

STEPPING MOTORS



STEPPING MOTORS



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Key advantages of R.T.A. stepping motors



SANYO DENKI
SANMOTION
STEPPING SYSTEMS

Exclusive Partnership with **SANYO DENKI CO.** since 1989, one of the leading manufacturer of motion solution in the world.

- More than 30 years of experience, collaboration and evolution.
- High quality and reliability made in Japan, through automatized and robotized assembly line.

2 Families, Industrial stepping motors and Traditional stepping motors 5 Series with more than 100 models



1 INDUSTRIAL STEPPING MOTORS



- 22 models
- Flange size: 42 mm, 56 mm, 60 mm, 86 mm
- Holding torque: from 29 Ncm to 920 Ncm
- M12 and JST built-in connectors
- Protection degree: IP 54, IP 65, FULL IP 65
- Encoder versions available

2 INDUSTRIAL STEPPING MOTORS WITH ENCODER



- 21 models
- Embedded encoder in a terminal box
- Encoder resolutions: 400 cpr, 4000 cpr, INDEX
- Standard signal: differential (single-ended version available)

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INDUSTRIAL STEPPING MOTORS

	HOLDING TORQUE (Ncm)	FLANGE SIZE (mm)	LENGTH (mm)	CURRENT (A)	PROTECTION DEGREE	PAGE
RH SERIES						
RH 1S0M (-RS)	29	42	33	1.0	IP40	133
RH 1S1M (-RS)	43	42	39	1.0	IP40	134
RH 1S2M (-RS)	56	42	48	1.0	IP40	135
RH 1S3M (-RS)	80	42	59.5	1.0	IP40	136
RM SERIES						
RM 2R2M	165	56	102	4.0	IP54	137
RM 3R1M	360	86	89.5	4.0	IP54	138
RM 3R2M	700	86	120	4.0	IP54	139
RM 3R3M	920	86	150	4.0	IP54	140
SP SERIES (IP 65)						
SP 2563-5000	100	56	80.0	1.0	IP65	141
SP 2563-5200	100	56	80.0	3.0	IP65	142
SP 2566-5200	170	56	102.0	3.0	IP65	143
SP 2862-5100	700	85.5	120.0	4.0	IP65	144
SP 2863-5100	900	85.5	150.0	4.0	IP65	145
SP SERIES (FULL IP 65)						
SP 2566-50SX00	170	56	102.0	1.0	FULL IP65	146
SP 2566-52SX00	170	56	102.0	3.0	FULL IP65	147
SP2861-51SX01	360	85.5	89.5	4.0	FULL IP65	148
SP2862-51SX01	700	85.5	120.0	4.0	FULL IP65	149
SP2863-51SX01	900	85.5	150.0	4.0	FULL IP65	150

NOTE: Codes between brackets refer to double-shaft models.

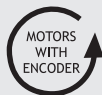
INDUSTRIAL STEPPING MOTORS WITH ENCODER

	MOTOR CODE	HOLDING TORQUE (Ncm)	FLANGE SIZE (mm)	LENGTH (mm)	CURRENT (A)	PROTECTION DEGREE	PAGE
RH 1S0M-04D0	RH 1S0M	29	42	53	1.0	IP40	152
RH 1S0M-04E0	RH 1S0M	29	42	53	1.0	IP40	152
RH 1S0M-0HE0	RH 1S0M	29	42	53	1.0	IP40	152
RH 1S1M-04D0	RH 1S1M	43	42	59	1.0	IP40	153
RH 1S1M-04E0	RH 1S1M	43	42	59	1.0	IP40	153
RH 1S1M-0HE0	RH 1S1M	43	42	59	1.0	IP40	153
RH 1S2M-04D0	RH 1S2M	56	42	69	1.0	IP40	154
RH 1S2M-04E0	RH 1S2M	56	42	69	1.0	IP40	154
RH 1S2M-0HE0	RH 1S2M	56	42	69	1.0	IP40	154
RH 1S3M-04D0	RH 1S3M	80	42	79	1.0	IP40	155
RH 1S3M-04E0	RH 1S3M	80	42	79	1.0	IP40	155
RH 1S3M-0HE0	RH 1S3M	80	42	79	1.0	IP40	155
RM 3T1M-04D0	RM 3R1M	360	86	111	4.0	IP54	156
RM 3T1M-04E0	RM 3R1M	360	86	111	4.0	IP54	156
RM 3T1M-0HE0	RM 3R1M	360	86	111	4.0	IP54	156
RM 3T2M-04D0	RM 3R2M	700	86	142	4.0	IP54	157
RM 3T2M-04E0	RM 3R2M	700	86	142	4.0	IP54	157
RM 3T2M-0HE0	RM 3R2M	700	86	142	4.0	IP54	157
RM 3T3M-04D0	RM 3R3M	920	86	172	4.0	IP54	158
RM 3T3M-04E0	RM 3R3M	920	86	172	4.0	IP54	158
RM 3T3M-0HE0	RM 3R3M	920	86	172	4.0	IP54	158

3 TRADITIONAL STEPPING MOTORS



- 66 models
- Flange size: 14 mm, 28 mm, 42 mm, 56 mm
60 mm, 86 mm, 106,4 mm
- Holding torque: from 0,65 Ncm to 2.460 Ncm
- Encoder and brake versions available



4 TRADITIONAL STEPPING MOTORS WITH ENCODER



- 32 models
- Encoder assembled and tested by RTA
- Encoder resolutions: 400 cpr, 4000 cpr, INDEX
- Standard signal: differential (single ended version available)

5 TRADITIONAL STEPPING MOTORS WITH BRAKE



- 12 models
- Brakes static torque: from 24 Ncm to 350 Ncm

VERSION WITH BRAKE AND ENCODER AVAILABLE

6 ACCESSORIES - FRONT BRAKES



- 2 sizes: Nema 24 and Nema 34
- 24 VDC Power Supply
- M12 Connectors
- Holding Torque: 1.5 Nm (Nema 24) and 3.5 Nm (Nema 34)
- Cables: Standard or 90° (1 m or 3 m length)

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TRADITIONAL STEPPING MOTORS

	HOLDING TORQUE (Ncm)	FLANGE SIZE (mm)	LENGTH (mm)	BIPOLAR CURRENT* (A)	PAGE
14 mm FLANGE					
SH2141-5541	0.65	14	30	0.3	160
28 mm FLANGE					
SH2281-5271 (-5231)	7	28	32	0.7*	161
SH2285-5271 (-5231)	14.5	28	51.5	0.7*	162
42 mm FLANGE					
103-H5205-5040	23	42	33	0.25	163
103-H5205-0351 (-0312)	25	42	33	0.7*	164
103-H5205-4240 (-4210)	26.5	42	33	1.0	165
103-H5208-0483	42	42	39	0.9*	166
103-H5210-4240 (-4210)	51	42	48	1.0	167
103-H5210-4541 (-4512)	51	42	48	2.0	168
103-H5212-4640 (-4610)	65	42	59.5	2	169

TRADITIONAL STEPPING MOTORS

	HOLDING TORQUE (Ncm)	FLANGE SIZE (mm)	LENGTH (mm)	BIPOLAR CURRENT* (A)	PAGE
50 mm FLANGE					
103-H6701-0140 (-0113)	38	50	39.8	0.7*	170
103-H6703-0440	68	50	51.3	1.4*	171
56 mm FLANGE					
103-H7121-0440	49	56	41.8	1.5*	172
103-H7123-5040 (-5010)	85	56	53.8	2.0	173
103-H7123-0140	110	56	53.8	0.7*	174
103-H7123-0440	110	56	53.8	1.5	175
103-H7123-0740 (-0710)	110	56	53.8	2.2*	176
103-H7123-1749 (-1711)	110	56	53.8	4.0	177
103-H7126-0140	165	56	75.8	0.75*	178
103-H7126-0740 (-0710)	165	56	75.8	2.2*	179
103-H7126-1740 (-1710)	165	56	75.8	4.0	180
103-H7126-6640 (-6610)	165	56	75.8	5.60	181
103-H7128-5740 (-5710)	200	56	94.8	2	182
60 mm FLANGE					
103-H7822-0740	170	60	53.8	2.2*	183
103-H7823-0740	300	60	85.8	2.2*	184
103-H7823-1740 (-1714)	300	60	85.8	4.0	185
103-H7826-1642 (-1612)	380	60	103.8	6.0	186
85.5 mm FLANGE					
SM 2861-5055 (-5025)	360	86	66.0	2.0	187
SM 2861-5255 (-5225)	360	86	66.0	6.0	188
SM 2862-5055	700	86	96.5	2.0	189
SM 2862-5155 (-5125)	700	86	96.5	4.0	190
SM 2862-5255 (-5225)	700	86	96.5	6.0	191
SM 2863-5155 (-5126)	920	86	127.0	4.0	192
SM 2863-5255 (-5225)	920	86	127.0	6.0	193

TRADITIONAL STEPPING MOTORS

	HOLDING TORQUE (Ncm)	FLANGE SIZE (mm)	LENGTH (mm)	BIPOLAR CURRENT (A)	PAGE
106.4 mm FLANGE					
103-H89222-6341 (-6311)	1620	106.4	163.0	6.0	194
103-H89222-6541	1620	106.4	163.0	10.0	195
103-H89223-6341 (-6311)	2460	106.4	221.0	6.0	196
103-H89223-6641 (-6611)	2460	106.4	221.0	12.00	197

Not preferred models

PAGE 198

TRADITIONAL STEPPING MOTORS WITH ENCODER

	SANYO DENKI MOTOR CODE	HOLDING TORQUE (Ncm)	FLANGE SIZE (mm)	LENGTH (mm)	BIPOLAR CURRENT* (A)	PAGE
EM 0H1M-04D0	SH 2281-5231	7	28.0	32.0	0.7*	200
EM 0H2M-04D0	SH 2285-5231	14.5	28.0	51.5	0.7*	200
EM 1H2H-04D0	103-H5210-4512	51	42	48	2.0	201
EM 1H2H-04E0	103-H5210-4512	51	42	48	2.0	201
EM 1H2H-0HE0	103-H5210-4512	51	42	48	2.0	201
EM 1H3H-04D0	103-H212-4610	65	42	59.5	2.0	202
EM 1H3H-04E0	103-H212-4610	65	42	59.5	2.0	202
EM 1H3H-0HE0	103-H212-4610	65	42	59.5	2.0	202
EM 2H1M-04D0	103-H7123-1711	110	56	53.8	4.0	203
EM 2H1M-04E0	103-H7123-1711	110	56	53.8	4.0	203
EM 2H1M-0HE0	103-H7123-1711	110	56	53.8	4.0	203
EM 2H2M-04D0	103-H7126-1710	165	56	75.8	4.0	204
EM 2H2M-04E0	103-H7126-1710	165	56	75.8	4.0	204
EM 2H2M-0HE0	103-H7126-1710	165	56	75.8	4.0	204
EM 6H2M-04D0	103-H7823-1714	300	60	85.8	4.0	205
EM 6H2M-04E0	103-H7823-1714	300	60	85.8	4.0	205
EM 6H2M-0HE0	103-H7823-1714	300	60	85.8	4.0	205
EM 6H3H-04D0	103-H7826-1612	380	60	103.8	6	206
EM 6H3H-04E0	103-H7826-1612	380	60	103.8	6	206

TRADITIONAL STEPPING MOTORS WITH ENCODER

	SANYO DENKI MOTOR CODE	HOLDING TORQUE (Ncm)	FLANGE SIZE (mm)	LENGTH (mm)	BIPOLAR CURRENT* (A)	PAGE
EM 6H3H-OHEO	103-H7826-1612	380	60	103.8	6	206
EM 3F1L-04D0	SM 2861-5025	360	85.5	66.0	2.0	207
EM 3F1H-04D0	SM 2861-5225	360	85.5	66.0	6.0	208
EM 3F1H-04E0	SM 2861-5225	360	85.5	66.0	6.0	208
EM 3F1H-OHEO	SM 2861-5225	360	85.5	66.0	6.0	208
EM 3F2M-04D0	SM 2862-5125	700	85.5	96.5	4.0	209
EM 3F2H-04D0	SM 2862-5225	700	85.5	96.5	6.0	210
EM 3F2H-04E0	SM 2862-5225	700	85.5	96.5	6.0	210
EM 3F2H-OHEO	SM 2862-5225	700	85.5	96.5	6.0	210
EM 3F3H-04D0	SM 2863-5225	920	85.5	127.0	6.0	211
EM 3F3H-04E0	SM 2863-5225	920	85.5	127.0	6.0	211
EM 3F3H-OHEO	SM 2863-5225	920	85.5	127.0	6.0	211
EM 3F3M-14D0	SM 2863-5126	920	85.5	127.0	4.0	212

TRADITIONAL STEPPING MOTORS WITH BRAKE

	SANYO DENKI MOTOR CODE	HOLDING TORQUE (Ncm)	FLANGE SIZE (mm)	LENGTH (mm)	CURRENT (A)	PAGE
103-H5210-4512.B	103-H5210-4512	51	42	82	2.0	214
103-H7123-5010.B	103-H7123-5010	85	56	89.8	2.0	215
103-H7123-0710.B	103-H7123-0710	110	56	89.8	3.0	216
103-H7123-1711.B	103-H7123-1711	110	56	89.8	4.0	217
103-H7126-0710.B	103-H7126-0710	165	56	89.8	3.0	218
103-H7126-1710.B	103-H7126-1710	165	56	89.8	4.0	219
103-H7823-1714.B	103-H7823-1714	300	60	121.8	4.0	220
103-H7826-1612.B	103-H7826-1612	380	60	103.8	6.0	221
SM 2861-5025.B	SM 2861-5025	360	86	102	2.0	222
SM 2861-5225.B	SM 2861-5225	360	86	102	6.0	223
SM 2862-5125.B	SM 2862-5125	700	86	132.5	4.0	224
SM 2862-5225.B	SM 2862-5225	700	86	132.5	6.0	225

ACCESSORIES - FRONT BRAKES

	HOLDING TORQUE (Ncm)	FLANGE (mm)	CURRENT (mA)	VOLTAGE (V)	POWER (W)	PAGE
FB-M12-24-15-00000	1.5	60	460	24 VDC	11.0	233
FB-M12-34-35-00000	3.5	86	460	24 VDC	11.0	234

* Bipolar series connection

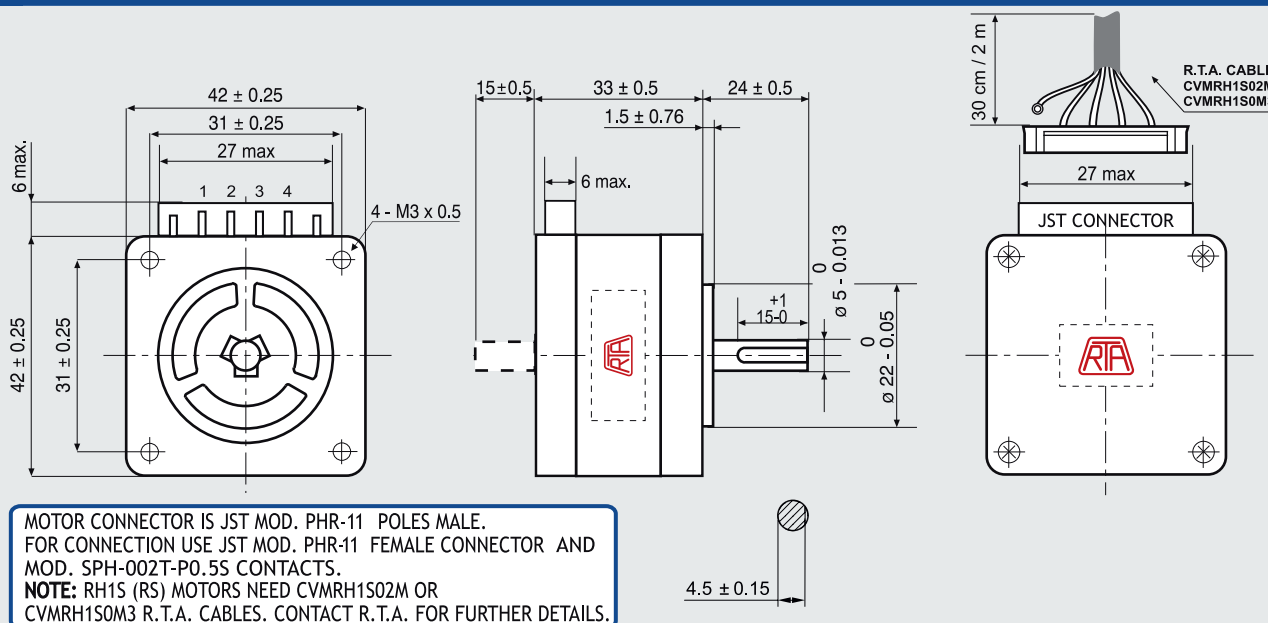
STEPPING MOTORS

INDUSTRIAL STEPPING MOTORS



RH 1S0M

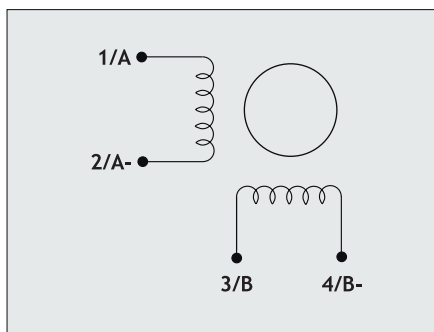
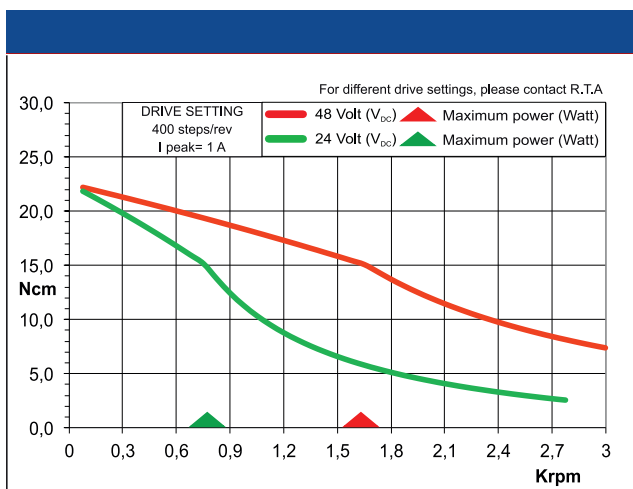
Dimensions (Unit:mm)



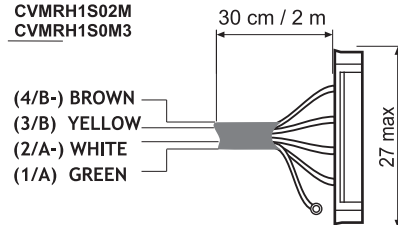
FEATURES

MODEL	RH 1S0M (RH 1S0M-RS)
BASIC STEP ANGLE	1,8°
BIPOLAR CURRENT (Amp)	1.0
UNIPOLAR CURRENT (Amp)	
RESISTANCE (Ohm)	3.6
INDUCTANCE (mH)	7
BIPOLAR HOLDING TORQUE (Ncm)	29
UNIPOLAR HOLDING TORQUE (Ncm)	
ROTOR INERTIA (Kgm ² x 10 ⁻⁷)	31
THEORETICAL ACCELERATION (rad x sec. ⁻²)	93500
BACK E.M.F. (V/Krpm)	29
MASS (Kg)	0.23
PROTECTION DEGREE	IP40
LEADS CODE	V

Codes between brackets refer to double shaft models.



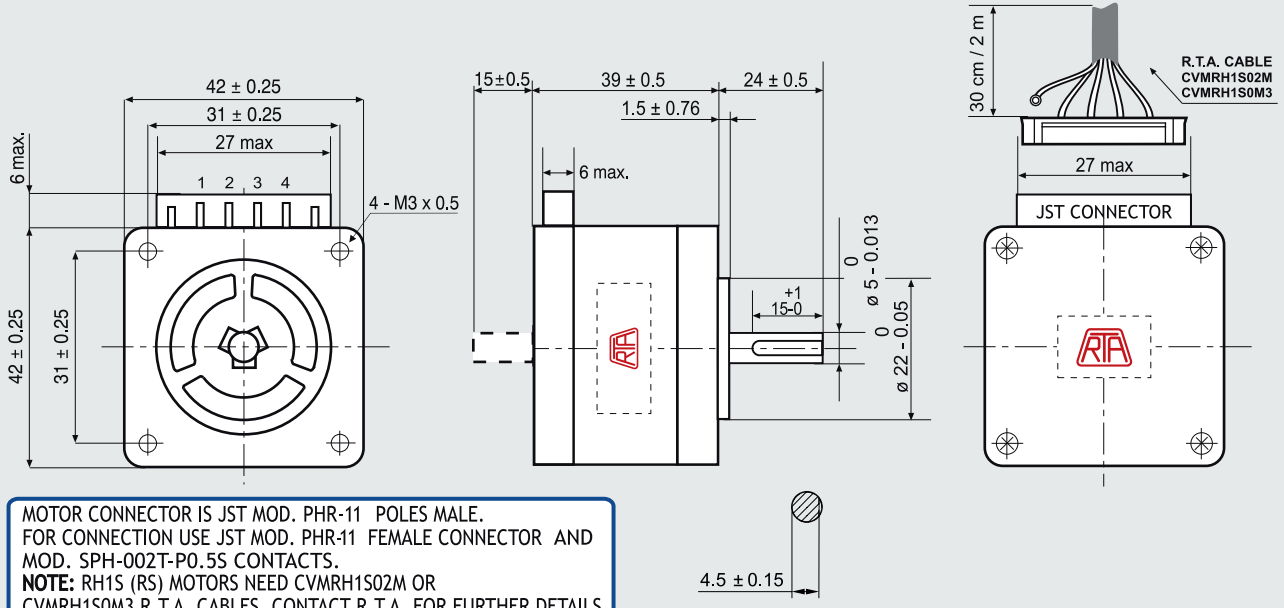
R.T.A. MOTOR CABLE
CVMRH1S02M
CVMRH1S0M3



Suggested R.T.A. drive series: BSD, CSD, FLEX-DRIVE

RH 1S1M

Dimensions (Unit:mm)

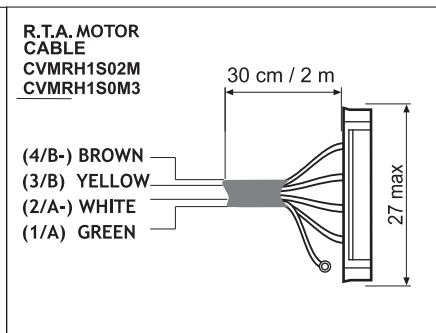
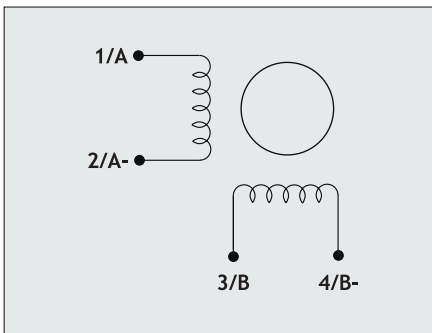
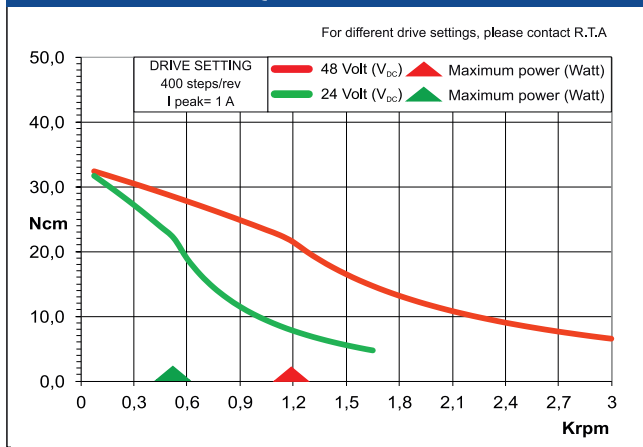


FEATURES

MODEL	RH 1S1M (RH 1S1M-RS)
BASIC STEP ANGLE	1.8°
BIPOLAR CURRENT (Amp)	1.0
UNIPOLAR CURRENT (Amp)	
RESISTANCE (Ohm)	4.6
INDUCTANCE (mH)	9.6
BIPOLAR HOLDING TORQUE (Ncm)	43
UNIPOLAR HOLDING TORQUE (Ncm)	
ROTOR INERTIA (Kg ^m ² x 10 ⁻⁷)	46
THEORETICAL ACCELERATION (rad x sec. ⁻²)	93500
BACK E.M.F. (V/Krpm)	43
MASS (Kg)	0.3
PROTECTION DEGREE	IP40
LEADS CODE	V

Codes between brackets refer to double shaft models.

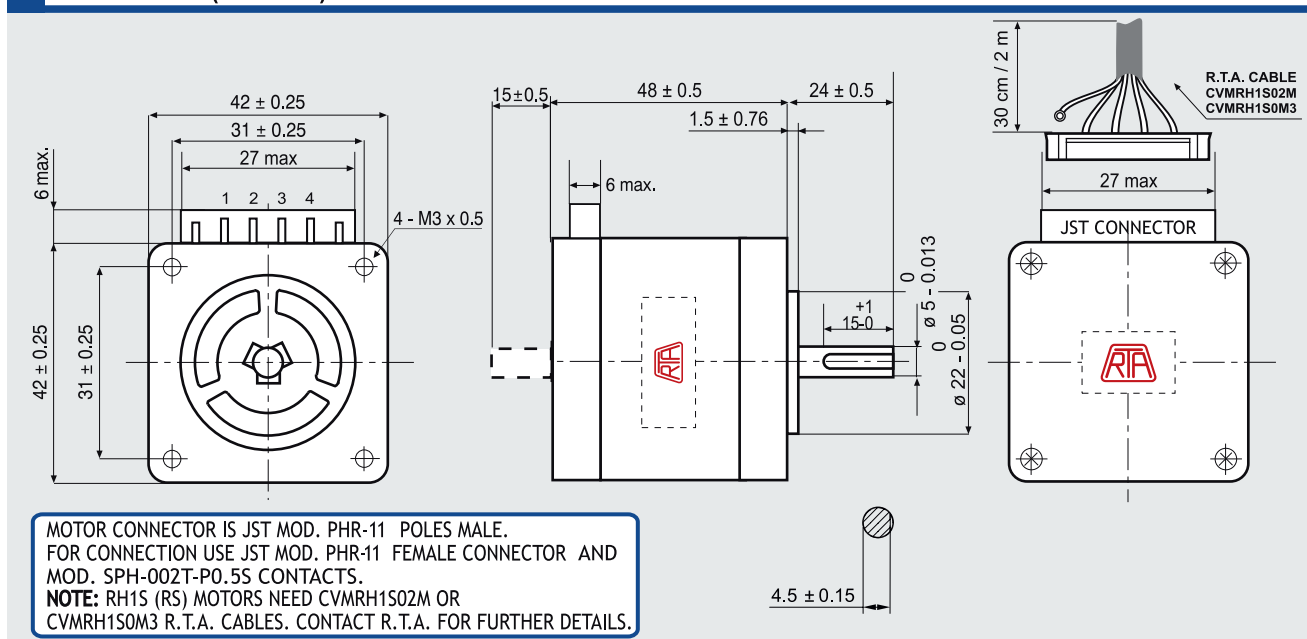
TORQUE/SPEED CURVE



Suggested R.T.A. drive series: BSD, CSD, FLEX-DRIVE

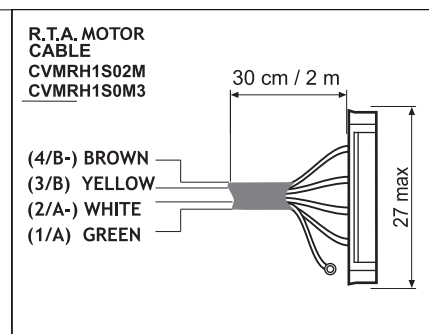
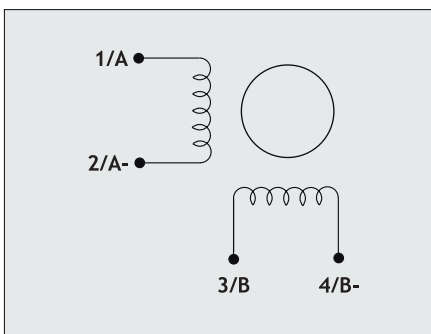
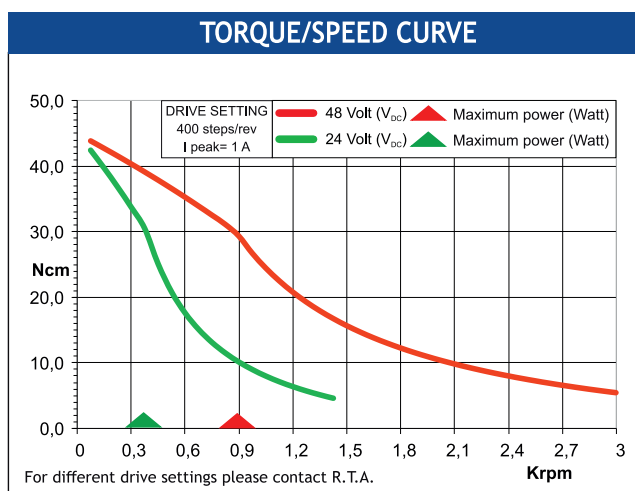
RH 1S2M

Dimensions (Unit:mm)



FEATURES		RH 1S2M (RH 1S2M-RS)
MODEL		
BASIC STEP ANGLE		1.8°
BIPOLAR CURRENT	(Amp)	1.0
UNIPOLAR CURRENT	(Amp)	
RESISTANCE	(Ohm)	5.3
INDUCTANCE	(mH)	12.5
BIPOLAR HOLDING TORQUE	(Ncm)	56
UNIPOLAR HOLDING TORQUE	(Ncm)	
ROTOR INERTIA	(Kgm ² x 10 ⁻⁷)	63
THEORETICAL ACCELERATION	(rad x sec. ⁻²)	88900
BACK E.M.F.	(V/Krpm)	56
MASS	(Kg)	0.38
PROTECTION DEGREE		IP40
LEADS CODE		V

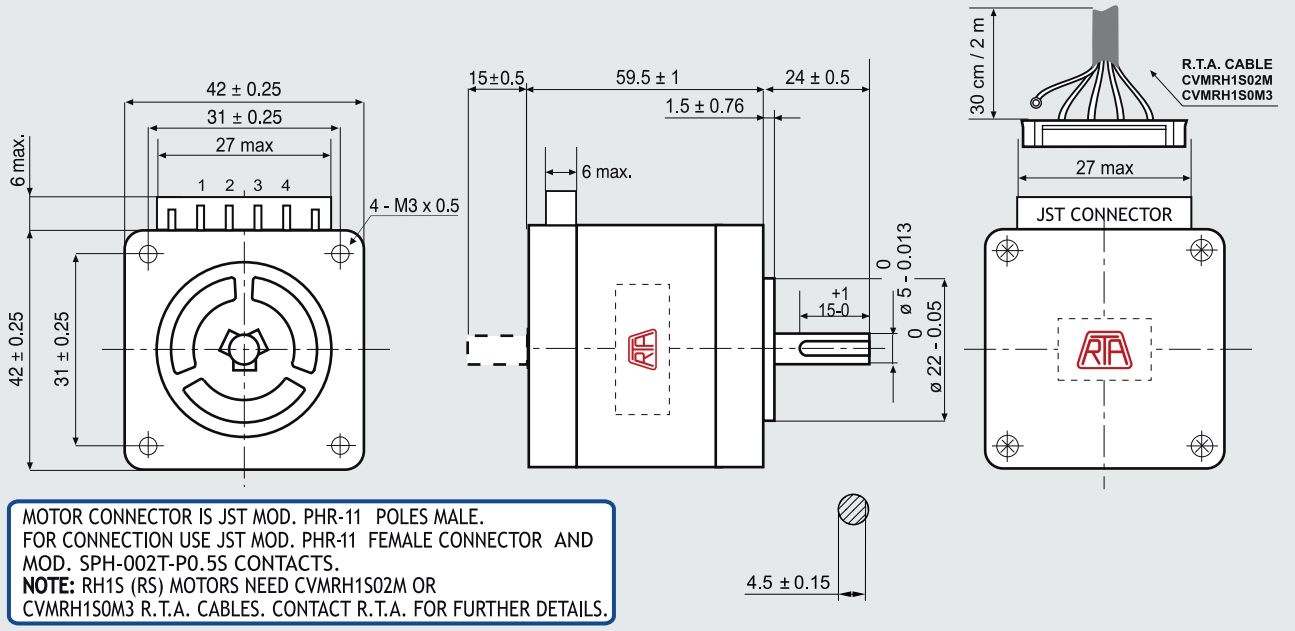
Codes between brackets refer to double shaft models.



Suggested R.T.A. drive series: BSD, CSD, FLEX-DRIVE

RH 1S3M

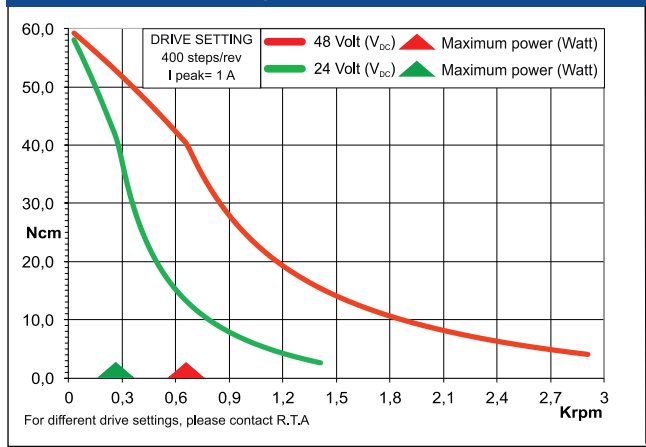
Dimensions (Unit:mm)



FEATURES

MODEL	RH 1S3M (RH 1S3M-RS)
BASIC STEP ANGLE	1.8°
BIPOLAR CURRENT (Amp)	1.0
UNIPOLAR CURRENT (Amp)	
RESISTANCE (Ohm)	6.5
INDUCTANCE (mH)	16
BIPOLAR HOLDING TORQUE (Ncm)	80
UNIPOLAR HOLDING TORQUE (Ncm)	
ROTOR INERTIA (Kg ^m ² x 10 ⁻⁷)	94
THEORETICAL ACCELERATION (rad x sec. ⁻²)	85100
BACK E.M.F. (V/Krpm)	80
MASS (Kg)	0.51
PROTECTION DEGREE	IP40
LEADS CODE	V

TORQUE/SPEED CURVE



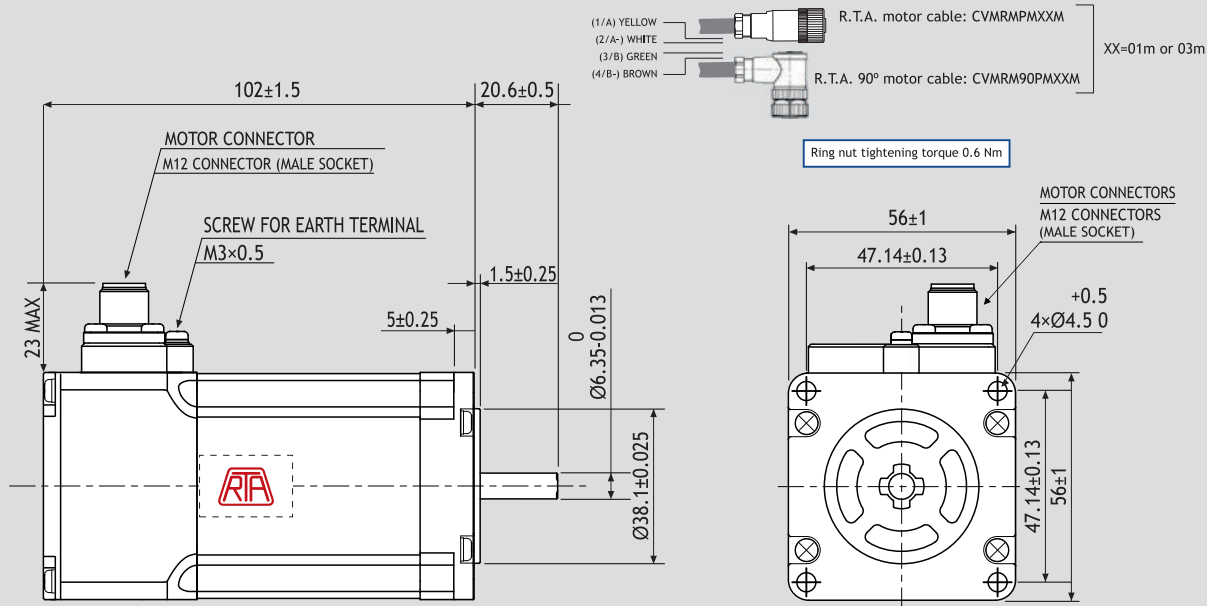
Codes between brackets refer to double shaft models.



Suggested R.T.A. drive series: BSD, CSD, FLEX-DRIVE

RM 2R2M

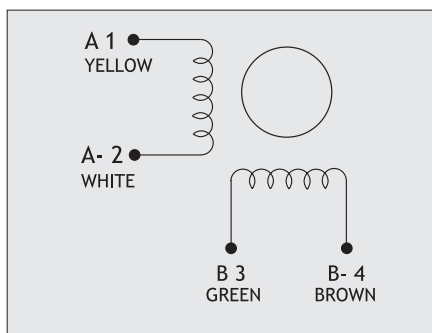
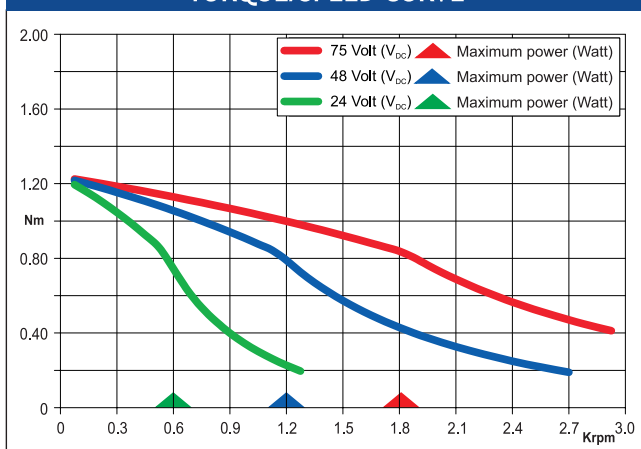
Dimensions (Unit:mm)



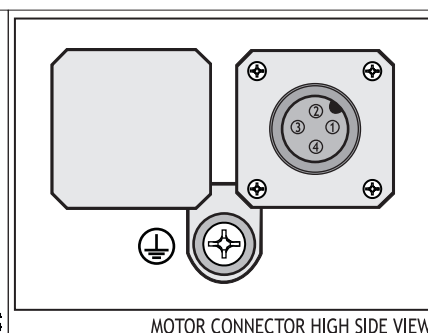
FEATURES

MODEL	RM 2R2M	
BASIC STEP ANGLE	1.8 ± 0.09°	
BIPOLAR CURRENT	(Amp)	4
RESISTANCE	(Ohm)	0.48
INDUCTANCE	(mH)	2.2
BIPOLAR HOLDING TORQUE	(Ncm)	165
ROTOR INERTIA	(Kg ^m ² x 10 ⁻⁷)	360
THEORETICAL ACCELERATION	(rad x sec. ⁻²)	45800
BACK E.M.F.	(V/Krpm)	31
MASS	(Kg)	1.2
INTERNATIONAL STANDARDS	UL, CSA, CE, RoHS	
PROTECTION DEGREE	IP 54	
LEADS CODE	V	

TORQUE/SPEED CURVE



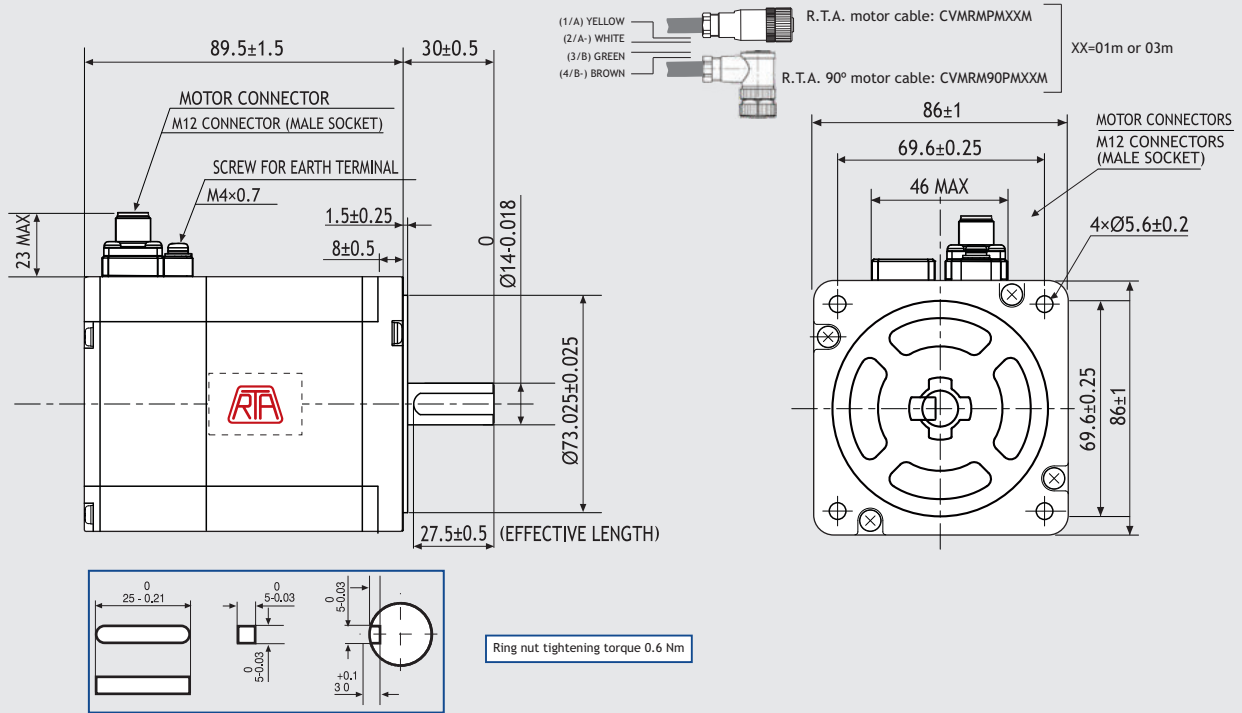
RIA
US



Suggested R.T.A. drive series: CSD, NDC, ADW, HGD, PLUS, FLEX-DRIVE

RM 3R1M

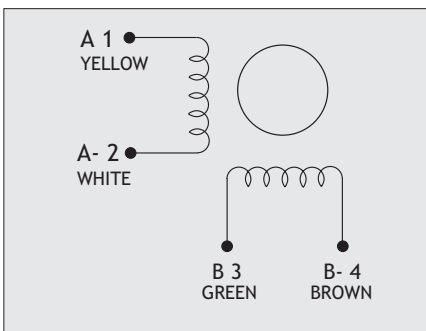
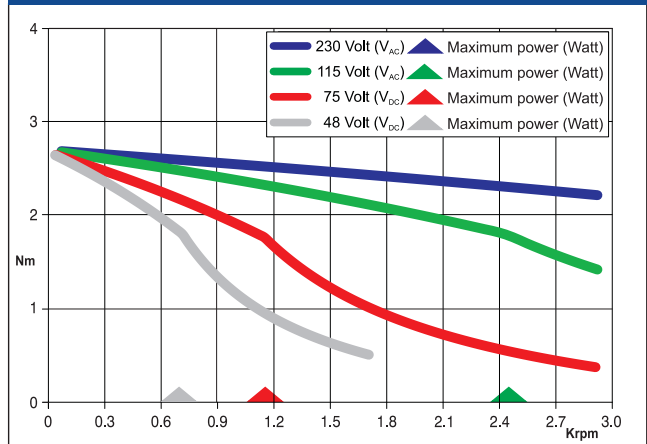
Dimensions (Unit:mm)



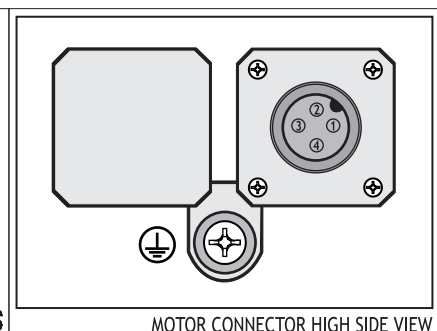
FEATURES

MODEL	RM 3R1M
BASIC STEP ANGLE	1.8 ± 0.09°
BIPOLAR CURRENT (Amp)	4
RESISTANCE (Ohm)	0.56
INDUCTANCE (mH)	3.7
BIPOLAR HOLDING TORQUE (Ncm)	360
ROTOR INERTIA (Kg ^m 2 x 10 ⁻⁷)	1480
THEORETICAL ACCELERATION (rad x sec. ⁻²)	24300
BACK E.M.F. (V/Krpm)	90
MASS (Kg)	1.95
INTERNATIONAL STANDARDS	UL, CSA, CE, RoHS
INSULATION VOLTAGE (V)	250 V _{AC} (350 V _{DC})
PROTECTION DEGREE - INSULATION CLASS	IP 54 - CLASS F
LEADS CODE	V

TORQUE/SPEED CURVE



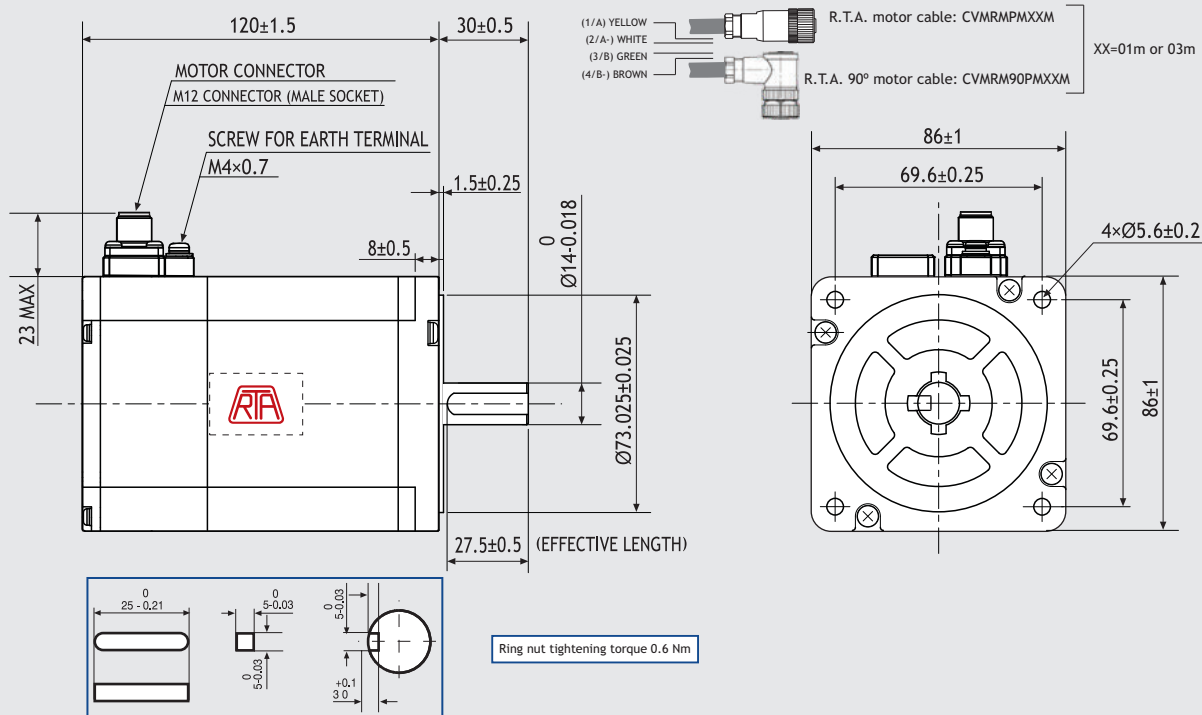
RIA
US



Suggested R.T.A. driver: 230 Vac X-PLUS series/230 Vac X-MIND series.

RM 3R2M

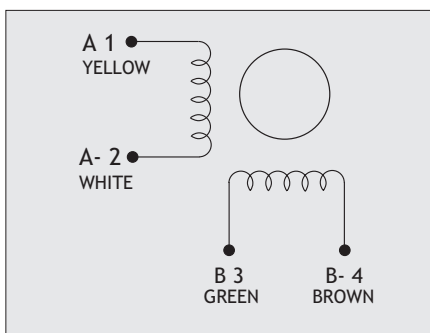
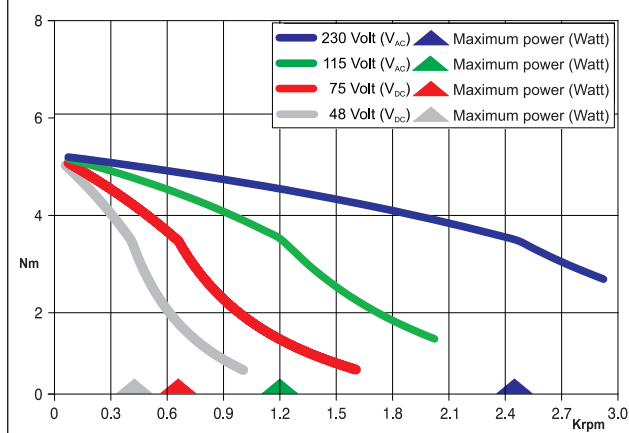
Dimensions (Unit:mm)



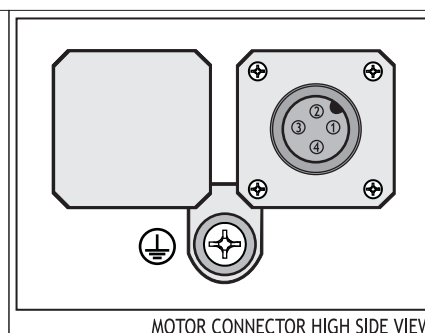
FEATURES

MODEL	RM 3R2M
BASIC STEP ANGLE	$1.8 \pm 0.09^\circ$
BIPOLAR CURRENT (Amp)	4
RESISTANCE (Ohm)	0.83
INDUCTANCE (mH)	6.4
BIPOLAR HOLDING TORQUE (Ncm)	700
ROTOR INERTIA ($\text{Kg m}^2 \times 10^{-7}$)	3000
THEORETICAL ACCELERATION ($\text{rad} \times \text{sec.}^{-2}$)	23330
BACK E.M.F. (V/Krpm)	175
MASS (Kg)	3.1
INTERNATIONAL STANDARDS	UL, CSA, CE, RoHS
INSULATION VOLTAGE (V)	250 V_{AC} (350 V_{DC})
PROTECTION DEGREE - INSULATION CLASS	IP 54 - CLASS F
LEADS CODE	V

TORQUE/SPEED CURVE



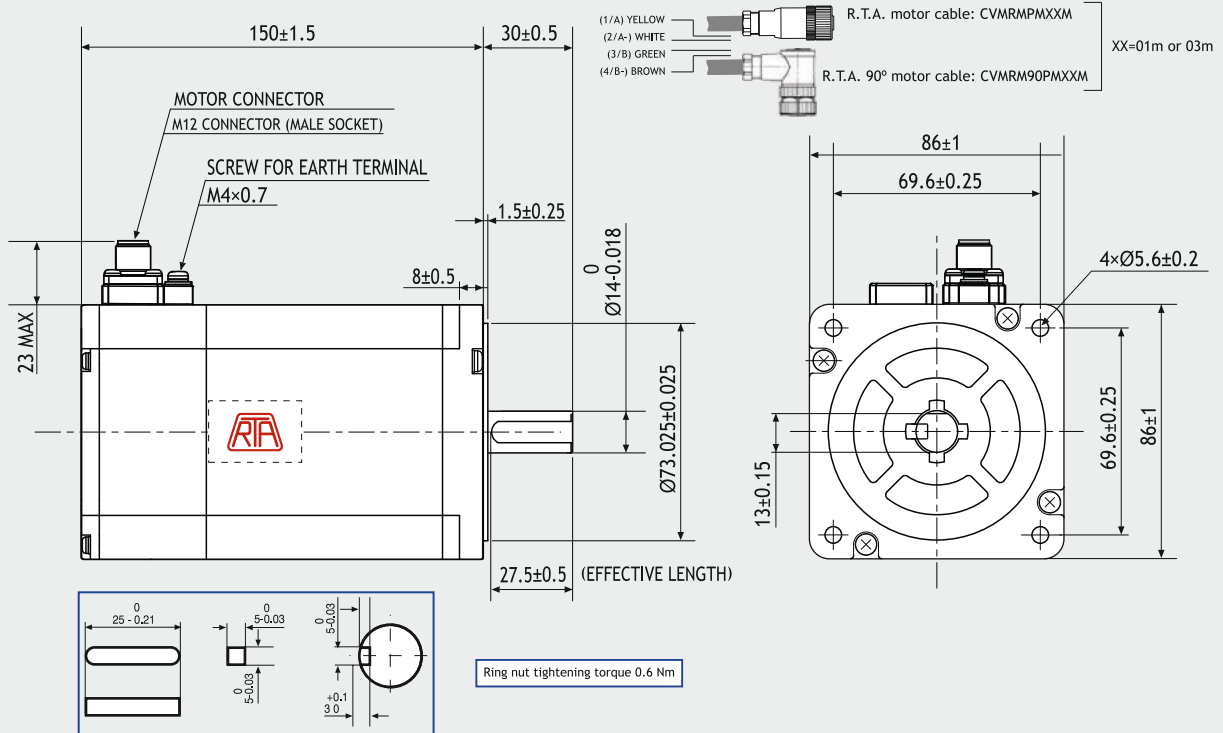
RIA[®] US



Suggested R.T.A. driver: 230 Vac X-PLUS series/230 Vac X-MIND series.

