Panasonic

No. SX-DSV03293

REFERENCE SPECIFICATIONS

M/S

MODEL AC Servo Motor MINAS A6V Series
MQMD (23 bit absolute encoder)

Issued on Sep. 6.2017
Changed on Feb.21.2018

Motor Business Unit, Electromechanical Control Business Division
Automotive & Industrial Systems Company, Panasonic Corporation

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Checked	Checked	Designed
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REVISIONS

No SX-DSV03293

Date	Page	Sym.	REVISION	Signed
2017.9.6			NEWLY ISSUED	Miyazaki
2018.2.21	All		Reviewed specifications.	Miyazaki

Motor Business Unit, Panasonic Corporation

1. Motor brake specification

Items	Units	Applicable motor		
		MQMD01		
Static friction torque	N·m	0.29 or more		
Rotary part inertia	$10^{-4}kg \cdot m^2$	0.03		
Armature pull in time	ms	50 or less		
Armature release time ※1	ms	15 or less		
Release voltage	DC,V	1 or more		
Excitation voltage	DC,V	24±2.4		
Excitation current	DC,A	0.29		
Allowable braking energy ; 1 time each	J	137		
All allowable braking energy	J	44.1×10^3		
Allowable angular acceleration	rad/s^2	10000		

(at 20 °C)

※1 By varistor (TND15G271K made by Nippon Chemi-Con Corporation.)

(1) This brake is spring-actuated brake.

(2) Rotary part inertia and Excitation current (at DC24 V) are representative characteristic values.

(3) When the motor was forwarded, the brake's backlash is 2° or less.

(4) Power supply for motor brake must be prepared by user side.
(Either way of connection for polarity would be acceptable)

(5) The above-mentioned all allowable braking energy shall be braking energy complying with the brake specification (braking energy capable of performing a suction motion in consideration of brake temperature increases).

(6) The motor life with the repetitions of acceleration and deceleration at the above allowable angular acceleration : 10 million times.
(The number of acceleration-deceleration cycles until brake's backlash changes rapidly)

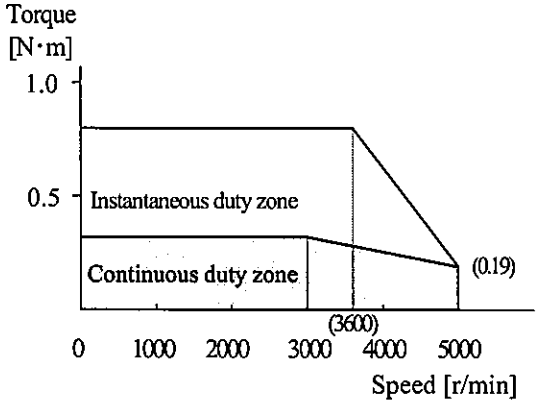
(7) The series connection of the protection parts such as fuses is recommended in the case of the use with varistor.

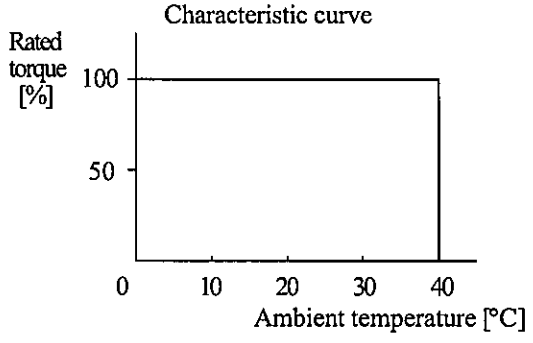
(8) Since the brake built in the motor is used for maintenance, do not use it as a stopping device (braking) to ensure the safety of the machine.

