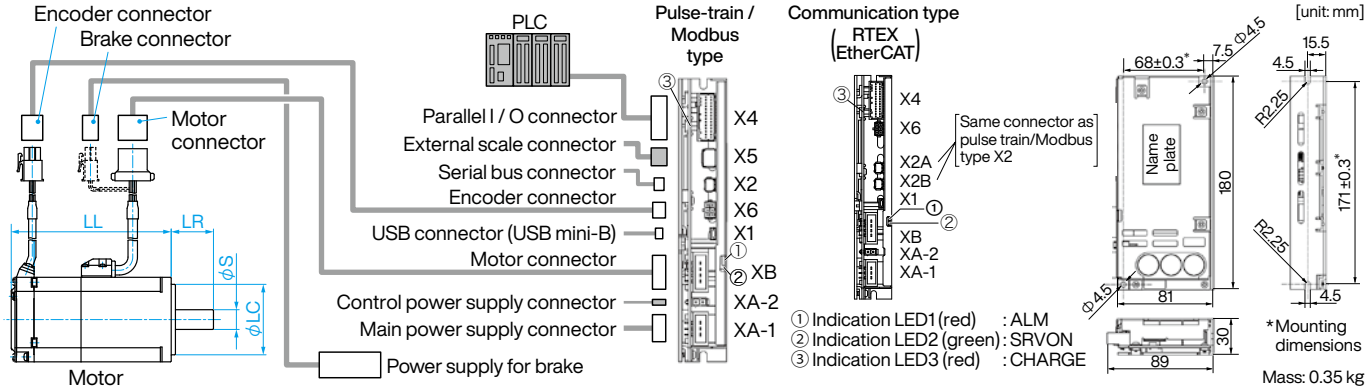
Option / Recommended component

For the specifications and pin layout of each connector, refer to the "AC Servo Driver Specifications". Please prepare the connector wiring by yourself.

Connector	Name	Product number	Recommended manufacturer	Outline and reference drawing
Serial bus (X2)	Connector	DV0PM20102	—	
Parallel I / O (X4)	Connector	1-1827863-4	Tyco Electronics Japan G.K.	
	Connector pin	1827587-2		
	Cable	Bulk shield Twisted-pair cable Core wire 0.18 mm² or more Maximum wiring length 3 m		
External scale (X5)	Connector	DV0PM20026	—	
Main power supply (XA-1)	Connector	F31FSS-03V-KX	J.S.T Mfg. Co., Ltd.	
	Connector pin	SF3F-41GF-P2.0 or SF3F-71GF-P2.0		
	Cable	—	—	HVSF 1.25 mm²～2.0 mm² AWG14～AWG16 Maximum wiring length 3 m
Control power supply (XA-2)	Connector / Connector pin	DV0PM24603	—	
	Cable (2 m)	DV0PM24600	—	

Connector	Name	Product number	Recommended manufacturer	Outline and reference drawing
Motor (XB) (Driver side)	Connector	F31FSS-04V-KX	J.S.T Mfg. Co., Ltd.	
	Connector pin	SF3F-41GF-P2.0 or SF3F-71GF-P2.0		
	Cable	—	—	HVSF 1.25 mm²～2.0 mm² AWG14～AWG16 Maximum wiring length 3 m
Motor (Motor side)	Connector	F31MSF-04V-KX	J.S.T Mfg. Co., Ltd.	
	Connector pin	SF3M-01GF-P2.0 or SF3M-41GF-P2.0		
Encoder (X6) (Driver side)	Connector kit (Driver side)	DV0PM24604	—	
	When using the incremental system (No battery box) cable	Bulk shield Twisted-pair cable Core wire 0.18 mm² or more Maximum wiring length 3 m		
	Battery for absolute encoder	DV0P2990	—	—
	Battery box for absolute encoder	DV0P4430	—	—
Encoder (Motor side)	Connector	172161-1	Tyco Electronics Japan G.K.	
	Connector pin	170361-3 or 170365-3		
Brake (Motor side)	Connector	172157-1	Tyco Electronics Japan G.K.	
	Connector pin	170362-1 or 170366-1		

Dimensions / Wiring



Mass: 0.35 kg

Dimension table

Please refer to page 1 for flange angle.

[Unit: mm]

Motor series	Motor model *	Output (W)	φLC	LL				LR	φS	Mass (kg)			
				without Brake		with Brake				without Brake		with Brake	
				without oil seal	with oil seal	without oil seal	with oil seal			without oil seal	with oil seal	without oil seal	with oil seal
MHMF type [High inertia]	MHMF5A△L1□2	50	30h7	53.5	57.5	87.4	91.4	25	8h6	0.29	0.31	0.51	0.53
	MHMF5A△A1□2			62.5	66.5	96.4	100.4						
	MHMF01△L1□2	100		67.5	71.5	101.4	105.4			0.4	0.82	0.62	0.64
	MHMF01△A1□2			76.5	80.5	110.4	114.4						
	MHMF1ECL1□2	133	50h7	67.5	71	96.8	100.3	30	11h6	0.75	0.78	1.1	1.2
	MHMF1ECA1□2			76.5	80	105.8	109.3						
	MHMF02BL1□2	200		67.5	71	96.8	100.3						
	MHMF02BA1□2			76.5	80	105.8	109.3						
	MHMF2JBL1□2	266		84.5	88	113.8	117.3		14h6	1.1	1.2	1.5	1.6
	MHMF2JBA1□2			93.5	97	122.8	126.3						
MQMF type [Middle inertia/ Flat type]	MQMF01△L1□2	100	50h7	56.2	59.7	77.5	81	25	8h6	0.54	0.57	0.79	0.82
	MQMF01△A1□2			65.2	68.7	86.5	90						
	MQMF1ECL1□2	133	70h7	62.3	65.8	85.9	89.4	30	11h6	1.1	1.2	1.5	1.6
	MQMF1ECA1□2			71.1	74.6	94.9	98.4						
	MQMF02BL1□2	200		62.3	65.8	85.9	89.4						
	MQMF02BA1□2			71.1	74.6	94.9	98.4						
	MQMF2JBL1□2	266		74.8	78.3	98.4	101.9		14h6	1.5	1.6	2.0	2.1
	MQMF2JBA1□2			83.6	87.1	107.4	110.9						
MSMF type [Low inertia]	MSMF5A△L1□2	50	30h7	72		102		25	8h6	0.32		0.53	
	MSMF5A△A1□2			76.6		106.6							
	MSMF01△L1□2	100		92		122				0.49		0.68	
	MSMF01△A1□2			96.6		126.6							

* △ in the motor model number represents the motor voltage specification, and □2 represent the motor specifications. Please refer to "[Motor] Model Designation" in P.1.

⚠ Safety Precautions

- Before you use the product, please carefully read through the instruction manual, the installation instructions and the manuals, and understand them in detail to use the product properly.

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