RM 3R3M

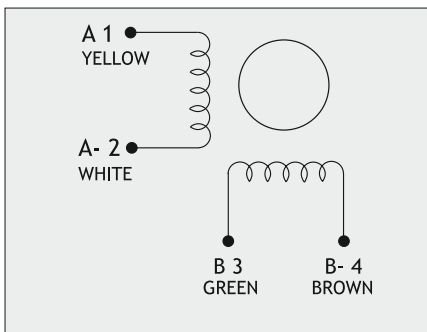
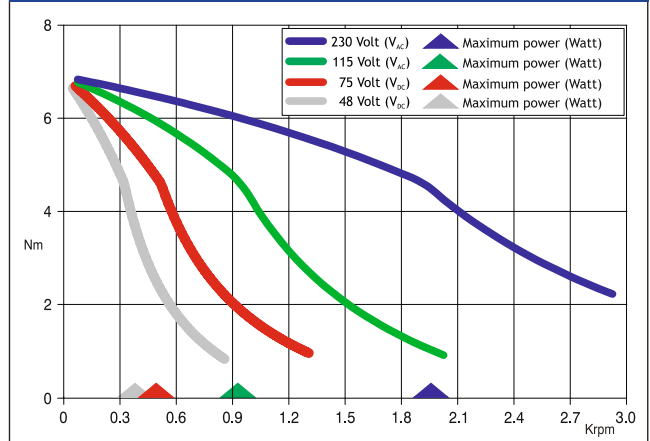
Dimensions (Unit:mm)



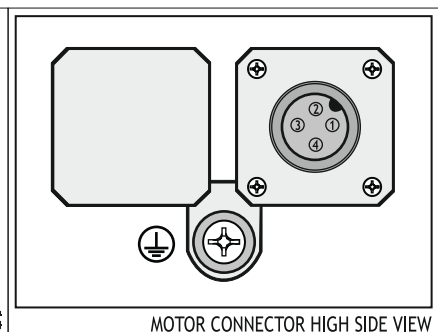
FEATURES

MODEL	RM 3R3M
BASIC STEP ANGLE	1.8 ± 0.09°
BIPOLAR CURRENT (Amp)	4
RESISTANCE (Ohm)	1
INDUCTANCE (mH)	7.9
BIPOLAR HOLDING TORQUE (Ncm)	920
ROTOR INERTIA (Kgm ² x 10 ⁻⁷)	4500
THEORETICAL ACCELERATION (rad x sec. ⁻²)	20500
BACK E.M.F. (V/Krpm)	241
MASS (Kg)	4.2
INTERNATIONAL STANDARDS	UL, CSA, CE, RoHS
INSULATION VOLTAGE (V)	250 V _{AC} (350 V _{DC})
PROTECTION DEGREE - INSULATION CLASS	IP 54 - CLASS F
LEADS CODE	V

TORQUE/SPEED CURVE



RIA[®] US



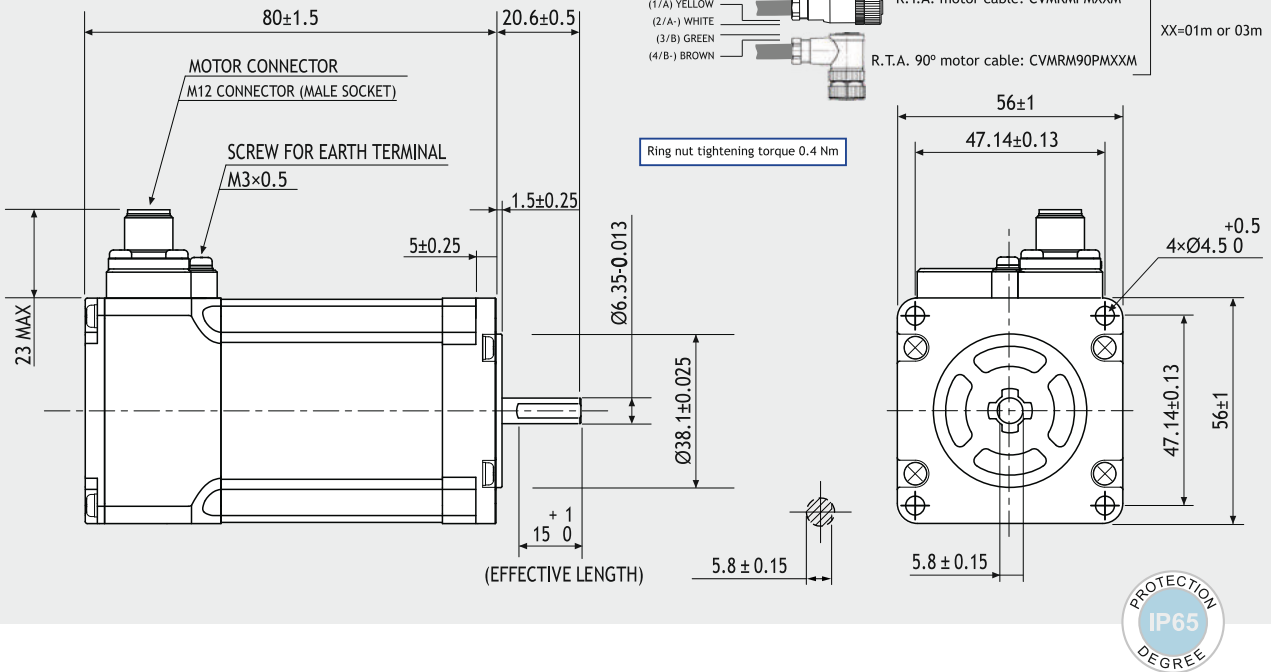
Suggested R.T.A. drive series: 230 Vac X-PLUS

SP 2563-5000

SANYO DENKI
SANMOTION



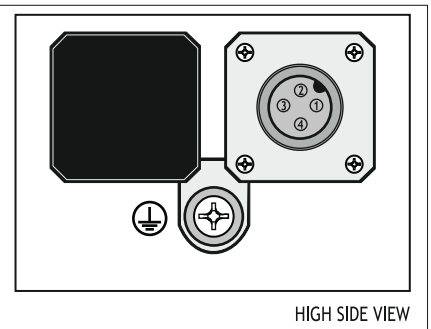
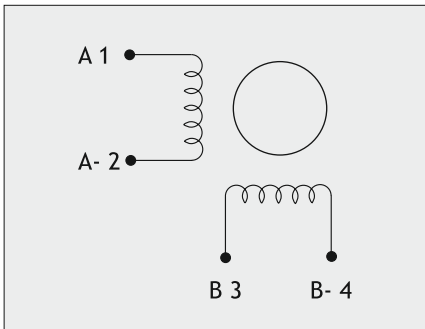
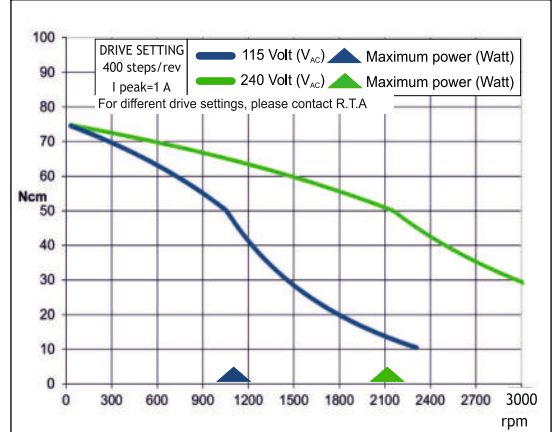
Dimensions (Unit:mm)



FEATURES

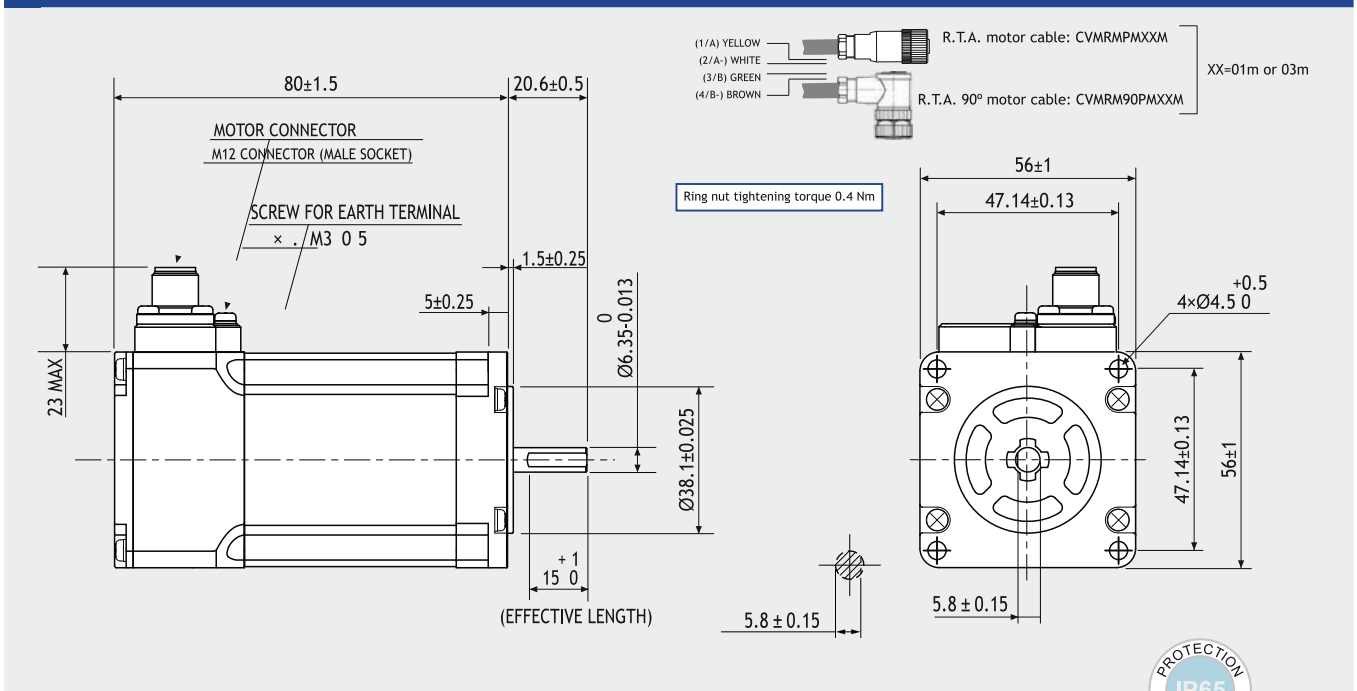
MODEL	SP 2563-5000	
BASIC STEP ANGLE		$1.8 \pm 0.09^\circ$
BIPOLAR CURRENT	(A)	1
RESISTANCE	(Ohm)	5.8
INDUCTANCE	(mH)	29
BIPOLAR HOLDING TORQUE	(Ncm)	100
ROTOR INERTIA	($\text{Kgm}^2 \times 10^{-7}$)	210
THEORETICAL ACCELERATION	($\text{rad} \times \text{sec}^{-2}$)	47600
BACK E.M.F.	(V/Krpm)	100
MASS	(Kg)	0.9
INTERNATIONAL STANDARDS		UL, CSA, CE, RoHS
INSULATION VOLTAGE	(V)	250 V _{AC} (350 V _{DC})
PROTECTION DEGREE - INSULATION CLASS		IP65 - F

TORQUE CURVE



Suggested R.T.A. drive model: X-PLUS L2

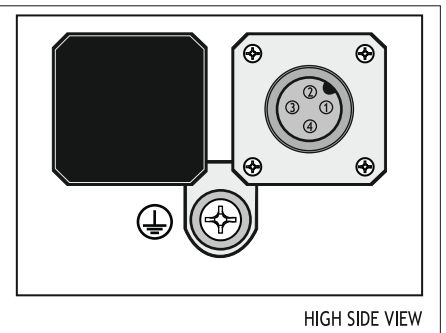
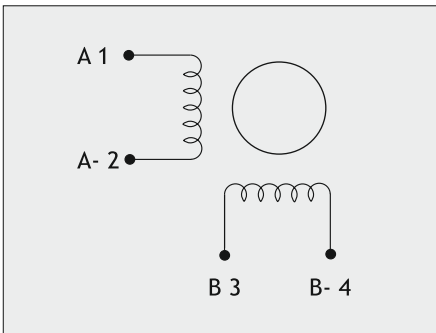
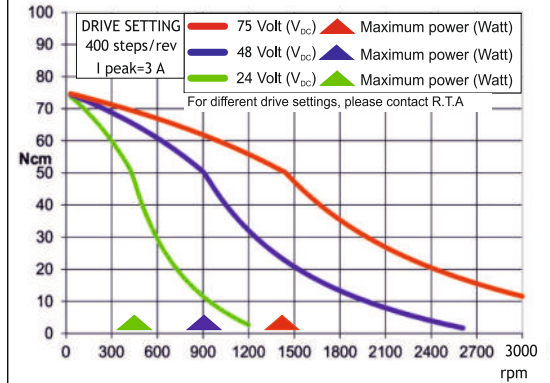
Dimensions (Unit:mm)



FEATURES

MODEL	SP 2563-5200	
BASIC STEP ANGLE	1.8 ± 0.09°	
BIPOLAR CURRENT	(A)	3
RESISTANCE	(Ohm)	0.75
INDUCTANCE	(mH)	3.4
BIPOLAR HOLDING TORQUE	(Ncm)	100
ROTOR INERTIA	(Kgm ² × 10 ⁻⁷)	210
THEORETICAL ACCELERATION	(rad × sec. ⁻²)	47600
BACK E.M.F.	(V/Krpm)	33
MASS	(Kg)	0.9
INTERNATIONAL STANDARDS	UL, CSA, CE, RoHS	
INSULATION VOLTAGE	(V)	250 V _{AC} (350 V _{DC})
PROTECTION DEGREE - INSULATION CLASS	IP65 - F	

TORQUE CURVE

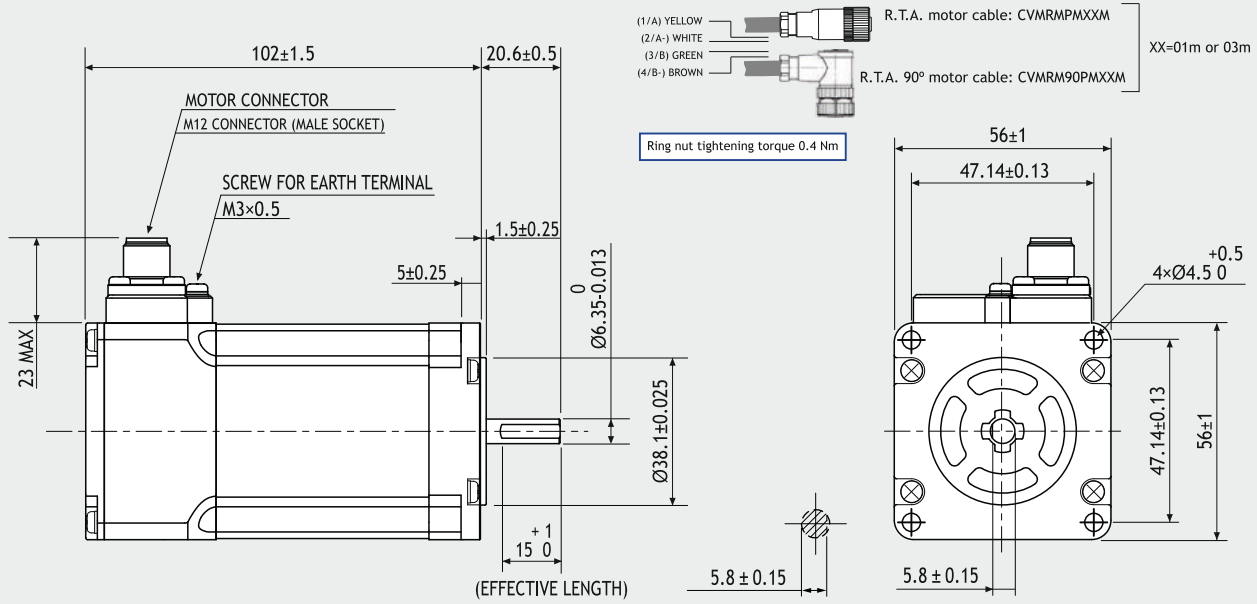


Suggested R.T.A. drive series: CSD, NDC, ADW, HGD, PLUS, FLEX-DRIVE

SP 2566-5200

SANYO DENKI
SANMOTION

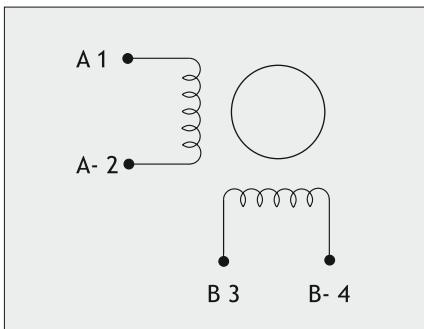
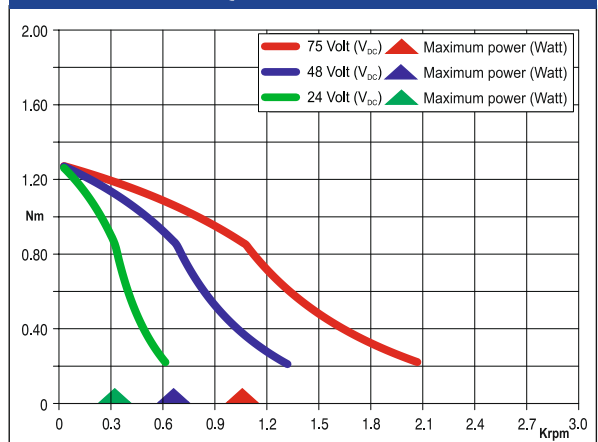
Dimensions (Unit:mm)



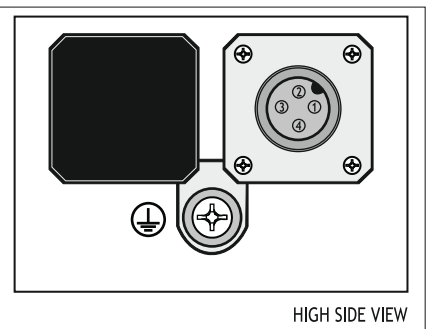
FEATURES

MODEL	SP 2566-5200	
BASIC STEP ANGLE	1.8 ± 0.09°	
BIPOLAR CURRENT	(Amp)	3
RESISTANCE	(Ohm)	0.94
INDUCTANCE	(mH)	4.4
BIPOLAR HOLDING TORQUE	(Ncm)	170
ROTOR INERTIA	(Kgm ² x 10 ⁻⁷)	360
THEORETICAL ACCELERATION	(rad x sec. ⁻²)	47200
BACK E.M.F.	(V/Krpm)	55
MASS	(Kg)	1.2
INTERNATIONAL STANDARDS	UL, CSA, CE, RoHS	
INSULATION VOLTAGE	(V)	250 V _{AC} (350 V _{DC})
PROTECTION DEGREE - INSULATION CLASS	IP65 - F	

TORQUE/SPEED CURVE

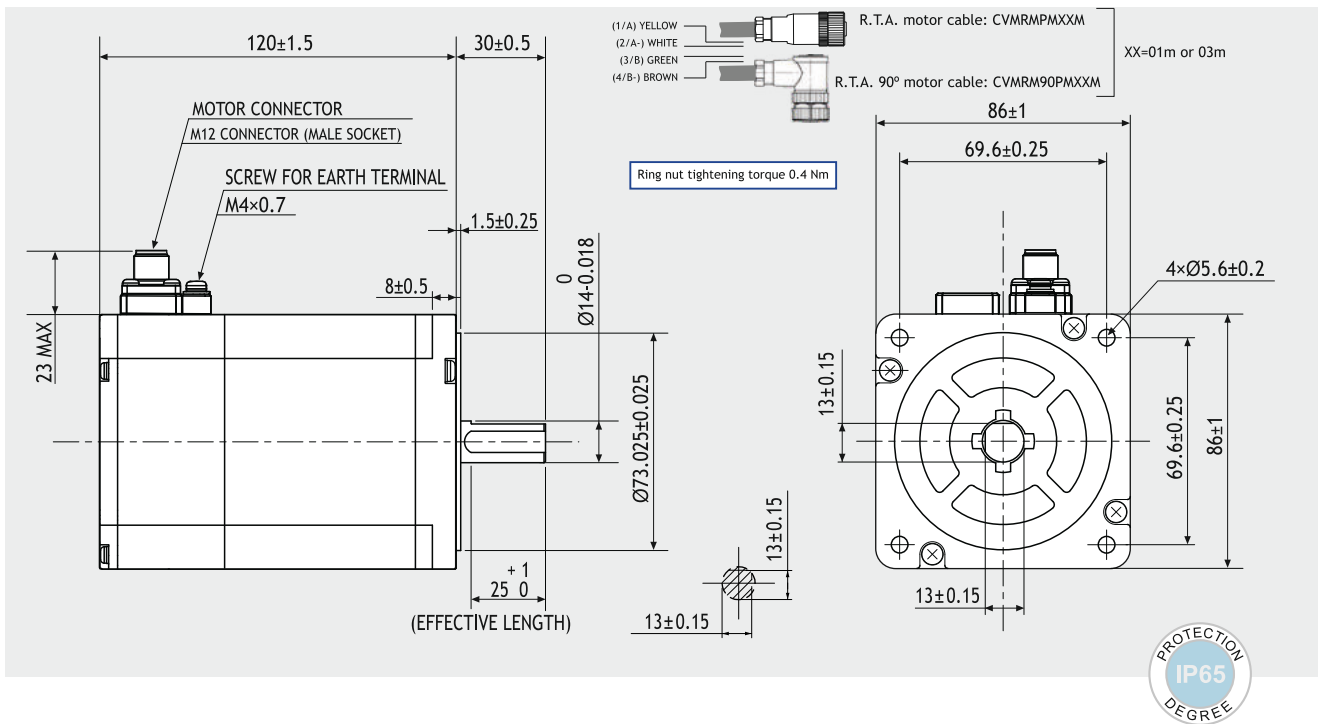


CALUS



Suggested R.T.A. drive series: CSD, NDC, ADW, HGD, PLUS, FLEX-DRIVE

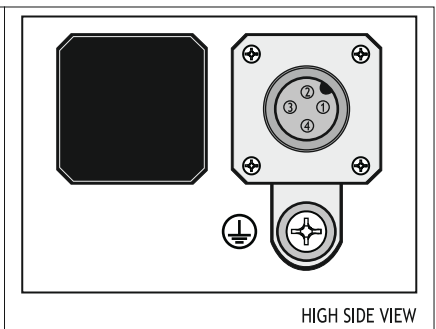
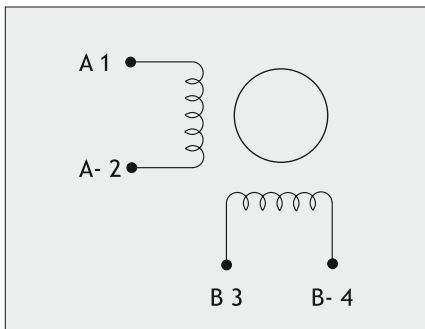
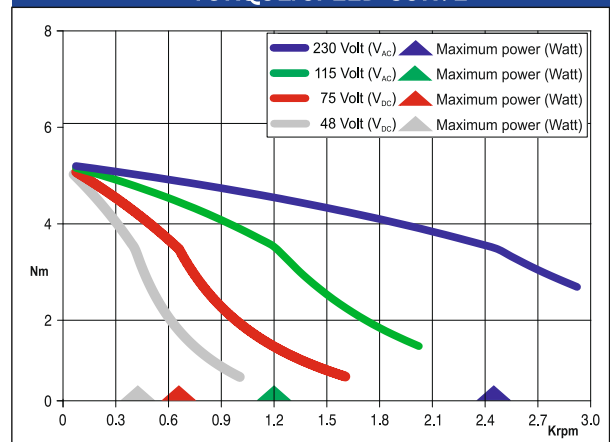
Dimensions (Unit:mm)



FEATURES

	MODEL	SP 2862-5100
BASIC STEP ANGLE		1.8 ± 0.09°
BIPOLAR CURRENT	(Amp)	4
RESISTANCE	(Ohm)	0.83
INDUCTANCE	(mH)	6.4
BIPOLAR HOLDING TORQUE	(Ncm)	700
ROTOR INERTIA	(Kgm ² × 10 ⁻⁷)	3000
THEORETICAL ACCELERATION	(rad × sec ⁻²)	23300
BACK E.M.F.	(V/Krpm)	175
MASS	(Kg)	3.1
INTERNATIONAL STANDARDS		UL, CSA, CE, RoHS
INSULATION VOLTAGE	(V)	250 V _{AC} (350 V _{DC})
PROTECTION DEGREE - INSULATION CLASS		IP65 - F

TORQUE/SPEED CURVE

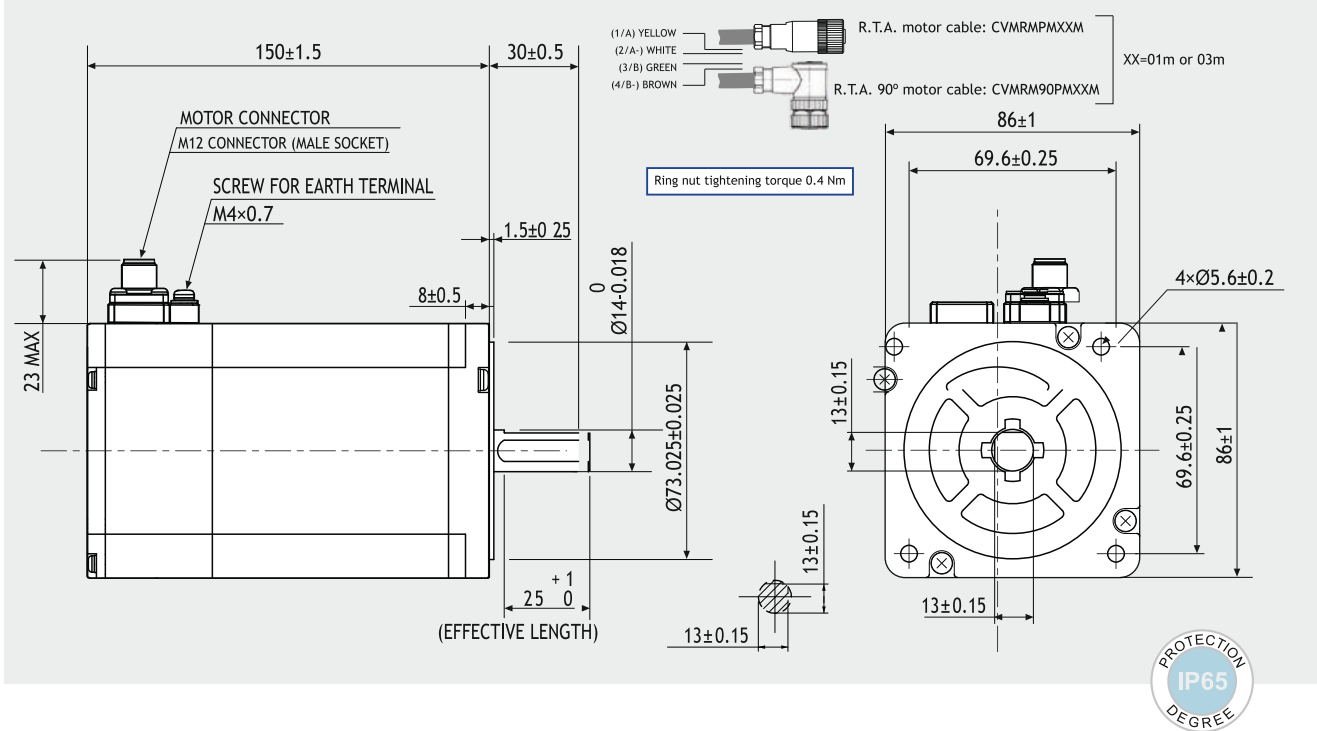


Suggested R.T.A. drive series: 230 Vac X-PLUS

SP 2863-5100

SANYO DENKI
SANMOTION

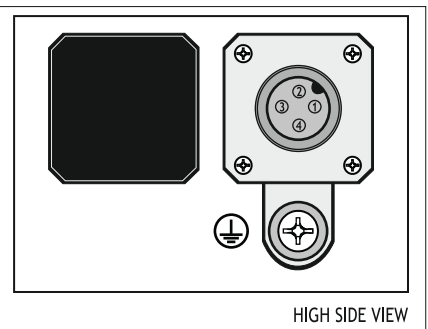
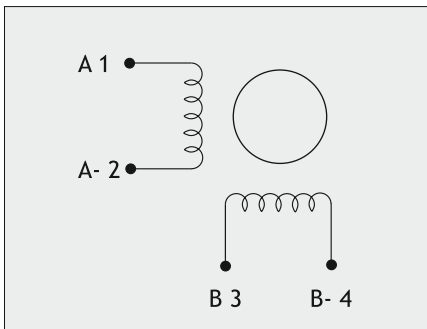
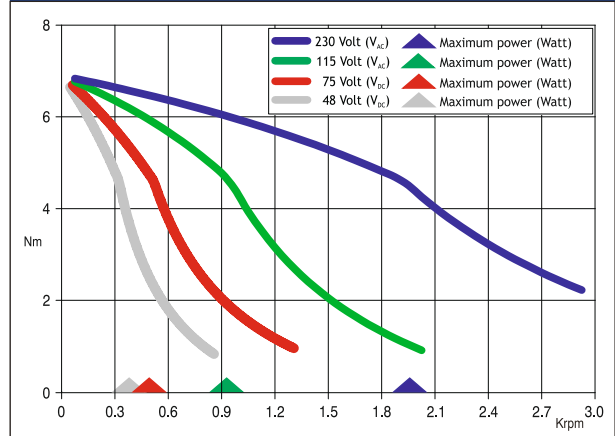
Dimensions (Unit:mm)



FEATURES

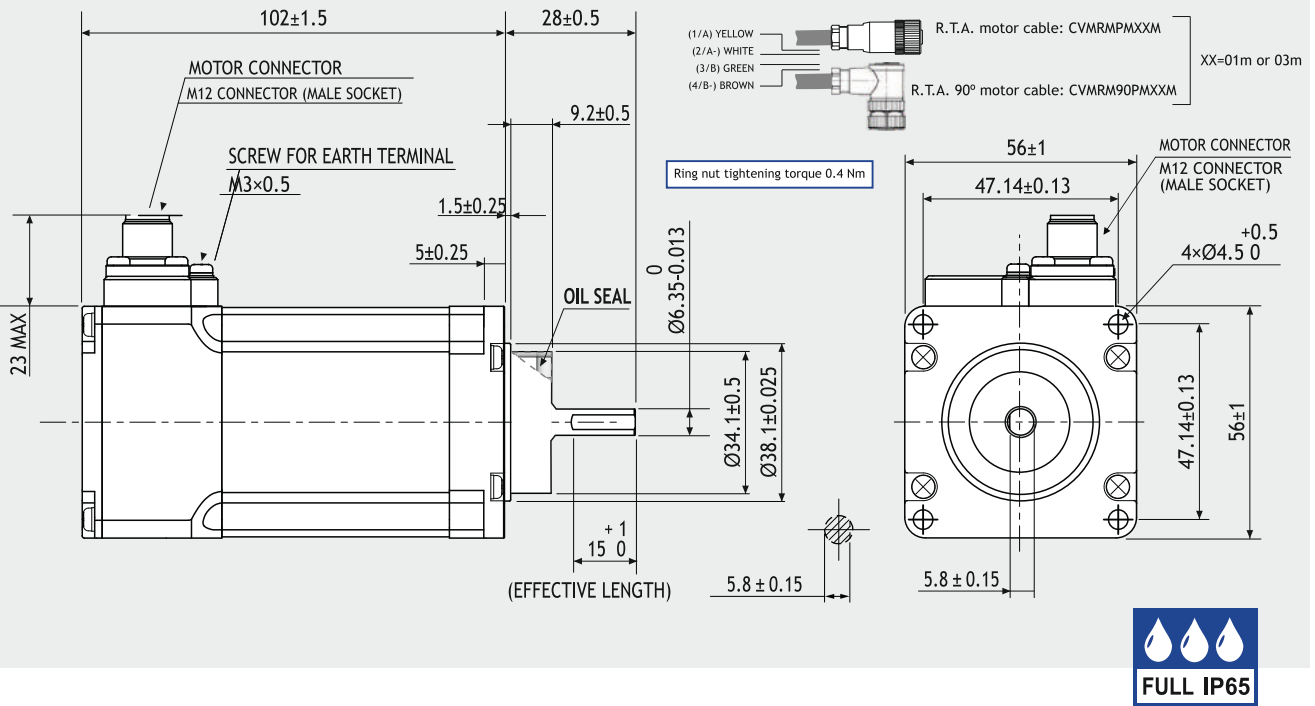
MODEL	SP 2863-5100	
BASIC STEP ANGLE	1.8 ± 0.09°	
BIPOLAR CURRENT	(Amp)	4
RESISTANCE	(Ohm)	1
INDUCTANCE	(mH)	7.9
BIPOLAR HOLDING TORQUE	(Ncm)	900
ROTOR INERTIA	(Kgm ² × 10 ⁻⁷)	4500
THEORETICAL ACCELERATION	(rad × sec. ⁻²)	20000
BACK E.M.F.	(V/Krpm)	225
MASS	(Kg)	4.2
INTERNATIONAL STANDARDS	UL, CSA, CE, RoHS	
INSULATION VOLTAGE	(V)	250 V _{AC} (350 V _{DC})
PROTECTION DEGREE - INSULATION CLASS	IP65 - F	

TORQUE/SPEED CURVE



Suggested R.T.A. drive series: 230 Vac X-PLUS

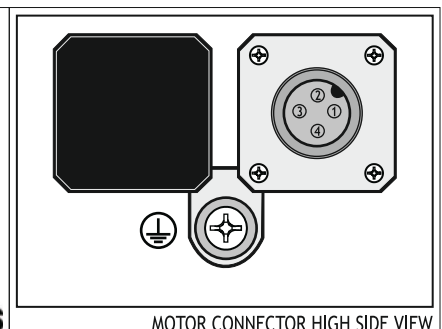
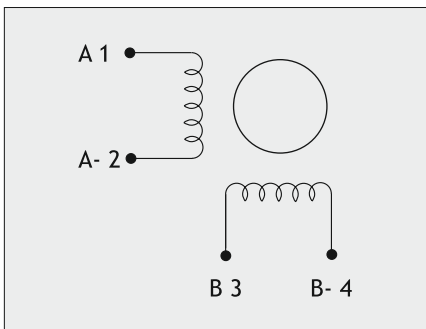
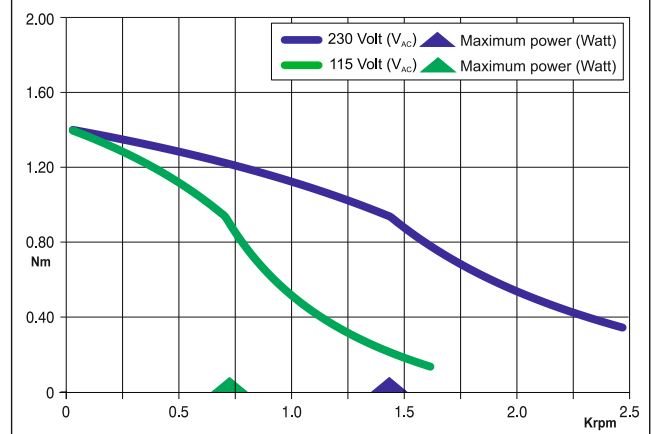
Dimensions (Unit:mm)



FEATURES

MODEL	SP2566-50SX00	
BASIC STEP ANGLE	1.8° ± 0.09°	
BIPOLAR CURRENT	(Amp)	1.0
RESISTANCE	(Ohm)	7.7
INDUCTANCE	(mH)	35.4
BIPOLAR HOLDING TORQUE	(Ncm)	170
ROTOR INERTIA	(Kg ^m 2 x 10 ⁻⁷)	360
THEORETICAL ACCELERATION	(rad x sec. ⁻²)	47200
BACK E.M.F.	(V/Krpm)	160
MASS	(Kg)	1.2
INTERNATIONAL STANDARDS	UL, CSA, CE, RoHS	
INSULATION VOLTAGE	(V)	250 V _{AC} (350 V _{DC})
PROTECTION DEGREE - INSULATION CLASS	FULL IP65 - F	
LEADS CODE	V	

TORQUE/SPEED CURVE

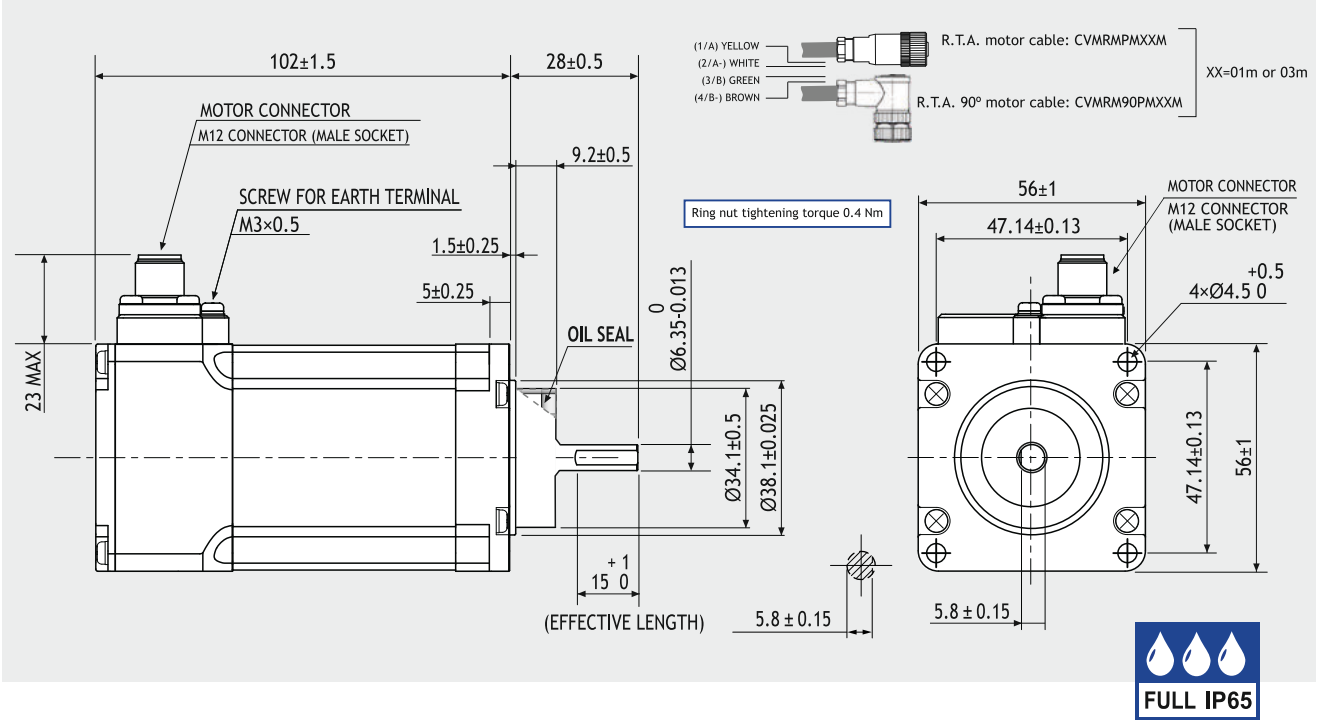


Suggested R.T.A. drive series: X-PLUS L2

SP2566-52SX00

SANYO DENKI
SANMOTION

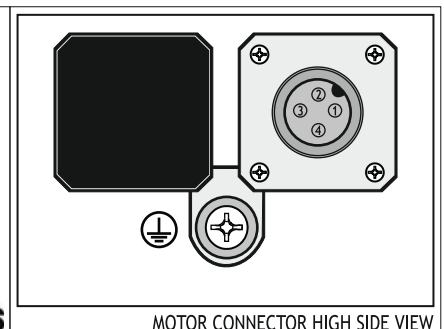
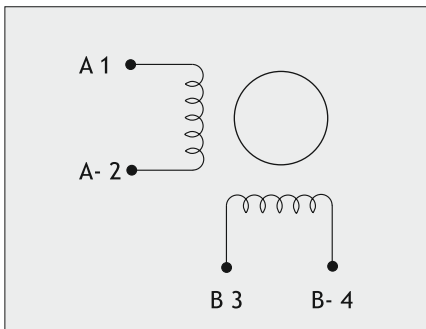
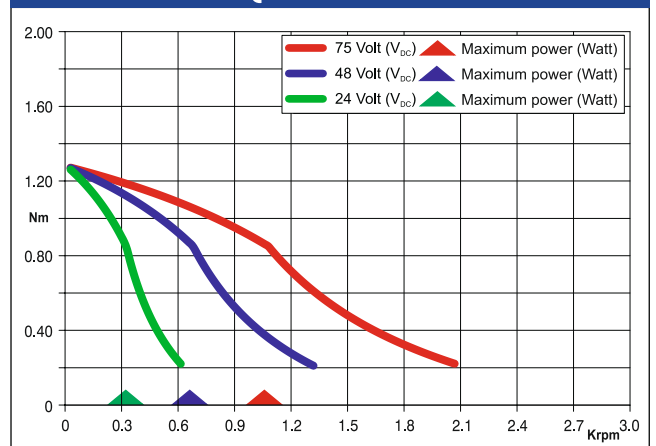
Dimensions (Unit:mm)



FEATURES

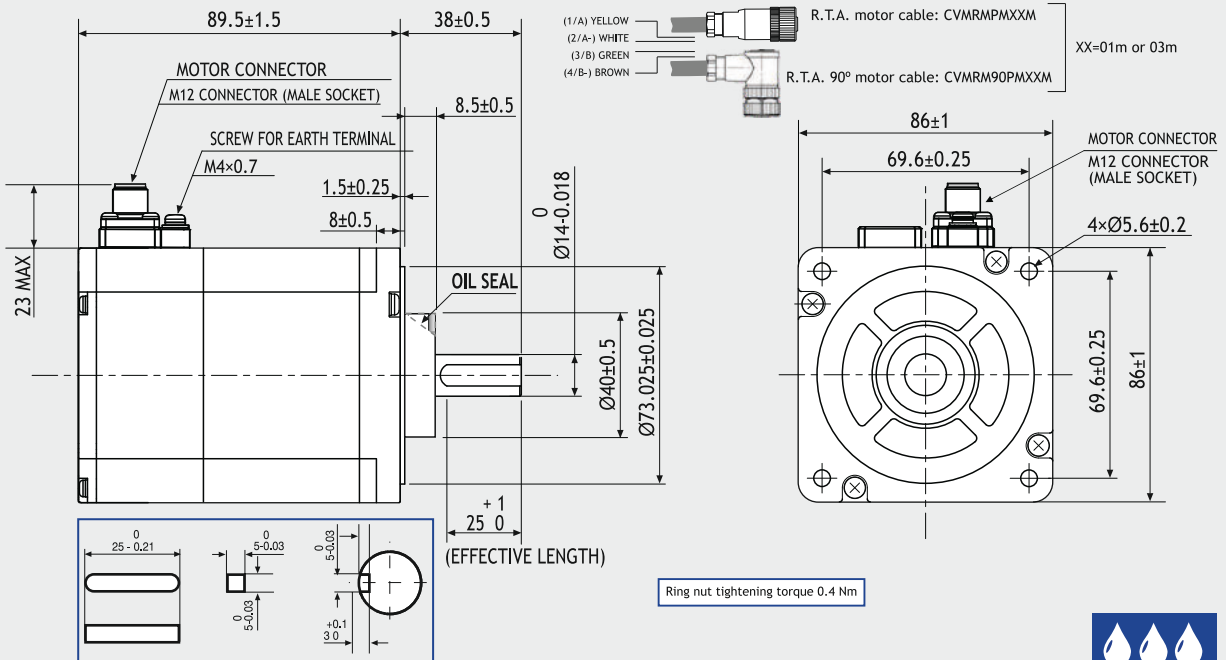
MODEL	SP2566-52SX00
BASIC STEP ANGLE	$1.8^\circ \pm 0.09^\circ$
BIPOLAR CURRENT (Amp)	3.0
RESISTANCE (Ohm)	0.94
INDUCTANCE (mH)	4.4
BIPOLAR HOLDING TORQUE (Ncm)	170
ROTOR INERTIA ($\text{Kg} \cdot \text{m}^2 \times 10^{-7}$)	360
THEORETICAL ACCELERATION ($\text{rad} \times \text{sec}^{-2}$)	47200
BACK E.M.F. (V/Krpm)	55
MASS (Kg)	1.2
INTERNATIONAL STANDARDS	UL, CSA, CE, RoHS
INSULATION VOLTAGE (V)	250 V _{AC} (350 V _{DC})
PROTECTION DEGREE - INSULATION CLASS	FULL IP65 - F
LEADS CODE	V

TORQUE/SPEED CURVE



Suggested R.T.A. drive series: CSD, NDC, ADW, HGD, PLUS, FLEX-DRIVE

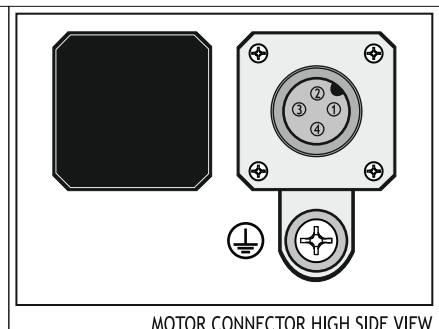
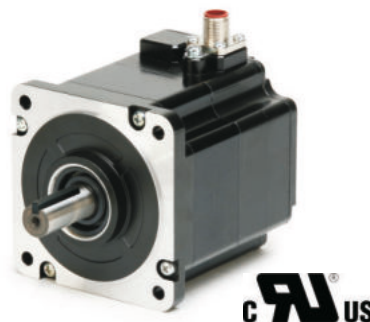
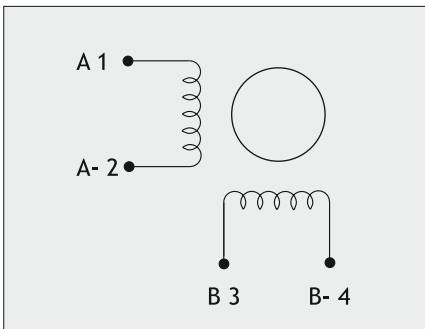
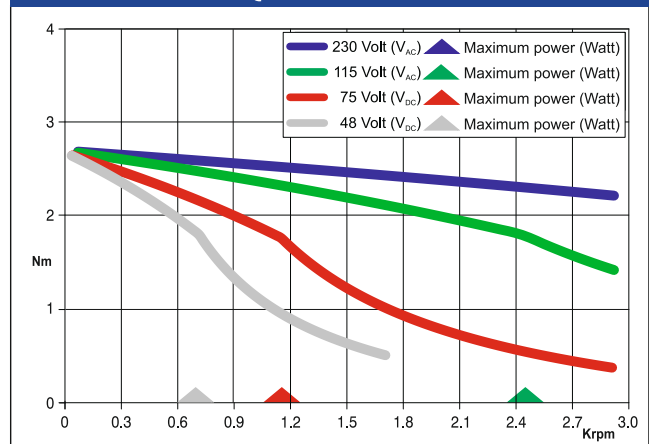
Dimensions (Unit:mm)



FEATURES

	MODEL	SP2861-51SX01
BASIC STEP ANGLE		1.8° ± 0.09°
BIPOLAR CURRENT	(Amp)	4.0
RESISTANCE	(Ohm)	0.56
INDUCTANCE	(mH)	3.7
BIPOLAR HOLDING TORQUE	(Ncm)	360
ROTOR INERTIA	(Kgm ² × 10 ⁻⁷)	1480
THEORETICAL ACCELERATION	(rad × sec. ⁻²)	24300
BACK E.M.F.	(V/Krpm)	90
MASS	(Kg)	1.9
INTERNATIONAL STANDARDS		UL, CSA, CE, RoHS
INSULATION VOLTAGE	(V)	250 V _{ac} (350 V _{dc})
PROTECTION DEGREE - INSULATION CLASS		FULL IP65 - F
LEADS CODE		V

TORQUE/SPEED CURVE

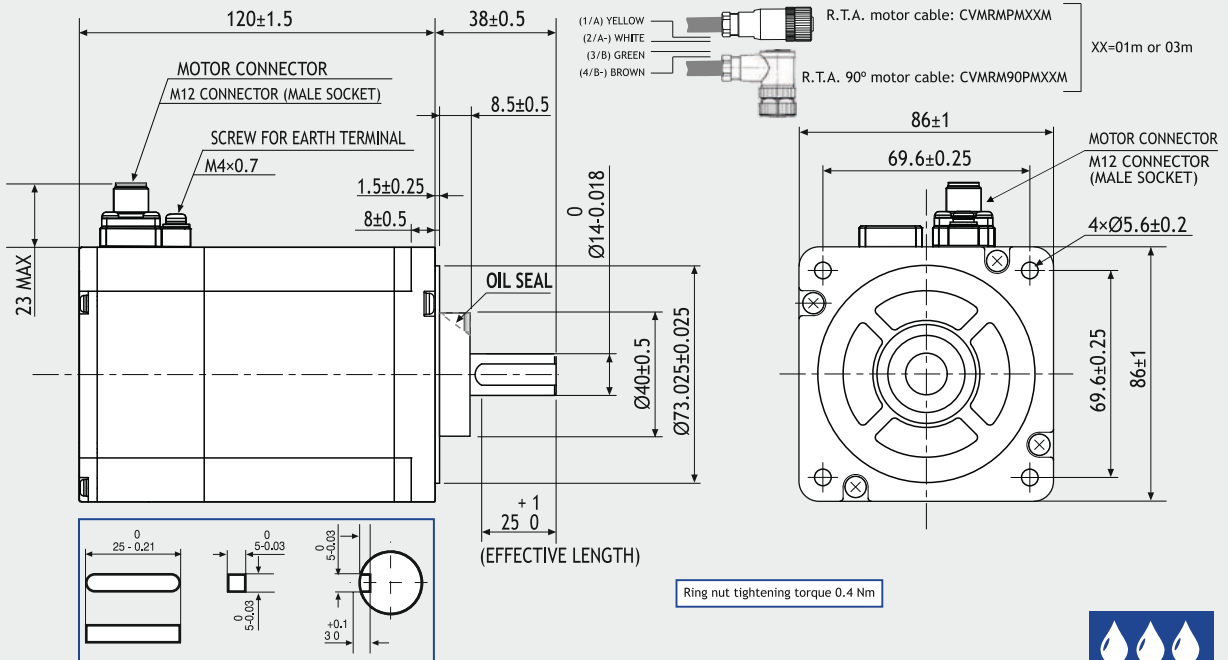


Suggested R.T.A. drive series: CSD, NDC, ADW, HGD, PLUS, FLEX-DRIVE

SP2862-51SX01

SANYO DENKI
SANMOTION

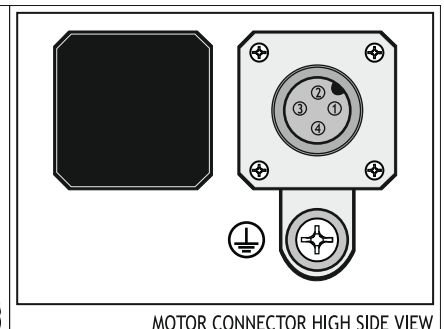
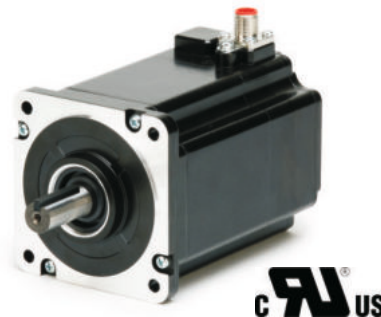
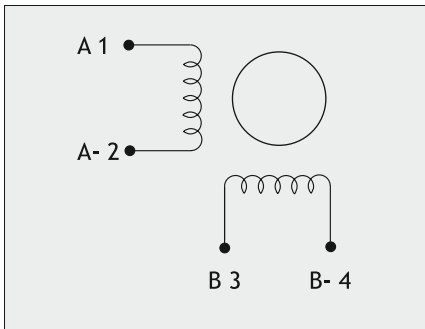
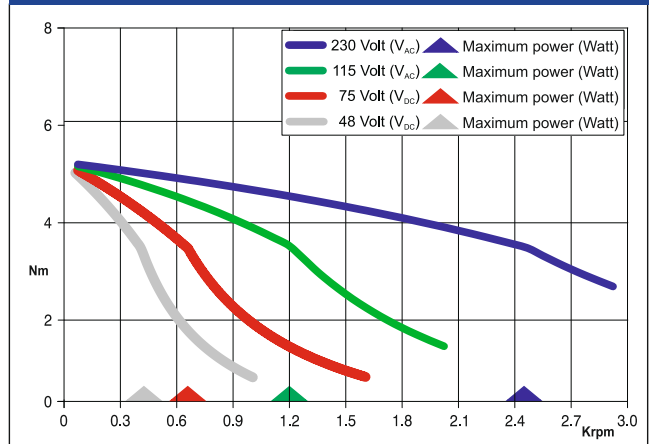
Dimensions (Unit:mm)



FEATURES

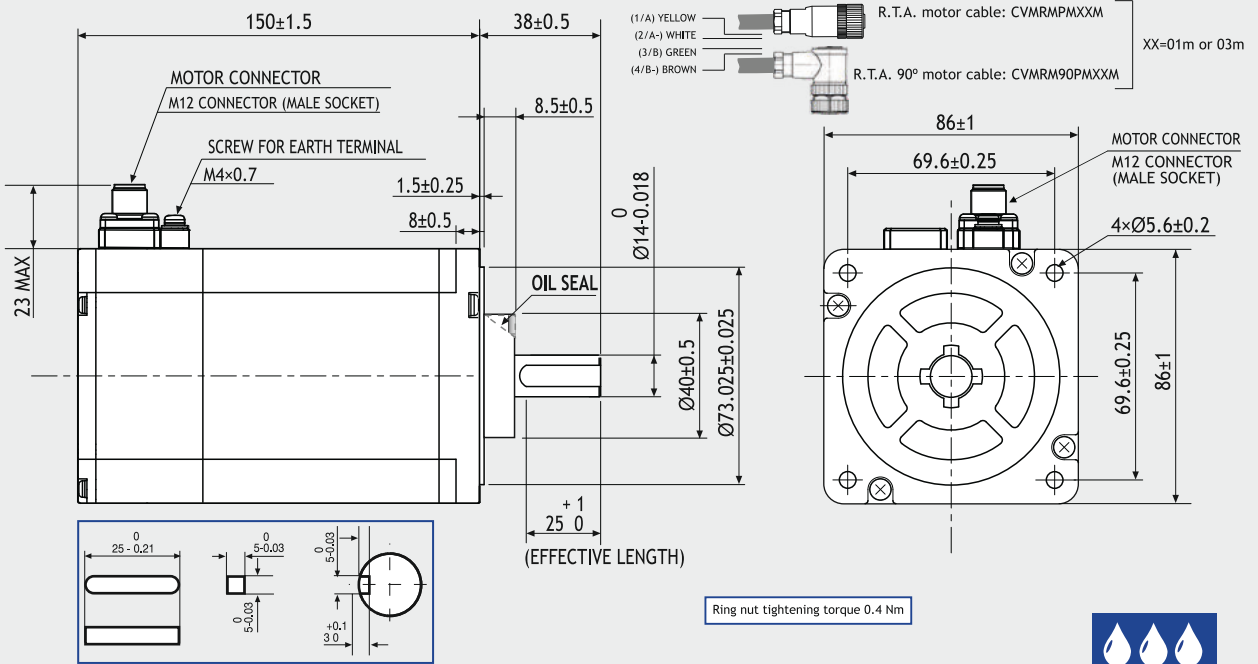
MODEL	SP2862-51SX01	
BASIC STEP ANGLE	$1.8^\circ \pm 0.09^\circ$	
BIPOLAR CURRENT	(Amp)	4.0
RESISTANCE	(Ohm)	0.83
INDUCTANCE	(mH)	6.4
BIPOLAR HOLDING TORQUE	(Ncm)	700
ROTOR INERTIA	($\text{Kgm}^2 \times 10^{-7}$)	3000
THEORETICAL ACCELERATION	($\text{rad} \times \text{sec}^{-2}$)	23300
BACK E.M.F.	(V/Krpm)	175
MASS	(Kg)	3.1
INTERNATIONAL STANDARDS	UL, CSA, CE, RoHS	
INSULATION VOLTAGE	(V)	250 V _{AC} (350 V _{DC})
PROTECTION DEGREE - INSULATION CLASS	FULL IP65 - F	
LEADS CODE	V	

TORQUE/SPEED CURVE



Suggested R.T.A. drive series: 230 Vac X-PLUS

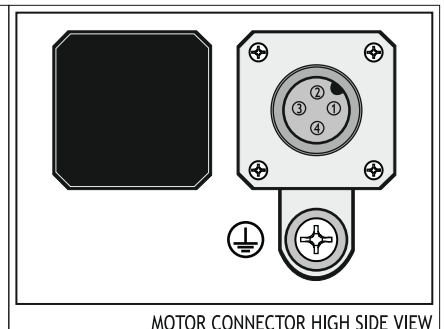
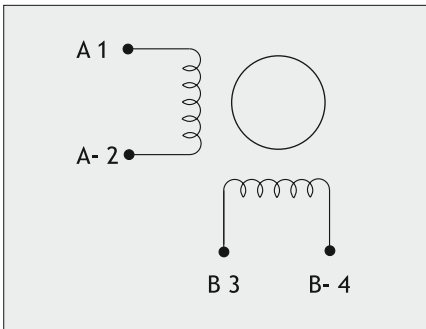
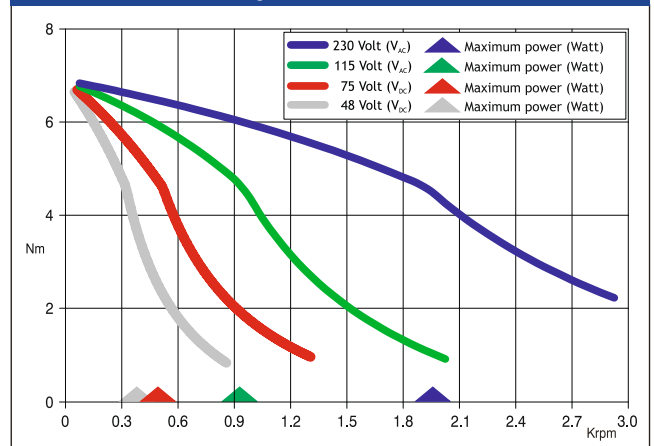
Dimensions (Unit:mm)



FEATURES

MODEL	SP2863-51SX01	
BASIC STEP ANGLE	1.8° ± 0.09°	
BIPOLAR CURRENT	(Amp)	4.0
RESISTANCE	(Ohm)	1.0
INDUCTANCE	(mH)	7.9
BIPOLAR HOLDING TORQUE	(Ncm)	920
ROTOR INERTIA	(Kg ^m ² x 10 ⁻⁷)	4500
THEORETICAL ACCELERATION	(rad x sec. ⁻²)	20500
BACK E.M.F.	(V/Krpm)	241
MASS	(Kg)	4.2
INTERNATIONAL STANDARDS	UL, CSA, CE, RoHS	
INSULATION VOLTAGE	(V)	250 V _{ac} (350 V _{dc})
PROTECTION DEGREE - INSULATION CLASS	FULL IP65 - F	
LEADS CODE	V	

TORQUE/SPEED CURVE



Suggested R.T.A. drive series: 230 Vac X-PLUS

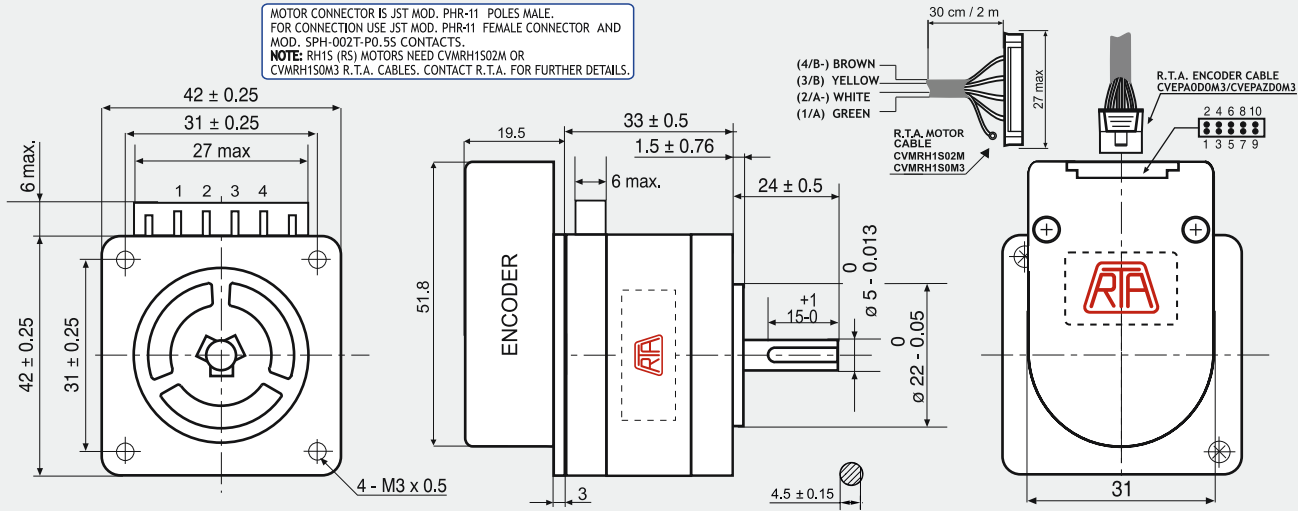
STEPPING MOTORS

INDUSTRIAL STEPPING MOTORS WITH ENCODER



RH 1S0M-OXX0

Dimensions (Unit:mm)

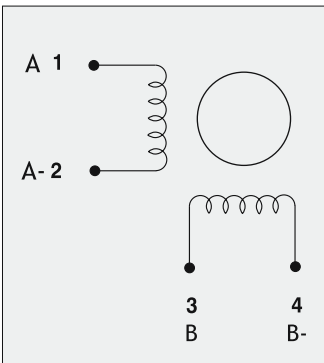
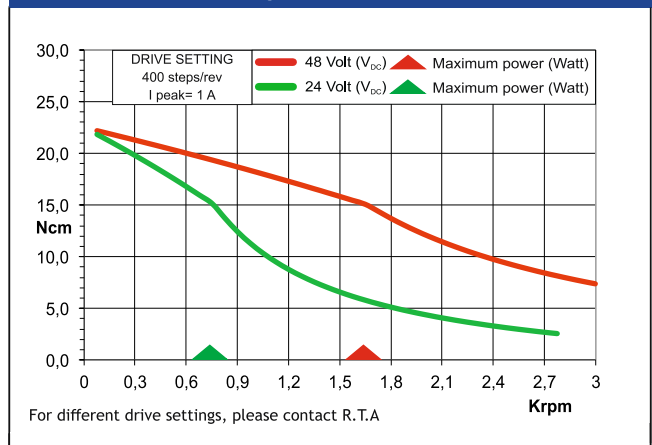


ENCODER OPTIONS:	RH 1S0M-04D0	RH 1S0M-04E0	RH 1S0M-0HE0
RESOLUTION	400 cpr	400 cpr	4000 cpr
INDEX	No	Yes	Yes
CURRENT CONSUMPTION (mA)	50	50	85
HIGH LEVEL OUTPUT (Volt)	5 (TIP) - 4.75 (MIN) (I _{max} =25mA)	3.4 (TIP) - 2.4 (MIN) (I _{max} =20mA)	3.4 (TIP) - 2.4 (MIN) (I _{max} =20mA)
LOW LEVEL OUTPUT (Volt)	0.25 (TIP) - 0.6 (MAX) (I _{max} =25mA)	0.2 (TIP) - 0.4 (MAX) (I _{max} =20mA)	0.2 (TIP) - 0.4 (MAX) (I _{max} =20mA)
OUTPUT SIGNAL	Differential	Differential	Differential
MAXIMUM FREQUENCY (KHz)	100	100	720
POWER SUPPLY VOLTAGE (Volt)	5 V _{DC} ± 10%	5 V _{DC} ± 10%	5 V _{DC} ± 10%

FEATURES

MODEL	RH 1S0M
BASIC STEP ANGLE	1.8°
BIPOLAR CURRENT (A)	1.0
UNIPOlar CURRENT (A)	
RESISTANCE (Ohm)	3.6
INDUCTANCE (mH)	7
BIPOLAR HOLDING TORQUE (Ncm)	29
UNIPOlar HOLDING TORQUE (Ncm)	
ROTOR INERTIA (Kg·m ² × 10 ⁻⁷)	31
THEORETICAL ACCELERATION (rad × sec ⁻²)	93500
BACK E.M.F. (V/Krpm)	29
MASS (Kg)	0.23
PROTECTION DEGREE	IP40
LEADS CODE	V

TORQUE/SPEED CURVE



RTA MOTOR CABLE COLORS

DESCRIPTION	Color
CHANNEL A	GREEN
CHANNEL A-	WHITE
CHANNEL B	YELLOW
CHANNEL B-	BROWN

ENCODER PIN-OUT

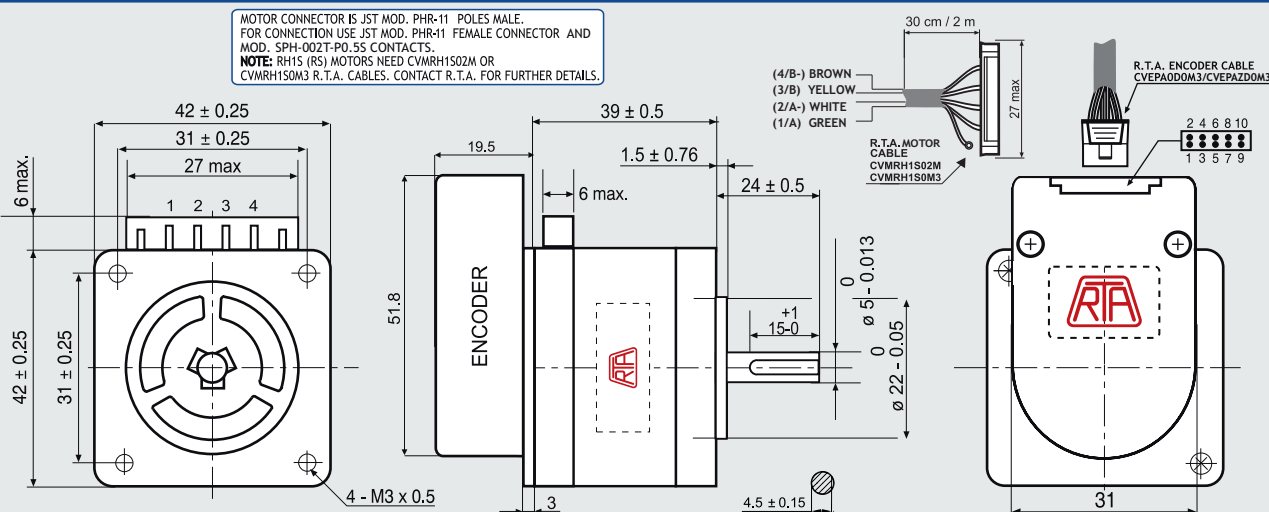
DESCRIPTION	04D0 PINS	04E0/OHE0 PINS	R.T.A. CABLE LEADS COLOR
CHANNEL A+	6	6	GREEN
CHANNEL A-	5	5	PURPLE
CHANNEL B+	8	8	BLUE
CHANNEL B-	7	7	BROWN
+ DC (5V)	2	2	RED
GROUND	3	3	BLACK
INDEX+	/	10	ORANGE
INDEX-	/	9	WHITE

R.T.A. CABLE (30 cm) CVEPA0D0M3 CVEPAZD0M3

Suggested R.T.A. drive series: BSD, CSD, FLEX-DRIVE

RH 1S1M-OXX0

Dimensions (Unit:mm)

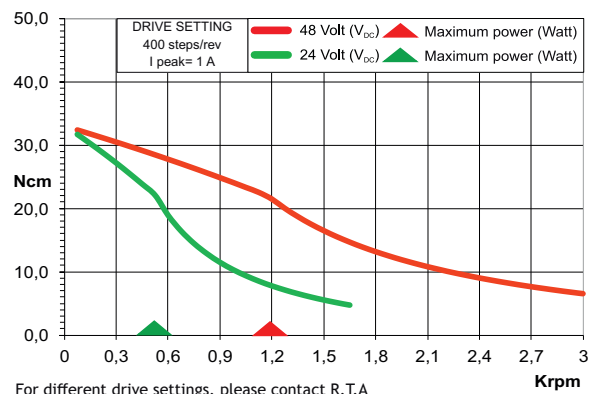


ENCODER OPTIONS:	RH 1S1M-04D0	RH 1S1M-04E0	RH 1S1M-0HE0
RESOLUTION	400 cpr	400 cpr	4000 cpr
INDEX	No	Yes	Yes
CURRENT CONSUMPTION (mA)	50	50	85
HIGH LEVEL OUTPUT (Volt)	5 (TIP) - 4.75 (MIN) (I _{max} =25mA)	3.4 (TIP) - 2.4 (MIN) (I _{max} =20mA)	3.4 (TIP) - 2.4 (MIN) (I _{max} =20mA)
LOW LEVEL OUTPUT (Volt)	0.25 (TIP) - 0.6 (MAX) (I _{max} =25mA)	0.2 (TIP) - 0.4 (MAX) (I _{max} =20mA)	0.2 (TIP) - 0.4 (MAX) (I _{max} =20mA)
OUTPUT SIGNAL	Differential	Differential	Differential
MAXIMUM FREQUENCY (KHz)	100	100	720
POWER SUPPLY VOLTAGE (Volt)	5 V _{DC} ± 10%	5 V _{DC} ± 10%	5 V _{DC} ± 10%