AC Servo Motor Specification

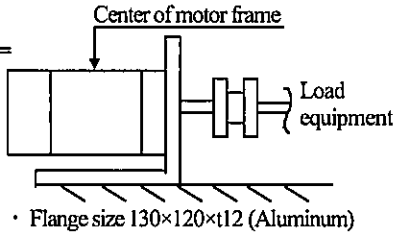
Motor model		MQMD01CL1□ (Without brake)	MQMD01CL1□ (With brake)	
Rated output	W	100	←	
Rating	%	100	←	
Number of poles		8	←	
Rated speed	r/min	3000	←	
Max. speed	r/min	5000	←	
Rated torque	N·m	0.32	←	
Max. torque	N·m	0.80	←	
Rated current	A(rms)	(8.6)	←	
Rotor inertia	$\times 10^{-4}$ kg·m^2	0.070	0.095	
Electrical time constant	ms	(1.9)	←	
Mechanical time constant	ms	1.1	1.4	
Power rate	kW/s	14.5	10.6	
Momentary max. current	A(o-p)	(30.4)	←	
Demagnetization current	A(o-p)	45.6	←	
Voltage constant per phase	$\times 10^{-3}$ V(rms)/min^{-1}	1.4 ±10 %	←	
Excitation voltage constant	$\times 10^{-3}$ V(o-p)/min^{-1}	2.9 ±10 %	←	
Torque constant	N·m/A(rms)	0.040 ±10 %	←	
	N·m/A(o-p)	0.028 ±10 %	←	
Phase resistance	Ω	0.080 ±7 %	←	
Phase inductance	mH	(0.15)	←	* Center value
Thermal class		130(B)	←	
Vibration class		V-15	←	
Paint color		Without paint	←	Plastic part :Gray
Mass	kg	0.54	0.79	
Structure		Totally-enclosed self-cooled type	←	Without oil seal
Supply voltage	V_{DC}	24	←	

- This specification is guaranteed after combining and adjusting with the servo driver. (Representative value at 20 °C)
- Rated torque is the result that have been considered dispersions of motor specification under our measurement method.
- Set the temperature of center of motor frame to 70 °C or less. (When ambient temperature is 40 °C)
- Speed - Torque characteristic (Representative value)
  Servo driver power supply voltage : at DC24 V





Test method

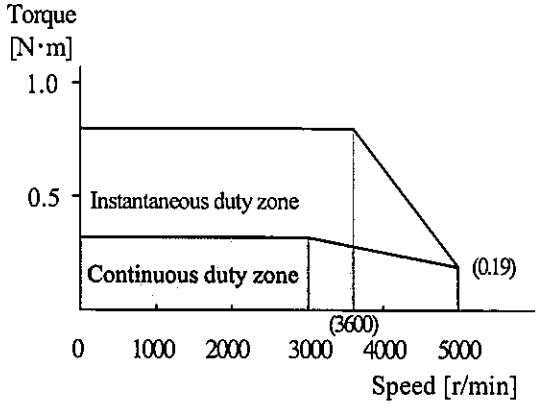


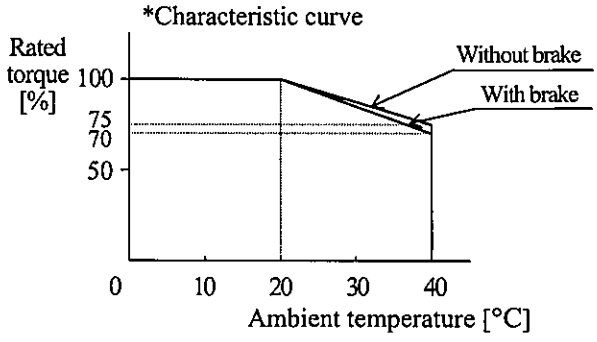
- Flange size 130×120×t12 (Aluminum)

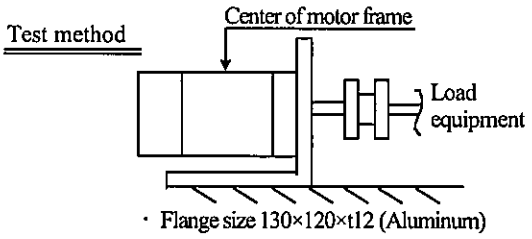
AC Servo Motor Specification

Motor model		MQMD01CL1□ (Without brake)	MQMD01CL1□ (With brake)	
Rated output	W	100	←	
Rating	%	(*100)	←	* refer to the
Number of poles		8	←	characteristic
Rated speed	r/min	3000	←	curve below
Max. speed	r/min	5000	←	
Rated torque	N·m	0.32	←	
Max. torque	N·m	0.80	←	
Rated current	A(rms)	(8.6)	←	
Rotor inertia	$\times 10^{-4}$ kg·m^2	0.070	0.095	
Electrical time constant	ms	(1.9)	←	
Mechanical time constant	ms	1.1	1.4	
Power rate	kW/s	14.5	10.6	
Momentary max. current	A(o-p)	(30.4)	←	
Demagnetization current	A(o-p)	45.6	←	
Voltage constant per phase	$\times 10^{-3}$ V(rms)/min^{-1}	1.4 ±10 %	←	
Excitation voltage constant	$\times 10^{-3}$ V(o-p)/min^{-1}	2.9 ±10 %	←	
Torque constant	N·m/A(rms)	0.040 ±10 %	←	
	N·m/A(o-p)	0.028 ±10 %	←	
Phase resistance	Ω	0.080 ±7 %	←	
Phase inductance	mH	(0.15)	←	* Center value
Thermal class		130(B)	←	
Vibration class		V-15	←	
Paint color		Without paint	←	Plastic part :Gray
Mass	kg	0.54	0.79	
Structure		Totally-enclosed self-cooled type	←	With oil seal
Supply voltage	V_{DC}	24	←	