FEATURES

MODEL	RH 1S1M
BASIC STEP ANGLE	1.8°
BIPOLAR CURRENT (A)	1.0
UNIPOLAR CURRENT (A)	
RESISTANCE (Ohm)	4.6
INDUCTANCE (mH)	9.6
BIPOLAR HOLDING TORQUE (Ncm)	43
UNIPOLAR HOLDING TORQUE (Ncm)	
ROTOR INERTIA (Kgm ² × 10 ⁻⁷)	46
THEORETICAL ACCELERATION (rad × sec. ⁻²)	93500
BACK E.M.F. (V/Krpm)	43
MASS (Kg)	0.3
PROTECTION DEGREE	IP40
LEADS CODE	V

TORQUE/SPEED CURVE



RTA MOTOR CABLE COLORS

DESCRIPTION	COLOR
CHANNEL A	GREEN
CHANNEL A-	WHITE
CHANNEL B	YELLOW
CHANNEL B-	BROWN

ENCODER PIN-OUT

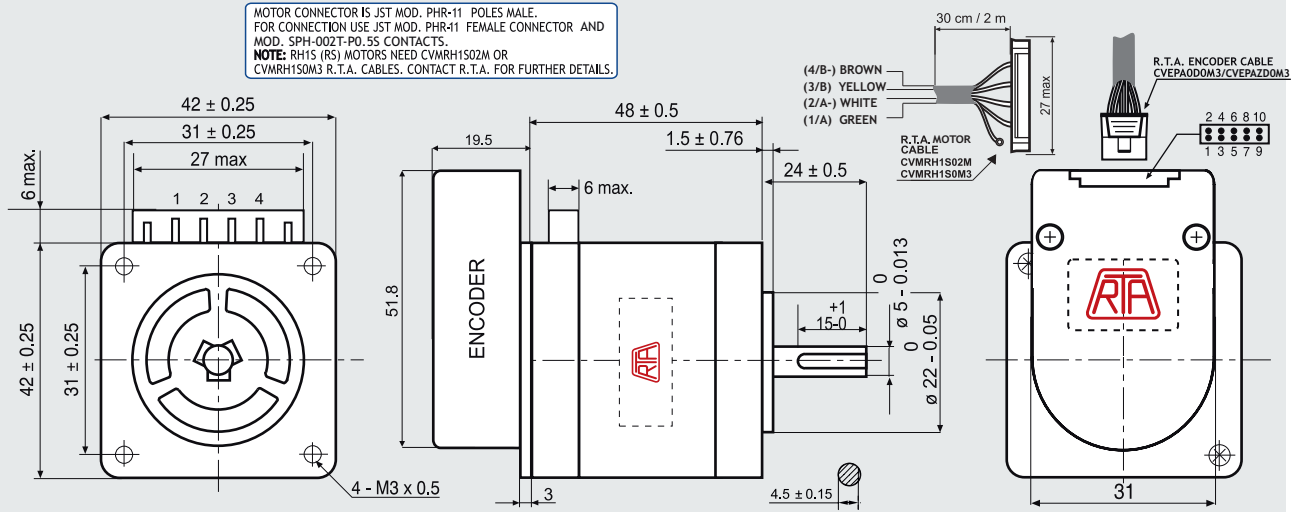
DESCRIPTION	04D0 PINS	04E0/OHE0 PINS	R.T.A. CABLE LEADS COLOR
CHANNEL A+	6	6	GREEN
CHANNEL A-	5	5	PURPLE
CHANNEL B+	8	8	BLUE
CHANNEL B-	7	7	BROWN
+ DC (5V)	2	2	RED
GROUND	3	3	BLACK
INDEX+	/	10	ORANGE
INDEX-	/	9	WHITE

R.T.A. CABLE (30 cm) CVEPA0D0M3 CVEPAZD0M3

Suggested R.T.A. drive series: BSD, CSD, FLEX-DRIVE

RH 1S2M-OXX0

Dimensions (Unit:mm)

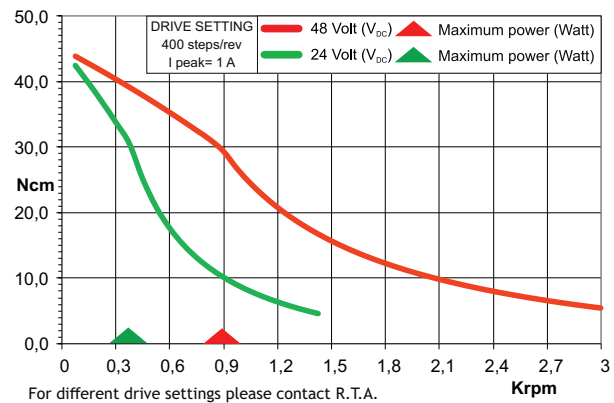


ENCODER OPTIONS:	RH 1S2M-04D0	RH 1S2M-04E0	RH 1S2M-0HE0
RESOLUTION	400 cpr	400 cpr	4000 cpr
INDEX	No	Yes	Yes
CURRENT CONSUMPTION (mA)	50	50	85
HIGH LEVEL OUTPUT (Volt)	5 (TIP) - 4.75 (MIN) (I _{MAX} =25mA)	3.4 (TIP) - 2.4 (MIN) (I _{MAX} =20mA)	3.4 (TIP) - 2.4 (MIN) (I _{MAX} =20mA)
LOW LEVEL OUTPUT (Volt)	0.25 (TIP) - 0.6 (MAX) (I _{MAX} =25mA)	0.2 (TIP) - 0.4 (MAX) (I _{MAX} =20mA)	0.2 (TIP) - 0.4 (MAX) (I _{MAX} =20mA)
OUTPUT SIGNAL	Differential	Differential	Differential
MAXIMUM FREQUENCY (KHz)	100	100	720
POWER SUPPLY VOLTAGE (Volt)	5 V _{DC} ± 10%	5 V _{DC} ± 10%	5 V _{DC} ± 10%

FEATURES

MODEL	RH 1S2M
BASIC STEP ANGLE	1.8°
BIPOLAR CURRENT (A)	1.0
UNIPOLAR CURRENT (A)	
RESISTANCE (Ohm)	5.3
INDUCTANCE (mH)	12.5
BIPOLAR HOLDING TORQUE (Ncm)	56
UNIPOLAR HOLDING TORQUE (Ncm)	
ROTOR INERTIA (Kg ^m ² x 10 ⁻⁷)	63
THEORETICAL ACCELERATION (rad x sec. ⁻²)	88900
BACK E.M.F. (V/Krpm)	56
MASS (Kg)	0.38
PROTECTION DEGREE	IP40
LEADS CODE	V

TORQUE/SPEED CURVE



RTA MOTOR CABLE COLORS

DESCRIPTION	COLOR
CHANNEL A	GREEN
CHANNEL A-	WHITE
CHANNEL B	YELLOW
CHANNEL B-	BROWN

ENCODER PIN-OUT

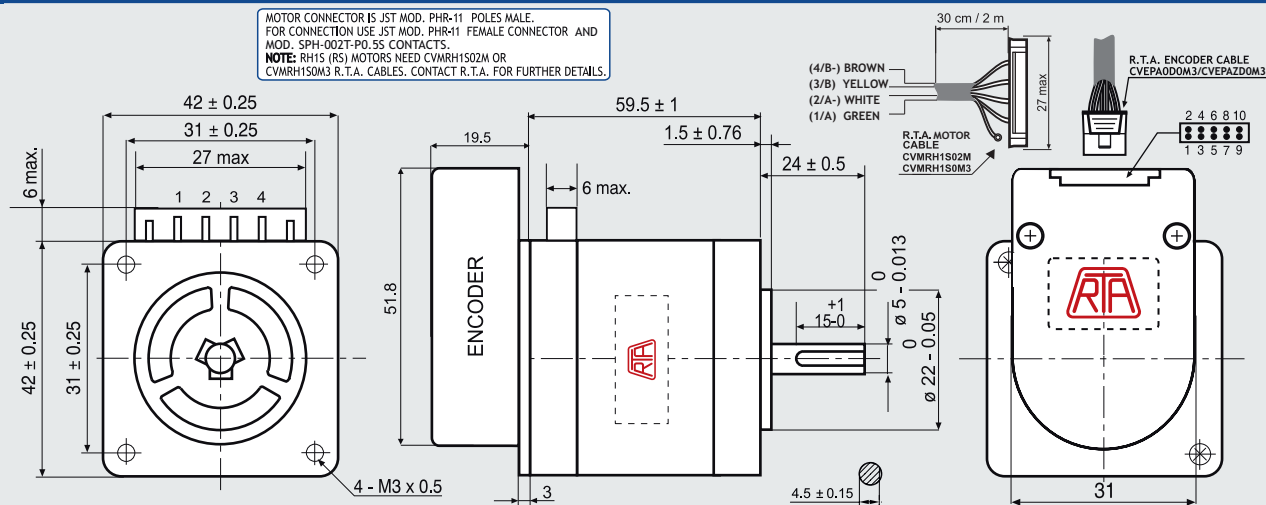
DESCRIPTION	04D0 PINS	04E0/0HE0 PINS	R.T.A. CABLE LEADS COLOR
CHANNEL A+	6	6	GREEN
CHANNEL A-	5	5	PURPLE
CHANNEL B+	8	8	BLUE
CHANNEL B-	7	7	BROWN
+ DC (5V)	2	2	RED
GROUND	3	3	BLACK
INDEX+	/	10	ORANGE
INDEX-	/	9	WHITE

R.T.A. CABLE (30 cm) CVEPA0D0M3 CVEPAZD0M3

Suggested R.T.A. drive series: BSD, CSD, FLEX-DRIVE

RH 1S3M-OXX0

Dimensions (Unit:mm)

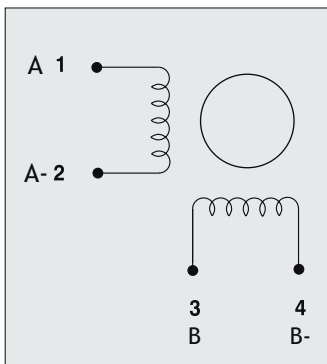
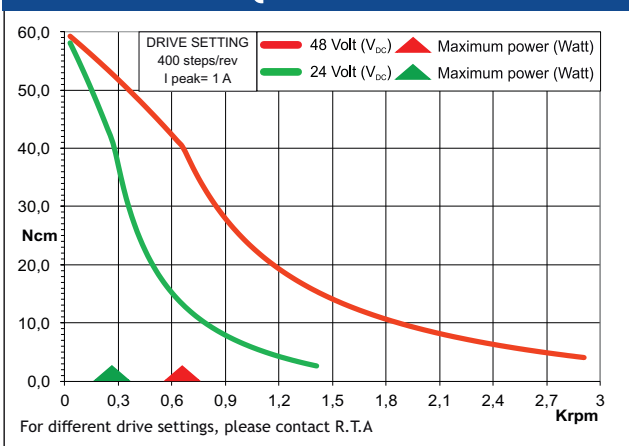


ENCODER OPTIONS:	RH 1S3M-04D0	RH 1S3M-04E0	RH 1S3M-0HE0
RESOLUTION	400 cpr	400 cpr	4000 cpr
INDEX	No	Yes	Yes
CURRENT CONSUMPTION (mA)	50	50	85
HIGH LEVEL OUTPUT (Volt)	5 (TIP) - 4.75 (MIN) (I _{max} =25mA)	3.4 (TIP) - 2.4 (MIN) (I _{max} =20mA)	3.4 (TIP) - 2.4 (MIN) (I _{max} =20mA)
LOW LEVEL OUTPUT (Volt)	0.25 (TIP) - 0.6 (MAX) (I _{max} =25mA)	0.2 (TIP) - 0.4 (MAX) (I _{max} =20mA)	0.2 (TIP) - 0.4 (MAX) (I _{max} =20mA)
OUTPUT SIGNAL	Differential	Differential	Differential
MAXIMUM FREQUENCY (KHz)	100	100	720
POWER SUPPLY VOLTAGE (Volt)	5 V _{DC} ± 10%	5 V _{DC} ± 10%	5 V _{DC} ± 10%

FEATURES

MODEL	RH 1S3M
BASIC STEP ANGLE	1.8°
BIPOLAR CURRENT (A)	1.0
UNIPOLAR CURRENT (A)	
RESISTANCE (Ohm)	6.5
INDUCTANCE (mH)	16
BIPOLAR HOLDING TORQUE (Ncm)	80
UNIPOLAR HOLDING TORQUE (Ncm)	
ROTOR INERTIA (Kgm ² x 10 ⁻⁷)	94
THEORETICAL ACCELERATION (rad x sec. ⁻²)	85100
BACK E.M.F. (V/Krpm)	80
MASS (Kg)	0.51
PROTECTION DEGREE	IP40
LEADS CODE	V

TORQUE/SPEED CURVE



RTA MOTOR CABLE COLORS

DESCRIPTION	COLOR
CHANNEL A	GREEN
CHANNEL A-	WHITE
CHANNEL B	YELLOW
CHANNEL B-	BROWN

ENCODER PIN-OUT

DESCRIPTION	04D0 PINS	04E0/0HE0 PINS	R.T.A. CABLE LEADS COLOR
CHANNEL A+	6	6	GREEN
CHANNEL A-	5	5	PURPLE
CHANNEL B+	8	8	BLUE
CHANNEL B-	7	7	BROWN
+ DC (5V)	2	2	RED
GROUND	3	3	BLACK
INDEX+	/	10	ORANGE
INDEX-	/	9	WHITE

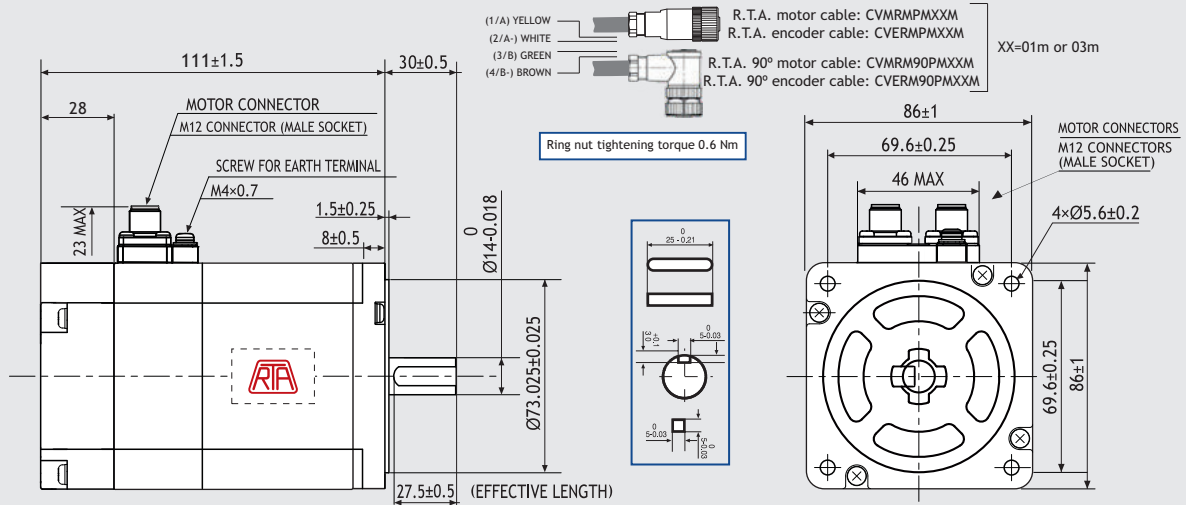
R.T.A. CABLE (30 cm) CVEPA0D0M3 CVEPAZ0M3

Suggested R.T.A. drive series: BSD, CSD, FLEX-DRIVE



RM 3T1M-0XX0

Dimensions (Unit:mm)

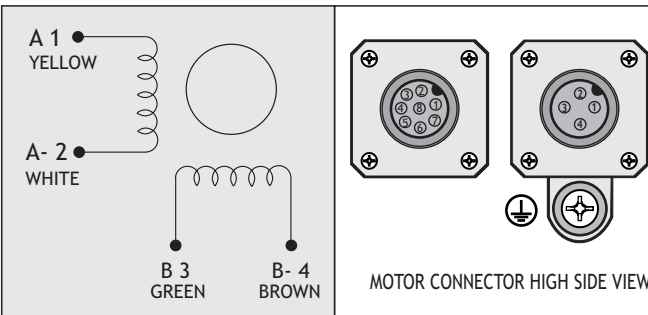
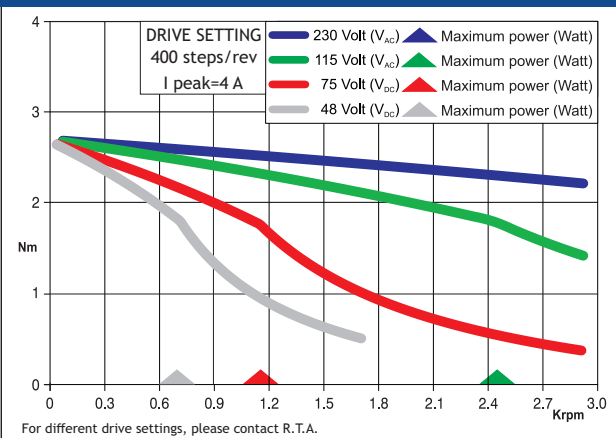


ENCODER OPTIONS:	RM 3T1M-04D0	RM 3T1M-04E0	RM 3T1M-0HE0
RESOLUTION	400 cpr	400 cpr	4000 cpr
INDEX	No	Yes	Yes
CURRENT CONSUMPTION (mA)	50	50	85
HIGH LEVEL OUTPUT (Volt)	5 (TIP) - 4.75 (MIN) (I _{max} =25mA)	3.4 (TIP) - 2.4 (MIN) (I _{max} =20mA)	3.4 (TIP) - 2.4 (MIN) (I _{max} =20mA)
LOW LEVEL OUTPUT (Volt)	0.25 (TIP) - 0.6 (MAX) (I _{max} =25mA)	0.2 (TIP) - 0.4 (MAX) (I _{max} =20mA)	0.2 (TIP) - 0.4 (MAX) (I _{max} =20mA)
OUTPUT SIGNAL	Differential	Differential	Differential
MAXIMUM FREQUENCY (KHz)	100	100	720
POWER SUPPLY VOLTAGE (Volt)	5 V _{DC} ± 10%	5 V _{DC} ± 10%	5 V _{DC} ± 10%

FEATURES

MODEL	RM 3T1M
BASIC STEP ANGLE	1.8 ± 0.09°
BIPOLAR CURRENT (A)	4
RESISTANCE (Ohm)	0.56
INDUCTANCE (mH)	3.7
BIPOLAR HOLDING TORQUE (Ncm)	360
ROTOR INERTIA (Kg·m ² × 10 ⁻⁷)	1480
THEORETICAL ACCELERATION (rad × sec. ⁻²)	24300
BACK E.M.F. (V/Krpm)	90
MASS (Kg)	1.95
INTERNATIONAL STANDARDS	UL, CSA, CE, RoHS
INSULATION VOLTAGE (V)	250 V _{AC} (350 V _{DC})
PROTECTION DEGREE - INSULATION CLASS	IP 54 - CLASS F
LEADS CODE	V

TORQUE/SPEED CURVE



ENCODER CONNECTOR PIN-OUT

DESCRIPTION	04D0 PINS	04E0/OHE0 PINS	R.T.A. CABLE LEADS COLOR
CHANNEL B+	3	3	GREEN
CHANNEL B-	4	4	PURPLE
CHANNEL A+	1	1	BLUE
CHANNEL A-	2	2	BROWN
+ DC (5V)	8	8	RED
GROUND	5	5	BLACK
INDEX+	/	7	ORANGE
INDEX-	/	6	WHITE

R.T.A. CABLE

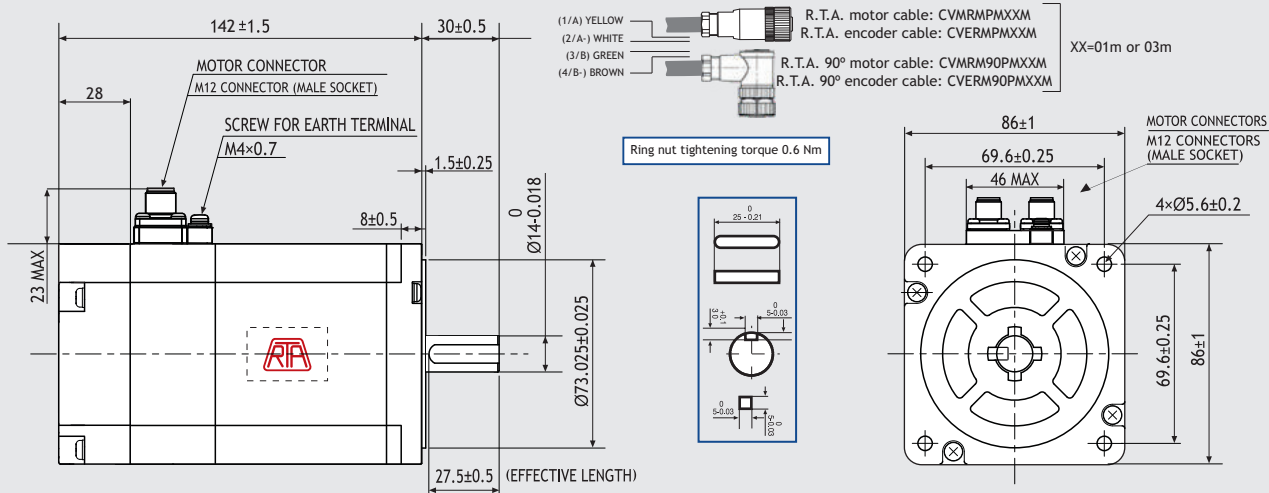
CVMRMPMXXM

Suggested R.T.A. drive series: 230 Vac X-PLUS



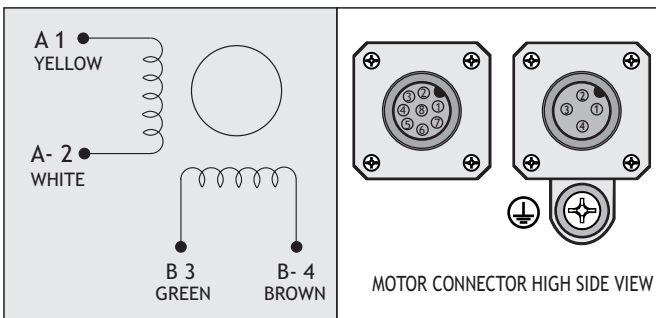
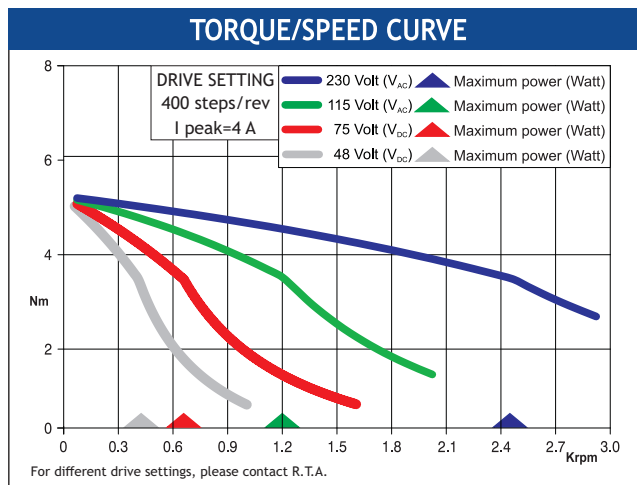
RM 3T2M-0XX0

Dimensions (Unit:mm)



ENCODER OPTIONS:	RM 3T2M-04D0	RM 3T2M-04E0	RM 3T2M-0HE0
RESOLUTION	400 cpr	400 cpr	4000 cpr
INDEX	No	Yes	Yes
CURRENT CONSUMPTION (mA)	50	50	85
HIGH LEVEL OUTPUT (Volt)	5 (TIP) - 4.75 (MIN) (I _{max} =25mA)	3.4 (TIP) - 2.4 (MIN) (I _{max} =20mA)	3.4 (TIP) - 2.4 (MIN) (I _{max} =20mA)
LOW LEVEL OUTPUT (Volt)	0.25 (TIP) - 0.6 (MAX) (I _{max} =25mA)	0.2 (TIP) - 0.4 (MAX) (I _{max} =20mA)	0.2 (TIP) - 0.4 (MAX) (I _{max} =20mA)
OUTPUT SIGNAL	Differential	Differential	Differential
MAXIMUM FREQUENCY (KHz)	100	100	720
POWER SUPPLY VOLTAGE (Volt)	5 V _{DC} ± 10%	5 V _{DC} ± 10%	5 V _{DC} ± 10%

FEATURES	
MODEL	RM 3T2M
BASIC STEP ANGLE	1.8 ± 0.09°
BIPOLAR CURRENT (A)	4
RESISTANCE (Ohm)	0.83
INDUCTANCE (mH)	6.4
BIPOLAR HOLDING TORQUE (Ncm)	700
ROTOR INERTIA (Kgm ² × 10 ⁻⁷)	3000
THEORETICAL ACCELERATION (rad × sec. ⁻²)	23330
BACK E.M.F. (V/Krpm)	175
MASS (Kg)	3.1
INTERNATIONAL STANDARDS	UL, CSA, CE, RoHS
INSULATION VOLTAGE (V)	250 V _{AC} (350 V _{DC})
PROTECTION DEGREE - INSULATION CLASS	IP 54 - CLASS F
LEADS CODE	V



ENCODER CONNECTOR PIN-OUT

DESCRIPTION	04D0 PINS	04E0/OHE0 PINS	R.T.A. CABLE LEADS COLOR
CHANNEL B+	3	3	GREEN
CHANNEL B-	4	4	PURPLE
CHANNEL A+	1	1	BLUE
CHANNEL A-	2	2	BROWN
+ DC (5V)	8	8	RED
GROUND	5	5	BLACK
INDEX+	/	7	ORANGE
INDEX-	/	6	WHITE

R.T.A. CABLE

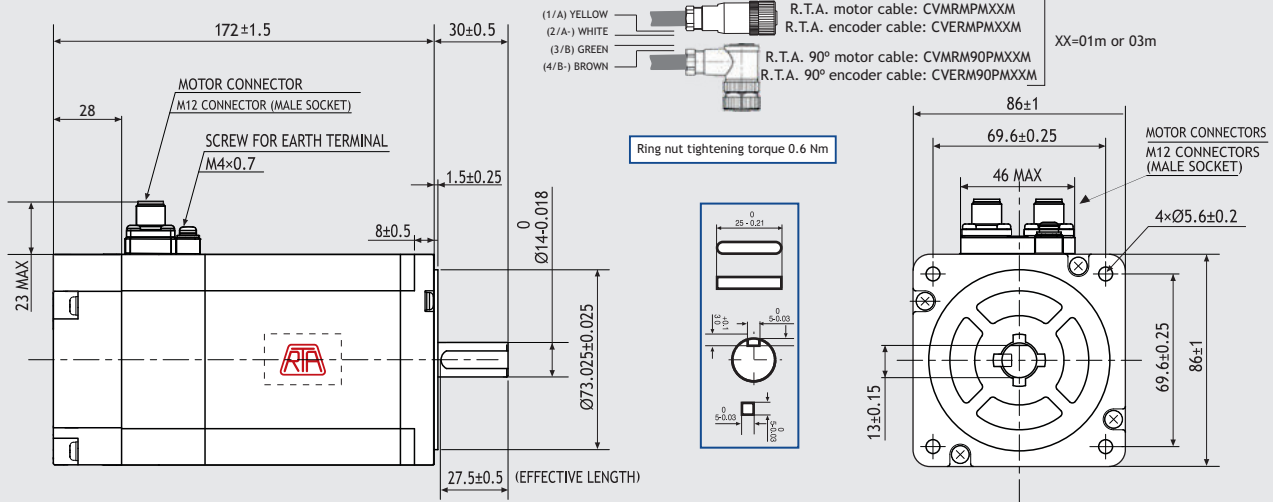
CVMRMPXXM

Suggested R.T.A. drive series: 230 Vac X-PLUS

RM 3T3M-0XX0



Dimensions (Unit:mm)

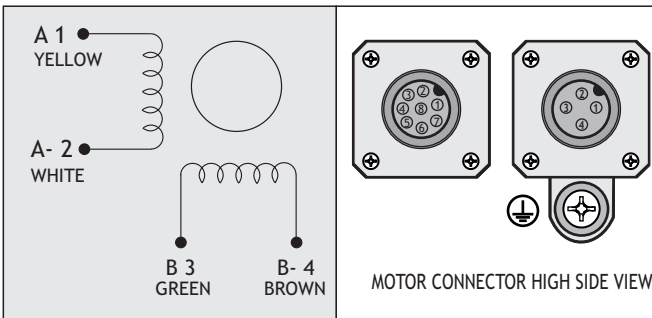
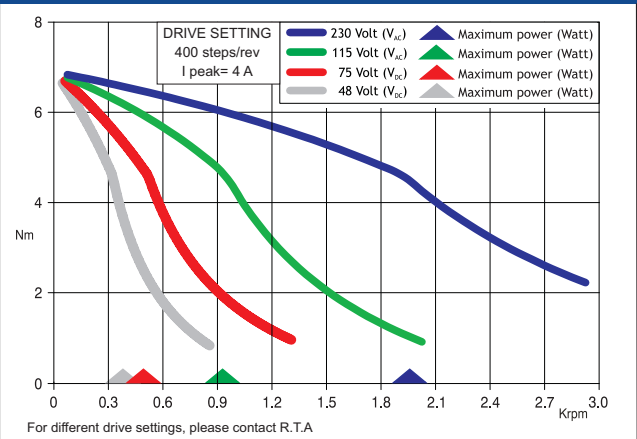


ENCODER OPTIONS:	RM 3T3M-04D0	RM 3T3M-04E0	RM 3T3M-0HE0
RESOLUTION	400 cpr	400 cpr	4000 cpr
INDEX	No	Yes	Yes
CURRENT CONSUMPTION (mA)	50	50	85
HIGH LEVEL OUTPUT (Volt)	5 (TIP) - 4.75 (MIN) (I _{max} =25mA)	3.4 (TIP) - 2.4 (MIN) (I _{max} =20mA)	3.4 (TIP) - 2.4 (MIN) (I _{max} =20mA)
LOW LEVEL OUTPUT (Volt)	0.25 (TIP) - 0.6 (MAX) (I _{max} =25mA)	0.2 (TIP) - 0.4 (MAX) (I _{max} =20mA)	0.2 (TIP) - 0.4 (MAX) (I _{max} =20mA)
OUTPUT SIGNAL	Differential	Differential	Differential
MAXIMUM FREQUENCY (KHz)	100	100	720
POWER SUPPLY VOLTAGE (Volt)	5 V _{DC} ± 10%	5 V _{DC} ± 10%	5 V _{DC} ± 10%

FEATURES

MODEL	RM 3T3M
BASIC STEP ANGLE	1.8 ± 0.09°
BIPOLAR CURRENT (A)	4
RESISTANCE (Ohm)	1
INDUCTANCE (mH)	7.9
BIPOLAR HOLDING TORQUE (Ncm)	920
ROTOR INERTIA (Kg ^m ² x 10 ⁻⁷)	4500
THEORETICAL ACCELERATION (rad x sec ⁻²)	20500
BACK E.M.F. (V/Krpm)	241
MASS (Kg)	4.2
INTERNATIONAL STANDARDS	UL, CSA, CE, RoHS
INSULATION VOLTAGE (V)	250 V _{AC} (350 V _{DC})
PROTECTION DEGREE - INSULATION CLASS	IP 54 - CLASS F
LEADS CODE	V

TORQUE/SPEED CURVE



ENCODER CONNECTOR PIN-OUT

DESCRIPTION	04D0 PINS	04E0/OHE0 PINS	R.T.A. CABLE LEADS COLOR
CHANNEL B+	3	3	GREEN
CHANNEL B-	4	4	PURPLE
CHANNEL A+	1	1	BLUE
CHANNEL A-	2	2	BROWN
+ DC (5V)	8	8	RED
GROUND	5	5	BLACK
INDEX+	/	7	ORANGE
INDEX-	/	6	WHITE

R.T.A. CABLE

CVMRMPMXXM

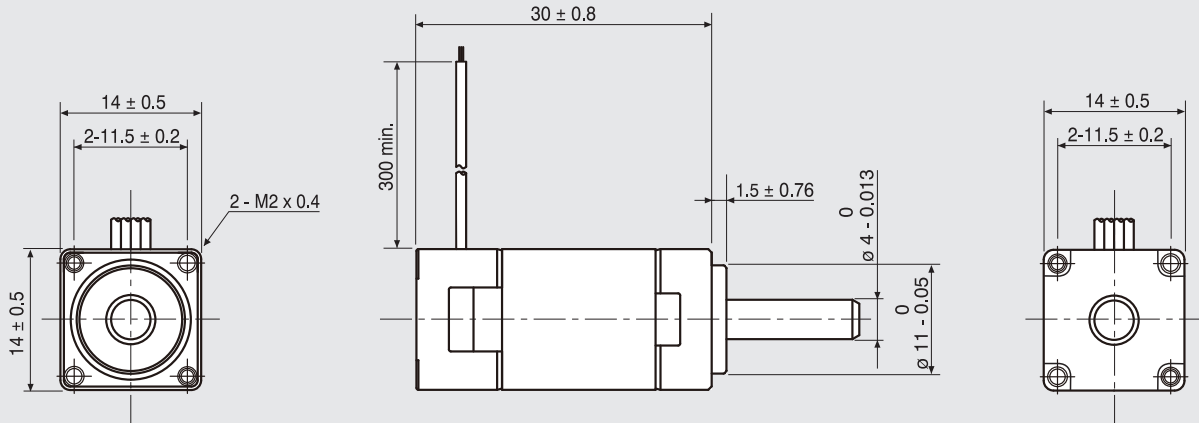
Suggested R.T.A. drive series: 230 Vac X-PLUS

STEPPING MOTORS

TRADITIONAL STEPPING MOTORS



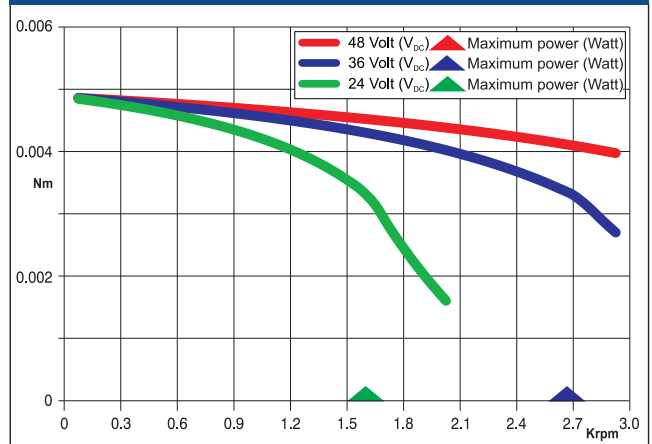
Dimensions (Unit:mm)



FEATURES

MODEL	SH2141-5541	
BASIC STEP ANGLE	$1.8^\circ \pm 0.09^\circ$	
BIPOLAR CURRENT	(Amp)	0.3
UNIPOLAR CURRENT	(Amp)	
RESISTANCE	(Ohm)	21
INDUCTANCE	(mH)	4.2
BIPOLAR HOLDING TORQUE	(Ncm)	0.65
UNIPOLAR HOLDING TORQUE	(Ncm)	
ROTOR INERTIA	($\text{Kgm}^2 \times 10^{-7}$)	0.58
THEORETICAL ACCELERATION	($\text{rad} \times \text{sec}^{-2}$)	112000
BACK E.M.F.	(V/Krpm)	10
MASS	(Kg)	0.028
LEADS CODE	V	

TORQUE/SPEED CURVE

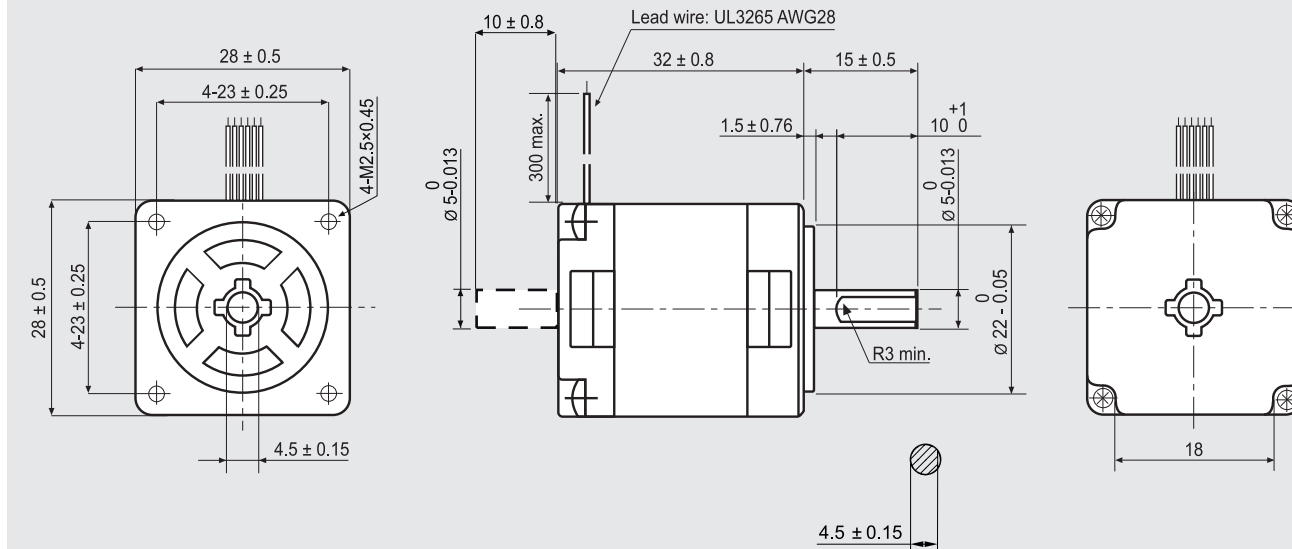


Suggested R.T.A. drive series: CSD, FLEX-DRIVE

SH2281-5271

SANYO DENKI
SANMOTION

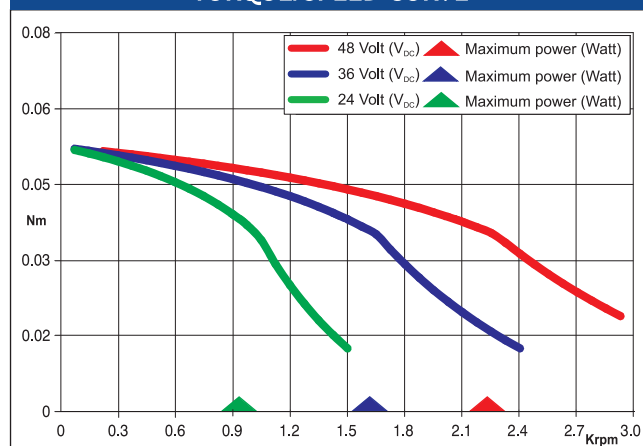
Dimensions (Unit:mm)



FEATURES

MODEL	SH2281-5271 (SH2281-5231)	
BASIC STEP ANGLE		$1.8^\circ \pm 0.09^\circ$
BIPOLAR CURRENT	(Amp)	0.7 ^(*)
UNIPOLAR CURRENT	(Amp)	1.0
RESISTANCE	(Ohm)	2.85
INDUCTANCE	(mH)	1.0
BIPOLAR HOLDING TORQUE	(Ncm)	7
UNIPOLAR HOLDING TORQUE	(Ncm)	5.5
ROTOR INERTIA	(Kgm ² x 10 ⁻⁷)	10
THEORETICAL ACCELERATION	(rad x sec. ⁻²)	70000
BACK E.M.F.	(V/Krpm)	15
MASS	(Kg)	0.11
LEADS CODE		IV

TORQUE/SPEED CURVE

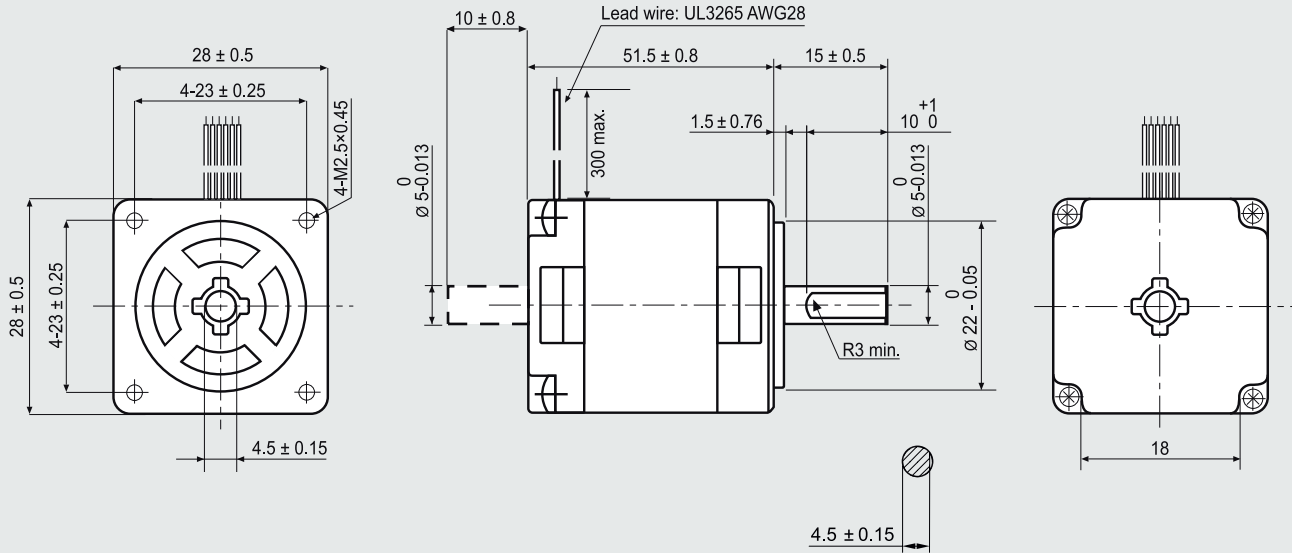


^(*)Bipolar series connection.



Suggested R.T.A. drive series: BSD, CSD, ADW, HGD, FLEX-DRIVE

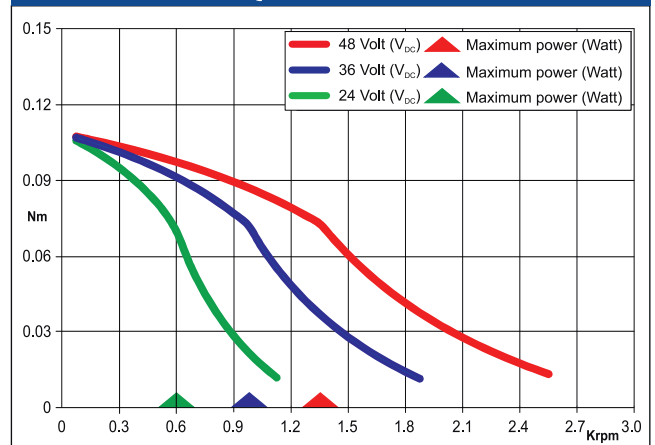
Dimensions (Unit:mm)



FEATURES

MODEL	SH2285-5271 (SH2285-5231)
BASIC STEP ANGLE	$1.8^\circ \pm 0.09^\circ$
BIPOLAR CURRENT (Amp)	0.7 ^(*)
UNIPOLAR CURRENT (Amp)	1.0
RESISTANCE (Ohm)	4.1
INDUCTANCE (mH)	1.9
BIPOLAR HOLDING TORQUE (Ncm)	14.5
UNIPOLAR HOLDING TORQUE (Ncm)	11.5
ROTOR INERTIA ($\text{Kg} \cdot \text{m}^2 \times 10^{-7}$)	22
THEORETICAL ACCELERATION ($\text{rad} \times \text{sec}^{-2}$)	66000
BACK E.M.F. (V/Krpm)	15
MASS (Kg)	0.2
LEADS CODE	IV

TORQUE/SPEED CURVE



^(*)Bipolar series connection.

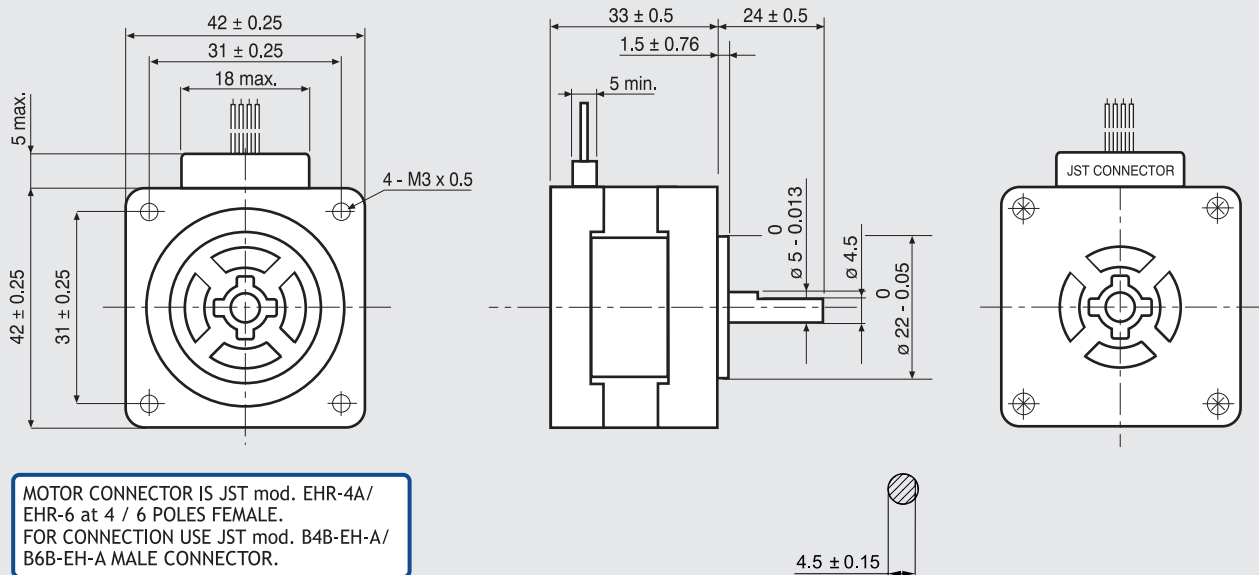


Suggested R.T.A. drive series: BSD, CSD, ADW, HGD, FLEX-DRIVE

103-H5205-5040

SANYO DENKI
SANMOTION

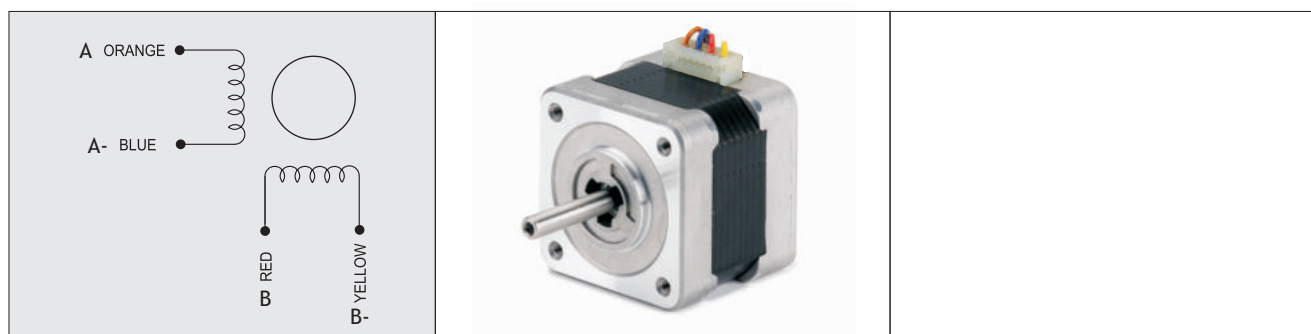
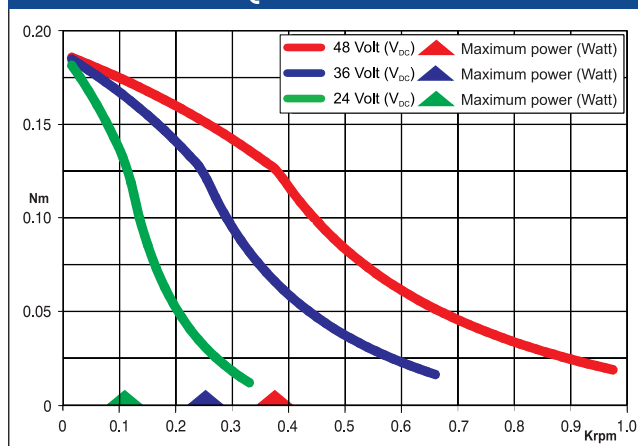
Dimensions (Unit:mm)



FEATURES

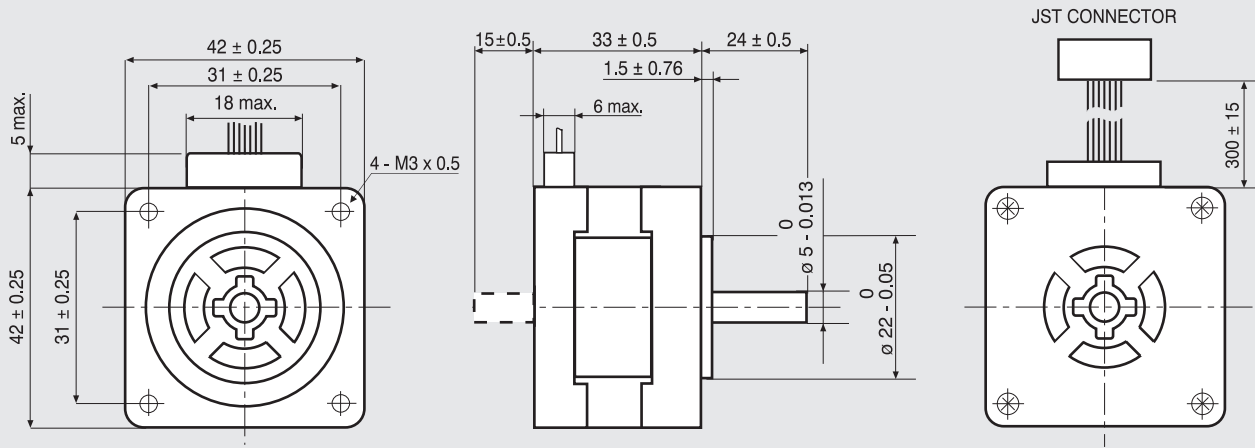
MODEL	103-H5205-5040	
BASIC STEP ANGLE	1.8° ± 0.09°	
BIPOLAR CURRENT	(Amp)	0.25
UNIPOLAR CURRENT	(Amp)	
RESISTANCE	(Ohm)	54
INDUCTANCE	(mH)	78
BIPOLAR HOLDING TORQUE	(Ncm)	23.0
UNIPOLAR HOLDING TORQUE	(Ncm)	
ROTOR INERTIA	(Kgm ² × 10 ⁻⁷)	36
THEORETICAL ACCELERATION	(rad × sec. ⁻²)	64000
BACK E.M.F.	(V/Krpm)	100
MASS	(Kg)	0.23
LEADS CODE	V	

TORQUE/SPEED CURVE



Suggested R.T.A. drive series: BSD, CSD, FLEX-DRIVE

Dimensions (Unit:mm)



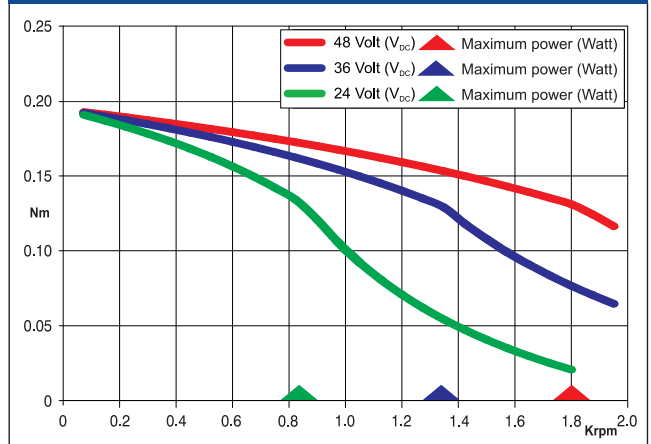
MOTOR CONNECTOR IS JST mod. EHR-6A
6 POLES FEMALE.
FOR CONNECTION USE JST
mod. B6B-EH-A MALE CONNECTOR.

FEATURES

MODEL	103-H5205-0351 (103-H5205-0312)	
BASIC STEP ANGLE	$1.8^\circ \pm 0.09^\circ$	
BIPOLAR CURRENT	(Amp)	0.7*
UNIPOLAR CURRENT	(Amp)	1.0
RESISTANCE	(Ohm)	3.6
INDUCTANCE	(mH)	3.3
BIPOLAR HOLDING TORQUE	(Ncm)	25
UNIPOLAR HOLDING TORQUE	(Ncm)	19
ROTOR INERTIA	(Kgm ² x 10 ⁻⁷)	36
THEORETICAL ACCELERATION	(rad x sec. ⁻²)	69800
BACK E.M.F.	(V/Krpm)	37
MASS	(Kg)	0.23
LEADS CODE	IV	

Codes between brackets refer to double shaft models.

TORQUE/SPEED CURVE



(*)Bipolar series connection.

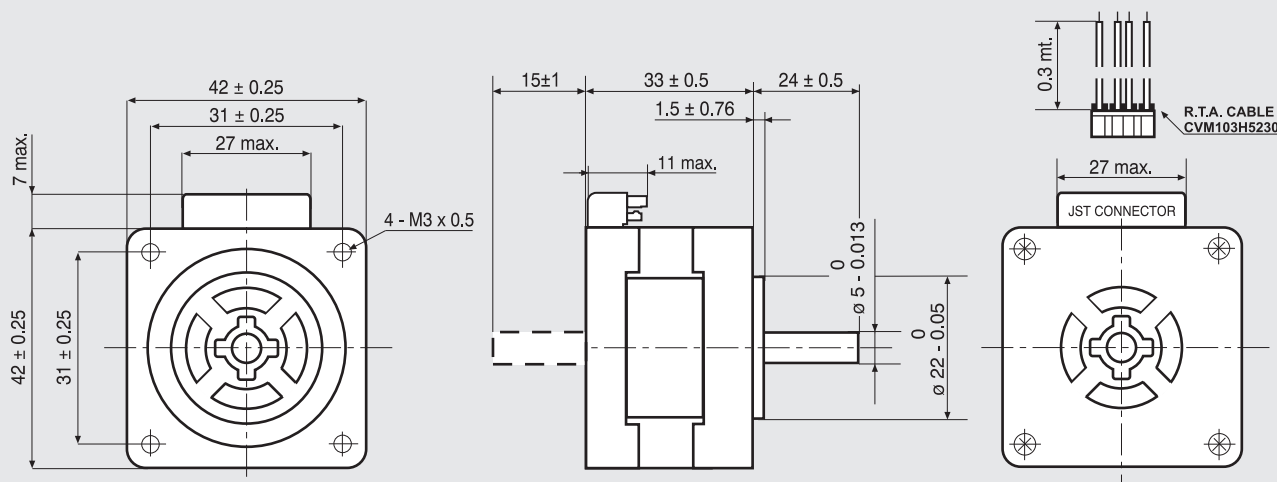


Suggested R.T.A. drive series: BSD, CSD, FLEX-DRIVE

103-H5205-4240

SANYO DENKI
SANMOTION

Dimensions (Unit:mm)



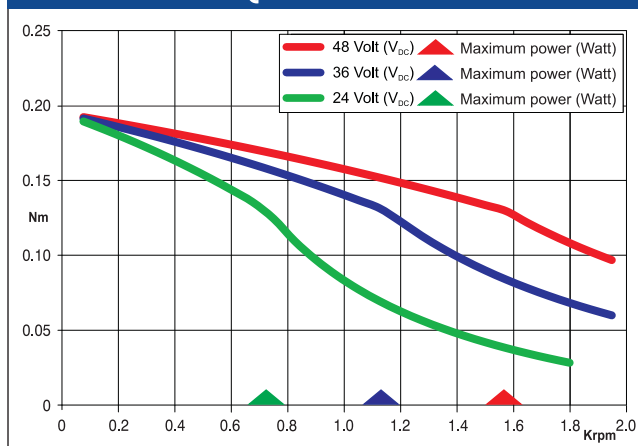
MOTOR CONNECTOR IS JST mod. B6B-EH K 6 POLES MALE.
FOR CONNECTION USE JST mod. EHR-6 FEMALE CONNECTOR AND
mod. SEH-001 T-P0.6 CONTACTS.
NOTE: 103-H5205-4240 MOTORS NEED CVM103H5230 R.T.A. CABLES.
CONTACT R.T.A. FOR FURTHER DETAILS.

FEATURES

MODEL	103-H5205-4240 (103-H5205-4210)
BASIC STEP ANGLE	$1.8^\circ \pm 0.09^\circ$
BIPOLAR CURRENT (Amp)	1.0
UNIPOLAR CURRENT (Amp)	
RESISTANCE (Ohm)	3.4
INDUCTANCE (mH)	6.5
BIPOLAR HOLDING TORQUE (Ncm)	26.5
UNIPOLAR HOLDING TORQUE (Ncm)	
ROTOR INERTIA ($\text{Kgm}^2 \times 10^{-7}$)	36
THEORETICAL ACCELERATION ($\text{rad} \times \text{sec}^{-2}$)	69800
BACK E.M.F. (V/Krpm)	27
MASS (Kg)	0.23
LEADS CODE	V

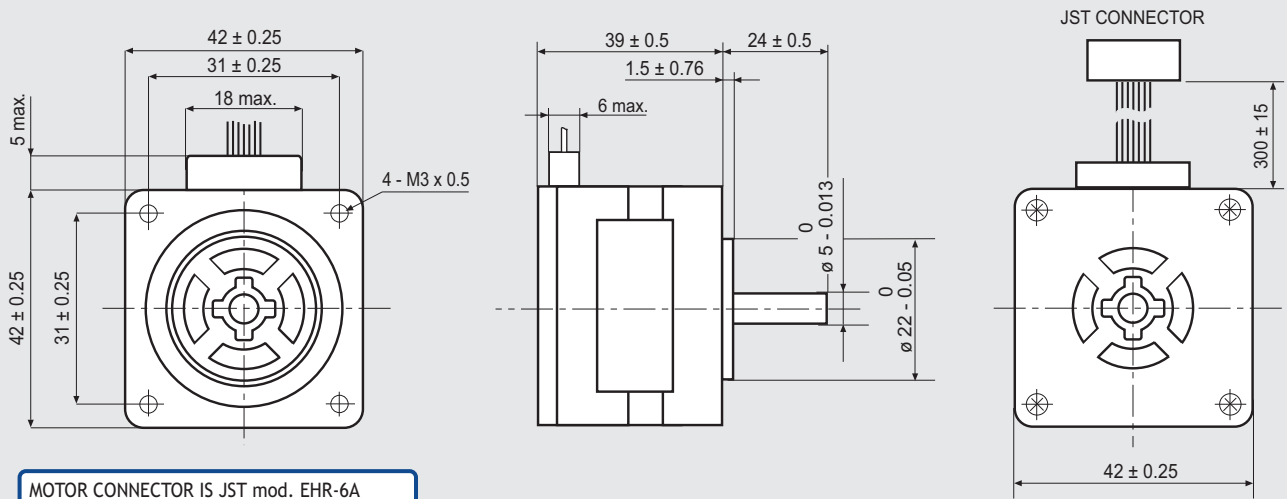
Codes between brackets refer to double shaft models.

TORQUE/SPEED CURVE



Suggested R.T.A. drive series: BSD, CSD, FLEX-DRIVE

Dimensions (Unit:mm)

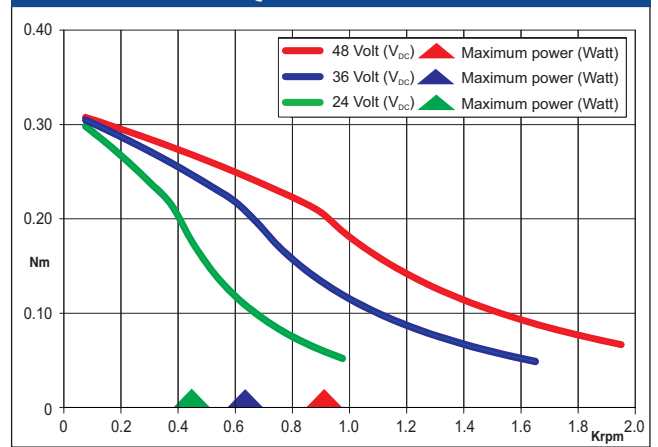


MOTOR CONNECTOR IS JST mod. EHR-6A
6 POLES FEMALE.
FOR CONNECTION USE JST
mod. B6B-EH-A MALE CONNECTOR.

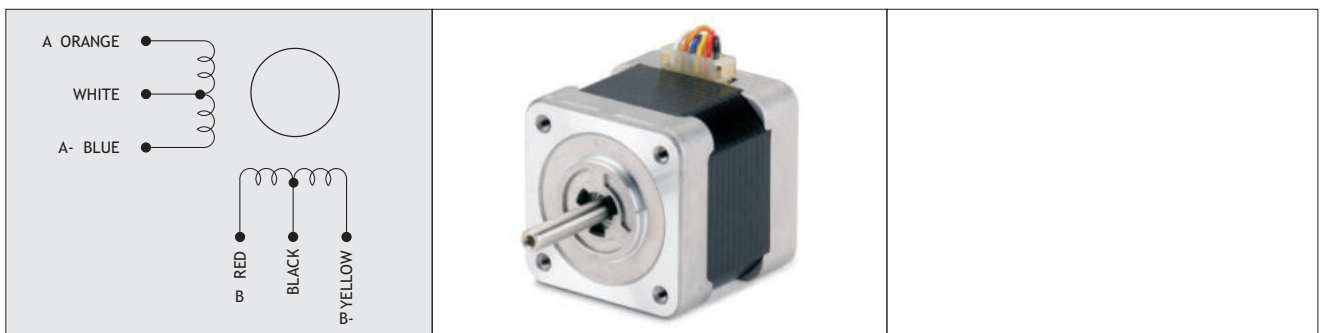
FEATURES

MODEL	103-H5208-0483	
BASIC STEP ANGLE	1.8° ± 0.09°	
BIPOLAR CURRENT	(Amp)	0.9 ^(*)
UNIPOLAR CURRENT	(Amp)	1.2
RESISTANCE	(Ohm)	2.9
INDUCTANCE	(mH)	3.4
BIPOLAR HOLDING TORQUE	(Ncm)	42
UNIPOLAR HOLDING TORQUE	(Ncm)	30
ROTOR INERTIA	(Kgm ² × 10 ⁻⁷)	56
THEORETICAL ACCELERATION	(rad × sec. ⁻²)	71000
BACK E.M.F.	(V/Krpm)	19
MASS	(Kg)	0.27
LEADS CODE	IV	

TORQUE/SPEED CURVE



(*)Bipolar series connection.

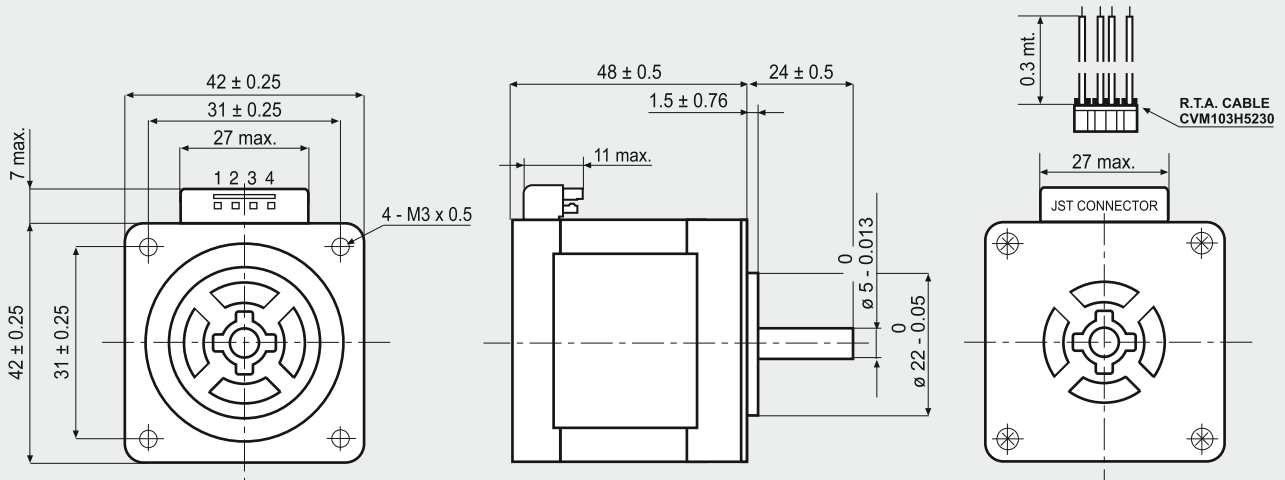


Suggested R.T.A. drive series: BSD, CSD, FLEX-DRIVE

103-H5210-4240

SANYO DENKI
SANMOTION

Dimensions (Unit:mm)

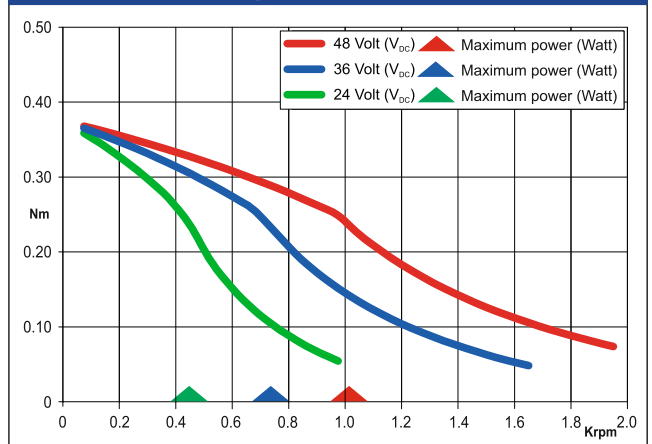


MOTOR CONNECTOR IS JST mod. B6B-EH K 6 POLES MALE.
FOR CONNECTION USE JST mod. EHR-6 FEMALE CONNECTOR AND
mod. SEH-001 T-P0.6 CONTACTS.
NOTE: 103-H5210-4240 MOTORS NEED CVM103H5230 R.T.A. CABLES.
CONTACT R.T.A. FOR FURTHER DETAILS.

FEATURES

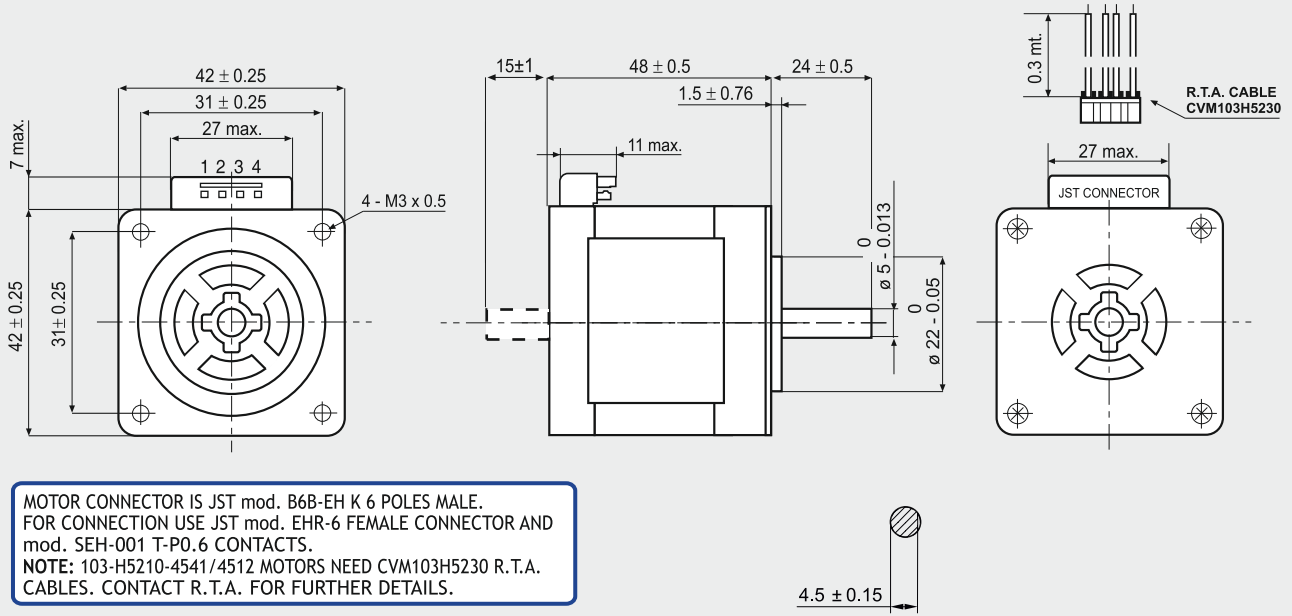
MODEL	103-H5210-4240
BASIC STEP ANGLE	$1.8^\circ \pm 0.09^\circ$
BIPOLAR CURRENT (Amp)	1.0
UNIPOLAR CURRENT (Amp)	
RESISTANCE (Ohm)	4.8
INDUCTANCE (mH)	9.5
BIPOLAR HOLDING TORQUE (Ncm)	51
UNIPOLAR HOLDING TORQUE (Ncm)	
ROTOR INERTIA ($\text{Kgm}^2 \times 10^{-7}$)	74
THEORETICAL ACCELERATION ($\text{rad} \times \text{sec}^{-2}$)	69000
BACK E.M.F. (V/Krpm)	14
MASS (Kg)	0.35
LEADS CODE	V

TORQUE/SPEED CURVE



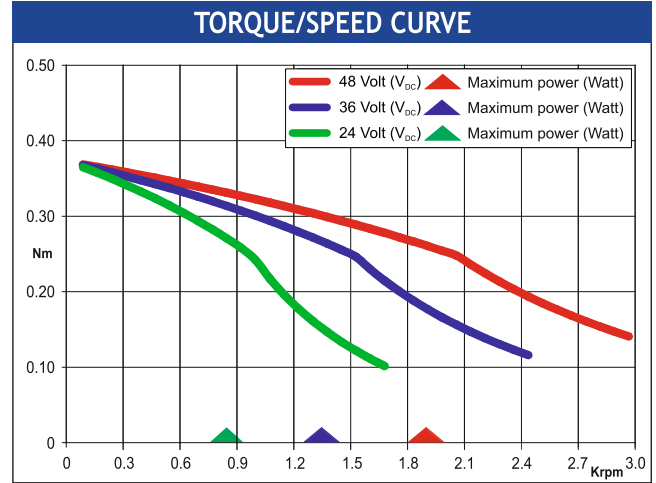
Suggested R.T.A. drive series: BSD, CSD, FLEX-DRIVE

Dimensions (Unit:mm)



FEATURES		103-H5210-4541 (103-H5210-4512)
MODEL		
BASIC STEP ANGLE		1.8° ± 0.09°
BIPOLAR CURRENT	(Amp)	2.0
UNIPOLAR CURRENT	(Amp)	
RESISTANCE	(Ohm)	1.25
INDUCTANCE	(mH)	2.4
BIPOLAR HOLDING TORQUE	(Ncm)	51
UNIPOLAR HOLDING TORQUE	(Ncm)	
ROTOR INERTIA	(Kgm ² x 10 ⁻⁷)	74
THEORETICAL ACCELERATION	(rad x sec. ⁻²)	69000
BACK E.M.F.	(V/Krpm)	25
MASS	(Kg)	0.35
LEADS CODE		V

Codes between brackets refer to double shaft models.

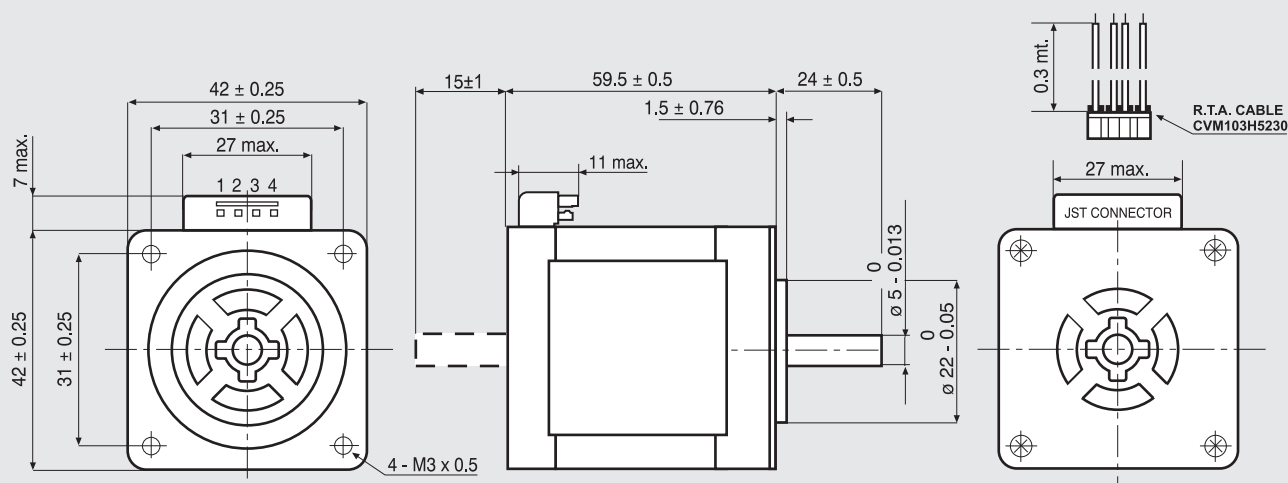


Suggested R.T.A. drive series: BSD, CSD, FLEX-DRIVE

103-H5212-4640

SANYO DENKI
SANMOTION

Dimensions (Unit:mm)



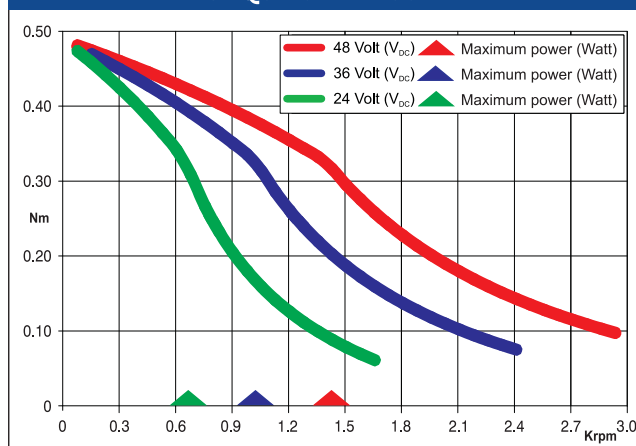
MOTOR CONNECTOR IS JST mod. B6B-EH K 6 POLES MALE.
FOR CONNECTION USE JST mod. EHR-6 FEMALE CONNECTOR AND
mod. SEH-001 T-P0.6 CONTACTS.
NOTE: 103-H5212-4640 MOTORS NEED CVM103H5230 R.T.A. CABLES.
CONTACT R.T.A. FOR FURTHER DETAILS.

FEATURES

MODEL	103-H5212-4640 (103-H5212-4610)
BASIC STEP ANGLE	$1.8^\circ \pm 0.09^\circ$
BIPOLAR CURRENT (Amp)	2.0
UNIPOLAR CURRENT (Amp)	
RESISTANCE (Ohm)	1.5
INDUCTANCE (mH)	3.0
BIPOLAR HOLDING TORQUE (Ncm)	65
UNIPOLAR HOLDING TORQUE (Ncm)	
ROTOR INERTIA ($\text{Kgm}^2 \times 10^{-7}$)	110
THEORETICAL ACCELERATION ($\text{rad} \times \text{sec}^{-2}$)	59000
BACK E.M.F. (V/Krpm)	32
MASS (Kg)	0.35
LEADS CODE	V

Codes between brackets refer to double shaft models.

TORQUE/SPEED CURVE

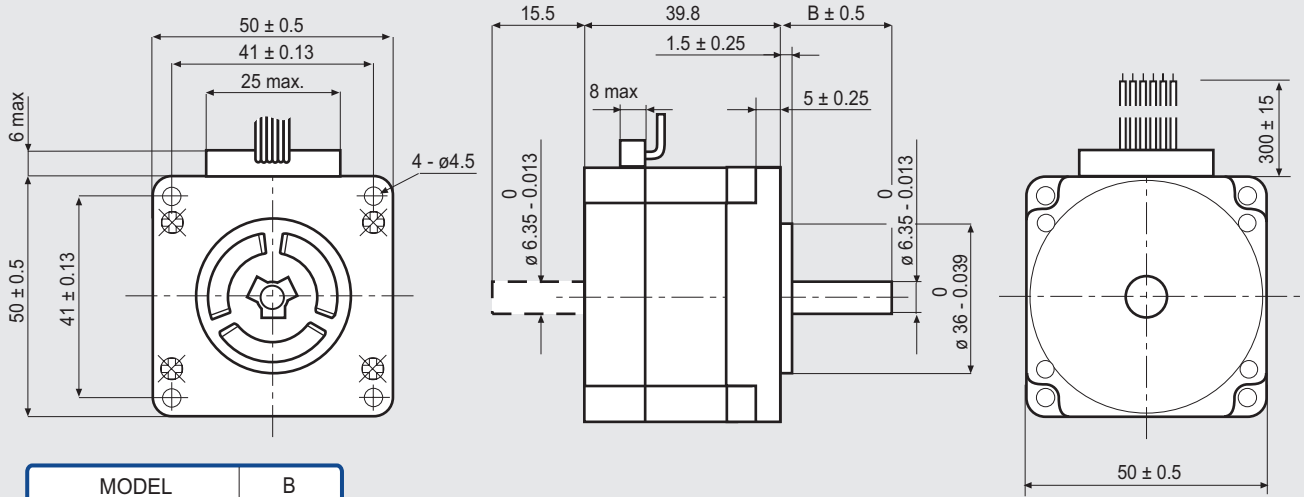


Suggested R.T.A. drive series: BSD, CSD, FLEX-DRIVE

103-H6701-0140

SANYO DENKI
SANMOTION

Dimensions (Unit:mm)



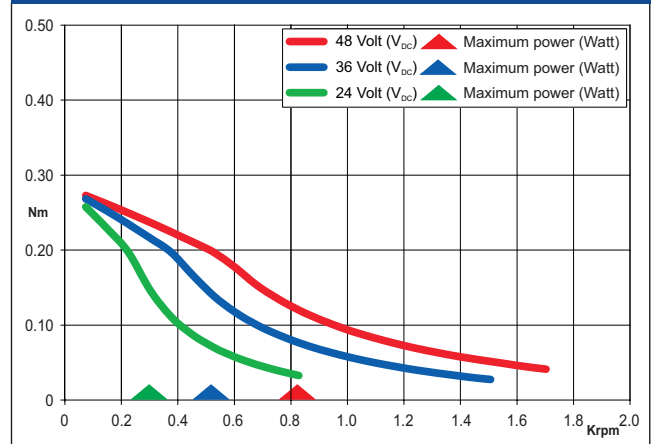
MODEL	B
103 - H6701 - 0140	20.6
103 - H6701 - 0113	28

FEATURES

MODEL	103-H6701-0140 (103-H6701-0113)
BASIC STEP ANGLE	1.8° ± 0.09°
BIPOLAR CURRENT (Amp)	0.7 ^(*)
UNIPOLAR CURRENT (Amp)	1.0
RESISTANCE (Ohm)	4.3
INDUCTANCE (mH)	6.8
BIPOLAR HOLDING TORQUE (Ncm)	38
UNIPOLAR HOLDING TORQUE (Ncm)	28
ROTOR INERTIA (Kgm ² × 10 ⁻⁷)	57
THEORETICAL ACCELERATION (rad × sec. ⁻²)	66000
BACK E.M.F. (V/Krpm)	20
MASS (Kg)	0.35
LEADS CODE	IV

Codes between brackets refer to double shaft models.

TORQUE/SPEED CURVE



(*)Bipolar series connection.

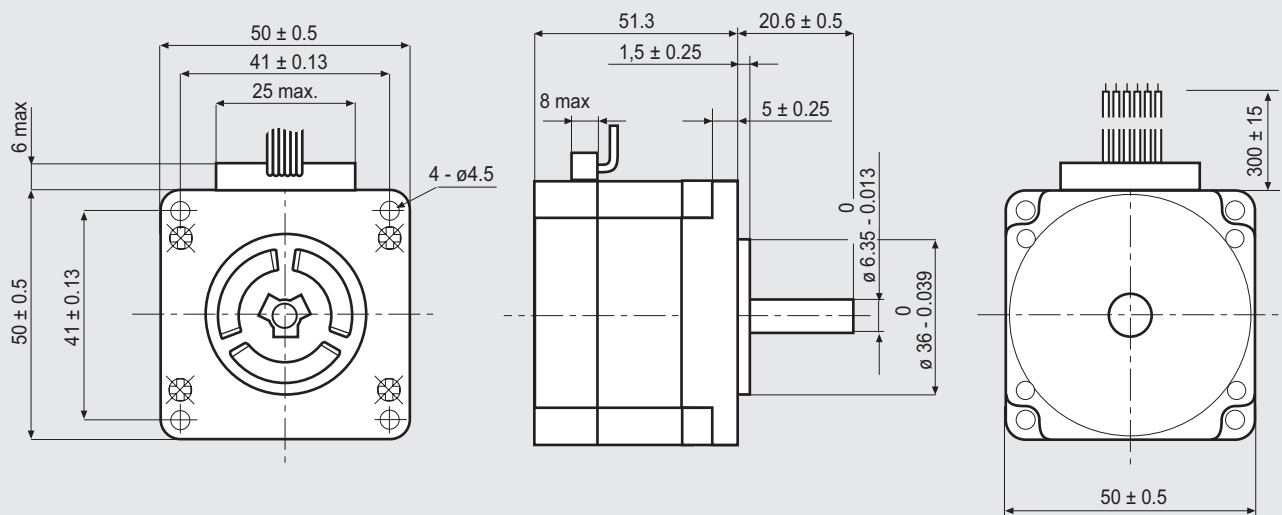


Suggested R.T.A. drive series: BSD, CSD, FLEX-DRIVE

103-H6703-0440

SANYO DENKI
SANMOTION

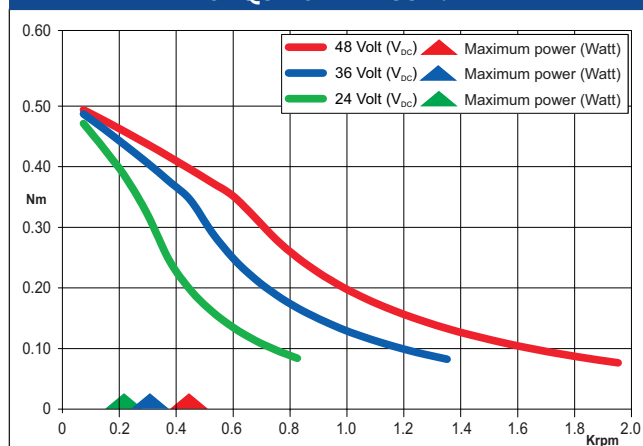
Dimensions (Unit:mm)



FEATURES

MODEL	103-H6703-0440	
BASIC STEP ANGLE		$1.8^\circ \pm 0.09^\circ$
BIPOLAR CURRENT	(Amp)	1.4 ^(*)
UNIPOLAR CURRENT	(Amp)	2.0
RESISTANCE	(Ohm)	1.6
INDUCTANCE	(mH)	3.2
BIPOLAR HOLDING TORQUE	(Ncm)	68
UNIPOLAR HOLDING TORQUE	(Ncm)	49
ROTOR INERTIA	(Kgm ² x 10 ⁻⁷)	118
THEORETICAL ACCELERATION	(rad x sec. ⁻²)	58000
BACK E.M.F.	(V/Krpm)	17.5
MASS	(Kg)	0.5
LEADS CODE		IV

TORQUE/SPEED CURVE

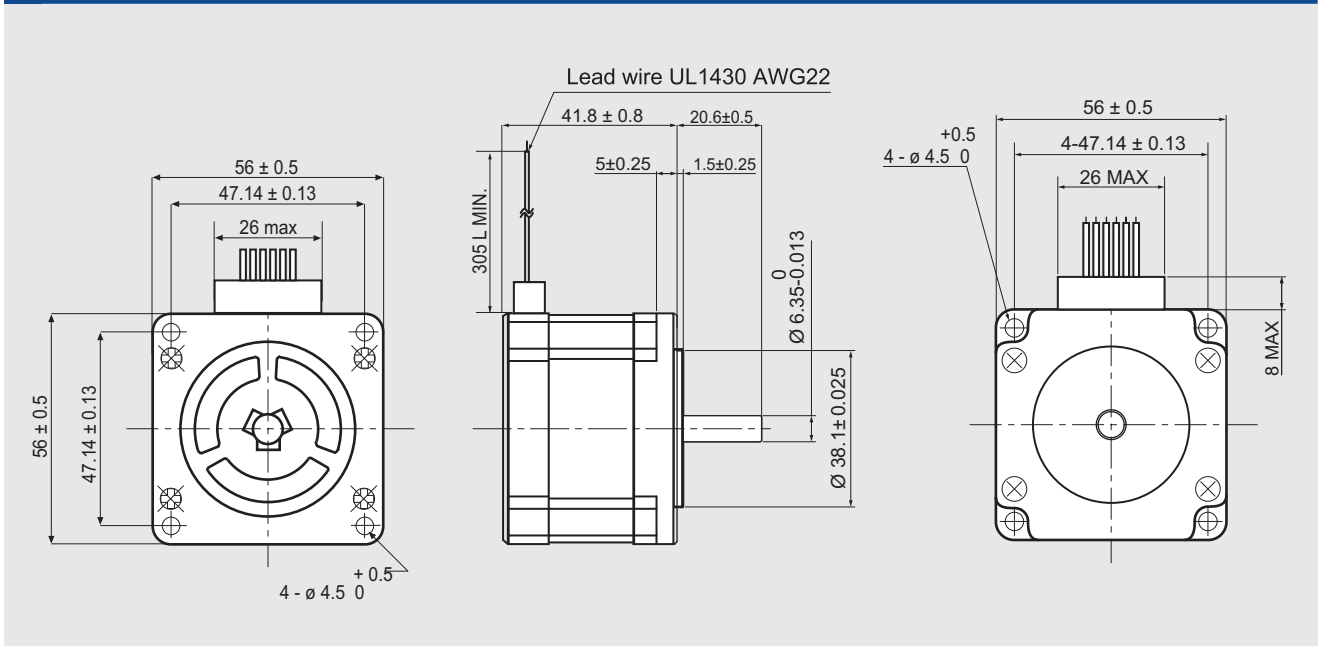


(*)Bipolar series connection.



Suggested R.T.A. drive series: BSD, CSD, FLEX-DRIVE

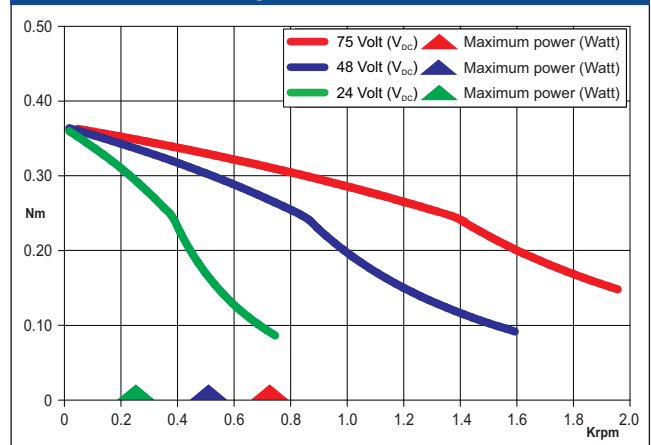
Dimensions (Unit:mm)



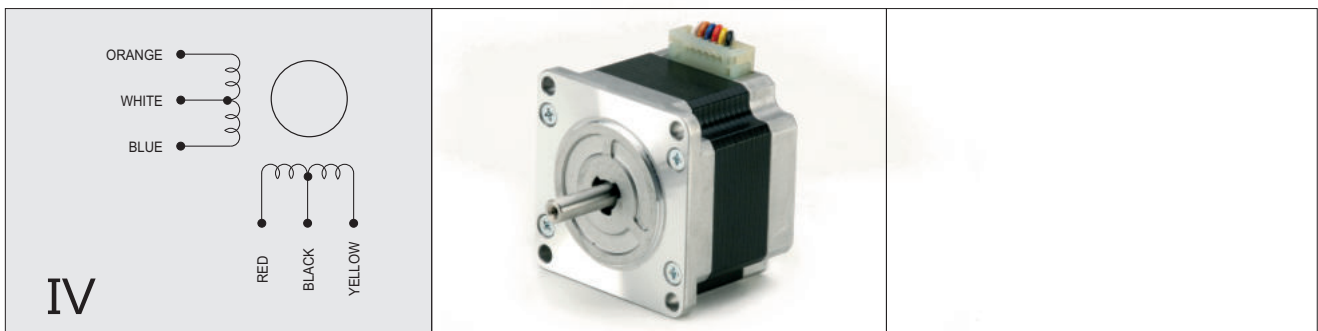
FEATURES

MODEL	103-H7121-0440	
BASIC STEP ANGLE	$1.8^\circ \pm 0.09^\circ$	
BIPOLAR CURRENT	(Amp)	1.5 ^(*)
UNIPOLAR CURRENT	(Amp)	2.0
RESISTANCE	(Ohm)	1.25
INDUCTANCE	(mH)	1.9
BIPOLAR HOLDING TORQUE	(Ncm)	49
UNIPOLAR HOLDING TORQUE	(Ncm)	39
ROTOR INERTIA	(Kgm ² x 10 ⁻⁷)	100
THEORETICAL ACCELERATION	(rad x sec. ⁻²)	50000
BACK E.M.F.	(V/Krpm)	20
MASS	(Kg)	0.47
LEADS CODE	IV	

TORQUE/SPEED CURVE



(*)Bipolar series connection.

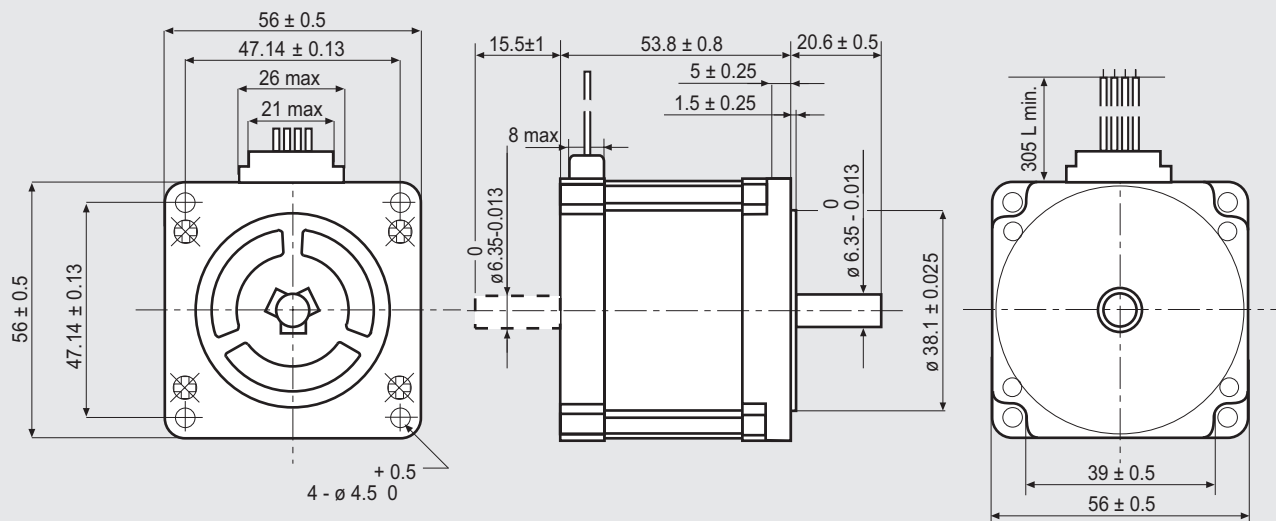


Suggested R.T.A. drive series: BSD, CSD, NDC, ADW, HGD, FLEX-DRIVE

103-H7123-5040

SANYO DENKI
SANMOTION

Dimensions (Unit:mm)

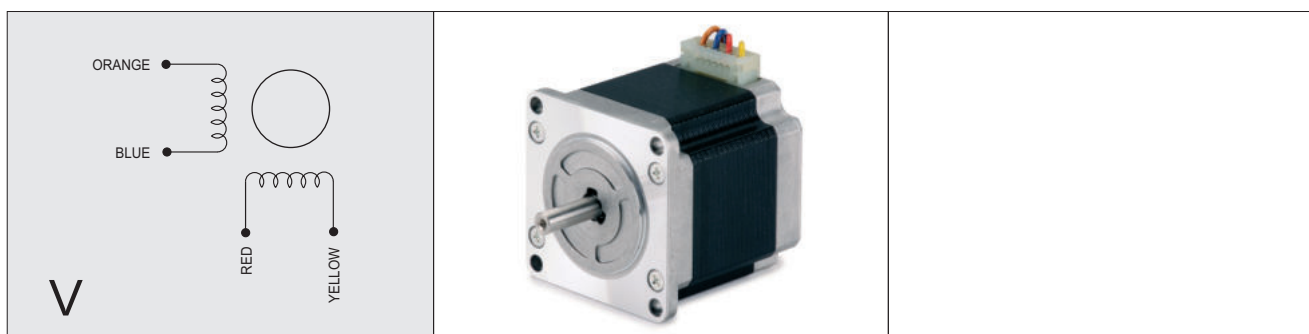
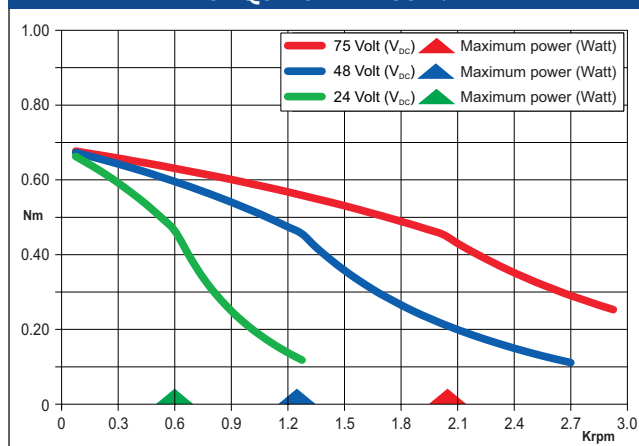


FEATURES

MODEL	103-H7123-5040 (103-H7123-5010)
BASIC STEP ANGLE	$1.8^\circ \pm 0.09^\circ$
BIPOLAR CURRENT (Amp)	2.0
UNIPOLAR CURRENT (Amp)	
RESISTANCE (Ohm)	0.8
INDUCTANCE (mH)	3.8
BIPOLAR HOLDING TORQUE (Ncm)	85
UNIPOLAR HOLDING TORQUE (Ncm)	
ROTOR INERTIA ($\text{Kgm}^2 \times 10^{-7}$)	210
THEORETICAL ACCELERATION ($\text{rad} \times \text{sec}^{-2}$)	38500
BACK E.M.F. (V/Krpm)	31
MASS (Kg)	0.65
LEADS CODE	V

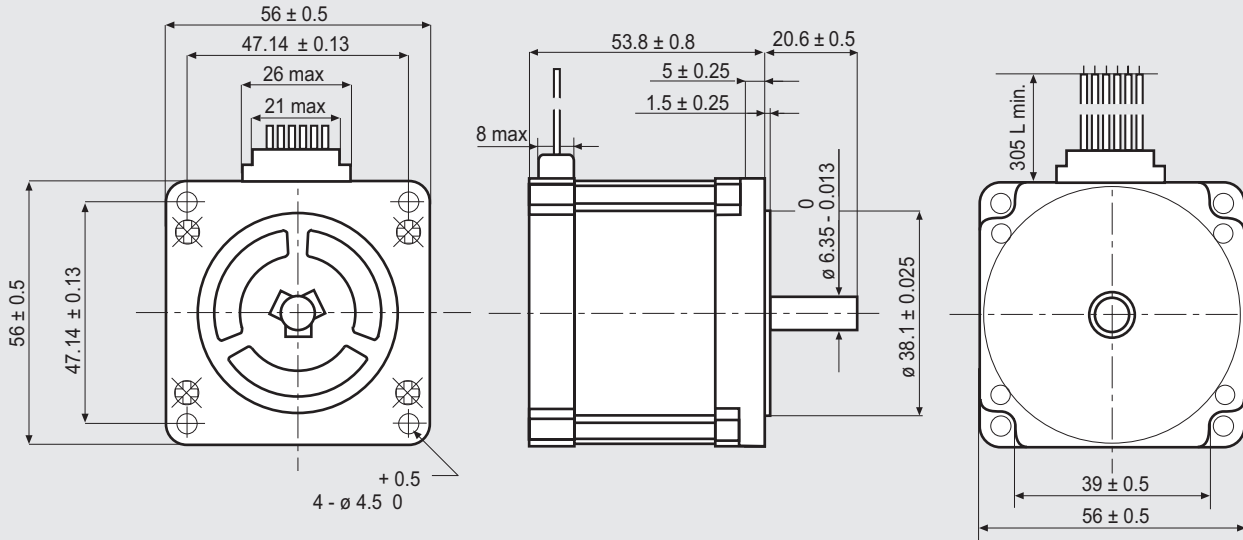
Codes between brackets refer to double shaft models.

TORQUE/SPEED CURVE



Suggested R.T.A. drive series: BSD, CSD, NDC, ADW, HGD, FLEX-DRIVE

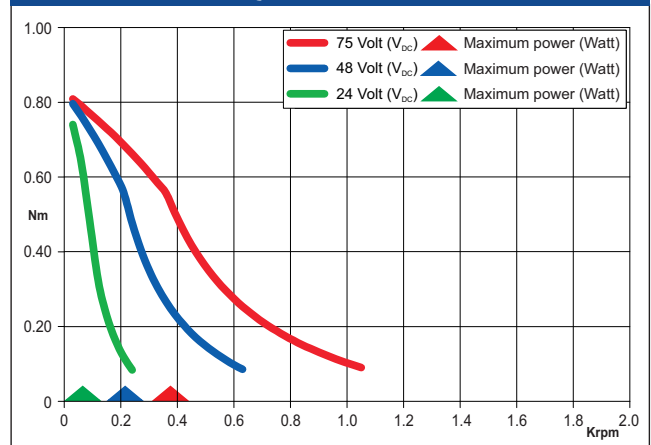
Dimensions (Unit:mm)



FEATURES

MODEL	103-H7123-0140	
BASIC STEP ANGLE	$1.8^\circ \pm 0.09^\circ$	
BIPOLAR CURRENT	(Amp)	$0.7^{(*)}$
UNIPOLAR CURRENT	(Amp)	1.0
RESISTANCE	(Ohm)	6.7
INDUCTANCE	(mH)	15
BIPOLAR HOLDING TORQUE	(Ncm)	110
UNIPOLAR HOLDING TORQUE	(Ncm)	85
ROTOR INERTIA	($\text{Kgm}^2 \times 10^{-7}$)	210
THEORETICAL ACCELERATION	($\text{rad} \times \text{sec}^{-2}$)	50000
BACK E.M.F.	(V/Krpm)	60
MASS	(Kg)	0.65
LEADS CODE	IV	

TORQUE/SPEED CURVE



(*)Bipolar series connection.

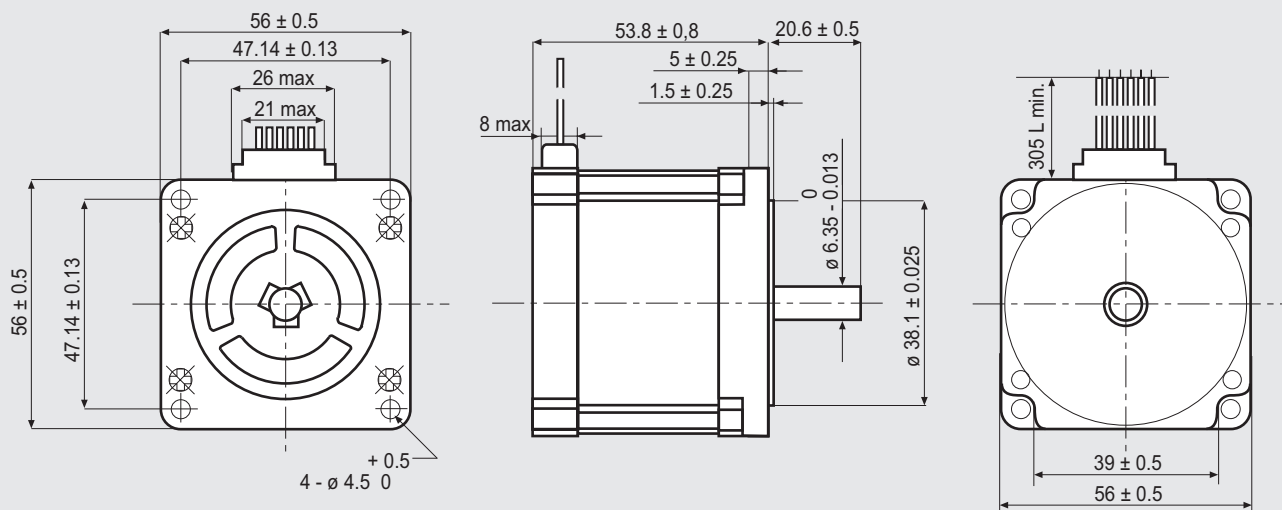


Suggested R.T.A. drive series: BSD, CSD, NDC, ADW, HGD, FLEX-DRIVE

103-H7123-0440

SANYO DENKI
SANMOTION

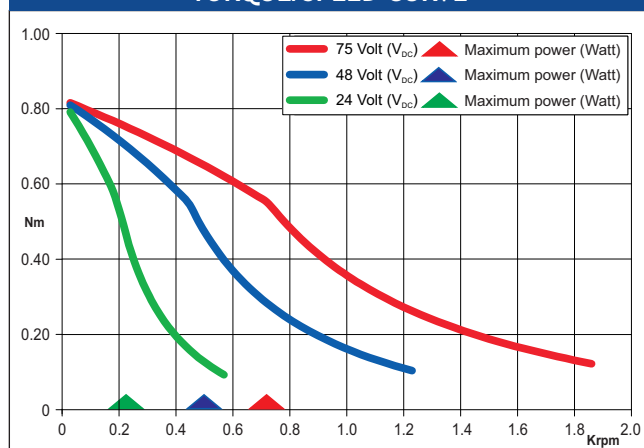
Dimensions (Unit:mm)



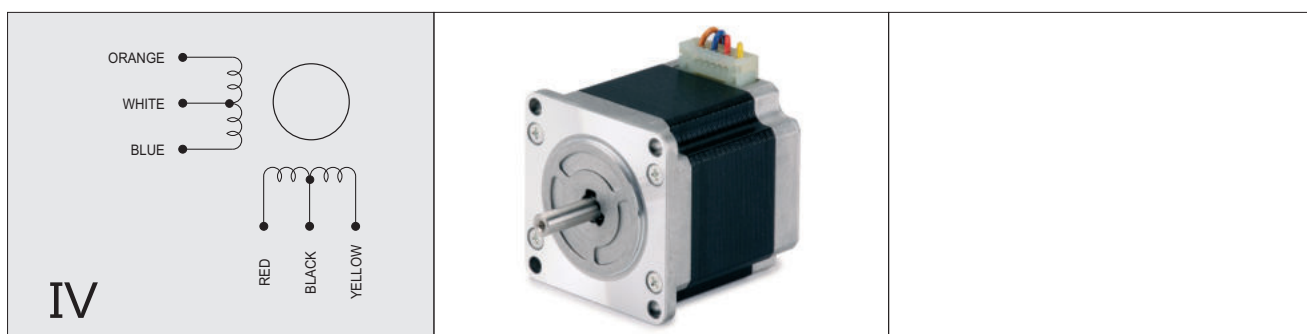
FEATURES

MODEL	103-H7123-0440
BASIC STEP ANGLE	$1.8^\circ \pm 0.09^\circ$
BIPOLAR CURRENT (Amp)	1.5 ^(*)
UNIPOLAR CURRENT (Amp)	2.0
RESISTANCE (Ohm)	1.6
INDUCTANCE (mH)	3.8
BIPOLAR HOLDING TORQUE (Ncm)	110
UNIPOLAR HOLDING TORQUE (Ncm)	85
ROTOR INERTIA ($\text{Kg} \cdot \text{m}^2 \times 10^{-7}$)	210
THEORETICAL ACCELERATION ($\text{rad} \times \text{sec}^{-2}$)	50000
BACK E.M.F. (V/Krpm)	31
MASS (Kg)	0.65
LEADS CODE	IV

TORQUE/SPEED CURVE

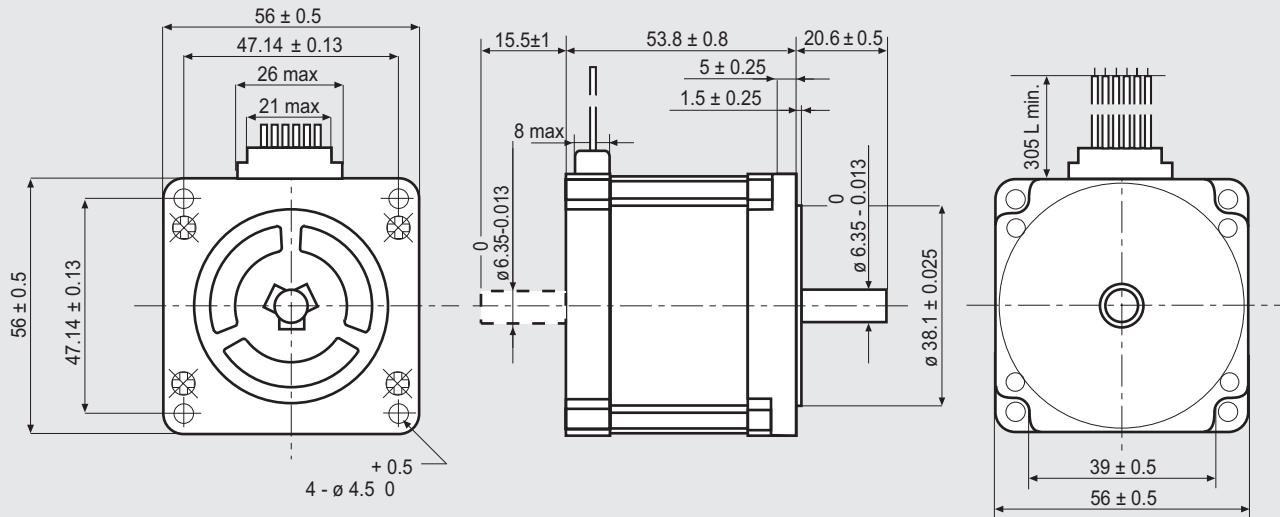


(*)Bipolar series connection.



Suggested R.T.A. drive series: BSD, CSD, NDC, ADW, HGD, FLEX-DRIVE

Dimensions (Unit:mm)

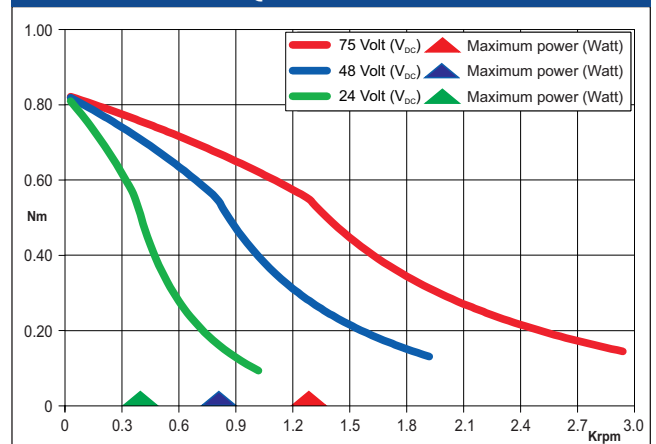


FEATURES

MODEL	103-H7123-0740 (103-H7123-0710)
BASIC STEP ANGLE	$1.8^\circ \pm 0.09^\circ$
BIPOLAR CURRENT (Amp)	2.2 ^(*)
UNIPOLAR CURRENT (Amp)	3.0
RESISTANCE (Ohm)	0.77
INDUCTANCE (mH)	1.6
BIPOLAR HOLDING TORQUE (Ncm)	110
UNIPOLAR HOLDING TORQUE (Ncm)	85
ROTOR INERTIA ($\text{Kgm}^2 \times 10^{-7}$)	210
THEORETICAL ACCELERATION ($\text{rad} \times \text{sec}^{-2}$)	50000
BACK E.M.F. (V/Krpm)	20
MASS (Kg)	0.65
LEADS CODE	IV

Codes between brackets refer to double shaft models.

TORQUE/SPEED CURVE



(*)Bipolar series connection.

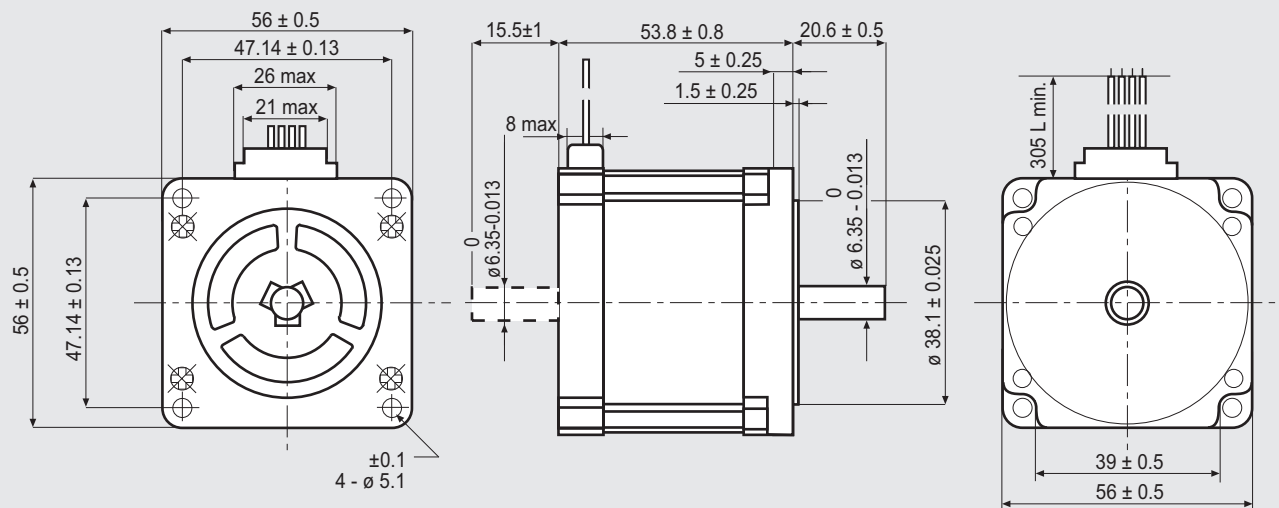


Suggested R.T.A. drive series: BSD, CSD, NDC, ADW, HGD, FLEX-DRIVE

103-H7123-1749

SANYO DENKI
SANMOTION

Dimensions (Unit:mm)

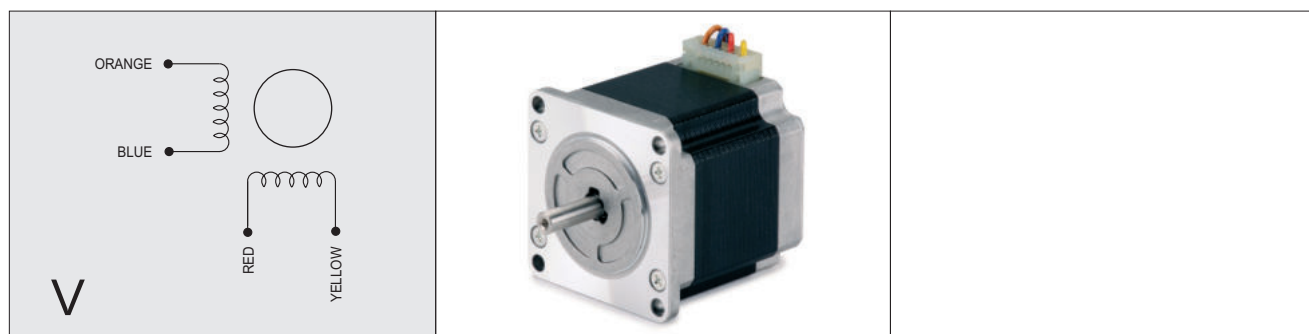
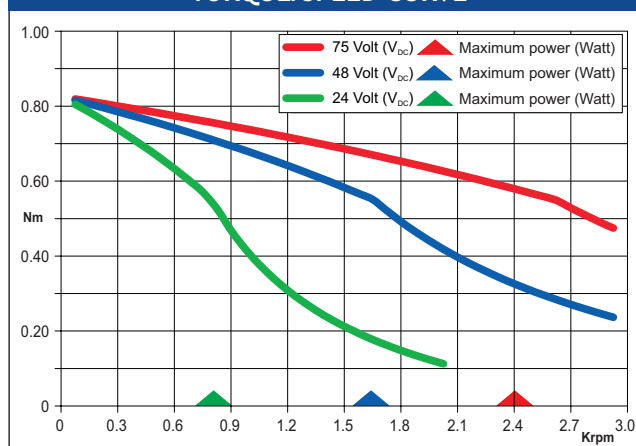


FEATURES

MODEL	103-H7123-1749 (103-H7123-1711)	
BASIC STEP ANGLE	$1.8^\circ \pm 0.09^\circ$	
BIPOLAR CURRENT	(Amp)	4.0
UNIPOLAR CURRENT	(Amp)	
RESISTANCE	(Ohm)	0.41
INDUCTANCE	(mH)	1.6
BIPOLAR HOLDING TORQUE	(Ncm)	110
UNIPOLAR HOLDING TORQUE	(Ncm)	
ROTOR INERTIA	(Kgm ² x 10 ⁻⁷)	210
THEORETICAL ACCELERATION	(rad x sec. ⁻²)	50000
BACK E.M.F.	(V/Krpm)	20
MASS	(Kg)	0.65
LEADS CODE	V	

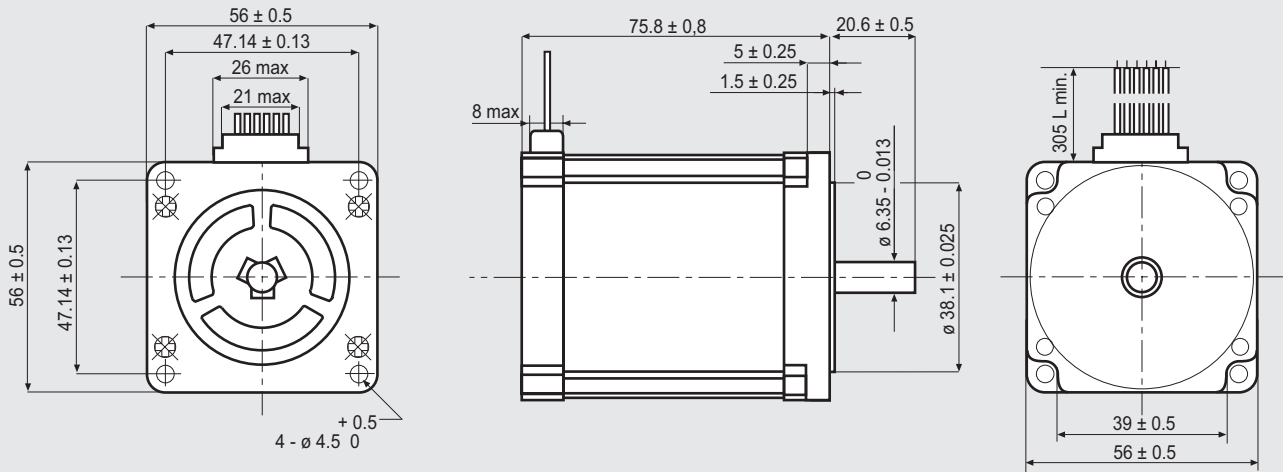
Codes between brackets refer to double shaft models.

TORQUE/SPEED CURVE



Suggested R.T.A. drive series: BSD, CSD, NDC, ADW, HGD, FLEX-DRIVE

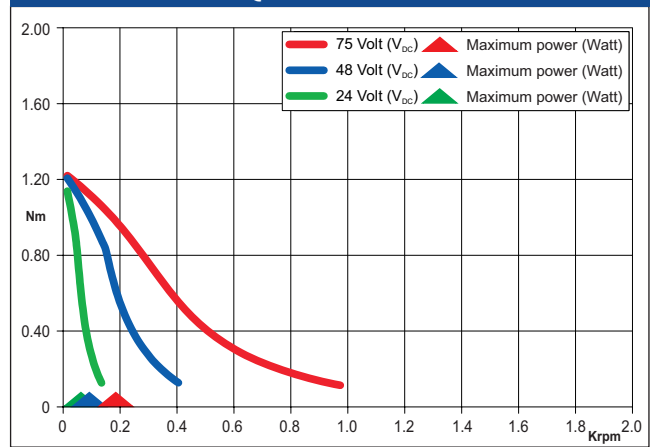
Dimensions (Unit:mm)



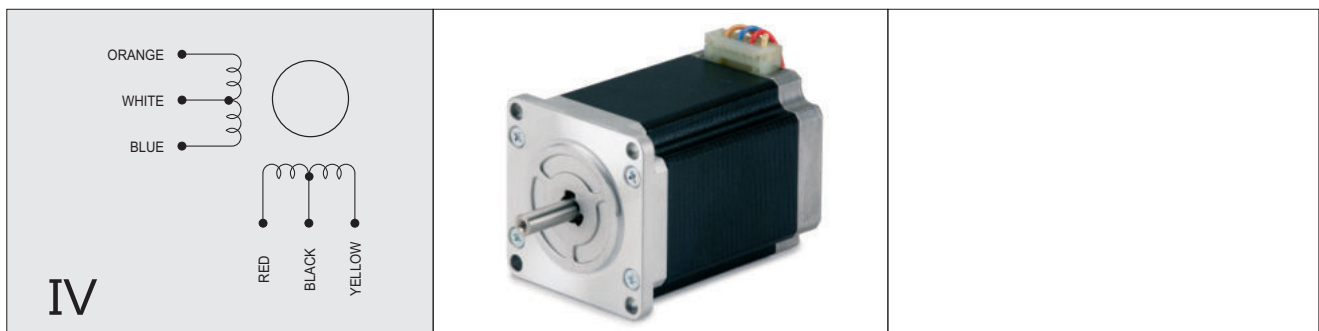
FEATURES

MODEL	103-H7126-0140
BASIC STEP ANGLE	$1.8^\circ \pm 0.09^\circ$
BIPOLAR CURRENT (Amp)	0.75 ^(*)
UNIPOLAR CURRENT (Amp)	1.0
RESISTANCE (Ohm)	8.6
INDUCTANCE (mH)	19
BIPOLAR HOLDING TORQUE (Ncm)	165
UNIPOLAR HOLDING TORQUE (Ncm)	130
ROTOR INERTIA ($\text{Kgm}^2 \times 10^{-7}$)	360
THEORETICAL ACCELERATION ($\text{rad} \times \text{sec.}^{-2}$)	45800
BACK E.M.F. (V/Krpm)	92
MASS (Kg)	1
LEADS CODE	IV

TORQUE/SPEED CURVE



(*)Bipolar series connection.

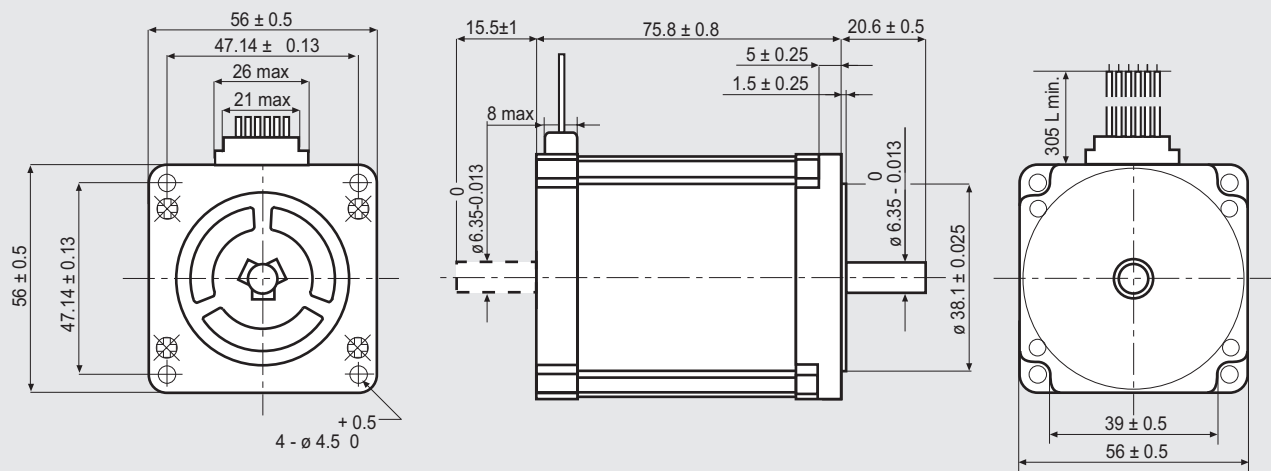


Suggested R.T.A. drive series: BSD, CSD, NDC, ADW, HGD, FLEX-DRIVE

103-H7126-0740

SANYO DENKI
SANMOTION

Dimensions (Unit:mm)

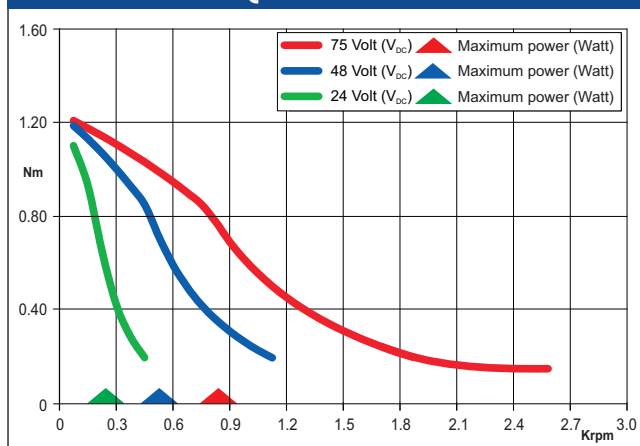


FEATURES

MODEL	103-H7126-0740 (103-H7126-0710)	
BASIC STEP ANGLE	$1.8^\circ \pm 0.09^\circ$	
BIPOLAR CURRENT	(Amp)	$2.2^{(*)}$
UNIPOLAR CURRENT	(Amp)	3
RESISTANCE	(Ohm)	0.9
INDUCTANCE	(mH)	2.2
BIPOLAR HOLDING TORQUE	(Ncm)	165
UNIPOLAR HOLDING TORQUE	(Ncm)	130
ROTOR INERTIA	(Kgm ² x 10 ⁻⁷)	360
THEORETICAL ACCELERATION	(rad x sec. ⁻²)	45800
BACK E.M.F.	(V/Krpm)	31
MASS	(Kg)	1
LEADS CODE	IV	

Codes between brackets refer to double shaft models.