- This specification is guaranteed after combining and adjusting with the servo driver. (Representative value at 20 °C)
- Rated torque is the result that have been considered dispersions of motor specification under our measurement method.
- Set the temperature of center of frame to 70 °C or less. (When ambient temperature is 40 °C)
- Speed - Torque characteristic (Representative value)
  Servo driver power supply voltage : at DC24 V



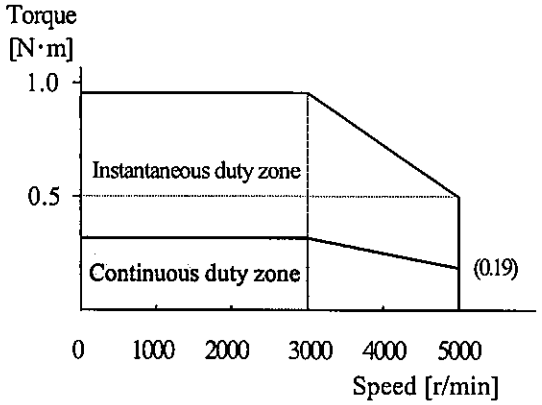


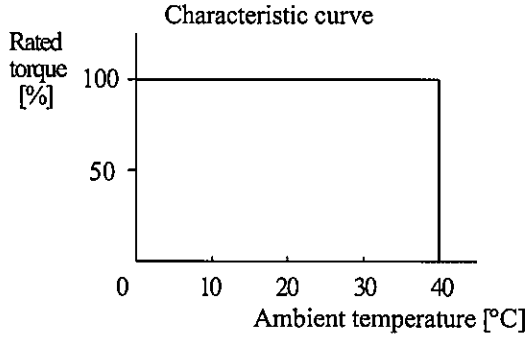


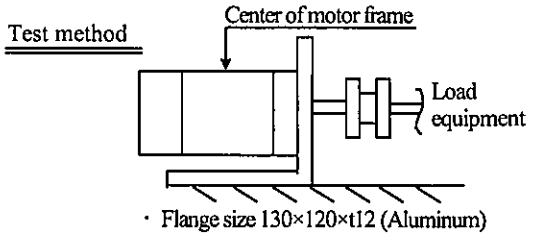
AC Servo Motor Specification

Motor model		MQMD01BL1☐ (Without brake)	MQMD01BL1☐ (With brake)	
Rated output	W	100	←	
Rating	%	100	←	
Number of poles		8	←	
Rated speed	r/min	3000	←	
Max. speed	r/min	5000	←	
Rated torque	N·m	0.32	←	
Max. torque	N·m	0.95	←	
Rated current	A(rms)	(4.4)	←	
Rotor inertia	$\times 10^{-4}$ kg·m^2	0.070	0.095	
Electrical time constant	ms	(2.0)	←	
Mechanical time constant	ms	1.0	1.4	
Power rate	kW/s	14.5	10.6	
Momentary max. current	A(o-p)	(18.7)	←	
Demagnetization current	A(o-p)	28.0	←	
Voltage constant per phase	$\times 10^{-3}$ V(rms)/min^{-1}	2.8 ±10 %	←	
Excitation voltage constant	$\times 10^{-3}$ V(o-p)/min^{-1}	5.8 ±10 %	←	
Torque constant	N·m/A(rms)	0.079 ±10 %	←	
	N·m/A(o-p)	0.056 ±10 %	←	
Phase resistance	Ω	0.31 ±7 %	←	
Phase inductance	mH	(0.61)	←	* Center value
Thermal class		130(B)	←	
Vibration class		V-15	←	
Paint color		Without paint	←	Plastic part :Gray
Mass	kg	0.54	0.79	
Structure		Totally-enclosed self-cooled type	←	Without oil seal
Supply voltage	V_{DC}	48	←	

- This specification is guaranteed after combining and adjusting with the servo driver. (Representative value at 20 °C)
- Rated torque is the result that have been considered dispersions of motor specification under our measurement method.
- Set the temperature of center of frame to 65 °C or less. (When ambient temperature is 40 °C)
- Speed - Torque characteristic (Representative value)
  Servo driver power supply voltage : at DC48 V



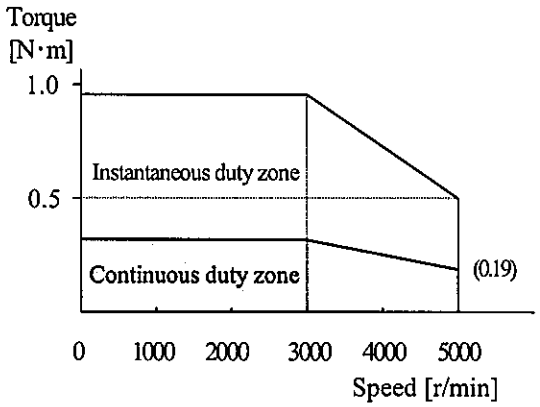


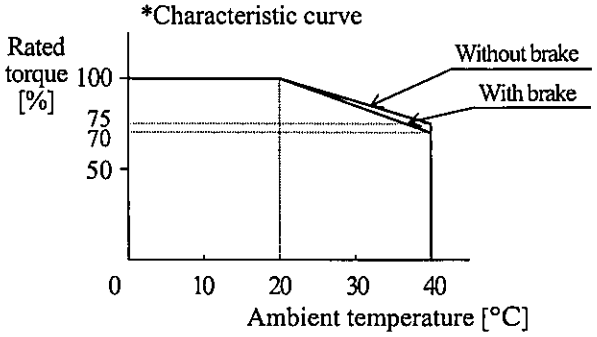


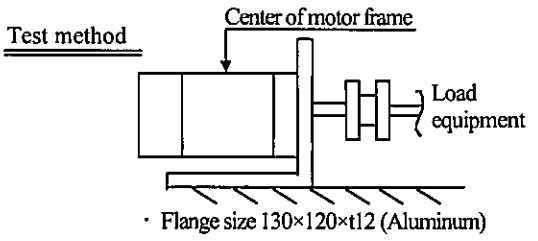
AC Servo Motor Specification

Motor model		MQMD01BL1□ (Without brake)	MQMD01BL1□ (With brake)	
Rated output	W	100	←	
Rating	%	(*100)	←	* refer to the
Number of poles		8	←	characteristic
Rated speed	r/min	3000	←	curve below
Max. speed	r/min	5000	←	
Rated torque	N·m	0.32	←	
Max. torque	N·m	0.95	←	
Rated current	A(rms)	(4.4)	←	
Rotor inertia	$\times 10^{-4}$ kg·m^2	0.070	0.095	
Electrical time constant	ms	(2.0)	←	
Mechanical time constant	ms	1.0	1.4	
Power rate	kW/s	14.5	10.6	
Momentary max. current	A(o-p)	(18.7)	←	
Demagnetization current	A(o-p)	28.0	←	
Voltage constant per phase	$\times 10^{-3}$ V(rms)/min^{-1}	2.8 ±10 %	←	
Excitation voltage constant	$\times 10^{-3}$ V(o-p)/min^{-1}	5.8 ±10 %	←	
Torque constant	N·m/A(rms)	0.079 ±10 %	←	
	N·m/A(o-p)	0.056 ±10 %	←	
Phase resistance	Ω	0.31 ±7 %	←	
Phase inductance	mH	(0.61)	←	* Center value
Thermal class		130(B)	←	
Vibration class		V-15	←	
Paint color		Without paint	←	Plastic part :Gray
Mass	kg	0.54	0.79	
Structure		Totally-enclosed self-cooled type	←	With oil seal
Supply voltage	V_{DC}	48	←	

- This specification is guaranteed after combining and adjusting with the servo driver. (Representative value at 20 °C)
- Rated torque is the result that have been considered dispersions of motor specification under our measurement method.
- Set the temperature of center of frame to 65 °C or less. (When ambient temperature is 40 °C)
- Speed - Torque characteristic (Representative value)
  Servo driver power supply voltage : at DC48 V







SX-DSV0329301

Do NOT scale the drawings.
instead rely on the dimensions
and their definitions

Opponent connector (No belongings)