TORQUE/SPEED CURVE



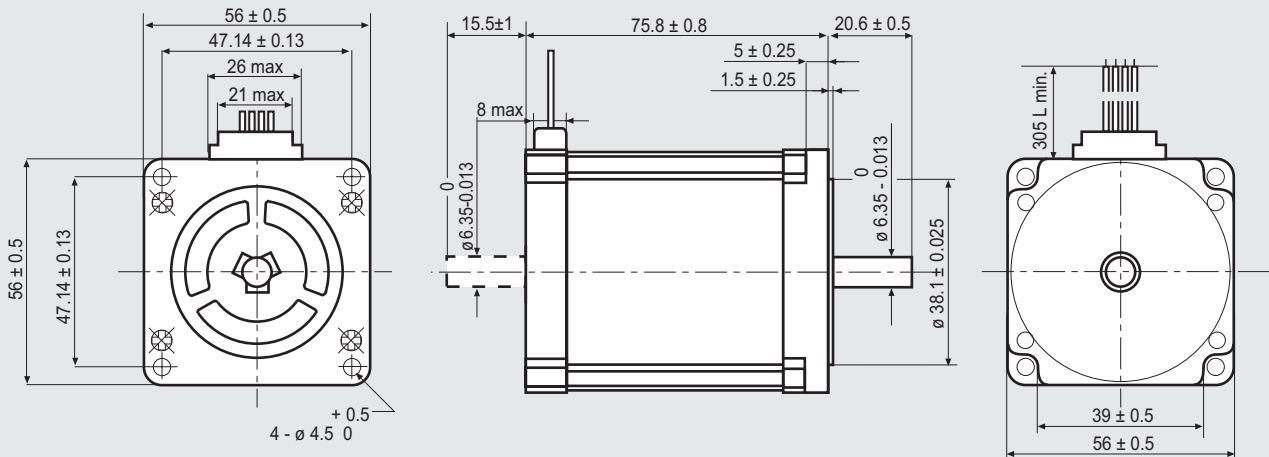
(*)Bipolar series connection.



Suggested R.T.A. drive series: BSD, CSD, NDC, ADW, HGD, FLEX-DRIVE

103-H7126-1740

Dimensions (Unit:mm)

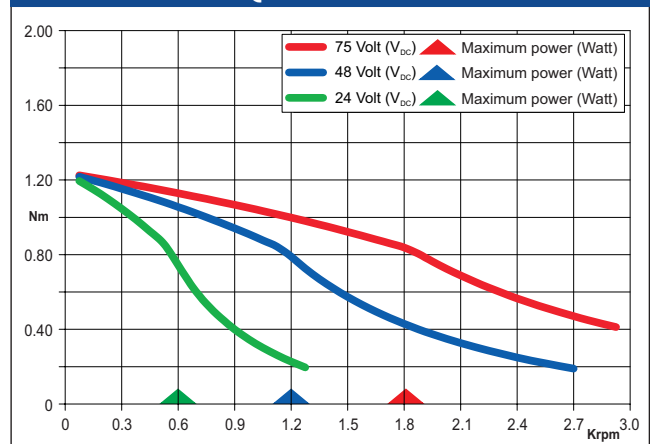


FEATURES

MODEL	103-H7126-1740 (103-H7126-1710)
BASIC STEP ANGLE	$1.8^\circ \pm 0.09^\circ$
BIPOLAR CURRENT (Amp)	4.0
UNIPOLAR CURRENT (Amp)	
RESISTANCE (Ohm)	0.48
INDUCTANCE (mH)	2.2
BIPOLAR HOLDING TORQUE (Ncm)	165
UNIPOLAR HOLDING TORQUE (Ncm)	
ROTOR INERTIA ($\text{Kgm}^2 \times 10^{-7}$)	360
THEORETICAL ACCELERATION ($\text{rad} \times \text{sec}^{-2}$)	45800
BACK E.M.F. (V/Krpm)	31
MASS (Kg)	1
LEADS CODE	V

Codes between brackets refer to double shaft models.

TORQUE/SPEED CURVE

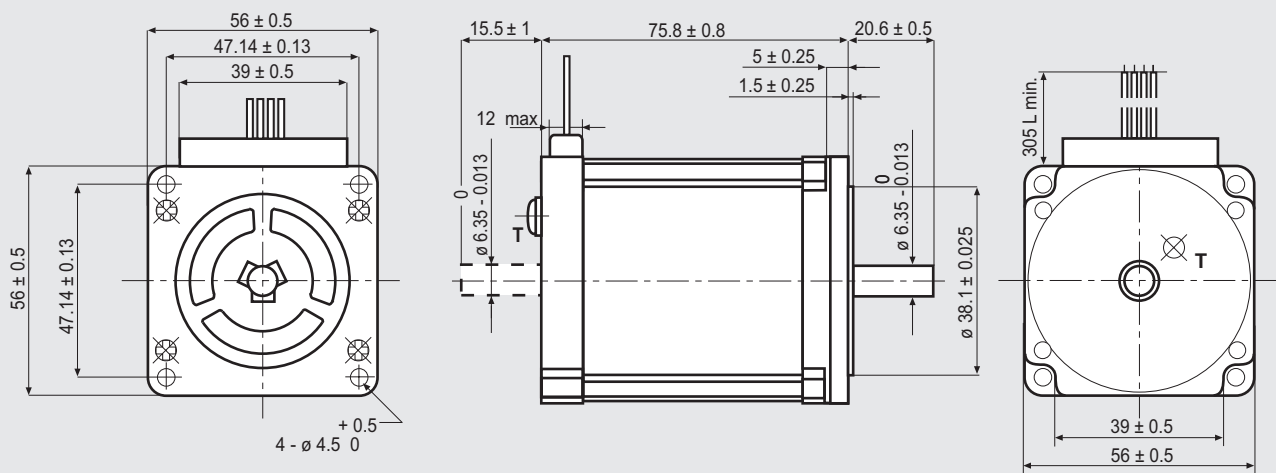


Suggested R.T.A. drive series: BSD, CSD, NDC, ADW, HGD, FLEX-DRIVE

103-H7126-6640

SANYO DENKI
SANMOTION

Dimensions (Unit:mm)



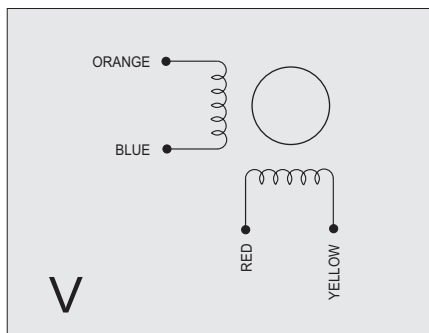
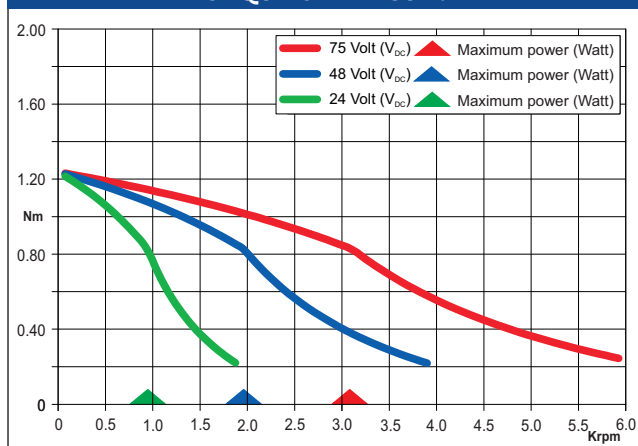
T IS THE EARTH TERMINAL

FEATURES

MODEL	103-H7126-6640 (103-H7126-6610)
BASIC STEP ANGLE	1.8° ± 0.09°
BIPOLAR CURRENT (Amp)	5.6
UNIPOLAR CURRENT (Amp)	
RESISTANCE (Ohm)	0.3
INDUCTANCE (mH)	0.85
BIPOLAR HOLDING TORQUE (Ncm)	165
UNIPOLAR HOLDING TORQUE (Ncm)	
ROTOR INERTIA (Kgm ² × 10 ⁻⁷)	360
THEORETICAL ACCELERATION (rad × sec. ⁻²)	45800
BACK E.M.F. (V/Krpm)	23
MASS (Kg)	1
PROTECTION DEGREE	IP43
LEADS CODE	V

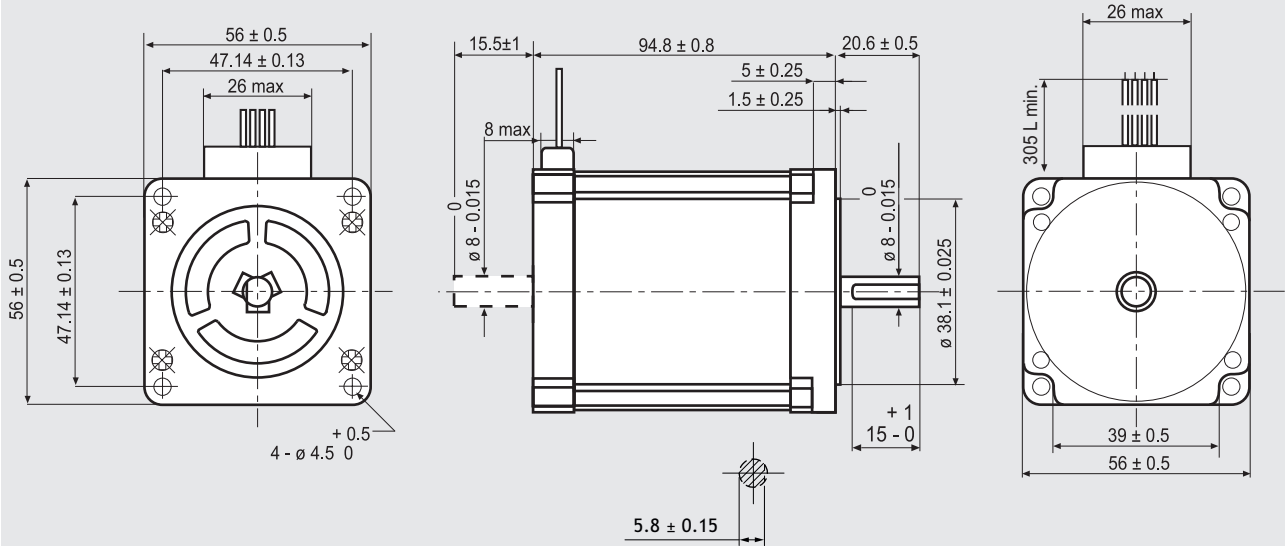
Codes between brackets refer to double shaft models.

TORQUE/SPEED CURVE



Suggested R.T.A. drive series: NDC, ADW, HGD, PLUS

Dimensions (Unit:mm)

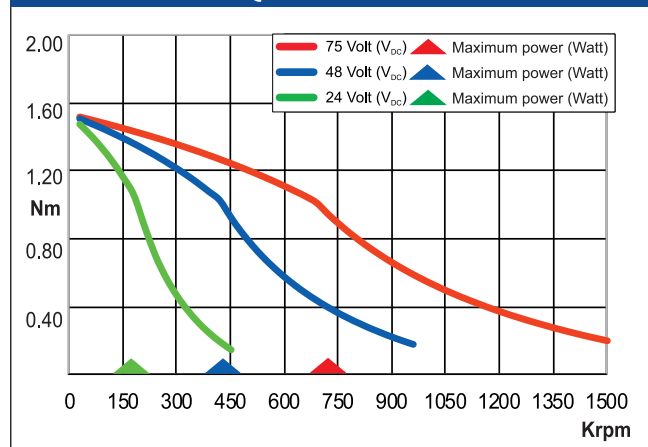


FEATURES

MODEL	103-H7128-5740 (103-H7128-5710)	
BASIC STEP ANGLE	$1.8^\circ \pm 0.09^\circ$	
BIPOLAR CURRENT	(Amp)	2
UNIPOLAR CURRENT	(Amp)	
RESISTANCE	(Ohm)	2.3
INDUCTANCE	(mH)	10.4
BIPOLAR HOLDING TORQUE	(Ncm)	200
UNIPOLAR HOLDING TORQUE	(Ncm)	
ROTOR INERTIA	($\text{Kgm}^2 \times 10^{-7}$)	490
THEORETICAL ACCELERATION	($\text{rad} \times \text{sec}^{-2}$)	40816
BACK E.M.F.	(V/Krpm)	53.3
MASS	(Kg)	1.3
LEADS CODE	V	

Codes between brackets refer to double shaft models.

TORQUE/SPEED CURVE

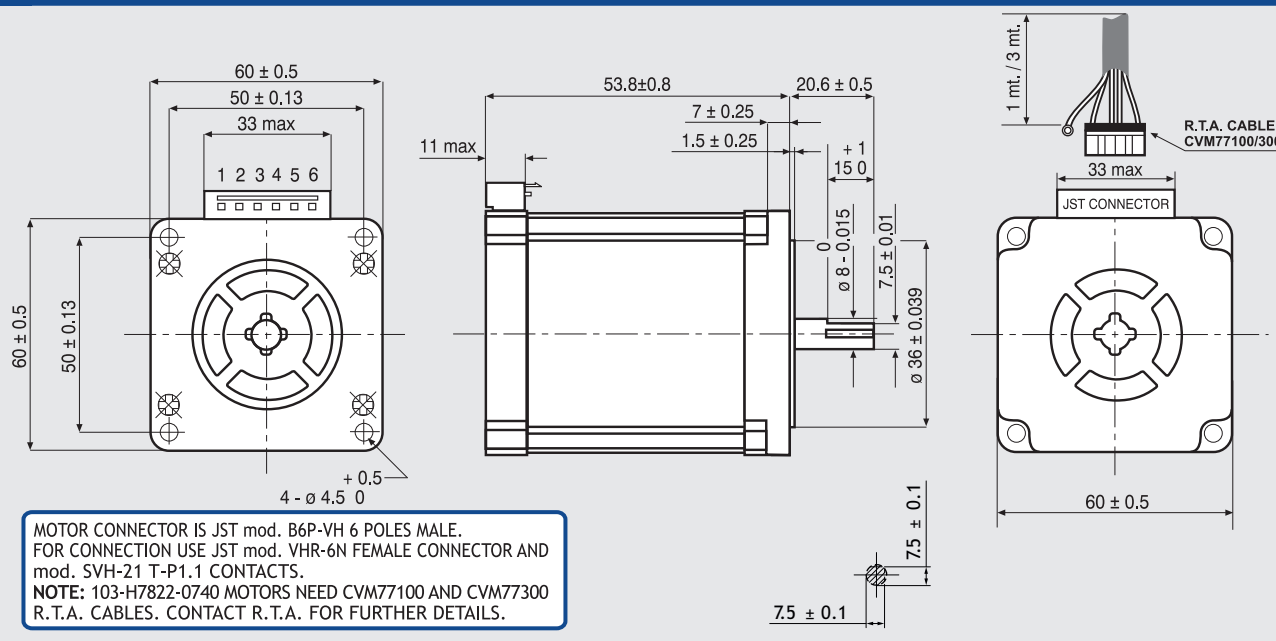


Suggested R.T.A. drive series: BSD, CSD, NDC, ADW, HGD, FLEX-DRIVE

103-H7822-0740

SANYO DENKI
SANMOTION

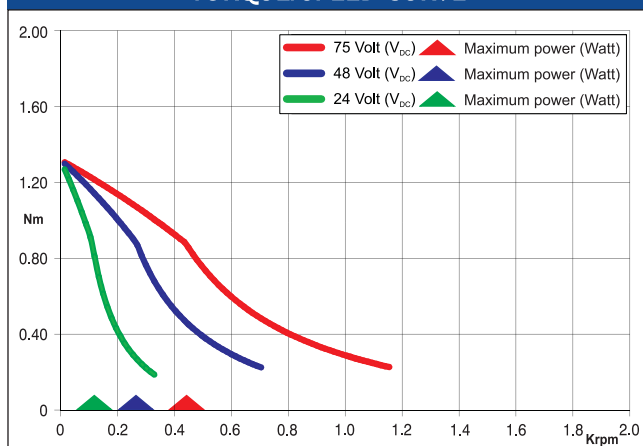
Dimensions (Unit:mm)



FEATURES

MODEL	103-H7822-0740
BASIC STEP ANGLE	1.8° ± 0.09°
BIPOLAR CURRENT (Amp)	2.2 ^(*)
UNIPOLAR CURRENT (Amp)	3.0
RESISTANCE (Ohm)	0.8
INDUCTANCE (mH)	1.38
BIPOLAR HOLDING TORQUE (Ncm)	170
UNIPOLAR HOLDING TORQUE (Ncm)	125
ROTOR INERTIA (Kgm ² × 10 ⁻⁷)	400
THEORETICAL ACCELERATION (rad × sec. ⁻²)	42500
BACK E.M.F. (V/Krpm)	77
MASS (Kg)	0.8
LEADS CODE	IV

TORQUE/SPEED CURVE

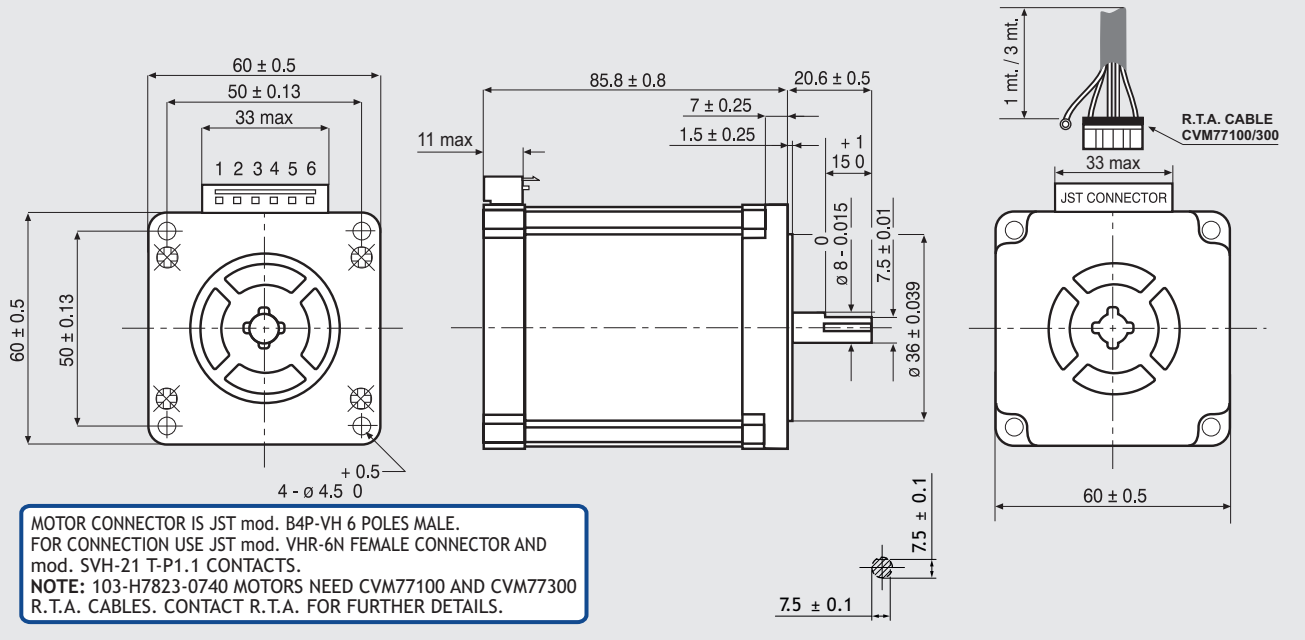


(*)Bipolar series connection.



Suggested R.T.A. drive series: BSD, CSD, NDC, ADW, FLEX-DRIVE

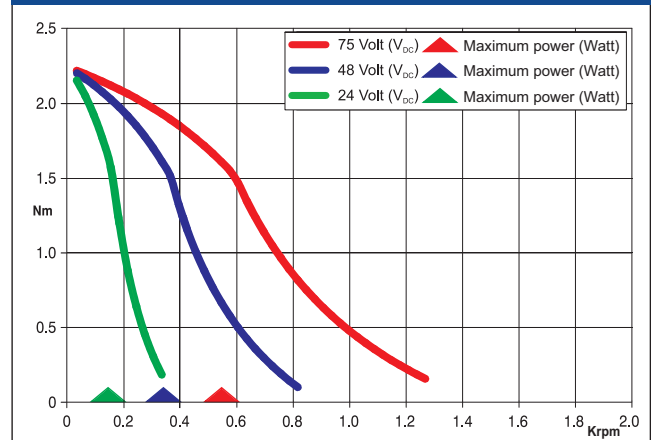
Dimensions (Unit:mm)



FEATURES

MODEL	103-H7823-0740	
BASIC STEP ANGLE	1.8° ± 0.09°	
BIPOLAR CURRENT	(Amp)	2.2 ^(*)
UNIPOLAR CURRENT	(Amp)	3.0
RESISTANCE	(Ohm)	1.25
INDUCTANCE	(mH)	2.4
BIPOLAR HOLDING TORQUE	(Ncm)	300
UNIPOLAR HOLDING TORQUE	(Ncm)	240
ROTOR INERTIA	(Kgm ² x 10 ⁻⁷)	840
THEORETICAL ACCELERATION	(rad x sec. ⁻²)	35700
BACK E.M.F.	(V/Krpm)	55
MASS	(Kg)	1.4
LEADS CODE	IV	

TORQUE/SPEED CURVE



(*)Bipolar series connection.

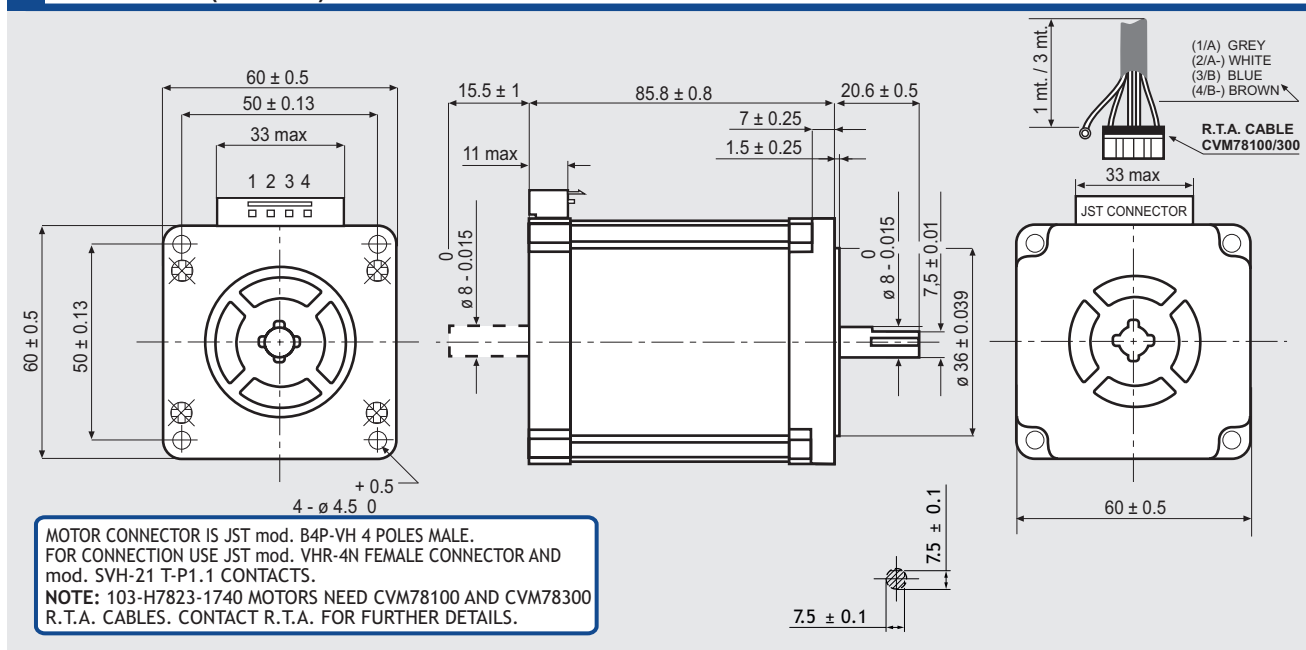


Suggested R.T.A. drive series: BSD, CSD, NDC, ADW, HGD, PLUS, FLEX-DRIVE

103-H7823-1740

SANYO DENKI
SANMOTION

Dimensions (Unit:mm)

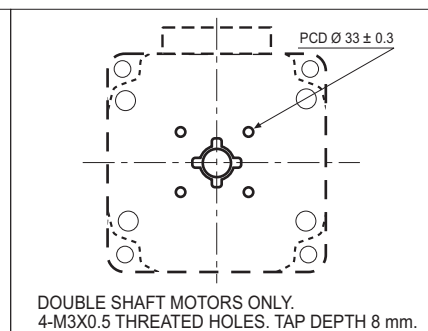
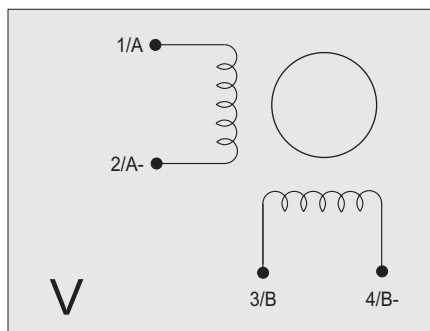
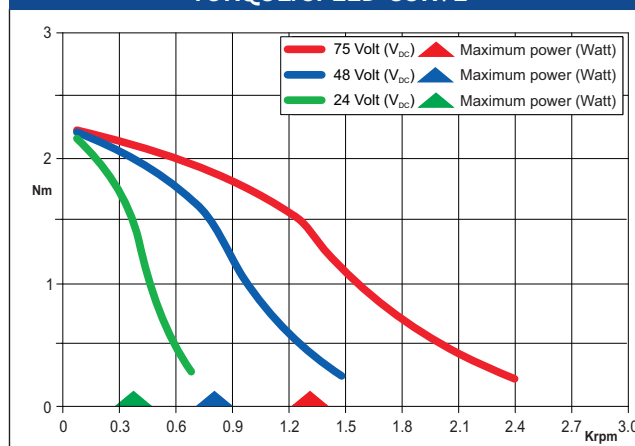


FEATURES

MODEL	103-H7823-1740 (103-H7823-1714)
BASIC STEP ANGLE	1.8° ± 0.09°
BIPOLAR CURRENT (Amp)	4.0
UNIPOLAR CURRENT (Amp)	
RESISTANCE (Ohm)	0.65
INDUCTANCE (mH)	2.4
BIPOLAR HOLDING TORQUE (Ncm)	300
UNIPOLAR HOLDING TORQUE (Ncm)	
ROTOR INERTIA (Kgm ² × 10 ⁻⁷)	840
THEORETICAL ACCELERATION (rad × sec. ⁻²)	35700
BACK E.M.F. (V/Krpm)	75
MASS (Kg)	1.4
LEADS CODE	V

Codes between brackets refer to double shaft models.

TORQUE/SPEED CURVE

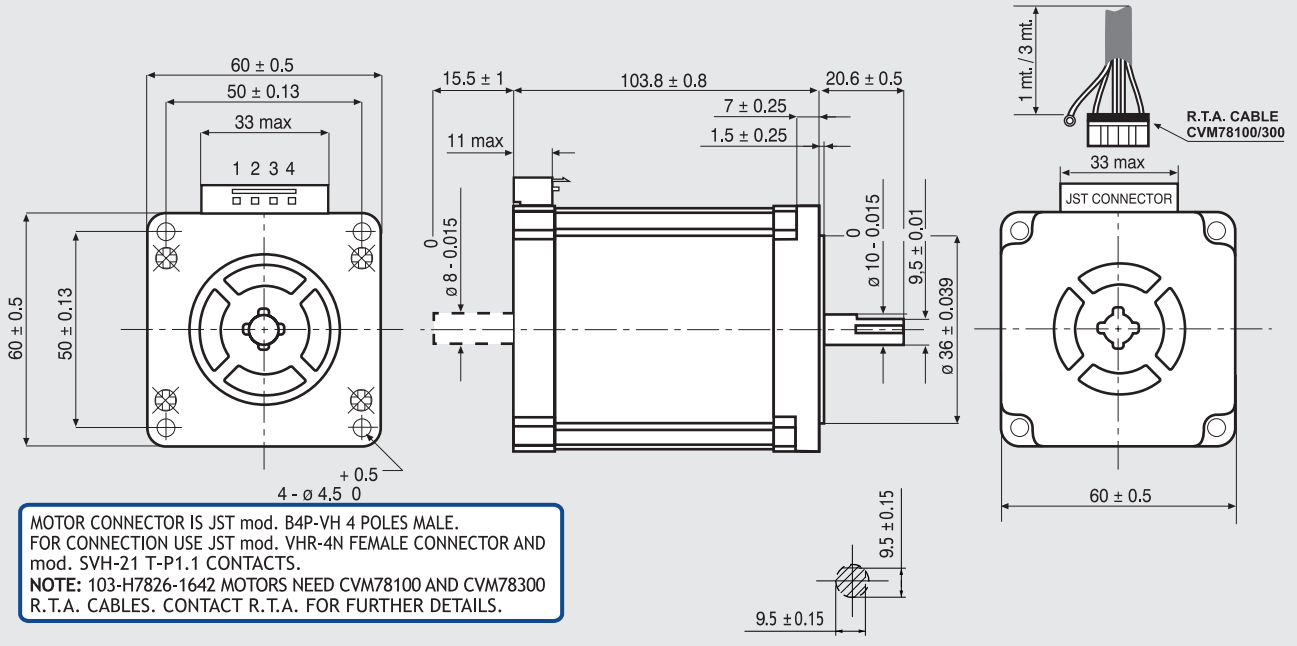


Suggested R.T.A. drive series: BSD, CSD, NDC, ADW, HGD, PLUS, FLEX-DRIVE

103-H7826-1642

SANYO DENKI
SANMOTION

Dimensions (Unit:mm)

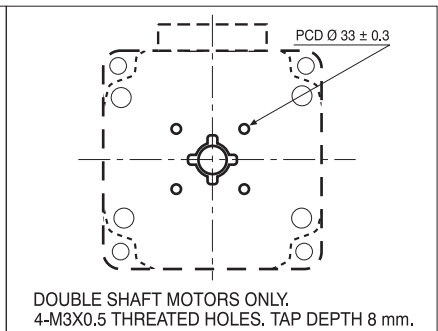
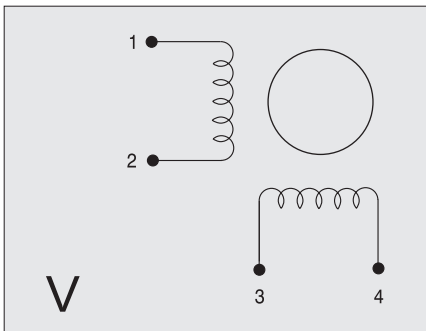
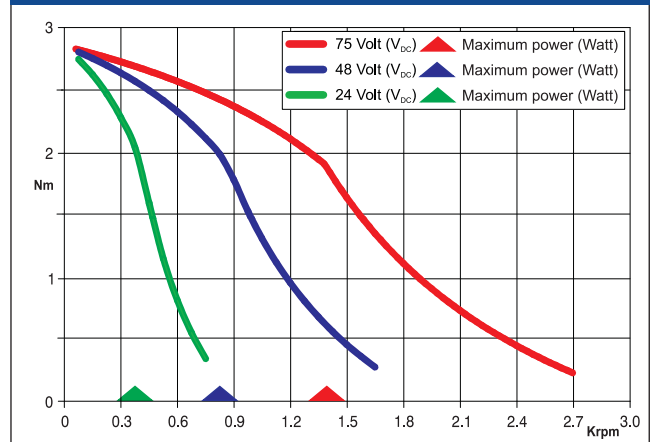


FEATURES

MODEL	103-H7826-1642 (103-H7826-1612)
BASIC STEP ANGLE	1.8° ± 0.09°
BIPOLAR CURRENT (Amp)	6.0
UNIPOLAR CURRENT (Amp)	
RESISTANCE (Ohm)	0.43
INDUCTANCE (mH)	1.45
BIPOLAR HOLDING TORQUE (Ncm)	380
UNIPOLAR HOLDING TORQUE (Ncm)	
ROTOR INERTIA (Kgm ² × 10 ⁻⁷)	1080
THEORETICAL ACCELERATION (rad × sec. ⁻²)	35200
BACK E.M.F. (V/Krpm)	70
MASS (Kg)	1.65
LEADS CODE	V

Codes between brackets refer to double shaft models.

TORQUE/SPEED CURVE

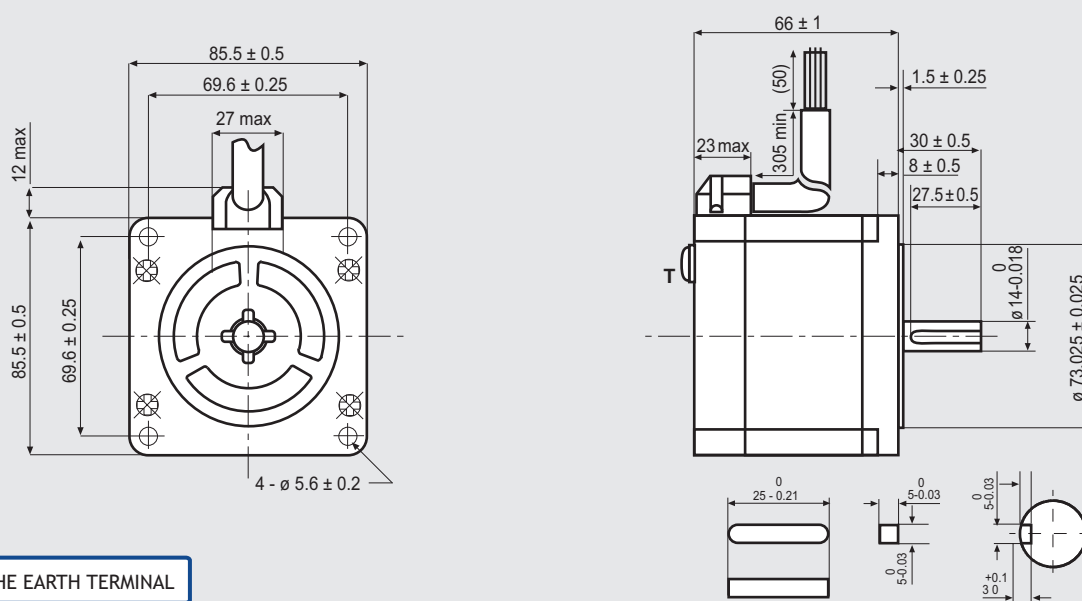


Suggested R.T.A. drive series: NDC, ADW, HGD, PLUS

SM 2861-5055

SANYO DENKI
SANMOTION

Dimensions (Unit:mm)



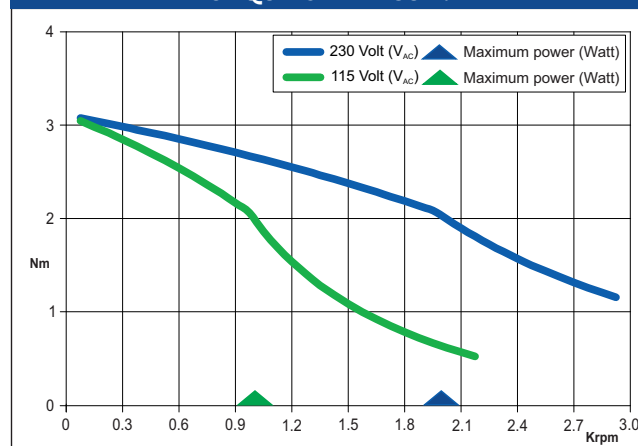
T IS THE EARTH TERMINAL

FEATURES

MODEL	SM 2861-5055 (SM 2861-5025)	
BASIC STEP ANGLE		1.8° ± 0.09°
BIPOLAR CURRENT	(Amp)	2.0
RESISTANCE	(Ohm)	2.2
INDUCTANCE	(mH)	15
BIPOLAR HOLDING TORQUE	(Ncm)	360
ROTOR INERTIA	(Kgm ² x 10 ⁻⁷)	1480
THEORETICAL ACCELERATION	(rad x sec. ⁻²)	24300
BACK E.M.F.	(V/Krpm)	180
MASS	(Kg)	1.7
INTERNATIONAL STANDARDS		UL, CSA
INSULATION VOLTAGE	(V)	250 V _{AC} (350 V _{DC})
PROTECTION DEGREE		IP43-F
LEADS CODE		V

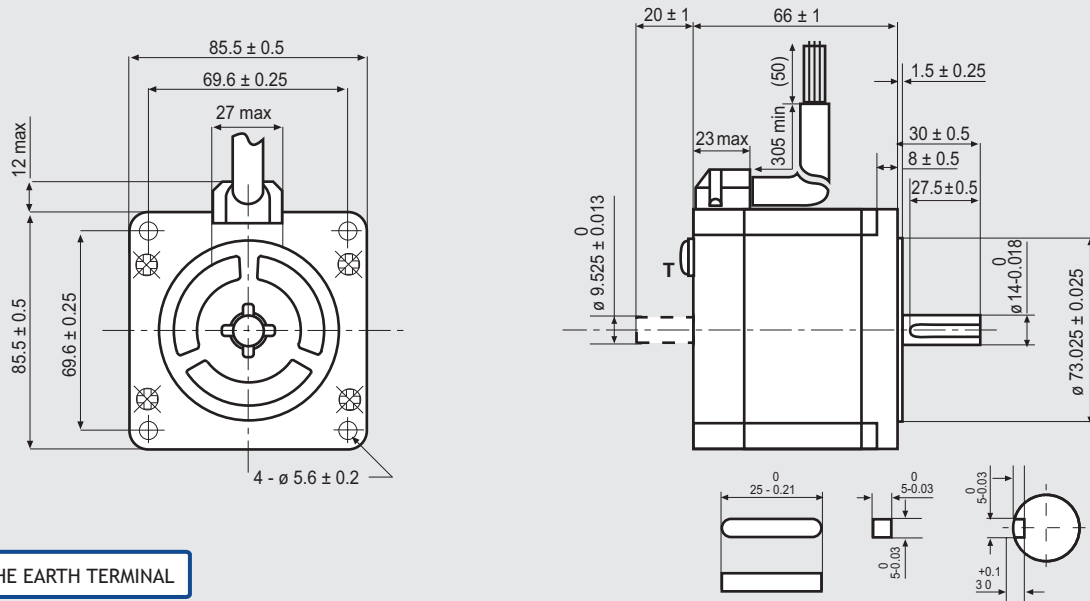
Codes between brackets refer to double shaft models.

TORQUE/SPEED CURVE



Suggested R.T.A. drive model: X-PLUS L2

Dimensions (Unit:mm)



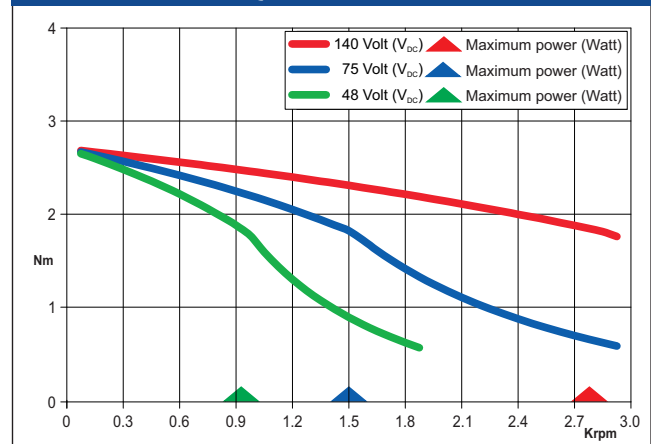
T IS THE EARTH TERMINAL

FEATURES

MODEL	SM 2861-5255 (SM 2861-5225)
BASIC STEP ANGLE	1.8° ± 0.09°
BIPOLAR CURRENT (Amp)	6.0
RESISTANCE (Ohm)	0.29
INDUCTANCE (mH)	1.7
BIPOLAR HOLDING TORQUE (Ncm)	360
ROTOR INERTIA (Kg·m ² × 10 ⁻⁷)	1480
THEORETICAL ACCELERATION (rad × sec. ⁻²)	24300
BACK E.M.F. (V/Krpm)	60
MASS (Kg)	1.7
INTERNATIONAL STANDARDS	UL, CSA
INSULATION VOLTAGE (V)	250 V _{AC} (350 V _{DC})
PROTECTION DEGREE	IP43-F
LEADS CODE	V

Codes between brackets refer to double shaft models.

TORQUE/SPEED CURVE



V

CRUS

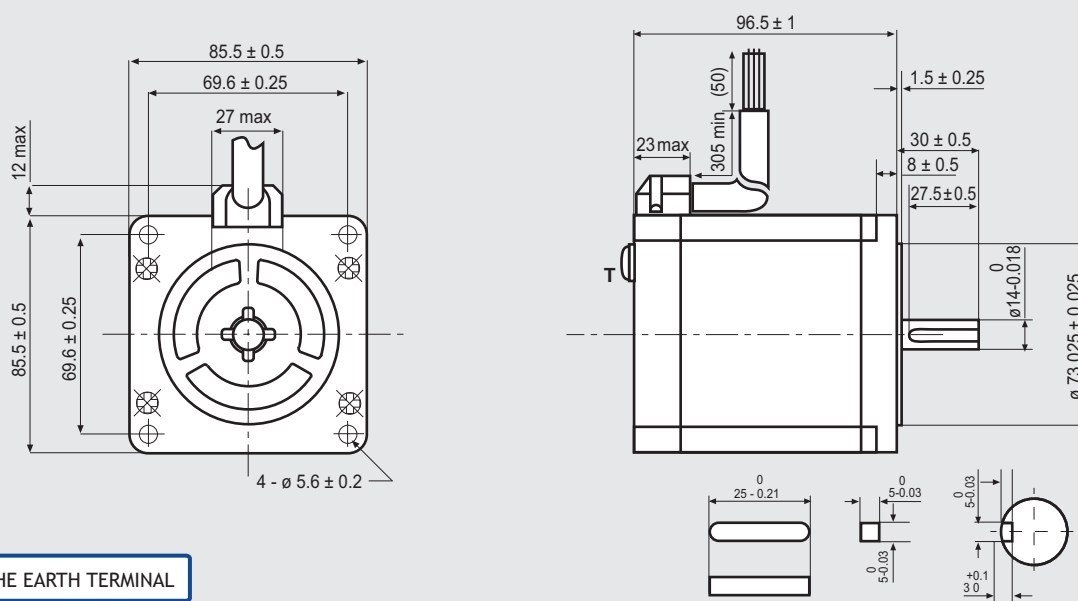
DOUBLE SHAFT MOTORS ONLY.
4 X M4 THREADED HOLES. TAP DEPTH 4.5 mm.

Suggested R.T.A. drive series: NDC, ADW, HGD, PLUS

SM 2862-5055

SANYO DENKI
SANMOTION

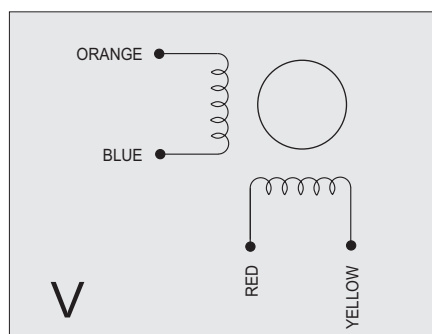
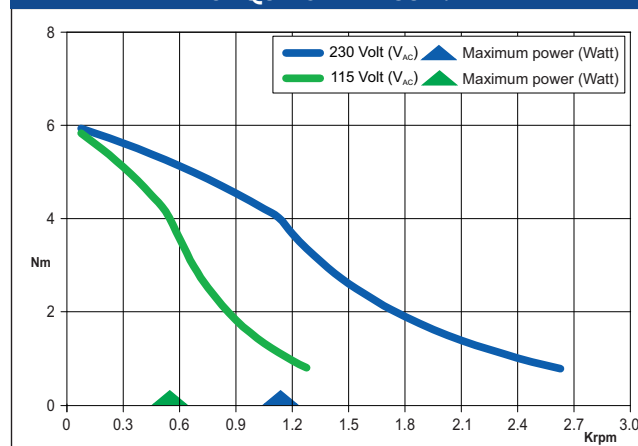
Dimensions (Unit:mm)



FEATURES

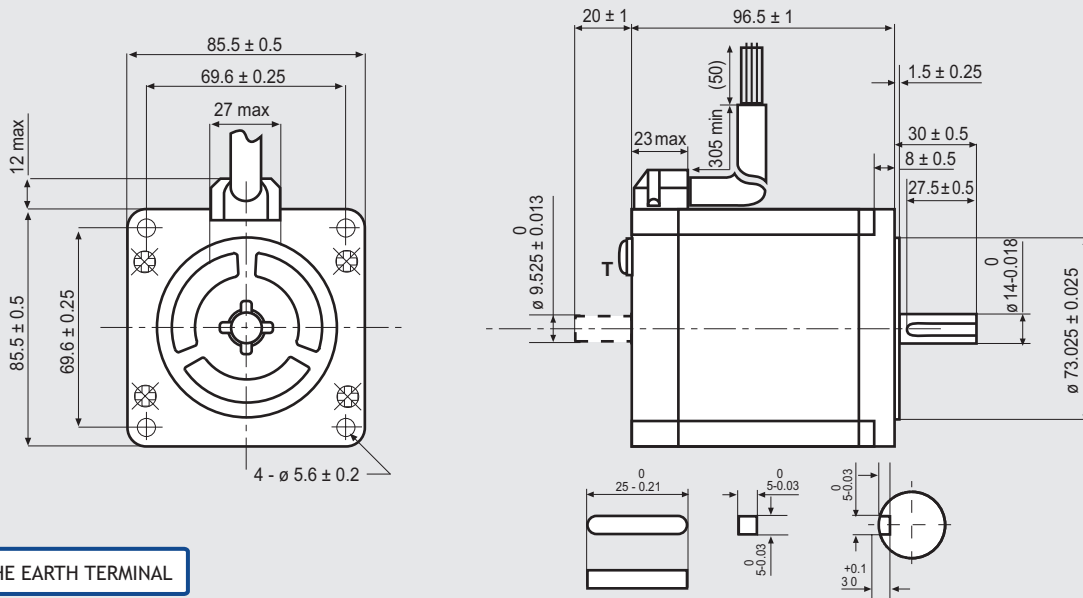
MODEL	SM 2862-5055	
BASIC STEP ANGLE		1.8° ± 0.09°
BIPOLAR CURRENT	(Amp)	2.0
RESISTANCE	(Ohm)	3.2
INDUCTANCE	(mH)	25
BIPOLAR HOLDING TORQUE	(Ncm)	700
ROTOR INERTIA	(Kgm ² x 10 ⁻⁷)	3000
THEORETICAL ACCELERATION	(rad x sec. ⁻²)	23300
BACK E.M.F.	(V/Krpm)	350
MASS	(Kg)	2.9
INTERNATIONAL STANDARDS		UL, CSA
INSULATION VOLTAGE	(V)	250 V _{AC} (350 V _{DC})
PROTECTION DEGREE		IP43-F
LEADS CODE		V

TORQUE/SPEED CURVE



Suggested R.T.A. drive series: 230 Vac X-PLUS

Dimensions (Unit:mm)

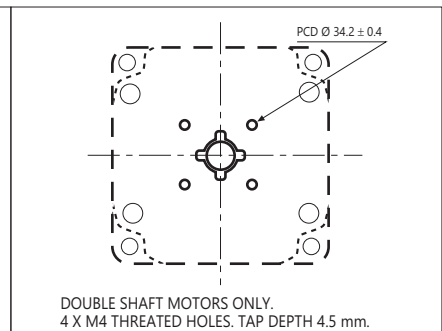
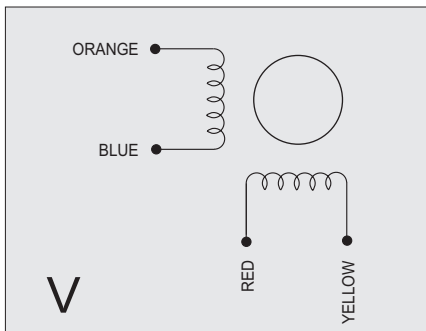
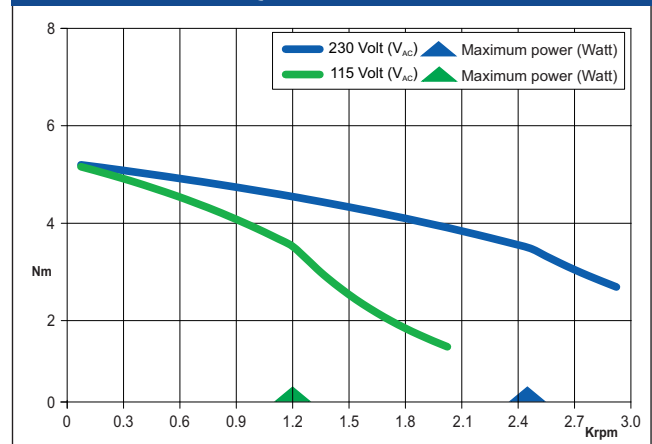


FEATURES

MODEL	SM 2862-5155 (SM 2862-5125)
BASIC STEP ANGLE	1.8° ± 0.09°
BIPOLAR CURRENT (Amp)	4.0
RESISTANCE (Ohm)	0.83
INDUCTANCE (mH)	6.4
BIPOLAR HOLDING TORQUE (Ncm)	700
ROTOR INERTIA (Kg ^m 2 x 10 ⁻⁷)	3000
THEORETICAL ACCELERATION (rad x sec. ⁻²)	23300
BACK E.M.F. (V/Krpm)	175
MASS (Kg)	2.9
INTERNATIONAL STANDARDS	UL, CSA
INSULATION VOLTAGE (V)	250 Vac (350 Vdc)
PROTECTION DEGREE	IP43-F
LEADS CODE	V

Codes between brackets refer to double shaft models.

TORQUE/SPEED CURVE

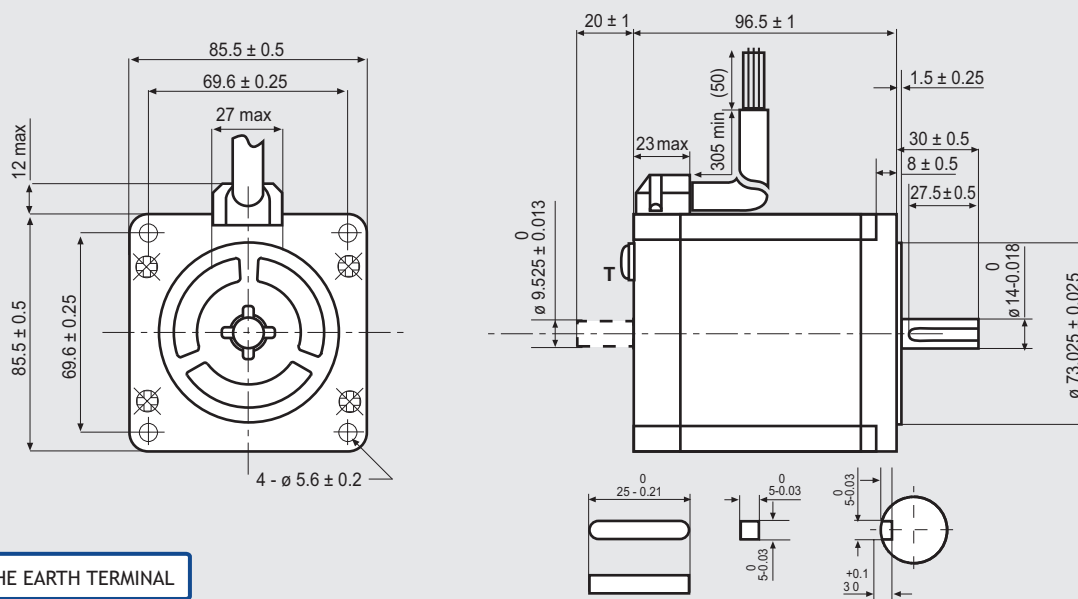


Suggested R.T.A. drive series: 230 Vac X-PLUS

SM 2862-5255

SANYO DENKI
SANMOTION

Dimensions (Unit:mm)



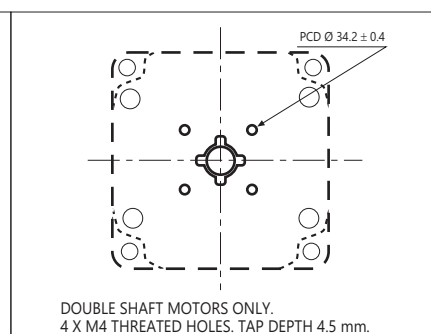
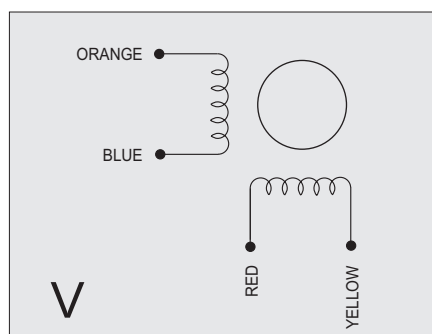
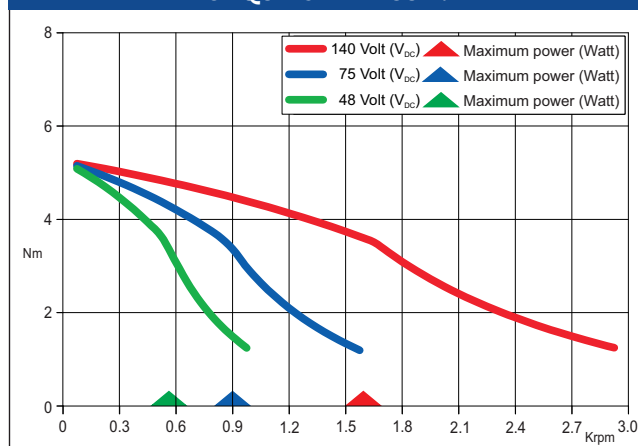
T IS THE EARTH TERMINAL

FEATURES

MODEL	SM 2862-5255 (SM 2862-5225)
BASIC STEP ANGLE	$1.8^\circ \pm 0.09^\circ$
BIPOLAR CURRENT (Amp)	6.0
RESISTANCE (Ohm)	0.36
INDUCTANCE (mH)	2.8
BIPOLAR HOLDING TORQUE (Ncm)	700
ROTOR INERTIA ($\text{Kgm}^2 \times 10^{-7}$)	3000
THEORETICAL ACCELERATION ($\text{rad} \times \text{sec}^{-2}$)	23300
BACK E.M.F. (V/Krpm)	120
MASS (Kg)	2.9
INTERNATIONAL STANDARDS	UL, CSA
INSULATION VOLTAGE (V)	250 V _{AC} (350 V _{DC})
PROTECTION DEGREE	IP43-F
LEADS CODE	V

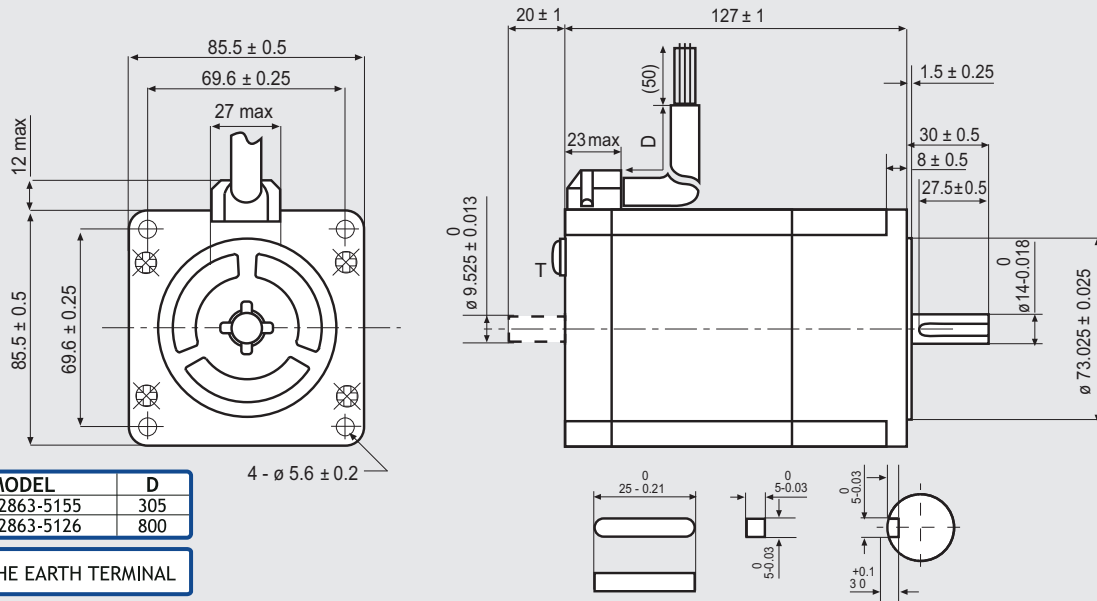
Codes between brackets refer to double shaft models.

TORQUE/SPEED CURVE



Suggested R.T.A. drive series: NDC, ADW, HGD, PLUS

Dimensions (Unit:mm)

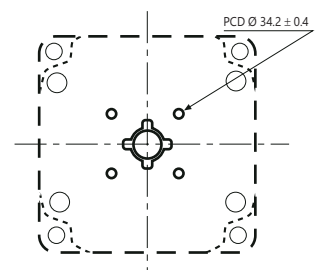
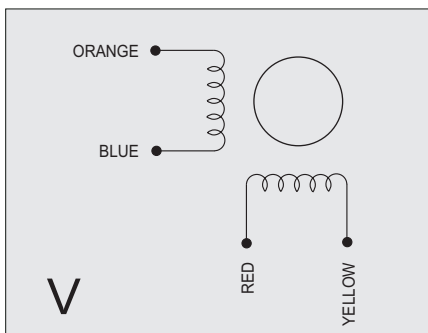
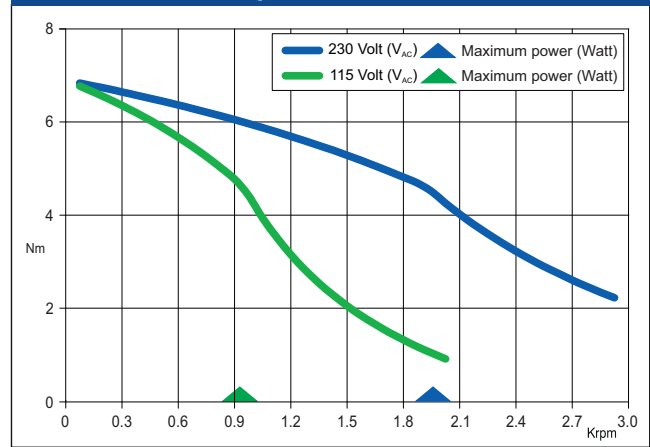


FEATURES

MODEL	SM 2863-5155 (SM 2863-5126)
BASIC STEP ANGLE	1.8° ± 0.09°
BIPOLAR CURRENT (Amp)	4.0
RESISTANCE (Ohm)	1.0
INDUCTANCE (mH)	7.9
BIPOLAR HOLDING TORQUE (Ncm)	920
ROTOR INERTIA (Kgm ² x 10 ⁻⁷)	4500
THEORETICAL ACCELERATION (rad x sec. ⁻²)	20500
BACK E.M.F. (V/Krpm)	241
MASS (Kg)	4
INTERNATIONAL STANDARDS	UL, CSA
INSULATION VOLTAGE (V)	250 V _{AC} (350 V _{DC})
PROTECTION DEGREE	IP43-F
LEADS CODE	V

Codes between brackets refer to double shaft models.

TORQUE/SPEED CURVE



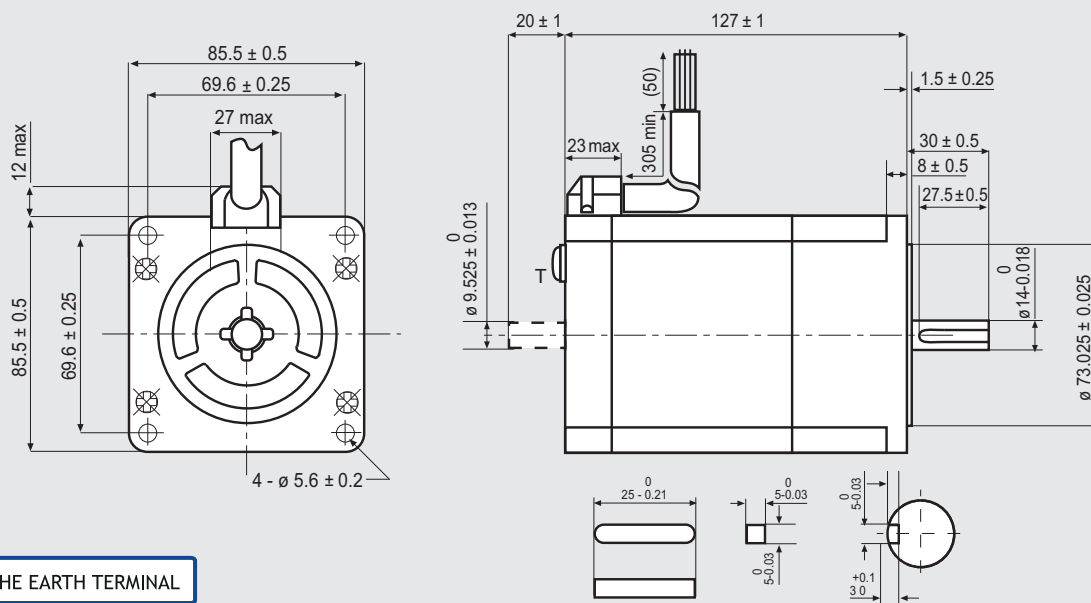
DOUBLE SHAFT MOTORS ONLY.
4 X M4 THREADED HOLES. TAP DEPTH 4.5 mm.

Suggested R.T.A. drive series: 230 Vac X-PLUS

SM 2863-5255

SANYO DENKI
SANMOTION

Dimensions (Unit:mm)

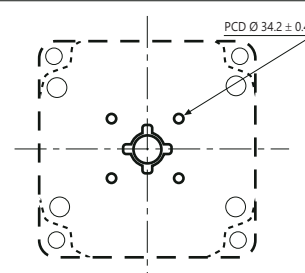
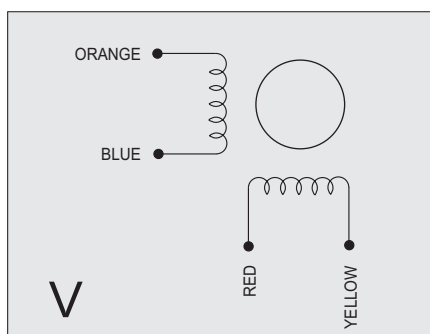
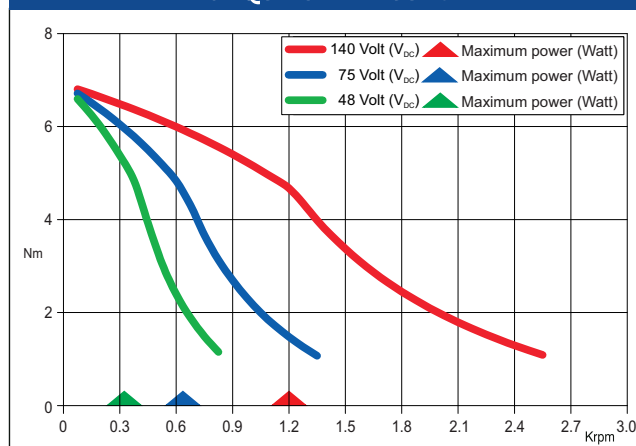


FEATURES

MODEL	SM 2863-5255 (SM 2863-5225)
BASIC STEP ANGLE	1.8° ± 0.09°
BIPOLAR CURRENT (Amp)	6.0
RESISTANCE (Ohm)	0.46
INDUCTANCE (mH)	3.8
BIPOLAR HOLDING TORQUE (Ncm)	920
ROTOR INERTIA (Kgm ² x 10 ⁻⁷)	4500
THEORETICAL ACCELERATION (rad x sec. ⁻²)	20500
BACK E.M.F. (V/Krpm)	161
MASS (Kg)	4
INTERNATIONAL STANDARDS	UL, CSA
INSULATION VOLTAGE (V)	250 V _{AC} (350 V _{DC})
PROTECTION DEGREE	IP43-F
LEADS CODE	V

Codes between brackets refer to double shaft models.

TORQUE/SPEED CURVE



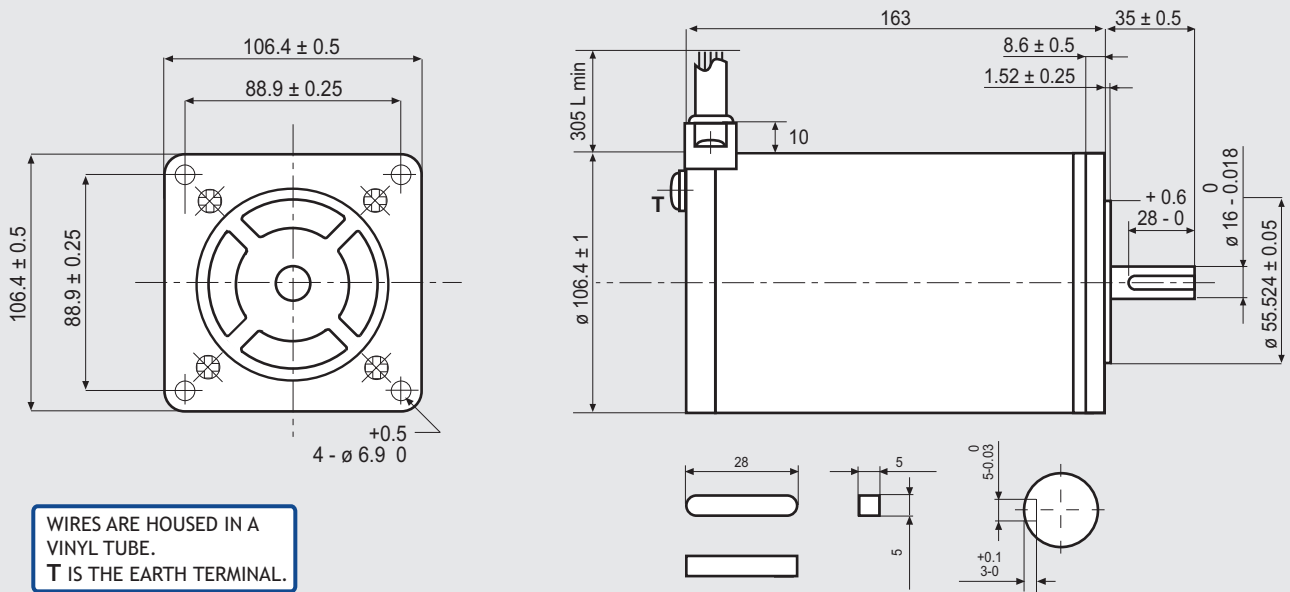
DOUBLE SHAFT MOTORS ONLY.
4 X M4 THREADED HOLES. TAP DEPTH 4.5 mm.

Suggested R.T.A. drive series: NDC, ADW, HGD, PLUS

103-H89222-6341

SANYO DENKI
SANMOTION

Dimensions (Unit:mm)

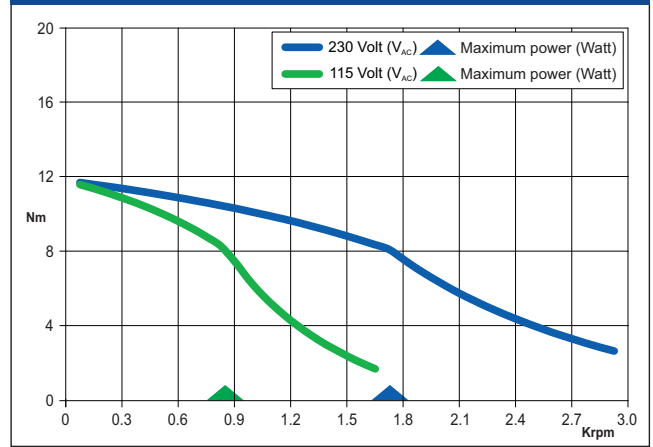


FEATURES

MODEL	103-H89222-6341 (103-H89222-6311)	
BASIC STEP ANGLE	1.8° ± 0.09°	
BIPOLAR CURRENT	(Amp)	6.0
UNIPOLAR CURRENT	(Amp)	
RESISTANCE	(Ohm)	0.45
INDUCTANCE	(mH)	5.4
BIPOLAR HOLDING TORQUE	(Ncm)	1620
UNIPOLAR HOLDING TORQUE	(Ncm)	
ROTOR INERTIA	(Kgm ² x 10 ⁻⁷)	14650
THEORETICAL ACCELERATION	(rad x sec. ⁻²)	11100
BACK E.M.F.	(V/Krpm)	270
MASS	(Kg)	7
PROTECTION DEGREE	IP43	
LEADS CODE	V	

Codes between brackets refer to double shaft models.

TORQUE/SPEED CURVE

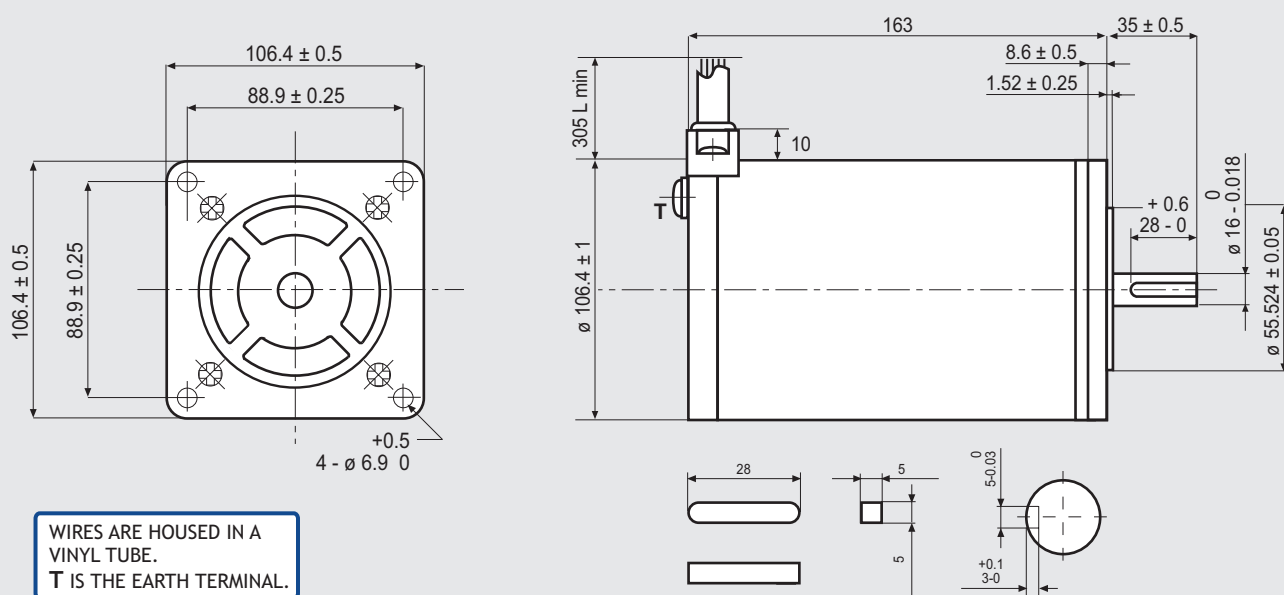


Suggested R.T.A. drive model: X-MIND B6

103-H89222-6541

SANYO DENKI
SANMOTION

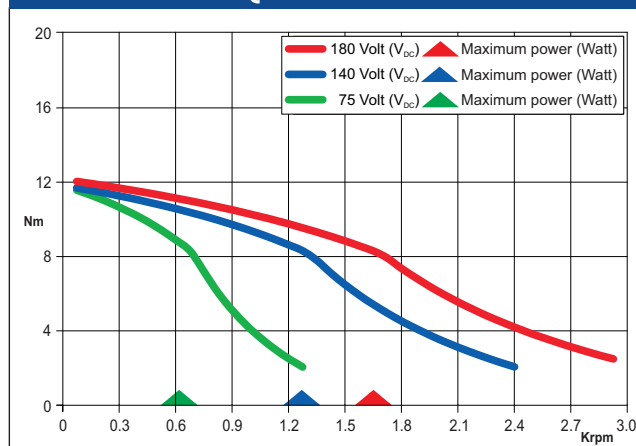
Dimensions (Unit:mm)



FEATURES

MODEL	103-H89222-6541	
BASIC STEP ANGLE	1.8° ± 0.09°	
BIPOLAR CURRENT	(Amp)	10
UNIPOLAR CURRENT	(Amp)	
RESISTANCE	(Ohm)	0.16
INDUCTANCE	(mH)	1.9
BIPOLAR HOLDING TORQUE	(Ncm)	1620
UNIPOLAR HOLDING TORQUE	(Ncm)	
ROTOR INERTIA	(Kg ^m ² x 10 ⁻⁷)	14650
THEORETICAL ACCELERATION	(rad x sec. ⁻²)	11100
BACK E.M.F.	(V/Krpm)	162
MASS	(Kg)	7
PROTECTION DEGREE	IP43	
LEADS CODE	V	

TORQUE/SPEED CURVE

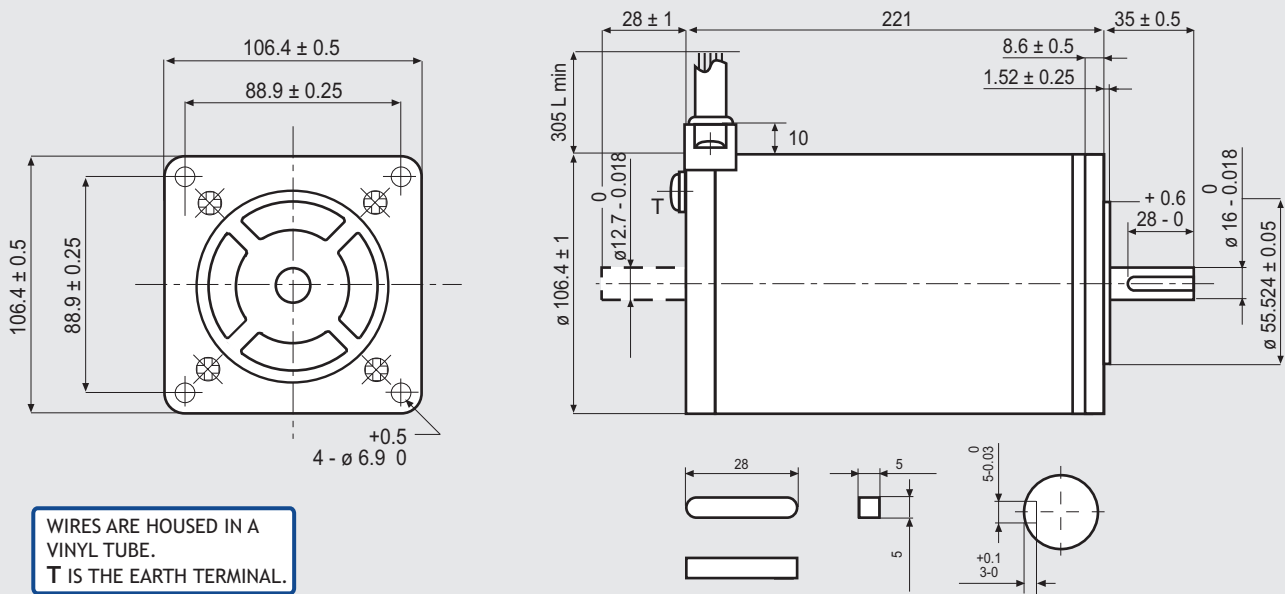


Suggested R.T.A. drive series: PLUS

103-H89223-6341

SANYO DENKI
SANMOTION

Dimensions (Unit:mm)

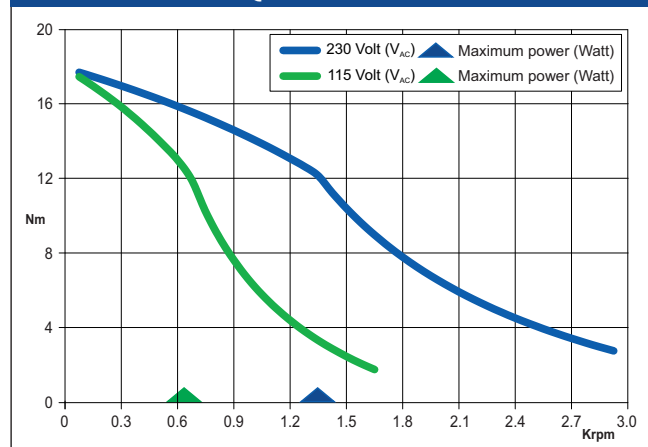


FEATURES

MODEL	103-H89223-6341 (103-H89223-6311)	
BASIC STEP ANGLE	1.8° ± 0.09°	
BIPOLAR CURRENT	(Amp)	6.0
UNIPOLAR CURRENT	(Amp)	
RESISTANCE	(Ohm)	0.63
INDUCTANCE	(mH)	8.0
BIPOLAR HOLDING TORQUE	(Ncm)	2460
UNIPOLAR HOLDING TORQUE	(Ncm)	
ROTOR INERTIA	(Kgm ² × 10 ⁻⁷)	22000
THEORETICAL ACCELERATION	(rad × sec. ⁻²)	11100
BACK E.M.F.	(V/Krpm)	410
MASS	(Kg)	10
PROTECTION DEGREE	IP43	
LEADS CODE	V	

Codes between brackets refer to double shaft models.

TORQUE/SPEED CURVE

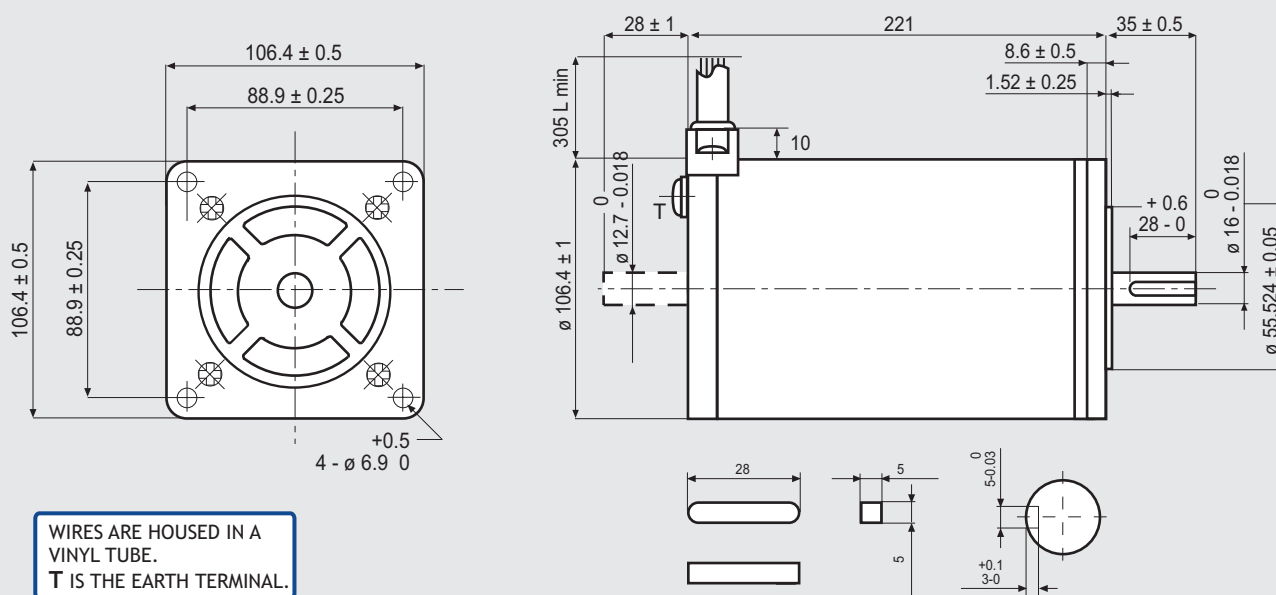


Suggested R.T.A. drive model: X-MIND B6

103-H89223-6641

SANYO DENKI
SANMOTION

Dimensions (Unit:mm)

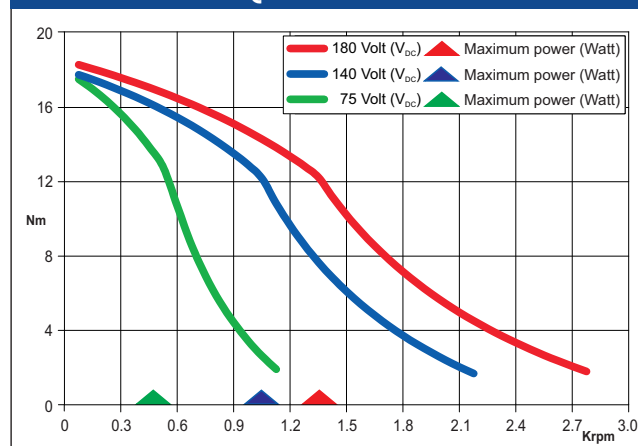


FEATURES

MODEL	103-H89223-6641 (103-H89223-6611)	
BASIC STEP ANGLE		1.8° ± 0.09°
BIPOLAR CURRENT	(Amp)	12.0
UNIPOLAR CURRENT	(Amp)	
RESISTANCE	(Ohm)	0.16
INDUCTANCE	(mH)	2.0
BIPOLAR HOLDING TORQUE	(Ncm)	2460
UNIPOLAR HOLDING TORQUE	(Ncm)	
ROTOR INERTIA	(Kgm ² × 10 ⁻⁷)	22000
THEORETICAL ACCELERATION	(rad × sec. ⁻²)	11100
BACK E.M.F.	(V/Krpm)	205
MASS	(Kg)	10
PROTECTION DEGREE		IP43
LEADS CODE		V

Codes between brackets refer to double shaft models.

TORQUE/SPEED CURVE



Suggested R.T.A. series: PLUS



NOT PREFERRED MODELS

	HOLDING TORQUE (Ncm)	FLANGE SIZE (mm)	LENGTH (mm)	BIPOLAR CURRENT* (A)
103-H8221-6241	300	85.8	62.0	6.0
103-H8221-6211	300	85.8	62.0	6.0
103-H8222-6340	560	85.8	92.2	6.0
103-H8222-6310	560	85.8	92.2	6.0
103-H8223-6540	790	85.8	125.9	9.0
103-H8223-6510	790	85.8	125.9	9.0

"Not preferred models" are models which have been replaced with the latest versions. They are still available in R.T.A.'s stock, however they are not recommended for new applications.

STEPPING MOTORS

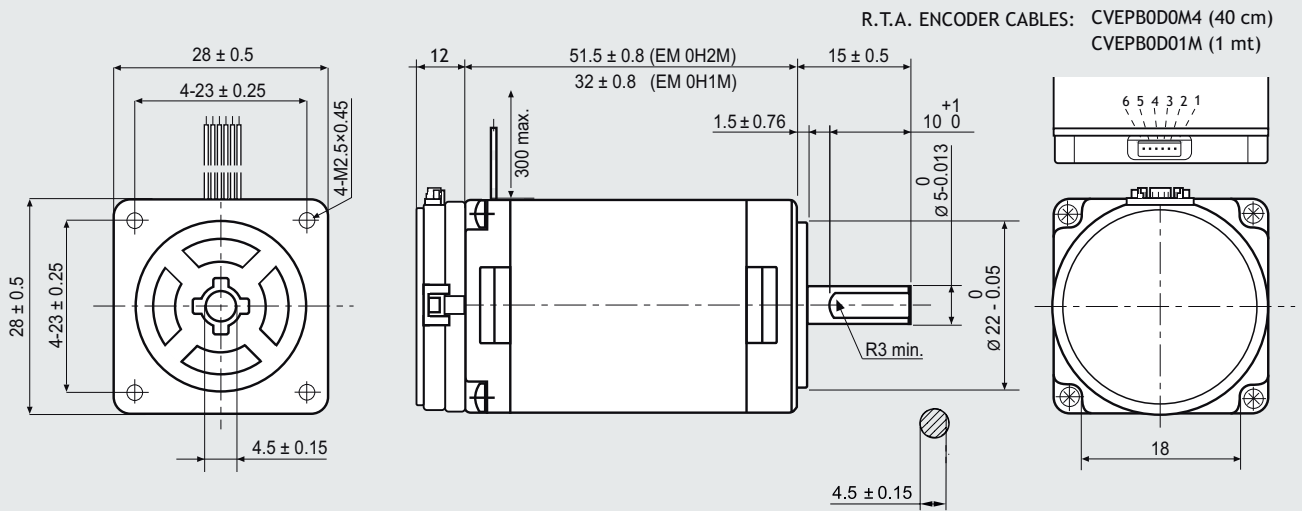
TRADITIONAL STEPPING MOTORS WITH ENCODER



EM 0HxM-04D0

SANYO DENKI
SANMOTION

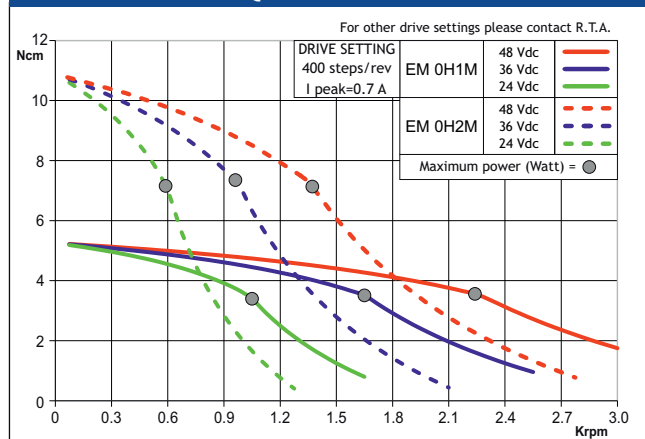
Dimensions (Unit:mm)



FEATURES

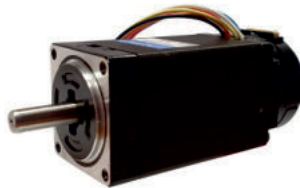
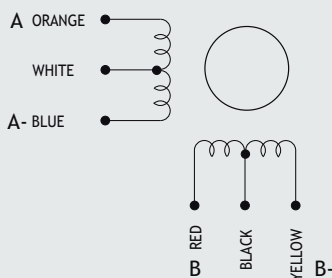
MODEL	EM 0H1M-04D0	EM 0H2M-04D0
SANYO DENK MOTOR CODE	SH 2281-5231	SH 2285-5231
BASIC STEP ANGLE	$1.8^\circ \pm 0.09^\circ$	$1.8^\circ \pm 0.09^\circ$
BIPOLAR CURRENT (A)	0.7*	0.7*
UNIPOLAR CURRENT (A)	1.0	1.0
RESISTANCE (Ohm)	2.85	4.1
INDUCTANCE (mH)	1.0	1.9
BIPOLAR HOLDING TORQUE (Ncm)	7	14.5
UNIPOLAR HOLDING TORQUE (Ncm)	5.5	11.5
ROTOR INERTIA ($\text{Kg} \cdot \text{m}^2 \times 10^{-7}$)	10	22
THEORETICAL ACCELERATION ($\text{rad} \times \text{sec}^{-2}$)	70000	66000
BACK E.M.F. (V/Krpm)	15	15
MASS (Kg)	0.11	0.2

TORQUE/SPEED CURVE



ENCODER FEATURES

POWER SUPPLY VOLTAGE (V)	$5 V_{DC} \pm 5\%$
CURRENT CONSUMPTION (mA)	40
HIGH LEVEL OUTPUT (V)	3.4 (TIP) - 2.4 (MIN) ($I_{MAX}=20$ mA)
LOW LEVEL OUTPUT (V)	0.2 (TIP) - 0.4 (MAX) ($I_{MAX}=20$ mA)
OUTPUT SIGNAL	Differential
RESOLUTION	400 cycles per revolution
MAXIMUM FREQUENCY (KHz)	60
INDEX VERSION	No



ENCODER PIN-OUT

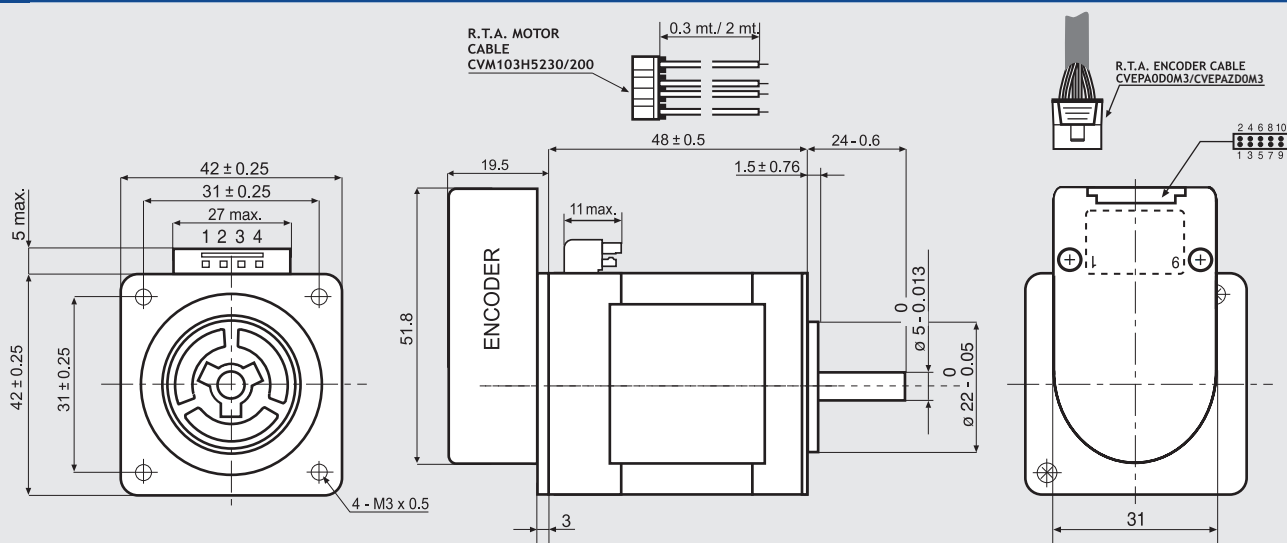
DESCRIPTION	PINS	R.T.A. CABLE LEADS COLOR
GND	1	● BLACK
CHANNEL A+	2	● BLUE
CHANNEL A-	3	● BROWN
+DC (5 V)	4	● RED
CHANNEL B+	5	● GREEN
CHANNEL B-	6	● PURPLE

R.T.A. ENCODER CABLES:
CVEPB0D0M4 (40 cm) / CVEPB0D01M (1 mt)

Suggested R.T.A. drive series: BSD, CSD, ADW, HGD, FLEX-DRIVE

EM 1H2H-OXXO

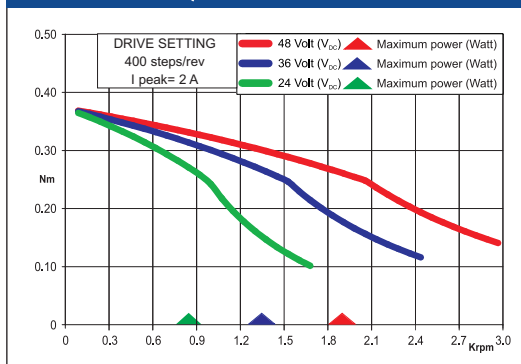
Dimensions (Unit:mm)



SANYO DENKI MOTOR FEATURES

MODEL	EM 1H2H-OXXO	
SANYO DENKI MOTOR CODE	103-H5210-4512	
BASIC STEP ANGLE	1.8° ± 0.09°	
BIPOLAR PARALLEL CURRENT	(A)	2.0
RESISTANCE	(Ohm)	1.25
INDUCTANCE	(mH)	2.4
BIPOLAR HOLDING TORQUE	(Ncm)	51
ROTOR INERTIA	(Kg·m ² × 10 ⁻⁷)	74
THEORETICAL ACCELERATION	(rad × sec. ⁻²)	69000
BACK E.M.F.	(V/Krpm)	14
MASS	(Kg)	0.35
LEADS CODE	V	

TORQUE/SPEED CURVE



103-H5210-4512 MOTOR NEEDS CVM103H5230 OR CVM103H52200 R.T.A. CABLES. CONTACT R.T.A. FOR FURTHER DETAILS.

ENCODER OPTIONS:	EM 1H2H-04D0	EM 1H2H-04E0	EM 1H2H-0HE0
RESOLUTION	400 cpr	400 cpr	4000 cpr
INDEX	No	Yes	Yes
CURRENT CONSUMPTION (mA)	50	50	85
HIGH LEVEL OUTPUT (Volt)	5 (TIP) - 4.75 (MIN) (I _{max} =25mA)	3.4 (TIP) - 2.4 (MIN) (I _{max} =20mA)	3.4 (TIP) - 2.4 (MIN) (I _{max} =20mA)
LOW LEVEL OUTPUT (Volt)	0.25 (TIP) - 0.6 (MAX) (I _{max} =25mA)	0.2 (TIP) - 0.4 (MAX) (I _{max} =20mA)	0.2 (TIP) - 0.4 (MAX) (I _{max} =20mA)
OUTPUT SIGNAL	Differential	Differential	Differential
MAXIMUM FREQUENCY (KHz)	100	100	720
POWER SUPPLY VOLTAGE (Volt)	5 V _{DC} ± 10%	5 V _{DC} ± 10%	5 V _{DC} ± 10%

ENCODER NEEDS CVEPA0D0M3 OR CVEPAZD0M3 R.T.A. CABLE. CONTACT R.T.A. FOR FURTHER DETAILS

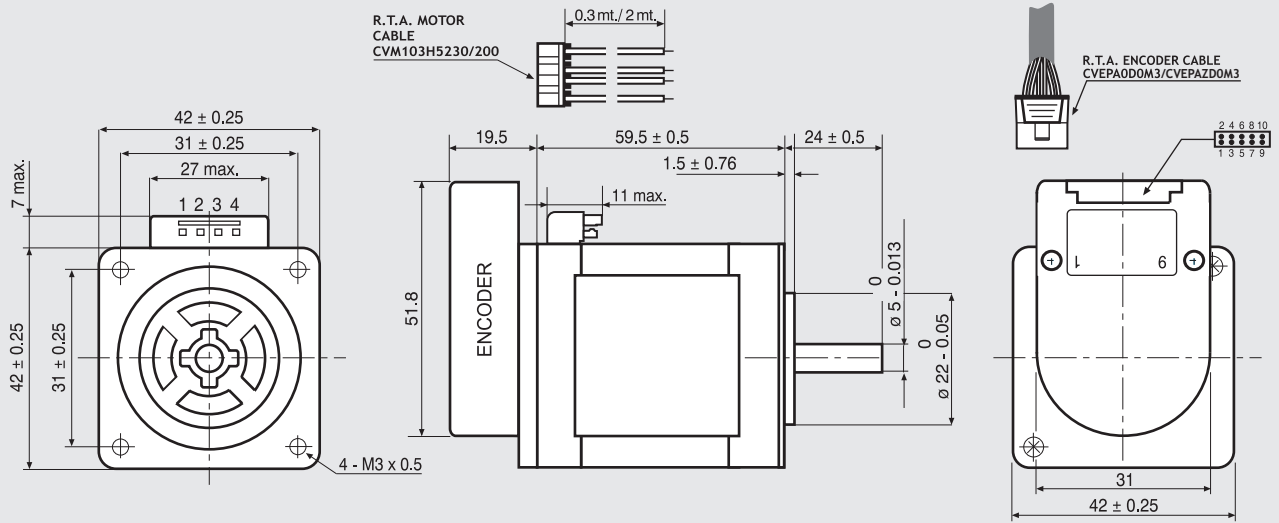
DESCRIPTION	RTA MOTOR CABLE COLORS	
	CVM103H52200 COLORS	CVM103H5230 COLORS
CHANNEL A	ORANGE	WHITE
CHANNEL A-	BLUE	GREEN
CHANNEL B	YELLOW	YELLOW
CHANNEL B-	RED	BROWN

DESCRIPTION	ENCODER PIN-OUT		
	04D0 PINS	04E0/0HE0 PINS	R.T.A. CABLE LEADS COLOR
CHANNEL A+	6	6	GREEN
CHANNEL A-	5	5	PURPLE
CHANNEL B+	8	8	BLUE
CHANNEL B-	7	7	BROWN
+ DC (5V)	2	2	RED
GROUND	3	3	BLACK
INDEX+	/	10	ORANGE
INDEX-	/	9	WHITE

Suggested R.T.A. drive series: BSD, CSD, FLEX-DRIVE

EM 1H3H-OXXO

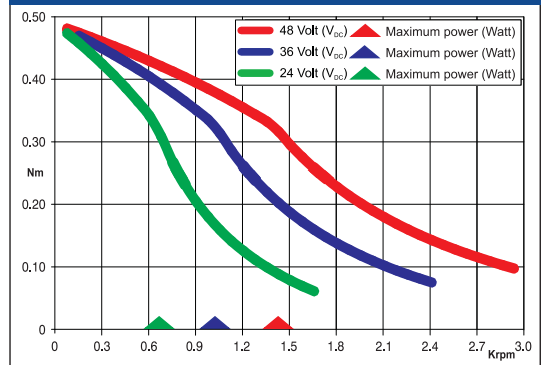
Dimensions (Unit:mm)



SANYO DENKI MOTOR FEATURES

MODEL	EM 1H3H-OXXO	
SANYO DENKI MOTOR CODE	103-H5212-4610	
BASIC STEP ANGLE	1.8° ± 0.09°	
BIPOLAR PARALLEL CURRENT	(A)	2.0
RESISTANCE	(Ohm)	1.5
INDUCTANCE	(mH)	3.0
BIPOLAR HOLDING TORQUE	(Ncm)	65
ROTOR INERTIA	(Kgm ² × 10 ⁻⁷)	110
THEORETICAL ACCELERATION	(rad × sec. ⁻²)	59000
BACK E.M.F.	(V/Krpm)	32
MASS	(Kg)	0.50
LEADS CODE	V	

TORQUE/ SPEED CURVE



103-H5212-4610 MOTOR NEEDS CVM103H5230 R.T.A. CABLE. CONTACT R.T.A. FOR FURTHER DETAILS.

ENCODER OPTIONS:	EM 1H3H-04D0	EM 1H3H-04E0	EM 1H3H-0HE0
RESOLUTION	400 cpr	400 cpr	4000 cpr
INDEX	No	Yes	Yes
CURRENT CONSUMPTION (mA)	50	50	85
HIGH LEVEL OUTPUT (Volt)	5 (TIP) - 4.75 (MIN) (I _{MAX} =25mA)	3.4 (TIP) - 2.4 (MIN) (I _{MAX} =20mA)	3.4 (TIP) - 2.4 (MIN) (I _{MAX} =20mA)
LOW LEVEL OUTPUT (Volt)	0.25 (TIP) - 0.6 (MAX) (I _{MAX} =25mA)	0.2 (TIP) - 0.4 (MAX) (I _{MAX} =20mA)	0.2 (TIP) - 0.4 (MAX) (I _{MAX} =20mA)
OUTPUT SIGNAL	Differential	Differential	Differential
MAXIMUM FREQUENCY (KHz)	100	100	720
POWER SUPPLY VOLTAGE (Volt)	5 V _{DC} ± 10%	5 V _{DC} ± 10%	5 V _{DC} ± 10%

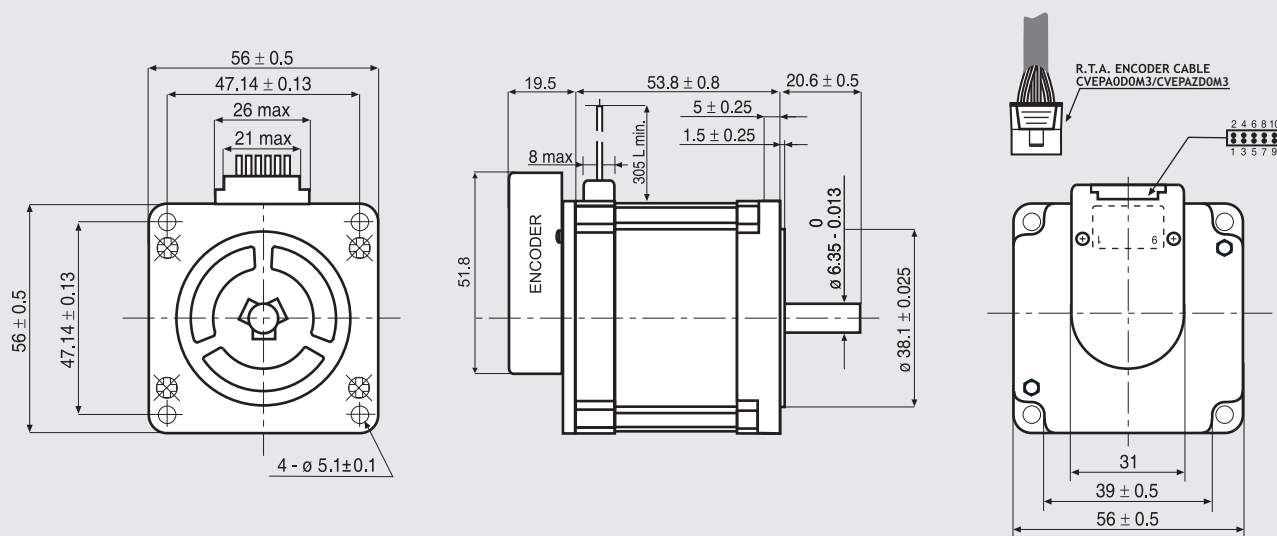
ENCODER NEEDS CVEPA0D0M3 OR CVEPAZD0M3 R.T.A. CABLE. CONTACT R.T.A. FOR FURTHER DETAILS

DESCRIPTION	RTA MOTOR CABLE COLORS		ENCODER PIN-OUT		R.T.A. CABLE LEADS COLOR
	CVM103H52200 COLORS	CVM103H5230 COLORS	04D0 PINS	04E0/0HE0 PINS	
CHANNEL A	ORANGE	WHITE	6	6	GREEN
CHANNEL A-	BLUE	GREEN	5	5	PURPLE
CHANNEL B	YELLOW	YELLOW	8	8	BLUE
CHANNEL B-	RED	BROWN	7	7	BROWN
+ DC (5V)			2	2	RED
GROUND			3	3	BLACK
INDEX+			/	10	ORANGE
INDEX-			/	9	WHITE

Suggested R.T.A. drive series: BSD, CSD, FLEX-DRIVE

EM 2H1M-OXXO

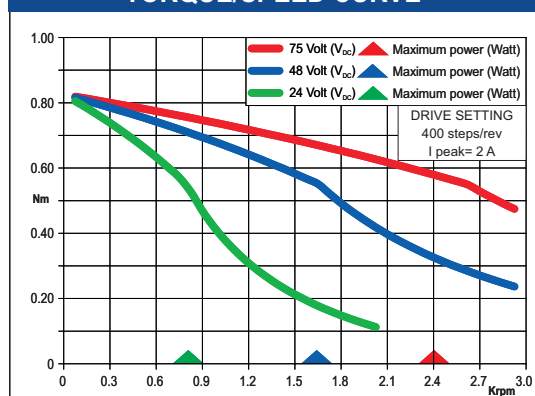
Dimensions (Unit:mm)



SANYO DENKI MOTOR FEATURES

MODEL	EM 2H1M-OXXO	
SANYO DENKI MOTOR CODE	103-H7123-1711	
BASIC STEP ANGLE	1.8° ± 0.09°	
BIPOLAR PARALLEL CURRENT	(A)	4.0
RESISTANCE	(Ohm)	0.41
INDUCTANCE	(mH)	1.6
BIPOLAR HOLDING TORQUE	(Ncm)	110
ROTOR INERTIA	(Kg·m ² × 10 ⁻⁷)	210
THEORETICAL ACCELERATION	(rad × sec. ⁻²)	50000
BACK E.M.F.	(V/Krpm)	20
MASS	(Kg)	0.65
LEADS CODE	V	

TORQUE/SPEED CURVE



ENCODER OPTIONS:	EM 2H1M-04D0	EM 2H1M-04E0	EM 2H1M-0HE0
RESOLUTION	400 cpr	400 cpr	4000 cpr
INDEX	No	Yes	Yes
CURRENT CONSUMPTION (mA)	50	50	85
HIGH LEVEL OUTPUT (Volt)	5 (TIP) - 4.75 (MIN) (I _{max} =25mA)	3.4 (TIP) - 2.4 (MIN) (I _{max} =20mA)	3.4 (TIP) - 2.4 (MIN) (I _{max} =20mA)
LOW LEVEL OUTPUT (Volt)	0.25 (TIP) - 0.6 (MAX) (I _{max} =25mA)	0.2 (TIP) - 0.4 (MAX) (I _{max} =20mA)	0.2 (TIP) - 0.4 (MAX) (I _{max} =20mA)
OUTPUT SIGNAL	Differential	Differential	Differential
MAXIMUM FREQUENCY (KHz)	100	100	720
POWER SUPPLY VOLTAGE (Volt)	5 V _{DC} ± 10%	5 V _{DC} ± 10%	5 V _{DC} ± 10%

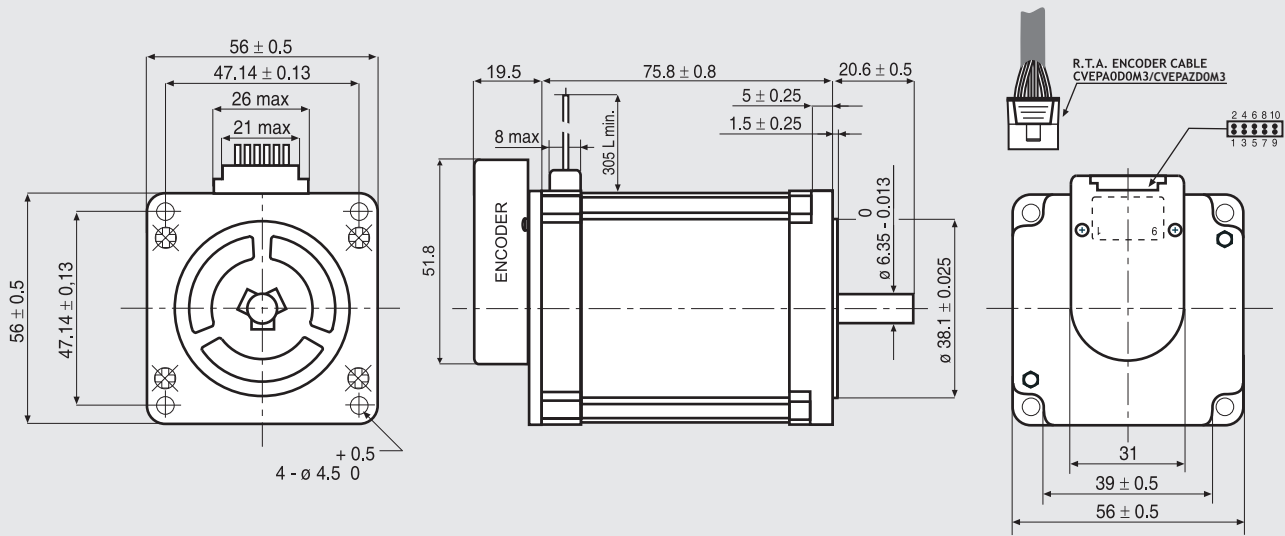
ENCODER NEEDS CVEPA0D0M3 OR CVEPAZD0M3 R.T.A. CABLE. CONTACT R.T.A. FOR FURTHER DETAILS

DESCRIPTION	ENCODER PIN-OUT			R.T.A. CABLE LEADS COLOR
	04D0 PINS	04E0 PINS	0HE0 PINS	
CHANNEL A+	6	6	6	GREEN
CHANNEL A-	5	5	5	PURPLE
CHANNEL B+	8	8	8	BLUE
CHANNEL B-	7	7	7	BROWN
+ DC (5V)	2	2	2	RED
GROUND	3	3	3	BLACK
INDEX+	/	10	10	ORANGE
INDEX-	/	9	9	WHITE

Suggested R.T.A. drive series: BSD, CSD, NDC, ADW, HGD, FLEX-DRIVE

EM 2H2M-OXXO

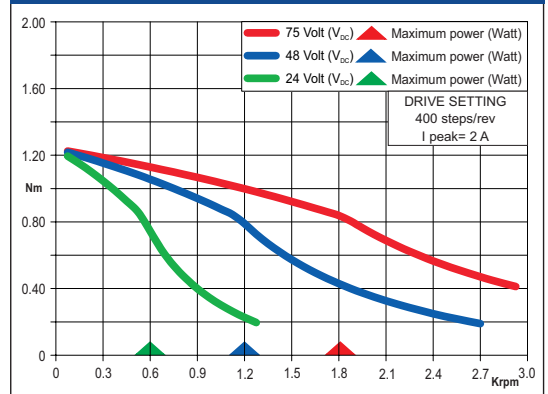
Dimensions (Unit:mm)



SANYO DENKI MOTOR FEATURES

MODEL	EM 2H2M-OXXO	
SANYO DENKI MOTOR CODE	103-H7126-1710	
BASIC STEP ANGLE	1.8° ± 0.09°	
BIPOLAR PARALLEL CURRENT (A)	4.0	
RESISTANCE (Ohm)	0.48	
INDUCTANCE (mH)	2.2	
BIPOLAR HOLDING TORQUE (Ncm)	165	
ROTOR INERTIA (Kg ^m × 10 ⁷)	360	
THEORETICAL ACCELERATION (rad × sec. ⁻²)	45800	
BACK E.M.F. (V/Krpm)	31	
MASS (Kg)	1.0	
LEADS CODE	V	

TORQUE/SPEED CURVE



ENCODER OPTIONS:	EM 2H2M-04D0	EM 2H2M-04E0	EM 2H2M-0HE0
RESOLUTION	400 cpr	400 cpr	4000 cpr
INDEX	No	Yes	Yes
CURRENT CONSUMPTION (mA)	50	50	85
HIGH LEVEL OUTPUT (Volt)	5 (TIP) - 4.75 (MIN) (I _{max} =25mA)	3.4 (TIP) - 2.4 (MIN) (I _{max} =20mA)	3.4 (TIP) - 2.4 (MIN) (I _{max} =20mA)
LOW LEVEL OUTPUT (Volt)	0.25 (TIP) - 0.6 (MAX) (I _{max} =25mA)	0.2 (TIP) - 0.4 (MAX) (I _{max} =20mA)	0.2 (TIP) - 0.4 (MAX) (I _{max} =20mA)
OUTPUT SIGNAL	Differential	Differential	Differential
MAXIMUM FREQUENCY (KHz)	100	100	720
POWER SUPPLY VOLTAGE (Volt)	5 V _{DC} ± 10%	5 V _{DC} ± 10%	5 V _{DC} ± 10%

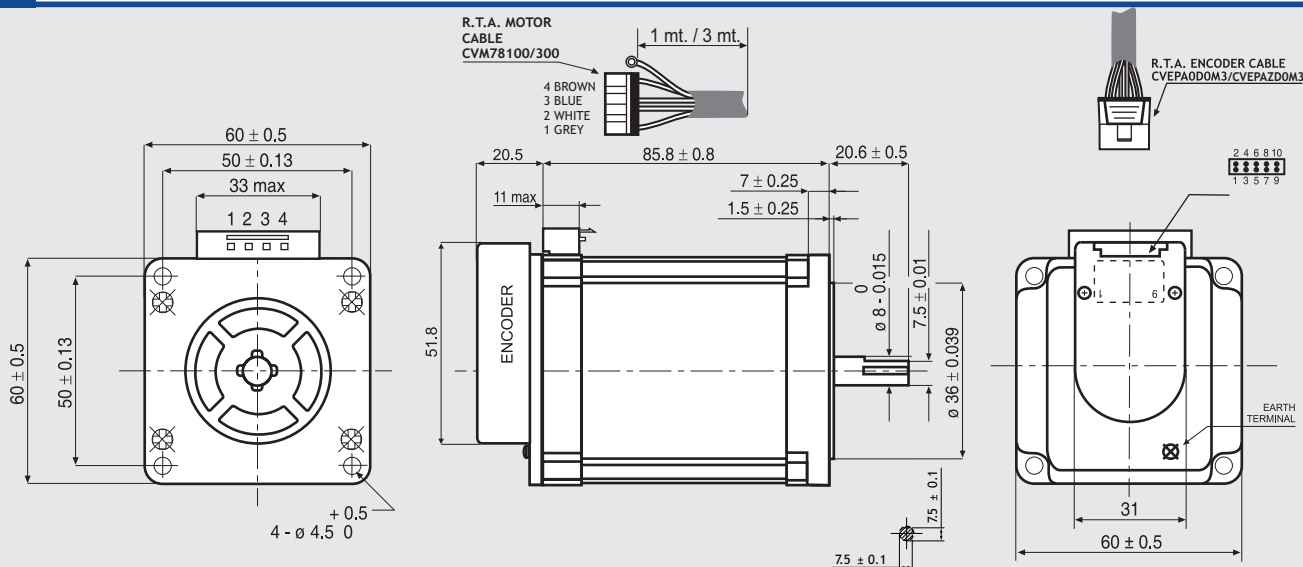
ENCODER NEEDS CVEPA0D0M3 OR CVEPAZD0M3 R.T.A. CABLE. CONTACT R.T.A. FOR FURTHER DETAILS

DESCRIPTION	ENCODER PIN-OUT			R.T.A. CABLE LEADS COLOR
	04D0 PINS	04E0 PINS	0HE0 PINS	
CHANNEL A+	6	6	6	GREEN
CHANNEL A-	5	5	5	PURPLE
CHANNEL B+	8	8	8	BLUE
CHANNEL B-	7	7	7	BROWN
+ DC (5V)	2	2	2	RED
GROUND	3	3	3	BLACK
INDEX+	/	10	10	ORANGE
INDEX-	/	9	9	WHITE

Suggested R.T.A. drive series: BSD, CSD, NDC, ADW, HGD, FLEX-DRIVE

EM 6H2M-OXXO

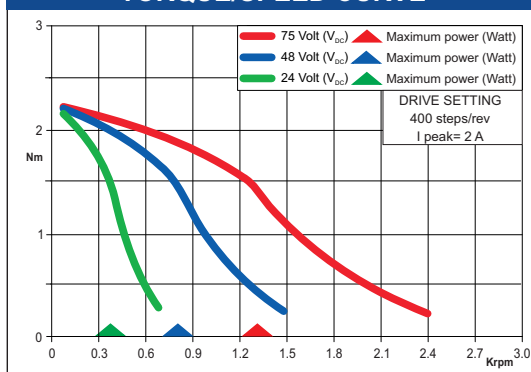
Dimensions (Unit:mm)



SANYO DENKI MOTOR FEATURES

MODEL	EM 6H2M-OXXO
SANYO DENKI MOTOR CODE	103-H7823-1714
BASIC STEP ANGLE	1.8° ± 0.09°
BIPOLAR PARALLEL CURRENT (A)	4.0
RESISTANCE (Ohm)	0.65
INDUCTANCE (mH)	2.4
BIPOLAR HOLDING TORQUE (Ncm)	300
ROTOR INERTIA (Kg ^m × 10 ⁻⁷)	840
THEORETICAL ACCELERATION (rad × sec. ⁻²)	35700
BACK E.M.F. (V/Krpm)	75
MASS (Kg)	1.4
LEADS CODE	V

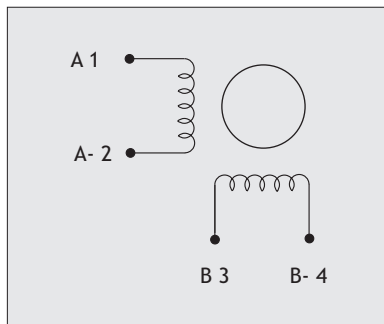
TORQUE/SPEED CURVE



103-H7823-1714 MOTOR NEEDS CVM78/100 OR CVM78/300 R.T.A. CABLES. CONTACT R.T.A. FOR FURTHER DETAILS.

ENCODER OPTIONS:	EM 6H2M-04D0	EM 6H2M-04E0	EM 6H2M-0HE0
RESOLUTION	400 cpr	400 cpr	4000 cpr
INDEX	No	Yes	Yes
CURRENT CONSUMPTION (mA)	50	50	85
HIGH LEVEL OUTPUT (Volt)	5 (TIP) - 4.75 (MIN) (I _{max} =25mA)	3.4 (TIP) - 2.4 (MIN) (I _{max} =20mA)	3.4 (TIP) - 2.4 (MIN) (I _{max} =20mA)
LOW LEVEL OUTPUT (Volt)	0.25 (TIP) - 0.6 (MAX) (I _{max} =25mA)	0.2 (TIP) - 0.4 (MAX) (I _{max} =20mA)	0.2 (TIP) - 0.4 (MAX) (I _{max} =20mA)
OUTPUT SIGNAL	Differential	Differential	Differential
MAXIMUM FREQUENCY (KHz)	100	100	720
POWER SUPPLY VOLTAGE (Volt)	5 V _{DC} ± 10%	5 V _{DC} ± 10%	5 V _{DC} ± 10%

ENCODER NEEDS CVEPA0D0M3 OR CVEPAZD0M3 R.T.A. CABLE. CONTACT R.T.A. FOR FURTHER DETAILS



ENCODER PIN-OUT

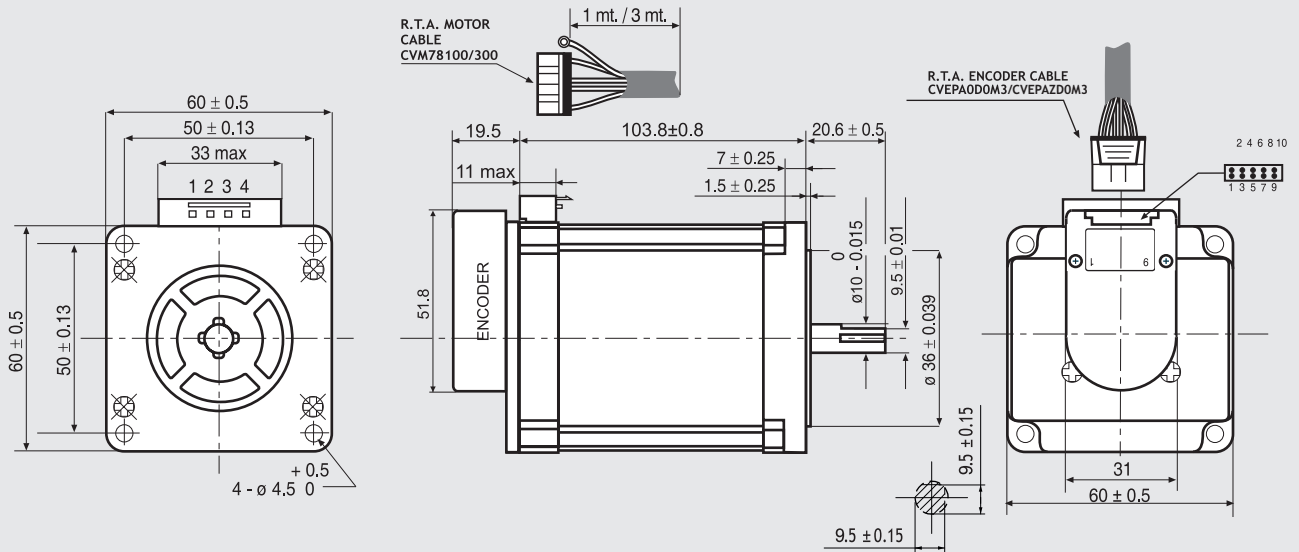
DESCRIPTION	04D0 PINS	04E0 PINS	0HE0 PINS	R.T.A. CABLE LEADS COLOR
CHANNEL A+	6	6	6	GREEN
CHANNEL A-	5	5	5	PURPLE
CHANNEL B+	8	8	8	BLUE
CHANNEL B-	7	7	7	BROWN
+ DC (5V)	2	2	2	RED
GROUND	3	3	3	BLACK
INDEX+	/	10	10	ORANGE
INDEX-	/	9	9	WHITE

R.T.A. CABLE CVEPA0D0M3 CVEPAZD03M CVEPAZD03M

Suggested R.T.A. drive series: BSD, CSD, NDC, ADW, HGD, PLUS, FLEX-DRIVE

EM 6H3H-OXX0

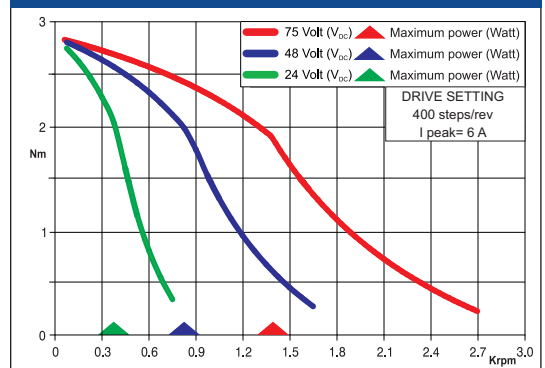
Dimensions (Unit:mm)



SANYO DENKI MOTOR FEATURES

MODEL	EM 6H3H-OXX0	
SANYO DENKI MOTOR CODE	103-H7826-1612	
BASIC STEP ANGLE	1.8° ± 0.09°	
BIPOLAR PARALLEL CURRENT	(A)	6.0
RESISTANCE	(Ohm)	0.43
INDUCTANCE	(mH)	1.45
BIPOLAR HOLDING TORQUE	(Ncm)	380
ROTOR INERTIA	(Kgm ² × 10 ⁻⁷)	1080
THEORETICAL ACCELERATION	(rad × sec. ⁻²)	35200
BACK E.M.F.	(V/Krpm)	70
MASS	(Kg)	1.70
LEADS CODE	V	

TORQUE/SPEED CURVE



103-H7826-1612 MOTOR NEEDS CVM78/100 OR CVM78/300 R.T.A. CABLES. CONTACT R.T.A. FOR FURTHER DETAILS.