Motor connector (JST)
Housing:F31MSF-04V-KX
Contact:SF3M-41GF-M2.0N

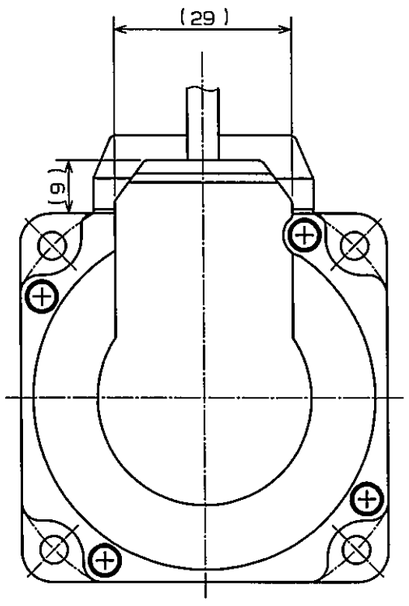
Detector connector (AMP)
Cap :172161-1
Socket:170361-3(Gold plated)
or 170365-3(Gold plated)

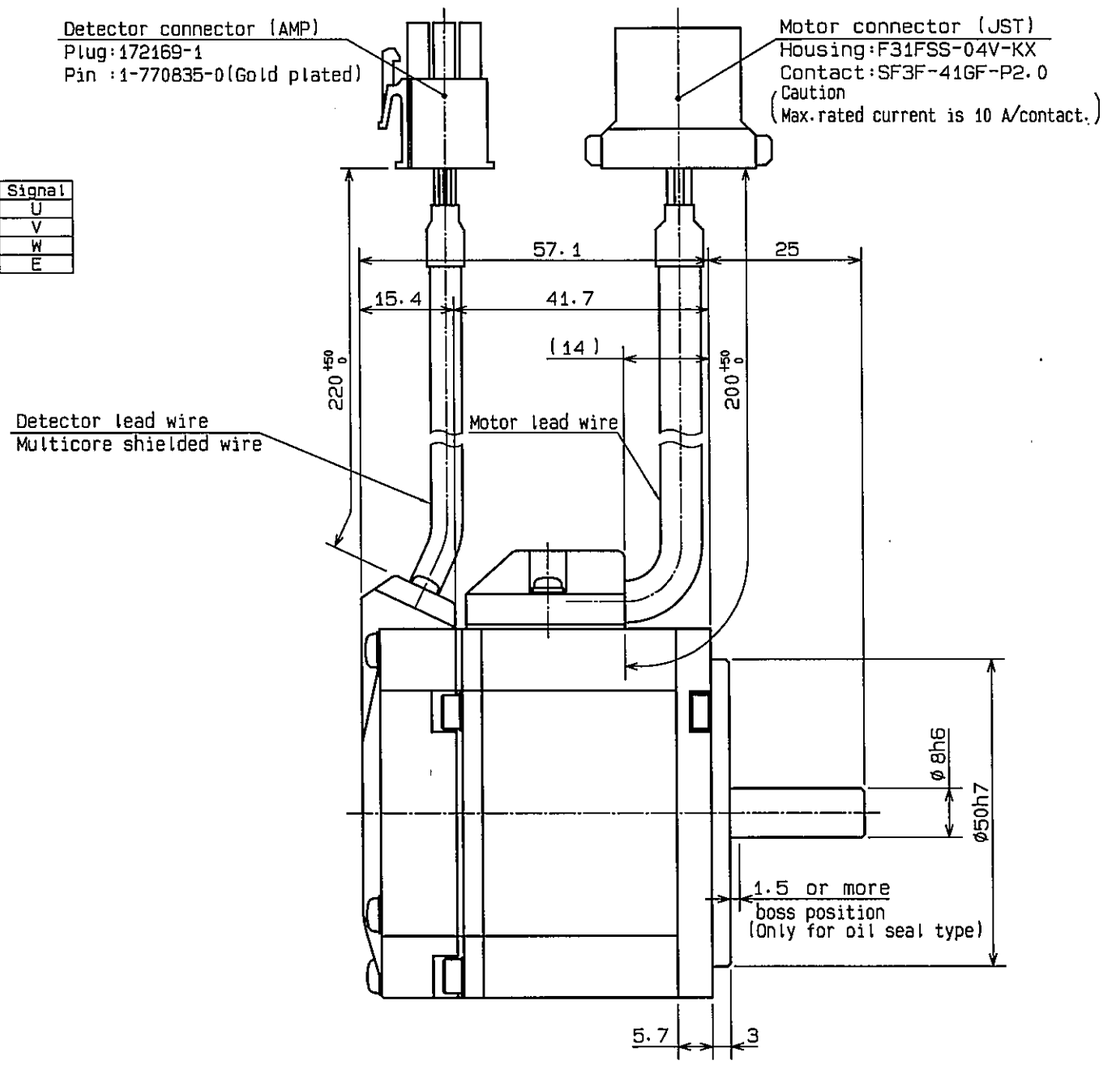
Rotary encoder unit
(23 bit absolute)