ENCODER OPTIONS:	EM 6H3H-04D0	EM 6H3H-04E0	EM 6H3H-0HE0
RESOLUTION	400 cpr	400 cpr	4000 cpr
INDEX	No	Yes	Yes
CURRENT CONSUMPTION (mA)	50	50	85
HIGH LEVEL OUTPUT (Volt)	5 (TIP) - 4.75 (MIN) (I _{max} =25mA)	3.4 (TIP) - 2.4 (MIN) (I _{max} =20mA)	3.4 (TIP) - 2.4 (MIN) (I _{max} =20mA)
LOW LEVEL OUTPUT (Volt)	0.25 (TIP) - 0.6 (MAX) (I _{max} =25mA)	0.2 (TIP) - 0.4 (MAX) (I _{max} =20mA)	0.2 (TIP) - 0.4 (MAX) (I _{max} =20mA)
OUTPUT SIGNAL	Differential	Differential	Differential
MAXIMUM FREQUENCY (KHz)	100	100	720
POWER SUPPLY VOLTAGE (Volt)	5 V _{DC} ± 10%	5 V _{DC} ± 10%	5 V _{DC} ± 10%

ENCODER NEEDS CVEPA0D0M3 OR CVEPAZD0M3 R.T.A. CABLE. CONTACT R.T.A. FOR FURTHER DETAILS

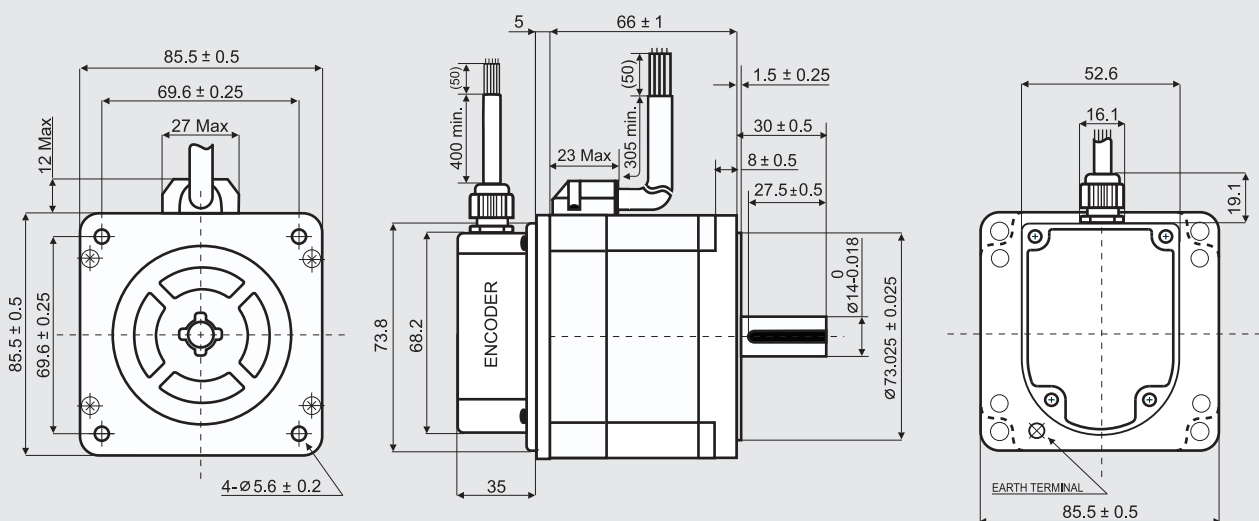
DESCRIPTION	ENCODER PIN-OUT			R.T.A. CABLE LEADS COLOR
	04D0 PINS	04E0 PINS	0HE0 PINS	
CHANNEL A+	6	6	6	GREEN
CHANNEL A-	5	5	5	PURPLE
CHANNEL B+	8	8	8	BLUE
CHANNEL B-	7	7	7	BROWN
+ DC (5V)	2	2	2	RED
GROUND	3	3	3	BLACK
INDEX+	/	10	10	ORANGE
INDEX-	/	9	9	WHITE

R.T.A. CABLE CVEPA0D0M3 CVEPAZD0M3 CVEPAZD0M3

Suggested R.T.A. drive series: NDC, ADW, HGD, PLUS

EM 3F1L-04D0

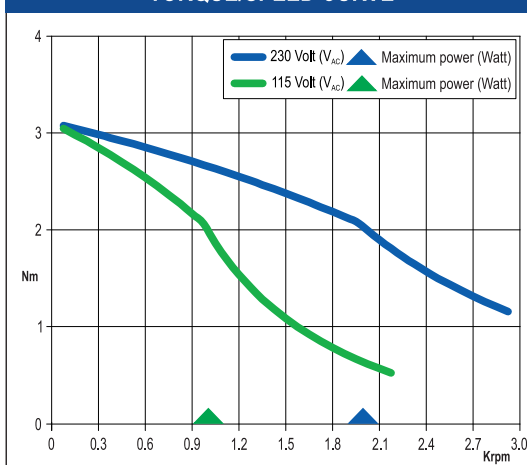
Dimensions (Unit:mm)



SANYO DENKI MOTOR FEATURES

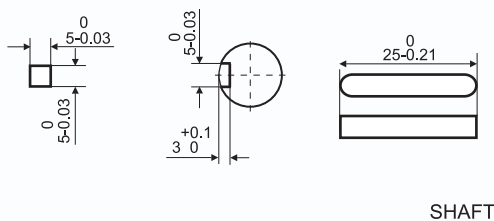
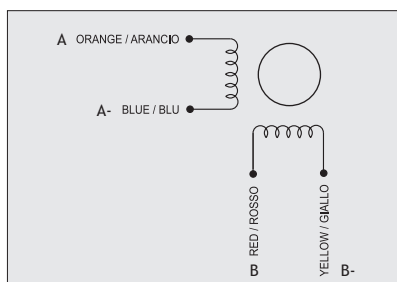
MODEL	EM 3F1L-04D0	
SANYO DENKI MOTOR CODE	SM 2861-5025	
BASIC STEP ANGLE	1.8° ± 0.09°	
BIPOLAR PARALLEL CURRENT	(Amp)	2.0
RESISTANCE	(Ohm)	2.2
INDUCTANCE	(mH)	15
BIPOLAR HOLDING TORQUE	(Ncm)	360
ROTOR INERTIA	(Kg·m ² × 10 ⁻⁷)	1480
THEORETICAL ACCELERATION	(rad × sec. ⁻²)	24300
BACK E.M.F.	(V/Krpm)	180
MASS	(Kg)	1.7
INTERNATIONAL STANDARDS	UL, CSA	
INSULATION VOLTAGE	(V)	250 VAC (350 VDC)
PROTECTION DEGREE - INSULATION CLASS	IP43 - F	
LEADS CODE	V	

TORQUE/SPEED CURVE



ENCODER FEATURES

POWER SUPPLY VOLTAGE	(Volt)	5 V _{DC} ± 5%
CURRENT CONSUMPTION	(mAmp)	40
HIGH LEVEL OUTPUT	(Volt)	3.4 (TIP) - 2.4 (MIN) (I _{MAX} =20 mA)
LOW LEVEL OUTPUT	(Volt)	0.2 (TIP) - 0.4 (MAX) (I _{MAX} =20 mA)
OUTPUT SIGNAL	Differential (SINGLE ENDED version available)	
RESOLUTION	400 cycles per revolution (500 & 1000 CPR version available)	
MAXIMUM FREQUENCY	(KHz)	60
INDEX VERSION	Available upon request	

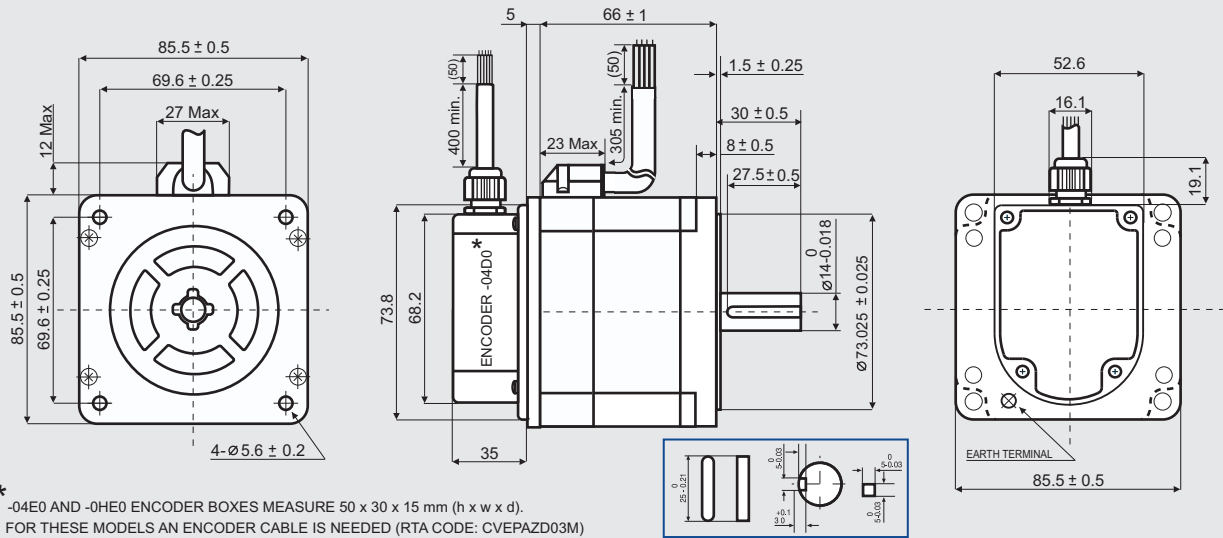


LEADS COLOR	ENCODER
BROWN	CHANNEL A-
BLUE	CHANNEL A+
PURPLE	CHANNEL B-
GREEN	CHANNEL B+
BLACK	GND (0 V)
RED	+ DC (5 V)
SHIELD	

Suggested R.T.A. drive model: X-PLUS L2

EM 3F1H-0XX0

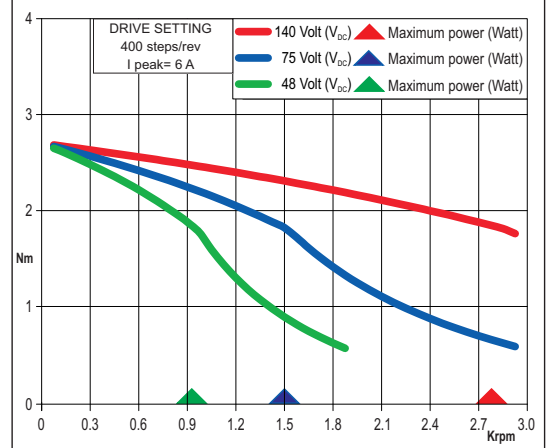
Dimensions (Unit:mm)



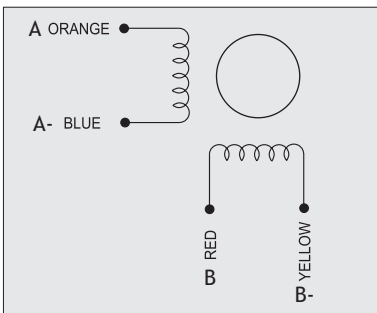
SANYO DENKI MOTOR FEATURES

MODEL	EM 3F1H-0XX0	
SANYO DENKI MOTOR CODE	SM 2861-5225	
BASIC STEP ANGLE	1.8° ± 0.09°	
BIPOLAR PARALLEL CURRENT	(Amp)	6.0
RESISTANCE	(Ohm)	0.29
INDUCTANCE	(mH)	1.7
BIPOLAR HOLDING TORQUE	(Ncm)	360
ROTOR INERTIA	(Kg·m ² × 10 ⁻⁷)	1480
THEORETICAL ACCELERATION	(rad × sec. ⁻²)	24300
BACK E.M.F.	(V/Krpm)	60
MASS	(Kg)	1.7
INTERNATIONAL STANDARDS	UL, CSA	
INSULATION VOLTAGE	(V)	250 VAC (350 VDC)
PROTECTION DEGREE - INSULATION CLASS	IP43 - F	
LEADS CODE	V	

TORQUE/SPEED CURVE



ENCODER OPTIONS:	EM 3F1H-04D0	EM 3F1H-04E0 *	EM 3F1H-0HE0 *
RESOLUTION	400 cpr	400 cpr	4000 cpr
INDEX	No	Yes	Yes
CURRENT CONSUMPTION (mA)	50	50	85
HIGH LEVEL OUTPUT (Volt)	5 (TIP) - 4.75 (MIN) (I _{max} =25mA)	3.4 (TIP) - 2.4 (MIN) (I _{max} =20mA)	3.4 (TIP) - 2.4 (MIN) (I _{max} =20mA)
LOW LEVEL OUTPUT (Volt)	0.25 (TIP) - 0.6 (MAX) (I _{max} =25mA)	0.2 (TIP) - 0.4 (MAX) (I _{max} =20mA)	0.2 (TIP) - 0.4 (MAX) (I _{max} =20mA)
OUTPUT SIGNAL	Differential	Differential	Differential
MAXIMUM FREQUENCY (KHz)	100	100	720
POWER SUPPLY VOLTAGE (Volt)	5 V _{DC} ± 10%	5 V _{DC} ± 10%	5 V _{DC} ± 10%



ENCODER CABLE / ENCODER PIN OUT

DESCRIPTION	04D0	04E0 PINS	0HE0 PINS
CHANNEL A+	● BLUE	6 ● GREEN	6 ● GREEN
CHANNEL A-	● BROWN	5 ● PURPLE	5 ● PURPLE
CHANNEL B+	● GREEN	8 ● BLUE	8 ● BLUE
CHANNEL B-	● PURPLE	7 ● BROWN	7 ● BROWN
+ DC (5V)	● RED	2 ● RED	2 ● RED
GROUND	● BLACK	3 ● BLACK	3 ● BLACK
INDEX+	/	10 ● ORANGE	10 ● ORANGE
INDEX-	/	9 ○ WHITE	9 ○ WHITE

R.T.A. CABLE

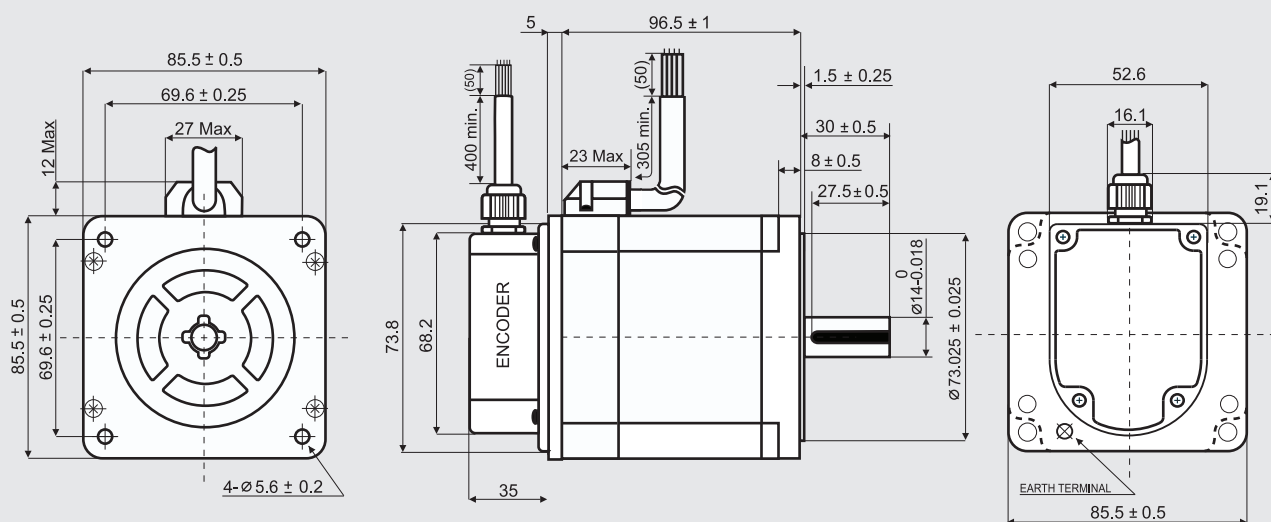
CVEPAZD03M

CVEPAZD03M

Suggested R.T.A. drive series: NDC, ADW, HGD, PLUS

EM 3F2M-04D0

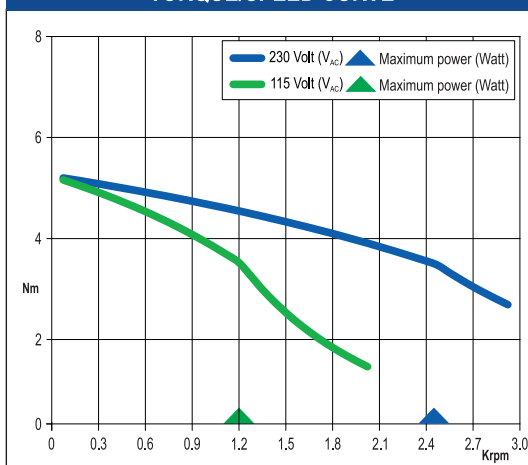
Dimensions (Unit:mm)



SANYO DENKI MOTOR FEATURES

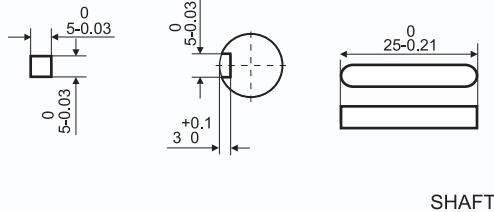
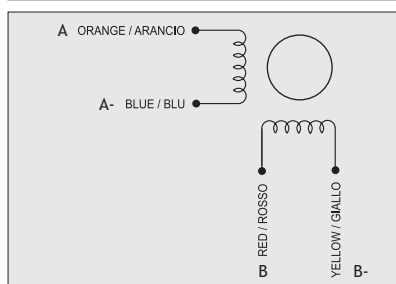
MODEL	EM 3F2M-04D0	
SANYO DENKI MOTOR CODE	SM 2862-5125	
BASIC STEP ANGLE	1.8° ± 0.09°	
BIPOLAR PARALLEL CURRENT	(Amp)	4.0
RESISTANCE	(Ohm)	0.83
INDUCTANCE	(mH)	6.4
BIPOLAR HOLDING TORQUE	(Ncm)	700
ROTOR INERTIA	(Kg ^m × 10 ⁻⁷)	3000
THEORETICAL ACCELERATION	(rad × sec. ⁻²)	23300
BACK E.M.F.	(V/Krpm)	175
MASS	(Kg)	2.9
INTERNATIONAL STANDARDS	UL, CSA	
INSULATION VOLTAGE	(V)	250 VAC (350 VDC)
PROTECTION DEGREE - INSULATION CLASS	IP43 - F	
LEADS CODE	V	

TORQUE/SPEED CURVE



ENCODER FEATURES

POWER SUPPLY VOLTAGE	(Volt)	5 V _{DC} ± 5%
CURRENT CONSUMPTION	(mAmp)	40
HIGH LEVEL OUTPUT	(Volt)	3.4 (TIP) - 2.4 (MIN) (I _{max} =20 mA)
LOW LEVEL OUTPUT	(Volt)	0.2 (TIP) - 0.4 (MAX) (I _{max} =20 mA)
OUTPUT SIGNAL	Differential (SINGLE ENDED version available)	
RESOLUTION	400 cycles per revolution (500 & 1000 CPR version available)	
MAXIMUM FREQUENCY	(KHz)	60
INDEX VERSION	Available upon request	

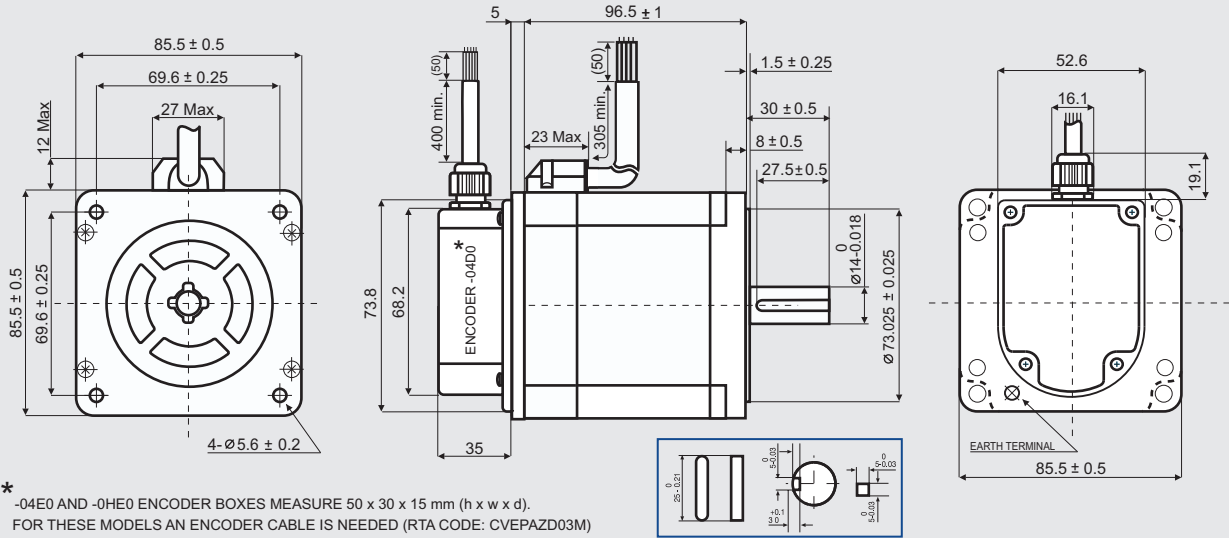


LEADS COLOR	ENCODER
BROWN	CHANNEL A-
BLUE	CHANNEL A+
PURPLE	CHANNEL B-
GREEN	CHANNEL B+
BLACK	GND (0 V)
RED	+ DC (5 V)
SHIELD	

Suggested R.T.A. drive model: 230 Vac X-PLUS

EM 3F2H-OXXO

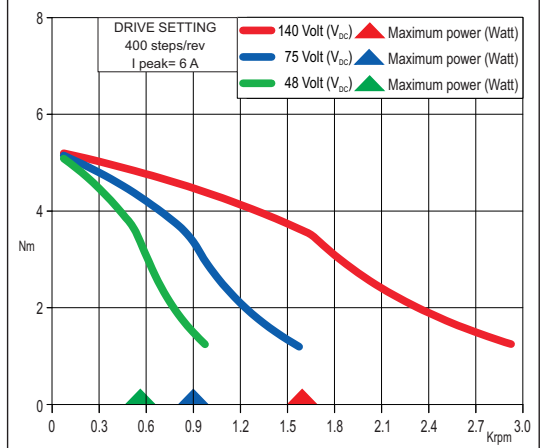
Dimensions (Unit:mm)



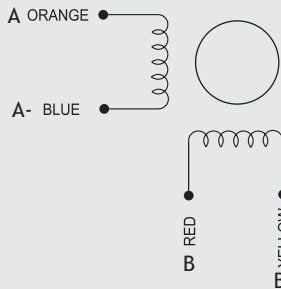
SANYO DENKI MOTOR FEATURES

MODEL	EM 3F2H-OXXO	
SANYO DENKI MOTOR CODE	SM 2862-5225	
BASIC STEP ANGLE	1.8° ± 0.09°	
BIPOLAR PARALLEL CURRENT	(A)	6.0
RESISTANCE	(Ohm)	0.36
INDUCTANCE	(mH)	2.8
BIPOLAR HOLDING TORQUE	(Ncm)	700
ROTOR INERTIA	(Kgm ² × 10 ⁻⁷)	3000
THEORETICAL ACCELERATION	(rad × sec. ⁻²)	23300
BACK E.M.F.	(V/Krpm)	120
MASS	(Kg)	2.9
INTERNATIONAL STANDARDS	UL, CSA	
INSULATION VOLTAGE	(V)	250 VAC (350 VDC)
PROTECTION DEGREE - INSULATION CLASS	IP43 - F	
LEADS CODE	V	

TORQUE/SPEED CURVE



ENCODER OPTIONS:	EM 3F2H-04D0	EM 3F2H-04E0 *	EM 3F2H-0HE0 *
RESOLUTION	400 cpr	400 cpr	4000 cpr
INDEX	No	Yes	Yes
CURRENT CONSUMPTION (mA)	50	50	85
HIGH LEVEL OUTPUT (Volt)	5 (TIP) - 4.75 (MIN) (I _{max} =25mA)	3.4 (TIP) - 2.4 (MIN) (I _{max} =20mA)	3.4 (TIP) - 2.4 (MIN) (I _{max} =20mA)
LOW LEVEL OUTPUT (Volt)	0.25 (TIP) - 0.6 (MAX) (I _{max} =25mA)	0.2 (TIP) - 0.4 (MAX) (I _{max} =20mA)	0.2 (TIP) - 0.4 (MAX) (I _{max} =20mA)
OUTPUT SIGNAL	Differential	Differential	Differential
MAXIMUM FREQUENCY (KHz)	100	100	720
POWER SUPPLY VOLTAGE (Volt)	5 V _{dc} ± 10%	5 V _{dc} ± 10%	5 V _{dc} ± 10%



ENCODER CABLE / ENCODER PIN OUT

DESCRIPTION	04D0	04E0 PINS	0HE0 PINS
CHANNEL A+	● BLUE	6 ● GREEN	6 ● GREEN
CHANNEL A-	● BROWN	5 ● PURPLE	5 ● PURPLE
CHANNEL B+	● GREEN	8 ● BLUE	8 ● BLUE
CHANNEL B-	● PURPLE	7 ● BROWN	7 ● BROWN
+ DC (5V)	● RED	2 ● RED	2 ● RED
GROUND	● BLACK	3 ● BLACK	3 ● BLACK
INDEX+	/	10 ● ORANGE	10 ● ORANGE
INDEX-	/	9 ○ WHITE	9 ○ WHITE

R.T.A. CABLE

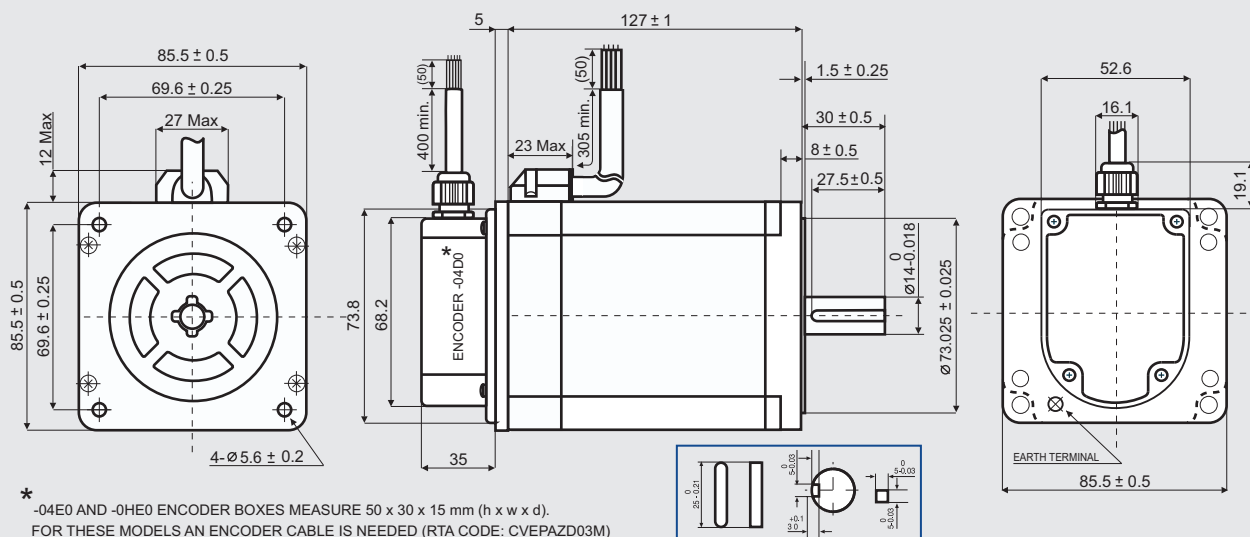
CVEPAZD03M

CVEPAZD03M

Suggested R.T.A. drive series: NDC, ADW, HGD, PLUS

EM 3F3H-OXXO

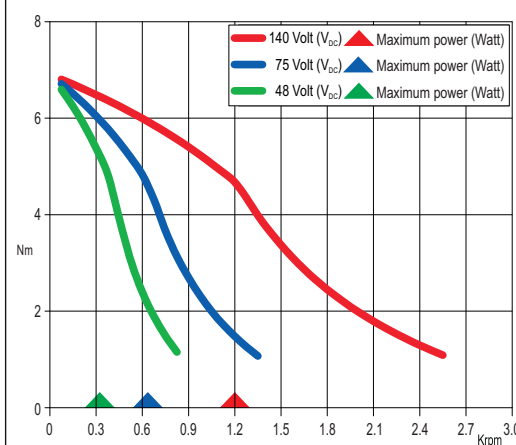
Dimensions (Unit:mm)



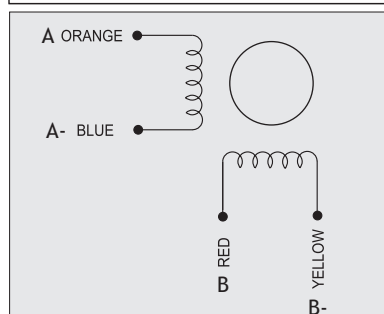
SANYO DENKI MOTOR FEATURES

MODEL	EM 3F3H-OXXO	
SANYO DENKI MOTOR CODE	SM 2863-5225	
BASIC STEP ANGLE	1.8° ± 0.09°	
BIPOLAR PARALLEL CURRENT	(Amp)	6.0
RESISTANCE	(Ohm)	0.46
INDUCTANCE	(mH)	3.8
BIPOLAR HOLDING TORQUE	(Ncm)	920
ROTOR INERTIA	(Kg ^m × 10 ⁻⁷)	4500
THEORETICAL ACCELERATION	(rad × sec. ⁻²)	20500
BACK E.M.F.	(V/Krpm)	161
MASS	(Kg)	4.0
INTERNATIONAL STANDARDS	UL, CSA	
INSULATION VOLTAGE	(V)	250 VAC (350 VDC)
PROTECTION DEGREE - INSULATION CLASS	IP43 - F	
LEADS CODE	V	

TORQUE/SPEED CURVE



ENCODER OPTIONS:	EM 3F3H-04D0	EM 3F3H-04E0 *	EM 3F3H-0HE0 *
RESOLUTION	400 cpr	400 cpr	4000 cpr
INDEX	No	Yes	Yes
CURRENT CONSUMPTION (mA)	50	50	85
HIGH LEVEL OUTPUT (Volt)	5 (TIP) - 4.75 (MIN) (I _{max} =25mA)	3.4 (TIP) - 2.4 (MIN) (I _{max} =20mA)	3.4 (TIP) - 2.4 (MIN) (I _{max} =20mA)
LOW LEVEL OUTPUT (Volt)	0.25 (TIP) - 0.6 (MAX) (I _{max} =25mA)	0.2 (TIP) - 0.4 (MAX) (I _{max} =20mA)	0.2 (TIP) - 0.4 (MAX) (I _{max} =20mA)
OUTPUT SIGNAL	Differential	Differential	Differential
MAXIMUM FREQUENCY (KHz)	100	100	720
POWER SUPPLY VOLTAGE (Volt)	5 V _{DC} ± 10%	5 V _{DC} ± 10%	5 V _{DC} ± 10%



ENCODER CABLE / ENCODER PIN OUT

DESCRIPTION	04D0	04E0 PINS	0HE0 PINS
CHANNEL A+	● BLUE	6 ● GREEN	6 ● GREEN
CHANNEL A-	● BROWN	5 ● PURPLE	5 ● PURPLE
CHANNEL B+	● GREEN	8 ● BLUE	8 ● BLUE
CHANNEL B-	● PURPLE	7 ● BROWN	7 ● BROWN
+ DC (5V)	● RED	2 ● RED	2 ● RED
GROUND	● BLACK	3 ● BLACK	3 ● BLACK
INDEX+	/	10 ● ORANGE	10 ● ORANGE
INDEX-	/	9 ○ WHITE	9 ○ WHITE

R.T.A. CABLE

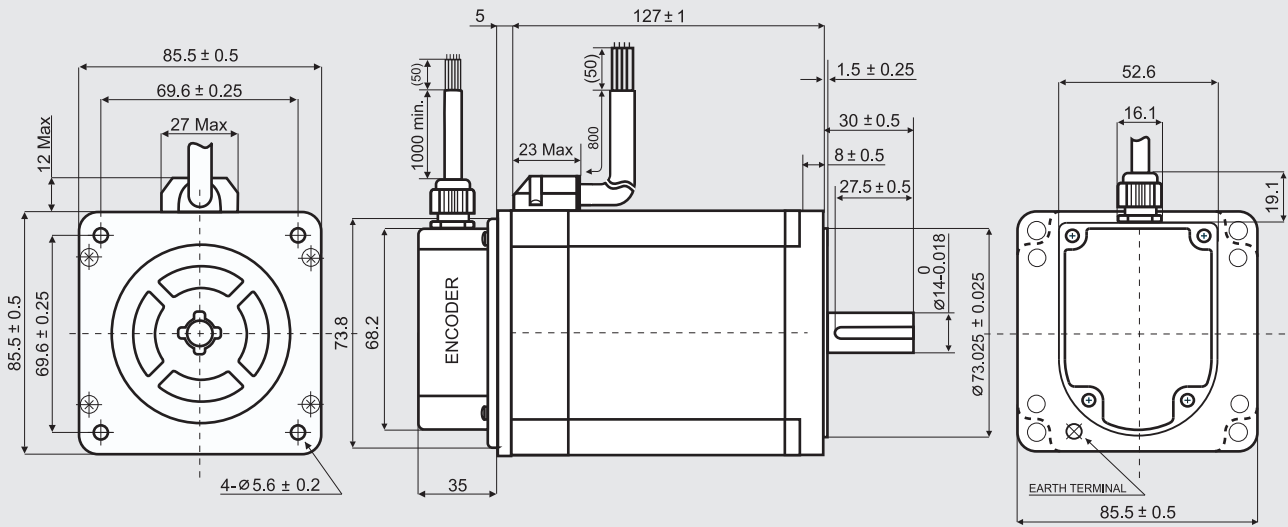
CVEPAZD03M

CVEPAZD03M

Suggested R.T.A. drive series: NDC, ADW, HGD, PLUS

EM 3F3M-14D0

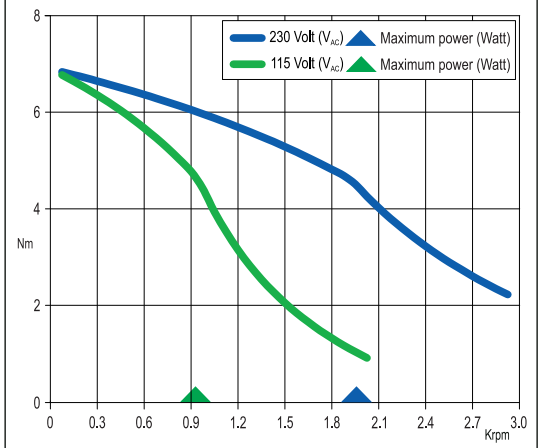
Dimensions (Unit:mm)



SANYO DENKI MOTOR FEATURES

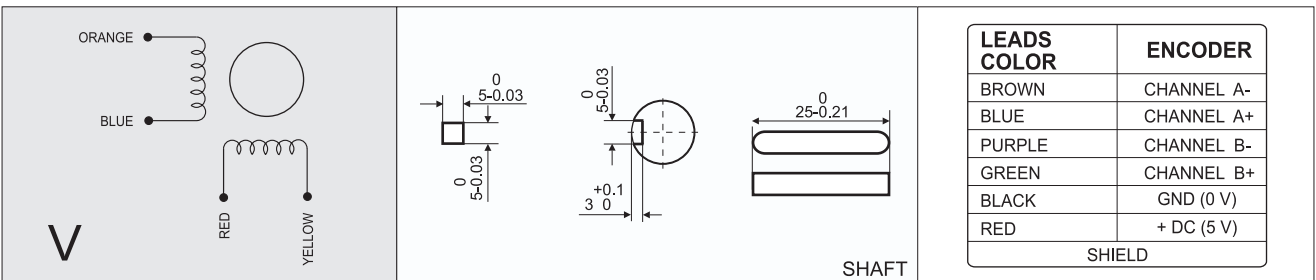
MODEL	EM 3F3M-14D0	
SANYO DENKI MOTOR CODE	SM 2863-5126	
BASIC STEP ANGLE	1.8° ± 0.09°	
BIPOLAR PARALLEL CURRENT	(Amp)	4.0
RESISTANCE	(Ohm)	1.0
INDUCTANCE	(mH)	7.9
BIPOLAR HOLDING TORQUE	(Ncm)	920
ROTOR INERTIA	(Kgm ² × 10 ⁻⁷)	4500
THEORETICAL ACCELERATION	(rad × sec. ⁻²)	20500
BACK E.M.F.	(V/Krpm)	241
MASS	(Kg)	4.0
INTERNATIONAL STANDARDS	UL, CSA	
INSULATION VOLTAGE	(V)	250 VAC (350 VDC)
PROTECTION DEGREE - INSULATION CLASS	IP43 - F	
LEADS CODE	V	

TORQUE/SPEED CURVE



ENCODER FEATURES

POWER SUPPLY VOLTAGE	(Volt)	5 V _{DC} ± 5%
CURRENT CONSUMPTION	(mAmp)	40
HIGH LEVEL OUTPUT	(Volt)	3.4 (TIP) - 2.4 (MIN) (I _{max} =20 mA)
LOW LEVEL OUTPUT	(Volt)	0.2 (TIP) - 0.4 (MAX) (I _{max} =20 mA)
OUTPUT SIGNAL	Differential (SINGLE ENDED version available)	
RESOLUTION	400 cycles per revolution (500 & 1000 CPR version available)	
MAXIMUM FREQUENCY	(KHz)	60
INDEX VERSION	Available upon request	



Suggested R.T.A. drive model: 230 Vac X-PLUS

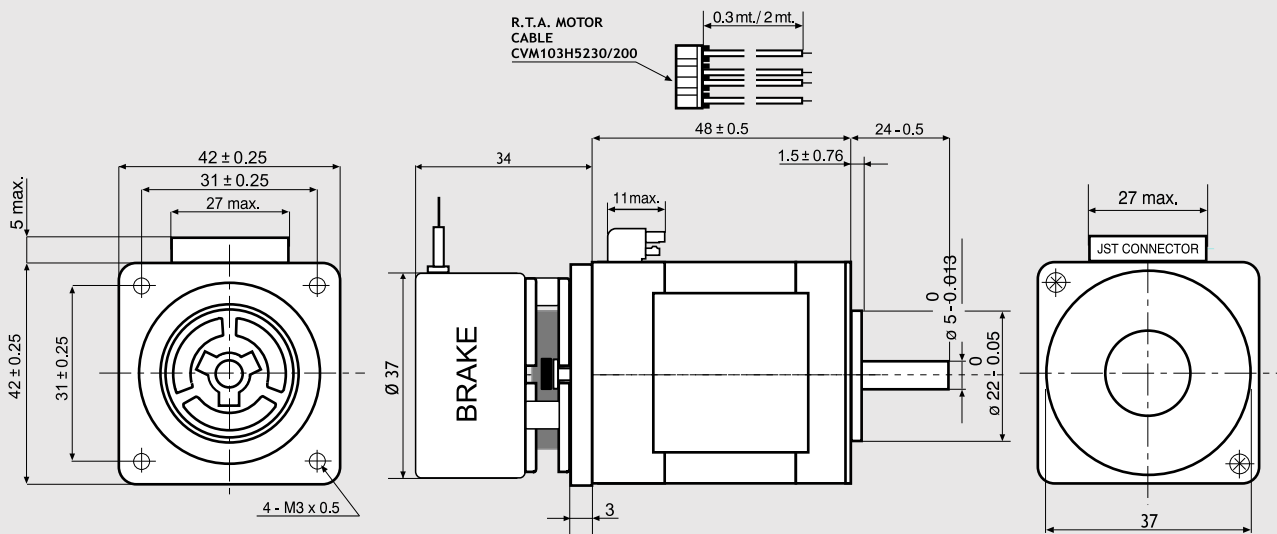
STEPPING MOTORS

TRADITIONAL STEPPING MOTORS WITH BRAKE



103-H5210-4512.B

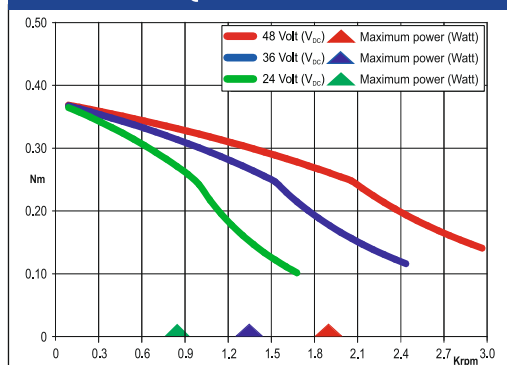
Dimensions (Unit:mm)



SANYO DENKI MOTOR FEATURES

MODEL	103-H5210-4512.B	
SANYO DENKI MOTOR CODE	103-H5210-4512	
BASIC STEP ANGLE	1.8° ± 0.09°	
BIPOLAR PARALLEL CURRENT	(Amp)	2.0
RESISTANCE	(Ohm)	1.25
INDUCTANCE	(mH)	2.4
BIPOLAR HOLDING TORQUE	(Ncm)	51
ROTOR INERTIA	(Kgm ² × 10 ⁻⁷)	74
THEORETICAL ACCELERATION	(rad × sec. ⁻²)	69000
BACK E.M.F.	(V/Krpm)	25
MASS	(Kg)	0.55
LEADS CODE	V	

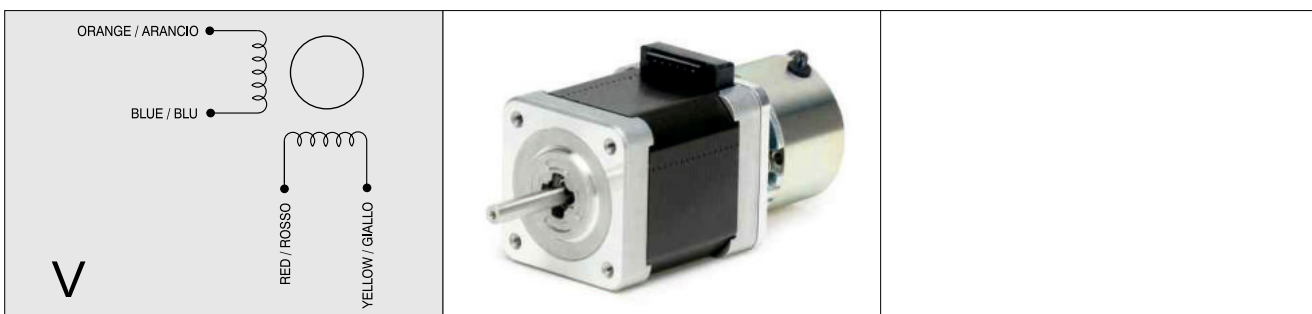
TORQUE/SPEED CURVE



103-H5210-4512 MOTOR NEEDS CVM103H5230 OR CVM103H52200 R.T.A. CABLES. CONTACT R.T.A. FOR FURTHER DETAILS.

BRAKE FEATURES

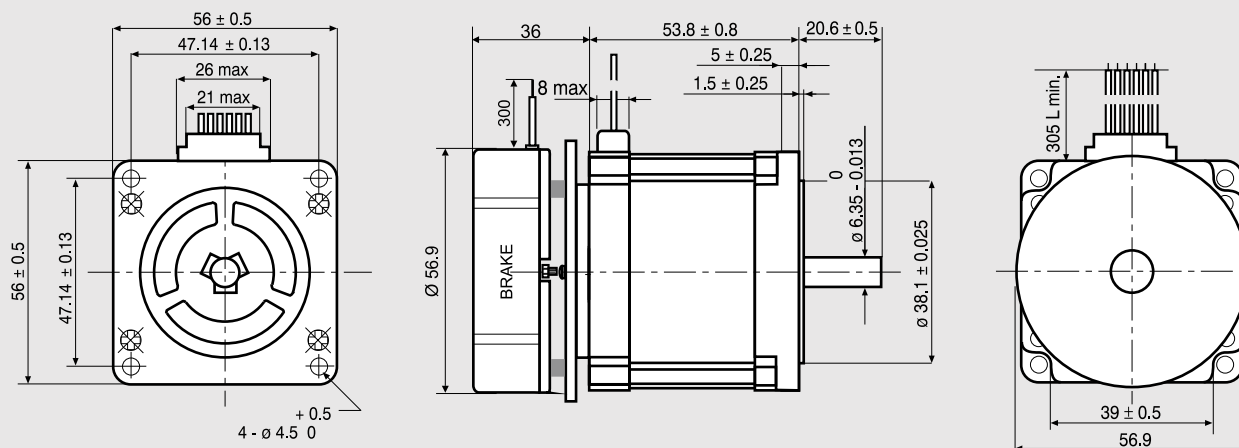
STATIC TORQUE	(Nm)	0.24
DUTY CYCLE		50% max.
VOLTAGE	(Volt)	24 VDC
POWER	(W)	5
RELEASE TIME	(ms)	50



Suggested R.T.A. drive series: BSD, CSD, FLEX-DRIVE

103-H7123-5010.B

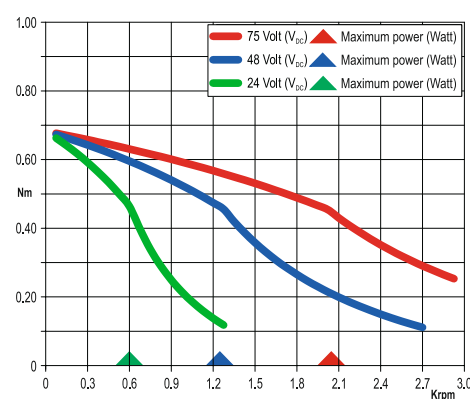
Dimensions (Unit:mm)



SANYO DENKI MOTOR FEATURES

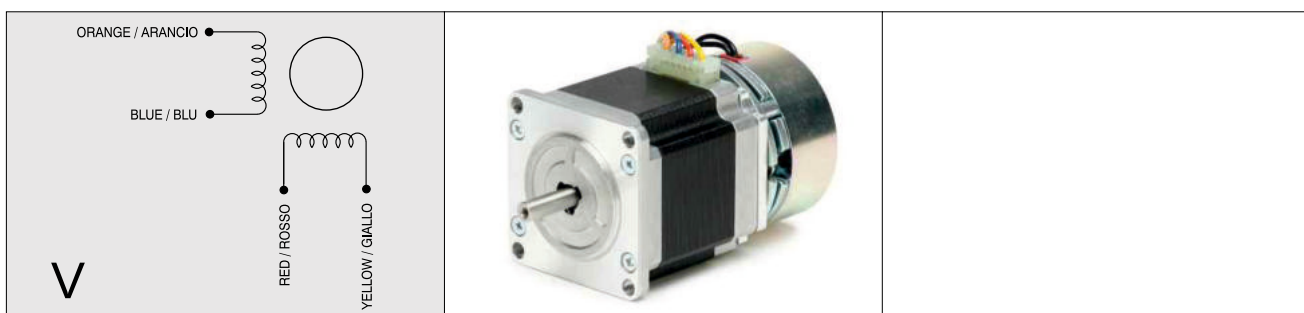
MODEL		103-H7123-5010.B
SANYO DENKI MOTOR CODE		103-H7123-5010
BASIC STEP ANGLE		$1.8^\circ \pm 0.09^\circ$
BIPOLAR PARALLEL CURRENT	(Amp)	2.0
UNIPOLAR PARALLEL CURRENT	(Amp)	
RESISTANCE	(Ohm)	0.8
INDUCTANCE	(mH)	3.8
BIPOLAR HOLDING TORQUE	(Ncm)	85
UNIPOLAR HOLDING TORQUE	(Ncm)	
ROTOR INERTIA	($\text{Kgm}^2 \times 10^{-7}$)	210
THEORETICAL ACCELERATION	($\text{rad} \times \text{sec.}^{-2}$)	38500
BACK E.M.F.	(V/Krpm)	31
MASS	(Kg)	1.15
LEADS CODE		V

TORQUE/SPEED CURVE



BRAKE FEATURES

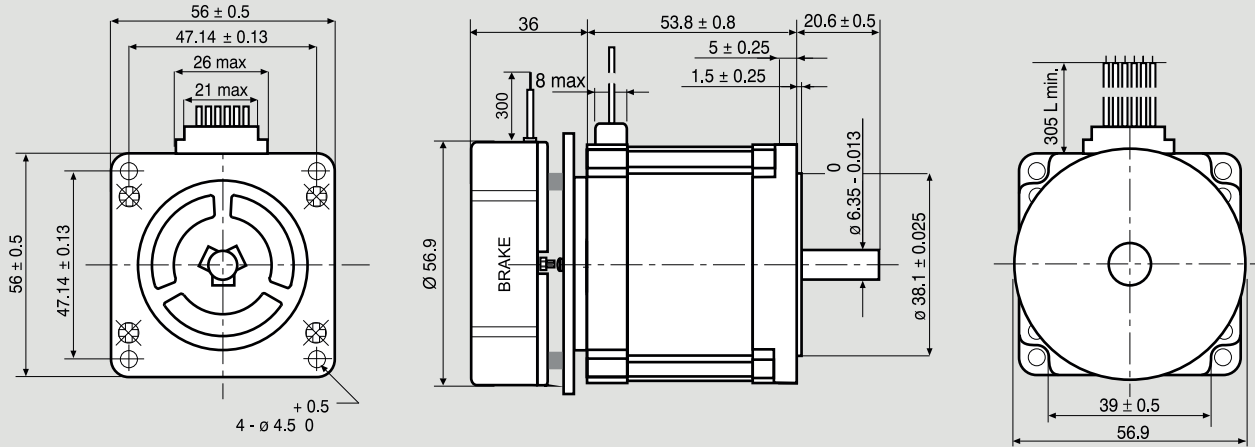
STATIC TORQUE	(Nm)	3.3
DUTY CYCLE		50% max.
VOLTAGE	(Volt)	24 VDC
POWER	(W)	11
RELEASE TIME	(ms)	300



Suggested R.T.A. drive series: BSD, CSD, NDC, ADW, HGD, FLEX-DRIVE

103-H7123-0710.B

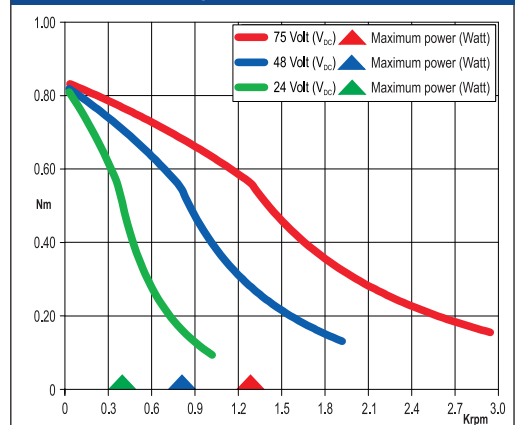
Dimensions (Unit:mm)



SANYO DENKI MOTOR FEATURES

MODEL	103-H7123-0710.B	
SANYO DENKI MOTOR CODE	103-H7123-0710	
BASIC STEP ANGLE	$1.8^\circ \pm 0.09^\circ$	
BIPOLAR PARALLEL CURRENT	(Amp)	2.2*
UNIPOLAR PARALLEL CURRENT	(Amp)	3.0
RESISTANCE	(Ohm)	0.77
INDUCTANCE	(mH)	1.6
BIPOLAR HOLDING TORQUE	(Ncm)	110
UNIPOLAR HOLDING TORQUE	(Ncm)	85
ROTOR INERTIA	($\text{Kg} \cdot \text{m}^2 \times 10^{-7}$)	210
THEORETICAL ACCELERATION	($\text{rad} \times \text{sec}^{-2}$)	50000
BACK E.M.F.	(V/Krpm)	20
MASS	(Kg)	1.15
LEADS CODE	IV	

TORQUE/SPEED CURVE



^(*)Bipolar series connection.

BRAKE FEATURES

STATIC TORQUE	(Nm)	3.3
DUTY CYCLE		50% max.
VOLTAGE	(Volt)	24 VDC
POWER	(W)	11
RELEASE TIME	(ms)	300



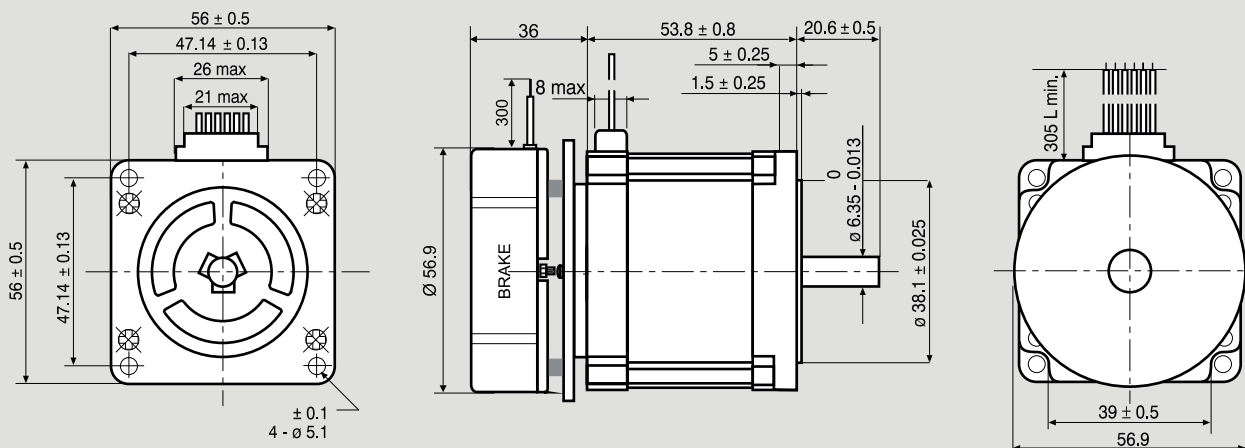
IV



Suggested R.T.A. drive series: BSD, CSD, NDC, ADW, HGD, FLEX-DRIVE

103-H7123-1711.B

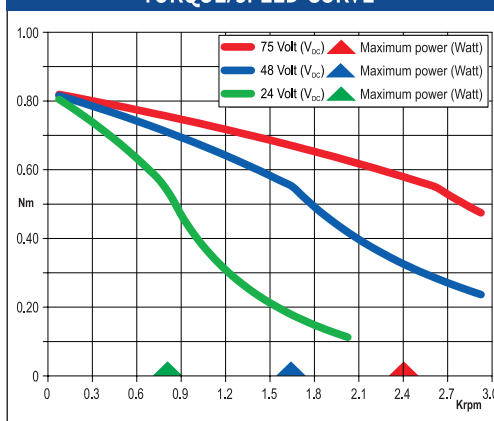
Dimensions (Unit:mm)



SANYO DENKI MOTOR FEATURES

MODEL	103-H7123-1711.B	
SANYO DENKI MOTOR CODE	103-H7123-1711	
BASIC STEP ANGLE	$1.8^\circ \pm 0.09^\circ$	
BIPOLAR PARALLEL CURRENT	(Amp)	4.0
UNIPOLAR PARALLEL CURRENT	(Amp)	
RESISTANCE	(Ohm)	0.41
INDUCTANCE	(mH)	1.6
BIPOLAR HOLDING TORQUE	(Ncm)	110
UNIPOLAR HOLDING TORQUE	(Ncm)	
ROTOR INERTIA	($\text{Kg} \cdot \text{m}^2 \times 10^{-7}$)	210
THEORETICAL ACCELERATION	($\text{rad} \times \text{sec.}^{-2}$)	50000
BACK E.M.F.	(V/Krpm)	20
MASS	(Kg)	1.15
LEADS CODE	V	

TORQUE/SPEED CURVE



BRAKE FEATURES

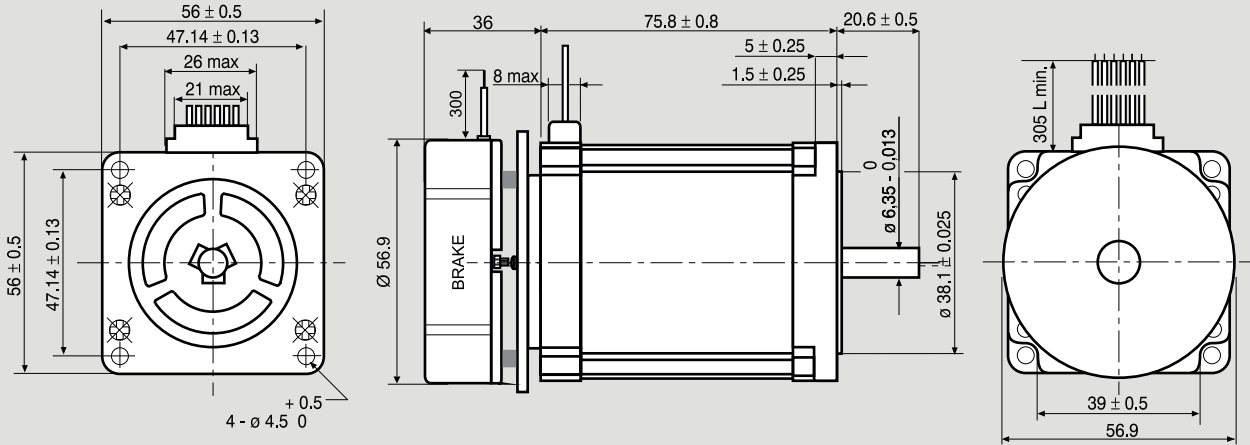
STATIC TORQUE	(Nm)	3.3
DUTY CYCLE		50% max.
VOLTAGE	(Volt)	24 VDC
POWER	(W)	11
RELEASE TIME	(ms)	300



Suggested R.T.A. drive series: BSD, CSD, NDC, ADW, HGD, FLEX-DRIVE

103-H7126-0710.B

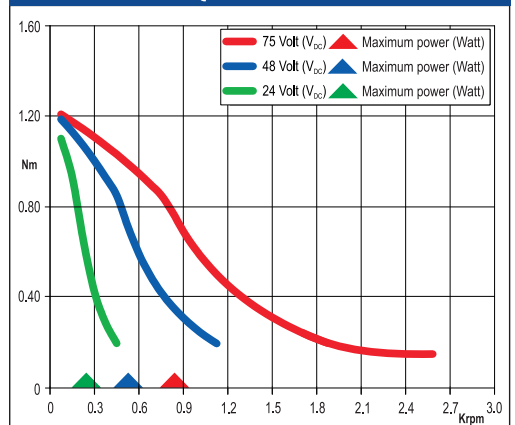
Dimensions (Unit:mm)



SANYO DENKI MOTOR FEATURES

MODEL	103-H7126-0710.B	
SANYO DENKI MOTOR CODE	103-H7126-0710	
BASIC STEP ANGLE	$1.8^\circ \pm 0.09^\circ$	
BIPOLAR PARALLEL CURRENT	(Amp)	2.2*
UNIPOLAR PARALLEL CURRENT	(Amp)	3.0
RESISTANCE	(Ohm)	0.9
INDUCTANCE	(mH)	2.2
BIPOLAR HOLDING TORQUE	(Ncm)	165
UNIPOLAR HOLDING TORQUE	(Ncm)	130
ROTOR INERTIA	($\text{Kgm}^2 \times 10^{-7}$)	360
THEORETICAL ACCELERATION	($\text{rad} \times \text{sec.}^{-2}$)	45800
BACK E.M.F.	(V/Krpm)	31
MASS	(Kg)	1.5
LEADS CODE	IV	

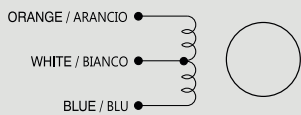
TORQUE/SPEED CURVE



(*)Bipolar series connection.