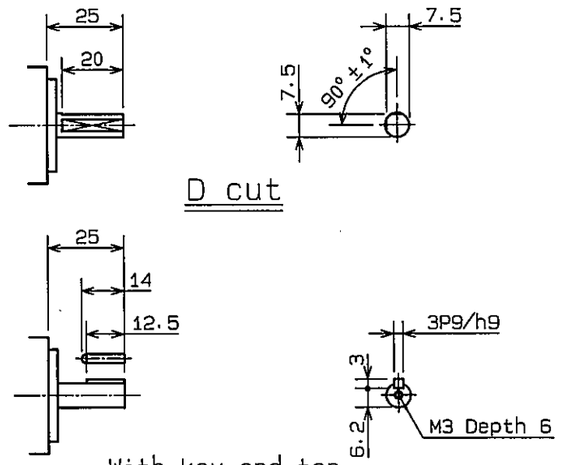
PIN No.	Color	Signal
1	Red	BAT +
2	Pink	BAT -
3	Shield	FG
4	Sky blue	PS(SD)
5	Violet	PS(SD)
6	——	NC
7	White	E5 V
8	Black	E0 V
9	——	NC

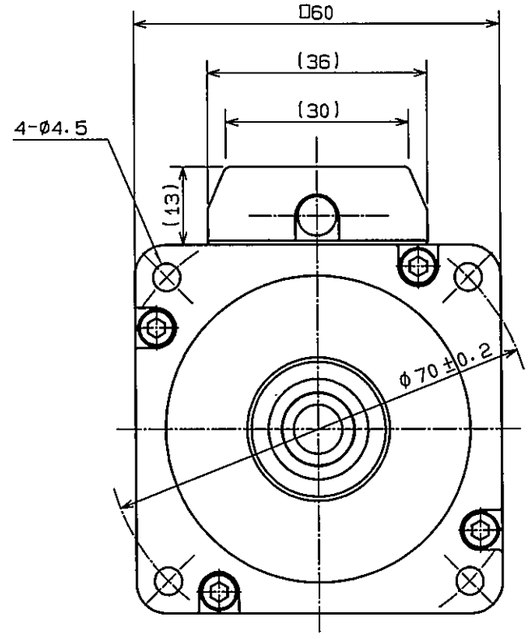
Motor unit

Contact No.	Color	Signal
1	Red	U
2	White	V
3	Black	W
4	Green/Yellow	E









Model	Voltage (V)	Rated Speed (r/min)	Output (W)
MQMD01CL1□	DC24	3000	100
MQMD01BL1□	DC48	↑	↑

※ □ shows motor structure

Oil seal	Shaft structure		
	Straight	D cut	With key and tap
Without	A	N	S
With	C	Q	U

NOTE 1. The assembling precision conforms to the Japan Machine Tool Association Standard (MAS402-1981). (TIR value)
·Shaft end runout: 0.03 (shaft exit middle)
·Squareness of flange face to shaft: 0.08 (ø70)
·Eccentricity of flange fitting outside diameter to shaft: 0.06 (middle of spigot)
2. For flange mounting bolts, use hexagonal socket head bolts.

MERCHAND G	CLASS	TRACE	
SVM	E	MIYAZAKI	2018/02/21

Scale	Panasonic Corporation			Agreement
1 : 1	3rd Angle System Unit:mm			
Designed	Drawn	Checked	Checked	Checked
MIYAZAKI	MIYAZAKI	Nishio		Kira
2018/02/21	2018/02/21	2018/2/21		2018/2/21

Model	MQMD01□L1□, □60
Name	OUTLINE DRAWING (WITHOUT BRAKE)
No.	SX-DSV0329301

SX-DSV0329302

Do NOT scale the drawings.
instead rely on the dimensions
and their definitions

Opponent connector (No belongings)

Motor connector (JST)
Housing:F31MSF-04V-KX
Contact:SF3M-41GF-M2.0N

Detector connector (AMP)
Cap :172161-1
Socket:170361-3(Gold plated)
or 170365-3(Gold plated)

Brake connector (AMP)
Cap :172157-1
Socket:170362-1
or 170366-1

Rotary encoder unit
(23 bit absolute)

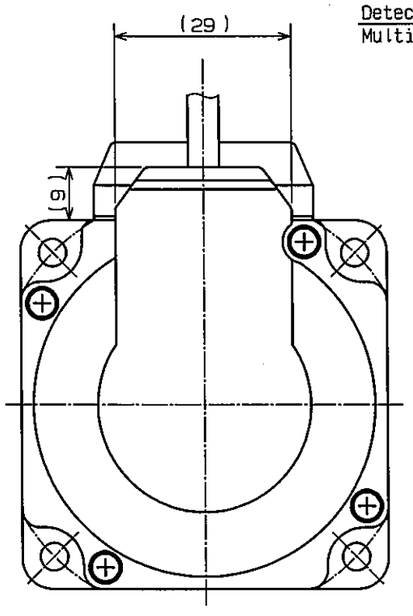
PIN No.	Color	Signal
1	Red	BAT +
2	Pink	BAT -
3	Shield	FG
4	Sky blue	PS(SD)
5	Violet	PS(SD)
6	——	NC
7	White	E5 V
8	Black	E0 V
9	——	NC