BRAKE FEATURES

STATIC TORQUE	(Nm)	3.3
DUTY CYCLE		50% max.
VOLTAGE	(Volt)	24 VDC
POWER	(W)	11
RELEASE TIME	(ms)	300



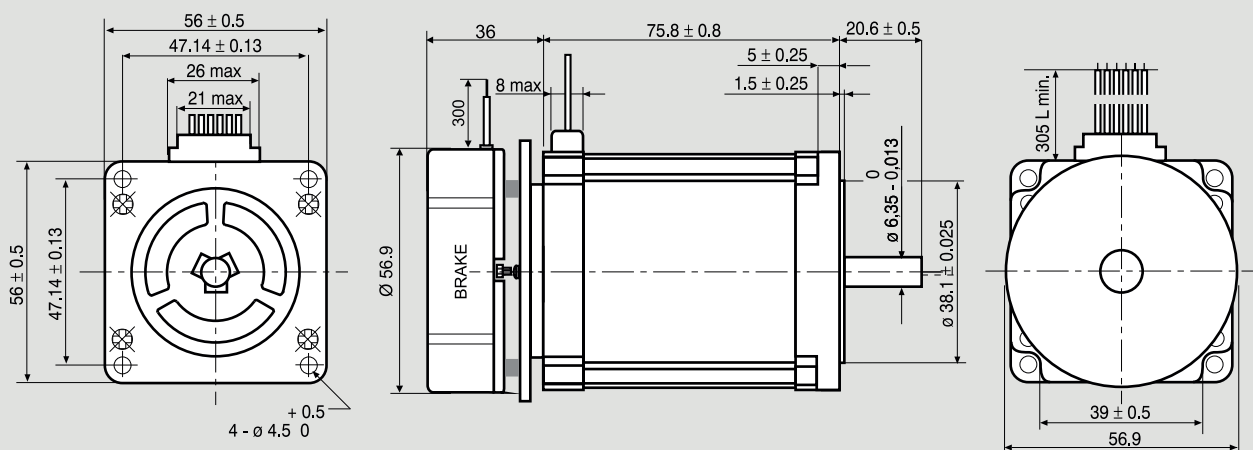
IV



Suggested R.T.A. drive series: BSD, CSD, NDC, ADW, HGD, FLEX-DRIVE

103-H7126-1710.B

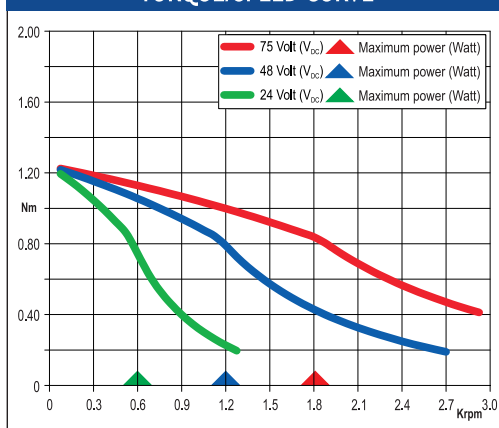
Dimensions (Unit:mm)



SANYO DENKI MOTOR FEATURES

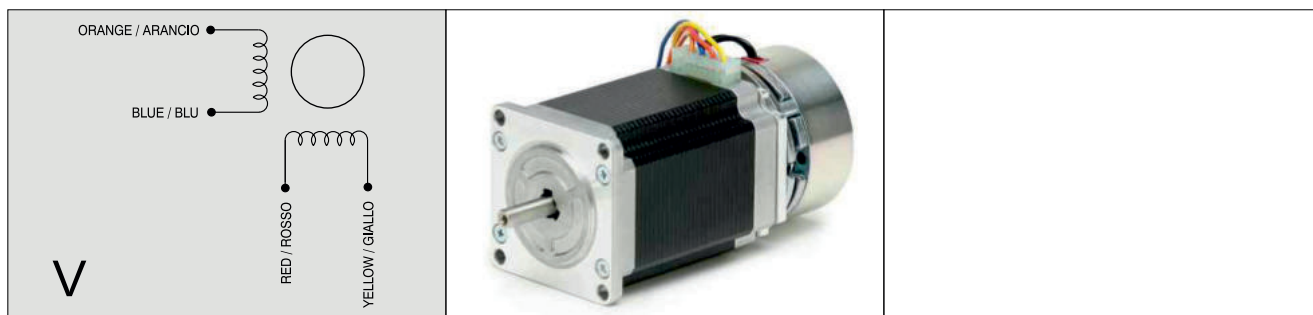
MODEL	103-H7126-1710.B	
SANYO DENKI MOTOR CODE	103-H7126-1710	
BASIC STEP ANGLE	1.8° ± 0.09°	
BIPOLAR PARALLEL CURRENT	(Amp)	4.0
UNIPOLAR PARALLEL CURRENT	(Amp)	
RESISTANCE	(Ohm)	0.48
INDUCTANCE	(mH)	2.2
BIPOLAR HOLDING TORQUE	(Ncm)	165
UNIPOLAR HOLDING TORQUE	(Ncm)	
ROTOR INERTIA	(Kgm ² × 10 ⁻⁷)	360
THEORETICAL ACCELERATION	(rad × sec. ⁻²)	45800
BACK E.M.F.	(V/Krpm)	31
MASS	(Kg)	1.5
LEADS CODE	V	

TORQUE/SPEED CURVE



BRAKE FEATURES

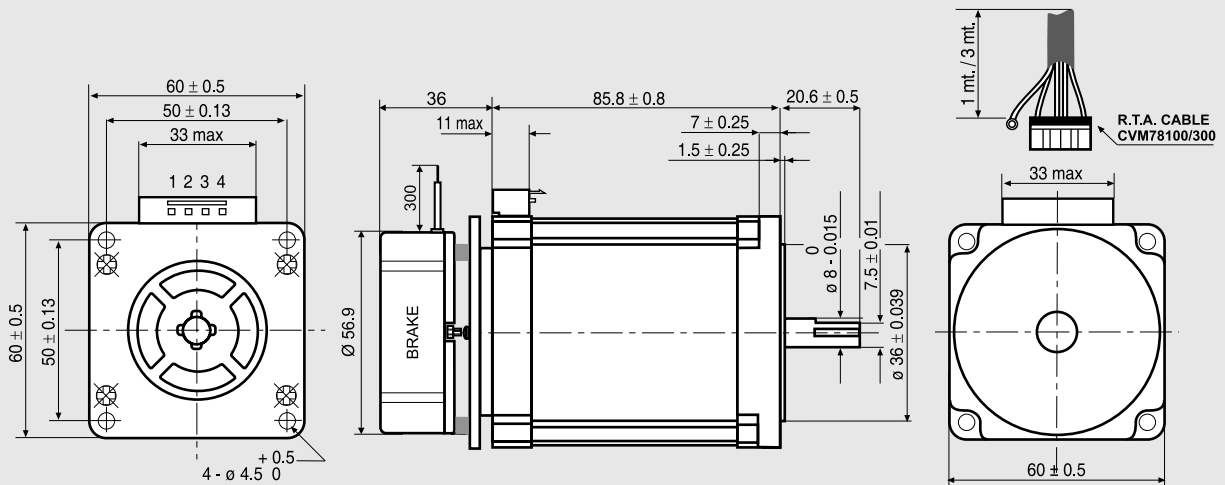
STATIC TORQUE	(Nm)	3.3
DUTY CYCLE		50% max.
VOLTAGE	(Volt)	24 VDC
POWER	(W)	11
RELEASE TIME	(ms)	300



Suggested R.T.A. drive series: BSD, CSD, NDC, ADW, HGD, FLEX-DRIVE

103-H7823-1714.B

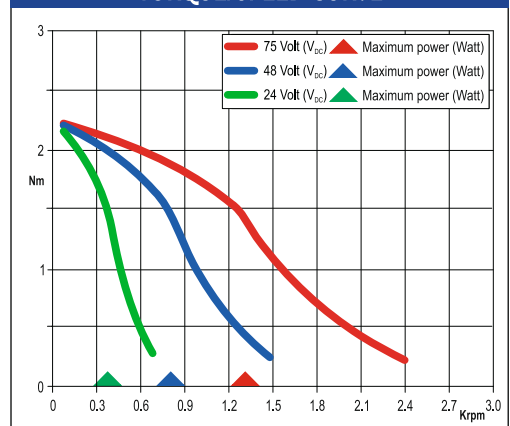
Dimensions (Unit:mm)



SANYO DENKY FEATURES

MODEL		103-H7823-1714.B
SANYO DENKI MOTOR CODE		103-H7823-1714
BASIC STEP ANGLE		1.8° ± 0.09°
BIPOLAR PARALLEL CURRENT	(Amp)	4.0
UNIPOLAR PARALLEL CURRENT	(Amp)	
RESISTANCE	(Ohm)	0.65
INDUCTANCE	(mH)	2.4
BIPOLAR HOLDING TORQUE	(Ncm)	300
UNIPOLAR HOLDING TORQUE	(Ncm)	
ROTOR INERTIA	(Kgm ² × 10 ⁻⁷)	840
THEORETICAL ACCELERATION	(rad × sec. ⁻²)	35700
BACK E.M.F.	(V/Krpm)	75
MASS	(Kg)	1.9
LEADS CODE		V

TORQUE/SPEED CURVE



BRAKE FEATURES

STATIC TORQUE	(Nm)	3.3
DUTY CYCLE		50% max.
VOLTAGE	(Volt)	24 VDC
POWER	(W)	11
RELEASE TIME	(ms)	300

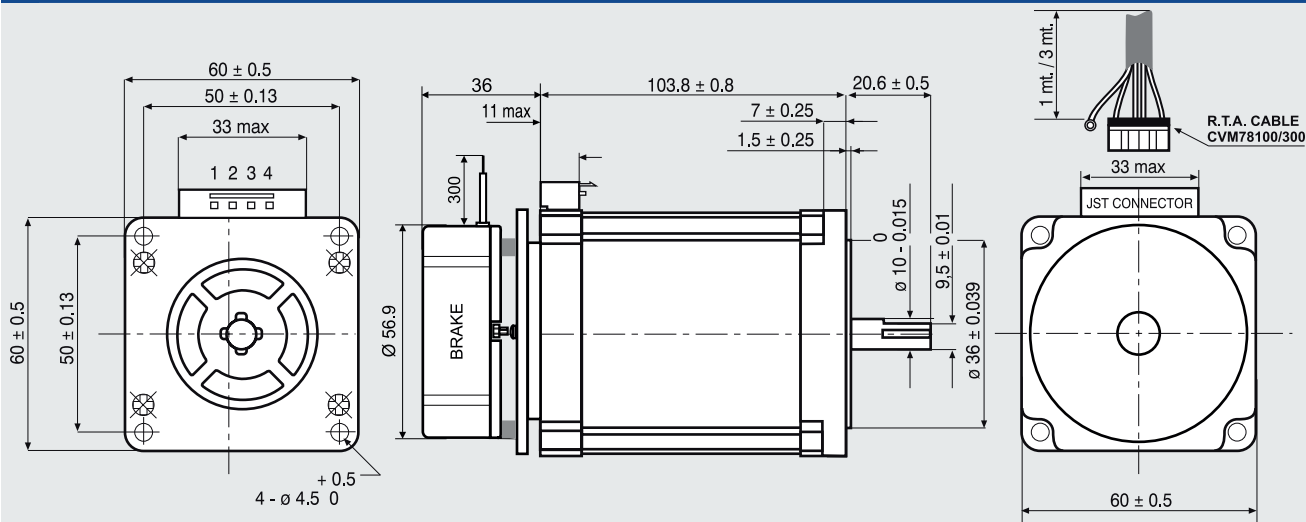


Suggested R.T.A. drive series: BSD, CSD, NDC, ADW, HGD, PLUS, FLEX-DRIVE

103-H7826-1612.B

SANYO DENKI
SANMOTION

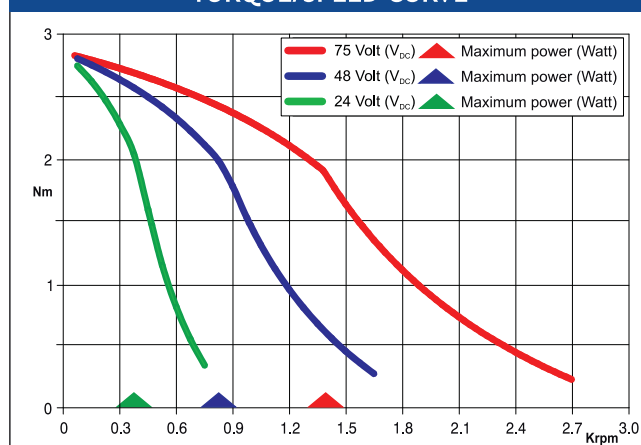
Dimensions (Unit:mm)



FEATURES

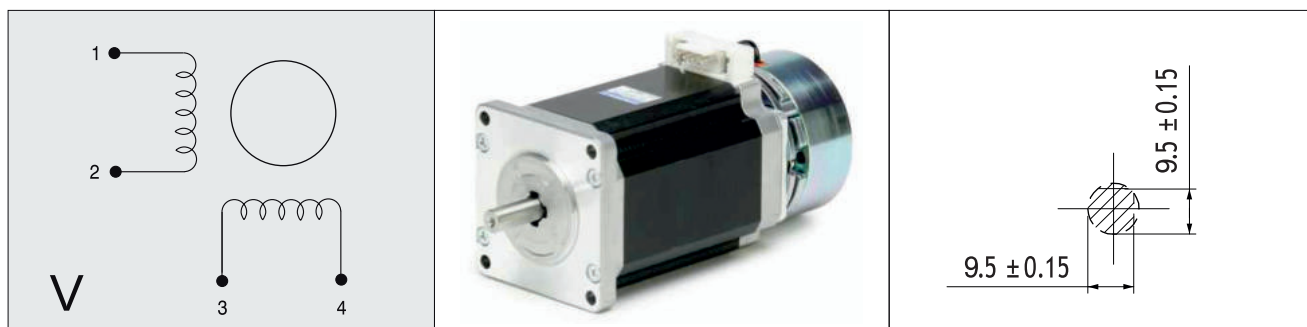
MODEL	103-H7826-1612.B	
SANYO DENKI MOTOR CODE	103-H7826-1612	
BASIC STEP ANGLE	1.8° ± 0.09°	
BIPOLAR CURRENT	(Amp)	6.0
UNIPOLAR CURRENT	(Amp)	
RESISTANCE	(Ohm)	0.43
INDUCTANCE	(mH)	1.45
BIPOLAR HOLDING TORQUE	(Ncm)	380
UNIPOLAR HOLDING TORQUE	(Ncm)	
ROTOR INERTIA	(Kgm ² × 10 ⁻⁷)	1080
THEORETICAL ACCELERATION	(rad × sec. ⁻²)	35200
BACK E.M.F.	(V/Krpm)	70
MASS	(Kg)	1.65
LEADS CODE	V	

TORQUE/SPEED CURVE



BRAKE FEATURES

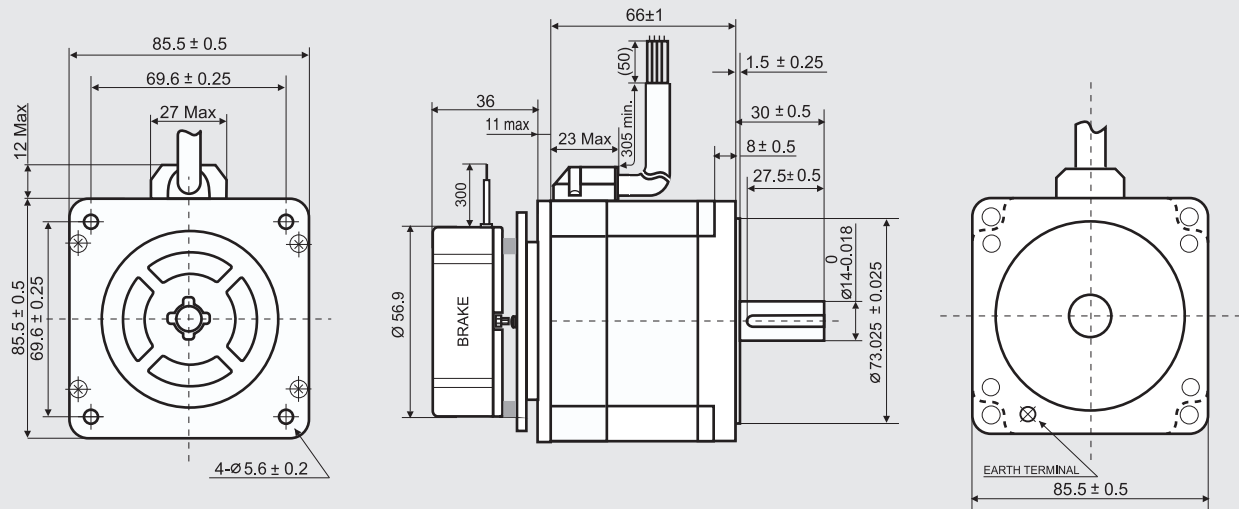
STATIC TORQUE	(Nm)	3.3
DUTY CYCLE		50% max.
VOLTAGE	(Volt)	24 VDC
POWER	(W)	11
RELEASE TIME	(ms)	100



Suggested R.T.A. drive series: NDC, ADW, HGD, PLUS

SM 2861-5025.B

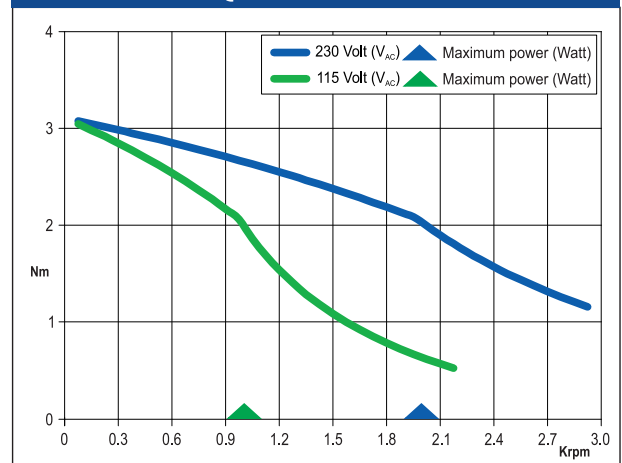
Dimensions (Unit:mm)



SANYO DENKI MOTOR FEATURES

MODEL	SM 2861-5025.B
SANYO DENKI MOTOR CODE	SM 2861-5025
BASIC STEP ANGLE	$1.8^\circ \pm 0.09^\circ$
BIPOLAR PARALLEL CURRENT (Amp)	2.0
RESISTANCE (Ohm)	2.2
INDUCTANCE (mH)	15
BIPOLAR HOLDING TORQUE (Ncm)	360
ROTOR INERTIA ($\text{Kgm}^2 \times 10^{-7}$)	1480
THEORETICAL ACCELERATION ($\text{rad} \times \text{sec.}^{-2}$)	24300
BACK E.M.F. (V/Krpm)	180
MASS (Kg)	2.2
INTERNATIONAL STANDARDS	UL, CSA
INSULATION VOLTAGE (V)	250 VAC (350 VDC)
PROTECTION DEGREE - INSULATION CLASS	IP43 - F
LEADS CODE	V

TORQUE/SPEED CURVE



BRAKE FEATURES

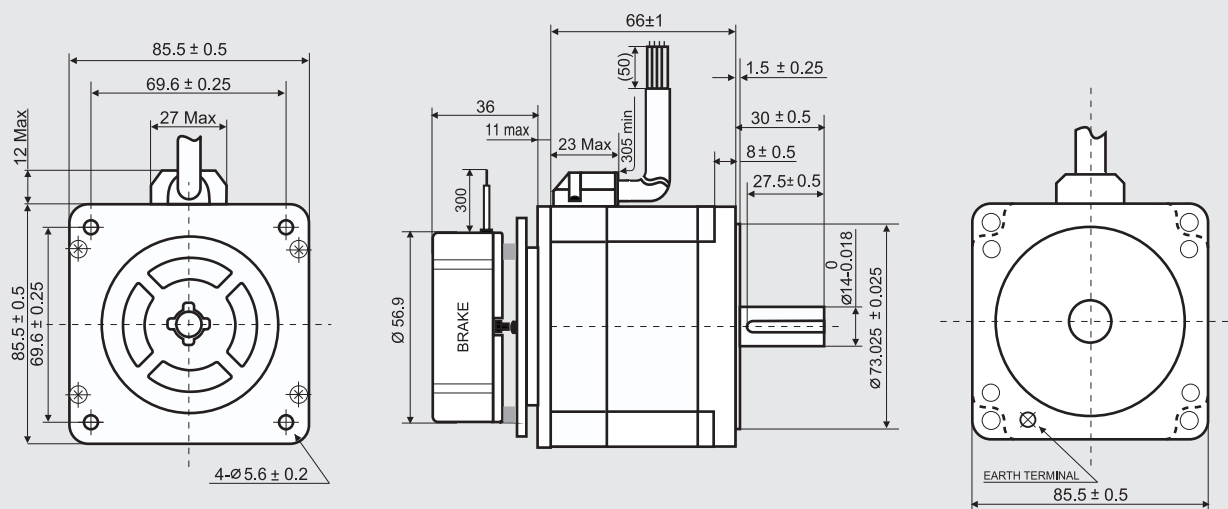
STATIC TORQUE (Nm)	3.3
DUTY CYCLE	50% max.
VOLTAGE (Volt)	24 VDC
POWER (W)	11
RELEASE TIME (ms)	300



Suggested R.T.A. drive model: X-PLUS L2

SM 2861-5225.B

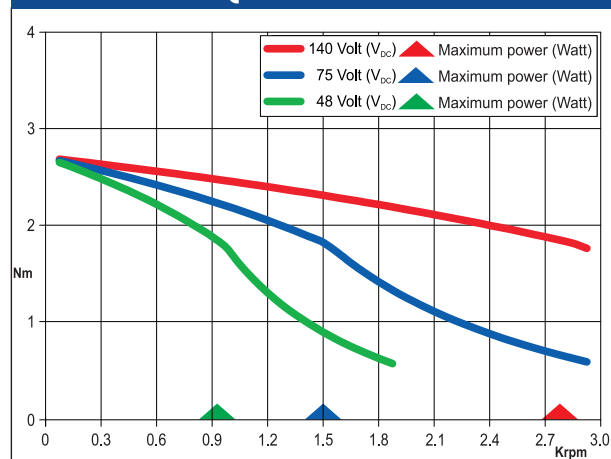
Dimensions (Unit:mm)



SANYO DENKI MOTOR FEATURES

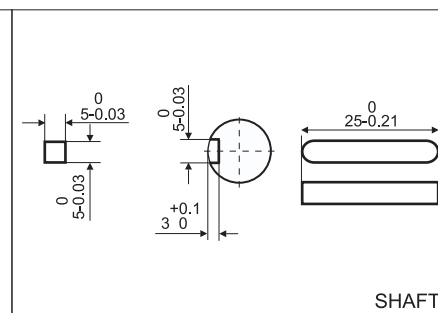
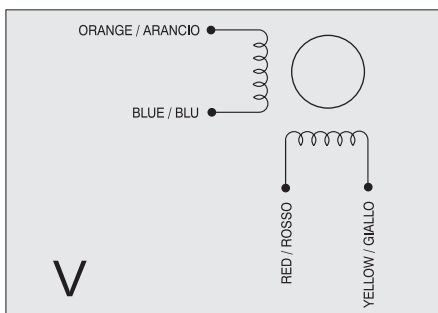
MODEL	SM 2861-5225.B
SANYO DENKI MOTOR CODE	SM 2861-5225
BASIC STEP ANGLE	$1.8^\circ \pm 0.09^\circ$
BIPOLAR PARALLEL CURRENT (Amp)	6.0
RESISTANCE (Ohm)	0.29
INDUCTANCE (mH)	1.7
BIPOLAR HOLDING TORQUE (Ncm)	360
ROTOR INERTIA ($\text{Kg} \cdot \text{m}^2 \times 10^{-7}$)	1480
THEORETICAL ACCELERATION ($\text{rad} \times \text{sec.}^{-2}$)	24300
BACK E.M.F. (V/Krpm)	60
MASS (Kg)	2.2
INTERNATIONAL STANDARDS	UL, CSA
INSULATION VOLTAGE (V)	250 VAC (350 VDC)
PROTECTION DEGREE - INSULATION CLASS	IP43 - F
LEADS CODE	V

TORQUE/SPEED CURVE



BRAKE FEATURES

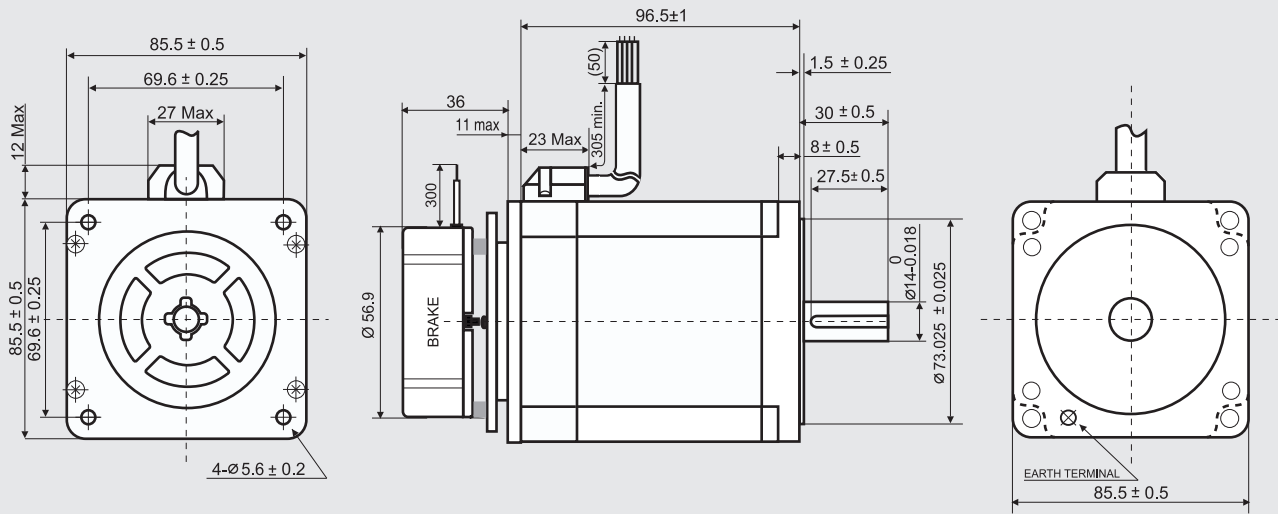
STATIC TORQUE (Nm)	3.3
DUTY CYCLE	50% max.
VOLTAGE (Volt)	24 VDC
POWER (W)	11
RELEASE TIME (ms)	300



Suggested R.T.A. drive series: NDC, ADW, HGD, PLUS

SM 2862-5125.B

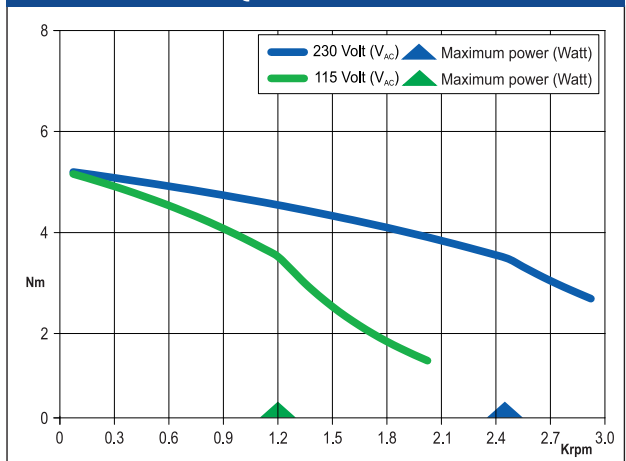
Dimensions (Unit:mm)



SANYO DENKI MOTOR FEATURES

MODEL	SM 2862-5125.B
SANYO DENKI MOTOR CODE	SM 2862-5125
BASIC STEP ANGLE	1.8° ± 0.09°
BIPOLAR PARALLEL CURRENT (Amp)	4.0
RESISTANCE (Ohm)	0.83
INDUCTANCE (mH)	6.4
BIPOLAR HOLDING TORQUE (Ncm)	700
ROTOR INERTIA (Kg ^m × 10 ⁻⁷)	3000
THEORETICAL ACCELERATION (rad × sec. ⁻²)	23300
BACK E.M.F. (V/Krpm)	175
MASS (Kg)	3.4
INTERNATIONAL STANDARDS	UL, CSA
INSULATION VOLTAGE (V)	250 VAC (350 VDC)
PROTECTION DEGREE - INSULATION CLASS	IP43 - F
LEADS CODE	V

TORQUE/SPEED CURVE



BRAKE FEATURES

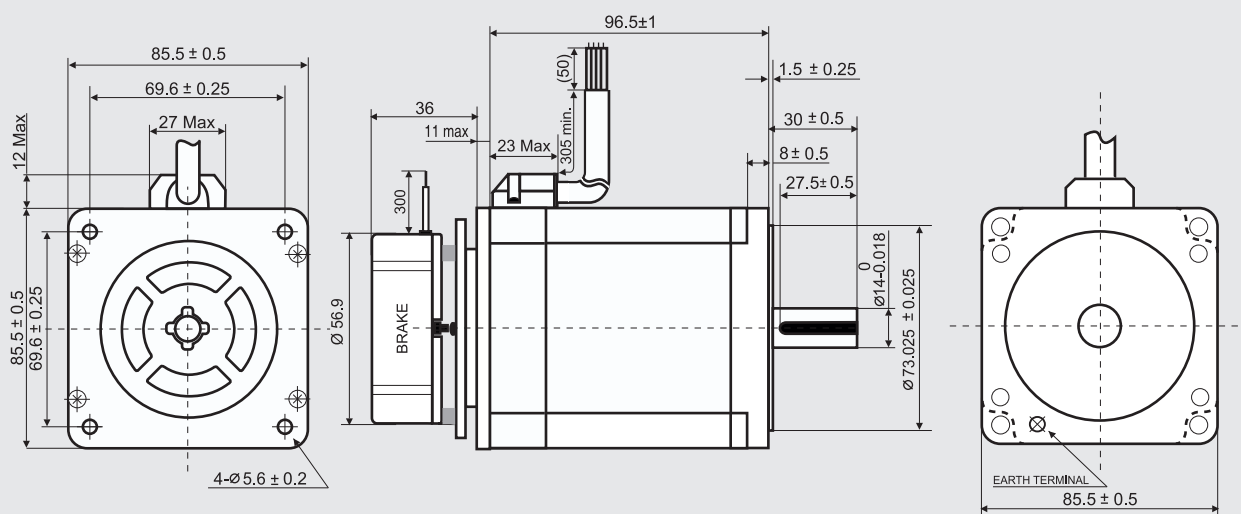
STATIC TORQUE (Nm)	3.3
DUTY CYCLE	50% max.
VOLTAGE (Volt)	24 VDC
POWER (W)	11
RELEASE TIME (ms)	300



Suggested R.T.A. drive series: 230 Vac X-PLUS

SM 2862-5225.B

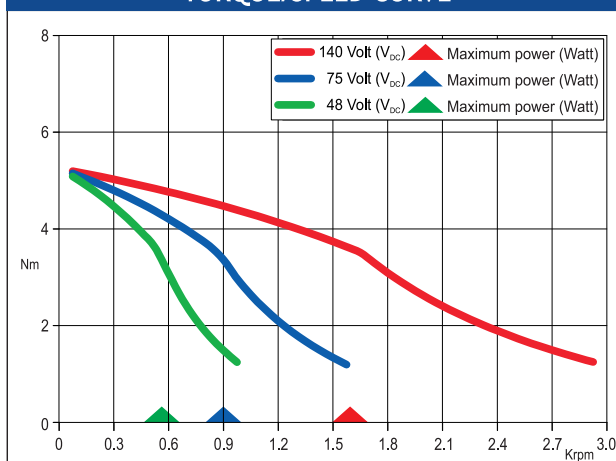
Dimensions (Unit:mm)



SANYO DENKI MOTOR FEATURES

MODEL	SM 2862-5225.B
SANYO DENKI MOTOR CODE	SM 2862-5225
BASIC STEP ANGLE	1.8° ± 0.09°
BIPOLAR PARALLEL CURRENT (Amp)	6.0
RESISTANCE (Ohm)	0.36
INDUCTANCE (mH)	2.8
BIPOLAR HOLDING TORQUE (Ncm)	700
ROTOR INERTIA (Kg ^m × 10 ⁻⁷)	3000
THEORETICAL ACCELERATION (rad × sec. ⁻²)	23300
BACK E.M.F. (V/Krpm)	120
MASS (Kg)	3.4
INTERNATIONAL STANDARDS	UL, CSA
INSULATION VOLTAGE (V)	250 VAC (350 VDC)
PROTECTION DEGREE - INSULATION CLASS	IP43 - F
LEADS CODE	V

TORQUE/SPEED CURVE



BRAKE FEATURES

STATIC TORQUE (Nm)	3.3
DUTY CYCLE	50% max.
VOLTAGE (Volt)	24 VDC
POWER (W)	11
RELEASE TIME (ms)	300



Suggested R.T.A. drive series: NDC, ADW, HGD, PLUS

CONNECTION SCHEMATICS OF DRIVES AND MOTORS

LEADS CODE	SERIES BIPOLAR CONNECTION	PARALLEL BIPOLAR CONNECTION
IV		
V		

INDUSTRIAL STEPPING MOTORS - CABLE OPTIONS

RH SERIES	MOTOR CABLE	ENCODER CABLE
RH 1S0M	CVMRH1S02M/CVMRH1S0M3	N/A
RH 1S0M-RS	CVMRH1S02M/CVMRH1S0M3	N/A
RH 1S1M	CVMRH1S02M/CVMRH1S0M3	N/A
RH 1S1M-RS	CVMRH1S02M/CVMRH1S0M3	N/A
RH 1S2M	CVMRH1S02M/CVMRH1S0M3	N/A
RH 1S2M-RS	CVMRH1S02M/CVMRH1S0M3	N/A
RH 1S3M	CVMRH1S02M/CVMRH1S0M3	N/A
RH 1S3M-RS	CVMRH1S02M/CVMRH1S0M3	N/A
RM SERIES	MOTOR CABLE	ENCODER CABLE
RM 2R2M	CVMRMPM01M/CVMRMPM03M CVMRM90PM01M/CVMRM90PM03M	N/A
RM 3R1M	CVMRMPM01M/CVMRMPM03M CVMRM90PM01M/CVMRM90PM03M	N/A
RM 3R2M	CVMRMPM01M/CVMRMPM03M CVMRM90PM01M/CVMRM90PM03M	N/A
RM 3R3M	CVMRMPM01M/CVMRMPM03M CVMRM90PM01M/CVMRM90PM03M	N/A
SP SERIES (IP 65)	MOTOR CABLE	ENCODER CABLE
SP 2563-5000	CVMRMPM01M/CVMRMPM03M CVMRM90PM01M/CVMRM90PM03M	N/A
SP 2563-5200	CVMRMPM01M/CVMRMPM03M CVMRM90PM01M/CVMRM90PM03M	N/A
SP 2566-5200	CVMRMPM01M/CVMRMPM03M CVMRM90PM01M/CVMRM90PM03M	N/A
SP 2862-5100	CVMRMPM01M/CVMRMPM03M CVMRM90PM01M/CVMRM90PM03M	N/A
SP 2863-5100	CVMRMPM01M/CVMRMPM03M CVMRM90PM01M/CVMRM90PM03M	N/A

INDUSTRIAL STEPPING MOTORS - CABLE OPTIONS

SP SERIES (FULL IP 65)	MOTOR CABLE	ENCODER CABLE
SP 2566-50SX00	CVMRMPM01M/CVMRMPM03M CVMRM90PM01M/CVMRM90PM03M	N/A
SP 2566-52SX00	CVMRMPM01M/CVMRMPM03M CVMRM90PM01M/CVMRM90PM03M	N/A
SP2861-51SX01	CVMRMPM01M/CVMRMPM03M CVMRM90PM01M/CVMRM90PM03M	N/A
SP2862-51SX01	CVMRMPM01M/CVMRMPM03M CVMRM90PM01M/CVMRM90PM03M	N/A
SP2863-51SX01	CVMRMPM01M/CVMRMPM03M CVMRM90PM01M/CVMRM90PM03M	N/A

INDUSTRIAL STEPPING MOTORS WITH ENCODER - CABLE OPTIONS

	MOTOR CABLE	ENCODER CABLE
RH 1S0M-04D0	CVMRH1S02M/CVMRH1S0M3	CVEPA0D0M3/CVEPA0D02M
RH 1S0M-04E0	CVMRH1S02M/CVMRH1S0M3	CVEOZD0M3/CVEPAZD02M
RH 1S0M-0HE0	CVMRH1S02M/CVMRH1S0M3	CVEOZD0M3/CVEPAZD02M
RH 1S1M-04D0	CVMRH1S02M/CVMRH1S0M3	CVEPA0D0M3/CVEPA0D02M
RH 1S1M-04E0	CVMRH1S02M/CVMRH1S0M3	CVEOZD0M3/CVEPAZD02M
RH 1S1M-0HE0	CVMRH1S02M/CVMRH1S0M3	CVEOZD0M3/CVEPAZD02M
RH 1S2M-04D0	CVMRH1S02M/CVMRH1S0M3	CVEPA0D0M3/CVEPA0D02M
RH 1S2M-04E0	CVMRH1S02M/CVMRH1S0M3	CVEOZD0M3/CVEPAZD02M
RH 1S2M-0HE0	CVMRH1S02M/CVMRH1S0M3	CVEOZD0M3/CVEPAZD02M
RH 1S3M-04D0	CVMRH1S02M/CVMRH1S0M3	CVEPA0D0M3/CVEPA0D02M
RH 1S3M-04E0	CVMRH1S02M/CVMRH1S0M3	CVEOZD0M3/CVEPAZD02M
RH 1S3M-0HE0	CVMRH1S02M/CVMRH1S0M3	CVEOZD0M3/CVEPAZD02M
RM 3T1M-04D0	CVMRMPM01M/CVMRMPM03M CVMRM90PM01M/CVMRM90PM03M	CVERMPM01M/CVERMPM03M CVERM90PM01M/CVERM90PM03M
RM 3T1M-04E0	CVMRMPM01M/CVMRMPM03M CVMRM90PM01M/CVMRM90PM03M	CVERMPM01M/CVERMPM03M CVERM90PM01M/CVERM90PM03M
RM 3T1M-0HE0	CVMRMPM01M/CVMRMPM03M CVMRM90PM01M/CVMRM90PM03M	CVERMPM01M/CVERMPM03M CVERM90PM01M/CVERM90PM03M
RM 3T2M-04D0	CVMRMPM01M/CVMRMPM03M CVMRM90PM01M/CVMRM90PM03M	CVERMPM01M/CVERMPM03M CVERM90PM01M/CVERM90PM03M
RM 3T2M-04E0	CVMRMPM01M/CVMRMPM03M CVMRM90PM01M/CVMRM90PM03M	CVERMPM01M/CVERMPM03M CVERM90PM01M/CVERM90PM03M
RM 3T2M-0HE0	CVMRMPM01M/CVMRMPM03M CVMRM90PM01M/CVMRM90PM03M	CVERMPM01M/CVERMPM03M CVERM90PM01M/CVERM90PM03M
RM 3T3M-04D0	CVMRMPM01M/CVMRMPM03M CVMRM90PM01M/CVMRM90PM03M	CVERMPM01M/CVERMPM03M CVERM90PM01M/CVERM90PM03M
RM 3T3M-04E0	CVMRMPM01M/CVMRMPM03M CVMRM90PM01M/CVMRM90PM03M	CVERMPM01M/CVERMPM03M CVERM90PM01M/CVERM90PM03M
RM 3T3M-0HE0	CVMRMPM01M/CVMRMPM03M CVMRM90PM01M/CVMRM90PM03M	CVERMPM01M/CVERMPM03M CVERM90PM01M/CVERM90PM03M

TRADITIONAL STEPPING MOTORS - CABLE OPTIONS

14 mm FLANGE	MOTOR CABLE	ENCODER CABLE
SH2141-5541	30 cm LEAD WIRE	N/A
28 mm FLANGE	MOTOR CABLE	ENCODER CABLE
SH2281-5271	30 cm LEAD WIRE	N/A
SH2281-5231	30 cm LEAD WIRE	N/A
SH2285-5271	30 cm LEAD WIRE	N/A
SH2285-5231	30 cm LEAD WIRE	N/A
42 mm FLANGE	MOTOR CABLE	ENCODER CABLE
103-H5205-5040	30 cm LEAD WIRE	N/A
103-H5205-0351	30 cm LEAD WIRE	N/A
103-H5205-0312	30 cm LEAD WIRE	N/A
103-H5205-4240	CVM103H5230	N/A
103-H5205-4210	CVM103H5230	N/A
103-H5208-0483	30 cm LEAD WIRE	N/A
103-H5210-4240	CVM103H5230	N/A
103-H5210-4210	CVM103H5230	N/A
103-H5210-4541	CVM103H5230	N/A
103-H5210-4512	30 cm LEAD WIRE	N/A
103-H5212-4640	CVM103H5230	N/A
103-H5212-4610	CVM103H5230	N/A
50 mm FLANGE	MOTOR CABLE	ENCODER CABLE
103-H6701-0140	30 cm LEAD WIRE	N/A
103-H6703-0440	30 cm LEAD WIRE	N/A
56 mm FLANGE	MOTOR CABLE	ENCODER CABLE
103-H7121-0440	30 cm LEAD WIRE	N/A
103-H7123-5040	30 cm LEAD WIRE	N/A
103-H7123-5010	30 cm LEAD WIRE	N/A
103-H7123-0140	30 cm LEAD WIRE	N/A
103-H7123-0440	30 cm LEAD WIRE	N/A
103-H7123-0740	30 cm LEAD WIRE	N/A
103-H7123-0710	30 cm LEAD WIRE	N/A
103-H7123-1749	30 cm LEAD WIRE	N/A
103-H7123-1711	30 cm LEAD WIRE	N/A
103-H7126-0140	30 cm LEAD WIRE	N/A
103-H7126-0740	30 cm LEAD WIRE	N/A
103-H7126-0710	30 cm LEAD WIRE	N/A
103-H7126-1740	30 cm LEAD WIRE	N/A
103-H7126-1710	30 cm LEAD WIRE	N/A
103-H7126-6640	30 cm LEAD WIRE	N/A
103-H7126-6610	30 cm LEAD WIRE	N/A
103-H7128-5740	30 cm LEAD WIRE	N/A
103-H7128-5710	30 cm LEAD WIRE	N/A
60 mm FLANGE	MOTOR CABLE	ENCODER CABLE
103-H7822-0740	CVM77100 + CVM77300	N/A
103-H7823-0740	CVM77100 + CVM77300	N/A
103-H7823-1740	CVM78100 + CVM78300	N/A
103-H7823-1714	CVM78100 + CVM78300	N/A
103-H7826-1642	CVM78100 + CVM78300	N/A
103-H7826-1612	CVM78100 + CVM78300	N/A

TRADITIONAL STEPPING MOTORS - CABLE OPTIONS

85.5 mm FLANGE	MOTOR CABLE	ENCODER CABLE
SM 2861-5055	30 cm LEAD WIRE	N/A
SM 2861-5025	30 cm LEAD WIRE	N/A
SM 2861-5255	30 cm LEAD WIRE	N/A
SM 2861-5225	30 cm LEAD WIRE	N/A
SM 2862-5055	30 cm LEAD WIRE	N/A
SM 2862-5155	30 cm LEAD WIRE	N/A
SM 2862-5125	30 cm LEAD WIRE	N/A
SM 2862-5255	30 cm LEAD WIRE	N/A
SM 2862-5225	30 cm LEAD WIRE	N/A
SM 2863-5155	30 cm LEAD WIRE	N/A
SM 2863-5126	30 cm LEAD WIRE	N/A
SM 2863-5255	30 cm LEAD WIRE	N/A
SM 2863-5225	30 cm LEAD WIRE	N/A
106.4 mm FLANGE	MOTOR CABLE	ENCODER CABLE
103-H89222-6341	30 cm LEAD WIRE	N/A
103-H89222-6311	30 cm LEAD WIRE	N/A
103-H89222-6541	30 cm LEAD WIRE	N/A
103-H89223-6341	30 cm LEAD WIRE	N/A
103-H89223-6311	30 cm LEAD WIRE	N/A
103-H89223-6641	30 cm LEAD WIRE	N/A
103-H89223-6611	30 cm LEAD WIRE	N/A
NOT PREFERRED:		
103-H8221-6241	30 cm LEAD WIRE	N/A
103-H8221-6211	30 cm LEAD WIRE	N/A
103-H8222-6340	30 cm LEAD WIRE	N/A
103-H8222-6310	30 cm LEAD WIRE	N/A
103-H8223-6540	30 cm LEAD WIRE	N/A
103-H8223-6510	30 cm LEAD WIRE	N/A

TRADITIONAL STEPPING MOTORS WITH ENCODER - CABLE OPTIONS

	MOTOR CABLE	ENCODER CABLE
EM 0H1M-04D0	30 cm LEAD WIRE	CVEPB0D0M4/CVEPB0D01M
EM 0H2M-04D0	30 cm LEAD WIRE	CVEPB0D0M4/CVEPB0D01M
EM 1H2H-04D0	CVM103H5230/CVM103H5200	CVEPA0D03M/CVEPAZD0M3
EM 1H2H-04E0	CVM103H5230/CVM103H5200	CVEPA0D03M/CVEPAZD0M3
EM 1H2H-0HE0	CVM103H5230/CVM103H5200	CVEPA0D03M/CVEPAZD0M3
EM 1H3H-04D0	CVM103H5230/CVM103H5200	CVEPA0D03M/CVEPAZD0M3
EM 1H3H-04E0	CVM103H5230/CVM103H5200	CVEPA0D03M/CVEPAZD0M3
EM 1H3H-0HE0	CVM103H5230/CVM103H5200	CVEPA0D03M/CVEPAZD0M3
EM 2H1M-04D0	30 cm LEAD WIRE	CVEPA0D03M/CVEPAZD0M3
EM 2H1M-04E0	30 cm LEAD WIRE	CVEPA0D03M/CVEPAZD0M3
EM 2H1M-0HE0	30 cm LEAD WIRE	CVEPA0D03M/CVEPAZD0M3
EM 2H2M-04D0	30 cm LEAD WIRE	CVEPA0D03M/CVEPAZD0M3
EM 2H2M-04E0	30 cm LEAD WIRE	CVEPA0D03M/CVEPAZD0M3
EM 2H2M-0HE0	30 cm LEAD WIRE	CVEPA0D03M/CVEPAZD0M3
EM 6H2M-04D0	CVM78100/CVM78300	CVEPA0D03M/CVEPAZD0M3
EM 6H2M-04E0	CVM78100/CVM78300	CVEPA0D03M/CVEPAZD0M3
EM 6H2M-0HE0	CVM78100/CVM78300	CVEPA0D03M/CVEPAZD0M3
EM 6H3H-04D0	CVM78100/CVM78300	CVEPA0D03M/CVEPAZD0M3
EM 6H3H-04E0	CVM78100/CVM78300	CVEPA0D03M/CVEPAZD0M3
EM 6H3H-0HE0	CVM78100/CVM78300	CVEPA0D03M/CVEPAZD0M3
EM 3F1L-04D0	30 cm LEAD WIRE	40 cm LEAD WIRE
EM 3F1H-04D0	30 cm LEAD WIRE	40 cm LEAD WIRE
EM 3F1H-04E0	30 cm LEAD WIRE	40 cm LEAD WIRE
EM 3F1H-0HE0	30 cm LEAD WIRE	40 cm LEAD WIRE
EM 3F2M-04D0	30 cm LEAD WIRE	40 cm LEAD WIRE
EM 3F2H-04D0	30 cm LEAD WIRE	40 cm LEAD WIRE
EM 3F2H-04E0	30 cm LEAD WIRE	40 cm LEAD WIRE
EM 3F2H-0HE0	30 cm LEAD WIRE	40 cm LEAD WIRE
EM 3F3H-04D0	30 cm LEAD WIRE	40 cm LEAD WIRE
EM 3F3H-04E0	30 cm LEAD WIRE	40 cm LEAD WIRE
EM 3F3H-0HE0	30 cm LEAD WIRE	40 cm LEAD WIRE
EM 3F3M-14D0	100 cm LEAD WIRE	80 cm LEAD WIRE

TRADITIONAL STEPPING MOTORS WITH BRAKE - CABLE OPTIONS

	MOTOR CABLE	ENCODER CABLE
103-H5210-4512.B	CVM103H5230/CVM103H5200	/
103-H7123-5010.B	30 cm LEAD WIRE	/
103-H7123-0710.B	30 cm LEAD WIRE	/
103-H7123-1711.B	30 cm LEAD WIRE	/
103-H7126-0710.B	30 cm LEAD WIRE	/
103-H7126-1710.B	30 cm LEAD WIRE	/
103-H7823-1714.B	CVM78100/CVM78300	/
103-H7826-1612.B	CVM78100/CVM78300	/
SM 2861-5025.B	30 cm LEAD WIRE	/
SM 2861-5225.B	30 cm LEAD WIRE	/
SM 2862-5125.B	30 cm LEAD WIRE	/
SM 2862-5225.B	30 cm LEAD WIRE	/

STEPPING MOTORS

ACCESSORIES FRONT BRAKES



FB-M12-24-15-00000

FRONT BRAKES

M12
CONNECTOR

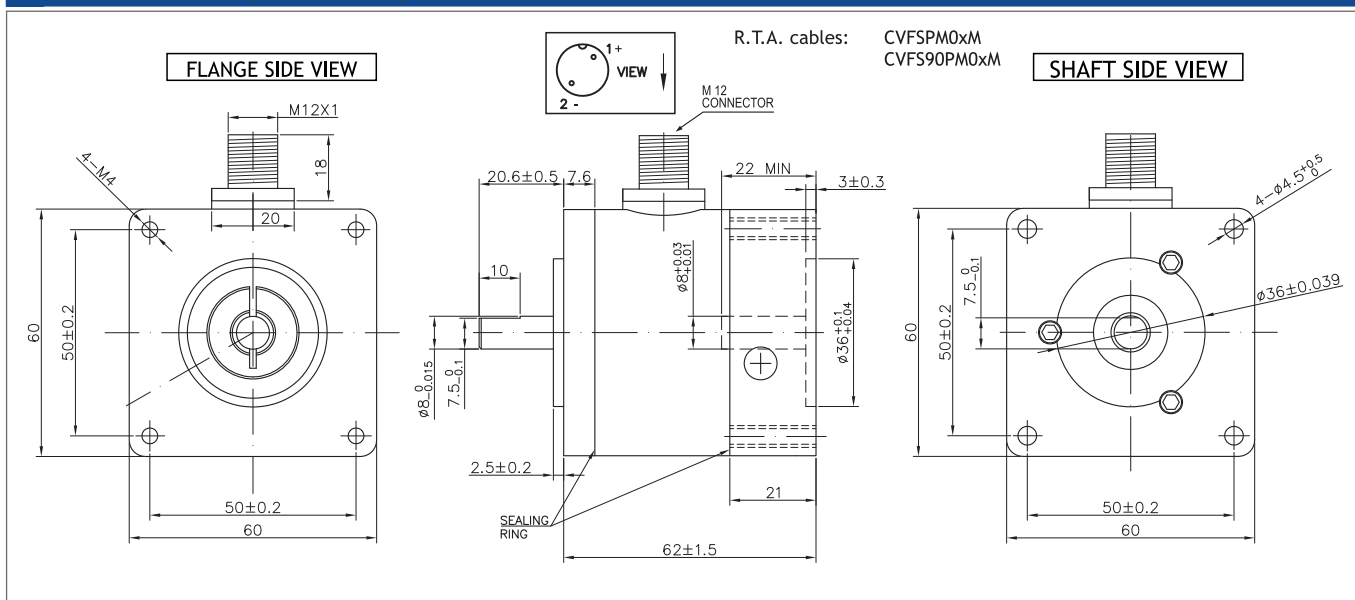
24 VDC

NEMA 24



SCAN THE QR CODE
TO WATCH A VIDEO
ON FB SERIES
FRONT BRAKES

Dimensions (Units:mm)



MODEL	Static torque (Nm)	Current (mA)	Voltage (V)	Power (W)	Release time (ms)	Mass (Kg)
FB-M12-24-15-00000	1.5	460	24 VDC	11.0	100	0.57

Suggested motors and cables

NEMA 24 motors

R.T.A. cables

Shield
Red +
Yellow -

CVFSPM0xM x=1m/3m

CVFS90PM0xM x=1m/3m

MOUNTING OPERATION MODE: ■ Tightening torque M=3.4 Nm ■ Locking bolt M4 ■ R.T.A. Quality Control



FB-M12-34-35-00000

FRONT BRAKES

M12
CONNECTOR

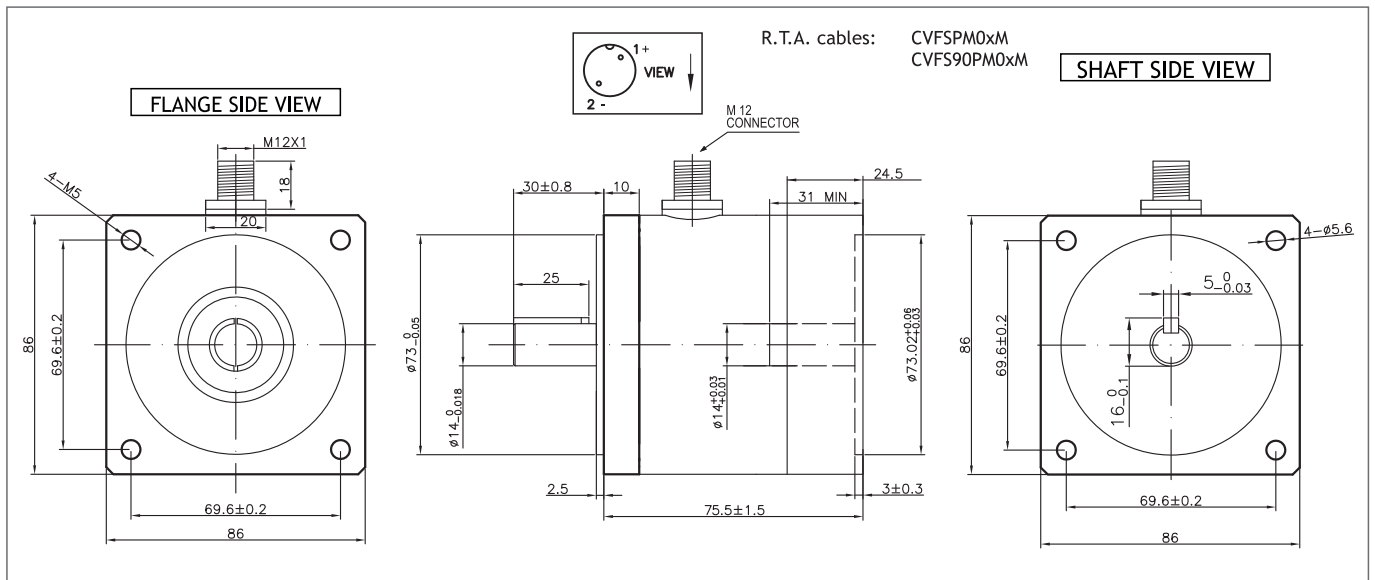
24 VDC

NEMA 34



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FRONT BRAKES

Dimensions (Units:mm)



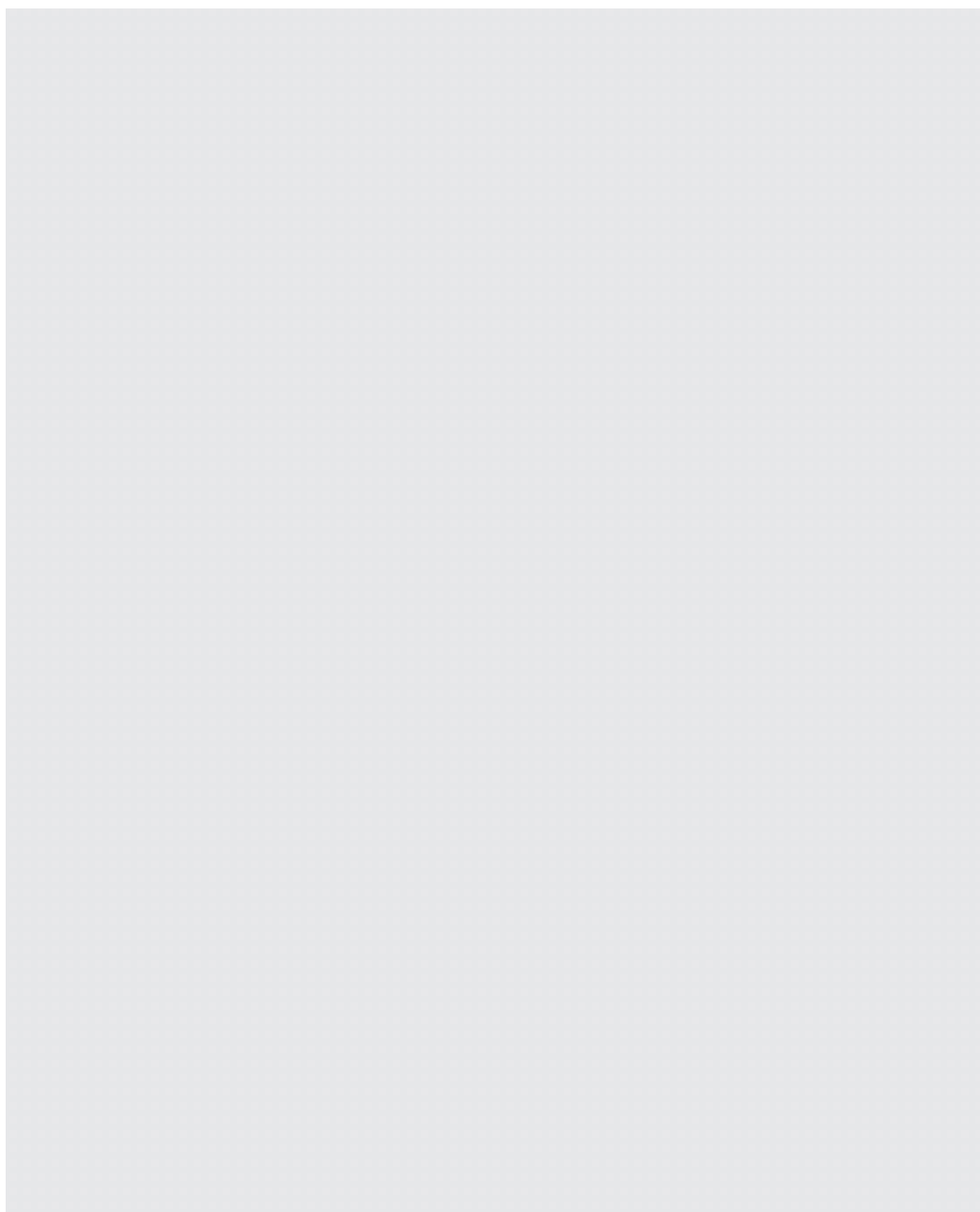
MODEL	Static torque (Nm)	Current (mA)	Voltage (V)	Power (W)	Mass (Kg)
FB-M12-34-35-00000	3.5	460	24 VDC	11.0	1.61

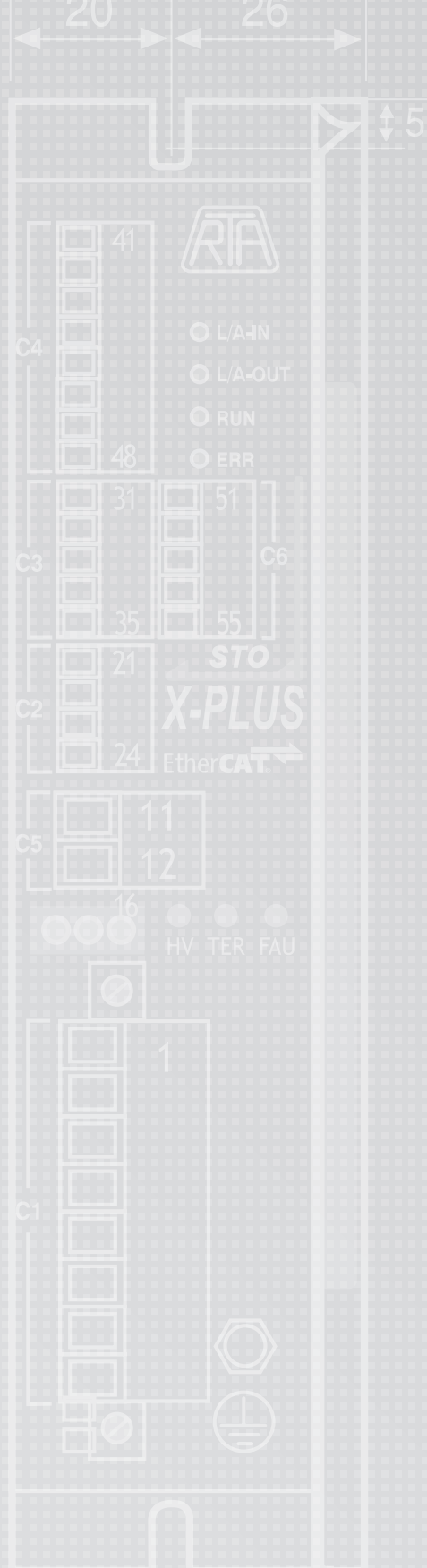
Suggested motors and cables

	<p>NEMA 34 motors</p>	<p>R.T.A. cables</p> <p>CVFSPM0xM x=1m/3m</p> <p>CVFS90PM0xM x=1m/3m</p>
<p>MOUNTING OPERATION MODE:</p> <ul style="list-style-type: none"> ■ Tightening torque M= 8 Nm ■ Locking bolt M5 ■ R.T.A. Quality Control 		

ACCESSORIES - FRONT BRAKES - CABLE OPTIONS

	BRAKE CABLE
FB-M12-34-35-00000	CVFSPM01M/CVFSPM03M CVFS90PM01M/CVFS90PM03M
FB-M12-24-15-0000	CVFSPM01M/CVFSPM03M CVFS90PM01M/CVFS90PM03M





ITALY

Corporate Headquarters

R.T.A.srl
 Via E. Mattei 15, Fraz. Divisa - 27020 Marcignago (PV) ITALY
 T +39.0382.929.855 | F +39.0382.929.150 | info@rta.it
 www.rta.it

Local Branches

R.T.A. Filiale Centro
 Centro Direzionale Cavour
 Via Cavour 2, 40055 Villanova di Castenaso (BO) ITALY
 T +39.051.780141 | rtabo@rta.it

R.T.A. Filiale Nord-Est
 Via D. Alighieri 4, 30034 Mira (VE) ITALY
 T +39.041.5600332 | F +39.041.5600165 | rtane@rta.it

GERMANY

R.T.A. Deutschland GmbH
 Bublitzer Strasse 34, 40599 Düsseldorf GERMANY
 T +49.211.749.668.60 | F +49.211.749.668.66 | info@rta-deutschland.de
 www.rta-deutschland.de

SPAIN

R.T.A. Ibérica
 C/Generalitat 22, Local 1 - 08850 Gava - Barcelona SPAIN
 T +34 936.388.805 | F +34 936.334.595 | info@rta-iberica.es
 www.rta-iberica.es

INDIA

R.T.A. India Pvt
 Teerth Business Center
 3rd Floor, Unit No. 7, Block EL - 15, MIDC Bhosari
 Pimpri-Chinchwad, Pune 411026 INDIA
 T +91 942.250.744.5 | rtain@rta-india.in
 www.rta-india.in



**CATALOGUE
 DIGITAL EDITION**



Look Ahead!