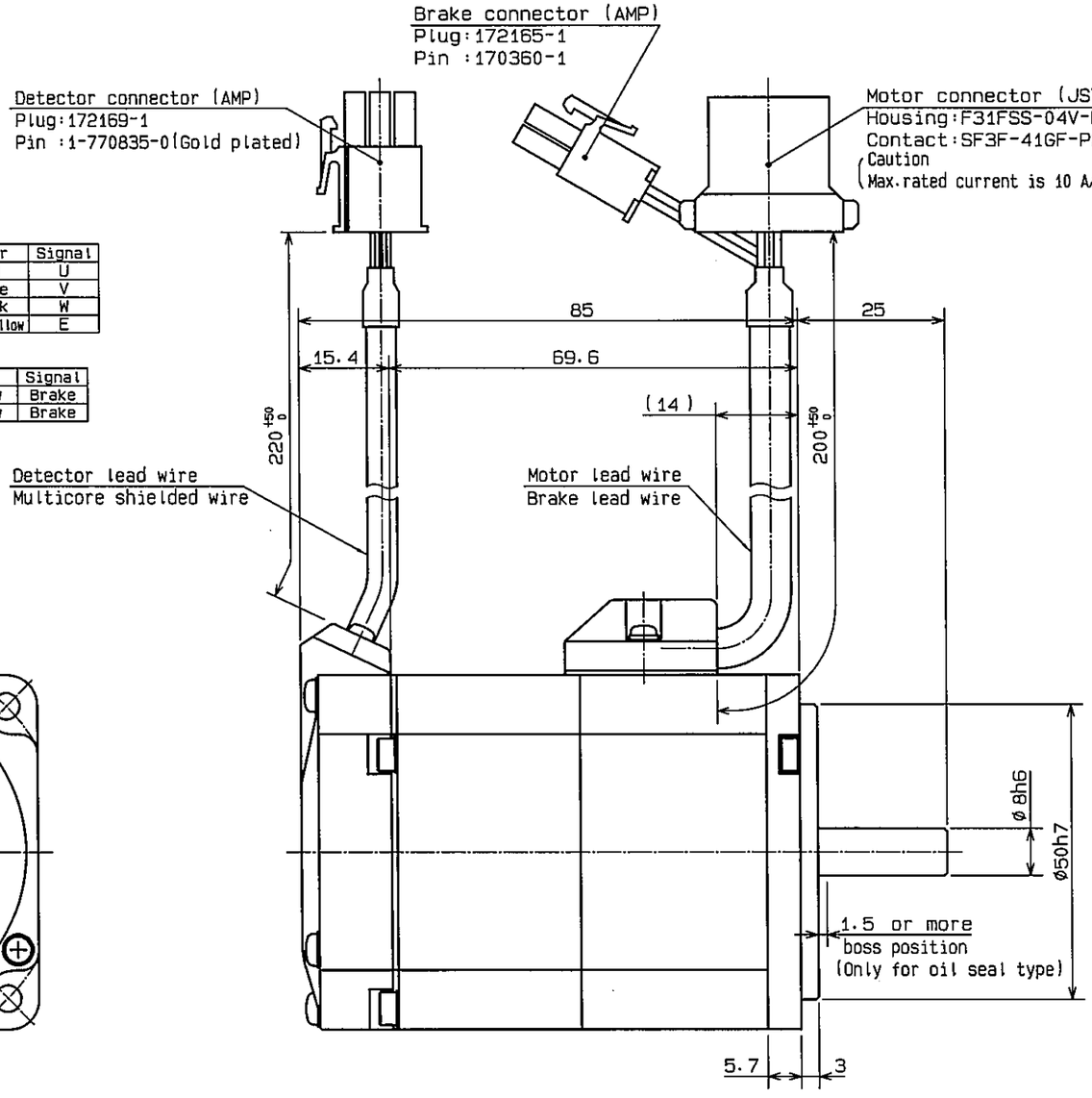
Motor unit

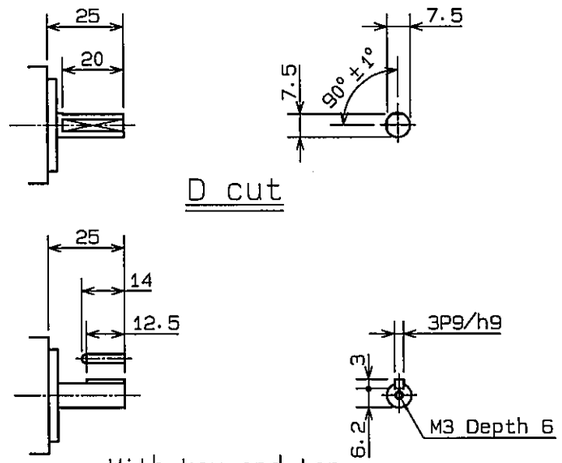
Contact No.	Color	Signal
1	Red	U
2	White	V
3	Black	W
4	Green/Yellow	E

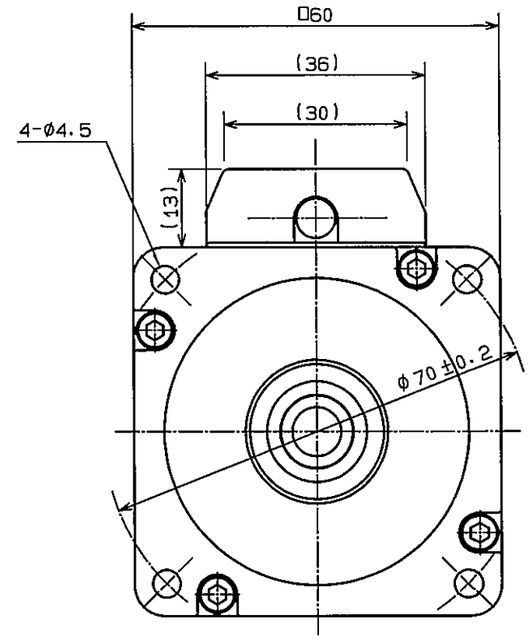
Brake unit

PIN No.	Color	Signal
1	Yellow	Brake
2	Yellow	Brake









Model	Voltage (V)	Rated Speed (r/min)	Output (W)
MQMD01CL1□	DC24	3000	100
MQMD01BL1□	DC48	↑	↑

※ □ shows motor structure

Oil seal	Shaft structure		
	Straight	D cut	With key and tap
Without	B	P	T
With	D	R	V

NOTE 1. The assembling precision conforms to the Japan Machine Tool Association Standard (MAS402-1981). (TIR value)
·Shaft end runout: 0.03 (shaft exit middle)
·Squareness of flange face to shaft: 0.08 (ø70)
·Eccentricity of flange fitting outside diameter to shaft: 0.06 (middle of spigot)
2. For flange mounting bolts, use hexagonal socket head bolts.

MERCHAND G	CLASS	TRACE	
SVM	E	MIYAZAKI	2018/02/21

Scale	Panasonic Corporation			Agreement	Model	MQMD01□L1□ □60
1 : 1	3rd Angle System Unit:mm				Name	OUTLINE DRAWING (WITH BRAKE)
Designed	Drawn	Checked	Checked	Checked	No.	SX-DSV0329302
MIYAZAKI	MIYAZAKI	Nishio		Kira		
2018/02/21	2018/02/21	2018/2/21		2018/2/21		